CHAPTER

74

IGNITION

(CFM56 ENGINES (CFM56-7))

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

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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

(Continued)

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
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.

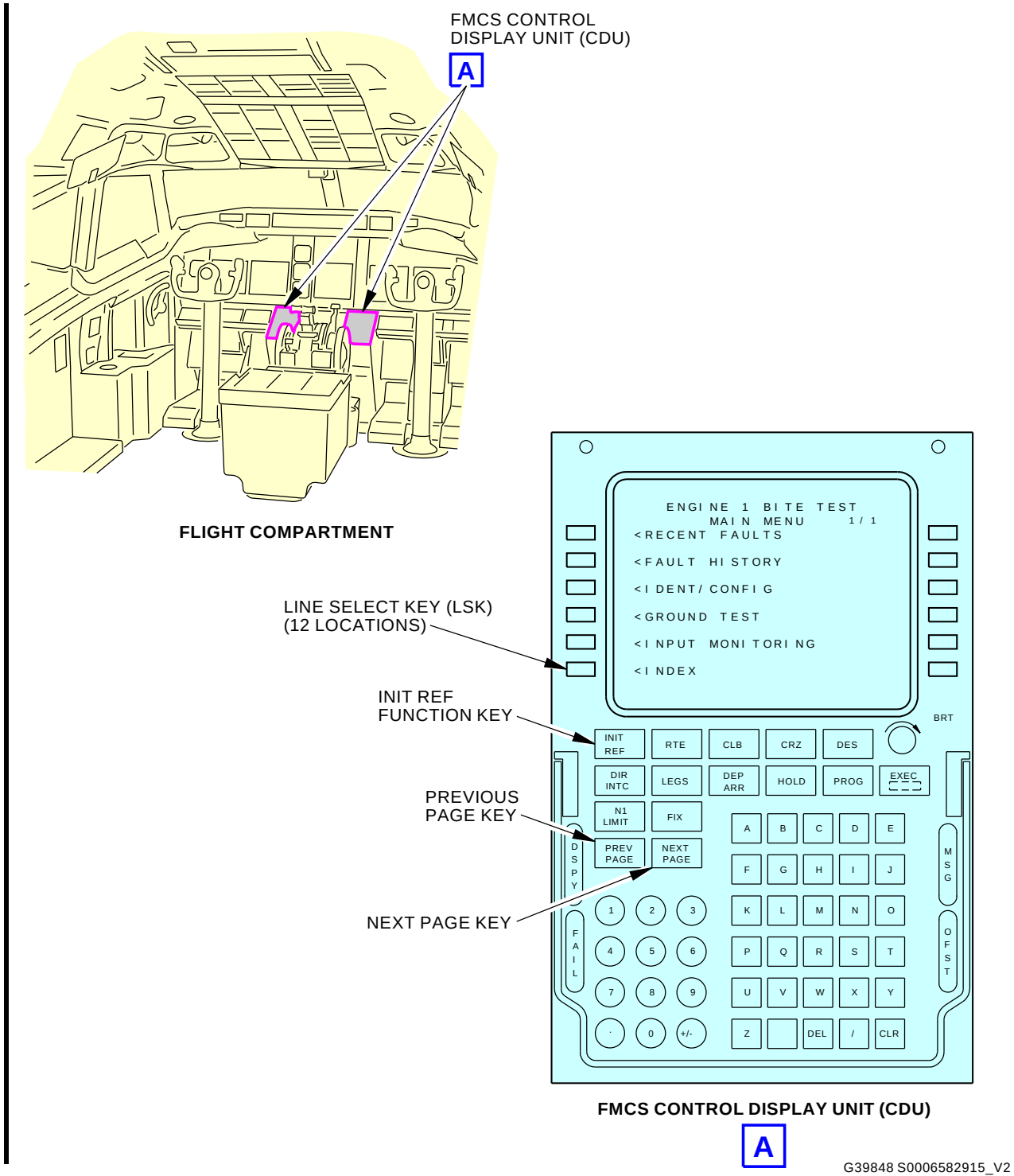
5) Push the END TEST LSK to stop the test.

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 ———



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
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

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
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 P8, 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

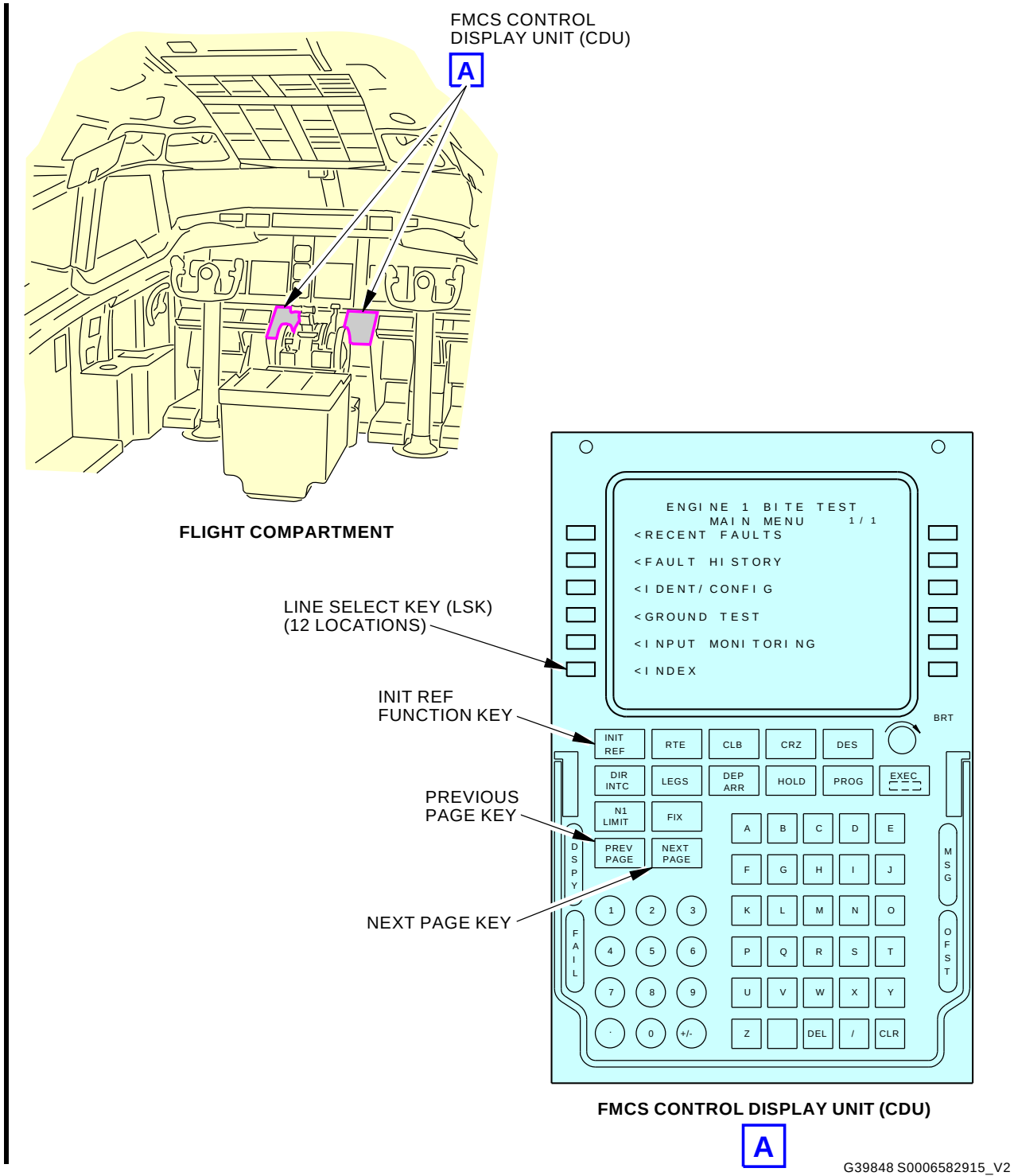
SUBTASK 74-00-00-860-014-F00

(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 ———



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.

(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 74-00-00-860-031-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 74-00-00-860-032-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 74-00-00-860-017-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.

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 IGNITION 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 (Transfer Bus) cable [3] from the left ignition exciter IGN 1 [4].

(b) Disconnect the DP0201 connector on the right power supply (Standby Bus) cable [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 (Transfer Bus) cable [3] to the right ignition exciter IGN 2 [1].

(b) Connect the DP0201 connector on the right power supply (Standby Bus) cable [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.

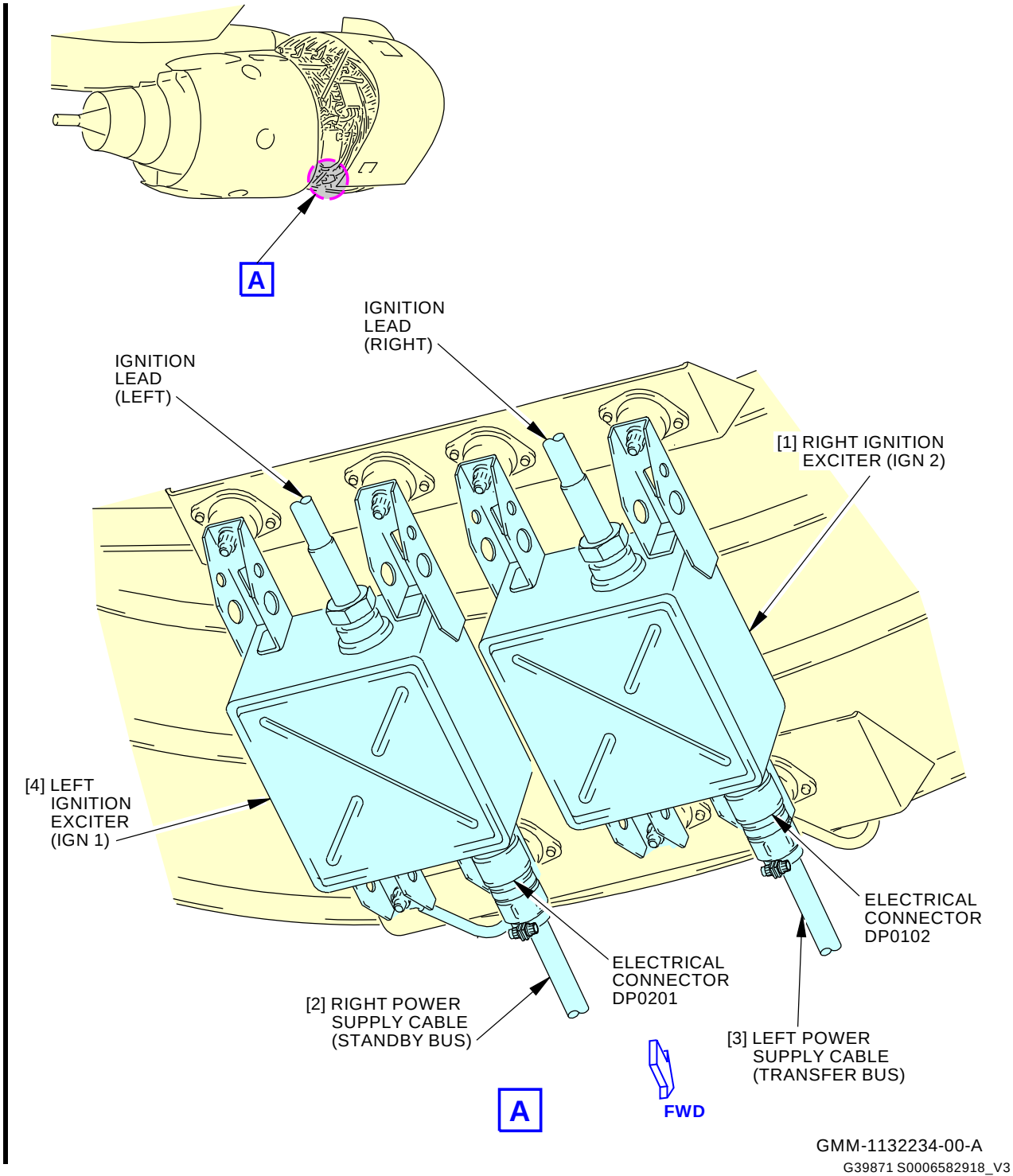
(a) It is permitted to find faults with the left ignition system, but the right ignition system must pass the audible test.

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.

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

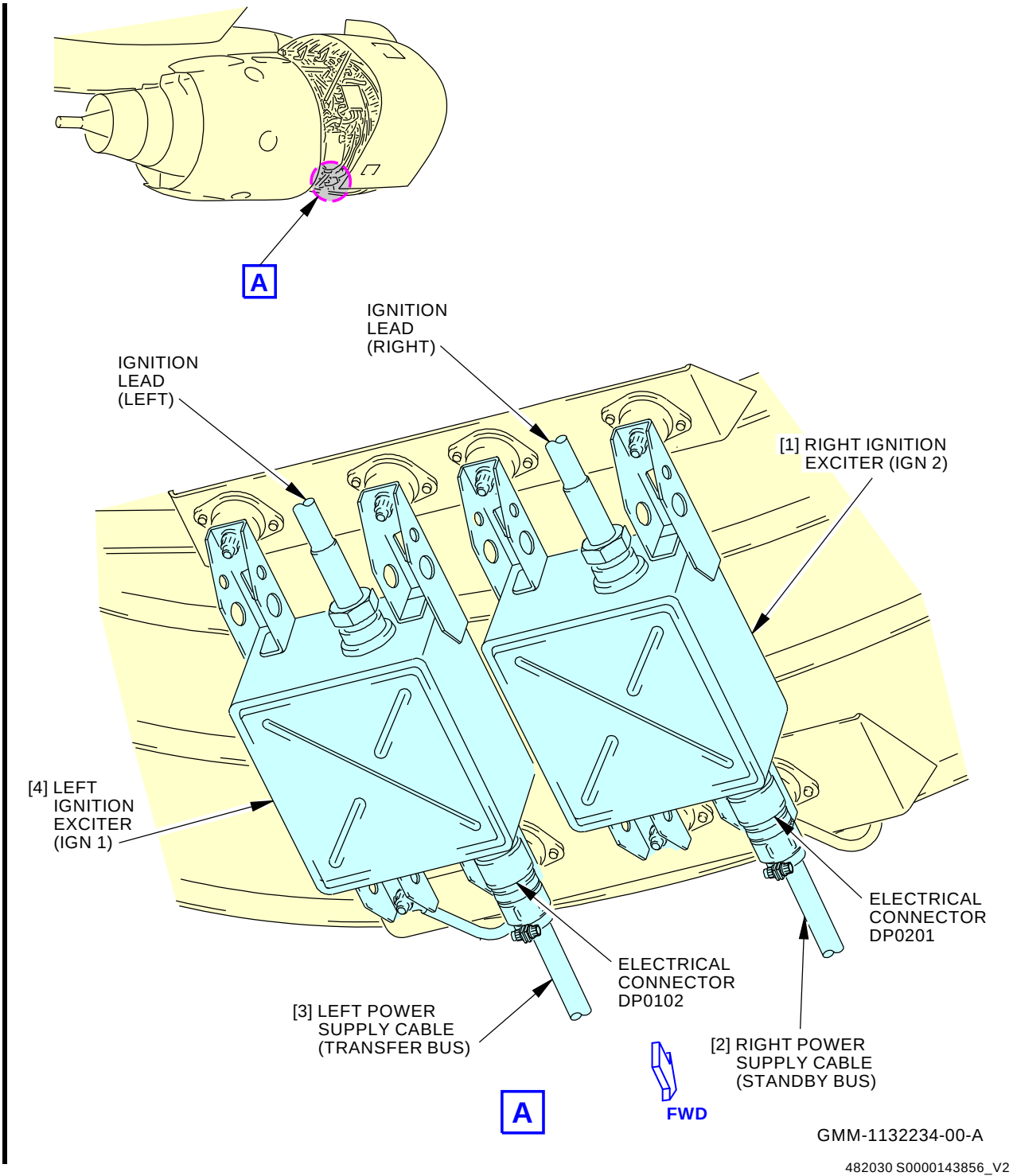
(12) Do the applicable fault isolation task in the FIM to correct the problem.

(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 two tasks:

(1) Ignition Exciter Removal

(2) Ignition Exciter Installation.

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 procedure 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. Location Zones

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

D. Prepare for the Removal

SUBTASK 74-11-01-860-029-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 74-11-01-860-030-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 and install a DO-NOT-OPERATE tag.

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

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

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

E. Ignition Exciter Removal

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

(1) Disconnect the applicable 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 WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD.

(2) Disconnect the applicable 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) Do these steps to remove the applicable ignition exciter [2] from the engine fan case:

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

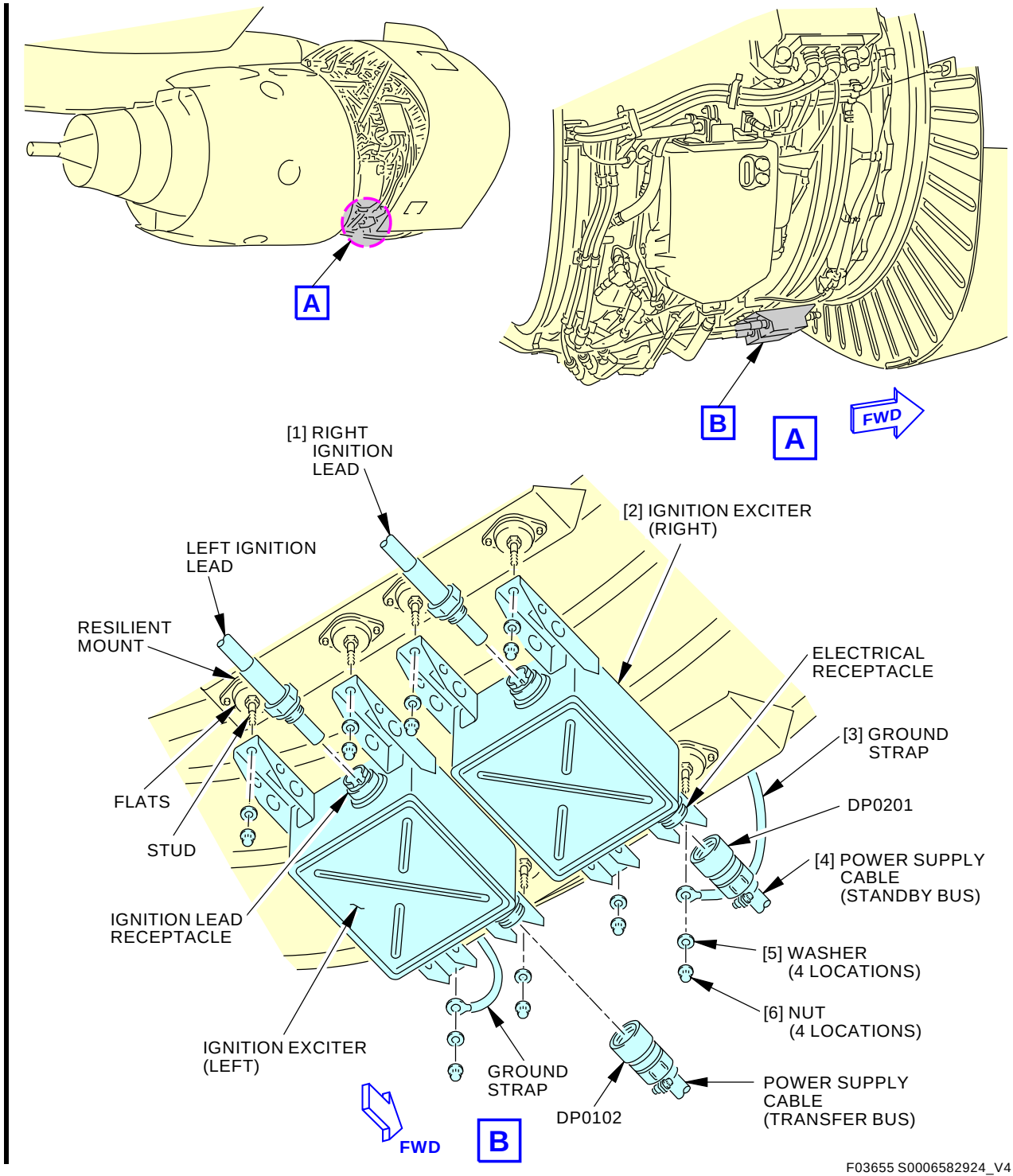
NOTE: The stud flats are between the resilient mount and the ignition exciter [2].

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

(c) Remove the applicable ground strap [3].

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

END OF TASK



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)

C. Consumable Materials

Reference	Description	Specification
D00601 [CP2101]	High-temperature graphite compound	SAE AMS 2518

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Exciter	74-11-01-01A-080	AKS ALL

E. Location Zones

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

F. Ignition Exciter Installation

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

(1) Do these steps to install the applicable ignition exciter [2] on the engine fan case:

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

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

NOTE: The ground strap is installed between the washer [5] and the ignition exciter [2].

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

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

(e) Install the four 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 the ignition exciter [2].

1) Hold the stud while you tighten the nuts [6] to 110-120 pound-inches (11.9-13.1 Newton meters).

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

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

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

CAUTION: MAKE SURE THAT THE IGNITION LEADS ARE CLEAN WHEN YOU CONNECT THEM. THE CONTAMINATION OF THE IGNITION LEADS 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 140-160 pound-inches (16.0-18.0 Newton meters).

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

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

G. Ignition Exciter Test

SUBTASK 74-11-01-860-027-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 74-11-01-860-028-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 tag from the start lever and the engine start switch.

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

(4) Do the tests that are listed for the ignition exciter in the Power Plant Test Reference Table (TASK 71-00-00-800-811-F00).

H. 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

D. Consumable Materials

Reference	Description	Specification
B00682 [CP2011]	Solvent - Stoddard	P-D-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. Location Zones

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

F. Prepare for the Inspection

SUBTASK 74-11-01-860-023-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 74-11-01-860-024-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 and install a DO-NOT-OPERATE tag.

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

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

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 WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD.

(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].

G. 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 0.030 inch (0.76 mm) in depth.

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

(4) Examine the input connector [4] and the 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 the 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].

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) Replace the output pin [6] if necessary 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]. 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. Use a swab, G01659 or a 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) Torque the output pin [6] to 2 in-lb (0.226 N·m) - 3 in-lb (0.339 N·m).

H. 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 140-160 pound-inches (16.0-18.0 Newton-meters).

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

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

SUBTASK 74-11-01-860-025-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 74-11-01-860-026-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 from the start lever and the engine start switch.

I. Ignition Exciter Test

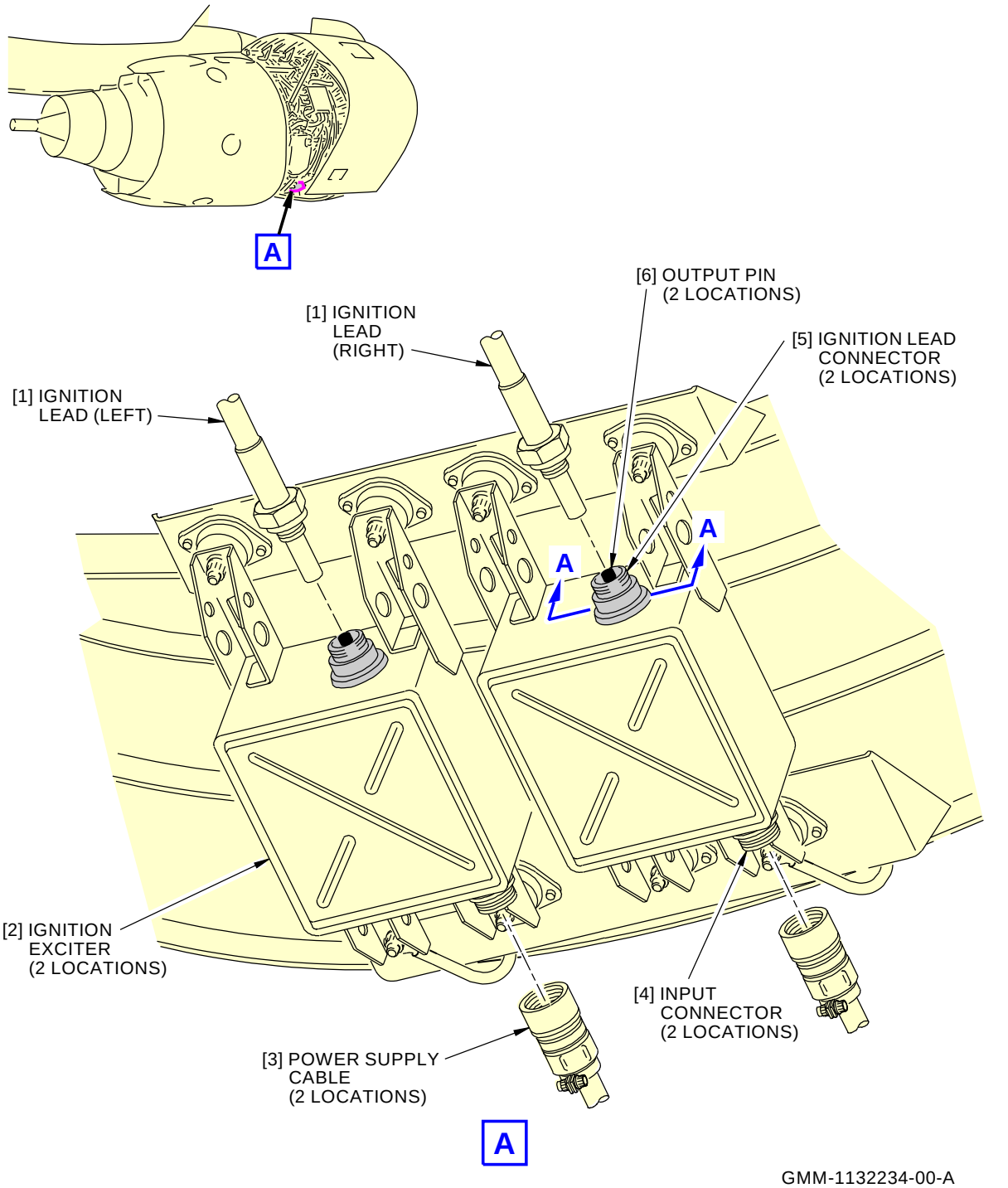
SUBTASK 74-11-01-710-001-F00

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

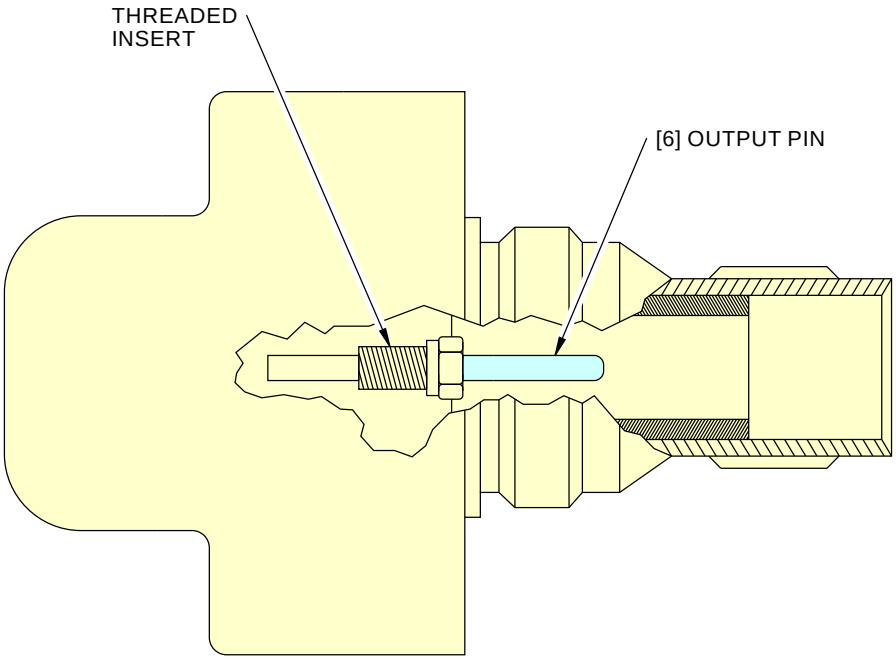
SUBTASK 74-11-01-410-002-F00

(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 two tasks:

(1) Ignition Lead Removal

(2) Ignition Lead Installation.

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

2. Ignition Lead Removal

(Figure 401)

A. General

(1) This task provides the instructions on how 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)
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. Location Zones

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

D. 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.

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

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

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).

E. 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 PROCEDURE, INJURY TO PERSONS CAN OCCUR.

CAUTION: MAKE SURE THAT YOUR HANDS AND TOOLS ARE CLEAN. DO NOT TOUCH THE IGNITION LEAD OR THE MAIN IGNITER PLUG WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD AND TO THE MAIN 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 the mating pad shroud [18] on the 6:00 o'clock strut as follows:

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

1) Remove the mating pad shroud [18].

(b) Remove the bolt [17] and the 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].

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 shroud [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].

(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].

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

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

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

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

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

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

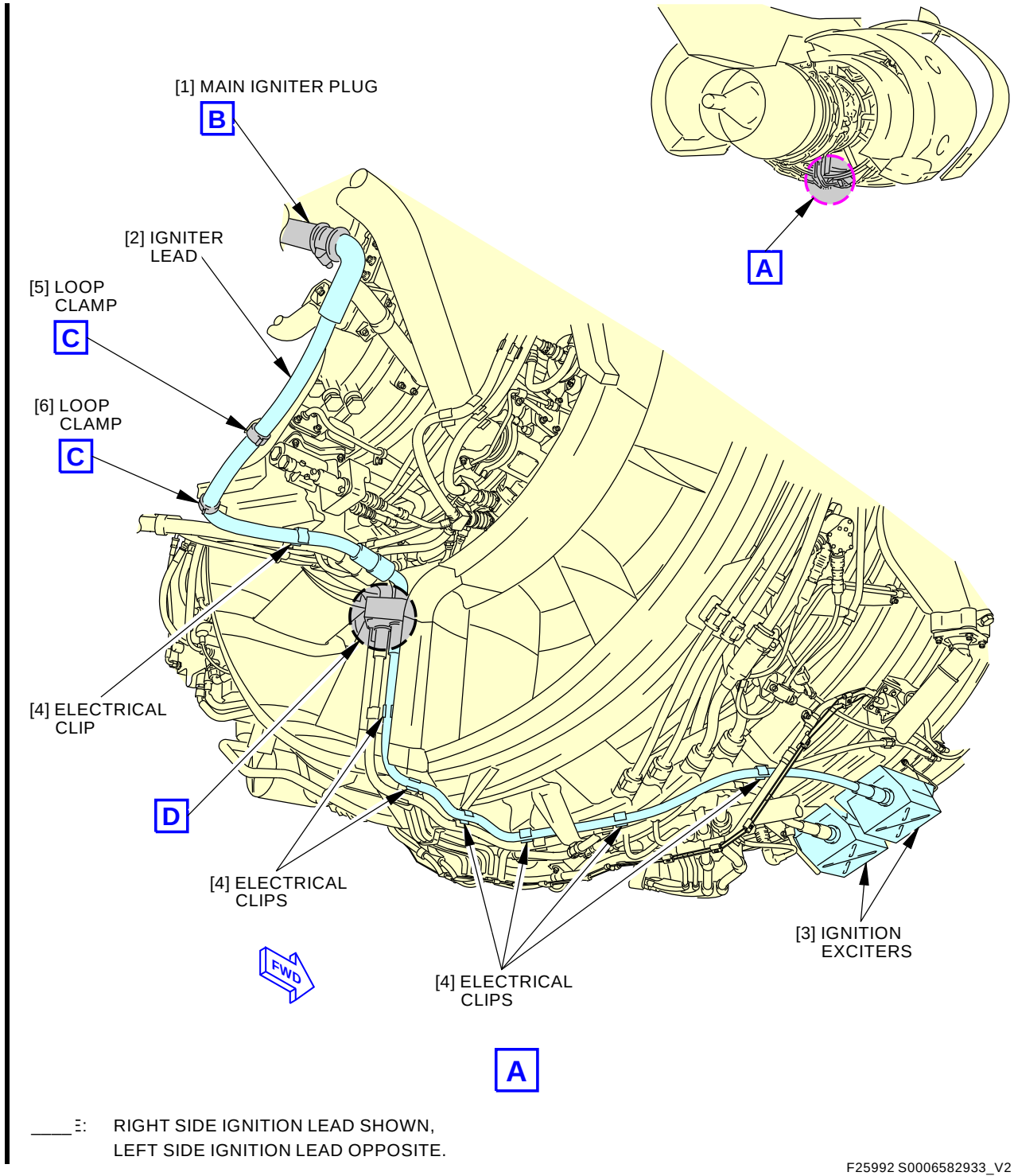
SUBTASK 74-21-01-020-007-F00

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

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

(9) Remove the ignition lead [2].

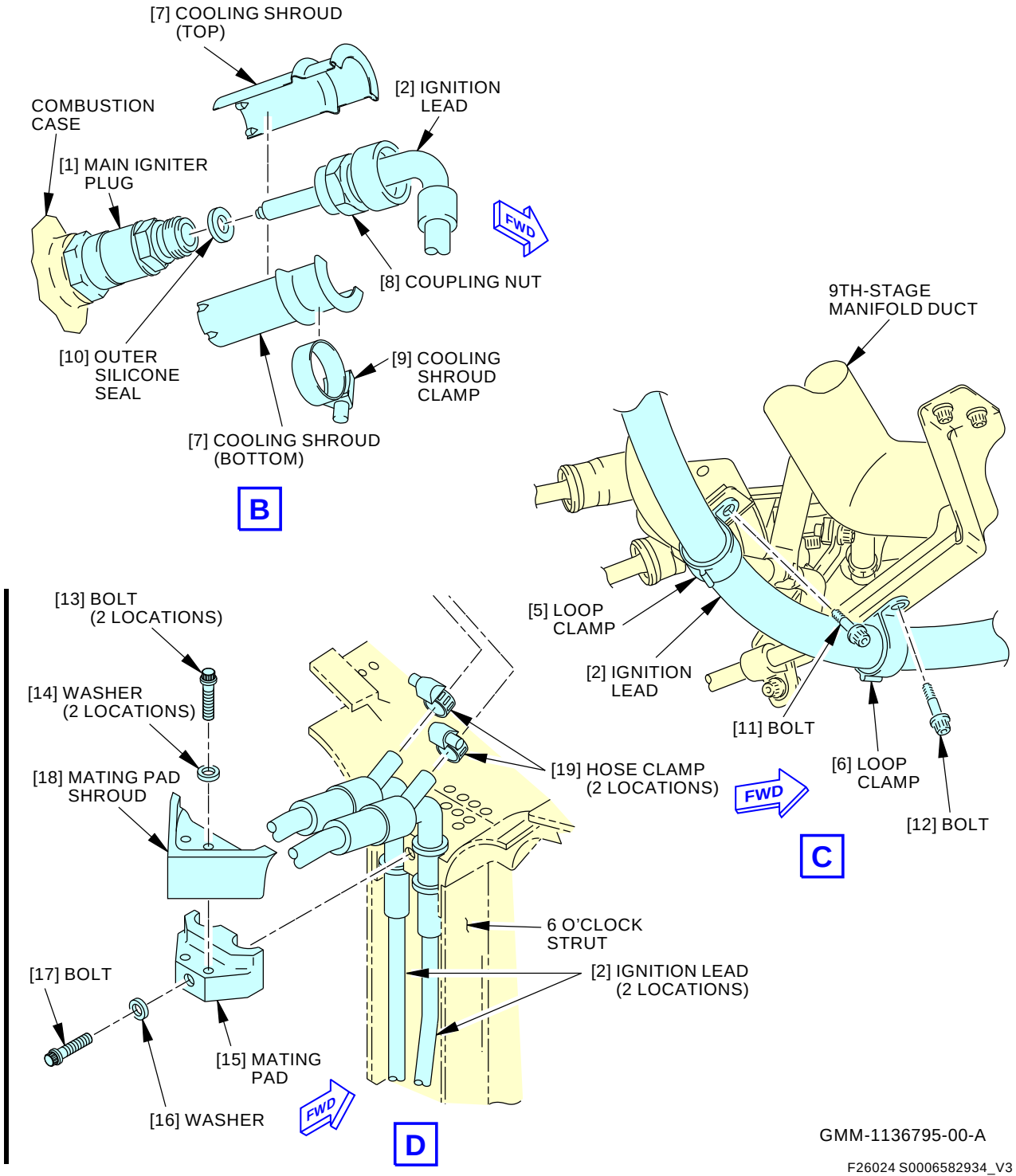
——— END OF TASK ———



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

F25992 S0006582933_V2

Ignition Lead Installation
Figure 401/74-21-01-990-802-F00 (Sheet 1 of 2)



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

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

3. Ignition Lead Installation

(Figure 401)

A. General

(1) This task provides the instructions on how 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]	High-temperature graphite compound	SAE AMS 2518

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Ignition lead	74-21-01-01A-115	AKS ALL
10	Outer silicone seal	74-21-01-01A-120	AKS ALL
		74-21-02-01A-080	AKS ALL

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 MAIN IGNITER PLUG WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD AND TO THE MAIN IGNITER PLUG.

CAUTION: DO NOT TWIST OR BEND THE IGNITION LEAD. YOU CAN CAUSE DAMAGE TO THE LEAD.

(a) Remove the protective covers from the ignition exciter [3], the main igniter plug [1] and the 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 260-290 pound-inches (29.4-32.8 Newton-meters).

(c) Install the two pieces of the cooling shroud [7] around the ignition lead [2] with the cooling shroud clamp [9].

1) Tighten the cooling shroud clamp [9] to 33-37 pound-inches (3.8-4.1 Newton-meters).

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

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

(a) Use a clean cloth and one of the following, solvent, B00666, technical grade methyl ethyl ketone, B50046, or acetone solvent, B01058 [CP1039], to remove the remaining sealant from the mating pad [15] and the ignition leads [2].

(b) Apply a layer of the RTV 102 adhesive, A01077 [CP2266] to the recesses in the mating pad [15] which 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 the washer [16] to attach the mating pad to the strut.

1) Tighten the bolt [17] to 40-50 pound-inches (4.5-5.6 Newton-meters).

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

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

1) Tighten the bolts [13] to 40-50 pound-inches (4.5-5.6 Newton-meters).

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 compound, D00601 [CP2101].

(c) Tighten the Hose Clamp Bolts to 33-37 pound-inches (3.8-4.1 Newton-meters).

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

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

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

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

(c) Loosely install the bolt [11] and the bolt [12] that attach the loop clamp [5] and the 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 the bolt [12] to 60-66 pound-inches (6.8-7.5 Newton-meters).

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

(6) Tighten the connector on the ignition exciter [3] to 140-160 pound-inches (15.8-18.1 Newton-meters).

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
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) The left ignition lead connects the left igniter plug with the bottom ignition exciter.

(3) The right ignition lead 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)

C. Consumable Materials

Reference	Description	Specification
B00682 [CP2011]	Solvent - Stoddard	P-D-680 Type I, II or III
B00683 [CP1008]	Solvent - Stabilized Trichloroethylene	
G00834	Cloth - Lint-free Cotton	

D. Location Zones

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

E. 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.

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

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

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 PROCEDURE, 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 from the aft side of the ignition exciters.

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

F. Ignition Lead Inspection

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

(1) Examine the ignition exciter end of the ignition lead.

(a) Signs of arcing, burning, or flash over are not permitted. Replace the lead (TASK 74-21-01-000-801-F00 and TASK 74-21-01-400-801-F00).

SUBTASK 74-21-01-900-002-F00

(2) If you find damage that is not in the limits, replace the ignition lead (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.

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

G. Put the Airplane Back to Its Usual Condition

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

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

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

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

(c) Tighten the connector nut on the ignition lead to 140-160 pound-inches (16.0-18.0 Newton-meters).

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

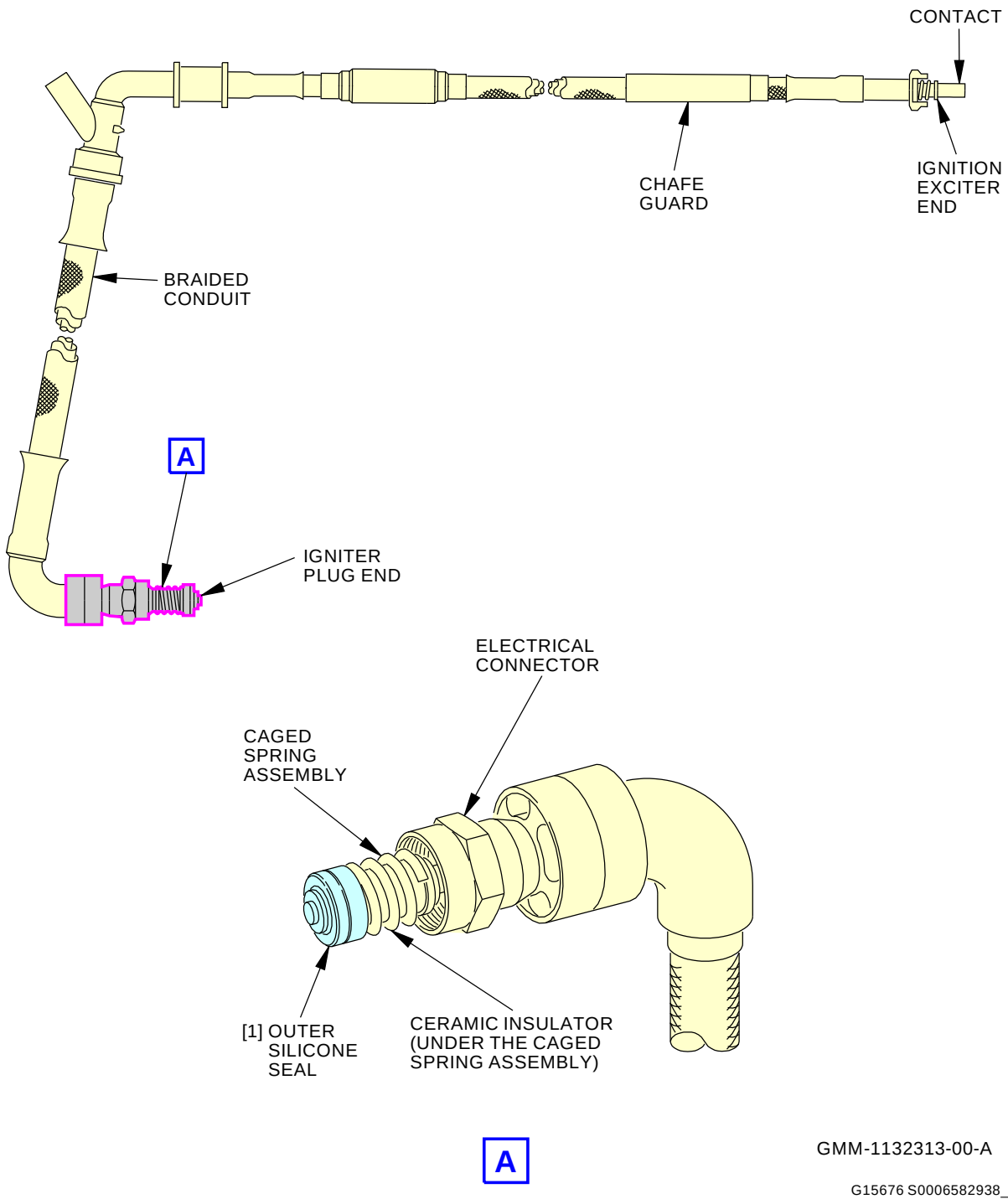
(5) Remove the DO-NOT-OPERATE tags from the start lever and the engine start switch.

H. 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

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)

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)
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. Location Zones

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

D. 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.

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

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

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).

E. 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 PROCEDURE, INJURY TO PERSONS CAN OCCUR.

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

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

SUBTASK 74-21-02-020-003-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 top and bottom cooling shroud [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. THIS WILL PREVENT DAMAGE TO THE CERAMIC TIP OF THE MAIN IGNITER PLUG.

(b) 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.

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

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

1) Discard the outer silicone seal [5].

(e) 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 you remove the captive washer with the main igniter plug [6].

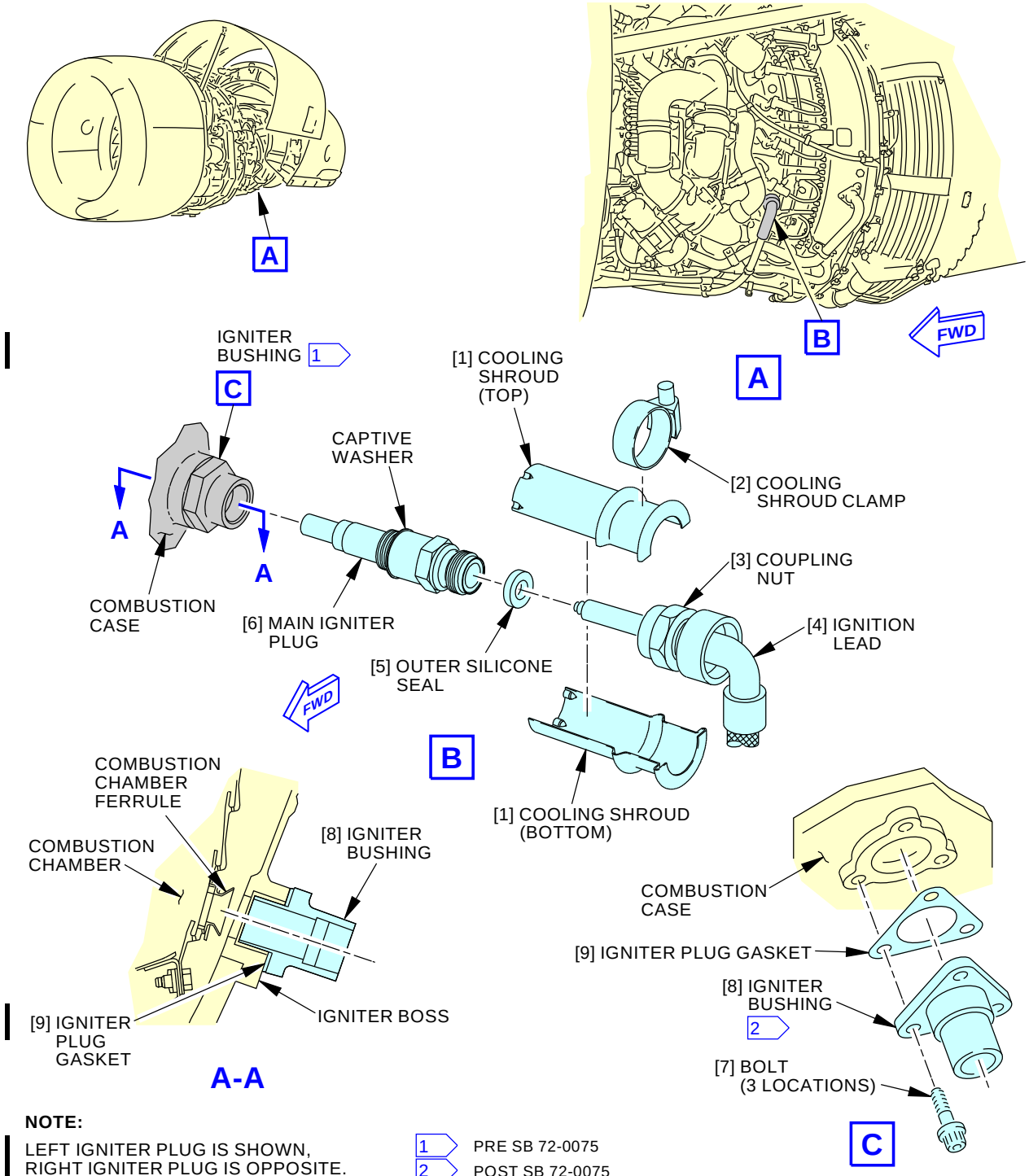
SUBTASK 74-21-02-020-005-F00

(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 ———



NOTE:

LEFT IGNITER PLUG IS SHOWN, RIGHT IGNITER PLUG IS OPPOSITE.

1 PRE SB 72-0075
2 POST SB 72-0075

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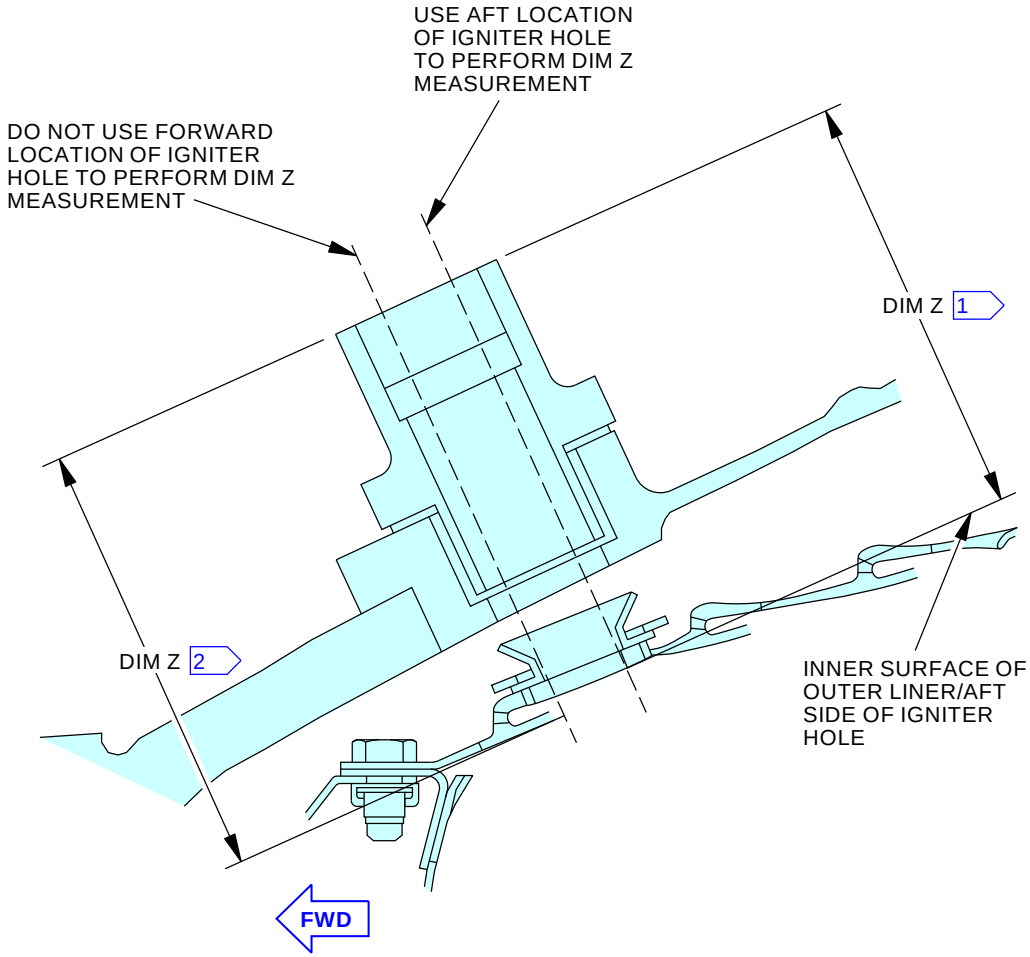
Main Igniter Plug Installation
Figure 401/74-21-02-990-802-F00



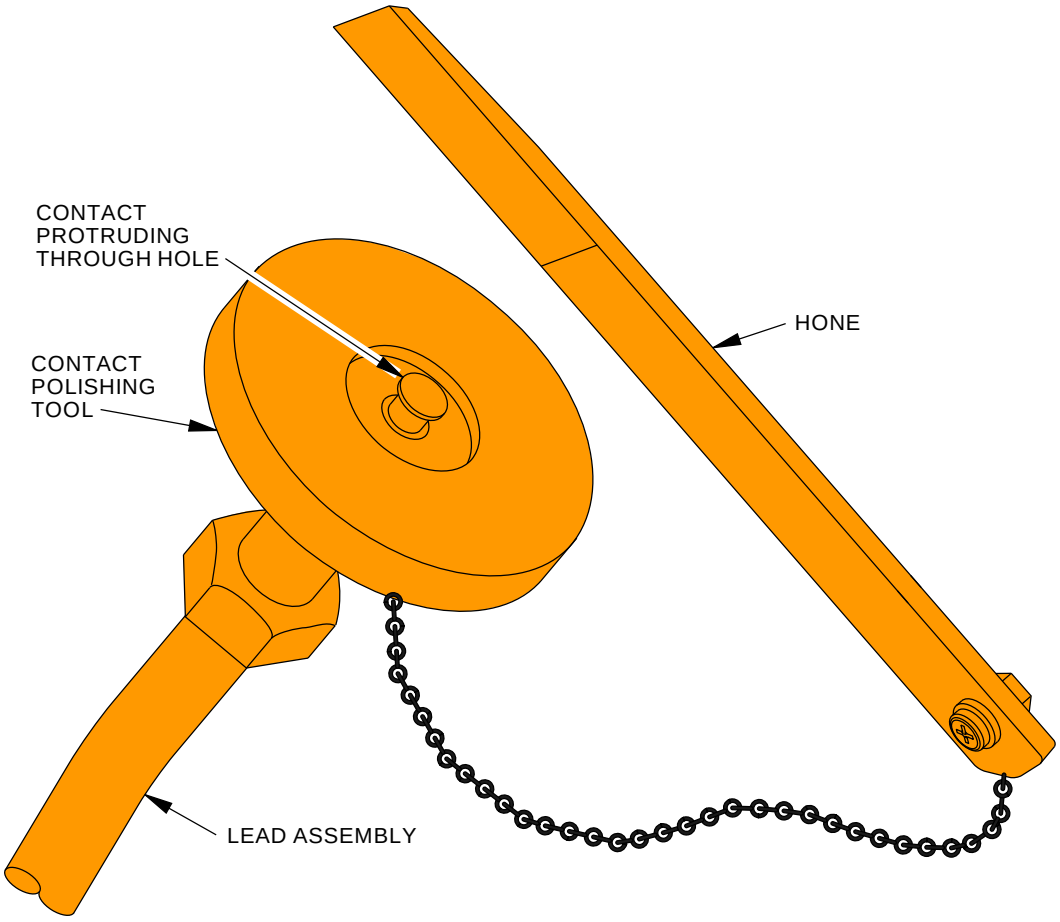
(RIGHT IGNITER PLUG IS SHOWN, LEFT IGNITER PLUG IS OPPOSITE)

A-A

1 CORRECT DIMENSION
2 INCORRECT DIMENSION

2502081 S0000586493_V1

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

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]	High-temperature graphite compound	SAE AMS 2518
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	74-21-02-01A-080	AKS ALL
6	Igniter plug	74-21-02-01A-110	AKS ALL

F. Location Zones

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

G. Prepare for the Main Igniter Plug 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. 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. Replace the lead:

- 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 termination 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. 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 NOT, 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 inch (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 MAIN IGNITER PLUG WITH DIRT OR GREASE ON HANDS OR TOOLS. DIRT AND GREASE WILL CAUSE DAMAGE TO THE IGNITION LEAD AND THE MAIN IGNITER PLUG.

(a) Apply a small amount of graphite compound, 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) Hold the igniter bushing.

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

3) Tighten the main igniter plug [6] to 261-288 pound-inches (29.5-32.6 Newton-meters).

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 MAIN IGNITER PLUG.

(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 260-290 pound-inches (29.4-32.8 Newton-meters).

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

(4) Tighten the hinge clamp on the ignition lead nearest to the main igniter plug that was loosened or removed.

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

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

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

(b) Tighten the cooling shroud clamp [2] to 33-37 pound-inches (3.8-4.1 Newton-meters).

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 switch.

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
C50278	Coating - Rain Erosion Resistant, White. (Type I, Class 3)	BAC5880
D00601 [CP2101]	High-temperature graphite compound	SAE AMS 2518
G02495 [CP8002]	Wire - Safety, 0.032 Inch (0.8 mm) Diameter	CFM CP8002, AMS5689
G50065 [CP8006]	Cable, Safety, Stainless Steel, 0.032 inch (0.813 mm) Diameter	M50 TF 9 CL-A

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Igniter plug gasket	74-21-02-01A-060	AKS ALL
		74-21-02-01A-105	AKS ALL

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 compound, 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 coating (Astrocoat 8001), C50278/lockwire, 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:

1) Washer type electrode

a) Washers that are loose or not there are not permitted.

b) Examine the outer shell as follows:

<1> Dimension X cannot be more than 0.30 inch (7.62 mm).

<2> Dimension Y cannot be less than 0.10 inch (2.54 mm).

c) Measure the depth of the electrode tip.

<1> The depth of the electrode tip cannot be more than 0.25 inch (6.35 mm).

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 0.25 inch (6.35 mm).

(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

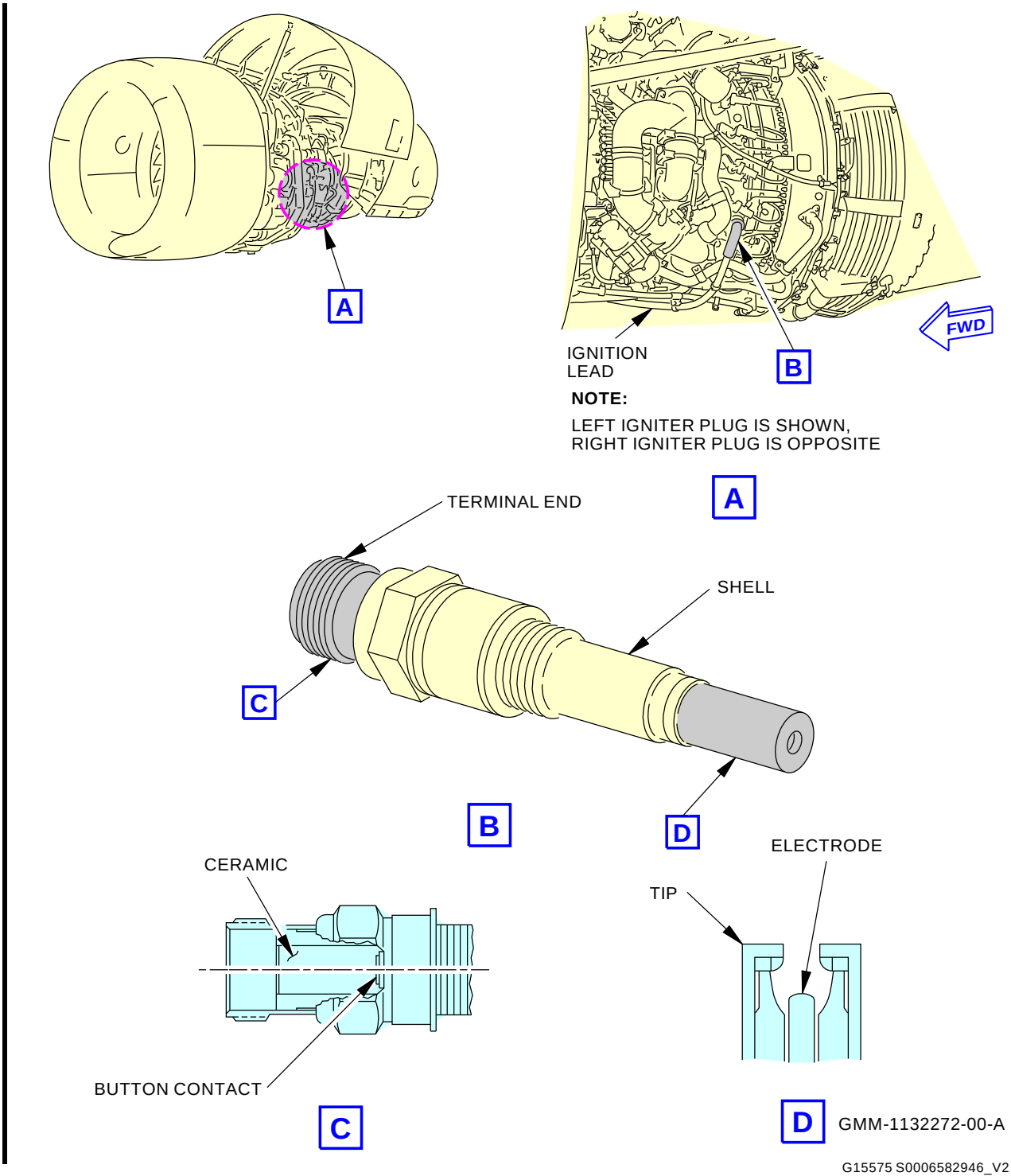
(4) If you find damage that is not in the limits, replace the main igniter plug (TASK 74-21-02-000-801-F00 and TASK 74-21-02-400-801-F00).

F. Put the Airplane Back to Its Usual Condition

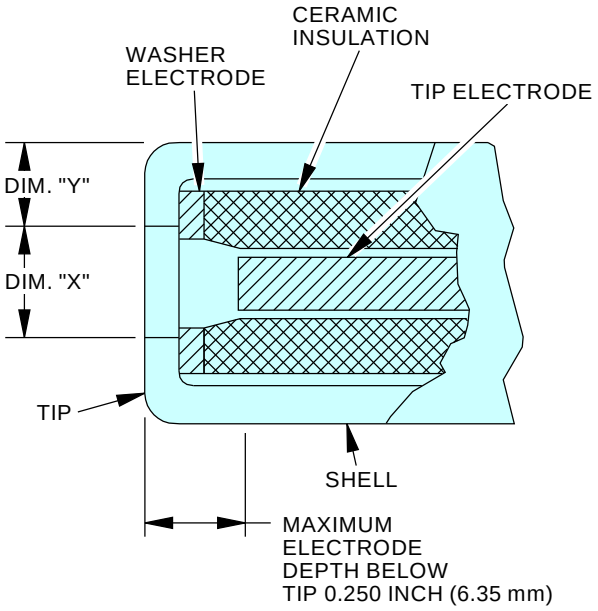
SUBTASK 74-21-02-420-001-F00

(1) Do this task: Main Igniter Plug Installation, TASK 74-21-02-400-801-F00.

——— END OF TASK ———

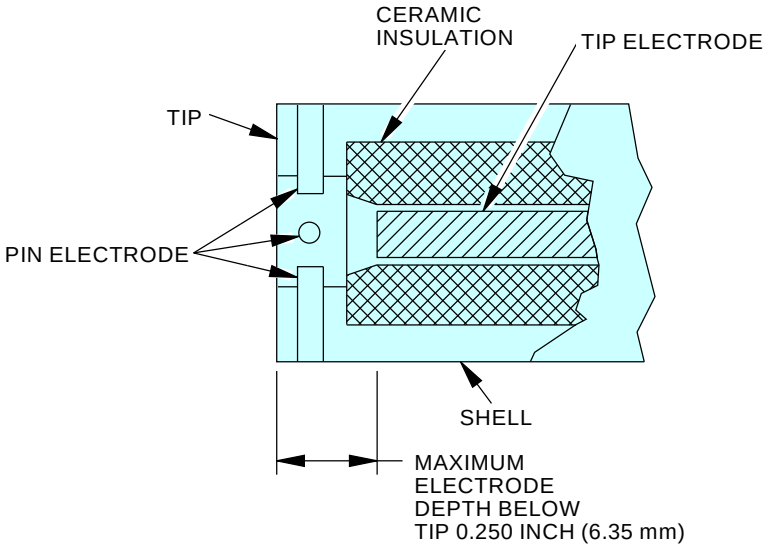


Main Igniter Plug Inspection
Figure 601/74-21-02-990-801-F00 (Sheet 1 of 2)



WASHER TYPE ELECTRODE

A



PIN TYPE ELECTRODE

B

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Main Igniter Plug Inspection
Figure 601/74-21-02-990-801-F00 (Sheet 2 of 2)