CHAPTER

74

IGNITION

(CFM56 ENGINES (CFM56-7))

BOEING

737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 74
IGNITION

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

74-EFFECTIVE PAGES

737-600/700/800/900
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 74
IGNITION

74-CONTENTS

CHAPTER 74
IGNITION

IGNITION SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Ignition system - deactivation.

(2) Ignition system - activation.

TASK 74-00-00-040-803-F00

2. Ignition System - Deactivation

A. General

(1) This task will deactivate the ignition system.

B. References

Reference	Title
FIM 73-05 TASK 803	CH A (B) EEC DATA NOT AVAILABLE - Fault Isolation

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
411	Engine 1 - Engine
421	Engine 2 - Engine

D. Procedure

WARNING IGNITION EXCITER COIL UNIT VOLTAGE IS SUFFICIENTLY HIGH TO ENDANGER HUMAN LIFE. APU MASTER SWITCH MUST BE IN OFF POSITION, AND IGNITION INOPERATIVE FOR 5 MINUTES BEFORE DISCONNECTING IGNITER LEAD. GROUND IGNITER LEAD, WITH INSULATED DEVICE, AS LEAD IS DISCONNECTED FROM IGNITER PLUG.

WARNING DO NOT DO THIS TEST DURING THESE CONDITIONS: DURING AIRPLANE FUELING, THE AIRPLANE IS NEAR BUILDINGS, OTHER AIRPLANES ARE IN THE JET EXHAUST AREA, OR THE AIRPLANE IS IN THE HANGAR. MAKE SURE THAT NO PERSONNEL OR EQUIPMENT ARE IN THE JET EXHAUST AREA. INJURIES TO PERSONNEL CAN OCCUR.

SUBTASK 74-00-00-210-002-F00

(1) Make sure that the airplane and adjacent areas are safe, in case a tailpipe fire occurs.

SUBTASK 74-00-00-810-002-F00

(2) Use the interphone to speak between persons on the ground and in the flight compartment.

NOTE: One person must be near the engine to listen for the igniter(s) to fire. The igniters are found on the combustion case at the 4:00 and 8:00 o'clock position.

SUBTASK 74-00-00-020-004-F00

(3) For engine 1, do this step:

Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1

SUBTASK 74-00-00-020-005-F00

(4) For engine 2, do this step:

Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	3	C00360	FUEL SPAR VALVE ENG 2

SUBTASK 74-00-00-210-003-F00

(5) Make sure that the two engine start levers on the control stand, panel P8, are in the CUTOFF position.

SUBTASK 74-00-00-210-004-F00

(6) Make sure that the engine start switch is off and install a DO-NOT-OPERATE tag.

SUBTASK 74-00-00-480-001-F00

(7) Do these steps to get access to the igniters test of the EEC BITE with the Flight Management Computer System Central Display Unit (FMCS CDU) in the flight compartment.

(a) Push the INIT REF key to show the PERF INIT screen on the FMCS CDU.

NOTE: The FMCS CDU does not support a type-ahead function. You must have the prompt on the FMCS CDU screen before you type in the response.

(b) Push these line select keys (LSK) on the FMCS CDU:

1) INDEX

2) MAINT

NOTE: This LSK causes the MAINT BITE INDEX screen to show.

3) ENGINE

NOTE: This LSK causes the ENGINE/EXCEED BITE INDEX screen to show.

4) Applicable ENGINE X, (X = 1 or 2)

NOTE: This LSK causes the ENGINE X BITE TEST MAIN MENU to show. Also, the ENGINE X LSK automatically applies power to the EEC and causes the EEC to initialize. The CDU can show INITIALIZING EEC X and EEC SORTING FAULT HISTORY for a short time, just before the ENGINE X BITE TEST MAIN MENU shows.

5) GROUND TESTS

NOTE: This LSK causes the ENGINE X BITE TEST GROUND TESTS menu to show.

6) If the FOR CH A ONLY or FOR CH B ONLY screen shows, push the INDEX LSK once, stop for 30 seconds, and then push the RECENT FAULTS LSK again.

NOTE: The system has a 15-second timer for the FMCS CDU and EEC to initialize. Sometimes, this is not enough time and the system will show this problem.

a) If the FOR CH A ONLY or FOR CH B ONLY screen continues to show, do this task: CH A (B) EEC DATA NOT AVAILABLE - Fault Isolation, FIM 73-05 TASK 803.

(c) Push the L IGNITER TEST LSK for the left igniter test.

NOTE: This LSK causes the L IGNITER TEST menu to show along with a WARNING about the operation of the ignition system.

1) Push the START TEST LSK.

a) The test screen shows an AMM reference to make sure the airplane is in the correct configuration from the procedure "Prepare To Do the Audible Test" above.

NOTE: You can stop the test at this time if you push the ABORT LSK. The screen will show the test is not completed because ABORT was selected. Push the INDEX LSK to go back to the GROUND TESTS menu.

b) Put the applicable engine start lever to the IDLE position.

2) Tell the person at the engine that the test will begin.

3) Type OK and push the CONTINUE LSK.

NOTE: The test starts with the L IGNITER operated by CH A of the EEC and then by CH B.

4) Make sure that the person at the engine does not hear the left igniter when the screen shows LISTEN FOR IGNITER.

5) Push the END TEST LSK to stop the test.

6) Push the INIT REF key on the FMCS CDU to exit the ENGINE X BITE test screen.

a) If you put the start lever back to the CUTOFF position before you exit the BITE screen, the EEC BITE INOP message will show because the power is removed from the EEC.

7) Put the applicable engine start lever to the CUTOFF position.

(d) Push the R IGNITER TEST LSK for the right igniter test.

NOTE: This LSK causes the R IGNITER TEST menu to show along with a WARNING about the operation of the ignition system.

1) Push the START TEST LSK.

a) The test screen shows an AMM reference to make sure the airplane is in the correct configuration from the procedure "Prepare To Do the Audible Test" above.

NOTE: You can stop the test at this time if you push the ABORT LSK. The screen will show the test is not completed because ABORT was selected. Push the INDEX LSK to go back to the GROUND TESTS menu.

b) Put the applicable engine start lever to the IDLE position.

2) Tell the person at the engine that the test will begin.

3) Type OK and push the CONTINUE LSK.

NOTE: The test starts with the R IGNITER operated by CH A of the EEC and then by CH B.

4) Make sure that the person at the engine does not hear the right igniter when the screen shows LISTEN FOR IGNITER.

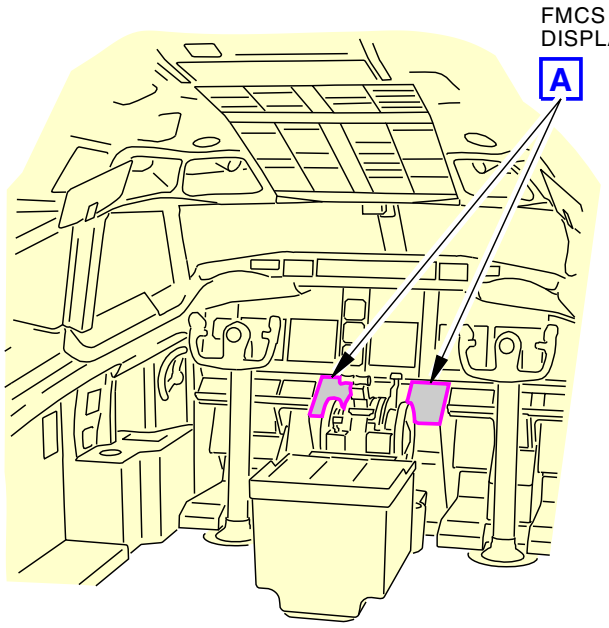
5) Push the END TEST LSK to stop the test.

6) Push the INIT REF key on the FMCS CDU to exit the ENGINE X BITE test screen.

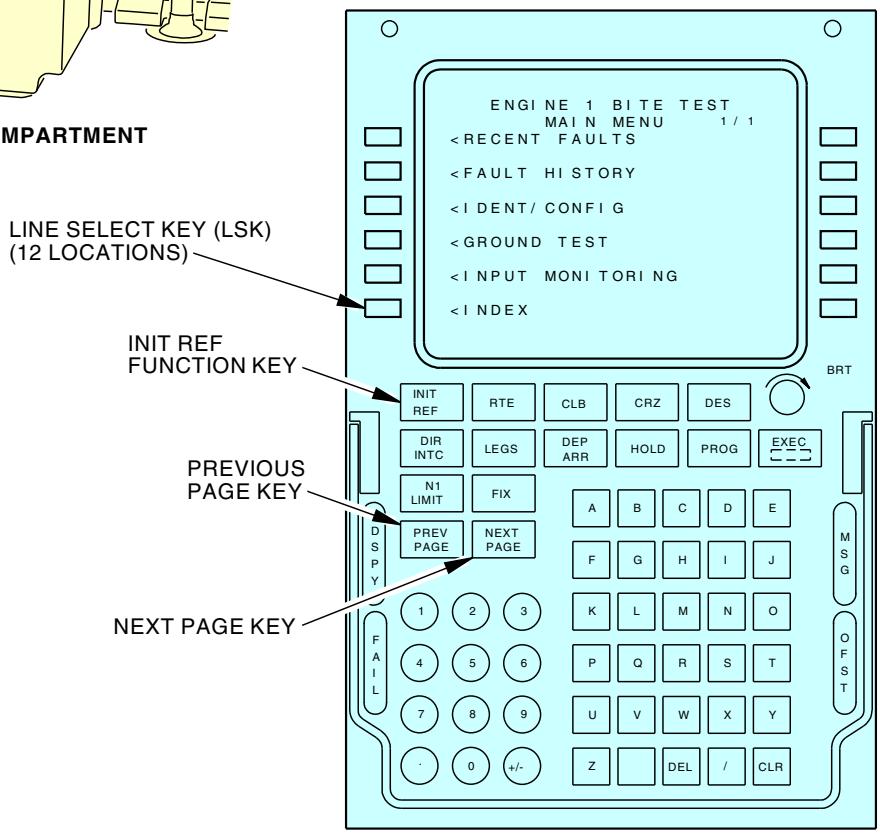
a) If you put the start lever back to the CUTOFF position before you exit the BITE screen, the EEC BITE INOP message will show because the power is removed from the EEC.

7) Put the applicable engine start lever to the CUTOFF position.

——— END OF TASK ———



FLIGHT COMPARTMENT



FMCS CONTROL DISPLAY UNIT (CDU)

A

G39848 S0006582915_V2

Engine 1 BITE Test Main Menu
Figure 201/74-00-00-990-804-F00

TASK 74-00-00-440-801-F00

3. Ignition System - Activation

(Figure 201)

A. General

(1) This task will activate the ignition system.

B. References

Reference	Title
74-00-00-750-802-F00	Ignition System Test (P/B 501)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
411	Engine 1 - Engine
421	Engine 2 - Engine

D. Procedure

SUBTASK 74-00-00-420-004-F00

(1) For engine 1, do this step:

Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1

SUBTASK 74-00-00-420-005-F00

(2) For engine 2, do this step:

Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	3	C00360	FUEL SPAR VALVE ENG 2

SUBTASK 74-00-00-420-006-F00

(3) Do this task: Ignition System Test, TASK 74-00-00-750-802-F00.

——— END OF TASK ———

IGNITION SYSTEM- ADJUSTMENT/TEST

1. General

A. This procedure has two tasks:

(1) Ignition System Audible Test

(2) Ignition System Test.

TASK 74-00-00-750-801-F00

2. Ignition System Audible Test

(Figure 501)

A. General

(1) This task provides the instructions on how to do the audible test of the ignition system.

(2) This task uses the ground test of the EEC BITE to energize the ignition system.

B. References

Reference	Title
71-00-00-700-819-F00	Stop the Engine Procedure (Usual Engine Stop) (P/B 201)
71-00-00-700-821-F00	Dry Motor the Engine (P/B 201)
FIM 73-05 TASK 803	CH A (B) EEC DATA NOT AVAILABLE - Fault Isolation
FIM 80-06 TASK 803	Engine Start - No Lightoff, Fuel Flow Normal, Ignition Switch at IGN L, Engine Start Normal with Ignition Switch at IGN R or BOTH - Fault Isolation
FIM 80-06 TASK 804	Engine Start - No Lightoff, Fuel Flow Normal, Ignition Switch at IGN R, Engine Start Normal with Ignition Switch At IGN L or BOTH - Fault Isolation

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
411	Engine 1 - Engine
421	Engine 2 - Engine

D. Prepare for the Test

SUBTASK 74-00-00-860-001-F00

WARNING OBEY THE INSTRUCTIONS IN THE PROCEDURE TO MOTOR THE ENGINE. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION BEFORE YOU CAN DO THE IGNITION SYSTEM TEST, DRY MOTOR THE ENGINE TO REMOVE ALL FUEL IN THE ENGINE. FUEL THAT WAS NOT BURNED CAN CAUSE AN INTERNAL ENGINE FIRE OR A FIRE IN THE TURBINE EXHAUST AREA.

(1) Dry motor the engine until there is no fuel fog visible (TASK 71-00-00-700-821-F00).

(a) Stop the engine (TASK 71-00-00-700-819-F00).

(b) Make sure that pneumatic power is available to dry motor the engine in case of an engine tailpipe fire.

SUBTASK 74-00-00-940-001-F00

WARNING MAKE SURE THAT THE IGNITION EXCITERS ARE DE-ENERGIZED FOR A MINIMUM OF FIVE MINUTES BEFORE YOU START WORK ON THE IGNITION SYSTEM. THE IGNITION SYSTEM VOLTAGE IS DANGEROUSLY HIGH. DO NOT TOUCH THE ELECTRICAL CONTACTS. THE IGNITION EXCITERS CAN HAVE AN ELECTRICAL CHARGE EVEN WHEN NOT ENERGIZED. IF YOU DO NOT OBEY THIS PROCEDURE, INJURY TO PERSONS CAN OCCUR.

WARNING DO NOT DO THIS TEST IN THESE CONDITIONS: DURING AIRPLANE FUELING, WHEN THE AIRPLANE IS NEAR BUILDINGS, WHEN OTHER AIRPLANES ARE IN THE JET EXHAUST AREA FOR GROUND IDLE, OR WHEN THE AIRPLANE IS IN THE HANGAR. MAKE SURE THAT NO PERSONS OR EQUIPMENT ARE IN THE JET EXHAUST AREA FOR GROUND IDLE OF THE APPLICABLE ENGINE. SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT COULD OCCUR.

(2) Make sure that the airplane and adjacent areas are safe, in case a tailpipe fire occurs.

SUBTASK 74-00-00-860-002-F00

(3) Use the interphone to speak between persons on the ground and in the flight compartment.

NOTE: One person must be near the engine to listen for the igniter(s) to fire. The igniters are found on the combustion case at the 4:00 and 8:00 o'clock position.

SUBTASK 74-00-00-860-003-F00

(4) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	6	C01017	FMCS CMPTR 1
LOM 404, 426			
A	7	C01018	FMCS CDU 1
LOM ALL			
D	5	C01359	DISPLAY DEU 1 PRI

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI
LOM 426; LOM 404 PRE SB 737-23-1484			
D	15	C01050	FMCS CDU 2

LOM ALL

SUBTASK 74-00-00-860-029-F00

(5) For engine 1, do this step:

Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

(Continued)

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1

SUBTASK 74-00-00-860-030-F00

(6) For engine 2, do this step:

Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	3	C00360	FUEL SPAR VALVE ENG 2

SUBTASK 74-00-00-860-006-F00

(7) Make sure that the two engine start levers on the control stand, panel P10, are in the CUTOFF position.

E. Do the Audible Test

SUBTASK 74-00-00-860-007-F00

(1) For Engine 1, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1

SUBTASK 74-00-00-860-008-F00

(2) For Engine 2, open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	3	C00360	FUEL SPAR VALVE ENG 2

SUBTASK 74-00-00-740-001-F00

(3) Do these steps to get access to the igniters test of the EEC BITE with the Flight Management Computer System Central Display Unit (FMCS CDU) in the flight compartment.

(a) Push the INIT REF key to show the PERF INIT screen on the FMCS CDU.

NOTE: The FMCS CDU does not support a type-ahead function. You must have the prompt on the FMCS CDU screen before you type in the response.

(b) Push these line select keys (LSK) on the FMCS CDU:

1) INDEX

2) MAINT

NOTE: This LSK causes the MAINT BITE INDEX screen to show.

3) ENGINE

NOTE: This LSK causes the ENGINE/EXCEED BITE INDEX screen to show.

4) Applicable ENGINE X, (X = 1 or 2)

NOTE: This LSK causes the ENGINE X BITE TEST MAIN MENU to show. Also, the ENGINE X LSK automatically applies power to the EEC and causes the EEC to initialize. The CDU can show INITIALIZING EEC X and EEC SORTING FAULT HISTORY for a short time, just before the ENGINE X BITE TEST MAIN MENU shows.

5) GROUND TESTS

NOTE: This LSK causes the ENGINE X BITE TEST GROUND TESTS menu to show.

6) If the FOR CH A ONLY or FOR CH B ONLY screen shows, push the INDEX LSK once, stop for 30 seconds, and then push the RECENT FAULTS LSK again.

NOTE: The system has a 15-second timer for the FMCS CDU and EEC to initialize. Sometimes, this is not enough time and the system will show this problem.

a) If the FOR CH A ONLY or FOR CH B ONLY screen continues to show, do this task: CH A (B) EEC DATA NOT AVAILABLE - Fault Isolation, FIM 73-05 TASK 803.

SUBTASK 74-00-00-740-003-F00

(4) Continue to the step to do the test for the applicable igniter.

(a) Push the L IGNITER TEST LSK for the left igniter test.

NOTE: This LSK causes the L IGNITER TEST menu to show along with a WARNING about the operation of the ignition system.

1) Push the START TEST LSK.

a) The test screen shows an AMM reference to make sure the airplane is in the correct configuration from the procedure "Prepare To Do the Audible Test" above.

NOTE: You can stop the test at this time if you push the ABORT LSK. The screen will show the test is not completed because ABORT was selected. Push the INDEX LSK to go back to the GROUND TESTS menu.

b) Put the applicable engine start lever to the IDLE position.

2) Tell the person at the engine that the test will begin.

3) Type OK and push the CONTINUE LSK.

NOTE: The test starts with the L IGNITER operated by CH A of the EEC and then by CH B.

4) Make sure that the person at the engine hears the left igniter when the screen shows LISTEN FOR IGNITER.

5) Make sure that the test screen shows NO L IGNITER TEST FAULTS.

a) If the test screen shows NO faults but the person did not hear the igniter for CH A and CH B, do this task: Engine Start - No Lightoff, Fuel Flow Normal, Ignition Switch at IGN L, Engine Start Normal with Ignition Switch at IGN R or BOTH - Fault Isolation, FIM 80-06 TASK 803.

NOTE: There is a problem with the L Ignition system.

b) If faults are found, the test screen will show L IGNITER TEST FAILED along with the maintenance message number (MSG NBR) and a short description of the fault.

NOTE: If there is more than one fault, the page you are on and the total number of pages will show on the screen. Example: 1/2 means you are on page 1 of 2 pages.

c) Record the maintenance messages that show.

d) Use the NEXT PAGE or PREV PAGE key to see all of the maintenance messages.

6) Make sure there are no CH A INOP or CH B INOP screens.

7) If it is necessary to do the L IGNITER TEST again, push the REPEAT TEST LSK.

8) Push the END TEST LSK to stop the test.

9) Push the INIT REF key on the FMCS CDU to exit the ENGINE X BITE test screen.

a) If you put the start lever back to the CUTOFF position before you exit the BITE screen, the EEC BITE INOP message will show because the power is removed from the EEC.

10) Put the applicable engine start lever to the CUTOFF position.

(b) Push the R IGNITER TEST LSK for the right igniter test.

NOTE: This LSK causes the R IGNITER TEST menu to show along with a WARNING about the operation of the ignition system.

1) Push the START TEST LSK.

a) The test screen shows an AMM reference to make sure the airplane is in the correct configuration from the procedure "Prepare To Do the Audible Test" above.

NOTE: You can stop the test at this time if you push the ABORT LSK. The screen will show the test is not completed because ABORT was selected. Push the INDEX LSK to go back to the GROUND TESTS menu.

b) Put the applicable engine start lever to the IDLE position.

2) Tell the person at the engine that the test will begin.

3) Type OK and push the CONTINUE LSK.

NOTE: The test starts with the R IGNITER operated by CH A of the EEC and then by CH B.

4) Make sure that the person at the engine hears the right igniter when the screen shows LISTEN FOR IGNITER.

5) Make sure that the test screen shows NO R IGNITER TEST FAULTS.

a) If the test screen shows NO faults but the person did not hear the igniter for CH A and CH B, do this task: Engine Start - No Lightoff, Fuel Flow Normal, Ignition Switch at IGN R, Engine Start Normal with Ignition Switch At IGN L or BOTH - Fault Isolation, FIM 80-06 TASK 804.

NOTE: There is a problem with the R Ignition system.

b) If faults are found, the test screen will show R IGNITER TEST FAILED along with the maintenance message number (MSG NBR) and a short description of the fault.

NOTE: If there is more than one fault, the page you are on and the total number of pages will show on the screen. Example: 1/2 means you are on page 1 of 2 pages.

c) Record the maintenance messages that show.

d) Use the NEXT PAGE or PREV PAGE key to see all of the maintenance messages.

6) Make sure there are no CH A INOP or CH B INOP screens.

7) If it is necessary to do the R IGNITER test again, push the REPEAT TEST LSK.

8) Push the END TEST LSK to stop the test.

9) Push the INIT REF key on the FMCS CDU to exit the ENGINE X BITE test screen.

a) If you put the start lever back to the CUTOFF position before you exit the BITE screen, the EEC BITE INOP message will show because the power is removed from the EEC.

10) Put the applicable engine start lever to the CUTOFF position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 74-00-00-860-013-F00

(1) For Engine 1, remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1

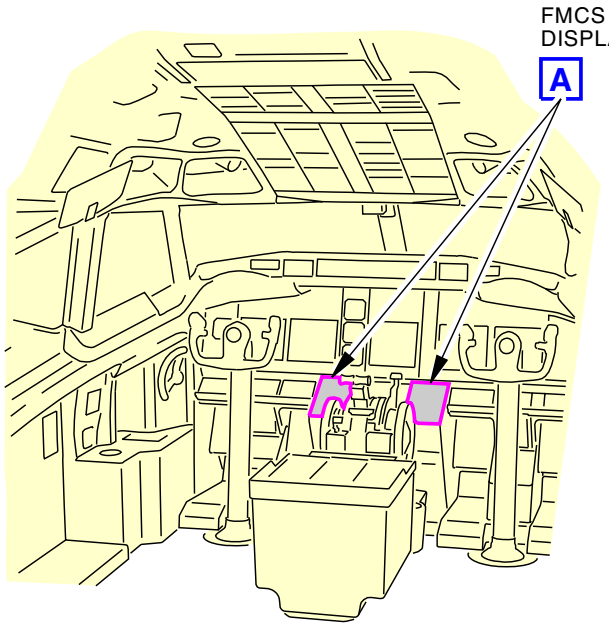
SUBTASK 74-00-00-860-014-F00

(2) For Engine 2, remove the safety tag and close this circuit breaker:

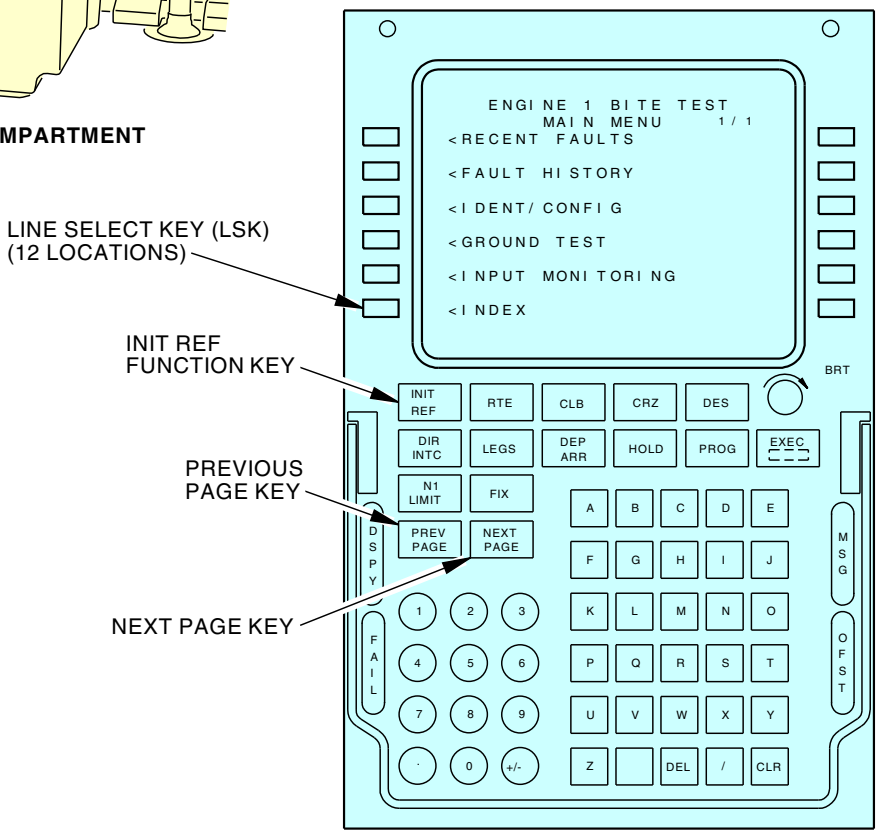
F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	3	C00360	FUEL SPAR VALVE ENG 2

END OF TASK



FLIGHT COMPARTMENT



FMCS CONTROL DISPLAY UNIT (CDU)

A

G39848 S0006582915_V2

Engine 1 BITE Test Main Menu
Figure 501/74-00-00-990-802-F00

TASK 74-00-00-750-802-F00

3. Ignition System Test

A. General

(1) This task provides the instructions on how to test the ignition system.

(2) You do this task to find which part of the ignition system is faulty when there is a problem in the system.

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)
74-11-01-000-801-F00	Ignition Exciter Removal (P/B 401)
74-11-01-400-801-F00	Ignition Exciter Installation (P/B 401)
74-21-01-000-801-F00	Ignition Lead Removal (P/B 401)
74-21-01-400-801-F00	Ignition Lead Installation (P/B 401)
78-31-00-010-801-F00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-010-804-F00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-802-F00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)
78-31-00-440-803-F00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-5665	Tester - Ignition System, Flight Line Applications Part #: 137332 Supplier: 59501

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
411	Engine 1 - Engine
421	Engine 2 - Engine

E. Prepare for the Test

SUBTASK 74-00-00-010-006-F00

(1) Do these tasks in sequence to safely open the left and right thrust reversers on the applicable engine:

WARNING DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Do this task: Thrust Reverser Deactivation for Ground Maintenance, TASK 78-31-00-040-802-F00.

(b) Open the left and right fan cowl panels (TASK 71-11-02-010-801-F00).

WARNING

OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Open the left and right thrust reversers (TASK 78-31-00-010-801-F00).

SUBTASK 74-00-00-210-001-F00

(2) Visually examine the ignition systems.

(a) Replace all the components that are unsatisfactory.

(b) Make sure that all connections are tight.

F. Ignition System Test

SUBTASK 74-00-00-710-002-F00

WARNING

DO NOT TOUCH THE ENGINE IGNITION SYSTEM WHILE THE SYSTEM OPERATES. IGNITION VOLTAGE IS HIGH WHICH MAKES IT DANGEROUS. ELECTRICAL SHOCK CAN KILL, OR CAUSE INJURIES TO PERSONNEL.

(1) Do these steps to test the ignition lead and ignition exciter:

NOTE: The audible test towards the end of this task will require engine motoring. Do not do a check of the ignition system when the airplane is in the hangar, near buildings and/or other airplanes that are within the jet-wake hazard area for ground idle. Make sure that no persons or equipment are in the jet-wake hazard area for the ground idle of the applicable engine.

(a) Do this task: Ignition Lead Removal, TASK 74-21-01-000-801-F00.

NOTE: Do not touch the end of the ignition lead with your hands or with a dirty cloth. Oil or grease can cause the ignition lead to operate incorrectly.

(b) Connect the ignition system tester, SPL-5665 to the applicable remote sensor box.

(c) Refer to the instructions supplied with the tester.

NOTE: The sensors have different connections for the different types of cable connectors. Make sure that you use the correct sensor box.

(d) Do the ignition system test.

SUBTASK 74-00-00-960-001-F00

(2) If it is necessary, replace the ignition lead (TASK 74-21-01-000-801-F00 and TASK 74-21-01-400-801-F00).

SUBTASK 74-00-00-960-002-F00

(3) If it is necessary, replace the ignition exciter (TASK 74-11-01-000-801-F00 and TASK 74-11-01-400-801-F00).

SUBTASK 74-00-00-710-003-F00

(4) Do this task: Ignition System Audible Test, TASK 74-00-00-750-801-F00.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 74-00-00-410-006-F00

WARNING OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the left and right thrust reversers:

(a) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-804-F00.

(b) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

(c) Do this task: Thrust Reverser Activation after Ground Maintenance, TASK 78-31-00-440-803-F00.

——— END OF TASK ———

IGNITION - DDG MAINTENANCE PROCEDURES

1. General

A. This procedure has the maintenance tasks for the Master Minimum Equipment List (MMEL) maintenance requirements as shown in the Dispatch Deviations Procedures Guide (DDPG). These tasks prepare the airplane for flight with systems/components that are inoperative.

B. This procedure also has the tasks to put the airplane back to its usual condition.

C. These are the tasks for the components in the ignition system:

(1) MMEL 74-1 (DDPG) Preparation - Right Ignition System Inoperative

(2) MMEL 74-1 (DDPG) Restoration - Right Ignition System Inoperative.

TASK 74-00-00-040-801-F00

2. MMEL 74-1 (DDPG) Preparation - Right Ignition System Inoperative

(Figure 901)

A. General

(1) This task prepares the airplane for flight with the Right Ignition System inoperative.

NOTE: Dispatch is permitted for a fault in the ignition system such as the right igniter itself. Dispatch is not permitted for a fault in the ignition system that cause by an Electronic Engine Control (EEC) right igniter fault.

(2) This task connects the left igniter to the AC STANDBY BUS.

(3) The usual condition is the left igniter on the AC TRANSFER BUS and the right igniter on the AC STANDBY BUS.

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)
74-00-00-750-801-F00	Ignition System Audible Test (P/B 501)

C. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

D. Procedure

SUBTASK 74-00-00-860-052-F00

(1) For Engine 1, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-00-00-860-053-F00

(2) For Engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT

(Continued)

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-00-00-860-017-F00

(3) Make sure that the start lever is in the CUTOFF position and install a DO-NOT-OPERATE tag.

SUBTASK 74-00-00-860-018-F00

(4) Make sure that the engine start switch is off and install a DO-NOT-OPERATE tag.

LOM 429-432; AIRPLANES WITH AUTO-IGNITION

(a) The AUTO position is off.

LOM ALL

SUBTASK 74-00-00-010-007-F00

(5) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.

SUBTASK 74-00-00-040-001-F00

WARNING

MAKE SURE THAT THE IGNITION EXCITERS ARE DE-ENERGIZED FOR A MINIMUM OF FIVE MINUTES BEFORE YOU START WORK ON THE IGNITION SYSTEM. THE IGNITION SYSTEM VOLTAGE IS DANGEROUSLY HIGH. DO NOT TOUCH THE ELECTRICAL CONTACTS. THE IGNITION EXCITERS CAN HAVE AN ELECTRICAL CHARGE EVEN WHEN NOT ENERGIZED. IF YOU DO NOT OBEY THIS STEP, INJURY TO PERSONS CAN OCCUR.

(6) Stop (wait) for a minimum of five minutes to release the high voltage from the ignition exciter.

SUBTASK 74-00-00-020-001-F00

(7) Disconnect the power supply cables from the ignition exciters:

(a) Disconnect the DP0102 connector on the left power supply cable (Transfer Bus) [3] from the left ignition exciter IGN 1 [4].

(b) Disconnect the DP0201 connector on the right power supply cable (Standby Bus) [2] from the right ignition exciter IGN 2 [1].

SUBTASK 74-00-00-420-001-F00

(8) Connect the power supply cables:

(a) Connect the DP0102 connector on the left power supply cable (Transfer Bus) [3] to the right ignition exciter IGN 2 [1].

(b) Connect the DP0201 connector on the right power supply cable (Standby Bus) [2] to the left ignition exciter IGN 1 [4].

(c) Tighten the connectors.

SUBTASK 74-00-00-860-033-F00

(9) For Engine 1, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-00-00-860-034-F00

(10) For Engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-00-00-860-021-F00

(11) Remove the DO-NOT-OPERATE tags from the start lever and engine start switch.

SUBTASK 74-00-00-710-001-F00

(12) Do this task: Ignition System Audible Test, TASK 74-00-00-750-801-F00.

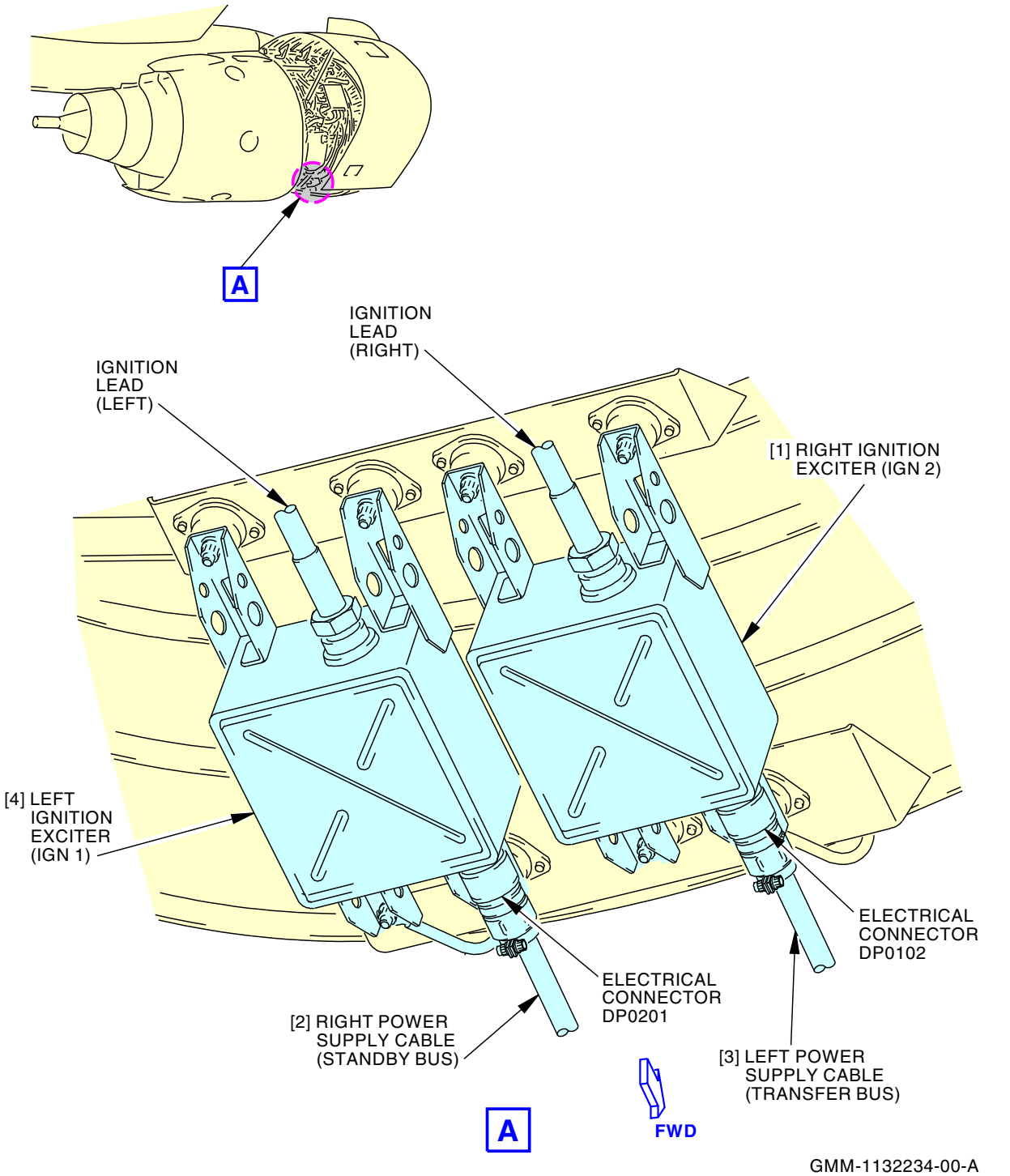
(a) It is permitted to find faults with the left ignition system, but the right ignition system must pass the audible test.

NOTE: When the EEC tests the right ignition system, the left igniter will fire because of the wiring change. This audible check means the right ignition system is correct.

SUBTASK 74-00-00-410-007-F00

(13) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

——— END OF TASK ———



MMEL 74-1 Dispatch Configuration
Figure 901/74-00-00-990-801-F00

TASK 74-00-00-040-802-F00

3. MMEL 74-1 (DDPG) Restoration - Right Ignition System Inoperative

(Figure 902)

A. General

(1) This task restores the airplane after flight with the Right Ignition System inoperative.

(2) This task re-connects the right igniter to the AC STANDBY BUS and re-connects the left igniter to the AC TRANSFER BUS.

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)

C. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

D. Procedure

SUBTASK 74-00-00-860-035-F00

(1) For Engine 1, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-00-00-860-036-F00

(2) For Engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-00-00-860-024-F00

(3) Make sure that the start lever is in the CUTOFF position and install a DO-NOT-OPERATE tag.

SUBTASK 74-00-00-860-025-F00

(4) Make sure that the engine start switch is off and install a DO-NOT-OPERATE tag.

LOM 429-432; AIRPLANES WITH AUTO-IGNITION

(a) The AUTO position is off.

LOM ALL

SUBTASK 74-00-00-010-008-F00

(5) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.

SUBTASK 74-00-00-040-002-F00

WARNING

MAKE SURE THAT THE IGNITION EXCITERS ARE DE-ENERGIZED FOR A MINIMUM OF FIVE MINUTES BEFORE YOU START WORK ON THE IGNITION SYSTEM. THE IGNITION SYSTEM VOLTAGE IS DANGEROUSLY HIGH. DO NOT TOUCH THE ELECTRICAL CONTACTS. THE IGNITION EXCITERS CAN HAVE AN ELECTRICAL CHARGE EVEN WHEN NOT ENERGIZED. IF YOU DO NOT OBEY THIS STEP, INJURY TO PERSONS CAN OCCUR.

(6) Stop (wait) for a minimum of five minutes to release the high voltage from the ignition exciter.

SUBTASK 74-00-00-020-002-F00

(7) Disconnect the power supply cables from the ignition exciters:

(a) Disconnect the DP0102 connector on the left power supply (Transfer Bus) cable [3] from the right ignition exciter IGN 2 [1].

(b) Disconnect the DP0201 connector on the right power supply (Standby Bus) cable [2] from the left ignition exciter IGN 1 [4].

SUBTASK 74-00-00-420-002-F00

(8) Connect the power supply cables:

(a) Connect the DP0102 connector on the left power supply (Transfer Bus) cable [3] to the left ignition exciter IGN 1 [4].

(b) Connect the DP0201 connector on the right power supply (Standby Bus) cable [2] to the right ignition exciter IGN 2 [1].

(c) Tighten the connectors.

SUBTASK 74-00-00-860-037-F00

(9) For Engine 1, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-00-00-860-038-F00

(10) For Engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-00-00-860-028-F00

(11) Remove the DO-NOT-OPERATE tags from the start lever and the engine start switch.

SUBTASK 74-00-00-810-001-F00

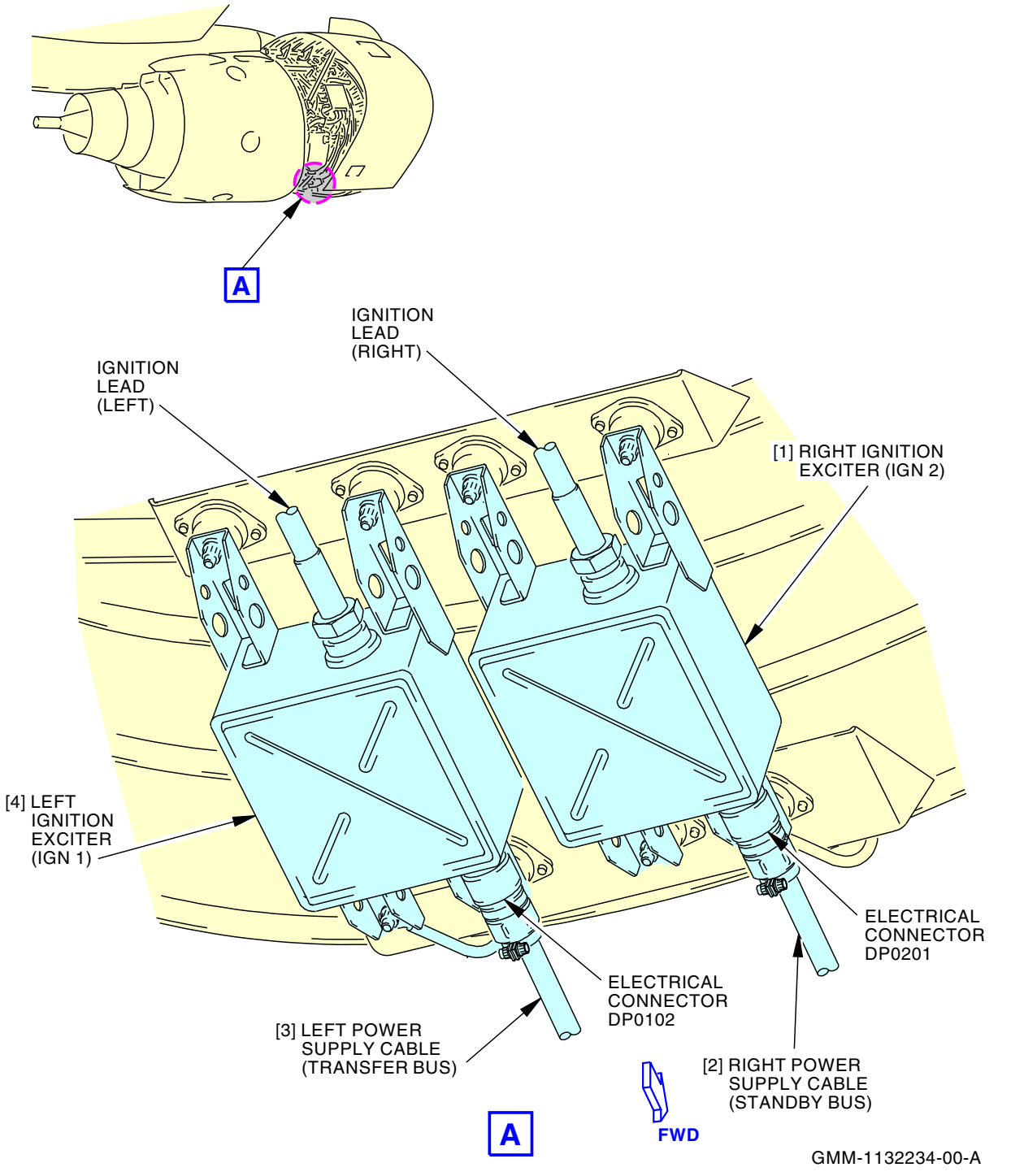
(12) Do the applicable fault isolation task in the FIM to correct the problem.

(a) When you do the Audible Test of the Ignition System - EEC BITE Igniters Test, make sure you do a check of the left and right ignition systems.

SUBTASK 74-00-00-410-008-F00

(13) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

END OF TASK



MMEL 74-1 Restoration
Figure 902/74-00-00-990-803-F00

IGNITION EXCITER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the ignition exciter

(2) An installation of the ignition exciter.

TASK 74-11-01-000-801-F00

2. Ignition Exciter Removal

(Figure 401)

A. General

(1) This task provides the instructions on how to remove the ignition exciter.

(2) The ignition exciters are found on the engine fan case at the 5:00 o'clock position.

(3) The top ignition exciter is connected to the right ignition lead, and the bottom ignition exciter is connected to the left ignition lead.

(4) This task can be used for the top or bottom ignition exciter.

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

E. Prepare for the Removal

SUBTASK 74-11-01-860-031-F00

(1) For Engine 1, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-11-01-860-032-F00

(2) For Engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-11-01-040-004-F00

(3) Make sure that the start lever is in the CUTOFF position.

(a) Install a DO NOT OPERATE tag, STD-858.

SUBTASK 74-11-01-860-010-F00

(4) Make sure that the engine start switch is off.

(a) Install a DO NOT OPERATE tag, STD-858.

LOM 429-432

(b) The AUTO position is off.

LOM ALL

SUBTASK 74-11-01-010-006-F00

(5) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.

SUBTASK 74-11-01-040-005-F00

WARNING

MAKE SURE THAT THE IGNITION EXCITERS ARE DE-ENERGIZED FOR A MINIMUM OF FIVE MINUTES BEFORE YOU START WORK ON THE IGNITION SYSTEM. THE IGNITION SYSTEM VOLTAGE IS DANGEROUSLY HIGH. DO NOT TOUCH THE ELECTRICAL CONTACTS. THE IGNITION EXCITERS CAN HAVE AN ELECTRICAL CHARGE EVEN WHEN NOT ENERGIZED. IF YOU DO NOT OBEY THIS STEP, INJURY TO PERSONS CAN OCCUR.

(6) Wait for a minimum of five minutes to release the high voltage from the ignition exciter [2].

F. Ignition Exciter Removal

SUBTASK 74-11-01-020-003-F00

(1) Disconnect the power supply cable [4] from the electrical receptacle on the forward side of the ignition exciter [2].

SUBTASK 74-11-01-020-004-F00

CAUTION

MAKE SURE THAT YOUR HANDS AND TOOLS ARE CLEAN. DO NOT TOUCH THE IGNITION LEAD OR THE IGNITER PLUG WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD AND THE IGNITER PLUG.

(2) Disconnect the ignition lead [1] from the ignition lead receptacle on the aft side of the ignition exciter [2].

(a) Put protective covers on the ignition lead [1] and on the ignition lead receptacle.

SUBTASK 74-11-01-020-005-F00

(3) Remove the ignition exciter [2] from the engine fan case, do these steps:

(a) Hold each stud on the flats with an open-end wrench.

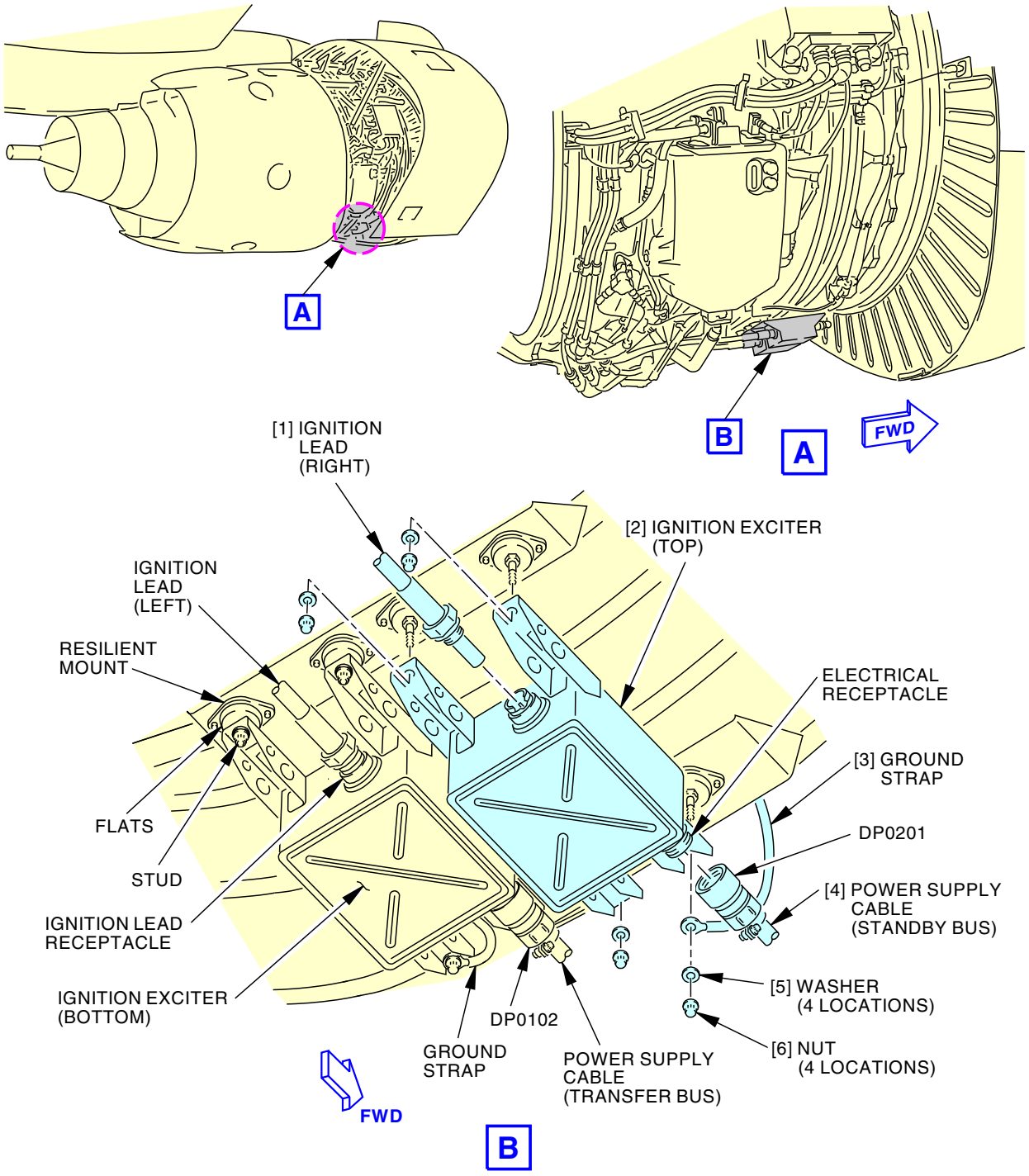
NOTE: The stud flats are between the resilient mount and ignition exciter.

(b) Remove the nuts [6] and washers [5] that attach the ignition exciter [2] to the brackets.

(c) Remove the ground strap [3].

(d) Remove the ignition exciter [2] from the studs.

END OF TASK



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Ignition Exciter Installation
Figure 401/74-11-01-990-802-F00

TASK 74-11-01-400-801-F00

3. Ignition Exciter Installation

(Figure 401)

A. General

(1) This task provides the instructions on how to install the ignition exciter.

B. References

Reference	Title
71-00-00-800-811-F00	Power Plant Test Reference Table (P/B 501)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)
SWPM 20-20-00	ELECTRICAL BONDING PROCESSES
SWPM 20-20-10	Replacement of Ground Studs and Bonding Jumper Installation

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: M1B Supplier: 3AD17 Part #: T477W (C15292) Supplier: 06659

D. Consumable Materials

Reference	Description	Specification
D00601 [CP2101]	Vaseline - Graphite Mineral	

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Ignition exciter	74-11-01-01-080	LOM 402, 404, 406, 407, 411, 416, 445
		74-11-01-01A-080	LOM 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

F. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

G. Ignition Exciter Installation

SUBTASK 74-11-01-420-003-F00

(1) Install the ignition exciter [2] on the engine fan case, do these steps:

(a) Install the ignition exciter [2] on the studs.

(b) Put the end of the ground strap [3] on the nearest stud on the respective ignition exciter [2].

NOTE: The ground strap is installed between the washer and ignition exciter.

(c) Put the washers [5] on the studs.

(d) Apply a thin layer of graphite mineral vaseline, D00601 [CP2101], to the ends of the threads of the studs.

(e) Install the nuts [6] on the studs and hold each stud on the flats with an open-end wrench.

NOTE: The stud flats are between the resilient mount and ignition exciter.

1) Hold the stud while you tighten the nuts [6] to 115 ±5 in-lb (13.0 ±0.6 N·m).

(f) Do a check of the resistance between the ignition exciter [2] and the engine fan case with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00, SWPM 20-20-10).

1) Make sure that the resistance is less than 0.004 ohms (4 milliohms).

SUBTASK 74-11-01-420-004-F00

(2) Connect the ignition lead [1] to the ignition exciter [2], do these steps:

(a) Remove the protective covers on the ignition lead [1] and ignition lead receptacle.

CAUTION

MAKE SURE THAT THE IGNITION LEAD IS CLEAN WHEN YOU CONNECT IT. THE CONTAMINATION OF THE IGNITION LEAD CAN CAUSE DAMAGE TO THE EQUIPMENT.

(b) Connect the ignition lead [1] to the ignition lead receptacle on the aft side of the ignition exciter [2].

1) Tighten the connector nut on the ignition lead [1] to 150 ±10 in-lb (17 ±1 N·m).

SUBTASK 74-11-01-420-005-F00

(3) Connect the power supply cable [4] to the electrical receptacle on the forward side of the ignition exciter [2].

H. Ignition Exciter Test

SUBTASK 74-11-01-860-035-F00

(1) For Engine 1, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-11-01-860-036-F00

(2) For Engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-11-01-860-014-F00

(3) Remove the DO NOT OPERATE tags from the start lever and engine start switch.

SUBTASK 74-11-01-710-002-F00

(4) Do the tests for the ignition exciter [2] (TASK 71-00-00-800-811-F00).

I. Put the Airplane Back to Its Usual Condition

SUBTASK 74-11-01-410-003-F00

(1) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

——— END OF TASK ———

IGNITION EXCITER - INSPECTION/CHECK

1. General

A. This procedure has one task:

(1) Ignition Exciter Inspection.

TASK 74-11-01-200-801-F00

2. Ignition Exciter Inspection

(Figure 601)

A. General

(1) This task provides the instructions on how to examine the ignition exciter.

(2) The top ignition exciter is connected to the right ignition lead, and the bottom ignition exciter is connected to the left ignition lead.

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)
74-00-00-750-801-F00	Ignition System Audible Test (P/B 501)
74-11-01-000-801-F00	Ignition Exciter Removal (P/B 401)
74-11-01-400-801-F00	Ignition Exciter Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-14688	Wrench - Socket, 0.188 in (4.76 mm) Part #: STM6 Supplier: 55719
STD-123	Brush - Soft Bristle
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
B00676 [CP1041]	Alcohol - Isopropyl	
B00682 [CP2011]	Solvent - Stoddard	MIL-PRF-680 Type I, II or III
G01659	Swab - Cotton Or Rayon, (Disposable)	
G50138	Cloth - Soft Cotton	
G51027	Cleaner - Flux-Off CZ Flux Remover (ITW Chemtronics - ES7200)	

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Output pin	74-11-01-01-085	LOM 402, 404, 406, 407, 411, 416, 445

(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
6 (cont.)		74-11-01-01A-085	LOM 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

F. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

G. Prepare for the Inspection

SUBTASK 74-11-01-860-037-F00

(1) For Engine 1, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-11-01-860-038-F00

(2) For Engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-11-01-040-001-F00

(3) Make sure that the start lever is in the CUTOFF position.

(a) Install a DO NOT OPERATE tag, STD-858.

SUBTASK 74-11-01-040-002-F00

(4) Make sure that the engine start switch is off.

(a) Install a DO NOT OPERATE tag, STD-858.

LOM 429-432

(b) The AUTO position is off.

LOM ALL

SUBTASK 74-11-01-010-005-F00

(5) Do this task: Open the Fan Cowl Panels, TASK 71-11-02-010-801-F00.

SUBTASK 74-11-01-040-003-F00

WARNING

MAKE SURE THAT THE IGNITION EXCITERS ARE DE-ENERGIZED FOR A MINIMUM OF FIVE MINUTES BEFORE YOU START WORK ON THE IGNITION SYSTEM. THE IGNITION SYSTEM VOLTAGE IS DANGEROUSLY HIGH. DO NOT TOUCH THE ELECTRICAL CONTACTS. THE IGNITION EXCITERS CAN HAVE AN ELECTRICAL CHARGE EVEN WHEN NOT ENERGIZED. IF YOU DO NOT OBEY THIS STEP, INJURY TO PERSONS CAN OCCUR.

(6) Wait a minimum of five minutes after you remove power from the ignition system before you do the next step.

SUBTASK 74-11-01-020-001-F00

(7) Disconnect the power supply cable [3] from the input connector [4] on the forward side of the applicable ignition exciter [2].

SUBTASK 74-11-01-020-002-F00

CAUTION MAKE SURE THAT YOUR HANDS AND TOOLS ARE CLEAN. DO NOT TOUCH THE IGNITION LEAD OR THE IGNITER PLUG WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD AND THE IGNITER PLUG.

(8) Disconnect the ignition lead [1] from the ignition lead connector [5] on the aft side of the ignition exciter [2].

SUBTASK 74-11-01-480-001-F00

(9) Put the protective covers on the ignition lead [1].

H. Ignition Exciter Inspection

SUBTASK 74-11-01-900-001-F00

(1) If you find damage that is not in the limits, replace the ignition exciter (TASK 74-11-01-000-801-F00 and TASK 74-11-01-400-801-F00).

SUBTASK 74-11-01-210-001-F00

(2) Examine the ignition exciter [2] for cracks.

(a) Cracks are not permitted.

SUBTASK 74-11-01-210-002-F00

(3) Examine the ignition exciter [2] for nicks, dents, and scratches.

(a) All nicks, dents, and scratches are permitted, if they are no more than 0.03 in. (0.76 mm) in depth.

SUBTASK 74-11-01-210-003-F00

(4) Examine the input connector [4] and ignition lead connector [5] for thread damage.

(a) 30 percent damage on one lead-in thread is permitted, or 20 percent damage on each of the two lead-in threads.

SUBTASK 74-11-01-210-004-F00

(5) Examine the input connector [4] for pin damage.

(a) Pin damage is permitted if the pins engage freely with the connector.

SUBTASK 74-11-01-210-005-F00

(6) Examine the well of the power supply cable [3] and well of the input connector [4] for dirt.

(a) Dirt is not permitted.

(b) If you find dirt, clean the well with a soft bristle brush, STD-123 and solvent, B00682 [CP2011] or alcohol, B00676 [CP1041].

SUBTASK 74-11-01-210-006-F00

(7) Examine the ignition lead connectors [5] for damage to the output pin [6].

(a) Burn, arcing or missing plate are not permitted.

(b) If it is necessary, replace the output pin [6] as follows:

WARNING MAKE SURE THAT THE IGNITION EXCITERS ARE DE-ENERGIZED FOR A MINIMUM OF FIVE MINUTES BEFORE YOU START WORK ON THE IGNITION SYSTEM. THE IGNITION SYSTEM VOLTAGE IS DANGEROUSLY HIGH. DO NOT TOUCH THE ELECTRICAL CONTACTS. THE IGNITION EXCITERS CAN HAVE AN ELECTRICAL CHARGE EVEN WHEN NOT ENERGIZED. IF YOU DO NOT OBEY THIS STEP, INJURY TO PERSONS CAN OCCUR.

1) Remove the damaged output pin [6].
   a) Use a socket wrench, COM-14688.

WARNING FLUX-OFF CZ CLEANING SOLVENT SHOULD BE USED TO CLEAN COMPONENTS IN WELL VENTILATED AREA. DO NOT BREATHE VAPORS. WASH HANDS IMMEDIATELY AFTER CONTACT WITH SOLVENTS. USE OF PROTECTIVE GLOVES IS RECOMMENDED.

2) Clean the well of the terminal.
   a) Use swab, G01659, or soft cotton cloth, G50138, moist with Flux-Off CZ cleaner, G51027.

CAUTION CAREFULLY AND SLOWLY TURN THE NEW OUTPUT PIN INTO THE SOCKET TO PREVENT CROSS-THREADING.

3) Put the new output pin [6] in the socket wrench, COM-14688, and install into the threaded hole.
4) Tighten the output pin [6] to 2 in-lb (0.226 N·m) - 3 in-lb (0.339 N·m).

I. Put the Airplane Back to Its Usual Condition

SUBTASK 74-11-01-420-001-F00

(1) Connect the ignition lead [1] to the ignition exciter [2].
   (a) Remove the protective covers on the ignition lead [1].

CAUTION MAKE SURE THAT THE IGNITION LEAD IS CLEAN WHEN YOU CONNECT IT. THE CONTAMINATION OF THE IGNITION LEAD CAN CAUSE DAMAGE TO THE EQUIPMENT.

   (b) Connect the ignition lead [1] to the ignition lead connector [5] on the aft side of the ignition exciter.
   (c) Tighten the connector nut on the ignition lead [1] to 140 in-lb (16 N·m) - 160 in-lb (18 N·m).

SUBTASK 74-11-01-420-002-F00

(2) Connect the power supply cable [3] to the ignition exciter [2].

SUBTASK 74-11-01-860-033-F00

(3) For Engine 1, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT

(Continued)

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-11-01-860-034-F00

(4) For Engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-11-01-860-005-F00

(5) Remove the DO NOT OPERATE tags, STD-858 from the start lever and engine start switch.

J. Ignition Exciter Test

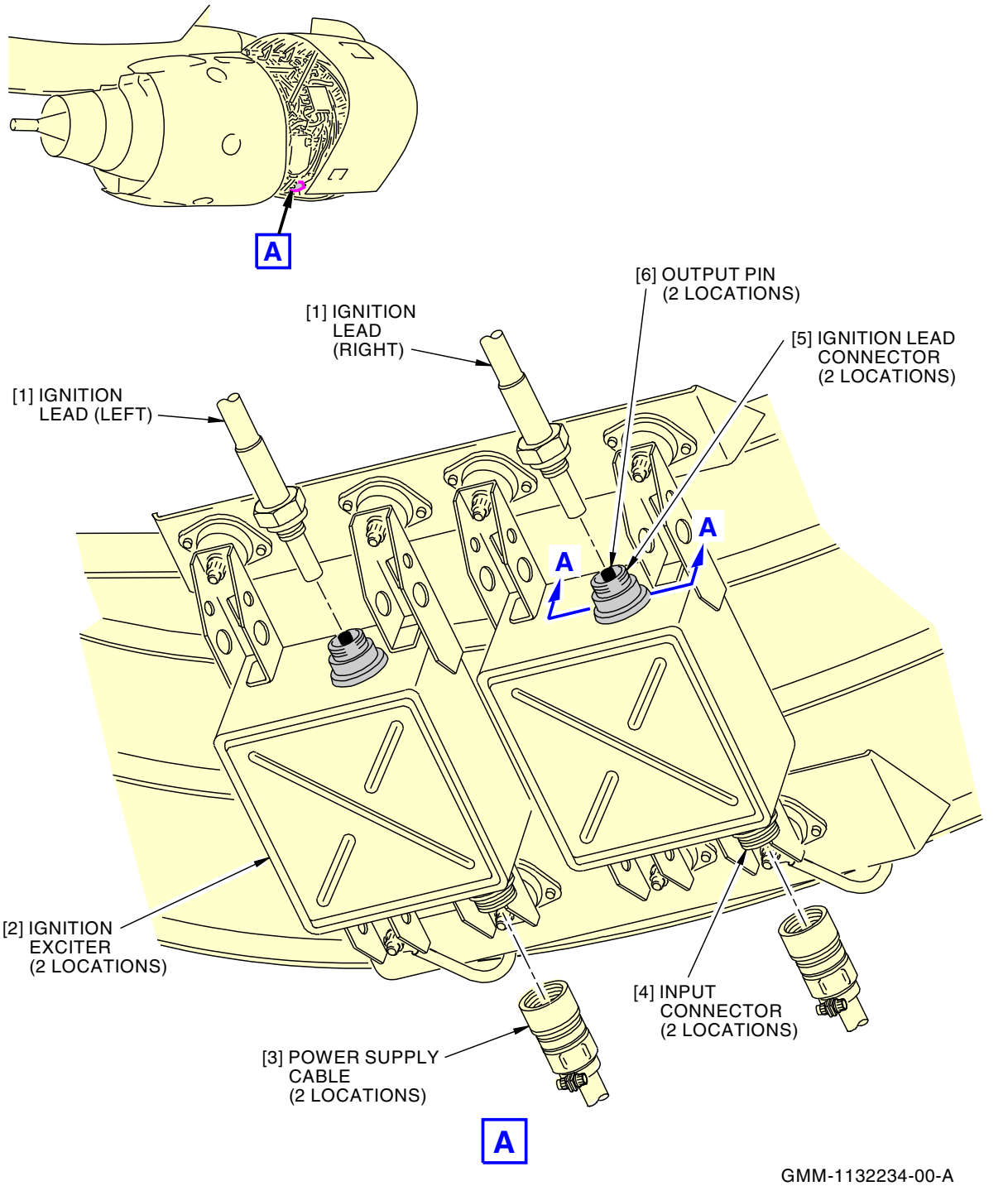
SUBTASK 74-11-01-710-001-F00

(1) Do this task: Ignition System Audible Test, TASK 74-00-00-750-801-F00.

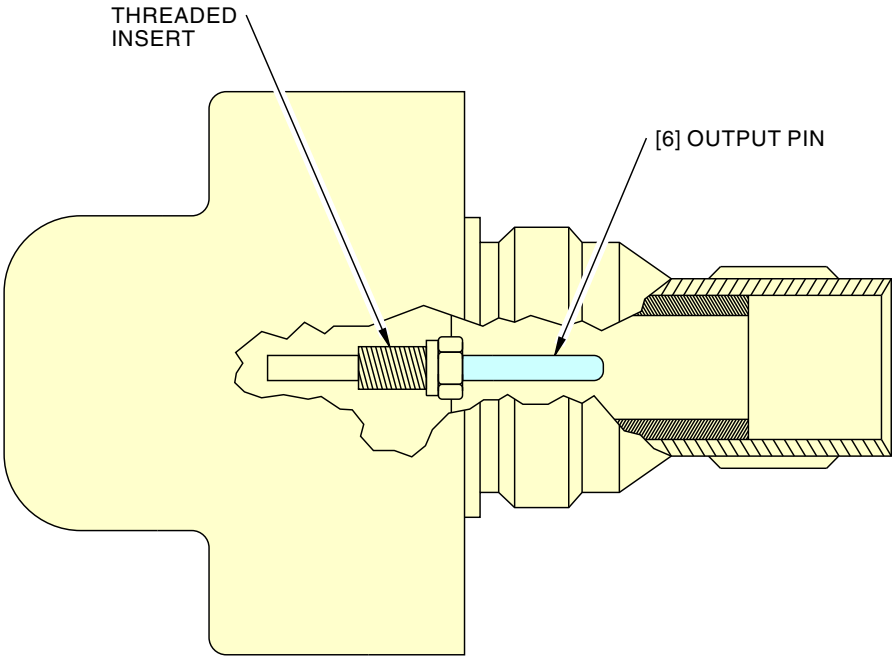
SUBTASK 74-11-01-410-002-F00

(2) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

——— END OF TASK ———



Ignition Exciter Inspection
Figure 601/74-11-01-990-801-F00 (Sheet 1 of 2)



**OUTPUT PIN INSTALLATION
A-A**

2436347 S0000564915_V1

**Ignition Exciter Inspection
Figure 601/74-11-01-990-801-F00 (Sheet 2 of 2)**

IGNITION LEAD - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the ignition lead

(2) An installation of the ignition lead.

TASK 74-21-01-000-801-F00

2. Ignition Lead Removal

(Figure 401)

A. General

(1) This task gives the instructions to remove the left or right ignition lead.

(a) The left ignition lead connects the left igniter plug to the bottom ignition exciter.

(b) The right ignition lead connects the right igniter plug to the top ignition exciter.

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
74-21-01-200-801-F00	Ignition Lead Inspection (P/B 601)
78-31-00-010-801-F00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-802-F00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

E. Prepare for the Removal

SUBTASK 74-21-01-860-026-F00

(1) For Engine 1, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-21-01-860-027-F00

(2) For Engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-21-01-860-012-F00

(3) Make sure that the start lever is in the CUTOFF position and install a DO NOT OPERATE tag, STD-858.

SUBTASK 74-21-01-040-004-F00

(4) Make sure that the engine start switch is off and install a DO NOT OPERATE tag, STD-858.

LOM 429-432; AIRPLANES WITH AUTO-IGNITION

(a) The AUTO position is off.

LOM ALL

SUBTASK 74-21-01-010-002-F00

(5) Do these tasks in sequence to safely open the left and right thrust reversers on the applicable engine:

WARNING DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Do this task: Thrust Reverser Deactivation for Ground Maintenance, TASK 78-31-00-040-802-F00.

(b) Open the left and right fan cowl panels (TASK 71-11-02-010-801-F00).

WARNING OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Open the left and right thrust reversers (TASK 78-31-00-010-801-F00).

F. Ignition Lead Removal

SUBTASK 74-21-01-020-003-F00

WARNING MAKE SURE THAT THE IGNITION EXCITERS ARE DE-ENERGIZED FOR A MINIMUM OF FIVE MINUTES BEFORE YOU START WORK ON THE IGNITION SYSTEM. THE IGNITION SYSTEM VOLTAGE IS DANGEROUSLY HIGH. DO NOT TOUCH THE ELECTRICAL CONTACTS. THE IGNITION EXCITERS CAN HAVE AN ELECTRICAL CHARGE EVEN WHEN NOT ENERGIZED. IF YOU DO NOT OBEY THIS STEP, INJURY TO PERSONS CAN OCCUR.

WARNING PUT THE IGNITION SWITCH IN THE OFF POSITION BEFORE YOU REMOVE THE IGNITION COMPONENTS. IF YOU DO NOT, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

WARNING AFTER YOU DISCONNECT THE CABLE FROM THE IGNITER PLUG, GROUND THE CABLE TERMINAL. THIS WILL REMOVE THE VOLTAGE. IF YOU DO NOT FOLLOW THIS PROCEDURE, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(WARNING PRECEDES)

CAUTION DO NOT BEND THE COOLING AIR SHROUDS. A SHARP BEND CAN CAUSE HOT GAS TO FLOW ON THE INSULATION AND CAUSE A HIGH VOLTAGE FAILURE.

CAUTION MAKE SURE THAT YOUR HANDS AND TOOLS ARE CLEAN. DO NOT TOUCH THE IGNITION LEAD OR THE IGNITER PLUG WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD AND THE IGNITER PLUG.

(1) Wait a minimum of five minutes after you remove power from the ignition system before you do the next step.

SUBTASK 74-21-01-020-009-F00

(2) Remove the mating pad [15] and mating pad shroud [18] on the 6:00 o'clock strut as follows:

(a) Remove the bolts [13] and washers [14] from the mating pad [15].

1) Remove the mating pad shroud [18].

(b) Remove the bolt [17] and washer [16] that connects the mating pad [15] to the 6:00 o'clock strut.

(c) Remove the mating pad [15].

SUBTASK 74-21-01-020-011-F00

(3) Remove the hose clamp [19] from the cooling joint over the ignition lead [2].

(a) Remove the safety wire [21].

(b) Loosen the hose clamp bolts and ignition lead nut [20].

SUBTASK 74-21-01-020-010-F00

(4) Disconnect the ignition lead [2] from the main igniter plug [1] as follows:

(a) Remove the cooling shroud clamp [9].

(b) Remove the cooling shrouds [7].

(c) Loosen the coupling nut [8].

(d) Pull the ignition lead [2] straight out with no side load until it is free from the main igniter plug [1].

WARNING AFTER YOU REMOVE THE IGNITION LEADS FROM THE IGNITER PLUG, MAKE SURE THAT YOU MANUALLY GROUND THE IGNITION LEAD. IF YOU DO NOT GROUND THE IGNITION LEAD, YOU CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(e) Remove the outer silicone seal [10] from the ignition lead [2].

1) Discard the outer silicone seal [10].

SUBTASK 74-21-01-020-004-F00

(5) Disconnect the ignition lead [2] from the aft side of the ignition exciter [3].

NOTE: A small quantity of water can be in the non air-cooled section of the lead. This is acceptable and will not affect electrical operation of the lead if the terminal connection to the exciter outlet is not disturbed and the lead is in compliance with inspection limits stated in Ignition Lead Inspection, TASK 74-21-01-200-801-F00.

SUBTASK 74-21-01-020-005-F00

(6) Put the protective covers on the main igniter plug [1], ignition exciter [3], and ignition lead [2].

SUBTASK 74-21-01-020-006-F00

(7) Remove the ignition lead [2] from the loop clamp [5] and loop clamp [6]:

(a) Remove the bolt [11] and bolt [12] from the loop clamp [5] and loop clamp [6].

(b) Remove the loop clamp [5] and loop clamp [6] from the ignition lead.

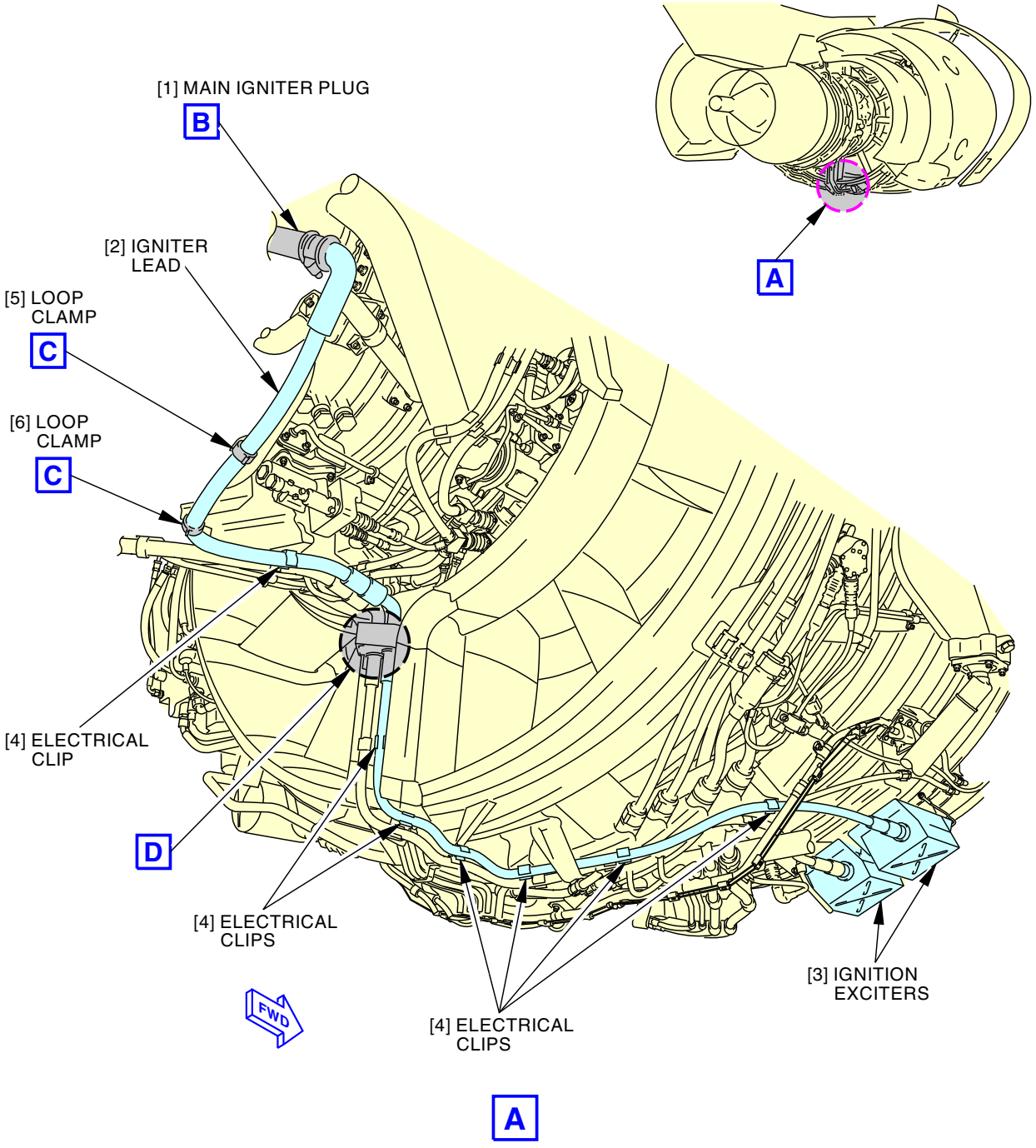
SUBTASK 74-21-01-020-007-F00

(8) Remove the ignition lead [2] from the electrical clips [4] and mating plate.

SUBTASK 74-21-01-020-008-F00

(9) Remove the ignition lead [2].

END OF TASK



____E: RIGHT SIDE IGNITION LEAD SHOWN,
LEFT SIDE IGNITION LEAD OPPOSITE.

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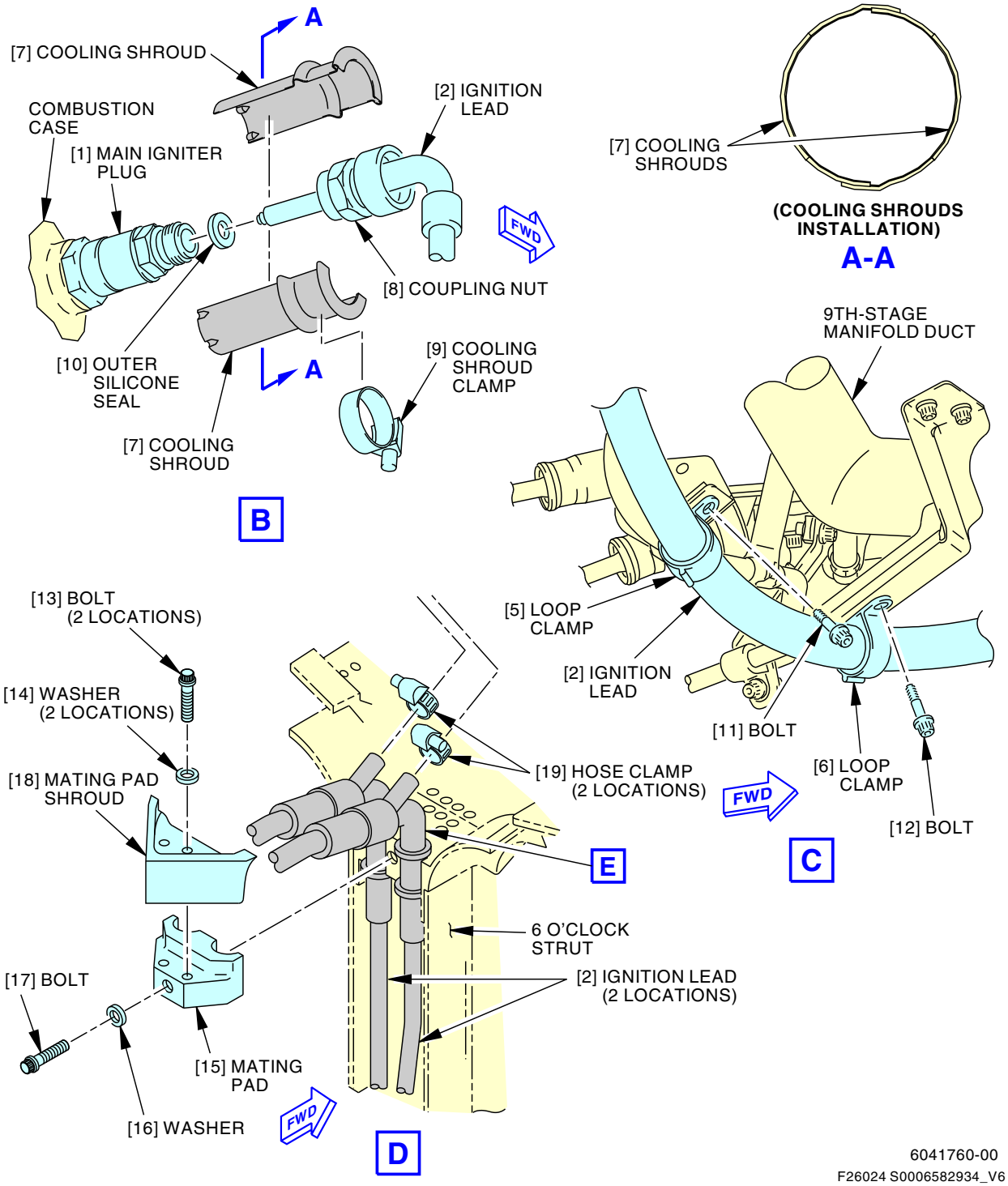
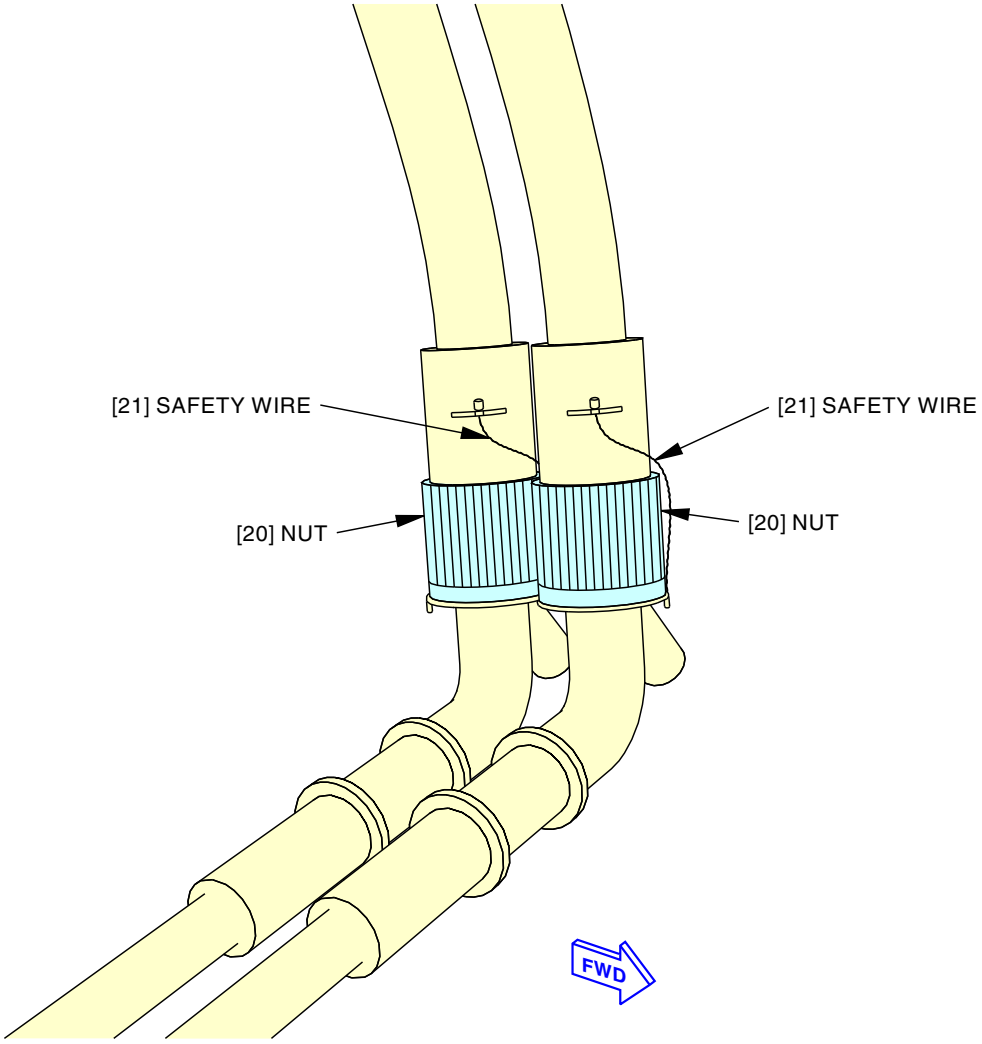
Ignition Lead Installation
Figure 401/74-21-01-990-802-F00 (Sheet 1 of 3)



Ignition Lead Installation
Figure 401/74-21-01-990-802-F00 (Sheet 2 of 3)



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Ignition Lead Installation
Figure 401/74-21-01-990-802-F00 (Sheet 3 of 3)

TASK 74-21-01-400-801-F00

3. Ignition Lead Installation

(Figure 401)

A. General

(1) This task gives the instructions to install the ignition lead.

B. References

Reference	Title
71-00-00-800-811-F00	Power Plant Test Reference Table (P/B 501)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)
78-31-00-010-804-F00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-803-F00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A01077 [CP2266]	Adhesive - Silicone Rubber - RTV 102	
B00666	Solvent - Methyl Propyl Ketone	BMS11-9
B01058 [CP1039]	Solvent - Acetone, Reagent Grade	
B50046	Solvent - Methyl Ethyl Ketone, Technical Grade	ASTM D740 (Supersedes TT-M-261)
D00601 [CP2101]	Vaseline - Graphite Mineral	
G02345 [CP8001]	Wire - Safety, 0.032 Inch (0.8 mm) Diameter	AMS 5687
G02495 [CP8002]	Wire - Safety, 0.032 Inch (0.8 mm) Diameter	AMS5689

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Ignition lead	74-21-01-01-065	LOM 402, 404, 406, 407, 411, 416, 445
		74-21-01-01A-115	LOM 411, 412, 415, 416, 420, 422-434, 437-447, 450-999
10	Outer silicone seal	74-21-01-01-070	LOM 402, 404, 406, 407, 411, 416, 445
		74-21-01-01A-120	LOM 411, 412, 415, 416, 420, 422-434, 437-447, 450-999
		74-21-02-01-045	LOM 402, 404, 406, 407, 411, 416, 445
		74-21-02-01A-080	LOM 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. Ignition Lead Installation

SUBTASK 74-21-01-420-003-F00

(1) Install the ignition lead [2] as follows:

CAUTION MAKE SURE THAT YOUR HANDS AND TOOLS ARE CLEAN. DO NOT TOUCH THE IGNITION LEAD OR THE IGNITER PLUG WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD AND THE IGNITER PLUG.

CAUTION DO NOT TWIST OR BEND THE IGNITION LEADS. DAMAGE TO THE LEADS CAN OCCUR.

(a) Remove the protective covers from the ignition exciter [3], main igniter plug [1], and ignition lead [2].

(b) Loosely connect the ignition lead [2] to the connector on the aft side of the ignition exciter [3].

(c) Install the ignition lead [2] along the fan case.

1) Put the ignition lead [2] into the four electrical clips [4].

(d) Install the ignition lead [2] along the 6:00 o'clock strut and into the two electrical clips [4].

(e) Put the ignition lead [2] into the mating plate at the top of the 6:00 o'clock strut.

(f) Install the ignition lead [2] along the bottom of the compressor case.

(g) Put the ignition lead [2] into the electrical clip [4] found on the transient bleed valve.

SUBTASK 74-21-01-420-004-F00

(2) Connect the ignition lead [2] to the main igniter plug [1] as follows:

(a) Install a new outer silicone seal [10] on the ignition lead [2].

(b) Connect the end of the ignition lead [2] to the main igniter plug [1].

1) Tighten the coupling nut [8] to 275 ±15 in-lb (31.1 ±1.7 N·m).

(c) Install the cooling shrouds [7] to the ignition lead [2] as follows:

1) Install the cooling shrouds [7] on the flange of the ignition lead [2] with the cooling shroud clamp [9].

2) Tighten the cooling shroud clamp [9] to 35 ±2 in-lb (4.0 ±0.2 N·m).

SUBTASK 74-21-01-800-001-F00

(3) Install the mating pad [15] and mating pad shroud [18]:

(a) Use a clean cloth and one of the following solvents to remove the remaining sealant from the mating pad [15] and ignition leads [2].

1) solvent, B00666

2) technical grade methyl ethyl ketone, B50046

3) acetone solvent, B01058 [CP1039].

(b) Apply a layer of the RTV 102 adhesive, A01077 [CP2266], to the recesses in the mating pad [15] that touch the ignition lead [2].

(c) Put the mating pad [15] on the 6:00 o'clock strut with the recesses in the mating pad around the ignition lead [2].

(d) Install the bolt [17] and washer [16] that attach the mating pad [15] to the strut.

1) Tighten the bolt [17] to 110 in-lb (12.4 N·m) - 120 in-lb (13.6 N·m).

(e) Install the mating pad shroud [18] on the mating pad [15].

(f) Install the two washers [14] and bolts [13].

1) Tighten the bolts [13] to 110 in-lb (12.4 N·m) - 120 in-lb (13.6 N·m).

SUBTASK 74-21-01-420-008-F00

(4) Install the hose clamp [19] on the ignition lead [2]:

(a) Install the hose clamp [19] on the ignition lead cooling joint.

(b) Lubricate the threads of the hose clamp bolts with graphite mineral vaseline, D00601 [CP2101].

(c) Tighten the hose clamp bolts to 35 ±2 in-lb (4.0 ±0.2 N·m).

(d) Hand tighten the ignition lead nut [20].

(e) Install the safety wire [21] (safety wire, G02345 [CP8001], or safety wire, G02495 [CP8002]) as shown in detail to prevent the nut from getting loose.

NOTE: Always use new safety wire.

SUBTASK 74-21-01-420-005-F00

(5) Install the loop clamp [5] and loop clamp [6] as follows:

(a) Put the loop clamp [5] and loop clamp [6] around the ignition lead [2].

(b) Apply graphite mineral vaseline, D00601 [CP2101], to the threads of the bolt [11] and bolt [12].

(c) Loosely install the bolt [11] and bolt [12] that attach the loop clamp [5] and loop clamp [6] to the brackets.

(d) If it is necessary, move the ignition lead [2] until it does not touch the other parts.

(e) Tighten the bolt [11] and bolt [12] to 63 ±3 in-lb (7.1 ±0.3 N·m).

SUBTASK 74-21-01-420-006-F00

(6) Tighten the connector on the ignition exciter [3] to 150 ±10 in-lb (16.9 ±1.1 N·m).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 74-21-01-410-002-F00

WARNING OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the left and right thrust reversers:

(a) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-804-F00.

(b) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

(c) Do this task: Thrust Reverser Activation after Ground Maintenance, TASK 78-31-00-440-803-F00.

SUBTASK 74-21-01-860-030-F00

(2) For Engine 1, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT

(Continued)

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-21-01-860-031-F00

(3) For Engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-21-01-860-011-F00

(4) Remove the DO NOT OPERATE tags from the start lever and the engine start switch.

H. Ignition Lead Test

SUBTASK 74-21-01-700-003-F00

(1) Do the test(s) listed in the Power Plant Test Reference Table (TASK 71-00-00-800-811-F00).

——— END OF TASK ———

IGNITION LEAD - INSPECTION/CHECK

1. General

A. This procedure has one task:

(1) Ignition Lead Inspection.

TASK 74-21-01-200-801-F00

2. Ignition Lead Inspection

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This task is to examine the condition of the ignition leads [2].

(2) The left ignition lead [2] connects the left igniter plug with the bottom ignition exciter.

(3) The right ignition lead [2] connects the right igniter plug with the top ignition exciter.

B. References

Reference	Title
71-00-00-800-811-F00	Power Plant Test Reference Table (P/B 501)
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)
74-21-01-000-801-F00	Ignition Lead Removal (P/B 401)
74-21-01-400-801-F00	Ignition Lead Installation (P/B 401)
74-21-02-400-801-F00	Main Igniter Plug Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-858	Tag - DO NOT OPERATE

D. Consumable Materials

Reference	Description	Specification
B00676 [CP1041]	Alcohol - Isopropyl	
B00682 [CP2011]	Solvent - Stoddard	MIL-PRF-680 Type I, II or III
B00683 [CP1008]	Solvent - Stabilized Trichloroethylene	
G00834	Cloth - Lint-free Cotton	

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. Prepare for the Inspection

SUBTASK 74-21-01-860-022-F00

(1) For Engine 1, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-21-01-860-023-F00

(2) For Engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-21-01-040-001-F00

(3) Make sure that the start lever is in the CUTOFF position and install a DO NOT OPERATE tag, STD-858.

SUBTASK 74-21-01-040-002-F00

(4) Make sure that the engine start switch is off and install a DO NOT OPERATE tag, STD-858.

LOM 429-432; AIRPLANES WITH AUTO-IGNITION

(a) The AUTO position is off.

LOM ALL

SUBTASK 74-21-01-010-004-F00

(5) Open the left and right fan cowl panels (TASK 71-11-02-010-801-F00).

SUBTASK 74-21-01-040-003-F00

WARNING MAKE SURE THAT THE IGNITION EXCITERS ARE DE-ENERGIZED FOR A MINIMUM OF FIVE MINUTES BEFORE YOU START WORK ON THE IGNITION SYSTEM. THE IGNITION SYSTEM VOLTAGE IS DANGEROUSLY HIGH. DO NOT TOUCH THE ELECTRICAL CONTACTS. THE IGNITION EXCITERS CAN HAVE AN ELECTRICAL CHARGE EVEN WHEN NOT ENERGIZED. IF YOU DO NOT OBEY THIS STEP, INJURY TO PERSONS CAN OCCUR.

(6) Wait a minimum of five minutes after you remove power from the ignition system before you do the next step.

SUBTASK 74-21-01-020-001-F00

CAUTION MAKE SURE THAT YOUR HANDS AND TOOLS ARE CLEAN. DO NOT TOUCH THE IGNITION LEAD WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD.

(7) Disconnect the ignition leads [2] from the aft side of the ignition exciters.

NOTE: A small quantity of water can be in the non air-cooled section of the lead. This is acceptable and will not affect electrical operation of the lead if the terminal connection to the exciter outlet is not disturbed and the lead is in compliance with inspection limits stated in this task.

(a) Put the protective covers on the ignition exciters.

G. Ignition Lead Inspection

SUBTASK 74-21-01-210-015-F00

(1) Examine the ignition exciter end of the ignition lead [2].

NOTE: Inspection of the igniter plug end of the ignition lead is not a requirement of this task. To inspect the igniter plug end of the ignition lead, refer to Main Igniter Plug Installation, TASK 74-21-02-400-801-F00.

(a) Signs of arcing, burning, or flash over can be polished as follows:

NOTE: Use a brush-nylon bristle (interdental brush or equivalent) to do this task.

(b) Brush the signs of arcing, burning, or flash over until no evident material is left on the metal conduits. Use alcohol, B00676 [CP1041] to ease the brushing.

(c) Damage to the metal conduit is not permitted. Replace the ignition lead [2] (TASK 74-21-01-000-801-F00 and TASK 74-21-01-400-801-F00).

(d) If the ignition exciter end of the ignition lead [2] has missing components, replace the ignition lead [2] (TASK 74-21-01-000-801-F00 and TASK 74-21-01-400-801-F00).

SUBTASK 74-21-01-110-001-F00

WARNING

DO NOT GET CLEANING SOLVENT IN YOUR MOUTH OR EYES OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THE CLEANING SOLVENT. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THE CLEANING SOLVENT. KEEP THE CLEANING SOLVENT AWAY FROM SPARKS, FLAME AND HEAT. THE CLEANING SOLVENT IS POISONOUS AND FLAMMABLE AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Clean the contact with a lint-free cloth, G00834 that is moist with solvent, B00683 [CP1008], solvent, B00682 [CP2011] or alcohol, B00676 [CP1041].

H. Put the Airplane Back to Its Usual Condition

SUBTASK 74-21-01-420-002-F00

(1) Do these steps to connect the ignition lead [2] to the aft side of the ignition exciter:

(a) Remove the protective cover from the ignition exciter.

(b) Connect the ignition lead [2] to the aft side of the ignition exciter.

(c) Tighten the connector nut on the ignition lead [2] to 140 in-lb (16 N·m) – 160 in-lb (18 N·m).

SUBTASK 74-21-01-410-004-F00

(2) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

SUBTASK 74-21-01-860-024-F00

(3) For Engine 1, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-21-01-860-025-F00

(4) For Engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-21-01-860-005-F00

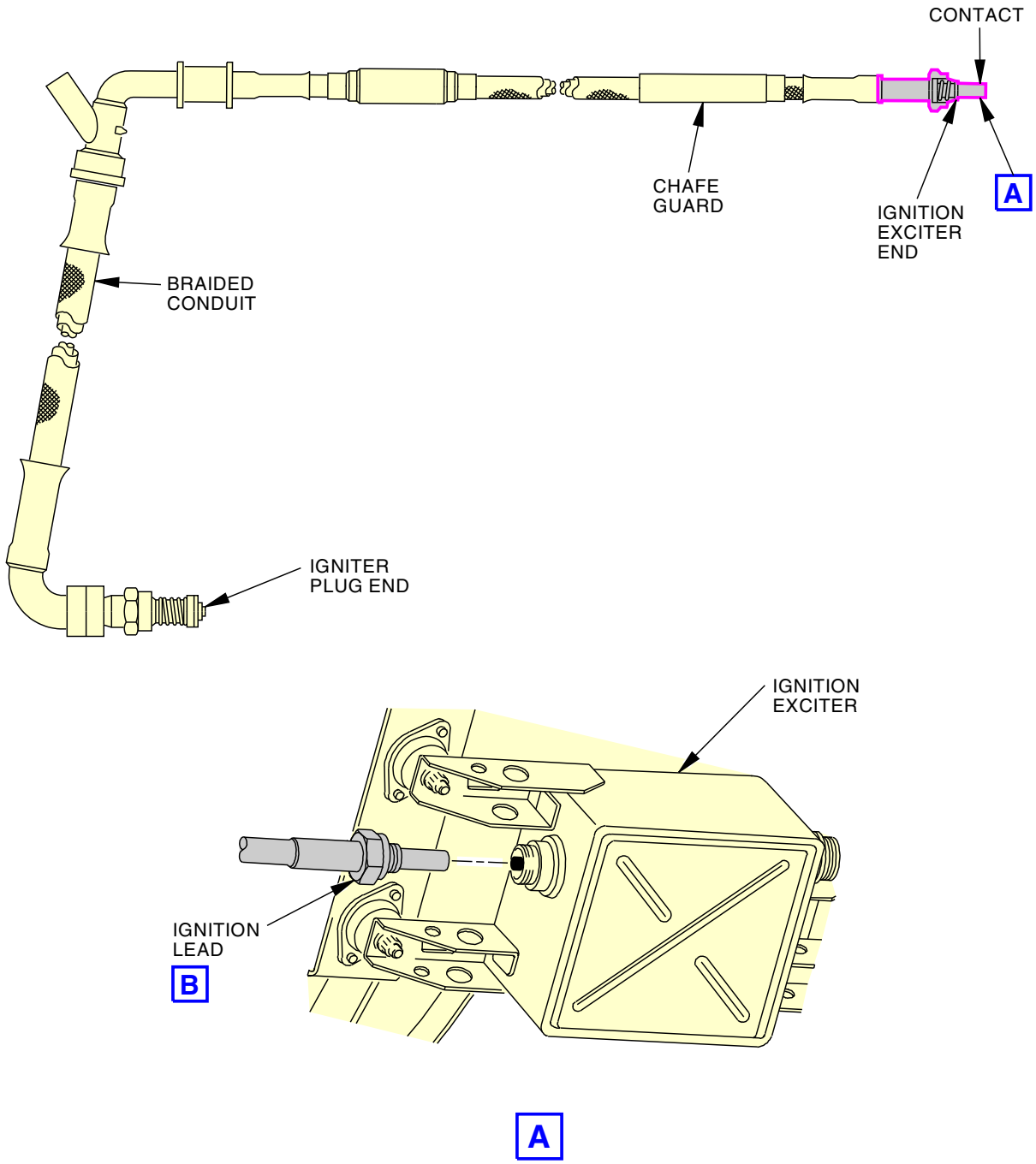
(5) Remove the DO NOT OPERATE tags, STD-858 from the start lever and the engine start switch.

I. Ignition Lead Test

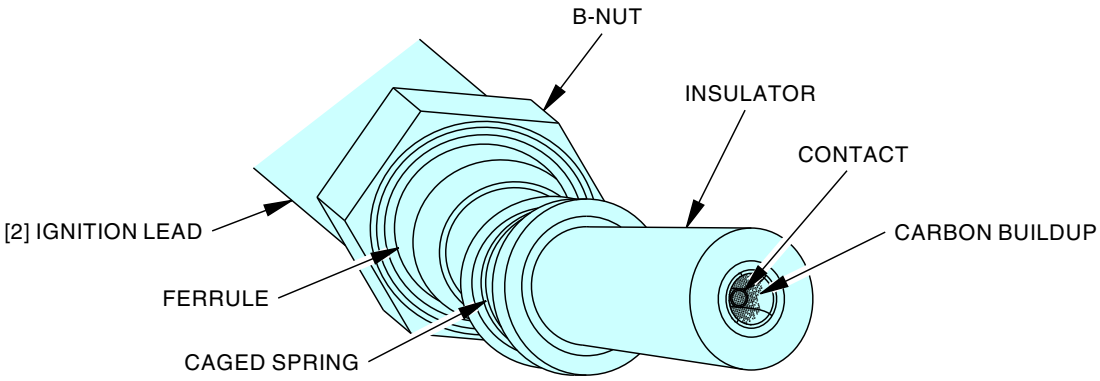
SUBTASK 74-21-01-700-004-F00

(1) Do the test(s) listed in the Power Plant Test Reference Table (TASK 71-00-00-800-811-F00).

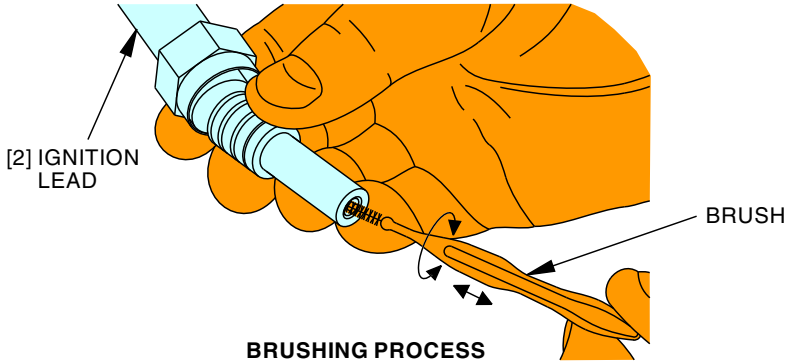
——— END OF TASK ———



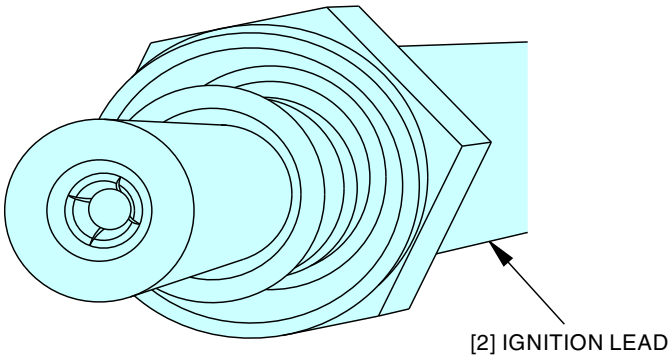
Ignition Leads Inspection
Figure 601/74-21-01-990-801-F00 (Sheet 1 of 2)



BEFORE BRUSHING



BRUSHING PROCESS



AFTER BRUSHING

IGNITION LEAD

B

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5046369-00
2801303 S0000641978_V1

Ignition Leads Inspection
Figure 601/74-21-01-990-801-F00 (Sheet 2 of 2)

MAIN IGNITER PLUG - REMOVAL/INSTALLATION

1. General

A. This procedure contains these tasks:

(1) Main Igniter Plug Removal

(2) Main Igniter Plug Installation

(3) Igniter Bushing (Igniter Adapter) Installation.

TASK 74-21-02-000-801-F00

2. Main Igniter Plug Removal

(Figure 401 or Figure 402 or Figure 403 or Figure 404)

A. General

(1) This task provides the instructions on how to remove the main igniter plug.

(2) There are two main igniter plugs on each engine.

(a) Main igniter plugs are installed on the combustion case at the 4:00 (right ignition) and 8:00 (left ignition) o'clock positions.

B. References

Reference	Title
71-11-02-010-801-F00	Open the Fan Cowl Panels (P/B 201)
73-11-04-000-804-F02	Fuel Nozzle Removal (P/B 401)
73-11-04-000-805-F01	Fuel Nozzle Removal (P/B 401)
78-31-00-010-801-F00	Open the Thrust Reverser (Selection) (P/B 201)
78-31-00-040-802-F00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2332	Borescope Blend Tool Part #: 5.08136.001 Supplier: 50958
STD-858	Tag - DO NOT OPERATE

D. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

E. Prepare for the Removal

SUBTASK 74-21-02-860-013-F00

(1) For Engine 1, open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-21-02-860-014-F00

(2) For Engine 2, open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-21-02-860-003-F00

(3) Make sure that the start lever is in the CUTOFF position and install a DO NOT OPERATE tag, STD-858.

SUBTASK 74-21-02-860-004-F00

(4) Make sure that the engine start switches are off and install a DO NOT OPERATE tags, STD-858.

LOM 429-432; AIRPLANES WITH AUTO-IGNITION

(a) The AUTO position is off.

LOM ALL

SUBTASK 74-21-02-010-001-F00

(5) Do these tasks in sequence to safely open the left and right thrust reversers on the applicable engine:

WARNING DO THE DEACTIVATION PROCEDURE FOR THE THRUST REVERSER TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Do this task: Thrust Reverser Deactivation for Ground Maintenance, TASK 78-31-00-040-802-F00.

(b) Open the left and right fan cowl panels (TASK 71-11-02-010-801-F00).

WARNING OBEY THE INSTRUCTIONS IN THE PROCEDURE TO OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Open the left and right thrust reversers (TASK 78-31-00-010-801-F00).

F. Main Igniter Plug Removal

SUBTASK 74-21-02-020-002-F00

WARNING MAKE SURE THAT THE IGNITION EXCITERS ARE DE-ENERGIZED FOR A MINIMUM OF FIVE MINUTES BEFORE YOU START WORK ON THE IGNITION SYSTEM. THE IGNITION SYSTEM VOLTAGE IS DANGEROUSLY HIGH. DO NOT TOUCH THE ELECTRICAL CONTACTS. THE IGNITION EXCITERS CAN HAVE AN ELECTRICAL CHARGE EVEN WHEN NOT ENERGIZED. IF YOU DO NOT OBEY THIS STEP, INJURY TO PERSONS CAN OCCUR.

WARNING PUT THE ENGINE START SWITCHES IN THE OFF POSITION BEFORE YOU REMOVE THE IGNITION COMPONENTS. IF YOU DO NOT, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(WARNING PRECEDES)

WARNING AFTER YOU DISCONNECT THE CABLE FROM THE IGNITER PLUG, GROUND THE CABLE TERMINAL. THIS WILL REMOVE THE VOLTAGE. IF YOU DO NOT FOLLOW THIS PROCEDURE, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

CAUTION DO NOT BEND THE COOLING AIR SHROUDS. A SHARP BEND CAN CAUSE HOT GAS TO FLOW ON THE INSULATION AND CAUSE A HIGH VOLTAGE FAILURE.

CAUTION MAKE SURE THAT YOUR HANDS AND TOOLS ARE CLEAN. DO NOT TOUCH THE IGNITION LEAD OR THE IGNITER PLUG WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD AND THE IGNITER PLUG.

(1) Wait a minimum of five minutes after removal of power from the ignition system before the next step.

SUBTASK 74-21-02-020-003-F00

(2) Disconnect the ignition lead [4] from the main igniter plug [6] as follows:

(a) Remove the cooling shroud clamp [2].

1) Remove the cooling shrouds [1].

CAUTION MAKE SURE THAT THE HINGE CLAMP NEAREST TO THE MAIN IGNITER PLUG IS LOOSE OR REMOVED BEFORE YOU REMOVE THE IGNITION LEAD FROM THE MAIN IGNITER PLUG. IF YOU DO NOT OBEY, DAMAGE TO THE CERAMIC TIP OF THE MAIN IGNITER PLUG CAN OCCUR.

(b) Loosen the bolt [11] on the loop clamp [10] on the ignition lead [4] nearest to the igniter plug [6].

1) If it is necessary, remove the bolt [11] and loop clamp [10] from the ignition lead [4].

(c) Loosen the coupling nut [3] to disconnect the ignition lead [4] from the main igniter plug [6].

CAUTION DO NOT TWIST OR BEND THE IGNITION LEAD. YOU CAN CAUSE DAMAGE TO THE CONDUIT AND THE INTERNAL WIRES.

(d) Pull the ignition lead [4] straight out until it is free from the main igniter plug [6].

WARNING AFTER YOU REMOVE THE IGNITION LEADS FROM THE IGNITER PLUG, MAKE SURE THAT YOU MANUALLY GROUND THE IGNITION LEAD. IF YOU DO NOT GROUND THE IGNITION LEAD, YOU CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(e) Remove the outer silicone seal [5].

1) Discard the outer silicone seal [5].

(f) Put a protective cover on the ignition lead [4].

SUBTASK 74-21-02-020-004-F00

CAUTION

DO NOT REMOVE THE IGNITER BUSHING AS PART OF THE IGNITER PLUG REMOVAL PROCEDURE. THE IGNITER PLUG IMMERSION CAN BE DAMAGED.

(3) Remove the main igniter plug [6] as follows:

(a) Hold the igniter bushing.

(b) Remove the main igniter plug [6] from the igniter bushing.

(c) Make sure to remove the captive washer with the main igniter plug [6].

(d) If the main igniter plug [6] seized in the combustion case, do the following steps (Figure 404):

1) For the applicable location, enter through the borescope ports S12, S13, S14, or S15 with a borescope probe and a vacuum hose.

NOTE: This is to monitor the procedure from an internal view and to continuously clean up all the debris generated in the process.

a) If it is necessary, enter through the fuel nozzle ports (TASK 73-11-04-000-805-F01 or TASK 73-11-04-000-804-F02).

2) Use a borescope probe to make sure that the igniter plug is seized because of igniter tip swelling (mushrooming).

3) Cut the igniter plug just below the hex nut.

CAUTION

USE A VACUUM CLEANER TO REMOVE THE UNWANTED MATERIAL CAUSED BY THE MAIN IGNITER REMOVAL. BURRS CAN CAUSE FOREIGN OBJECT DAMAGE (FOD) OR DOMESTIC OBJECT DAMAGE (DOD) TO EQUIPMENT.

4) Remove the internal components: ceramic insulators and center electrode assembly.

5) Drill the internal section of the igniter plug.

CAUTION

USE A VACUUM CLEANER TO REMOVE THE UNWANTED MATERIAL CAUSED BY THE MAIN IGNITER REMOVAL. BURRS CAN CAUSE FOREIGN OBJECT DAMAGE (FOD) OR DOMESTIC OBJECT DAMAGE (DOD) TO EQUIPMENT.

6) Do a second cut of the igniter, at the edge of the igniter adapter/igniter bushing.

CAUTION

USE A VACUUM CLEANER TO REMOVE THE UNWANTED MATERIAL CAUSED BY THE MAIN IGNITER REMOVAL. BURRS CAN CAUSE FOREIGN OBJECT DAMAGE (FOD) OR DOMESTIC OBJECT DAMAGE (DOD) TO EQUIPMENT.

7) Once the igniter is visible, use a borescope blend tool, SPL-2332, to grind off the igniter tip shell from the inner walls.

8) Remove all remaining section of the igniter plug and make sure to clean off any debris from the area with a vacuum hose.

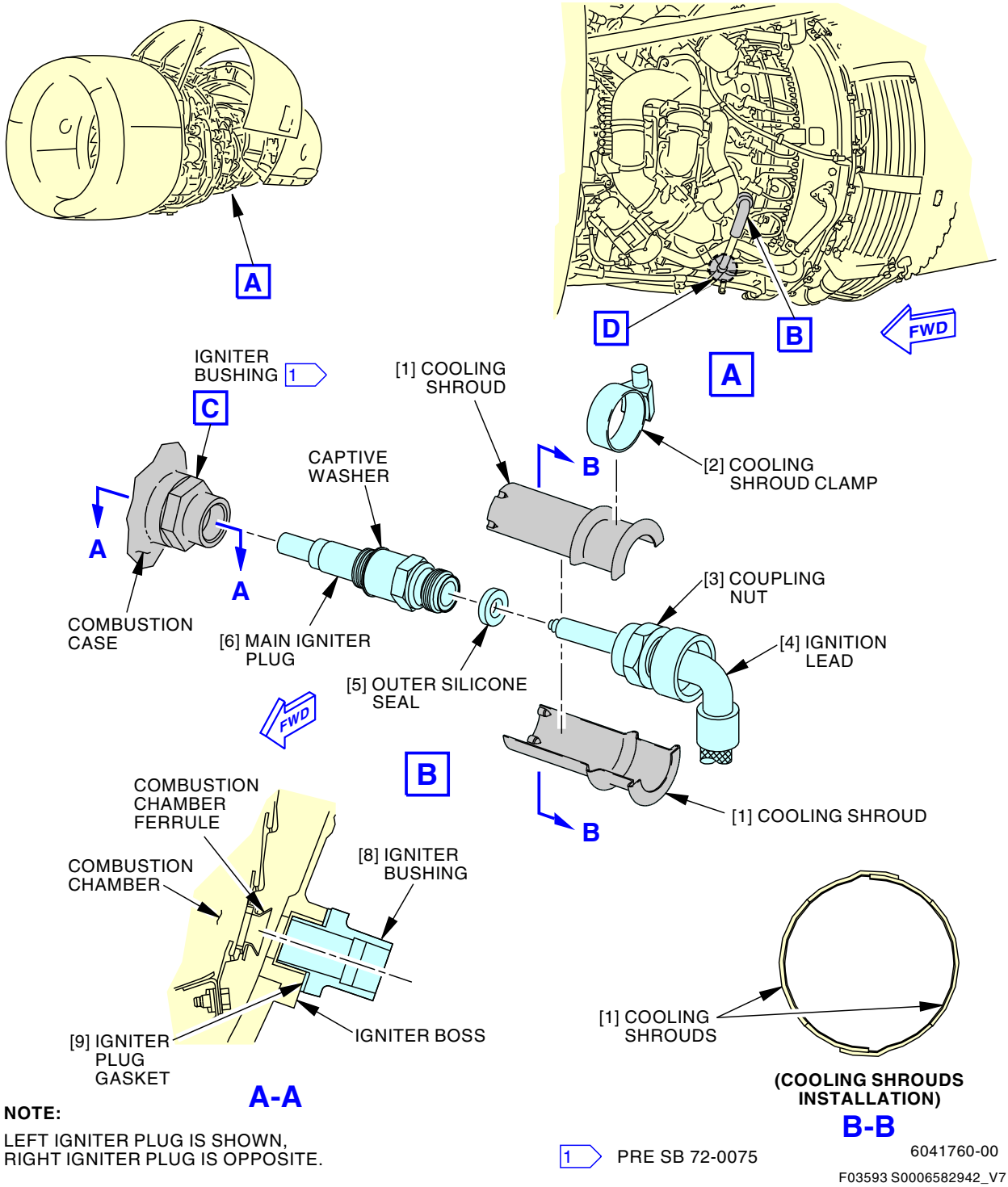
SUBTASK 74-21-02-020-005-F00

(4) If it is necessary to remove the igniter bushing, do the steps that follow:

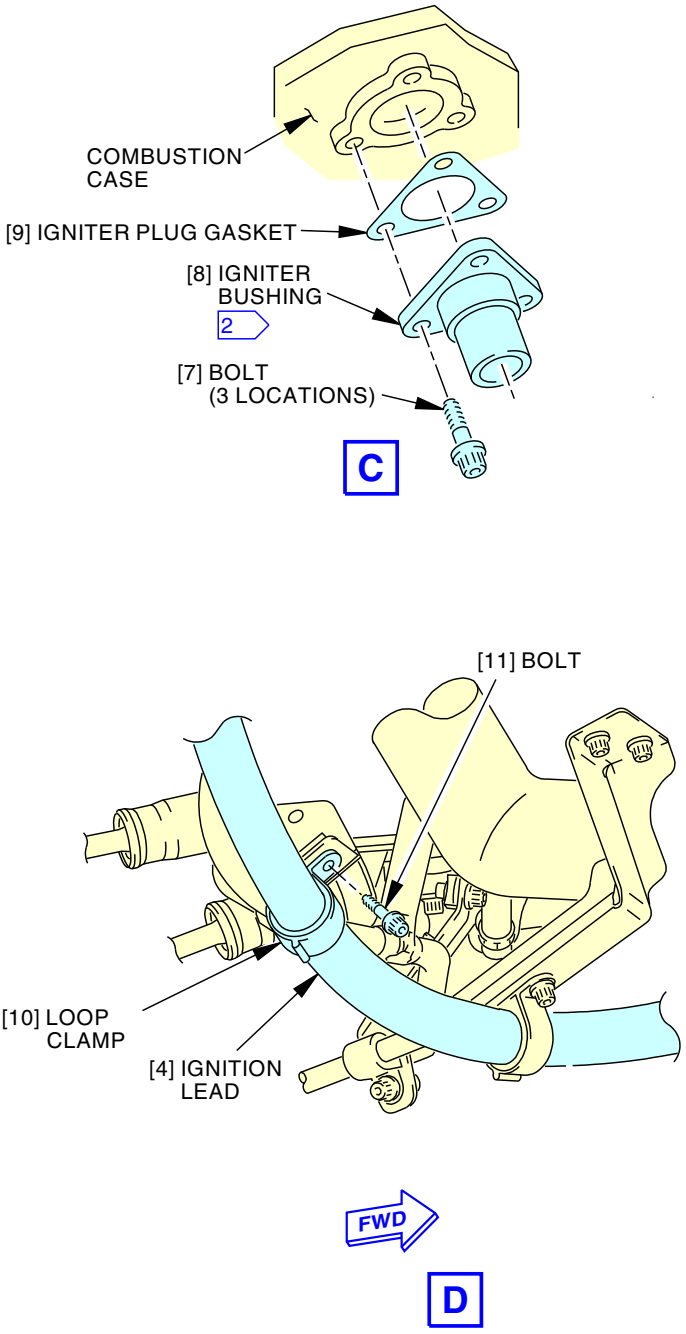
(a) Remove the safety wire and the three bolts.

(b) Remove the igniter bushing and igniter plug gasket(s).

——— END OF TASK ———



Main Igniter Plug Installation
Figure 401/74-21-02-990-802-F00 (Sheet 1 of 2)



2 POST SB 72-0075

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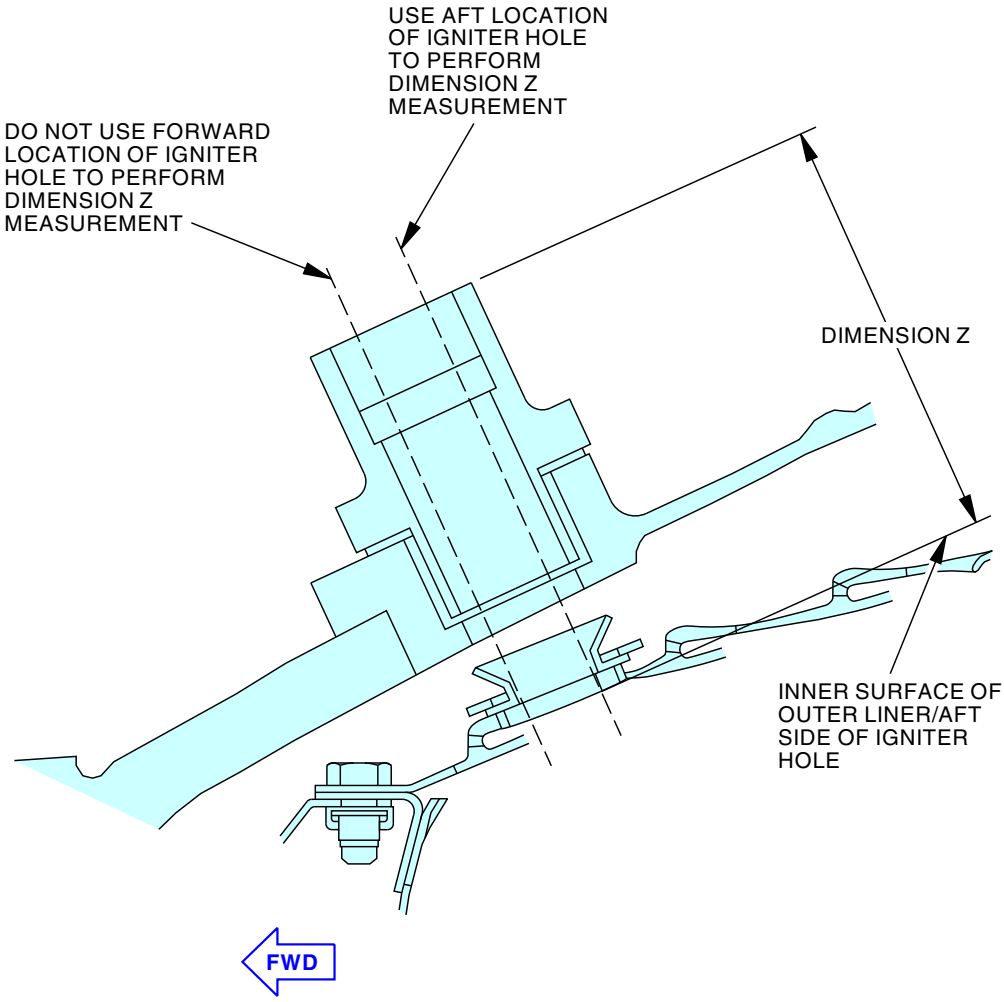
Main Igniter Plug Installation
Figure 401/74-21-02-990-802-F00 (Sheet 2 of 2)

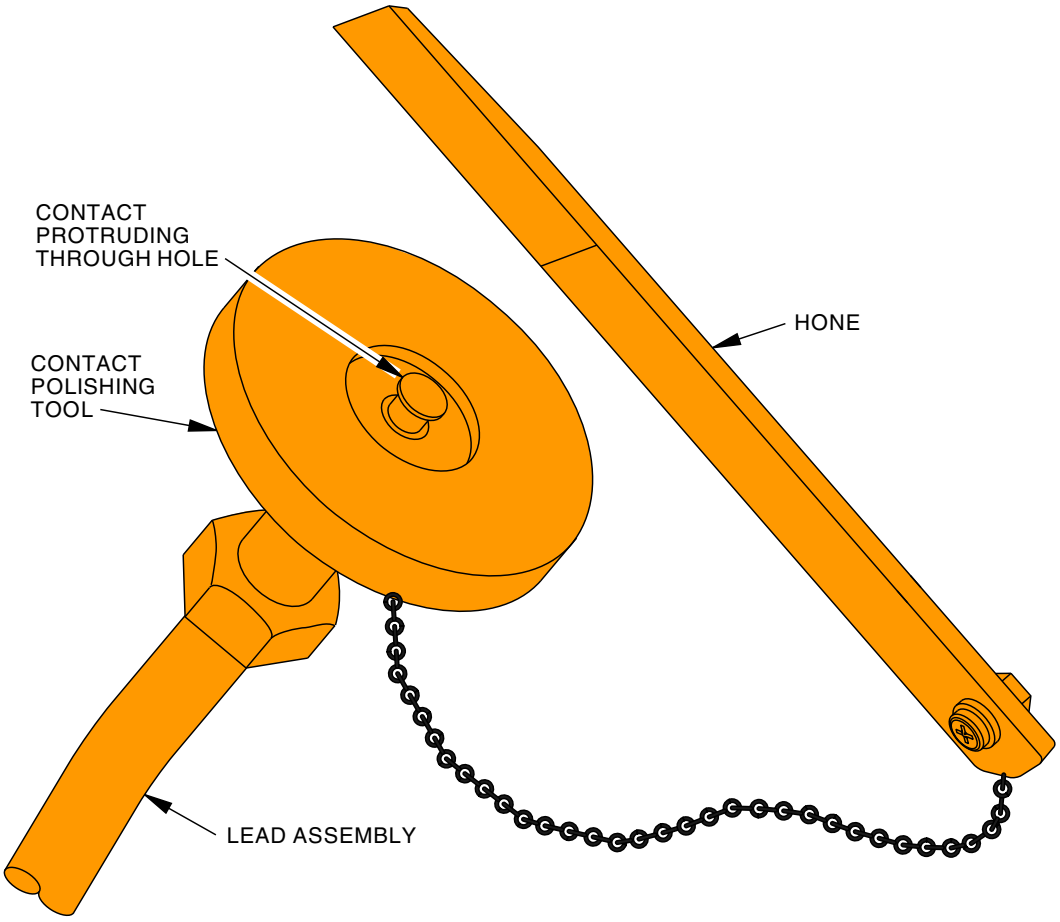


(RIGHT IGNITER PLUG IS SHOWN, LEFT IGNITER PLUG IS OPPOSITE)

A-A

2502081 S0000586493_V2

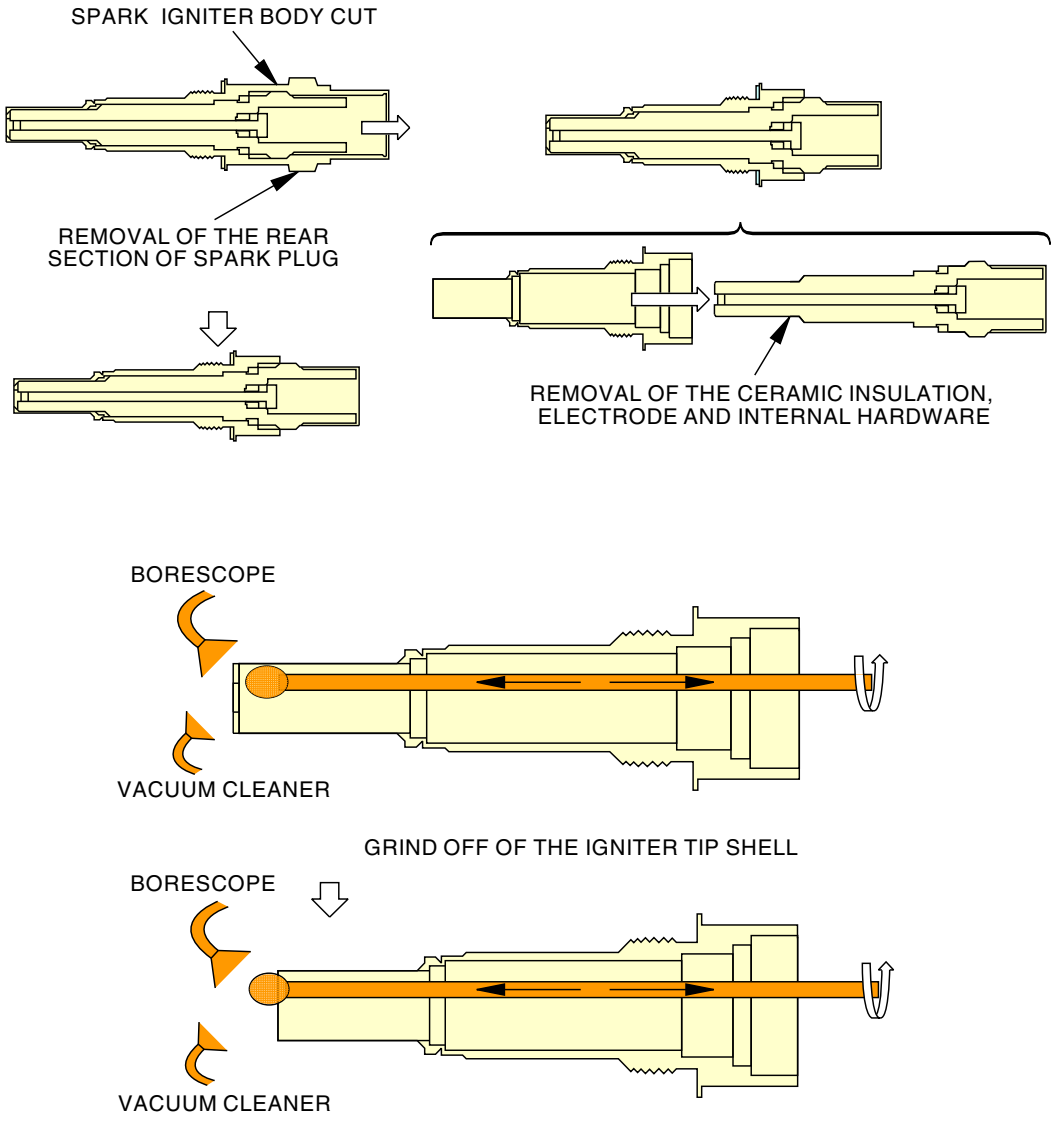
Measurement of Dimension Z
Figure 402/74-21-02-990-804-F00



CONTACT POLISHING TOOL

5022708-00
2477735 S0000581557_V1

Main Igniter Plug Lead Contact Polishing
Figure 403/74-21-02-990-803-F00



3024574 S0000796227_V1

Seized Main Igniter Plug Removal
Figure 404/74-21-02-990-806-F00

TASK 74-21-02-400-801-F00

3. Main Igniter Plug Installation

(Figure 401 or Figure 402 or Figure 403)

A. General

(1) This task provides the instructions on how to install the main igniter plug.

B. References

Reference	Title
71-00-00-800-811-F00	Power Plant Test Reference Table (P/B 501)
71-11-02-410-801-F00	Close the Fan Cowl Panels (P/B 201)
74-21-01-000-801-F00	Ignition Lead Removal (P/B 401)
74-21-01-400-801-F00	Ignition Lead Installation (P/B 401)
78-31-00-010-804-F00	Close the Thrust Reverser (Selection) (P/B 201)
78-31-00-440-803-F00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-10504	Tool - Polishing, Contact Part #: 11-10786-1 Supplier: 59501

D. Consumable Materials

Reference	Description	Specification
D00601 [CP2101]	Vaseline - Graphite Mineral	
D50043 [C02-058]	Compound - Antiseize, Acheson GP460 (For Threaded Fasteners 0.250 Inches Diameter Or Larger, C02-079 Is An Alternative)	GE A50TF201 Class A
D50186 [CP2691]	Fluid - Penetrating - Aerokroil	
G50138	Cloth - Soft Cotton	
G51027	Cleaner - Flux-Off CZ Flux Remover (ITW Chemtronics - ES7200)	

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Outer silicone seal	74-21-02-01-045	LOM 402, 404, 406, 407, 411, 416, 445
		74-21-02-01A-080	LOM 411, 412, 415, 416, 420, 422-434, 437-447, 450-999
6	Igniter plug	74-21-02-01-080	LOM 402, 404, 406, 407, 411, 416, 445
		74-21-02-01A-110	LOM 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

F. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

G. Prepare for the Installation

SUBTASK 74-21-02-210-007-F00

(1) Examine the contact on the igniter plug end of the ignition lead for erosion, arcing marks, pits.

(a) Erosion, arcing marks, pits on the contact are not permitted and if you see these conditions, polish the ignition lead contact as follows:

NOTE: The lead must be overhauled if contact surface cannot be made completely free of pits and arc marks.

1) Put the large opening of contact polishing tool, COM-10504, over the button contact terminal of assembled lead.

CAUTION

DO NOT OVERTIGHTEN THE NUT. THIS CAN CAUSE BINDING. YOU COULD DAMAGE THE CONTACT POLISHING TOOL.

2) Turn the lead coupling nut on the threads of the tool until finger tight and the button contact extends above the small opening of the tool.

3) If the contact button does not extend above the face of the polishing tool, replace the ignition lead, do these tasks:

- Ignition Lead Removal, TASK 74-21-01-000-801-F00
- Ignition Lead Installation, TASK 74-21-01-400-801-F00

4) Use the supplied hone to polish the contact with level back and forth strokes until the surface is free of pits and arc marks.

WARNING

FLUX-OFF CZ CLEANING SOLVENT SHOULD BE USED TO CLEAN COMPONENTS IN WELL VENTILATED AREA. DO NOT BREATHE VAPORS. WASH HANDS IMMEDIATELY AFTER CONTACT WITH SOLVENTS. USE OF PROTECTIVE GLOVES IS RECOMMENDED.

5) Remove the tool and clean the terminal with a clean soft cotton cloth, G50138, moist with Flux-Off CZ cleaner, G51027.

(b) Measure the dimension from the contact face to the retaining ring groove.

1) The limit is 0.055 in. (1.40 mm) minimum.

SUBTASK 74-21-02-210-008-F00

CAUTION

DO NOT PULL ON THE CONTACT AND CERAMIC INSULATOR. THIS CAN CAUSE DAMAGE TO THE SILICONE INSULATION.

(2) Examine the ceramic insulator on the igniter plug end of the ignition lead for cracks or chips.

(a) Cracks or chips are not permitted.

1) If cracks or chips are found, replace the lead (TASK 74-21-01-000-801-F00 and TASK 74-21-01-400-801-F00).

H. Main Igniter Plug Installation

SUBTASK 74-21-02-820-001-F00

CAUTION

ALIGN THE COMBUSTION CHAMBER FERRULE WITH THE IGNITER BOSS BEFORE YOU INSTALL THE MAIN IGNITER PLUG. IF YOU DO NOT OBEY, DAMAGE TO THE MAIN IGNITER PLUG CAN OCCUR.

(1) Align the combustion chamber ferrule with the igniter boss as follows:

(a) Put a plastic drift pin through the igniter bushing on the combustion case and the combustion chamber ferrule.

NOTE: The ferrule is on the combustion chamber in the engine. The combustion chamber ferrule floats on the combustion chamber. It can become out of line with the igniter bushing.

NOTE: The plastic drift should have a maximum diameter of 0.375 in. (9.52 mm).

(b) Align the combustion chamber ferrule and the igniter bushing with the plastic drift pin.

NOTE: Apply penetrating fluid, D50186 [CP2691], to the combustion chamber ferrule if the combustion chamber ferrule is difficult to move.

SUBTASK 74-21-02-420-002-F00

(2) Install the main igniter plug [6] as follows:

CAUTION

MAKE SURE THAT YOUR HANDS AND TOOLS ARE CLEAN. DO NOT TOUCH THE IGNITION LEAD OR THE IGNITER PLUG WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD AND THE IGNITER PLUG.

(a) Apply a small amount of graphite mineral vaseline, D00601 [CP2101], or Acheson GP460 compound, D50043 [C02-058], to the threads on the combustion-case-side of the main igniter plug [6].

(b) Install the main igniter plug [6] into the igniter bushing.

1) Make sure to install the captive washer with the main igniter plug [6].

2) Hold the igniter bushing.

3) Install the main igniter plug [6] into the igniter bushing by hand until it touches the bottom.

4) Tighten the main igniter plug [6] to 274 ±14 in-lb (31.0 ±1.6 N·m).

SUBTASK 74-21-02-420-003-F00

(3) Connect the ignition lead [4] to the main igniter plug [6] as follows:

CAUTION

DO NOT APPLY GREASE OR LUBRICANT TO THE THREADS OF THE CONNECTOR ON THE IGNITION LEAD. GREASE AND LUBRICANTS WILL CAUSE DAMAGE TO THE IGNITION LEAD AND THE IGNITER PLUG.

CAUTION

DO NOT TWIST OR BEND THE IGNITION LEAD. YOU CAN CAUSE DAMAGE TO THE CONDUIT AND THE INTERNAL WIRES.

(a) Remove the protective cover from the ignition lead [4].

(b) Install the outer silicone seal [5].

(c) Install the ignition lead [4] into the main igniter plug [6].

1) Tighten the coupling nut [3] to 275 ±15 in-lb (31.1 ±1.7 N·m).

SUBTASK 74-21-02-420-004-F00

(4) Install the loop clamp [10] as follows:

(a) Put the loop clamp [10] around the ignition lead [4].

(b) Apply graphite mineral vaseline, D00601 [CP2101], to the threads of the bolt [11].

(c) Loosely install the bolt [11] that attaches the loop clamp [10] to the bracket.

(d) If it is necessary, move the ignition lead [4] until it does not touch the other parts.

(e) Tighten the bolt [11] to 63 ±3 in-lb (7.1 ±0.3 N·m).

SUBTASK 74-21-02-420-005-F00

(5) Install the cooling shrouds [1] to the ignition lead [4] as follows:

(a) Install the cooling shrouds [1] on the flange of the ignition lead [4] with the cooling shroud clamp [2].

(b) Tighten the cooling shroud clamp [2] to 35 ±2 in-lb (4.0 ±0.2 N·m).

I. Put the Airplane Back to Its Usual Condition

SUBTASK 74-21-02-410-002-F00

WARNING OBEY THE INSTRUCTIONS IN THE PROCEDURE TO CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do these tasks in sequence to safely close the left and right thrust reversers:

(a) Do this task: Close the Thrust Reverser (Selection), TASK 78-31-00-010-804-F00.

(b) Do this task: Close the Fan Cowl Panels, TASK 71-11-02-410-801-F00.

(c) Do this task: Thrust Reverser Activation after Ground Maintenance, TASK 78-31-00-440-803-F00.

SUBTASK 74-21-02-860-017-F00

(2) For Engine 1, remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

SUBTASK 74-21-02-860-018-F00

(3) For Engine 2, remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT

SUBTASK 74-21-02-860-008-F00

(4) Remove the DO-NOT-OPERATE tags from the start lever and the engine start switches.

J. Main Igniter Plug Test

SUBTASK 74-21-02-700-001-F00

(1) Do the test(s) listed in the Power Plant Test Reference Table (TASK 71-00-00-800-811-F00).

——— END OF TASK ———

TASK 74-21-02-400-802-F00

4. Igniter Bushing (Igniter Adapter) Installation

(Figure 401 or Figure 402 or Figure 403)

A. General

(1) This procedure gives instructions to install the Igniter Bushing (Igniter Adapter).

B. Tools/Equipment

Reference	Description
STD-1162	Gauge - Depth

C. Consumable Materials

Reference	Description	Specification
D00601 [CP2101]	Vaseline - Graphite Mineral	
G02345 [CP8001]	Wire - Safety, 0.032 Inch (0.8 mm) Diameter	AMS 5687
G02495 [CP8002]	Wire - Safety, 0.032 Inch (0.8 mm) Diameter	AMS5689
G50065 [CP8006]	Cable, Safety, Stainless Steel, 0.032 inch (0.8 mm) Diameter	M50 TF 9 CL-A

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Igniter plug gasket	74-21-02-01-035	LOM 402, 404, 406, 407, 411, 416, 445
		74-21-02-01-075	LOM 402, 404, 406, 407, 411, 416, 445
		74-21-02-01A-060	LOM 427-434, 437-447, 450-999
		74-21-02-01A-105	LOM 411, 412, 415, 416, 420, 422-434, 437-447, 450-999

E. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

F. Igniter Bushing Installation

SUBTASK 74-21-02-420-007-F00

(1) Install the igniter bushing [8] as follows:

NOTE: The depth of the igniter plug is controlled by the igniter bushing (igniter adapter) and the igniter plug gasket(s). Each gasket is 0.015 in. (0.381 mm) thick.

(a) Install four igniter plug gaskets [9] between the igniter bushing [8] and the combustion case boss.

(b) Apply graphite mineral vaseline, D00601 [CP2101] to the threads of the bolts [7].

(c) Install the igniter bushing [8] on the combustion case with the three bolts [7].

1) Tighten the bolts to between 110 in-lb (12.4 N·m) and 120 in-lb (13.6 N·m).

(d) Measure the Dimension Z (Igniter Plug Immersion). Dimension Z is measured from the combustion chamber outer liner inner surface to the top of the igniter bushing [8] as follows (Refer to Figure 402):

1) Measure at the aft spot of the igniter hole with a depth gauge, STD-1162.

2) Make a record of this value.

(e) Dimension Z must be between 2.529 in. (64.237 mm) and 2.545 in. (64.643 mm).

(f) If Dimension Z is not in the limits, adjust the number of igniter plug gaskets [9] (total of one minimum to eight maximum) to get the correct Dimension Z.

1) Tighten the bolts [7] to between 110 in-lb (12.4 N·m) and 120 in-lb (13.6 N·m).

2) Make sure Dimension Z is still in the limits.

(g) Use safety wire, G02345 [CP8001]/safety wire, G02495 [CP8002] or safety cable, G50065 [CP8006] to attach the bolts together.

G. Install the Main Igniter Plug

SUBTASK 74-21-02-420-008-F00

(1) Install the Main Igniter Plug (TASK 74-21-02-400-801-F00).

——— END OF TASK ———

MAIN IGNITER PLUG - INSPECTION/CHECK

1. General

A. This procedure has one task:

(1) Main Igniter Plug Inspection.

TASK 74-21-02-200-801-F00

2. Main Igniter Plug Inspection

(Figure 601)

A. General

(1) This task provides the instructions on how to examine the main igniter plug.

B. References

Reference	Title
72-00-00-200-807-F00	HPT Blades Borescope Inspection (P/B 601)
74-21-02-000-801-F00	Main Igniter Plug Removal (P/B 401)
74-21-02-400-801-F00	Main Igniter Plug Installation (P/B 401)

C. Location Zones

Zone	Area
411	Engine 1 - Engine
421	Engine 2 - Engine

D. Prepare for the Inspection

SUBTASK 74-21-02-020-001-F00

(1) Do this task: Main Igniter Plug Removal, TASK 74-21-02-000-801-F00.

E. Main Igniter Plug Inspection

SUBTASK 74-21-02-211-001-F00

(1) Examine the spark igniter tip.

(a) Holes burned through the shell are not permitted.

(b) Distortion is not permitted.

(c) Tips that have a crack or are damaged are not permitted.

(d) Damaged, cracked, chipped or missing pieces on the ceramic insulator are not permitted.

(e) Do the applicable inspection for the type of electrode as follows:

LOM ALL PRE SB 737-CFM56-7B-74-0008

1) Washer type electrode

a) No distortion or electrode loose or missing are permitted.

b) Distance from the flat end surface of firing tip to top center electrode must not be more than 0.250 in. (6.35 mm).

c) Ceramic material cracked or with missing material is not permitted.

2) Pin type electrode

a) Pins that are loose or not there are not permitted.

b) Measure the depth of the electrode tip.

<1> The depth of the electrode tip cannot be more than 0.250 in. (6.35 mm).

LOM ALL POST SB 737-CFM56-7B-74-0008

3) Pin type electrode

a) No distortion, cracks, or pieces missing from the ceramic insulator are permitted.

b) Distance from the flat end surface of firing tip to top center electrode must not be more than 0.320 in. (8.13 mm).

c) Shell erosion along its axis must not be more than 0.290 in. (7.366 mm) measured along longest axis and no more than 0.275 in. (6.985 mm) measured along shortest axis.

LOM ALL

(f) Carbon buildup on the electrode tip or the gap area is not permitted.

SUBTASK 74-21-02-220-001-F00

(2) Examine the spark igniter shell as follows:

(a) Look for worn areas where the combustion chamber ferrule touches the spark igniter.

1) Worn areas are permitted if not more than 0.02 inch (0.51 mm) in depth.

2) Wear completely through the shell is not permitted.

(b) Holes in the shell from internal arcs are not permitted.

(c) Missing material on the tip shell or the ceramic insulator is not permitted.

1) Do an inspection of the HPT Blades for igniter debris impact TASK 72-00-00-200-807-F00.

SUBTASK 74-21-02-220-003-F00

(3) Examine the terminal end of the main igniter plug.

(a) Examine the well for dirt or grease.

1) Dirt or grease is not permitted.

(b) Examine the ceramic material:

1) Damaged, cracked, chipped or missing pieces are not permitted.

2) Carbon tracks are not permitted.

(c) Examine the contact for arcing or erosion.

1) Arcing or erosion is not permitted.

SUBTASK 74-21-02-900-001-F00

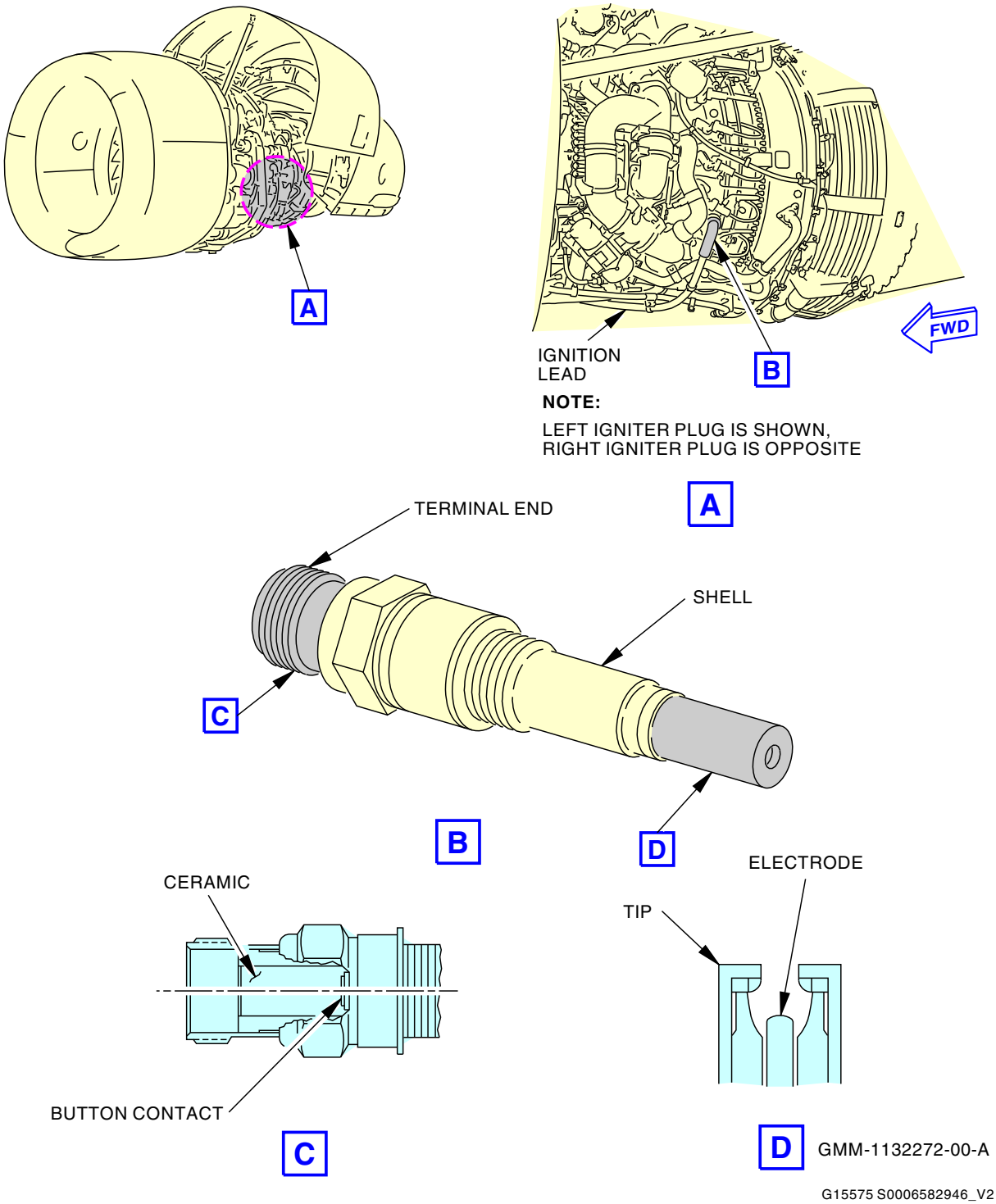
(4) If you find damage that is not in the limits, replace the main igniter plug (TASK 74-21-02-000-801-F00 and TASK 74-21-02-400-801-F00).

F. Put the Airplane Back to Its Usual Condition

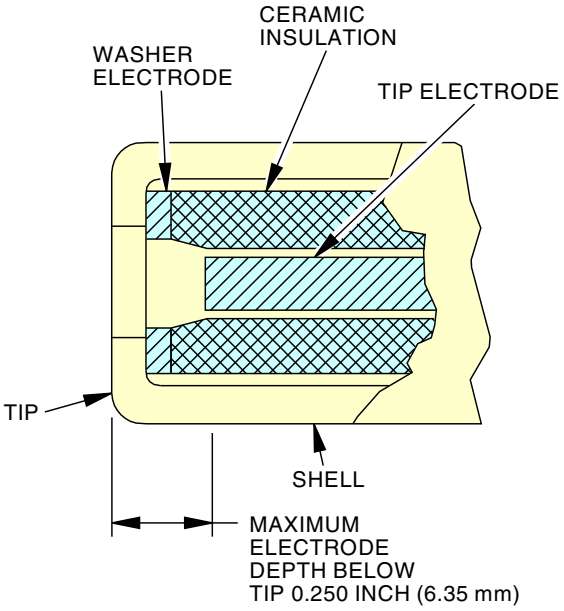
SUBTASK 74-21-02-420-001-F00

(1) Do this task: Main Igniter Plug Installation, TASK 74-21-02-400-801-F00.

——— END OF TASK ———



Main Igniter Plug Inspection
Figure 601/74-21-02-990-801-F00 (Sheet 1 of 3)



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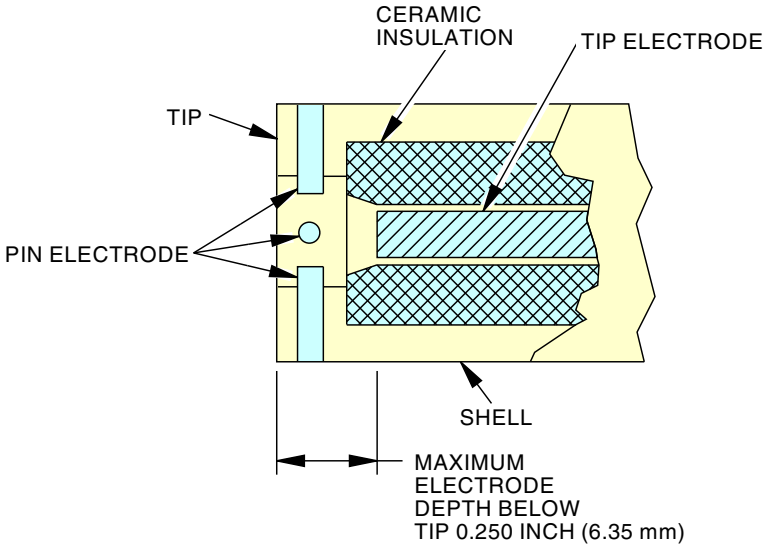
D

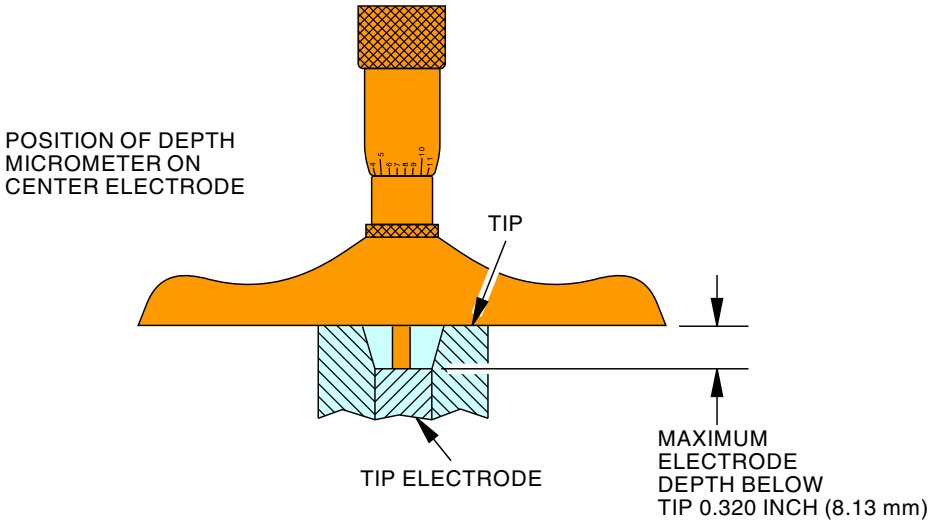


PIN TYPE ELECTRODE

D

GMM-1077427-03-B
1863001 S0000334232_V3

Main Igniter Plug Inspection
Figure 601/74-21-02-990-801-F00 (Sheet 2 of 3)



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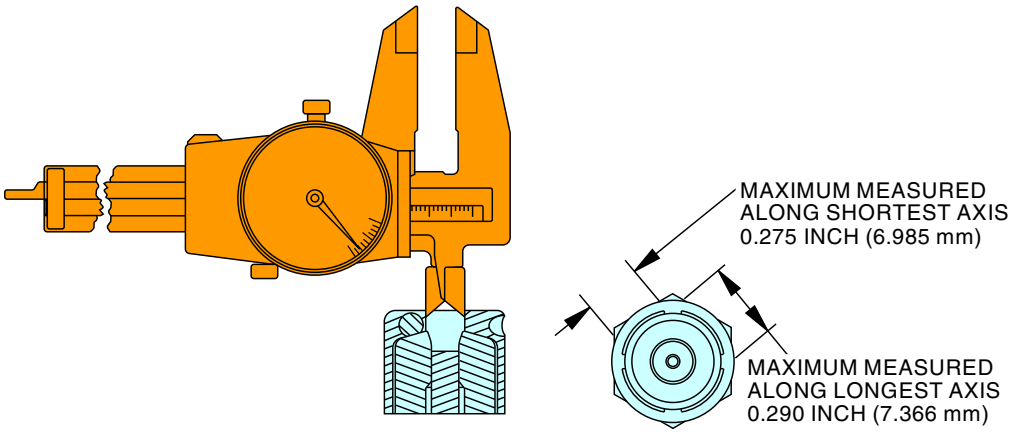

PIN TYPE ELECTRODE

D

6037631-00
3033532 S0000803928_V1

Main Igniter Plug Inspection
Figure 601/74-21-02-990-801-F00 (Sheet 3 of 3)