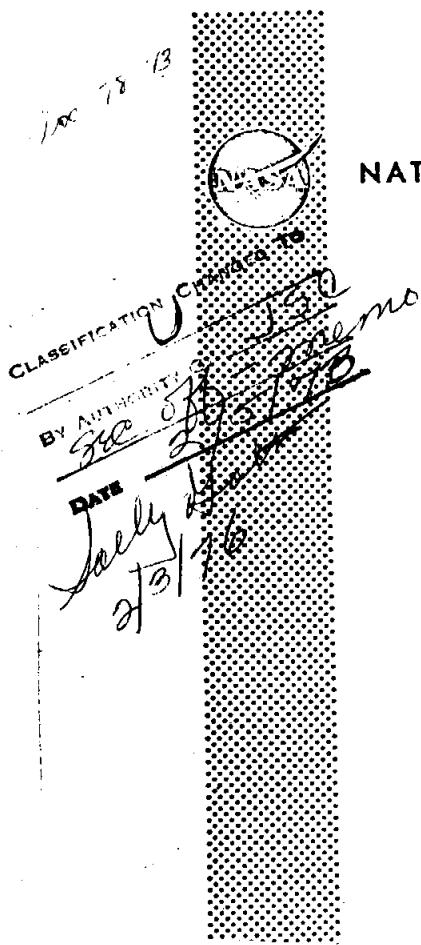


1505 10

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



APOLLO 10
ONBOARD VOICE
TRANSCRIPTION
(U)

RECORDED ON THE
COMMAND MODULE
ONBOARD RECORDER
DATA STORAGE EQUIPMENT
(DSE)

June 1969

GROUP 4

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS

THIS MATERIAL CONTAINS INFORMATION AFFECTING
THE NATIONAL DEFENSE OF THE UNITED STATES
WITHIN THE MEANING OF THE ESPIONAGE LAWS.
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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

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INTRODUCTION

This is the transcription of the Apollo 10 flightcrew communications as recorded on the command module (CM) data storage equipment (DSE), and subsequently transmitted (dumped) to Manned Space Flight Network stations. Magnetic tapes containing dumped voice and onboard-recorded ground elapsed time (GET) were forwarded to the NASA Manned Spacecraft Center, Houston, Texas. Transcription of these tapes was managed by David M. Goldenbaum, Test Division, Apollo Spacecraft Program Office, to whom questions regarding this document should be referred.

The Apollo 10 mission was flown May 18 to May 26, 1969.

Communicators in the text are identified as follows:

Command module:

CDR	Commander	Thomas P. Stafford
CMP	Command module pilot	John W. Young
LMP	Lunar module pilot	Eugene A. Cernan
SC	Unidentifiable crewmember	

Mission Control Center:

CC	Capsule communicator (CAP COMM)
----	---------------------------------

Remote sites:

AB	Airboss (Recovery aircraft)
CT	Communications technician (COMM TECH)
P1	Photographic helicopter 1
R2, R3	Recovery 2, 3 (Recovery helicopters)

In the text, a series of three dots (...) is used to designate those portions of the communications which could not be transcribed because of garbling. One dash (-) is used to indicate a speaker's pause or a self-interruption. Two dashes (--) are used to indicate an interruption by another speaker or a point at which a recording was abruptly terminated.

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Page 1

DAY 1

00 00 09 24 CMP Yes, it did go out. I think it's all the way out.

00 00 09 26 CC We confirm your guidance, and your S-IVB looks good, 10.

00 00 09 29 CDR Roger.

00 00 09 32 LMP Charlie, lots of stuff out the window on staging -
We're catching up and passing it now.

00 00 09 36 CC Okay.

00 00 09 39 CDR Okay. The guidance looks right on with the onboard
jet, Charlie.

00 00 09 42 CC Roger. We confirm that. Looking great here.
You're looking beautiful.

00 00 09 46 CMP Okay. We've got an eighth of a g, old buddy.

00 00 09 47 IMP (Cough)

00 00 09 48 CDR An eighth of a g ...

00 00 09 50 LMP Look at how fast those clouds are.

00 00 09 53 CMP ... at 1⁴9 ...

00 00 10 02 CC 10, Houston. At 10 minutes, you're GO.

00 00 10 04 CDR Roger; 10 minutes, GO. Onboard's good.

00 00 10 06 IMP Tom, we got everything here so far.

00 00 10 08 CMP ... in a 102. ... right on out.

00 00 10 13 CDR I just can't get over the vibrations ...

00 00 10 17 LMP Yes, after that first-stage staging, man, it --

00 00 10 21 CC Apollo 10, Houston. Predicted S-IVB cut-off; 11 plus 47.

00 00 10 25 CDR That's 11 plus 47.

00 00 10 28 CMP ... Come on, baby; keep going ... Right on the line.

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00 00 10 49 CDR ... and ready to go.
00 00 10 51 CMP ... Right on the line, now.
00 00 10 54 CDR ...
00 00 10 57 LMP Isn't that something?
00 00 10 58 CMP ...
00 00 10 59 LMP Isn't that something?
00 00 11 01 CMP Now, ...
00 00 11 02 CDR 11 minutes, and ... - -
00 00 11 03 CC ... 10, you're looking ...
00 00 11 08 CDR Sure is right on the line ...
00 00 11 10 CC 10, Houston. At 11:10; you're looking good.
00 00 11 13 CDR Roger, Charlie. The guidance is beautiful.
00 00 11 24 CMP How'd you like that?
00 00 43 54 LMP Could have been - Hell, it was close to the launch;
it could've been air pressure from the ground in there.
00 00 44 01 CMP Okay, you can close it.
00 00 44 03 LMP Closed. Okay, 21.5. Should be like zero.
00 00 44 10 CMP Okay, now what do you want to look at?
00 00 44 14 LMP ...
00 00 44 26 LMP Why don't you take these and ...? Okay?
00 00 44 30 CMP Yes; just a second.
00 00 44 38 CDR COAS looks ...
00 00 44 45 CMP Okay, everything - looks alright. Okay, I've got
Mars in there now, son of a gun ...
00 00 45 03 LMP What's our chances on ... into the water?

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Day 1

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Page 3

00 00 45 07 CMP Gene, how's this?

00 00 45 09 CDR How - how come these bastards gave us this star chart with no (laughter) Velcro?

00 00 45 15 CMP ...

00 00 45 18 CDR You want this whole package, John?

00 00 45 20 CMP Yes.

00 00 45 24 CDR Here are these breakers, these light things - ...

00 00 45 31 IMP John, can you read your ...?

00 00 45 33 CMP Maybe I can.

00 00 45 34 CDR John, do you want this back?

00 00 45 35 CMP Yes - no, I don't want that. No, I don't want any of that shit (laughter). God - we had to take it. I don't want it, give it to - give it to --

00 00 45 43 CDR ... keep that light on.

00 00 45 47 CMP You don't want that on.

00 00 45 48 CDR You don't want the Moishe Dayan patch?

00 00 45 50 CMP No, I don't ... (laughter) ... the walls.

00 00 46 01 CDR I'm going to set that other one up in ORB rate and align that GDC to the IMU and get all that good stuff done.

00 00 46 13 CMP You want me to ... all those closed for you?

00 00 46 21 CDR Do you need the star chart, John? You don't need that there, do you?

00 00 46 24 CMP No. Got to take the launch guards off the end.

00 00 46 29 CDR You want to stick them in this - in here, or where you want to put them?

00 00 46 30 CMP No, I'll put them down here in A-5. There's a whole separate spot down there to stow all that crap.

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00 00 46 36 CDR Okay. Here's this one.

00 00 46 39 CMP Okay. Have you got your cards out for TLI?

00 00 46 45 CDR They're already up, babe.

00 00 46 46 CMP Okay. And that flight plan is out to everybody's satisfaction?

00 00 46 57 CDR Well, gee, I don't --

00 00 46 58 CMP Everybody have all the pages they need?

00 00 46 59 CDR Where's the flight plan? I don't have the flight plan.

00 00 47 01 CMP Flight plan we need. It's in R-12.

00 00 47 05 LMP You sure?

00 00 47 06 CMP Yes. It better be, or it's all (laughter).

00 00 47 09 CDR Oh, shit!

00 00 47 10 CMP The MAL procedures are in there, and ...

00 00 47 21 LMP (Laughter) I swear to God, that burn effect - You know what caused that? The damn hose.

00 00 47 34 CMP Things ought to be cooling down in here a little bit more.

00 00 47 37 LMP It doesn't happen; then you've got stuff down in the box that just sits there.

00 00 47 50 LMP Now, you want to get into panel 382 back in there?

00 00 47 58 CDR Let's see. I need the ORDEAL ...

00 00 48 01 LMP Well, I - I ... - I get it ... no sweat.

00 00 48 04 CMP ... piece of cake. Well, I don't know if I can get that ... give it a go.

00 00 48 11 CDR Let me stick this underneath you, Gene-o.

00 00 48 13 LMP Ha! Yes, guess I can get it.

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Day 1

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Page 5

00 00 48 15 CDR Okay.
00 00 48 16 CMP No sweat. That ain't it.
00 00 48 20 CDR It's down below, there. ... you want that camera bracket out ...?
00 00 48 26 CMP Yes.
00 00 48 27 CDR ...
00 00 48 31 CMP Here you go.
00 00 48 33 CDR ... it, John. There's a camera bracket right up in the ...
00 00 48 37 CMP The next one?
00 00 48 38 CDR Yes, ...
00 00 48 47 CMP I've got it.
00 00 48 48 CDR You've got it?
00 00 48 49 CMP Okay, ... I can't ...
00 00 49 02 CDR ...
00 00 49 04 CMP ...
00 00 49 06 CDR ... all this freaking ...
00 00 49 13 LMP You got the ... flow valve open?
00 00 49 14 CDR Yes.
00 00 49 16 LMP We had enough water boiling on launch, John.
00 00 49 19 CMP We didn't have no water boiling?
00 00 49 22 LMP ... should be operating right now.
00 00 49 29 CMP I thought it was the water boiler that ...
00 00 49 31 LMP It is the water boiler. ...
00 00 49 39 CMP ...

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00 00 49 44 CDR Okay.

00 00 49 45 CMP Got that.

00 00 49 46 CDR ... 183.

00 00 49 48 CMP ... torquing angle ... realign ... realign the PTC
... attitude reference check?

00 00 50 04 LMP Yes.

00 00 50 05 CMP You done all them other things? Gene-o?

00 00 50 08 LMP ...

00 00 50 19 CDR ...

00 00 50 24 CMP Gene-o? ...

00 00 50 25 CDR ... (laughter) ...

00 00 50 50 CMP Shit! ... temperature ...

00 00 50 54 CDR ...

00 00 50 59 LMP Did you get this GDC ALIGN, Tom? Got any drift
to record?

00 00 51 03 CDR No.

00 00 51 04 LMP BMAG, RATE 2?

00 00 51 05 CDR BMAG, RATE 2.

00 00 51 06 LMP COAS is GO?

00 00 51 07 CDR Completely done.

00 00 51 08 LMP COAS TUNNEL LIGHTING, MAIN B, CLOSED? Circuit
breaker panel 226, John? COAS TUNNEL LIGHTING,
MAIN B?

00 00 51 27 CMP Got to get a flashlight ... MAIN B, COAS TUNNEL
LIGHTING circuit breaker. MAIN B, coming CLOSED.

00 00 51 30 CDR No, it's OPEN, John.

00 00 51 33 CMP It's CLOSED now.

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Day 1

~~CONFIDENTIAL~~

Page 7

00 00 51 35 LMP Okay, where's the sequence camera? ... Tom.
00 00 51 37 CDR ...
00 00 51 40 LMP Do you want the sequence camera?
00 00 51 42 CMP No.
00 00 51 45 LMP How about the sequence camera? ...
00 00 51 55 LMP Okay, mount ORDEAL, all ECS redundant component checks less main regulator check ... just went through all these things.
00 00 52 01 CDR ...
00 00 52 09 LMP Okay, SECONDARY COOLANT LOOP? Open coolant panel, coolant panel required, EVAPORATOR WATER CONTROL, SECONDARY valve, AUTO?
00 00 52 28 CMP How about our ...?
00 00 52 30 LMP You want the sequence camera?
00 00 52 33 CMP Yes, we got some ... we need to get.
00 00 52 38 LMP Okay, how about going down ...?
00 00 52 40 CMP Oh, I guess ...
00 00 52 41 CC Apollo 10, Houston through Carnarvon. Standing by.
00 00 52 45 CDR Houston, ... We're going through our ECS checklist ... everything looks good.
00 00 52 53 CC Tom, sounds real great.
00 00 52 56 CDR Roger. We got the - we could read you all the way through Tananarive, but evidently you couldn't read us - COMM back here until the last. We got the heater off at exactly 15 minutes, the propellant valve was shut, the logic was off and the break open.
00 00 53 11 CC We copy, Tom.
00 00 53 14 LMP Okay - -

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Day 1

- 00 00 53 16 CMP You want the COOLANT CONTROL PANEL, OPEN; huh?
- 00 00 53 17 LMP Yes. That's what it says - it's required.
EVAPORATOR WATER CONTROL, SECONDARY valve, AUTO.
- 00 00 53 21 CMP Wait a second, wait a second. I think we launched
with the goddam thing.
- 00 00 53 24 LMP Probably did.
- 00 00 53 27 CMP ... I'll tell you what I'm going to do with this ...
- 00 00 53 31 LMP Hey, wait --
- 00 00 53 32 CMP I'm just going to close one valve - one ...
- 00 00 53 38 LMP Hey, we know that secondary loop works, babe. We're
not going to worry about that. I ...
- 00 00 53 43 CMP ... How do you know the water control valve came on?
- 00 00 53 48 LMP Okay, let's go - Well, we don't, but it --
- 00 00 53 51 CMP It had to be. Okay, the secondary mode control -
SECONDARY EVAPORATOR ... valves in AUTO. ...
PRIMARY ... bypass on the SECONDARY ...
- 00 00 54 02 LMP I just got to make sure ...
- 00 00 54 10 CMP Okay, you are - you are --
- 00 00 54 12 LMP We've already accumulated some ... stuff, and I got ...
- 00 00 54 17 CMP ...
- 00 00 54 23 LMP Well, ... spacecraft they flew ...
- 00 00 54 28 CDR ... voice check. We're over Carnarvon. ...
- 00 00 54 40 CMP ... goes back up here?
- 00 00 54 42 CDR ...
- 00 00 54 52 CDR Houston, Apollo 10. Did you get our torquing angles
on the IMU realign?
- 00 00 54 58 CC Roger, Tom; you were pretty weak. What I copied
was minus 0.12, plus 0.34, and minus 0.76.

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Day 1

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Page 9

00 00 55 07 CDR Roger. Everything - everything looks real good.
00 00 55 11 CC Can you give us the time that you torqued those?
00 00 55 14 CMP Yes, I got it right here.
00 00 55 16 CDR Stand by.
00 00 55 21 CMP It was 41 minutes even, Charlie. I thought I paid
special attention to that.
00 00 55 29 CC Right; thank you very much, John; 41 minutes,
special attention.
00 00 55 47 IMP Okay, the next thing is that ... camera. Where's
the ...?
00 00 56 00 CMP I don't really think that it's going to be too
hard to get up in that tunnel. I think it's got
to be a piece of cake. Look at this. I ...
00 01 05 01 CMP Yes, I think so. ... lost control of the checklist
and cards. I lost ... card. I don't know where it is.
00 01 05 09 CDR ...
00 01 05 18 CMP ... We'll find it. ... I know where it is.
00 01 05 22 CDR Okay, ...
00 01 05 25 CMP Okay.
00 01 05 26 CDR ...
00 01 05 29 CMP Hey, I know what I can do. ... garbage bag. Get
the garbage bag.
00 01 05 34 CDR Yes.
00 01 05 35 CMP ... Yes, it's got to be in there.
00 01 05 37 CDR ...
00 01 05 44 CMP Yes, but get the garbage bag. Okay. ... leave
them ... There it is. Oh, shit!
00 01 06 22 CMP Just having trouble controlling things, that's all.

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Day 1

00 01 06 32 CMP How does it feel moving around down there?
00 01 06 36 LMP It's great!
00 01 06 41 CMP ... Trouble is, I can't tell ... Which one is
that? ... back here ...
00 01 06 55 LMP Want all three of them?
00 01 06 57 CMP That has to be it.
00 01 07 03 IMP ...
00 01 07 05 CMP ...
00 01 07 07 CDR Look at those ... Yes, ...
00 01 07 22 CMP ...
00 01 07 39 CMP ... little warm in here.
00 01 07 42 CDR ...
00 01 07 43 CMP ... backup ...
00 01 07 54 CDR ... (laughter) ...
00 01 07 58 CMP ... cotton-picking display or ... Look, are you
... do it with one hand?
00 01 08 19 CDR ...
00 01 08 24 LMP How far down ... anyhow?
00 01 08 27 CMP About ...
00 01 08 44 CMP ... do that ...
00 01 09 01 LMP ... I can't get ...
00 01 09 05 CMP ...
00 01 09 11 LMP I hate to tell you this, but my cord ain't long enough.
00 01 09 14 CMP Is that right?
00 01 09 15 LMP Yes. Now it is.

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Day 1

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Page 11

00 01 09 17 CMP ...
00 01 09 24 LMP Where is -- where is ... right here.
00 01 09 40 CMP It's a lot easier in zero g ...
00 01 09 48 LMP Okay, you want to do it?
00 01 09 50 CMP Yes.
00 01 09 53 CDR ...
00 01 09 59 CMP EC 1 MAIN A ...
00 01 10 09 LMP What do you ...?
00 01 10 15 CMP (Laughter) ... equal to opposite REACQ. How about
that? ...
00 01 10 20 CDR ...
00 01 10 29 CMP ... zero g ...
00 01 10 33 CDR ... 5000 ...
00 01 10 35 LMP ... Hey, where did we say we were going to - Oh,
that was after ...
00 01 10 38 CMP That was that thing there. I don't know how to
work it. ... how to work ...
00 01 10 44 LMP Oh, I don't know ... that stuff around ... outfit.
00 01 10 50 CMP Yes, we got - you got --
00 01 10 52 LMP ...
00 01 10 55 CMP ...
00 01 11 00 LMP ... we could turn it on right there ...
00 01 11 03 CMP No ... TLI --
00 01 11 04 LMP Oh, ...
00 01 11 07 CDR ...
00 01 11 10 CMP ...

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00 01 11 18 IMP Yes. ...
00 01 11 20 CDR Yes, this thing feels like a ... truck ... --
00 01 11 25 CMP God damn!
00 01 11 26 CDR -- ... big battleship going across ...
00 01 11 28 CMP ... man ...
00 01 11 33 LMP ... so hard to get out. I just ...
00 01 11 46 CMP ... I better leave it on ... leave it on there on
account of ... And the monitor's in ...
00 01 12 00 LMP ...
00 01 12 01 CDR ...
00 01 12 06 LMP Want the monitor?
00 01 12 09 CDR No.
00 01 12 11 LMP You want the cable? That goes from the monitor
to the thing?
00 01 12 20 CMP I'll close the hatch ...
00 01 12 28 CDR ...
00 01 12 30 CMP (Laughter)
00 01 12 33 CDR This time is so good, I can't believe it.
00 01 12 36 CMP ... zero g's what I can't believe.
00 01 12 38 LMP Oh, man!
00 01 12 39 CDR Want to hold it, Gene-o?
00 01 12 40 CMP ...
00 01 12 42 LMP Okay, this comes ... --
00 01 12 43 CMP ... hatch ... You don't believe what? About the ...?
00 01 12 48 CDR ...

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Day 1

~~CONFIDENTIAL~~

Page 13

00 01 12 58 CMP Oh, I come from Alabama --
00 01 12 59 CDR ...
00 01 13 02 CMP I know you can't miss it ...
00 01 13 07 LMP Okay, ... on this ...
00 01 13 15 CMP Anybody care for a ...?
00 01 13 22 LMP Isn't that something? Isn't that something?
00 01 13 26 CMP Oh, yes.
00 01 13 27 LMP ... try the other, babe. I ... over here ...
00 01 13 32 CMP ...
00 01 13 33 LMP ... BMAG's ... How'd it get -
00 01 13 40 CMP ...
00 01 13 43 LMP Yes, I ...
00 01 13 45 CMP Oh! ...
00 01 13 52 LMP God, this thing's really got ...
00 01 13 54 CMP ...
00 01 13 56 LMP You could tell lift-off, babe. I knew when we left
the ground.
00 01 13 58 CMP ... clock.
00 01 14 02 CDR ...
00 01 14 05 CMP ...?
00 01 14 07 LMP ...
00 01 14 08 CMP ... track of these things.
00 01 14 10 LMP ... nothing to hang on to ...
00 01 14 17 CMP ... you don't want ...
00 01 14 20 LMP ...

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00 01 14 23 CMP ...
00 01 14 24 LMP ... my foot's over here and ... up here ...
00 01 14 30 CMP ...
00 01 14 38 CDR ...?
00 01 14 41 LMP Yes.
00 01 14 43 CMP ...
00 01 14 52 CDR ...
00 01 14 54 LMP This is the hardest job we've had.
00 01 14 55 CMP ...
00 01 15 03 LMP ...
00 01 15 05 CDR No, you could take ...
00 01 15 06 LMP I can ...
00 01 15 15 CMP ...
00 01 15 16 LMP We're practically in ...
00 01 15 18 CMP ...
00 01 15 39 CMP Question is, do I have ...?
00 01 15 45 CDR Want me to get over there and help you?
00 01 15 46 CMP No. I think I've got it ... on that ... Here it is ...
00 01 15 56 LMP ... get your ... Hey, anyone found an isolation valve open today?
00 01 16 02 CMP ... isolation valve ... today.
00 01 16 05 CDR ... isolation ...
00 01 16 07 CMP ... valves open, nobody knows ...
00 01 16 11 CDR ...
00 01 16 14 CMP Okay. They okay?

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Day 1

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Page 15

00 01 16 15 IMP Yes, I think ...
00 01 16 20 CDR They all good, John.
00 01 16 23 CMP ... What's the cabin pressure?
00 01 16 36 CDR Cabin pressure is 5.6.
00 01 16 38 CMP ...
00 01 16 44 CDR ... I'll get back ...
00 01 16 49 CMP Okay, I ...
00 01 16 53 CDR Hold it.
00 01 17 03 CMP ... the other ... at TLI?
00 01 17 08 CDR No. ...
00 01 17 11 CMP ...
00 01 17 16 IMP John.
00 01 17 18 CMP I tell you, I think this thing looks like it's nose down. Oh, God, ... look ahead.
00 01 17 24 CDR ...
00 01 17 25 CMP Look ahead.
00 01 17 26 CDR ...
00 01 17 28 CMP Absolutely incredible.
00 01 17 31 CDR There's the moon, too, old buddy. ...
00 01 17 35 CMP I don't believe it. ...
00 01 17 44 IMP John.
00 01 17 45 CMP Okay. Hold it. Okay.
00 01 17 47 LMP I would describe ...
00 01 17 52 CMP ...
00 01 17 56 CDR You got to aim for the ...
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Day 1

00 01 17 58 CMP Looks like the ...
00 01 17 59 LMP Okay.
00 01 18 01 CMP How about the ...
00 01 18 03 LMP Yes, they're - they're --
00 01 18 04 CMP ...
00 01 18 06 CDR ... are you looking ...
00 01 18 08 CMP I'm - I'm ...
00 01 18 10 CDR ...
00 01 18 12 LMP ... in there?
00 01 18 13 CMP Yes, we ..., babe, ...
00 01 18 24 CDR Gene-o? ... Could you get it the other way?
Could you swing that bottom part down ...?
00 01 18 32 LMP That's about the right place, Tom, because ... how
far it was up above this here ...
00 01 18 38 CDR Yes, ... but the TV can't - the picture's going to
be backwards, you know?
00 01 18 40 LMP Oh.
00 01 18 41 CDR ... There you go.
00 01 18 44 IMP Oh.
00 01 18 45 CMP ... but you ain't going to be pointed out the window.
00 01 18 49 CDR Okay, can you turn it around where that ...?
00 01 18 51 CMP There ain't no way.
00 01 18 53 IMP ... extra bracket, here.
00 01 18 56 CDR ...
00 01 18 59 CMP There's just no way.
00 01 19 04 LMP ...

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Day 1

~~CONFIDENTIAL~~

Page 17

00 01 19 12 CMP ... doesn't make a hill of beans, Gene-o.

00 01 19 19 CDR Why don't you go pick up that cable ...?

00 01 19 22 CMP I already opened it up. What do you need ... cable here?

00 01 19 26 LMP Yes. ...

00 01 19 35 CMP ...

00 01 19 53 CMP ... bracket ...

00 01 20 02 CMP Yes. ... There's only one other place it can go - and that'd be pointing the other way and that won't work. Now the ... bracket goes - If it were this one -

00 01 20 16 CDR Well, what you need is to have one turned like that. Is there a bracket on this thing?

00 01 20 20 CMP Yes, ...

00 01 20 22 CDR Well, see, we'll ... on this bracket -

00 01 20 25 CMP Will it fit? Where?

00 01 20 27 CDR Right here.

00 01 20 30 CMP Yes, but I want you to look out the damn window.

00 01 20 34 LMP Well, I'll move it over then. I'll move ...

00 01 20 37 CDR ...

00 01 20 53 LMP It's looking out the window, too ...

00 01 20 54 CMP Yes. There just ain't no way to get it - What you're going to end up doing is - with that wide-angle thing looking at - If you don't have it right in the middle of the window, you're going to be looking at some of the window glass.

00 01 21 20 CMP Can I hold it? ... sideways. ... it's either going to be off sideways -

00 01 21 30 CDR Well, it won't go straight down, then.

00 01 21 32 LMP ...

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00 01 21 33 CMP ...
00 01 21 36 CDR If you can't hold it up, ... other way.
00 01 21 43 IMP Let's give up, Tom -
00 01 21 46 CDR ... Here's the X-axis here. ... you can point it
30 degrees above the X-axis here.
00 01 21 50 CMP Only trouble is the X-axis has got to be down that-a-way.
00 01 21 52 IMP This ... ought to be pointing up the tunnel ...
Well, let me see.
00 01 21 58 CMP No, he's - he's pointed up the tunnel. Put it back
in there, Gene-o.
00 01 22 02 IMP Well, this is the X-axis bracket ... right here.
Now can you keep ...
00 01 22 07 CMP Yes! There, it's parallel to them lines.
00 01 22 10 CDR That's parallel.
00 01 22 11 CMP ... on it. This here - this here - this here -
this here hatch - it ain't - The panel goes back
that-a-way.
00 01 22 16 IMP Okay, ...
00 01 22 24 CDR Okay, I got the TLI ...
00 01 22 32 IMP ...
00 01 22 38 CDR We have Guaymas at 01:30. About 18 minutes.
00 01 22 42 CMP Okay, hold it.
00 01 22 43 IMP ...
00 01 22 51 SC (Laughter)
00 01 23 32 CMP ...?
00 01 23 33 IMP Yes, ...
00 01 23 51 CMP Okay.

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Day 1

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Page 19

- 00 01 23 55 CMP ... I don't know what the hell ... take a few g's in that Saturn ... - ... take a few g's with that Saturn. How many g's do you get out of that?
- 00 01 24 07 CDR About 1-3/4.
- 00 01 24 30 CDR What's that ... on your window, Gene-o?
- 00 01 24 36 LMP I don't know what the hell that is.
- 00 01 24 37 CDR ... it's all over, really. It isn't cut in there, is it?
- 00 01 24 43 LMP I don't know.
- 00 01 24 44 CMP Where? On Gene-o's window? Which one? That one there?
- 00 01 24 48 CDR ...
- 00 01 24 51 CMP Oh, that one there; yes.
- 00 01 24 53 CDR That's not a pressure window, but -
- 00 01 25 00 CMP ... on the back of it.
- 00 01 25 06 LMP Yes.
- 00 01 25 09 CMP It may not fit. Looks like it's going to be tight. You're going to have to bend the end of it.
- 00 01 25 14 CDR That son of a bitch is tricky.
- 00 01 25 16 CMP Yes.
- 00 01 25 31 CDR Let's see, you've got your ...
- 00 01 25 34 CMP Yes.
- 00 01 25 39 CDR We're going to be picking up the west coast of Mexico -
- 00 01 25 48 LMP I don't know where in the hell I'm going to be ...
- 00 01 25 58 CDR Yes. We got plenty of time left. We've got 15 minutes. Do you want to test it and see if the monitor works? We're going to be getting an update ...
- 00 01 26 16 CMP Well, I ain't got ...

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Day 1

00 01 26 37 CMP This is the TLI plus 10-minute abort pad, isn't it?
I'll give it to you ...

00 01 27 01 LMP Oh, ... look there. The ...

00 01 27 15 CDR Put your hand down there.

00 01 27 16 LMP ...

00 01 27 21 CDR You got some in your pockets?

00 01 27 31 LMP Did you bring some extra Velcro with you, babe? ...

00 01 27 37 CDR I've got it all set up.

00 01 27 52 LMP Do you guys want the spotmeter ...?

00 01 27 55 CMP No.

00 01 27 57 LMP Have you got a place to put it?

00 01 27 59 CMP I don't want it. You want it, Tom?

00 01 28 04 CDR ...

00 01 28 07 CMP (Laughter) ... willing to get it.

00 01 28 09 CDR That should hold it.

00 01 29 10 CMP ... We've got to have two docking Baja California.

00 01 29 31 CMP ... Baja California.

00 01 29 38 LMP ... lock on.

00 01 29 49 CC Hello, Apollo 10; Houston through Guaymas. Standing by.

00 01 29 51 CDR Roger, Houston. Read you loud and clear.

00 01 29 54 CC Roger. You're 5 by.

00 01 30 00 CDR Okay, we're ready to extend the docking probe when you are.

00 01 30 03 CC Roger; stand by.

~~CONFIDENTIAL~~

Day 1

~~CONFIDENTIAL~~

Page 21

00 01 30 07 LMP We've got to get a GO on that temperature measurement.
Hey, we've got that high-gain antenna ...

00 01 30 22 CC 10, Houston. We're ready for you to extend the
dockng probe. And you'll have to stand by on the
TEMP until we get HIGH BIT RATE.

00 01 30 27 LMP Roger.

00 01 30 29 CMP Here we go - in 5 seconds.

00 01 30 36 CDR Okay, we'll count down: 5, 4, 3, 2, 1 -

00 01 30 41 CDR EXTEND.

00 01 33 34 CC Okay, your set stars are Deneb and Vega at 067,
283, 337; no ullage. Your P37 for TLI plus 4 is
006:30; 6373; the longitude is minus 165. GET_{400K}
is 022:21. Ready for your readback.

00 01 34 03 CDR Tell him he's reading way too fast.

00 01 34 05 LMP I got it.

00 01 34 06 CDR You talk to him. Tell him he's reading too fast.

00 01 34 08 LMP Okay, Charlie; here it comes: SPS/G&N; 63 556;
minus 1.48, plus 1.35; 003:55:44.87; minus 0548.4,
minus four balls 1, plus 6623.2. You with me?

00 01 34 24 CC Go ahead.

00 01 34 25 LMP 180, 239, 001; peri - apogee is NA, perigee is
plus 0017.5; 6645.8, 7:37, 6619.9; 24, 208.7, 16.7 --

00 01 34 41 CMP Give me the camera.

00 01 34 42 LMP -- boresight star is Shaula --

00 01 34 44 CDR Here.

00 01 34 45 LMP -- left 008, down --

00 01 34 47 CMP We're all set to shoot this stuff down.

00 01 34 48 LMP -- 27; minus 26.05, minus 025.00; 1122.9, 33993 --

00 01 34 56 CDR ...

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Day 1

00 01 34 57 IMP - - 012:55:35. Still there?

00 01 35 02 CC Keep going.

00 01 35 03 IMP Okay. Deneb and Vega, 067, 283, 337; no ullage. TLI plus 4 is 006:30; 6373, minus 165; 022:21; and you're - -

00 01 35 17 CDR ...

00 01 35 18 IMP - - just a little bit fast on those reads, Charlie; I was barely able to keep with you.

00 01 35 21 CC Roger, Gene. Sorry about that. That was a good readback, and we got the TLI pad, if you're ready to copy.

00 01 35 27 IMP Stand by 1.

00 01 35 28 CDR Tell him to take it a little slower.

00 01 35 29 IMP Yes, I did. Okay, I'm ready.

00 01 35 33 CC Okay. Time base ℓ_p , 2:24:25; 179, 116, three balls, burn time, 5:43; 10 ℓ_3 - -

00 02 34 29 CC Hello, Apollo 10; Houston. At 1 minute, you're looking great.

00 02 34 42 CDR Roger; ... Starting to pick up the yaw just as programed.

00 02 34 50 CC Roger.

00 02 34 58 CMP ... off. Beautiful!

00 02 35 01 IMP Here comes the sun.

00 02 35 10 IMP 01:45.

00 02 35 29 IMP 2 minutes.

00 02 35 31 CC 10; 2 minutes. You're looking great.

00 02 35 33 CDR Roger.

00 02 35 35 IMP Where's it going?

~~CONFIDENTIAL~~

Day 1

~~CONFIDENTIAL~~

Page 23

00 02 35 37 CDR I don't know. I just - Feels like we're pitching ...
Steady as a rock.

00 02 35 44 CMP Feel it - I can see it yawing.

00 02 35 45 LMP Yawing?

00 02 35 46 CDR It's yawing.

00 02 35 54 LMP What a way to watch a sunrise!

00 02 35 57 CC Roger.

00 02 35 59 CMP Okay, at 02:30; 105. 28, 819 ...

00 02 36 11 CDR Three-quarters of a g.

00 02 36 20 LMP ... the sunrise. We must be getting higher, you
know it? Okay, ... coming up on 3 minutes. Mark it -

00 02 36 30 LMP 3 minutes.

00 02 36 31 CDR 3 minutes. Everything looks good, Charlie.

00 02 36 35 CMP Cabin pressure ... high.

00 02 36 42 CC Apollo 10, Houston. We've got a predicted cut-off:
2 plus 39 plus 10.

00 02 36 48 CDR 2 plus 39 plus 10.

00 02 36 55 LMP Wow, right into the sun.

00 02 36 58 CC Roger.

00 02 37 01 CMP Holy ...

00 02 37 07 CDR ...

00 02 37 14 LMP Okay, babe; there's a 03:50 coming up.

00 02 37 25 LMP Coming up on 4 minutes.

00 02 37 27 LMP MARK it.

00 02 37 29 CC And, Apollo 10; Houston. At 4 minutes, everybody
is saying GO. The S-IVB is looking great.

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Day 1

- 00 02 37 33 CDR ... Roger, Houston. 10 looks good ...
00 02 37 55 CMP ... I don't know either.
00 02 37 58 LMP There's ...
00 02 38 05 CDR Okay, we're getting a little ... high-frequency vibrations in the cabin.
00 02 38 09 CC Say again?
00 02 38 10 CDR ... high-frequency vibrations. Nothing to worry about.
00 02 38 17 CC Understand the small - small yaw oscillation, 10?
00 02 38 20 CDR Negative; high-frequency vibrations.
00 02 38 23 CC Oh, ah-so.
00 02 38 26 CDR Gosh!
00 02 38 28 LMP Come on, we've got another 40 seconds to burn.
00 02 38 30 CC At 5 minutes, we still have you GO, 10.
00 02 38 51 LMP Okay, we're coming up on 05:25, predicted 05:43. 05:30.
00 02 39 02 CC 10, Houston in the blind. At cut-off; UP TELEMETRY, IU, to ACCEPT.
00 02 39 06 CDR ...
00 02 39 08 LMP Going on 40; 1, 2, 3. SECO! Son of a bitch!
00 02 39 13 CC Roger. SECO.
00 02 39 15 LMP Okay, we've gone 35 514. H-DOT 42211. UP TELEMETRY, IU, to ACCEPT at 172.5 at cut-off.
00 02 39 23 CC Roger; copy.
00 02 39 29 CDR ... would you believe my ΔV_C reads minus 0.6?
00 02 39 34 CC Roger. Minus 0.6 on the ΔV_C . That's beautiful.
00 02 39 39 CDR Can't beat that, Charlie.
00 02 39 40 IMP Okay. Did you get that ... --

~~CONFIDENTIAL~~

Day 1

~~CONFIDENTIAL~~

Page 25

00 02 39 42 CMP And, Charlie, we've got an O₂ FLOW HIGH and a light in the middle of the burn here, which we can't account for.

00 02 39 49 CC Stand by, John.

00 02 39 52 LMP Okay, TVC SERVO POWER, ...

00 02 39 54 CDR ...

00 02 39 55 LMP PCM BIT RATE, LOW.

00 02 39 57 CDR Okay, ... -

00 02 42 31 SC -- have to worry about besides radiation.

00 02 42 40 SC ... the cabin?

00 02 42 42 SC Not yet, ...

00 02 42 49 SC ...?

00 02 42 58 SC I read nothing.

00 02 43 01 SC Nothing on what?

00 02 43 03 SC On that red flowmeter.

00 02 43 19 CDR Oh, shit.

00 02 43 30 CDR Okay.

00 02 43 35 LMP Here's your card there, okay?

00 02 43 38 CDR I believe it worked slick as a whistle.

00 02 43 39 LMP Do you want to - ..., okay?

00 02 43 42 CDR Yes, okay. Do you want to stow your suit now, babe?

00 02 43 46 LMP I can't. I ain't ...

00 02 43 50 CDR ... Okay?

00 02 43 53 LMP Well, yes. We won't switch leads.

00 02 43 56 CDR Okay. You can use your - your thing here, right? You can talk on that.

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Day 1

00 02 44 01 CMP

I can see stars in the day - I can see something in the day - they're not stars. Shit. It's a bunch of crap.

00 02 44 08 CDR

... Look at that world.

00 02 44 15 CMP

Okay.

00 02 44 16 CDR

You got the TV in each side up, José?

00 02 44 19 CC

Apollo 10, this is Houston through Hawaii. How do you read? Over.

00 02 44 23 CDR

Roger, Houston; Apollo 10. Would you believe the world is starting to fade away?

00 02 44 29 CC

Roger. We believe it, Tom. You are all GO here. FIDO confirms --

00 02 44 33 CMP

...? It's easy to see ...

00 02 44 38 CDR

John, why don't you go hook up that ...?

00 02 44 41 CMP

I've already hooked it up. How do you think this here cable here ...? You want to talk about something fantastic -

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DAY 2

- 01 04 48 21 CMP What is that?
- 01 04 48 23 CDR Potato soup. Always gets to me. There's always some - still some powdered stuff up there, near that nozzle that always comes shooting in first.
- 01 04 48 36 CMP That's good. Mmmmm!
- 01 04 48 39 CDR Hey, that ought to be good for your tummy, Gene; some potato soup.
- 01 04 48 44 LMP (Cough) yes, I'll take a little bit of it.
- 01 04 48 49 CDR You want to take any drugs?
- 01 04 48 50 LMP No.
- 01 04 49 55 CMP That's the best thing I've eaten today. Sweet.
- 01 04 49 59 CDR What is it?
- 01 04 50 01 CMP Potatoes.
- 01 04 50 02 CDR It isn't sweet, huh?
- 01 04 50 06 CMP Plain old potatoes.
- 01 04 50 15 CDR What other activity do we have on the flight plan, anything? For today? We got any more midcourses?
- 01 04 50 21 CMP VAC ion pumps, you want to close at 29:30:45. Canister change and O₂ purge. About it.
- 01 04 51 20 CDR Got tired of laying around. Think I'll go down below ...
- 01 04 51 27 CMP Alright.
- 01 04 51 28 CDR I think I'll get out that activation checklist thing and look it and the lunar map.
- 01 04 51 35 LMP I think I'm going to go down to the LEB and just move around here pretty soon after this high-gain test is over.

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~~CONFIDENTIAL~~

Day 2

01 04 51 40 CMP Let me get some time in the cockpit area --
01 04 51 43 CDR Yes.
01 04 51 44 CMP -- Tom. That won't hurt me any.
01 04 51 46 CDR Yes. Go ahead. I'll take the center seat, John.
01 04 51 52 CMP I may have to sit in here for quite a while tomorrow
or the next day. Look at that; I can't - That
freaking --
01 04 52 00 CDR Got time for this one.
01 04 52 09 CMP -- ...
01 04 52 12 CDR ... Wait a minute, John. Let me get the --
01 04 52 28 CDR Shit, did we get all that?
01 04 52 31 CMP Okay.
01 04 52 42 CC Hello, Apollo 10; Houston. Over.
01 04 52 44 CMP Go ahead; over.
01 04 52 47 LMP Go ahead, Houston.
01 04 53 38 CDR I think I'll try a little urine dump first.
01 04 53 44 CMP There's - there's - it goes over there in the
corner. There's the tube.
01 04 53 48 CC Hello, Apollo 10; Houston. Do you have us on the
high gain?
01 04 53 51 LMP That's affirmative. HIGH GAIN, REACQ mode.
01 04 53 53 CMP I'll go get it.
01 04 53 54 LMP No, it's coming back over here.
01 04 53 55 CC Roger.
01 04 54 11 IMP Locking right at you with the eyeball, Charlie,
too. Right over Houston.
01 04 54 16 CC Roger.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

01 04 54 19 LMP Come out and smile, and I'll take your picture.

01 04 54 23 CC They won't let me out of this constant overcast here.

01 04 54 37 LMP How long do you want to stay? Do you want to try that REACQ mode continually again? Now looks like we're picking up good strong strength at those angles.

01 04 54 48 CC Roger. Stand by.

01 04 55 04 IMP You got the red one there, Tiger, or the left, or whatever it is?

01 04 55 05 CC 10, Houston. ... try NARROW BEAM just one more time.

01 04 55 07 CDR Well, it says left.

01 04 55 12 LMP Well, okay. Hell, I don't mind sharing, T.P.

01 05 08 23 LMP Okay, roll the DAP 0.3 degree per second. Then -

01 05 08 45 CDR You better talk to him again.

01 05 08 47 CMP Yes. Initiate roll - initiate roll to DAP 0.3 degree per second.

01 05 09 07 CMP He did say go to MAN ATTITUDE, ACCEL COMMAND, and PITCH and YAW before we started that roll rate.

01 05 09 18 CDR No. No, no, no; that's where - -

01 05 09 20 CMP That's what he said, though! That's what - I'm telling you; that's what he just told me.

01 05 09 23 CDR Okay.

01 05 09 25 LMP That's wrong. Can't talk to them.

01 05 09 29 CMP Can we talk to him now?

01 05 09 30 LMP No.

01 05 09 56 CMP Is it going to them angles?

01 05 10 01 LMP ... it eventually does, but you don't ... lock all the way.

01 05 10 06 CDR Okay, can you talk when they come into lock?

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~~CONFIDENTIAL~~

01 05 10 09 IMP

He said he's got nothing but noise down there now.

01 05 10 18 CMP

I'm with you; I'm with you. I think if you started with a DAP and then you shut the thing off and roll and then go to the wide deadband, you're doing as good as we can do. We're doing just like we did yesterday. You know? And that didn't work yesterday. As a matter of fact, one time at 0.1 degree per second, we were going 0.3 degree per second and we had 0.1 degree in some of those ... angles. Well, they are theorists; that's what they are. They don't realize that, when people pee, it pushes the thing up against the deadband.

01 05 12 06 IMP

Is he back?

01 05 12 08 CMP

It's getting better and better, isn't it?

01 05 12 10 LMP

Have to wait a bit.

01 05 12 30 CMP

This is going to cost the gas.

01 05 12 34 LMP

Against it?

01 05 13 57 LMP

... (cough) a couple of more.

01 05 14 57 LMP

Can we talk to him now?

01 05 15 00 CDR

Hello, Houston; Apollo 10.

01 05 15 10 CMP

And I'm going to be strapped in ...

01 05 15 11 CDR

Yes.

01 05 16 57 CDR

I think I'll try a little urine dump. Where is it?

01 05 17 02 CDR

There's it. It goes over there in the corner.

01 07 13 36 CDR

Well, that's the swing arm right here.

01 07 13 38 CMP

Um hum.

01 07 13 39 LMP

Huh?

01 07 13 40 CDR

That's the swing arm. You twirl with this, see?

01 07 13 59 CDR

You want to shoot the earth out of your window,
Gene-o?~~CONFIDENTIAL~~

Day 2

~~CONFIDENTIAL~~

Page 31

01 07 14 02 LMP What's the setting? You want me to get that one?

01 07 14 04 CDR full at 250. If you want to; it's right there, babe. ...

01 07 14 09 LMP Yes.

01 07 15 10 CDR What I've been doing is trying to - halfway in between the ... - -

01 07 15 12 CMP God, look at that!

01 07 15 14 CDR ...

01 07 15 15 CMP That is absolutely ridiculous!

01 07 15 17 CDR Where - where's the water, old buddy?

01 07 15 21 CMP That's it!

01 07 15 28 CDR We'll shoot most of them on the moon, babe. A couple of those'd be real good to correlate with what the other stuff is.

01 07 15 41 LMP Supposed to let the air out. Just swing it around - It no going down - isn't the water going down?

01 07 15 43 CDR Uh-uh - Gosh.

01 07 15 56 LMP Close the valve. You got to close the valve.

01 07 15 59 CMP How?

01 07 16 00 LMP I don't know - to the close - whatever closed is.

01 07 16 14 CDR ... like if they had been packed real ... to start with, John. See?

01 07 16 19 CMP Oh, shit! What they did, they made it a two - Ain't this smart! Ain't that a smart freaking sack. Now you tell me how you're going to get the goddam - Oh, I got it, you wasn't supposed to do that.

01 07 16 38 LMP Yes, you were.

01 07 16 39 CDR Yes, you are - -

01 07 16 40 LMP Yes, you are; yes, you are - -

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

01 07 16 41 CDR ... Now, José. We're all set to go.

01 07 16 42 LMP But put more water in it, why don't you, if you're going to swing it?

01 07 16 44 CDR See.

01 07 16 45 CMP Oh, you don't - Ain't - How'd you do it?

01 07 16 48 CDR Yes, it is. Now - now look, old - You take this, and give it the twist. Start giving it the rpm. All it does, it looks like to me, is mixes up the water in there. (Laughter) That freaker ever gets loose ... Now what do you got?

01 07 17 09 CMP We have to open the valve and let the air out.

01 07 17 11 CDR Oh, open the valve, and let the air out.

01 07 17 13 CMP I got water - (laughter) - I got air down in the bottom of my water.

01 07 17 15 CDR (Laughter)

01 07 20 38 CMP How do we get the water out to drink it?

01 07 21 35 CMP How do we get the water out to drink it, you guys?

01 07 21 39 CDR Did it come out through the air valve?

01 07 21 48 CMP No. That's another little discrepancy (laughter). It didn't say how to (laughter) get the goddam stuff out of it.

01 07 22 31 CDR You can tell we're up above the earth, Gene-o. Draw a line to the north pole and the south pole. We're up above the equatorial plane.

01 07 22 41 LMP Yes. You sure can tell that.

01 07 22 53 CDR Man, that TLI was quite a ride. Never forget that son of a bitch. We still recording?

01 07 23 05 LMP Yes.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

01 07 23 39 CMP

Now the theory, I think, is you get the water in there with them bubbles in it like that, swirl it around like that, and you end up with the water all down in the bottom end with the bubbles in it. (Laughter) That makes my whole day! Did you see that? That son of a gun! It ain't done nothing but carry the bubbles down the bot - bottom.

01 07 24 22 CDR

(Laughter) Look, you're slinging water all -

01 07 24 40 CMP

... - -

01 07 24 41 IMP

Well, there - there's the big - -

01 07 24 44 CDR

The big bubble's at the bottom (laughter).

01 07 24 48 CMP

Well, that's water.

01 07 24 50 CDR

Where's the air?

01 07 24 55 CMP

There's the air bubble (laughter).

01 07 24 56 IMP

That's right (laughter). That is a big bubble.

01 07 25 02 CDR

Is that the water or the air? That is the biggest - How come the biggest air bubble goes to the bottom?

01 07 25 14 CMP

I don't know, it's the scientifical way to just - do it.

01 07 25 18 CDR

(Laughter) Well, just - theoretically, it - squeeze it up like this.

01 07 25 25 CMP

What that means, instead of drinking water aerated, you drink it with the bubbles in it (laughter).

01 07 25 31 CDR

And the bubbles won't mix. Oops.

01 07 25 40 CMP

Watch out! Oh.

01 07 25 42 CDR

Um-um. I'm sorry. Didn't know the valve was opened.

01 07 25 49 CMP

Yes, I'm sorry. I left it op - That's how you do it.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 2

01 07 25 54 CDR Let me shut this valve. Is that shut there?

01 07 25 59 CMP Yes.

01 07 26 03 CDR But there's still air there, John.

01 07 26 05 CMP I know it.

01 07 26 06 CDR I can't get the - can't get the air out the bottom.

01 07 26 08 CMP I know it.

01 07 26 17 CDR I'm going to see if I can ...

01 07 26 37 CDR Now, we got all the air in the top, right?

01 07 26 39 CMP Yes, that's right - -

01 07 26 40 CDR We got the whole mass in the top.

01 07 26 42 CMP Yes. Now, let me - let me twirl it (laughter). That can't ... go to the bottom, the very bottom!

01 07 27 12 CMP There's something we don't understand about it.

01 07 27 18 CMP Ain't there. Maybe.

01 07 27 42 CMP What do you think, T.P.? This was supposed to be carried with it, and what we did was put this in the bag, as I understood it, and twirled it around. That how you understood it?

01 07 27 51 CDR Yes. And the heavy stuff would run to the bottom, and the air would be at the top, and we could just kind of squeeze it up and the air would go out the top.

01 07 28 11 CMP That is absolutely too much.

01 07 28 18 CDR I'll bet in one g it won't work.

01 07 28 20 CMP (Laughter) ... shit.

~~CONFIDENTIAL~~

Day 2

~~CONFIDENTIAL~~

Page 35

01 07 28 31 IMP

What - Doesn't the air come up to the top, or what?

01 07 28 34 CDR

No. Now we got the air at the bottom, you see that big air bubble? It's at the bottom. There it is. See, you've got to get that there out of there. You start working, there's another air bubble -

01 07 28 48 LMP

Apparently, you really got to - got to twirl that thing to really put some g forces on it.

01 07 28 53 CDR

I think there's a meniscus effect in there, or something -

01 07 28 57 LMP

You've got a venturi in there, too.

01 07 29 00 CMP

Yes, some kind of matureate - mat - venturi --

01 07 29 03 CDR

I guess you're - You really need to fill the bag up all the way with water, huh?

01 07 29 07 CMP

Yes.

What I would guess is that you'd fill it up more than ... let me - project for today.

01 07 29 59 CDR

Do you think they tested this in one g?

01 07 30 02 CMP

I don't know; but you know, it could be that nobody ever explained to us how it's supposed to work, so we don't know. Maybe we're not doing it right.

01 07 30 12 CDR

Is it in the sys - Look at all that air in there; I can't believe it! Look at it!

01 07 30 18 LMP

That thing right there was 7 inches longer than it is now, too. Where the hell would you swing 7 more inches?

01 07 30 53 CDR

You know one thing we have to comment on is this drink gun is a remarkable improvement over the old squirt, you know, half-ounce squirt? ... don't -

01 07 31 24 CMP

Oh, shit!

01 07 31 26 CDR

Put's all the air in the one big bubble. But you can't get the big bubble out. What are we going to do with all this water we got? (Laughter) It does centrifuge all the water into one bubble.

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Day 2

- 01 07 31 59 CMP Well, this being hydrogen, we could always put a match in it or something.
- 01 07 32 06 LMP Yes (laughter).
- 01 07 32 26 CDR I guess if you filled it all the way up - you have to fill it all the way up, John.
- 01 07 32 30 CMP Yes.
- 01 07 32 31 CDR Why don't I try it?
- 01 07 32 33 CMP Well, I'd - -
- 01 07 32 35 CDR You think it would waste too much water?
- 01 07 32 38 CMP I don't know, Tom.
- 01 07 32 40 CDR Huh?
- 01 07 32 41 CMP We ought to learn how to use it before we have to. But I don't think filling it all the way - I think filling up the top compartment was what they had in mind. And then - then swirling it around until it went down to the bottom compartment.
- 01 07 32 57 CMP Umph. Umph. Umph. Umph.
- 01 07 33 41 CDR Okay, that's about filled up now.
- 01 07 34 09 CDR That water tastes good now, you know it?
- 01 07 34 11 CMP Yes.
- 01 07 34 12 CDR Nice and cold. Tastes great that way! Shoot! I got an even bigger bubble down below, John. I got air above ... (laughter). Did anybody really try this with aerated water?
- 01 07 34 45 CMP Well, you want to get Houston to explain it to us?
- 01 07 34 54 LMP (Coughing)
- 01 07 34 57 CDR No, they'll just get in a big flap over it.
- 01 07 35 08 CDR Well, I can't get that air bubble out of the - I defy anybody to get that air bubble out of the bottom into the top.

~~CONFIDENTIAL~~

Day 2

~~CONFIDENTIAL~~

Page 37

01 07 35 30 CMP (Laughter) That's right (laughter).

01 07 35 32 CDR Hey, that water goes out of the top (laughter) ... -

01 07 35 37 LMP That's what you're supposed to do.

01 07 35 39 CMP Go ahead there, Houston.

01 07 35 42 CMP Go ahead, Houston.

01 07 35 46 CC Roger; John, if you're through with your meal, we've got some conversation for John regarding the 123 sightings. Over.

01 07 35 54 CMP Okay. Go ahead.

01 07 35 57 CMP ... go - -

01 07 35 58 CC Okay, the noise in the data is about 8 to 12 arc-seconds, which is considered to be very good. The nominal noise on the section with zero errors is 10 arc-seconds. So it looks like you're doing things perfectly on the sightings. With - with respect to the - -

01 07 38 46 CMP Under those kind of conditions, it would be difficult to do a star landmark update.

01 07 38 54 CC ...

01 07 38 58 CDR (Sigh) Maybe we need more water on it, John. (Sigh)

01 07 39 37 CDR Something is really bright out there.

01 07 39 48 CDR What do you want to do with this, fill it up some more?

01 07 39 55 CMP (Laughter) What are we going to do with a bag full of water and bubbles? We'd better tell the ground. This is a serious problem (laughter).

01 07 40 06 CDR Hello, Houston; Apollo 10.

01 07 40 08 CMP (Laughter)

01 07 40 10 CC Apollo 10, this is Houston. Go ahead. Over.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 2

01 07 40 13 CDR

Roger. Bruce, could you make a check and see if it was tested on the ground, prior to flight, for this little handheld centrifuge to separate air from water? We have some strange phenomenon. The bubbles go to the bottom of the bag.

01 07 40 33 CC

Roger. It may take us a few minutes to track down the party responsible for the testing on this, but we'll check it out.

01 07 40 41 CDR

(Laughter) Yes, I wish you would. It's utterly phenomenal!

01 07 40 44 CMP

(Laughter) What happens is that we - we start out with a bag full of water and bubbles - little bitty bubbles, and we end up with a bag full of water and great big bubbles (laughter). And there is no way to separate the bubbles from the water - that I can see.

01 07 41 03 CC

Did you try spinning it the other way?

01 07 41 05 CMP

(Laughter)

01 07 41 07 CDR

Beautiful. Yes - yes, we have. There's some more in it.

01 07 41 20 CMP

(Laughter) Ooh! You know, that bag probably represents - (laughter) - the combined efforts of CSD, ASPO, and crew - and North American. It probably cost the government 25 000 dollars, and it probably don't work.

01 07 41 41 CDR

You really have to - It looks like you'd have to really fill the thing up all the way, ... just really pack it in; now see that big bubble's starting to ... at the top. Boy, if this thing gets busted, it's going to be a disaster.

01 07 41 53 CMP

Would it ever! You'd be going around the cockpit licking up - Take it easy with it, babe; because if it does bust, it'll sure be bad.

01 07 42 06 CDR

Yes. Oh, I don't want to put too much.

01 07 42 10 CMP

Maybe we- we're supposed to let it sit after we whirl it.

01 07 42 31 CDR

Okay, another centrifuge test.

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DAY 4

- 03 03 42 53 CMP Which one, Tom?
- 03 03 42 54 CDR ... I got ... It'll probably come down during the burn.
- 03 03 43 05 CMP Ain't going to pull a quarter of a g.
- 03 03 43 20 CMP And - and when do we lose them - at - at 48, huh?
- 03 03 43 28 LMP Yes, 48.
- 03 03 43 30 CMP 48 what? 50 something?
- 03 03 43 34 LMP 48 - Tom's got it there - 25 - -
- 03 03 43 36 CDR Do they want us to proceed to be in that ... 60 40 before we lose them?
- 03 03 43 40 CMP No, I don't want to do that.
- 03 03 43 44 CDR ... to have a little gimbal ...
- 03 03 43 49 CMP We can't; we got to turn on the gimb - we have - turn on the - run through the gimbal drive check.
- 03 03 43 52 CDR Yes, yes.
- 03 03 44 01 CMP This is what's important, if it comes out at that angle. That's it; the gouge right there.
- 03 03 44 05 CDR Yes.
- 03 03 45 26 CC Apollo 10, this is Houston. On my mark, you'll be 10 minutes to ignition. Over.
- 03 03 45 36 CMP 10. Roger.
- 03 03 45 46 CC Apollo 10, stand by for - a mark: 10 minutes.
- 03 03 45 52 CC MARK.
- 03 03 45 53 CC 10 minutes to ignition.
- 03 03 45 55 CMP We're SYNC'd.
- 03 03 46 00 CC Roger.

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03 03 46 01 LMP Okay, let's go do it.

03 03 46 19 LMP Okay. The BMAG's were ON; the SCS ELECTRONICS, ON - -

03 03 46 22 CC Apollo 10, Houston - -

03 03 46 23 LMP - - ... POWER's ON - -

03 03 46 24 CC - - 2 minutes to LOS; everybody here says "Godspeed."

03 03 46 28 CDR Okay, and we'll see you around on the other side in orbit.

03 03 46 33 CC Roger. 76:22:55.

03 03 46 37 CDR We'll be calling you.

03 03 46 47 CDR Okay. I'll put this under my back, back here, Gene-o.

03 03 46 51 LMP Okay.

03 03 46 52 CDR The criteria for overburn is 10 seconds. At loss of signal, you got the DSE - if no DSE motion, go to COMMAND RESET, then NORMAL. You got that?

03 03 47 03 LMP Okay, there it is; we've got it, so we're okay.

03 03 47 05 CDR Yes, okay. The only thing we've got left now is - to go - -

03 03 47 12 LMP You're on - you're on tape by the way.

03 03 47 14 CDR That checks. Okay, we're on tape.

03 03 47 15 CMP You're on HIGH BIT RATE now?

03 03 47 16 LMP No, but we got the DSE running.

03 03 47 18 CMP Okay, I'm going to run through these checks just one more time - -

03 03 47 20 LMP Yes, go ahead.

03 03 47 21 CMP - - the EMS DELTA-V check; the EMS DELTA-V is set. 2975.2, right?

03 03 47 26 CDR Yes.

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03 03 47 27 CMP RMAG's, three, to RATE 2; go. LM/CM, DELTA-V CG, no RCS SELECTS are set.

03 03 47 34 LMP (Cough)

03 03 47 35 CMP The DAP is set and loaded.

03 03 47 36 LMP Yes.

03 03 47 37 CMP SPACECRAFT CONTROL, CMC and AUTO.

03 03 47 39 LMP Yes.

03 03 47 40 CMP Maneuver to burn attitude - we've done that; we've done that - boresight star; we've done the sextant star check; we done - we ain't got no boresight star, come to think of it. We've maneuvered to the attitude; panel 8, SCS breakers are CLOSED --

03 03 47 56 CDR Are CLOSED. ... okay.

03 03 47 58 CMP MANUAL ATTITUDE, three, RATE COMMAND is go. LIMIT CYCLE switch is OFF - Doesn't make any difference --

03 03 48 03 CDR ...

03 03 48 04 CMP DEADBAND, MIN; RATE is HIGH. TRANSLATION CONTROL POWER is ON, in case we have to get ATT through the SCS; AC 1, okay; ROTATIONAL CONTROL POWER, DIRECTS, are OFF; SPACECRAFT CONTROL, CMC and AUTO again; SCS TVC's in RATE COMMAND; TVC GIMBAL DRIVE's in AUTO. And wait for 6 minutes. That was loss of signal right there.

03 03 48 26 LMP Yes. Yes, that was it, babe.

03 03 48 27 CM^t That was it! Lost it.

03 03 48 30 CDR We're on our own now.

03 03 48 32 LMP You see anything over the top, Tom?

03 03 48 33 CDR No. Sure I'm not even going to look.

03 03 48 34 LMP Did you hear that? Man, we lost them in a hurry.

03 03 48 36 CDR Yes, it went off in a hurry.

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Day 4

- 03 03 48 38 LMP What's the configuration in the flight plan for acquiring them around the other side; does it say, Tom? I'll go into that - Oh, that's the high gain, right?
- 03 03 48 44 CDR Right.
- 03 03 48 45 LMP We'll be in a special attitude, and I'll be able to pick them up high gain, right?
- 03 03 48 48 CDR We roll 180, pitch --
- 03 03 48 50 LMP And then high gain.
- 03 03 48 51 CDR -- pitch is minus 86, yaw is zero.
- 03 03 48 54 LMP VERB 6^h, acquire for MSFN. Okay, fine; I'm all set.
- 03 03 48 58 CDR Okay, you've got a minus 86 degrees --
- 03 03 49 00 LMP I got it in there.
- 03 03 49 01 CDR Okay. And minus - yaw is - is --
- 03 03 49 02 LMP Okay.
- 03 03 49 03 CDR -- minus 7. Okay. Now, let me see just - Again, the EMS is in, the RCS LOGIC - we got the helium - the pilot valves are in. All those good things are in --
- 03 03 49 12 CMP Yes, all those things are in because if they ain't, nothing happens.
- 03 03 49 16 CDR Yes.
- 03 03 49 17 LMP Okay, we got the BUS TIES to go over here.
- 03 03 49 19 CDR Okay, and we got the BAT RELAY BUS and all those.
- 03 03 49 22 LMP That's all in. Everything that I can see over here is in that should be in.
- 03 03 49 26 CDR Okay, we're up to 6 minutes.
- 03 03 49 28 LMP And, John; I'll give you a call through mode 1, mode 2, and --

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03 03 49 32 CDR Okay.

03 03 49 33 CMP Alrighty.

03 03 49 36 CDR And I'll get the PROCEED.

03 03 49 39 CMP Okay.

03 03 49 46 LMP And I got HIGH BIT RATE to go over here.

03 03 49 48 CMP Okay, babe; we're coming up to 6 minutes.

03 03 49 50 LMP Let me know when you want then.

03 03 49 53 CMP Now would be a good time.

03 03 49 54 LMP Okay, let me verify that they go on. Okay, 1's ON; let me check the other one. They're both ON, babe.

03 03 50 03 CMP/CDR Okay.

03 03 50 04 LMP We got the BUS TIES.

03 03 50 05 CDR TVC SERVO POWER, AC1/MNA ... in B.

03 03 50 07 CMP Go.

03 03 50 08 CDR ROTATIONAL POWER number 2, AC.

03 03 50 11 CMP AC.

03 03 50 12 CDR ROTATIONAL CONTROL number 2 - ARMED.

03 03 50 13 CMP Number 2's ARMED.

03 03 50 15 CDR Okay. Another 5 minutes to primary TVC check.

03 03 50 19 CMP Roger.

03 03 50 20 CDR You want to go ahead and be ahead of it? Or not?

03 03 50 22 CMP I don't see much sense in doing it.

03 03 50 36 LMP Oh, dear.

03 03 50 47 CMP Okay.

03 03 50 48 CDR Okay, 5 minutes, GIMBAL --

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03 03 50 49 CMP PITCH MOTOR number 1 is coming ON, Gene-o.

03 03 50 52 LMP Okay, stand by. Go. That's go.

03 03 50 56 CDR YAW 1.

03 03 50 57 CMP YAW 1 is coming ON.

03 03 50 58 LMP That's go.

03 03 50 59 CDR TRANSLATIONAL CONTROL, clockwise --

03 03 51 00 CMP TRANSLATIONAL CONTROL, clockwise.

03 03 51 03 CDR -- verify no MTVC.

03 03 51 04 CMP We have no MTVC.

03 03 51 05 CDR Check TVC - secondary TVC check; PITCH 2.

03 03 51 09 CMP Coming ON, Gene-o.

03 03 51 10 CMP MARK.

03 03 51 11 LMP That's go.

03 03 51 12 CDR YAW 2, START.

03 03 51 13 CMP YAW 2, coming ON.

03 03 51 15 LMP That's go.

03 03 51 16 CDR Set the trim.

03 03 51 17 LMP Should have all four, babe --

03 03 51 18 CMP Plus 95.

03 03 51 19 CDR And minus 17.

03 03 51 20 CMP Minus 17.

03 03 51 22 CDR Okay.

03 03 51 23 CMP Okay.

03 03 51 24 CDR Check MTVC, would you, John? Something's shaking.

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03 03 51 31 LMP That's got - -
03 03 51 32 CMP The old big bell, babe. GPI to neutral.
03 03 51 34 CDR GPI to neutral.
03 03 51 35 CMP Go to zero.
03 03 51 37 CDR ROTATIONAL CONTROL POWER, number 2, AC/DC.
03 03 51 41 CMP AC/DC. We checked the boresight star?
03 03 51 42 CDR We don't have that?
03 03 51 43 CMP Okay, AUTO gimbal check.
03 03 51 45 CDR Okay. Oh, do you want one final trim here?
03 03 51 48 LMP No. We don't need that.
03 03 51 51 CMP Yes. There you go.
03 03 51 56 CDR Okay, ENTER?
03 03 51 57 CMP ENTER.
03 03 51 58 LMP You're back in NEUTRAL on your controller, huh?
03 03 51 59 CDR/CMP Yes.
03 03 52 00 LMP Okay.
03 03 52 01 CDR 204, ready?
03 03 52 02 CMP Yes.
03 03 52 03 CDR Plus 2, minus 2, and zero. Plus 2, minus 2, and a zero.
03 03 52 13 LMP Oh, I tell you; that mother really moves around,
doesn't it?
03 03 52 16 CMP Trim that moves it.
03 03 52 21 LMP Okay, y'all.
03 03 52 22 CDR 03:30. Okay, 6 ... 40 okay ROTATIONAL CONTROL
POWER, DIRECT, MNA/MNB.

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03 03 52 29 CMP That's go.

03 03 52 30 CDR SPS HELIUM VALVES, two, AUTO.

03 03 52 31 CMP They are AUTO. LIMIT CYCLE switch to OFF.

03 03 52 33 CDR LIMIT CYCLE switch is OFF. FDAI is what you wanted?

03 03 52 35 CMP Yes. GDC ALIGN, right?

03 03 52 37 CDR Yes, GDC ALIGN.

03 03 52 40 CMP I've got 351 here, now.

03 03 52 46 CDR Coming in.

03 03 52 51 CMP Okay.

03 03 52 52 CDR BMAG's, three, ATT 1/RATE 2.

03 03 52 55 CMP Okay.

03 03 52 58 CDR Okay, minus 2 minutes, John.

03 03 53 04 LMP Still don't see nothing, huh, Tom?

03 03 53 06 CDR Shit, no! And I don't care to see anything now.
Not much to see --

03 03 53 09 LMP Okay, your trim's set, John?

03 03 53 11 CMP/CDR Yes.

03 03 53 18 LMP Was it plus 0.95 and a minus 0.17?

03 03 53 21 CMP Yes.

03 03 53 22 LMP Okay.

03 03 53 23 CDR Okay, at 2 minutes, DELTA-V THRUST, A and B, NORMAL.

03 03 53 27 CMP A, NORMAL, right?

03 03 53 28 CDR A, NORMAL. You can get the guard up on B.

03 03 53 44 LMP Sure is getting bright out there. I got the moon's reflected surface in the LM window. I can see it in the LM window, the overhead window.

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03 03 53 52 CDR Good show.

03 03 53 53 LMP It's down there, babe.

03 03 53 54 CDR Okay, 2 minutes, DELTA-V THRUST, A, NORMAL; TRANSLATIONAL CONTROL POWER, ARMED.

03 03 53 59 CMP TRANSLATIONAL CONTROL POWER is ARMED.

03 03 54 01 LMP Look at the size of --

03 03 54 02 CMP ROTATIONAL CONTROL POWER is ARMED. Okay, at 30 seconds --

03 03 54 05 CDR You don't have the TRANSLATION ARMED.

03 03 54 07 CMP Yes, it is. No, there you go.

03 03 54 08 CDR Okay, at 30 seconds, EMS, NORMAL, and DELTA - EMS DELTA-V, NORMAL, and HIGH BIT RATE.

03 03 54 14 LMP Okay, I'm ready for it. God, that moon is beautiful; we're right on top of it --

03 03 54 19 CDR Oh, shit!

03 03 54 20 LMP God dang. We're right on top of it. I can see it --

03 03 54 22 CDR Oh, shit; John! It's looks like a big plaster of paris cast.

03 03 54 24 LMP I can see it reflected, babe - right in the LM overhead window.

03 03 54 29 CDR Okay, let's get busy --

03 03 54 30 LMP Okay, let's get this burn off. How much time?

03 03 54 35 CDR 1 minute and --

03 03 54 36 LMP 1 minute and 20, right? Okay.

03 03 54 37 CDR Oh, yes.

03 03 54 38 LMP You got it, Tom?

03 03 54 39 CDR You damn right I got it.

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03 03 54 42 LMP Oh, I do, too.

03 03 54 43 CDR Okay, let's keep looking then.

03 03 54 44 LMP My God, that's incredible.

03 03 54 46 CDR It looks like we're close --

03 03 54 47 LMP That's incredible.

03 03 54 49 CDR It does look like we're - well, we're about 60 miles, I guess.

03 03 54 51 CDR Okay, 1 minute. Okay, let's go.

03 03 54 54 IMP It does look - look gray, doesn't it?

03 03 54 55 CDR Okay, 30 seconds; we'll get DELTA-V, NORMAL.

03 03 54 58 CMP Yes, and don't forget the HIGH BIT RATE. Coming up --

03 03 54 59 CDR HIGH BIT RATE.

03 03 55 00 CMP -- coming up whenever you go to DELTA-V, NORMAL.

03 03 55 03 CDR Shit, baby; we have arrived - It's a big gray plaster of paris thing --

03 03 55 07 LMP Oh, my God, that's incredible.

03 03 55 08 CDR Okay, let's keep going; we've got to watch this bear here.

03 03 55 10 CMP Put your head back in the cockpit, Gene-o.

03 03 55 11 IMP Look at that!

03 03 55 12 CDR Let's go.

03 03 55 13 LMP Okay, I'm ready.

03 03 55 14 CDR Okay, the HIGH BIT RATE, go ahead; hit it.

03 03 55 15 LMP HIGH BIT RATE --

03 03 55 33 CDR Okay, 22 seconds. Standing by to push the THRUST ON. 18 seconds. Get your watch; we're all set, babe --

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Day 4

~~CONFIDENTIAL~~

Page 49

03 03 55 42 CMP All set.

03 03 55 43 CDR -- Count us down, Gene-o. DELTA-V to NORMAL; rechecked. Everything is good. DELTA --

03 03 55 45 LMP 10 seconds.

03 03 55 46 CDR -- Okay, and get that ON in 3 seconds. ... DELTA-V.

03 03 55 47 LMP Stand by.

03 03 55 48 CDR -- 7 --

03 03 55 49 LMP 5 seconds.

03 03 55 50 CDR 5, PROCEED, 3, 2, 1 -

03 03 55 55 LMP Okay, we're burning; you got good valves.

03 03 55 57 CDR Okay, bank the DELTA-V --

03 03 55 58 LMP You got four good valves; you got four good valves. HELIUM VALVES are CLOSED, you got four good valves.

03 03 56 05 CDR Guidance looks good.

03 03 56 07 LMP Guidance looks good. Boy, it's a soft burn right now. Come on, balance up, you mother. It's 15 seconds into the burn; she ought to start balancing now. Okay, and --

03 03 56 16 CMP It's on now.

03 03 56 17 LMP -- chamber pressure's 95. Okay, all my pressures are looking good, babe.

03 03 56 22 CMP 75, 80, 85, 90 --

03 03 56 23 LMP Okay, we burn it for 30 ... on the A.

03 03 56 24 CMP -- we better start balancing that - the oxidizer here.

03 03 56 25 CDR Good.

03 03 56 27 LMP Okay, everything's looking good --

03 03 56 30 CDR Do you want --

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- 03 03 56 31 LMP -- pressures are still good.
- 03 03 56 33 CDR Looking good at 30 seconds. EMS is agreeing with the G&N.
- 03 03 56 38 LMP Okay, she's balancing up nicely.
- 03 03 56 40 CMP Okay, chamber pressure's 97 --
- 03 03 56 42 CDR Holding steady.
- 03 03 56 43 CMP -- and holding steady, and it jumped about 4 when it turned on the second bank. Gimbal motors is GO.
- 03 03 56 47 LMP Okay, four good banks, helium pressure's GO, and -- fuel oxidizer pressures are GO.
- 03 03 56 54 CDR Gimbal motors have settled down a little bit.
- 03 03 56 55 LMP Balancing up real nice, John. The PUGS is working after 30 seconds. I turned it on. Looking good.
- 03 03 57 00 CMP Okay. Okay.
- 03 03 57 02 LMP Tank pressures are good.
- 03 03 57 03 CMP 98 psi. That's GO.
- 03 03 57 05 LMP Helium pressures are good.
- 03 03 57 06 CMP Okay.
- 03 03 57 09 CDR How's the nitrogen ...?
- 03 03 57 10 CMP Okay, that chamber pressure's coming up; now it's 100.
- 03 03 57 13 LMP I'm still looking good here. I got four valves and tank pressures are GO.
- 03 03 57 19 CDR You have 4 minutes.
- 03 03 57 20 CMP The roll is trimming out a little. How's your regulator pressure --
- 03 03 57 22 LMP 1 minute 30 seconds into burn; we've got a - Regulated pressures all good.
- 03 03 57 27 CDR Things are looking good.

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Day 4

~~CONFIDENTIAL~~

Page 51

03 03 57 28 LMP Okay, John; we're coming up at 01:40 at the end of mode 1.

03 03 57 31 CMP Okay.

03 03 57 33 LMP Okay, we're in no-man's land; 01:40; and everything's looking good.

03 03 57 36 CMP Our chamber pressure's up to 101 now.

03 03 57 41 CDR 04:14 to go.

03 03 57 42 LMP Okay, babe; let's get by 2 minutes. We're in no-man's land; everything's looking good.

03 03 57 47 CMP Alright.

03 03 57 50 LMP Everything's looking good. 01:55.

03 03 57 53 CDR Looking good.

03 03 57 54 LMP Boy, it's a nice soft burn; keep burning, baby - -

03 03 57 55 CDR 2 minutes.

03 03 57 56 LMP 2 minutes.

03 03 57 57 LMP MARK. We're into mode 2. Okay, we're into mode 2.

03 03 58 00 CDR Okay.

03 03 58 02 LMP She's going on the INCREASE; I'm going to balance back the other way.

03 03 58 07 CDR Okay, I'm looking at the burn and what we have to do - It'll be 50.

03 03 58 11 LMP Okay, all my pressures here are holding good, John.

03 03 58 14 CMP Holding good here. We're up to 102 psi - chamber pressure. That little baby's getting better and better.

03 03 58 20 CDR 18 6 ... go. 18 7 ... - -

03 03 58 25 LMP Come on, baby. Balance back down; balance back down - -

03 03 58 28 CMP You approaching crossover yet, Gene-o?

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Day 4

03 03 58 29 LMP -- balance back down - No, I'm only at 72 percent, but I can't get that son of a bitch to balance back down. Here it comes. Come on, baby.

03 03 58 38 CMP Don't lean on --

03 03 58 39 LMP 70 percent. Everything's looking good here.

03 03 58 44 CDR 3 minutes - to burn.

03 03 58 48 CDR If the G&N's right, we'll burn -

03 03 58 51 LMP Coming up to 3 minutes, John.

03 03 58 52 CDR 3 55 ...

03 03 58 54 CMP ... Okay.

03 03 58 55 CDR ... 5 56.

03 03 58 56 CMP Mark it, 3 minutes.

03 03 59 00 LMP Come on, baby. Get that thing going.

03 03 59 02 CMP Yaw's off in roll. See that?

03 03 59 04 CDR Yes, I saw that, John.

03 03 59 05 CMP Okay, we're up to 102 pounds now. Son of a gun's just getting better all the time.

03 03 59 11 CDR Yes.

03 03 59 12 CMP That's the roll thruster firing to bring it back in.

03 03 59 14 LMP Okay, your - all your pressures are looking good right now. Except I can't get that increase now. Come on, baby. I don't want to switch to secondary valve yet, because it's not off that far.

03 03 59 24 CMP What secondary valve? Don't go on a backup.

03 03 59 26 LMP No, no, it's still slowly in the - Everything's looking good; you're at 3 minutes and coming up on 40 seconds.

03 03 59 34 CDR Coming up - coming up to 2 minutes to go, John. It's looking good. Beautiful, baby.

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03 03 59 38 CMP My God, there it is.
03 03 59 40 CDR Oh, you'd better believe it.
03 03 59 41 LMP There it is, is right - -
03 03 59 42 CDR Strangest looking son of a bitch I've ever seen.
03 03 59 44 CMP Isn't that weird?
03 03 59 45 CDR Okay, let's go. 2 minutes to go. Looking good.
03 03 59 47 LMP Okay, all your valves are still good. 102.
03 03 59 50 CDR 2.
03 03 59 51 LMP 102 on the psi.
03 03 59 52 CDR I'm estimating that the G&N is going to be about - -
03 03 59 55 LMP Okay, we're at crossover right now on the - on the propellants.
03 03 59 57 CMP Okay, and don't pay any attention to what it's - -
03 03 59 58 CDR Don't worry; we're about ... - -
03 04 00 00 CMP 102.
03 04 00 01 CDR I'm going to estimate 5 plus 58 for the burn.
03 04 00 04 CMP Okay. Okay, there's 4 minutes and coming up on 15 seconds.
03 04 00 10 CDR Yes.
03 04 00 14 LMP Oh, would you believe it? There's the lunar horizon.
03 04 00 16 CDR Okay, how's the - propellant tanks are looking good.
03 04 00 18 LMP Everything's looking good, babe.
03 04 00 19 CMP Helium's up to 103. 10⁴.
03 04 00 23 CDR First I've heard of a bloody engine going up - -
03 04 00 26 CMP Okay, there's - -

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Day 4

03 04 00 27 CDR - - - - -
03 04 00 28 CMP - - - - -
03 04 00 29 CDR Okay, we're getting down to 1 minute to go and -
guidance is fantastic.
03 04 00 35 CMP Beautiful, just beautiful. Just beautiful.
03 04 00 39 CDR Beautiful guidance; you couldn't ask for any better.
03 04 00 41 CMP It's solid as a rock.
03 04 00 42 LMP Tank pressures are looking good.
03 04 00 43 CDR Okay, good. Fuel is holding good, Gene-o.
03 04 00 46 LMP Everything's looking good, babe. You're well into
mode 3.
03 04 00 48 CDR Good, okay. Good. I'm going to say that it'll be
5:56 to get to ...
03 04 00 52 CMP 4 ... but that chamber pressure's - -
03 04 00 55 CDR ... that we have on ...
03 04 00 56 LMP Okay, there's 5 minutes, babe.
03 04 00 58 CDR I'm standing by on the valves, John.
03 04 01 00 CMP Okay.
03 04 01 01 CDR 49 seconds to go.
03 04 01 02 CMP Okay.
03 04 01 07 LMP We're pulling (laughter) 0.2 or 0.3 of a g, I can't - -
03 04 01 10 CDR 40 seconds to go.
03 04 01 13 CMP Okay.
03 04 01 14 CDR 35.
03 04 01 17 CMP 5, 4 -
03 04 01 19 CDR 30 seconds to go. Estimating at 5 plus 56.

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Day 4

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Page 55

03 04 01 23 CMP Okay.

03 04 01 25 LMP Going to close this thing. Get it closed before we shut down.

03 04 01 30 CDR 20 seconds, babe.

03 04 01 31 CMP Okay.

03 04 01 32 CDR Stand by for the valves. 18, 17, 16, 15, 14, 13, 12, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1 -

03 04 01 50 CDR Shut - SECO - valves ... - -

03 04 01 51 LMP There's all four valves CLOSED, HELIUM VALVES are CLOSED. Everything's GO.

03 04 01 54 CDR GIMBAL MOTORS, OFF. TVC SERVO POWER, OFF.

03 04 02 00 LMP Whew! Babe, I think we's here.

03 04 02 02 CDR Oh, you know we are.

03 04 02 03 CMP BUS TIES, OPEN.

03 04 02 04 CDR BUS TIES, OPEN.

03 04 02 05 LMP Okay, BUS TIES.

03 04 02 07 CDR BMAG's, RATE 2. EMS to STANDBY. Okay, you want to take the readings on the - -

03 04 02 11 CMP Minus 7 on EMS.

03 04 02 13 CDR Minus 7 (coughing).

03 04 02 14 LMP Okay, let me - let me read that stuff. Let me take that stuff.

03 04 02 17 CMP (Sigh)

03 04 02 18 LMP What is it? Minus 7?

03 04 02 19 CDR Yes.

03 04 02 20 LMP What was the burn time, Tom?

03 04 02 22 CDR The total burn time - -

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- 03 04 02 23 LMP Yes.
- 03 04 02 24 CDR -- was 5 minutes and 56 seconds.
- 03 04 02 29 CMP Minus 7 on EMS. I'll turn it OFF.
- 03 04 02 30 LMP At what? Give it? What was it?
- 03 04 02 32 CDR Hot time: 05:56.
- 03 04 02 33 LMP I mean, what was the EMS?
- 03 04 02 35 CMP Okay, well, let's proceed out of here, huh?
- 03 04 02 36 CDR Let's proceed ... PROCEED.
- 03 04 02 37 LMP What was the EMS? Okay. Give me - give me those. Plus 0.1, residuals are - -
- 03 04 02 44 CDR Zero - -
- 03 04 02 45 LMP -- zero, minus 0.2. Zero, minus 0.2 of zero.
- 03 04 02 49 CDR Okay, go to ...
- 03 04 02 51 LMP What was ΔV_c , John?
- 03 04 02 54 CMP Minus 7.
- 03 04 02 55 LMP Minus 7?
- 03 04 02 56 CMP Yes.
- 03 04 02 57 LMP Not 0.7, but 7?
- 03 04 02 58 CMP 7.
- 03 04 02 59 CDR 7 - 7.0.
- 03 04 03 01 LMP Okay.
- 03 04 03 06 CDR Go to wide deadband.
- 03 04 03 07 CMP Yes.
- 03 04 03 20 CMP We didn't use much gas on that ...
- 03 04 03 24 CDR Oh, man! Oh, man, look at those shallow craters.

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03 04 03 28 LMP Holy smoley!

03 04 03 29 CMP Okay.

03 04 03 30 LMP I guess we has arrived.

03 04 03 31 CDR You'd better believe it.

03 04 03 32 CMP I'll tell you something. By God, they are craters!

03 04 03 34 CDR Yes. They sure don't look like it, but they're ...
shit!

03 04 03 38 CMP Get some pictures, you guys.

03 04 03 39 LMP Yes.

03 04 03 40 CDR Here. I've got ...

03 04 03 44 CMP Okay.

03 04 03 45 CDR Put this watch up over there, ...

03 04 03 48 CMP Okay; now, let's make sure we've got everything
shut off.

03 04 03 50 CDR Okay, yes.

03 04 03 51 CMP GIMBAL MOTORS are OFF. The THRUST chambers are OFF;
the LOGIC is OFF; the TVC SERVO POWER's OFF - You
got the BUS TIES, OFF, Gene?

03 04 03 58 LMP Yes, they want you to stay on HIGH BIT RATE?

03 04 04 01 CMP I don't - I don't know.

03 04 04 02 CDR I guess so. Let's look in the flight plan.

03 04 04 07 LMP What's - At - at 1 - we're crossing 150 at 75:53,
which we already did, so - Son of a bitch - we're
way over here somewhere.

03 04 04 14 CMP That's the weirdest-looking surface - there's some
color in that.

03 04 04 17 CDR There's the coloring - it's a brownish gray.

03 04 04 20 CMP ...

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03 04 04 21 CDR It's a brownish gray, old buddy.

03 04 04 22 LMP Like a big sandbox, though, isn't it?

03 04 04 24 CDR Yes.

03 04 04 25 LMP We is at the moon, fellows! Can you believe that?

03 04 04 27 CDR Yes, I can believe it.

03 04 04 28 CMP It's a brownish gray.

03 04 04 29 LMP 60 miles?

03 04 04 30 CDR And I don't see a level spot in the whole thing. Yes, I guess we might be down close.

03 04 04 33 CMP It's fascinating --

03 04 04 34 LMP Well - what do we do now? (Laughter) Read the flight plan, I guess.

03 04 04 37 CDR Yes, alright. Let's get back with it. Okay, transfer VERB 66 ENTER, when you finish that thing up real fast? Okay? PROCEED.

03 04 04 43 SC (Coughing)

03 04 04 44 CDR PROCEED.

03 04 04 47 CMP We got it.

03 04 04 48 CDR Oh, did you put a VERB 46 in after that?

03 04 04 50 CMP Yes, I did.

03 04 04 51 CDR You did?

03 04 04 52 CMP Yes. I was just - that was the second check.

03 04 04 54 CDR Okay, good. You got a VERB 66 ENTER?

03 04 04 57 CMP Yes.

03 04 04 58 CDR Hold cut-off attitude to 76:00; we're already there. We've got the burn residuals?

03 04 05 02 CMP Yes. Then we got to get some other attitudes.

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- 03 04 05 04 CDR Okay, at 76:00, maneuver to roll 180; pitch is the same, it's 232; and yaw ... three zeros. All we got to do is roll 180. VERB 21; ENTER. Just use --
- 03 04 05 16 CMP Well, let's just roll 180, huh?
- 03 04 05 18 CDR Yes, ...
- 03 04 05 20 CMP Okay?
- 03 04 05 21 CDR Yes. Look. There you go. Oh, TRANSLATION CONTROL to LOCK.
- 03 04 05 37 LMP Would you believe it? (Sigh) What about a camera? Try to figure out where the hell we are while you guys are doing that.
- 03 04 05 41 CDR Really, I - I don't think you can tell what we're at right now. Until we get acclimated to the thing. We're going to roll 180.
- 03 04 05 47 CMP Man, that is utterly unbelievable!
- 03 04 05 51 LMP Isn't that - isn't that something? When I first saw that reflecting in that LM window, I about came unglued!
- 03 04 05 56 CMP I just don't know what to think of that. That's just fantastic!
- 03 04 06 00 LMP I about came un - Look at this! Oh, look! Give me that camera, Tom - -
- 03 04 06 03 CMP Are we at America?
- 03 04 06 04 CDR You got it.
- 03 04 06 05 CMP We're at America, aren't we? Take pictures of that thing.
- 03 04 06 07 LMP Give me that camera.
- 03 04 06 08 CDR Here, take - -
- 03 04 06 09 CMP I - should I be using this one, I wonder?
- 03 04 06 10 CDR Don't get much of the horizon.
- 03 04 06 11 CMP Don't get much of the horizon.

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- 03 04 06 12 LMP The what? Don't get much of the horizon?
- 03 04 06 14 CDR Take the slide out.
- 03 04 06 16 LMP I should probably have the other lens right here.
- 03 04 06 20 CMP By golly, that's fascinating!
- 03 04 06 22 CDR That stuff looks gray. It was brownish gray.
- 03 04 06 24 LMP It was brownish gray to me.
- 03 04 06 26 CDR It's brownish gray.
- 03 04 06 27 LMP Oh, what the hell's wrong with it? What the hell is wrong with it?
- 03 04 06 30 CMP You've got to fix it. God damn it, that slide -
- 03 04 06 32 LMP The son-of-a-bitch camera, I took the slide out.
- 03 04 06 35 CMP It's that damn thing; you've got to wind it, remember? You got to cock the film --
- 03 04 06 38 CDR And it's in black and white --
- 03 04 06 39 LMP You wind it which way?
- 03 04 06 40 CDR Here. Let me show you.
- 03 04 06 42 CDR/CMP Take that one, Gene-o.
- 03 04 06 43 CDR Then ... this one. You wind it for red.
- 03 04 06 45 CMP Okay. When do we get AOS, Gene-o?
- 03 04 06 48 LMP At 22.
- 03 04 06 49 CDR ... white. Okay, you're all set.
- 03 04 06 51 CMP Shoot, I want to take -
- 03 04 06 55 CDR Okay, we have AOS at 76:22. Okay?
- 03 04 07 04 CMP Just not much of the horizon there, Gene-o.
- 03 04 07 06 LMP I'm not taking any of it, because I don't see it. Yes, I get - You know, I think it looks bluish gray.

~~CONFIDENTIAL~~

Day 4

~~CONFIDENTIAL~~

Page 61

- 03 04 07 16 CMP By God, we're all satisfied it's got color in it of some kind --
- 03 04 07 18 CDR ... color.
- 03 04 07 23 CMP ... brownish to me.
- 03 04 07 24 CDR It's a brownish gray.
- 03 04 07 25 CMP I agree with Tom; I think it's got a little brown in it --
- 03 04 07 26 CDR It's brownish gray. Very little - occasional white, but mostly brownish gray. And I would say the - the gray predominates - it's 50/50. Hey, as we're coming to right-side up, it's easier to shoot, Gene-o.
- 03 04 07 41 LMP Okay. I think - Do we want this lens that - Look at some of those craters!
- 03 04 07 45 CMP Yes.
- 03 04 07 46 LMP I tell you, I'd sure like to know where we are.
- 03 04 07 48 CDR Well, look; get out the map. You can - you've been trying to work --
- 03 04 07 50 LMP ... I got --
- 03 04 07 51 CDR -- to get this on --
- 03 04 07 52 LMP Hey, look at - look at this thing that's floating with us out this window, Tom. See it?
- 03 04 07 55 CDR Yes, I've seen it. It's a big bubble.
- 03 04 07 56 LMP A big bubble right with us.
- 03 04 07 57 CMP It's a what? A what?
- 03 04 07 58 CDR A bubble.
- 03 04 07 59 CMP Take a picture of that.
- 03 04 08 00 LMP A bubble.
- 03 04 08 01 CDR Well, there's a bubble from - probably from the urine dump --

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Day 4

- 03 04 08 04 CMP Oh.
- 03 04 08 05 CDR -- or something. And then there's a --
- 03 04 08 08 LMP I imagine people will think it's a - You want to try this?
- 03 04 08 11 CDR No - -
- 03 04 08 12 LMP See if I can navigate and find out where we are.
- 03 04 08 14 CMP See what VERB 82 says, and write that down.
- 03 04 08 16 CMP Yes.
- 03 04 08 17 LMP (Coughing)
- 03 04 08 18 CMP That should be a little better this time - -
- 03 04 08 20 LMP Let me get that in so I can put it in the post-burn report - -
- 03 04 08 22 CMP -- 6. 169.1 by 59.6. Now, where the hell is it? 1 - 165.
- 03 04 08 34 LMP God, it's brown all around that crater there, I swear.
- 03 04 08 37 CMP 1.1 by 59.6.
- 03 04 08 40 CDR Yes.
- 03 04 08 42 LMP The only thing I didn't like about the whole operation is the unbalanced Mickey Mouse - I never could catch up with it.
- 03 04 08 47 CDR Making sure we got a ...
- 03 04 08 48 CMP Well, did you get - -
- 03 04 08 49 LMP You see, it went unbalanced at 300, and then I put decrease, and then I got it to neutral, and then I stopped it; and then it went way up and I never could catch up with it.
- 03 04 08 55 CDR Okay, why don't we time - We've got a time hack back there, two pages back.
- 03 04 08 59 CMP Okay, the - this helium pressure went from like 98 to 100 - -

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Day 4

~~CONFIDENTIAL~~

Page 63

- 03 04 09 03 LMP Let me write that down there.
- 03 04 09 04 CMP -- and 3. It was doing it throughout the burn, just beautiful. And then - with a notable increase -
- 03 04 09 11 LMP Oh, hell there. Okay, I'll just pass ... all I know --
- 03 04 09 16 CDR ... By God, I'll get that from Jack Schmitt. And I'll clue you. 5.6 now ...
- 03 04 09 25 CMP ... - -
- 03 04 09 26 CDR Hey, you shooting at 5.6, Gene- .
- 03 04 09 29 LMP Yes, I hope so.
- 03 04 09 30 CDR Well, it had about full there, when it got - Okay. Well, it looks like Mount Shasta up there; something's definitely ... volcanism.
- 03 04 09 45 LMP Where?
- 03 04 09 46 CDR Well, I - I mean, you can definitely see that, can't you? See that white mound out there?
- 03 04 09 50 LMP Yes.
- 03 04 09 51 CDR ... That's definite volcanism ... - -
- 03 04 09 53 CMP ... and there isn't color in that; it's in black and white.
- 03 04 09 56 LMP It's black and (laughter) - Oh, Tom, give me that thing. Let me get this - let me get this fresh crater. Hold on here. This set? You should see this little white one down there.
- 03 04 10 11 CDR That's probably ... little white one on the peak.
- 03 04 10 14 LMP Can you see that? I'm looking right directly at it.
- 03 04 10 16 CMP Yes, I got it. Okay.
- 03 04 10 18 LMP That does look like a fresh volcanism because it's black inside.
- 03 04 10 22 CMP Yes, it's black in there.

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~~CONFIDENTIAL~~

Day 4

03 04 10 26 LMP

I guess, when we get rolled over, we'll be better than old - This is the first time we'll be sitting upright that we know of.

03 04 10 31 CMP

Here you are.

03 04 10 34 CDR

What's this? You got the slide in?

03 04 10 36 LMP

It's right in here, Tom. Right there. Look at that ridge; it sits right on the ridge, too.

03 04 10 46 CMP

My gosh, we ain't very high, you guys.

03 04 10 49 LMP

We don't look it, do we?

03 04 10 50 CMP

It doesn't look at all high to me (laughter).

03 04 10 53 CDR

Wait until we get down to 10 000 feet.

03 04 10 57 LMP

Holy smoley; down around 10 miles, you're going to --

03 04 11 00 CMP

These mountains look like they'll reach right up here at us. I never saw anything ... This is a little bitty planet, for crying out loud.

03 04 11 04 LMP

It sure is. It sure is.

03 04 11 08 CDR

Okay, let's go ahead. Let's get going; we've got a lot of things to do in the flight plan yet.

03 04 11 12 CMP

I don't know what they all are. Where is the flight plan?

03 04 11 14 CDR

Right here.

03 04 11 17 LMP

Okay, and give me that thing, and see if I can help us find out where we are. Okay, I've got the S-band set up to --

03 04 11 22 CDR

Okay, we'll take it. Let me get a time back here for these damn things, Gene-o. The time we started at 150 west, 75:52 --

03 04 11 31 LMP

I already got that on there. 75:53, the second one.

03 04 11 34 CDR

Okay.

03 04 11 35 LMP

I already got that. Now, where in hell are time ...?

~~CONFIDENTIAL~~

Day 4

~~CONFIDENTIAL~~

Page 65

- 03 04 11 44 CMP Okay, we done that part.
- 03 04 11 48 LMP You're still going backwards, right?
- 03 04 11 49 CDR Yes.
- 03 04 11 50 CMP Yes.
- 03 04 11 52 LMP Oh, my golly!
- 03 04 11 55 CDR We're still going backwards, okay. Now, it's - At 70, we initiate ORB real - right away 76:17, ORB rate 350, ORDEAL. Let's get the ORDEAL going. Let's go to LUNAR and 60 by 170 over there, John. I'll get it. Let's go to POWER on the LUNAR, take an average ...
- 03 04 12 16 CMP Okay, I'll align the GDC to IMU.
- 03 04 12 18 CDR Yes, align the GDC to IMU and go to close rate. Then you want to call up VERB 82 - 83, right? I wonder what day it is?
- 03 04 12 31 LMP They know we're here, because they would have acquired us at 12. You want me to take something off your hands, Tom?
- 03 04 12 43 CDR The stuff get your DAP at 315 ... 214. You want me to get it, John?
- 03 04 12 50 CMP Go ahead. You want me to get it?
- 03 04 12 56 LMP Yes, the only damn thing I didn't like about that engine was the way it -
- 03 04 13 08 CDR It looks like we've got some pretty phenomenal hardware.
- 03 04 13 12 LMP God dang, that thing looks ...
- 03 04 13 14 CMP It's smooth as silk.
- 03 04 13 17 LMP I wonder what our nominal percentage is down there on the ...
- 03 04 13 21 CMP Enough to ... you back.
- 03 04 13 23 LMP I've got 39 percent.

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~~CONFIDENTIAL~~

Day 4

- 03 04 13 24 CMP That's alright.
- 03 04 13 25 LMP I thought we were looking at 47 percent in the SIM's all the time. We've got another burn to make, yet.
- 03 04 13 32 CDR Yes. 40 percent.
- 03 04 13 38 LMP I thought we were used to looking at 47 percent?
- 03 04 13 42 CDR Okay, John, we got to go through - We're coming along like this. Okay, we have a ...; right, babe?
- 03 04 13 50 CMP Yes.
- 03 04 13 51 CDR Okay. Pitch down to 315 ORDEAL.
- 03 04 13 57 CMP Okay. But that's all slipped 11 minutes because of this time lag.
- 03 04 14 01 CDR Yes. That's 76:27. 13 minutes ...
- 03 04 14 08 LMP I'm on the middle of the ...
- 03 04 14 15 SC (Sigh)
- 03 04 14 21 CMP Pitch down to where? Okay, that's --
- 03 04 14 23 LMP 70 degrees..
- 03 04 14 36 CMP Okay, what am I pitching to?
- 03 04 14 38 CDR We need to pitch down to 315 inertial for ORDEAL.
- 03 04 14 44 CMP ... inertial ...
- 03 04 14 47 CDR ... need to pitch down.
- 03 04 14 50 CMP Okay.
- 03 04 15 05 LMP Got the right what?
- 03 04 15 08 CDR So we're going to be upside down coming around the --
- 03 04 15 10 LMP Disagrees - This is 37 percent at this temperature and - and pressure, so the helium pressure in the --
- 03 04 15 17 CDR So, we've rolled 180, right?

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Day 4

~~CONFIDENTIAL~~

Page 67

- 03 04 15 18 CMP Yes.
- 03 04 15 19 CDR Then we will swing down through the straight vertical; right, babe?
- 03 04 15 23 LMP Yes.
- 03 04 15 24 CDR Then we'll come over like that.
- 03 04 15 25 LMP Yes.
- 03 04 15 26 CDR Until we come into that ...
- 03 04 15 27 LMP Yes.
- 03 04 15 28 CDR Alright?
- 03 04 15 29 LMP Yes.
- 03 04 15 30 CMP Get some pictures of this, while we're pitching over; we'll probably never do this again.
- 03 04 15 33 LMP Yes, okay. Want to try that other lens or do you want to use this one entirely?
- 03 04 15 42 CMP Oh, boy!
- 03 04 15 43 CDR Black skies - Let's see, and we'll acquire at 20 minutes.
- 03 04 15 49 CMP It's the weirdest thing I ever saw in my life. This is worth the price, boy.
- 03 04 16 07 LMP Isn't it? I'll tell you - 60 miles looks like you're awful close to me.
- 03 04 16 15 CDR Do you recognize any stuff I got you?
- 03 04 16 17 CMP Yes. There's the Tallahatchie Bridge.
- 03 04 16 21 LMP Did you find it?
- 03 04 16 22 CMP Yes. That's my big basin. It is a big basin! Look at those sides!
- 03 04 16 28 LMP Where you looking, on the - -
- 03 04 16 29 CMP Right up there.

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- 03 04 16 30 CDR Oh, that whole thing?
- 03 04 16 31 CMP Yes, that whole great big thing.
- 03 04 16 33 LMP What latitude is that at, babe?
- 03 04 16 35 CMP I don't know; I have no idea where we're at.
- 03 04 16 39 LMP I should have - I - I should get my lunar - lunar chart. I've got it marked a little bit more. This is - this is - this is where the target of opportunity.
- 03 04 16 47 CMP When we have to be there?
- 03 04 16 53 LMP Would you believe where we are, guys?
- 03 04 16 54 CDR Huh? Yes, ... at.
- 03 04 16 56 LMP Would you believe where the hell we are?
- 03 04 16 58 CDR We've got a lot of work to do, too.
- 03 04 17 00 LMP I agree with you.
- 03 04 17 03 CDR Old Jack will flip just over that one volcano.
- 03 04 17 07 LMP That had to be a --
- 03 04 17 08 CDR Oh, yes. You could see the flows coming out of the top, and ... --
- 03 04 17 10 LMP Tom, get that one right there. It was sure black, wasn't it? We're going backwards. Let me see what the hell we're looking at? I wish --
- 03 04 17 18 CMP At least take some of that in color, so it shows up in color.
- 03 04 17 21 LMP Yes.
- 03 04 17 22 CMP That what-you-call-it.
- 03 04 17 24 LMP We come back around just the same.
- 03 04 17 34 CDR We need that 250?
- 03 04 17 39 CMP How's the water boiler doing there, Gene-o, babe?

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Day 4

~~CONFIDENTIAL~~

Page 69

- 03 04 17 43 LMP The water boiler's not boiling yet, because we still got good temperatures.
- 03 04 17 46 CDR Wonder what the temperatures are. Hey, there's another little one for Jack to look at. We're going to keep him busy for years.
- 03 04 17 52 LMP Oh, give me - give me this one. This has got a - this has got a raw - it looks like a rocky basin in it. On this crater here, Tom. Where is 315 ORDEAL, Tom?
- 03 04 18 02 CDR Let me check it. Right around here.
- 03 04 18 04 CMP We should be up to 70 - 3, ENTER. You got that set up on ORDEAL?
- 03 04 18 13 CDR Yes.
- 03 04 18 14 CMP Why's this one here doing it, too?
- 03 04 18 16 CDR Number 2's INERTIAL; POWER's - AUTO; is EMS, OFF? EMS - I mean ORDEAL? I got the power to it - in LUNAR.
- 03 04 18 27 LMP Why, those sides don't look - look rocky, you can see the bottom of that.
- 03 04 18 31 CDR It could be.
- 03 04 18 34 CMP Hey, what's going on there?
- 03 04 18 36 CDR/LMP 263.
- 03 04 18 39 CDR You see INERTIAL is about equal to ORB rate there, babe.
- 03 04 18 43 LMP I'm coming backwards, so this stuff's got to be --
- 03 04 18 46 CDR That's right. Look at --
- 03 04 18 47 LMP -- over here.
- 03 04 18 48 CDR Okay.
- 03 04 18 49 LMP Okay?
- 03 04 18 50 CDR Yes.

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- 03 04 18 51 CMP That had me a little worried.
- 03 04 18 52 CDR Yes, I understand. You guys - You see, we're going to be going upside down; we're now going straight down over the subsolar point.
- 03 04 19 01 LMP We certainly in hell ought to be able to pick out - Tom, you know that lunar map we got in that case? If you could reach up and grab that for me, that's a - then we'd each have one, and that's - our LM lunar map. I don't mean our strip chart, but I mean the - -
- 03 04 19 12 CMP Give me - give me - give me a - give me a - give me a - a thing.
- 03 04 19 16 LMP That?
- 03 04 19 17 CDR The camera. Go.
- 03 04 19 20 LMP Then - then I could follow that other chart which I've got marked a lot better. I'd like to find Neper when we come around on - -
- 03 04 19 25 CMP I'll get it, Tom. Where is that thing? In here somewhere?
- 03 04 19 27 CDR Yes, it's right in there. I want to see this one.
- 03 04 19 40 CMP That's black - -
- 03 04 19 41 CDR There's stuff in there.
- 03 04 19 42 LMP That's black stuff, I can see it from here.
- 03 04 19 43 CMP That black - -
- 03 04 19 45 CDR I've got another one - Hold it, John. I got a good one for Gene - Hold that. Yes, it's black as hell in some of that stuff.
- 03 04 20 06 LMP Ever see anything like this in your life?
- 03 04 20 08 CMP (Laughter) Obviously not!
- 03 04 20 11 CDR We're coming up to the subsolar point. Okay.
- 03 04 20 17 LMP Okay.

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- 03 04 20 18 CMP That damn thing right there is nothing but a big hill that it looks like a damn --
- 03 04 20 24 CDR Oh, look at that!
- 03 04 20 25 CMP -- it looks like one of the volcanos in Arizona!
- 03 04 20 26 CDR That one over there.
- 03 04 20 28 LMP There's another fresh one, Tom. Let me get this fresh one over here with this --
- 03 04 20 30 CDR Yes, I've got one now.
- 03 04 20 33 CMP Watch for the horizon, babe.
- 03 04 20 34 CDR I don't even have the horizon --
- 03 04 20 35 LMP What happens if you get the horizon in?
- 03 04 20 37 CMP They take off points.
- 03 04 20 38 LMP Well, here's a rim crater on a rim crater. This is the one I want to track, yes.
- 03 04 20 45 CMP When does Houston supposed to come into view?
- 03 04 20 47 CDR Oh, look at that! What's that big crater over there?
- 03 04 20 49 CMP Well, when's AOS, you guys? (Laughter)
- 03 04 20 51 CDR/LMP At 22.
- 03 04 20 52 CDR I think the best thing to say - ... Houston, tell the earth we have arrived. Don't go into the rest of it.
- 03 04 21 02 LMP Here, you want this? I'm going to try and find out - We're at the subsolar point. God dang, you can't really see much! Look at! Get that one straight down, Tom, at subsolar. Can you see that little white one?
- 03 04 21 11 CDR I've got it.
- 03 04 21 14 LMP John, where would you say subsolar is on there? In longitude?
- 03 04 21 19 CMP Babe, now, don't - don't be asking me things like that, I can't --

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- 03 04 21 22 LMP It must be about 90 degrees, huh?
- 03 04 21 24 CDR Yes. What do we have - We're in PGNS to reacquire?
- 03 04 21 30 LMP Okay.
- 03 04 21 31 CDR Let's stand by to give them the burn. And also, to tell them that we have arrived.
- 03 04 21 37 LMP Where's the flight plan, so I can give them all that jazz? You say when. Give me the flight plan, John. You got it in here? You keep the NAV, I'll take the flight.
- 03 04 21 46 CDR Okay, you can stop them pretty soon, John.
- 03 04 21 48 CMP Okay.
- 03 04 21 50 CDR Keep it upside down. And we should be going right down the Apollo Zone.
- 03 04 21 53 CMP Okay.
- 03 04 21 55 CDR Okay.
- 03 04 21 56 LMP We ought to be looking coming - We're still going backwards.
- 03 04 21 58 CMP You got your tick-tock going there? Do you know what time it is from when we started 150 west?
- 03 04 22 05 LMP No, I didn't time it, babe, but - I know the time. I know that the time's on the chart at 53 - is at 75:53. I marked it on there.
- 03 04 22 15 CDR 75:53; and at 23, it will be 30 minutes after that, right?
- 03 04 22 20 LMP Yes.
- 03 04 22 21 CDR Where do we start? There's 10 minutes, 20 minutes; okay, here's where we should be coming up to right now. 30 minutes, right here. Okay. Of course, we are coming - we're upside down, right? Going forwards.
- 03 04 22 34 CMP Yes. Look at that planet, look at that thing there?
- 03 04 22 36 LMP Yes.

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- 03 04 22 38 CMP Hey, that's something, isn't it?
- 03 04 22 39 CDR Here's another volcano for - for Jack to look at. There's no doubt that there's a - -
- 03 04 22 43 LMP There's two of them. See them together?
- 03 04 22 44 CDR We got - -
- 03 04 22 45 CMP Oh, no, that doesn't - that's not - that little white one, Tom?
- 03 04 22 49 CDR Yes, I was wondering - -
- 03 04 22 50 LMP That - that with all those rays; that's got to be an impact crater or something like that, I'll bet.
- 03 04 22 52 CDR But why is it going up high?
- 03 04 22 54 CMP Well, I can't tell that it is, looking down at the subsolar.
- 03 04 23 00 CDR Okay, stop it, José.
- 03 04 23 02 CMP Yes. We're stopped.
- 03 04 23 04 LMP Hey, John? You ought to be able to see a big, big Neper on your left somewhere.
- 03 05 47 40 CDR Did you put us in 10-degree deadband?
- 03 05 47 45 LMP Yes. Is it over against it?
- 03 05 47 49 CDR Yes. The other way in yaw.
- 03 05 47 53 LMP Has it fired much? Can you tell?
- 03 05 47 58 CMP No, the water boiler should have stopped. I don't think I'm going to get any sleep tonight. Jesus Christ, that's something (laughter). You know, if this rendezvous and all that stuff works just like it's supposed to, this is going to be one hell of a lot of fun. If it don't, shit.
- 03 05 48 21 LMP Minus 47 and 237, huh? 180, 210, 240, 237, so that would be right about there. We just lost contact, by the way.

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03 05 48 58 LMP Soon as we come around again, we got a P27 update?

03 05 49 13 LMP Oh, shit; they said we'd go into REACQ mode, and then you - then you maneuver.

03 05 49 17 CMP No, that's supposed to be a little later, because 10 minutes later. We're not - we're still in the deadband, aren't we? In the - thing, more or less?

03 05 49 43 LMP See any Girl Scouts or anything down there?

03 05 49 46 CMP No, but you can ... the horizon with no sweat.

03 05 49 50 LMP Yes. Shit, yes, babe. Hey, let me ask you a question. Where do you suppose a planet like this comes from? Do you suppose it broke away from the - away from the earth like a lot of people say?

03 05 50 07 CMP Don't ask me, babe --

03 05 50 08 LMP It sure looks different.

03 05 50 09 CMP -- I ain't no cosmologist. I don't care nothing about that.

03 05 50 12 LMP Sure looks different.

03 05 50 14 CDR I just know we're here and it's tremendous to be here.

03 05 50 18 LMP Yes, but think about where it all started.

03 05 50 22 CMP By God, just think of where we're all going, though, one of these days. This is just the beginning. We have to get rid of that crap first. There must be some real smart folks out there. God, they sure keep a bunch of stars out there for them. You realize these are the first dark we've been in since we left that damn planet. First time I ever felt warm about the dark.

03 05 50 51 LMP I don't know how the hell. It amazes me how - they could target us from right back there to be 60 miles above the moon. That's amazing.

03 05 50 58 CMP When we do the landmark tracking at? I just read the flight plan; you got a P52 - Let's see, we had a P27 update after we acquire, ... also on this next pass. And we've got to maneuver to the attitude. Right?

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- 03 05 51 15 LMP There it is, right there. There's acquisition.
That's all 10 minutes late, though. See, I've got
the antenna in REACQ to see when we've picked it up.
It's still sleep attitude, isn't it?
- 03 05 51 24 CMP Yes.
- 03 05 51 25 LMP Okay, we're going to see whether the antenna will
pick up in REACQ again.
- 03 05 51 28 CMP Okay.
- 03 05 51 51 LMP ..., what was that?
- 03 05 51 53 CDR It's the sunlight --
- 03 05 51 54 LMP Son of a bitch, I'll tell you, when it gets light,
it gets light (laughter). That's earlier than they
said (laughter) sunrise - that's earlier than they
said sunrise was going to be. That's what I said
before. When it got dark, it got dark just like
that. When it gets light, it gets light --
- 03 05 52 09 CDR I thought we'd let off that beef.
- 03 05 52 26 LMP It's the only stuff I enjoy eating on this whole
flight. They're very few and far --
- 03 05 52 31 CMP ... either the earth. Can you guys see this - the
moon out there?
- 03 05 52 35 LMP No, no, it's just blackness. We can't see it yet.
- 03 05 52 39 CDR This is a sleep attitude and you don't see too much
with sleep attitude.
- 03 05 52 41 CMP Well, what the hell is the sun doing here?
- 03 05 52 45 CDR It's where it should be.
- 03 05 52 47 LMP Huh? It's early according to their next sunrise.
Does that disturb you?
- 03 05 52 51 CDR No.
- 03 05 53 05 CDR (Laughter) I'll tell you.
- 03 05 53 07 LMP That's what it did before. When we went in the
blackness, we went in --

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03 05 53 10 CMP Yes, ... I don't remember that --

03 05 53 12 LMP I do, and when we came in --

03 05 53 13 CMP -- I was busy doing something else.

03 05 53 15 LMP -- when we came in the sunrise, it was the same thing.

03 05 53 22 CMP ... see what those attitudes were ... time.

03 05 53 25 LMP Oh, it was 77:51. They were right on the money. Tom, turn your - your lights on, will you? You turned all your DSKY lights and everything off.

03 05 53 36 LMP Better.

03 05 53 39 CDR Okay, take a look at the flight plan, and ...

03 05 53 41 LMP Okay, we ought to be coming over.

03 05 53 59 LMP Okay, nothing between now and when acquire. God damn, can you see the moon? We're here.

03 05 54 10 CMP (Laughter) ... we're going to make it.

03 05 54 12 CDR Isn't that great?

03 05 54 13 CMP That's great. You guys have done good.

03 05 54 16 LMP It's down there, but I don't know where the hell it is.

03 05 54 19 CMP I feel happy as I'll be tomorrow when I see you come back through that hole. Down there.

03 05 54 26 LMP Yes, there ain't - you can look ahead. We got a P27, you want to check in the high gain, then we got a P27, then you maneuver for high-gain antenna for observation and then P30 - P52.

03 05 54 40 CDR Okay.

03 05 55 22 CMP We got a lot of work to do yet.

03 05 55 24 CDR Yes, it's going to be a long day. Everybody finished with this food? Put it back in the plastic bag ...

03 05 55 30 CMP I already ...

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- 03 05 55 54 CMP I'll get some water.
- 03 05 56 08 CDR How did you like that ...?
- 03 05 56 13 CMP I hope - I hope we stage that good for two more burns.
- 03 05 56 18 CDR Yes.
- 03 05 56 20 LMP You know, I - I wonder what our propellant quantity was supposed to be. I thought it was supposed to be 70 - 47 percent after LOI 1.
- 03 05 56 28 CDR Don't think - it could be.
- 03 05 56 30 LMP Huh?
- 03 05 56 31 CDR Not with this total mass on board.
- 03 05 56 36 CMP I thought - no, I thought --
- 03 05 56 37 LMP That's what we were seeing in the simulator.
- 03 05 56 39 CMP Listen, we're at - we're just ... 40 percent and if both helium tanks crap out now, which they won't because they're not near as - ... what kind - You know, we could get out of our orbit, go home, do the rescue, and every other damn thing.
- 03 05 56 55 LMP ... on helium - now --
- 03 05 56 56 CDR What have we got?
- 03 05 56 57 CMP 1700, 1800 --
- 03 05 56 58 LMP 1700. That conforms - I checked the chart - that confirms the 37 percent.
- 03 05 57 02 CDR What did we start with? 3000?
- 03 05 57 04 CMP We started with 3700. That could go to regulator pressures.
- 03 05 57 11 CDR ... pressure would ... the burn. Okay.
- 03 05 57 43 CDR At 78:30, you roll to 180. ...
- 03 05 57 47 LMP No, make that 78:40 because we don't acquire until 31, and they want to check the HIGH GAIN REACQ mode - -

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Day 4

03 05 57 52 CDR Okay.

03 05 57 53 LMP -- in the sleep attitude.

03 05 57 54 CDR Yes, alright.

03 05 57 55 CMP So those stars were checked off ...

03 05 58 03 LMP We ought to be looking at sunrise right about now. No - no, I don't mean sunrise, I mean at 150 degrees.

03 05 58 12 CMP We should?

03 05 58 13 LMP Where is the moon? Does anyone know? You got it right there?

03 05 58 19 CDR I got an ORB rate going. It's about right -- we're going to be pitching over again.

03 05 58 27 CMP We're not pitching over yet, are we?

03 05 58 29 CDR No, I mean - in ORB rate, we are initially holding still.

03 05 58 34 LMP Okay, I put the time on here, John; if you want to try some.

03 05 58 38 CDR The first time we'll see if that's the top hatch, Gene-o.

03 05 58 41 LMP Okay. John, 77:58:27, which is right. Now we're at 150.

03 05 58 46 CMP Okay, let me start my clock.

03 05 58 48 LMP I got mine started also.

03 05 58 51 CDR Hell, John could look - look down there, can't you?

03 05 58 54 CMP Well, I don't know. I'm not able to right this minute. That's what's bugging me.

03 05 58 57 LMP Okay, we should be right over, what is that, America? XV.

03 05 59 04 CDR We're going backwards, aren't we, babe?

03 05 59 08 CMP We're going backwards.

~~CONFIDENTIAL~~

Day 4

~~CONFIDENTIAL~~

Page 79

- 03 05 59 10 CDR We're going backwards and we're pitched up. If you put your trunnion way down so you could see all the way down, that ought to get it ...
- 03 05 59 21 CMP Well, I got it all the way down, babe.
- 03 05 59 23 CDR Okay.
- 03 05 59 24 CMP I can't get there? Will I be able to get there pretty soon?
- 03 05 59 29 CDR Yes, just hold it ...
- 03 05 59 36 CMP Now, let's see; what's ... Oh, shit. Well, what would really be good ...
- 03 05 59 42 LMP Hey, we're right over America right now.
- 03 05 59 44 CMP But we can't - we can't see it.
- 03 05 59 45 CDR We're going backwards.
- 03 05 59 47 CMP Again, huh?
- 03 06 00 00 CMP ... pitch it down or up?
- 03 06 00 02 CDR It'll come in from the bottom up ...
- 03 06 00 06 CMP Okay.
- 03 06 00 14 SC (Cough)
- 03 06 00 21 LMP Actually, this place appears at the first glance to be friendlier than I thought it was. A little lonely, maybe. But friendlier.
- 03 06 00 35 LMP What is that, Tom? Let me ...
- 03 06 00 37 CDR ...
- 03 06 00 45 CMP Here it comes.
- 03 06 00 47 LMP Okay, I'll give you a hack at - Of course, you got some crazy angle on it, huh?
- 03 06 00 53 CMP Yes.
- 03 06 00 57 IMP In 10 minutes, you should be - well, crossing 180.
 300, 309.

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- 03 06 01 12 CDR Shit, I got - Look at this stuff out here.
- 03 06 01 15 LMP Here's your ..., Tom.
- 03 06 01 16 CDR Huh? Yes. I don't guess ... Beautiful.
- 03 06 01 23 LMP You should probably be almost right over America, Tom, if you just passed it.
- 03 06 01 28 CDR America's a big basin. I got a --
- 03 06 01 30 LMP Yes, you might be looking right in it and not be able to see it. See?
- 03 06 01 32 CDR No, I'm not in a big basin. I got a huge crater out there. Take a look at it --
- 03 06 01 34 LMP Okay, you're - you're right in here somewhere, because I started the clock right here and you're at 10 minutes.
- 03 06 01 39 CDR We yawed a little bit --
- 03 06 01 40 LMP So you're - you're only 3 minutes; so, hell, you're right in here.
- 03 06 01 45 CDR Is that America?
- 03 06 01 46 LMP Well, it's got to be enormous, babe. You're right - you could be in it and not know it. You could be in it and not know it.
- 03 06 01 54 CDR Have you got the event timer on?
- 03 06 01 56 LMP No, but I can - you can set it. Set it on 4 minutes and I'll start it for you.
- 03 06 02 02 CMP That's right.
- 03 06 02 04 LMP Go ahead, you look and I'll set it for you.
- 03 06 02 13 CDR Now, when you first come around, it's a pure gray. When you first come around, it's a pure gray. There's a big basin over there to my left. 4 minutes. Yes, we're going backwards. Huh? We're going backwards. I should be looking out to the left.
- 03 06 02 47 LMP Okay, there's your clock. There's your clock.

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Day 4

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Page 81

- 03 06 03 10 CDR I'm going to take a look at that stuff, babe.
- 03 06 03 12 LMP If you'd turn your body over, Tom, you can get - orient yourself.
- 03 06 03 15 CDR Yes --
- 03 06 03 16 LMP Now look at the map. Turn your body over and orient your map. And now everything you see is on your right.
- 03 06 03 20 CMP Give me - give me the --
- 03 06 03 23 LMP What do you need, John?
- 03 06 03 24 CMP -- flight plan. ... per second?
- 03 06 03 32 LMP I wrote in AOS ... by the way. See, Tom, now you're going - now you're going forward, so --
- 03 06 03 40 CDR What's that big one over there?
- 03 06 03 42 LMP You ought to be - Sea of Moscow ought to be way over there. You're right in here somewhere, babe.
- 03 06 03 46 CDR That's what I'm looking at. Get out that other map. Yes, the other map.
- 03 06 03 50 LMP Right here. But it won't look far enough. You won't catch what you're seeing.
- 03 06 03 54 CDR What we're seeing is farther, huh?
- 03 06 03 56 LMP I think so. And, lord, look at those peaks. Now, you might ought to be seeing something right in here. You might ought to be seeing some of these, babe, right in here. I don't know. You're looking at 5 minutes and 23 seconds. Halfway to the 10-minute mark. It's 20 minutes; there's 10 minutes.
- 03 06 04 25 CDR I've got it.
- 03 06 04 26 LMP Where are you?
- 03 06 04 28 CDR Right here, I think. America is right down there. You see, we're yawed to the right. You got this double thing here; you got a hole here, a crater here, and you got those two bloopers there, and one

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Day 4

up here, and two on the side, and two dimples. Right here we are. That's IX-A.

- 03 06 04 49 LMP Let me see, you got IX-A?
- 03 06 04 52 CMP Put your finger there.
- 03 06 04 53 CDR IX-A. I'll take a shot of it if you got the -
- 03 06 04 55 LMP Where's - You want that? Don't you want the other lens on there? Where's the other lens?
- 03 06 05 01 CMP What lens?
- 03 06 05 02 CDR I gave it to you.
- 03 06 05 03 LMP You didn't give it to me. What did we do with the other lens?
- 03 06 05 06 CDR I don't know.
- 03 06 05 07 LMP You took it out, and you said, "Where should I put it?"
- 03 06 05 09 CMP I ain't got it.
- 03 06 05 12 LMP Did you put it in your bag? Because I know I don't have it.
- 03 06 05 17 CMP That's absolutely fascinating.
- 03 06 05 20 CDR We got a slide that's missing out of there, too.
- 03 06 05 22 LMP Here's the slide right here, but - but it sure would be nice to have that other lens. Here you go, babe. Here's the slide right here.
- 03 06 05 44 CDR Yes, we need the other lens.
- 03 06 05 47 LMP Yes, I know you do. Where the hell did it go? No Velcro - I remember you were trying to stick it somewhere. You were holding it up there and you said, "There's no Velcro on it." Did you stick it in your pocket or somewhere?
- 03 06 05 58 CDR No, I didn't want to get it messed up.
- 03 06 06 01 LMP John, do you know if it's down there anywhere?

~~CONFIDENTIAL~~

Day 4

~~CONFIDENTIAL~~

Page 83

- 03 06 06 03 CMP I don't know where no Velcro is.
- 03 06 06 05 CDR You said maybe - Oh, I think it may be up there in one of those boxes.
- 03 06 06 10 CMP Well, that big crater. That's Americus alright. I see it back behind you right now. I'm looking at --
- 03 06 06 15 LMP I'm going to get a picture of it through there.
- 03 06 06 18 CMP You can't get no pictures through here. That's it. That's the Americus. It's going over the ridge, right?
- 03 06 06 24 LMP Well, it ain't in there.
- 03 06 06 25 CMP Is that Americus?
- 03 06 06 28 LMP That's the survival kit; it ain't in there. Hell, I can't even close that mother now.
- 03 06 06 37 CDR What, the survival -
- 03 06 06 38 LMP Yes. Tom, I don't know where the hell you - let me sec.
- 03 06 06 43 CMP You wouldn't put it in the survival kit.
- 03 06 06 44 CDR No, you can't even --
- 03 06 06 45 LMP I can't find it.
- 03 06 06 59 LMP Okay, so now we still don't have the lens.
- 03 06 07 04 CMP The tape's in there.
- 03 06 07 05 LMP Yes, but the lens isn't.
- 03 06 07 08 CMP It floated off somewhere.
- 03 06 07 09 LMP I know it did.
- 03 06 07 11 CDR ... trying to think.
- 03 06 07 14 LMP There just ain't anyplace to put anything in this god-dang spacecraft. I know I don't have it over here, Tom. This is just like, oh golly, oh boy.
- 03 06 07 34 CDR ... a lot of this stuff is too close to shoot this --

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Day 4

03 06 07 37 LMP

I know; you should have - that's where we should have changed the god-dang thing out. John, it's not back in the camera box, is it?

03 06 07 43 CMP

I don't know. Let me look under here and see whether it floated around.

03 06 08 02 LMP

Oh, shit.

03 06 08 03 CDR

What?

03 06 08 04 LMP

Oh, I got hoses all over my - The most dangerous thing in here is that chances are we'll strangle to death.

03 06 08 18 CDR

See if it's back here.

03 06 08 20 LMP

It will have lodged somewhere, but I don't know where.

03 06 08 22 CDR

I got it.

03 06 08 23 LMP

You got it?

03 06 08 24 CDR

I put it back in the bag.

03 06 08 26 LMP

Oh, okay. ... 4 feet hanging out of those bags under there.

03 06 08 30 CMP

If that isn't a big hill. That's old - that's old Mount Fujiyama. What's - what number is that one with the big hill, bigger than the central peak?

03 06 08 41 CDR

10, 310.

03 06 08 42 CMP

That's it. I'm looking at it.

03 06 08 44 LMP

Yes, that's the big one. 310.

03 06 08 49 CMP

Give me - give me that thing.

03 06 08 52 LMP

What do you want?

03 06 08 54 CMP

Give me - give me - give me the map, give me ... map. I got to get my landmark map - tracking map out of here. You got yours?

03 06 09 01 LMP

Yes, I got one here. Tom's got one.

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- 03 06 09 19 LMP Didn't have any idea we were going to be doing all this, did we?
- 03 06 09 27 CDR It's 10 minutes and 30 seconds.
- 03 06 09 34 LMP 10 minutes and 30 seconds. 78:31 is AOS.
- 03 06 09 45 CDR Okay.
- 03 06 09 46 CMP But just keep looking, we don't have anything to do until AOS.
- 03 06 09 50 LMP Tom, do you know where we are?
- 03 06 09 53 CDR Yes, brother. Man, there's some big gash coming right ...
- 03 06 09 58 LMP Okay, I - we only got view out of one window. Hey, babe, I think I know which one that is. Would you believe - could you believe 308? Look at it.
- 03 06 10 07 CDR Where, where?
- 03 06 10 10 LMP We just went right alongside of it. Look at it - Bang, bang.
- 03 06 10 13 CDR We're going backwards.
- 03 06 10 14 CMP I got 308 --
- 03 06 10 15 CDR 308 ... We are already past that.
- 03 06 10 17 CMP -- out my window. I've got 308 out my window.
- 03 06 10 19 CDR 308 may be out your side.
- 03 06 10 20 LMP Yes, but I'm not - I'm not rolled anywhere right.
- 03 06 10 23 CDR We're north of track here.
- 03 06 10 24 CMP I've got 308 --
- 03 06 10 25 LMP You're right - you're right.
- 03 06 10 28 CMP Funny-looking mounds is 308.
- 03 06 10 31 LMP Yes.

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- 03 06 10 32 CDR Maybe this is 221. Sure, this is 221 and 23. ... oblique there and one up there.
- 03 06 10 41 LMP How much time have you got? You're pushing 11 minutes is all.
- 03 06 10 45 CDR Alright, you're up here.
- 03 06 10 46 LMP Okay.
- 03 06 11 00 CMP Man! That is bright.
- 03 06 11 36 CDR What's that huge flat one there?
- 03 06 11 40 LMP Boy, this lens is so bad; there ain't anything in the world to keep it from twisting, is there? What is that big - Look at those big sunken ones, Tom. What are - See you got a -
- 03 06 12 00 CDR Where, out there?
- 03 06 12 01 LMP Yes.
- 03 06 12 02 CDR That's what I'm looking at.
- 03 06 12 03 LMP I'm looking at 225 right now.
- 03 06 12 06 CDR You're on 225?
- 03 06 12 07 LMP Yes, as a matter of fact, I see CP-1.
- 03 06 12 11 CMP He could be at 225.
- 03 06 12 13 CDR Yes, okay, I was 21 -
- 03 06 12 16 LMP What's that big one way out there?
- 03 06 12 17 CDR That big one? Is that the Sea of Moscow?
- 03 06 12 21 LMP Well, let's see; you're at 13 minutes. No, I don't think so. I think you're probably -
- 03 06 12 27 CDR John can only see 225 and CP-1.
- 03 06 12 29 LMP How about the 224? Does that look like it's it?
- 03 06 12 31 CDR It's way back there. I got 224 back there.

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- 03 06 12 36 LMP Well, the Sea of Moscow is not that round. That's not the Sea of Moscow.
- 03 06 12 40 CDR No, that's over the ridge there. Look at that - definite white shape.
- 03 06 12 46 LMP Let me see.
- 03 06 12 48 CDR How do you like that - that's white on the gray.
- 03 06 12 50 LMP Oh, without question, babe.
- 03 06 12 52 CDR White on gray.
- 03 06 12 53 LMP Two different colors.
- 03 06 12 54 CDR Two different colors.
- 03 06 12 55 LMP If you call it color, but - -
- 03 06 12 57 CDR Now, that is a beauty.
- 03 06 12 59 LMP Did you take any with black and white?
- 03 06 13 01 CDR Yes, they want to shoot one with the color.
- 03 06 13 05 LMP Okay, let me give you a hand. Want the special color film, or do you want the regular?
- 03 06 13 11 CDR I want the special.
- 03 06 13 12 LMP Okay. Here you go. That's just a hole there. Doggone it, it's just - I tell you, some of those are pretty recent. Look at the edges. You know, I bet that stuff is like walking through - through big - well, hell - very loosely packed sand.
- 03 06 13 52 CDR That's a hell of an impact crater, there.
- 03 06 13 55 CMP Yes, that new one you were just looking at?
- 03 06 14 04 CDR Now, damn it, that's white in the brownish gray.
- 03 06 14 08 LMP I believe it is, Tom.
- 03 06 14 10 CDR What are we coming up to in only 15 minutes, half-way in between?

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- 03 06 14 14 LMP 15 minutes; we're right about in here. We should be picking these three up here at 223, 21, and 20.
- 03 06 14 21 CMP I think I'm looking at 229 right now.
- 03 06 14 24 CDR Yes, we're a little farther than that. Some of the big stuff we can't see - we're - -
- 03 06 14 30 LMP Well, the map is built for 60 nautical miles, circular?
- 03 06 15 04 LMP Can you see the Sea of Moscow up there, Tom?
- 03 06 15 07 CDR I'm looking, but I still can't see it. It's over that ridge.
- 03 06 15 18 LMP I thought the back side was supposed to be rougher than the front side. From what I've seen so far, maybe there's not as much maria, but it sure doesn't seem as - -
- 03 06 15 28 CDR Here's Jack's crater again we got for him.
- 03 06 15 31 CDR That big one?
- 03 06 15 45 CDR Yes. Where's the monocular?
- 03 06 15 46 CMP Huh?
- 03 06 15 47 CDR Monocular?
- 03 06 15 49 CMP Did we put that away? How about the shelf right down there. Is it on the shelf?
- 03 06 16 04 CDR Definite black.
- 03 06 16 20 LMP Let me see it a second. While you're looking, I'll look over your shoulder.
- 03 06 16 37 LMP What does it look like, John; through this sextant - telescope?
- 03 06 16 41 CMP Fantastic. I can pick out these craters. It's going to be easy. We're going to knock it right in the head, so to speak.
- 03 06 16 58 CDP What are we coming up to - 15 minutes?

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- 03 06 17 01 LMP 15 minutes, we should be coming right up in here. We should be just about to the Sea of Moscow.
- 03 06 17 07 CDR Is that that - -
- 03 06 17 08 LMP And in this thing here, you might keep pretty regular, Tom.
- 03 06 17 11 CDR Yes, that ...
- 03 06 17 24 CMP Some of those holes are pretty deep.
- 03 06 17 25 CDR Yes, that - that is a dark brown.
- 03 06 17 34 LMP Some of those holes are sure pretty deep. Boy, look at this one right here. See the one right in front of your window? Boy, looking at that one through a monocular, it's ...
- 03 06 17 42 CDR Yes.
- 03 06 17 47 LMP But the back side, although there's a lot more - maybe a lot more - less flat land and a lot more apparent craters. It's just pretty smooth by comparison, isn't it?
- 03 06 17 58 CDR Oh, shit, no. Not compared to that maria.
- 03 06 18 01 LMP No, not compared to a maria; I agree. But that's what I mean; overall, it's generally bumpier. But if you talk about sharp or more rugged or ragged slides and hills and peaks, I've seen more of that on the front side after just one pass.
- 03 06 18 15 CDR We're at 20 minutes, and that should be right. There's the 20-minute mark. José, we're going to come up to the big IX that leads into your second one. You got a crater IX, John?
- 03 06 18 25 CMP Yes.
- 03 06 18 26 CDR I got it coming right up here.
- 03 06 18 28 CMP Is it your second landmark?
- 03 06 18 29 CDR Yes. I bet that's got to be it.
- 03 06 18 35 CMP Okay. I think it should be pretty well definable, but you got a -

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- 03 06 18 47 LMP Yes, the back side doesn't have the maria, but it sure did look as rugged as some of those hills like the Apollo Ridge and some of that area - -
- 03 06 18 54 CMP The Pyrenees. There is that other bright crater that we looked at a minute ago with the - Go get it, tiger.
- 03 06 19 32 CMP Gol-ly, I'm looking at - You remember that crater that so stood out that we said was black down inside?
- 03 06 19 37 CDR Yes.
- 03 06 19 39 CMP That is just unbelievable. If that isn't -
- 03 06 19 43 CDR Ought to put on the 250 lens. Damn, I wish we had that.
- 03 06 19 48 CMP That's brown down in there, you guys. It has to be. And black. Plenty of color in there.
- 03 06 20 01 LMP Give me that other lens.
- 03 06 20 02 CMP Plenty of color.
- 03 06 20 03 CDR I want to get this in color. These color lenses will sure bring it out.
- 03 06 20 10 CMP And I don't believe - I don't believe for a minute that that - That doesn't look like a ray to me, it looks like somebody painted it on.
- 03 06 20 22 LMP Remember, I've got that lens in my pocket, Tom.
- 03 06 20 25 CDR Okay.
- 03 06 20 26 CMP Like a flow.
- 03 06 20 31 CDR Let me go ahead and take it.
- 03 06 20 37 CMP God, that's weird-looking.
- 03 06 20 58 CDR Oh, here's some string of crater chains from the big IX. The big crater IX, Gene-o; look it.
- 03 06 21 02 LMP Yes. Let me see them.
- 03 06 21 05 CDR See that rim? See that line there?

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- 03 06 21 07 LMP Yes, yes, that's slanting - that's slanting. In that big crater? That big valley. Let me see where the hell that is.
- 03 06 21 17 CMP Is that where we're at, you guys?
- 03 06 21 19 CDR/LMP Yes. We're right over IX.
- 03 06 21 23 LMP Yes, yes, we're coming up on it. The Sea of Moscow, Tom! You ought to be able to see the Sea of Moscow right through here.
- 03 06 21 29 CDR No, we can't see it.
- 03 06 21 30 LMP Huh?
- 03 06 21 31 CDR This is IX, just the edge of IX, halfway to the horizon.
- 03 06 21 33 LMP Is that right?
- 03 06 21 34 CDR That's right. The Sea of Moscow is over the horizon.
- 03 06 21 45 CMP Is the thing going to acquire? When is it supposed to acquire, you guys?
- 03 06 21 49 LMP In about another 10 or 15 minutes.
- 03 06 21 55 CMP That's a good attitude for taking pictures up north?
- 03 06 21 57 CDR You'd better believe it. Now, I want to get that in black and white.
- 03 06 22 07 CMP This is just marvelous. I can't believe it.
- 03 06 22 09 LMP Yes, we only got it out of one window; but I tell you, we got some good shots out that window.
- 03 06 22 18 CDR I got it.
- 03 06 22 21 CMP That whole wall should be Velcro there ...
- 03 06 22 27 CDR Unbelievable.
- 03 06 22 31 LMP Can you fly now? Your ...
- 03 06 22 56 CDR It's a fast noise. That maria was a hell of a big basin. That's no ...

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Day 4

- 03 06 23 04 CMP Okay. 25 minutes and we'll be going - coming up into - -
- 03 06 23 09 CDR You just passed IX - John, see if you see -
- 03 06 23 17 LMP ...
- 03 06 23 19 CMP CP-2?
- 03 06 23 23 CDR We just passed IX.
- 03 06 23 27 CMP Okay, that was - How many minutes is that? Okay, yes, because I'm looking right here at - Well, it's next to 286. I don't know what the name of it is, but it's got a big round crater in the edge of it.
- 03 06 23 46 CDR Oh, there's a beauty.
- 03 06 23 48 LMP Okay, John; we're coming up on 25 minutes right now.
- 03 06 23 56 CMP 25 minutes, huh?
- 03 06 24 03 LMP Okay, Tom, you should be up, well, right over CP-2 right now.
- 03 06 24 07 CDR Yes, I still can't see it.
- 03 06 24 19 LMP There's 211, 212, 208, 210 over on your side.
- 03 06 24 31 CDR Oh, here's one - here's one. Color - stand by with that color film for me, Gene-o.
- 03 06 24 37 LMP Okay. Let's see, that one far out there?
- 03 06 24 40 CDR Yes, the one that's got that black in the center ... Black as hell.
- 03 06 24 47 CMP The one we're nearest, are we?
- 03 06 24 51 LMP There it is. There it is. That is a rugged fresh-looking mother, too. Okay. You can see it through the monocular. It's got - Where'd it go?
- 03 06 25 12 CDR ...
- 03 06 25 14 CMP No, I got the monocular. I was wondering where the crater went.

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Day 4

~~CONFIDENTIAL~~

Page 93

- 03 06 25 16 CDR Right here. Can you get it from there?
- 03 06 25 18 CMP Yes. Let me see. I think this might be the subsolar point or something?
- 03 06 25 23 LMP ... I might be able to see it out of here.
- 03 06 25 33 CDR I doubt it. Let me take a look down here and see what the coloring is.
- 03 06 25 35 LMP It's awfully sharp and awfully rugged, and there - it's just black. It sure looks like - I don't want to say boulders, because you can't see it that well.
- 03 06 25 43 CDR Definitely black as hell down there.
- 03 06 25 47 CMP By God, I am looking at CP-2.
- 03 06 25 56 CDR ... while I've got it? Take a look at this. Wonder what ...
- 03 06 26 25 CMP Oh, this landmark tracking - I'm tracking it like I've been doing it all my life. Okay, CP-2; we got your freaking number. What do you think about that?
- 03 06 26 36 CDR Where's the other black and white?
- 03 06 26 39 LMP Right here. Did you run out of that one?
- 03 06 26 40 CMP You know what CP-2 is?
- 03 06 26 43 CDR What?
- 03 06 26 44 LMP Is it empty, Tom?
- 03 06 26 45 CDR No, no, no, no, no.
- 03 06 26 46 CMP It's a little bitty impact crater of some kind. It's got a bunch of rocks sitting down in the bottom of it. And they ain't white rocks either.
- 03 06 26 57 LMP Oh, gee.
- 03 06 27 14 CDR Give me 80.
- 03 06 27 17 LMP 80 lens? Coming up. Here you go.

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- 03 06 27 38 LMP Okay, you're now at almost 30 minutes.
- 03 06 28 07 LMP Good way to track to north, I'll tell you.
- 03 06 28 24 CDR Do we have a towel? We need to clean off this window.
- 03 06 28 29 CMP Here, you want a towel? I'll get a clean one.
- 03 06 28 32 LMP Here - here, I got a clean one up here. Do something with that, though. I want to watch this S-band and see what it's going to track for us.
- 03 06 28 49 LMP Here, Tom.
- 03 06 29 30 LMP Here's your chart. I'm going to watch this S-band tracking and see whether I can pick it up. It's right over your head, Tom. It's touching you.
- 03 06 30 06 LMP Neper's coming up at 40 minutes.
- 03 06 30 10 CMP What is?
- 03 06 30 11 LMP Neper.
- 03 06 30 21 LMP I ought to be able to see something out of my window here pretty soon. There we go.
- 03 06 30 32 CMP That's my window, fellow.
- 03 06 30 35 LMP You wouldn't let me look out your optics; I'm not going to let you look out of mine.
- 03 06 30 39 CMP Okay, you got it. Take some good pictures.
- 03 06 30 49 CMP You want me to squeeze in here and fly the space-craft while you guys are --
- 03 06 30 54 CDR No, that's okay.
- 03 06 30 55 CMP -- fooling with whatever it is you're fooling with?
- 03 06 31 03 LMP ... shit.
- 03 06 31 05 CDR Okay, what's the flight plan say?
- 03 06 31 07 CMP Waiting for acquisition. And then what do we do?
- 03 06 31 19 CDR In about an hour --

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- 03 06 31 20 LMP What's that big crater with that fresh one in - It's on the top, Tom. Did you ever decide what that was?
- 03 06 31 24 CDR Which one?
- 03 06 31 27 LMP Well, you can see it out your front window to the left.
- 03 06 31 30 CDR It's got a little bitty fresh one? No, the big one's the fresh one.
- 03 06 31 32 LMP See it?
- 03 06 31 34 CDR What time is it now? 32 - -
- 03 06 31 36 LMP Sounds like we're getting acquisition. By God, it worked.
- 03 06 31 42 CMP Did it?
- 03 06 31 44 CDR Yes.
- 03 06 31 46 CC Hello, Apollo 10; Houston. Standing by.
- 03 06 31 49 LMP Okay, Houston. Looks like the REACQ mode works pretty well there, and - everything - We've acquired, and read you loud and clear.
- 03 06 32 00 CC Roger, 10. We had you - Go through that again about the REACQ. Over.
- 03 06 32 06 LMP I said I went to those pitch and yaw angles and the REACQ narrow deadband, and this attitude I've picked you up loud and strong here.
- 03 06 32 18 CC Roger. Where did the antenna go to pitch and yaw at LOS? Over.
- 03 06 32 29 LMP Hmm!
- 03 06 32 30 CDR ... color film.
- 03 06 32 33 LMP Charlie, I'm not sure I can answer that one specifically.
- 03 06 32 41 CDR José, hold this real quick. I got a beauty coming up. There's a little bit of color on this son of a bitch.

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Day 4

- 03 06 32 54 CC 10, Houston. Do you think the antenna went to the angles that you had dialed in, or fairly close to it? Over.
- 03 06 33 03 LMP Oh, that's affirmative. It did. It went to those angles at LOS. I went to REACQ; I fired LOS; and it did go to those angles, and that's where it stayed and picked you up on the way back.
- 03 06 33 18 CC Roger. Stand by.
- 03 06 33 22 CMP That's what you wanted, isn't it? That's where it went - didn't do anything in between.
- 03 06 33 35 CDR Somebody take that. ...
- 03 06 33 56 LMP 78:40, which is 7 minutes, we maneuver.
- 03 06 34 05 CMP What do we maneuver to?
- 03 06 34 09 LMP Well, they're here, but you'll forget them if I tell them to you.
- 03 06 34 11 CMP Well, why don't we do it with the DAP? Okay.
- 03 06 34 16 LMP 180, 208, and zero.
- 03 06 34 20 CDR We're at 208. Now we're right there.
- 03 06 34 23 CMP Where do they want to go now?
- 03 06 34 24 CMP Roll 180, 208, and zero.
- 03 06 34 28 CDR All I have to do is just roll - roll about 35 degrees. Going to CMC and FREE. Okay, John?
- 03 06 34 35 CMP Yes.
- 03 06 34 36 CDR We're at 208.
- 03 06 34 37 CMP Okay, just roll it.
- 03 06 34 39 CDR SPS - We do roll right. At what time?
- 03 06 34 47 LMP 7 more minutes.
- 03 06 34 48 CDR Oh, in 7 more minutes.

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03 06 34 49 CMP Yes. ... do it now.

03 06 34 51 CDR I'll do it now.

03 06 35 01 CDR Damn! There's black stuff like a little lake in the bottom of that one crater. It looks like -

03 06 35 20 CMP What did you do? Just roll it over there or pulse it or what?

03 06 35 22 CDR I did it IMPULSE. We'll be coming around ...

03 06 35 32 CMP Okay.

03 06 36 00 LMP They just won't use any --

03 06 36 01 CC 10, Houston. We're having trouble getting our HIGH BIT RATE command in. We'd like you to select HIGH BIT RATE. Over.

03 06 37 44 LMP Charlie, give me the map update first; would you, please?

03 06 37 50 CC Roger. It's REV 3, and we got LOS time of 79 --

03 06 42 43 LMP -- minus 0139.0, plus all balls, minus all balls. Roll is 000, pitch is 209, yaw is 000. 0060.1, plus 0060.1; 0139.0, 0:14, 132.5; sextant star is 16, 220.5, 23.2. Vega and Deneb 241, 240, 013. Two-jet ullage, 17 seconds. That's a lot of ullage, isn't it?

03 06 43 21 CC Roger. That DELTA-V_c was 0732.5. Over.

03 06 43 28 LMP Roger. May have read it back wrong. That's what I got written down - 0132.5.

03 06 43 36 CC Roger, 10. And stand by for the TEI pad. Over.

03 06 43 41 LMP Okay. That was Neper, huh?

03 06 45 17 IMP -- increase to 58 seconds, right? It's been more than 58 seconds, but - -

03 06 45 21 CC 10, Houston. Stand by for about a minute. We are going to bring them down our uplink, and you won't hear us for about a minute. We're going to try to

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Day 4

reconfigure ground site. We've got problems with our uplink. Over.

03 06 45 31 LMP

Okay. That's enough. Let's shut the damn - Coming up.

03 06 45 40 CDR

Okay, I'm wondering about the burn time and the burn attitude. We got - -

03 06 48 45 LMP

Okay. TEI-5, SPS/G&N: starting with NOUN 48 is minus 0.61, plus 0.47; 86:19:10.00; plus 3643.0, minus 0149.3, plus 0054.6; and pitch angle is 025.

03 06 49 06 CC

That's affirmative. And we had a problem with our uplink at Goldstone. They are configuring now, and we'll be with you in a load momentarily. Over.

03 06 49 14 LMP

Okay, fine.

03 06 49 29 LMP

But we'd better not maneuver until we get it.

03 06 49 31 CDR

Yes.

03 06 49 37 LMP

One after the load, Tom.

03 06 49 41 CDR

Yes, we're just slowly holding our own here, really.

03 06 49 48 CMP

Now you're looking out where - to the - -

03 06 49 51 CDR

Right there. We're coming up on the Apollo - There's the Sea of Crises and Picard out there.

03 06 49 54 LMP

You're looking out to the north, huh?

03 06 49 56 CDR

Well, the north is that way. Right there is Messier G.

03 06 50 01 CMP

Where?

03 06 50 02 CDR

Down below; we're coming all along the Apollo Belt, babe.

03 06 50 05 LMP

See - see - see that little rille down there, Tom. It looks rounded - you can see, you can damn near see into the bottom. Give me that monocular.

03 06 50 11 CDR

Gene, you want to shoot a picture? I know what I want to shoot a picture of.

03 06 50 40 CMP

God damn.

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Day 4

~~CONFIDENTIAL~~

Page 99

- 03 06 50 42 CDR We're coming right up to Apollo area. Let me get a picture of this rille ...
- 03 06 50 47 LMP Excuse me, John; you want to look at this? No, you got your own optics, don't you?
- 03 06 50 51 CMP Well, yes, but they ain't any good for looking at the surface ...
- 03 06 50 58 CC 10, while we got a moment here, before we get our load in to you, we've got a couple of comments. For LOI 2, we recommend you just place the OXIDIZER FLOW INCREASE VALVE to NORMAL and go to PRIMARY. Over.
- 03 06 51 17 LMP Okay. You want me to --
- 03 07 56 34 CMP Do we turn off both banks with this one?
- 03 07 56 38 LMP Yes, one at a time.
- 03 07 56 39 CDR One at a time. Might as well use A and then B?
- 03 07 56 42 LMP Okay.
- 03 07 56 46 CDR When are they --
- 03 07 56 47 LMP ... A pretty tight little burn here.
- 03 07 57 17 LMP Here, we do have DSE motion, so we've got the tape running right now.
- 03 07 57 20 CDR Okay.
- 03 07 57 21 CMP Oh, look at there! That ... out there.
- 03 07 57 37 CDR The what?
- 03 07 57 38 LMP The big screamer; that green jobber. They really screamed about putting those on; they're radioactive; they had to get special clearance from the Atomic Energy Commission; it's going to cost a million dollars apiece for NASA just to put in. You know, it's like, no sweat.
- 03 07 57 54 CDR The bill have to be paid or something?
- 03 07 57 58 LMP Yes.

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- 03 07 57 59 CMP You don't need that damn COAS; we're going to do all our docking in the daytime anyway. All you need right here, to go along with this thing, is a line across here, down the middle. And then all you have to do is match up the three lines. You couldn't miss. No, we got - we got a thing with a VARIAC in it.
- 03 07 58 12 CDR (Laughter)
- 03 07 58 23 CMP I wish I had a nickel for every cent that's been foolishly spent on crew-systems devices. God, would I be rich! I never --
- 03 07 58 33 CDR You want to turn the light down a little bit or just leave it up?
- 03 07 58 37 LMP No, I'd just . . . , babe; I'd just as soon leave it up, if I knew it wouldn't hurt your eyes.
- 03 07 58 42 CDR No, I'll just leave it up. No.
- 03 07 58 44 CMP Sunrise is in 1 minute and 15 seconds. Say, we'd better turn it up, huh?
- 03 07 58 47 CDR I guess you'd better turn it up.
- 03 07 59 02 LMP Okay, you're going to be set for two-jet ullage for 17 seconds, huh?
- 03 07 59 08 CMP Yes, and when does that burn start?
- 03 07 59 11 CDR 30:25 (cough). God, it's cold in here, isn't it?
- 03 07 59 12 CMP It's freezing, babe; it's --
- 03 07 59 13 CDR Have you started to catch a cold?
- 03 07 59 14 LMP No. That's as hot as I can get it, just under 72. Cold planet.
- 03 07 59 24 CMP If it's cold in here, wait until you check out that LM.
- 03 07 59 26 LMP Oh, man! I bet it is going to be cool in there.
- 03 07 59 30 CMP Well, you ain't got no heater in there or anything. Heck, that may be one of the big surprises.

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- 03 07 59 35 CDR Everything could be all frosted over.
- 03 07 59 37 LMP It might freeze us to death when we get ready to go in there.
- 03 07 59 38 CDR Those windows could be frosted up.
- 03 07 59 42 LMP Yes.
- 03 07 59 48 CMP 70 - 80:45 was the burn?
- 03 07 59 51 CDR 80:25.
- 03 07 59 52 LMP 80:25:07.
- 03 07 59 54 CMP ...
- 03 08 00 19 CMP (Sneeze) Excuse me.
- 03 08 00 24 LMP There's sunrise; they're pretty close, they said 80:00:13 or something like that. There it is.
- 03 08 00 33 CMP When the sun comes up around here, it's like the thunder on the road to Mandalay, isn't it?
- 03 08 00 40 LMP Man, it's here, and it ain't. Ain't, and then it's here.
- 03 08 01 00 CDR Well, I really hope that TV camera shows what's up here.
- 03 08 01 03 LMP I do, too. Be very, very interesting.
- 03 08 01 05 CMP I bet it will.
- 03 08 01 06 CDR I bet it will.
- 03 08 01 07 CMP It will be the most spectacular thing they've ever seen.
- 03 08 01 10 CDR Yes.
- 03 08 01 51 CMP Okay, engines; run like a prince again. Don't disappoint us. Because we could certainly be very disappointed if you did.
- 03 08 02 04 LMP That's right.

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Day 4

- 03 08 02 15 CMP Why don't we just stay in the 60 by 170 when we get there? (Laughter)
- 03 08 02 20 CDR Yes, but what about the - what the CDH is going to be like?
- 03 08 02 22 CMP Yes. That'd be rather big.
- 03 08 02 24 CDR That'd be a really big maneuver.
- 03 08 02 25 CMP Well, now, hell; I kind of got you guys out of a 200 by 7; that was a pretty good-sized CDH there, too.
- 03 08 02 28 CDR Yes.
- 03 08 02 29 CMP Only 1 foot per second. The CDH was bigger than the CSI.
- 03 08 02 33 CDR (Laughter) Yes.
- 03 08 02 53 CMP Okay, machine. That's the most kicks I've had since we shot that Agena.
- 03 08 03 01 CDR (Laughter) Yes.
- 03 08 03 02 CMP You know? Just for sheer suspense and thrill.
- 03 08 03 03 LMP How was this, compared to lighting off the Agena?
- 03 08 03 06 CMP Oh, this was a lot easier; hell. I mean, but - As far as lighting it off and everything. Controlling? Oh, you - -
- 03 08 03 13 LMP Not controlling; not controlling. Just to light off, and roughness of the g-forces and everything.
- 03 08 03 18 CMP No, the Agena - the Agena - the Agena hits you a lot harder and puts you at more g in the straps.
- 03 08 03 25 CDR Yes. A lot more - the mass you had.
- 03 08 03 26 CMP Accelerating at like, 40 foot, 50 foot per second per second. This one was softer. Bet it won't be so soft when we get rid of the big ...
- 03 08 03 38 CDR (Laughter) Yes. TEI will come on pretty strong.
- 03 08 03 41 LMP Let's see, the Agena was about a 16 000-pound-thrust engine.

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- 03 08 03 47 CMP Yes. It was driving about probably 13 000 pounds - total: 7000 pounds worth of Agena and 8000 pounds worth of - -
- 03 08 03 58 CDR ...
- 03 08 03 59 CMP -- of Gemini. 15 000 pounds. Probably had good thrust-to-weight ratio. That's why it was giving us 30 to 40 foot per second per second.
- 03 08 04 13 CMP The only thing we could do with that when it really got bad was shut it down, you know that?
- 03 08 04 22 IMP You couldn't do much with it, babe; you know? That was it.
- 03 08 04 24 CMP That's right. And not only could you not do much with it, but you didn't know you was doing anything to it. That's what used to --
- 03 08 04 29 LMP That's right ...
- 03 08 04 30 CMP -- just gripe the piss out of me.
- 03 08 04 32 CDR It's 9 o'clock Houston standard time. Time to go hit the beach.
- 03 08 04 35 CMP Time to go to bed.
- 03 08 04 36 LMP God, we haven't even gotten halfway through the day yet.
- 03 08 04 39 CMP No.
- 03 08 04 40 CDR (Yawn) Well, we're halfway through. All I have to do is - we have to do some landmark tracking (laughter) ... half the day.
- 03 08 04 44 CMP Yes, (laughter) all we got to do is dig out the latitude and landmark tracking. I don't even know if I can get the probe out of the tunnel (laughter).
- 03 08 04 52 LMP Goss, this is going to be a late night tonight and an early morning tomorrow.
- 03 08 04 55 CDR You know it.

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- 03 08 04 59 IMP Oh, by the time we get everything - We want to get all that stuff in the LM tonight, too, that we can, now. I want to get all those cards up in there and all that housekeeping stuff ...
- 03 08 05 11 CDR Yes.
- 03 08 05 12 LMP 20 minutes to go.
- 03 08 05 23 CDR Is all of our LM shit back together again?
- 03 08 05 26 LMP Yes, I think so. We ought to - No, I've got the two maps right here behind me.
- 03 08 05 30 CDR Yes, we won't be needing them. Oh, we'll need them for the TV pass.
- 03 08 05 39 LMP We've got a lot of things yet to do. We've got a TV pass; we've got landmark tracking; the LM; then all that stuff to - getting ready for bed. We used to take 3 hours to get ready for bed. Now, we got to do it all in a half hour.
- 03 08 05 55 CMP That's right.
- 03 08 05 57 CDR Yes, it will be a short night. Okay, we've got 19 minutes.
- 03 08 06 13 LMP Whew.
- 03 08 06 17 CMP Okay. FMS DELTA-V check.
- 03 08 06 27 CMP Did you cycle the cryo fans, babe?
- 03 08 06 28 LMP Say again.
- 03 08 06 29 CMP Did you cycle the cryo fans?
- 03 08 06 33 LMP Alright, we'll do it right now. ... antenna. I sure hate to switch to number 1 because I don't like MASTER ALARMS at critical times. Don't forget the HIGH BIT RATE switch, either. Right?
- 03 08 07 00 CMP I'll check it.
- 03 08 07 01 LMP Okay.
- 03 08 07 04 CDR Go ahead ...

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- 03 08 07 06 CMP I've got a watch right here.
- 03 08 07 08 CDR Okay.
- 03 08 07 18 LMP ...
- 03 08 07 19 CDR ...
- 03 08 07 20 CMP Boy, I'll tell you; that's great. That is really good stuff there, as far as I'm concerned. ...
- 03 08 07 30 LMP As long as it keeps working, and it works during reentry, we'll be all set.
- 03 08 07 32 CMP 132.5, right? Yes, I would expect that, but this is working; then we'll still be okay. 132.5.
- 03 08 08 10 CDR Here's what's going to cost us gas; that 17 seconds of ullage.
- 03 08 08 15 CMP Yes, sure will.
- 03 08 08 16 CDR Theoretically, from there on, all we should have is just some attitude maneuvers.
- 03 08 08 21 CMP That's right, but that will get to us the way they're having us do them. When we get through that rendezvous, then we can gage our fuel for what we need to get home and use it all that third day.
- 03 08 08 40 CDR Wonder how that thing is going to hold in that deadband with a light command module. I bet it doesn't hold as good as if it were full size. It might.
- 03 08 08 50 CMP ... Oh, I don't know. You never can tell. Maybe even better. Maybe make the deadband bigger.
- 03 08 09 00 CDR Yes.
- 03 08 09 13 CMP (Yawn)
- 03 08 09 50 CDR How you feeling, okay?
- 03 08 09 51 CMP I feel fine; just my eyes keep - when my eyes hurt, they hurt my head. That's what happens - -
- 03 08 09 56 CDR You need an aspirin?

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- 03 08 09 57 CMP -- that's what happens - Yes, I need an aspirin, but I'll get one later.
- 03 08 10 04 CDR Yes, I can see looking in that telescope all day --
- 03 08 10 06 CMP Man, I tell you; that really wipes your bloody eyes out in a hurry. God dang, I knew the light was going to be tough, but I don't know exactly how to get around it. I'm going to have to go ahead and freak it and do it, I guess.
- 03 08 10 23 CDR Hey, we're recording this (laughter).
- 03 08 10 26 CMP Oh.
- 03 08 10 27 LMP Yes, we're recording this back side the whole time.
- 03 08 10 34 CMP Sorry about that, ladies.
- 03 08 10 36 LMP Okeydoke. I'm going to leave the PUGS ... right now. It doesn't even settle down with a 14-second burn.
- 03 08 10 38 CMP Okay, 15 minutes to go. We're at the mancuver - We haven't done the sextant star check. What's the sextant star check there, babe?
- 03 08 10 55 LMP Okay, 16.
- 03 08 10 56 CMP What's the number of it?
- 03 08 10 57 LMP 22 - 2205 - 22050, plus 22050, plus 23200.
- 03 08 11 35 CMP There it is.
- 03 08 11 36 CDR Got it?
- 03 08 11 39 CMP Yes. Baffling.
- 03 08 11 40 LMP You got it right in there?
- 03 08 11 41 CMP Yes. Okay, zero optics. How about that? Better late than never. Actually, I wasn't too worried about it because we just aligned the platform.
- 03 08 12 04 CDR Okay. The cryo fans still cycling?
- 03 08 12 06 CMP Yes, turn them off here in about 1 - -

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- 03 08 12 09 LMP Okay, panel 8; SCS breakers, all CLOSED.
- 03 08 12 14 CMP -- about now. Command module ... service propulsion system - the breakers are CLOSED. ..., SPS, twelve, CLOSED; MANUAL ATTITUDE, three, RATE COMMAND; ... LIMIT CYCLE, OFF; ATTITUDE DEADBAND, MIN; RATE, HIGH. TRANSLATIONAL CONTROL POWER, ON; ROTATIONAL CONTROL POWER, DIRECT, OFF; SPACECRAFT CONTROL, CMC in AUTO; SCS TVC, RATE COMMAND; TVC GIMBAL DRIVE, PITCH and YAW, 1, AUTO; MAIN BUS TIE --
- 03 08 12 45 LMP You could hold it on 6 minutes, now, huh?
- 03 08 12 47 CMP Until 6 minutes, yes. I'm just going through this ... I have to do it here. Okay, I think it's going to work. If we can get the probe out of the tunnel, it will work.
- 03 08 13 02 LMP Yes.
- 03 08 13 09 CDR ...
- 03 08 13 13 CMP That lemon is probably full of Mylar. It probably all blew in through that --
- 03 08 13 18 CDR Yes, it looks like - this part of it looks simply gray.
- 03 08 13 20 CMP You know, you better clean off that cotton-picking valve that's --
- 03 08 13 21 LMP I know it.
- 03 08 13 22 CDR Yes.
- 03 08 13 23 CMP And we better have some kind of way to make sure that it's closed because that's a pretty important valve there.
- 03 08 13 29 LMP Yes, we make - yes, we do make --
- 03 08 13 34 CMP A check of it, huh?
- 03 08 13 35 LMP Well, we do it tomorrow when you start venting the tunnel.
- 03 08 13 37 CMP Well, I guess that's the best we can do, but ... inspect it to make sure ... --

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- 03 08 13 42 LMP But we've got to make sure all that stuff is off of it.
- 03 08 13 53 CMP Look at that. Out that far in yaw already.
- 03 08 13 57 LMP What, the GDC?
- 03 08 13 58 CMP 17 minutes. It's yawed out 2 degrees. Pitch and roll are okay. ... might be how far it's yawed in ...
- 03 08 14 29 CMP Got a bad yaw ... It could heat it up. Turn the water boiler off. You know we tried to turn the cabin gas up all day.
- 03 08 15 12 CMP That's probably what the SPEC limit is, about 6 degrees an hour, and that's probably what that mode was doing. Well, it was doing more than that. It was 3 degrees in 20 minutes.
- 03 08 15 30 CDR After the burn - we'll roll 180, pitch down; we'll pick up that 315 ORDEAL until we hit 205 and hold that, and then we'll hold that for an hour.
- 03 08 15 45 LMP Does that go right into this - does that approximate this attitude right here?
- 03 08 15 50 CDR Yes, we pitch down and pick up the 315 ORDEAL.
- 03 08 15 54 LMP Okay.
- 03 08 16 02 CDR Then from here we can keep 315 until we pick up 205 inertial, and I'll flip the ORB rate ball right after that. The next thing we've got to do is scramble down and get the TV camera.
- 03 08 16 11 LMP Yes.
- 03 08 16 33 CDR Okay; 54 minutes, we pick up the 6-minute check.
- 03 08 16 40 CMP Look, we're coming in pretty good attitude.
- 03 08 16 43 CDR Well, we can ... a yaw ... zero.
- 03 08 16 54 LMP We're moving a little bit faster down ...
- 03 08 16 55 CDR Yes.

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- 03 08 16 56 CMP It would be expected. Twice as fast as we're moving on the front side.
- 03 08 16 59 LMP As would be expected.
- 03 08 17 00 CMP Angle of rate, Gene-o. God, if that isn't fascinating. It's weird. Hey, it looks brown over here and black on the other side. I think the thing may have something to do with your vision. I mean, after you get to looking at it a while, it washes out your eyeballs or something. Don't you think it looks more browner over here than it does on the other side?
- 03 08 17 37 CDR Yes.
- 03 08 17 38 CMP Or is it just my imagination?
- 03 08 17 39 LMP I think if you look towards the horizon, it's got that brown - brownish-gray tint to it; but I'll tell you, I think if you look down to it, it's got a bluish-gray tint.
- 03 08 17 47 CDR Huh?
- 03 08 17 48 LMP If you look right down at it. Now look out - out there toward the horizon - at the horizon. I agree with you. When you get halfway to the horizon, that's brown.
- 03 08 17 55 CMP Yes.
- 03 08 17 56 LMP That's brownish gray. I hate to say it, but you know - -
- 03 08 17 58 CMP So do I.
- 03 08 18 00 LMP - - Bill's - Bill's dirty beach sand is probably a pretty good description.
- 03 08 18 06 CMP Yes.
- 03 08 18 07 LMP Huh?
- 03 08 18 08 CMP Got to admit that's dirty beach sand.

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- 03 08 18 10 LMP You know, it almost looks like a guy could take a rake -
a big guy could take a rake and rake it all smooth.
- 03 08 18 16 CMP That's probably what happened. That big guy's rake
was a little crummy.
- 03 08 18 26 LMP How are we doing on time?
- 03 08 18 30 CMP Okay, we're at 53:20 already ...
- 03 08 18 32 LMP Okay. Boy, I tell you -
- 03 08 18 33 CMP 80 what - 80 - When is this burn? One more time ...
- 03 08 18 36 LMP I'll tell you -
- 03 08 18 37 CDR 80:25:07.
- 03 08 18 38 LMP You know those gimbal motors really tear hell out
of the battery.
- 03 08 18 44 CMP ... 6 minutes. We're okay.
- 03 08 18 47 LMP You know it? Those gimbal motors tear hell out of
the battery. Jesus, I had battery A up to 37 volts
here a little while ago, and after that last burn it
just "gulp."
- 03 08 19 02 CDR Hopefully, after this all I've got to make is one more.
- 03 08 19 04 CMP Boy, I hope so. Okay, RUS TIES, ON? Stand by; let me
verify it. There's 1 ON, and there's 2 ON. They're
both ON. Okay. TVC SERVO POWER, AC1/MAIN A coming ON;
AC2/MAIN B coming ON; ROTATION CONTROL POWER, number 2,
to AC, ROTATION CONTROL POWER, number 2, to ARMED.
Correct. Okay, waiting on a 5-minute gimbal drive
check. Okay.
- 03 08 19 33 CDR You'll have to turn ... up with the sun on them.
- 03 08 19 36 CMP Okay.
- 03 08 19 38 CDR Very good.
- 03 08 19 42 CMP Okay.
- 03 08 19 50 CDR You'll want to bypass this. This is where we are.
- 03 08 19 53 LMP Tell me when.

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03 08 19 54 CDR ... or not.

03 08 19 57 CMP Yes, you don't ... just do a PROCEED and we'll catch it.

03 08 19 59 CDR Yes.

03 08 20 00 LMP Tell me when, Jonathan.

03 08 20 02 CMP Okay, coming ON. PITCH 1, coming ON.

03 08 20 06 LMP Go.

03 08 20 07 CMP YAW 1 coming ON.

03 08 20 08 LMP Go.

03 08 20 10 CMP Okay, TRANSLATION CONTROL, clock - clockwise. Verify no MTVC. We have none. PITCH 2 is coming ON?

03 08 20 16 LMP Go.

03 08 20 17 CDR God dang.

03 08 20 21 CMP YAW 2 coming on?

03 08 20 24 LMP Go.

03 08 20 26 CDR Looks good --

03 08 20 27 CMP ... trim, 187; right?

03 08 20 30 LMP Okay, trim is plus 183 and minus 074.

03 08 20 34 CMP Minus 074. Okay.

03 08 20 39 CDR Check MTVC.

03 08 20 41 CMP TVC; you got it.

03 08 20 43 LMP Oh, boy; have we got it! Whoo!

03 08 20 44 CDR We go GPI to zero, okay?

03 08 20 46 CMP Golly!

03 08 20 48 CDR ROTATIONAL CONTROL POWER, NORMAL?

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Day 4

03 08 20 51 CMP ROTATION CONTROL POWER to NORMAL.

03 08 20 55 CDR Number 2, AC/DC.

03 08 20 58 CMP Okay, ROTATION HAND CONTROLLER's back, number 2, to AC/DC.

03 08 21 00 CDR Ready to ...

03 08 21 10 CDR Ready for the gimbal drive.

03 08 21 12 CMP Gimbal drive test; go.

03 08 21 13 LMP Oh, my golly!

03 08 21 14 CMP Zero. Zero. Phew!

03 08 21 29 LMP God dang!

03 08 21 36 CDR Okay, it's going to take 17 seconds of ullage.

03 08 21 37 LMP Yes. Okay, let's check that clock at 3 minutes. We should be reading 22:07 on the clock.

03 08 21 57 CMP In 3 minutes, we should be reading ??:07 on the clock?

03 08 22 01 LMP On this clock right here.

03 08 22 03 LMP/CMP Okay; 4, 3, 2, 1, 0.

03 08 22 08 CMP Okay, that's close enough. Okay, we're down to -

03 08 22 16 CDR ... get a number ...

03 08 22 23 CMP TRANSLATION CONTROL, verify NORMAL, TVC; ROTATIONAL CONTROL POWER, DIRECT, MVA and MVB; PS HELIUM VALVES to AUTO?

03 08 22 25 LMP They're AUTO.

03 08 22 26 CMP LIMIT CYCLE switch, OFF.

03 08 22 27 LMP Go.

03 08 22 29 LMP FDAI 5/1; GDC ALIGN; we'll do that one more time.

03 08 22 33 CDR ... we trim plus-X -

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Day 4

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Page 113

03 08 22 34 CMP EMAG's, ATTITUDE 1 - ATT 1/RATE 2.
03 08 22 41 CDR Okay, we're going to trim the plus-X to within 1 foot per second.
03 08 22 44 CMP And the rest of them, we're going to leave alone.
03 08 22 45 CDR Yes.
03 08 23 03 CMP Okay, 5, 4, 3, 2, 1,
03 08 23 07 CDR A, ON.
03 08 23 08 CMP A, ON. Okay.
03 08 23 12 LMP ARMED --
03 08 23 14 CMP ARMED; we're set. Okay, at 30 seconds, EMS DELTA-V in NORMAL and you go to HIGH BIT RATE.
03 08 23 21 LMP I'll get it.
03 08 23 24 CDR 17 seconds of ullage.
03 08 23 26 CMP And 17 seconds is ullage, back ...
03 08 23 29 CDR Probably don't need any.
03 08 23 34 CMP Well, we better give them 17, because I'm sure they ... that tailoff ...
03 08 23 46 CDR Okay, we get bank B on at ... seconds.
03 08 23 48 CMP Okay.
03 08 24 03 CMP Okay, 1 minute. Looks okay to me.
03 08 24 06 CDR Looks good here.
03 08 24 25 CMP Okay, I'm going to HIGH BIT RATE, Tom.
03 08 24 26 CDR Okay.
03 08 24 38 CDR 30 seconds.
03 08 24 50 CDR Okay, 19, 18, 17 --
03 08 24 51 CMP ...

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03 08 24 52 CDR - - start ullage.
03 08 24 53 CMP Go.
03 08 24 54 CDR 16, 15 - -
03 08 24 55 LMP Did you ullage it?
03 08 24 56 CDR Yes.
03 08 24 57 LMP Holy smoley! You acquired it.
03 08 24 58 CDR ... 6, PROCEED, 4, 3, 2, 1. You're burning.
03 08 25 10 LMP Be sure now - You're GO - you're GO here. You're GO. You've got all four banks. You're all GO, John.
03 08 25 17 CDR 6, 5, - -
03 08 25 18 LMP You're looking good.
03 08 25 19 CDR - - 4, 3 - -
03 08 25 20 LMP Stand by.
03 08 25 21 CDR - - 2, 1 -
03 08 25 22 CDR SHUTOFF.
03 08 25 23 LMP Okay.
03 08 25 24 CDR I got 14.2 seconds.
03 08 25 25 LMP I got 14.1.
03 08 25 27 CDR GIMBAL MOTORS, OFF.
03 08 25 30 CMP One OFF, OFF, OFF, OFF.
03 08 25 31 CDR TVC SERVO POWER - -
03 08 25 32 CMP Okay. BUS TIES are OFF.
03 08 25 34 CDR Ready to PROCEED? Okay.
03 08 25 36 CMP Give me the book, so I can get the numbers.
03 08 25 40 CDR Beautiful. Don't do a thing.

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- 03 08 25 41 CMP Okay. Give me the book, so I can get - look at the numbers.
- 03 08 25 43 CDR ... plus-X, 0.05. Then we fired. And then MIN DEADBAND.
- 03 08 25 50 CMP Plus - plus 5?
- 03 08 25 52 CDR Then get the - in the wide deadband.
- 03 08 25 53 LMP Minus 3 and minus 4.
- 03 08 25 55 CDR That one ain't too ...
- 03 08 25 57 CMP ... minus 5.6.
- 03 08 26 04 LMP Okay, the burn was 14 seconds.
- 03 08 26 05 CDR Got that?
- 03 08 26 06 LMP Got that whole thing.
- 03 08 26 07 CDR PROCEED. Okay.
- 03 08 26 12 LMP Any problems with roll, pitch, or yaw?
- 03 08 26 13 CDR No.
- 03 08 26 14 CMP No. Burned like a champ --
- 03 08 26 15 LMP Okay. Fuel reads 30 - approximately 37 point -
- 03 08 26 23 CDR VERB 82. Okay, with a 61.2 by a 60.0.
- 03 08 26 38 CMP This ain't no --
- 03 08 26 39 LMP -- what it's doing.
- 03 08 26 43 CDR Get the TRANSLATION CONTROL POWER, OFF.
- 03 08 26 50 LMP Okay, go over the checklist again. I got my BUS TIES, OFF.
- 03 08 26 54 CDR Okay, BUS - Okay, GIM - THRUST A and B, OFF; GIMBAL MOTORS, OFF; TVC SERVO POWER, OFF; MAIN BUS TIE, OFF; SPS PITCH 1, NORMAL, OPEN. Did you open those breakers there?
- 03 08 27 00 CMP No, I ain't been opening them.

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- 03 08 27 01 CDR Okay. EMAG's. Okay, and DELTA-V in OFF?
- 03 08 27 02 LMP Yes, I had minus 5.6 in each case I got.
- 03 08 27 03 CDR Residuals not okay. Got that. Now, the next thing is ...
- 03 08 27 04 CMP Okay, and AOS is at 80:41.
- 03 08 27 09 CDR Okay. Now why don't we go to these new attitudes?
- 03 08 27 12 LMP Okay.
- 03 08 27 16 CMP Helium pressure was right at 103. Beautiful.
- 03 08 27 19 CDR How much fuel we got left?
- 03 08 27 22 LMP PC. Okay, here you go. I'll need that back to get the postburn report.
- 03 08 27 32 CDR Okay. Okay.
- 03 08 27 36 LMP It was a plus 0.5? In other words, we didn't overburn. Oh, beautiful.
- 03 08 28 05 CDR Okay. Let me give a VERB 83, ENTER, so we can ...
- 03 08 28 23 CDR What fell down behind there? Was that the Hasselblad?
- 03 08 28 25 LMP Yes, probably. I heard something ...
- 03 08 28 27 CDR No, I had the Hasselblad over there ...
- 03 08 28 34 LMP John, where's the monitor? Is it in that other thing?
- 03 08 28 37 CMP I may make a thousand of those goddam things. I bet I'm nervous every time I do it.
- 03 08 28 42 CDR And I'll get this set up, José.
- 03 08 28 46 LMP John, where's the monitor? Is it in the -
- 03 08 28 52 CMP It's down there in the box. The other box - it's down - yes, it's - Are you down there?
- 03 08 28 57 LMP Yes, I'm down here.
- 03 08 28 58 CMP It's down there in the - one that's the far-outboard box.

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03 08 29 03 CMP What - what attitude did you want to go to at, Tom?

03 08 29 08 LMP Huh?

03 08 29 12 CDR There's 180, and you want to pitch down to 315 ORB rate. So we're --

03 08 29 18 CMP 315 ORB rate.

03 08 29 22 CDR So, here's where we were, John. We were like this. We got to pitch these down like that.

03 08 29 27 CMP Okay. You want to pitch - this-a-way?

03 08 29 30 CDR Okay. But we're - we're like this.

03 08 29 32 CMP We're like this.

03 08 29 33 CDR Okay, we got to swing through.

03 08 29 35 CMP Okay.

03 08 29 36 CDR Which is a - basically a pitch back - like, you know, we got to increase the angle. We've got to increase the angle, but you got to pop back on it straight.

03 08 29 45 CMP Pull it in toward the moon?

03 08 29 46 CDR Pull it in towards the moon, babe.

03 08 29 48 CMP Want to head for 315?

03 08 29 49 CDR 315 ORB rate.

03 08 29 50 CMP Okay.

03 08 29 52 LMP You know, if anyone wants my --

03 08 29 53 CDR Okay, let's see; now we - the first thing we do is roll 180. We roll 180.

03 08 29 58 CMP Okay.

03 08 29 59 LMP -- opinion, this Velcro isn't worth a tinker's dam.
...

03 03 30 02 CMP That's the same thing we did last time, isn't it?

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- 03 08 30 03 CDR Yes. Roll 180. You can pulse it or - whichever way you want to do it. I guess you can.
- 03 08 30 12 CMP It goes right around there.
- 03 08 30 15 LMP This Velcro wouldn't hold a toothpick to an elephant.
- 03 08 30 20 CMP Well, wouldn't we have to be there, Tom?
- 03 08 30 22 CDR Okay.
- 03 08 30 23 LMP What window we going to hang this out of?
- 03 08 30 24 CDR The center hatch window's the best one to shoot down at 315 ORB rate. ... upside down, so we can get high gain to the earth.
- 03 08 30 35 CMP We sure is - looking down at the - subsolar point, ain't we?
- 03 08 30 46 CDR Okay, ...
- 03 08 31 04 CMP Okay, that's good. That's good. If I roll that way, you guys can take pictures down there, because then my head will be up above. I always roll to the left, where your picture window should be open while we're rolling. So if you want to take some pictures -
- 03 08 31 18 CDR Yes. Anybody want to take any pictures? You need to roll to 180 and then you need to pitch - to increase your pitch.
- 03 08 31 23 CMP Okay. Okay.
- 03 08 31 25 CDR Now, once we roll, let's see -
- 03 08 31 26 CMP Do we really have to be there by 20, or has it slipped 15 minutes?
- 03 08 31 29 LMP It's probably slipped 10 minutes.
- 03 08 31 30 CDR 10 minutes.
- 03 08 31 31 CMP Okay, let's play it so we get there.
- 03 08 31 34 LMP Go slow, babe. They'll wait. They'll wait.
- 03 08 31 37 CDR Yes, no problem.

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03 08 31 38 LMP They'll wait.
03 08 31 39 CMP I'm sure we'll get there in plenty of time --
03 08 31 41 LMP Yes. Go slow. They'll wait.
03 08 31 42 CDR 80:40 - 7 is when we have acquisition.
03 08 31 48 LMP They'll be waiting for us.
03 08 31 49 CDR That's right.
03 08 31 51 LMP Save the gas.
03 08 31 53 CDR That's for sure.
03 08 31 54 CMP God dang, this ...
03 08 31 57 LMP What does it look like now?
03 08 31 59 CDR What got to us was that 17 seconds --
03 08 32 01 LMP That ullage --
03 08 32 02 CMP Well, I couldn't even tell you we were moving. Well,
20 seconds is what it used to be, and they cut it to 15.
03 08 32 05 CDR Yes.
03 08 32 06 CMP Remember?
03 08 32 07 CDR Yes. That really ate the shit out of ... We're still --
we're still in pretty good shape.
03 08 32 11 CMP How much gas - how much DELTA-V did that get out from
the SPS?
03 08 32 17 CDR You mean percentwise?
03 08 32 19 CMP Yes.
03 08 32 20 CDR What were we before here --
03 08 32 21 LMP We were at 39 something and 30 - about 2 percent apiece.
03 08 32 24 CDR 2 percent.
03 08 32 25 CMP 2 percent, huh?

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Day 4

03 08 32 30 IMP But it bounced all over the place, John. That really doesn't - isn't - Well, it's not a bad reading, but it can't be too good either.

03 08 32 40 CMP I get the feeling this whole thing doesn't exactly - know nothing about stability. There's a couple of very flexible structures here. What in the hell is that?

03 08 32 54 CDR What do you see, John? There's a big, rounded chain of craters.

03 08 33 14 CMP I think they sense what we are trying to tell them. We'd be sitting here at night and all of a sudden this whole works could just go - like that.

03 08 33 19 CDR Yes.

03 08 33 20 LMP Would you ...?

03 08 33 21 CDR You want it?

03 08 33 24 CMP I don't understand it too well unless it's just the resonant frequency of the vehicle, being - being - exercised by ... - -

03 08 33 34 CDR How about getting - I've got some beautiful geological pictures here for a minute. Hand me that Hasselblad out of my ...

03 08 33 40 CMP Bagged out.

03 08 33 43 CDR Whatever you've got there will be fine. Black and white, looks good. ...

03 08 33 51 CMP Get that long chain - chain over there.

03 08 33 58 LMP What did I say AOS time was? I wrote it down there. It's 41, isn't it?

03 08 34 03 CMP I can't believe that that's 250 at f:4. Looks like a hell of a lot brighter than that to me.

03 08 34 09 LMP It does look bright. I can't - I think we will be better off with 5.6 anyway on that big - on that 75-millimeter lens.

03 08 34 25 CMP If I'd been in the LER so long, I wouldn't know whether to use the -

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- 03 08 34 47 LMP Okay, what's the flight plan say next?
- 03 08 34 49 CDR Okay, the next thing we got to do is --
- 03 08 34 51 LMP God dang! That air is cold down there!
- 03 08 34 53 CDR - - pitch down, pitch down to 350. Okay?
- 03 08 34 56 LMP There's where it is coming from. Right there.
- 03 08 34 57 CMP How much time - how much time we got to go to get there?
- 03 08 35 02 CDR 80:45.
- 03 08 35 04 CMP Okay.
- 03 08 35 05 CDR That helped.
- 03 08 35 06 CMP We got to get there at 80:45? I thought it was 80:55.
- 03 08 35 08 CDR Well, I added 10 minutes to Goldstone. I guess Goldstone has it - We have acquisition about 80:41.
- 03 08 35 15 LMP Yes, we got acquisition at 41.
- 03 08 35 16 CMP Okay.
- 03 08 35 22 CDR You got it pitched on in the right direction --
- 03 08 35 24 LMP Hey, we haven't seen the earth yet, have we?
- 03 08 35 26 CMP Oh, yes.
- 03 08 35 46 CDR We don't have high gain in this attitude here, have we?
- 03 08 35 48 LMP We will when you go to a new attitude. We're supposed to. What attitude you going to?
- 03 08 35 54 CDR Right here --
- 03 08 35 55 LMP Going to this attitude right here?
- 03 08 35 56 CMP We're not ACQ'd yet, are we?
- 03 08 35 57 CDR We roll to 180. Then we pitch down --

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Day 4

- 03 08 36 00 LMP Call up VERB 64 when you get there. I thought you were supposed to come around the horn. But that's alright. We'll call 64.
- 03 08 36 15 CDR I'm about to freeze. I wonder if you've got a ... That draft ought to - keep - -
- 03 08 36 24 LMP That's what does it. That damn draft, shit, up in the tunnel. God, that's - I don't know where we are, but there's some interesting-looking sights out there. Now, you can't tell me that cra - Look at the way that thing is slumped in. There's blacks and whites and grays. And there are some sharp, sharp ridges. Cliffs on that one.
- 03 08 37 03 CMP There's one, this white one, that's really interesting, that I can see. Looks like -
- 03 08 37 11 LMP This one has got a rocky floor. I wish I knew where it was, exactly. But after you get off your back here, it's hard to tell where you are.
- 03 08 37 20 CDR Yes, that's what I - -
- 03 08 37 21 CMP I hope we are not going to be up here much longer. It looks to me like we're falling rapidly.
- 03 08 37 26 CDR (Laughing) Yes, if we can pitch - That's why - -
- 03 08 37 29 LMP There's some boulders on the side of that crater right there. You can see them.
- 03 08 37 34 CDR What we've got to do now is - one more br... and you can pitch her down, babe.
- 03 08 37 40 CMP Okay, here you are.
- 03 08 37 42 LMP There's a GET at 80:37.
- 03 08 37 52 LMP Tom, can you get 250 on there?
- 03 08 37 53 CDR Yes. I got it.
- 03 08 37 55 LMP Got an interesting - -
- 03 08 37 56 CDR Wait a minute. One -
- 03 08 37 57 LMP Did you get it?

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Day 4

~~CONFIDENTIAL~~

Page 123

03 08 37 58 CDR I got it.
03 08 37 59 LMP What have you got it there? Black and white?
03 08 38 00 CDR Yes. ...
03 08 38 25 CDR ... roll ... IMPULSE.
03 08 38 33 LMP What the hell we got here?
03 08 38 35 CDR ... CMC ...
03 08 38 42 LMP What's AOS time? 80:40?
03 08 38 46 CDR We'll be there. ...
03 08 38 49 CMP ...
03 08 38 51 LMP Call up VERB 64 when you're there, John. Will you?
03 08 38 54 CDR ... the wrong ...
03 08 39 01 CMP You guys sure we're at 60 miles?
03 08 39 04 LMP Where is that big chart? I put the - Why? Does it look like we're getting closer?
03 08 39 09 CMP It sure looks like those things are starting to come up high. Don't you think? Don't it look like we're going down? I get a sinking feeling associated with these graphs. By gosh, you know everything on here has a distinctive - very distinctive feature about it.
03 08 39 26 CDR Yes.
03 08 39 27 CMP You can say that for it.
03 08 39 36 CDR Have we got - have we got our big map? Have we got our lunar - our topography map - -
03 08 39 42 LMP You just put it in that shelf back there.
03 08 40 08 CMP Say, that certainly is interesting as far as I'm concerned. By gosh, I don't know what did it, but it is a fantastic ...
03 08 40 17 CDR Here's what we'll do. I think we better have this ...

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Day 4

- 03 08 40 26 CMP That hatch window is getting beautiful, isn't it?
- 03 08 40 30 LMP You ought to find out where we are though, so we
... - -
- 03 08 40 32 CDR Yes, that's what I'm going to say. Have you got that update on that map?
- 03 08 40 39 LMP Yes, John; how about at 80:06?
- 03 08 40 43 CDR We'll make it 80:46 - it'll be 40 minutes.
- 03 08 40 48 LMP At 80:46 is 40 minutes. Sounds like you've got something there.
- 03 08 40 53 CDR 80:41 - -
- 03 08 40 54 LMP No, I mean - -
- 03 08 40 56 CDR - - it'll be - -
- 03 08 40 58 LMP Sure does, doesn't it?
- 03 08 41 04 CDR - - at 80 - -
- 03 08 41 05 LMP Give me VERB 62 when you do that. 64?
- 03 08 41 07 CDR You've got VERB 64 on it.
- 03 08 41 09 LMP I got it? Okay, what is it - minus 70?
- 03 08 41 11 CDR ...
- 03 08 41 12 CMP 70, and plus 11 - 12.
- 03 08 41 23 LMP Oh, it sure does want to work nice.
- 03 08 41 25 CDR At 80:06, ...
- 03 08 41 32 CC Apollo 10, Houston; standing by.
- 03 08 41 37 CDR Read them?
- 03 08 41 39 CMP Yes, Roger. Read you loud and clear.
- 03 08 41 42 CDR Ask when they got high gain ...
- 03 08 41 43 CC ... How about a burn report?

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Day 4

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Page 125

- 03 08 44 29 CMP That's the end of that. Push on it once more.
- 03 08 44 35 LMP Hell, yes; ... That's 100 pounds.
- 03 08 44 39 CMP No, it isn't. Like that, it isn't. You've got to be an equal amount from the reaction from the thruster holding the deadband.
- 03 08 44 44 CDR ...
- 03 08 44 46 LMP That's the couch ... ring. There you go, Tom.
- 03 08 44 48 CDR Yes, it sure did.
- 03 08 44 50 LMP Look at that bastard drift off there. That goddam thing! It's okay in roll and pitch, but it sure is lousy in yaw, isn't it? Look at it. Now, let's see how quick it takes it to get off. ...
- 03 09 51 54 CDR It looks like a snowstorm in the spacecraft.
- 03 09 52 04 CMP Well, shoot; T.P. - -
- 03 09 52 06 LMP Boy, do we have to clean this window off, today!
- 03 09 52 08 CMP Give - give me the flight plan and let me study this thing here.
- 03 09 52 10 LMP Okay, I'll go ...
- 03 09 52 12 CDR Okay, all you got to do is switch down to a given - I've got one ball going ORB rate - -
- 03 09 52 16 LMP ...
- 03 09 52 19 CMP Okay, Gene-o; get busy.
- 03 09 52 20 CDR I'll get up there and help - with the bag and help you; okay, babe?
- 03 09 52 23 CC 10, this is Houston.
- 03 09 52 26 CDR Go ahead.
- 03 09 52 28 CMP Go ahead, over.
- 03 09 52 30 CC Roger, Tom. I want to - Have you got the umbilicals hooked up to your suits now?

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03 09 52 36 CDR I'm still on my umbilical here. I'm up in the tunnel trying to help Gene get this crap cleaned out.

03 09 52 40 CMP What suit's there?

03 09 52 42 CC Okay, Tom; you might want to ...

03 09 52 54 CDR Yes, we're up here in our shirt sleeves. That was in the flight plan. We don't have any flight suits on.

03 09 53 14 LMP ...

03 09 53 35 CDR How do things look in there, pretty good?

03 09 53 37 CMP I'm CMC in AUTO, and we're there?

03 09 53 40 CDR You're there, babe.

03 09 53 42 LMP ... right here.

03 09 53 55 CMP Got that. Landmark tracking map.

03 09 54 00 LMP I know, but I feel like I'm in the LM.

03 09 54 09 CDR How are you doing there? You need any more I can help you?

03 09 54 12 CMP I need the flight plan to find out what the hell I'm supposed to be doing.

03 09 54 14 CDR It's up there - the bar there.

03 09 54 15 CMP Okay.

03 09 54 16 CDR (Cough) God! That stuff is really bad.

03 09 54 18 LMP ... I tell you. It's getting hard to breathe.

03 09 54 21 CDR I'm right here, Gene-o.

03 09 54 32 LMP ... You're going to have to clean the inflow valve on that thing tonight. ... That's really bad. How about throwing a hose down here?

03 09 54 43 CDR Yes. You want a hose?

03 09 54 46 CMP Don't get it in the --

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03 09 54 47 LMP Oh, man!

03 09 54 48 CMP -- don't get it in the hose now. You can clean it off with that, but don't get it in there.

03 09 54 51 CDR Yes. ... come off it ...

03 09 54 55 CMP Oh.

03 09 54 56 CDR (Cough)

03 09 54 57 LMP ... all over down here.

03 09 55 15 LMP ...

03 09 55 21 CMP You what?

03 09 55 24 CDR He's going to open the DESCENT O₂.

03 09 55 25 CMP Well, what the hell's that going to do?

03 09 55 26 CDR Not a thing.

03 09 55 28 CMP That's right.

03 09 55 40 CMP You disoriented up there, Gene-o?

03 09 55 41 LMP What?

03 09 55 42 CMP You ain't disoriented, are you?

03 09 55 43 LMP No, I'm in pretty good shape ... this valve ...

03 09 55 51 CDR Hold it! Steady ... What's our cabin pressure? It's when you turn that REPRESS off is when you're going to get one hell of a bang. REG cabin pressure's 5.2.

03 09 56 11 CMP Maybe that one's set at some different pressure.
Maybe that one's set at some different pressure.

03 09 56 19 CDR (Cough)

03 09 56 22 CMP What the hell is going on around here?

03 09 56 23 LMP If I can just get that hose down here, I'm ...

03 09 56 28 CMP It's up there, babe.

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03 09 56 29 CDR Let me get back up there.

03 09 56 30 LMP ...

03 09 56 44 CDR (Cough)

03 09 56 53 CMP Wonder who ever thought of that one.

03 09 57 03 CDR (Cough)

03 09 57 07 CMP Don't let it get in the hose, because if it gets in --

03 09 57 09 CDR It won't - (cough)

03 09 57 13 LMP ... give me the radiation meter in here.

03 09 57 14 CDR Okay.

03 09 57 16 CMP This radiation meter right here?

03 09 57 18 LMP Here, Tom.

03 09 57 19 CMP What radiation meter, this one right here?

03 09 57 20 CDR Yes. Get it.

03 09 57 22 CMP Huh?

03 09 57 24 CDR I'll just leave this hose down there to get you some fresh air.

03 09 57 27 LMP ... some fresh air down here; it's terrible.

03 09 57 31 CDR Here you go.

03 09 57 34 CMP The gumdrop?

03 09 57 36 CDR I'll keep cleaning the stuff out of this hose (cough).

03 09 57 53 CMP What all you got to do in there, Gene-o?

03 09 57 54 LMP Oh, boy! ...

03 09 58 30 CDR (Cough)

03 09 58 38 CMP If this keeps up, we're going to have to go on that direct-oxygen shit, you guys.

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03 09 58 57 IMP Oh, boy!

03 09 58 58 CDR I've got the air coming down to you, Gene, directly.

03 09 59 03 LMP ...

03 09 59 04 CDR I will.

03 09 59 12 CMP I think you ought to try to avoid breathing that crap if you can.

03 09 59 26 CDR (Cough)

03 09 59 53 CDR Do you want to put Gene-o's hoses down there that are longer?

03 09 59 55 CMP Yes, he ought to have his hoses down there.

03 09 59 57 CDR Gene-o, I'm going to put your hoses down there. Pull these back up.

03 10 00 13 CMP Oh, be careful there.

03 10 00 17 CDR (Cough) I'll get me another - Yes.

03 10 00 25 LMP ...

03 10 00 32 CDR Okay, here comes - Gene-o, here comes your hoses down to you, babe. There you go.

03 10 00 39 LMP Alright.

03 10 00 44 CDR Yes (cough).

03 10 01 01 CMP What did I do with that goddam mike laying over there?

03 10 01 04 CDR John -

03 10 01 05 CMP Yes.

03 10 01 06 CDR Watch it.

03 10 01 08 CMP What?

03 10 01 09 IMP ...

03 10 01 11 CDR Pardon me?

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03 10 01 13 LMP ...
03 10 01 16 CDR Okay.
03 10 01 17 CMP When do we get them?
03 10 01 18 CDR I'll get back here and help you coordinate.
03 10 01 31 CDR You got the flight plan? We got the AOS here.
03 10 01 34 CMP Yes.
03 10 01 35 CDR What did we go off in?
03 10 01 37 CMP What?
03 10 01 39 CDR If she went off in high gain.
03 10 01 41 CMP Yes.
03 10 01 44 CDR Did you leave it in REACQ?
03 10 01 45 CMP Me?
03 10 01 46 CDR No.
03 10 01 48 CMP Gene-o, did you leave it in REACQ?
03 10 01 50 CDR No.
03 10 01 52 LMP ...
03 10 01 55 CDR Do you want to put it in REACQ?
03 10 01 57 CMP What angles do you put --
03 10 01 58 LMP ...
03 10 02 05 CMP We're at the landmark tracking attitude. How's the chance to get them this time on the OMNI C for landmark track? That's what it says. Go to OMNI C.
03 10 02 13 CDR You want to go to OMNI C?
03 10 02 14 CMP Yes. Turn off the - the power off?
03 10 02 19 CDR Yes. High gain.

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- 03 10 02 22 CMP No, you don't do that. You just go to OMNI - OMNI - and then to C --
- 03 10 02 25 CDR C. Yes.
- 03 10 02 27 CMP -- and then put this to --
- 03 10 02 30 CDR MANUAL ...
- 03 10 02 32 CMP No. Put it to - What do you put this thing to when you're not using it?
- 03 10 02 39 LMP ...
- 03 10 02 41 CMP In MANUAL and what angle?
- 03 10 02 42 LMP ... MANUAL and ...
- 03 10 02 52 CMP (Cough) Jesus Christ. I don't know why I should be coughing. ... everybody, after coming all the way to the moon, we'd suffocate on this shit. Wouldn't that be the crap?
- 03 10 03 12 CDR Yes.
- 03 10 03 21 CDR (Cough)
- 03 10 03 30 CMP Try some of that. It'll wash it down, anyway.
- 03 10 03 58 CDR How are you doing, Gene-o?
- 03 10 04 21 CMP Shit, I've got to get this one out of here. Can we stick it over through here?
- 03 10 04 25 CDR Yes.
- 03 10 04 27 CMP Then, I'll work this goddam landmark track ...
- 03 10 04 46 CMP Seven more. 30 more. ... the latitude and longitude ... --
- 03 10 05 01 CDR Watch your feet. Where is the LM transfer film? That's in -
- 03 10 05 50 CMP Plus 016, ENTER; plus 43440, ENTER; plus 1, 2, 3, 4, 5, ENTER. Now that's step 1; that's what it says. 7 miles north of ground track, and zero elevation angle is supposed to be 838, and we're 30 minutes ahead.

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03 10 06 27 CDR (Cough) That's - -

03 10 06 29 CMP Where is acquisition?

03 10 06 30 CDR Have you got your updated thing on that for the landmark? Gene-o copied it down.

03 10 06 35 CMP That's what I copied it from. It's - -

03 10 06 36 CDR Oh, okay.

03 10 06 38 CMP - - it's right here. Isn't that what it is?

03 10 06 39 CDR Yes. Yes.

03 10 06 41 CMP Okay, 81:53 was zero time on that thing, 81:53 - -

03 10 06 45 CDR Tell me when you want me, you know, to start pitching.

03 10 06 48 CMP Okay. Yes. 81:53, 82 - 82:03. 11, 12, 82:03 ... 10, 20, 30, 40 - Set the clock at (cough) -

03 10 07 54 CDR José, let me ask you something real quick.

03 10 07 55 CMP Yes, sir.

03 10 07 57 CDR What is this - 16 - How many 16-millimeter MAGS goes over to Gene-o? ... - -

03 10 08 03 CMP It says on that thing, everything in the LM does, right on there.

03 10 08 07 CDR This - this ... basic 16-millimeter - There's a transfer - -

03 10 08 10 CMP There's a transfer bag under there that says LM.

03 10 08 14 CDR Which - thing - is it in here?

03 10 08 16 CMP It's in R-13.

03 10 08 17 CDR Okay, I'll get it.

03 10 08 20 CMP Gee, I don't know if we can get it. I don't think you can - ... help you. T.P., let me see if I can get it. Here, can you hold this here for a second?

03 10 08 30 CDR Yes.

~~CONFIDENTIAL~~

Day 4

~~CONFIDENTIAL~~

Page 133

03 10 08 33 CMP Yes, I can get it.
03 10 08 37 CDR I'll hold on to the ...
03 10 08 39 CMP Okay, you've got to take that - take that box up in R-12. It says LM. Oh, shit! It says LM on it. It says LM on it. Here's a PPK; does that go to the LM?
03 10 09 02 CDR Shit, leave it there, man; just leave it there.
03 10 09 05 CMP That's the LM. Yes. I sure want to do something with this gear, but I don't - (cough) -
03 10 09 36 CDR Here, this is yours.
03 10 09 41 CMP Give me that book on landmark tracking. I want to read that. ...
03 10 10 08 CMP I don't know how he did it, but he's got it tied down pretty good over here. I certainly don't seem to be able to get at it.
03 10 10 16 CDR Let me pass these two packs.
03 10 10 20 CMP These?
03 10 10 21 CDR No, all I've got here.
03 10 10 23 CMP Oh. Gene-o, are you still up there?
03 10 10 27 CDR Hey, Gene-o; I'm going to --
03 10 10 28 CMP Oh, yes.
03 10 10 29 CDR -- I've got this - I've got these two packs of LM film. I'm going to have to help John set up for some landmark tracking. Let me bring you down some film, babe. Okay?
03 10 10 41 LMP ...
03 10 10 43 CDR ... Whew.
03 10 10 51 CMP Monocular? Have you got that?
03 10 10 53 LMP ... you know when we get to the point that we're then supposed to do a contact.

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~~CONFIDENTIAL~~

Day 4

03 10 10 56 CDR Yes; okay, babe.

03 10 11 35 CMP Oh, yes. 82:11:40.

03 10 12 01 CDR Are we supposed to have acquisition soon?

03 10 12 09 CMP I don't know. It says here 82 TW - 10, 82 - 2¹.

03 10 12 16 CDR For acquisition?

03 10 12 17 CMP Yes.

03 10 12 18 CDR Is that for the landmark or --

03 10 12 19 CMP 82:27 for COMM.

03 10 12 20 CDR 82:27, we got some ...

03 10 12 22 CMP Well, let's see what they give us. SR - what is - what is this, Gene? SR, sunrise is at 82:41. Sunset - acquisition is at 82:39:11. Okay, that's when they're going to pick us up.

03 10 14 17 SC God damn.

03 10 14 33 CDR Okay, what time should I start pitching down, babe?

03 10 14 36 CMP Oh, you're a long ways from that, T.P. We haven't got there yet. Okay, at 82 - -

03 10 14 42 CDR You're not - -

03 10 14 43 CMP -- for ACQ 1, 82:43:47.

03 10 14 47 CDR 82:43 - -

03 10 14 49 CMP 47. And I'll tell you for sure -

03 10 14 54 CDR And I'm supposed to pitch down to what? 3 -

03 10 14 57 CMP Supposed to pitch down to 272 degrees - -

03 10 15 01 CDR And don't - -

03 10 15 02 CMP -- and it says stop pitch at 272. But don't do that; we want to get all the five landmarks in there. And then we'll maneuver to 27¹, and that'll have it set up for the next one so - -

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- 03 10 15 12 CDR Are you talking about ORB rate?
- 03 10 15 14 CMP No, shit; I'm talking about pitching down at 0.3 degree per second in ACCEL COMMAND.
- 03 10 15 19 CDR Yes, okay. When - at what time, please?
- 03 10 15 21 CMP That's what I just told you. 82:43:47 for the first one.
- 03 10 15 31 CDR 80 - Now what attitude should I be when we start that? That's what I'm saying, what attitude --
- 03 10 15 35 CMP Whatever attitude you're at right now. What attitude are you at?
- 03 10 15 39 CDR I'm at -- I'm still at 326, or at 330, you know. That's what ... --
- 03 10 15 43 CMP Okay, that's what they give us to maneuver to, right?
- 03 10 15 46 CDR Yes.
- 03 10 15 47 CMP Yes, landmark-track attitude --
- 03 10 15 48 CDR Yes.
- 03 10 15 49 CMP -- 326. Fine.
- 03 10 15 50 CDR Okay, do I pitch down to - Look, here - pitch to 27 $\frac{1}{4}$.
- 03 10 16 01 CMP Just pitch down at 82 - at this updated time, 82:43:47, but I'll tell you when, okay?
- 03 10 16 10 CDR No, I pitch to 27 $\frac{1}{4}$ over here for B-1. This is good for ...
- 03 10 16 13 CMP No. You start your pitch at this thing for this one. Okay, the next one; we start at 27 $\frac{1}{4}$.
- 03 10 16 22 CDR Yes, right, right. You start your pitch at this one.
- 03 10 16 26 CMP Yes, but it don't have to be quite that.
- 03 10 16 27 CDR Oh, yes.
- 03 10 16 28 CMP Just something around there. It don't - you know. We're at the right attitude now.

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03 10 16 31 CDR Yes, yes.

03 10 16 32 CMP Okay. Okay, I got you. We're on the same wavelength.

03 10 16 47 CDR (Cough) Bastards!

03 10 16 50 CMP Hope the inflow valve takes care of it before we do.

03 10 16 55 CDR You know, we ought to check that one. I bet you that son of a bitch is full of shit.

03 10 16 59 CMP We got to clean it.

03 10 17 05 CDR (Sneeze)

03 10 17 13 CMP We're still on the other side of the moon.

03 10 17 14 CDR Yes.

03 10 17 49 CDR All we got to do is maneuver this when we go to the sleep attitude and that does it for the rest of the attitude.

03 10 17 55 CMP Yes. Then we spend all night getting that son of a bitch in shape.

03 10 18 00 CDR Yes.

03 10 18 05 CMP I don't think it's a disaster, do you?

03 10 18 07 CDR Huh?

03 10 18 09 CMP I don't think it's a disaster, do you?

03 10 18 11 CDR No. ...

03 10 18 28 CMP Man, is it ever going to be a bundle of snakes in here tomorrow.

03 10 18 31 CDR You know it.

03 10 18 36 LMP ... don't ever have to ...

03 10 18 39 CDR Yes, I'm with you, Gene-o. Does everything look pretty good?

03 10 18 51 CMP How are we going to clean this thing up?

03 10 18 55 CDR I don't know.

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Day 4

~~CONFIDENTIAL~~

Page 137

03 10 19 08 CMP B-1, isn't that what it says? B-1 is the next one.
03 10 19 20 CDR B-1, yes.
03 10 20 10 LMP ...
03 10 20 13 CDR Huh. How is that water? Pretty good?
03 10 20 20 LMP ...
03 10 20 22 CDR Oh, shit.
03 10 20 35 LMP ...
03 10 21 22 LMP I don't want ...
03 10 21 26 CDR Huh?
03 10 21 28 LMP I don't want ...
03 10 21 30 CDR Why, is it all bowed out like it used to be?
03 10 21 32 LMP ...
03 10 21 35 CMP Oh, shit. Come on back in here.
03 10 21 36 CDR We put that hatch in.
03 10 21 39 CMP Huh?
03 10 21 40 CDR Well, it's been that way for 3 days now. I guess
it'll never get away.
03 10 21 44 CMP Shit, man; come on in back in here. You could have
gone a long time without saying that.
03 10 21 53 CDR (Laughter)
03 10 22 07 IMP ...
03 10 22 13 CMP What?
03 10 22 18 LMP Big Marine Corps - big, big Marine Corps emblem on my
armrest. ...
03 10 22 24 CMP Shit. (Laughter)
03 10 22 42 CDR Hey, John; you did a fantastic job of docking.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 4

- 03 10 22 46 CMP It was okay. Come out alright.
- 03 10 22 49 CDR Minus 0.1.
- 03 10 23 24 CMP I'd feel a lot better about it if you guys would just come on back in here, and let's close that darn door.
- 03 10 23 29 CDR (Laughter) Blow the thing out.
- 03 10 23 32 CMP Separate it. Oh, hell; I ain't going to have no eyesight when I finish all this shit. I know it.
- 03 10 23 58 CDR I'll bet that's a bitch. Okay, 82:24.
- 03 10 24 20 CDR We're coming up to a hell of a big crater here. This must be crater number IX, maybe; huh?
- 03 10 24 27 CMP Can't really tell. We're not firing any thrusters much, are we?
- 03 10 24 33 CDR No.
- 03 10 25 04 CMP 82 what?
- 03 10 25 06 CDR 82:38:45, it comes on the horizon and it should be 35 degrees depress down at 43.
- 03 10 25 14 CMP Okay. Well, I'd better get that other landmark thing out. It's written down, somewhere. What is it? That's B-1, isn't it?
- 03 10 25 43 CDR Yes, B-1. F-1 and B-1.
- 03 10 26 04 CDR ... I got you.
- 03 10 27 05 CMP You don't mind me writing this on you, do you, T.P.?
- 03 10 27 07 CDR Sure, baby; you can write anywhere you want to.
- 03 10 27 31 CMP Have you got that flight plan? Let me look at it one more time.
- 03 10 27 34 CDR Yes, yes. Gene-o wants you.
- 03 10 27 36 CMP Yes. Yes. What?
- 03 10 27 40 LMP Did you ... the handle on your Hasselblad?
- 03 10 27 43 CDR No.

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- 03 10 27 45 LMP I just wondered, if you had any thoughts of putting the ISA ... over here, the color-film monitor ... black and white ...
- 03 10 27 54 CDR Okay, and - Well, that's good. You're going to put that in the pouch.
- 03 10 27 58 LMP ...
- 03 10 28 02 CDR You mean the purse?
- 03 10 28 03 LMP Purse.
- 03 10 28 04 CDR Yes, okay. We'll have the Hasselblad first.
- 03 10 28 25 LMP How'd we do on our ... for acquisition?
- 03 10 28 28 CDR Okay, we're going to have ACQ - John's looking at the flight plan. We're going to have acquisition in about 10 more minutes, Gene-o.
- 03 10 28 34 LMP ... - -
- 03 10 28 39 CDR Yes.
- 03 10 28 40 LMP - - ...
- 03 10 28 42 CDR Okay, well, don't sweat it because we have - I've got to help John on this landmark tracking.
- 03 10 28 47 LMP What about the ...?
- 03 10 28 50 CDR We'll do that as soon as he finishes the landmark tracking, or maybe I can do it and help you.
- 03 10 28 55 CMP What the hell is that?
- 03 10 28 59 CDR I - Huh?
- 03 10 29 00 LMP ...
- 03 10 29 04 CDR Okay, I go to RESET up here, right? Let me know when, Gene-o.
- 03 10 29 09 CMP Say when, Gene-o.
- 03 10 29 13 LMP Okay, when.
- 03 10 29 15 CMP When.

~~CONFIDENTIAL~~

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03 10 29 16 CDR RESET, OFF; 82:29:20. I'll write it here.

03 10 29 44 CDR Does that read zero? Yes, it sure does, yes.

03 10 29 47 CMP Gee, I wished I'd known that goddam thing was going to blow out. I'd have put on my suit. 82:29:20, huh? Is that when we get zero? Is that what it says?

03 10 30 04 CDR No, 82:29:20 is when that thing - was when that thing - you know, when I throw the switch, and ...

03 10 30 09 CMP Okay, yes. When does it say we get to zero on that landmark?

03 10 30 21 CDR 82:38:45 - -

03 10 30 22 CMP 45. Got a ways to go on that.

03 10 30 25 CDR Hey, I'm rolled about 10 degrees. You want to roll your back, babe?

03 10 30 27 CMP No. Which way are you rolled?

03 10 30 29 CDR We're rolled left 10 degreces.

03 10 30 32 CMP Perfect. It's north ground track here.

03 10 30 40 CDR Yes, yes; it is.

03 10 30 42 CMP North ground track. We roll this way. Good.

03 10 30 47 CDR Okay, good show.

03 10 30 50 CMP Perfect. In fact, that'll be alright for the other one, too, because it's 30 south. 38 at 3 degrees per minute. Let's see what we got here.

03 10 31 21 LMP ...

03 10 31 24 CDR Pardon me.

03 10 31 26 CMP What was that?

03 10 31 28 CDR What did you say, Gene-o?

03 10 31 30 LMP I hope ...

03 10 31 32 CMP Why?

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Day 4

~~CONFIDENTIAL~~

Page 141

03 10 31 45 CDR Got a program alarm, babe.

03 10 31 47 CMP Yes, I know it. See, it's out of the 50-degree field of view. It calls for 76 degrees shaft. As soon as it passed the 50-degree alarm, it'll run up there and stop. Let me see where this son of a bitch is one more time. That's B-1, F-1.

03 10 32 27 CDR I think that's a pretty good idea of putting this window - this center hatch window up there to keep the sun out of here as long as you're in the sun.

03 10 32 33 CMP Yes.

03 10 33 20 CMP Okay, acquisition was - Hell, we've still got a long ways to go --

03 10 33 28 CDR We've got a long stretch.

03 10 33 32 CMP God, he's ... right out there ...

03 10 34 35 CDR Okay, we've got 4 minutes coming up, John, to when we'll be on the -

03 10 34 42 CMP Zero-degree line?

03 10 34 43 CDR Yes.

03 10 34 44 CMP I believe it. And acquisition is at 82:39, I think.

03 10 34 56 CDR Yes.

03 10 34 59 CMP What's that noise up there?

03 10 35 01 CDR That's Gene-o's glycol pump. The glycol pump work, Gene-o?

03 10 35 06 LMP ...

03 10 35 08 CDR Hey, we're going to start this landmark tracking in about 5 or 6 minutes, so you can expect us to be pulsed around a little bit.

03 10 35 16 CMP It takes a hell of a push to pulse it at 3 --

03 10 35 19 LMP ... I don't know how they're going to ...

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Day 4

- 03 10 35 35 CDR Hell, if we don't get it on this time around, we'll go to the next time. I'll tell you, after - after we do the landmark tracking - -
- 03 10 35 44 LMP ...
- 03 10 35 50 CMP Well, how in the hell are you going to get it?
- 03 10 35 52 LMP ...
- 03 10 35 54 CDR Hey, okay, Gene-o. Look, as soon as we finish this landmark track, we go right to the sleep attitude. I'll do an AUTO maneuver up here and that'll give us S-band track on both of them. Okay?
- 03 10 36 14 CMP I bet you a hundred bucks it won't make any difference. FOD will want to look at it again.
- 03 10 36 21 LMP ...
- 03 10 36 24 CMP We'll have it in another 3 minutes.
- 03 10 36 35 CDR Have you got your S-band on OMNI, Gene-o?
- 03 10 36 40 LMP ...
- 03 10 36 43 CDR Okay, we're going to be with them in about 3 minutes, babe.
- 03 10 36 49 CMP I didn't know I was volunteering to go on this damn thing in my underwear.
- 03 10 36 57 CDR And the first thing that we have coming up is a -
- 03 10 37 08 CMP What are you guys going to be doing?
- 03 10 37 14 CDR We'll be calling them back and forth on these -
- 03 10 37 25 CMP That 0.3 degree a second is going to scare shit out of Gene-o.
- 03 10 37 29 CDR Yes.
- 03 10 37 31 CMP Hey, Gene-o; you pay attention now because when we go to 0.3 degree a second, it's going to scare the hell out of you; I guarantee. And I'll holier, so you can hold on to something.
- 03 10 37 49 CDR Okay, 8? -

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Day 4

~~CONFIDENTIAL~~

Page 143

03 10 37 52 LMP ...
03 10 37 54 CMP Huh? 82:37 - 82:38.
03 10 38 02 CDR 1 more minute and we're going to have acquisition.
03 10 38 06 CMP Do you want to set up the clock; is that what you're
doing? 82:38:10. 82:38:15.
03 10 38 26 LMP Mark 30.
03 10 38 28 CMP 82:38:30 -
03 10 38 30 CMP MARK it.
03 10 38 34 LMP ...
03 10 38 40 CMP 82:38:42.
03 10 38 43 LMP ...
03 10 38 44 CMP Yes. I wish you hadn't told me about that bulged-out
hatch. I'd have been happy as long as I didn't know
that (laughter).
03 10 39 08 LMP ...
03 10 39 11 CMP Okay.
03 10 39 13 CDR 82:40; that's another minute to go.
03 10 39 15 CMP 45 seconds.
03 10 39 19 CDR Hello, Houston; Apollo 10.
03 10 39 21 CMP Have you got the lock?
03 10 39 24 CDR I've got OMNI C.
03 10 39 45 CMP Hello, Houston; Apollo 10. Over.
03 10 39 50 LMP ...
03 10 39 52 CDR Okay, 55 - Pardon me. You want --
03 10 39 55 CMP 55, 56, 57, 58, 59 -
03 10 40 00 CMP 40.

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03 10 40 09 CMP You got them on C? Have you got lockon?

03 10 40 10 CDR I've got - I'm halfway locked on.

03 10 40 12 LMP ...

03 10 40 14 CMP Houston, Apollo 10 on OMNI's. Over.

03 10 40 15 CDR Well, they were - What should we go do?

03 10 40 20 LMP What did you get, Tom?

03 10 40 22 CDR I've got them on ... It's just about halfway up, Gene-o.

03 10 40 32 CDR Hello, Houston; Apollo 10.

03 10 40 36 CMP B, C, D.

03 10 40 44 CDR Should I go to another one?

03 10 40 47 CMP Shit, I don't know!

03 10 40 55 CDR A and B.

03 10 40 57 CMP I don't think - Ain't B on the top? Well, I don't know; maybe that's the one we ought to be on. A, B - not B, no, not B; B is down there by the high gain. A, B - should be D. Try D.

03 10 41 11 CDR D? Does D override everything? OMNI D?

03 10 41 22 CMP Sound better?

03 10 41 24 CDR Where do you have to have it to have it in OMNI D? Where's the other one have to be? A, B, and C?

03 10 41 29 CMP It doesn't make it any difference. OMNI D takes it.

03 10 41 36 CDR Hello, Houston; Apollo 10. Okay, Jose. You should have that one at 43:47. In 2 more minutes, you're going to be there.

03 10 41 47 CMP Okay. By God, there's the Smyth's Sea.

03 10 41 52 CDR PITCH going to ACCEL COMMAND.

03 10 41 54 CMP Okay, but don't do anything until I tell you.

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Day 4

03 10 41 58 CDR
03 10 42 00 CMP
03 10 42 33 CMP
03 10 42 36 CDR
03 10 42 37 CMP
03 10 42 38 CDR
03 10 42 57 CDR
03 10 43 12 CMP
03 10 43 14 CDR
03 10 43 25 CMP
03 10 43 28 CMP
03 10 43 30 CDR
03 10 43 32 LMP
03 10 43 33 CMP
03 10 43 34 LMP
03 10 43 38 CDR
03 10 43 39 CMP
03 10 43 40 CDR
03 10 43 50 CDR
03 10 44 02 CMP
03 10 44 03 CDR
03 10 44 05 CMP
03 10 44 06 CDR
03 10 44 07 CMP

~~CONFIDENTIAL~~

Page 145

Okay, when you want 0.3 degree?
Yes.

Okay, here's the first clue.
Coming in on it, babe.
Yes.

Good show.

Hello, Houston; Apollo 10. I can barely hear him.
Okay, babe.

Say when, babe. I got 43:18:20; 27 more seconds.
Okay, stand by.

MARK it.

Go? 0.3?

Hey, tell them -

Whoa!

- - I read them loud and clear.

Tell me when you start marking, babe; and I'll -
I just did.

I didn't hear it.

Tell me when - I've only got about 0.1 on that.
About 20 seconds gone, babe.

Okay, hack it again.

Okay, need down?

Huh?

Put - put you down some more?
Yes. Real good.

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~~CONFIDENTIAL~~

Day 4

03 10 44 20 CDR 40 seconds, there. Okay, looking good.

03 10 44 40 CDR 10 seconds gone. 15. 20 seconds. Coming up to
25 seconds, John. 30 seconds. Beautiful.

03 10 45 04 LMP ... burn data?

03 10 45 06 CMP No.

03 10 45 07 CDR No. We're doing some tracking. Okay, 15 seconds gone.

03 10 45 25 CDR Got 20 seconds gone. 25 seconds, babe. And 30 seconds.

03 10 45 41 CMP Okay.

03 10 45 42 CDR Got it?

03 10 45 43 CMP Five marks.

03 10 45 44 CDR Yes.

03 10 45 45 CMP Okay, what do you pitch to?

03 10 45 47 CDR Oh, about 3 - -

03 10 45 48 LMP ...

03 10 45 49 CDR Yes, what OMNI?

03 10 45 50 LMP Did you ...

03 10 45 51 CDR No, what OMNI? I'm on D.

03 10 45 53 LMP They're calling you and you're calling me, but I can't
talk to them; my ...

03 10 45 58 CDR What OMNI? I had it on D, what -

03 10 46 02 LMP Huh?

03 10 46 03 CDR What OMNI? What's the best one? I've got OMNI D on,
here. Hello, Houston; Apollo 10.

03 10 46 20 CC Hello, Snoopy; this is Apollo - this is Houston.

03 10 46 23 CDR Hello, Joe. How do you read? This is Charlie Brown.

03 10 46 26 CC Hello, Apollo 10; this is Houston. Reading you real
weak, Tom.

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Day 4

~~CONFIDENTIAL~~

Page 147

03 10 46 29 CDR Okay. Look, we're right in the middle of a landmark tracking, and Gene-o is reading you loud and clear. Over.

03 10 46 39 CC Okay, Tom. Understand you're reading us loud and clear, and is - -

03 10 46 42 CMP Stop the pitch.

03 10 46 43 CC - - Gene-o in Snoopy yet?

03 10 46 44 CMP Maneuver to 274.

03 10 46 46 CDR Okay, I need to pitch down some more. See?

03 10 46 47 CMP Okay. Sure, he's in Snoopy. He's been calling you on the S-band. He hears you loud and clear.

03 10 47 01 CC Okay, Snoopy; this is Houston. We're picking you up now, Gene-o. And we can go ahead with this voice check now; if you'll give me a long count in each of your three modes, we'll see how it works out.

03 10 47 10 CDR Shit, there's the earth.

03 10 47 12 CC And, if you would, identify which mode you're in.

03 10 47 22 CMP What's the - what's the next time that - -

03 10 47 24 CDR Okay, the next time you're - you're going to be zero at 55 and at 83, you'll be TT, 83 hours and 50 minutes.

03 10 47 32 CMP Okay.

03 10 47 47 CDR José, you're at 274.

03 10 47 53 CMP Okay.

03 10 47 57 CC Charlie Brown, this is Houston.

03 10 47 59 CDR Go ahead. Over. Go ahead. Over.

03 10 48 11 CDR Houston, this is Charlie Brown. Go ahead.

03 10 48 14 CC Charlie Brown, Houston.

03 10 48 16 CMP Go ahead there, Joe. We read you loud and clear.

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03 10 48 23 CC Okay, Charlie Brown. I understand you're reading us loud and clear. You're breaking up pretty badly and just about unreadable. I wonder if you could give us an idea; is Snoopy ready to try the checks from his end yet?

03 10 48 34 LMP Tell them I'm listening.

03 10 48 35 CMP He's hearing you loud and clear. He's listening to you. He's ready to try the checks.

03 10 48 49 LMP ...

03 10 48 55 CMP Yes, he's on -

03 10 48 58 CDR ... You got the S-band volume on. What'd you do? Turn off the suit power --

03 10 49 04 LMP ... through here, and tell them ...

03 10 49 07 CDR Okay, you want to turn on your suit power or anything?

03 10 49 13 LMP Tom, I'll talk to them. Put my suit power on, would you?

03 10 49 17 CDR Okay, babe.

03 10 49 18 LMP Would you check, is my audio power on?

03 10 49 19 CDR SUIT POWER, ON; AUDIO POWER, ON; S-BAND, T/R. You've got it.

03 10 49 28 CDR We're yawning off a couple of degrees. That going to hurt you?

03 10 49 31 CMP No.

03 10 49 37 CDR Okay, John.

03 10 49 40 CMP Oh, come on, you bastard.

03 10 49 50 LMP Hello, Houston, Houston; this is IMP in Snoopy. How do you read me?

03 10 49 58 CC Okay, Snoopy. We caught that one, Gene-o. And how do you read Houston?

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- 03 10 50 02 IMP I'm reading you loud and clear; the only problem is, I'm on command module hoses down here, I'm at command module COMM. Everything's squared away; everything's going fine. I'm waiting for you to come over the hill, and I can read you loud and clear, but you cannot read me from Snoopy. Over.
- 03 10 50 21 CC Okay, you're pretty tough to make out in this mode, Gene-o. We'll go ahead and catch the long counts, though, if you want to give us a long count in each of your three modes. Go ahead and identify which mode you're in.
- 03 10 50 33 LMP Houston, Houston, I'm on - I am on CSM COMM; I'm on Charlie Brown COMM. I can read you when I go to Snoopy COMM, but you cannot read me. Over.
- 03 10 50 48 CC Okay, Snoopy. We copy. You're on CSM COMM and you can read us when you're on Snoopy's COMM, but we're not picking you up at all. Okay, stand by just a minute, Gene; and, in the meantime, how's the snow situation up there?
- 03 10 51 02 LMP It's pretty lousy. Everything el in the LM is GO. I'll give you all the readings when I get back in the CSM. Everything's going along great except the COMM, and I can read you loud and clear on Snoopy COMM, but you're not reading me at all.
- 03 10 51 21 CC Okay, we understand, Gene-o. Stand by here.
- 03 10 51 23 LMP You might have me verify some switches to make sure I got them all, but I think I did.
- 03 10 51 33 LMP (Cough)
- 03 10 51 34 CC Okay, that sounds like a good idea.
- 03 10 51 50 CC Okay, Snoopy; this is Houston. Do you want us to go through your switch list here to confirm these?
- 03 10 51 55 IMP I guess. Unless you got a better idea, we might just as well.
- 03 10 52 03 CMP What time we supposed to be over this one?
- 03 10 52 05 CDR Okay, 82:55 we'll be com - 47, and then at 82:56, we're coming to here.

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03 10 52 10 CC Okay, Snoopy. Your AUDIO (LMP); we want the S-BAND T/R to TRANSMIT/RECEIVE.

03 10 52 17 LMP That's go.

03 10 52 18 CC VHF A, TRANSMIT/RECEIVE.

03 10 52 21 LMP Go.

03 10 52 23 CC VHF B to RECEIVE.

03 10 52 25 LMP Go.

03 10 52 29 CC S-BAND TM, PRIMARY to PRIMARY; DOWN VOICE BACKUP, PCM, OFF/RESET, OFF, LOW.

03 10 52 43 LMP Okay, I got all of those.

03 10 52 45 CC VHF A TRANSMITTER to VOICE - -

03 10 52 46 CDR Let me pitch up a little bit here; kick it off.

03 10 52 48 CC - - VHF B RECEIVER, ON; and S-BAND ANTENNA, FORWARD.

03 10 52 53 LMP Okay, you got all those.

03 10 53 01 CC Okay, that - that should hack it, Gene-o.

03 10 53 04 LMP Okay, can EECOM think of any circuit breakers that might be out? I've doublechecked everywhere, and I can't see anything that's out on this end. Why don't you have a quick doublecheck and then I'll switch back to Snoopy COMM?

03 10 53 16 CMP What time is that thing coming up, Tom?

03 10 53 18 CDR 82:55:47.

03 10 53 26 CC Okay, Snoopy. We're looking at the circuit breakers, now.

03 10 53 31 LMP I'd sure like to complete this on this front-side pass, if we can; for time reasons and also for power reasons.

03 10 53 44 CC Roger that, Snoop. Snoopy, we're getting real good data. It's just our COMM that we're having a little problem with here.

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- 03 10 53 54 LMP Okay, and I'm reading you loud and clear when I go on Snoopy COMM. It's just a case of you not reading me, I guess.
- 03 10 54 04 CMP Sounds like they've got the problem.
- 03 10 54 15 CDR Okay, 82:55:47; it'll be on the horizon just about - about another minute, John; it'll be on the horizon, babe.
- 03 10 54 32 CMP Okay.
- 03 10 54 45 CMP Goddam LM is sticking down right in the middle of it.
- 03 10 55 06 CDR I'll keep track of these marks for you. Okay?
- 03 10 55 10 CMP Okay.
- 03 10 55 12 CDR You can call off "mark."
- 03 10 55 15 CMP Okay.
- 03 10 55 21 CDR Okay.
- 03 10 55 24 CMP 82:55:47; we're supposed to be on the horizon, huh?
- 03 10 55 27 CDR ... 0, 21.
- 03 10 55 29 CMP Okay.
- 03 10 55 39 CMP What'd we do, lose them completely?
- 03 10 55 41 CDR No.
- 03 10 55 43 LMP Sure sounded like it.
- 03 10 55 44 CDR We've got lock; just like it is.
- 03 10 55 56 CDR Okay, it should be on the horizon now, 10 seconds - -
- 03 10 55 58 LMP Hello, Houston; this is LMP from Snoopy. How are you reading?
- 03 10 56 05 CDR Boy, you're coming through loud and clear.
- 03 10 56 07 LMP Yes, but I'm on your COMM; you're supposed to be listening to me on intercom.
- 03 10 56 11 CDR Good.

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Day 4

03 10 56 24 CC Snoopy, this is Houston. Go ahead, Gene.

03 10 56 27 LMP How are we doing, Joe?

03 10 56 32 CC We're trying to figure out if maybe another antenna position would work better, Gene.

03 10 56 36 LMP I - -

03 10 56 37 CC In the meantime, we suggest that you turn those - you have the guys in Charlie Brown turn their suit compressors off so we don't suck that stuff up into the suit loops.

03 10 56 49 CDR Look, Joe; we got the screens over and it's been like this 3 days. We're all squared away.

03 10 57 00 LMP Joe, we've got the screens o - -

03 10 57 01 CC Charlie Brown, this is Houston. Say again, if you would, Tom.

03 10 57 04 LMP I'll tell them, Tom.

03 10 57 05 CDR Good.

03 10 57 06 LMP We've got the screens over the exhaust hoses and we've been sucking out of the command module for 3 days cleaning the screens, so we're alright now. I've got good signal strength on both S-band forward and S-band aft antennas on the LM. You want me to switch over and give you a call again?

03 10 57 28 CC Roger; let's give it another try.

03 10 57 29 LMP Okay, I'll give it another try. Tom, you want to turn my suit power off?

03 10 57 33 CDR Okay, I've got a little bit of time here to -

03 10 57 42 CDR SUIT POWER, OFF; babe.

03 10 57 50 CMP There's Secchi.

03 10 58 00 CDR Okay. We got about 2 minutes and 40 seconds to go.

03 10 58 08 CMP Okay, babe; it's coming down.

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03 10 58 11 CDR Now, originally, when you told me to stop, I only pitched about 0.1 degree, and then you said "Increase it."

03 10 58 15 CMP Yes, yes..

03 10 58 17 CDR That what you want to do, start 0.1, and then - -

03 10 58 18 CMP Yes, that's the best way.

03 10 58 20 CDR Okay, I'll hit you a 0.1 and when you tell me to go, I'll hit you faster.

03 10 58 23 CMP Okay.

03 10 58 32 CMP Here it comes.

03 10 58 34 CDR Okay.

03 10 58 35 CMP God damn, these things are hard to pick out.

03 10 58 47 CMP Here's those five diamond ones.

03 10 58 50 CDR Okay, you got the little five diamonds.

03 10 58 52 CMP Yes.

03 10 58 53 LMP ..., would you?

03 10 58 55 CDR What?

03 10 58 57 IMP Tell them I'm calling them.

03 10 59 00 CDR Hello, Houston. This is Charlie Brown; Snoopy's been calling you and calling you. Do you read him?

03 10 59 09 CC Charlie Brown, this is Houston. We sure cannot. That's a negative receive on Snoopy there, Charlie Brown.

03 10 59 15 CDR Negative, Gene-o. They don't read you.

03 10 59 28 CDR Okay, you've got about a minute and a half.

03 10 59 35 CMP Okay, I'm on it.

03 10 59 37 CDR Okay.

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03 10 59 41 CMP Or was on it. Shit!

03 10 59 46 CDR Are we going to pitch down?

03 10 59 48 CMP No. Yes.

03 10 59 50 CDR Now? Ready?

03 10 59 54 CMP Yes, go ahead.

03 11 00 05 CDR Let me know when you get the first mark.

03 11 00 06 CMP I got the first one.

03 11 00 08 CDR Okay, there's one.

03 11 00 09 CMP 7, 8, 9, 10 - -

03 11 00 13 CC Charlie Brown, this is Houston.

03 11 00 14 CMP - - 12, 13, 14 - -

03 11 00 16 CDR Stand by; we're in the middle of our landmark tracking.

03 11 00 18 CMP - - 16, 17, 18, 19 - -

03 11 00 22 CC Roger, Charlie Brown; this is Houston. And Snoopy, also, if you're reading. What we're going to try and do is go over to the CDR side and set the switches up there, and see if we can get any voice COMM over there. And we'll read off the switch - -

03 11 00 36 CMP - - 6, 7 - -

03 11 00 37 CC - - list to you, Gene-o.

03 11 00 38 CMP - - 8, 9 - -

03 11 00 39 CC Okay, Snoopy. This is - -

03 11 00 40 CMP - - 10, 11 - -

03 11 00 41 CC - - Houston. On the - -

03 11 00 42 CMP - - 12, 13 - -

03 11 00 43 CC - - panel 11; push in the - -

03 11 00 45 CMP - - 14, 15 - -

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03 11 00 46 CC -- COMMANDER'S AUDIO, and then, on --
03 11 00 47 CMP -- 16, 17 --
03 11 00 48 CC -- the COMMANDER'S AUDIO panel --
03 11 00 50 CMP -- 18, 19 --
03 11 00 51 CC -- set your S-BAND T/R to T/R --
03 11 00 53 CMP -- 20, 21 --
03 11 00 54 CC -- VHF A, T/R and --
03 11 00 55 CMP -- 22, 23 --
03 11 00 56 CC -- VHF B, RECEIVE.
03 11 00 58 CMP -- 24, 25 --
03 11 00 59 CC And on the IMP panel, go to BACKUP --
03 11 01 01 CMP -- 26, 27 --
03 11 01 02 CC -- and let's try it.
03 11 01 04 CMP -- 28, 29, 30. How fast are you pitching, T.P.?
03 11 01 09 CDR You want to pitch faster?
03 11 01 11 CMP Yes. 1, 2 --
03 11 01 12 CDR I'll pitch a little faster for you.
03 11 01 15 CMP -- That's good, fine. 3, 4, 5, 6, 7, 8, 9, 10, 11,
12, 13, 14 --
03 11 01 34 CDR You're counting slow.
03 11 01 35 CMP -- 15, 16, 17, 18, 19 --
03 11 01 43 CDR Anytime, babe.
03 11 01 44 CMP -- 20, 21, 22, 23, 24, 25.
03 11 01 53 CDR Okay, that's four of them.
03 11 01 54 CMP 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 --

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Day 4

03 11 02 11 CC Snoopy, this - -

03 11 02 12 CMP - - 14, 15 - -

03 11 02 13 CC - - is Houston. If you're trying to give us a call - -

03 11 02 15 CMP - - 16 - -

03 11 02 16 CC - - would you try that again, please? I think we're getting you real faint.

03 11 02 17 CMP - - 17, 18, 19, 20, 21 - -

03 11 02 23 CC Okay, Snoopy - -

03 11 02 24 CMP - - 22 - -

03 11 02 25 CC - - this is Houston. You're booming in loud and clear now.

03 11 02 26 CMP - - 23 - -

03 11 02 27 CC How do you read me?

03 11 02 28 CMP - - 24, 25, 26, 27, 28, 29.

03 11 02 40 CDR Mark another one when you got it.

03 11 02 43 CMP Man, I'm on top of it!

03 11 02 46 CC You're loud and clear, Gene-o. Let's press on. I bet we can wipe this out in time. Go ahead with a long count - one long count in each mode, and give us an ident on - identify which mode you're in; PUSH-TO-TALK, VOX, and so forth. Okay?

03 11 02 56 CDR Did you mark it, John?

03 11 02 58 CMP Huh?

03 11 02 59 CDR Did you mark it?

03 11 03 00 CMP Not yet.

03 11 03 04 CDR Ready for the last mark. Stand by.

03 11 03 06 LMP Okay, I've been reading you. 3:

03 11 03 08 CC Roger. Go.

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03 11 03 09 CMP Okay, go. That was it.

03 11 03 19 CDR What was ...?

03 11 03 21 CMP Tell us what it was.

03 11 03 25 CC You're loud and clear, PUSH-TO-TALK, Gene-o. Go ahead with ICS.

03 11 03 33 CMP Please!

03 11 03 39 CC Loud and clear. Press on.

03 11 03 43 CDR That ought to be real simple, John. You did it ...

03 11 03 46 CMP No, that's nothing. That - that - the W-matrix has zeros in it.

03 11 03 49 CDR Oh.

03 11 03 50 CC Loud and clear; press on.

03 11 04 01 CC Loud and clear; press on.

03 11 04 11 CC Okay, give me a long count in VOX, Gene-o. I think maybe the signal dropped out on one of them there.

03 11 04 26 CC Okay. That looks good, Gene-o. Let's press on. Configure for OMNI VOICE PCM, step 1, activation 14.

03 11 04 47 IMP Okay.

03 11 04 49 CC Roger that.

03 11 04 52 CDR Okay, John.

03 11 04 56 CC Okay, and stand by until we get set up here. I'll give you a call.

03 11 05 02 CMP Okay, Houston. I think I was tracking F-1 and B-1, there. You want to stop it, or go wherever you want to go?

03 11 05 17 CDR Well, I'm going to go straight to that attitude, old buddy. I got you going, and you should be coming down to 208, yaw zero, and roll 315.

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- 03 11 05 26 CMP Those things are easy to track once you find them. The problem is finding them, as usual. In - in F-1 - Hell, that's such a big-ass crater; I - I didn't even know what to track on it, so I tracked the right edge of it. It's a great big - that's a damn crater, that was like - I put the sextant in it; I was down in that hole about 300 - it was terrible.
- 03 11 05 49 CC Snoopy, this is Houston on OMNI VOICE TM. How do you read?
- 03 11 05 59 CC Okay, the first part of your transmission didn't come through, Snoopy; but give me a long count on this if you would.
- 03 11 06 16 CC Roger; go ahead.
- 03 11 50 18 CMP See what that - see what that MASTER ALARM is, Tom.
- 03 11 50 25 CDR Let me get up there and look down for a minute. ...
 O_2 FLOW HIGH?
- 03 11 50 39 CMP Yes.
- 03 11 50 45 CDR Hello, Houston; Charlie Brown. Hello, Houston; Charlie Brown.
- 03 11 51 07 CMP I think we've lost them, Tom.
- 03 11 51 09 CDR ... Houston; Charlie Brown. How do you read, babe?
... That's it. Guess I'd better go to ...
- 03 11 51 23 CMP Yes.
- 03 11 51 28 CDR In the WIDE BEAM?
- 03 11 51 29 CMP ... I don't know whether you go to WIDE BEAM or not.
- 03 11 51 48 CDR ... any idea why that flow ...?
- 03 11 51 53 CMP Maybe it's just because you got these hoses all clogged up.
- 03 11 51 56 CDR Probably.
- 03 11 51 57 CMP ...
- 03 11 52 06 CDR If I had a longer hose, I'd be trying to get these ...

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Day 4

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Page 159

03 11 52 43 CDR Yes, I've got to close this hatch, don't I?
03 11 52 46 CMP Yes.
03 11 52 49 CDR Pardon me?
03 11 52 51 CMP Yes, you ain't never closed it?
03 11 52 55 CDR Close what?
03 11 52 57 CMP What'd you say?
03 11 53 00 CDR Should we get to the pressure - Yes, let's get the pressure while we're taking them out here. Or do you want to take them out and check the whole thing? Let's see, I've got to ...
03 11 53 39 CDR ... don't fit in. ... The LM ... pressure ... pressure. Okay, babe; I'm reading 5800 pounds. ...
03 11 55 01 CDR ... locked. O₂ valve open? You've got to take them off of this thing, don't you? (Cough) ... get in there and read that pressure. ... You've got a pen around here someplace, don't you, Gene-o?
03 11 55 47 CMP Okay.
03 11 56 28 CDR Heater test button. Got to be in here.
03 11 56 32 LMP ...
03 11 56 36 CDR Aren't these lights supposed to go on when you push the test button?
03 11 56 39 LMP ...
03 11 56 42 CDR Okay, they don't.
03 11 56 46 LMP Hey, John.
03 11 56 47 CMP Yes.
03 11 56 48 LMP Take back the power.
03 11 56 51 CMP Take back the power.
03 11 56 53 LMP Yes, give me back CSM power.

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03 11 56 56 CMP Okay, there it comes.
03 11 57 00 LMP Okay, you got it.
03 11 57 01 CMP I got it.
03 11 57 14 CDR These lights don't work on my - they do not work.
03 11 57 23 LMP CABIN REPRESS valve. Stand by.
03 11 57 26 CDR Hold it. Hold it. John?
03 11 57 29 CMP What?
03 11 57 30 CDR Let's wait to do that until last. What do you think?
03 11 57 35 CMP What are you going to do?
03 11 57 38 CDR This freaking heater light test doesn't work worth a --
03 11 57 41 CMP What are you going to do, there --
03 11 57 43 CDR We're going to close the light --
03 11 57 44 CMP Close what light?
03 11 57 46 CDR No, but - We'll do this the last thing. It goes off like a shotgun.
03 11 57 51 CMP Why are you going to do that? Is there any danger of leaking air out when it does it?
03 11 57 59 CDR I don't know. It gives it a good zap of air.
03 11 58 02 CMP Into what?
03 11 58 03 CDR Into the cabin.
03 11 58 06 CMP What does it call?
03 11 58 09 CDR Huh?
03 11 58 10 CMP Why?

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- 03 11 58 12 CDR No. My heater doesn't work - that's nice. Okay, this - we got oxygen.
- 03 11 58 37 CDR PLSS pressure still reads 5800. Yes.
- 03 11 58 59 CDR Okay, let me check the other one.
- 03 11 59 09 CDR (Cough)
- 03 11 59 44 CDR Whew! Oh! Son of a bitch! Shit! Gene-o?
- 03 12 00 15 LMP You're upside down.
- 03 12 00 16 CDR Yes? Looks right-side up to me; the way it was starred in there. Didn't stir. Huh? Nothing. It might be the last of that pressure decaying off in there. Hell, I wouldn't - Gene-o? Son of a bitch. Now.
- 03 12 00 57 CMP Please don't open any hatches while you guys are dicking around up there.
- 03 12 01 00 CDR How do you get this thing? Okay. I'll hold it. You want me to get - let me get up in there. I've only got a certain length of hose, here.
- 03 12 01 17 LMP Wait a minute.
- 03 12 01 27 CDR Come on; I'll hold the hatch up for you, babe. Wait just a minute until I get upside down in here. Oh!
- 03 12 01 39 CMP Been doing?
- 03 12 01 41 CDR Huh?
- 03 12 01 42 CMP What you been doing?
- 03 12 01 44 CDR Checking out the PLSS. We still got an O₂ FLOW HIGH? What -
- 03 12 01 48 CMP No, I think it's going down now. Yes. Down to 0.6.
- 03 12 01 54 CDR Let me get over here and help Gene-o. Here's the roll of tape, babe.

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03 12 01 57 CMP Yes, I just was using - I just used it.

03 12 02 04 CDR Okay, I got the hatch.

03 12 02 33 CMP Oh, what the shit.

03 12 02 35 CDR What? Yes. What? Okay.

03 12 04 18 LMP ...?

03 12 04 20 CDR Yes, I had 5800 pounds. How are you doing on yours?

03 12 05 23 CDR How are you doing, Gene-o? Huh?

03 12 05 59 CDR Huh? You don't get a heater light on, either, huh?
Phew!

03 12 06 25 CDR No heater light, huh? What, Gene-o?

03 12 06 50 CDR Well, Mattingly recommended that you take the things off. Okay. Still pisses me off.

03 12 07 20 LMP ...

03 12 07 28 CDR That's what I did. I actuated it and pushed the button.

03 12 07 31 LMP ...

03 12 07 39 CDR Yes, because I tried it one time and it didn't, and I tried it again. Screw it; let it go. What else we got to check down there?

03 12 09 56 CDR Okay. Did you get the cards put up, Gene-o?

03 12 10 04 LMP ...

03 12 10 06 CDR Okay. Okay. Wait - We'll tell José about this.

03 12 10 16 CMP What?

03 12 10 17 CDR José, you'd better stand by for a bang.

03 12 10 22 CMP Jesus Christ!

03 12 10 24 CDR (Laughter) Watch the hatch; it's coming shut.
Where in the hell we keep Gene-o's hoses?

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03 12 10 33 CMP ... on Gene-o's side. What was that? Why don't you all come back in here and let me close that door?

03 12 10 41 CDR (Laughter)

03 12 10 46 CMP We'll jettison that on the next REV.

03 12 11 06 CDR Yes, we're so far away from a space station (laughter) - any permanent thing.

03 12 11 11 CMP You ain't shitting there. Is this a nickel-and-dime operation? Huh? Wasn't that a Mickey Mouse thing they ran through there, today?

03 12 11 20 LMP No!

03 12 11 22 CMP Huh?

03 12 11 23 CDR Ready to come out, Gene-o? Let me get this -

03 12 11 25 CMP Come on back, Gene-o. Don't lean on those windows. You do good work.

03 12 11 35 LMP My freaking head is about ready to come off my shoulders.

03 12 11 37 CMP Take a couple of aspirin.

03 12 11 39 LMP Oh, boy, do I need them.

03 12 11 45 CDR We're all set down there?

03 12 11 49 IMP You guys are upside down.

03 12 11 51 CMP I feel like I'm upside down, to tell you the truth, right at this point in time.

03 12 12 00 CDR It's like another world, getting down in there. It's like a big house or something.

03 12 12 04 LMP It's really nice down here.

03 12 12 06 CDR Got a lot of room.

03 12 12 08 CMP Okay, now; as soon as you guys get back in, I'm going to close the hatch.

03 12 12 11 LMP ... the lights ... go out.

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03 12 12 14 CDR Okay.

03 12 12 16 CMP See what?

03 12 12 17 CDR The lights go out when he closes that switch.

03 12 12 31 CMP Bye, Gene-o.

03 12 12 34 CDR Do they?

03 12 12 53 CMP Where is he? What - Gene-o!

03 12 12 57 CDR (Laughter) Did the lights go out? Huh? Push the button - there's a button right there.

03 12 13 07 LMP They're alright.

03 12 13 08 CMP Who gives a shit! Come on back in here.

03 12 13 11 LMP ...

03 12 13 31 CDR You got the hatch locked?

03 12 13 45 CDR Okay, I guess; what goes in next, the drogue?

03 12 13 51 CMP I don't care. Do you want to put some of that - do you want to put it back in there?

03 12 13 55 CDR I'll put the drogue in, babe.

03 12 13 56 CMP Huh?

03 12 13 57 CDR Here, take that bag full of shit I've collected.

03 12 14 00 CMP I - you don't put it in. I put it in.

03 12 14 02 CDR You put it in? Okay.

03 12 14 03 CMP You keep - you got to be in the LM when you're doing it. If you want me to do it, I'll be glad to. Let me do it.

03 12 14 11 CDR Okay.

03 12 14 13 CMP There you go.

03 12 14 22 CDR Well, John, I don't see a scratch on this son of a bitch. You really goosed that thing in there, babe. You know that?

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03 12 14 31 CMP Well, I was aiming for the - the nozzle. Isn't this great? Isn't this great?

03 12 14 47 CMP There isn't a scratch on it, is there?

03 12 14 48 CDR No.

03 12 14 50 CMP Yes, there's one there.

03 12 14 52 CDR You see one?

03 12 14 53 CMP The one I - one there. Those could have been done by the thing. One there. Those are - the kind of scratches that are on there wouldn't be done by the drogue.

03 12 15 07 CDR No.

03 12 15 08 LMP ... COMM work?

03 12 15 23 CDR Well, occasionally, it sounded like you were coming in loud and clear to them. That S-band strength looked great once you had it - Can I help you, John?

03 12 15 34 CMP No, I hope not. Are you going to do it all tomorrow?

03 12 15 38 CDR No.

03 12 15 43 CMP Oh, shit. Just a little screwed up, is all.

03 12 16 14 CDR Why don't you take some of them right away, huh, babe? You want one right away ...?

03 12 16 19 LMP ...

03 12 16 39 CDR Got it locked?

03 12 16 40 CMP Yes.

03 12 16 42 CDR Do you want the drogue next?

03 12 16 44 CMP Might as well.. It won't take very long to do that.

03 12 17 01 CDR You want the head of it first?

03 12 17 03 CMP Huh?

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Day 4

03 12 17 13 CMP It's caught on that urine thing. Can't afford to bust our urine hose, you guys. God damn it, I was going to take them optics down.

03 12 17 28 CDR Yes, but -

03 12 17 33 CMP Well, I think I'd better take it down.

03 12 17 34 CDR Yes, right. Take it down. Get that hose out of the way. Let me go back and get it down in there, babe.

03 12 17 50 CMP Boy, a 97-pound weakling can do - can work this damn thing. Look at it.

03 12 18 05 CMP How about that. You know something, you guys?

03 12 18 07 CDR What?

03 12 18 09 CMP The drogue punches a hole in your goddam front hatch.

03 12 18 13 CDR Huh?

03 12 18 15 CMP Look, there's a hole in the hatch. Not a hole, but a spot where the drogue has hit it. That's what I call a tight fit.

03 12 18 38 CMP Oh, shit.

03 12 19 20 CDR Do you want me to read that to you, babe?

03 12 19 22 CMP No, I don't think.

03 12 19 40 CDR You turn it around where that guide goes with that yellow stripe, right?

03 12 19 43 CMP Yes.

03 12 19 44 CDR There you go.

03 12 19 55 CMP Got a little problem here of some kind.

03 12 20 11 CMP The thing is in. Would you believe that?

03 12 20 14 CDR Yes.

03 12 20 17 CMP Okay. CAPTURE LATCH RELEASE handle. Okay, clock - clockwise to LOCK position. Do not force. Push to reset. Go? Verify CAPTURE LATCHES engaged.

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Day 4

~~CONFIDENTIAL~~

Page 167

03 12 20 42 CDR Does the drogue stay in there that loose?
03 12 20 48 CMP Huh?
03 12 20 49 CDR Does the drogue stay in there that loose?
03 12 20 50 CMP Yes. Yes. See, it's locked. It's loose. Well, it won't be loose when I finish with this.
03 12 21 02 CDR Oh.
03 12 21 06 CMP Okay, installation strut. Pull - push - unstow to full extension. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 1⁴, 15. Christ, that ain't hardly enough. All that was in there. Screw it, that's all we'll do it.
03 12 22 08 CDR Okay. Are you ready for the big hatch?
03 12 22 10 CMP Okay. Yes. Let me do it, though. I want to see the problems involved in manhandling that son of a gun, because I'll have to do it by myself tomorrow.
03 12 22 19 CDR Watch your optics.
03 12 22 22 CMP Oh, yes. Well, I'd better take them down for that.
03 12 22 25 CDR You can get the --
03 12 22 26 CMP What I'd really better do is clean this seal off. God damn it! This thing works like a charm. This hatch - this probe, so far. You know?
03 12 22 55 LMP Tom, while you're down there ... tomorrow ...?
03 12 23 02 CMP God! My ratchet fall indicator flush?
03 12 23 27 CDR In fact, if John wants to take any Hasselblad pictures tomorrow, he should take this instead of the 250, Gene-o.
03 12 23 32 CMP I want to use the 80. Yes; well, I'll use whichever one you give me.
03 12 23 37 CDR I think that 20 would be better for you. The way he's going to be in there stationkeeping. Gene-o?
03 12 23 46 LMP Huh?

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- 03 12 23 47 CDR Put the 80' on. Put the 250 back there. You can put it back in here and -
- 03 12 24 03 CMP What we need is a few more pieces of gear.
- 03 12 24 08 CDR Stow that thing.
- 03 12 24 32 CMP Bastards stuck that shit all over the hatch.
- 03 12 24 35 CDR ... We'll help you here with these -
- 03 12 24 41 CMP I ain't hit them optics. I don't really think they're involved.
- 03 12 24 47 LMP ...
- 03 12 24 51 CMP Want to clean that - teeth off.
- 03 12 25 13 CMP Hey, this son of a bitch; it weighs 84 pounds, and here I am holding it like it's a baby.
- 03 12 25 18 CDR Yes. Get this stuff out of the way for you, John. There you go, babe.
- 03 12 25 27 CMP Look at that. Look at that. Look at that shit, would you? Boy, would you ever play hell doing that one g.
- 03 12 26 26 CDR You lined up?
- 03 12 26 27 CMP Yes.
- 03 12 26 40 CMP Really incredible.
- 03 12 27 05 CMP That's all there is to it.
- 03 12 27 09 CDR We're locked up in our own little home. Let's get something to eat and get to bed and get this thing straightened up for tomorrow. Shit. How's everybody feel? Like we're all set to go?
- 03 12 27 21 CMP Yes. If you can make the COMM work, I'm all for it.
- 03 12 27 32 CMP Okay, now let's make this sure that we're on LM DELTA-P.
- 03 12 27 37 LMP ...
- 03 12 27 39 CMP On IM PRESS, I mean; excuse me.

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- 03 12 27 42 LMP ...
- 03 12 27 47 CMP It should go over there where it belongs. We've got to be on LM PRESS tonight, you guys. Does that sound right? We're going to be on LM PRESS tonight. That sound right?
- 03 12 28 02 CDR You mean keep the LM pressurized?
- 03 12 28 04 CMP Yes.
- 03 12 28 05 CDR Yes. But don't be blowing that stuff through that hatch, huh? That's the way it's supposed to be, anyway.
- 03 12 28 10 CMP Well, now it's away, men.
- 03 12 28 26 CMP Okay, take these hoses here. Is this your hose, Gene-o? This big long one? Is it the big long ugly hose? Belongs to Gene-o? Gene-o Pizza?
- 03 12 28 43 LMP ...
- 03 12 28 46 CDR Yes, this says "Right." This is your hose.
- 03 12 28 50 LMP ... somewhere. Does it go on the inside of here?
- 03 12 28 54 CMP No, it goes right through there.
- 03 12 28 56 CDR It goes right in through there.
- 03 12 29 00 CMP How you feel after that shit? Huh?
- 03 12 29 04 LMP My eyes are bothering me.
- 03 12 29 08 CMP It just hurts, huh?
- 03 12 29 09 LMP Yes, I got a headache.
- 03 12 29 11 CMP I think that's partially two things: your eyes and your sinuses. My guess.
- 03 12 29 17 CDR My head's a little stuffy from being down there, and yours should be a hell of a lot worse. (Cough)
- 03 12 29 38 CDR Take some water and rub it across you face. That'll make you feel a little better.

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03 12 29 50 CMP Excuse me.

03 12 30 02 CMP Excuse me, Tom.

03 12 30 04 CDR Yes.

03 12 30 05 CMP I can't tell what the hell I'm doing, if anything.

03 12 30 12 CDR Man, it do feel good to be back in Charlie Brown,
doesn't it?

03 12 30 15 CMP I was a little worried about that thing.

03 12 30 19 CDR Why don't we get a dump bag?

03 12 30 21 LMP ...

03 12 30 23 CDR Not a thing. Eat and go to sleep.

03 12 30 25 CMP Dump bag?

03 12 30 26 CDR Get a dump bag, and get food set up for breakfast
and - get it all set up. ...

03 12 30 36 CMP ... this in there ...

03 12 30 45 CDR We got to get up in about 10 hours. Shit, we did
it on time with all that other stuff.

03 12 30 58 CMP We did?

03 12 30 59 CDR Yes. We haven't set up for the
breakfast. Why don't you let me pull this stuff
down? Oops. What the hell was that?

03 12 31 10 CMP What's what?

03 12 31 11 CDR Somebody piss on the floor, there?

03 12 31 13 CMP Oh.

03 12 31 14 CDR You think we had some water when we made the SPS
burn? Would you believe?

03 12 31 18 LMP We what?

03 12 31 19 CDR We may have had some water down here when we made the
SPS burn. Oh, yes; I'd say we had some water down

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here when we made the freaking SPS burn, or somebody had pissed all over the floor. That ain't piss; that's water, babe. ... still had big puddles of it.

- 03 12 31 38 CMP Yes.
- 03 12 31 40 CDR This condensation ... Here's where it came from, babe; right here.
- 03 12 31 43 CMP Yes.
- 03 12 31 44 CDR Right out of the ECU. I guess the utility bags soaked it all up.
- 03 12 31 50 CMP I guess.
- 03 12 32 03 CDR Well, you want to get out some underwear and change this shit out and get some chow?
- 03 12 32 10 CMP Yes.
- 03 12 32 13 CDR Why don't we put the flight plan back over here? Gene-o, what do you want to eat? You want to eat a wet-pack thing?
- 03 12 32 23 CMP What time is AOS? Shouldn't we be talking to them guys?
- 03 12 32 32 LMP We've got - 3 more minutes.
- 03 12 32 36 CMP Okay.
- 03 12 32 40 CDR Oh, babe, you want to use the - you want to use this temporary hatch stowage bag for the big shitcan, huh?
- 03 12 32 45 CMP Yes.
- 03 12 32 46 CDR I'm with you, babe (laughter). We got a place to put it. Do you want - Are you going to put the hatch in here tomorrow?
- 03 12 32 58 CDR I'll tell you what, babe. Look - What about taking my - my beg here, and filling it full of food and stuff like that, huh?
- 03 12 33 07 CMP Okay.
- 03 12 33 09 CDR All your empty food stuff, your puke stuff that you had, Gene-o, and all that.

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03 12 33 13 CMP You want to take it over to the LM with you?

03 12 33 16 CDR Well, what you can do is put it in here when we finish, huh? We can put this in there.

03 12 33 23 CMP Okay.

03 12 33 27 CDR Well, actually, I'm afraid to open it; do we have another one?

03 12 33 29 CMP I'm afraid to - to open it, too.

03 12 33 31 LMP ...

03 12 33 34 CDR Let's take that over, and we'll take this, too.

03 12 33 52 LMP ...

03 12 33 58 CDR Where's your bag, babe? I'm going to put all this stuff in it and start making dinner.

03 12 34 03 CMP What bag?

03 12 34 05 CDR Gene-o has a bag. Let's start getting all our food and all this stuff squared away.

03 12 34 15 CDR What meal are we coming up to?

03 12 34 17 LMP ...

03 12 34 21 CDR Yes. This is all garbage.

03 12 34 31 CDR What's the next meal we've got, José? Anybody got any idea?

03 12 34 34 LMP ...

03 12 34 36 CMP I don't know.

03 12 35 03 CDR ... spend the night in my food.

03 12 35 05 LMP Doesn't it tell you to put the H₂ fan on AUTO or something?

03 12 35 08 CDR/CMP Yes.

03 12 35 09 CMP Yes, yes.

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03 12 35 10 CDR Tell him to do all that shit.

03 12 35 11 LMP You want us to cycle the other one ...?

03 12 35 13 CDR I don't know.

03 12 35 16 CMP It said turn one off, and put the other one on AUTO.
It didn't say nothing about cycling any others.

03 12 35 21 LMP ...

03 12 35 38 CMP Shoot, you already got the thing full, Tom; and we
ain't started.

03 12 35 44 CDR I'm still cramming, babe.

03 12 36 11 CMP You want - Turn the tunnel lights off. There you go.

03 12 36 25 LMP See the horizon from the ...

03 12 36 29 CMP Oh, shit!

03 12 36 31 CDR Don't feel bad about that.

03 12 37 02 LMP What time do we take these AUTO optics out of that ...?

03 12 37 04 CDR I've got it written up there.

03 12 37 07 LMP What time we took it off?

03 12 37 09 CDR 82:29:20; I put it in the flight plan when we -
that's what --

03 12 37 12 LMP That's when we put it on.

03 12 37 13 CDR Yes; okay.

03 12 37 15 LMP ... take it off ... about 15 minutes ago.

03 12 37 18 CMP Yes.

03 12 37 31 CDR Shoot, look at that thing. Shoot.

03 12 37 42 CMP One bag ain't going to be enough, Tom.

03 12 37 44 CDR No. Let's try to tie these two bags together, since
we got - this has got all that insulation in it.
We'll get rid of that. We got any more of these bags?

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03 12 38 01 LMP ... one more.

03 12 38 03 CMP Yes, there's another one around here, somewhere.
Excuse me, Gene-o.

03 12 38 08 LMP (Cough) ... Hello, Houston; this is Apollo 10.

03 12 38 24 CMP Hello, Houston --

03 12 49 05 CDR Yes. I think we may have one quick contact with
you before we sack out. Want to make sure we get
called on time because it's going to be a busy day.

03 13 49 18 CC ... a good day.

03 13 49 25 CDR Right; we may do that. We'll call you.

03 13 49 44 CMP Okay, they said they wanted to - use B and D in roll ...

03 13 50 04 CDR No, let it go, Gene-o. Just let it go.

03 13 50 21 CDR What, Gene-o?

03 13 50 33 CMP You - Okay, use - fail A/C ...?

03 13 50 40 CDR Gene-o.

03 13 50 41 LMP Yes.

03 13 50 42 CDR I made you some applesauce and juice in here. Okay?

03 13 50 53 CDR And there it is to go.

03 13 51 00 CMP Fail B and C?

03 13 51 05 CDR Huh?

03 13 51 18 CDR To tell you the truth, I don't know where we are.

03 13 52 48 CMP Okay. 2, zero, use A/C.

03 13 52 56 CDR ...?

03 13 53 00 CMP ... Okay, so we turn A/C ROLL, OFF; right?

03 13 53 13 CDR Yes; A/C ROLL, OFF.

03 13 53 15 CMP B/D ROLL, OFF?

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03 13 53 21 CDR ... No, I tell you you can use two quads. I think what he meant was two adjacent quads, John.

03 13 53 28 CMP Okay, well, we just failed B and C in the DAP.

03 13 53 32 CDR A and C.

03 13 53 34 LMP B and C.

03 13 53 35 CDR Yes, why don't you write down - He wanted quads - Okay.

03 13 54 41 CDR You want some applesauce? Coming up.

03 13 55 02 CDR Here you go, Gene-o. You want some juice with it? Here, drink some juice.

03 13 55 32 CDR I think I'm just going to challenge me a wet pack tomorrow morning ...

03 13 55 36 CMP Yes.

03 13 55 38 CDR How about some beef? That ham ... make me shit.

03 13 55 41 CMP Alright.

03 13 55 42 CDR You want to grab some beef wet pack?

03 13 55 44 CMP Yes. That's got a lot of flavor ... to drink?

03 13 57 44 CDR Here's a bunch of stuff in here; I'm going to - How about a beef wet pack for breakfast?

03 13 57 55 CMP What did you say to pass there, Gene-o?

03 13 58 22 CMP Here's ...

03 13 59 06 CDR Gene-o, let me have a drink when you get finished. Wash down a vitamin pill, and I'll give you this right back.

03 13 59 13 LMP Where you going, for a ...?

03 13 59 14 CDR No, ... Gene-o, let me borrow the gun for a minute.

03 13 59 21 CMP Pretty good, ain't it? That applesauce? No?

03 14 00 14 CDR You want to just keep it over here, and we can open up and start in on it in the morning?

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- 03 14 00 21 LMP Okay with me.
- 03 14 00 35 CDR 86 hours. An hour late to start the crew rest ...
7 hours. Shit! And we wake up at 93 hours.
- 03 14 00 57 CMP Well, shit; then why do we even bother?
- 03 14 00 59 CDR ...
- 03 14 01 12 CDR Did you realize that - everything goes right; we're
- we're halfway over - pretty soon?
- 03 14 01 37 CDR Okay. You want to put those dump bags over there?
We got everything in them that we need? ...
- 03 14 01 49 LMP Where do you want to put them?
- 03 14 01 51 CDR I thought - Well, we could put them back behind
here tonight, back of these ...
- 03 14 01 55 CMP Good idea.
- 03 14 01 57 CDR Yes, if they'll fit in there. Then all we have to
do is - when we come back from the IM ... just let
the bastards lay there.
- 03 14 02 10 CMP ...
- 03 14 02 11 CDR Huh?
- 03 14 02 12 CMP ...
- 03 14 02 14 CDR ... pretty cleaned up.
- 03 14 02 32 CDR You want to sleep on the bottom or up here?
- 03 14 02 35 CMP I'd just as soon sleep up here if it's all the
same to you; I can't sleep on that goddam thing.
- 03 14 02 38 CDR Okay, ... Gene-o, I'll tell you what; let me switch
over there real quick, and I'll take a quick leak in
this bag down there ... Here, I'll just do it ...
my feet ...
- 03 14 04 51 CMP What in the hell was that noise?
- 03 14 05 36 CMP Do you see my checklist anywhere, you guys? CMP's?

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03 14 05 51 CMP Oh, yes.

03 14 06 07 CMP Oh, that's DEADBAND, MIN. That's what happened.
That's ... DEADBAND ...

03 14 10 23 CMP They're over by Gene-o somewhere. Gene-o's got one.
Oh, you did; okay. Thanks. Yes. Okay. Yes.
Thanks, babe.

03 14 11 25 CDR (Cough)

03 14 12 24 CMP I'm all tangled up in this ... Here you go.

03 14 12 43 CDR ...

03 14 12 49 CMP Okay.

03 14 12 50 CDR Huh?

03 14 12 51 CMP Okay.

03 14 12 52 CDR ...

03 14 14 22 CDR ...

03 14 15 08 CDR (Cough) Oh, dear.

03 14 15 26 LMP Oh, dear.

03 14 15 27 CDR Here; you want a wet towel to wipe your face off?
It'll make you feel a hell of a lot better. You
want a wet towel? I'll just put some cold water
on it. Really makes you feel good.

03 14 17 29 CDR Hey, John.

03 14 17 30 CMP Yes.

03 14 17 31 CDR I'll tell you, kill my intercom so all I hear is
just S-band. Will you do that?

03 14 17 33 CMP Okay. There's something wrong here; the DAP is just
kicking its head off.

03 14 17 41 CDR Just let it go. You want to go back to - Kill me.
Just kill the intercom.

03 14 17 51 CMP Okay. Hear it?

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- 03 14 18 13 CMP Yes? Huh? Well, B and D is roll. Yes, B and D ROLL, ON; and B and C are out in the autopilot. A and C are the only ones that's ON.
- 03 14 18 29 CMP Huh?
- 03 16 34 54 CMP This thing ain't going to be shut. You know?
- 03 16 35 00 CDR (Yawning) That was the finest sleep I could get. Have you got all that information? Oh, you don't?
- 03 20 25 24 CMP ... Huh? ...
- 03 20 28 54 LMP REACQ mode's been working like a charm.
- 03 20 29 17 LMP Yes. Yes.
- 03 20 29 27 CMP ...
- 03 20 29 57 CMP Do what? ...
- 03 20 30 15 CMP ...
- 03 20 30 28 LMP ... REACQ? ...
- 03 20 30 31 CMP Yes.
- 03 20 30 33 LMP ...
- 03 21 41 39 CMP ... stand up ...
- 03 21 41 43 CDR You know ... see?
- 03 21 41 53 CDR ... see it coming down through the - -
- 03 21 41 54 SC Yes.
- 03 21 41 55 CDR Got it?
- 03 21 42 22 LMP Okay. To give you a status; we got two guys - one's suited. John's getting suited; I'm on my way to the LM here ... - -
- 03 21 42 31 CDR Oh, just a minute, John. ... Let's see; who's got - -
- 03 21 42 38 LMP ...
- 03 21 42 51 CDR ...

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03 21 42 52 LMP ...

03 21 42 53 CDR ... today with the suit off. Feels good --

03 21 42 55 CMP Okay.

03 21 42 58 CDR -- ... I've got my helmet bags, and I'm all suited and ready to go. ... watch that while you ...

03 21 43 05 LMP Yes.

03 21 43 06 CDR You what?

03 21 43 09 LMP I can file these things out of the way, that we don't need. He's got the flight plan. Now we got - ...

03 21 43 21 CDR Okay. Let me have them here, Gene-o; and you can -

03 21 43 34 CDR ... How about giving me my - You going to take that whole checklist over there? Just leave me the activation; that's all I need.

03 21 44 54 CDR Okay, babe. I'll be following you on the schedule.

03 21 45 04 CDR What? I put it down where it was supposed to be, on that bag.

03 21 45 25 CDR Hey, turn off the waste-water pump; turn off the vent, John. Huh?

03 21 45 40 CDR What's there? Okay.

03 21 46 56 CDR What, John? Yes. Yes, we did ... he did? I thought he terminated! Okay. I'll go to SPS ...

03 21 48 11 CDR From 135 ...

03 21 48 15 LMP I can't get ...

03 21 48 19 CDR (Laughter) 135 to 215 ...

03 21 48 42 CDR I'm going to put my toothbrush down here. Did I - I put it over here, John? ...?

03 21 48 51 CMP ...

03 21 49 41 CDR Coming up on 93:50 in 15 seconds. You want to check the event timer? I'll give you a hack in 9 seconds at 93:50. Okay.

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- 03 21 50 06 CDR Okay. Stand by. I'll get this.
- 03 21 50 10 CMP Ready for LM POWER. Stand by. Go.
- 03 21 50 17 CDR ... on LM POWER.
- 03 21 50 33 CDR ... Oh, boy.
- 03 21 50 50 CDR You want these interconnects on Gene's hose? No. You're on the ... Now, get this out of the way, and put an interconnect on it. Are the interconnects down in the bag, there?
- 03 21 51 21 CDR Okay. You ...? You want to roll to 3 - 3 fif - 315. What'd you do, John?
- 03 21 52 21 CDR Okay, here's the ..., John. You can put that on that ... Right here.
- 03 21 53 17 CDR Okay, Gene-o's ... hose for interconnection.
- 03 21 53 41 CDR Where do you want to put these, John? You can stick that ... You need one more connection, ... for Gene-o (cough).
- 03 21 54 17 CDR ... 315. Yes. Hey, you stopped at 330. I'll give you one more chance, babe. Okay. Let us know ... roll the ...? I think we're configured, babe. I'll get out this activation. Yes, we're running a good 30 minutes ahead of schedule. Huh? Okay, well, we'll try to stay way ahead of schedule, and that'll give you time, huh?
- 03 21 55 28 CDR Oh, shit. Boy, this quad A did get hotter than a son of a bitch. 400; B is 375; C is 350 - 350 - psi - No, wait; ... the psi is right up there around 5000. It's up there around 5000, I know.
- 03 21 56 06 CDR Oh, shit. It's over 400 degrees. No wonder they ... I wonder if ... made.
- 03 21 56 21 CDR What - what'd you say, Gene-o? What? Okay, coming up on 93:56. I'll give you one at 93:57; okay? You've got 20 seconds to go.
- 03 21 56 50 CDR 4 seconds - 93:57. 5, 4, 3, 2, 1 -
- 03 21 56 59 CDR MARK.

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03 21 57 01 CDR 93:57. You get it? The what? Okay; 17, 18, 19, 20. The what? Okay, 93:58. Yes. Okay. Okay; you've got 20 seconds to go to 58. Yes, I'll connect you ...

03 21 57 50 CDR 10 seconds. 4, 3, 2, 1 -

03 21 57 59 CDR MARK it.

03 21 58 02 CDR 4 - 3, 4, 5, 6. Fixed? Okay? You've got LM power all squared away yet, babe? Get into the LM (cough), José. AOS, babe. AOS. I'm going to disconnect these LM power cables, Gene-o. Okay? Get it AOS. Okay, LM power is coming disconnected.

03 21 59 47 CDR Okay. Yes. Didn't you hear me? You did? Huh? Which one do I - -

03 22 00 03 CMP Oh, okay. I see what the problem - Excuse me.

03 22 00 05 CDR Okay, let's get these stowed; these are good souvenirs.

03 22 00 09 CMP Okay. Put those up, huh?

03 22 00 13 CDR That's both of them, babe.

03 22 00 16 CMP I'll put them in the temporary stowage bag. That's a safe place.

03 22 00 19 CDR Yes, that's fine.

03 22 00 49 CDR Okay. Just keep busting on ahead, babe. Shit. I'm getting this thing cleaned out up here.

03 22 01 06 CDR John?

03 22 01 07 CMP Yes?

03 22 01 08 CDR You got a wet rag, babe? And I'll clean up this deal on the LM, in case - -

03 22 01 14 CMP I know I saw me a wet rag down there somewhere, but I sure haven't got one, I tell you.

03 22 01 19 CDR I have one in my - (cough) -

03 22 01 36 CMP I'm just freaking helpless.

03 22 01 37 CDR You got your suit on?

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- 03 22 01 54 CDR Are we supposed to reverse suit hoses here, to get cooler? Yes.
- 03 22 01 59 CMP Yes.
- 03 22 02 43 CDR Oh, where did you put our - I've got a towel in my - trouser pocket of a -
- 03 22 02 59 CMP Well, let's go.
- 03 22 03 01 CDR That's the TV camera you're banging all over the place.
- 03 22 03 04 CMP Well, shit. What a mess!
- 03 22 03 09 CDR (Cough) It is pretty bad, isn't it?
- 03 22 03 12 CMP Guaran-damn-tee it is. I put them down in there. Remember ...?
- 03 22 03 18 CDR Where?
- 03 22 03 19 CMP My ...
- 03 22 03 20 CDR Yes. Where, John?
- 03 22 03 22 CMP Back in back, there.
- 03 22 03 23 CDR In the ...?
- 03 22 03 24 CMP Yes.
- 03 22 03 34 CDR Get through?
- 03 22 03 37 CMP I think ... done ...
- 03 22 03 56 CDR Good shape.
- 03 22 04 35 CDR ... hard to beat, John.
- 03 22 04 37 CMP That's right. You get the ... through a ...
- 03 22 04 46 CDR You know it.
- 03 22 04 48 CMP ...
- 03 22 04 53 CDR You want to put that stuff back there?
- 03 22 04 55 CMP Yes, ...

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- 03 22 05 50 CMP Okay. How much ...? Alright. Put these things up here. ...
- 03 22 06 07 CDR Okay. I think you've got to go up to the --
- 03 22 06 39 CMP What the hell is that?
- 03 22 06 41 CDR That's Gene-o's S-band.
- 03 22 06 43 CMP Wow; poor Gene-o. That's all I got to say.
- 03 22 06 48 CDR Shit. I don't know if there is a way we can get that thing good and clean. I wiped it off.
- 03 22 06 53 CMP Got a lot of Mylar down in here.
- 03 22 07 01 CDR Okay, I'll get up there ... I'll just take this thing in with me.
- 03 22 07 09 CMP Say; you have my gloves, babe.
- 03 22 07 11 CDR Yes. Thank you.
- 03 22 07 19 CMP Check and make sure your two gloves are mates.
- 03 22 07 21 CDR Yes. How about you, babe?
- 03 22 07 26 CMP Okay. I thought maybe ...
- 03 22 07 28 CDR ... pick the whole ... if you want to. ...
- 03 22 07 40 CDR Hey, Gene-o. How about knocking my helmet bag down here to ECS? It might ... my hoses, ... the whole thing right there. ...
- 03 22 08 09 CDR ... you, too. How's that quad ...?
- 03 22 08 16 CMP ... your temperatures.
- 03 22 08 23 CDR Temperature is over 400. Look at the pressure in the other one.
- 03 22 08 30 CMP ... damn fool ... there. ...
- 03 22 08 34 CDR See, D is up; A, B, C, D. About 400 degrees.
- 03 22 09 01 CDR Had a barbecue there last night.

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03 22 09 03 CMP Why the freak didn't they say something about it last night? That's stupid.

03 22 09 09 CDR Maybe they'll cool down now.

03 22 09 13 CMP I don't know if they will or not. A is right there.

03 22 09 20 CDR Yes, if you stay 180 degrees or more away.

03 22 09 24 CMP Babe, that ain't why it got hot.

03 22 09 52 CMP Flipped quads A and B and didn't flip quad A.

03 22 10 01 CDR ... C and D quads?

03 22 10 11 CDR That's what you're worried about ...

03 22 10 15 CMP Come on, Tom.

03 22 10 21 CDR ... little while yet. It's still ... on there ...

03 22 10 38 CMP Hang on, Tom. Wait a minute, wait a minute, wait a minute, wait a minute, Tom.

03 22 10 42 CDR What's the matter, babe?

03 22 10 43 CMP You've got my ...

03 22 10 45 CDR Oh. You want some chewing gum, John?

03 22 10 48 CMP No thanks.

03 22 10 49 CDR Huh? You don't?

03 22 10 51 CMP No. Okay.

03 22 11 06 CDR I'll put two or three water bags in this temporary stowage bag ...

03 22 11 13 CMP Okay, you can go ahead and go into the LM and activate the ECS, if you want to.

03 22 11 18 CDR I've got to wait.

03 22 11 21 CMP For what?

03 22 11 28 CDR Well -

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Day 4

~~CONFIDENTIAL~~

Page 185

03 22 11 38 CMP What do I do to turn it off?
03 22 11 57 CDR Okay, John. Babe, the only thing you have to do -
03 22 12 01 CMP Yes.
03 22 12 03 CDR ... the LM stuff and ... --
03 22 12 06 CMP Yes?
03 22 12 08 CDR -- and ... the TV.
03 22 12 10 CMP Okay.
03 22 12 11 CDR The monitor will come on for you, ...
03 22 12 16 CMP That's alright. That's just the way it was. That's fine.
03 22 12 19 CDR Okay. Some ...
03 22 12 22 CMP Okay.
03 22 12 24 CDR That's all you got to do. And, you've got it on the wide zoomer?
03 22 12 30 CMP Yes.
03 22 12 31 CDR Okay. So there's a big field of view in the little glass here. Are you focused with your zoom?
03 22 12 38 CMP Why don't we take the top - why don't we take the thing off and run a little? Get the monitor adjusted ...
03 22 12 44 CDR ... see it operate. ...
03 22 12 59 CMP ...
03 22 13 07 CDR Yes.
03 22 13 08 CMP ...
03 22 13 09 CDR ... TV? ... to use just the ...
03 22 13 24 CDR What you looking at?
03 22 13 26 CMP Looking at the window. I'm looking at the earth.

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03 22 13 28 CDR Looking at the window, or my head? My head bothering you?

03 22 13 31 CMP No, that's great.

03 22 13 33 CDR What is?

03 22 13 34 CMP Looking at the window of the LM.

03 22 13 35 CDR Okay.

03 22 13 38 CMP Good picture.

03 22 13 39 CDR Beautiful.

03 22 13 42 CMP ...

03 22 13 46 CDR Okay, TV off. How'd it come out, (cough) ...?

03 22 13 52 CMP I'll tell you; they put it on ... more than that ...

03 22 14 03 CMP ...

03 22 14 09 CDR Do it that way?

03 22 14 10 CMP Yes.

03 22 14 11 CDR Okay, they'll switch the TV ...

03 22 14 12 CMP Okay.

03 22 14 15 CDR That thing is all set up; let me recheck your Hasselblad for you. About, you know, f:11 at 1/250. You want this slide cut ...?

03 22 14 27 CMP Yes.

03 22 14 38 CDR Okay.

03 22 14 56 CDR Okay. The only thing, as far as final details, you can ... the S-band, you can ...

03 22 15 02 CMP Okay. ...

03 22 15 07 CDR ... S-band, ATTITUDE DEADBAND, the ... spacecraft ...

03 22 15 42 CDR ... Could you move that to my - ...?

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Day 4

~~CONFIDENTIAL~~

Page 187

03 22 15 47 CMP Yes.
03 22 15 49 CDR Yes. ...
03 22 15 50 CMP ... freaking hoses.
03 22 15 54 CDR Yes, ...
03 22 15 59 CMP ...
03 22 16 00 CDR ...
03 22 16 01 CMP ...
03 22 16 02 CDR ...
03 22 16 08 CMP ... see this TV. It's sure getting dark out there.
03 22 16 14 CDR You're not in there.
03 22 16 19 CMP ... retrack another one?
03 22 16 21 CDR No. No. That's okay.
03 22 16 27 CMP ...?
03 22 16 28 CDR No. No, I want to wait. Get the S-band ...
03 22 16 32 CMP I don't know.
03 22 16 34 CDR Maybe they're down in one of these - ... here.
03 22 17 05 CMP Hey. Is that any part of it, right there?
03 22 17 10 CDR No. ...
03 22 17 15 CMP I couldn't read the panel too --
03 22 17 17 CDR No, not too good. Couldn't get - No, that's part
of the suit.
03 22 17 35 CDR Isn't that the suit ... in back of you, John?
03 22 17 38 CMP Yes. That's - No. Something like that. ...
03 22 18 48 CDR ...
03 22 19 06 CMP Okay. If you want to stay ahead, you're going to
have to go out to the LM.

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03 22 19 08 CDR Right now? ...

03 22 19 12 CMP Well - you'll be 30 minutes ahead if you go now.
Because IVT to the LM is definitely GO - -

03 22 19 20 CDR Well, I - -

03 22 19 21 CMP -- activate ECS and checkout, connect with GCS,
suit-fan water check, glycol pump check.

03 22 19 32 CDR I'm coming in. What, Gene-o? Two APC's; okay.

03 22 19 47 CDR You got ...? No, I've got ...

03 22 19 51 CMP Yes. Shit. You've got ...

03 22 20 29 CDR Okay, John, I am going to disconnect this. This
suit ..., right - here.

03 22 20 34 CMP Where?

03 22 20 35 CDR Right at them.

03 22 20 40 CMP Don't hang the hoses in the tunnel, because - I'm
fixing to get the gear out first.

03 22 20 47 CDR Okay, Gene, I'm coming in. Okay. I'll let you
configure the - -

03 22 20 52 CMP Hold it. Wait, wait, wait. (Sneeze) Scat!
Freaking thing.

03 22 20 57 CDR If you're not too tired, coming off?

03 22 21 01 CMP Huh? Yes.

03 22 21 23 CMP Take it easy. See you in a couple of hours.

03 22 21 26 LMP Okay.

03 22 23 25 CMP Okay, you guys, we're going back to the right
attitude for acquisition.

03 23 40 13 LMP Roger. Thank you.

03 23 43 37 LMP Charlie Brown, this is Snoop. How are you doing?

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03 23 43 39 CMP Roger. I've got them all unlatched and I'm visually inspecting them to make sure that they're all back.

03 23 43 45 LMP Okay, give us a call when you get ready to - you know, vent that tunnel down there, and we'll watch our pressure.

03 23 43 52 CMP Roger.

03 23 44 36 CMP Okay, they're all released, Gene; and they look good. They're all well back from the ...

03 23 44 44 LMP Okay.

03 23 44 50 CMP 2, 3, 4, 5, 6, 7, 8, 9, 10.

03 23 46 50 LMP Yes.

03 23 46 52 CDR ...

03 23 48 11 CMP Okay, Snoopy, the hatch is installed. I'm ready to vent the tunnel. Over.

03 23 48 16 LMP Okay, we're watching it. Go ahead, John.

03 23 49 56 CMP Okay, you guys, give me a second or 2 to get a ... out of here.

03 23 50 00 LMP Okay.

03 23 50 17 CMP Shit!

03 23 51 48 CMP Okay, going to VENT.

03 23 51 50 LMP Okay. Go slow.

03 23 52 48 CMP Okay, have you got your DUMP valve in AUTO? Over.

03 23 52 53 LMP That's affirmative. It's in AUTO.

03 23 52 55 CMP Roger. I went to - I've been to TUNNEL VENT, and nothing's happening.

03 23 53 16 LMP We're holding pressure here.

03 23 53 ?? CMP Roger. You understand my LM/COMMAND MODULE DELTA-P gage is changing?

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- 03 23 53 33 LMP Yes, what about - Isn't there a TUNNEL DELTA-P position on that?
- 03 23 53 44 CMP Yes, there is. If this is what it takes, it's going to take a month to get it out this way.
- 03 23 53 48 CDR Yes, it's supposed to take quite a while.
- 03 23 53 55 LMP Yes. I hope we're having the same pressure as you are. We don't want that one to decrease.
- 03 23 54 09 CDR I remember Dave Scott said it takes quite a while.
- 03 23 54 14 CMP Yes, but we ain't got quite a while.
- 03 23 54 15 CDR Yes. Look, if there's any problem - hell, go ahead and maneuver, John.
- 03 23 54 22 CMP Alright.
- 03 23 54 41 LMP ...?
- 03 23 54 42 CMP Yes.
- 03 23 56 03 CMP We've either got a hatch leak from somewhere, or it's not venting.
- 03 23 56 09 LMP Well, we're not losing pressure, John, that I can see.
- 03 23 56 38 CDR Yes. John, we're going to go to CLOSE on this valve, just to lock it closed. Okay?
- 03 23 56 45 CMP Roger. Let's see if that does any good.
- 03 23 56 50 LMP I tried to clean all that crap out of there, but I wouldn't be a bit surprised. Let's see; we - we should be losing pressure, because we don't have an AUTO REF. 'T until we get down to about 4.4 or 4.6, and we're already at 4 - 4.95.
- 03 23 57 07 CMP That thing is right now reading about 0.1.
- 03 23 57 14 CDR That's 0.1 DELTA-P?
- 03 23 57 18 CMP Yes.
- 03 23 57 30 CMP Maybe some of that Mylar got lodged in the vent thing, whatever vents it. I bet you a hundred dollars that's what happened. How much you want to bet?

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03 23 57 58 CMP Hey, Tom.

03 23 58 13 CDR Is it coming down at all, John?

03 23 58 14 CMP No. Not coming down at all.

03 23 58 20 CDR Hell, that's a NO-GO for rendezvous if we can't get that tunnel vented.

03 23 58 30 CMP Well, babe, I'm putting it on VENT.

03 23 58 32 CDR Was our gage - Is our pressure going down?

03 23 58 39 LMP Roger. We're -

03 23 59 26 LMP Let me try something. I'll try to build up a little bit.

03 23 59 30 CDR John, we're going to try to overpressurize here - just a little bit; not much.

03 23 59 37 CMP Okay.

03 23 59 38 CDR Hey, John, I've got an idea.

03 23 59 40 CMP Yes?

03 23 59 41 CDR It's kind of outsville.

03 23 59 42 CMP Yes.

03 23 59 44 CDR If you could dump your cabin pressure down, say to 4 or 5.

03 23 59 49 CDR Alright, we're going to go build ours up and see if that will help us ... seal, here.

03 23 59 53 LMP Tell him, don't do anything until we help - build ours up.

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DAY 5

04 00 00 07 LMP Alright, that's building up our - that's what I want to do.

04 00 00 13 CMP You all be careful over there now.

04 00 00 18 CDR Okay, our cabin pressure's up to 5.4.

04 00 00 20 CMP Okay.

04 00 00 26 CDR That should be enough on DELTA-P on that whole area to ... seal. Now try to vent it.

04 00 00 32 CMP Okay. I've been in VENT.

04 00 00 43 CMP It's not doing it, man.

04 00 01 15 CMP I put it in IM PRESS for a while. Maybe that will blow anything out of that hole if there's something in there.

04 00 01 20 CDR Okay. We've pumped ours up to 5.3 - to 5.4 DELTA-P.

04 00 01 50 CMP ... What time is it getting to be? Are we behind?

04 00 01 52 CDR It's 96 hours.

04 00 01 55 CMP Well, we're getting behind.

04 00 01 56 CDR Yes. Except we have about a 20-minute pad on all the stuff.

04 00 01 59 CMP Yes.

04 00 02 14 CMP Tom, I've got an idea.

04 00 02 17 CDR Go ahead, John.

04 00 02 18 CMP I'm going to maneuver over to the attitude in PRESS, then roll.

04 00 02 23 CDR Okay.

04 00 02 55 CMP Roll zero, pitch 270.

04 00 03 15 LMP Oh, shit.

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- 04 00 03 45 CMP Hey, I'm sorry, you guys. I didn't have no control over that.
- 04 00 03 51 LMP Yes, I thought we were really wheeling around there when I saw us move.
- 04 00 08 11 CDR Hello, John. How are you doing over there?
- 04 00 08 13 CMP Roger; I'm coming around to attitude, but I still can't see any vent.
- 04 00 08 18 CDR Okay. The only thing I can think of - We've built our pressure up here, but it still won't vent any. I guess we'll have to wait until MSFN contact. We've got a decision to make here. If it won't vent, either you can do it by dumping your cabin all the way - and that decision's going to be up to you - or else we'll just call the rendezvous off. It doesn't matter one way or the other. The main thing is to play it safe. Over.
- 04 00 08 42 CMP Well, I don't know that - tunnel venting or not venting is a call-off for the rendezvous. Will you -
- 04 00 08 49 CDR John, if you release - if you release that tunnel pressurized, we're going off of here like a goddam spring-board, babe. We've got 5000 pounds of force on that tunnel when we release that latch.
- 04 00 09 01 CMP Well, you ain't going anywhere until you get to the end of the latch ... Right?
- 04 00 09 08 CDR Yes.
- 04 00 09 22 CMP It's sort of like opening the hatch against psi ... way.
- 04 00 09 28 LMP Yes. I don't know if they want to do that to the probe or not, though.
- 04 00 09 32 CDR That's what I was wondering. What's going to happen to the probe.
- 04 00 10 38 CMP I'll bet you anything what's happened is that Mylar's gotten up in the --
- 04 00 10 46 CDR Yes, I'll bet the same thing. The Mylar's in that vent hole.

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- 04 00 11 47 CMP Hey, man, even if I vent my cabin, that ain't going to depressurize your tunnel.
- 04 00 11 52 CDR Yes, if - if you would open the PRESSURE EQUALIZATION VALVE on your hatch, and vent that, that would do it.
- 04 00 12 04 CMP You'd probably never close it with all that Mylar in there.
- 04 00 12 06 LMP We could do it, Tom -
- 04 00 12 11 CMP Say again?
- 04 00 12 21 CDR John, we could depressurize from this end.
- 04 00 12 26 CMP That sounds like bullshit to me, Tom. Let's wait and see what the big boys say.
- 04 00 12 31 CDR Okay.
- 04 00 12 41 CDR Yes, we've got plenty of O₂ in the rapid REPRESS capability. It would probably be better for us to depressurize from this end, John.
- 04 00 13 44 CMP Still reading zero, Tom.
- 04 00 13 48 CDR Okay. In other words, you can't vent that thing at all.
- 04 00 20 13 CMP Tom, I reseated my - I reseated mine.
- 04 00 20 23 LMP Still no vent, huh?
- 04 00 20 25 CMP Yes, you say your cabin's up at 5.4?
- 04 00 20 30 LMP Heck, yes. When we pumped it up, it stayed there.
- 04 00 20 47 LMP We could even go a little higher.
- 04 00 20 52 CMP It could be leaking from here, but I checked my - I checked my - vent valve. I closed it and looked to see if it was sealed or not. The oxygen ... is locked. ... I don't know what the heck it is, you guys. We get AOS here in a couple of minutes and then we can find out, I guess.
- 04 00 21 19 LMP Yes, we're sitting, crossing our fingers right now.

~~CONFIDENTIAL~~

Day 5

~~CONFIDENTIAL~~

Page 195

- 04 00 21 49 CMP I believe you could dump your ...; maybe if you could just dump it to like 2.5 or something like that, that would be good enough.
- 04 00 21 56 LMP That's what we were thinking of. Let's wait now until we talk to MSFN, I guess.
- 04 00 23 45 LMP John, what - what angle are you at, so I can try and acquire.
- 04 00 24 00 CMP Roger. I'm about 300 degrees right now.
- 04 00 25 47 CMP ... shit!
- 04 00 27 06 LMP Hello, John, are you at any - What angles are you at? Are you - -
- 04 00 27 11 CMP I'm at 300 degrees.
- 04 00 27 20 LMP Okay, you'll have better contact, because we'll be in OMNI; so you go ahead and tell them, and tell them - maybe we could vent down here, and get that thing vented, and then build our pressure back up.
- 04 00 27 31 CMP Roger.
- 04 00 27 42 CMP Roger; I can't - we can't get the tunnel to vent. Over. Houston, Charlie Brown. I've checked the vent valve, and - Roger; I say again: we cannot get the tunnel to vent. Over.
- 04 00 28 14 CMP That's correct. We've checked the inflow valve. I've checked the inflow valve, and I've checked the vent valve, and Tom and Cene have checked their AUTO valve and their hatch seal around their hatch, and they've built up pressure inside the vehicle, and it doesn't appear to be leaking into the tunnel, so I don't know what their problem is. Possibly some of that insulation has gotten lodged in the vent line.
- 04 00 29 03 CTF Houston, Charlie Brown. Do you read? Over.
- 04 00 30 24 LMP Hello, Houston. How do you read Snoopy now?
- 04 00 30 32 LMP Okay. If we have to, we would like to go ahead and try to vent the tunnel to the LM. We will depressurize the LM part way, and try and vent the tunnel part way, and then build the LM back up. How does that sound?

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Day 5

- 04 00 32 49 LMP ... still can't lock S-band.
- 04 00 32 52 CMP What did they say, Gene-o?
- 04 00 32 55 LMP They said if you maneuver to those angles, your high-gain angles are good as in the flight plan, and ours are good at 97 hours.
- 04 00 33 08 CMP What angles? My flight plan says OMNI ANTENNA C.
- 04 00 33 17 LMP Roger. Houston, repeat up to me where you want Charlie Brown to maneuver to; he can't read you.
- 04 00 33 47 CMP Okay, skip - Understand - skip the landmark tracking. Roger.
- 04 00 34 32 LMP Charlie Brown, Snoop. Let us know when you get there.
- 04 00 34 39 CMP Roger. We're - we're on our way.
- 04 00 34 43 LMP Okeydoke. This way we can get high gain from them; get our state-vector update, and continue on. We can't do much without that state vector.
- 04 00 35 08 LMP Okay, great. Thank you.
- 04 00 36 41 CMP Okay, Gene-o. We'll have to keep this up a little ... pitch a little faster.
- 04 00 36 46 LMP Okay, babe.
- 04 00 36 56 CMP Okay, that's off, and we'll check it.
- 04 00 37 19 CMP Okay, Gene-o. We got 25 degrees to go.
- 04 00 38 25 LMP Okay, John. Understand 25 degrees to go.
- 04 00 38 32 CDR Houston, this is Snoopy. How soon on a solution on this tunnel? Over.
- 04 00 38 43 CMP I don't think they're reading us, Tom.
- 04 00 39 20 CMP Okay, ... what I could read ...
- 04 00 39 49 CDR Hello, Houston; this is Snoopy. Do you read? Over. Okay, Charlie. Look, as far as we can see, it still appears to us like all this Mylar that's been floating around in the spacecraft has probably got into that vent

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line. The only solution that we see about ... to vent the tunnel, is to take it out through the LM and take us down. If John would try to do it, it would suck that Mylar right back into his valve - tunnel valve there, which is no good; we'd have a rough time back in the command module. But we could do something, we could live with the LM for a while. And so that's about all we can see. And as far as we understand about the probe, it's probably not a good idea to release that probe with all that pressure on it. Over.

04 00 40 46 CMP Houston, Charlie Brown on the high gain. How do you read?

04 00 41 02 LMP Okay.

04 00 41 05 CMP Houston, Charlie Brown on the high gain. How do you read?

04 00 41 15 CMP Roger. I read you loud and clear now.

04 00 41 19 CC Okay. You're coming about $\frac{1}{4}$ by. You're picking up all the time.

04 01 38 58 LMP John, are you going to be maneuvering or are you fixed now?

04 01 39 01 CMP No, sir. I've stopped maneuvering.

04 01 39 04 LMP Okay, I'll go into the AGS CAL, and I'll tell you when you have to disable thrusters, okay?

04 01 39 08 CMP Roger.

04 01 39 14 CDR Okay, while Gene-o is going through this - According to what we had originally, John, I think you're fairly near the undocking attitude that we originally had, aren't you?

04 01 39 21 CMP Yes. Except we got to be rolled 180.

04 01 39 24 CDR ... to work it out. I hope these cats know what they're talking about, about putting that load on the probe when it extends. I think they probably are, because as soon as that starts to crack, that pressure should vent.

04 01 39 30 CMP Yes. Now we're - we're almost at the undocking attitude, except we should be rolled 180.

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- 04 01 39 45 CDR Okay. Okay, now are you going to roll over 180 after we undock, then?
- 04 01 39 50 CMP No, when I get - The first thing I do when I undock is roll back right-side up, so I'm okay.
- 04 01 39 56 CDR So we're basically okay like we are, huh?
- 04 01 39 58 CMP No, you'll have to figure out what the heck you're going to do. I'll be danged if I know.
- 04 01 40 02 CDR Well, look, babe, I'm just going to stay right in front of you.
- 04 01 40 06 CMP Okay.
- 04 01 40 08 CDR And if I'm right-side up, the heck with it, I'll just go around like that - Don't worry about us. We don't want to waste any fuel. And if you just hold your attitude when you release us, all I'm going to do is yaw right and pitch up - I'll yaw right and then pitch up. And we should be face to face, then.
- 04 01 40 33 CMP Okay, we've got a slow right roll going; now, I don't know where we'll be when we get there.
- 04 01 40 38 CDR Okay.
- 04 01 40 42 LMP Okay, John. I'm at the - I - I'm at the point where I got to - my AGS calibration to do, so you got to maneuver - you know, that place where you're less than 0.1 degree per second and we got those - -
- 04 01 40 55 CDR He can't.
- 04 01 40 56 LMP He can't do it, huh?
- 04 01 40 58 CMP No, they told me not to do it.
- 04 01 40 59 CDR ... our tunnel ring's slipping right now so he can't do it - so we'll just have to skip.
- 04 01 42 03 CDR Okay, John. We're going to go pressurize the descent stage, here.
- 04 01 42 11 CMP Roger.
- 04 01 43 42 CMP Did you fire any thrusters?

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04 01 43 48 LMP We're pressurizing the DPS, John.

04 01 44 39 LMP John, we're ready to deploy our landing gear.

04 01 44 41 CMP Roger. Go ahead.

04 01 45 12 CDR The gear is coming down, John.

04 01 45 17 LMP God.

04 01 45 18 CDR Looks like we got four in the green, babe.

04 01 45 22 CMP I believe it.

04 01 48 09 CMP Hey, listen, you guys. I think that thing is off about 3 degrees, maybe as much as 4, but I can't really -

04 01 48 18 LMP It looks okay.

04 01 48 19 CDR Yes. I think we can get good holding here, John.
How's the tunnel pressure?

04 01 48 28 CMP I still have 810.

04 01 48 30 CDR Okay, it looks like it's holding. It looks like those things should lock in pretty good again, right? When we --

04 01 48 39 CMP Yes.

04 01 49 08 CDR John, I got the solar corona out here and the sun's going to be coming up shortly.

04 01 49 13 CMP Roger.

04 01 49 23 CDR Just at the rims of some of the mountain peaks, it's starting to get lighted - Beautiful view.

04 01 49 33 CDR Here come da sun.

04 01 49 46 CDR Here it comes. Watch out. Boom!

04 01 50 38 CDR Got about 31 minutes to undocking, John. We'll undock early, so we can get squared away.

04 01 50 42 LMP How about setting up - -

04 01 50 52 CMP Set up what, Gene-o?

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- 04 01 50 55 LMP I'm sorry, John; I didn't hear you. What did you say?
- 04 01 50 58 CMP What do you want me to set up?
- 04 01 51 03 LMP I don't know. Tom answered something, I'm not sure what it was - Stand by a minute.
- 04 01 53 06 CMP Hey, can you guys fix that yaw thing?
- 04 01 53 13 CDR John, no problem. See, we'll just keep what we've got and then, as soon as we go into the nighttime and align, we'll be in good shape. Okay?
- 04 01 53 19 CMP Okay. Boy, I'm sure sorry. I don't know what in the heck did that.
- 04 01 53 33 CDR You know, probably what got to us was this doggone insulation.
- 04 01 53 50 CMP Oh, man.
- 04 01 54 26 CMP I tell you, I don't - I don't like it without the - VHF.
- 04 01 54 31 LMP Yes. I guess we'll just have to wait and see on that one, babe. I don't know - We'll try it again - Let's go through normal procedures and if we get lost, we'll go back to VHF B SIMPLEX.
- 04 01 54 41 CMP Okay.
- 04 01 54 51 CDR José?
- 04 01 54 53 CMP Go ahead. Over.
- 04 01 54 54 CDR Yes, I don't know what - how far you're going to have to maneuver. If I - once we get squared, all you have to do is maneuver a roll; it doesn't hurt us a bit. Are you going to have to maneuver much in pitch and yaw?
- 04 01 55 05 CMP About 10 degrees.
- 04 01 55 08 CDR Oh, well, that won't hurt us a bit. You want to undock 10 minutes early? Get all squared away? Or 5 - 5 minutes should do it.
- 04 01 55 17 CMP I think we should.
- 04 01 55 19 CDR I'm with you. I'm sorry. I inadvertently hit the stick.

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04 01 58 14 LMP Oh, no. Oh, God, no. Oh, you son of a bitch!

04 02 01 14 CMP Okay, when was undocking, 98:22?

04 02 01 17 CDR 98:22; I'll give you a hack at 20 minutes to go.
We've got 20 minutes and 30 seconds.

04 02 01 23 CMP Okay.

04 02 01 48 LMP Looking right back at the command mod --

04 02 01 55 CDR 3, 2, 1 -

04 02 01 58 CDR MARK it. We've got 20 minutes to go.

04 02 02 00 CMP Okay. And you said you wanted to do it 5 minutes early?

04 02 02 03 CDR Yes, at least 5 minutes early, in case we have to
go to some - attitude, okay?

04 02 02 07 CMP Okay.

04 02 04 02 LMP Hey, John - while you're sitting there, you want to
try the VHF A SIMPLEX again?

04 02 04 07 CMP Roger. Let's do it.

04 02 04 09 LMP Okay.

04 02 04 10 CMP Going to VHF A SIMPLEX, now.

04 02 04 23 CMP Snoopy, Charlie Brown. How do you read?

04 02 04 25 LMP Roger. I read you loud and clear. How me?

04 02 04 28 CMP I read you the same.

04 02 04 31 CDR You're coming in great, John.

04 02 04 34 CMP Okay, John. Let's try the VHF - let's try the DUPLEX
RANGING mode, except I won't give you RANGING, I'll
just give you VOICE. Okay. Let's go to DUPLEX B.
Okay?

04 02 04 46 LMP Alright. John, how do you read us?

04 02 04 53 CMP I read you loud and clear, Gene-o.

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04 02 04 55 LMP Okay, this is the mode we're going to operate in, except my TRANSMIT switch will be in VOICE/RANGING instead of VOICE - so, maybe we're in.

04 02 05 02 CMP Yes. What happened all of a sudden, like?

04 02 05 06 LMP I don't know.

04 02 05 08 CDR Say, maybe it's what they were talking about on this corona buildup.

04 02 05 11 LMP Okay, John, let's go to VHF SIMPLEX DATA. That's where we should be now. Let's go back there.

04 02 05 19 CMP Okay. A DATA.

04 02 05 29 LMP John, how do you read us?

04 02 05 30 CMP Loud and clear.

04 02 05 32 LMP Okay. Let's stay here.

04 02 05 35 CDR John, you're so loud in these earplugs, I have my volume down to 2. You're - you're really booming through.

04 02 05 42 CMP Good.

04 02 05 54 LMP Well, we ought to be in for 6 exciting hours.

04 02 05 58 CDR It should be interesting.

04 02 06 01 CMP Man, I - hope that docking thing don't have anything to do with the probe working or not working.

04 02 06 07 CDR Oh, yes.

04 02 06 09 CMP Does it?

04 02 06 10 LMP What's the DELTA-P these days?

04 02 06 13 CMP In the tunnel?

04 02 06 14 LMP Yes.

04 02 06 18 CMP 0.8, just what it was a couple - 3 minutes ago. It's still solid.

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- 04 02 06 27 CDR Looks like those three capture latches do a pretty good job.
- 04 02 06 30 CMP Yes, they do.
- 04 02 06 33 CDR John, I think 5 minutes should be enough for us to get squared away, right?
- 04 02 06 38 CMP Yes, I hope so.
- 04 02 06 40 CDR Or do you want to do it more than 5 minutes early, babe?
- 04 02 06 43 CMP I'd kind of like to.
- 04 02 06 44 CDR Okay. You say when, 8 or 10?
- 04 02 06 49 CMP Okay, I make it - I'll vote for 10.
- 04 02 06 51 CDR Okay, we're with you. We got plenty of field.
- 04 02 06 54 LMP Okay, let me start putting my helmet and gloves on then.
- 04 02 06 57 CDR We've got this 15 mark - We'll undock in 5 more minutes.
- 04 02 07 01 CMP Roger.
- 04 02 07 44 CDR John, what do you think about the sun? You think that's going to be hurting you, babe?
- 04 02 07 49 CMP Yes, but there ain't nothing I can do about it.
- 04 02 07 51 CDR Okay. Let us know if you lose us in the bright glint.
- 04 02 07 55 CMP Okay. I won't turn that thing on if it's going to get in the sun. Okay?
- 04 02 07 58 CDR Do what?
- 04 02 08 00 CMP I won't turn that other thing on if it's going to get the sun on it. Okay?
- 04 02 08 03 CDR Yes. Turn it on, try to make sure there's just no sun on it.
- 04 02 08 06 CMP Okay.
- 04 02 08 08 CDR Just leave it covered up, right now. Did you stick some tape over the end of it?

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- 04 02 08 16 CMP Gene-o did.
- 04 02 08 18 CDR Yes, okay. Just, when you take it off, make sure you don't turn the other settings. We're all set on the others.
- 04 02 08 30 CMP Only thing I do is go to TV, right?
- 04 02 08 33 CDR All you do is go - take the lens cap off and go to TV. You may have to turn the horizontal adjust on your monitor a little bit. You usually do.
- 04 02 08 42 CMP Okay.
- 04 02 08 47 CDR Okay. 3 minutes to undocking.
- 04 02 08 49 CMP Roger.
- 04 02 09 07 LMP John, what do you have for an AOS? About 23?
- 04 02 09 11 CMP Say again.
- 04 02 09 12 LMP What do you have for AOS? About 98:23?
- 04 02 09 18 CMP Yes. He said he'd pick us up at 98:25.
- 04 02 09 22 LMP Okay.
- 04 02 09 26 CDR Okay. 2 minutes coming around to the undocking. 02:30, pardon me.
- 04 02 09 33 LMP Boy, that sun is treacherous. Could you push way down and snap in, Tom?
- 04 02 10 05 CDR Okay. On the undock, to review, I'm going to yaw right 120 and pitch up 90. Are you going to make any maneuvers at all after undocking until I get around?
- 04 02 10 13 CMP Roger. Now, it's going to be different for you. Like I say - you're a different attitude than you used to be.
- 04 02 10 20 CDR Yes. But I still need to yaw right 120, don't I? I've got to get up to match up with your X-axis.
- 04 02 10 29 CMP Yes, you - yes, you - Well, I don't know - I don't think it's - it's not 120. I tell you what - Is that what you want to do, match up with my X-axis and then pitch up?

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04 02 10 39 CDR Yes. I need to match up with your X-axis, and then I'll pitch up to my Z.

04 02 10 43 CMP Okay. Why don't you let me maneuver to 000 and then tell you?

04 02 10 49 CDR Okay. Well, I thought we weren't supposed to maneuver.

04 02 10 52 CMP Not until after we undock is what I'm saying.

04 02 10 55 CDR Okay. Okay. We've got 1 minute to go, babe.

04 02 11 01 CMP Roger. DOCKING PROBE circuit breakers coming IN.

04 02 11 16 CDR Okay. We'll go out for about 40 seconds, then kill our rates. Our opening rates, okay?

04 02 11 22 CMP Okay.

04 02 11 30 CDR 30 seconds, John.

04 02 11 50 CDR 8, 7, 6, 5, 4, 3, 2, 1 -

04 02 11 58 CDR GO.

04 02 11 59 CDR Now, that wasn't bad. Just a little more DELTA-V. ... opened quite a bit. It's faster than the simulator, babe.

04 02 12 07 CMP Yes.

04 02 12 16 CDR Okay, I'm thrusting up to kill it.

04 02 12 25 CDR We're still opening.

04 02 12 31 LMP See us, John?

04 02 12 34 CDR John, do you read us?

04 02 12 37 CMP Yes, I read you.

04 02 12 39 LMP Okay, great.

04 02 12 40 CDR Okay, now, you want me to yaw right?

04 02 12 48 CMP Yes, take a look at my docking probe and see if it's ... extended all the way or not.

04 02 12 52 CDR Okay. I'm starting to yaw right, babe.

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04 02 13 00 CMP Okay. I'm going to yaw to - roll to 180 myself.

04 02 13 07 LMP Get the Hasselblad, Tom, and I'll catch him when we come around.

04 02 13 13 CDR I see what you mean about a completely different attitude --

04 02 13 40 CMP Yes --

04 02 13 41 CDR -- ... a little bit. Can you thrust towards me?

04 02 14 04 CMP ...

04 02 14 09 CDR Is that going to be your SEP attitude, John?

04 02 14 13 CMP Negative.

04 02 14 21 CDR Okay. I'm going to have to roll around here and try to keep out of gimbal lock to stay with you.

04 02 14 25 CMP Okay. I'm going to my SEP attitude now.

04 02 14 27 CDR Okay. What's it going to be?

04 02 14 29 CMP It's going to be 01⁴.

04 02 14 30 CDR I can't tell what data ... like that over here.

04 02 14 34 CMP Okay, it's just the same one we had in the simulator.

04 02 14 37 CDR Okay. You going to it now?

04 02 14 39 CMP Yes. Why don't you pitch up, Tom?

04 02 14 52 CMP Pitch up. And get me out your front window.

04 02 15 30 CDR It's okay, I know about the attitude we're going to be now.

04 02 15 34 LMP The same attitude, Tom, as on your book there for undocking.

04 02 15 36 CDR Yes.

04 02 16 00 LMP Got him out there?

04 02 16 01 CDR Yes.

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Day 5

~~CONFIDENTIAL~~

Page 207

- 04 02 16 02 LMP Oh, beautiful. I can't see him from here, but if can't -
- 04 02 16 11 CDR I'm trying to match you, John. Should I be upside to you, babe?
- 04 02 16 14 LMP No. This is good.
- 04 02 16 15 CMP Yes, you should be, but that's alright.
- 04 02 16 22 CDR Okay, can you close with your plus-X and we'll look at that probe?
- 04 02 16 25 LMP How come this damn thing isn't working again? God damn it!
- 04 02 16 34 CDR Are you in your SEP attitude yet, babe?
- 04 02 16 37 CMP Just about.
- 04 02 16 51 CDR Okay, you need to translate a little ... for me.
- 04 02 16 59 CMP Okay. I'm coming - coming for you.
- 04 02 17 03 CDR Okay.
- 04 02 17 13 LMP They say f:8, but he's awful bright out there.
- 04 02 17 15 CDR Yes. We're out a little bit too far. I'll try to thrust ... I have to - It really offsets me in pitch, as you can see. Can you thrust towards me?
- 04 02 17 35 CMP Roger. I'm thrusting towards you.
- 04 02 17 59 CDR I'll take care of the up and down, John.
- 04 02 18 20 LMP Take some at f:8 and f - Oh, you're putting that up there. Taking you, John, babe. You're a weird-looking machine.
- 04 02 19 01 CDR How does the landing gear look, José, down and locked?
- 04 02 19 06 CMP Yes.
- 04 02 19 07 LMP I'm going to take my helmet and gloves off, Tom.
- 04 02 19 09 CDR Yes. We're going to take our helmets and gloves off.
- 04 02 19 13 CMP Roger.

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- 04 02 19 17 CDR I'm drifting out laterally to you. Can you make one little thrust correction? Every time I do that, it really -
- 04 02 19 24 CMP Okay. I'll get to you.
- 04 02 19 26 CDR Okay. I'll take care of the up and down. That's real easy.
- 04 02 19 58 LMP Tom, reset -
- 04 02 20 12 LMP John, you're the first vehicle photographed by another around on the moon. How does that grab you?
- 04 02 20 16 CMP That grabs me good.
- 04 02 20 49 CDR Can you come in a little ways here just --
- 04 02 20 52 CMP Yes. I'm coming in.
- 04 02 21 23 LMP ... ORB rate, Tom.
- 04 02 21 28 CDR Okay. Right now, we're going - John, right now I'm going BEF, right? You're going SEF, right?
- 04 02 21 41 CMP Yes.
- 04 02 22 07 LMP Tom, that'll be - I know, but that's wrong. ORB rate needle 100 - that's great. Now that's better. We're facing up in the air. That's ...
- 04 02 23 14 CMP Okay. Okay, I'm at the SEP attitude, Tom.
- 04 02 23 34 CDR You're now at the SEP attitude, huh?
- 04 02 23 35 CMP I'm now in SEP attitude. I can't see you. Will you come up a little bit?
- 04 02 23 42 CDR Translate up. You need to translate left a little bit.
- 04 02 23 46 CMP You mean right, don't you?
- 04 02 23 48 CDR Okay. Yes, okay, it'll be to your right.
- 04 02 23 52 CMP Okay. I can't see you, and I don't know whether I'm even closing on you or not.
- 04 02 24 02 CMP Now I got you.

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04 02 24 28 CDR I'll take care of the up and down.

04 02 24 31 CMP Okay. I'll get the left and right, and in and out.

04 02 24 34 CDR Okay.

04 02 24 35 CMP Your gear is all down and locked, babe.

04 02 24 36 LMP Good. You going to take a picture of it?

04 02 24 44 CMP Yes. If I could see it, I could.

04 02 25 32 CDR Yes, now we're getting in pretty good shape, babe. You really make a beautiful background against that moon down there, John.

04 02 25 42 LMP I tell you, John, these pictures of you against that moon ought to be fantastic.

04 02 25 56 LMP We got some ice on our - on our urine dump area over there, under your head.

04 02 26 07 CDR I'll tell you - If you get a chance, I think we're pretty well stabilized now. You can go ahead and flip on the TV and take off the cover.

04 02 26 14 CMP Roger.

04 02 26 16 LMP We ought to have MSFN - I think, about now.

04 02 26 26 LMP ... antenna - -

04 02 26 27 CDR There goes your antenna - -

04 02 26 28 LMP - - your antenna is going to REACQ, babe.

04 02 26 40 CMP Okay. Houston, Charlie Brown on the high gain. How do you read? Over.

04 02 27 01 CMP Houston, Charlie Brown on the high gain. How do you read? Over.

04 02 27 04 IMP Yes, we got him right away, Tom.

04 03 35 56 CMP Snoopy, Houston wonders if you're reading him. I guess you're not if -

04 03 36 11 CMP Okay. Snoopy, Charlie Brown. Do you read? Over.

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Day 5

04 03 36 16 CDR Roger, John. We can read you loud and clear.

04 03 36 19 CMP Alright. We need to keep at least one set of communications open at all times.

04 03 36 30 CDR Yes. I think that's a very prudent idea.

04 03 36 36 CMP Somehow.

04 03 36 53 CMP Roger. What - what is my P20 doing? Can anybody tell me?

04 03 37 06 CMP Well, it's made up its mind.

04 03 37 14 LMP Houston, and landing antenna test is complete.

04 03 37 21 CDR Go ahead.

04 03 37 27 CMP Thank you.

04 03 41 22 CMP Snoopy, this is Charlie Brown. Over.

04 03 41 27 LMP Go ahead.

04 03 41 29 CMP Roger. Do you have your ... on? Over.

04 03 41 37 LMP Yes, John, we do.

04 03 44 38 LMP Now, you'll know we're burning. John, do you read us?

04 03 44 42 CMP Roger. Loud and clear.

04 03 44 43 LMP Tom, the AGS is NO-GO on this one, babe.

04 03 44 46 CMP The AGS is NO-GO?

04 03 44 47 LMP No, I'm talking to Tom.

04 03 45 08 LMP Okay, at 35 seconds, ENGINE ARM to DESCENT.

04 03 45 20 LMP Tom?

04 03 45 21 CDR Oh.

04 03 45 23 LMP Tom, I can barely read you.

04 03 45 24 CDR ... Is that better?

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04 03 45 29 LMP You're going to have to shout into the intercom.
Blanks at 35 seconds.

04 03 45 38 CDR Don't back this up with the start button.

04 03 45 42 LMP Okay, I'll hit PROCEED, and I'll start the clock.

04 03 45 51 CDR Stand by to PROCEED. Tape should be coming OFF.

04 03 45 57 LMP There's a 99!

04 03 46 02 CDR We're burning, John.

04 03 46 05 CMP Roger; I see you.

04 03 46 08 CDR 5, 6 -

04 03 46 12 LMP Stand by, babe.

04 03 46 13 CDR 10, 11, 12.

04 03 46 16 LMP ...?

04 03 46 17 CDR ... I've been counting down.

04 03 46 20 LMP Nice and smooth. 9 seconds, 8 seconds, 4, 3, 2 -

04 03 46 26 LMP MARK it.

04 03 46 28 LMP Okay, let's see what we got. Okay, zero on the residuals.

04 03 46 33 CDR Beautiful.

04 03 46 34 LMP Okay, let me write that down. Minus 1 - minus point - minus 0.1, minus 0.3, and minus 0.5. The burn's over, John.

04 03 46 46 CMP Roger; good show. Okay, you guys want to do a - go to SIMPLEX B, DATA ... SIMPLEX A ...?

04 03 47 03 LMP That's affirm. On your mark.

04 03 47 05 CMP Okay -

04 03 47 06 CMP MARK it.

04 03 47 17 LMP ...

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04 03 47 55 LMP RENDEZVOUS RADAR is OFF.

04 03 48 08 LMP Okay, T.P., got your THRUST, OFF?

04 03 48 09 CDR ...

04 03 48 11 LMP ENGINE ARM, OFF?

04 03 48 15 CDR ... OFF.

04 03 48 16 LMP ENGINE ARM, OFF; MASTER ARM, OFF?

04 03 48 24 CDR ...

04 03 48 25 LMP MASTER ARM, OFF? Got your RENDEZVOUS RADAR AC breaker CLOSED? Pitch down to where you're looking at a 180 - Right about there, Tom, you ought to be having them. There's - there's - You're coming up on it right now.

04 03 48 52 CMP Okay. I had you - At 3.81 miles, you were doing 73 feet a second.

04 03 49 01 LMP Okay. Great, John.

04 03 49 23 LMP You got all your radar breakers IN, babe? Goddam MASTER ALARM.

04 03 49 32 CDR Beautiful burn.

04 03 49 35 CMP Sure looked pretty through the optics.

04 03 49 41 CDR Are we off VOX?

04 03 49 43 LMP Well, it's up to you whether you're on VOX or not. No, you're hot to John in this mode, in VHF RANGING.

04 03 49 47 CDR Oh, yes.

04 03 50 02 LMP John, what's your 4-minute mark? Do you have it?

04 03 50 05 CMP Not yet.

04 03 50 14 CMP Okay, at 4.82 miles, I have you at 70 feet per second.

04 03 50 20 CDR Roger - -

04 03 50 21 LMP Okay, fine.

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04 03 50 22 CDR - - we're reading 70 here.

04 03 50 31 CMP I ... you another ...

04 03 50 48 LMP We never did call up VERB 82. We ought to call that up.

04 03 50 52 CDR Yes. We got plen - -

04 03 51 15 CDR ...

04 03 51 21 LMP I hope so, babe, because we're going down.

04 03 51 24 CDR ...

04 03 51 32 LMP I guess you could pull that LANDING RADAR breaker, too, if you - if you can.

04 03 51 37 CDR Okay.

04 03 51 46 LMP God, that's wild.

04 03 52 04 CDR You know what really gets me? The basic vehicles are just beautiful, ...

04 03 52 14 CMP ...

04 03 52 21 LMP Yes, that sounds right, John.

04 03 52 45 LMP Looks like a little bit of an overburn to me.

04 03 52 48 CDR ...

04 03 52 49 LMP Did you get - you got that LANDING breaker?

04 03 52 53 CDR ... We just ...

04 03 52 56 LMP I - I recorded that.

04 03 53 11 CDR Okay. Gene-o, give me the time ...

04 03 53 16 LMP Okay. Stand by a half.

04 03 53 30 LMP Phasing burn time ... phasing dope ... reset that clock.

04 03 53 38 CDR Okay. ... I'm sorry.

04 03 53 46 LMP God damn that MASTER ALARM.

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04 03 53 54 CDR ...
04 03 53 56 LMP ... pressure ...
04 03 53 59 CDR ...
04 03 54 01 LMP ...
04 03 54 25 LMP Hello, Charlie Brown; this is Snoopy. Do you read?
04 03 54 31 CMP ...
04 03 54 32 LMP Man, we's getting down among them.
04 03 55 07 LMP You got that clock counting now?
04 03 55 09 CDR No, it's over an hour. Phasing time is ...
04 03 55 14 LMP I've got that updated right here. 100:58:25 ... up here. Okay, Tom. I've got to get out these and find out what the hell -
04 03 55 37 CDR Did you ever call VERB 82?
04 03 55 38 LMP I called it. We're in 69 - Charlie Brown, we're in a 69.2 - a - 61.2 by 9.2.
04 03 55 46 CMP Roger.
04 03 55 58 LMP ...
04 03 56 00 CDR Beautiful. I can get the ...
04 03 56 07 LMP I got some updates on there I've got to copy down, Tom. The first one is - What's it say on there?
04 03 56 20 CMP I show you in a 61.2 ...
04 03 56 24 LMP Beautiful. Beautiful. I've got to copy - this thing right here. 100 degrees east at 33 31.
04 03 56 43 CMP ...
04 03 56 47 CDR ..., José. ... other side for a final approach, but we're coming down, baby.
04 03 57 19 LMP These are 10-minute hacks? Or 90

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Day 5

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Page 215

04 03 57 35 CDR Tell you what let's do. Let's go ahead and load
the phasing burn given us an update ...?

04 03 57 48 LMP No, call up 30 and let's load it in.

04 03 57 58 CDR You got the time?

04 03 58 09 LMP You got it right here, babe? 100:58:25.00.

04 03 58 44 CMP Holy smoke!

04 03 58 46 LMP What?

04 03 58 47 CMP ... horizon.

04 03 58 50 LMP Yes, I believe it.

04 03 59 36 LMP 5 seconds.

04 03 59 43 CDR It's going to put us in a 190.8 ...

04 03 59 56 LMP Yes.

04 04 00 11 CMP ...

04 04 00 14 CDR Okay, John.

04 04 00 28 CMP ... fantastic.

04 04 00 30 LMP ... Oh, God! It'd be worthwhile to take some
pictures right here.

04 04 00 39 CMP I can see the whole LM.

04 04 01 10 CDR Whoa, we're dropping down, ...

04 04 01 13 LMP You bet your life we're dropping down.

04 04 01 54 LMP The landing site is at 10:30, Tom.

04 04 01 59 CDR Okay.

04 04 02 03 LMP You must be - through P30, huh?

04 04 02 04 CDR Yes. ... Phasing at 47. ... pitch down 90 ...

04 04 02 13 LMP ...

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- 04 04 02 14 CDR ...
- 04 04 02 23 LMP Okay, at minus 40, yaw left 180? Right?
- 04 04 02 28 CDR Minus 47, we pitch down 90. ... 42, we yaw left 180. Beautiful.
- 04 04 02 39 LMP Okay, that's 40 --
- 04 04 02 41 CDR Where's my ...?
- 04 04 02 42 LMP Take them, babe, while you're coming down here.
- 04 04 02 46 CDR This Velcro doesn't ...
- 04 04 02 51 LMP What's the problem?
- 04 04 02 53 CDR ... turn around, the Velcro won't hold the Hasselblad.
- 04 04 02 56 LMP Can you lay it against the side there?
- 04 04 03 01 CDR ... Do you have it over there?
- 04 04 03 02 LMP No, you were shooting John. This stuff here isn't worth a tinker's dam. There's no telling where it is now, babe. We got to find that before we go to that landing site. Look down ...
- 04 04 03 23 CDR Oh, here it is. Way back here.
- 04 04 03 35 LMP They can take this damn Velcro and give it back to - whoever thought they invented this kind of Velcro.
- 04 04 03 43 CDR Okay. Coming down here we should be on black and white - f:4 at 2 --
- 04 04 03 54 LMP Right.
- 04 04 03 55 CDR -- f:4 at 250?
- 04 04 03 56 LMP f:4 at 250.
- 04 04 04 19 CDR You know, this place is starting to look at-home.
- 04 04 04 22 LMP Yes.

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Day 5

~~CONFIDENTIAL~~

Page 217

- 04 04 04 57 CDR ... you taking ...
- 04 04 04 58 LMP Huh? I'm taking these at 6, and then I'm going to - I got to pick up this landing site at 33 minutes - 34 minutes when you roll back again.
- 04 04 05 17 CDR ... bitty bears have black stuff.
- 04 04 05 41 LMP John, are you still reading us?
- 04 04 05 48 LMP Okay. I just - You know, when I don't hear from you, I begin to wonder. Boy, I tell you, babe, we's getting down among them.
- 04 04 06 17 CMP Yes, ... guess you're about ...
- 04 04 06 23 LMP I know why the AGS didn't work. That was my fault, babe. I didn't set it up for external DELTA-V, but we got a good perigee out of it - 8.6.
- 04 04 06 31 CDR ...
- 04 04 06 32 LMP That was my fault.
- 04 04 06 53 CDR That's what I call Jack's crater. Nice little volcano that I shot yesterday. It really stands out.
- 04 04 07 12 CDR ... get a VERB - ... I want to PROCEED out of here ... - ...
- 04 04 07 22 LMP Yes. Good idea.
- 04 04 07 23 CDR ...
- 04 04 07 35 LMP Do you know where the hell we really are, Tom?
- 04 04 07 40 CDR No. ...
- 04 04 07 43 LMP Hey, I don't mean that way. What's this big - Coming up on 50 minutes. I don't know what that big ... is there, but you're going to pitch around here anyway at 47, aren't you?
- 04 04 07 59 CDR ...
- 04 04 08 14 CDR Man, that's the prettiest volcanism.
- 04 04 08 18 LMP Hey, here's crater IX right here, I'll bet. Right here.

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- 04 04 08 23 CDR Yes. José, we're coming up to crater IX, I think.
We'll be going straight across it.
- 04 04 08 28 CMP Roger.
- 04 04 08 31 LMP Maybe you could tell us better where we are, man.
- 04 04 08 33 CMP Yes. You're going right across it. Sure are.
- 04 04 08 41 CDR Things are starting to move faster, John.
- 04 04 08 48 LMP Okay, Tom, all our - everything's looking good
there, so far.
- 04 04 08 53 CDR You know, instead of going there and yawing over
180, let's phasing? Yaw left.
- 04 04 09 04 LMP Yes. I would --
- 04 04 09 05 CDR Screw it! We're just going to stay here and take
some photo stripplings instead of - John?
- 04 04 09 11 CMP Yes?
- 04 04 09 12 CDR Okay. Instead of yawing left and yawing right, I'm just
going to stay here and take some - I think it would be
more interesting for the whole thing just to take strips
...
- 04 04 09 25 LMP I'll buy that.
- 04 04 09 26 CDR How about that?
- 04 04 09 29 LMP The important film we want to get is down below, babe.
- 04 04 09 38 CMP ...
- 04 04 09 41 CDR Yes.
- 04 04 10 00 LMP Tom, give me that when you get a chance.
- 04 04 10 01 CDR Got it.
- 04 04 10 19 CDR Look at that big one.
- 04 04 10 20 LMP That's what I'm looking at.
- 04 04 10 22 CDR ...

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Day 5

~~CONFIDENTIAL~~

Page 219

04 04 10 26 LMP

Hey, when I can't see the horizon, Tom, I get the feeling like we're in a divebombing run. Okay, at 47 minutes - Okay, you're going to stay at this attitude. That's fine.

04 04 10 45 LMP

Did you ever call up VERB 83?

04 04 10 47 CDR

...

04 04 10 49 LMP

I wanted to check it against the AGS. Let me look at it again.

04 04 10 59 CDR

Hey, there are some ... boulders.

04 04 11 01 LMP

You got some?

04 04 11 02 CDR

You're damn right! Look at those bastards down in that crater.

04 04 11 06 LMP

Right here?

04 04 11 07 CDR

Yes, that big deep one, right there --

04 04 11 09 LMP

Let me look at them. Let me look at that ... took a picture of it.

04 04 11 20 CDR

That old one right down below.

04 04 11 23 LMP

Oh, you bet your ass there's ... boulders down there.

04 04 11 33 CDR

Tremendous boulders.

04 04 11 34 LMP

Man, there are, Tom.

04 04 11 37 CDR

Hey, John, with that monocular, you can really see some boulders now, babe.

04 04 11 41 LMP

You know, the surface around it looks fairly good, though. Here you go. You want this back?

04 04 11 46 CDR

... the Hasselblad?

04 04 11 47 LMP

Yes, I'll take pictures of it. Wish I could have got right down in there. Right down in among those boulders - I tell you, there's some boulders down there, babe. Are we yaw a little?

04 04 12 08 CDR

Yes.

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Day 5

- 04 04 12 11 LMP Look at this cliff there, Tom, right in front of us.
- 04 04 12 13 CDR Yes. There's a cliff there that's ... 2000 or 3000 feet tall.
- 04 04 12 16 LMP Oh, hell, yes.
- 04 04 12 19 CMP ... You guys are really out there now.
- 04 04 12 21 CDR Boy, you know it, babe.
- 04 04 12 26 LMP Holy smoley, John. This is incredible!
- 04 04 12 34 CMP ...
- 04 04 12 35 LMP Yes. You thought we were close at 60 miles!
- 04 04 12 37 CMP I still think we're different color down close?
- 04 04 12 47 CDR/LMP No.
- 04 04 12 48 LMP I don't think so.
- 04 04 12 49 CDR With the monocular, you can see some stuff.
- 04 04 12 50 LMP But I'll tell you, there's some good-size boulders on the sides of those craters. Some of them are very obviously impact. But then there are some others that - that --
- 04 04 13 02 CMP ...
- 04 04 13 03 LMP They got to be - they got to be - volcanic.
- 04 04 13 23 LMP Time hack at 100 - 113:21. John, do you know where we are or what we're over?
- 04 04 13 29 CMP No, ... to the AUTO optics ...
- 04 04 13 35 LMP Oh, okay. Because I'm going to tell you when I think we're about over Neper, because we've got to photograph that area coming down.
- 04 04 13 41 CMP Okay.
- 04 04 13 42 LMP Tom, you want this over there?
- 04 04 13 47 CDR ...

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Day 5

~~CONFIDENTIAL~~

Page 221

- 04 04 13 57 CDR Oh, look at that bear. Here's an old ... Hey, ...
- 04 04 14 02 LMP What are you looking at --
- 04 04 14 03 CDR Son of a bitch! I don't know.
- 04 04 14 04 LMP Holy smoley! Look - hey, look at that black thing in the bottom --
- 04 04 14 06 CDR Look at all those black things. Hey, John, I got something that's really standing out here like ... the monocular, Gene-o, the monocular.
- 04 04 14 19 LMP That's a fantastic crater. I don't know where that is --
- 04 04 14 21 CDR Let me look at it. Let me look at it.
- 04 04 14 32 LMP They're big boulders, John. Gigantic! We're looking straight down.
- 04 04 14 43 CDR Gee, I'm really getting vertigo.
- 04 04 14 47 LMP Yes, it's like - like that rendezvous from above, Tom, when we were looking straight down at the mother.
- 04 04 14 53 CDR I nearly lost him - lost him in the light. I need to slant up.
- 04 04 14 58 LMP Okay. We're coming up on 43 minutes.
- 04 04 15 15 LMP Are you in ORB RATE? No, you're in INERTIAL, aren't you?
- 04 04 15 21 CDR I need to be pitched up more.
- 04 04 15 23 LMP Your ball isn't moving. Is it?
- 04 04 15 25 CDR Yes, it is.
- 04 04 15 26 LMP Okay. Yes. We want to be seeing 180 upside down when we come into Neper here.
- 04 04 15 39 CDR ...
- 04 04 16 01 LMP This camera is getting red hot. Okay, babe, at 34 minutes, we want to be pitched up, because we will be approaching into the Neper area where we want to get -

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this - see, Neper here's at 34 minutes - we want to be ready - we want to start looking - be seeing Neper coming over the horizon.

04 04 16 34 CDR Look at that - volcanic as the dickens. ...

04 04 16 42 LMP Let me see ...

04 04 16 43 CDR ...

04 04 16 44 LMP Yes. There are a lot of - a lot of things got to be volcanic, babe.

04 04 16 59 LMP And there's boulders down in those holes. Look at that new one.

04 04 17 10 LMP Now, that's all black in the bottom.

04 04 17 12 CDR Yes.

04 04 17 19 LMP That little - that little crater with the fresh - you know, everything being fresh, it appears to me that the top of the soil - the soil is bleached by the sun.

04 04 17 32 LMP There's one.

04 04 17 45 LMP There is a fresh - Look at the boulders on the side of that one.

04 04 17 48 CDR Yes. Yes. Yes.

04 04 17 50 LMP Give me that camera, babe.

04 04 17 52 CDR Okay. I got ... here.

04 04 17 53 LMP Okay.

04 04 17 54 CDR Here. Where is the monocular?

04 04 17 55 LMP There it is. ... 250 right here would have gotten something.

04 04 18 13 CDR Oh, look at those boulders!

04 04 18 14 LMP Aren't they fantastic? 40 minutes, babe. At 34, we ought to start coming into the Neper area.

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- 04 04 18 34 LMP Now look at that one. The way those cliffs are so sheer. There's black underneath them, and when these fresh craters come out, there's - it's all white soil.
- 04 04 18 43 CDR Yes. Here's one ...
- 04 04 18 50 LMP Oh, beautiful.
- 04 04 18 53 CDR Black. A landslide? And there's a boulder so damn big you can't believe it.
- 04 04 18 58 LMP ... Trade you.
- 04 04 19 00 CDR Here.
- 04 04 19 07 LMP There's a little crater on the rim of this one, and there's boulders laying halfway down.
- 04 04 19 13 CDR You can see where the volcanism started, and it ...
- 04 04 19 24 LMP Yes. I - I got to say, there's a lot of impact craters around here, though. God dang. A lot of impact craters. You know, this planet must have been beaten to death at one time.
- 04 04 19 41 LMP Must have been beat to death. Okay, Tom, we're coming down to 3¹/₂ minutes, and that's where we're going to start picking up - Neper ought to be coming over the horizon at 29:31. We ought to be right over Neper.
- 04 04 19 53 CDR Okay. LANDING RADAR - LANDING RADAR circuit breaker ...
- 04 04 19 59 LMP Okay, we're ahead of time. We don't - we're in good shape right now.
- 04 04 20 09 LMP There's boulders in every one of those little - little craters and on - on the ridges.
- 04 04 20 14 CDR Yes. That's on the new craters - even a few of the old ones have them right down at the bottom.
- 04 04 20 19 LMP And the boulders are black. They're ... black --
- 04 04 20 22 CDR They look like they're --
- 04 04 20 23 LMP -- and yet - and yet the stuff that comes out of the new craters is white --

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~~CONFIDENTIAL~~

Day 5

- 04 04 20 26 CDR -- white, but black around them.
- 04 04 20 27 LMP Yes. There are some pretty sharp cliffs. Some of these seem to be - windblown down, but there are some awful sharp cliffs. What a place! You know, it almost looks like this is a painting. Someone took a painting of ...
- 04 04 20 40 CDR Yes.
- 04 04 20 46 LMP Hey, John, this is really a great speed at which to go over the ground, I'll tell you.
- 04 04 20 59 CDR Oh, here's one that tossed boulders out of it.
- 04 04 21 02 LMP You got it?
- 04 04 21 03 CDR Yes. Tossed boulders right out of the stuff.
- 04 04 21 05 LMP Look at that mother.
- 04 04 21 06 CDR See it? Right there?
- 04 04 21 07 LMP Hey, ...
- 04 04 21 09 CDR This little one right here tossed boulders right out of the son of a gun. Still a bunch in there.
- 04 04 21 53 LMP Okay. Neper's got to be coming up there pretty soon. We're at 36.
- 04 04 22 03 LMP This is where ... wants to do the altitude - around here.
- 04 04 22 11 CDR Boy, you could track ...
- 04 04 22 17 LMP I just want to keep - but we're going so slow, I'm going to stay at 6 frames a second, Tom.
- 04 04 22 24 CDR ... Oh, beautiful. Hey, I could even see a boulder for at least 20 miles ahead. In that one crater right on your left, Gene-o.
- 04 04 22 33 LMP Yes. Yes. Oh, look at one, way up. ...
- 04 04 22 34 CDR Yes. It's got a big black one right down in the bottom of it.
- 04 04 22 39 LMP Yes. I think you're right.

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- 04 04 22 41 CDR Talk about a boulder! That thing is big enough to - to crush a couple of houses.
- 04 04 22 45 LMP They're laying all down the side and there's no - there's no little rim crater on it, either. They're just laying on the side.
- 04 04 22 50 CDR Shoot a picture of that one - that white one coming up right in front of you.
- 04 04 22 53 LMP Okay.
- 04 04 22 54 CDR You can - -
- 04 04 22 55 LMP ...
- 04 04 22 56 CDR - - ...
- 04 04 23 03 LMP We got to be coming somewhere near where Neper is going to be up there, pretty soon, and the Smyth's Sea.
- 04 04 23 15 LMP Tom, look at the boulder on the edge of that one - Quick, look over here - way over there. Look at that black one ... See it? See it?
- 04 04 23 20 CDR Oh, yes.
- 04 04 23 21 LMP Look at that! Look at that. I don't know why I'm fascinated with boulders, but son of a gun - those black things stand out. Give me the monocular ...
- 04 04 23 44 LMP At first I thought it was a shadow on it, but it sure isn't, because we're looking - coming down right through the -
- 04 04 23 57 LMP Okay. At 33:31, we're going to come up on 269 and 192 and Jansky.
- 04 04 24 09 CMP Houston, Charlie Brown. Over.
- 04 04 24 15 CDR I need to get - -
- 04 04 24 16 CMP Houston, Charlie Brown. Over.
- 04 04 24 34 CMP Leave 64 running for a minute, Tom.
- 04 04 24 37 LMP Can you pitch us up a little bit to get a better view of the - -

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~~CONFIDENTIAL~~

Day 5

04 04 24 40 CMP Houston, Houston, Charlie Brown. Over.

04 04 24 43 LMP -- better view of the --

04 04 24 48 CMP Houston, Houston, Charlie Brown. How do you read on the high gain? Over. I'm all locked up on them, Tom, but I just don't read them.

04 04 25 00 LMP Okay, we're not locked up yet, John.

04 04 25 09 CMP Roger. Read you loud and clear. Snoopy was GO for DOI.

04 05 32 03 CMP Houston. This is Charlie Brown. OMNI D. How do you read?

04 05 32 05 CC ...

04 05 32 15 CC Charlie Brown, Houston. Go ahead.

04 05 32 26 LMP You got it?

04 05 32 27 CDR Yes. ... Hold on now, let's do one.

04 05 32 33 LMP There it is, babe - Oh, beautiful. How's it look?

04 05 32 38 CDR A quarter of a degree down.

04 05 32 39 LMP Why don't you just write it on there?

04 05 32 45 CC Charlie Brown, Houston. We'll have LOS at 101:36 --

04 05 32 50 CDR Oh, I'll make it a third.

04 05 32 51 CC -- over the hill at 102:22. And Snoop, LOS for you, 101 - Correction, 101:37; AOS, 102:25. Over.

04 05 33 04 LMP If you're satisfied, terminate it.

04 05 33 06 CDR Go - go back to P00.

04 05 33 11 LMP Call it again, just right over it. Okay, Tom. Let's go to the attitude to find track, and we've got to track now again. At --

04 05 33 25 LMP It's Snoopy. Roger; we got that.

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- 04 05 33 29 LMP We want to try and get a number of marks here. At minus 129, and how far are we now? The burn is at 102 1/2, so we're at 120, so we want to go find it.
- 04 05 33 43 CC Roger, Charlie Brown and Snoop. As you are going over the hill, all systems are GO. We're all GO here on the ground, and it's looking great. Over.
- 04 05 33 51 LMP Thank you, Charlie. Snoopy's GO here. Our P52 is complete. We're going to go pick up P20 again. Okay, Tom, if you want to find out where it is - Want to go to the target? I've got the AGS needles for you.
- 04 05 34 10 CDR Yes, let's go to AGS.
- 04 05 34 12 LMP Okay.
- 04 05 34 14 CDR I'm in the -
- 04 05 34 18 LMP You want this in AGS?
- 04 05 34 20 CDR No, I want it DAP first.
- 04 05 34 22 LMP Okay, now you can find out where it is. There's where it is.
- 04 05 34 24 CDR Okay, I'll go. Okay, I'm in DIRECT. I'll go down to here.
- 04 05 34 34 LMP Now on the ORB rate ball at this time. What time is it, Tom; 101:34, and it's normally been 101:24? I guess we're about 150 miles from John, huh?
- 04 05 34 57 CDR Yes. Hey, where's the -
- 04 05 35 02 LMP Hey, Charlie Brown; this is Snoop. I guess we're about 150 miles from you.
- 04 05 35 08 CMP Roger.
- 04 05 35 10 LMP And our P52 is complete. We're coming over to start tracking on you.
- 04 05 35 18 CMP Yes. I show at 179.22 ...
- 04 05 35 21 LMP Sounds right.

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- 04 05 35 23 CC Charlie Brown, this is Houston. Did you get your AOS/LOS times? Over.
- 04 05 35 48 CDR Whew! How about some foodsville?
- 04 05 35 52 LMP I guess so, babe. I just - I'm so sick and tired of these god-dang magazines failing. You know it?
- 04 05 36 04 CDR Where's the food bag?
- 04 05 36 06 LMP It's up in that two-man food bag.
- 04 05 36 08 CDR I want to watch this come in.
- 04 05 36 13 LMP All we got left is a roll of interior film.
- 04 05 36 17 CDR Everything else is gone?
- 04 05 36 19 LMP I'll have to check. I can't get the damn thing to work at all.
- 04 05 36 44 CDR Okay, I guess we ought to talk for the record. What we observed as we came across the mare area into the landing site, the basic area looked fairly smooth --
- 04 05 36 51 LMP Actually, it looked amazingly smooth, Tom, I thought.
- 04 05 36 54 CDR It looked amazingly smooth, and it looks like we have plenty of landing surface down --
- 04 05 36 59 LMP I think you can land down there in and among those holes.
- 04 05 37 00 CDR Yes.
- 04 05 37 29 LMP This works after you jam that contact open, but you don't have time to jam a god-dang contact open.
- 04 05 37 50 CDR I can't hold my - The hose is floating up, you know it?
- 04 05 37 57 LMP Boy, chicken again. And that water's good now.
- 04 05 38 01 CDR Got bubbles?
- 04 05 38 03 LMP No. Yes, there is.
- 04 05 38 20 LMP Let's see, we've got to get some tracking on this guy. We're late now.

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04 05 38 24 CDR Yes. Shit.

04 05 38 41 CDR That's the trouble with these darn air vents.

04 05 38 46 LMP 05 55 02 - 42 ...

04 05 39 24 LMP What do we have in the way of 70-millimeter film? Jack was saying we could strip the back side of that area --

04 05 39 34 CDR The Hassel --

04 05 39 36 LMP -- on top - the Hasselblad.

04 05 39 37 CDR -- the Hasselblad went dead, babe!

04 05 39 39 LMP The whole Hasselblad?

04 05 39 40 CDR Just as I was - That's what I was bitching about; the Hasselblad burned out as I hit the landing site! That's why I was so freaking mad.

04 05 39 50 LMP Are you kidding?

04 05 39 52 CDR I'm not kidding. It's dead!

04 05 39 53 LMP It doesn't work at all?

04 05 39 56 CDR No.

04 05 40 04 LMP On one of my magazines, you have to ja - Look at, even now, you got to jam it in. Look it. Light goes out - there it goes.

04 05 40 18 LMP I'm so sick and tired of film that doesn't - that doesn't check out working beforehand.

04 05 40 39 LMP Boy, that ascent engine is going to be a kick in the - in the ass.

04 05 41 14 CDR There. Are you ready for it?

04 05 41 18 LMP Wait a minute. Okay, now I am. Go ahead. Do I put it in PGNS AUTO and let the Z-axis track?

04 05 41 27 CDR Yes. Let me get near it, so it doesn't -

04 05 41 48 CDR What is it?

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Day 5

04 05 41 50 LMP Put it in AUTO TRACK, Tom, and we'll call up 20 again.

04 05 42 12 LMP It's been looking right at it, I guess, huh?

04 05 42 56 LMP Son of a gun, it did it again.

04 05 43 49 CDR Oh, sh - Reject that there.

04 05 44 04 CDR How about some fruit cocktail? Does that sound good?

04 05 44 09 LMP I'd love some.

04 05 44 23 LMP There's - there's a mark, Tom.

04 05 44 28 CMP Are you guys looking directly at me? Over.

04 05 44 30 LMP That's affirm. We're tracking on you now, John.

04 05 44 34 CMP Roger. I'm checking my lights.

04 05 44 42 LMP Tom, do I put it in Z-axis track here, or do you know?

04 05 44 45 CDR Go ahead, go ahead.

04 05 44 46 LMP Or do I take it out?

04 05 44 47 CDR Go to PGNS and AUTO.

04 05 44 49 LMP Okay. PGNS?

04 05 44 50 CDR You can track him in Z-axis.

04 05 45 06 LMP John, we're looking at 130 - almost 35 miles and 305 feet per second. Look at that.

04 05 45 15 CDR Look at that fuel go.

04 05 45 16 CMP I copy 1339 0276.

04 05 45 20 LMP Oh, man, you're right on the noggin.

04 05 45 23 CMP ...

04 05 45 28 LMP We got - we got one horrendous update about the first mark, and then that's it, and everything is like 0.1 foot per second.

04 05 45 37 CMP That's beautiful.

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- 04 05 45 43 LMP That Z-axis tracking puts you right on the old money. Have you got your flashing light on?
- 04 05 45 51 CMP Yes, ...
- 04 05 45 52 CDR I don't think he can see us.
- 04 05 45 54 LMP I don't think we can see that far - there's a little reflected light, but I don't - I don't think we can see it. Let me see that god-dang Hasselblad. I'm so fed up with the god-dang --
- 04 05 46 05 CDR You can't do a thing, babe. It's burned out. Absolutely, the batteries went dead. I took the batt -
- 04 05 46 10 LMP Maybe it would work with the backup.
- 04 05 46 11 CDR No, shit, it went dead, and I switched the batteries around --
- 04 05 46 13 LMP You switched batteries?
- 04 05 46 14 CDR You bet your life. I'm not going to hear you and the ground go "u-n-n-h," then "u-n-n-gh."
- 04 05 46 18 LMP Hey, John, would you believe that Tom's Hasselblad went completely out after all the Mickey Mouse of trying to get backs to work? And then my sequence camera has two packs that you have to jam in, twist, and turn before they'll work, and when you're trying to do it in a hurry, there ain't any way.
- 04 05 47 00 CMP Look, sunshine.
- 04 05 47 01 LMP We're in darkness yet, sort of. Hey, yes, we're in darkness yet, John. We're coming up on sunrise.
- 04 05 47 28 LMP Tom, let's take what pictures we can with this sequence camera.
- 04 05 47 30 CDR Yes.
- 04 05 48 11 CDR You got it open wide?
- 04 05 48 14 LMP Yes, part way. Let me open it some more.
- 04 05 48 16 CDR It's awful dark down there.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 5

- 04 05 49 17 LMP I felt like we could have got out and walked, you know it?
- 04 05 49 20 CDR Yes.
- 04 05 49 42 CDR Gee, I'm sure glad we had every bit of - of simulator time we've had.
- 04 05 49 48 LMP You bet. Okay. How does that look? 102:55. Okay, that's good.
- 04 05 50 13 LMP Oh, there's that central peak, babe --
- 04 05 50 14 CDR What one?
- 04 05 50 15 LMP I'm trying to figure out where we're coming in.
- 04 05 50 30 LMP How about minus 0183.2? That look good?
- 04 05 50 38 CDR Yes. It's retrograde and up.
- 04 05 50 46 LMP Okay. How's that look? Okay?
- 04 05 50 55 CDR Yes. Leave about a 9 by 43 on the board.
- 04 05 51 03 LMP 220.9 should be the total. How come we're tracking him upside down?
- 04 05 51 14 CDR That's why we ended up started. Proceed.
- 04 05 51 20 LMP That's good. I don't have much film, babe. I want to take some of it coming back down.
- 04 05 51 30 CDR Yes.
- 04 05 51 31 LMP Oh, that's great, babe.
- 04 05 51 54 LMP One more big burn, and then it's like Gemini.
- 04 05 51 57 CDR Yes. Like in the old days, Gene-o.
- 04 05 52 00 CMP You guys did good, man. You're just great!
- 04 05 52 05 CDR What did he say?
- 04 05 52 08 CMP John, just wait there for us.

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- 04 05 52 12 CMP That machine of yours is working pretty good, too,
ain't it?
- 04 05 52 13 CDR Yes.
- 04 05 52 14 LMP Sure is.
- 04 05 52 15 CDR Hey, do you still - 46.2 by 103. That's good.
- 04 05 52 19 CMP Say again. Over.
- 04 05 52 21 CDR Okay. How did your VHF ranging work, John?
- 04 05 52 23 CMP I have 130.5 by 3, by 2, by --
- 04 05 52 26 LMP My God, look at that! That's great!
- 04 05 52 28 CDR Beautiful. Beautiful.
- 04 05 52 31 CMP That's incredible.
- 04 05 52 32 CDR Yes.
- 04 05 52 42 CDR John, you can't believe these thrusters in here.
It sounds like somebody pounding on the side of a
garbage can. The whole thing creaks and moans.
- 04 05 52 50 CMP It what?
- 04 05 52 52 LMP It's not a dull thud, like it is in the command module.
It's like a big garbage can you're standing in the mid-
dle of and someone's banging on the lid.
- 04 05 53 00 CMP Oh, boy, ... that sounds real bad.
- 04 05 53 04 LMP Thank you, sir. I appreciate that.
- 04 05 53 07 CDR Here, we got to get some food, because it's going
to get busy again.
- 04 05 53 11 CMP That's what it sounded like to me ... Man, this
lunar surface is ... bunch of craters.
- 04 05 53 20 CDR Yes.
- 04 05 53 23 CMP ... I feel like I was there with you.
- 04 05 53 25 CDR Yes.

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- 04 05 53 27 CMP I was getting a vicarious thrill by watching you guys do the ...
- 04 05 53 33 CDR Yes. We were right down there among them. Hey - -
- 04 05 53 35 CMP I could see that.
- 04 05 53 36 CDR -- Hey, that new white crater - you know, Censorinus A, that Jack's interested in?
- 04 05 53 40 CMP Yes.
- 04 05 53 41 CDR That thing has big white and black boulders, both on the inside and outside, and I mean they are huge. I'd estimate it'd be 80 to 100 feet in diameter, those boulders.
- 04 05 53 52 CMP Did you give a description of DELTA-V's and times?
- 04 05 53 53 LMP No, but I will. You want them?
- 04 05 53 59 CMP Yes.
- 04 05 54 01 LMP 102:55:01.40.
- 04 05 54 10 CMP Go ahead ...
- 04 05 54 15 LMP Oh, DELTA-V, NOUN 81, is minus 0183.2.
- 04 05 54 23 CMP Okay.
- 04 05 54 24 LMP Plus all balls and minus 0123.5.
- 04 05 54 34 CMP Roger. Mine is 183, plus 0.2, plus all balls, and minus 0122.5.
- 04 05 54 42 LMP Right. Minus 123.5.
- 04 05 54 47 CMP And 102:55:01.40.
- 04 05 54 51 LMP That's it, John. Do you have the CSI time that they gave us originally?
- 04 05 55 02 CMP Negative. Over. I need the CSI and CDH time; CSI and TPI time.
- 04 05 55 10 LMP Okay. The original one was - CSI is 103:45:34.

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~~CONFIDENTIAL~~

04 05 55 19 CMP Okay.

04 05 55 20 LMP TPI is 105:21:01.

04 05 55 27 CMP Okay.

04 05 55 30 LMP Alright?

04 05 55 32 CMP Got them.

04 05 55 33 LMP How is our home up there?

04 05 55 35 CMP It's too roomy for me.

04 05 55 47 LMP Hey, Tom, we're - we're in fatsville on fuel so far. That's good.

04 05 55 51 CDR Well, you have to go ...

04 05 55 58 LMP What are you using for a garbage can? This thing right here?

04 05 56 03 CDR That's a good place.

04 05 56 07 LMP Top - top row would be a good garbage can.

04 05 56 09 CDR Yes.

04 05 56 20 SC (Coughing)

04 05 56 30 LMP I told Jack that we were going to get a 70-millimeter filmstrip of this back here but, babe, there's no way. We don't - The whole damn 70-millimeter camera quit, and two 16-millimeter film packs may or may not work. One happens to be the interior film.

04 05 56 49 CMP I'm with you, babe. I tell you, I've been so busy I wouldn't know if there's any ... down there or not. I might as well be back in the simulator.

04 05 56 57 CDR It's about the same here.

04 05 56 59 LMP I think you're with us.

04 05 58 06 LMP That damn star - star is right smack in the center of that mother, babe. Right smack in the center. And your COAS came out good, huh?

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

- 04 05 58 15 CDR Yes. A third of a degree down.
- 04 05 58 18 LMP Boy. I tell you, I was worried when we didn't have radar to start this whole thing.
- 04 05 58 23 CMP Yes. Me, too. Boy, I ... really sound good. ... right in the ..., I'm sure.
- 04 05 58 35 LMP Probably is, John. We're reading 100 and oh - I guess --
- 04 05 58 38 CDR/LMP 158 miles.
- 04 05 58 51 CDR How are our ascent batteries? We got plenty - Are they off the line? We've got plenty of them?
- 04 05 58 57 LMP They're back off. We've got 35 volts in them. 34 in one and 35 in the other.
- 04 05 59 14 LMP Got one big thing to go - two big things - staging and insertion.
- 04 05 59 25 LMP I'll tell you one thing, John. I feel more at home standing up in here than I do laying down in there. I never did understand that.
- 04 05 59 32 CMP Roger, Gene.
- 04 05 59 47 LMP I believe you could really go down and land with this bear.
- 04 05 59 51 CMP I'm sure ...
- 04 05 59 57 LMP I think Tom and I were surprised. Weren't you, Tom? It is - it looks a lot smoother down there than I first thought.
- 04 06 00 40 LMP That pisses me off so much that that camera failed, Tom.
- 04 06 00 42 CDR Yes.
- 04 06 00 43 LMP You changed the batteries and everything in that. God! We ought to have someone's ass. And I know these film packs are not tried individually on the camera.
- 04 06 01 21 LMP I guess we's going to go nice and high. Hey, we just pegged our range-rate meter.

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04 06 01 25 CDR Yes.

04 06 01 31 LMP That's where to stop, by the way.

04 06 01 34 CDR ... for your auxiliaries. Beautiful. Okay.

04 06 01 46 CMP ... That ain't bad.

04 06 01 51 CDR Okay. What do you want to do now?

04 06 01 53 LMP RENDEZVOUS RADAR breaker, OPEN?

04 06 01 55 CDR Okay.

04 06 01 57 LMP Yes, go to AUTO. RENDEZVOUS RADAR breaker, OPEN?

04 06 02 00 CDR Yes.

04 06 02 01 LMP AC BUS breaker, OPEN?

04 06 02 02 CDR Yes.

04 06 02 11 LMP Knock minus 40 minutes. I can't see that. I'll start - I'll connect the ascent batteries; start working on that.

04 06 02 24 CDR ...

04 06 02 37 LMP Sure be nice to know where the hell we are.

04 06 03 20 CDR Want us to turn over?

04 06 03 22 LMP Can you read that clock up there, Tom? Insertion minus what?

04 06 03 27 CDR 51.

04 06 03 28 LMP Huh?

04 06 03 30 CDR 51.

04 06 03 31 LMP 50.

04 06 04 06 CMP Boy, if this thing isn't working like a charm!
It's beautiful.

04 06 04 33 LMP I'm glad to hear that.

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04 06 04 35 CDR ...
04 06 04 36 CMP You know, it's ... You look like a bright star.
04 06 04 42 LMP Where - where are we?
04 06 04 43 CDR We're up above him. Until we roll.
04 06 04 45 LMP Oh, we're up above you, that's right.
04 06 04 47 CDR Yes.
04 06 04 48 LMP We're up --
04 06 04 49 CMP You're up above at 201 miles. Man, this is good visibility. I mean to tell you.
04 06 05 02 CDR You want some grapejuice? You want some --
04 06 05 06 LMP I know where we are. No, I don't want anymore, Tom.
04 06 05 23 LMP I bet we could see him if - if - if we were looking a little while ago. No, I guess not.
04 06 05 28 CDR No.
04 06 05 37 LMP I know where we are, though, babe.
04 06 05 40 CDR Great.
04 06 05 41 LMP Right here.
04 06 05 42 CDR Let me get this food squared away.
04 06 05 46 LMP We're right here. I got these all picked out. This one, this one, this one; we're right here. And John, we're about going over the top of 297; that's at 150 east.
04 06 06 02 CMP Roger. Gene-o, these things - these things don't operate like - out in frigging space like the simulator does.
04 06 06 15 CDR Where are we at?
04 06 06 18 LMP Where's that monocular, Tom?
04 06 06 21 CDR Shoot!

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Day 5

~~CONFIDENTIAL~~

Page 239

04 06 06 22 LMP God! I wish we had a camera.
04 06 06 35 CDR Well, I don't know.
04 06 06 38 LMP In your purse?
04 06 06 41 CDR We went into the heat of battle trying to get that camera. Here.
04 06 06 51 LMP Thank you, sir.
04 06 07 11 CMP I tried ... you guys ... trunnion angle, now. This is just a beautiful day.
04 06 07 18 CDR Well, we were saying --
04 06 07 19 LMP Here's exactly where we are. Right here. Over on your side, you ought to have XIV, Tom. Big, big, big crater.
04 06 07 31 CDR Got it.
04 06 07 32 LMP You got it?
04 06 07 33 CDR Yes.
04 06 07 36 LMP Yes, there it is, I see it from here.
04 06 07 50 CDR Hey, why don't we pitch around for it? Okay.
04 06 07 52 LMP And we don't have a god-danged 70-millimeter to shoot this with. That -
04 06 08 05 CDR Let's see, we want to be tracking him later on, don't we?
04 06 08 10 LMP Yes, at minus 36 minutes, we track him again, so we might just as well pitch down a little bit.
04 06 08 15 CDR Yes, we'll pitch down and -
04 06 08 18 LMP Roll over?
04 06 08 19 CDR Yes.
04 06 08 20 IMP (Coughing) Yes, that'd be better. Watch that roll on the 8-ball, though.
04 06 08 29 CDR Yes, yes.

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- 04 06 08 39 CDR You want a brownie?
- 04 06 08 42 LMP God, you're just all full of good food today.
Thank you.
- 04 06 08 51 CDR We've been busy, Gene-o. In darkness, time goes fast (laughter).
- 04 06 08 54 LMP I'm not sure whether water's better in here or not. Did you see this? I'm going to take that back and give it to Jack.
- 04 06 09 04 CDR Yes.
- 04 06 09 08 CMP What did you guys do - pick up a rock?
- 04 06 09 10 LMP No, this is Jack Lousma. I've got a United States Marine Corps big gold and blue and red emblem on my armrest.
- 04 06 10 08 CDR We're coming straight down. There's Jack's crater again (laughter).
- 04 06 10 35 CDR Okay. You want to track José -
- 04 06 10 44 LMP Won't take so long to bring it up, when we do it next time.
- 04 06 10 57 CDR There's that one crater I shot so many times, that's got boulders on it? You see it? It's the little volcanic one, right there. See that rascal?
- 04 06 11 06 LMP Yes. Now, why don't you pitch up a sukosh? Here, let me see if the - Oh, I was going to see the AGS to find out where you are, but -
- 04 06 11 17 CDR Yes, go ahead.
- 04 06 11 20 LMP I will. Wait a minute until I finish this.
- 04 06 11 21 CDR I'm in mode - I'm in PULSE. Go ahead.
- 04 06 11 27 LMP Okay.
- 04 06 11 32 CDR AGS. Computer.
- 04 06 11 37 LMP Yes, there you go. There's this big one right down here. XV.

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04 06 11 59 LMP You know, if your eyes were a photograph, it'd be great.

04 06 12 03 CDR I'm going to lock on. There's our landing radar.

04 06 12 05 LMP There's -

04 06 12 08 CDR She's 50 degrees.

04 06 12 17 LMP You really have to be careful with this film, when you don't have any left. There's the one Jack marked that he wants. I'll get it for him.

04 06 12 43 CDR Hey, when do we fire the helium tanks? ...

04 06 12 47 LMP Not yet, babe.

04 06 12 53 CDR You want some more brownies?

04 06 12 54 LMP No.

04 06 12 56 CDR ... go hungry.

04 06 13 02 LMP That music even sounds outer-spacy, doesn't it? You hear that? That whistling sound?

04 06 13 06 CDR Yes.

04 06 13 07 LMP Whoooooo. Say your - -

04 06 13 12 CMP Did you hear that whistling sound, too?

04 06 13 14 LMP Yes. Sounds like - you know, outer-space-type music.

04 06 13 18 CMP I wonder what it is.

04 06 13 20 LMP Hey, Tom. Is your - is your insulation all burned off here, on the front side of your window over here? Right - -

04 06 13 27 CDR Yes.

04 06 13 29 LMP Mine's all burned off. Isn't that weird - eerie, John?

04 06 13 34 CMP Yes, I got it, too. ... and see who was outside.

04 06 13 45 CDR You mark that set of features, Gene-o. I'm going to fix us some grapejuice. Okay?

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Day 5

- 04 06 14 10 CMP Okay, man. I've got you 269 miles over the ...
Man, that's ..., that's just fabulous.
- 04 06 14 21 LMP ... into LGC.
- 04 06 14 24 CMP Roger. I'm ...
- 04 06 14 37 LMP There's the one Jack wants a picture of, over there.
I'll get that one for him with this camera. Yes, these
pictures that Orbiter took are fantastic.
- 04 06 15 30 CDR Bet I'm locked on a side lobe.
- 04 06 16 50 LMP Yes, we sure is getting high.
- 04 06 16 54 CMP Yes. 286 miles. Oh, this radar is ... great.
- 04 06 17 02 CDR Yes. I got it.
- 04 06 17 05 CMP It's going to go right out to 310 miles. Just like
we said.
- 04 06 17 07 LMP Is it really?
- 04 06 17 09 CMP Yes. I'll tell you when you get to 297. You don't -
you don't know when AOS is ..., do you?
- 04 06 17 22 LMP Yes, I've got it written down. AOS for us is
102:25 (cough).
- 04 06 17 28 CMP It's 102:21 for me.
- 04 06 17 32 LMP Okay. 40 minutes, babe. I got to connect the
ascent batteries.
- 04 06 17 38 CDR Okay.
- 04 06 17 47 LMP Okay. Stand by BAT's 1 and 3, HIGH VOLTAGE, OFF/
RESET. BAT's 1 -
- 04 06 17 56 CDR 2.
- 04 06 17 58 LMP Boy, that sure is weird music.
- 04 06 18 01 CMP We're going to have to find out about that. Nobody
will believe us.
- 04 06 18 07 LMP Yes. It's a whistling, you know, like an outer-space-
type thing.

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Day 5

~~CONFIDENTIAL~~

Page 243

04 06 18 10 CMP Yes. ... VHF A ...
04 06 18 16 LMP Yes. I wouldn't believe there's anyone out there.
Okay, Tom, I'm going to call up P20.
04 06 18 26 LMP We want to pressurize our APS here. You got your
RENDEZVOUS RADAR breakers all IN?
04 06 18 29 CDR Oh, yes. I'm locked on to him.
04 06 18 31 LMP Okay.
04 06 18 42 CDR There may be a side lobe.
04 06 19 01 CDR It's weird, isn't it?
04 06 19 03 LMP Isn't that weird?
04 06 19 11 CDR I think that's a side lobe.
04 06 19 15 LMP Is it? Huh?
04 06 19 17 CDR Yes.
04 06 20 02 LMP See what happens now.
04 06 20 28 LMP It ain't doing, babe. Why don't you go ahead and
lock on by yourself again?
04 06 21 05 LMP Shit, why don't you find them? Well, let me - let me do
it this way, see whether it will find them. We got to
get going here, we got to pressurize and everything.
04 06 21 14 CDR Yes, I know it.
04 06 21 34 CDR P20 doesn't work worth a darn.
04 06 21 40 LMP Tom, why don't you get them manually?
04 06 21 45 CDR Okay. Okay, let's go up to P00, huh?
04 06 21 50 LMP Pick them up manually.
04 06 21 51 CDR AGS.
04 06 22 13 CDR ... P20.
04 06 22 26 CDR That's where the AGS says he is, right?

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04 06 22 29 LMP That's where the AGS says he is.

04 06 22 31 CDR You're DEADBAND, MIN?

04 06 22 33 LMP Yes. The AGS is pretty good. Its state vector's updated.

04 06 22 39 CDR Boy, this is - this is lots more sensitive than the simulator. DEADBAND, MIN? Okay.

04 06 22 44 CMP I've got them at 316.45 miles on the radar.

04 09 32 01 LMP Okay, you're reading ...

04 09 32 05 CDR ...

04 09 32 09 LMP Right on them?

04 09 32 14 SC ...

04 09 32 30 LMP Yes. We're done burning. ... we got radar ...

04 09 36 01 CDR I don't know.

04 09 36 03 LMP Why not? Bang! Bang! Bang!

04 09 36 45 CDR Okay, we're going to ...

04 09 36 57 LMP ... 1.0 and 1.5.

04 09 36 59 CDR Okay. Where do our ...?

04 09 37 04 LMP ... zero, minus 0.4 and plus 1.2.

04 09 37 50 LMP ... minus 15? ...

04 09 37 56 CDR Yes, we got ...

04 09 39 44 IMP Okay, on the clock, it says, Tom.

04 09 40 03 LMP Sure getting warm in here.

04 09 41 16 LMP We're coming around the site, babe. Coming right up the site.

04 09 41 58 IMP Looks pretty good.

04 09 42 01 CDR A little out of plane, though.

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04 09 42 21 LMP There's really very little air in this water now,
you know it?

04 09 42 28 CDR You can really see those ...

04 09 43 13 LMP ... 106:19, huh? Sun ... bright.

04 09 43 33 LMP 24, Tom, I need a backup ...

04 09 43 35 CDR Here you go.

04 09 43 40 LMP 27 on that clock, we'll hit final ...

04 09 44 07 CMP That's right.

04 09 44 14 CDR Yes.

04 09 44 15 LMP We got you, John.

04 09 44 16 CDR Did you switch to a sun attitude, babe?

04 09 44 17 LMP No, he - he went into sunrise.

04 09 44 18 CDR Oh, ... into sunrise. We really got it down. Got
you down at about 58 000 feet and 74 feet per second.

04 09 44 38 CMP You guys just - are still in the darkness ...

04 09 44 43 CDR Yes, ...

04 09 44 50 CDR Babe, I'm sure glad we --

04 09 44 53 LMP ..., I tell you.

04 09 44 55 CDR -- I'm sure glad you guys made ...

04 09 45 03 CMP Look at that ... crap I had. Where ...

04 09 45 15 LMP My nose is so stuffed - my sinus and nose are so
stuffed ...

04 09 45 19 CDR What do you think to build up ...?

04 09 45 21 LMP I think 500 ...

04 09 45 29 CMP I've got the ...

04 09 45 31 CDR Say again.

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04 09 45 32 CMP ... the tunnel.

04 09 45 33 CDR Okay.

04 09 45 37 CMP ... I see the ... no good.

04 09 45 42 CDR Is that right?

04 09 45 43 LMP ... are no good, huh?

04 09 46 08 CDR I tell you, John, ... plane.

04 09 46 32 LMP 24 minutes, John.

04 09 46 34 CDR Pretty good. It looks like it's gotten a little out of plane, though.

04 09 46 38 LMP You can't even see through your ...

04 09 46 40 CDR ... coming up ...

04 09 46 42 LMP ... give it to me on your radar needle ...

04 09 46 50 CDR ... coming up ...

04 09 46 58 LMP What do you call that?

04 09 46 59 CDR I don't know.

04 09 47 00 LMP Where is it? Give me a range ...

04 09 47 08 CDR Range is 37 500. ...

04 09 47 30 CDR ...

04 09 47 32 LMP Yes, I think it's ... You're coming right up the flight path. ... Range rate ... nominal, here. Yes, ... coming right up with you.

04 09 49 29 CDR Well, it's about ... we don't have any ...

04 09 49 37 LMP They're there, though, aren't they? You've got to give credit. That simulator ... pretty fantastic. ...

04 09 50 01 LMP Okay, Tom, I need - I need a mark of range - range rate. At 28 minutes ...

04 09 50 57 LMP Okay. Range to range rate.

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Day 5

~~CONFIDENTIAL~~

Page 247

04 09 50 59 CDR Range 34 000 ...
04 09 51 05 CMP ...
04 09 51 12 LMP ...
04 09 51 35 CDR There it is. ...
04 09 51 41 LMP ..., babe, I - I can't get anything out of this.
04 09 51 44 CDR You're out of plane.
04 09 51 45 LMP Okay.
04 09 51 47 CDR ...
04 09 51 52 CMP Okay. I got plus ..., minus ..., and plus ...
04 09 52 00 LMP What was the last number?
04 09 52 03 CMP Plus 3.0.
04 09 52 06 LMP Okay, we'll burn ours. We got the same out of plane
you did, John. So ...
04 09 52 11 CDR ... ready?
04 09 52 12 LMP Yes.
04 09 52 13 CDR Okay. You got that?
04 09 52 22 LMP John, we're going to burn minus 0.8, plus 1.5, and
minus 0.7.
04 09 52 29 CMP Okay, Gene-o.
04 09 52 30 CMP Okay.
04 09 52 46 CMP ...
04 09 52 53 CDR Okay.
04 09 52 54 LMP Did you get that, John?
04 09 52 57 CMP Minus 0.8, plus 1.5, minus 0.7.
04 09 53 01 LMP That's right.

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04 09 53 07 LMP Okay, we're burning.

04 09 53 18 LMP ... CLOSE. That's it right there.

04 09 53 33 CMP ...

04 09 53 35 CDR ...

04 09 53 36 LMP We're going.

04 09 53 51 CDR ...

04 09 54 09 LMP There it is, Tom. 4.14 miles and 44 feet per second, raw data.

04 09 54 14 CDR John, you're so close to the sun ... can barely see you.

04 09 54 19 LMP Yes, I can see it real well out of here.

04 09 54 32 CMP I got 3.9 ... miles on ...

04 09 54 36 CDR Roger. 3.95 - 94.

04 09 54 40 CMP Roger.

04 09 54 41 LMP John, we're coming right up the ... right up the middle.

04 09 55 08 CDR ...

04 09 55 21 CDR Say at 22 000 feet. ... looking great.

04 09 55 45 LMP Hey, John, it's hard to believe that all this stuff works and all this orbital mechanics. But, by golly, I can see you.

04 09 55 57 LMP 3.4 miles and 40 feet per second.

04 09 56 02 CDR You've still got ...

04 09 56 04 LMP Oh, yes.

04 09 56 05 CDR ...

04 09 56 07 LMP ..., Tom.

04 09 56 20 LMP What do I got to hit?

04 09 56 22 CDR ...

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Day 5

~~CONFIDENTIAL~~

Page 249

04 09 56 30 CMP Oh-ho, I see you!

04 09 56 38 CDR Roger.

04 09 56 40 CMP ...

04 09 56 43 CDR It's looking good here, John, babe. I can't get over how loud these systems are. It's like you really had ... COMM. The whole thing gets ...

04 09 57 16 LMP ...

04 09 57 28 CMP Hey! You know what? It's really coming right up the old pike.

04 09 57 32 LMP Yes.

04 09 57 33 CDR Yes, I think we're there, John.

04 09 57 37 CMP Hell, yes.

04 09 57 38 CDR Yes. (Laughter) We've got to get ... but we'll make it.

04 09 57 43 LMP Hey, babe, I - I ain't doing EVA. I don't want to do EVA anymore.

04 09 57 47 CMP Yes.

04 09 57 51 LMP I kidded myself enough one time. I don't want to do that again.

04 09 58 00 CMP Man, you are coming down fine.

04 09 58 03 CDR Looking good, José.

04 09 58 04 CMP You're inside the cotton-picking lines on the COAS.

04 09 58 16 CDR ...

04 09 58 20 CMP Beautiful! I've never seen one like this. Looks like ... something else.

04 09 58 23 CDR How about that? This is the first time I looked ...

04 09 58 49 CDR ... it's there, baby.

04 09 59 11 CMP 2.18, Tom?

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04 09 59 13 CDR Not bad, 2.20.

04 09 59 14 LMP 2.20 and 35 feet per second.

04 09 59 28 LMP Coming up ... to about 100 degrees. ...

04 09 59 32 CMP Roger. Up what?

04 09 59 41 LMP ... 100 degrees - -

04 09 59 42 CDR Yes, I wonder if the band is ...

04 09 59 48 CMP I don't know, you got to watch this ...

04 09 59 56 CDR You can't believe how much this thing slews before it pulses, John. Just fantastic.

04 10 00 03 LMP ... trying to align that platform, John; it's really fantastic. You know, bang, bang, bang, you get - When it's heavy, it's manageable, but when it's light, it's a real bear.

04 10 00 12 CMP I got you going ...

04 10 00 14 CDR Yes, yes, a little bit. Okay, we're at 12 000 ...

04 10 00 21 CMP Got 2.79 miles at ... per second.

04 10 00 26 LMP Agreed.

04 10 00 28 CMP ...

04 10 00 31 LMP Right with me.

04 10 00 32 CDR ...

04 10 00 49 LMP ... right with 30 feet per second at a mile.

04 10 00 50 CDR, John.

04 10 01 02 LMP Ours may have been - not been on the television, but ... did alright on the radar.

04 10 01 44 LMP Boy, you sure did roll up there.

04 10 01 49 CDR Did you see our thruster firing, John?

04 10 01 54 CMP Not very well.

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Day 5

~~CONFIDENTIAL~~

Page 251

04 10 01 55 LMP Hey, John, you're really glowing, but we can see your
flashing light above the glow. You can turn it off
anytime.

04 10 02 00 CMP ...

04 10 02 07 CDR Okay, coming through to 7000 feet.

04 10 02 11 LMP Go ahead, Tom; you're not even going to have to ...

04 10 02 13 CDR We're going to hold off ...

04 10 02 16 CMP Roger.

04 10 02 44 LMP We really ... align the platform. We need a big ...
We got to ...

04 10 02 47 CDR ...

04 10 02 51 LMP ...

04 10 02 58 CDR Okay, at 1 mile I'm going to lead you a little bit out
..., babe, ... half mile ... go into the elliptical.

04 10 03 26 LMP You can't keep this thing from wandering, you know.
It wanders all over the place.

04 10 03 30 CDR ... little out of plane ... to my left, ... your
right, John.

04 10 03 45 CMP Right. Looks good to me.

04 10 03 51 CDR ...

04 10 04 00 CMP ... now, because we're going to come up with a ... --

04 10 04 03 CDR Okay, that's what it ... Okay. That's good.

04 10 04 13 CMP 291 - 126; that's enough, Tom.

04 10 04 33 CDR John, ...

04 10 04 38 CMP Okay, that's 0.48 miles and 21 feet per second.

04 10 04 48 CDR Okay, we're now in ..., babe. Okay. A quarter
mile and ...

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Day 5

- 04 10 05 04 LMP Okay, 1500 feet and 0.25 miles. There he is, babe!
There he is.
- 04 10 05 16 CMP I got you ...
- 04 10 05 17 LMP Yes. Now we got 0.35, 0.34.
- 04 10 05 33 LMP Okay, John, you can start knocking it off and you're
at 10 feet per second.
- 04 10 05 37 CDR ...
- 04 10 05 44 LMP There's 18, keep going, 16, 15 -
- 04 10 05 53 CDR ...
- 04 10 05 59 LMP A quarter mile and 10 feet per second. You look
good to us, babe; you look good to us.
- 04 10 06 12 LMP You must be upside down, your high-gain antenna is
on the other side.
- 04 10 06 16 CMP You must be upside down, your high-gain antenna is
on the bottom.
- 04 10 06 23 LMP Okay, we're coming up at a thousand feet, ... At
500, we want to knock it off to 5.
- 04 10 06 29 CDR That thing's so bright I can't believe it, John.
- 04 10 06 33 CMP You ... me, Tom?
- 04 10 06 34 LMP ... on top of you.
- 04 10 06 42 LMP Okay, that's 930 feet. 930 - we got 10 feet per second.
- 04 10 06 48 CMP I'm showing ... 600.
- 04 10 06 50 LMP Okay, we want to try knocking that off to 5, ...
- 04 10 06 58 CDR ...
- 04 10 07 06 LMP What happened?
- 04 10 07 07 CDR ...
- 04 10 07 11 LMP Okay, 7 feet per second - 6 feet per second -

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Day 5

~~CONFIDENTIAL~~

Page 253

- 04 10 07 20 CMP Okay, I'm showing 6.2 feet per second, 420 feet.
- 04 10 07 26 CDR Showing ...
- 04 10 07 30 LMP Okay, you got 6 feet per second, Tom. Still looking at 6 feet per second - 5 feet per second.
- 04 10 07 42 CMP Showing 240 feet.
- 04 10 07 43 LMP Want to wall it off now, babe. 3 feet per second.
Still --
- 04 10 07 52 CMP Okay.
- 04 10 07 53 LMP -- still moving in on him.
- 04 10 07 54 CMP ...
- 04 10 08 01 LMP You got 4 feet per second, closing -
- 04 10 08 06 CMP At 190 feet out.
- 04 10 08 13 LMP 3 feet per second closing - 3, closing -
- 04 10 08 26 CDR I think we've got everything under control.
- 04 10 08 30 CMP I believe so ... about 180 feet out. ... Isn't that incredible?
- 04 10 08 38 LMP Hey, we're showing just like the simulator, a little bit more than you. We're showing about 350.
- 04 10 08 46 CMP ...
- 04 10 08 51 LMP We've got 3 feet per second, John.
- 04 10 08 59 CDR ... 50 percent on ...
- 04 10 09 16 CDR Think we're about in there, babe.
- 04 10 10 43 CDR ...
- 04 10 10 47 CMP ...
- 04 10 10 58 LMP Boy, ... that probe ... Boy!
- 04 10 11 18 LMP Looks like we're about there, John.
- 04 10 11 21 CMP Yes

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04 10 11 24 LMP Hey, John; you want to go to VHF A SIMPLEX?

04 10 11 33 LMP Hey, John.

04 10 11 35 CDR Hey, why don't we --

04 10 11 36 CMP What for?

04 10 11 38 LMP Okay, because you weren't straightened out, let's stay where we are, that's alright, ... straightened out coming in.

04 10 11 42 CDR Okay, John - you want me to pitch down 90?

04 10 11 44 CMP Yes. Pitch down 90.

04 10 11 48 CDR Okay, we're at ... and pitch down to 135.

04 10 12 07 CDR Good show!

04 10 12 08 LMP Yes. Okay, I'll try and get mine on. Huh?

04 10 12 16 CDR Yes.

04 10 12 27 LMP Let me get the radar out of the way first, by golly.

04 10 12 28 CDR You have ... on.

04 10 12 29 LMP No, they're not - they're not - ...

04 10 12 34 CDR ... always turned it off.

04 10 12 36 LMP No. Put it back on.

04 10 12 39 CMP Okay. I'm about ready to tie on ... Turn off your radar ..., please.

04 10 12 47 LMP Yes, let me get it out of the way.

04 10 12 49 CDR Okay. Just ...

04 10 12 52 CMP Okay. I'm ready to dock.

04 10 12 55 CDR Okay, I'm going to - ... to ATTITUDE HOLD.

04 10 13 02 LMP ... out of the way, Tom. ... Somewhere around zero and 325, if you can get it.

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04 10 13 23 CDR What was that?
04 10 13 26 LMP Zero and 325. ...
04 10 13 31 CMP Okay, Tom; ... and then optical. It's right in the middle.
04 10 13 37 CDR Okay, stand by. Okay, I'm going ...
04 10 13 48 LMP Okay.
04 10 13 49 CMP ...
04 10 13 52 CDR If you can, get this radar out --
04 10 13 53 LMP Okay. I got it out of the way now.
04 10 13 58 CMP ...
04 10 14 02 CDR ..., John.
04 10 14 03 LMP Okay, you let me ... yaw.
04 10 14 06 CDR Okay, ..., babe. Get it?
04 10 14 11 LMP Yes.
04 10 14 33 CDR Okay.
04 10 14 38 LMP ... breaker.
04 10 14 40 CMP We'll make it.
04 10 14 42 CDR Now. Now, just slowly yaw, ...
04 10 14 46 CMP Okay.
04 10 15 00 CDR You want to yaw and then pulse it?
04 10 15 02 CMP No, that's fine.
04 10 15 04 CDR ...
04 10 15 06 CMP Yes. Pitch up enough?
04 10 15 08 CDR Yes. ...
04 10 15 13 CMP Yes.

~~CONFIDENTIAL~~

Day 5

Page 256

~~CONFIDENTIAL~~

- 04 10 15 28 CMP You're gaining more.
- 04 10 15 32 CDR Have you got that, John? Pitch --
- 04 10 15 34 CMP Pitch and roll to the - right - ...
- 04 10 15 37 CDR Rolling right - rolling right, too.
- 04 10 15 48 CMP Alrighty.
- 04 10 15 58 CDR José, how are you doing?
- 04 10 16 03 CMP Just a second.
- 04 10 16 05 LMP ..., Tom?
- 04 10 16 09 CMP Tell you what I'm going to do, T.P. I'm going to roll to the right.
- 04 10 16 16 CDR Okay. Let her roll.
- 04 10 16 34 CMP Okay. Hold what you got. Real good.
- 04 10 16 42 CDR You going to go to ATTITUDE HOLD and tight deadband?
- 04 10 16 46 CMP I got it. That's enough. Can you pitch up some, Tom?
- 04 10 17 09 CDR Just slowly pitching up, now.
- 04 10 17 10 CMP Okay.
- 04 10 17 20 CMP Okay.
- 04 10 17 22 CDR Should I hold it there?
- 04 10 17 23 CMP Yes. ... come back ...
- 04 10 17 29 CDR Do what?
- 04 10 17 30 CMP It went back some.
- 04 10 17 31 CDR You want to pitch up some more?
- 04 10 17 32 CMP Yes.
- 04 10 17 44 CDR Okay. Tell me when, babe.
- 04 10 17 46 CMP That's enough.

~~CONFIDENTIAL~~

Day 5

~~CONFIDENTIAL~~

Page 257

04 10 17 52 CDR ...
04 10 17 53 CMP Yes.
04 10 18 15 CDR Check your ..., Gene-o.
04 10 18 21 LMP Okay.
04 10 18 33 LMP How can you see in that sun, babe?
04 10 18 35 CDR ...
04 10 18 47 CDR Looks like the - John, ..., okay?
04 10 18 50 CMP Okay.
04 10 19 02 CMP Yes. ...
04 10 19 03 CDR Okay. Do you want me to come back to you?
04 10 19 05 CMP Negative.
04 10 19 13 CDR So far, it looks good.
04 10 19 16 LMP Okay, Joe, we're about ready to dock. Stand by.
04 10 19 19 CDR Yes. Don't call us, we'll call you.
04 10 19 50 CDR Look at that roll. We're holding on the ...
04 10 19 54 CMP Yes.
04 10 19 56 CDR 0.3, babe.
04 10 19 57 CMP ...
04 10 20 02 CDR Okay, let's stand by to throw them.
04 10 20 09 CMP Give me a hack when you're getting close, will you?
04 10 20 12 CDR Okay, John, you're in to about 5 feet. Looking beautiful.
04 10 20 14 CMP Yes.
04 10 20 37 CMP Give me a hack.
04 10 20 38 CDR 5 - 4 feet away.

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04 10 20 46 CDR Keep them coming.

04 10 20 47 LMP How far?

04 10 20 48 CDR 2 feet.

04 11 30 34 SC No. What's that? That's -

04 11 30 54 CMP We lost him, babe.

04 11 33 04 LMP What the hell was that for? Okay. You want us to bring that son of a bitch back? ...

04 11 34 51 LMP ... What? That's what I tell him. You got to get on. They want us to be out of here in 15 minutes, so I don't know why you don't ...

04 11 35 26 LMP There ain't nothing going around this ...

04 11 36 13 CMP I'll get her to come on back ... Look out. There goes the bag.

04 11 37 08 CDR ...

04 11 37 11 CMP ...

04 11 37 14 CDR ...

04 11 37 18 CMP ... check by it. That's for the - you know, for the cockpit.

04 11 37 33 LMP ...

04 11 37 36 CDR Get John to do it. ...

04 11 37 40 CMP I tell you. Doesn't that get to you? You got the pyro's armed?

04 11 37 44 CDR Fixing to - just in a minute.

04 11 37 47 CMP Gosh!

04 11 37 48 LMP Come on down. Did you have to already?

04 11 37 55 CMP Not too ... You can't lift up the ...

04 11 38 18 LMP You don't think I feel good, kid. ... Starting to ...

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04 11 38 26 CMP ...
04 11 39 35 LMP Turn on the - turn on the tunnel light there. Turn
on the tunnel light. On, on.
04 11 41 45 CMP Watch the - watch the ...
04 11 42 29 CDR ... nice to get back to the ...
04 11 42 35 CMP Oh, ... believe, you can believe ...
04 11 42 53 CMP Well, I ... We should be ...
04 11 43 00 CDR Why don't we ...?
04 11 43 27 CDR Good show. ...
04 11 44 14 CDR ...
04 11 45 04 CMP Hey, Tom; ...
04 11 45 17 CMP I think that's a good idea.
04 11 45 21 CDR Huh?
04 11 45 24 CMP You think that's a good idea? Why don't you, Tom?
04 11 45 38 CMP I had an empty bag here, but you threw it away.
04 11 45 43 LMP ...
04 11 45 47 CMP God dang, son of a bitch!
04 11 45 48 CDR (Laughing) No. John, we're awfully glad to be
back, but we've got to reshuffle this shit here.
Got that ... barbecue ... barbecue.
04 11 46 02 LMP I thought they didn't want us to dump; they told
us to roll over, or some goddam thing! ... yaw.
Those bastards are going to kill us yet.
04 11 46 27 CDR ... This is ... Pitch down.
04 11 46 40 LMP Goddam ...
04 11 46 50 CDR ... get the ... Gene-o.

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Day 5

- 04 11 46 54 LMP ... Like we did before we get to that? ... Look at that ... Look at the ...
- 04 11 47 13 CDR ...
- 04 11 47 16 LMP ... by God ... a bad mistake. ... Shit, you got one more ... and then a burn and then you get it. I'm getting - I'm getting used to looking ... I'm going to put our lights out.
- 04 11 48 02 CDR You just wait and see if they're on SIMPLEX there before you turn --
- 04 11 48 05 CMP I might as well get off Mars with you birds. Okay, why didn't you get this verb right? How did you know ... the gimbal angles? Why didn't you get out? You son of a bitch, ... Why didn't you get out? Oh, shit, you got everything.
- 04 11 48 19 LMP If you know a way to talk - to avoid this communication, we won't --
- 04 11 48 22 CMP ...
- 04 11 48 24 LMP Because Tom didn't ...
- 04 11 48 26 CMP ..., Gene-o. ...
- 04 11 48 28 LMP That's alright.
- 04 11 48 30 CMP ...
- 04 11 48 36 LMP ...
- 04 11 48 37 CDR That place is ..., talking about the enlargement?
- 04 11 48 41 LMP Yes, we had a large (laughing) ... You're not kidding.
- 04 11 48 44 CDR Is that the one ... longitude north, gimbal drive, latitude north ... longitude north ...?
- 04 11 48 50 LMP Yes. Man, we had ... from now on.
- 04 11 48 57 CMP Well, in that case, you can close it as far as I'm concerned. You can close it ...
- 04 11 49 02 LMP Yes.

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Day 5

~~CONFIDENTIAL~~

Page 261

04 11 49 03 CMP ...
04 11 49 06 CDR You want to close the ...?
04 11 49 08 CMP Yes. You can close it now, yes.
04 11 49 09 CDR Where you want to put it? Off?
04 11 49 10 LMP ...
04 11 49 14 CDR ...
04 11 49 19 CMP ...
04 11 49 21 LMP What's AOS ...?
04 11 49 26 CMP ...
04 11 49 52 LMP We should be getting this optics ... Alright, John?
04 11 49 59 CMP ... I'm having a hard time closing the thing ... --
04 11 50 03 CDR John.
04 11 50 05 LMP You can close it, I guess.
04 11 50 07 CDR ... pitch down, yaw?
04 11 50 12 CMP ...
04 11 50 16 CDR This is where it's supposed to be, right? Now,
turn it down ... REPRESS, OFF. You want the CABIN
REPRESS, OFF? You want that ON or OFF?
04 11 50 34 CMP Let's see. No, leave it. That's the only one.
Leave that ON.
04 11 50 39 CDR CABIN REPRESS, ON?
04 11 50 41 CMP No. I told you. ...
04 11 50 44 LMP Leave it ON?
04 11 50 45 CDR It's ON.
04 11 51 09 LMP Would you believe I've still got this liquid-cooled
garment on?

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- 04 11 51 13 CDR What?
- 04 11 51 15 LMP Would you believe that? Would you believe ... instead of wondering where it should have been when I get up, ... on me?
- 04 11 51 25 CDR ... 12 hours without eating.
- 04 11 51 29 LMP ...
- 04 11 51 35 CDR ...
- 04 11 51 40 LMP I mean, what's the set pattern?
- 04 11 51 43 CDR It should be right down there, huh?
- 04 11 51 46 LMP Hey, it better be; because, otherwise, they're not going to acquire the LM.
- 04 11 51 51 CMP ... We'll have to separate from the IM. ...
- 04 11 51 54 CDR I'll tell you what let's do, John; let's go ORB rate. No, just a minute ..., John. Go ORB rate ... P47. ...
- 04 11 52 21 LMP Tom, I thought we were done with it this time.
- 04 11 52 24 CDR I did, too. I hope we can ...
- 04 11 52 27 LMP John, didn't you take a pad up here ...?
- 04 11 52 32 CMP Huh?
- 04 11 52 34 LMP Didn't you take a SEP pad while we were gone?
- 04 11 52 37 CMP Huh?
- 04 11 52 39 LMP I thought they gave you a SEP pad.
- 04 11 52 43 CMP Yes, I got 35. That son of a bitch is firing thrusters.
- 04 11 52 47 LMP It's supposed to.
- 04 11 52 50 CMP Why?
- 04 11 52 51 LMP Because that's what it's set up to do.
- 04 11 52 53 CMP Unless we're in optical.

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04 11 52 54 LMP That's why you should stay in a tight deadband . . . - -
04 11 52 58 CDR Try it in a loose deadband.
04 11 53 01 CMP We can try it.
04 11 53 02 CDR Okay, these should be in loose and these should
be in tighter.
04 11 53 05 CMP Yes.
04 11 53 14 LMP Okay, let me pick them out here. What time is it?
04 11 53 19 CDR I don't know. 100 - oh, 108 hours.
04 11 53 25 LMP AOS is right at what, Tom? About 108:14. Hell, we
don't have them for a while. John, how come you didn't
do any landmark tracking while you were in rendezvous?
04 11 53 39 CDR Yes, you know about 4 months ago, Walt ...
04 11 54 02 LMP You know what? I didn't get a chance to see what that
SPS engine - I didn't want to waste time looking at it.
04 11 54 03 CDR Hey, John. ...
04 11 54 08 LMP We got - we got stuff floating all over here.
04 11 54 26 CDR Oh, we got shit all over.
04 11 54 33 CMP Yes, I'll close the inflow valve. Okay?
04 11 54 40 CDR Yes.
04 11 54 42 LMP Hey, make sure, when you jettison the LM, you don't
hit the wrong switches over there.
04 11 54 47 CMP Okay, ...
04 11 54 53 LMP Hey, do we have a - do we have a camera to take
pictures of that thing when we jettison it?
04 11 54 59 CDR Here's the camera, right here. Why don't you do
that ...?
04 11 55 00 LMP I'd be glad to.
04 11 55 02 CMP How do you get this mother off?

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Day 5

- 04 11 55 07 LMP Pull it - squeeze it together.
- 04 11 55 08 CDR Squeeze it together. Squeeze the bottom of it.
- 04 11 55 13 CMP Oh, shit. ...
- 04 11 55 15 CDR ...
- 04 11 55 20 CMP And -
- 04 11 55 34 CMP Okay, now. Why don't you pick up the - important to have - we got to have these antennas on ... up as we come around the horn. High gain for this thing is - Hell, I don't know what time they want to separate the goddam thing, do you?
- 04 11 56 01 LMP Okay. What did you say about high gain?
- 04 11 56 13 CMP ... 25 and 264.
- 04 11 56 16 LMP Hell, we can call it up here.
- 04 11 56 20 CMP That's a good answer, minus ... 2.66.
- 04 11 57 07 LMP You need something to read ... these to put in your data book.
- 04 11 57 08 CMP You bet.
- 04 11 57 09 LMP I almost had heart failure when your transponder wasn't working.
- 04 11 57 11 CDR Yes.
- 04 11 57 12 LMP You know, I turned the switch. I went from HEATER to ON and ... I meant to turn it back off after that. ... So when I looked down here, and I could see the switch was ... be the circuit breakers. So I went down there, and what'd it say - zero. And I reached over and turned the switch back on - and turned back on ... Ain't no way. What a hell of a ... It was on and working; then all of a sudden, it wasn't. Maybe there's something wrong with the switch. It's one of those that gets turned on about twice during the checkout.
- 04 11 58 09 CDR You know, that thing's going to leave ... DELTA-V ...

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04 11 58 15 LMP Yes. It really is.

04 11 58 18 CMP ...

04 11 58 21 LMP 4600 feet per second.

04 11 58 49 LMP ... the Hasselblad ... You want me to take pictures of the world, huh?

04 11 58 54 CMP ... there is one right here.

04 11 58 55 CDR, would you believe that?

04 11 59 00 CMP I don't know how much film is left in that camera. I took a few of these pictures of you guys. Well, let me tell you what happened. I got up here ... darned thing wouldn't work. It wouldn't work.

04 11 59 15 LMP ...

04 11 59 19 CMP Not that one. I tried to take a few of you guys while you were stationkeeping - the son of a bitch wouldn't work. So I took it - took the - after it was all over, I took the magazine out and put it back in --

04 11 59 31 LMP That's what happened to mine. Those magazines have got to be socked in a couple of times, and you can't afford the time to sock them in.

04 11 59 39 CMP ...

04 11 59 47 LMP Is that right?

04 11 59 49 CDR Yes. It's great. ...

04 12 00 05 LMP Did you ever see earthrise, John, or was your back always to it?

04 12 00 10 CMP I didn't see anything. I didn't see a goddam thing but you guys.

04 12 00 11 CDR Boy, it was really --

04 12 00 13 LMP It was beautiful ...

04 12 00 20 CMP ... should start trying to ...

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Day 5

- 04 12 00 26 CDR We should have acquisition.
- 04 12 00 32 LMP No, we're 10 minutes late, Tom, because the whole flight plan is 10 minutes late.
- 04 12 00 35 CMP Yes. We got the earth 10 minutes late.
- 04 12 00 47 LMP Tell them we want to get off this thing so we can get out of these suits.
- 04 12 00 54 CDR Yes, let's set up for ORB RATE ...
- 04 12 01 25 LMP I'll get the align of the GDC. I want it right here.
- 04 12 01 31 CDR Okay. Go to your INERTIAL.
- 04 12 01 41 LMP ... coming up on rate. 280. What? ...
- 04 12 01 47 CDR ... we have 30.1 ... 31 degrees.
- 04 12 02 02 LMP Go on and do it ...
- 04 12 02 13 CDR Pull the switch down when you see ...
- 04 12 02 18 LMP ...
- 04 12 02 33 CDR Yes, put it in hold ... keep it up. ... There you go, babe.
- 04 12 02 40 LMP Is that alright?
- 04 12 02 45 CDR ... Hold it up. There you go. That's got it. You got 60 miles on the scale.
- 04 12 02 50 LMP Yes.
- 04 12 03 25 CDR ... got to go down below him. We could use the VHF A if Gene-o hadn't ... tell how far we are away.
- 04 12 03 40 CMP Yes, could have.
- 04 12 03 41 LMP Is it?
- 04 12 03 42 CDR Yes.
- 04 12 03 45 LMP Well, okay. Turn on the RANGING switch. Okay, I ... What do you have here, John? DUPLEX Bravo and RANGING?

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- 04 12 03 52 CMP Yes.
- 04 12 03 55 CMP The son of a bitch worked like a charm. ... a couple of times here ... It's always obvious. ...
- 04 12 04 12 CMP You want to make sure that tunnel equalization valve is closed. You can tell by ...
- 04 12 04 21 CDR Oh, yes.
- 04 12 04 22 LMP I know I closed it.
- 04 12 04 23 CDR Hang on a minute, will you, babe?
- 04 12 04 25 LMP Okay. Wouldn't it be nice to pump up the cabin - just like a couple of psi's - or a couple of pounds ... DELTA-P does?
- 04 12 04 36 CMP ...
- 04 12 04 38 LMP Yes. Pump it up.
- 04 12 04 39 CMP ...
- 04 12 04 40 LMP And that'll be a sort of integrity check if we pump up this we can see ... the CM, the tunnel DELTA-P --
- 04 12 04 47 CDR Yes, tunnel DELTA-P. Why don't we pump it up? Pump it up to about 5.3.
- 04 12 04 53 LMP Yes. Pump it up a little bit, John, and we'll see how it -
- 04 12 05 04 CDR ... have you done those?
- 04 12 05 07 CMP Yes. You don't think that's a good one?
- 04 12 05 09 CDR ... just
- 04 12 05 15 LMP Yes. More than that.
- 04 12 05 19 CDR Okay, you got to hold on ... a half a psi.
- 04 12 05 23 LMP Sure looks like it might be holding. Watch it for a minute, Tom.
- 04 12 05 27 CDR CM - LM ...

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04 12 05 34 CMP Yes.

04 12 05 38 LMP What is the CM DELTA-P?

04 12 05 40 CDR We need the CM ...

04 12 05 44 LMP Okay. Good.

04 12 05 45 CDR You got them right here.

04 12 05 47 CMP No wonder I couldn't find that son of a bitch.
I've been looking for it all day.

04 12 06 03 CMP I didn't mean to ... up the cockpit, but I figured
it better ... it up ...

04 12 06 07 CDR What - what - what do you want?

04 12 06 08 LMP ... DELTA-P.

04 12 06 20 CDR Okay, it's reading 0.4.

04 12 06 23 LMP Just about where we pumped it up. Which way?

04 12 06 24 CDR Oh, shit. We left that valve in AUTO, didn't we?

04 12 06 35 LMP That doesn't make any difference.

04 12 06 37 CDR You get so much ... and crap.

04 12 06 40 LMP Yes, if we pump - if we were leaking through our
hatch into the tunnel, it would leak from the
tunnel into the LM. So that's all safe.

04 12 06 46 CMP Yes, I guess so.

04 12 06 50 CDR We're holding steady at about 0.4 psi, John.

04 12 06 53 CMP Yes, but which way? Plus or minus?

04 12 06 55 CDR Plus.

04 12 06 56 CMP ...

04 12 06 57 CDR ... It goes from 1 to 4 this-a-way and ...

04 12 07 04 LMP It couldn't be the other way, John. We put air
in here, if we were even when we started.

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Day 5

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Page 269

04 12 07 07 CMP Okay. I guess you guys got the picture.
04 12 07 10 CDR (Laughter)
04 12 07 11 CMP I didn't know how much you knew about the command module.
04 12 07 12 CDR (Laughter)
04 12 07 13 LMP ...
04 12 07 14 CDR ... plus 0.4.
04 12 07 20 LMP Well, that's a good sign. Why don't we tell them then to get the hell off this thing while we got our suits on anyway?
04 12 07 28 CMP Where the hell are they?
04 12 07 30 LMP It'll be about 14, the way I figure it here.
04 12 07 41 CDR You want your tool back?
04 12 07 45 CMP Yes, I'd sure like it ...
04 12 08 01 LMP Why don't you take that? John, when we were ... we had everything flowing around ... coming out of - out of the corner.
04 12 08 15 CMP ...
04 12 08 17 LMP ...
04 12 08 18 CMP Stop. Oh, is that right?
04 12 08 29 CMP That was beautiful. ... That's great. Fantastic, T.P. Man, that was good.
04 12 08 35 CDR ... But I'll tell you, John, when that son of a bitch is ... boom, boom ... about once every 2 or 3 seconds.
04 12 08 46 LMP It's like you're in a big - in a big tin can.
04 12 08 50 CDR Yes.
04 12 08 51 LMP It's just like ... attitude control.

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Day 5

- 04 12 08 54 CMP Yes. Or like after you separate the Gemini, you have that RCS with 25 ...
- 04 12 09 07 LMP Yes, but the Gemini shell was a lot sturdier and stronger than ...
- 04 12 09 10 CDR ... to the walls - you can see the freaking walls.
- 04 12 09 15 CMP I never would have taken my helmet off in that thing.
- 04 12 09 16 CDR I mean you ... What the hell was that gurgling noise?
- 04 12 09 25 LMP I don't know. But I'll tell you, that eerie music is what's bothering me. You know that -
- 04 12 09 28 CMP God damn, I heard it, too.
- 04 12 09 29 LMP You know, that was funny. That's just like something from outer space, really. Who's going to believe it?
- 04 12 09 34 CMP Nobody. Shall we tell them about it?
- 04 12 09 39 LMP I don't know. We ought to think about it some.
- 04 12 09 41 CMP Did you hear it, Tom?
- 04 12 09 42 LMP Yes, he heard it.
- 04 12 09 43 CDR Yes.
- 04 12 09 47 LMP Hell, I just want to get out of this suit.
- 04 12 09 50 CDR ... back together.
- 04 12 09 51 LMP Sure does, doesn't it?
- 04 12 09 52 CMP Yes.
- 04 12 09 55 LMP We're still holding our little ... DELTA-P so - probably pretty good.
- 04 12 10 14 CDR ... staging ... jarring about that staging.
- 04 12 10 19 LMP Well, I'll tell you, babe; we was moving in three dimensions at the same time.

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Day 5

~~CONFIDENTIAL~~

Page 271

- 04 12 10 23 CDR ... before we go to gimbal lock. ... We ought to get the switch in. We got the GIMBAL LOCK light ...
- 04 12 10 27 LMP ...
- 04 12 10 34 CDR ... in AGS ...
- 04 12 10 35 LMP We ... in AGS burn in that alignment to the AGS and then we had an alignment right after that anyway, but the insertion burn must not have been quite as go ...
- 04 12 10 42 CMP Oh, yes. Might not have been.
- 04 12 10 44 CDR ... it was beautiful.
- 04 12 10 47 LMP And they - and then ... to the burn ...
- 04 12 10 52 CDR Yes.
- 04 12 10 54 LMP Couple of seconds ... don't understand the problem.
- 04 12 10 59 CDR I tell you, ... back into orbit, you really get a wild ride. It goes like ...
- 04 12 11 05 LMP Oh, man, it really - it wanders, but it ends up with zero residuals. You know, but it wanders.
- 04 12 11 10 CMP How do you know it's going to end up with zero residuals?
- 04 12 11 12 LMP You don't. Yes, you don't.
- 04 12 11 13 CMP How'd it get ...?
- 04 12 11 16 LMP It just seems to wander, like this, you know? Well, the thrusters are too big for it, when you got an ascent stage. One pulse is too much for us. ... trying to align that damn platform with one pulse. You'll ... one side and then ... the other side.
- 04 12 11 33 LMP Come on, Houston. You got your S-BAND, ON, Tom?
- 04 12 11 42 CDR I believe so.
- 04 12 12 05 CDR How are the fuel cells looking, Gene-o?

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Day 5

- 04 12 12 07 LMP I don't know. It's been on l all day. I keep checking, but I keep getting --
- 04 12 12 13 CMP That's okay. They - they ought to be pretty good, babe. I -
- 04 12 12 44 CMP You want to be at 090, huh? Go that-a-way.
- 04 12 12 49 CDR Yes. Just want to get ...
- 04 12 12 57 LMP Hey, their burn is 108:50 or something, whatever the hell it was. I don't know.
- 04 12 14 04 CMP ...
- 04 12 14 05 LMP Yes, I - I loaded it in the P30 up there in the LM.
- 04 12 14 09 CDR Yes, we better get out and ...
- 04 12 14 19 LMP Did we do checks already?
- 04 12 14 20 CDR No.
- 04 12 14 27 CMP They don't want us to check until we get in contact with ...
- 04 12 14 48 LMP And those - those are the angles?
- 04 12 14 51 CMP Yes.
- 04 12 14 52 CDR No. ... verb ...
- 04 12 15 02 CMP We're probably going to be at them. ... But we'll be going the wrong way, won't we?
- 04 12 15 11 CDR All you got to do is ...
- 04 12 15 24 CMP I guess so.
- 04 12 16 06 LMP Oh, come on, Houston.
- 04 12 16 15 CDR You know, particularly in the LM, John; the ...
- 04 12 16 24 LMP That was a little funnier than the simulator. When I told you to pitch in the simulator, ... direct, but in this thing, when I'd tell you to pitch, it would end up ... like that ... But it never did.

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~~CONFIDENTIAL~~

When it pitched, ... it'd go like this and stop;
... roll, and it'd go like that; yaw, and it'd go
like that ...

- 04 12 16 55 CMP Okay, here we come.
- 04 12 16 56 LMP There it goes again. ...
- 04 14 01 29 CDR ...
- 04 14 01 30 CMP Okay.
- 04 14 01 33 CDR ...
- 04 14 01 48 CDR Are you the best - It's going. There you got it.
There it is. Which way? Down? There you go,
John. Now. It's coming through.
- 04 14 02 15 CDR What do you need, Gene-o?
- 04 14 02 18 LMP ... right here, it's got to go. There -
- 04 14 02 47 LMP ... 3 o'clock in the morning ... -
- 04 14 02 52 CDR Yes, the bird's easing out.
- 04 14 03 44 LMP Wonder if they know what's wrong with that?
- 04 14 03 47 CDR Yes.
- 04 14 04 16 CMP What they want to know is do we want to sleep in
tonight ...
- 04 14 04 24 CDR Do what? Sleep in tonight and - sleep in tonight?
Look, I'd - I'd like to get some sleep, what about
you?
- 04 14 04 31 CMP Yes, I would, too, ... bright and early tomorrow
morning ...
- 04 14 04 40 LMP ...? Now?
- 04 14 04 43 CDR Right.
- 04 14 04 44 CMP ...
- 04 14 05 11 CDR Just wondering what all kinds of shit we got down
here.

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Day 5

- 04 14 05 15 LMP ... and it should go to REACQ . . . -
- 04 14 05 18 CDR I went to the angles, but it didn't go to REACQ. I just wondering - we got all of this shit that we brought back in here. It'll take another 5 or 6 hours. Actually, we're pretty clean, aren't we?
- 04 14 05 46 CDR Anybody want some juice? John?
- 04 14 06 12 CDR I don't want any -
- 04 14 06 25 CDR How about a pear, anybody? Gene-o? José?
- 04 14 06 33 LMP ...
- 04 14 06 39 CDR Hey, I got - for a change, I brought mine. What?
- 04 14 06 43 LMP ...
- 04 14 06 46 CDR Yes.
- 04 14 06 47 LMP ...
- 04 14 06 48 CDR Here, use mine. I finally got mine open. Here you go. (Laughter) Potato soup. Pshew! Piss on that.
- 04 14 07 16 CDR I guess I should - I was thinking about yawing around 360 degrees for that yaw maneuver. But you could check it again. It was down from where you were at, couldn't you?
- 04 14 07 32 CDR Hell, no. You're up for this - this goddam maneuver where John had to maneuver and then we had to maneuver ... you've never seen before, you know. Then we'd get all squared away in stationkeeping where we're using fuel. What do you want? John, you want orange or pineapple grapefruit? Huh? Gene-o?
- 04 14 08 43 CDR Let me borrow the scissors back from somebody, and I'll cut these open.
- 04 14 09 00 CDR (Laughter) You just got to look back. Say, would you believe today?
- 04 14 09 03 LMP ...
- 04 14 10 03 CDR Huh?

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~~CONFIDENTIAL~~

04 14 10 05 LMP ...
04 14 10 39 LMP Tom, do you hear me?
04 14 10 41 CDR Yes, loud and clear.
04 14 10 43 LMP It sure sounds funny. It's a long ways for that noise to travel. No wonder it sounds funny.
04 14 10 59 LMP God, I need - I think I need ... I think I got it going, right now.
04 14 11 34 LMP Oh, boy. Hey, waste water, waste water. Stop - stop dumping. ... 22 percent.
04 14 11 56 CDR Where are the scissors, babe.
04 14 11 58 LMP Okay. Where's the damn thing? Soon as I get some of these ... crap that we got to do. Guess we shouldn't call it crap; it gets us home.
04 14 12 19 LMP Huh? A junk bag? I just been throwing them - you know, in the - the bag - that bag that Tom let us. No, I got one here, too. ... You want to change A, canister A; change 11 to A and 9 to A-3.
04 14 12 42 CDR Let me get up - back here, and I'll see.
04 14 14 01 LMP Hey, John? You lost the spacer, huh? Spacer. This spacer here; do you need it? Did you get 11 to A and 9 to A-3? (Cough)
04 14 14 46 LMP Here. There you are ...
04 14 15 02 LMP Okay, that's done.
04 14 15 46 LMP Tom, give me your - your - your - -
04 21 22 47 CDR ...
04 21 23 41 LMP You're ...
04 21 24 16 LMP ... we go ahead?
04 21 24 18 CMP I don't know. ...
04 21 24 58 CMP Okay. ...

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Day 5

04 21 25 07 LMP ...
04 21 26 09 CMP ... real good? Okay?
04 21 26 14 LMP ...
04 21 26 15 CMP Yes, I think so.
04 21 26 33 CMP Yes. Those guys ...
04 21 26 41 LMP ... after TEI, we're all sitting on our --
04 21 26 43 CDR ...?
04 21 26 45 CMP Yes. There is still a lot of ... all my work ... fighting those freaking hoses. ... those goddam things.
04 21 27 02 CMP Man, I was running all over the cotton-picking ... every time ...
04 21 27 09 LMP You know, it's really - ... It just flows right out here. I - I ... get over there and back ...
04 21 27 36 CMP Hell, yes; I tried ...
04 21 31 55 CDR ...
04 21 32 37 CMP ... here.
04 21 32 40 CDR ... I can see is Mars and Antares.
04 21 33 01 CDR Get the ...
04 21 33 40 CDR ...
04 21 33 59 CDR Don't we need three?
04 21 34 19 CDR That puts you at 118, and you've got 30 minutes ...
04 21 34 27 CDR ... AUTO maneuver, John? Well now, what - what's the inertial angle now?
04 21 34 48 CDR I think so, if this thing works. Say, how was - somebody's got to ... How are we going to do it ...?
04 21 35 00 CDR Yes.

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Day 5

~~CONFIDENTIAL~~

Page 277

04 21 35 08 CDR I don't know. Let me get the card. ... that way.

04 21 35 20 CDR ...

04 21 35 39 CDR (Coughing) ... pressurize it through here. Try to get a hold right here ... How's that? ... straight?

04 21 36 57 CDR Yes. ...

04 21 37 38 CDR Yes. I - I - Yes, that'll be right, John.

04 21 37 55 CDR Have you still got the ...? ...

04 21 38 30 CDR This is ... Well, I got about 30 or 40 pictures ..., John. ...

04 21 38 36 LMP We're using the black and white film ...

04 21 39 01 CDR What's the ... - the whole roll?

04 21 39 06 LMP ...

04 21 40 32 CDR John, I've got - I've got some ... here to put all that crap ...

04 21 41 06 CDR Do it in color or black and white?

04 21 41 13 CDR John, how - Oh, yes, you can. Hey, I'll tell you one thing we might do. Yes, we can just clean out this stuff in the inflow valve. Yes. Oh, that son of a bitch is ... there. Yes.

04 21 41 32 CMP Need some tape.

04 21 41 35 CDR Gene-o, where's the tape?

04 21 41 53 CDR ... is still holding ...

04 21 43 22 CDR Yes, babe. Where was that little plastic bag? Oh, there it is, right there, behind you, John.

04 21 43 31 CMP ...

04 21 43 32 CDR Right there on the ... That's the one.

04 21 44 20 CDR ...

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- 04 21 45 16 CDR What time are you supposed to start pitching? Matter of a fact, I'd better get over there. No, I'm doing it.
- 04 21 45 28 CMP Okay.
- 04 21 45 36 CDR Yes, that's ..., babe. They want - they want roll 180 and pitch to 231, huh?
- 04 21 47 25 CDR Hey, Gene-o. While you're down there, would you put this, you know, this ... bag back, babe? No, it's not. It's in that - ... bag ...
- 04 21 48 23 CDR This is just a ... of the last time ... Yes.
- 04 21 49 27 CDR Yes. ... Yes, ...
- 04 21 50 43 CDR ...
- 04 21 50 50 CDR Hold it.
- 04 21 51 46 CDR ...
- 04 21 52 20 CDR ... Huh? Two dots? Yes.
- 04 21 52 45 CDR Look at that son of a bitch! No, look at this. Look at this! Look what I found - out the window. What do you see, old buddy? ... appear in a magnetic field. Look out there. We got a piece of Snoopy hanging on. It's - it's ... Get a picture of that. Black and white ... color.
- 04 21 53 08 CDR Here. You got some color?
- 04 21 53 20 CDR Yes. You still have - f:ll at 250. A piece of Snoop ... you get it, John? Just hanging there. 17 - 53.
- 04 21 54 09 CDR That's got to be Snoopy.
- 04 21 54 22 CDR Huh? It is?
- 04 21 54 34 CDR It's yellow like that, huh?
- 04 21 54 58 CDR You got the color squared away? ... you want to take - Oh, you - oh, you - did this - this what I'd been using yesterday. ...

~~CONFIDENTIAL~~

Day 5

~~CONFIDENTIAL~~

Page 279

- 04 21 55 19 LMP Yes, it's out.
- 04 21 55 20 CDR ... there's another ... color film. That stuff ... color film.
- 04 21 55 39 CDR I don't have it here. Yes, I do, too. Here we go. Take this. We ought to get a lot of ... Here we are. Here's your color film. Right.
- 04 21 56 56 CDR This is a good film ... You - didn't get it, huh?
- 04 21 57 23 CDR That's when I called in some stuff the other day, y'all ... Okay. Gene-o, ... pitch up.
- 04 21 57 41 CDR Hey, Gene-o, while you're down there, how about opening this thing; put the rest of these things down there. ...
- 04 22 00 04 CDR Okay, we're still upright at 335 ORB rate.
- 04 22 00 26 CDR How about killing one of these roll ..., babe?
- 04 22 01 20 CDR Okay, base it. 16 millimeter. Oh, you're not going to use real phase, are you? 8 - f:8 at ...
- 04 22 01 50 CDR Do you want the color, babe? This is used. We're all out of color on this.
- 04 22 02 25 CDR Here's one over here, Gene-o. See that black? Black is ... Can you see over to the left here or do you want me to take it? Hold it, Gene-o. ... How much - how much of the stuff we got left? About out?
- 04 22 03 13 CDR ...
- 04 22 05 14 CDR ... Got this all started, babe.
- 04 22 05 52 CDR Well, we could ... that ...
- 04 22 05 58 LMP What? Yes.
- 04 22 06 06 CDR That son of a bitch right down below us is tan and brown. I don't - it - Look at those ... craters. You got some coming straight down below you, Gene-o.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 5

- 04 22 06 37 CDR Hey, here's a good example of what fills up craters. You see that son of a bitch coming in down below. You - Get a look at its ... in there. You see what I mean. Beautiful. Okay.
- 04 22 06 54 CDR Hey, you see this big, big one down here right - be to your left, John, probably. We're coming around - You see how the sides are slumping down and filling up the bottom? That might not be any ...
- 04 22 07 33 CDR It looks like that stuff is scraped off. It's in big layers, and it's brown, and the whole thing slumped in. ..., you know it?
- 04 22 09 04 CDR ... oblique thing, what are we using - Did they tell us to use a 250 or an 80?
- 04 22 09 18 CMP Man, it is - Here's the flattest crater over here.
- 04 22 09 24 CDR Oblique ...
- 04 22 09 44 CDR Yes, babe. Use the f:80 and the intervalometer. Where's our intervalometer? José, why don't you get the intervalometer? Also, we need that - we need that mount. ... need the mount ... You know it's - -
- 04 23 20 17 CDR Houston, Apollo 10. Talking about the big track light out there above the forward hatch, John saw it all the way. In fact, we had to turn it off for him at the end, it was so bright. Over.
- 04 23 20 22 CMP ... Beautiful. It fills up the whole reticle when it's close - close in, about 10 or 11 miles.
- 04 23 20 25 LMP Yes, I could see it out to - Shoot, there one time, it was over 200 miles.
- 04 23 20 46 CDR Could you see us all the way out there? Because that was over 300 ...
- 04 23 20 48 CMP Yes. Yes. While I wasn't tracking ... No idea whatsoever. We just tried it again and it worked.
- 04 23 21 02 CDR Well, we had the same switch configurations again that was - Thought it might be corona, but, I mean, there was no way for us to tell, but you did come in just unreadable before and after we undocked and

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squared away. We tried again and it was unreadable, and then we tried it one more time and it was beautiful. And he had VHF RANGING out to more than 200 miles.

- 04 23 21 50 CMP ... ain't going to bother him ...
04 23 21 55 CDR (Laughter)
04 23 21 56 CMP What did I say?
04 23 21 57 CDR No sunlight on us now. That's what we ... Got 20 minutes to ... again.
04 23 22 32 CMP Okay, Houston, I did a sextant star check just to make sure that was a good alignment. The star's pretty close to being in the middle of the scope.
04 23 23 28 CMP Hey, lookie here. Them ... finally figured out a way to ... How about that?
04 23 23 38 CMP I'm trying to. I can't find it. I don't know where it is - ... and say, well, there's ... Mars and all that shit. ..., babe. It looks to me like it's shit. We going ... today?
04 23 24 09 CDR Yes. Thought we'd ...
04 23 24 46 CMP Boy, I bet you that low light level ...
04 23 24 53 CDR Hello, Houston; Apollo 10.
04 23 25 22 CDR Gene-o. When we do this landmark tracking, it's going to be a beautiful time to get the earth coming up.
04 23 25 29 LMP You're right.
04 23 25 32 CDR After we ...
04 23 25 36 CMP I got to ...
04 23 25 39 CDR Yes. Yes. Fine, ...
04 23 25 43 LMP ...
04 23 25 46 CDR Yes. We ought to get that film stuff all - I got a bunch back here that I got before ...

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~~CONFIDENTIAL~~

Day 5

- 04 23 25 57 LMP ...
- 04 23 25 58 CDR You got - Here's one color, Gene-o. No, this is - Color was all used up. Now we have - I've got the special color back here, I think.
- 04 23 26 10 CMP And I got black and white.
- 04 23 26 14 CDR I got the special color - -
- 04 23 26 15 LMP ...
- 04 23 26 19 CDR The only other roll we had is that one in the LM.
- 04 23 26 22 LMP Is it?
- 04 23 26 23 CDR Yes. Now where is that one at? Is that that one? You what?
- 04 23 26 28 LMP ...
- 04 23 26 30 CMP Where does this go? Where does this go?
- 04 23 26 33 CDR You had two rolls - -
- 04 23 26 34 CMP Where does this go?
- 04 23 26 35 CDR - - you had one in the command module, one in the LM, and one ... special. Now, the main thing is, where is that roll of color film?
- 04 23 26 46 CDR How about getting me one roll of color film? You may need a different dark slide on it. That dark slide is all freaked up, too. We start this pass in 15 minutes, Gene-o.
- 04 23 27 07 CDR The vertical path.
- 04 23 27 09 LMP ...
- 04 23 27 11 CDR That's just after - ... vertical path. Okay? It's just that - it's just ... Yes. When you don't take any oblique, you don't pitch over.
- 04 23 27 28 CDR No. Just the - just the - We don't need the sequence ... How much color film do we have left? Have you got all the exposed and unexposed? We ought to take inventory. We ought to get some good stuff of that moon coming up.

~~CONFIDENTIAL~~

Day 5

~~CONFIDENTIAL~~

Page 283

- 04 23 27 46 CMP We don't have any more color film?
- 04 23 27 50 LMP I can't believe ...
- 04 23 27 54 CDR That's it. That's why I was anxious to get ...
- 04 23 28 03 CMP Hell, they had too many goddam ...
- 04 23 28 10 CDR Should I call up VERB 82, José?
- 04 23 28 13 CMP Yes.
- 04 23 29 08 CDR That noise on that VHF sure sounded weird yesterday, didn't it?
- 04 23 29 10 CMP Yes, it did.
- 04 23 29 18 CDR Okay. Now when we first start - near the terminator - we're going back to what they gave us on this card, f:4 and 250 ... As it gets lighter, we'll go to f:4 at ...
- 04 23 30 33 CDR That works out pretty good. I tried to extrapolate ahead for you when I got that attitude ...
- 04 23 31 20 CDR 65 east, I yaw right.
- 04 23 31 26 CMP ... go right ...
- 04 23 31 44 CMP (Sneeze) Pardon me. Gene-o, could you give me a tissue?
- 04 23 31 54 CMP Yes. Just give me one of them.
- 04 23 32 00 CDR John, ... paper is all over.
- 04 23 32 57 CDR ..., you know it, you know it ...
- 04 23 33 47 CDR Got about 8 minutes ... realign the GDC to the IMU. ... start the vertical strip - 120 seconds. Yes.
- 04 23 34 20 CDR Yes. ... terminator is f:4 at 1/125th - 1/125th, babe. To get them mothers, you get more light, you lift it up to - 250. Okay?
- 04 23 34 54 CDR I've got a VERB 83, here comes the sun.
- 04 23 35 08 CDR You started at 19:41:31.

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04 23 35 22 LMP And 1/125th at f:4.

04 23 35 43 LMP How could Apollo 8 ...?

04 23 35 46 CMP Enough to take a picture of it. They were here 20 hours.

04 23 35 54 CDR 76 ...

04 23 36 18 LMP ... sunlight. Where did I put the cotton-picking ...? What could I have done with the dang thing? That's stupid.

04 23 36 28 CDR Okay, Gene-o.

04 23 36 32 LMP What - -

04 23 36 33 CDR John, can I keep VERB 82 up here?

04 23 36 35 CMP Yes. Let's try VERB 82, Tom.

04 23 36 39 CDR Okay. I'll get it.

04 23 36 40 LMP What time ...

04 23 36 42 CDR 19:41:31.

04 23 37 39 LMP That's right. That's exactly what - -

04 23 37 40 CDR Hell, yes. ...

04 23 37 46 LMP No matter what.

04 23 37 47 CDR That's right ... maneuver. ...

04 23 38 12 CMP Did you guys - You didn't notice any torquing angles or anything, did you?

04 23 38 14 CDR No, ... every little thruster go boom, boom, ba-boom, boom.

04 23 38 40 CDR Noisy. That thing ... bang, bang, bang.

04 23 39 35 CMP I know it. He never did. That cotton-picking Pete Conrad's got the right idea. He and Dick Gordon on XI - they ... That's no way to do that ... or any - You know, people are just that way. They're

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going to screw you, no matter what, you know? You know, you can have the ... in the world and ... They're going to fix it so ...

- 04 23 40 05 CDR ... you didn't use the word "..." We're recording.
(Laughter)
- 04 23 40 09 CMP Right. I bet you if we go to 6-month ..., that's exactly what'd happen. People sit around and they won't do a damn thing for 4 months, and in 2 months
... - -
- 04 23 40 18 CDR Okay, Gene-o. Standing by in about 1 minute ...
f:4 at ... terminator here ... and José --
- 04 23 40 30 CMP Yes, ...
- 04 23 40 31 CDR ... 150 west.
- 04 23 40 42 CMP Okay, ... 150 west.
- 04 23 40 43 CDR 19:32.
- 04 23 40 44 CMP Okay, ...
- 04 23 40 50 CDR 40 - 19:32:44.
- 04 23 41 00 LMP Okay, Tom. I'm ready to go.
- 04 23 41 03 CDR Hold on. ... seconds. Be sure you're at 1/125th.
- 04 23 41 06 LMP 1/125th ...
- 04 23 41 12 CDR Are you going to take any color at all?
- 04 23 41 14 LMP ...
- 04 23 41 17 CMP You got color on there?
- 04 23 41 25 CDR Yes. Yes. Color; okay, at the terminator - 2.8 at 1/250. Ready?
- 04 23 41 39 CMP 42 something.
- 04 23 41 44 CDR 41:31.
- 04 23 41 48 CMP When is yours supposed to start?

~~CONFIDENTIAL~~

Day 5

Page 286

~~CONFIDENTIAL~~

- 04 23 41 49 CDR At 40 - 42:46.
Did you get that ...?
04 23 42 00 CMP Yes. Okay, that is is brownish gray.
04 23 42 02 CDR You know, Tom; the next time we do the vertical
04 23 42 09 LMP ... -
04 23 42 13 CMP I tell you, the thing changes color depending on
the sun's - sun - probably sun elevation. 42:46,
got about 30 seconds to go.
04 23 42 26 LMP Coming up on the ...
04 23 42 27 CDR Okay. I ...
04 23 42 38 CMP 1, 2, go. I can't get over how round this thing
is. It isn't very big, but it's round.
04 23 42 59 CDR ...
04 23 43 04 LMP ...
04 23 43 09 CDR Can you get it from this pass? Okay, now later
on, I want to start - When it starts to get bright
out here just a little bit, what you want to do,
Gene-o, is ... and we will open - a little bit -
well, we'll open the thing up.
04 23 43 45 LMP You want me to 250 ...?
04 23 43 48 CDR Yes, but - I think - Let's see if it gets bright
or not.
04 23 43 52 LMP You got a time ...?
04 23 43 54 CDR No. ...
04 23 43 58 CMP Okay, XV.
04 23 44 01 CDR Coming up?
04 23 44 02 CMP Yes.
04 23 44 03 CDR Oh, way up there?
04 23 44 04 CMP No, right underneath it.

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- 04 23 44 05 CDR Is that XV there?
- 04 23 44 06 CMP Yes.
- 04 23 44 10 LMP What time we have?
- 04 23 44 12 CDR 11 minutes. Okay, Gene-o. It's starting to get pretty light. I'll say we should be 25 - f:4 at 250 on the black and white. Okay? Got it?
- 04 23 44 36 CDR f:4 at 1/250th and open the sequence camera up to what I'd estimate as 5.6. 560 on the - 5.6.
- 04 23 45 06 LMP If we had another Hasselblad, we could be taking right out that window ...
- 04 23 46 01 CDR Okay, for the rest of the pass, until we get over near the other terminator, ... zero phase ... we go to f:5.6 on the black and white.
- 04 23 46 23 CMP ... Why don't I think!
- 04 23 46 44 CDR Okay, you're 14 minutes.
- 04 23 46 59 LMP 225 right there. There's CP-1.
- 04 23 47 03 CDR You got it? ... Yes. Look ... crater with that big peak in it? Yes.
- 04 23 47 15 CMP ... this is 303.
- 04 23 47 16 CDR Where, John?
- 04 23 47 17 CMP Right here, right here.
- 04 23 47 20 CDR Where?
- 04 23 47 21 CMP Right there.
- 04 23 47 22 CDR Okay. That's 303?
- 04 23 47 23 CMP Yes.
- 04 23 47 24 CDR Where's the 310?
- 04 23 47 26 CMP 310 ...
- 04 23 47 31 CDR ... got a big --

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- 04 23 47 32 CMP ... on the right, over there at 301.
- 04 23 47 36 CDR I got that --
- 04 23 47 37 LMP Tom, what time?
- 04 23 47 40 CDR Okay, it's 47:48 ...
- 04 23 47 43 CMP ... right and on the left ...
- 04 23 47 50 CDR It's getting so much sun out now, I'd go ahead and open that --
- 04 23 47 55 LMP Okay, what's the ...?
- 04 23 47 58 CDR It's 16:23.
- 04 23 48 19 CMP Oh, yes, the best view I've ever seen.
- 04 23 48 23 CDR Good show, John. ...
- 04 23 48 46 CMP We're looking at crater 299 - and - on the left - I don't know what that other one is but there's two - two right beside it. This terrain doesn't really look nearly as foreboding as these Orbiter photographs. At least ...
- 04 23 49 10 LMP ... lots more holes on this side, but it's not as rugged as the hill country on the other side.
- 04 23 49 18 CDR See that star coming up over there?
- 04 23 49 45 CMP ... That big one is 297. Why don't you take a picture of 297? Look at that little crater right beside it. That ... crater right there. Isn't that beautiful?
- 04 23 49 53 CDR Which one ...?
- 04 23 49 54 CMP That one right next to that crater ... Right on the edge of that.
- 04 23 49 59 CDR Over on the left, here?
- 04 23 50 00 CMP Yes, on 297.
- 04 23 50 07 CDR Okay, you see that white one way on the left there, John?

~~CONFIDENTIAL~~

Day 5

~~CONFIDENTIAL~~

Page 289

04 23 50 09 CMP Yes. That's the one I'm talking about.

04 23 50 10 CDR ...

04 23 50 13 CMP Right there?

04 23 50 14 CDR That white one and see the black on the inside and white --

04 23 50 16 CMP Yes.

04 23 50 17 CDR -- ...

04 23 50 18 CMP I don't know. I would say it's probably a volcano.

04 23 50 20 CDR I'd say that's a volcano - definitely.

04 23 50 24 CMP But I don't - Hell, you know, I ain't qualified to say. I just ...

04 23 50 45 CDR Yes. There's IX coming up - that huge basin.

04 23 50 55 CMP Keep it pretty close to the vertical, Tom. ...

04 23 50 59 CDR Yes. I - I'm keeping it right on. That's where I've got VERB 82. See, your ... That's why I've got VERB 82. ... Man, that's a weird-looking crater ...

04 23 51 26 LMP ...

04 23 51 30 CMP No. That part of the country out there looks pretty rugged - out there north of Florida.

04 23 51 42 CDR You know, it's kind of fun just to sit around and do this after ... rendezvous --

04 23 51 45 CMP This is a piece of cake. ... landmark tracking is going to be easy, too, if I don't load the wrong numbers.

04 23 51 54 CDR If we just continue this and I'd say go to f:8 now on that color film, babe.

04 23 52 01 LMP I'm already there.

04 23 52 02 CDR f:8 and 1/250th?

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- 04 23 52 05 CMP Look at those funny hump - humpbacks that they were talking about the other day ...
- 04 23 52 10 LMP Turtleback?
- 04 23 52 11 CMP Yes. Those turtlebacks right over there. See those ... with humps out instead of going down.
- 04 23 52 14 CDR Oh, yes,
- 04 23 52 25 CMP This looks like Tallahatchie Ridge, right here. See this ridge - coming around like that.
- 04 23 52 30 CDR Oh, yes.
- 04 23 52 31 CMP ... great big ... crater ...
- 04 23 52 35 CDR Yes. You see - you see on your Tallahatchie Ridge kind of an old crater - big deep one dug out in there?
- 04 23 52 43 CMP Yes.
- 04 23 52 44 CDR You know, from here you can see boulders in that one.
- 04 23 52 46 CMP Oh, yes, ...
- 04 23 52 57 CDR Oh, it looks like a precipice. It looks like ... is giving away up there near the edge. Let me see those monoculars.
- 04 23 53 16 CDR Okay, the top - There you go. You can really see how this stuff starts to fall into place. On that last right there, you can see the ... down at the bottom. You can see how the stratification up there is kind of a wavy stratification. In fact, the stratification goes with the hump on out from it.
- 04 23 53 35 CMP Yes.
- 04 23 53 36 CDR ... the way it leads the hard stuff.
- 04 23 53 38 CMP ... boulders down there now?
- 04 23 53 40 CDR Hey, is that moving!
- 04 23 53 43 CMP What?

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04 23 53 44 CDR

That there, looks like a boulder's about to run downhill; no, I guess it isn't. Look at that stuff that hangs out - the real hard material and all that soft stuff tails away and then you can see how they roll down and get stopped at the bottom; then there's a big pile of them down near the tailings at the bottom. But the soft stuff sloughs away first, then comes the hard, and that's definitely an impact crater ...

04 23 54 12 CDR

Oh, look at that boulder. I bet that boulder from 60 miles looks big enough to - that boulder's at least 80 to 100 feet across - 80 - oh, maybe a hell of a lot more than that. It - also, it looks like how the old one ... you notice how it looks like ridges?

04 23 54 27 CMP

Yes.

04 23 54 28 CDR

That's the whole thing slumps down ... I hope Jack's listening to the tape that we're recording.

04 23 54 37 CMP

Now here's one.

04 23 54 38 CDR

You can see how the slopes get shallower as they get older. It's very obvious to see that. And look - Oh, here's some more boulders just hanging up there ready to go, fall off in there. Say, when it falls - it looks like the new stuff that falls is white and the older stuff that gets aged is brown. It's white and it becomes a tan after it falls away, and it falls away in levels. You can see kind of - like the old stuff breaks away in levels.

04 23 55 00 CMP

Man, there's all kinds of - Look at all that dark - how dark. Look at this crater up here, that's got the dark stuff on the wall.

04 23 55 08 CDR

Which one, José? ... I see it - -

04 23 55 11 LMP

That's where - that's where instead of - the material instead of ...

04 23 55 29 CDR

Yes. Right - right up near the edge there, there's a rille that is dark black. We saw that ... I'd say the edge of that crater is a good 2000 feet in height - 3000, maybe. This monocular helps you.

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- 04 23 55 47 CDR And, baby, that's impact - Look at the way it's round-shaped. That's a hell of an impact and you can see where it's throwing the ejecta, that black stuff, up on the outside rim; and, on the inside, you can see where the black stuff has fallen down and laid at the bottom. It's all spotted down at the bottom. See it?
- 04 23 56 06 CMP Yes.
- 04 23 56 07 CDR See if you can see it, and how it's ledged halfway down on the crater. Okay. Let me get back here on my tracking now.
- 04 23 56 13 CMP That's ... IP there. CP-1 --
- 04 23 56 18 LMP Yes --
- 04 23 56 19 CDR And also down at the bottom --
- 04 23 56 20 LMP -- ... CP-2 ... from two sides. They've got one coming in from the north and one coming in from right there.
- 04 23 56 30 CDR Okay.
- 04 23 56 34 CMP CP-2 is --
- 04 23 56 35 CDR Oh, and also you see - look and see how much has fallen away and how in outer slopes is a slight or lower slope, but it's kind of sloughing off, tending to override the black material there.
- 04 23 56 46 CMP Yes.
- 04 23 56 49 CDR See that? There's a little higher ridge ...
- 04 23 56 51 CMP That's black stuff.
- 04 23 56 52 CDR You better believe it --
- 04 23 56 53 CMP ...
- 04 23 56 59 CDR Okay - now, out here you can see a whole bunch of chains of craters; volcanisms ... --
- 04 23 57 08 CMP That stuff is flat black. It's blacker than hell.

~~CONFIDENTIAL~~

Day 5

~~CONFIDENTIAL~~

Page 293

04 23 57 13 CDR

The stuff that falls off the new areas is just as white, whitish tan ... as the sand. Now, you can - God, look at those boulders in there. I'd hate to go - try to sledge hammer that son of a bitch. Down at the bottom, it looks like just layer after layer has sloughed off and the crater is getting - the walls are getting less steep.

04 23 57 37 LMP

... rilles on the back side --
No, there's very few rilles on the back side as compared to the maria.

04 23 57 42 LMP

-- ...

04 23 57 49 CMP

Okay, you guys; we're coming up on my old favorite crater here: CP-2.

04 23 57 53 CDR

You got that bear?

04 23 57 55 CMP

Yes, and I don't see anything good to track on it --

04 23 57 58 CDR

Okay, our subsolar point is 20:10:58 and I have to roll 180 and pitch down 24.

04 23 58 05 LMP

... - -

04 23 58 09 CDR

Yes, ... get near it, Gene-o, ...

04 23 58 12 LMP

What?

04 23 58 14 CDR

Zero ... 5.6 at 1/250th on the black and white, but that's still 12 minutes away.

04 23 58 20 CMP

Does it look smoky out there to you guys?

04 23 58 24 CDR

Where?

04 23 58 25 CMP

Out there. ... my eye. ... the sunlight, I guess.

04 23 58 37 LMP

Look at - hey, look at ... Look at all the black ... all the black and white ... all over the place.

04 23 58 49 CMP

I want to track that little bitty crater and I want to get down right in it ...

04 23 58 56 LMP

Tom, ... the monocular.

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Day 5

- 04 23 58 59 CMP There's a new little - a new little impactor over there.
- 04 23 59 02 CMP Looks like a dimple crater to me. Looks like it gets deeper and deeper and deeper.
- 04 23 59 15 LMP I'll tell you, 211 is about ...
- 04 23 59 32 LMP It's got white ... is laying all over the side and walls.
- 04 23 59 53 CMP ... It must be hotter than blue blazes down there. Look at that real bright. Looks like it's brand new.
- 04 23 59 59 CDR Brand new, real bright. That's why it damn near looks pink, doesn't it? It surely looks pink ...

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Page 295

DAY 6

- 05 00 00 06 LMP Look over here at 211.
- 05 00 00 10 CDR Oh, look at that one, beautiful!
- 05 00 00 12 LMP ...
- 05 00 00 14 CMP Yes, for crying out loud. ... anybody can't say that's - that's just with no color. There's all kinds of colors in there.
- 05 00 00 20 CDR There's colors in that. You'd better believe it. There's a basic light tone all over the outside; the rim is brown. Hell, I can see a big black boulder down in there with my naked eye from here. You can see where ... - -
- 05 00 00 33 CMP ...
- 05 00 00 34 CDR - - has fallen down. It looks like the stuff just leaks out, and I ... going through the same process as time goes on ... parts of the wall are starting to go down. You can see the tailings there, but as they go down, they leave these whitish areas. You can see the rays from them. That son of a bitch splattered all over the countryside. You can track rays, gee, for miles there. Okay, we got 10 more minutes, Gene.
- 05 00 00 57 LMP ...
- 05 00 01 04 CDR Okay, if you hold it just a little below ORB rate, then John can do his tracking ...
- 05 00 01 18 CMP Absolutely. ... boulders on the side of this ...
- 05 00 01 23 LMP Now here's this place that I thought was a straight line. Let's - ... straight.
- 05 00 01 31 CDR The craters, Gene?
- 05 00 01 32 CMP Yes.
- 05 00 01 33 LMP Oh, look at - look at - you can see - -

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- 05 00 01 35 CDR Man, there must have been some spouting way down below ... it's a - Got it. Okay, there's a whole string of them. It goes along one way --
- 05 00 01 45 CMP It's really a crater.
- 05 00 01 47 CDR ...
- 05 00 01 51 CMP Boy, this is sure a crummy map.
- 05 00 02 05 CDR Here again, near the rim it's lined with black stuff ... starting to fall down, tailings down below. Wouldn't that be the gas if we could see a volcano go off while we're here ... so low? Like ... going to get in it ... nobody's going to see the volcano in orbit ...
- 05 00 02 24 CMP ... worth looking for.
- 05 00 02 47 LMP What's our time at the subsolar point, John?
- 05 00 02 49 CDR That solar point is 120:10:58, and that's when I roll, and later on I'm going to yaw to the north so we - you do stereo for 1 then I yaw left back to get stereo 2.
- 05 00 03 02 CMP Isn't that crazy? Look at that - look at that down there. Is that smoke in that crater there?
- 05 00 03 07 LMP No, ... --
- 05 00 03 09 CDR You mean that brown stuff --
- 05 00 03 10 LMP -- brown --
- 05 00 03 11 CMP With the white around it. Brown - white -
- 05 00 03 15 CDR Where - where did it come from? Where did it come from?
- 05 00 03 25 CMP Brown discoloration ...
- 05 00 03 26 LMP ...
- 05 00 03 29 CDR It still had to come from someplace. Yet you don't see any - Oh, maybe it got pitched up out of - Did it get pitched up out of that crater next to it?

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- 05 00 03 38 CMP Could be.
- 05 00 03 50 CMP What time is it ...?
- 05 00 03 53 CDR 120:03.
- 05 00 03 55 CMP No, I mean ...
- 05 00 03 57 CDR 30 minutes, John; 31 minutes.
- 05 00 04 03 CMP Is it supposed to be turned around or something?
- 05 00 04 04 CDR Yes. Which way you want ... which way do you want me to turn, Gene, to keep the sun out of your window? Any particular way?
- 05 00 04 15 LMP ...
- 05 00 04 20 CDR Yes, I'd go ahead - 5 minutes to the subsolar point, I'd go ahead and crank it down to 5.6 on the - 5.6 on the black and white and f:ll on the color ...
- 05 00 04 58 CMP What time ...?
- 05 00 05 01 CDR 32 minutes, John.
- 05 00 05 03 CMP Boy!
- 05 00 05 18 CDR And there's a boulder field, right down by ... right down ... impact one.
- 05 00 05 26 CMP Yes.
- 05 00 05 27 CDR And right next to it is - one, two - just kind of laying there by themselves. Wonder how they dropped into that one? That's a big - he's a big fellow. Got boulders up to 300 and 400 feet ... pile of them ...
- 05 00 05 43 CMP I can't see them with my naked eye, but I can sure see them with ...
- 05 00 05 49 LMP ... something wrong if you can't.
- 05 00 05 56 CDR Okay, 5 minutes to the roll maneuver.
- 05 00 06 18 CDR I'll roll left - ... tannish gray - -
- 05 00 06 23 CMP What time is it now, Tom?

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Day 6

- 05 00 06 26 CDR It's about 4 - 32:44 and ... - we got 4 - about 4 minutes until we roll.
- 05 00 06 38 CMP Boy, I can't - are you ...?
- 05 00 06 42 CDR ... 250 at 5.6 and it's f:11 on the sequence camera.
- 05 00 06 51 CMP ... on the left.
- 05 00 06 53 CDR Which one? Oh - -
- 05 00 06 55 CMP ...
- 05 00 06 56 IMP I'm not so sure those are - -
- 05 00 06 57 CDR - - that's a volcanic. That's a volcanism, the way it peaks up there, and keeps building up, and - -
- 05 00 07 02 CMP I just can't believe that.
- 05 00 07 03 CDR It's got to be a volcano, babe; ...
- 05 00 07 07 CMP Boy, I tell you. See that real bright one way up yonder, see - -
- 05 00 07 10 CDR Yes.
- 05 00 07 11 CMP - - ...
- 05 00 07 24 CDR Monocular. Yes, that monocular is great ... you can see all kinds of features.
- 05 00 07 33 CMP What they ought to do is give you real usable telescope, so you - -
- 05 00 07 37 CDR Hey, look at - look at the earth. See that earth.
- 05 00 07 39 CMP Oh, God.
- 05 00 07 40 CDR Isn't that beautiful?
- 05 00 07 42 CMP That's just fantastic.
- 05 00 07 43 CDR Would you believe Africa?
- 05 00 07 46 CMP Oh, that is unbelievable - -
- 05 00 07 47 CDR That's why - -

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- 05 00 07 49 CMP Oh, outstanding. Beautiful.
- 05 00 07 52 CDR You've never seen that before, have you, John? You just got to see it ... Isn't that a beautiful earth?
- 05 00 07 57 CMP Ahhhhhh! Talking about the dawn coming up like thunder. Man, that's ... Look at that.
- 05 00 08 06 CDR That's the whole earth. That's - (laughter) --
- 05 00 08 08 CMP That's unbeliev - that's unreal.
- 05 00 08 11 CDR That's why I want to get this color - Gene-o, that's why we want to get this color stuff ... John does the landmark tracking ...
- 05 00 08 27 CMP This works damn good for keeping count of where you are.
- 05 00 08 30 CDR Okay, I'm going to have to roll at 10:58. That's beautiful. What a contrast, tan and - Now we're getting over, Gene-o; ... This thing goes from a little tan to a dark - a dark - it's a brownish tan. It's a black ...
- 05 00 08 54 CMP Now here it doesn't look as bright in the Smyth's Sea as it did back there.
- 05 00 08 59 CDR Yes, and also, ... black ... No, we're 36 ... on John's map. 120:09. I've got to roll. Here we go, babe. I got to roll. Okay.
- 05 00 09 20 LMP Okay, now what do I do here with this camera?
- 05 00 09 22 CDR Okay. I'd stop it right there. ... roll and pitch 258.
- 05 00 09 52 CDR Oh, this is just great. This is just fantastic.
- 05 00 09 56 CMP ...
- 05 00 10 00 CDR Yes. Now that one has white in the middle ... that was definitely impact; there's no doubt, the way it describes a rim, sort of.
- 05 00 10 09 CMP That raised stuff - it looks like it's painted with a paintbrush - -

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Day 6

- 05 00 10 11 CDR Yes, but you see that little bitty basket up there, John? Now, that's definitely a volcanism, you know; not much ray and kind of rounded.
- 05 00 10 18 CMP It is rounded on top. There's one way back there --
- 05 00 10 21 CDR Yes, but the one way up there --
- 05 00 10 23 CMP That peak is --
- 05 00 10 24 CDR That - that's the volcano right there - that little one over there, but this big white one down here is --
- 05 00 10 28 CMP -- that peak is 3-0-whatever it-is. One of the first craters when it comes off the horizon. You'll see it next time ... CP-1.
- 05 00 10 36 LMP It looks like ... to me.
- 05 00 10 46 CDR I need to pitch 258.
- 05 00 10 51 LMP Like that one right underneath it.
- 05 00 10 52 CDR Yes. Yes.
- 05 00 10 54 LMP That looks like it's a volcano.
- 05 00 10 56 CDR That's the volcano - it seems rounded and it doesn't ...
- 05 00 11 04 CMP Can't prove it by me ...
- 05 00 11 06 LMP Boy, I tell you, I couldn't ...
- 05 00 11 09 CDR Well, you do. You have to look, John.
- 05 00 11 13 CMP Well, it does - it has a central dark --
- 05 00 11 17 LMP ...
- 05 00 11 25 CMP I know, but look how it's bowed ... like that.
- 05 00 11 43 CDR Okay. I'm pitching to 258.
- 05 00 11 45 CMP Okay, there's ...
- 05 00 12 05 CDR 258 coming up.
- 05 00 12 09 LMP God. This is bad. Let me know when we get ...

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 301

- 05 00 12 26 CDR Okay. That seems to get it.
- 05 00 12 31 LMP What's the time now?
- 05 00 12 37 CDR We're still looking subsolar. No, we're going away from it. No, no. We're looking at - look out - there's the subsolar point, right here.
- 05 00 13 10 LMP There's CP-1 ... target ...; you know, man, anybody who says these things are all flat is touched.
- 05 00 13 44 LMP ... subsolar point ...
- 05 00 14 05 LMP What's the time?
- 05 00 14 06 CDR The time is 20:14 - 120 --
- 05 00 14 09 LMP Yes. That looks like ...
- 05 00 14 10 CDR 41:30.
- 05 00 14 11 CMP 41:30 ..., Tom.
- 05 00 14 20 CDR Yes. Right there.
- 05 00 14 32 LMP This is the worst map I ever saw in my life.
- 05 00 14 53 CDR Now we're starting to get a few little rilles down here. And I'm down to zero phase - my reticle is washed out. I can't even see my reticle --
- 05 00 15 10 CMP My reticle is washed out ...
- 05 00 15 14 CDR Yes. Mine is washed out.
- 05 00 15 18 CMP I didn't - I didn't want to say anything because I didn't want to ...
- 05 00 15 33 CDR ... Yes. I did. I did.
- 05 00 15 36 CMP Man, it's there - ain't no doubt about it. That cotton-picking moon ain't ...
- 05 00 15 55 LMP Gol!
- 05 00 15 57 CDR ... straight around it, it's a hell of a lot higher. Think maybe Smyth's Sea was one big impact and then the volcano ...

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05 00 16 14 LMP ...
05 00 16 16 CDR Okay. Minus 71 and 170.
05 00 16 33 CMP It's beautiful ...
05 00 16 57 LMP (Singing)
05 00 17 22 CDR Got minus 70 and ...
05 00 17 28 LMP Plus?
05 00 17 29 CDR Minus.
05 01 13 16 CMP ... is 121:19. 6 more minutes.
05 01 13 29 CDR Mission rules say come home on that, don't they?
05 01 13 38 CMP If we lose another fuel cell, we go home?
05 01 13 41 CDR Shoot, if we lose one, we go home. Don't we?
05 01 13 44 CMP Okay, I want to copy - copy this down, and let me get the flight plan.
05 01 13 47 CDR Here you are, babe.
05 01 13 57 CMP Just lose them?
05 01 14 07 CC Apollo 10, Houston. Here's what we'd like you to do on fuel cell 1. Open-circuit FUEL CELL 1. FUEL CELL 2, go to MAIN BUS A only; FUEL CELL 3, go to MAIN BUS B only. Over.
05 01 14 24 LMP Roger. Understand you want me to open-circuit FUEL CELL number 1; you want me to go FUEL CELL 2 to MAIN BUS A, and FUEL CELL 3 to MAIN BUS B. I'll do it now.
05 01 14 35 CMP Wait a second, here.
05 01 14 38 CC That's affirmative. We're standing by.
05 01 14 51 CMP Go.
05 01 14 59 CC Apollo 10, Houston. In the event that you get an undervoltage light, disregard the voltage and come right back up again.

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Day 6

~~CONFIDENTIAL~~

Page 303

- 05 01 15 07 LMP Okay, I'm looking at 26.9 on both MAIN A and MAIN B at this time.
- 05 01 15 16 CMP Did you open-circuit it? Did you open-circuit?
- 05 01 15 22 LMP Yes. I don't like this. Shit, I just don't like this. We have to power down all this.
- 05 01 15 30 CC Roger, 10. We copy. And it's looking good.
- 05 01 15 35 CMP How good does all that look to you?
- 05 01 15 42 CC Say again, 10.
- 05 01 15 43 CDR You want to go over this ORB rate landmark tracking --
- 05 01 15 44 CMP How good does all that really look to you?
- 05 01 15 47 CMP Yes, you hold ORB rate. Okay? And I'll - and if these times - You still --
- 05 01 15 52 CC We're assessing it right now.
- 05 01 15 54 LMP Okay. I guess we're going to lose you in a couple of minutes here.
- 05 01 16 19 LMP Houston, this is 10. Do you want me to maintain my battery charge on A at this time?
- 05 01 16 25 CDR I would say yes, to make sure those batteries are up.
- 05 01 16 42 CC Apollo 10, Houston. Terminate your battery A charge at this time, and if we get a cryo O₂ heater cycle, well, you may lower the bus voltage momentarily. Over.
- 05 01 16 55 LMP Okay, fine. I understand. I'm terminating the battery charge at this time.
- 05 01 17 01 CDR Surely we want to start powering down here and still go ahead.
- 05 01 17 13 CMP Hey, that's those fuel cells one of ... do early TEI for loss of.
- 05 01 17 18 LMP For one fuel cell?
- 05 01 17 19 CMP Yes

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Day 6

- 05 01 17 20 CDR We come back early for that one.
- 05 01 17 23 CMP As far as high ..., for these items early TEI will be delayed a reasonable time, pending completion of various lunar-orbit activities.
- 05 01 17 34 CDR Houston, do you have a - What's your latest hack on when we'll have AOS with you, please?
- 05 01 17 39 LMP ...
- 05 01 17 42 CMP AOS.
- 05 01 17 43 LMP Oh, AOS.
- 05 01 17 44 CC Okay. AOS will be 122:06.
- 05 01 17 49 CDR Roger - -
- 05 01 17 50 CC And we'll be losing you in 2 minutes.
- 05 01 17 53 CDR -- Roger; 122:06. So we're going to plan to continue on with the landmark tracking, and we'll talk to you about this as soon as we get AOS.
- 05 01 18 06 CC Roger. We'll have some new word for you then.
- 05 01 18 08 CDR Okay; thank you, Jack.
- 05 01 18 15 CDR We got a good state vector. Shit, we could burn the son of a bitch.
- 05 01 18 19 LMP Yes, we could.
- 05 01 18 20 CDR ... We're going to come back in the dark though, baby. We're going to land before sunrise ... a little bit.
- 05 01 18 26 CMP Oh, God.
- 05 01 18 28 CDR ... a long time, baby.
- 05 01 18 30 CMP Then going back slow wouldn't help that. You wouldn't want to go back slow.
- 05 01 18 33 CDR Shit, no. When you make that burn, baby, you commit yourself when you splash down, whether you're fast or slow. You can't do anything about it.

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Day 6

~~CONFIDENTIAL~~

Page 305

05 01 18 46 LMP

In the dark?

05 01 18 47 CDR

That's right, baby. If we burn TEI the next REV around, we're coming back in the nighttime. Okay, Houston; Apollo 10. I'm going to go ahead and start a roll around, so I'll come around to the ORB rate of - I'll wait until after we get loss of signal and pick up an ORB rate of 339 for landmark tracking.

05 01 19 13 CC

Roger. We copy.

05 01 19 21 CDR

Oh, man, I'm glad you didn't leave that fuel cell on while we were out there doing the rendezvous.

05 01 19 26 CMP

... getting so nervous I wouldn't know what to do.

05 01 19 29 LMP

... scared the living ... out of me if you had told me ...

05 01 19 52 LMP

Now we're sitting right at the point where we're almost going to get a ... every time those heaters cycle in this position.

05 01 19 58 CDR

You don't need the heaters anymore, you get that low.

05 01 20 02 LMP

26 5 to 26 inching to 27. Now I'm going to get the battery chargers off now.

05 01 20 15 CDR

Yes. Going to lose them in 2 minutes; I'm going to roll a hundred and - I'm going to roll over to zero zero, so we can - Stand by with black and white. This may be the only chance to be in color to pick up the earth in the sequence camera.

05 01 20 26 LMP

... already.

05 01 20 27 CDR

You got the color film in there? No black and white? I got this special color here. That color film - is that - that's still that color film - -

05 01 20 35 LMP

... him out of the LM. That's the only stuff we got left. It came out of the LM.

05 01 20 39 CMP

Okay, let's ... fire down the checklist and see if there's a few things we can get off that ... maybe to help us a little bit.

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- 05 01 20 46 CDR Yes. Maybe that foldy junk. I could do without one of those GPI's, right now.
- 05 01 21 11 CMP We don't need the hot-water heater, do we?
- 05 01 21 12 CDR No, shit, no. Get that off.
- 05 01 21 23 CMP ...
- 05 01 21 36 CMP What's this breaker that won't reset, babe?
- 05 01 21 39 LMP FUEL CELL AC BUS 1. FUEL CELL PUMP.
- 05 01 21 43 CMP There you go. Look at it.
- 05 01 21 46 LMP Don't put your hands on it.
- 05 01 21 47 CMP No, I ain't pushing it in.
- 05 01 21 52 CDR Okay, you got a powerdown checklist?
- 05 01 21 56 CMP Mother's warm, too. Sure is.
- 05 01 22 01 LMP Is it getting warm?
- 05 01 22 02 CMP Yes.
- 05 01 22 04 CDR It might cool off and come back and work for a while.
- 05 01 22 07 LMP I wouldn't plan on that.
- 05 01 22 08 CMP Yes, I wouldn't count on that at all.
- 05 01 22 37 LMP Where in the hell is that emergency part? I wouldn't want an emergency powerdown.
- 05 01 23 07 CMP The only powerdown I could find was the emergency powerdown. In the LM - maybe it's in the LM where we got those others.
- 05 01 23 11 LMP Are the others in here, John? The regular power-downs?
- 05 01 23 18 CDR Should be in the LMP handbook. Right?
- 05 01 23 25 CMP You don't want to put any batteries on.
- 05 01 23 26 CDR No.

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Day 6

~~CONFIDENTIAL~~

Page 307

05 01 23 29 LMP

... O₂ HEATERS and RADIATOR HEATERS, OFF. We'll leave those on, just the emergency powerdown. ... OFF. S-BAND POWER AMPLIFIER, OFF. FUEL CELL switch, OFF.

05 01 23 43 CDR

FUEL CELL PUMPS, OFF.

05 01 23 47 CMP

What the hell are you looking at?

05 01 23 49 LMP

That's the emergency powerdown. ...

05 01 23 51 CDR

That's if you catch fire.

05 01 23 52 CMP

This is if you catch fire. That's not what we're looking for.

05 01 23 55 LMP

No, it isn't. It's the regular emergency powerdown.

05 01 24 00 CDR

Okay.

05 01 24 01 LMP

You mean, ..., babe? Here're two more. Didn't the LM - maybe I'm thinking of the LM, but in the LM we had a regular ...

05 01 25 00 CMP

Shit, there it is. Son of a bitch.

05 01 25 04 LMP

Freaking heaters. Turn the heaters off. Turn the heaters off.

05 01 25 31 LMP

Watch for a MASTER ALARM. I have to get it when ...

05 01 25 49 CMP

How low did the voltage get?

05 01 25 51 LMP

26.5.

05 01 25 53 CMP

What is it now?

05 01 25 54 LMP

27 - 26.8. Shit, babe. I don't like staying in lunar orbit like this.

05 01 26 05 CDR

I don't either, baby. All it takes is one of those fuel cells to freak out on us, and we're in deep yogurt.

05 01 26 13 CMP

You ain't shitting.

05 01 26 15 CDR

Let's go ahead and get this landmark tracking out of --

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Day 6

05 01 26 18 LMP
05 01 26 21 CDR
05 01 26 22 LMP
05 01 26 24 CDR
05 01 26 28 LMP
05 01 26 41 CMP
05 01 26 43 CDR
05 01 26 45 CMP
05 01 27 03 CMP
05 01 27 07 LMP

05 01 27 13 CDR
05 01 27 17 LMP
05 01 27 24 CDR
05 01 27 25 LMP
05 01 27 26 CMP
05 01 27 33 LMP
05 01 27 37 CDR

05 01 27 54 LMP
05 01 27 58 CDR
05 01 28 01 LMP
05 01 28 02 CDR
05 01 28 05 CMP

I don't ... powerdown checklist in here.

We got a good state vector --

But take a look at what you've got powered up.

Let's see what ... state vector shows.

Right. ... darned thumb. Yes. What the hell is that?

... turn the bright lights on?

Turn the lights off; we don't need those.

Rendezvous lights, EVA lights; we don't need those.

Was that - was that the cryo heaters?

I turned the cryo heaters off ... That's what he's doing.

Let me cycle them.

I can turn high-gain power off.

Yes, we don't need ... --

Does that help it any?

A little bit.

We'll need it when we come around, though.

We won't be able to get high gain on these passes. We're going to be in ORB rate. Do we have a TEI pad for this time around?

Right now. We got 2 more hours to wait.

The TEI - what's the latest TEI pad?

121:41.

Yes. Okay, we got -

What's the DELTA-V?

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Day 6

~~CONFIDENTIAL~~

Page 309

- 05 01 28 06 CDR Shit, babe, I don't think - we shouldn't - that is, we can't come back fast.
- 05 01 28 12 LMP ... 2992.
- 05 01 28 14 CDR That isn't as fast as we came.
- 05 01 28 18 LMP We're ... on 2900, Tom. 22.
- 05 01 28 21 CDR ... how fast you turn - the final one - -
- 05 01 28 23 LMP Yes, the final is 36, but - -
- 05 01 28 26 CDR Yes. Yes, that's - ... and then they start you home, and then you can work on it from there. I don't like those amber lights.
- 05 01 28 56 CMP Me neither.
- 05 01 29 01 LMP I don't like it either.
- 05 01 29 16 CMP Tell them to go away.
- 05 01 29 19 LMP ...
- 05 01 29 23 CDR 122:06. When is this landmark tracking? Why don't we go ahead and give them a little data, so -
- 05 01 29 32 CMP They ain't going to get much, I'll tell you that.
- 05 01 29 34 CDR Yes.
- 05 01 30 03 LMP ... they had been here as long as we have -
- 05 01 30 11 CDR Well, maybe we didn't lose it.
- 05 01 30 13 CMP Yes.
- 05 01 30 14 CDR ... in the first REV around the earth.
- 05 01 30 32 LMP How about you, babe? At this point in time, I'd like to become a little bit conservative, I guess.
- 05 01 30 36 CDR Yes, that's for sure. We tripped all the heck ... of everything. But what has it got on that list? When's John's first landmark track?
- 05 01 31 02 LMP P-1 is at 121:55.

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Day 6

- 05 01 31 07 CDR Look at that solar corona!
- 05 01 31 09 LMP Let's see if I can ... get a picture at it --
- 05 01 31 11 CDR Look at it!
- 05 01 31 12 LMP Turn these lights down.
- 05 01 31 14 CDR Take a look. ... out there, John. See it in the hatch?
- 05 01 31 24 CMP No, I've got to do some updating here. Okay, check me on these numbers.
- 05 01 31 29 CDR Alright. Let's go, baby.
- 05 01 31 37 CMP ... didn't pull it wide open. Yes.
- 05 01 31 52 CDR It's a long have to take one at least 1 second long. What did you get on it? Why -
- 05 01 32 10 CMP I'm not so fast.
- 05 01 32 12 CDR About 4 seconds. ... Just hold it down. Hold up - here she comes. Right now, babe; beautiful. Go.
- 05 01 33 06 CDR Just real slow. I wonder if they're expecting to - Here it comes.
- 05 01 33 14 CMP Wonder, if that thing gets like that with a fuel cell pump, what you do. Let's look at the malfunction procedures; maybe we have to shut that mother down, you guys.
- 05 01 33 24 LMP I already did, babe.
- 05 01 33 25 CMP Does it say? What does it say to do?
- 05 01 33 31 LMP It is open-circuited, babe.
- 05 01 33 33 CMP What - what are the temperatures doing?
- 05 01 33 35 LMP They're safe, and stable. ... Okay, let's pump them up again, John.
- 05 01 34 39 LMP Okay.
- 05 01 35 05 CDR You already got your P20 -

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Day 6

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Page 311

05 01 35 06 LMP I did them on ... pressure.
05 01 35 09 CDR We going down?
05 01 35 12 LMP Turn the heaters on, one at a time. ... the deadband.
05 01 35 17 CDR Turn the heaters on on the lowest one. Leave the other one up. We can ... later.
05 01 35 27 LMP Put them on, one at a time.
05 01 35 37 CMP You think we ... get a light? ... off.
05 01 35 43 LMP Put them on one at a time.
05 01 35 46 CMP Is that the best way?
05 01 35 48 LMP Right now it is.
05 01 36 14 LMP There, 50 degrees to go.
05 01 37 14 CDR Yes, this may be the only pass we get for landmark tracking.
05 01 38 37 LMP Did you change your attitude, Tom?
05 01 38 40 CDR No. Trying to make ... This ORB rate is so shitty I can't believe it. That's on the GDC.
05 01 38 55 LMP You roll right-side up, right?
05 01 38 56 CDR Yes. I couldn't call VERB 82 - a VERB 83 in it, could I?
05 01 39 02 LMP No.
05 01 39 03 CDR Huh?
05 01 39 04 LMP No.
05 01 39 05 CDR We've looked up the best ... the GDC and the IMU ... to have drifted off.
05 01 39 09 LMP Yes.
05 01 39 10 CDR Okay, we're going to be picking this up at - at the first one, John. At 21:39:49, that's when it's

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Day 6

going to be coming on the horizon, and we'll get
a T₂ 21:42:49.

05 01 40 32 CDR

Okay, this is the bulge on the other side of the --

05 01 40 34 CMP

How are the other two fuel cells' condenser and
exhaust temperatures doing?

05 01 40 38 LMP

They're alright, John.

05 01 40 46 CDR

This is the one. The RP is 02:45 before then.

05 01 41 00 LMP

I'm going to turn on the other heater in AUTO.

05 01 41 05 CMP

At the same time with the other one being on?

05 01 41 07 LMP

Yes.

05 01 41 10 CDR

Do we really need the heaters?

05 01 41 12 CMP

Yes.

05 01 41 13 LMP

Yes, you got to keep that cryo pumped up, babe.

05 01 41 22 CDR

Yes, we occasionally go to MANUAL on 1. Okay.

05 01 41 26 LMP

Gosh, I can't see the --

05 01 41 29 CDR

42:49; you got a minute and 15 seconds to go, John.
It's just 85 degrees. And you should be seeing
crater 225 coming up, babe.

05 01 42 13 CDR

Okay.

05 01 42 14 CMP

Okay, we're coming across. It's 225.

05 01 42 17 CDR

Okay, 225?

05 01 42 18 CMP

Yes.

05 01 42 19 CDR

And we got the next - that little one - that little
blast right up on the rim and a deep one over on the
left. And we should be there in about 20 seconds,
where you should start marking, babe.

05 01 42 30 CMP

Where I can start marking?

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05 01 42 31 CDR Yes, 40 seconds. 20 seconds. 10 seconds now. Let me know when you mark. Call it out, and I'll track it. You should be - there. Have you marked yet?

05 01 43 01 CMP No.

05 01 43 17 CMP One.

05 01 43 18 CDR Okay, good show.

05 01 43 21 CMP You counting for me?

05 01 43 23 CDR 5 seconds, 8 seconds, 10 seconds, 15 seconds, 20 seconds, 24, 25 seconds.

05 01 43 45 CMP Two.

05 01 43 46 CDR Okay, two marks. 5 seconds, 10 seconds - I guess you could really say 15 seconds, 20 seconds, 25 seconds; three marks, John. Okay, 5 seconds, 10 seconds, 15, 20 seconds, 25 seconds; that's four. 5 seconds -

05 01 44 45 CMP What's my shaft - what's my trunnion angle? Can you guys tell?

05 01 44 49 CDR Can't see it. 10 seconds. Can you see ..., Gene-o, ... - -

05 01 44 54 CMP Huh?

05 01 44 55 CDR ...

05 01 44 56 LMP ... see any ... down there; there's nothing on the DSKY?

05 01 44 59 CMP No.

05 01 45 00 CDR Okay, 20 seconds, coming up on 23, 24, 25 seconds. Okay, you got them.

05 01 45 09 CMP Beautiful.

05 01 45 11 CDR They're fine.

05 01 45 14 LMP ... sure, the fuel cell is usable, but you got to take it on the line and put it off the line, and - -

05 01 45 20 CMP Without the pump?

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Page 31⁴

~~CONFIDENTIAL~~

Day 6

05 01 45 24 LMP Yes, but you got to watch your - your ...
05 01 45 32 CDR You want me to copy these things down for you, John?
05 01 45 36 CMP Yes, you can if you want.
05 01 45 37 CDR What am I supposed to copy --
05 01 45 39 CMP 75, 85, 03, 000.
05 01 45 42 CDR 000, 8, hold it, 75, 0 --
05 01 45 46 CMP No, you don't have to copy that stuff down.
05 01 45 48 CDR I don't.
05 01 45 49 CMP We got to kind of hurry here, because we're --
05 01 45 51 CDR Okay.
05 01 45 52 LMP So we haven't lost it entirely --
05 01 45 53 CDR Okay, the next one is --
05 01 45 54 LMP -- ... we can't find it.
05 01 45 55 CDR -- next one is CP-2 mode?
05 01 45 57 CMP Yes.
05 01 45 58 CDR Okay, you're going to fire at 21:55, and you've got
11 minutes to go.
05 01 46 02 CMP Okay, now we have to hold here for 30 seconds.
05 01 46 07 CDR Okay. I'll time you on it. Did that work out pretty
smooth?
05 01 46 17 CMP ...
05 01 46 18 CDR Okay, babe.
05 01 46 39 CDR Okay.
05 01 46 40 CMP And here's what we copy.
05 01 46 42 CDR Oh, is that 89?

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05 01 46 43 CMP Yes, true.

05 01 47 05 CDR This is where this little bear computes what it is, huh?

05 01 47 08 CMP Yes.

05 01 47 22 CDR Okay.

05 01 47 23 CMP ...

05 01 47 24 CDR 0, 1, 08, 108 - Wait a minute. 01089; that's 85323; and that's 00086, right?

05 01 47 46 CMP Yes.

05 01 47 47 CDR Okay, got it, John.

05 01 48 03 CDR Okay, the next one is CP-2. Was that attitude pretty good for picking up to start with in there?

05 01 48 09 CMP Great.

05 01 48 10 CDR Okay, now the next one is --

05 01 48 12 CMP You want a VERB 83 - 82?

05 01 48 14 CDR Yes, a VERB 83. Give me one so I can flip your ORB rate ball on - align to GDC for the IMU real fast, and I can just roll ...

05 01 48 26 CMP P39.

05 01 48 27 CDR Okay, hold on. Shit, I got roll zero. Pitch is - What the hell's wrong here? I'll get this thing aligned real fast here.

05 01 48 41 CMP What - what time is this next one?

05 01 48 43 CDR At 55.

05 01 48 45 CMP ... in time.

05 01 48 47 CDR ... 6 minutes here. Okay, stand by and I'll get a good alignment here. To hell with that son of a bitch of a - That SCS is lousy, you know. Okay, ORB rate on both..

05 01 49 07 CMP Check.

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Day 6

- 05 01 49 08 CDR Yes, now what was it, 340?
- 05 01 49 10 CMP Yes.
- 05 01 49 11 CDR Okay, I'll slew it in. I'm going --
- 05 01 49 15 CMP 35.
- 05 01 49 17 CDR Okay.
- 05 01 49 18 CMP 340. All set?
- 05 01 49 20 CDR Hang on, I'll be right there. I got it. Go, babe.
- 05 01 49 23 CMP Okay.
- 05 01 49 24 CDR You got it. Okay. Now, ORB rate and we'll track it. Good show. Okay. Again, John, this is coming up to CP-1. Your zero time is going to be 21:55:10, and they got T_2 at 21:55 --
- 05 01 49 38 CMP Want to check and make sure this is CP-2 landmark loaded in here?
- 05 01 49 42 CDR Okay. ... 1? You got it. All balls, go.
- 05 01 49 53 CMP Oh, shit.
- 05 01 49 54 CDR What happened?
- 05 01 50 30 CDR We got 5 minutes to go, John. Any more on those malfunctions over there, Gene-o?
- 05 01 50 41 IMP Yes, it says basically, "Fuel cell used will maintain a skin temperature greater than 380 and by operation; less than 475 by open-circuiting; continuous hydrogen purge" - basically what it says. It's still available to us if you're going to monitor it - babysit with it. The thing that bothers me is this circuit breaker's ...
- 05 01 51 08 CDR Okay, John. This one's going to be characteristic by - You're going to have big old crater number IX - -
- 05 01 51 14 CMP Yes, man.
- 05 01 51 15 CDR -- coming up, and I think I can - And that will be at 50 - I think I can help lead - I'm now at the ..., so I can help lead you in.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 317

- 05 01 51 25 CMP (Yawn)
- 05 01 51 26 CDR And, Gene-o, at 122, just while we're still here, get that camera set up at f:8 at 1/250 on the sequence, or f:11 at 1/250 - ... - and then that one set up so we can shoot the earth. Okay?
- 05 01 51 38 LMP Okay, I'm all squared away.
- 05 01 51 41 CDR And it'll be at 122:06. So it'll be about 7 more minutes. I think I got this ORB rate coming right down for you, babe.
- 05 01 52 51 CDR Okay, we got about 2 minutes and 10 seconds, John, until you first pick it up.
- 05 01 53 57 CDR Okay.
- 05 01 54 00 CMP We've got 2 minutes?
- 05 01 54 03 CDR You got about a minute and 10 seconds from the horizon.
- 05 01 54 09 CMP Okay. The MIT.
- 05 01 54 46 CMP And my IP.
- 05 01 54 48 CDR Yes, we're coming right across crater number IX here, huh?
- 05 01 54 53 CMP Yes.
- 05 01 55 01 CDR Is your IP in the basin?
- 05 01 55 03 CMP Yes.
- 05 01 55 04 CDR Okay, you'll be at your angle at 56:52. About a minute and 40 seconds, John. ORB rate is going just real good for you; it hasn't changed a bit.
- 05 01 55 31 CMP Okay, here we go.
- 05 01 55 33 CDR Okay. Oh, I got it for you. I can see it out there now.
- 05 01 55 41 CMP But I don't see it.
- 05 01 55 47 CDR May be down under you. They may have missed us a little bit. 56:52. There's still another minute.

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~~CONFIDENTIAL~~

Day 6

I can see it up there; it's a little pimple on the edge of the side of the crater. I can see the son of a bitch from here, John.

- 05 01 56 01 CMP It's only 155 - 156:04 now, right?
- 05 01 56 05 CDR We're headed right for it - may be a little to your left.
- 05 01 56 11 CMP I got it.
- 05 01 56 12 CDR Okay, babe. At 56:52, in about 30 seconds, and I'll be marking. You tell me on the first mark. You're 30 seconds from the first mark. 20 seconds. Okay, about 10 seconds, John. When you first start marking, let me know, babe.
- 05 01 56 55 CMP Okay.
- 05 01 56 56 CMP MARK.
- 05 01 56 58 CDR Okay. 5 seconds, 10 seconds, 15, 20, 25. You got two marks, John. 5 seconds, 10 seconds, 15 seconds, 20 seconds, 25 seconds.
- 05 01 57 48 CMP Oh, shit. I lost it.
- 05 01 57 51 CDR 30, 40. You got a mark? Two marks. Okay, and then that one is 10 seconds, 15, 20, 25, 30, 35, 40, --
- 05 01 58 39 CMP I lost it.
- 05 01 58 40 CDR You lost it, huh?
- 05 01 58 41 CMP Yes, ...
- 05 01 58 42 CDR You got three marks. Is that any good?
- 05 01 58 44 CMP Yes.
- 05 01 58 45 CDR Okay. ...
- 05 01 58 55 CMP No, the problem is we wasn't rolled, and I should have thought to roll us. What did it say that it was, north - north or south of the land track that time? Damn, I forgot all about that.
- 05 01 59 05 CDR 5 miles - it is north 5 miles.

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05 01 59 10 CMP What's - what's F-1?
05 01 59 13 CDR F-1 is north 10 miles.
05 01 59 19 CMP Okay, so F-1 is north 10 miles. So we ought to roll right about 5 degrees.
05 01 59 26 CDR Roll right, huh?
05 01 59 27 CMP Roll left, excuse me.
05 01 59 29 CDR Roll ..., okay. F-1 is 20 --
05 01 59 34 CMP North is up that-a-way, ain't it?
05 01 59 35 CDR Which way, John?
05 01 59 37 CMP We're coming around the moon like this --
05 01 59 38 CDR We're coming around from --
05 01 59 39 LMP North is up to the right.
05 01 59 41 CMP Okay, so we want to roll left 5 degrees.
05 01 59 44 CDR North is to the right. Yes.
05 01 59 47 CMP We want to roll right. We want to roll right 5 degrees. We want to roll into it 5 degrees.
05 01 59 53 CDR Roll right 5 degrees.
05 01 59 54 CMP Yes.
05 01 59 56 CDR I'll go ahead and do that for you. Okay, the next one is 122:07, and we have acquisition at 122:06. We've got 6 minutes to acquisition, Gene-o.
05 02 00 18 LMP Okay, you don't have any clean Kleenex, do you?
05 02 00 22 CDR Yes, I got a semi one here, babe.
05 02 00 35 CMP Acquisition is 06:00.
05 02 00 41 CDR Okay, F-1 should stand out like a sore thumb for you. It's that bright little rascal out there. Once we pop over into --

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- 05 02 00 52 CMP Let's see if I'm rolling us right.
- 05 02 00 56 CDR Okay, F-1.
- 05 02 01 01 CMP Plus 43440. Plus 00000.
- 05 02 01 09 LMP Yes. Your ... ought to get us up on top here. Okay, John.
- 05 02 01 18 CDR Okay? I guess you shoot the F-1 when it first comes up.
- 05 02 01 25 LMP It's got to be full, Tom. It's so bright.
- 05 02 01 27 CDR Yes, it's got to be full at 1/250 - on both of them, right? Okay, babe. Get the slide out, and we'll be all set. We'll make these go boom, boom, boom. Is that the black - the color I had in the - -
- 05 02 01 45 LMP This is the color we had in the LM.
- 05 02 01 47 CDR Yes.
- 05 02 01 51 CMP That voltage is holding above ... 7, and I've cycled the ..., one at a time.
- 05 02 01 58 CDR 122:07. Oh, we've got a ways to go. We'll have acquisition from the earth soon.
- 05 02 02 27 CDR Now, if that isn't a tan color, absolutely tan, I don't know what the hell is.
- 05 02 02 54 CMP All these TEI pads don't - don't get you back any faster than the other ones, huh?
- 05 02 03 00 CDR Oh, that's right. About 2900 feet per second. Shit, no, babe. You're going for about 76 hours going home, instead of 57.
- 05 02 03 07 CMP Is that right?
- 05 02 03 08 CDR That's right.
- 05 02 03 10 CMP Shit. Well, the only advantage to that that I can see is that experts will be there to tell you what the hell to do. I don't know what to do with that son of a bitch when the light comes on. Shit. Throw up my hands and

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 321

holler and pass out at the sight of a thing that runs on electricity with its main bus voltages ...

05 02 03 33 CDR Yes.

05 02 03 46 CDR Okay, we're all set to shoot now.

05 02 03 48 CMP The question is, are you better off in lunar orbit than you are coming back?

05 02 03 53 CDR Oh, yes.

05 02 03 55 CMP I guess I'll have to believe you're better off to start back. You can make a one-battery entry with a ... meter, but you can't do nothing if you can't light those engines.

05 02 04 02 LMP Yes, I'd like to be out of lunar orbit; then you ... get back into - get back into OMNI antenna ... the power S-band; you can do lots of those little things that are -

05 02 04 12 CDR Okay, we'll get this marked at 122:07. I got some IC way out in front, José.

05 02 04 25 CMP Good show. It's bright out there, man.

05 02 04 42 CDR Oh, I didn't write down what CP-2 had when you --

05 02 04 44 CMP I got it.

05 02 04 45 CDR You do?

05 02 04 46 CMP Plus 00626.

05 02 04 48 CDR Hold it, 00 --

05 02 04 51 CMP 626.

05 02 04 52 CDR Yes.

05 02 04 53 CMP Plus 63996, plus 00071.

05 02 04 59 CDR 00771.

05 02 05 02 CMP No. 00071.

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Day 6

- 05 02 05 31 CDR Okay. Freaking sun. 05:36, Gene-o, and as soon as it starts. ... There's nearly 22:08, John.
- 05 02 05 52 LMP There it is.
- 05 02 05 53 CDR Hit it, quick. Go, baby, go.
- 05 02 05 56 CMP What?
- 05 02 05 57 CDR The earth. Hit it. Again, baby - -
- 05 02 06 00 CMP Jesus Christ.
- 05 02 06 02 CDR Are you aiming at it right now?
- 05 02 06 05 LMP I know where this one is.
- 05 02 06 14 CDR Beautiful, Gene-o.
- 05 02 06 16 LMP Think I can get - -
- 05 02 06 17 CMP Sounds like we're about to acquire.
- 05 02 06 28 LMP Yes, we are.
- 05 02 06 36 CDR Might shoot an f:8 - 80 on it. Oh, 250 will be good.
- 05 02 06 45 LMP ...
- 05 02 06 46 CDR Huh? My deadband is washed out completely.
- 05 02 06 56 CMP You want to try to place your color back on it?
- 05 02 06 58 LMP ...
- 05 02 06 59 CMP Oh, you did? Oh, okay.
- 05 02 07 06 CDR You sure did. Okay, 07:55, you should first see it. Here, I got Smyth's Peak coming up here.
- 05 02 07 20 LMP What do you use the setting at, Tom? In roll, 5 degrees to the right, right?
- 05 02 07 25 CDR Yes, we'll roll 5 - we'll use the same setting ...
- 05 02 07 29 CMP Roll 5 degrees to the right, right?
- 05 02 07 30 LMP ... mascon.

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Day 6

~~CONFIDENTIAL~~

Page 323.

- 05 02 07 33 CDR Okay. Well, maybe - just shoot a couple on each side.
f:8, f - shoot an f:8 and an f:11.
- 05 02 07 42 LMP Yes, I am. I'm going to shoot them both.
- 05 02 07 43 CC Apollo 10, Houston. Standing by.
- 05 02 07 46 CDR Roger. We're in the middle of a landmark tracking.
07:55. We should hold on the horizon. And at 22 - -
- 05 02 07 59 CC Roger. And we've cranked up a plan of attack on that
fuel cell.
- 05 02 08 04 CDR Okay, can you hold off for just a couple of minutes
and we'll be right with you there.
- 05 02 08 23 CDR Okay, we're coming across it.
- 05 02 08 26 CMP When is zero time?
- 05 02 08 28 CDR Zero time is 122:10:06.
- 05 02 08 32 CMP Okay, about 2 minutes.
- 05 02 08 33 CDR 2 minutes.
- 05 02 08 48 CMP ... plan of attack on the fuel cells. We kicked
the shit out of it, huh?
- 05 02 09 19 CMP Yes, I bet I know what they'll do.
- 05 02 09 22 CDR They'll just bring us home.
- 05 02 09 23 CMP They'll bring it on the line while we're on the back
side and shut it off around on the front side. You
want to bet?
- 05 02 09 29 CDR Okay, you got the landmark?
- 05 02 09 33 CMP Not yet.
- 05 02 09 34 LMP I'll ... for you guys, but I don't want to interfere
with your - -
- 05 02 09 36 CDR Okay, 22 - it just won't take but a minute. 22:10:06.
Just about 20 seconds, John. Let me know when.
- 05 02 10 00 CMP Okay. I haven't got it yet.

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05 02 10 03 CDR Okay.

05 02 10 26 CMP Oh, hell, there it is. Damn near overshot it.

05 02 10 31 CDR Do you want me to pitch down for you?

05 02 10 33 CMP Yes.

05 02 10 36 CDR Okay, you got some pitchdown. Okay.

05 02 10 49 CMP Oh, shit.

05 02 11 00 CDR Pitch down some more?

05 02 11 01 CMP No.

05 02 11 03 CDR Let me know when.

05 02 11 06 CMP Okay.

05 02 11 07 CDR MARK it.

05 02 11 11 CDR 5 seconds, 10 seconds, 15 seconds, 20 seconds, 25 seconds.

05 02 11 33 CDR MARK.

05 02 11 34 CDR You've got two of them. 5 seconds, 10 seconds, 15 seconds, 20 seconds, 25 seconds. Got three of them. 5 seconds, 10 seconds, 15 seconds, 20 seconds, 25 seconds. You got four. 5 seconds, 10 seconds, 15 seconds, 20 seconds, 25 seconds. You got five. There you go, babe. Do I have to hold this attitude, or can I pitch down?

05 02 12 51 CMP No, you can pitch back up, if you will?

05 02 12 56 CDR Okay, Houston; Apollo 10. Go ahead. We're between the F-1 and 130 on the sites. Stand by to copy.

05 02 13 15 CC Okay, Tom. Here is our plan of attack on this fuel cell. ... your fuel cell. Over.

05 02 14 01 CDR Okay, real good. Thank you, Jack.

05 02 14 05 LMP Okay, Jack. We did when the heaters cycled. We were looking at about 20 to 20.2 volts. We got the MAIN BUS VOLTAGE UNDERVOLT light and cycling the heaters

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to the AUTO position on the cryos, one at a time, as they appeared in need of it. It's just not a good feeling to have that - those lights - undervolt lights come on in here. I've also temporarily turned the power on the high-gain antenna off until we can get your high gain again.

05 02 14 40 CDR

And we've also turned --

05 02 14 41 CC

Roger. We copy.

05 02 14 42 CDR

-- we've also turned the potable H₂O heater off, too. Just a few small things to start saving power. Okay.

05 02 14 53 CC

Roger. HIGH GAIN ANTENNA and POTABLE WATER HEATER, OFF.

05 02 14 57 LMP

So, Jack, if you see my cryo pressures dropping, don't hesitate to tell me to get the heater on. I just don't like to put all four of them on at the same time. It really puts a load, and we get the lights.

05 02 15 13 CC

Roger. Understand you're cycling your cryo heaters, and we'll watch the temperatures.

05 02 15 18 LMP

Thank you.

05 02 15 29 CDR

Okay, John. This 130 is 1 nautical mile to the north.

05 02 15 56 CMP

That look right for the numbers I'm supposed to load in - 1 north?

05 02 16 01 CDR

Yes.

05 02 16 02 CMP

Okay, roll right 10 - go right 11 degrees.

05 02 16 07 CDR

Okay.

05 02 16 12 CMP

When do we come up on it?

05 02 16 17 CDR

You acquire at 122:29; you've got 13 minutes to go.

05 02 16 22 CMP

Okay.

05 02 16 24 CDR

What were the numbers - is this the numbers that you got, babe?

05 02 16 27 CMP

That's all the numbers I got.

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- 05 02 16 29 CDR That 89, that's the numbers you got.
- 05 02 16 30 CMP Yes.
- 05 02 16 32 CDR Well, you just loaded - What were the numbers you got on F-1?
- 05 02 16 34 CMP 01977.
- 05 02 16 37 CDR That was 019 - -
- 05 02 16 38 CMP Plus 44157.
- 05 02 16 41 CDR - - plus 44 - -
- 05 02 16 42 CMP Minus 00259. Let me see what I got on F-1 the other day.
- 05 02 16 48 CDR Minus 00259?
- 05 02 16 50 CMP Yes. I'll put that down.
- 05 02 16 53 CDR What was the first one? Plus?
- 05 02 16 56 CMP Plus. Yes, plus 01997. Okay.
- 05 02 17 15 CDR Okay, you rolled 11 degrees.
- 05 02 17 26 CMP Let me see the flight plan.
- 05 02 17 28 CDR There it is. Here you go, babe.
- 05 02 18 05 LMP When did we get into lunar orbit?
- 05 02 18 09 CDR It was 70 - what? 75 something - 76.
- 05 02 18 14 CMP Okay. I hear that goddam MASTER ALARM; it's still ringing in my ears.
- 05 02 18 32 CMP Can you track the landing site?
- 05 02 18 39 LMP ...
- 05 02 18 42 CDR What have you got in there?
- 05 02 18 48 CMP I didn't write it down - -
- 05 02 18 49 CDR I got a good one out here. Ready to go?

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 327

- 05 02 18 53 CMP Yes.
- 05 02 18 55 CDR Hold it. I'm talking about the targets of opportunity.
- 05 02 18 59 CMP Well, what time is this other thing here, Tom?
- 05 02 19 02 CDR We got a ways to go; we're not even up to landing site 1 yet; we're just coming up to Messier - to Secchi. You got the flight plan, babe; it's 129 something.
- 05 02 19 43 CMP According to this here, we're coming up on it.
- 05 02 19 45 CDR 130? Well, shucks; we couldn't be, baby. I just got a big old Taruntius out there - -
- 05 02 19 53 CMP Did I load the wrong numbers?
- 05 02 19 57 CDR Can't be.
- 05 02 19 58 IMP Yes, there's Taruntius H, G, P, and Q right up here.
- 05 02 20 03 CDR Let's look at what the flight plan says. It's 129 something.
- 05 02 20 23 CMP Well, it's 122:20 - 122:19 or - -
- 05 02 20 28 CDR Huh?
- 05 02 20 29 CMP What time does the flight plan say?
- 05 02 20 30 IMP 122:20 or - -
- 05 02 20 31 CDR Well, you got the flight plan?
- 05 02 20 33 CMP Yes, here you go. Shit.
- 05 02 20 36 CDR It's 129, John. 122:29, so we got 9 minutes. It's by landing site 2, you know. That little pimple on the side of 130.
- 05 02 20 45 CMP Yes. Oh, there's the Taruntius twins, there.
- 05 02 20 58 CDR Yes, can you see them pretty well?
- 05 02 21 02 CMP Yes.
- 05 02 21 04 CDR What we'll do is Messier.

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Day 6

05 02 22 57 CMP Tom, could you pitch over about 5 degrees?

05 02 23 01 CDR Yes.

05 02 23 21 CMP And hold that attitude, whatever it is?

05 02 23 23 CDR Right there?

05 02 23 24 CMP Yes.

05 02 24 37 CDR There's Mount Marilyn.

05 02 25 00 CDR Here comes big old Maskelyne, way up there.

05 02 25 06 LMP That bright one; is that Censorinus?

05 02 25 08 CDR Yes, Censorinus A. I'm holding you right on 11 degrees, John.

05 02 25 19 CMP Okay.

05 02 25 25 LMP I sure hope f:8's going to be alright for looking at this moon with this color film.

05 02 25 29 CDR Okay, your IP on this one is Maskelyne B. You got a little blooper right up here on Maskelyne B, and I can lead you into that, babe. How much color film we got left?

05 02 25 46 LMP I don't know.

05 02 25 47 CDR We'll shoot some on the way - of the earth - going back.

05 02 26 12 CDR Do you have that special color film on while I'm tracking for John, here?

05 02 26 17 LMP No, I don't have it on, Tom. Got black and white on.

05 02 26 19 CDR Okay.

05 02 26 20 CMP Now's the time to get the world coming up.

05 02 26 22 CDR No, your world's done gone way behind us, babe.

05 02 26 24 CMP Oh, have you already missed it?

05 02 26 25 CDR Yes, it'll be on the zero horizon at 29:03.

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- 05 02 26 31 CMP We already got it, huh?
- 05 02 26 33 CDR Oh, yes; I could see the son of a bitch out there.
Oh, I got the landing site; I got Moltke, Messier, ...
the blooper, and shit, we're all set, babe. You want
to pop a quick one of Censorinus here?
- 05 02 26 49 LMP Yes.
- 05 02 26 53 CDR Don't wait too long, because I - too short --
- 05 02 26 55 LMP ... to here. Let me get the site through it.
- 05 02 27 11 LMP ... landing site 1 ...
- 05 02 27 18 CMP There's the --
- 05 02 27 20 CDR Here you go, Gene-o.
- 05 02 27 26 CMP Apollo Ridge.
- 05 02 27 27 LMP Yes.
- 05 02 27 31 CDR ... coming up, babe. Okay, we're going to be there
at 2:20 - 2:29.
- 05 02 27 51 CMP It's really baldy, isn't it?
- 05 02 27 55 CDR Yes.
- 05 02 28 01 CMP That's a bright little bastard.
- 05 02 28 03 CDR Yes, I'll bet you can really see boulders on it.
- 05 02 28 05 CMP Yes.
- 05 02 28 18 CDR Okay, your IP lead-in is Maskelyne B, and you should
just be starting to see it now. I got the landing site.
- 05 02 28 42 CMP Boot Hill.
- 05 02 28 47 LMP Let me get that one for a while, will you?
- 05 02 28 51 CMP Duke Island and Boot Hill. There we go.
- 05 02 29 08 CDR You got it? Okay, at --
- 05 02 29 11 CMP I don't have it.

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05 02 29 12 CDR -- 29:03. It should be up on your horizon --
05 02 29 15 CMP You're a ways out, babe.
05 02 29 16 CDR -- and at 22:30 --
05 02 29 18 CMP There's Dry River, Little Big Snake, and Little
Snake Rille.
05 02 29 26 CDR I got it.
05 02 29 31 CMP Okay.
05 02 29 50 LMP There's Moltke, huh?
05 02 29 52 CDR You better believe it. Okay, John. Let me know
when you want to mark.
05 02 29 56 CMP Good.
05 02 29 57 CDR We're shooting at 30:37. You got about 30 seconds
to go.
05 02 30 02 CMP Yes.
05 02 30 03 CDR I got one for you there just standing out loud and
clear; that pimple on the edge of the crater. And
I've got that crater; it's as big as ... I got
these three balls ...
05 02 30 30 CMP Okay, there's ...
05 02 30 33 CDR Yes. Stand by on the mark, babe.
05 02 30 48 CMP There we go.
05 02 30 50 CDR Did you get one?
05 02 30 51 CMP No, I ain't got one yet. When do you want one?
05 02 30 54 CDR Any time now; you're good; you're good; you're GO.
05 02 31 03 CMP Go.
05 02 31 04 CDR Did you get one?
05 02 31 06 CMP Go.

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Day 6

~~CONFIDENTIAL~~

Page 331

05 02 31 07 CDR Okay. Okay. Okay, 10 seconds gone. 15, 20, 25. That makes two. 5, 10, 15, 20, 25. That makes three. 5, 10, 15, 20, 25. That makes four, John. One to go, babe. 5, 10, 15, 20, 25. That makes five. You got them. Proceed. All we need.

05 02 32 53 CMP Yes, that's it, too. That's the right one. God, it's hard to recognize things ...

05 02 32 59 CDR How are your eyes doing? Pretty bad?

05 02 33 03 CMP Burning like a son of a bitch.

05 02 33 09 CDR Houston, Apollo 10. We've just finished tracking landmark 130. Do we have them, Gene-o?

05 02 33 24 LMP Yes, got them on OMNI. Should have them on OMNI. We - For landmark tracking, we have to have - use OMNI.

05 02 33 32 CDR Hello, Houston; Apollo 10.

05 02 33 34 CMP Now, listen. We got to let it run - run for 30 seconds.

05 02 33 38 CC Apollo 10, Houston. Go ahead.

05 02 33 39 CDR Roger. We've just finished landmark 130. We got them all in.

05 02 33 47 CC Very good. We have ginned up a fuel cell 1 plan. Over.

05 02 33 54 CDR Okay. Stand by. Okay, Gene-o, why don't you - come on up and take a break for a while. I've got to maneuver around to 090 now. Roll zero and maneuver to 090 inertial.

05 02 34 18 CMP Houston, 10. You got the data off 130?

05 02 34 29 CC Houston. Say again, please.

05 02 34 32 CMP Roger. Do you have the data off 130 yet?

05 02 34 38 CC Stand by. That's affirmative, 10. We've got the data off 130 now.

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~~CONFIDENTIAL~~

Day 6

05 02 34 47 CMP

Okay. When we're in real time, I'll just hold on. I understand that this is one that's really important, so I can hang on to this until you give me a GO.

05 02 34 58 CC

Roger; that's fine. And we got it now.

05 02 35 02 CDR

Want me to read that stuff to you? Okay, Gene-o. Stand by to copy this stuff.

05 02 35 11 LMP

Alright.

05 02 35 12 CMP

This is working real good, Tom; boy, it's just beautiful.

05 02 35 15 CDR

For the fuel cell. Are you still shooting pictures?

05 02 35 22 LMP

No, I'm not.

05 02 35 23 CDR

Okay. The camera's still clicking.

05 02 35 29 LMP

Go ahead, Houston - This is 10 - with your fuel cell plans.

05 02 35 37 CC

Okay. Fuel cell plan is relatively simple. We're just going to leave it off line, open-circuit, and we want you to turn the fuel cell 1 in-line heaters off and then monitor the skin temperature. Monitor the temperature to stay between 390 and 410, cycling the in-line heaters on and off to maintain 390 to 410. This will keep our water production to a minimum, reducing our requirement to purge, and we may be able to go as long as 50 hours without purging. During the day, we will work out procedures to use during your sleep period on skin temperature. Over.

05 02 36 23 LMP

Okay, Jack. You must have been reading the same malfunction procedures as I was. The fuel cell heater has been off - well, ever since we went through LOS. I've got a question on that heater. It's an AUTO heater which recycles somewhere around 380, 390 degrees. Do you just want me to turn this to AUTO position if it starts dropping? Is that correct?

05 02 36 49 CC

Negative, 10.

05 02 36 50 LMP

Or am I wrong about that heater?

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Day 6

~~CONFIDENTIAL~~

Page 333

05 02 36 52 CC We --
05 02 36 54 CDR You finished, John?
05 02 36 55 CC -- want you to manually --
05 02 36 57 CDR You finished, babe?
05 02 36 58 CC -- keep the temperature between 390 and 410 by --
05 02 36 59 CMP For these four.
05 02 37 03 CC -- cycling the heater switch. Over.
05 02 37 04 LMP What are you reading on the heater - on the skin temperature right now?
05 02 37 10 CC Stand by.
05 02 37 11 CDR Okay. I've got to go inertial. Pitch around so we'll pick it up on the other side.
05 02 37 14 CC Right now, we're reading skin --
05 02 37 15 CMP Yes, but we've got to get a realign, don't we?
05 02 37 16 CDR Yes. But I'd do this first so you can get a realign, see? Here we're come around and I'll pitch around.
05 02 37 20 CC -- temperature of 423, 10.
05 02 37 23 LMP Okay, I'm reading about 430, I guess, and it's been pretty stable. I'll turn the heater on, say, down around 390, and keep it between 390 and 410.
05 02 37 34 CDR Gimbal and pitch.
05 02 37 37 CC Roger. And whenever you've --
05 02 37 38 CDR Okay.
05 02 37 39 CC -- got some time there, we would like to update your state vector and pass you some pads.
05 03 17 05 CC Apollo 10, Houston. You're going around the corner in about a minute and a half. Your AOS is 124:04, and we'd like you to check and make sure the VHF is all off. Over.

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Day 6

- 05 03 17 15 CMP That's a good point.
- 05 03 17 16 CDR 124:04. And we'll check.
- 05 03 17 17 LMP Yes, Jack. I checked. All the VHF switches are all off.
- 05 03 17 21 CMP Check the T/R switches. They could be on. As a matter of fact, we can turn off those switches on the audio control panel. There was no need - bad COMM.
- 05 03 17 33 CDR Oh, I've already turned all those off.
- 05 03 17 34 CC Roger. Thank you.
- 05 03 17 36 LMP Okay. Ain't many we don't need.
- 05 03 17 50 LMP Pshew!
- 05 03 18 22 CDR TEI is 3600 and some feet per second.
- 05 03 18 27 CMP Yes. 3650.
- 05 03 18 28 LMP I don't understand why, if you acquire it now, you can't get back -
- 05 03 18 32 CMP Okay. That worries me a little.
- 05 03 18 35 CDR What you got - you got the moon? I'll take it around the end of your land until you got the antipode, okay?
- 05 03 18 39 CMT Yes.
- 05 03 18 40 LMP That's because you want to land at a certain place.
- 05 03 18 42 CDR Okay, that's right.
- 05 03 18 45 LMP Okay, that's because you want to land - No, there ain't no way out - -
- 05 03 18 47 CDR No way. So the main thing - once you foul up, regardless whether you come - you're - you're in a curve that comes like this - -

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Day 6

~~CONFIDENTIAL~~

Page 335

- 05 03 18 53 LMP Yes, but you're shooting for a specific landing point. That's why you're saying - I mean - you think you - The landing point is - is a - is a - The end is - a - independent variable - it doesn't move. Is that right? If you were willing to accept - a change in the landing point, you could --
- 05 03 19 09 CDR Oh, yes.
- 05 03 19 10 LMP -- you could fire now and still get back in a short time.
- 05 03 19 12 CDR Yes, but you might come down in the Indian Ocean.
- 05 03 19 13 LMP Yes, yes; I agree. But - but, a - Okay. But it's the landing point that's fixed - Oh, I could see that, because the earth - soon as you're rotating around the earth, then the earth is also rotating that landing point around, so that - it's at a different point in respect to the axis.
- 05 03 19 25 CDR Yes, once you foul - regardless of how long it takes you - whether 52, 7 $\frac{1}{4}$, 10 $\frac{1}{4}$ - then it won't change it hardly a bit when you get down, as far as time of day.
- 05 03 19 37 LMP Yes.
- 05 03 19 40 CDR There. We're on the point.
- 05 03 19 45 CMP I wonder if we've been using our other heaters.
- 05 03 19 49 CDR No.
- 05 03 19 50 CMP ... ought to eat you alive on that. Maybe we ought to turn our primary ECS heater off, like.
- 05 03 19 54 LMP Our what?
- 05 03 19 55 CMP That's probably not ever going to come on. But why should it even be on in the first goddam place -

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Day 6

- 05 03 19 59 LMP Yes, it's a - it's AUTO, so - that's been working so fine, babe, that we're - we're above 27 volts. I've been watching it. We've been hanging about 27 volts ...
- 05 03 20 08 CMP Man, if it comes on; it's going to eat you alive.
- 05 03 20 11 CDR Hey, we got a landmark track coming up here when the sun comes out.
- 05 03 20 17 CMP Yes.
- 05 03 20 19 CDR I think it's been - we've been working it out pretty good, John.
- 05 03 20 22 CMP Yes, I think that's great, Tom. It's perfect. It'll be a piece of cake to track, too, once you find out where the hell they're at.
- 05 03 20 39 CDR ... Ohh. ...
- 05 03 20 51 CMP How's GDC doing so bad?
- 05 03 21 14 CDR This thing is drifting - 10 degrees every hour and a half to 2 hours.
- 05 03 21 21 CMP I think it's a - just about - You know what the SPEC is on that shit? It's like 7 degrees an hour, anyway. Not a very good system, near as I can figure.
- 05 03 21 32 CDR Psheeew! Okay, let me take a look at the flight plan, Gene-o. ... all night.
- 05 03 22 01 CDR CP-1 is 1 - 13 miles north. Now, is that far enough north?
- 05 03 22 10 CMP Yes, you don't have to roll for CP-1.
- 05 03 22 14 CDR Okay, but now, CP-2's where we got in trouble.
- 05 03 22 17 CMP Yes. So you ought to roll 5 degrees - -
- 05 03 22 21 CDR Right.
- 05 03 22 22 CMP - - right.

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Day 6

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Page 337

- 05 03 22 23 CDR There's 5 miles --
- 05 03 22 24 CMP It's between 5 and 10.
- 05 03 22 25 CDR And F-1 is 10 degrees more.
- 05 03 22 28 CMP Yes. We didn't have to roll for F-1, but we did anyway, just in case.
- 05 03 22 32 CDR And we rolled right?
- 05 03 22 34 CMP Right. Right. You roll right. You roll into them, generally speaking.
- 05 03 22 38 CDR Yes.
- 05 03 22 44 CMP Unless they go over about 30 miles north, and then you got to roll away from.
- 05 03 23 10 CMP Christ, I've killed my muscles. They're just going to hell in a handbasket.
- 05 03 23 13 CDR Yes, I can, too. We'll get out Exer-Genie tomorrow.
- 05 03 23 18 CMP Okay. I think that's a good idea.
- 05 03 24 07 CDR Okay. CP-1 at 123:38. 14 minutes.
- 05 03 24 18 CDR You - I'll go ahead - you go ahead and take the DSKY.
- 05 03 24 21 CMP You got it?
- 05 03 24 22 CDR No, you got it.
- 05 03 24 23 CMP You want it?
- 05 03 24 24 CDR No. Shit, no. I've got - I'm calibrated, babe. Oh, look. I've got to get this time set up, here.
- 05 03 24 31 CMP What kind of time do you want?
- 05 03 24 32 CDR From 150 west at 123:29:36.
- 05 03 24 44 CMP Okay.
- 05 03 24 48 IMP No, you won't be able to see for 6 months after we get back.
- 05 03 24 52 CMP Nahhh!

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- 05 03 24 54 LMP Because I had like one-tenth of what you're doing, but looking through that thing is just - it just - I had one-twentieth of what you're doing, and --
- 05 03 25 01 CMP What happened to the map?
- 05 03 25 03 IMP Right here it is.
- 05 03 25 05 CMP Oh, okay. I got to have that.
- 05 03 25 07 LMP You want that down there?
- 05 03 25 10 CMP Well, I need it.
- 05 03 25 11 LMP What can I do on this? Now, out this side - Hey, you guys --
- 05 03 25 13 CMP Just take targets of opportunity.
- 05 03 25 14 LMP Okay. Fine. That's what I was planning on doing.
- 05 03 25 19 CMP That crater - 3-0-what-you-call-it is a - really a - it's a --
- 05 03 25 23 IMP That's on Tom's side.
- 05 03 25 25 CMP That - that tall peak in it is going to make this really something else.
- 05 03 25 35 CDR Hey, John; where are our clips? Did we lose all those bastards?
- 05 03 25 41 CMP Guess they're on the IM.
- 05 03 26 01 CMP Haven't heard any of that humming noise today. Have you?
- 05 03 26 04 LMP No.
- 05 03 26 06 CMP Suppose it's coming through the VHF?
- 05 03 26 08 LMP I guess.
- 05 03 26 12 CDR Sunrise is 123:32:14, and I got the solar corona out there now.
- 05 03 26 19 CMP You do?

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05 03 26 25 CDR Yes, 123:26. I've seen it for a while. That's 6 minutes before sunrise.

05 03 26 29 CMP Yes.

05 03 26 35 LMP ...

05 03 26 36 CDR See it?

05 03 26 37 LMP Yes.

05 03 26 49 LMP Look at that sun - a big red blob. Activity on the whole front.

05 03 27 09 CDR You got that special color film - in there?

05 03 27 11 LMP Yes.

05 03 27 13 CDR Okay, what I'll do is shoot that peak in 310 and also pop in some --

05 03 27 16 LMP Shoot what?

05 03 27 17 CDR I'll shoot the peak in 310, and also shoot some in black and white.

05 03 27 21 LMP Okay. I got the black and white in there now. If you'll shoot it first there, I've got - I'll give you the - I'll reload it for you.

05 03 27 32 CDR We're right at the terminator on the 26th REV. Shit, I think - 310 is - is out - It's gone. You never see it.

05 03 27 44 LMP That right?

05 03 27 46 CDR Is ... on?

05 03 27 49 LMP Yes.

05 03 27 51 CDR Let me have a black and white in it. That's before we get to 150 west.. No, it isn't. I'm sorry.

05 03 28 09 LMP ... 250 ...

05 03 28 15 CDR Well, that near - the - terminator stuff - It'll be nearly - It might be 5, 6, or ... That's my job.

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05 03 28 24 LMP My job's down to 125th, Tom.

05 03 28 26 CMP Good bit.

05 03 28 27 LMP Yes.

05 03 28 40 CMP Two balls 875 --

05 03 28 42 CDR 123:25 and 36.

05 03 28 43 CMP -- five balls.

05 03 29 11 CMP What's really bad is the back side is so high and the front side is so damn low.

05 03 29 19 CDR You can sure see what's happened to our orbit since --

05 03 29 21 LMP Yes.

05 03 29 22 CMP Yes.

05 03 30 10 CDR 123:29:36. That ought to be -

05 03 30 41 CDR There's 150 west. In about 8 minutes, that peak comes up.

05 03 30 52 CMP That's the one to get. Just the peak starts up?

05 03 30 58 CDR That's going to be all.

05 03 31 00 CMP Too bad.

05 03 31 02 CDR John, CP-1 comes into view at 38:14.

05 03 31 07 CMP Okay.

05 03 31 46 CDR Here comes the sun.

05 03 31 51 LMP You're right, and you have 16 to go?

05 03 31 54 CMP You guys get that corona the other day?

05 03 31 56 CDR No.

05 03 31 57 LMP No, we did not.

05 03 31 58 CMP Take a picture of it?

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- 05 03 31 59 LMP I just took some now, earlier today. But you know, it didn't give you any warning, though. It's bang, and it's there - a - the sun.
- 05 03 32 09 CMP Yes.
- 05 03 32 10 LMP You're looking at the sun. It wipes you out.
- 05 03 32 13 CDR It says 1:32, and right there it is. Have they ever got us fixed. Here comes the sun. Look out.
- 05 03 32 20 LMP Bang. Boy, I've never seen anything come over - just bang.
- 05 03 32 38 LMP Have you seen ...? ...
- 05 03 32 48 CMP When do we acquire?
- 05 03 32 49 LMP ...
- 05 03 32 50 CDR Okay, babe. CP-1 at 123:38:14.
- 05 03 32 56 CMP Okay.
- 05 03 32 57 LMP 123:32:33.
- 05 03 33 36 CMP ...
- 05 03 33 40 LMP Oh, that's not very grubby.
- 05 03 33 47 CMP ..., couldn't we? San Francisco?
- 05 03 33 51 CDR Do what?
- 05 03 33 52 LMP We - Look like this thing is getting ready to ...
- 05 03 34 20 LMP Boy, don't you suppose you'd get a sunburn in that, Tom?
- 05 03 34 22 CMP Ho-ho.
- 05 03 34 26 CDR In such short order, you couldn't believe it.
- 05 03 34 42 SC (Coughing)
- 05 03 34 46 LMP Oh, man. Feel that through the window. Who!
- 05 03 34 49 CDR Put your hand there. It gets a little warm, doesn't it?
- 05 03 34 53 CMP ... earthrise ...

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- 05 03 35 15 LMP Tom, you want ... try to take a couple of targets of opportunity on down here?
- 05 03 35 21 CDR No, I got to stay here and fly this thing and correlate it in. Since I got the ... time in.
- 05 03 36 42 LMP Oh.
- 05 03 36 43 CDR Okay. That's 36, John. You can pick it up 38:14. I can't give you any help out ... The sun's right in my eye - window.
- 05 03 36 52 CMP No problem, babe.
- 05 03 36 56 CDR CP-1 is that ... - We'll be coming across crater number IX.
- 05 03 37 02 LMP Is sunrise out here?
- 05 03 37 04 CDR Yes, you won't see it looking down --
- 05 03 37 05 CMP Coming up right now, Tom.
- 05 03 37 07 CDR We passed the terminator.
- 05 03 37 17 CMP It's now 37:20. It's 38. When is this supposed to pick this up?
- 05 03 37 26 CDR 38:14.
- 05 03 37 30 CMP Christ, I don't believe that.
- 05 03 37 32 CDR Huh?
- 05 03 37 33 CMP Don't believe that.
- 05 03 37 41 CDR I'm afraid that 310's in darkness. Oh, there it is. Not much good to shoot it. You couldn't tell the - a thing about it.
- 05 03 37 52 CMP There he is. There we go.
- 05 03 37 58 LMP Okay. You're at - 38 minutes right now.
- 05 03 38 03 CMP Yes. Could you pitch up just a hair, Tom? About 5 degrees.
- 05 03 38 26 CMP There you go. Good show.

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05 03 38 39 CMP That there crater has got the uglies.

05 03 39 02 LMP What's our 150 - degree one time, Tom?

05 03 39 05 CDR It's counting up at 09:30 right now. 10 minutes.

05 03 39 18 CDR Okay.

05 03 39 20 CMP One damn thing you've got to pass is that 50-degree program alarm. It won't go up there. That does piss me off!

05 03 39 25 CDR 123:39:25.

05 03 39 28 LMP Go up, you bastard.

05 03 39 30 CDR Okay, at 41:13, you should be on it; but I can't give you much help, babe.

05 03 39 34 CMP Okay. I've got it. I've got it. I've got it.

05 03 39 37 CDR Oh, yes.

05 03 39 38 CMP Where am I supposed to make marks - at 41:13?

05 03 39 41 CDR That's - You're supposed to make marks at 41:13.

05 03 39 46 CMP Okay. There you go. Get them, Tiger.

05 03 39 57 CDR Let me know when, babe.

05 03 39 59 CMP Okay. ... There we are. Here we come across the old 225.

05 03 40 12 CDR Yes, you're across 225; and there that little bastard is. I can see it, John.

05 03 40 20 LMP ..., Tom?

05 03 40 22 CMP 225.

05 03 40 24 LMP We're not from - from - from 150 west. We're not 10 minutes, then, are we?

05 03 40 29 CDR Oh, yes. We're - we're 10 - we're 11 minutes.

05 03 40 33 LMP Okay.

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05 03 40 36 CDR There it is. Up on that - peak.
05 03 40 56 CMP ...?
05 03 41 01 CDR Supposed to mark at 41. Got about 10 seconds.
05 03 41 34 CMP Okay, babe. Let's go.
05 03 41 35 CDR Hit it. Okay. One mark, huh? Supposed to be
flashing? 51?
05 03 41 48 CMP Yes.
05 03 41 50 CDR I got a 16 92.
05 03 41 51 CMP Alright.
05 03 41 54 CDR Okay. 15 seconds gone. 20 seconds. 25, 30, 35,
40, 45. Did you get it?
05 03 42 27 CMP Yes.
05 03 42 29 CDR Okay. There's two marks. 10, 15.
05 03 42 36 CMP Shit! There went the other one.
05 03 42 41 CDR 20, 25, 30, 35. Three. Want me to pitch down for you?
05 03 43 03 CMP No. Yes, you can a little.
05 03 43 06 CDR 10, 20. Maybe I should take these. 20, 25. That's
four. Need one more. 5, 10, 15, 20. Got it?
That's --
05 03 43 40 CMP No, that ain't going to do it.
05 03 43 43 CDR Oh.
05 03 43 44 CMP ... lost it.
05 03 43 50 CDR Okay.
05 03 44 10 CDR Where'd I put my pencil around here? Somebody -
You got an extra pencil?
05 03 44 16 CMP Yes.
05 03 44 18 LMP I got one with lead in it.

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05 03 44 19 CMP ...

05 03 44 21 CDR I got it. Let me know what you get. Next one is CP-2 at 23:53. We got - we got about 10 minutes to the next one.

05 03 44 36 CMP Yes. We got plenty of time.

05 03 44 38 LMP Tom, could you give me a hack in about 20 minutes?

05 03 45 05 CDR Huh?

05 03 45 06 LMP Give me a hack in 16 minutes.

05 03 45 08 CMP I don't have my watch ...

05 03 45 09 CDR Okay. ...

05 03 45 20 CDR 15 seconds.

05 03 45 26 CMP Jesus Christ (coughing).

05 03 45 35 CDR 2, 1 -

05 03 45 36 CDR MARK it.

05 03 45 50 CDR Let me know what you get there.

05 03 45 53 CMP Yes, I - I don't think it makes any damn difference ...

05 03 45 58 CDR Yes, I'll just write it down.

05 03 45 59 CMP Yes.

05 03 46 00 CDR Zero zero - What was it? Shit, it's already gone now.

05 03 46 06 CMP Yes. Don't worry about it.

05 03 46 41 LMP Tom, ...

05 03 46 45 CMP When are we supposed to get this one?

05 03 46 47 CDR Okay. F-1.

05 03 46 50 CMP No. This is CP-2.

05 03 46 51 CDR CP-2. It'd be a plus - zero angle at 23:53:35.

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- 05 03 47 03 IMP It's dark right on the - ... Boy, that's coming up in broad daylight, isn't it?
- 05 03 47 14 CMP Yes.
- 05 03 47 34 CMP Pshew!
- 05 03 48 36 CDR Okay, CP-2. Now, John, it's more, so - Which way you want me to roll? Right, 5 degrees?
- 05 03 48 44 CMP Huh?
- 05 03 48 45 CDR It's more than 5 miles. You want me to roll right 5 degrees?
- 05 03 48 48 CMP Roll right 5 degrees.
- 05 03 49 50 CDR We're coming up to number - We're coming up to Florida. On your right.
- 05 03 50 00 CMP (Singing) "Florida, the land of flowers and summer showers. No other place is half so nice ... paradise." I've got to get back to Florida, come to think of it.
- 05 03 50 17 CDR Okay, you've got about 3 minutes to go for it. There's old crater 217.
- 05 03 50 28 CMP Yes, man.
- 05 03 50 56 CMP Okay, it's starting to move.
- 05 03 51 00 CDR I got your IP at the crater straight ahead up here.
- 05 03 51 04 CMP Okay, the freaking optics ain't moved yet. They won't move until I get 50 degrees on that angle. You rolled right, didn't you?
- 05 03 51 16 CDR Rolled right 5 degrees, babe.
- 05 03 51 19 CMP Okay. I'm looking out here to go straight up and down. I may ask you to roll 5 more degrees, okay?
- 05 03 51 26 CDR Okay.
- 05 03 51 44 CMP Good. I'm going to use this goddam - I'm going to use the telescope.
- 05 03 52 02 CDR Did it jam on you?

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05 03 52 03 CMP ...
05 03 52 04 CDR Huh?
05 03 52 07 CMP Don't worry. You got two more REV's.
05 03 52 15 CDR Okay. I got your IP ...
05 03 52 35 CDR Those black boulders down on that crater - That's right there on the IP for this one, up on the ridge. Really pronounced.
05 03 53 14 CDR Okay, babe. The IP's right underneath you. You've got the next crater after that leading in. You've got the string up here of these volcanic craters --
05 03 53 26 CMP Yes.
05 03 53 27 CDR -- a volcanic chain, and then right on the other side is the ridge. There's that little pimple --
05 03 53 32 CMP Yes.
05 03 53 33 CDR -- and that's it. I got that rascal for you ...
05 03 53 35 CMP ...
05 03 53 40 CDR You know, this terrain doesn't look near as rough as it did in these ... photos.
05 03 53 42 CMP I agree with that.
05 03 53 49 CDR I've got your little pimple up there: CP-2. That little mountain on the other side, and then it goes over on the crater 282, and there it is.
05 03 54 16 CMP IP.
05 03 54 18 CDR Oh, you can see the IP now, huh?
05 03 54 21 CMP Yes.
05 03 54 33 CMP There she goes. Miss America.
05 03 54 36 LMP (Coughing)
05 03 54 44 CDR Okay, I've got that bear. Okay, at 55:17. He's pretty close. Yes, you should be coming in here

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to it. You're lined up real good, John. I can see the bear down there.

- 05 03 55 18 CMP Okay.
- 05 03 55 19 CDR Tell me when.
- 05 03 55 28 CDR MARK.
- 05 03 55 33 CMP Time to mark?
- 05 03 55 34 CDR Did you mark one?
- 05 03 55 35 CMP No, I haven't yet. I'm doing it right now.
- 05 03 55 37 CDR Okay, good show. 5 seconds, 10, 15, 20, 25.
- 05 03 56 11 CDR 5, 10, minus 50. Gene-o, stand by to shoot the earth coming up with that special black and white.
- 05 03 56 20 LMP Take some color?
- 05 03 56 22 CDR Yes. 20, 25. Two marks.
- 05 03 56 31 CMP That's three.
- 05 03 56 32 CDR Three, pardon me. 5 - -
- 05 03 56 35 LMP What time's it coming up?
- 05 03 56 37 CDR Shortly. Just watch for it. 10, 15, 20, 25. One more. We'll be there in 5 seconds.
- 05 03 56 57 LMP 5 seconds? Okay.
- 05 03 56 59 CDR 5, 10, 15, 20, 25.
- 05 03 57 12 CMP God Almighty. Whew!
- 05 03 57 19 CDR Okay, ... 24 - 0 - Wait a minute. What did he say? AOS is 12 - I'm sorry, 24:04. I was looking here, Gene-o. That's 24:04:06 - -
- 05 03 57 36 CMP ...
- 05 03 57 37 CDR 04:21 - 24:04. Let's see. At 24:04, start looking for it.

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05 03 57 44 CMP What time you got in your log?

05 03 57 49 LMP Plus - -

05 03 57 50 CDR You mean in - -

05 03 57 51 CMP ...

05 03 57 53 CDR 28:16.

05 03 58 07 CDR Okay, F-1 is north 10 miles - Just keep the same roll?

05 03 58 10 CMP Yes, that's a good roll.

05 03 58 14 CDR Once you get this big bear established here, I can hold ORB rate without hardly firing those thrusters.

05 03 58 21 CMP Good.

05 03 59 11 CMP Well, it looks like we're tracking the same landmark.

05 03 59 15 CDR What you - Let me record that, John.

05 03 59 18 CMP 63956.

05 03 59 22 CDR 0062.4, plus 63956, plus 00195 (coughing).

05 03 59 52 CMP On this next one?

05 03 59 55 CDR The next one is F-1, and it's 124:06. About 2 minutes after we get earth track.

05 04 00 02 CMP Okay.

05 04 00 06 CDR Earth comes up at 24:04:21.

05 04 00 23 CMP I'm going to use the vector on this for sure. I need a telescope.

05 04 00 39 LMP Tom, what's the earth ...?

05 04 00 42 CDR Pardon me?

05 04 00 45 LMP ...

05 04 00 47 CDR Use f:ll at 250.

05 04 00 56 LMP f:ll at 250?

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- 05 04 00 57 CDR That's what it says. Now, you've got the - got the basic oblique. It's four at 2 - I can't believe that. Why don't you shoot one f:11 at 2 - When it first comes up, shoot it f:5.6 at 250 and f:8 at 250 and ...
- 05 04 01 12 LMP ... landmark.
- 05 04 01 28 LMP ... I don't know how they expect us to get these targets of opportunity ...
- 05 04 01 30 CMP ... on the horizon.
- 05 04 01 32 LMP ...
- 05 04 01 48 CMP God Almighty! That scared the shit out of me. Know what it was?
- 05 04 01 56 LMP What?
- 05 04 02 01 CDR What did you see, babe?
- 05 04 02 03 CMP I had my shoulder down like that, and the sunlight was shining on there, and it looked like the NO ATTITUDE light was on.
- 05 04 02 12 CDR That's all we need.
- 05 04 02 17 CMP Yes. Come to think of it.
- 05 04 02 42 CMP It's way up there yet, man.
- 05 04 02 58 CDR Here comes the maria. As you look at the maria there - gosh, it looks flat. And the maria looks to me - now we're just ... this area of tan, the new material looks white, kind of a creamy white. And you've got the black stuff in ... volcanos again. And out there, it's more of a brown to me on that maria material, right? What do you think?
- 05 04 03 27 CMP/LMP ... color.
- 05 04 03 30 CDR Hell, yes. It's got colors to it but definite shades of brown. And the new stuff is - oh, white, a pumice white.
- 05 04 03 54 LMP You guys ...

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Day 6

~~CONFIDENTIAL~~

Page 351

- 05 04 03 57 CMP Huh?
- 05 04 03 58 CDR José is moving around, getting some exercise.
- 05 04 04 02 CMP My isometrics.
- 05 04 04 04 CDR We're going to hit the maria, baby.
- 05 04 04 06 CMP No shit.
- 05 04 04 08 CDR Here comes the maria.
- 05 04 04 11 LMP What time's that earth coming up?
- 05 04 04 17 CDR Boy, oh, boy. Sun's so bright, I can't - It's 24:04.
Get it - here he comes, he --
- 05 04 04 29 CMP ... you don't.
- 05 04 04 31 CDR You better. We can get him next time. Might get
a se - next time, try to get a sequence on him, too.
Just a couple of short sequences.
- 05 04 04 51 CMP You missed him? You missed him? Know how I could
tell he was coming? Because I heard the acquisition.
- 05 04 05 01 LMP Yes.
- 05 04 05 03 CDR Just take a couple in color, okay. F-1.
- 05 04 05 08 CMP Yes.
- 05 04 05 09 CDR At 124 - -
- 05 04 05 10 CC Hello, Apollo 10; this is Houston. We're standing
by. Over.
- 05 04 05 12 CDR Roger "Apollo 10; this is Houston." We're doing
landmark tracking, and we're coming up to landmark F-1.
- 05 04 05 23 CC Roger, 10. Good afternoon, you guys. Just wanted to
congratulate you on a great day yesterday. I didn't
get a chance to do it yesterday. It was a beautiful
show.
- 05 04 05 32 CDR Okay, thanks a lot, Charlie. You on the ground
really came through coordinating those vehicles
together. You must have had a heck of a load on

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- your shoulders; but, boy, it was fantastic, and we sure appreciate it.
- 05 04 05 44 CMP Charlie, I could feel the tension down --
- 05 04 05 45 CC Roger. We had a lot of fun, Tom. Thank you much.
- 05 04 05 49 CMP Yes, I could feel --
- 05 04 05 50 CC Say again, John?
- 05 04 05 51 CMP I could feel the tension down there all the way up here.
- 05 04 05 56 CDR Okay, you roll 10 degrees to the --
- 05 04 05 58 CC We were a little tight at times, but you guys did a great job. We'll let you get back to work now. Out.
- 05 04 06 03 CMP Roger. Thank you. Out.
- 05 04 06 05 CDR Okay. What - Oops - Excuse me. Okay. Okay; 08:03, John. ... that time. You've got 2 minutes.
- 05 04 06 15 CMP Yes, well, this damn thing. Could you pitch up just a hair?
- 05 04 06 19 CDR Yes. Sorry.
- 05 04 06 22 CMP Maybe about 10 degrees.
- 05 04 06 24 CDR Coming to you, babe.
- 05 04 06 40 CDR Oh, I see what you're shooting at. It's a bright one, isn't it?
- 05 04 06 44 CMP Yes.
- 05 04 07 12 CDR You got about a minute to go on it, babe.
- 05 04 07 15 CMP Alright.
- 05 04 08 03 CDR Okay; we should be there right now, John.
- 05 04 08 22 CMP Yes.
- 05 04 08 33 CMP I want to stay on this one. Okay.
- 05 04 08 37 CDR Ready.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 353

05 04 08 38 CMP Yes.
05 04 08 39 CDR Tell me when.
05 04 08 40 CMP There was one. You got about 5 seconds on one.
05 04 08 44 CDR Okay. 10, 15, 20, 25. There's two. 5, 10, 15,
20, 25. Three. 5, 10, 15.
05 04 09 47 CMP Far as I could do it, Tom.
05 04 09 48 CDR 20. Far as you could do it, huh?
05 04 09 50 CMP Yes. I got a little late on that one.
05 04 09 53 CDR Got three points on that one.
05 04 09 54 CMP Got five.
05 04 10 00 CDR ... went bang, bang, bang, bang, bang ...
05 04 10 04 CMP No, I got five.
05 04 10 05 CDR Yes, you got five.
05 04 10 06 CMP Yes.
05 04 10 07 CDR Okay.
05 04 10 17 CDR Okay. Doing good there, John. The last one is our
good old friend 130, and that shouldn't be any sweat
for you. And half of - about half of this is over.
05 04 10 28 LMP Oh! Oh, boy.
05 04 10 45 CMP It makes me feel good, no matter what's on there
(laughter).
05 04 11 00 LMP You must be reading about 30 - 41 minutes.
05 04 11 11 CDR Huh? 41 minutes.
05 04 11 40 CMP Jesus Christ.
05 04 11 44 CDR Do you want to copy that down?
05 04 11 45 CMP Look - look at that word, will you?

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- 05 04 11 47 CDR Do you want to copy that down, John? Huh?
- 05 04 11 50 CMP I got it.
- 05 04 11 53 LMP ... where do you get the ...?
- 05 04 11 56 CDR Hold it.
- 05 04 12 13 CDR What does that mean?
- 05 04 12 14 CMP What does what mean? What I just said?
- 05 04 12 18 CDR Yes.
- 05 04 12 19 CMP Well, it says that - the altitude keeps changing.
- 05 04 12 28 CDR Are those in nautical miles?
- 05 04 12 31 CMP Yes.
- 05 04 12 32 CDR Oh, shit.
- 05 04 12 33 CMP It says the direction - the distance keeps changing.
It says that if I mark it on the same point everytime -
The real key to this - I know these two - these two
here were on the same place.
- 05 04 12 45 CDR Yes.
- 05 04 12 47 CMP These two here, I'm not 100 percent sure of. So,
we'll have to - But those two on the ...
- 05 04 12 51 CDR You ... correlation.
- 05 04 12 52 CMP Those two - they're okay. Man, coming around on the
front side, these things here start getting farther
and farther away from each other.
- 05 04 13 01 LMP Want to take a look at North and South America from
a quarter of a million miles?
- 05 04 13 09 CDR Okay. Let's see. Now what about the - the 130?
- 05 04 13 15 CMP What about that.
- 05 04 13 20 CDR That's a plus 27. Oh, hell. You've got 14 minutes.
Hey, do you - Let's see, that is north 12 miles.
Do you want to roll - keep that right roll on?

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 355

- 05 04 13 28 CMP Just keep the right roll on. Yes. Hold what you got. In fact, you can take it out. You can take it out - about 5 degrees of it, if you will. That last one was a little too - -
- 05 04 13 39 CDR Too much?
- 05 04 13 40 CMP -- too far gone.
- 05 04 13 57 CDR Okay. That's 44 minutes.
- 05 04 14 29 CMP 44 minutes is when it is, huh?
- 05 04 14 32 CDR Huh?
- 05 04 14 33 CMP The next one's at 44 minutes?
- 05 04 14 34 CDR No, I was just using up my correlation chart. The next one is at 27:28 to acquire; 13 minutes.
- 05 04 14 43 LMP Is it 4 o'clock in the afternoon? What time did we get up this morning?
- 05 04 14 48 CDR Shit, I don't know. When I woke up, you were taking pictures.
- 05 04 14 53 CMP Oh.
- 05 04 14 54 CDR I figured it was time to get up.
- 05 04 15 05 CDR Oh, goodness. Our tape recorder's running, is it?
- 05 04 15 17 CMP Yes, I'm sure it's - no, not now.
- 05 04 15 19 LMP Yes, it is.
- 05 04 15 20 CMP On the front side?
- 05 04 15 22 LMP Yes, they'll probably want to record it over - the stuff we're doing. I didn't know it was on.
- 05 04 15 29 CDR I think they want it running while we take these ones and mark tracks. We're coming over into Mr. Smyth's Sea, here.
- 05 04 15 37 CMP Okay. What time is it?
- 05 04 15 40 CDR It's at - Where, at Smyth's Sea?

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Day 6

05 04 15 43 CMP

What time did the 44 come on? What time did 89 come
We may be past Smyth's Sea and be coming into the Se
of Fertility, I think. 48 minutes coming in. ...
...

05 04 15 47 LMP

05 04 15 54 CDR

Neper is abeam us right here.

05 04 15 58 LMP

Yes. Right, right, right, right.
I think we're coming up - I don't know. What time
have you got here, babe?

05 04 15 59 CDR

...

05 04 16 01 LMP

That's Langrenus over there.

05 04 16 03 CMP

Yes. That's it. We're coming up on --

05 04 16 06 CDR

That's got to be Langrenus over there; that big bear.
Yes. That is Langrenus.

05 04 16 12 LMP

05 04 16 15 CDR

You know. They really don't care where the landmark
is, I don't think. What they're doing is, they're
uplinking up their best vector two REV's ahead - after
each pass, see? And then, when we come around the
next pass and mark on it, they see how much it's off.

05 04 16 17 LMP

Yes.

05 04 16 31 CMP

That's to get their empirical corrections for site 130.
I don't know if that will work or not. It may work.

05 04 16 47 CDR

What time is that site 130?

05 04 16 48 CMP

124:27:28. 10 minutes.

05 04 17 01 CMP

10 minutes.

05 04 17 10 CDR

There's Messier laid out ahead. That maria is just
as flat and level.

05 04 17 15 CMP

That's what I've always said.

05 04 17 21 CDR

Yes, Messier.

05 04 17 34 CMP

Yes.

05 04 18 02 CMP

~~CONFIDENTIAL~~

05 04 18 10 CDR

Day 6

~~CONFIDENTIAL~~

Page 357

05 04 18 27 CDR Taruntius H and G. And little old Taruntius B and K.
05 04 18 35 LMP What REV we on?
05 04 18 38 CDR You got to have ... Oh, would you believe 25? Been
up here over 2 days.
05 04 19 06 CDR Yes, I got you 5 degrees. What was your old ...?
05 04 19 02 CMP Huh?
05 04 19 07 CDR I got you 5 degrees roll for 130.
05 04 19 08 CMP Thank you.
05 04 19 18 CDR There's old Secchi. Look at those rays from
Messier B go out laterally.
05 04 19 25 LMP Yes, I was looking at those --
05 04 19 26 CDR And Messier --
05 04 19 27 LMP -- left and right, and --
05 04 19 28 CDR -- Messier --
05 04 19 29 LMP -- then straight down the tube.
05 04 19 30 CDR Yes.
05 04 19 31 LMP I was looking at that earlier, Tom.
05 04 19 32 CDR And Messier --
05 04 19 33 LMP I want to shoot a picture of that. I saw that
backwards.
05 04 19 34 CDR -- and Messier A just goes out one way. They aren't
-- I'll tell you why it does. There was an old crater
when Messier came hauling ass in there and hit. And
so, down at the lower extremity when the ejecta got
put out, it didn't have the higher rim to follow; you
can see what happened. You see that old crater out
there? On the other side?
05 04 19 51 LMP Yes, but look at it backwards and then you'll revise
your - I don't know.

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- 05 04 19 54 CDR Look. You can see that Messier A there is --
- 05 04 19 58 CMP Can you pitch up about 10 degrees, Tom?
- 05 04 20 00 CDR Yes. Messier A is about - is quite a bit younger than the other one. You can see an old crater in there, where it came bombing in. And when he hit on the side of the old one, the ejecta - look at - look how ramped the sides are on it. But that Messier - Messier, the main one, that's a weird-looking one.
- 05 04 20 39 CDR Okay. Why don't you get a picture of crater Weatherford this time, Gene-o? It's right there by Mount Marilyn, over on the right. Okay?
- 05 04 21 12 CDR Down in between there and Taruntius.
- 05 04 21 46 CMP Oh, my eyeballs.
- 05 04 21 49 CDR Yes. Look, when you start to get tired, you can knock it off, John.
- 05 04 21 51 CMP I ain't going to do that.
- 05 04 21 54 CDR Is that high enough for you as far as --
- 05 04 21 56 CMP Yes, this is great.
- 05 04 21 57 CDR Well, that's about --
- 05 04 21 58 CMP We're about there.
- 05 04 22 01 CDR Well, we got a ways to go. Our old friend Maskelyne is just coming up over there.
- 05 04 22 55 CDR Censorinus A really stands up. We got a ways to go, John. Just sit back and relax, shit, and I'll lead you into it. I got Maskelyne, Maskelyne - Oh, there the B. The B really stands up over there. Now, if Neil and those boys come in on - And there's a big - the real key-in is going to be when they pitch up; there's Censorinus, going to be right there in front of them.
- 05 04 23 24 CMP Yes.
- 05 04 23 25 CDR Censorinus A; it's a beautiful checkmark.

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Day 6

~~CONFIDENTIAL~~

Page 359

- 05 04 23 28 CMP Let's see - It just sort of looks brownish to me, Tom. I must be crazy, but it does.
- 05 04 23 32 CDR It's brown and tan. Under - way early in the morning, in certain shades of light - it looks gray; but most of the time, it's brown and tan - light brown and tan.
- 05 04 23 42 CMP Yes.
- 05 04 23 43 CDR And then the new stuff, where it hits it, it looks like gypsum. You know gypsum?
- 05 04 23 47 CMP Yes. It looks just like gypsum.
- 05 04 23 49 CDR Yes.
- 05 04 23 51 CDR Okay. Houston, Apollo 10. We're coming up on Censorinus; and we have Maskelyne, Maskelyne B, and 130 up ahead; and we'll call you after we finish the track on that. Over.
- 05 04 24 05 CC Roger, 10. We're standing by. We're tracking you along.
- 05 04 24 32 CDR Okay, babe. 27:23.
- 05 04 25 00 CDR Let me look at the monocular for a minute, please.
- 05 04 25 36 CDR I would say that Censorinus is definitely a little old impacto crater.
- 05 04 25 41 CMP Man, I wouldn't want to tangle with that moose.
- 05 04 25 44 LMP Boy, you can see Highway 1 running right all the way - on the left - all the way up there already. Right beyond Moltke, to the left there.
- 05 04 25 50 CMP Yes.
- 05 04 25 54 CDR Just let's see where U.S. 1 stops up here. Here's the monocular if you want it.
- 05 04 26 09 LMP I'm going to put this thing on here with the - with the 80-millimeter lens - unless you just let it run at 1 frame ... every 20 seconds, if you go ... attitude. ...
- 05 04 26 23 CDR Yes. Sure does. Okay, let me know when, old buddy.

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Day 6

- 05 04 26 32 CMP Okay. What time are we supposed to start taking marks?
- 05 04 26 42 CDR Take marks at 27 - 29. See, and you won't see it for a while yet.
- 05 04 26 50 CMP Now I got - I've got it up ahead here, but I don't think - I got Duke Island and Boot Hill. And - Maskelyne and Maskelyne B, lead in. Snake Eyes Rille.
- 05 04 27 19 CDR U.S. 1 just seems to kind of die out down there.
- 05 04 27 22 CMP Yes. They must have ran out of money before they finished building it.
- 05 04 27 55 CDR Okay, at 29 minutes. You've got 1 minute to go, John. I got the thing out there.
- 05 04 28 26 CMP Not bad, but it's not on - it - it's close. Tracking pretty good. Shit.
- 05 04 28 37 CDR What happened?
- 05 04 28 40 CMP I'm floating all over the goddam place, and I should be tracking landmarks. Say when.
- 05 04 28 49 CDR You're just about there. Any time now, here, but go ahead if you got it.
- 05 04 28 54 CMP I got it.
- 05 04 28 55 CDR MARK.
- 05 04 28 56 CDR One mark.
- 05 04 29 00 CMP How many?
- 05 04 29 02 CDR Five.
- 05 04 29 03 CMP Okay.
- 05 04 29 10 CDR 15, 20, 25. 5, 10, 15, 20, 25. That's three. And 5, 10, 15, 20, 25. That's four.
- 05 04 30 13 LMP Our radiators are just barely hacking the program.
- 05 04 30 16 CDR 5 - -
- 05 04 30 17 CMP Barely is good enough.

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Day 6

~~CONFIDENTIAL~~

Page 361

05 04 30 21 CDR - - 10, 15, 20, 25. You got it. That's five.
05 04 30 39 CMP Yes.
05 04 30 45 CDR Gene-o, do you want to copy the updates this time,
for this stuff?
05 04 30 48 LMP Yes. And hold.
05 04 30 50 CDR Okay, I'll copy this down. Okay, Houston; Charlie
Brown. We just finished tracking 130. Over.
05 04 31 01 CC Roger. We copy, 10.
05 04 31 16 CDR That it?
05 04 31 17 CMP No, that's - yes, that's the one we put in there.
05 04 31 20 CDR What was it?
05 04 31 22 CMP That's what we put in there.
05 04 31 24 CDR Okay. I'm sorry.
05 04 31 39 CDR We can copy these numbers down here.
05 04 31 45 LMP Copy these down from where?
05 04 31 48 CDR DSKY in just a minute.
05 04 32 34 LMP You got the data, Charlie?
05 04 32 49 CMP Houston, Apollo 10. You got the data? Over.
05 04 32 55 CC Roger, 10. We got the data. Over.
05 04 32 59 CMP Okay.
05 04 33 03 LMP ...
05 04 33 29 CMP ... feel to live like a do-nothing guy.
05 04 33 34 CC 10, Houston. How did F-1 look in the sextant this time?
05 04 33 40 CMP It looked okay in the telescope this time.
05 04 33 45 CDR Want the numbers to copy, John?

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05 04 33 46 CC Okay.

05 04 33 47 CMP Yes.

05 04 33 48 CDR Plus 01378?

05 04 33 50 CMP Yes.

05 04 33 52 CDR Plus 11815?

05 04 33 55 CMP Yes.

05 04 33 56 LMP Plus 013 - -

05 04 33 57 CDR 78. Plus 11815, minus 00161.

05 04 34 06 CMP Yes.

05 04 34 35 CMP God damn. Sometimes I look at these things; they're funny and they look like their holes are hills.

05 04 34 40 CDR Yes. Let me look - I need to pitch around to 292 - 092 again - but I don't know when though.

05 05 16 22 CDR We still got 15 minutes.

05 05 16 24 LMP No, you got more than that - you got 20 minutes.

05 05 16 30 CMP ...

05 05 16 31 CDR Okay, as the experts say, ... when we get P-2 ... Wait 35 to 40 seconds past the hour.

05 05 16 46 CDR They said your marking schedules were real good. That's the only thing you did as far as the ...

05 05 16 57 LMP How far?

05 05 17 02 CMP Okay, ... T.P. ...

05 05 17 07 CDR Okay. Let me know. ...

05 05 17 31 CDR (Laughter)

05 05 17 34 CMP How did you make out?

05 05 17 44 CMP What you doing with it?

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- 05 05 18 18 CDR Say what?
- 05 05 18 20 IMP ...
- 05 05 18 26 CDR ... the TV monitor ... lost the optics off the ...
- 05 05 19 04 LMP ... if I knew that a long time ago.
- 05 05 19 30 LMP That's just silly. I can't smell a thing, but I cculdn't smell it ... time either.
- 05 05 19 34 CDR I don't know whether you could smell that stuff I put on my nose, I can't smell anything but that ...
- 05 05 19 50 CDR If you look to the right there, you'll see that corona. That's what we thought was the airglow, old buddy. Look - look at that thing ... look out straight ahead - Turn your lights down. See how it looks like an airglow out there? Straight ahead, but how it ... on the other side. Well, that's the solar corona.
- 05 05 20 10 LMP Yes, that's right.
- 05 05 20 11 CDR ...
- 05 05 20 13 LMP Yes, that's what ...
- 05 05 22 09 LMP Too bad we had to jettison that LM in the sun. I would have liked to have seen what that hatch looked like.
- 05 05 22 15 CMP Wasn't that typical? Nobody knows how that ...
- 05 05 22 19 CDR I thought we had it all -
- 05 05 22 22 CMP ... was blowing up.
- 05 05 22 24 CDR (Laughter)
- 05 05 22 25 CMP ... that's what it looked like to me.
- 05 05 22 30 CDR (Laughter) I had a beautiful view. There was a damn - there was the biggest shitting ... you've ever seen against the window (laughter).
- 05 05 22 36 LMP Well, I - I admit - -

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- 05 05 22 37 CMP ...
- 05 05 22 48 CDR (Laughter) ... a big explosion ... this guy, he's got his ... full of ... It pitched off and shot straight out and right up to the sun ... right over the hill ...
- 05 05 23 02 CMP ...
- 05 05 23 04 CDR Well, Jose; you've still got time for it.
- 05 05 23 08 CMP Yes. ...
- 05 05 23 11 CDR 36, 37. You've got about 12 - 13 minutes ...
- 05 05 23 17 CMP ...
- 05 05 23 28 CMP Yes, but I don't know if we'll get to it. You see, the thing about it is, most people go - probably when they go to the bathroom, the ... goes over to the damn john at the same time.
- 05 05 23 49 CDR If they put pressure down in, it would probably carry it.
- 05 05 23 51 CMP Sure, it's bound to --
- 05 05 23 52 CDR (Laughter) Have you got the turd?
- 05 05 23 53 CMP -- ... the stuff. You got a big mess. People are mad at you.
- 05 05 23 58 CDR (Laughter)
- 05 05 24 03 CMP And I don't blame them. I don't care.
- 05 05 24 14 CDR (Laughter) Dadgum, I still think it's funny, putting that load in ... Hey, Joe. You ought to get a little award from the ... for that one.
- 05 05 24 25 LMP Yes. First crap around the sun.
- 05 05 24 27 CDR (Laughter)
- 05 05 24 31 LMP By God, the ... would be the first time - the first free crap in space.
- 05 05 24 36 CMP Yes. I bet they would; I bet SAI, SA - SIA ... they ...

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05 05 24 41 LMP World side ... (Laughter)

05 05 24 43 CDR (Laughter)

05 05 24 44 LMP ... inside the ..., anyway.

05 05 24 53 CDR If you lived a few months like this, you'd be ...

05 05 25 01 CMP It's all on the tape, too. ...

05 05 25 04 CDR Yes. Okay, John. ... be here shortly.

05 05 25 36 CMP Okay, B-1, 875, ...

05 05 26 04 CMP Yes. It was obvious to me that we weren't - we were -

05 05 26 11 CDR Go ahead. What did you say, John?

05 05 26 16 CMP It was obvious to me that we probably weren't getting there as quick as we should.

05 05 26 26 CMP The sun must be getting ... here. Oh, shit. We're way ahead, anyway. What time does it come up?

05 05 26 41 CDR 125:36:38.

05 05 26 47 CMP I don't understand what we got here.

05 05 26 52 CDR About 150 west keep ... on west, doesn't it?

05 05 26 56 CMP Yes. As far as ... time.

05 05 27 03 CDR That comes up at 125:28.

05 05 28 00 CDR ... still laughing about ... You know, I bet what happened; when the hatch was sealed and not vented, when you fired the pyro's --

05 05 28 14 CMP Yes.

05 05 28 15 CDR -- that put a shock wave up there and that structure is so damn weak it split some of that structure off it. We separated up here so we were free, but I'll bet that sent a shock right up into Snoopy. It split that structure open. ...

05 05 29 04 CDR Here, I get the 150 west ...

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- 05 05 29 52 CMP We've got something funny here.
- 05 05 29 55 CDR What you got there?
- 05 05 29 56 CMP I don't know.
- 05 05 29 58 CDR Got the right landmark?
- 05 05 30 09 CDR 875, 85073; yes, that's right.
- 05 05 30 33 CMP Okay. I get - The real message there, though, is to hold ORB rate.
- 05 05 30 38 CDR Yes. That's right.
- 05 05 30 55 LMP ... up. It should come to ...
- 05 05 30 58 CMP That figures.
- 05 05 31 07 LMP Here it is.
- 05 05 31 54 CDR See, John; 125:36:38.
- 05 05 31 59 CMP A little while yet.
- 05 05 32 03 CDR Okay. And CP-1 is 1 $\frac{1}{4}$ miles north, so I don't need to do a thing on that, do I?
- 05 05 32 09 CMP No.
- 05 05 32 10 CDR I think you did real well.
- 05 05 32 26 CMP Was Chris on the line?
- 05 05 32 29 CDR No.
- 05 05 32 40 LMP What the hell were they saying about the landmark track? Just that - that they're screwed up?
- 05 05 32 44 CDR No, they weren't screwed up.
- 05 05 32 47 CMP They said they were screwed up; they didn't say that we were screwed.
- 05 05 33 03 LMP ... freak I made down there in the middle of 225.
You're stupid not to do that.

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- 05 05 33 10 CDR Yes. Stuff like that shines out better than the one on the ridge. Doesn't it, babe?
- 05 05 33 13 CMP Hell, yes.
- 05 05 34 35 LMP Has the sun come up yet?
- 05 05 34 36 CDR Oh, yes. You can't see it down there?
- 05 05 34 39 CMP ... freaking off this ...
- 05 05 34 56 LMP Well, I won't see it until they decide to look into the sunlight.
- 05 05 35 42 CDR Okay.
- 05 05 35 48 CMP When are we supposed to get this thing?
- 05 05 35 51 CDR 130 - 25:36:38. Should be on the horizon for you in about 38 seconds.
- 05 05 36 00 CMP Here comes the sun.
- 05 05 36 10 CDR Okay, Gene-o. The earth is going to come up at 126:02. 02:51 ... yaw ... good on that. This stuff gives you a headache, doesn't it?
- 05 05 36 33 LMP I closed my eyes and dreamed that ...
- 05 05 36 38 CDR You had a dream last night? (Laughter)
- 05 05 36 39 LMP ...
- 05 05 36 43 CDR Okay.
- 05 05 36 44 CMP He had a dream, huh? (Singing) "I had a dream, dear; you had one, too."
- 05 05 36 49 LMP Tom, I'd like to change the lenses ... on that one.
- 05 05 36 53 CDR You what?
- 05 05 36 55 LMP I'd like to change ...
- 05 05 36 58 CDR You want the long lens?
- 05 05 37 00 LMP Yes, that little lens isn't too good, do you suppose? I'll try it; I'll try it. ... the long one ...

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Day 6

- 05 05 37 06 CDR Did you take some of the 80, the last ...?
- 05 05 37 07 LMP ...
- 05 05 37 08 CDR Why don't you take some of both? Here, I'll give you both of them. You got the - Right behind your head is a great place to stow it. Let me help John a little more.
- 05 05 37 23 CMP Now I'm starting to get a long sun line. God Almighty, what a place. It's really something. I'll tell you.
- 05 05 37 32 CMP It does.
- 05 05 37 34 CDR Okay. This is 39:38. So you've got 2 minutes, John.
- 05 05 37 37 CMP Okay, coming down.
- 05 05 37 41 CDR How's the ORB rate for you?
- 05 05 37 44 LMP ...
- 05 05 37 45 CDR Good.
- 05 05 37 46 LMP ... film.
- 05 05 37 47 CMP I don't know.
- 05 05 38 02 CDR How much of those have we got left? There's not as many in that ... I wish I could help you out there, John. Okay. Yes, I can see your landmark now. It's coming up there. You've got 225 right ahead.
- 05 05 38 36 CDR ... approximately 10 or 11 minutes. Okay, John. You can mark at 39:38, so let's hold off until 40, okay?
- 05 05 38 46 CMP From 39 to 40?
- 05 05 38 49 CDR From 38 - from 39:38 until it - let's call it 40; zero zero, you know. Okay?
- 05 05 38 55 CMP Don't mark until 40? Until a minute?
- 05 05 38 58 CDR Yes. That's 22 seconds later, and they said 35 to 40, so -
- 05 05 39 04 CMP Okay. Okay.

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05 05 39 24 CDR When you've got that, you can get back here and ...
05 05 39 44 CMP Okay, I've got it.
05 05 39 45 CDR Okay. About another 15 seconds, you can start on it, babe. Got a good ORB rate going. Okay, any time now, go ahead. Tell me when.
05 05 40 02 CDR MARK?
05 05 40 04 CMP Yes.
05 05 40 07 CDR 5 seconds. 10, 15, 20, 25, 30. Okay, got that one up, too. And 10.
05 05 40 41 CMP Tell me what that trunnion angle's getting to be.
05 05 40 44 CDR 15. I can't see it, babe. 20. 25 - ... up --
05 05 40 55 CMP We're right in the middle, too. That's perfect.
05 05 41 03 CDR 10, 15, 20, 25. That's four, right?
05 05 41 21 CMP Yes.
05 05 41 23 CDR 5, 10, 15, 20, 25. Got that number?
05 05 41 48 CMP Yes.
05 05 41 49 CDR Beautiful, John.
05 05 41 53 CMP Now, we mark the same one this time as last time. I know that's for sure.
05 05 42 07 CDR Okay, the next one is going to be CP-2. Now that's north, 5 miles. So you want me to roll right 5 degrees, right?
05 05 42 16 CMP Yes.
05 05 43 41 CDR You haven't got the numbers yet, have you? Okay, ... 125:52:00. You've got 9 minutes ...
05 05 43 51 CMP Okay.
05 05 44 05 CMP ... 795, 85057, 67 - Look at how the altitude varies between those two. 67 and 63 - the last two.

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Day 6

- 05 05 44 23 CDR Okay, let me copy those numbers down, John.
- 05 05 44 25 CMP Okay.
- 05 05 44 30 CDR Man, you've got that altitude wired. Plus 00795, plus 85057, ... 00067. Got it, babe.
- 05 05 45 04 LMP ...
- 05 05 45 15 CDR CP-2, just on the other side of big Florida.
- 05 05 45 21 LMP (Cough) I don't have a cold or something --
- 05 05 45 36 CMP Goddam fiber glass. We'll have to take your lungs to Arizona when we get back.
- 05 05 45 46 LMP There's that thing that looks like the IM again; it's that damn star. What star is that?
- 05 05 45 51 CMP Star of IM.
- 05 05 45 52 CDR That's Snoopy's bottom part, old buddy, I bet.
- 05 05 45 55 LMP Huh?
- 05 05 45 56 CMP That's what it is.
- 05 05 46 01 LMP You think so?
- 05 05 46 03 CDR They had a couple of studies going to see if we were going to collide with it. They said - it could vary between going in front of us and going aft of us.
- 05 05 46 08 LMP Let's watch it this time. The last couple of times, I haven't watched it. I know ... it does not look like a star to me.
- 05 05 46 17 CDR That's something, if you should bump into that --
- 05 05 46 18 LMP It's so bright; I don't know how the hell you could see it.
- 05 05 46 23 CDR Okay. We've got 6 minutes to where he's on the horizon.
- 05 05 46 33 LMP Yes, hell; he's in a - he's in a 190, isn't he?
- 05 05 46 38 CDR A 190 by --

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 371

05 05 46 39 LMP

By 10.

05 05 46 40 CDR

-- 10. See, so he's going back behind us. As he goes around, eventually he'll come back and catch up with us from the front. We'll run into him, see?

05 05 46 53 CMP

What time is this one?

05 05 46 55 CDR

Is the next one; 52, we look at it, and 50 ... horizon and 53:42 - Well, you've got about 7 minutes.

05 05 47 06 CMP

Okay.

05 05 47 28 CMP

Weirdsville! Somebody really didn't like this place because they sure pecked at it. Strange looking craters.

05 05 47 47 CDR

We've got Florida over on the right.

05 05 47 51 LMP

John, ...

05 05 47 54 CDR

Okay. 5, 4, 3, 2, 1 -

05 05 47 59 CDR

MARK.

05 05 48 00 CDR

20 minutes.

05 05 48 14 CMP

You didn't bring any Lomo's over from that LM, did you? No, I got some in the MED kit.

05 05 48 18 CDR

...

05 05 48 21 CMP

...? No, there he is.

05 05 48 22 LMP

We might be able to scrounge you up one.

05 05 48 28 CDR

Okay. Got about 5 minutes to where you first acquire.

05 05 48 52 CDR

You rolled right a little.

05 05 49 05 LMP

Yes, 4 degrees; I'm taking her up to 5 now.

05 05 49 07 CDR

You know, I'll bet that is him. That can't be a star.

05 05 49 13 LMP

The old moon will get to him before long.. He won't be there very long.

05 05 49 20 CDR

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- 05 05 49 29 LMP Did you ever see anything that looked like it was glistening, like Surveyors near landing site 2, Tom?
- 05 05 49 33 CDR No.
- 05 05 49 34 LMP I'm going to look real close this time. I doubt it.
- 05 05 49 36 CDR No. Okay. You're going to acquire them, John, at 52.
- 05 05 49 49 CMP I am, huh?
- 05 05 49 54 CDR You're going to have the chain of craters.
- 05 05 49 58 CMP We're coming up by Florida right now.
- 05 05 50 01 CDR Yes.
- 05 05 50 02 LMP Man, I'm getting pictures of Florida that just won't quit.
- 05 05 50 09 CDR Now, if that isn't tan, I don't know what the hell is.
- 05 05 50 12 CMP Sure as hell. It's tan.
- 05 05 50 13 LMP That's tan --
- 05 05 50 14 CDR Tan, t-a-n, tan. I couldn't describe it better than tan.
- 05 05 50 19 CMP Tan is beautiful. Tan is beautiful --
- 05 05 50 22 CDR And the white stuff looks like gypsum.
- 05 05 50 32 CMP Sure looks like gypsum to me.
- 05 05 50 45 CMP Just looking through these optics, I don't know what color it is. You can't tell ... --
- 05 05 50 50 LMP Tom, you got your monocular?
- 05 05 50 51 CDR Yes, Gene-o.
- 05 05 50 52 LMP I want to look at that - see whether I can still see the descent stage or not. That's not a star though, babe.
- 05 05 50 59 CDR ... plane ... Okay, John. After 104, you go to --

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- 05 05 51 06 LMP Hey, that's it, babe. You can see the legs.
- 05 05 51 09 CDR Huh?
- 05 05 51 11 CMP You can?
- 05 05 51 12 CDR Oh, shit. You can?
- 05 05 51 15 LMP You can see it tumbling, and you can see the legs.
- 05 05 51 31 LMP You bet your apple potatoes.
- 05 05 51 35 CDR Okay.
- 05 05 51 43 LMP Very slow tumble.
- 05 05 51 47 CMP What time is this thing?
- 05 05 51 48 CDR 52. Right now you should be looking out east on your start - You can start the first mark at 53:42, and then we'll delay 20 seconds after that - that's 54 minutes. You ought to start marking that thing. There's the chain craters.
- 05 05 52 02 LMP If you get a chance - probably won't, but if you get a chance, you can see the son of a gun tumble up there.
- 05 05 52 07 CDR I know it. I've got to help John ... optical ... There's John's little old mark right on the side of that peak. I can really pick out CP-2 for you.
- 05 05 52 46 CDR Okay. Coming up to 53, but we'll wait until 54 to mark on it, John, alright?
- 05 05 52 51 CMP Okay.
- 05 05 52 54 CDR And I'll tell you when 54 is, and you can start it anytime then.
- 05 05 53 04 LMP I kid you not, babe; that's it.
- 05 05 53 06 CDR Shit.
- 05 05 53 09 CMP Do what?
- 05 05 53 10 CDR I'm with you.
- 05 05 53 11 LMP I kid you not; that's it.

~~CONFIDENTIAL~~

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Day 6

05 05 53 13 CMP Get a picture of it with 80 millimeter, black and white? Want a 250 millimeter?

05 05 53 19 CDR You're at 54.

05 05 53 23 CMP Just give me a hack at sunrise.

05 05 53 26 CDR We're already there.

05 05 53 28 CMP ... sunrise ...

05 05 53 30 CDR 26:02:51.

05 05 53 43 CDR 54. Okay, in about 10 seconds, John, you should start marking.

05 05 53 52 CMP Okay.

05 05 54 00 CDR Did you mark it?

05 05 54 02 CMP Yes.

05 05 54 04 CDR Okay.

05 05 54 09 CMP This is identical to the spot I marked in last time - identical!

05 05 54 12 CDR Okay, got 15 seconds gone, babe.

05 05 54 15 CMP Okay.

05 05 54 19 CDR ... kind of fast.

05 05 54 21 LMP This is the third time that mother has come up over the horizon.

05 05 54 23 CDR Yes, I see it. Okay. 5 gone.

05 05 54 30 CMP It's in good shape.

05 05 54 36 CDR 15 gone. 20 gone.

05 05 54 45 CMP Oh, shit, I lost it --

05 05 54 46 CDR 25 gone.

05 05 54 47 CMP We didn't have enough roll on, Tom.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 375

05 05 54 49 CDR You want me to roll for you?
05 05 54 50 CMP I'm getting it, I'm getting it ... I got it, I got it.
05 05 54 52 CDR Okay. 30, 35.
05 05 55 04 LMP Would you believe this thing is rolling? It's got a --
05 05 55 06 CDR Okay.
05 05 55 07 LMP -- it's got a red --
05 05 55 08 CDR Hold it.
05 05 55 10 LMP -- red reflected light on it right next to the gold one. Big red reflected something -
05 05 55 14 CDR Alright. You have three?
05 05 55 24 LMP That's weird.
05 05 55 29 CMP Say when.
05 05 55 30 CDR Okay, 15 gone.
05 05 55 33 CMP Okay, I got to get it.
05 05 55 34 CDR 20 gone. Okay.
05 05 55 37 CMP That was terrible, wasn't it?
05 05 55 38 CDR Okay. Ready to go again for the last one?
05 05 55 40 CMP Yes.
05 05 55 44 CDR 5 gone.
05 05 55 45 CMP No, no - I didn't get but four ...
05 05 55 49 CDR Let me take a look over here with Gene-o. He's right in my window.
05 05 55 52 LMP Tom, there's a - there was - it's almost gone - a red reflected glow along with the white.
05 05 56 10 CDR That's him alright.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 6

05 05 56 11 LMP Bet your ass, that's him. If you watch him long enough you can see him ... very, very slow - tumble. You see the red ... gold reflection?

05 05 56 59 CDR Oh, shit, you're getting close, babe.

05 05 57 02 CMP Oh, not that close. How many minutes we got to go to F-1?

05 05 57 09 CDR F-1 is 26:04. To acquire, you've got 7 minutes. Okay, pardon me.

05 05 57 15 CMP Okay.

05 05 57 17 CDR And F-1 is 10 north. There he is right out there.

05 05 57 20 CMP 10 north?

05 05 57 21 CDR 10 miles north. Yes.

05 05 57 23 CMP See what we need to roll.

05 05 58 07 LMP You bet your ass. I wonder when he starts coming down, because he's always in front of us when it comes over the hill. Where is he? I guess he's gone behind us.

05 05 58 15 CDR We're supposed to be catching up with him.

05 05 58 18 LMP I haven't been watching until this time.

05 05 58 21 CDR I saw him coming up back there.

05 05 58 22 LMP We've seen him.

05 05 58 41 CDR He looks a little out of plane.

05 05 58 43 LMP Yes, he is a little out of plane.

05 05 58 44 CDR He's a little out of plane. He's been torqued out of plane. He's torqued to my left, and left is what - north?

05 05 58 51 LMP Right is north. Going right is north.

05 05 59 10 CDR Okay, let me look over here. F-1 is 126:04. And 126:02, Gene-o, in 3 minutes --

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Day 6

~~CONFIDENTIAL~~

Page 377

05 05 59 20 LMP Okay.

05 05 59 21 CDR -- the earth comes up. Why don't you stand by and get a sequence camera and also ...?

05 05 59 33 CDR And, John, F-1 is 04:06. You got to wait. We'll have contact with the earth before you get there.

05 05 59 40 CMP Oh.

05 05 59 52 LMP Okay. 1600.

05 05 59 55 CDR That looks good. Zip.

05 06 00 12 LMP Tom, you won't have time to take yours with this, will you, while I keep the -

05 06 00 15 CDR No, no. I don't. I'll be tracking, John. Let's see - 26 - Maybe I will.

05 06 00 21 LMP Well -

05 06 00 22 CDR It's 26:04:46 - I can - I can hack it real easy.

05 06 00 30 LMP Okay. I can --

05 06 00 31 CDR The --

05 06 00 32 LMP -- run them both ...

05 06 00 33 CDR -- the mark is 26:07 - that'll give them 20 seconds. I can take it.

05 06 00 35 LMP You want to do it?

05 06 00 39 CDR That's 26:07. Okay.

05 06 00 47 LMP What time is he coming over?

05 06 00 49 CDR 51.

05 06 00 54 LMP In the meantime, ...

05 06 00 57 CDR He's out of plane, too.

05 06 01 10 LMP ...

05 06 01 40 CDR You got a sequence of him with the 250?

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Day 6

- 05 06 01 43 LMP I got him, but not with the 250. I got it with the other - with the 18. I want to get this with the 250.
- 05 06 01 55 CDR Okay, another minute. John, you've got a ways to go. No problem.
- 05 06 01 59 LMP When he starts coming ..., he comes up so fast.
- 05 06 02 03 CDR Don't want to use all this color film though. We still have some left on our other one, don't we?
- 05 06 02 09 LMP Yes. Not a lot, but there's about 30 on each one. Snoopy is still up there.
- 05 06 02 20 CDR 02:30. Should be coming up in 30 seconds.
- 05 06 02 24 LMP 02:30; it's 02:25 right now.
- 05 06 02 43 CMP 39. Did you hear the S-band?
- 05 06 02 44 LMP Sure did. Here it is.
- 05 06 02 58 CMP Shooting at real time there, Gene-o?
- 05 06 02 59 LMP Yes.
- 05 06 03 37 CC Apollo 10, Houston. We're standing by. Out.
- 05 06 03 40 CDR Roger. We're coming up to 130. Gene-o, start saving up each - make each one count here. Okay, John. At - shoot, I said 130 - at 126:06, and you've got 290 ... 04:46. Okay, we're coming up on the -
- 05 06 04 09 CMP Okay. You've got enough roll already. I can tell that.
- 05 06 04 25 LMP He's still back there.
- 05 06 04 34 CDR Got about 2.5 minutes, John.
- 05 06 04 49 LMP Tom, I'm going to let this one stand right out in the center. So, what I'm going to do - I'm going to go right into the landing site and get a series of them all the way up.
- 05 06 05 12 LMP ... doggone it.
- 05 06 05 19 CDR Okay. I can hardly see that clock.

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Day 6

~~CONFIDENTIAL~~

Page 379

05 06 05 33 CDR We've got about 2.5 minutes, John.
05 06 05 36 CMP Yes.
05 06 05 37 CDR Looks like we're lining up real good for them, babe.
05 06 05 39 CMP Yes. We've got plenty of roll.
05 06 05 42 CDR ORB rate is looking good.
05 06 06 00 CDR 1 minute to go to start marking, John.
05 06 06 03 CMP Okay.
05 06 06 25 CDR Okay. If you want to wait just a little bit after
7 minutes, it would be good.
05 06 06 29 CMP Okay. Okay, now, this one here is low, Tom. I'll
just start now. Okay?
05 06 06 37 CDR Okay. Go ahead.
05 06 06 40 CMP It's going to be in good shape.
05 06 06 42 CDR Okay, babe. You've got 5 seconds gone.
05 06 06 55 CDR 15, 20, 25. That's two of them. 5, 10, 15, 20, 25.
That's three, right?
05 06 07 34 CMP Yes.
05 06 07 37 CDR 5, 10, 15, 20, 25. Four. 5, 10, 15 - -
05 06 08 17 CMP That's good, Tom. Keep going.
05 06 08 18 CDR Okay.
05 06 08 20 CMP Can't wait too late.
05 06 08 22 CDR Yes. Now we ... them. Hello, Houston; Apollo 10.
05 06 08 29 CC Go ahead, 10.
05 06 08 31 CDR Okay. We've been delaying a little bit like you
suggested after that T_2 time, but the thing gets -
just about out of sight here, and John has to hurry
up on the last one. So we've been waiting about
20 seconds and that's about it, after the T_2 time.

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Day 6

05 06 08 48 CC

Roger, 10. We copy. Sure, that's okay. That sounds good. And a little rundown on your CP-1 and CF-2 marks on REV 25. They looked real good to us. The marks were good, and the spacing was good. We are real happy with that. Over.

05 06 09 06 CDR

Okay. Real fine. And just - you might pass along to the FIDO troops down there that we noticed a star we couldn't identify coming up, and we said, well, there must be something else in orbit with us. And sure enough, this last pass it got close enough. It's the bottom part of Snoopy, and Gene-o with the monocular could see his legs - the reflection off his legs. So as he went out in behind us, like I guess I read that one state ..., but we're going to slowly catch up with him. We're starting to catch up with the bottom part of Snoop, but something has torqued him out of plane a little bit, and he's going out of plane to the south of us. Maybe a mascon grabbed ahold of him or something, but we're catching up with him. There is no doubt about it; and we can actually see different colors in reflected light off the black in the silver panels. Over.

05 06 09 58 CC

Roger. Good show. We'll pass that on to the FIDO.

05 06 10 03 CDR

...

05 06 10 05 LMP

Got the data there, Houston?

05 06 10 09 CC

Stand by. We got it all. You can proceed.

05 06 10 16 CDR

Copy, babe.

05 06 10 33 CC

10, Houston. We can - you can increase your marking time slightly if you'll push your pitch rate up a little bit as you go through the marking cycle. Over.

05 06 10 45 CDR

Okay.

05 06 10 46 CMP

Shoot, we know that.

05 06 10 47 CDR

Yes, we thought about that.

05 06 10 59 CDR

Okay, ...

05 06 11 18 CMP

Okay. Telescope, range one.

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Day 6

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Page 381

- 05 06 11 29 CDR Man, your downrange is right on the longitude over 2.
Shit, you're right there pretty close, John, on your
latitude. That shows us down in a depression, you
know it?
- 05 06 11 41 CMP Well, I don't know what it shows, Tom. I -
- 05 06 11 51 CDR Okay. The next one?
- 05 06 11 55 CMP 130.
- 05 06 11 57 CDR We've got a ways to go.
- 05 06 11 58 CMP Yes.
- 05 06 12 00 CDR We've got about a - You can start marking in about
16 minutes.
- 05 06 12 15 CDR You want a 130.
- 05 06 12 19 CMP ... we'll get them early and take them late.
- 05 06 12 24 CDR Okay.
- 05 06 12 47 CMP I can't really tell, trying it through the telescope.
Maybe you need to decrease your pitch rate. I can
get a feel for it ... Tell you what I can do. I
could show you - I could show you 1692 on there, which
is shaft and trunnion, and anytime the trunnion gets
more than about 25 degrees after it's come down the
first time, it starts getting bigger than that, and
then you got to start pitching.
- 05 06 13 13 CDR Yes.
- 05 06 13 15 CMP That would be 25 degrees going back that way.
- 05 06 13 47 LMP I thought there was a landing site right down there.
- 05 06 13 49 CDR Huh?
- 05 06 13 50 LMP ...
- 05 06 13 51 CMP What?
- 05 06 13 54 CDR Yes.
- 05 06 13 56 LMP Do you have any black and white film?

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05 06 13 58 CDR No.
05 06 13 59 LMP The last black and white ...
05 06 14 02 CDR We should have plenty of black and white. I don't --
05 06 14 06 LMP ... close to the landing site, because I don't ...
05 06 14 20 CDR No, I don't have it over here, Gene-o.
05 06 14 22 LMP Okay, ...
05 06 14 25 CMP Okay. How much time now?
05 06 14 28 CDR Got lots, babe. About 12 minutes ...
05 06 14 32 CMP Why?
05 06 14 35 LMP John, ...
05 06 14 56 CDR You want a Pentel?
05 06 15 12 LMP John, there isn't another ...
05 06 15 16 CMP Another what?
05 06 15 17 LMP I want to get that landing site. Is there another
16 - 70-millimeter film can down in there?
05 06 15 22 CMP You just give me one. There is none down in there
that I know of.
05 06 15 25 LMP ... down in there, right? We don't have any stowed
anywhere else ...?
05 06 15 29 CDR We're supposed to get a landing site 3, too. Save
a little bit for that.
05 06 15 32 LMP Babe, there's only 10 pictures left in here.
05 06 15 35 CDR Well, save them for landing site 3. That's what
we're supposed to get.
05 06 15 40 CMP Only 10?
05 06 15 41 CDR Did you get all the black and white can out of my
purse I brought?

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05 06 16 05 CMP ... some of them under the seat.

05 06 16 12 CDR Hey, there's - there's some - Oh, no, this is ...

05 06 16 15 SC You know, ...

05 06 16 27 LMP I need that, though; ...

05 06 16 28 CDR Yes. Okay, on 130, John. You want - you want that 10 degrees roll?

05 06 16 37 CMP Where is it? Where is it? Which ... of the ground track?

05 06 16 42 CDR 130 is 12 miles north.

05 06 16 44 CMP No. We don't need 12 degrees in there.

05 06 16 47 CDR Do we need 5 degrees? Huh?

05 06 16 50 CMP 4 - 3 - something like that.

05 06 17 09 CMP 11266, 17839.

05 06 17 14 CDR Here's a film pack here, Gene-o.

05 06 17 15 LMP Right.

05 06 17 16 CDR It's full.

05 06 17 18 LMP ... what kind it is?

05 06 17 20 CDR It's color exterior.

05 06 17 22 LMP ... 70 millimeter?

05 06 17 25 CDR No, 16.

05 06 17 26 LMP ... that way. How ... we got left, I need some ... the LM?

05 06 17 39 CDR Okay.

05 06 17 43 CMP Here's one with lots of ...

05 06 17 45 CDR Okay.

05 06 17 52 SC (Cough)

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05 06 18 10 CDR Beautiful.

05 06 18 12 CMP You got one with a lot? Maybe there's some stored where we don't never think of to look.

05 06 18 22 IMP Well, I guess - Oh, shit, do you realize - God dang.

05 06 18 34 CMP Do you realize that we almost don't get any ...?

05 06 18 40 CDR You what?

05 06 18 41 CMP Do you realize that all ...? Okay, I'll put this camera mount on.

05 06 18 55 CDR Got it.

05 06 18 58 IMP ... floating around with a monocular.

05 06 19 07 CMP How much time we got in here, Tom?

05 06 19 09 CDR Okay. I can see it coming way up ahead here. We're just over Messier.

05 06 19 16 CMP And there's Taruntius ... some kind of goddam fool.

05 06 19 21 CDR I'm getting another ...

05 06 19 26 SC Whew!

05 06 19 33 CDR We ... no big (yawn) ... moon.

05 06 19 42 CMP God. That one down there looks just like somebody -

05 06 19 45 CDR That one on the left?

05 06 19 48 CMP Yes.

05 06 19 57 CDR Okay. 126:25:53. You got him - you'll acquire - and at 27:30, he's there, so at about 28 - 27:30 to 27:50.

05 06 20 11 CMP Okay, I may have you pitch on that ...

05 06 26 20 CMP Are you ORB rate, Tom?

05 06 26 21 CDR Yes. Sure am. Holding right there.

05 06 26 30 CDR 27:25 - about another minute and 30 seconds, babe.

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- 05 06 26 43 CMP It's A, B, and E - A, B, and D, I mean - leading into E.
- 05 06 27 09 CMP Alright. We're there.
- 05 06 27 11 CDR Okay. We'll - to get the mark in - (cough) - you said 27:25.
- 05 06 27 17 CMP Okay, babe. Say when.
- 05 06 27 19 CDR Okay. Just keep tracking it, babe. You can tell me when you want me to pitch. Okay. There's your 27:25 and now just hold off for a little bit while I come up in pitch.
- 05 06 27 30 CMP Can I take the marks?
- 05 06 27 32 CDR Okay. Go ahead.
- 05 06 27 34 CDR MARK.
- 05 06 27 37 CDR Do you put 30 seconds between each one?
- 05 06 27 39 CMP No.
- 05 06 27 40 CDR Okay. You want me to pitch down for you?
- 05 06 27 43 CMP Not yet. How much is that?
- 05 06 27 47 CDR 15 seconds gone. 20, 25, 30. That's two. 5, 10, 15, 20, 25, 30.
- 05 06 28 37 CMP Okay, pitch a little, Tom.
- 05 06 28 41 CDR You got one more?
- 05 06 28 44 CMP Got two more to go.
- 05 06 28 47 CDR Okay, since you made that mark, there's 15, 20, 25, 30. One more to go.
- 05 06 29 09 CDR 5, 10, 15, 20, 25, 30.
- 05 06 29 36 CMP Okay.
- 05 06 29 40 CDR Houston, that completes five marks. We had exactly 30 seconds between the marks. Over.

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Day 6

05 06 29 48 CC Roger, 10. We copy.

05 06 29 49 SC Whew!

05 06 30 06 CDR Okay. We've got one more REV this routine.

05 06 30 10 CMP One more REV of this and we're ...

05 06 30 12 CDR How's our fuel doing? Oh, we haven't used much fuel.

05 06 30 42 CDR And, Houston, this is 10. Do you want me to go ahead and pitch over before you give us the update and go ahead and talk a little bit?

05 06 30 56 CC Stand by.

05 06 31 01 CMP They'll want the data.

05 06 31 10 CC Hello, 10; Houston. You can go ahead and maneuver and give us the high gain. Then we'll give you the update after that. Over.

05 06 31 15 CDR Alright. Roger.

05 06 31 17 CMP You got the data, Charlie?

05 06 31 21 CC Stand by. We got it, 10. You can proceed.

05 06 31 25 CDR Okay. Pitching over. ...

05 06 31 41 IMP We're getting something out of ... I don't know what the hell else. Let me know when you get about halfway there, Tom; I'll get them on high gain ...

05 06 32 04 CDR Yes. Same attitude as before. That looks pretty good what they worked out for these flight ...

05 06 32 22 CDR There's an interesting one - that sunset out there.

05 06 32 27 CMP Look at that altitude.

05 06 32 31 CDR Yes. Let me - copy it down there, John. Plus 01401, plus 11 - -

05 07 29 21 CDR ... about that ascent stage. You know that? ... son of a bitch ... screwed, you know? But that son of a bitch - John?

05 07 29 40 CMP ... light burn ...

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Day 6

~~CONFIDENTIAL~~

Page 387

05 07 29 43 CDR ... boop, boop, boop with that thing was too much.

05 07 29 46 CMP Really gyred around?

05 07 29 47 CDR ... whole ... was shaking ... feel it ...

05 07 29 51 CMP Yes, but how come - how come the simulator ... show the 8-ball ...?

05 07 29 54 LMP ...

05 07 29 56 CMP I saw a ...

05 07 30 13 LMP ... saw that one time.

05 07 30 48 CDR ...

05 07 30 56 CMP ...

05 07 31 08 CDR Okay. We're picking up at - 36, 38 - You can mark on it about 40; 125:40. ... That was really something. Would you believe that's - quad A-2?

05 07 31 40 LMP ..., Tom. It may be ... but I can't recognize ...

05 07 31 45 CDR That quad A never did cool off, did it?

05 07 31 47 LMP No, that was ..., I think.

05 07 31 50 CDR Probably getting a lot of sun due to ORB rate.

05 07 31 54 CMP ... burn ... God ... What the hell is this shit? What? What is that crap those things ...? ... putting my ...

05 07 32 18 LMP ... in the ... bag, Tom.

05 07 32 24 CMP ... I don't understand what you guys been doing. Where you been walking? I didn't leave. What did you guys do in that LM?

05 07 32 41 CMP You know, I think that - that ought to be a good hatch. Sealed by pressure.

05 07 32 48 LMP ...

05 07 32 49 CMP Sealed by pressure. That's the simple way to ...

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~~CONFIDENTIAL~~

Day 6

- 05 07 32 53 CDR ... the other way, except you'd have to egress and go through EVA and all that.
- 05 07 32 58 CMP Actually, that would ... a lot better ...
- 05 07 33 01 CDR Than this one here?
- 05 07 33 03 CMP Yes.
- 05 07 33 05 CDR You mean pressure ...?
- 05 07 33 06 CMP I don't know how it works. ... I don't believe that'd be ...
- 05 07 33 16 LMP That one you got - that one you got ...
- 05 07 33 18 CMP ... anticipated original - -
- 05 07 33 20 LMP That one you got? ...
- 05 07 33 22 CMP -- ... that mother. Where we were trying to decide whether - whether we're trying to - whether they're trying to con us into going back to a two-piece hatch.
- 05 07 33 29 IMP ...?
- 05 07 33 31 CMP ... that's what we've done.
- 05 07 33 34 CDR Shea?
- 05 07 33 35 CMP Yes.
- 05 07 33 36 LMP Oh. ...
- 05 07 33 40 CMP ...
- 05 07 33 48 CDR ... explode, that thing ...
- 05 07 33 50 CMP Yes, that's right. Just blow a hole ... Yes. ... get out in a hurry. ... But I'll tell you one thing ... hatch.
- 05 07 34 11 CDR Gene-o, ...
- 05 07 34 19 LMP ...?
- 05 07 34 24 CDR Yes, that's right.
- 05 07 34 25 LMP Okay, wait until ...

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Day 6

~~CONFIDENTIAL~~

Page 389

05 07 34 30 CMP He what?
05 07 34 35 LMP/CMP Okay, Tom.
05 07 34 37 CDR Okay. Okay, John, at ease. I've got the time here ...
05 07 34 58 LMP That yaw ...
05 07 34 59 CDR ... Okay, number 1, CP-1 is ...
05 07 35 14 LMP How about that?
05 07 35 15 CMP ...
05 07 35 17 CDR ... leave it off ... flight plan?
05 07 35 20 CMP There we go.
05 07 35 22 CDR I'll bet it was filthy, wasn't it?
05 07 35 25 CMP Yes.
05 07 35 34 CDR ...
05 07 35 42 CMP Did you get ... over there?
05 07 35 44 CDR Huh?
05 07 35 45 CMP Did you guys get ..., or is that in the back?
05 07 35 47 CDR No, that's way in the back.
05 07 35 49 CMP Okay. ...
05 07 36 18 CMP ... on the back side, here.
05 07 36 28 CMP I hate to say it, but it looks to me like somebody's
built these walls - out of concrete or plaster of paris.
05 07 36 53 CMP Weird, man. 38? Okay.
05 07 37 45 CMP It ain't quite time yet, babe.
05 07 37 54 CDR That may be a ... got it all ...
05 07 38 03 CMP Okay, babe.
05 07 38 05 CDR Got it, okay? Just leave the ... running at 40.

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~~CONFIDENTIAL~~

Day 6

05 07 38 14 LMP Oh, shit! That's alright, babe; ... not sure I was coming in, there.

05 07 38 18 CDR What do you need?

05 07 38 20 LMP Roll right a little. Wrong way. Wrong way.

05 07 38 27 CMP There you go.

05 07 38 28 LMP Fine.

05 07 38 30 CMP Say when; I can modify it again.

05 07 38 34 CDR Okay, bring up ... If you've got - if you've got it, mark it.

05 07 38 37 CMP I got it.

05 07 38 38 CDR Mark it?

05 07 38 39 CMP There you go.

05 07 38 40 CDR Okay.

05 07 38 57 CDR You've got 20 seconds, John.

05 07 38 59 CMP Okay.

05 07 39 08 CDR I'm going to stop the roll.

05 07 39 11 CMP ...

05 07 39 13 CDR ... at 35 seconds. ... Okay, 5 seconds. 10. 15. 20. 25. 30. ...? Three. 5. 10. 15. 20. 25. 30. Four. Five.

05 07 40 22 CMP ... I got five, anyway.

05 07 40 31 CDR Huh?

05 07 40 32 CMP I got five, anyway.

05 07 40 33 CDR You got five?

05 07 40 34 CMP Yes.

05 07 40 36 LMP ...

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Day 6

~~CONFIDENTIAL~~

Page 391

05 07 40 48 CDR ...
05 07 41 08 CDR Okay. The next one. ...
05 07 41 16 CMP We have to roll, pitch ... pitch ... just roll ...
05 07 41 23 CDR Let's do a little roll ... It's going to be a 27
58, 35 51 ... You've got 10 minutes ...
05 07 41 37 CMP Okay.
05 07 41 38 CDR And we just rolled the wrong way. Try the other
one. ... you want a 5-degrees roll right.

05 07 41 45 CMP Okay, I'm not sure it is, because ... roll ... used
to rolling it 5 degrees right and I tell you, man,
... roll.
05 07 41 57 CDR Well, we were rolled 5 left ...
05 07 41 59 CMP Okay.
05 07 42 28 CMP 78, 590, plus 0002.4. Ha! Right in the same spot,
anyway; more or less.
05 07 43 40 CDR It's 43 and you're going to ... at 50. ...
05 07 44 44 CMP Okay, plus 10000, plus 63700, plus all balls.
05 07 45 03 CDR ...
05 07 45 17 CDR It'll be about 5 more minutes.
05 07 45 22 LMP ... over there, babe.
05 07 45 26 CDR And roll right 5 degrees.
05 07 45 30 CMP And it looks - it looks okay right now. I don't
see ... what I got in there.
05 07 45 39 CDR You better be right. ...
05 07 45 42 CMP Yes.
05 07 46 00 CDR Oh, hell; no wonder. This freaking SCS.
05 07 46 04 CMP Yes.

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~~CONFIDENTIAL~~

Day 6

05 07 46 07 CDR Son of a bitch! ...
05 07 46 18 LMP ... bad angles. ...
05 07 46 21 CDR Huh?
05 07 46 22 LMP ... bad angles. ... this thing up.
05 07 46 31 CDR You guys ...
05 07 46 47 CDR Now we're coming right back and do the ...
05 07 46 51 CMP Okay.
05 07 47 08 CDR There you go, John.
05 07 47 09 CMP ...
05 07 47 14 CDR Okay, 2 - P-2. 50:25; it's on the horizon. And at 51:30, ...
05 07 48 04 CMP Yes, we need 5 - 5 degrees of right or left roll. It doesn't make any difference ... Straight up and down.
05 07 48 52 CDR Okay, 50:25. You got a minute and 30 seconds to go. It's on the horizon. ... 51:30 ...
05 07 49 02 CMP Okay, it's coming straight down the optics. Once I get ahold of it, I'm going to tell you to roll one way or the other, okay?
05 07 49 07 CDR Yes.
05 07 49 09 CMP I'm ... which way it is ... Roll about 10 degrees when I tell you.
05 07 49 19 CDR Which way?
05 07 49 20 CMP Whichever way I tell you. I don't know. We're coming straight down. I'm going to pick the side it favors. Yes, ... AUTO OPTICS ... tracking ...; in fact, I know damn well it will.
05 07 50 13 CDR Okay, should be right on the ... there.
05 07 50 17 CMP Where?
05 07 50 18 CDR 51. 15. ... start marking P-2 at 51:30.

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Day 6

~~CONFIDENTIAL~~

Page 393

05 07 50 35 CMP That's great.
05 07 51 11 CDR Okay, should be out in the - Got him?
05 07 51 16 CMP Not yet. He's coming in now.
05 07 52 07 CDR You can mark on it, babe, anytime.
05 07 52 09 CMP Okay.
05 07 52 12 CDR Let me know when.
05 07 52 23 CMP Okay. Roll.
05 07 52 25 CDR Which way? This way?
05 07 52 31 CMP Right.
05 07 52 41 CMP There's one.
05 07 52 42 CDR Huh?
05 07 52 43 CMP I got one.
05 07 52 44 CDR (Cough)
05 07 52 45 CMP 10 seconds to go.
05 07 52 46 CDR Yes. I got you. Tell me when it stops rolling.
05 07 52 50 CMP Okay.
05 07 52 52 CDR Now?
05 07 52 53 CMP Whoa.
05 07 53 01 CDR Okay, 20 seconds, John. John?
05 07 53 05 CMP Yes.
05 07 53 09 CDR ... seconds. 10 seconds. 20 seconds, 30 seconds;
5 seconds, 10 seconds, 15 seconds, 20 seconds,
30 seconds; hold it. Did you get a mark?
05 07 53 52 CMP Yes.
05 07 53 53 CDR Okay, one more. ...

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05 07 53 57 CMP I don't need another one. No, ... I got five.

05 07 54 00 CDR You've got five?

05 07 54 06 CMP Whew, ...

05 07 54 09 CDR Got two more to go and that does it, babe.

05 07 54 13 CMP Damn ...

05 07 54 46 CMP What happened? Did it jam on you?

05 07 54 48 LMP It's the fourth time the same one has jammed.

05 07 54 51 CDR Okay, the next one is ... You wanted it rolled the same way?

05 07 54 54 CMP Yes.

05 07 54 57 CDR You got about 9 minutes to go - about 10 degrees.

05 07 55 02 LMP ...

05 07 55 03 CDR Yes, ...

05 07 55 04 LMP ...

05 07 55 32 CDR Oh, shit.

05 07 55 49 CMP Well, let's see. There's 18 - there's altitude.

05 07 55 53 CDR I'll copy, babe.

05 07 55 56 CMP Plus 000621, plus 63963, plus 00189.

05 07 56 02 CDR Let me copy that.

05 07 56 20 CDR I got it.

05 07 56 36 CMP Whew.

05 07 57 34 CDR Okay, that's 1 and 1.803 ... 6 minutes to acquire, and -

05 07 57 52 CMP Okay, that's right on the groundtrack, roll - we're not rolling at all hardly, are we? When do we acquire Houston?

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 395

- 05 07 58 12 CDR Oh, shit; I don't know. Hang on. 128:01:26 -
3 minutes. Do you want to take any more pictures
with the camera, John?
- 05 07 58 27 CMP ...
- 05 07 58 28 CDR You got plenty of them coming up.
- 05 07 58 36 CMP ...
- 05 07 58 46 CDR That is ... and it looks like ...
- 05 07 58 57 IMP ... colored pictures they brought back to you.
- 05 07 59 02 CMP Yes, it really does. Ain't no color ...
- 05 07 59 16 CDR They said those color TV pictures we sent were good.
- 05 07 59 26 CMP ... I hope that P-141 has got a ... on it. ... the
way back.
- 05 08 03 06 CDR Okay, should be on the horizon ... your first
acquisition.
- 05 08 03 11 CMP Okay, I can't see anything. Optics are in the way.
But we'll get that. That's a useless damn thing -
that optics. Coming down now.
- 05 08 03 49 CDR Okay.
- 05 08 03 56 CC Hello, Apollo 10. We're standing by.
- 05 08 03 57 CDR Roger; we're right in the middle of the track on ...
We'll call you later.
- 05 08 04 21 CDR Okay, at 04:55, you should be able to start tracking
him and - ... as far as pushing the button - a little
over 30 seconds.
- 05 08 04 30 CMP Don't see him yet, Tom.
- 05 08 04 32 CDR Huh?
- 05 08 04 33 CMP I don't have him yet.
- 05 08 04 43 CDR 04:55 should be - 10 seconds, he should be 30 degrees
down.

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~~CONFIDENTIAL~~

05 08 04 51 CMP Okay.

05 08 05 05 CMP There he is.

05 08 05 06 CDR Got him?

05 08 05 07 CMP Yes.

05 08 05 08 CDR Tell me when you mark, John.

05 08 05 09 CMP When you want me to?

05 08 05 11 CDR You're clear to mark right now.

05 08 05 12 CMP I am?

05 08 05 17 CMP MARK.

05 08 05 19 CDR One mark. Well, we got 15 seconds ...

05 08 05 29 CMP Okay.

05 08 05 33 CDR 20, 25. Did you mark?

05 08 05 42 CMP Yes.

05 08 05 43 CDR 30, 35, 40.

05 08 05 58 CMP Is that 40 seconds from my last --

05 08 05 59 CDR Yes. I can't - couldn't hear when you marked ...

05 08 06 04 CMP Okay. That's -

05 08 06 11 CDR Yell mark, John.

05 08 06 12 CMP MARK.

05 08 06 13 CDR Okay.

05 08 06 18 CDR 5 seconds, 10 seconds, 15 seconds, 20 seconds,
25 seconds, 30 seconds. Okay? You've got three stars.

05 08 06 52 CMP Four, I think.

05 08 06 53 CDR Four? Is that all you got?

05 08 06 55 CMP Yes. Right.

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Day 6

~~CONFIDENTIAL~~

Page 397

05 08 07 52 CDR Sure got ... coming up now, John.
05 08 08 00 CMP ... Four marks is just as good as five.
05 08 08 04 CDR Huh?
05 08 08 05 CMP Four marks is just as good as five. ...
05 08 08 28 CC ...
05 08 08 34 CDR Roger.
05 08 08 58 CDR Okay, the last one is 130.
05 08 09 25 CMP What time is it?
05 08 09 26 CDR It's 128:24. You've got quite a while.
05 08 09 29 CMP Yes. ... 0.490 miles, 0.436 miles, 0.57 --
05 08 09 38 CDR Let me copy.
05 08 09 55 CDR That's 02058, plus 44.20, and 0400, 190.
05 08 10 30 CDR Okay.
05 08 10 48 CDR Shit, that was close, John.
05 08 10 51 CMP Yes.
05 08 10 54 CDR Okay, this is the last one, and we're back to 130.
After this, we only have - one landmark to track. ...
05 08 11 15 CMP How do we do that? ...
05 08 11 18 CDR You go around ...
05 08 12 28 CDR ...
05 08 12 31 CMP We got one more ...
05 08 12 34 CDR ... if you want to.
05 08 12 36 CMP No, I want
05 08 12 47 CDR Yes, I know it.
05 08 13 13 CDR Okay, 130 is at 24 and 25 ...

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~~CONFIDENTIAL~~

Day 6

- 05 08 13 47 CMP Oh, what a life, being a spaceman. Wish I could have been a professor or something.
- 05 08 13 58 CDR John, for - for photography -
- 05 08 14 06 CMP For the what, Tom?
- 05 08 14 08 CDR For that last - we take oblique landing site ... for that last thing.
- 05 08 14 25 CDR I can't get too freaking excited about it. After the landmarks, we do a photo strip and then we come around and fire the TEI. I can't get too excited -
- 05 08 14 43 LMP ...
- 05 08 14 44 CDR That's what I say. I can't get too excited about that last ...
- 05 08 14 47 CMP What did they do? All the way around?
- 05 08 14 48 CDR No. Just - -
- 05 08 14 50 LMP ...
- 05 08 14 56 CMP Photo ... site 3?
- 05 08 14 59 LMP That I haven't done yet.
- 05 08 15 04 CMP When is this other one due?
- 05 08 17 46 CDR Okay.
- 05 08 17 57 LMP ... the right numbers, Tom?
- 05 08 17 59 CDR Okay, let me check them for you, babe.
- 05 08 18 01 CMP If you want to doublecheck, ...
- 05 08 18 02 CDR 1 - 01.266, 11.839, ... Looks good, babe.
- 05 08 18 42 CDR You got our altitude 166, 161, and 164. You ... be right in there.
- 05 08 18 48 CMP I don't know what they means, Tom. It really doesn't mean a great deal. It depends on - See, this thing over - updates as good as ... state vector.

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Day 6

~~CONFIDENTIAL~~

Page 399

- 05 08 18 57 CDR Oh, I see.
- 05 08 18 59 CMP I don't know what that means ...
- 05 08 19 35 CMP Oh, lord, there's the gash; there's the gashes.
- 05 08 19 54 CDR Okay, it's 24:16.
- 05 08 21 03 CDR Okay, 24:16 - you got 3 minutes to go, John.
- 05 08 21 18 CMP How many?
- 05 08 21 20 CDR About 3, babe.
- 05 08 21 21 CMP 3.
- 05 08 21 33 CMP Okay, now, if I ask you to pitch over on that --
- 05 08 21 34 CDR Huh?
- 05 08 21 35 CMP I may have to pitch over --
- 05 08 21 36 CDR Okay. No problem.
- 05 08 22 22 CMP Now. I believe this here is - is where we're high - around this side of it, T.P.
- 05 08 22 33 CDR Is that right?
- 05 08 22 34 CMP Yes. It just - I just get the feeling we're higher over here than I do on the other side.
- 05 08 22 42 CDR Okay. 128:24. So you got 2 minutes until you first pick him up and we'll be tracking on him in about 26 minutes, John. ...
- 05 08 22 52 CMP Okay, ... looking down. Well, this may be a bad mistake, but I'll give her a go.
- 05 08 23 11 CDR ... on Censorinus?
- 05 08 23 13 CMP Yes.
- 05 08 23 23 CMP Okay. There's a -
- 05 08 23 25 CDR What?
- 05 08 23 26 CMP ...

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 6

- 05 08 24 26 CDR Okay.
- 05 08 24 33 CMP There's a big dry rille. A little dry rille.
- 05 08 24 53 CDR ... track, John. You're all set. Okay, 26 minutes - you've got 1 minute to go - you can mark.
- 05 08 24 59 CMP ... 1 minute to go and how you marking?
- 05 08 25 04 CDR Yes.
- 05 08 25 06 CMP Okay. There he is.
- 05 08 25 17 CDR About 30 seconds to go.
- 05 08 25 26 CMP I think he's too far out right now, Tom.
- 05 08 25 27 CDR Okay. No hurry.
- 05 08 25 33 CMP Okay, first mark.
- 05 08 25 36 CDR Okay. Ready? Tell me when.
- 05 08 25 37 CMP MARK it.
- 05 08 25 38 CDR You got it. You want to take 30 seconds ...?
- 05 08 25 41 CMP Yes.
- 05 08 25 46 CDR Okay, 5, 10, 15, 20, 25 -
- 05 08 26 11 CDR 30, MARK it.
- 05 08 26 15 CDR Okay, 5, 10, 15, 20, 25, 30. Okay, 5, 10, 15, 20, 25, 30. One more, babe.
- 05 08 27 17 CDR 5 --
- 05 08 27 19 CMP Oh, God. The boulders stand out.
- 05 08 27 22 CDR -- 10, 15, 20, 25, 30. 35. That's got it. Right?
- 05 08 27 49 CMP Yes.
- 05 08 27 54 CDR Why don't you get ..., Gene-o? I'm going to pitch on down.
- 05 08 28 05 CDR Okay, Houston, we've finished with landmark 130.

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Day 6

~~CONFIDENTIAL~~

Page 401

05 08 28 12 CC Roger, 10; we copy.
05 08 28 20 CMP What do y'all have to do now?
05 08 28 22 CDR Sleep for 3-1/2 hours. Okay, I'm turning off your suit power.
05 08 28 30 CMP Mine? Wait a minute. Let me hear what the ground is going to say about this shit. Oh. Excuse me.
05 08 28 37 CC ...
05 08 29 07 CMP Okay, Charlie, why don't you run us by that again? Nobody was on a headset.
05 08 29 15 CC ...
05 08 29 26 CMP Okay. Roger. Wait a second.
05 08 29 39 CMP Go ahead, Charlie.
05 08 29 44 CC Okay, ...
05 08 30 28 CMP Go ahead, I'm going to go ahead and start the fuel - the O₂ purge right now on 2 and 3.
05 08 30 35 CC ...
05 11 55 02 CDR What time?
05 11 55 11 CDR ... 55. Time to ...
05 11 55 55 LMP ... came through.
05 11 55 57 CDR Yes. How are you feeling?
05 11 56 01 LMP Feel great ... water.
05 11 56 08 CDR You had nearly 3 hours.
05 11 56 17 LMP I really feel good.
05 11 56 48 LMP No. No.
05 11 57 04 CDR ... your intercom. Suit power on?
05 11 57 20 LMP In ICS/PTT?

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~~CONFIDENTIAL~~

- 05 11 57 22 CMP Oh. I never turned that off. Did you turn it off, Tom?
- 05 11 57 27 CDR No.
- 05 11 57 30 CMP Something weird - weird thing happened. We ... today?
- 05 11 57 36 CDR Let's see. It's daytime out there now, though.
- 05 11 57 38 CMP It is?
- 05 11 57 41 CDR Yes.
- 05 11 57 42 CMP Shall I get off a few quick photos of opportunity? Did we miss any? There anything out there left to be photographed? (Laughter)
- 05 11 57 52 LMP ... I don't think so.
- 05 11 57 55 CDR Oh, shit. I've never seen that before.
- 05 11 58 00 CMP Yes, it's old - Are we going backwards?
- 05 11 58 15 CDR Wouldn't be surprised.
- 05 11 58 20 CMP Hey, I know we're a damn sight closer over here on the back side than we are on the front side. I think we better get the hell out of here before this thing - starts to take a nosedive for it.
- 05 11 58 31 CMP Don't you - don't you think we're closer back here?
- 05 11 58 34 CDR Could be.
- 05 11 58 35 CMP You could make some scientific measurements, but it would just screw everything up.
- 05 11 58 38 CDR Yes.
- 05 11 58 43 LMP Hold it there ...
- 05 13 02 47 LMP Houston, do you read us at all?
- 05 13 02 52 CC Okay, Apollo 10; this is Houston. We're reading you now, John.
- 05 13 02 57 LMP You keep calling me by the wrong name.

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Day 6

~~CONFIDENTIAL~~

Page 403

- 05 13 03 04 CC You keep sounding like the wrong guy.
- 05 13 03 08 LMP I keep getting mixed up myself.
- 05 13 03 31 LMP T.P., we're hanging right about 27 miles, and we've still got a battery charge to go.
- 05 13 03 37 CDR Huh?
- 05 13 03 41 CC Apollo 10, this is Houston. John, your comment on being able to pick up these features through the telescope in earthshine: do you think you could pick up these features within about 10 degrees of the terminator --
- 05 13 03 52 CDR Oh, shit.
- 05 13 03 53 CC -- still in the earthshine?
- 05 13 03 56 CDR Man, that would be rough.
- 05 13 03 57 CMP The earthshine terminator or the nighttime terminator?
- 05 13 03 59 CDR We go from earthshine to nighttime.
- 05 13 04 05 CMP No, I do not, because --
- 05 13 04 06 CC The nighttime terminator.
- 05 13 04 07 CMP No. You mean 10 degrees? Which earthshine are you talking about? Which --
- 05 13 04 13 CC Roger.
- 05 13 04 16 LMP They're talking about the regular sun terminator, John.
- 05 13 04 19 CMP The regular sun terminator would be impossible, because you're not night-adapted. You can't - you can't see anything when you go into the dark through the telescope until you get night-adapted, and then you can see - then you can see all the - can see all the terrain features.
- 05 13 04 38 CDR Now, we may -
- 05 13 04 39 CC Okay. We understand. Thank you.
- 05 13 04 52 CMP Stupid, freaking question.

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05 13 04 58 CDR

Okay, Houston; Apollo 10. All the way through the landmark tracking, we shot photos of opportunity and we've just about ran out of film here, we've shot so much of it. So on this one, we're just going to maintain ORB rate with our heads up here instead of heads down. But we can get pretty good coverage really out the side windows, and we shot the whole strips out the other way. So we're - on this REV, we're just going to maintain ORB rate with heads up and - and I don't think there's really any photos of opportunity we haven't already got, but we'll still be shooting some.

05 13 05 34 CMP

What they would like to have when you can is get photos - what they would like to have when you can get them is photos of the horizon, photos of the --

05 13 05 43 CC

Okay, Tom. We understand.

05 13 05 44 CMP

-- photos of the sort of a strip on the side. A strip photo of the --

05 13 05 49 CDR

Sideways?

05 13 05 52 CMP

Yes, but do you know what I'm talking about?

05 13 05 53 CDR

You mean out this way?

05 13 05 54 CMP

Yes, they'd like to have photo - oblique out - showing just the - just the horizon a little bit. In other words, because that gives them an idea of what - of what - the horizon gives them a real good hack on the elevation.

05 13 06 06 CC

Apollo 10, Houston.

05 13 06 08 LMP

Go ahead, over.

05 13 06 12 CC

Roger, 10. FIDO is predicting that on the back side at sunrise at 133:26 that Snoopy should be directly overhead. So if you pitch up, you might be able to pick him up and - right at sunrise.

05 13 06 27 CDR

Roger. At sunrise; 133:26. Thank you --

05 13 06 30 CMP

Freak it. Screw him.

05 13 06 33 LMP

I think he's a little early.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 405

- 05 13 06 35 CMP If he's directly overhead - if he's in the phasing orbit, he'd be at 300 miles, wouldn't he?
- 05 13 06 45 CDR He'd be 200 miles plus what he's torqued at.
- 05 13 07 13 CDR The whole thing - I wasn't - It took so damn long to get that VERB 83 up, I wasn't sure about - -
- 05 13 07 19 CMP Yes, that damn thing is really bad - -
- 05 13 07 20 LMP Boy, it takes long in the IM, too, remember that, Tom; how long it took to get that thing up?
- 05 13 07 25 CDR I think if I'd had a quick VERB 83, I could have given him marks on what we were tracking on.
- 05 13 07 27 CMP Let me see that a minute.
- 05 13 07 40 CDR Yes. If we don't see the son of a gun out in front anymore, like maybe we done - he's done passed behind us.
- 05 13 07 50 CMP Those guys don't have the foggiest blessed notion where he's at; I bet you a hundred bucks.
- 05 13 07 56 CDR I think Shaffer - Oh, Phil Shaffer will.
- 05 13 07 59 LMP You've got one more IMU to do, John. And one more P52 to do.
- 05 13 08 06 CMP And that's the one that counts. Right? When do we do that? You mean before we get out of the dark here?
- 05 13 08 17 CDR No, after landmark tracking.
- 05 13 08 19 CMP After landmark tracking.
- 05 13 08 20 LMP You want to change the canisters, John?
- 05 13 08 23 CMP Yes.
- 05 13 08 24 LMP Canister A; 13 to A and 11 to A-3.
- 05 13 08 37 CMP 13 to A, and 11 to A-3. Okay, excuse me, Tom.
- 05 13 08 44 CC Apollo 10, this is Houston. We show LOS in about 2 minutes; and we should pick you up again at

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~~CONFIDENTIAL~~

Day 6

133:57, which is about 48 minutes from now. And we'll keep in contact with you until you go around the corner.

- 05 13 09 00 CDR Okay, Joe. Real good. Thank you.
- 05 13 09 27 CMP Nice place to live, but I wouldn't want to land there (laughter). We got him, don't we? Let's tell Neil that (laughter). 13 to - to where? 13 to where, babe?
- 05 13 09 47 LMP 13 to A.
- 05 13 09 49 CMP Oh, shit, John; you dumb shit. Excuse my tongue.
- 05 13 09 56 LMP And 11 to A-3.
- 05 13 10 15 CDR Okay.
- 05 13 10 16 CC Okay, 10; this is Houston. We're going to lose you here in about a half a minute, so we'll see you on the next round and keep an eye out for old Snoop.
- 05 13 10 22 CDR Okay. Will do, Joe. Thank you.
- 05 13 10 38 CDR What's been the burn times on those TEI's? 2 minutes and -
- 05 13 10 43 LMP Roger; 2 minutes and - almost 3 minutes.
- 05 13 10 48 CMP God, you can tell when you lose them, can't you?
- 05 13 10 50 CDR Yes.
- 05 13 10 57 LMP We're not going to do this black and white test, are we?
- 05 13 11 00 CDR Do what?
- 05 13 11 02 LMP Black and white TV test?
- 05 13 11 03 CDR No.
- 05 13 11 05 CMP They want us to.
- 05 13 11 06 LMP Man, that's like wringing out the dirty - you know, the dirty bras after you've ... in the program.

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- 05 13 11 12 CDR Yes. At least I feel better about Snoopy. We can't say it's impossible we'd ever hit him, but that rascal didn't look - it looked out of plane earlier when we were right on keel --
- 05 13 11 20 CMP ... sure it didn't look out of plane when we --
- 05 13 11 22 SC (Laughter)
- 05 13 11 24 CDR ... right down the bellyband.
- 05 13 11 26 CMP That son of a bitch has got the right idea.
- 05 13 11 31 LMP This is beautiful. We eat breakfast and then we go to sleep.
- 05 13 11 38 CDR That little nap sure helped out.
- 05 13 11 39 CMP Boy, I tell you I feel like a new man. Feel good.
- 05 13 11 46 CDR Okay, after - Let's see - after landmark tracking, we've got just a whole REV there to do nothing but just get squared away, right?
- 05 13 11 54 LMP No. We don't. That's what I'm looking at. Son of a bitch. We're doing targets of opportunity --
- 05 13 12 00 CDR Freak it.
- 05 13 12 01 LMP -- strip photos right up until - shit, that's what we're doing. Discontinue strip photography at 136:15, and we burn at about 137:15. And between there, John's got to do a P52, we've got to roll to TEI attitude, P52, P30, P40; we lose them in 30 minutes after that - no - 25 minutes after that.
- 05 13 12 26 CMP That's no sweat; we'll make it.
- 05 13 12 28 LMP Yes, but God dang.
- 05 13 12 29 CDR What have we got to do? How much time have we got left?
- 05 13 12 33 CMP Shoot up the rest of the black and white.
- 05 13 12 35 LMP Yes. We'll shoot up the black --
- 05 13 12 36 CDR Yes. Shoot the stuff out to the side.

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Day 6

- 05 13 12 39 CMP Shoot, they're interested in the elevation. They won't bother you.
- 05 13 12 45 CDR What do you --
- 05 13 12 46 CMP You can get it all on this REV, for that matter. But just don't get too much of the horizon. They just want --
- 05 13 12 52 CDR Just the horizon right near the top.
- 05 13 12 54 CMP Yes, well. Yes. The horizon near the top, and then that gives them an idea - that gives them the best estimate of elevation of the terrain.
- 05 13 13 06 LMP I see ... the horizon ...
- 05 13 13 24 CDR If you look back like that at sunrise, you should be able to see Snoop, if he's up there. You see anything out there now?
- 05 13 13 37 CMP A few stars.
- 05 13 13 43 CDR Did we put any tape over that fuel cell 1 light?
- 05 13 13 46 CMP No!
- 05 13 13 47 CDR Why?
- 05 13 13 48 CMP Because it burns. Son of a bitch is going to get hot. That thing --
- 05 13 13 57 CDR There's fuel cell 2.
- 05 13 13 59 LMP What did you do? May have been while I was sleeping. I must be confused.
- 05 13 14 10 CMP What the hell's the matter with fuel cell 2?
- 05 13 14 12 LMP I think it's this heater's cycling.
- 05 13 14 15 CDR Let's tell them about it.
- 05 13 14 16 LMP Something's wrong with the heater ...
- 05 13 14 23 CMP You bet.
- 05 13 14 29 LMP See?

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- 05 13 14 34 CMP Why should the goddam light come on? Oh, that's right, because - -
- 05 13 14 39 LMP ... just below the ... - -
- 05 13 14 40 CMP - - because - because that caution and warning ... was set right on its goddam edge.
- 05 13 14 43 LMP - - cycles. ... can't do that.
- 05 13 14 53 CMP Tell them about it.
- 05 13 14 54 LMP We can't. I ain't talking to them.
- 05 13 14 56 CMP Oh, I mean; well, why didn't you tell them about it before?
- 05 13 14 58 LMP Because I didn't see that before.
- 05 13 14 59 CMP Oh.
- 05 13 15 00 LMP ... it was a high ... I didn't see that before.
- 05 13 15 05 CDR So what have we got on it? The high flow?
- 05 13 15 08 LMP No. We got a -
- 05 13 15 09 CMP No. The flow's normal.
- 05 13 15 10 LMP It's just the ... the exhaust temperature is ...
- 05 13 15 18 CMP Weird thing.
- 05 13 15 24 LMP Well, now the computer really controls both these primary ... - It could be that goddam pump package ..., too.
- 05 13 15 29 CDR No shit. Pump package going out on that one? Wouldn't that be the shits to get it - in the back and turn those gimbal motors on and get your main bus undervolts and all that?
- 05 13 15 46 CMP What would you do?
- 05 13 15 50 CDR Would the batteries carry those mo - those gimbals?
- 05 13 15 52 LMP We've - we've still got some pretty good fuel cells right now. We've still got fuel cell 1.

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- 05 13 15 59 CDR Will the batteries and that carry them?
- 05 13 16 04 CMP Yes. Well, I mean, we ain't got - Fuel cells will work; we just got to learn how to baby them, that's all.
- 05 13 16 19 LMP ... up and down.
- 05 13 16 30 CMP Did you drive the pressures up and down?
- 05 13 16 33 LMP Look at the - look at the - see if there's something on the fuel cell - fuel cell condenser exhaust - see if there's something on the - on the pumps down there - in your glycol temperature - something out there, that says something about fuel cell - there is something on your ... down there.
- 05 13 16 52 CMP Yes? Nothing about the pump. There's regulators - Okay, fuel cell 1 radiator outlet temperature, fuel cell - fuel cell 2 radiator outlet temperature, let's take a look at that.
- 05 13 17 13 LMP Compare them. Compare them. Compare - compare them all.
- 05 13 17 18 CMP Okay.
- 05 13 17 20 CDR I'm going to power down my GDC for a while. Okay?
- 05 13 17 24 CMP Alright.
- 05 13 17 30 LMP There it is again.
- 05 13 17 35 CMP Same thing?
- 05 13 17 42 LMP It's the cooling system on that god-dang fuel cell 2. Now. It's the same thing we had on these other ones.
- 05 13 17 50 CDR Hey, look, what we can do - Let's talk to them. Let's don't freak around with this situation.
- 05 13 17 57 CMP I don't know what the shit here.
- 05 13 17 58 LMP Hey, it seems like an hour; it's been 2 hours, you guys.
- 05 13 18 08 CDR If we can make a good platform alignment and get out of here in a hurry, we've got a good state

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vector. Even though we'd like to keep to the nominal mission. What do you see on it? You got the MAL procedures out there?

05 13 18 21 LMP

Yes, Tom. It's the same thing except the ... can't hold it. What bothers me is that - is that - It's not this regulator pump; the damn thing's still working.

05 13 18 45 CMP

3-B, -C, and -D.

05 13 18 56 CDR

Has any spacecraft had fuel cell problems before?

05 13 19 00 CMP

Yes.

05 13 19 01 LMP

Which one?

05 13 19 03 CDR

Which one? They've had condenser-exhaust problems.

05 13 19 05 CMP

I heard that the D was open-circuited before they came in. There's no motion there, and the condenser and radiator outlet temperatures are constant.

05 13 19 21 CDR

On all of them?

05 13 19 22 CMP

Yes.

05 13 19 24 LMP

What else you got to look at?

05 13 19 26 CMP

Let's see. That was 3-B, -C, and -D. Okay, let's look at - Well - 1-A, -B, and -C. Fuel cell 1 and 2, REG pressure. 1-A, -B, -C.

05 13 19 42 CDR

They all look good, huh?

05 13 19 43 CMP

Okay, B is a little higher. A's a little lower. The REG pressure's okay. 1-C, -D, and 2-A, 1-D, -A and -B; 1-D, that's O_2 regulator pressure. 2-A and -B. Well, the O_2 REG pressure on 2 is a little high. It's carrying a lot of load.

05 13 20 31 LMP

Is it out of SPEC?

05 13 20 34 CMP

No, it's in the nominal range, 3.9 to 4.6. And then, 2-C, fuel cell 1 H_2 pressure REG, 2-D, 3.8 to 4.5; those are all okay. And 3-A, that crummy-looking -

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Day 6

That's all - they're all the same. So everything's the same. Even with the bad one. Everything that we could read.

05 13 21 34 LMP Oh, shit. I just don't like the way it's cycling up and down, up and down.

05 13 21 40 CDR Well, when they - Once we make TEI, we can tie a bunch of stuff down, here.

05 13 21 47 CMP Yes.

05 13 21 48 CDR Turn off the BMAG's.

05 13 21 50 LMP That's why - that's why I don't like to sit on our ass, you know? ...

05 13 22 01 CDR We can fire TEI at the end of this REV. We'll talk - -

05 13 22 05 LMP ... a nice little item.

05 13 22 08 CMP Well, let them look at it. They'll want to look at the freaking thing. They're going to make up their mind about the time we do TEI.

05 13 22 22 LMP TEI is in 4 hours.

05 13 22 48 CMP I don't really think this will show up when we get the batteries on.

05 13 22 53 LMP John, don't you think we ought to take some of those things from out there and snap them on the - snap them on the floor?

05 13 22 59 CMP Yes, I'll do that, as a matter of fact.

05 13 23 03 LMP Here, I've got a mess of film that we could ...

05 13 23 07 CDR Oh.

05 13 23 08 CMP Have you got any that's all used up? We'll stick it back, huh?

05 13 23 12 CDR It's used up. Keep that color exterior film and haven't we - we got the two color backs? We're going to get some great pictures with them. You got some sequence camera film for the moon going away because once we turn around, it's going to

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be pretty phenomenal, and we'll bring out the boob tube then and throw it on.

- 05 13 23 39 CMP Okay.
- 05 13 23 57 CMP Here comes a thread floating up to get you. Hell, there's three pack - three things already in there.
- 05 13 24 09 LMP Stand by the ...
- 05 13 24 10 CMP Yes.
- 05 13 24 12 LMP What a ...
- 05 13 24 16 CDR There it - it's stalled again.
- 05 13 24 17 CMP Same thing?
- 05 13 24 18 LMP Yes. ... Let's just ... here.
- 05 13 24 24 CMP Yes. No, it goes behind here.
- 05 13 24 55 CMP Okay. Watch your fingers. Where does this here go? In R-13?
- 05 13 24 57 LMP What?
- 05 13 24 58 CMP In R-13?
- 05 13 25 07 LMP No, that's a ...
- 05 13 25 11 CMP Yes.
- 05 13 25 12 LMP ... They're closed.
- 05 13 25 38 CDR Is that - Okay, here comes sunrise. Now, watch it. I want to pitch up. See if you can see anything straight up.
- 05 13 26 09 LMP ...
- 05 13 26 10 CMP Man, that ...
- 05 13 26 31 CMP You want to put these here down near the floor?
- 05 13 26 45 CDR What about snapping those things - like that? Just - -

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- 05 13 26 50 CMP Oh, yes.
- 05 13 26 55 CDR I don't know whether that will reach with that end.
- 05 13 28 06 CDR What about this bear? You think you ... up and down?
- 05 13 28 07 CMP What?
- 05 13 28 10 CDR This one here.
- 05 13 28 13 CMP It probably will, unless we tie it up.
- 05 13 28 16 CDR Here, you can - can you double it back on the -
- 05 13 28 22 CMP If I had a strap, I'd strap it to this here thing, right here.
- 05 13 28 24 CDR You don't want anything coming down and whopping you during that burn.
- 05 13 28 28 CMP No. Here, let's get this - let me get - Well, I don't see any more straps.
- 05 13 28 42 CDR Here's somebody's ear -
- 05 13 28 46 CMP I thought I shit the ...
- 05 13 29 02 CMP Yes.
- 05 13 29 30 LMP Yes, Tom; I don't know. I'm not averse to making - to getting - you know, once you get out of lunar orbit, you can do a lot of things. You can power down, you can do a lot of things. ... another fuel cell, we're going to be sucking a hind tit. And what's happening is - -
- 05 13 29 44 CDR Oh - Who did it?
- 05 13 29 46 CMP Who did what?
- 05 13 29 47 LMP What?
- 05 13 29 49 CDR Who did it? (Laughter)
- 05 13 29 51 LMP Where did that come from?
- 05 13 29 52 CDR Give me a napkin quick. There's a turd floating through the air.

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Day 6

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Page 415

05 13 29 55 CMP I didn't do it. It ain't one of mine.

05 13 29 57 LMP I don't think it's one of mine.

05 13 29 59 CDR Mine was a little more sticky than that. Throw that away.

05 13 30 06 CMP God almighty.

05 13 30 08 SC (Laughter)

05 13 30 10 CDR What do you see?

05 13 30 12 CMP Nothing, that's enough for me.

05 13 30 16 LMP Yes.

05 13 30 18 CMP Nice going there.

05 13 30 20 LMP No more turds are going to fit in there.

05 13 30 23 CDR Is that waste compartment full?

05 13 30 26 CMP No, hell; there's nothing in there.

05 13 30 28 LMP It goes all the way down to the -

05 13 30 30 SC (Laughter)

05 13 30 32 LMP Hell, when I got in there, I had to stick my hand in there and ... - He put it in the bag, didn't he? You guys been trying to stick it through there with your fingers?

05 13 30 40 SC (Laughter)

05 13 30 44 CDR Okay. Soon as we get contact - -

05 13 30 46 LMP Tom, what bothers me about this pump action is ... - -

05 13 30 50 CDR There it goes. Okay. Let's - -

05 13 30 53 LMP - - is this damn thing - I think it's the pump - is cycling on and off. It's not like it's set, set within limits. The son of a bitch is going on and off, on and off. How long is that going to last? It's like I'm watching the voltage going or something.

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- 05 13 31 05 CDR From the fuel cell, too?
- 05 13 31 06 LMP No, I'm watching the voltage go up and down, and I'm trying to correlate it with when the pump is going on and off and I can't, but almost.
- 05 13 31 19 CMP When do they pick us up? ...
- 05 13 31 24 CDR Hey, what about this monocular?
- 05 13 31 27 LMP Here, is there some - Where does this thing go?
- 05 13 31 28 CDR Down below.
- 05 13 31 32 LMP John, do you know where this mother stows by any chance?
- 05 13 31 35 CMP No.
- 05 13 31 37 LMP ... know where it goes.
- 05 13 31 41 CDR 133:57. Got 25 more minutes.
- 05 13 32 11 LMF I just don't like that cycling pressure like that.
- 05 13 32 14 CMP Something peculiar going on there.
- 05 13 32 17 CDR We can limp home on one fuel cell, once we get out of orbit, here.
- 05 13 32 20 CMP Yes. We want to get out of orbit. I don't want to do that either.
- 05 13 32 29 CDR Well, we could - 1 is still good, it can carry some load.
- 05 13 32 33 LMP Yes. We'll put 1 on the line, so you can find its - its temperature here. Get the pump back on.
- 05 13 32 45 CDR We got an H₂ purge going on it full?
- 05 13 32 48 LMP Huh?
- 05 13 32 49 CDR We got an H₂ purge going on it?
- 05 13 32 51 LMP No. No.
- 05 13 32 53 CDR Did it all come back into the normal SPEC?

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Day 6

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Page 417

- 05 13 32 55 LMP Yes, yes. You'll have the - put a continuous H₂ purge on it if you use it all the time, to keep it cool. What they're talking about is using it for burns. Okay. Call up a NOUN - a VERB 64.
- 05 13 33 11 CDR Okay. It'll be 25 minutes before we get them.
- 05 13 33 15 CMP Yes. Are we going to hold ORB rate?
- 05 13 33 17 CDR Yes.
- 05 13 33 20 LMP I'm getting tired of watching this thing go up and down.
- 05 13 34 01 LMP Need some help up there, John?
- 05 13 34 03 CMP No. I got it, finally. Probably isn't exactly military in its stowage range.
- 05 13 34 14 LMP You want this?
- 05 13 34 16 CMP Yes.
- 05 13 34 26 CDR There it is.
- 05 13 34 30 LMP Man, I don't like that at all. Tom, you better put these in your pocket.
- 05 13 34 36 CDR Yes.
- 05 13 35 01 CDR We have a - a maneuver - a TEI maneuver for this time around, don't we?
- 05 13 35 13 LMP It's right now. Right now it's at 37.
- 05 13 35 20 CMP Well, shit.
- 05 13 35 23 CDR This is what - Yes, TEI, it's going to be right in the sunlight.
- 05 13 35 28 CMP Heads down.
- 05 13 35 30 CDR Inertial.
- 05 13 35 31 CMP What's your pitch angle?
- 05 13 35 32 CDR Oh, pitch angle is 055, so we - -

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Day 6

- 05 13 35 34 LMP This one would be 054 and it's ..., so you're at about the attitude.
- 05 13 35 39 CDR I'm at 054. You pitch down where the horizon is right - What time is it?
- 05 13 35 47 CMP I'm going to turn this off - the power switch off. What time are we - supposed to --
- 05 13 35 56 CDR 27. You get that stuff out of the way, John?
- 05 13 36 01 CMP Yes. It's all down out of the tunnel. Tunnel inspection, tunnel verified as clear.
- 05 13 36 08 CDR Okay. That's the attitude.
- 05 13 36 13 LMP We were supposed to have had a waste water dump at 135.
- 05 13 36 16 CMP We should have?
- 05 13 36 18 LMP No, it's not yet, it's not that time yet, but do you want to do that now?
- 05 13 36 20 CDR Go ahead and do it.
- 05 13 36 21 LMP Just in case?
- 05 13 36 22 CDR Go ahead and do it. Then we won't have any particles back in it.
- 05 13 36 27 CMP 135.
- 05 13 36 30 LMP Same place, 2 hours from now. Let me look and see. I wrote it in there.
- 05 13 36 39 CMP Waste water dump you can do anytime, even while you're burning.
- 05 13 36 44 LMP Tom, the waste water dump is 135.
- 05 13 36 47 CDR Let me have the camera. Have you got black and white?
- 05 13 36 53 LMP 135. ... --
- 05 13 36 57 CDR ... You got black and white?
- 05 13 36 58 LMP Yes.

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Day 6

~~CONFIDENTIAL~~

Page 419

- 05 13 37 31 CMP How often does the MASTER ALARM come on? Must be -
We could time it.
- 05 13 37 37 LMP Once every 5 times. John, we're up to 80 percent
waste water. Do you want to dump it?
- 05 13 37 42 CMP Okay. Is that a no-no?
- 05 13 37 46 LMP What?
- 05 13 37 48 CMP It says was 85 percent.
- 05 13 37 58 LMP That could be an 82 percent.
- 05 13 38 01 CMP Maybe that's part of our problem.
- 05 13 38 03 LMP That's what I was wondering. We've got to dump it
in a few hours anyway.
- 05 13 38 08 CDR That water may be backing up in the cell, huh?
- 05 13 38 11 LMP That's a remote possibility, but it's not - it's ...
the temperature though.
- 05 13 38 19 CMP Okay. Well, I'll dump it.
- 05 13 38 20 LMP Let's dump it.
- 05 13 38 21 CDR Ain't going to perturb my orbit here.
- 05 13 38 27 CMP Did they say we could do it anytime?
- 05 13 38 29 LMP They said on 135. They told us that - Here's
another goddam turd. What's the matter with you
guys? Here, give me a -
- 05 13 38 37 CDR/CMP (Laughter)
- 05 13 38 39 LMP Well, babe, if it was me, I sure would know I was
shitting on the floor.
- 05 13 38 43 CDR It was just floating around?
- 05 13 38 45 LMP Yes.
- 05 13 38 47 CDR (Laughter) Mine was stickier than that.
- 05 13 38 52 CMP Mine was too. It hit that bag - -

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05 13 38 53 LMP When I stuck my finger in mine - mine was too soft.
God dang.

05 13 39 01 CDR (Laughter)

05 13 39 03 LMP (Laughter) I don't know whose that is. I can neither
claim it nor disclaim it (laughter).

05 13 39 09 CMP What the hell is going on here?

05 13 39 10 LMP I don't know. I - that's what I was up against
when - (laughter) - After Tom stuck his in there, I
figured, Jesus, how -

05 13 39 22 CMP Something wrong there. We're going to have to get
all that crap out. It's supposed to go clean back
over that ... there.

05 13 39 55 CMP Okay, the dump is already dumping, huh?

05 13 39 59 LMP The dump is - is not doing anything.

05 13 40 04 CMP Okay. You want me to go to DUMP on 2?

05 13 40 05 LMP Yes.

05 13 40 06 CMP Okay, 2.

05 13 40 12 LMP Is it dumping?

05 13 40 13 CMP Yes.

05 13 40 14 CDR I think so. Looks like it's going down to me --

05 13 40 16 LMP Yes, there it is. It's going out.

05 13 40 49 CDR Do we have any black and white left besides this MAG?

05 13 40 52 LMP ...

05 13 40 58 CMP You what?

05 13 40 59 LMP ...

05 13 41 26 CDR Well, I don't - There's Snoopy.

05 13 41 28 CMP Got him?

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Day 6

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Page 421

- 05 13 41 30 CDR You're damn right I - Oh, shit, do I have him.
Get that monocular.
- 05 13 41 33 CMP Here it is.
- 05 13 41 34 LMP That's the same way he came up before.
- 05 13 41 38 CDR Where - where's the op - where's - Here, let me go
to ... Get the monocular on him, Gene-o.
- 05 13 41 51 CDR The COAS.
- 05 13 42 03 LMP Remember we got a waste-water dump going.
- 05 13 42 07 CMP So?
- 05 13 42 08 LMP So we don't dump it all.
- 05 13 42 13 CMP He's way up there.
- 05 13 42 14 LMP That's him alright. You can see his damn legs --
- 05 13 42 20 CMP Let me see - let me see.
- 05 13 42 22 LMP Let me take one quick peek.
- 05 13 42 26 CMP You have a sight on him?
- 05 13 42 28 CDR Okay. We're on - Oh - he's starting to get lost
on the sun's ...
- 05 13 42 33 LMP No, you can see him. You can see his legs on --
- 05 13 42 35 CDR He passed down below us. Maybe he's going up and
behind us.
- 05 13 42 38 LMP He's still going out but you --
- 05 13 42 39 CDR Okay. Let's stand by to take some data, just for
the heck of it. Okay, babe?
- 05 13 42 43 LMP Alright. Give me some GET --
- 05 13 42 44 CDR I want - Okay --
- 05 13 42 46 LMP -- give me a - turn the GET time on --

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- 05 13 42 48 CDR I've got it full bright - you'll have to hold your hand and shade it.
- 05 13 42 50 LMP Okay.
- 05 13 42 51 CDR I'm going to track him optically.
- 05 13 42 53 CMP I don't see him --
- 05 13 42 54 LMP Give me a mark.
- 05 13 43 02 CDR Stand by.
- 05 13 43 09 CMP Let me see if I can put the optics on him, Gene-o.
- 05 13 43 10 CDR Stand by -
- 05 13 43 12 CDR MARK.
- 05 13 43 13 CMP Let me put the optics on him.
- 05 13 43 14 LMP What do you get for an angle, Tom?
- 05 13 43 16 CMP Let me put the optics on him, Tom.
- 05 13 43 17 CDR MARK.
- 05 13 43 18 CDR Inertial, in ORB rate - ORB rate, he is 3 - 350.
- 05 13 43 23 CMP There ain't ... Inertial will get him.
- 05 13 43 26 CDR You mark; he was 350 at that time.
- 05 13 43 28 LMP Let John track him with the optics.
- 05 13 43 30 CMP Yes, pitch up and get him with the optics --
- 05 13 43 31 CDR Okay. You got some sun out there, babe. He's going out.
- 05 13 43 36 CMP Oh, okay.
- 05 13 43 37 CDR Now he looks a little out of plane - a couple of degrees, on the bellyband. What's he look like to you, babe? Okay. I got him 12 degrees below the X-axis, John.
- 05 13 44 08 LMP No question about - about what it is, I'll tell you.

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- 05 13 44 13 CMP You got him 12 degrees below the X-axis?
- 05 13 44 14 CDR Yes.
- 05 13 44 17 CMP Oh, shit. I turned the optics off. Here comes the optics back on - Watch - watch it. I got him - I got him - I got him!
- 05 13 44 27 CDR Okay. Okay. Start tracking him. Well, if we start our TEI, we're going to be climbing out like mad, see? And he's going to be up above us, and we'll be going right through that thing.
- 05 13 44 54 LMP That's right. We would have fired TEI ... minutes ago.
- 05 13 44 58 CDR You damn right - -
- 05 13 44 59 CMP Snoopy.
- 05 13 45 00 LMP Huh?
- 05 13 45 01 CMP I got him.
- 05 13 45 11 CDR Shit. I could nearly see his legs from here.
- 05 13 45 13 LMP I know it.
- 05 13 45 14 CMP I can't see any legs from here. He must be a long ways off.
- 05 13 45 17 CDR You can't in the scope?
- 05 13 45 19 CMP Yes. I cannot.
- 05 13 45 20 CDR You cannot.
- 05 13 45 22 CMP ... the tunnel for a bit, babe. God damn it, P20; knock that shit off. I got him. Hold what you got, T.P.
- 05 13 45 34 CDR Okay.
- 05 13 45 39 CMP You sure that's him out there?
- 05 13 45 40 CDR Babe, that's got to be him.
- 05 13 45 43 CMP I think that's a planet.
- 05 13 45 44 CDR Huh?

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05 13 45 45 LMP That's him, babe. No, that's him.
05 13 45 56 CMP Oh, look at this freaker calculate.
05 13 46 06 CDR That ain't no planet, John, baby.
05 13 46 12 CMP Well, I don't know what the hell it -
05 13 46 19 CDR He isn't that far out there.
05 13 46 21 CMP Looks like a planet.
05 13 46 24 CDR It couldn't be, John.
05 13 46 25 LMP It couldn't be, John. We've seen him go in
reflected sunlight and disappear --
05 13 46 29 CDR Yes, but - what was - that wasn't no planet going
down below us like a scalded --
05 13 46 31 LMP No, and that's exactly where he'd be.
05 13 46 48 CMP Now a VERB 37 ... Okay. Okay. Let's just get some
accurate GET time - time hacks on his position.
05 13 47 17 CDR Okay. Stand by. Gene-o, got the clock ready to mark?
05 13 47 20 CMP I - I don't know - I - There's no way - there's no
way for me to --
05 13 47 25 CDR Babe, that isn't any planet, I'll clue you. He's
got dimensions to him.
05 13 47 28 LMP That's right; he does --
05 13 47 29 CMP I tell you --
05 13 47 30 LMP -- he's tumbling ... --
05 13 47 31 CDR Can you track him --
05 13 47 32 CMP Have you got the --
05 13 47 33 LMP -- tumbling in the sextant. You ought to see it
through the monocular.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 425

- 05 13 47 38 CDR I'm trying to say he's out of plane here, but I'm the odd here. He's pitching up all the time. He's going above us.
- 05 13 47 48 LMP Okay, John. I'm ready to record some marks on time --
- 05 13 47 51 CMP My God, I don't have any state vector or nothing - I can't. Well, let me do it this way.
- 05 13 48 03 CDR Well, I could - I could put the X-axis on him and track local horizontal, and it can get something from there.
- 05 13 48 10 CMP Oh, shit; that'll lock the freaking computer up.
- 05 13 48 14 LMP Still got him, Tom?
- 05 13 48 15 CDR Oh, you better believe I've got him.
- 05 13 48 16 LMP Sun's in my eyes. I can't see him.
- 05 13 48 19 CMP Well, hell --
- 05 13 48 20 LMP Doesn't he look like he's tumbling to you, Tom?
- 05 13 48 23 CMP -- let's just stay in this attitude, until we get to the ground.
- 05 13 48 26 CDR Huh?
- 05 13 48 27 CMP When are we going to get ground contact?
- 05 13 48 28 LMP In about --
- 05 13 48 30 CDR You ought to - I'll stand by to put the plus-X on him. You can't do any good marking on him inertially, can you?
- 05 13 48 38 CMP Well - but wait a minute --
- 05 13 48 39 LMP -- 10 minutes, John.
- 05 13 48 40 CMP -- the ground can read this stuff. They can figure out just where he is.
- 05 13 48 41 CDR Okay.

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~~CONFIDENTIAL~~

- 05 13 48 42 CMP They can read our platform angles and his. I'll just stay here - I'll just keep this on him. When are we supposed to come in contact with them?
- 05 13 48 49 LMP Give me a VERB 64. 10 more minutes.
- 05 13 48 53 CDR I don't --
- 05 13 48 54 CMP Okay. You got to pitch up some more, Tom.
- 05 13 48 55 CDR Okay.
- 05 13 49 09 CMP He's going up above us, now. I'm not sure it's not a planet.
- 05 13 49 12 LMP Shoot, you can see the shades of reflection off him when he tumbles through that monocular.
- 05 13 49 17 CMP He's not tumbling in the optics. It looks like Venus or something like that --
- 05 13 49 21 CDR Is that right? It could be.
- 05 13 49 24 LMP I don't know how you can see Venus with it looking right up at that sun. Oh, you're not looking at the sun, though.
- 05 13 49 28 CMP Well, that's the thing of it. The sun - the sun is - shades Venus. It's either Venus - I think it's Saturn, is what I think it is. Why don't we knock this off? It's going to be embarrassing.
- 05 13 49 46 CDR (Laughter) Yes. He's sure got dimension. Well, there's no doubt that that was Snoopy when we saw him going down below us.
- 05 13 49 58 LMP ... nothing else could ... --
- 05 13 49 59 CMP Yes. Well, I'll agree with that. I just don't believe - I just don't believe that's him.
- 05 13 50 03 CDR Yes. I - I think you're probably right.
- 05 13 50 07 CMP Why don't we knock it off?
- 05 13 50 08 CDR Yes. I'm with you, babe.
- 05 13 50 11 CMP Because he's - this is definitely out to one side.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 427

- 05 13 50 14 CDR Yes. Well, okay; but I'm yawed a little bit, too.
- 05 13 50 17 CMP Well, he's worse when you yaw back.
- 05 13 50 25 CDR Well, what we have here is out of plane, definitely. We've never seen anything --
- 05 13 50 28 CMP Yes. It ain't even close.
- 05 13 50 30 LMP Can't you call up Venus or Saturn on the AUTO optics and find out?
- 05 13 50 39 CMP I could if I knew what the freak the numbers were.
- 05 13 50 47 CDR Yes. He - it's out of plane - that's the plane of the ecliptic there. Yes, that thing would never bother us. It's over and to the left.
- 05 13 51 00 CMP I don't think that's him.
- 05 13 51 02 LMP Maybe you're right. I don't know.
- 05 13 51 05 CMP I think it's Saturn or Venus, one.
- 05 13 51 09 CDR Now it isn't sparkling --
- 05 13 51 10 CMP Probably Saturn.
- 05 13 51 11 CDR -- now it isn't sparkling like it was before. But that was the real living, breathing Snoopy that we saw going down below us (laughter).
- 05 13 51 24 CMP Maybe even ...
- 05 13 51 29 CDR Yes, that was trailing the sun right through. It's got a different color - it doesn't have the orange color like --
- 05 13 51 35 CMP Yes. You guys, when you - when you're out there, you look like a star (cough). Looks like I'm tracking a damn star (cough) in the daytime.
- 05 13 51 44 CDR Well, I wouldn't sweat what we've got here. He's out of plane. You know, that could have been probably what we saw before - then picked up Snoopy other than that, and then tried to extrapolate it.
- 05 13 52 26 CMP Maybe.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 6

- 05 13 52 30 LMP (Cough)
- 05 13 52 40 CMP What time are we supposed to do this landmark shit - stuff?
- 05 13 52 45 CDR We got a ways to go. We got B-1 which is way down in landing site 1. We've got --
- 05 13 52 49 LMP Got a waste-water dump, John.
- 05 13 52 51 CMP Huh?
- 05 13 52 52 LMP Waste-water turnoff.
- 05 13 52 54 CMP Did you turn it off?
- 05 13 52 57 CDR Did we dump too much?
- 05 13 52 58 LMP About 20 percent.
- 05 13 53 40 LMP Done with your optics? Why don't you turn them off?
- 05 13 53 49 CMP Which amp does that bias?
- 05 13 53 50 LMP Turn off the optics --
- 05 13 53 51 CDR I got - I got my GDC I'll do.
- 05 13 54 01 LMP Did you say something?
- 05 13 54 02 CMP Which amp does that bias, turning off the optics?
- 05 13 54 06 LMP I'd expect the amps gives you about a quarter of a volt count. Quarter - sometimes a half, at least.
- 05 13 54 14 CMP Okay. That O₂ flow is fluctuating plenty, isn't it?
- 05 13 54 17 LMP It's fluctuating at both cells.
- 05 13 54 22 CMP Has it been doing that before? Huh?
- 05 13 54 26 LMP No. It hasn't been doing that before.
- 05 13 54 35 CMP How about this cryogenic tank things?
- 05 13 54 38 LMP ... configuration I gave it awhile ago, and we're still alright there.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 429

- 05 13 55 00 CDR 1 minute after TEI, we can shut off the ORDEAL and pull the ORDEAL breakers and stow that box, because it isn't going to help us any more.
- 05 13 55 10 CMP That's right. We got the waste water off, didn't we?
- 05 13 55 21 LMP Call up VERB 64 for me; we're getting close to them now.
- 05 13 55 24 CDR I don't think we can get them with that - this side up.
- 05 13 55 30 CMP What about the ...?
- 05 13 56 26 IMP Yes, I know what - don't know what it means coming out of orbit 2 hours earlier, but I sure - I just don't like all these fluctuations.
- 05 13 56 34 CDR It doesn't land you that much earlier. And - before sunrise.
- 05 13 56 46 CDR Yes, you'd rather have these problems on the way home (laughter).
- 05 13 56 48 LMP On the way home, where you can power the son of a bitch down and don't have to worry about it. But this type of thing - Okay, we're coming in now.
- 05 13 57 00 CDR Here comes the earth. Beautiful. We'll get him on OMNI. We won't have any high gain.
- 05 13 57 07 LMP Yes. Hello, Houston. Houston, this is Apollo 10. Over.
- 05 13 57 15 CMP I'm just now getting him.
- 05 13 57 17 CC Roger, Apollo 10; this is Houston. Reading you loud and clear. Go ahead.
- 05 13 57 20 LMP Hey, Joe, we got another fuel cell problem we want to throw at you. It's fuel cell 2. The condenser-exhaust temperature is cycling - the condenser-exhaust temperature is cycling on fuel cell 2 between the top of the green band; between about 175 degrees and down to about 155 degrees - about; it's cycling 2 cycles per minute. It's been doing this at least for the last 45 - 30 or 40 minutes. And about one in every 10 cycles, it rings the MASTER ALARM for low condenser-exhaust temperature on fuel cell 2. In addition, I

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~~CONFIDENTIAL~~

Day 6

guess maybe we're seeing things we haven't before,
but on fuel cell 2 and 3, the O₂ flow rate - just
the gage just keeps bobbling up and down - just maybe
0.01 or so, but just enough so the needle whips up
and down on flow rate continuously on both fuel cells.
Over.

- 05 13 58 24 CMP That may be normal. Did - you never noticed that before?
- 05 13 58 26 LMP No. They bounce - they go up, then they bounce.
- 05 13 58 29 CC Okay, 10. We copied everything except the band that the temperature is cycling between. It's between 155 and something. What was the other number?
- 05 13 58 37 LMP Okay. It's between about 173 and about 155. It's cycling right in the green band at 2 cycles per minute; rings the MASTER ALARM on the low side about once every 10 cycles.
- 05 13 58 56 CC Okay. Thank you, Gene-o. We copied all that.
- 05 13 59 51 LMP And - Houston, this is - -
- 05 13 59 52 CC Okay, 10; this is Houston. We'll monitor - -
- 05 13 59 55 LMP Go ahead, Joe.
- 05 13 59 56 CC Go ahead, Gene.
- 05 13 59 57 LMP No. You go ahead.
- 05 13 59 58 CDR Call over.
- 05 14 00 01 LMP He's waiting.
- 05 14 00 03 CC Okay. We'll monitor that fuel cell down here as best we can, and keep us advised if anything new happens - -
- 05 14 00 08 LMP Well, thanks a freaking lot.
- 05 14 00 09 CC - - Also, did you get a chance to look for Snoopy on the back side of the sunrise?
- 05 14 00 13 CDR Well, we looked up there; but, as soon as the sun comes up, it blanks everything and didn't see a

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thing. We had a planet that we thought might have been Snoopy, but the phase and everything was wrong, and so we didn't see him at all. It was about this time we used to see him out in front --

05 14 00 29 CC Okay. We copied that, Tom. Go ahead, Gene. You were going to say something.

05 14 00 33 LMP I was going to say we got our waste-water dump out of the way a little bit early. We dumped at - about 15 minutes ago.

05 14 00 44 CC Okay. I copied that. We've got a power configuration for TEI burn with respect to this fuel cell. Now, this is with the original fuel cell problem; we may want to change it some if we've got another problem. But if you'd like to copy this down, I'll read off this configuration for you.

05 14 01 03 IMP Go ahead. And believe it or not, it looks like that condenser-exhaust temperature cycle has now closed its bands down to be about plus or minus 10 degrees. We're well within the green band, just as we came around here within about the last 5 minutes. That makes me feel --

05 14 01 24 CC Okay. That sounds real good. We'll still keep a good close eye on it for you. On this configuration for the TEI burn, this will be for 136 hours. We'd like for you to verify that FUEL CELL 1 PUMPS are OFF on panel 5; and, prior to the TEI burn at approximately 136 hours, place FUEL CELL 1 on both main buses; and, after the TEI burn, take number 1 FUEL CELL off MAIN A/MAIN B buses whenever it's convenient.

05 14 01 56 CMP How much prior? Did he say? Did he say how much prior to the burn to put it on?

05 14 02 01 LMP You want it ON, you want it ON a half hour before - an hour and a half before the burn. Is that correct?

05 14 02 09 CC That's affirmative, Gene.

05 14 02 11 LMP Okay. Do you want FUEL CELL 1 PUMP, OFF now?

05 14 02 15 CDR It's been OFF.

05 14 02 17 CMP No, it ain't been OFF.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 6

- 05 14 02 22 CDR Thought they couldn't set the circuit breaker.
- 05 14 02 24 CC Okay, Gene. The circuit breaker for 1 is open now. Is that affirmative?
- 05 14 02 29 LMP That's affirm - but the switch according to the - What I'm reading here, it says that the switch must be ON to enable power - power for power factor correction. Is that correct? As long as you're going to use the fuel cell according to what I read - -
- 05 14 02 45 CC You're coming through a little scratchy.
- 05 14 02 47 LMP -- as long as you're going to use the fuel cell for the burn, what I read here is that the PUMP switch for FUEL CELL 1 and/or 3 should be left ON for power factor correction.
- 05 14 03 06 CMP Is that high gain?
- 05 14 03 10 CDR ... Might be able to get him now.
- 05 14 03 16 CC Okay, Gene. I think, if I read you correctly - if we understand what you mean - we're not going to try and activate the pump during the TEI burn. We're going to leave it turned off. So you can leave that switch wherever it is now, if you like - -
- 05 14 03 33 CMP Let's leave it alone.
- 05 14 03 34 CC -- The circuit breaker is pulled. We're just going to bring the fuel - we're going to activate the fuel cell. We won't turn the pump on.
- 05 14 03 39 LMP I'm with you. We cannot turn the pump on because the circuit breaker will not reset. I'm referring primarily to the switch, and I'll leave it - it's been in the AC1 position; we never did turn it off after the circuit breaker popped, and unless you have any others, I'll just leave it there.
- 05 14 03 59 CC That'll be fine, Gene. Just leave it where it is. It's inactivated now, anyway.
- 05 14 04 04 CMP That ain't what the freaking malfunctions - -
- 05 14 04 06 LMP ... power ... the FUEL CELL's ON.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 433

05 14 04 12 CMP Okay. Let me see if I can get him on high gain.

05 14 04 16 CDR Okay. When is the landmark tracking?

05 14 04 23 CMP Got it in the flight plan?

05 14 04 39 CDR Thank you.

05 14 04 45 CMP 133:50. Maneuver to landmark track attitude?

05 14 04 52 CDR Yes. We've been in landmark track attitude.

05 14 04 55 CMP Okay. Where's the pad?

05 14 05 00 LMP Say, Houston. Do you read us on high gain? We're getting that semi-steering signal --

05 14 05 03 CDR 134:15.

05 14 05 08 CC Roger. We're reading you, 10.

05 14 05 09 CMP 134:15 --

05 14 05 10 LMP Okay. I'll stay here, then.

05 14 05 11 CDR Yes.

05 14 05 15 CC Okay.

05 14 05 19 LMP Okay. It looks like that oscillation on the condenser-exhaust temperature on fuel cell 2 has damped out, believe it or not, but I timed it and it was going 2 cycles per second throughout the region and, as I say, triggering our MASTER ALARM on fuel cell 2. But it's stable now.

05 14 05 33 CDR Per minute or per second?

05 14 05 35 LMP Per minute.

05 14 05 36 CDR You said second.

05 14 05 37 LMP That was 2 cycles - that was 2 cycles per minute, Joe.

05 14 05 47 CC Okay. We were monitoring some of that oscillation down here, but we didn't see quite the width of oscillation that you were seeing, Gene.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

- 05 14 05 54 LMP Okay. I - I just took it right off the gage here, and that's why I wanted to take - let you take a look at it now. Is that Snoopy or is that a --
- 05 14 06 03 CDR Oh, shoot.
- 05 14 06 04 CC Okay. And, 10; this is Houston. You can --
- 05 14 06 05 CDR Where's the monocular?
- 05 14 06 08 CC -- terminate your battery B charge now if you want to.
- 05 14 06 10 LMP Okay.
- 05 14 06 18 CDR That is Snoopy.
- 05 14 06 19 CMP Where you got him?
- 05 14 06 21 CDR Right in front; going down. Take a look.
- 05 14 06 30 CDR Hey, Houston; this is 10 again. It looks like I may - like I've got Snoopy right out in front of me again, or something, and he's going down with the horizon - just went down below. You gave a mark - 20 seconds ago, he was at 350 pitch.
- 05 14 06 47 CMP Could that be that piece of Mylar wrapping that fell off?
- 05 14 06 51 CDR Yes. It could be --
- 05 14 06 53 CC Okay, Tom. You're breaking up a little bit. I understand about 30 seconds ago, he was ahead of you. Say again the pitch angle.
- 05 14 07 00 CDR Roger. The pitch angle was 350. Again, it could be a big hunk of Mylar wrapper. That's the only other thing I can think that would cause a reflection. We had a big hunk of our insulation blow off and it was with us for a while. And now he's disappeared completely down in the maria area. We'll keep looking for him.
- 05 14 07 23 CC Roger, Tom.
- 05 14 07 27 CDR In reflected sunlight, it's awful hard, you know, to tell the exact distance or dimension or anything. Over.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

05 14 07 36 CC Roger. Understand, Tom.

05 14 07 41 CDR Phew! Okay, John.

05 14 07 42 CMP See if this is the right numbers, Tom.

05 14 07 44 CDR Okay. 02522, 17518, minus 0154. You got it, babe. Okay. It'll be at 15:56. You got - nearly 8 minutes.

05 14 08 06 CMP 8 minutes. Okay, optics power's coming back on.

05 14 08 24 CMP ... those out the side window, I guess.

05 14 08 27 CDR Yes. Why don't you --

05 14 08 28 LMP ... damn fuel cell. I don't understand why the son of a bitch stopped. ...

05 14 08 53 LMP You got the camera, Tom?

05 14 09 00 CMP ...

05 14 09 04 CDR Yes. I shot a bunch of them. It came off the Velcro. Here we go.

05 14 09 24 CMP Now, do we do a realign just before TEI - or no? We do this - we do one after this and then we come around TEI --

05 14 09 33 LMP No, I don't think we do one after this. I looked for one after this. I didn't see any --

05 14 09 35 CDR We don't do one after this.

05 14 09 37 CMP Okay. So this next one will be a good one. Of course, this one here's - this one here's a good one. We could do TEI with this --

05 14 09 43 CDR Sure.

05 14 09 44 CMP -- one we got right here. No sweat.

05 14 09 48 CDR You know, that could be that hunk of Mylar insulation, that big yellow hunk that drifted out there - but I don't think it'd show that much.

05 14 09 56 CMP Yes. It wouldn't be bright.

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~~CONFIDENTIAL~~

- 05 14 09 59 LMP We're going forward. If he's coming down, he's way out in front of us now.
- 05 14 10 07 CDR In orbital mechanics, if he was that close underneath us, you'd have to be behind ... If you'd pass under - once you pass under us in that type of orbit, he'd go way under us.
- 05 14 10 24 LMP Maybe there's some other things up here we don't know about.
- 05 14 10 30 CMP Come on, now. How much time is it, 5 minutes? What's the pitchover time, Tom?
- 05 14 10 46 CDR 5 minutes.
- 05 14 10 48 CMP I mean the - -
- 05 14 10 49 CDR Zero time - Let me - Where's the - 34:15:56.
- 05 14 10 53 LMP Just take side oblique. Is that all that thing says, Tom?
- 05 14 10 58 CDR Yes. Configure camera for descent strip photography.
- 05 14 11 07 LMP Does it say start taking ...?
- 05 14 11 18 CMP Is that the right number? Yes. 25 ... There we go. Jesus Christ, I don't know what - Okay. He's north of ground track, so don't roll at all, Tom.
- 05 14 11 38 CDR Yes.
- 05 14 12 15 LMP Strip photography beginning at 90 degrees east and continuing to the terminator. Spacecraft is yawed 20 degrees off at the vertical at 85 degrees east. We center Censorinus at the approach path in the strip maneuver - strip, and maneuver back to vertical at 30 degrees to center landing site, site 3, and its approach path in the strip. Son of a bitch; you got a lot of stuff to do here, babe.
- 05 14 12 41 LMP Hey, we are at 90 degrees east and we're still on target. How the hell are we doing landmark? How - -
- 05 14 12 45 CDR That's a REV later - REV later - REV later.
- 05 14 12 48 LMP 135; you're right. I'm sorry. I'm sorry.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 437

05 14 13 00 CDR Okay. You got 2 minutes - nearly 3 minutes, John.
05 14 13 12 CMP Shit, this freaking map is worthless!
05 14 13 18 CDR Okay. I got Mount Marilyn up here, babe, and the crater Weatherford.
05 14 13 25 CMP Hell, there we are. There's the Taruntius - Secchi and Secchi B. Secchi A and B. We just went between them. Taruntius F and its friend - Okay. Starting to look pretty good, Tom.
05 14 13 45 CDR I've got the five diamond craters that leads into landing site 1. Well, we've got beaucoup shots of this, haven't we?
05 14 13 57 LMP Yes. ...
05 14 14 01 CMP Yes. I got them.
05 14 14 03 CC Apollo 10, Houston.
05 14 14 05 CDR Okay. We're right near B-1 for this mark. Go ahead, but keep it short. Over.
05 14 14 15 CC I've got a maneuver pad. Give me a call when you're ready to copy, Tom. I'm sorry.
05 14 14 20 CDR Roger.
05 14 14 31 CDR Okay. John, at 17:30 is when we'll -
05 14 14 47 CMP We got a ways to go yet, Tom.
05 14 14 50 CDR This one is probably pretty easy to see, isn't it?
05 14 14 54 CMP Well, I don't know - Shit - to tell you the truth.
05 14 15 02 CDR I've got it out there.
05 14 15 08 LMP You know, can you tell me why that thing's settled down?
05 14 15 12 CDR Beats the heck out of me, Gene-o.
05 14 15 15 LMP Even the oxygen has started - stopped its fluctuation.
05 14 15 20 CMP T.P. started shaking - stopped shaking the spacecraft.

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- 05 14 15 24 CDR Okay. It's going to be out to the north of track.
There's no doubt about that. I can see it, babe.
- 05 14 15 38 CMP Okay. It's coming down.
- 05 14 15 40 CDR Yes.
- 05 14 16 27 CMP Go get them.
- 05 14 16 30 CDR Okay. 17:30 is when you - Got about another minute
to go, John.
- 05 14 16 35 CMP Okay, there's the stars. Those freakers on here?
- 05 14 17 11 CMP This map is sh - crappy!
- 05 14 17 14 CDR Okay.
- 05 14 17 17 LMP Censorinus has got all that white stuff right in the
- Boy, there's a silly-reading mother.
- 05 14 17 22 CDR Okay, 15 seconds, John.
- 05 14 17 24 CMP Okay. I got it.
- 05 14 17 30 CDR Okay. About another 15 or so - whenever you get ready,
babe, you can go ahead and hit it. Give me a mark.
- 05 14 17 37 CMP Okay.
- 05 14 17 48 CDR MARK.
- 05 14 17 51 CMP Okay.
- 05 14 17 59 CDR 10 seconds. 20 seconds. 25 seconds. 30 seconds.
- 05 14 18 20 CDR MARK.
- 05 14 18 21 CDR That's two of them. 5, 10, 15, 20, 25, 30. 5 - -
- 05 14 18 57 CMP Pitch down some, Tom.
- 05 14 19 00 CDR - - 10, 15, 20, 25. That's four of them. 5 - -
- 05 14 19 25 CMP Didn't get it.
- 05 14 19 28 CDR Didn't get it?

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 439

- 05 14 19 29 CMP No. There are four good marks, though.
- 05 14 19 32 CDR Okay, Houston. Go ahead with your maneuver pad.
- 05 14 19 34 LMP Wait a minute - wait a minute - wait a minute!
We're not ready.
- 05 14 19 38 CDR Stand by.
- 05 14 19 41 CC Roger, 10. This will be - Okay, I'll stand by.
- 05 14 19 45 CDR Okay. We're in between B-1 and site 3. Over.
- 05 14 19 49 CMP You know, I don't think we have very much time to make this shift either.
- 05 14 19 52 CDR 27 ... - -
- 05 14 19 53 LMP Go ahead, Joe.
- 05 14 19 54 CDR Yes, we do.
- 05 14 19 55 CC Do you want me to hold off on this pad, Tom?
- 05 14 19 56 CDR Well, hell, we got - -
- 05 14 19 57 CC Roger. TEI 31, SPS/G&N: 36685; minus 0.62, plus 0.89; 137:36:28.20; plus 3625.5, plus 0040.1, plus 0188.9; 181, 051, 002; NA, plus 0021.2; 3630.6, 2:41, 3607.9; 16, 146.4, 29.4. The next three are NA. NOUN 61: minus 15.08, minus 165.00; 1203.8, 36394; 191:50:43. Your stars are Deneb, 43; Vega, 36; 241, 240, 013. For ullage: two quads with 14 seconds, and use quads Bravo and Delta. Horizon on 6-degree window; mark at ignition minus 1 minute - -
- 05 14 22 55 CDR Right.
- 05 14 22 56 CMP Good.
- 05 14 22 59 CC -- Sextant stars not available until 137:06:00; sun not visible in COAS at ignition; horizon will be lit at ignition. That's the end, and I'll stand by for your readback.
- 05 14 23 33 CDR Hang on for just a minute. Okay, John. At 27:40, you should pick up 150 and at 29:12. So you got about 4 minutes. Okay?

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- 05 14 23 46 CMP Yes.
- 05 14 23 48 CDR You can read it back real fast.
- 05 14 23 52 CMP Can you check these numbers here, Tom?
- 05 14 23 53 CDR Okay. I'll check the numbers. 00283, minus - That's plus on that first one - minus 00714, and a minus 00105. Got it?
- 05 14 24 05 LMP Yes. Roger.
- 05 14 24 08 CDR You can read it back --
- 05 14 24 09 LMP Okay, Joe. Give me NOUN 47 again, then I'll read it back.
- 05 14 24 18 CC NOUN 47?
- 05 14 24 19 LMP Yes. The first number. The weight.
- 05 14 24 24 CC 36685.
- 05 14 24 30 LMP Okay. TEI 31, SPS/G&N: 36685; minus 0.62, plus 0.89; 137:36:28.20; plus 3625.5, plus 0040.1, plus 0188.9; 181, 051, 002. Apogee is NA, perigee is plus 0021.2; 3630.6, 2:41, 3607.9; 16, 146.4, 29.4. Is this north or south of ground track?
- 05 14 25 09 CDR It's right on the ground track --
- 05 14 25 10 LMP NOUN 61 is minus --
- 05 14 25 11 CMP ... 10 degrees?
- 05 14 25 12 LMP -- 15.08 --
- 05 14 25 13 CDR 2 miles.
- 05 14 25 14 LMP -- minus 165.00 --
- 05 14 25 15 CDR North.
- 05 14 25 16 CMP Okay. Roll right --
- 05 14 25 17 LMP -- plus 1203.8 --
- 05 14 25 18 CDR How much?

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- 05 14 25 19 CMP Right - 10.
- 05 14 25 20 LMP -- 36394; 191:50:43. Deneb 43 and Vega 36. 241, 240, 013. Two jets, 14 seconds; quads Bravo and Delta; horizon is on the window - the horizon is on the 6-degree window mark at T_{ig} minus 1 minute; sextant star not available until 137:06:00; sun not visible in COAS at T_{ig} ; and the horizon is lit.
- 05 14 26 03 CC That was a real good readback, Gene. That was a full one, too. We had all the squares filled out in that one, right?
- 05 14 26 05 IMP You fooled me.
- 05 14 26 09 CDR Okay. Coming up 20 - 27:40.
- 05 14 26 23 CMP Okay. What time is the -
- 05 14 26 28 CDR 27:40 at the ACQ time and 29:12 ...
- 05 14 26 34 CMP Okay. There's ...
- 05 14 26 41 LMP Oh, yes.
- 05 14 26 45 CDR Oh, yes. Here's Bruce. Old Bruce is out there, babe. See Bruce?
- 05 14 26 50 LMP What's up in the air up there, babe? Is that a star?
- 05 14 26 53 CDR I guess so. It's out of plane, whatever it is; it can't hurt us.
- 05 14 26 56 CMP It's going to be a low sun angle. That'll be pretty good.
- 05 14 27 04 CDR There it goes into the terminator.
- 05 14 27 10 CC Apollo 10, this is Houston. Let's see, Gene, I've got a short map update and a photo update; however, did I copy before that you say you are out of film, or you're about out of film?
- 05 14 27 23 CDR Stand by, Joe. We're in the middle of a landmark tracking. We'll call you. Over.
- 05 14 27 29 CC Sorry. Standing by.

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05 14 27 34 LMP God dang! ... out here, isn't it?

05 14 27 39 CDR Can you see him, John?

05 14 27 40 CMP Well, we're coming right into the terminator, anyway.

05 14 27 43 CDR Yes. I got Bruce and this other one - Linne - or something like that. You got the rille up there. I got your landmark. Okay, you should be seeing - acquiring him now.

05 14 28 11 CC Okay, 10; this is Houston. We observed on your last --

05 14 28 12 CMP Can you pitch up some, Tom?

05 14 28 13 CC -- mark there, that you got four marks and the last one was just past the nadir. It looks like, if you increase your pitch rate just a little bit, you can probably get five marks without any problem.

05 14 28 24 CDR Roger. Pitch up.

05 14 28 32 CMP ... Bruce.

05 14 29 07 CMP Okay. T.P., start a pitch-down.

05 14 29 11 CDR Pitching down, babe. Is that enough? You can mark him any time now, babe.

05 14 29 20 CMP Okay.

05 14 29 23 CDR Let me know when --

05 14 29 24 CMP I think it's him.

05 14 29 27 CDR Did you get one?

05 14 29 57 CDR Okay. Got him?

05 14 29 59 CMP Not yet.

05 14 30 01 CDR MARK.

05 14 30 04 CDR 5 seconds gone.

05 14 30 06 CMP That wasn't him.

05 14 30 07 CDR Want to kill it or keep going? Just keep on --

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 443

- 05 14 30 09 CMP Keep going.
- 05 14 30 11 CDR 10, 15, 20 - Pitch down some more?
- 05 14 30 30 CMP Yes.
- 05 14 30 34 LMP That's your old friend Mars up there.
- 05 14 30 36 CDR 10, 15, 20, 25, 30. 5, 10, 15, 20, 25. Okay - 5, 10, 15, 20, 25. Okay. Is that it, five - marks?
- 05 14 31 52 CMP Isn't that it?
- 05 14 31 53 CDR Yes. Okay.
- 05 14 32 07 CMP Houston, this is 10. Over.
- 05 14 32 12 CC 10, go ahead.
- 05 14 32 16 CMP Roger. That first mark of that group was not on what I think is site 150. At - this low sun angle, you got so darn many craters out there, the groupings don't stand out like they do with a high sun angle. And I'm not even sure that I marked on 150, although it was one of three craters in there with pretty high contrast.
- 05 14 32 43 CDR There's that thing again, out in front of us.
- 05 14 32 44 LMP No, that's Mars; I just looked at it.
- 05 14 32 46 CDR Look down on the ground, babe.
- 05 14 32 48 CMP The first mark was definitely not on the site - on what I thought was 150, but the last four were.
- 05 14 33 00 CC Okay. We copy that, John. Thank you.
- 05 14 33 03 CDR Joe, I've got this object out in front of me again. I'm sure to keep the same orbital mechanics; it must be a big hunk of Mylar out there in reflected sunlight and it's going to its own terminator now, and it's held about the same. It's pitched down in a local vertical of about - I'd estimate - I'm coming up to it now - 330 degrees. And it's holding out there at 330.
- 05 14 33 29 LMP How can it be in the sunlight when we're into darkness already?

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05 14 33 33 CMP Joe, do y'all have the --
05 14 33 37 CC Okay. Sure understand. And you think that's a --
05 14 33 38 CMP -- do you have the data, Joe?
05 14 33 40 CDR Yes, but --
05 14 33 41 CMP I do now, too, Tom.
05 14 33 43 CDR -- to be that low, down below us, and still keep about
the relative position; it's got to be, Joe. Over.
05 14 33 44 LMP It would have to be, to be in sunlight.
05 14 33 53 CC Okay. You can't get the monocular on that, can you?
05 14 33 54 LMP Joe - Joe, I'm looking at it now and, to be in sunlight
where it is, it has to be awfully close to us and I got
the monocular on it. I - I think it has to be a piece
of Mylar, too. It'll probably go into darkness about
--
05 14 34 09 CC Okay. Mighty fine. Thank you.
05 14 34 10 LMP I'll give you a hack. It ought to go into darkness
about the same time we do if we can tell here. And
I'm pretty sure it's not too far away.
05 14 34 19 CDR That tail is still up in sunlight.
05 14 34 22 CC Okay. We understand. And understand you're ready
for this map update pad.
05 14 34 26 LMP No, let me watch this thing for a second, then I'll
get it.
05 14 34 31 CC Okay. Give me a call when you're ready.
05 14 34 36 LMP Tom, when you fire the thrusters, it sort of lights
it up.
05 14 34 39 CMP Houston, do you have the data from that landmark? Over.
05 14 34 42 CDR It does, doesn't it?
05 14 34 45 LMP Does what?

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 445

05 14 34 46 CDR Son of a gun; it does.

05 14 34 47 CC Roger. We got it.

05 14 34 48 LMP It's got to be pretty close. If it was the LM, it couldn't be - it couldn't be that far away. You know, it would still be in sunlight if it were that low.

05 14 34 57 CDR No. It's ... out there.

05 14 34 58 CC 10, this is Houston. Jack says that it looked like your last four marks were spaced very nicely over the target.

05 14 35 06 CMP Yes. Whatever it was.

05 14 35 08 CDR Roger.

05 14 35 09 CMP I think that was site 150; but, boy, there were a lot of shadows out in that place and - right now. And I wouldn't be 100-percent sure that that was site 150 crater.

05 14 35 25 CC Okay. We copy.

05 14 35 32 CMP But it was darn close if it wasn't.

05 14 35 33 CDR See if my thruster is lighting up.

05 14 35 37 CC Okay.

05 14 35 42 CDR No, ...

05 14 35 44 LMP No. He's farther away than that but - -

05 14 35 46 CDR That's got to be Mylar. Right? That couldn't be - -

05 14 35 48 LMP - - it couldn't be Snoopy down there; because, you know, if he were down there, he would be in darkness.

05 14 35 55 CDR Well, also, his orbital mechanics at that relative rate out there - huh-uh.

05 14 36 05 CMP He'd be moving way out.

05 14 36 10 LMP The obvious thing to me is that he would be in darkness, right now, and he's not. So he's just -

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~~CONFIDENTIAL~~

05 14 36 16 CDR

Right about our same level --

05 14 36 17 CMP

Houston. Both those - both those last sites were done with a telescope. I couldn't pick either one of them up in the sextant. The first one was almost - was washed out in the sextant due to the sunshine, and the second one - Well, I just couldn't - with all the shadows - I couldn't see anything. It wasn't defined in the sextant --

05 14 36 43 CC

Roger. Copy, John.

05 14 36 49 LMP

Joe, I'm ready for your update.

05 14 36 55 CC

Okay. This is for REV 31; LOS is 135:09:24, 135:20:09, 135:55:30, and that's all. Standing by for readback.

05 14 37 19 LMP

Okay. They're all 135; and they go 09:24, 20:09, 55:30.

05 14 37 29 CC

Roger. That's correct; and on this photo update again, Gene-o; just - Did you figure you guys are out of film up there? There's no sense sending it up if you're all out.

05 14 37 39 LMP

No, we got a little bit left; we've been saving for this - Give us the update.

05 14 37 45 CC

Okay. Coming up. Descent strip and site 3: 135:59:24, 136:01:01, 136:18:52. Your ORDEAL angles are roll 180, pitch 282, yaw 000. At T_1 , yaw right 20 degrees. At T_2 , yaw left 20 degrees. That concludes, and standing by for your readback.

05 14 38 45 LMP

Okay. 135:59:24, 136:01:01, 136:18:52; ORB rate: roll 180, pitch 282, yaw 000. At T_1 , yaw right 20 degrees; and at T_2 , yaw left 20 degrees.

05 14 39 04 CMP

Okay. Can you get me some stars?

05 14 39 06 CDR

You don't need to do alignment now, babe --

05 14 39 07 CC

Okay. Readback's correct, Gene-o.

05 14 39 08 CDR

-- unless you want to. You don't need to do any more alignments until that last big one, babe.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 447

05 14 39 10 LMP Doesn't call for any alignment.

05 14 39 12 CMP Doesn't call for any? Oh, shit; what am I going to do?
Sit here and watch the caution and warning lights?

05 14 39 19 CDR You want to give them a TV test? (Laughter)

05 14 39 22 LMP And are you going to update the OMNI's or do you
want us to get high gain?

05 14 39 26 CDR We're using B and D for that ullage. That should be -
not using any out of A and C.

05 14 39 30 CC We'd like to have high gain, Gene-o. We'd like to
look at some of the data.

05 14 39 31 CMP You got it set up so we can do that?

05 14 39 33 CDR No.

05 14 39 34 LMP VERB 64. Stand by.

05 14 40 44 CDR Very good ...

05 14 40 54 LMP Houston. Are you reading us high gain?

05 14 41 00 CC Okay. We got it. Thank you, Gene-o. And if you'll
give us P00 and ACCEPT now.

05 14 41 03 CMP Oh - what's -

05 14 41 07 CDR What's what?

05 14 41 08 LMP ... longitude at ...

05 14 41 11 CMP ... longitude?

05 14 41 13 CDR It's about zero.

05 14 41 17 LMP Latitude and longitude - site 3.

05 14 41 20 CDR Okay, Joe. You're in CMC and ACCEPT. You got it.

05 14 41 22 CMP 283 minus 714.

05 17 06 38 CDR 2 minutes and 41 seconds burn. Overburn's ... You
check it.

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05 17 06 51 CMP 40 feet per second ... seconds.

05 17 07 01 CMP John, this is two-jet ullage for 1⁴ seconds ...

05 17 07 06 CDR ...

05 17 07 10 LMP ... Want me to do the sextant star, which should be visible now, possibly - possibly on the horizon in the window?

05 17 07 17 CMP Okay.

05 17 07 18 CDR When you back up

05 17 07 28 CMP Tom, I don't mean to be ..., but ...

05 17 07 36 CDR Yes, ... turn it off ...

05 17 07 42 LMP ...

05 17 07 46 CDR ...

05 17 08 01 CDR There's ... 127:45:56.

05 17 08 10 CMP Alright. Sextant star ...

05 17 08 13 CDR All yours.

05 17 08 30 LMP Okay. VERB 41, NOUN 91.

05 17 08 32 CMP VERB 41, NOUN 91.

05 17 08 39 LMP Okay, you want the numbers?

05 17 08 44 CMP Yes. Give me the numbers.

05 17 08 47 LMP Okay, it's 1 - plus 146.40.

05 17 08 55 CMP Go.

05 17 08 56 LMP Plus 29.400 ...

05 17 09 03 CMP Plus 464 and ...

05 17 09 15 CMP Should I load the shaft now?

05 17 09 18 LMP The star number is 16.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 449

05 17 09 33 IMP ... Procyon. Got it?

05 17 09 38 CMP Yes.

05 17 09 59 CDR Is ... zero?

05 17 10 01 CMP Yes, ... is zero and ...

05 17 10 13 CDR Okay, remember what we said about the oxidizer. In fact, didn't we start it ... at ...?

05 17 10 20 CMP Yes. ... due to what, increase?

05 17 10 24 CDR ...

05 17 10 49 LMP That's T_{ig} minus 1 minute, John; ... Horizon should be on the 6-degree window mark. 56.16. Okay?

05 17 11 04 SC ... 94 ...

05 17 11 08 CMP ... upside down ... Good show. ... on the horizon

05 17 11 29 LMP Okay, ...

05 17 11 34 CDR ... watch, 28 minutes of ...

05 17 11 41 CMP ..., Gene-o?

05 17 11 45 LMP Yes, ...

05 17 11 47 CMP ... right down 248 ... Okay. Okay - okay. Now, in the event we have to go to SPS, ...

05 17 12 00 CDR Okay.

05 17 12 01 CMP ... the whole works ... forget that. Now don't forget to remind me ...

05 17 12 08 SC ... here.

05 17 12 09 CMP No, right after ... - -

05 17 12 16 LMP That's the only way you can get ... down ... - -

05 17 12 17 CMP - - ...

05 17 12 19 CDR ... fuel.

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05 17 12 26 CMP ...
05 17 12 36 CDR ... ullage, LOS ...
05 17 12 43 IMP/CMP ...
05 17 12 51 CDR You want to open the vent, or do you want me to?
05 17 12 54 CMP I'll open it.
05 17 13 11 CDR Yes.
05 17 13 12 IMP You got the ...?
05 17 13 14 CDR Yes. The ... is 2 feet ... 2 ... per second. ...
05 17 13 19 IMP Okay.
05 17 13 23 CDR And it's better than ... shutoff on that, over ...
Then ... 2 seconds ...
05 17 14 57 IMP Is that normal?
05 17 14 59 CMP ...
05 17 15 23 IMP You should have - 21 minutes and - ...
05 17 15 28 SC Okay.
05 17 15 29 IMP Huh?
05 17 15 32 SC Okay, ...
05 17 15 35 CMP ... as far as I can tell.
05 17 15 39 CDR ...
05 17 15 43 CMP ...
05 17 15 45 IMP Look at that.
05 17 15 52 CMP ...
05 17 17 50 CMP That SEP burn - that SEP maneuver probably pushed all
the damn fuel up in front of the spacecraft anyway.
There should be a little more ullage. ... SEP maneuver.
05 17 17 59 IMP Roger; man, we're doing ...

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~~CONFIDENTIAL~~

- 05 17 18 33 CMP Why is that fuel cell light on it? It's - You know, anybody?
- 05 17 18 37 CDR We got the pump off of it.
- 05 17 18 38 LMP ... and the condenser-exhaust temperature is off-scale, low.
- 05 17 18 42 CMP Oh, ...
- 05 17 19 14 CDR You have 17 minutes.
- 05 17 19 18 CMP All these switches seem to still be in the same position that they were before.
- 05 17 20 59 CMP How are them batteries, Gene-o?
- 05 17 21 03 LMP The batteries are in good shape.
- 05 17 21 05 CMP What's this charge? You keep turning them on and off? What's that for?
- 05 17 21 09 LMP To keep charging them. I'm going to have to do it again after this burn, because they - they come down, of course.
- 05 17 21 16 CDR How much we got?
- 05 17 21 18 LMP Gimbal ... sucks a lot out of them; battery B's never been charged, but it's A and B all the time, you know. Besides, they're on the battery bus, and there's a certain amount of current drained.
- 05 17 21 31 CMP I know that. Some sunset - sunrise is like that 5 minutes before the burn, isn't it? Burn at sunrise, Gene-o.
- 05 17 21 46 CDR I don't think they passed that up.
- 05 17 21 50 CMP ... What time is it on that flight plan? TEI?
- 05 17 22 08 CDR Ohh! Where'd it go?
- 05 17 22 11 CMP Next page.
- 05 17 22 14 LMP Would you believe we could damn near burn TEI with that criteria and get away with it?

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Day 6

- 05 17 22 16 CDR 37:20.
- 05 17 22 18 CMP Right at the sunrise, isn't it?
- 05 17 22 20 CDR The sunrise here is about - we'll call it 10, and we'll be running what - -
- 05 17 22 25 CMP 10 minutes before.
- 05 17 22 27 CDR Okay.
- 05 17 22 28 CMP The sun will be way above us, because we've got another 3 degrees ...
- 05 17 22 32 LMP Yes. Sun will be well above us.
- 05 17 22 37 CMP Alright, ...
- 05 17 22 43 CDR Do you see it, Gene-o?
- 05 17 22 46 LMP The sun?
- 05 17 22 47 CDR No, no.
- 05 17 23 27 LMP I'm going to come out ... and mark 13 minutes from the burn.
- 05 17 23 29 CMP Good show.
- 05 17 23 41 CDR Okay, ... it's beautiful. Once he gets out the window, we can take a look at ...
- 05 17 23 50 CMP I want to be coming along -
- 05 17 24 02 CDR Pointed down - -
- 05 17 24 03 LMP John, the horizon is on a 6-degree mark on the window, at T_{ig} minus 1 minute.
- 05 17 24 08 CDR Yes, we - we're here coming up like that. And we'll be coming up to it inertial. We're still pointed down. The sun's hitting our windows good and ... them. We're pointed down.
- 05 17 24 47 LMP We'll be - we'll be - we'll be face up, won't we?
- 05 17 24 50 CDR You're upside down - -

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 453

05 17 24 51 LMP Oh, upside down. Yes.

05 17 24 52 CDR You're upside down, yes. Pointed down and coming up. Inertial angle, coming up.

05 17 25 11 CDR You want to take that? I got it.

05 17 25 26 CMP Oh, shit. ... the goddam ...

05 17 25 36 CDR Okay, coming up in 10 minutes, babe.

05 17 25 39 CMP ... one more time.

05 17 25 42 LMP Do it again; but, offhand, it doesn't cycle. DELTA-V checks. That DELTA-V ... DELTA-V ...

05 17 25 49 CDR Yes. 36077.

05 17 25 50 CMP BMAG's, RATE 2 - -

05 17 25 52 CDR BMAG's.

05 17 26 02 CMP They are on. Okay, load the DAP, and we'll go to SPACECRAFT CONTROL, CMC and AUTO, ...

05 17 26 14 CDR You done that?

05 17 26 15 CMP Right.

05 17 26 16 LMP Is your clock - coming up on 10 minutes on the clock?

05 17 26 19 CMP Yes. And 10 seconds -

05 17 26 25 LMP ...

05 17 26 28 LMP MARK.

05 17 26 29 CMP MARK it. Yes.

05 17 26 31 CDR 12, CLOSED.

05 17 26 37 CMP Yes, 12, CLOSED. All CLOSED. Okay.

05 17 26 58 LMP You have 12 CLOSED?

05 17 27 01 CMP MANUAL ATTITUDE, three, RATE COMMAND. ATTITUDE DEADBAND, MIN; and got that ... HIGH; ... TRANSLATIONAL CONTROL POWER is ON; ROTATIONAL CONTROL

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POWER, DIRECT, is OFF; ... AUTO ... RATE COMMAND ...
AUTO ... 6 minutes.

- 05 17 27 25 LMP Okay, I've checked all the circuit breakers ...
05 17 27 40 LMP There's the moon.
05 17 27 41 CDR You can see it? ... we're going posigrade. That's
a good sign, Gene-o.
05 17 27 50 LMP A hopeful sign.
05 17 27 54 CMP Where is the moon?
05 17 27 55 LMP Right straight ahead of you, John.
05 17 27 57 CDR I don't think --
05 17 27 58 LMP You're - No, this way, this way.
05 17 28 01 CMP Yes, I can't see much --
05 17 28 03 LMP Huh?
05 17 28 06 CDR Okay, when do you want to make a last trim on this
thing?
05 17 28 09 CMP Well, we got a ways to go --
05 17 28 11 CDR Yes.
05 17 28 12 CMP -- about 6 minutes to go.
05 17 28 14 CDR Coming up to 6 minutes, to the MAIN BUS TIE.
05 17 28 19 CMP 8 minutes now.
05 17 28 30 LMP How does your pitch look on the ball --
05 17 28 34 CMP Looks better.
05 17 28 52 CDR There we go ... posigrade.
05 17 29 08 CMP I was a little worried there for a second. I thought
maybe we didn't get there in time.
05 17 29 12 CDR Yes, just about the same thing we saw when we got in
except we were going backwards.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 455

05 17 29 17 CMP Yes, right.

05 17 29 19 CDR Well, that looks gray and white when you first see it. Well, back in the cockpit, 7 minutes, coming up 6 to the BUS TIE.

05 17 30 18 CMP Okay, Gene-o; 6 minutes - 6 minutes.

05 17 30 21 LMP 6 minutes; stand by on the ...

05 17 30 24 CDR Okay. Got them? Okay, TVC SERVO POWER, AC1/MNA.

05 17 30 35 CMP Go.

05 17 30 36 CDR AC2/MNB.

05 17 30 37 CMP Go.

05 17 30 40 CDR ROTATIONAL CONTROL POWER, number 2, AC.

05 17 30 41 CMP AC.

05 17 30 42 CDR ROTATIONAL CONTROL, number 2, armed.

05 17 30 44 CMP Go.

05 17 30 45 CDR Okay, let me make a final trim here. Okay?

05 17 30 49 CMP Yes.

05 17 30 58 CDR ROTATIONAL CONTROL 2, armed. We got that. Go. 5 minutes.

05 17 31 02 LMP Okay, stand by ...

05 17 31 03 CDR You want to go ahead and get them on already?

05 17 31 16 CMP Okay. Okay, PITCH ... number 1 coming ON.

05 17 31 21 CMP MARK.

05 17 31 22 LMP Go.

05 17 31 23 CDR YAW 1.

05 17 31 24 CMP MARK.

05 17 31 25 LMP Go.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

05 17 31 26 CDR TRANSLATIONAL CONTROL, clockwise.

05 17 31 28 CMP Clockwise.

05 17 31 29 CDR Verify no MTVC.

05 17 31 30 CMP No MTVC.

05 17 31 31 CDR Secondary TVC check. GIMBAL MOTORS --

05 17 31 34 CMP Coming ON.

05 17 31 36 CMP MARK.

05 17 31 37 LMP Go.

05 17 31 38 CMP YAW 2 coming ON.

05 17 31 39 CMP MARK.

05 17 31 40 LMP Go. You got them all, John.

05 17 31 41 CDR Okay. Except trim.

05 17 31 42 CMP Trim was what?

05 17 31 43 CDR Minus 0.62 and plus 0.89.

05 17 31 49 LMP That's go.

05 17 31 50 CDR Plus 0.89.

05 17 31 54 LMP Okay. I'll put them up just a little --

05 17 31 57 CDR Okay.

05 17 31 58 LMP -- because CMC trim's in just a little high --

05 17 31 59 CDR Okay. Check MTVC.

05 17 32 01 LMP MTVC ...

05 17 32 02 CDR Okay, neutral.

05 17 32 04 LMP Neutral ... goes to zero.

05 17 32 07 CDR Zero. ROTATIONAL CONTROL POWER, NORMAL, number 2, AC/DC.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 457

- 05 17 32 11 LMP Go.
- 05 17 32 13 CDR Check the boresight star - you got that. Trim.
Ready for the AUTO trim.
- 05 17 32 18 CMP Yes, go.
- 05 17 32 19 CDR Ready. PROCEED. Plus 2, minus 2, and zero; plus 2,
minus 2, and zero. Now for the tri.. Okay. Minus
about 0.6, and plus nearly 1. It looks good shutting
down at 349; we're SYNC'd.
- 05 17 32 42 LMP HELIUM VALVES to AUTO.
- 05 17 32 44 CMP Okay, ROTATIONAL CONTROL POWER, DIRECT, MNA/B.
- 05 17 32 46 LMP They are AUTO.
- 05 17 32 49 CDR LIMIT, CYCLE, OFF.
- 05 17 32 50 CMP ..., OFF.
- 05 17 32 53 CDR FDAI as desired.
- 05 17 32 54 CMP As desired.
- 05 17 32 55 CDR GDC ALIGN. BMAG, ATT 1/RATE 2.
- 05 17 33 10 CMP Go.
- 05 17 33 12 CDR Okay. At minus 2 minutes, DELTA-V THRUST A and B,
NORMAL.
- 05 17 33 19 LMP Okay, John, the only thing I got left is that
6-degree window mark on the horizon at 1 minute.
- 05 17 33 27 CMP Okay.
- 05 17 33 29 LMP ... it's going to be okay.
- 05 17 33 32 CMP Okay.
- 05 17 33 53 CMP Okay, don't forget to go to HIGH BIT RATE at
30 seconds.
- 05 17 33 57 LMP Okay, that ... 34 at 228 ...

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

05 17 34 02 CDR Okay, count up to 2 minutes. Then we'll get DELTA-V THRUST A, NORMAL, and then you'll get B at 3 seconds.

05 17 34 10 CMP Right.

05 17 34 11 CDR After B goes on, then Gene-o will take care of the ...

05 17 34 16 CMP Okay.

05 17 34 17 CDR ROTATIONAL CONTROL POWER, NORMAL.

05 17 34 19 LMP ROTATIONAL CONTROL POWER, NORM.

05 17 34 21 CDR Okay. DELTA-V switch A, ON.

05 17 34 26 CMP Go.

05 17 34 28 CDR Okay, you got the TRANSLATION to ON?

05 17 34 31 CMP ON.

05 17 34 32 CDR You had the ROTATIONAL CONTROL POWER to ON?

05 17 34 33 CMP ON.

05 17 34 34 CDR Next check is minus 30 seconds; that's the EMS, DELTA-V NORMAL, and the HIGH BIT RATE to Gene-o.

05 17 34 39 LMP Okay, John, you did have your 8-balls out, huh?

05 17 34 45 CMP ... just two.

05 17 34 46 LMP Your 8-balls out!

05 17 34 47 CMP Yes.

05 17 34 48 CDR Got 8-ball ... - -

05 17 34 50 CMP Okay, just wanted to verify.

05 17 34 54 CDR Okay, you want plus-X ullage at minus 14 seconds. You can give it 15 if you want to.

05 17 34 57 CMP Okay, you bet your ass I want to. Alright - -

05 17 35 02 LMP Don't give it 13; give it 15.

05 17 35 05 CMP Okay, that's 1-minute window check; let's go.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 459

05 17 35 07 CDR Okay.
05 17 35 08 LMP Okay.
05 17 35 09 CMP Just perfect, as a matter of fact.
05 17 35 11 CDR Beautiful!
05 17 35 22 CMP 1 minute; next check at 30 seconds.
05 17 35 28 LMP 1 minute, babe.
05 17 35 30 CDR Oh, shit, that thing's counting backwards, but
that's okay.
05 17 35 35 LMP Well, I have my watch going.
05 17 35 38 CDR Okay. At 30 seconds, EMS, DELTA-V NORMAL, and HIGH
BIT; Gene-o, you can go ahead and get it now, if
you want to.
05 17 35 44 LMP I should - I should be strapped in the couch really.
Freak, I don't know.
05 17 35 54 CDR DSKY blanks - EMS, DELTA-V, NORMAL. Okay, stand by
for ullage in 15 seconds, John -
05 17 36 50 LMP ... looking good here.
05 17 36 52 CDR EMS agrees.
05 17 36 54 CMP Steering good, chamber pressure is 102.
05 17 36 56 LMP ... pressures are GO, ball valves are GO.
05 17 37 02 CDR 2 minutes to go.
05 17 37 03 LMP 35 seconds into the burn.
05 17 37 05 CDR Okay, it looks good.
05 17 37 07 CMP Steering good.
05 17 37 13 LMP Looks like the time is going to be about 02:43.
05 17 37 15 CDR Yes.
05 17 37 17 LMP Everything's GO.

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05 17 37 19 CMP 102-psi chamber pressure.

05 17 37 22 CDR Steering looks good, John --

05 17 37 23 CMP Gone OFF and coming back ON. 102 psi.

05 17 37 27 LMP Okay, we're -

05 17 37 28 LMP MARK.

05 17 37 29 LMP 1 minute into the burn.

05 17 37 30 CDR Roger.

05 17 37 32 CMP ... Okay, gang, it looks like it's counting good.

05 17 37 37 CDR Go, baby; ... go.

05 17 37 39 LMP Burn's looking good. Pressures are holding. Ball valves --

05 17 37 44 CMP ... down 104.

05 17 37 52 LMP Okay, we've got about a minute 20 seconds to burn.

05 17 37 54 CMP The chamber pressure's 102 and holding.

05 17 37 56 CDR Okay.

05 17 37 59 LMP ... Burn, baby, burn.

05 17 38 01 CMP ...

05 17 38 04 CDR ...

05 17 38 09 LMP Okay. We've got about a minute to burn, John.

05 17 38 11 CDR That's right.

05 17 38 12 CMP Roger.

05 17 38 14 LMP Everything's GO in here.

05 17 38 16 CMP Okay, good.

05 17 38 30 LMP Okay, we got 40 - 44 seconds to burn.

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

Page 461

- 05 17 38 33 CDR EMS ... , Gene-o; it's beautiful. Beautiful. Beautiful correlation.
- 05 17 38 40 LMP It's all here, babe.
- 05 17 38 41 CDR ... 30 seconds, 29 - -
- 05 17 38 48 LMP Valves and PGNCS are all GO.
- 05 17 38 49 CDR -- 25 - -
- 05 17 38 51 CMP ...
- 05 17 38 53 LMP Okay, John, the normal shutdown is at 43. Coming up on 29 - 30. Shutdown on 43. There's 35, 6, 7, 8, 9, 40, 1, 2, 3, 4 -
- 05 17 39 15 CDR It's off. ... valves, OFF; GIMBAL MOTORS, OFF. GIMBAL MOTORS ...
- 05 17 39 19 CMP -- 2, 3, 4 - -
- 05 17 39 22 CDR TVC SERVO POWER. PROCEED.
- 05 17 39 23 CMP -- OFF. Okay.
- 05 17 39 26 CDR Beautiful. 0.3. Okay, plus 0.3, plus 1.6, minus - -
- 05 17 39 30 LMP Where's the - give me the flight plan.
- 05 17 39 32 CDR Go ahead, I'll - I'll tell him. Okay, ullage flow, John; just a little bit.
- 05 17 39 35 CMP Okay.
- 05 17 39 38 CDR There we are, 0.1. Residuals, plus 0.1, plus 16, minus 0.2, plus 1, plus 0.2. I'm going to PROCEED. That should be plus 0.2, plus 16, and minus 0.2. Whew! Baby, we ... Got to do a VERB 6 - -
- 05 17 39 59 CMP What all do we have to do now? DELTA-V THRUST A and B switches, OFF. They're OFF. GIMBAL MOTORS are OFF.
- 05 17 40 06 CDR Yes.
- 05 17 40 07 LMP Okay, we're still in the ... highest 19.9?

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~~CONFIDENTIAL~~

Day 6

05 17 40 14 CMP TVC SERVO POWER 1 and 2, OFF.

05 17 40 16 LMP Yes.

05 17 40 17 CMP MAIN BUS TIES are OFF.

05 17 40 19 LMP They're OFF.

05 17 40 20 CMP Okay. You can pull those breakers, if you want to.

05 17 40 22 LMP BMAG, three, RATE 2 -

05 17 40 24 CMP ... RATE 2, EMS to STANDBY.

05 17 40 26 LMP Okay.

05 17 40 29 CMP Roger. Residuals nulled, HIGH BIT RATE to LOW BIT RATE.

05 17 40 34 LMP Burn time is 02:44.

05 17 40 37 CDR Oh, hey, babe, that looks better.

05 17 40 39 CMP Yes, sure ... on that one ... the old clammy hands.

05 17 40 42 LMP Oh, babe. Good show. Now we're on our way home.

05 17 40 46 CMP What do we - what do we do now? (Laughter)

05 17 40 47 LMP What?

05 17 40 48 CMP What does it say to do now?

05 17 40 49 LMP I'm going to get out my music! (Laughter)

05 17 40 51 CDR Let's tell them we're on our way back to the earth, and after everything settles down - we're on the way back. Okay. Shoot, I need to climb ... Okay, let's get the flight plan out - -

05 17 41 00 CMP/LMP ...

05 17 41 01 CDR Oh, here we go; VERB 66. You got the flight - -

05 17 41 02 LMP Get a VERB 66 - -

05 17 41 03 CMP VERB 66.

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05 17 41 04 CDR -- VERB 66. ...

05 17 41 07 LMP Okay, babe. You want to - want to maneuver for high gain. Go to roll 180, pitch 29 - That's at - that's at 138, but that's the same high-gain attitude.

05 17 41 16 CDR Yes.

05 17 41 17 LMP Roll 138, pitch - -

05 17 41 19 CDR Okay.

05 17 41 20 LMP - - 293, and yaw zero.

05 17 41 21 CDR Roll - roll 180, pitch 293 - -

05 17 41 22 CMP Now start pitching.

05 17 41 24 CDR Okay. Pitch to 293.

05 17 41 27 CMP Do it this way.

05 17 41 28 CDR Okay, VERB ... What do you want? 180?

05 17 41 31 CMP Yes. You are at 180.

05 17 41 36 CDR Which way? 293.

05 17 41 39 CMP Yes.

05 17 41 43 LMP Should I log that in, until we get Houston?

05 17 41 50 CMP Okay, let's - Well, let's do it this way. Right ... 003 ... - -

05 17 41 56 CDR ... falling. Got two ... wheel pitches right around ... the switch - -

05 17 42 02 CMP - - 9218, 10102.

05 17 42 07 LMP Good show, guys. Tom, you going to be up ...?

05 17 42 15 CDR Yes.

05 17 42 16 LMP ...

05 17 42 21 CDR Okay, we're making ...

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05 17 42 23 CMP

Half a degree a second, there.

05 17 42 25 CDR

Bet you one thing. You can control pitch ... and yaw in quads ... on that thing. We've still got all kinds of ... - -

05 17 42 33 CMP

Which one were we using before? Were we using, you know - -

05 17 42 35 CDR

Turn off - turn A PITCH, OFF. Turn A PITCH, OFF. One-half doesn't matter.

05 17 42 43 CMP

Let's see - Oh, hell ... How much gas we got?

05 17 42 46 CDR

Well, there's - That's our lowest quad - there's A, there's B. There's C, and there's D.

05 17 42 53 LMP

... I knew it would work. I just had to wait and see.

05 17 42 57 CDR

Goodby, ... shelf. Adios. Oh-ho.

05 17 43 03 LMP

Did it feel like it did in the simulator?

05 17 43 04 CDR

Just getting warmed up - -

05 17 43 05 CMP

The high-gain antenna angles are minus 58 and 5.

05 17 43 08 LMP

Minus 58 and plus 5.

05 17 43 11 CMP

Yes. Got the postburn report all made up?

05 17 43 15 LMP

Yes. It's in there. ...

05 17 43 18 CMP

Okay. It was 0.3 V_{GX} and we took - took it to - -

05 17 43 22 CDR

0.2.

05 17 43 23 CMP

It was 0.3?

05 17 43 24 CDR

Yes.

05 17 43 25 CMP

Yes.

05 17 43 26 LMP

Tom, this is yours, since you're the hatch-window man - -

05 17 43 32 CDR

Push a button, babe. (Sigh)

~~CONFIDENTIAL~~

Day 6

~~CONFIDENTIAL~~

05 17 43 37 LMP Don't forget the water - -
05 17 43 39 CMP Hey, man, we may be able to do away with those cards.
05 17 43 43 CDR Ah-hah.
05 17 43 45 CMP You knew damn well I ...
05 17 43 47 CDR Let's see; I think the best words are - to start
with, are "Houston, we're on our way back to the earth."
05 17 43 54 CMP Okay. You start with ...
05 17 43 57 CDR Oh, shit. ...
05 17 43 58 LMP ... Man, we're home - coming home.
05 17 44 05 CMP (Sigh) ... POWER, OFF.
05 17 44 08 LMP ...
05 17 44 11 CMP That three-ten - that three-quarters of a g felt like
a ton (laughter) - -
05 17 44 13 CDR That's what I - -
05 17 44 14 CMP - - I couldn't raise my head!
05 17 44 15 CDR How much fuel you got left, babe?
05 17 44 16 CMP Holy smokes.
05 17 44 17 LMP Not much, babe, because that unbalance is - the PUGS
is not working ...
05 17 44 21 CDR So it's 6 percent in fuel and 9 percent in oxidizer.
05 17 44 25 LMP ...
05 17 44 27 CDR We're around the corner, baby; we're there.
05 17 44 32 LMP AOS - -
05 17 44 33 CDR Oh, are we close!
05 17 44 34 LMP - - AOS is at 45:26.

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05 17 44 49 CDR Boy, look at that moon go away. Wait until it gets out there and starts to getting round; that's when we can get that color stuff.

05 17 44 56 LMP ...

05 17 45 00 CDR What time did we burn away from the moon? What time was that burn?

05 17 45 04 CMP Oh, it was on time, whatever it was.

05 17 45 06 CDR 1 - Yes, here it is, 13 -

05 17 45 10 CMP 137:36:28.20. TRANSLATION CONTROL POWER, OFF. ACS, ON.

05 17 45 32 CDR Oh-ho-ho, look at that bear.

05 17 45 34 CMP Do you see the world?

05 17 45 35 CDR Look - no, but look at that bear. Look at that bear down there. Beautiful! It's good to see it from this way.

05 17 45 41 CMP Yes. Feel like it's far.

05 17 45 46 CDR Is that them?

05 17 45 47 CMP Yes.

05 17 45 48 LMP Here. Wait a minute. Let me get - let me get down there. ...

05 17 45 52 CDR Let's wait until everything --

05 17 45 53 CMP ... on there.

05 17 45 54 CDR -- settles down, and then we might play one stanza ...

05 17 45 55 LMP Yes. Yes. That's a prewinder. Oh, ... Are you there?

05 17 46 05 CMP Just way back, about --

05 17 46 07 LMP ...

05 17 46 11 CDR Can we talk? Hello, Houston; Apollo 10.

05 17 46 24 CDR Hello, Houston; Apollo 10.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Page 467

DAY 7

- 06 05 07 35 LMP One more pair of ... until you kick off.
- 06 05 07 38 CDR Good.
- 06 05 07 51 LMP I'll get them if they're here. Did they want us to wrap something up? Anything else we'll be needing?
- 06 05 08 12 CDR John, you got the tool again, babe? Did I give you back that tool?
- 06 05 08 31 CMP No, you didn't ...
- 06 05 08 43 CDR Where did you put it?
- 06 05 08 49 LMP ...
- 06 05 08 55 CDR Are we still in PTC? Huh? John. I noticed that DSKY doesn't have those numbers on it. Huh? Oh, they gave us an update which wiped out the numbers. I got you.
- 06 05 09 16 LMP I ... I verified that.
- 06 05 09 20 CDR Well, where ...?
- 06 05 09 22 LMP I don't know. ... look in here, too.
- 06 05 09 28 CDR Hey, while you're there; let's fit our - let's - You want to put our gloves in those suits? Let's put our gloves in the suits. Here's your - here's your tool E, John. I'll - I'll go -
- 06 05 09 44 LMP That's a great idea, Tom. Why didn't you think about that about 2 minutes ago?
- 06 05 10 02 CDR Isn't that a panoramic view with that music playing?
- 06 05 10 08 LMP The world and the moon are going around, minute by minute. Stay with it, spacecraft, for 2 more days.
- 06 05 10 19 LMP Did I give the - Another glove go floating by there?
- 06 05 10 23 CDR Yes.
- 06 05 10 25 LMP ... out.

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Day 7

- 06 05 10 33 CDR Where is the music - I want to - have Charlie describe it to us. Where's the tape recorder?
- 06 05 10 38 CMP On the second one over.
- 06 05 10 39 CDR No - no, I just didn't play that.
- 06 05 10 43 CDR Hello, Houston; Apollo 10.
- 06 05 10 48 LMP Hold your mike down a little bit.
- 06 05 10 54 CDR Is it on?
- 06 05 10 55 LMP Yes. ...
- 06 05 10 59 CMP Play that song over again, though, when you get to it. Zap it up a little bit.
- 06 05 11 03 CDR Well, why don't you get it reset, and then -
- 06 05 11 22 CDR Durn. This thing just doesn't want to move off 90 degrees, does it?
- 06 05 11 53 CDR You got my glove there, babe?
- 06 05 11 59 LMP I couldn't find them.
- 06 05 12 15 CDR No.
- 06 05 12 26 CDR Hey, let's put this in the purse. Let's keep all the LM - liberation stuff - -
- 06 05 12 30 CMP Alright.
- 06 05 12 31 CDR - - together.
- 06 05 12 45 CDR You want to dump those batteries in that - you got a place for them?
- 06 05 12 54 LMP ... those batteries ... I didn't use those.
- 06 05 12 58 CMP ...
- 06 05 13 02 LMP I'll put my gloves on it, babe.
- 06 05 13 04 CMP ... gloves ...
- 06 05 13 10 CDR You're - Let's see. Here's yours - let's put - -

~~CONFIDENTIAL~~

Day 7

~~CONFIDENTIAL~~

Page 469

06 05 13 12 LMP But mine are - mine are in there deeper. Here's - here's mine.

06 05 13 15 CDR Okay.

06 05 13 19 LMP It's not the batteries. It's the damn tape ...

06 05 13 21 CDR Oh, shit.

06 05 13 22 LMP That's alright. It'll play. ... rewind.

06 05 13 36 CDR Yes. Fine. Just stick it in. It working?

06 05 13 43 LMP Yes.

06 05 13 44 CMP It'll work. The rewind don't want to work, though.

06 05 13 49 LMP ... have any problems ...

06 05 13 50 CDR I don't know what you're doing.

06 05 14 31 LMP I think it's from the LM.

06 05 14 44 LMP Call up VERB 64; you can't do that. Here we go - here it goes.

06 05 14 49 CDR Okay, get the tape all ...

06 05 15 03 LMP You can't call up VERB 64, can you?

06 05 15 08 CMP ...

06 05 15 09 LMP Huh?

06 05 15 12 CDR I wouldn't - Yes. I think theoretically you can. Just like we called up some - other stuff that one time, and - -

06 05 15 20 LMP Look at the side ...

06 05 15 24 CDR Huh?

06 05 15 25 CMP Look at that!

06 05 15 26 CDR (Laughter) Whose suit's that? That Gene-o's?

06 05 15 39 CDR Blow.

06 05 15 40 CMP (Blowing)

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Day 7

- 06 05 15 43 CDR No. (Blowing) Now I do. Try it. (Blowing) You - you hear me?
- 06 05 15 50 CMP ...
- 06 05 15 52 CDR I don't hear you.
- 06 05 15 53 LMP You hear me?
- 06 05 15 54 CDR I hear you, Gene-o.
- 06 05 16 00 CC Apollo 10, this is Houston. Over.
- 06 05 16 08 CDR Roger, Houston; Apollo 10.
- 06 05 16 11 CC Roger, 10. We lost contact with you there for a few minutes. Did you all go to COMMAND RESET or otherwise change your COMM mode?
- 06 05 16 21 LMP No, Bruce. I saw the S-band hunting around, and then I went to MANUAL to get a hard lock, and we're in okay and are back in REACQ, but I don't know what it was. Just hunting around, and didn't seem to want to get a signal for you.
- 06 05 16 36 CMP Alright.
- 06 05 16 37 CDR How does it work?
- 06 05 16 38 CMP Beautiful. ... ask him if he reads you?
- 06 05 16 51 LMP Here you go.
- 06 05 16 52 CMP Okay.
- 06 05 16 53 CC Roger, 10. At that time, we had selected OMNI Delta, and, as the system is explained to me, the antenna should not have been going to any particular position, but it won't hurt itself. When we got ready to lose signal strength of Delta, we would have ground-commanded back to the high-gain antenna, and it should then re-acquire. Over.
- 06 05 17 16 LMP Okay. Well, we didn't do anything up here.
- 06 05 17 20 CMP Sure you did.
- 06 05 17 25 CDR What are you doing?

~~CONFIDENTIAL~~

Day 7

~~CONFIDENTIAL~~

Page 471

- 06 05 17 26 LMP You - you talk to them. I ...
- 06 05 17 27 CC Hello, Apollo 10; Houston. Gene, we've got some preliminary word on that local-vertical problem for you. The GUIDO's have been - Stand by 1.
- 06 05 17 38 LMP I'll tell him.
- 06 05 17 40 CDR Okay, go ahead. We'll wait until -
- 06 05 17 46 CC Hey, we - the GUIDO's would like me to wait a couple of minutes until they get their story confirmed by MIT before we pass it up to you. We'll give it to you in a little while. Over.
- 06 05 17 57 CDR Okay. Are you ready? Got the music?
- 06 05 18 00 LMP ...
- 06 05 18 02 CDR Go.
- 06 05 18 03 CDR Hello, Houston; Apollo 10. Turn it on so he can hear it when I'm talking to him.
- 06 05 18 09 CC Go ahead, 10.
- 06 05 18 10 ("Greensleeves" playing in background)
- 06 05 18 12 CDR Roger. Just wanted to describe kind of the - the total situation here internally. We're - Got all the space-craft restowed; got the music playing; got a beautiful view out here as we rotate around slowly. We've got the moon in one window and the earth in the other window. We got it worked out where no thrusters are firing; and we just feel in great shape. Over.
- 06 05 18 36 CC That sounds like you have a better view than the one from the top of the Astroneedle.
- 06 05 18 40 CDR (Laughter) Right.
- 06 05 18 44 LMP Wonder if they heard that music ...
- 06 05 18 45 CDR Did you hear the music? Over.
- 06 05 18 50 CC Yes, indeed. Actually, our facilities down here for playing music in the MOCR are a little limited, so you're about our only source of music.

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- 06 05 18 57 CDR Turn it on.
- 06 05 27 44 LMP Here, T.P.; we'll take some internal movies.
- 06 05 27 48 CDR Yes. Hey, that spotmeter is a good idea, babe.
- 06 05 28 04 CDR Is there any Velcro on that spotmeter?
- 06 05 28 07 CMP There wasn't much.
- 06 05 28 27 CDR Okay, here's - ...
- 06 05 28 34 LMP Use a lot?
- 06 05 28 35 CDR Yes.
- 06 05 44 10 CMP Can't you just - -
- 06 05 44 13 LMP Be better if you were laying on the couch.
- 06 05 44 15 CDR Why don't you lay on the couch? I think we'll take some time exposures.
- 06 05 44 20 CMP There you go.
- 06 05 44 44 CDR Hold the stuff still; it will be a 1-second exposure.
Alright.
- 06 05 44 57 CMP Okay.
- 06 05 45 14 CDR John, get over there by Gene-o. I'll get back here as far as I can - Yes, you two get over there as far as you can. Ready?
- 06 05 45 45 LMP Take a couple of them.
- 06 05 45 50 CDR Okay, I - just about as far back here - Yes, I can get back here a little ways farther. Yes, there you go; good show. Good show.
- 06 05 46 05 CMP There you go.
- 06 05 46 10 LMP We'll take some of you down in the LEB -
- 06 05 46 12 CDR Yes.
- 06 05 46 13 LMP We'll take some when the sun comes around, too, Tom.
Believe it's - -

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Day 7

~~CONFIDENTIAL~~

Page 473

- 06 05 46 15 CDR What have we got left in this bugger? 160.
- 06 05 46 26 LMP We'll take a few of these, then we'll take ...
- 06 05 46 35 CC 10, this is Houston. On that W-matrix, when you punch up VERB 67, we expect in R-1 and R-2 you get the values showing up in the flight plan. And we need four balls 3 in R-3. Over.
- 06 05 46 53 CDR Stand by. He said when he punched up in the W-matrix, as outlined in the flight plan --
- 06 05 46 55 LMP It's in there. I saw it.
- 06 05 47 01 CDR Where in the shit is the flight plan?
- 06 05 47 06 LMP Say again. Over.
- 06 05 47 12 CC Roger. On this W-matrix, when you call up VERB 67 on page 1-72 of the checklist, you'll get values in R-1 and R-2 which are the ones that are already in the flight plan; that is, 94, three balls 57. And we need loaded in R-3 a plus four balls 3 to put you in cislunar W-matrix. Over.
- 06 05 47 39 LMP Roger.
- 06 05 48 29 CMP ...
- 06 05 48 35 CDR (Laughing) That'll be classified. I'd like to use this little one in here. I don't know how.
- 06 05 48 48 LMP Yes. Yes. ...
- 06 05 49 09 LMP I don't know. Really?
- 06 05 49 21 LMP Isn't that nice? Let's - Boy, I - we should make some reference to ... I bet you it would turn out to be a ball.
- 06 05 49 28 CMP ...
- 06 05 49 29 LMP When we get back. Tom, take one like that ...
- 06 05 49 45 CDR Okay. Keep your head there above the window.
- 06 05 49 47 CMP Above the window?

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~~CONFIDENTIAL~~

Day 7

06 05 49 48 CDR

... in the way of the window. See, that sun's going to wash you out. No good.

06 05 49 52 LMP

Too late; you got to catch it just --

06 05 49 53 CDR

Yes.

06 05 49 54 LMP

-- you got to catch it just when the sun comes around. When it comes around to you or John around the hatch window. Try and catch it when the sun comes in here and comes in there and comes -

06 05 50 12 CMP

See what this says on - on the moon. Freak it.

06 05 50 49 CDR

Gee, I don't know how to work this thing.

06 05 50 56 LMP

You believe that's just 1/250th at f:8? ... use f:11.

06 05 51 00 CDR

What? At the moon?

06 05 51 02 LMP

Yes. At the sun ... at the earth.

06 05 51 08 CDR

Shoot 1/250 at f:8?

06 05 51 09 LMP

... ASA 64. Look at it when it comes around to your side ...

06 05 51 14 CDR

Okay.

06 05 51 19 LMP

SPS engine, I love your ass.

06 05 51 29 CMP

...

06 05 51 37 LMP

What?

06 05 51 38 CMP

Yes, get that damn thing off my ears and head. You can't either.

06 05 51 46 LMP

The only thing that bothers me about the whole rig is that, after a while, this little earpiece begins to bother me.

06 05 51 59 LMP

Your headset? It's down in here. There's an earpiece on it - there's an earpiece on your headset. Yes, it's on it.

06 05 52 22 LMP

Fuel cell 1's going to be able to bring her on the line again.

~~CONFIDENTIAL~~

Day 7

~~CONFIDENTIAL~~

Page 475

06 05 52 27 CDR Cooling down on him, huh?
06 05 52 30 LMP Huh? There's a left, center, right on that little tab on top.
06 05 52 50 CDR You know, I kind of like Snoop.
06 05 52 51 LMP Got an electric eye on it, doesn't it?
06 05 52 53 CDR Yes.
06 05 52 56 LMP Hey, we're trying some film in here.
06 05 52 58 CDR I've tried some - and I've tried and tried, and you're right, it doesn't --
06 05 53 00 LMP I know it. Do you have a time stop on it?
06 05 53 01 CDR No, that's the trouble, see. At least, I don't see it.
06 05 53 07 LMP What's all this in here? Have we ... that?
06 05 53 08 CDR Yes, it's got ASA at 400 in it.
06 05 53 12 LMP What's that - what do you then?
06 05 53 15 CDR You look at something like that light, and then you match that up to put it on it.
06 05 53 21 LMP Not if you got ASA at 400.
06 23 51 06 CMP Okay, now I maneuver to HIGH GAIN, here.
06 23 51 12 LMP ... HIGH GAIN ... HIGH GAIN.
06 23 51 25 CMP Minus 10 and 340.
06 23 51 45 LMP ...
06 23 51 47 CMP Set HIGH GAIN ANTENNA control to minus 10 and 320.
06 23 51 57 LMP It said HIGH GAIN ANTENNA control to minus 10 and 320.
... HIGH GAIN ...?
06 23 52 01 CMP It is.
06 23 52 07 LMP ... Right?
06 23 52 11 CMP Yes.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

06 23 52 12 LMP ...
06 23 52 16 CMP Yes.
06 23 52 18 LMP HIGH GAIN ANTENNA ... HIGH GAIN. Can HIGH GAIN be
... compared?
06 23 52 31 LMP HIGH GAIN control.
06 23 52 32 CMP Shit, they always compare.
06 23 52 33 LMP I mean manually.
06 23 52 37 CMP ... HIGH GAIN ... HIGH GAIN control. Shit, when
you're in MANUAL, they always ...
06 23 52 45 CDR Hello, Houston; Apollo 10. At the end of this test, I'm
holding attitude with the computer. At the end, I'll
give you a VERB 64. Over.
06 23 52 55 LMP No, I think they want us to get all through with it,
Tom.
06 23 52 56 CMP You don't have to hold attitude to proceed, Tom.
06 23 53 00 CDR Okay.
06 23 53 01 CMP Proceed to CMC in AUTO.
06 23 53 03 CC Apollo 10, Houston. We've got lots of background noise.
Stand by on your transmission.
06 23 53 09 CMP Okay, what'd you do? What's your fuel - cryo pressure?
06 23 53 23 LMP I'll get ..., Tom.
06 23 53 28 CMP Have we got the other fuel cell on the line? Huh?
06 23 53 33 CDR Is fuel cell 1 heating?
06 23 53 35 CMP Huh? Is it on the line?
06 23 53 36 LMP Yes.
06 23 53 38 CMP Turn the freaking heater on.

~~CONFIDENTIAL~~

Day 7

~~CONFIDENTIAL~~

Page 477

- 06 23 53 39 CC -- caution and warning light on the H₂ PRESS CRYO tank. Don't worry about it. In fact, the heater is going to cycle momentarily to bring that pressure back up.
- 06 23 53 49 LMP Looks like it's tank 1 to us. Tank 2 is well in the green.
- 06 23 53 56 CC Roger. We copy tank 1. It'll cycle and come on up.
- 06 23 54 00 LMP Yes, but the heater configuration switch is off.
- 06 23 54 10 CMP Well, it was because I just turned it on.
- 06 23 54 11 LMP But that's the configuration I gave you 30 minutes ago.
- 06 23 54 14 CMP I just flipped the heater switch to AUTO. Okay.
- 06 23 54 23 CC Roger, 10. They tell us that tank 1 is going to follow the tank 2 heater cycle. Over.
- 06 23 54 33 LMP Tank ... is off.
- 06 23 54 35 CMP Okay.
- 06 23 54 39 LMP I don't understand that one.
- 06 23 54 40 CMP ... is lower. It cuts on ...
- 06 23 54 50 LMP ... HIGH GAIN meter to HIGH GAIN control. HIGH GAIN ... AUTO --
- 06 23 54 52 CDR Let's turn ... Okay, we got the CRYO PRESS again.
- 06 23 55 06 LMP We're in HIGH GAIN.
- 06 23 55 10 CDR We're really banging or freaking this damn antenna back ... uplink on the OMNI ...
- 06 23 55 26 CC Apollo 10, Houston. Let's put heaters in both H₂ cryo tanks to AUTO. Over.
- 06 23 55 34 LMP Okay, they're both AUTO; and we're in step 5 of test 1.
- 06 23 55 40 CC Roger.
- 06 23 56 16 CMP ... zero, zero, zero.

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Day 7

- 06 23 56 18 LMP Hello, Houston, Houston. How do you read test 1?
- 06 23 56 25 CC We're reading you, 10. A little background noise.
- 06 23 56 29 LMP Okay, very good. I'm going on to step 2, and I'll give you a reading test when it's all over.
- 06 23 56 36 CC Roger.
- 06 23 56 40 LMP Maneuver to HIGH GAIN. Minus 20 and 320.
- 06 23 56 53 CMP You got to go to that different attitude, don't you?
- 06 23 56 58 LMP Yes. Tom, how about roll 065 - -
- 06 23 57 03 CDR I've got to roll 065? You mean, after I get him I go to a different attitude on test 1?
- 06 23 57 04 CMP Yes.
- 06 23 57 05 LMP Well, we're on test 2 now.
- 06 23 57 10 CDR Oh, this is the second test. Okay, ... let's go here.
- 06 23 57 17 CMP Do you want me to do that for you?
- 06 23 57 19 CDR Yes. Why don't you - -
- 06 23 57 20 CMP Okay. What's the numbers there, Gene-o?
- 06 23 57 25 LMP 065, 196, 298.
- 06 23 57 37 CMP Same thing, huh? 065, 196, and 298, huh? Go.
- 06 23 58 16 CMP I wished I knew what the freak we're doing.
- 06 23 58 19 LMP Tell you what - I'd better talk - -
- 06 23 58 22 CMP I know it.
- 06 23 58 52 CC Apollo 10, Houston. We need the fans on in both H₂ cryo tanks. Over.
- 06 23 59 04 CMP ... the shit out of our cryos.
- 06 23 59 08 LMP Okay. The fans are on.
- 06 23 59 28 CDR ... fuel cell off?

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Day 7

~~CONFIDENTIAL~~

Page 479

- 06 23 59 29 CMP (Laughter) Keeps it running, doesn't it, by God; keeps the damn temperature down there - -
- 06 23 59 38 LMP That's where it is.
- 06 23 59 39 CDR That's right.
- 06 23 59 40 LMP Heater's broken off-scale, and we're purging off-scale high. How about that?
- 06 23 59 43 CMP We still got the FUEL CELL 1 light now, but for a different reason. Hell, we've got it for three reasons.
- 06 23 59 52 LMP That's right, three reasons, three out of the six - not bad (yawn).

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DAY 8

07 00 00 07 CMP Oh! 91 from 168. That sure is an interesting test you're running there, Gene-o, but I ... if I understand it. Uh-oh, where is the entry checklist?

07 00 00 34 CDR I've got it.

07 00 00 39 CMP Can I bum it from you?

07 00 00 40 CDR Sure can.

07 00 00 41 CMP Want to look over some of that good stuff here before we ...?

07 00 01 16 CDR ... make you hungry, John?

07 00 01 18 CMP ...

07 00 01 20 CDR ... should just be exquisite.

07 00 01 42 CDR Okay, we're there.

07 00 01 44 LMP Yes, I know.

07 00 03 16 LMP Hello, Houston, Houston; this is Apollo 10. How do you read on test 2?

07 00 03 24 CC I read you loud and clear.

07 00 03 27 LMP Okay, we'll proceed to test 3. Tom, 09 --

07 00 03 32 CC Roger on 3.

07 00 03 33 LMP -- 090.

07 00 03 38 CDR ... Okay, roll is 090.

07 00 03 43 LMP Yes.

07 00 03 44 CDR Okay, pitch?

07 00 03 46 LMP 196 and 30 ...

07 00 04 01 CDR Okay, roll is 090, pitch is 196, yaw is 30 ...
Okay.

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Day 8

~~CONFIDENTIAL~~

Page 481

- 07 00 05 48 CMP What you got this thing here up here for?
- 07 00 05 51 LMP What thing?
- 07 00 05 52 CMP That thing here.
- 07 00 05 55 LMP I've never - Must have done that ...
- 07 00 06 03 CMP That was that one we launched.
- 07 00 06 04 CDR It was?
- 07 00 06 05 CMP Yes, because I never touched it.
- 07 00 06 06 CDR I never touched it.
- 07 00 06 07 LMP I never touched it.
- 07 00 06 08 CMP Oh, shit.
- 07 00 06 10 CDR (Laughter)
- 07 00 06 11 LMP ... have to abort.
- 07 00 06 13 CMP I'm glad we didn't, too.
- 07 00 06 14 LMP I never touched it. I didn't even notice the damn thing.
- 07 00 06 16 CMP I - You know - I said, well, you know, one of ...
- 07 00 06 19 CDR Well, that'll help attenuate ... shock and ... pull that thing in tension.
- 07 00 06 23 CMP Pull it right out of the freaking wall (laughter).
- 07 00 06 27 LMP I had assumed you put it up there when you did the ... check.
- 07 00 06 30 CMP Hell, no; I didn't need it. Zero g. It was up when I - you know - it was up. I figured you'd already put it up.
- 07 00 06 43 LMP Let me know - how close we are, Tom.
- 07 00 06 45 CDR We're there. Alright?

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 8

- 07 00 08 33 CDR You know, I bet when we splash down out there,
this water - cold water runs all out in that ...
- 07 00 08 41 CMP Bet you're right. That's probably where all the
water comes from.
- 07 00 08 43 CDR I bet - I bet there'll be water galore ... cold now.
- 07 00 08 50 CMP Well, a lot of it's condensing up the hatch, too.
- 07 00 08 53 CDR That shit will come raining down --
- 07 00 08 54 CMP That's a good place for it; there ain't no wires
up here. I don't give a shit if we get ice up
here as long as there ain't no wiring up there
... as long as we don't have to live up there.
- 07 00 09 08 CDR Good place to put your feet up ...
- 07 00 09 10 CMP If I was designing the spacecraft, I'd make the
bastard get the water out of it before it ever
starts; but once it's designed, that's probably
as good a place to have a water separator as any-
where.
- 07 00 09 21 CDR Did the other spacecraft notice water under there?
- 07 00 09 25 CMP I don't know if they ever noticed ice or not. We've
got a lot of water up there now, a lot, a lot.
Let me get my rag and go up in there and clean it
out, as a matter of fact. Here, let me look at
this here.
- 07 00 09 38 CDR ...
- 07 00 09 41 CMP 5-C and -D. ... at 168 hours 5-C --
- 07 00 09 50 LMP Hello, Houston; this is 10. How do you read?
- 07 00 09 54 CC Loud and clear. How me?
- 07 00 09 59 LMP I'm reading you the same. I've got your readings
if you'd like them for 1, 2, and 3.
- 07 00 10 15 CC Go ahead.

~~CONFIDENTIAL~~

Day 8

~~CONFIDENTIAL~~

Page 483

- 07 00 10 18 LMP Test 1 is pitch minus 10, yaw 360, and the percent signal was 65, and it was oscillating about two needles width. 2 was minus 25, 360, 65 percent, and steady. 3 is minus 30, the meter flipped to 000, 90 percent, and steady.
- 07 00 10 55 CC Roger. We copied all that. Thank you.
- 07 00 10 58 LMP Okay, John.
- 07 00 11 09 CDR Okay, Houston; Apollo 10. We're all set to --
- 07 23 38 10 CC -- best thing to do is to go counterclockwise on your switch back around to test 5, then advance to the next nonexit skip pattern.
- 07 23 38 11 CMP Roger.
- 07 23 38 12 CC Reset your rates again and your V_0 , and you're ready to go again.
- 07 23 38 16 CMP Roger. That's what I figured.
- 07 23 38 27 CDR Yes, I remember. That's just like having average g on when you're in ENTRY and NORMAL. It'll kick it off every time you get it.
- 07 23 38 33 CMP And it's scribing right now.
- 07 23 38 35 CC Roger, 10. We copy.
- 07 23 38 37 LMP 36.395 - 36.4, John, is what you're looking for. There's the moon.
- 07 23 38 59 CMP I don't understand it. The son of a bitch is already ...
- 07 23 39 05 LMP Boy, we sure are moving with respect to the moon.
- 07 23 39 08 CDR ... we still pitching to the entry attitude.
- 07 23 39 10 LMP Okay.
- 07 23 39 11 CMP That water boiler's yawing us. That's what it is.
- 07 23 39 30 CMP Got to go clean through this one.
- 07 23 39 31 CDR Yes.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Day 8

07 23 39 42 LMP ... The check satisfy you, John - or can you see anything?

07 23 39 46 CMP I can't see the horizon out there. Might be able to when it's dark-adapted.

07 23 39 53 CDR Okay, you got 10 minutes to go - about 9 minutes. There's the moon and there's Mars - Jupiter.

07 23 40 03 LMP Just as we left him, huh?

07 23 40 10 CDR Okay, Gene-o, you've got it set at f:11, 250th. Are you ... the power on?

07 23 40 15 LMP Yes.

07 23 40 26 CMP T.P., you got a lot of guts to sit here and watch this.

07 23 40 30 CDR Huh?

07 23 40 31 CMP You got a lot of guts --

07 23 40 32 CDR No.

07 23 40 33 CMP -- to sit here and watch. I can't stand it. It's driving me out of my mind.

07 23 40 35 CDR What do you mean?

07 23 40 36 CMP Okay, here we go. We're back --

07 23 40 40 LMP Okay, John, the numbers: v_{10} is 364.

07 23 40 50 CMP I don't want that. I want the other one.

07 23 40 52 LMP You want the range?

07 23 40 53 CMP Yes.

07 23 40 55 LMP Okay, it's 1206.1.

07 23 40 59 CMP Also, can you set that time?

07 23 41 01 CDR I'll get it.

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Day 8

~~CONFIDENTIAL~~

Page 485

07 23 41 02 CMP Let me get right at the attitude to see if I can see anything on the horizon here. Okay, Houston. We're approaching the entry attitude.

07 23 41 12 CC Roger, 10.

07 23 41 19 CMP How many minutes to - to entry interface here?

07 23 41 21 CDR 1206.1. There you go - 8 - 7 minutes and something.

1206.1. Oh, shit.

07 23 41 27 CMP 1206.1.

07 23 41 31 CDR There you go, John.

07 23 41 32 CMP Okay.

07 23 41 33 CDR Ready - go - go to V_0 .

07 23 41 34 CMP V_0 .

07 23 41 37 CDR So you get 36 - -

07 23 41 39 CMP 36?

07 23 41 40 CDR 400.

07 23 41 41 CMP 364.

07 23 41 42 CDR 395, if you can read that close.

07 23 42 01 CMP ENTRY.

07 23 42 02 CDR ENTRY. And NORMAL.

07 23 42 03 LMP And NORMAL.

07 23 42 04 CMP Yes, NORMAL.

07 23 42 05 CDR There you go.

07 23 42 06 LMP Look at that rascally thing yaw us off.

07 23 42 09 CDR Okay.

07 23 42 10 LMP They're really boiling water, both of them.

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Day 8

07 23 42 22 CMP Well, with that up there in entry attitude, it's just compensating for a little water-boiler yaw.

07 23 42 27 CDR You want to turn the light down real quick, John?

07 23 42 29 CMP Yes, turn it down just a hair.

07 23 42 32 CDR I got that fixed on there, too.

07 23 42 33 CMP Fixed?

07 23 42 34 CDR Turn those on.

07 23 42 36 CMP I can't see a freaking thing. It doesn't make a difference ... I ain't going to check that bunch. That's - -

07 23 42 44 CDR Yes.

07 23 42 45 CMP -- asinine. There's nothing we can do about it anyway.

07 23 42 47 LMP Yes.

07 23 42 48 CMP Turn the goddam light back on.

07 23 42 50 CDR Hell, I feel like I'm really pulling g's.

07 23 42 52 LMP Yes, I do, too.

07 23 42 54 CMP ... not pulling any g's - -

07 23 42 55 CDR Okay. We're showing 0.0664.

07 23 43 00 LMP Houston, could we have a mark at 5 minutes to RRT? Over.

07 23 43 04 CC Roger -

07 23 43 05 CC MARK.

07 23 43 06 CC 5 minutes to RRT.

07 23 43 12 CMP Okay, ENTRY and NORMAL.

07 23 43 14 LMP And we're all set up in EMS configuration, ready to go; and I believe it's going to work.

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- 07 23 43 21 CC And we copy.
- 07 23 43 23 CDR And, we're in P63. I'm sure you can read it on your DSKY, and R TO GO is decreasing and V_I is increasing. Everything looks good. Over.
- 07 23 43 31 CC Roger, 10.
- 07 23 43 41 CMP Want me to check out all that - directions?
- 07 23 43 42 LMP Yes.
- 07 23 43 43 CMP ...
- 07 23 43 44 CDR Okay.
- 07 23 43 45 CMP ...
- 07 23 43 47 CDR About the only thing you got left when it gets there is RATE COMMAND and the CMC in AUTO.
- 07 23 43 52 CMP Sí, sí.
- 07 23 43 56 LMP The rest is up to you, babe.
- 07 23 43 58 CMP The rest is up to you, machine.
- 07 23 44 00 CC Apollo 10, we missed your mark at 5 minutes; 4 minutes and 50 seconds coming up -
- 07 23 44 05 CC MARK.
- 07 23 44 07 CMP Okay.
- 07 23 44 25 CDR Is R circular? Yes, 208.
- 07 23 44 30 CMP 208. Okay, now, we're at - Pyro's are not armed right now, and at 50 K, we're going to arm those - -
- 07 23 44 38 CDR ...
- 07 23 44 39 CMP - - and we'll go to BOOST ENTRY on this here R-thing right here. That's what we do next.
- 07 23 44 43 CDR Okay. And I'll be looking for it, John.

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Day 8

07 23 44 46 CMP

Gene, pull your shoulder harness in if you didn't already because it's certainly going to be a good ride.

07 23 44 55 LMP

When do you go to BOOST ENTRY on that thing, John?

07 23 44 58 CDR

50 000.

07 23 44 59 LMP

Huh?

07 23 45 00 CMP

Did he miss our mark at -

07 23 45 03 LMP

It doesn't say here.

07 23 45 05 CDR

50 K.

07 23 45 06 CMP

Yes, does - -

07 23 45 07 LMP

It sounds like you switched antennas there, Jack, and we missed your mark. He gave us a mark at 04:50, didn't he?

07 23 45 15 CMP

I didn't hear him.

07 23 45 17 LMP

Yes, yes, I did quite a while ago.

07 23 45 39 CMP

I'll get this yaw over there where it belongs. Get my head where it belongs, too. How's that pressure holding on REG 1? Good? How's it on REG 2?

07 23 45 59 CDR

Beautiful. No difference - about 3300. The temperature's good; the pressure's good; and the manifolds are both good.

07 23 46 08 CMP

Okay, and we're GO here.

07 23 46 19 CDR

... - -

07 23 46 20 CC

Apollo 10, Houston. Spacecraft and guidance looking real good from here. We'll be attempting to contact you again after blackout at 03:28. Over.

07 23 46 29 LMP

Roger. You working through an ARIA now?

07 23 46 35 CC

Negative. Not yet. We will be then, however.

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Day 8

~~CONFIDENTIAL~~

Page 489

- 07 23 46 37 CMP Roger. Okay, the guidance is coming in. It looks good.
- 07 23 46 45 CC Roger, 10.
- 07 23 46 57 CDR We're going to pull some g's, baby.
- 07 23 47 43 LMP We're another minute.
- 07 23 47 45 CDR Yes.
- 07 23 47 56 CC 1 minute, 10. You're looking good.
- 07 23 47 58 LMP Roger.
- 07 23 48 04 CDR Starting to trim much?
- 07 23 48 09 CMP No. We're still coming down like a stone.
- 07 23 48 17 CDR 36 156.
- 07 23 48 19 LMP You feel the g's?
- 07 23 48 21 CDR No. Here's our range to go. We're going to be there sizzling in about - at this distance - in about 30 seconds. All we got left to go is your RATE COMMAND, three of them, and CMC in AUTO.
- 07 23 48 32 CMP Yes.
- 07 23 48 34 CDR And watch the sky turn blue out there.
- 07 23 48 37 CMP I ain't looking out. I'm keeping my head right where it belongs. ENTRY and NORMAL. Okay.
- 07 23 48 42 LMP Okay. Interface time is coming up.
- 07 23 48 50 CDR 54, 55 - Oh, here it comes.
- 07 23 48 54 LMP There's interface. There's interface.
- 07 23 48 56 CDR MARK.
- 07 23 48 57 CDR RATE COMMAND on three of them. The sky's going to start to glow. Here comes the glow, John.
- 07 23 49 01 CMP CMC in AUTO.

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~~CONFIDENTIAL~~

Day 8

07 23 49 02 CDR Yes.
07 23 49 03 LMP Here it comes, babe.
07 23 49 04 CDR Here it comes.
07 23 49 05 LMP Here it comes.
07 23 49 06 CDR Shit, you'd better believe it.
07 23 49 08 CMP Okay, 0.05g is coming at 27.
07 23 49 11 CDR Okay. Stand by for reent - Oh, look at that.
07 23 49 13 LMP Look at that. God damn. God damn. ... --
07 23 49 17 CDR Look at that. Just looks like daytime. 0.2, 0.3,
0.4 - We're trimming in good.
07 23 49 23 CMP ... --
07 23 49 27 CDR There's ... GO.
07 23 49 29 CMP Here comes some g's, babe.
07 23 49 30 CDR Oh, you'd better believe here comes some g's.
Here comes the water, too. Just sit back anyway.
07 23 49 39 CMP Water. Okay, there's one g.
07 23 49 43 CDR Shit!
07 23 49 44 CMP Got to be kidding, huh?
07 23 49 45 CDR You got to be kidding, José. That --
07 23 49 47 LMP It seems like about 10.
07 23 49 48 CDR Here's 2g's.
07 23 49 49 CMP 2g's.
07 23 49 50 LMP Okay, baby; you keep flying it.
07 23 49 51 CDR ... my hand controller. John, it's looking good --
07 23 49 54 CMP 3g's.

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Day 8

~~CONFIDENTIAL~~

Page 491

07 23 49 55 CDR -- at 3g's. There's 1 minute gone.
07 23 49 57 CMP 4g's.
07 23 49 58 CDR 4g's.
07 23 49 59 LMP Okay, babe.
07 23 50 01 CDR/CMP/ 5g's.
LMP
07 23 50 05 CDR 5g's.
07 23 50 06 CMP 5g's, 6g's --
07 23 50 07 CDR Everything's looking - 6g's. 33 000.
07 23 50 10 CMP 6g's.
07 23 50 11 CMP 6.2.
07 23 50 13 CMP 6.
07 23 50 15 CMP 6.2.
07 23 50 18 CMP 6g's --
07 23 50 19 CDR Is this a long ... - Oh, we're starting ...
07 23 50 21 LMP Hang on. It's getting better.
07 23 50 22 CMP It's getting better.
07 23 50 23 CDR It's going down.
07 23 50 25 CMP Getting better.
07 23 50 26 CDR We're starting to roll.
07 23 50 27 CMP Start to roll. Go, machine. It's rolling good.
07 23 50 29 LMP Come on, baby; fly.
07 23 50 30 CDR It's going good --
07 23 50 31 CMP It's fine; it's good. It knows just what it's doing.
07 23 50 33 CDR It knows just what it's doing.

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Day 8

07 23 50 34 CMP Yes, it's rolling out --
07 23 50 35 CDR It's rolled lift vector down.
07 23 50 36 CMP ... vector down.
07 23 50 37 LMP Come on, baby; fly.
07 23 50 38 CDR Okay.
07 23 50 39 CMP Go on. Keep that lift vector down.
07 23 50 41 CDR Lift vector down.
07 23 50 42 CMP Lift vector down.
07 23 50 43 CDR 146. Ooh, only 3g's. Feels real -
07 23 50 46 CMP 3g's.
07 23 50 47 LMP Oh, man. That - the first one was a bitch --
07 23 50 48 CMP ...
07 23 50 50 CDR 27 000.
07 23 50 51 CMP Yes.
07 23 50 52 LMP Boy, that's spectacular!
07 23 50 54 CDR Coming up on 26 - Heck, we're only 2.5g's.
07 23 50 57 LMP 3g's.
07 23 50 58 CDR 26 now.
07 23 50 59 CMP Come on, ...
07 23 51 00 CDR We look - good shape.
07 23 51 01 CMP ... We're in good shape. Good shape. Good shape.
Okay --
07 23 51 05 CDR 25 000. We're subcircling --
07 23 51 07 CMP 3g's. Yes.
07 23 51 08 LMP We are subcircling?
~~CONFIDENTIAL~~

Day 8

~~CONFIDENTIAL~~

Page 493

07 23 51 09 CMP Yes. ...
07 23 51 10 CDR Subcircling.
07 23 51 11 LMP Beautiful. That's good news.
07 23 51 13 CMP Okay, now we'll pick it back up. There it goes.
07 23 51 14 LMP Look at that fireball when you do that. God dang!
07 23 51 18 CDR Yes. There's 65. Stop lift.
07 23 51 29 CDR Program 67 - it's looking good. Still says keep
the lift vector up, baby. And we got 60 miles to
go, and we're 4.2 north. 4.4, 28 miles. 16 ...
command to roll attitude.
07 23 51 43 CMP Okay, 3g's.
07 23 51 44 CDR 3g's?
07 23 51 45 LMP Yes. There's roll.
07 23 51 46 CDR Here we go. 41 degrees, John.
07 23 51 48 CMP There it goes. That's 41.
07 23 51 50 CDR Looking good.
07 23 51 51 LMP Okay, we're coming home, baby.
07 23 51 54 CDR It says 35 degrees.
07 23 51 56 CMP Going to 35 --
07 23 51 57 CDR Going a little north. You got a 5 undershoot.
Now we're back like - just like the simulator.
07 23 52 00 CMP Okay.
07 23 52 01 LMP Okay, I'll give you a hack when we're out of
blackout, John. We got 20 more seconds. We're
just about out.
07 23 52 07 CDR Okay, it's looking good. 12 north - 13 north,
5 to go.
07 23 52 10 LMP By golly, what a ... --
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~~CONFIDENTIAL~~

Day 8

07 23 52 11 CDR 50 degrees. 50 degrees.
07 23 52 12 CMP ... that's --
07 23 52 13 LMP God, that's pretty!
07 23 52 14 CMP -- that's beautiful.
07 23 52 15 CDR 50 degrees. It's fantastic.
07 23 52 16 CMP EMS is working good. It's just right on the money.
07 23 52 20 CDR Fantastic. 407 on the EMS.
07 23 52 22 CMP Yes.
07 23 52 23 CDR ... 67 ... --
07 23 52 24 LMP God, what a fireball. Boy, look at that mother.
07 23 52 25 CMP Isn't that beautiful?
07 23 52 26 LMP Look at that mother.
07 23 52 27 CDR -- ... fantastic. Just fantastic.
07 23 52 28 LMP Look at that!
07 23 52 34 CDR Coming back up, it says let's roll left, baby, to
 about half left. It says 60 degrees left. She's
 doing good. Just coming right on the old pike. Okay.
 It says plus 20; and we got to go south and start -
07 23 52 50 CMP Golly, looking out of the window; it's beautiful.
07 23 52 51 LMP Isn't that a beautiful purple? Golly, that's pretty!
07 23 52 57 CDR It's going to increase the bank; you got a little
 overshoot; and we're coming from north to south at
 77 degrees.
07 23 53 02 CMP Yes, we're only pulling one g now. 1.5g's?
07 23 53 04 CDR That's all.
07 23 53 05 LMP Okay, you're out of blackout, John.

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Day 8

~~CONFIDENTIAL~~

Page 495

- 07 23 53 07 CMP Houston, this is Apollo 10 out of blackout. How do you read? Over.
- 07 23 53 12 CDR ... nothing.
- 07 23 53 14 LMP You're through ARIA, so - Look at that. That's beautiful.
- 07 23 53 18 CMP Houston, Apollo 10, through blackout, transmitting in the blind. EMS is working properly. The CMC is working properly. The g meter we're working properly, and I guess we are, too.
- 07 23 53 30 LMP How's it looking, John?
- 07 23 53 33 CDR 81 degrees ... angle. We're 10 north decreasing - we're 9 north. 19 downrange - we're 4 off the downrange end. 8.9 to the north. 18 overshoot. We're coming in just beautifully.
- 07 23 53 45 LMP How many g's we got?
- 07 23 53 47 CMP 2g's.
- 07 23 53 48 LMP I don't believe it.
- 07 23 53 49 CDR This is our second peak, Gene-o.
- 07 23 53 50 CMP Okay, we're going down on peak g again.
- 07 23 53 51 CDR We have another peak to come in.
- 07 23 53 52 CMP Okay, it's - this ... - it's only - it's only up to 2g's now - 3g's. 2.5.
- 07 23 53 59 CDR Here comes the water again on my feet (laughter).
- 07 23 54 02 CMP What water?
- 07 23 54 03 CDR From the freaking tunnel --
- 07 23 54 04 CMP The tunnel?
- 07 23 54 05 CDR It's cold, John baby.
- 07 23 54 09 CDR 1.7.
- 07 23 54 10 CMP 3g's.

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Day 8

- 07 23 54 12 CDR Man, it's got the crossrange right out.
- 07 23 54 14 CMP 3g's, 3.5.
- 07 23 54 18 CDR ... It's going to pulse the lift vector up.
- 07 23 54 19 CMP 4g's. Going to go lift vector up.
- 07 23 54 23 CDR We'll let her shoot, lift vector up.
- 07 23 54 27 CMP 4g's. God, where ...?
- 07 23 54 31 LMP Go, baby. Just fly.
- 07 23 54 36 CDR It says you better roll right, then left.
- 07 23 54 40 CMP Okay, Houston, we're showing 6 miles short right now, and we're coming on in; pulling about 4g's and this machine just flying like crazy. Boy, it's really going.
- 07 23 54 53 CDR 40 miles --
- 07 23 54 54 CC Roger, 10. We copy and we've got you on TV.
- 07 23 54 56 CDR Roger --
- 07 23 54 57 CMP (Laughter) Well, I'll tell you, this thing is beautiful.
- 07 23 54 59 CDR It shows 2 miles overshoot, and 1.7 and 1.2 crossrange.
- 07 23 55 04 CMP And we're pulling about 3.5g's now. We're rolling right 60 degrees, and we're practically on top of the target. EMS is reading 21 miles to go. Okay, we're coming down - Looks - I guess we're about 150 K right now --
- 07 23 55 18 CDR Steam pressure. Get the steam pressure --
- 07 23 55 20 CMP -- things are stopped --
- 07 23 55 21 LMP Okay, we ought to be hitting 90 K any minute.
- 07 23 55 25 CMP You get the steam pressure yet?

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Day 8

~~CONFIDENTIAL~~

Page 497

07 23 55 27 LMP I'm watching it. No. But there's their 90-K time right now.

07 23 55 29 CDR We're 6 minutes and 2 seconds.

07 23 55 31 LMP Here's our 90-K time.

07 23 55 32 CDR Says roll left --

07 23 55 33 CMP Okay.

07 23 55 35 LMP No, I didn't get the steam pressure, but that's their 90 K. We're past it.

07 23 55 39 CDR Okay.

07 23 55 42 CDR Houston, Apollo 10. If the Princeton's there, we're going to be there shortly.

07 23 55 48 LMP Okay, there goes the steam pressure.

07 23 55 50 CDR Okay, steam pressure.

07 23 55 52 CMP Okay, we show 90 K right now.

07 23 56 01 CDR ...

07 23 56 03 LMP Man, is that thing ever flying!

07 23 56 07 CDR 1 mile.

07 23 56 08 CMP Okay, what's - what's 50 K --

07 23 56 10 CDR Okay, see what's 50-K time. Okay.

07 23 56 16 LMP Okay, I'd estimate 50 K here pretty quick, John. You ought to be off the - off the - thing here pretty --

07 23 56 22 CMP They're coming off the peg; we're at 60 K right now.

07 23 56 25 CDR Okay, latitude is minus 15.09; longitude, 164.68. Over. 50 K, pyros ARMED.

07 23 56 37 LMP 50 K, we're arming the pyros.

07 23 56 39 CDR Okay.

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Day 8

- 07 23 56 44 LMP Okay, we ought to get drogues here at --
07 23 56 47 CDR Gene-o, that was ...
07 23 56 50 LMP Stand by. I'll tell you.
07 23 56 53 CDR ...
07 23 56 55 LMP Okay, there's 8 minutes. We ought to get drogue
on ground time in 17 seconds.
07 23 56 58 CDR Okay.
07 23 56 59 CMP Okay.
07 23 57 00 CDR You can see the altitude, John?
07 23 57 01 CMP Okay, I guess.
07 23 57 03 CDR You --
07 23 57 04 CMP We're only pulling a g, you guys.
07 23 57 05 LMP How about your ELS AUTO LOGIC, ON. Huh?
07 23 57 07 CMP ELS AUTO LOGIC.
07 23 57 09 LMP You got it ON?
07 23 57 10 CMP Yes, it's ON.
07 23 57 11 LMP Okay.
07 23 57 12 CMP Stand by for the drogues.
07 23 57 13 LMP Drogues ought to be coming out on their time.
07 23 57 14 CDR Stand by. There went something.
07 23 57 20 LMP God damn! There's the drogues! There they are, babe.
07 23 57 23 CMP God damn, we're on the drogues.
07 23 57 24 CDR Beautiful --
07 23 57 25 LMP There they are.

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Day 8

~~CONFIDENTIAL~~

Page 499

- 07 23 57 27 CMP Rock, rock, old baby; rock, rock. This son of a gun --
- 07 23 57 31 CDR You want me to kill the RATE COMMAND. There's sunrise out there.
- 07 23 57 35 LMP There's the drogues.
- 07 23 57 36 CDR Houston, Apollo 10. We've got good drogues.
- 07 23 57 39 LMP What's our altitude, John?
- 07 23 57 41 CMP Okay, we're going through 18 000 right now --
- 07 23 57 44 CDR Okay, BOOST/ENTRY on those valves, babe.
- 07 23 57 47 LMP Okay, R - RCS COMMAND, OFF.
- 07 23 57 48 CDR RCS COMMAND, OFF.
- 07 23 57 49 CMP ...
- 07 23 57 51 LMP Can you get them? Okay. Sun's just coming up.
- 07 23 58 04 CDR Okay.
- 07 23 58 14 CDR ...
- 07 23 58 16 LMP ... see reefs, you mothers.
- 07 23 58 18 CDR Big ones.
- 07 23 58 19 LMP See reef. There they are.
- 07 23 58 21 CDR Beautiful.
- 07 23 58 22 CMP Okay, go through that VHF checklist.
- 07 23 58 25 CDR VHF checklist.
- 07 23 58 26 LMP Okay, VHF ANTENNA is RECOVERY. VHF A is coming to SIMPLEX. VHF A is SIMPLEX. VHF BEACON is ON. Get your light on, Tom. POSTLANDING BEACON, low. Put it on. They'll find us faster.
- 07 23 58 39 CDR Okay. Ready?
- 07 23 58 40 LMP CABIN PRESSURE RELIEF valve, CLOSED.

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Page 500

~~CONFIDENTIAL~~

Day 8

07 23 58 41 CDR CLOSED. ...
07 23 58 46 LMP RCS LOGIC, ON.
07 23 58 47 CDR RCS LOGIC, ON.
07 23 58 57 R2 ... Recovery 2, ... 07 to ... Over.
07 23 59 30 R3 Recovery 3, ... 015 ...
07 23 59 38 R2 This is Recovery 2 with the recovery beacon showing
... 2 ... also have a visual on the light.
07 23 59 50 LMP Okay --
07 23 59 51 CDR ... close it ... Yes.
07 23 59 58 LMP Yes.

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Page 501

DAY 9

08 00 00 01 CMP Okay.
08 00 00 02 CDR Okay.
08 00 00 03 LMP Okay, did you get the purge done?
08 00 00 04 CMP Yes, yes.
08 00 00 06 LMP Okay, struts unlock.
08 00 00 08 CMP Struts unlock.
08 00 00 09 LMP Ready?
08 00 00 10 CMP Okay, this one's unlocked.
08 00 00 11 LMP John, ... forward.
08 00 00 14 P1 This is Photo 1. All three chutes are deployed normal.
08 00 00 18 LMP We're ... We got fire out. We got fire out. ...
08 00 00 23 CDR ... fire?
08 00 00 24 LMP Yes.
08 00 00 25 CDR I got the ...
08 00 00 26 LMP We got fire out here.
08 00 00 28 CDR Hope it isn't ...
08 00 00 33 LMP We got fire --
08 00 00 34 CMP Okay, we show ourselves coming through 5000 feet.
08 00 00 37 LMP -- Tom, I got fire out the right window.
08 00 00 40 R2 ... control. Say again.
08 00 00 41 LMP Houston, we have ... when we hit the water, ... goes out.
08 00 00 47 LMP Okay, babe, what - you're 25. Okay.

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Day 9

- 08 00 00 51 CMP ... transmitting in the blind. We show ourselves at 15.07, minus 164.65.
- 08 00 00 58 LMP Want to close this? Do you want - -
- 08 00 00 59 AB Apollo 10, this is Airboss. Over.
- 08 00 01 01 CMP Roger, Airboss. Read you loud and clear.
- 08 00 01 04 AB Roger. Reading you loud and clear. Say again your position. Over.
- 08 00 01 09 CDR Roger. We're 15.07 west, 164.67. We should be right on top of your surveyor.
- 08 00 01 16 AB Roger. Understand. Right on top. We have good beacon on you, and we have good chutes on you. Over.
- 08 00 01 24 CDR Roger. Roger.
- 08 00 01 26 LMP FLOOD, POSTLANDING, John.
- 08 00 01 27 CMP Okay. FLOOD, POSTLANDING.
- 08 00 01 29 LMP Check ...
- 08 00 01 31 AB Apollo 10, Airboss. Give us a call when passing through 5 and 3000. Over.
- 08 00 01 35 LMP ROTATIONAL CONTROL POWER, DIRECT, OFF.
- 08 00 01 38 CDR ... I got it.
- 08 00 01 40 AB Airboss 3 control. ... first pilot position.
- 08 00 01 45 CDR Roger. We're through 3000 feet -
- 08 00 01 47 CDR MARK it.
- 08 00 01 48 AB 3000; Roger. Marking it, and I did not get your latitude initially. Over.
- 08 00 01 53 CDR (Laughter)
- 08 00 01 54 LMP I never got to copy it, babe.
- 08 00 01 56 CDR Roger. Lift at minus 15 -

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Day 9

~~CONFIDENTIAL~~

Page 503

08 00 01 58 LMP 15.07.

08 00 01 59 CDR 15.07 and 164.67. We should be right on top of you if you're down there.

08 00 02 04 AB That's affirmative. You are - Repeating - 15.07 and 164.67.

08 00 02 12 LMP Okay, John; stay in DUMP until 800 feet --

08 00 02 15 CMP We're not in DUMP.

08 00 02 17 LMP You should be in DUMP.

08 00 02 18 Pl This is Photo 1. I'm about level with you, Apollo 10. I'm following you down.

08 00 02 22 CDR Roger. This is Apollo 10. We're coming right down through 1800 feet now. We are in great shape. Over.

08 00 02 30 Pl Photo 1. Roger.

08 00 02 31 AB This is Airboss, and we have two helos in your immediate vicinity. We're closing all other forces. Over.

08 00 02 37 CDR Roger. We're 1500 feet and everything is GO.

08 00 02 42 LMP Keep them open, John. I -

08 00 02 45 CDR Huh?

08 00 02 46 LMP The fire's out ...

08 00 02 48 CDR Okay.

08 00 02 49 AB Airborne aircraft, this is Airboss. Position from Princeton --

08 00 02 54 CMP Okay, 800 feet; let's -

08 00 02 55 AB -- 350 ... --

08 00 02 56 CMP -- close ... --

08 00 02 57 AB -- at 4 miles; converge.

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Page 504

~~CONFIDENTIAL~~

Day 9

08 00 02 58 CDR Roger.
08 00 02 59 LMP Tell them we're going off the air. BUS TIES ...
08 00 03 01 CDR Okay.
08 00 03 02 CMP Okay, stand by.
08 00 03 03 CDR 800 feet.
08 00 03 04 LMP Okay, BUS TIES going --

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