Scandinavian Airlines System

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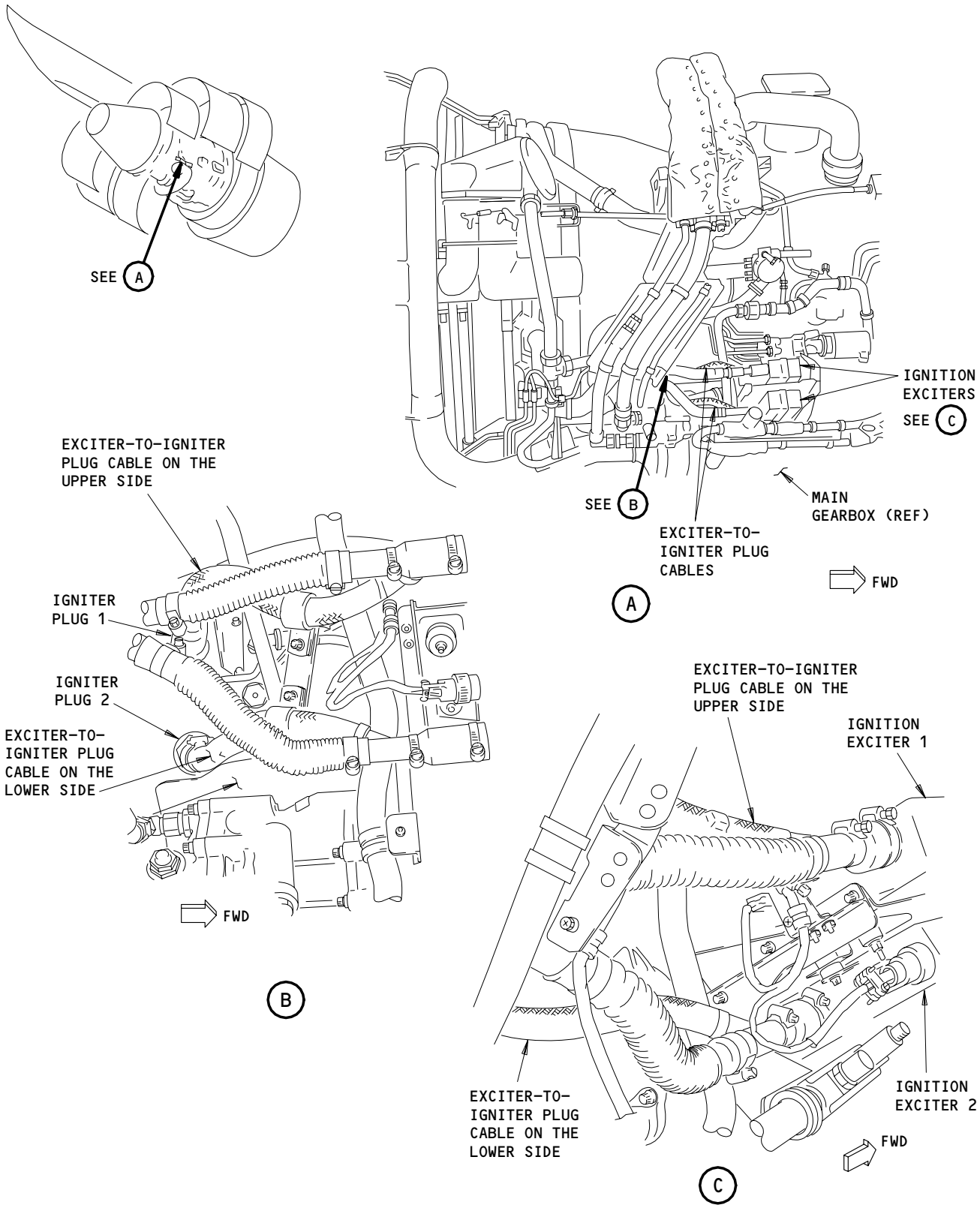
CHAPTER 74 - IGNITION

TABLE OF CONTENTS

IGNITION SYSTEM - DESCRIPTION/OPERATION

1. General
   A. There are two ignition systems for each engine, ignition system 1 and ignition system 2. Each ignition system consists of a high energy ignition exciter, a spark igniter and a coaxial cable with a shielded exciter-to-igniter plug. The purpose of the system is to provide high voltage electrical energy to initiate or sustain combustion of fuel/air mixture in the engine. The ignition exciters are 115v ac capacitor discharge type exciters. Each exciter can operate independently and engine starting can be accomplished using either exciter. Either ignition circuit can be used to provide continuous ignition for takeoff, landing or adverse weather conditions. Alternating use of ignition systems is recommended.
   B. Ignition control for normal operation is provided by switches on the engine start and ignition control module located on the overhead panel P5, and the L/R fuel control switches, located on the control stand. Positioning the switches properly will supply electrical power to the ignition exciters. Power for ignition control is 115v ac supplied from the circuit breakers on the overhead panel P11, left ac bus for the left or right engine ignition system 1, and right ac bus for the left or right engine ignition system 2.
   C. If primary ac power is not available, power can be provided by the standby power bus. Standby power is a backup power source which turns on automatically if primary ac power fails. Standby power supplies 115v ac from the circuit breakers on the overhead panel P11 to the ignition exciters. When standby power is being used, the STBY OFF light on the overhead panel P5 will not be illuminated. The STBY OFF light shows whether primary ac power or standby power is supplying power for ignition control.
2. Component Details (Fig. 1)
   A. Ignition Exciter
      (1) The ignition exciter is a capacitor discharge type exciter requiring an input of 115v ac at 400 Hertz. The output voltage of each exciter is 22-26 KV. The two ignition exciters are bracket mounted on the upper right side of the main gearbox.
      (2) The ignition exciter consists of a conducted radio noise filter, a power transformer, rectifiers, storage capacitor, trigger capacitor, discharge tube, trigger transformer, and bleed resistors. All components are enclosed in a stainless steel housing. The housing is hermetically sealed to ensure proper operation under varying environmental conditions.



Ignition System
Figure 1

287443

B. Exciter-to-Igniter Plug Cable

(1) There are two exciter-to-igniter plug cables on each engine. The cables are located on the right side of the engine between the ignition exciters and the igniter plugs.

NOTE: The upper ignition exciter is connected to the upper (4 o'clock) igniter plug. The lower ignition exciter is connected to the lower (5 o'clock) igniter plug.

(2) Each exciter-to-igniter plug cable consists of a high-tension lead enclosed in a steel conduit that is aircooled, flexible, and braided. The ends of each cable contain ceramic insulated terminals and are covered by cooling shields to ensure proper cooling air flow. Each cable provides an electrical path between the ignition exciter and the igniter plug.

C. Igniter Plug

(1) Each igniter plug has a shielded center electrode. The igniter plugs are air cooled using 15th-stage air for the tips and fan air for the outer ends. The plugs are installed on the diffuser case at approximately the 4 o'clock and 5 o'clock positions.

(2) The igniter plugs are secured to the diffuser case with a mounting boss, classified spacers and keywasher. The proper igniter plug immersion depth is determined by the number of classified spacers installed under the mounting boss. When removing the igniter plug, it may be replaced or reinstalled without checking immersion depth as long as the mounting boss and/or classified spacers were not replaced.

(3) The igniter plug provides a gap across which an electrical spark passes to ignite the fuel/air mixture. The igniter plug air gap becomes ionized by very high voltage provided by the ignition exciter. Once the air gap becomes ionized, current stored in the storage capacitor discharges across the gap. This discharge produces a high temperature arc capable of igniting the fuel/air mixture within the combustion chamber.

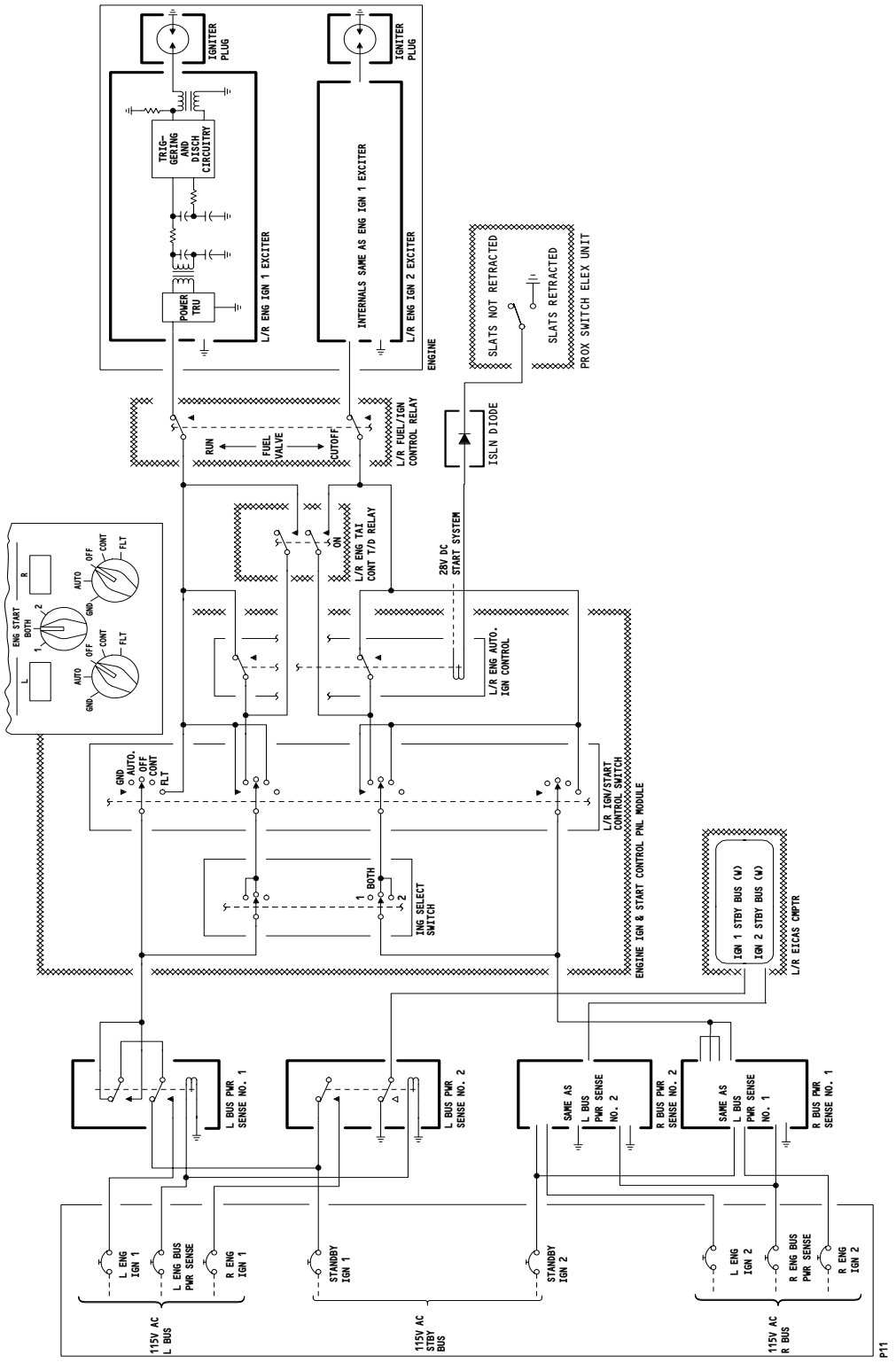
D. Engine Start and Ignition Control Module

(1) The engine start and ignition control module on the overhead panel P5 is comprised of two engine start switches, an ignition select switch, and two disagreement lights for the starter control VALVE. The ignition select switch has three positions (1, 2, and BOTH) for ignition system 1, ignition system 2, and both ignition systems. The engine start switches and valve lights are described in 80-11-00, Starting System - Description and Operation.

E. EICAS Messages

(1) The EICAS maintenance (level M) message IGN 1(2) STBY BUS will appear when primary 115v ac power is not available and the L/R BUS PWR SENSE relays are then de-energized.

3. Operation (Fig. 2)
   A. Functional Description
      (1) When the engine ignition system is energized, 115 volt, 400 hertz power is applied to the exciter input through an inductance-type radio noise filter to the primary winding of the power transformer. The alternating current is stepped up in the secondary winding and converted to pulsing dc voltage by a rectifier circuit. High voltage output from the rectifier section is passed to a storage capacitor network. When the charge builds to the breakdown potential, partial discharge occurs and sufficient current flows through the cable for the air-cooled exciter-to-igniter plug to the igniter plug. A high energy spark is produced across the plug gap in the combustion chamber, which ignites the fuel/air mixture for initial starting or sustained ignition. The electrical pulse discharges continue until electrical supply to the ignition exciter is discontinued.
      (2) Engine ignition control is operative when 115v ac is supplied to the L/R BUS or STBY BUS and power is then transmitted to the ignition exciters. Normally, 115v ac power comes from the L/R BUS and energizes the BUS PWR SENSE No. 1 and 2 relays. If this does not occur, the BUS PWR SENSE relays de-energize, allowing power from the STBY BUS to pass through the relays.
      (3) The Fuel/Ignition Control relay, which monitors the fuel control switch, must be de-energized for ignition. With the fuel control switch in the RUN position, there is no ground source for the relay. The relay will de-energize allowing the selected ignition system (1 or 2) to begin operating.
      (4) From the BUS PWR SENSE relays, power is routed to the ignition select switch and then to the engine start switch. The ignition select switch allows the operator to choose ignition system 1, ignition system 2 or both. Moving the ignition select switch to BOTH shows both ignition systems for that engine are operating simultaneously.
      (5) Power is supplied to the ignition system with the engine start switch in various positions: GND, AUTO, CONT and FLT. If the engine start switch is in the OFF position, ignition is terminated.
      (6) When the engine start switch is in the AUTO position, the power passes through either the time/delay (T/D) relay for the engine TAI control or the control relay for the engine auto ignition to the fuel/ignition control relay.
      (7) The T/D relay for the engine TAI control is energized when the engine ANTI-ICE switch is turned ON. This allows power to pass through the relay. For further information on engine anti-ice system, refer to 30-21-00, Engine Inlet Thermal Anti-Icing - Description and Operation.



Engine Ignition Control Schematic
Figure 2

(8) The control relay for the engine auto ignition must be de-energized for power to pass through. If the leading edge slats are not retracted, there will be no ground for the 28v dc start system. The relay for the engine auto ignition will de-energize, allowing power to pass through. For further information on leading edge slats, refer to 27-81-00, LE Slat System - Description and Operation.
(9) When the engine start switch is in the GND, CONT or FLT position, the control relay for the engine auto ignition is bypassed, the power passes directly from the engine start switch to the fuel/ignition control relay.
(10) When the engine start switch is in the CONT position the selected ignition system (1 or 2) is continuously powered.
(11) During a flight start the engine start switch is positioned to FLT. The ignition select switch is bypassed and both ignition systems are energized for the particular engine.

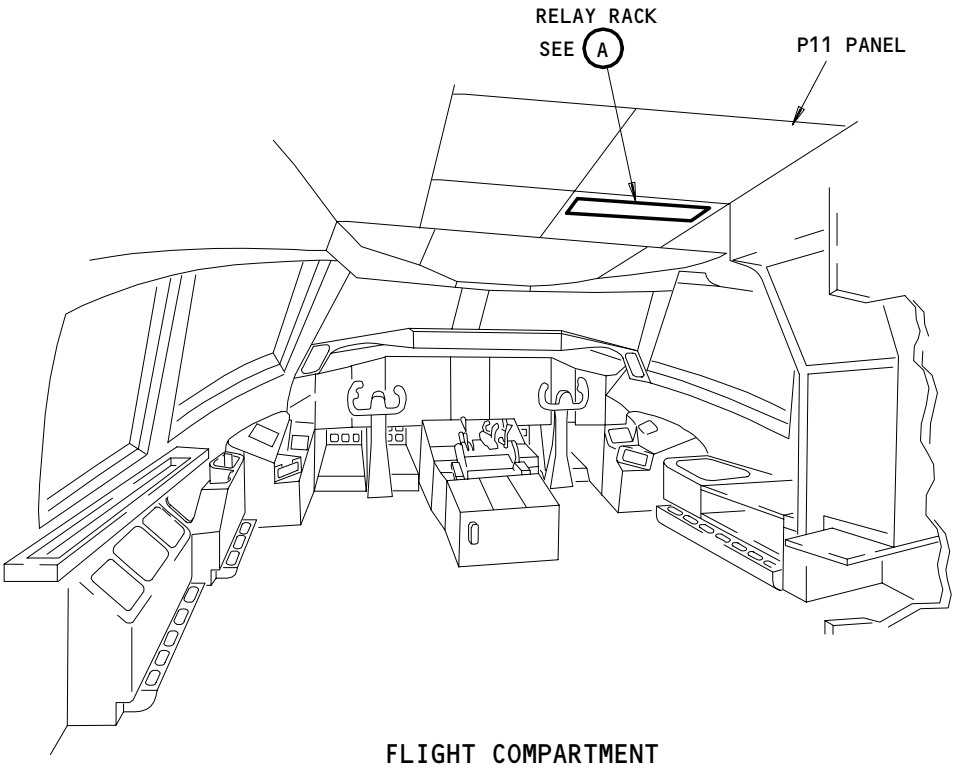
B. Control
(1) Check that the following circuit breakers on overhead panel P11 are closed:
(a) 11D7, ENGINE STBY IGN 1
(b) 11D8, ENGINE STBY IGN 2
(c) 11M1, ENGINES IGNITION 1L
(d) 11M2, ENGINES IGNITION 1R
(e) 11M9, LEFT ENGINE BUS PWR SENSE
(f) 11M28, ENGINES IGNITION 2L
(g) 11M29, ENGINES IGNITION 2R
(h) 11M36, RIGHT ENGINE BUS PWR SENSE
(2) Provide electrical power.
(3) Position ignition select switch to 1, 2, or BOTH.

ENGINE IGNITION SYSTEM

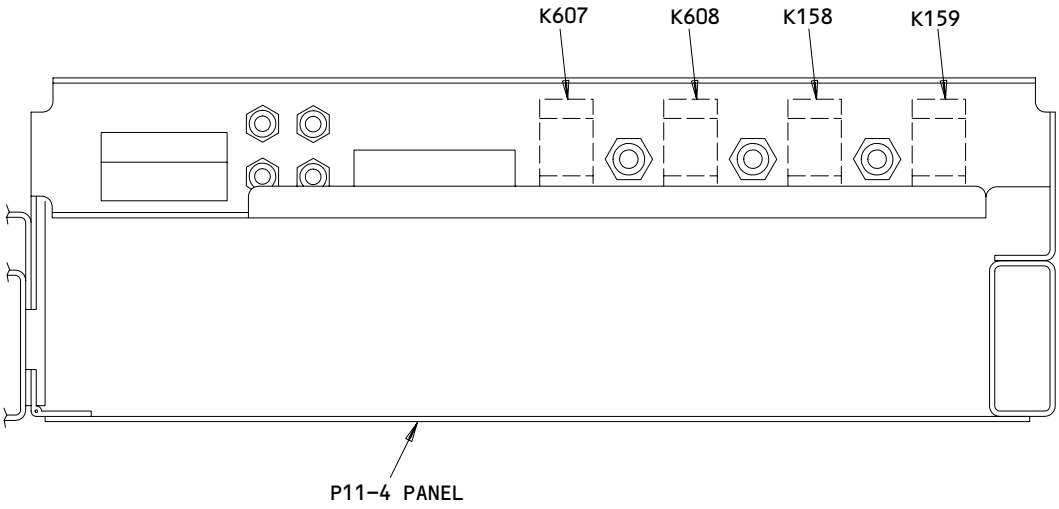
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CABLE - LEFT ENGINE EXCITER-TO-IGNITER PLUG	2	2	416AR, THRUST REVERSER, LEFT ENGINE, COMPRESSOR SECTION	74-21-01
CABLE - RIGHT ENGINE EXCITER-TO-IGNITER PLUG	2	2	426AR, THRUST REVERSER, RIGHT ENGINE, COMPRESSOR SECTION	74-21-01
CIRCUIT BREAKERS -	1		FLT COMPT, P11	
ENGINES IGNITION 1L, C1430		1	11M1	*
ENGINES IGNITION 1R, C1432		1	11M2	*
ENGINES IGNITION 2L, C1431		1	11M28	*
ENGINES IGNITION 2R, C1433		1	11M29	*
ENGINE STBY IGN 1, C1434		1	11D7	*
ENGINE STBY IGN 2, C1435		1	11D8	*
LEFT ENGINE BUS PWR SENSE, C1439		1	11M29	*
RIGHT ENGINE BUS PWR SENSE, C1440		1	11M36	*
COMPUTERS - (31-41-00/101)				
EICAS L, M10181				
EICAS R, M10182				
DIODES -	--		119AL, MAIN EQUIP CTR, E1-2	
SYS L ISOLATION, R333		1		*
SYS R ISOLATION, R334		1		*
EXCITER - LEFT ENGINE IGNITION 1, M7196	2	1	416AR, THRUST REVERSER, LEFT ENGINE, MAIN GEARBOX	74-11-01
EXCITER - LEFT ENGINE IGNITION 2, M7197	2	1	416AR, THRUST REVERSER, LEFT ENGINE, MAIN GEARBOX	74-11-01
EXCITER - RIGHT ENGINE IGNITION 1, M7196	2	1	426AR, THRUST REVERSER, RIGHT ENGINE, MAIN GEARBOX	74-11-01
EXCITER - RIGHT ENGINE IGNITION 2, M7197	2	1	426AR, THRUST REVERSER, RIGHT ENGINE, MAIN GEARBOX	74-11-01
MODULE - (32-09-03/101)				
PSEU, M162				
MODULES - (73-21-00/101)				
L N2 ENG SPEEDCARD, M1093				
R N2 ENG SPEEDCARD, M1092				
MODULE - (80-11-00/101)				
ENG IGN AND START CONTROL, M49				
PLUG - IGNITER	2	2	416AR, THRUST REVERSER, LEFT ENGINE, COMPRESSOR SECTION	74-21-02
PLUG - IGNITER	2	2	426AR, THRUST REVERSER, RIGHT ENGINE, COMPRESSOR SECTION	74-21-02
RELAY - L BUS PWR SENSE 1, K158	1	1	FLIGHT COMPARTMENT, P11, RELAY RACK	*
RELAY - L BUS PWR SENSE 2, K607	1	1	FLIGHT COMPARTMENT, P11, RELAY RACK	*
RELAY - R BUS PWR SENSE 1, K159	1	1	FLIGHT COMPARTMENT, P11, RELAY RACK	*
RELAY - R BUS PWR SENSE 2, K608	1	1	FLIGHT COMPARTMENT, P11, RELAY RACK	*
RELAYS - (30-21-00/101)				
L ENG TAI CONT T/D, K650				
R ENG TAI CONT T/D, K649				
RELAYS - (76-11-00/101)				
L FUEL/IGN CONTROL, K168				
R FUEL/IGN CONTROL, K169				

* SEE THE WDM EQUIPMENT LIST

Engine Ignition System - Component Index
Figure 101



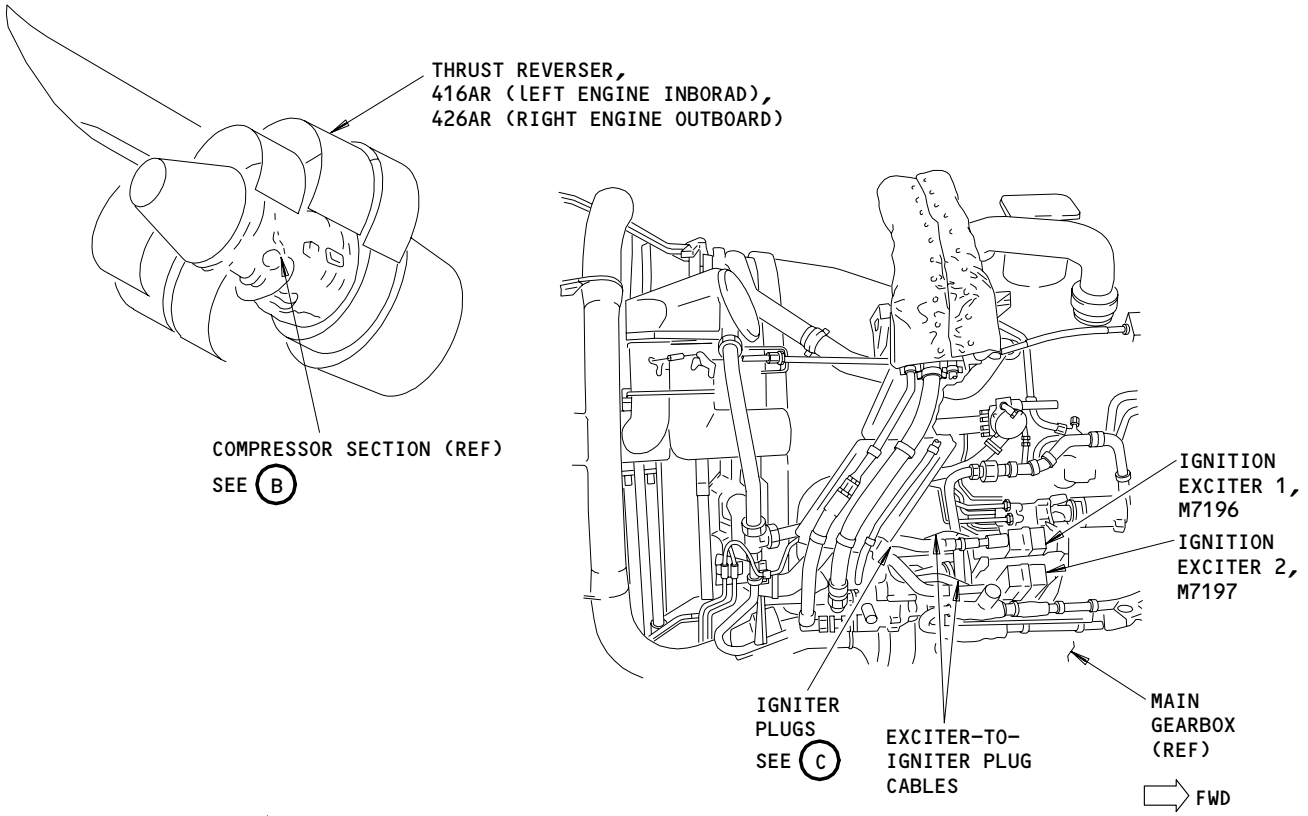
FLIGHT COMPARTMENT

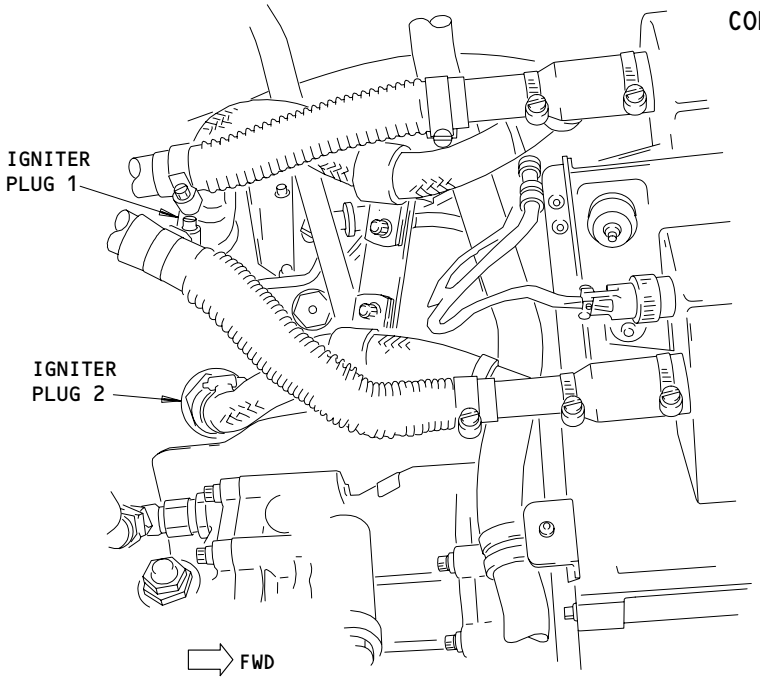


RELAY RACK

A

Engine Ignition Systems – Component Location
Figure 102 (Sheet 1)





Engine Ignition Systems - Component Location
Figure 102 (Sheet 2)

IGNITION - ADJUSTMENT/TEST

1. General
   A. This procedure has four tasks:
      Visual Check
      Operational Test - Audible Check, Engine 1 and 2 Ignition System
      Operational Test - Ignition Control (Standby Ignition) System
      Operational Test - Audible Check, Continuous Ignition System
   B. The ignition control system test makes an audible check of the auto ignition system, the standby ignition system, the continuous ignition system and the automatic continuous ignition system (when anti-ice is on or the leading edge slats are extended).
   C. The high energy spark supplied by the ignition system is easily heard. This procedure is an audible test of the applicable engine ignition system. If you can hear a spark then the airplane system, ignition exciters and high tension cables are in satisfactory condition. This does not tell you about the condition of the igniter plug. If the igniter ceramic is cracked, the igniter plug can spark through the cooling holes instead of at the tip.

TASK 74-00-00-205-001-N00

2. Visual Check
   A. References
      (1) AMM 71-11-04/201, Fan Cowl Panels
      (2) AMM 71-11-06/201, Core Cowl Panels
      (3) AMM 74-21-02/601, Igniter Plug
      (4) AMM 78-31-00/201, Thrust Reverser System
   B. Prepare for the Visual Check of the Ignition System

      S 015-003-N00

      (1) Open the right fan cowl panel (AMM 71-11-04/201).

      S 045-050-N00

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

      (2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 015-005-N00
(3) Open the right core cowl panel (AMM 71-11-06/201).

S 015-006-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Open the right thrust reverser (AMM 78-31-00/201).

C. Procedure

S 215-046-N00

WARNING: THE IGNITION SYSTEM VOLTAGE IS VERY HIGH. THE IGNITION SWITCH MUST BE IN THE OFF POSITION BEFORE YOU REMOVE ANY OF THE IGNITION COMPONENTS. WAIT TWO MINUTES BETWEEN THE OPERATION OF THE IGNITION SYSTEM AND THE REMOVAL OF ANY OF THE COMPONENTS. AFTER YOU DISCONNECT THE CABLE FROM THE IGNITER PLUG, GROUND THE CABLE TERMINAL TO MAKE SURE ALL THE ENERGY FROM THE SYSTEM IS GONE. IF YOU DO NOT FOLLOW THIS PROCEDURE, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Look at the ignition system components for damage and make sure there are no obstructions in the cooling air passages.
(a) If necessary examine the condition of the igniter plug (AMM 74-21-02/601).

D. Return the Aircraft to Its Usual Condition

S 415-008-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Close the right thrust reverser (AMM 78-31-00/201).

S 415-009-N00
(2) Close the right core cowl panel (AMM 71-11-06/201).

S 445-051-N00
(3) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 415-011-N00
(4) Close the right fan cowl panel (AMM 71-11-04/201).

TASK 74-00-00-705-012-N00

3. Audible Test of the Engine Ignition System

A. General

(1) The high energy spark supplied by the ignition system is easily heard. This procedure is an audible test of the applicable engine ignition system. If you can hear a spark then the airplane system, ignition exciters and high tension cables are in satisfactory condition. This does not tell you about the condition of the igniter plug. If the igniter ceramic is cracked, the igniter plug can spark through the cooling holes instead of at the tip.

B. References

(1) AMM 24-22-00/201, Electrical Power-Control

(2) AMM 71-00-00/201, Power Plant

C. Prepare for the Audible Test of the Ignition System

S 865-013-N00

CAUTION: BEFORE YOU TEST THE IGNITION SYSTEM, DRY MOTOR THE ENGINE TO REMOVE ANY UNBURNED FUEL (AMM 71-00-00/201). UNBURNED FUEL MAY RESULT IN AN INTERNAL ENGINE FIRE OR TURBINE EXHAUST AREA FIRE. MAKE SURE N2 DOES NOT TURN WHEN YOU TEST THE IGNITION SYSTEM. IF N2 TURNS, FUEL CAN ENTER THE COMBUSTION CHAMBER WHEN THE FUEL CONTROL SWITCH IS PUT TO THE RUN POSITION. AN ACCIDENTAL ENGINE LIGHTUP COULD OCCUR.

(1) Dry motor the engine to clear the gas path of any remaining fuel (AMM 71-00-00/201).

NOTE: If you dry motored the engine immediately before and you know that there is no fuel in the engine, it is not necessary to dry motor the engine again.

S 865-057-N00

(2) Do these steps to set the engine controls for the audible test of the engine ignition system:

(a) Supply electrical power (AMM 24-22-00/201).

(b) Make sure the fuel control switch is in the RUN position.
(c) Make sure the engine start switch is in the OFF position.
(d) Make sure the engine start VALVE light is not on.
(e) Make sure the ENG VALVE light is on.
(f) Open these overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
1) 11D7, STANDBY IGNITION 1
2) 11D8, STANDBY IGNITION 2

CAUTION: IF YOU DO NOT OPEN THE START CONT CIRCUIT BREAKER OR THE THE FUEL CONTROL VLV CIRCUIT BREAKER IT WILL CAUSE THE ENGINE TO MOTOR WHEN THE ENGINE START SWITCH IS PUT TO THE GND POSITION. THIS WILL OCCUR IF THE AIRPLANE PNEUMATIC SYSTEM IS PRESSURIZED.

(g) For the left engine, open these overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
1) 11D19, ENGINE START CONT LEFT
2) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RST L
(h) For the right engine, open these overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
1) 11D20, ENGINE START CONT RIGHT
2) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RST R
(i) For the left engine, make sure these overhead panel P11 circuit breakers are closed:
1) 11M1, L IGN 1
2) 11M9, LEFT ENG BUS POWER SENSE
3) 11M28, L IGN 2
(j) For the right engine, make sure these overhead panel P11 circuit breakers are closed:
1) 11M2, R IGN 1
2) 11M29, R IGN 2
3) 11M36, RIGHT ENG BUS POWER SENSE

S 045-079-N00

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

(3) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

D. Procedure

S 865-067-N00

WARNING: YOU MUST BE VERY CAREFUL WHEN YOU WORK ON THE IGNITION SYSTEM. IGNITION VOLTAGE IS VERY DANGEROUS. DO NOT TOUCH THE IGNITER PLUGS, THE ENERGIZED PART OF THE IGNITION EXCITER, OR THE IGNITION WIRES WHEN THE IGNITION SYSTEM IS ENERGIZED. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WARNING: DO NOT DO THE CHECK OF THE IGNITION SYSTEM IF THE AIRPLANE IS NOT IN A SAFE CONDITION AND A SAFE LOCATION. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS OR DAMAGE TO THE AIRPLANE OR EQUIPMENT CAN OCCUR.

(1) Do these steps to make sure the airplane is in a safe condition and a safe location to do the check:
   (a) Make sure the airplane is not being fueled.
   (b) Make sure the airplane is not in the hangar.
   (c) Make sure there are no buildings, airplanes, equipment or persons in the jet-wake hazard area for the applicable engine(s) that will operate at ground idle (AMM 71-00-00/201).

S 715-064-N00

(2) Do the audible test of the engine ignition system.
   (a) Do these steps with the ignition select switch positioned to 1, then repeat the steps with the ignition select switch positioned to 2.

      CAUTION: MAKE SURE N2 DOES NOT TURN WHEN WHEN YOU DO THE IGNITION SYSTEM TEST. IF N2 TURNS, FUEL CAN ENTER THE COMBUSTION CHAMBER WHEN THE FUEL CONTROL SWITCH IS PUT TO THE RUN POSITION. ACCIDENTAL ENGINE LIGHTUP CAN OCCUR.

      1) Turn and hold the engine start switch momentarily to the GND position.

         NOTE: The igniter plugs will fire when the engine start switch is moved to any position other than OFF. For this test, move the engine start switch only to the GND position, not to the AUTO, FLT or CONT positions.

2) Make sure the igniter plug fires.

NOTE: This does not tell you about the condition of the igniter plug. The spark can come from an area other than the igniter tip.

E. Return the Aircraft to its Usual Condition.

S 865-074-N00
(1) Move the Fuel Control Switch to the CUTOFF position.

S 865-016-N00
(2) Remove the DO-NOT-CLOSE tags and close these overhead panel P11 circuit breakers:
(a) 11D7, STANDBY IGNITION 1
(b) 11D8, STANDBY IGNITION 2

S 865-017-N00
(3) For the left engine, remove the DO-NOT-CLOSE tags and close these overhead panel P11 circuit breakers:
(a) 11D19, ENGINE START CONT LEFT
(b) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RST L

S 865-018-N00
(4) For the right engine, remove the DO-NOT-CLOSE tags and close these overhead panel P11 circuit breakers:
(a) 11D20, ENGINE START CONT RIGHT
(b) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RST R

S 445-078-N00
(5) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 865-021-N00
(6) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

TASK 74-00-00-705-022-N00

4. Operational Test - Ignition Control System (Standby Power)

A. References
(1) AMM 24-22-00/201, Electrical Power-Control
(2) AMM 27-81-00/201, LE Slat System
(3) AMM 36-00-00/201, Pneumatic - General
(4) AMM 71-00-00/201, Power Plant

B. Prepare for the Operational Test of the Ignition Control System

S 865-023-N00

CAUTION: BEFORE YOU TEST THE IGNITION SYSTEM, DRY MOTOR THE ENGINE TO REMOVE ANY UNBURNED FUEL (AMM 71-00-00/201). UNBURNED FUEL MAY RESULT IN AN INTERNAL ENGINE FIRE OR TURBINE EXHAUST AREA FIRE. MAKE SURE N2 DOES NOT TURN WHEN YOU TEST THE IGNITION SYSTEM. IF N2 TURNS, FUEL CAN ENTER THE COMBUSTION CHAMBER WHEN THE FUEL CONTROL SWITCH IS PUT TO THE RUN POSITION. AN ACCIDENTAL ENGINE LIGHTUP COULD OCCUR.

(1) Dry motor the engine to clear the gas path of any remaining fuel (AMM 71-00-00/201).

NOTE: If you dry motored the engine immediately before and you know that there is no fuel in the engine, it is not necessary to dry motor the engine again.

S 865-056-N00

(2) Do these steps to set the engine controls for the ignition test:
(a) Supply electrical power (AMM 24-22-00/201).
(b) Make sure the fuel control switch is in the RUN position.
(c) Make sure the engine start switch is in the OFF position.
(d) Make sure the engine start VALVE light is not on.
(e) Make sure the ENG VALVE light is on.
(f) Open these overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
1) 11D7, STANDBY IGNITION 1
2) 11D8, STANDBY IGNITION 2

CAUTION: IF YOU DO NOT OPEN THE START CONT CIRCUIT BREAKER IT WILL CAUSE THE ENGINE TO MOTOR WHEN THE ENGINE START SWITCH IS PUT TO THE GND POSITION. THIS WILL OCCUR IF THE AIRPLANE PNEUMATIC SYSTEM IS PRESSURIZED.

(g) For the left engine, open these overhead panel P11 circuit breakers and attach the DO-NOT-CLOSE tags:
1) 11D19, ENGINE START CONT LEFT
2) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RST L
(h) For the right engine, open these overhead panel P11 circuit breakers and attach the DO-NOT-CLOSE tags:
1) 11D20, ENGINE START CONT RIGHT
2) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RST R
(i) For the left engine, make sure these overhead panel P11 circuit breakers are closed:
1) 11M1, L IGN 1

2) 11M28, L IGN 2

(j) For the right engine, make sure these overhead panel P11 circuit breakers are closed:
1) 11M2, R IGN 1
2) 11M29, R IGN 2

C. Procedure

S 865-068-N00

WARNING: YOU MUST BE VERY CAREFUL WHEN YOU WORK ON THE IGNITION SYSTEM. IGNITION VOLTAGE IS VERY DANGEROUS. DO NOT TOUCH THE IGNITER PLUGS, THE ENERGIZED PART OF THE IGNITION EXCITER, OR THE IGNITION WIRES WHEN THE IGNITION SYSTEM IS ENERGIZED. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WARNING: DO NOT DO THE CHECK OF THE IGNITON SYSTEM IF THE AIRPLANE IS NOT IN A SAFE CONDITION AND A SAFE LOCATION. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS OR DAMAGE TO THE AIRPLANE OR EQUIPMENT CAN OCCUR.

(1) Do these steps to make sure the airplane is in a safe condition and a safe location to do the check:
(a) Make sure the airplane is not being fueled.
(b) Make sure the airplane is not in the hangar.
(c) Make sure there are no buildings, airplanes, equipment or persons in the jet-wake hazard area for the applicable engine(s) that will operate at ground idle (AMM 71-00-00/201).

S 715-061-N00

(2) Do these steps to test the igniter circuit standby power:
(a) Open these overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
1) 11M9, LEFT ENG BUS POWER SENSE
2) 11M36, RIGHT ENG BUS POWER SENSE
(b) Remove the DO-NOT-CLOSE tags and close these overhead panel P11 circuit breakers:
1) 11D7, STANDBY IGNITION 1
2) 11D8, STANDBY IGNITION 2
(c) Put the ignition select switch to the BOTH position.
(d) Turn and hold the engine start switch to the GND position.
(e) Make sure both igniter plugs fire.
(f) Press the ECS MSG key on the EICAS maintenance panel and make sure the IGN 1 STBY BUS and the IGN 2 STBY BUS messages appear on the EICAS maintenance message list.
(g) Put the ignition select switch to the 1 position.
(h) Make sure the igniter plug fires.
(i) Put the ignition select switch to the 2 position.
(j) Make sure the igniter plug fires.

(k) Put the ignition select switch to the BOTH position.
(l) Remove the DO-NOT-CLOSE tags and close these overhead panel P11 circuit breakers:
1) 11M9, LEFT ENG BUS POWER SENSE
2) 11M36, RIGHT ENG BUS POWER SENSE
(m) Open these overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
1) 11D7, STANDBY IGNITION 1
2) 11D8, STANDBY IGNITION 2
(n) Make sure the IGN 1 STBY BUS and the IGN 2 STBY BUS messages have disappeared from the EICAS maintenance message list.
(o) Put the engine start switch to the OFF position.

S 865-030-N00
(3) For the left engine, remove the DO-NOT-CLOSE tag and close this overhead panel P11 circuit breaker:
(a) 11D19, ENGINE START CONT LEFT

S 865-031-N00
(4) For the right engine, remove the DO-NOT-CLOSE tag and close this overhead panel P11 circuit breaker:
(a) 11D20, ENGINE START CONT RIGHT

S 865-032-N00
(5) Remove pneumatic power (AMM 36-00-00/201).

S 865-054-N00
(6) Make sure the leading edge slats are in the retracted position (AMM 27-81-00/201).

S 715-036-N00
(7) Do the test of the ignition control system as follows, with the ignition select switch to the 1 position, 2 position, and BOTH position:

NOTE: If it was necessary to test the standby power only, it is not necessary to do the test of of the ignition control system.

(a) For the left engine, make sure this overhead panel P11 circuit breaker is closed:
1) 11A16, ANTI-ICE ENG L
(b) For the right engine, make sure this overhead panel P11 circuit breaker is closed:
1) 11T19, ANTI-ICE ENG R
(c) Put the applicable engine ANTI-ICE switchlight to the ON position.
(d) Turn and hold the applicable engine start switch to the AUTO position.
1) Make sure the igniter plug fires.
(e) Put the engine ANTI-ICE switchlight to the OFF position.
1) Make sure the igniter plug does not fire.

(f) Turn and hold the engine start switch to the CONT position.
1) Make sure the igniter plug fires.
(g) Turn and hold the engine start switch to the FLT position.
1) Make sure that both igniter plugs fire.
(h) Turn and hold the engine start switch to the AUTO position.
1) Put the flap lever to the 1 unit position (AMM 27-51-00/201).
a) Make sure the igniter plug fires.
2) Put the flap lever back to the up position (AMM 27-51-00/201).
a) Make sure the igniter plug does not fire.
3) Open this overhead panel P11 circuit breaker and attach a DO-NOT-CLOSE tag:
a) 11C10, SLAT POS IND
4) Make sure the igniter plug fires.
5) Remove the DO-NOT-CLOSE tag and close this overhead panel P11 circuit breaker:
a) 11C10, SLAT POS IND
6) Make sure the igniter plug does not fire.
(i) Put the engine start switch to the OFF position.

S 865-075-N00

(8) Move the Fuel Control Switch to the CUTOFF position.

S 865-037-N00

(9) For the left engine, remove the DO-NOT-CLOSE tag and close this overhead panel P11 circuit breaker:
(a) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RST L

S 865-038-N00

(10) For the right engine, remove the DO-NOT-CLOSE tag and close this overhead panel P11 circuit breaker:
(a) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RST R

S 865-039-N00

(11) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

TASK 74-00-00-705-040-N00

5. Operational Test - Ignition System

A. References
(1) AMM 24-22-00/201, Electrical Power-Control
(2) AMM 71-00-00/201, Power Plant

B. Prepare for the Operational Test of the Ignition System

S 865-041-N00

CAUTION: BEFORE YOU TEST THE IGNITION SYSTEM, DRY MOTOR THE ENGINE TO REMOVE ANY UNBURNED FUEL (AMM 71-00-00/201). UNBURNED FUEL MAY RESULT IN AN INTERNAL ENGINE FIRE OR TURBINE EXHAUST AREA FIRE. MAKE SURE N2 DOES NOT TURN WHEN YOU TEST THE IGNITION SYSTEM. IF N2 TURNS, FUEL CAN ENTER THE COMBUSTION CHAMBER WHEN THE FUEL CONTROL SWITCH IS PUT TO THE RUN POSITION. AN ACCIDENTAL ENGINE LIGHTUP COULD OCCUR.

(1) Dry motor the engine to clear the gas path of any remaining fuel (AMM 71-00-00/201).

NOTE: If you dry motored the engine immediately before and you know that there is no fuel in the engine, it is not necessary to dry motor the engine again.

S 865-055-N00

(2) Do these steps to set the engine controls for the ignition test:
- (a) Supply electrical power (AMM 24-22-00/201).
- (b) Make sure the fuel control switch is in the RUN position.
- (c) Make sure the engine start switch is in the OFF position.
- (d) Make sure the engine start VALVE light is not on.
- (e) Make sure the ENG VALVE light is on.
- (f) Open these overhead panel P11 circuit breakers and attach the DO-NOT-CLOSE tags:
  1) 11D7, STANDBY IGNITION 1
  2) 11D8, STANDBY IGNITION 2
- (g) For the left engine, open this overhead panel P11 circuit breaker and attach the DO-NOT-CLOSE tag:
  1) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RST L
- (h) For the right engine, open this overhead panel P11 circuit breaker and attach the DO-NOT-CLOSE tag:
  1) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RST R
- (i) For the left engine, make sure these overhead panel P11 circuit breakers are closed:
  1) 11M1, L IGN 1
  2) 11M9, LEFT ENG BUS POWER SENSE
  3) 11M28, L IGN 2
- (j) For the right engine, make sure these overhead panel P11 circuit breakers are closed:
  1) 11M2, R IGN 1
  2) 11M29, R IGN 2
  3) 11M36, RIGHT ENG BUS POWER SENSE

C. Procedure

S 865-069-N00

WARNING: YOU MUST BE VERY CAREFUL WHEN YOU WORK ON THE IGNITION SYSTEM. IGNITION VOLTAGE IS VERY DANGEROUS. DO NOT TOUCH THE IGNITER PLUGS, THE ENERGIZED PART OF THE IGNITION EXCITER, OR THE IGNITION WIRES WHEN THE IGNITION SYSTEM IS ENERGIZED. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

WARNING: DO NOT DO THE CHECK OF THE IGNITION SYSTEM IF THE AIRPLANE IS NOT IN A SAFE CONDITION AND A SAFE LOCATION. IF YOU DO NOT OBEY THIS INSTRUCTION, INJURIES TO PERSONS OR DAMAGE TO THE AIRPLANE OR EQUIPMENT CAN OCCUR.

(1) Do these steps to make sure the airplane is in a safe condition and a safe location to do the check:
   (a) Make sure the airplane is not being fueled.
   (b) Make sure the airplane is not in the hangar.
   (c) Make sure there are no buildings, airplanes, equipment or persons in the jet-wake hazard area for the applicable engine(s) that will operate at ground idle (AMM 71-00-00/201).

S 715-062-N00

(2) Do these steps to do a test of the ignition control system:
   (a) Put the ignition select switch in the 1 position.
   (b) Turn and hold the engine start switch in the CONT position.
      1) Make sure the igniter plug fires.
      2) When you hear the igniter plug fire, put the engine start switch in the OFF position.
   (c) Put the ignition select switch in the 2 position.
   (d) Turn and hold the engine start switch in the CONT position.
      1) Make sure the igniter plug fires.
      2) When you hear the igniter plug fire, put the engine start switch in the OFF position.

S 865-048-N00

(3) Return the Aircraft to its Usual Condition.

S 865-076-N00

(4) Move the Fuel Control Switch to the CUTOFF position.
   (a) For the left engine, remove the DO-NOT-CLOSE tag and close this overhead panel P11 circuit breaker:
      1) 11D25, ENGINE FUEL CONT VLV & EEC CHAN B RST L
   (b) For the right engine, remove the DO-NOT-CLOSE tag and close this overhead panel P11 circuit breaker:
      1) 11D26, ENGINE FUEL CONT VLV & EEC CHAN B RST R
   (c) Remove the DO-NOT-CLOSE tags and close these overhead panel P11 circuit breakers:
      1) 11D7, STANDBY IGNITION 1
      2) 11D8, STANDBY IGNITION 2
   (d) Remove electrical power if it is not necessary (AMM 24-22-00/201).

IGNITION EXCITER - REMOVAL/INSTALLATION

1. General
   A. This procedure has two tasks for the removal and the installation of the ignition exciters.
   B. There are two ignition exciters on each engine. The exciters are installed on the top right side of the main gearbox. The higher ignition exciter is part of the ignition system 1. The lower ignition exciter is part of the ignition system 2.
   C. You can open the right thrust reverser half to get acces to the exciters.

TASK 74-11-01-004-001-N00

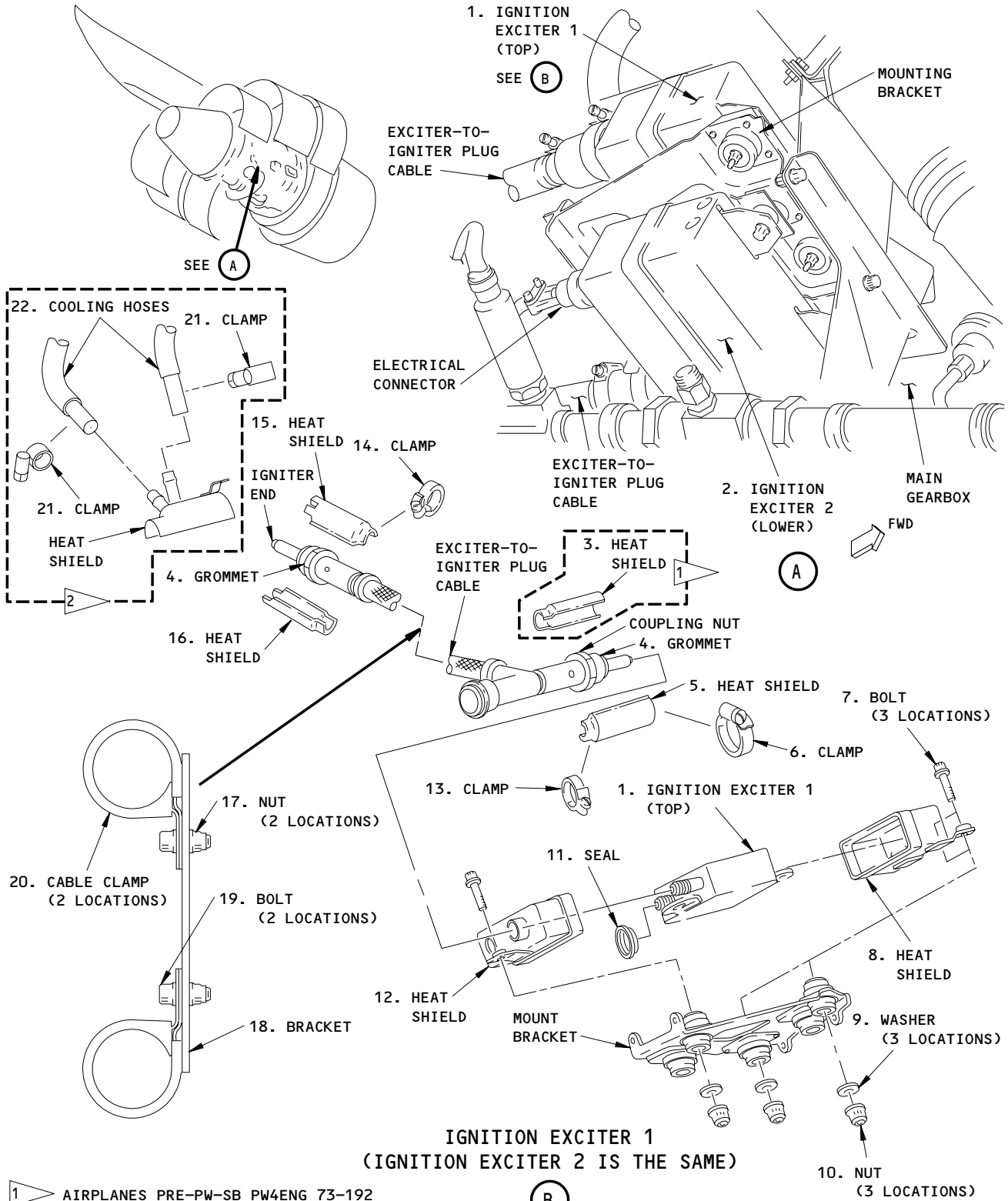
2. Ignition Exciter Removal (Fig. 401)
   A. References
      (1) AMM 71-11-04/201, Fan Cowl Panels
      (2) AMM 71-11-06/201, Core Cowl Panels
      (3) AMM 78-31-00/201, Thrust Reverser System
   B. Access
      (1) Location Zones
          411 Left Engine
          421 Right Engine

      (2) Access Panels
          414AR Fan Cowl Panel, Left Engine
          416AR Thrust Reverser, Left Engine
          418AR Core Cowl Panel, Left Engine
          424AR Fan Cowl Panel, Right Engine
          426AR Thrust Reverser, Right Engine
          428AR Core Cowl Panel, Right Engine

   C. Prepare to Remove the Ignition Exciter.

      S 864-002-N00
      (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
          (a) 11D7, ENGINE STBY IGN 1
          (b) 11D8, ENGINE STBY IGN 2

      S 864-003-N00
      (2) For the left engine, open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
          (a) 11M1, L IGN 1



Ignition Exciter Installation
Figure 401

(b) 11M9, LEFT ENGINE BUS PWR SENSE
(c) 11M28, L IGN 2

S 864-004-N00

(3) For the right engine, open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
(a) 11M2, R IGN 1
(b) 11M29, R IGN 2
(c) 11M36, RIGHT ENGINE BUS PWR SENSE

S 014-005-N00

(4) Open the right fan cowl panel (AMM 71-11-04/201).

S 044-006-N00

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

(5) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 014-007-N00

(6) Open the right core cowl panel (AMM 71-11-06/201).

S 014-008-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Open the right thrust reverser (AMM 78-31-00/201).

D. Remove the Ignition Exciter.

S 864-009-N00

WARNING: DO NOT TOUCH THE IGNITION SYSTEM COMPONENTS UNTIL YOU DO THESE STEPS. IF YOU DO NOT OBEY THESE INSTRUCTIONS, INJURIES TO PERSONS CAN OCCUR.

(1) Make sure the ignition switch on the pilot's overhead panel, P5, is in the OFF position.
(a) Stop for a minimum of five minutes.

S 034-010-N00

(2) Remove the bolts (19) and the nuts (17) for the cable that you will remove.

NOTE: The clamp (20) attaches the top and the lower exciter-to-igniter plug cables to the bracket (18).

(a) Remove the bracket from the engine if the two cables are removed.

S 034-012-N00

(3) Disconnect the hose clamp and remove the cooling air hose from the exciter-to-igniter plug cable.

S 034-011-N00

(4) Do these steps to remove the heat shields from the exciter-to-igniter cable:
(a) Disconnect the clamp (14) that attaches the heat shields (15 and 16) at the igniter plug.
1) Remove the heat shields (15 and 16).
(b) Loosen the clamps (6 and 13) that attach the heat shields (3 and 5) at the ignition exciter.
1) Remove the heat shields (3 and 5).

S 034-013-N00

(5) Loosen the coupling nut from the cable connector at the exciter.
(a) Loosen the coupling nut sufficiently to permit free movement of the cable, but do not disconnect the cable.

S 034-014-N00

WARNING: MAKE SURE YOU GROUND THE EXCITER-TO-IGNITER CABLE TERMINAL TO THE BODY SHIELD ON THE IGNITER PLUG. THIS WILL RELEASE THE HIGH VOLTAGE FROM THE IGNITION EXCITER. IF YOU DO NOT OBEY THESE INSTRUCTIONS, INJURIES TO PERSONS CAN OCCUR.

CAUTION: PULL THE CABLE END IN A STRAIGHT DIRECTION WHEN YOU DISCONNECT THE CABLE FROM THE IGNITER PLUG AND FROM THE EXCITER. IF YOU APPLY A LATERAL FORCE ON THE CABLE, YOU CAN CAUSE DAMAGE TO THE CABLE.

(6) Do these steps to release the high voltage from the ignition exciter:
(a) Disconnect the cable coupling nut from the igniter plug.
(b) Immediately ground the exciter-to-igniter cable to the body shield on the igniter plug.
(c) Remove the heat shield clamp (14) from the cable.

S 034-015-N00

(7) Disconnect the coupling nut from the connector on the ignition exciter (1 or 2).
  (a) Remove the heat shield clamps (6 and 13) from the cable.
  (b) Remove the cable from the engine.

S 034-016-N00

(8) Disconnect the electrical connector from the ignition exciter (1 or 2).

S 034-017-N00

(9) Remove and discard the grommets (4) from the cable.

S 024-018-N00

(10) Do these steps to remove the exciter (1 or 2) from the engine:
  (a) Remove the bolts (7), washers (9), and nuts (10) that attach the exciter to the mount bracket.
  (b) Remove the exciter from the engine.
  (c) Remove the heat shields (8 and 12) from the exciter.
  (d) Remove and discard the seal (11) from the exciter connector.
  (e) Install protective caps on the cable coupling nuts and on the exciter connectors.

TASK 74-11-01-404-019-N00

3. Ignition Exciter Installation (Fig. 401)

A. Consumable Materials
  (1) G00834 Cloth - clean and lint-free
  (2) D00137 Oil, Engine - PWA 521B Type II
  (3) B00772 Solvent - PMC 9087, Trichlorotrifluorethane
  (4) D00333 Anti-Seize Compound - PMC 9523, Molykote Type Z
  (5) D00453 Compound, Antigalling - Fel Pro C-300 (PWA 36035)
  (6) D00405 Compound, Antigalling - (PWA 550-3)

B. Parts

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
401	1	Ignition Exciter	74-11-01	05	40
	2	Ignition Exciter			40
	4	Grommet			55
	11	Seal	74-11-01	05	18

C. References
(1) AMM 71-11-04/201, Fan Cowl Panels
(2) AMM 71-11-06/201, Core Cowl Panels
(3) AMM 74-00-00/501, Ignition System
(4) AMM 74-11-01/601, Ignition Exciter
(5) AMM 78-31-00/201, Thrust Reverser System

D. Access
(1) Location Zones
411 Left Engine
421 Right Engine

(2) Access Panels
414AR Fan Cowl Panel, Left Engine
416AR Thrust Reverser, Left Engine
418AR Core Cowl Panel, Left Engine
424AR Fan Cowl Panel, Right Engine
426AR Thrust Reverser, Right Engine
428AR Core Cowl Panel, Right Engine

E. Install the Ignition Exciter.

S 424-020-N00
(1) Do these steps to install the exciter (1 or 2) on the engine:
(a) Remove protective caps from the cable coupling nuts and from the exciter connectors.

(b) Install a new seal (11) on the exciter connector.

NOTE: Install the seal on the exciter connector with the smaller diameter. Install the larger diameter of the seal away from the exciter.

(c) Put the exciter in the heat shields (8 and 12).
(d) Lubricate the bolts (7) with the engine oil.
(e) Attach the exciter and the heat shields to the mounting bracket with the bolts (7), washers (9), and nuts (10).
1) Tighten the bolts (7) to 36-40 pound-inches (4.1-4.5 newton-meters).

S 214-021-N00

(2) Do an inspection of the output receptacle on the exciter (AMM 74-11-01/601).

S 214-022-N00

(3) Examine the exciter-to-igniter plug cable (AMM 74-21-01/601).

S 434-023-N00

(4) Install new grommets (4) on the cable ends.

WARNING: DO NOT GET THE SOLVENT IN YOUR MOUTH, OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THE SOLVENT. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THE SOLVENT. THE SOLVENT IS A POISONOUS AND FLAMMABLE SOLVENT THAT CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Use the solvent and the lint-free cloth to clean the new grommets.
(b) Install the grommets (4) on the cable.

S 434-024-N00

CAUTION: PUSH THE CABLE END IN A STRAIGHT DIRECTION WHEN YOU CONNECT THE CABLE TO THE IGNITER PLUG AND THE EXCITER. IF YOU APPLY A LATERAL FORCE ON THE CABLE, YOU CAN CAUSE DAMAGE TO THE CABLE.

(5) Do these steps to connect the igniter-to-exciter cable to the igniter plug and exciter:
(a) Install the clamp (14) on the cable end that attaches to the igniter plug.
(b) Lubricate the coupling nut threads that connect to the igniter plug with the antiseize compound.

NOTE: Do not apply too much antiseize compound to the coupling nut, or the cable will not have a good contact.

(c) Connect the cable to the igniter plug.
1) Keep the coupling nut sufficiently loose to permit free movement of the cable.
(d) Install the two clamps (6 and 13) on the cable end that attaches to the exciter.
1) Install the smaller clamp (13) on the cable before you install the larger clamp (6).
(e) Lubricate the coupling nut threads that connect to the exciter with the antigalling compound (PWA 36035).

NOTE: Do not apply too much antigalling compound to the coupling nut threads. You can use the PWA 550-3 antigalling compound if you do not have the PWA 36035.

(f) Connect the cable to the output receptacle on the exciter.
(g) Tighten the coupling nuts at each end of the cable.

S 434-025-N00
(6) Install the heat shields at each end of the cable.
(a) FOR ENGINES WITHOUT SB 73-192; Attach the heat shields (3 and 5) at the exciter with the clamps (6 and 13).
1) Tighten the clamp screws to 15.0-18.0 pound-inches (1.7-2.0 newton-meters).
(b) FOR ENGINES WITH SB 73-192; Position heat shield segments over exciter end of cable. Make sure the segment half (3) with hose fittings has the fittings pointed up.
1) Secure segments with clamps (6, 13). Torque clamp screws to 15 - 18 inch-pounds (1.695 - 2.034 N.m).
(c) FOR ENGINES WITH SB 73-192; Install cooling hoses (22) on heat shield fitting (3) and secure with clamps (21). Torque the hose clamps to 10 - 15 inch-pounds (1.130 - 1.695 N.m).
(d) Attach the heat shields (15 and 16) at the igniter plug with the clamp (14).
1) Tighten the clamp screw to 15.0-18.0 pound-inches (1.7-2.0 newton-meters).

S 434-026-N00
(7) Attach the cooling air hose to the exciter-to-igniter plug cable with the clamp.

S 434-027-N00
(8) Connect the electrical connector to the ignition exciter (1 or 2).
(a) After you engage the key in the slot, tighten the knurled coupling ring with your hand until the connector is fully engaged.

F. Put the Airplane Back to its Usual Condition.

S 414-028-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Close the right thrust reverser (AMM 78-31-00/201).

S 414-029-N00

(2) Close the right core cowl panel (AMM 71-11-06/201).

S 444-030-N00

(3) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 414-031-N00

(4) Close the right fan cowl panel (AMM 71-11-04/201).

S 864-032-N00

(5) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
(a) 11D7, ENGINE STBY IGN 1
(b) 11D8, ENGINE STBY IGN 2

S 864-033-N00

(6) For the left engine, remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
(a) 11M1, L IGN 1
(b) 11M9, LEFT ENGINE BUS PWR SENSE
(c) 11M28, L IGN 2

S 864-034-N00

(7) For the right engine, remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
(a) 11M2, R IGN 1

(b) 11M29, R IGN 2
(c) 11M36, RIGHT ENGINE BUS PWR SENSE

S 754-035-N00
(8) Do the audible test procedure for the ignition system (AMM 74-00-00/501).

IGNITION EXCITER - INSPECTION/CHECK

1. General
   A. This procedure is used to make an inspection of the input and the output connectors on the ignition exciters.
   B. The ignition exciter may be removed from the engine before you do the inspection.
      (1) Removal of the ignition exciter will give you access to visually inspect the entire ignition exciter.

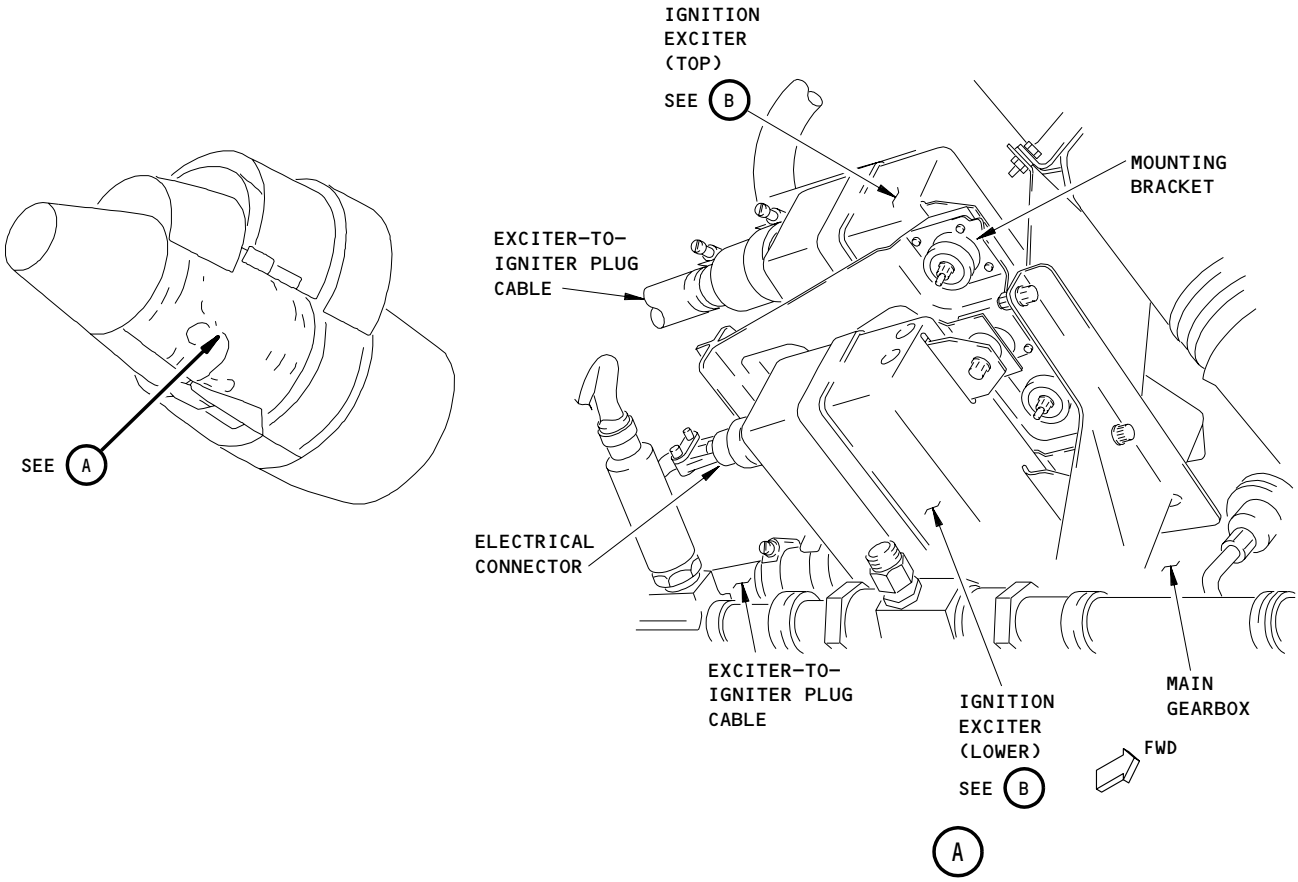
TASK 74-11-01-206-001-N00

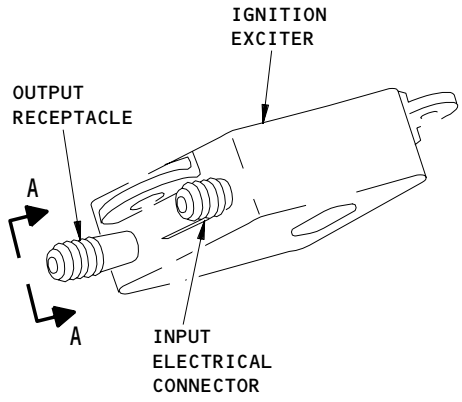
2. Inspect the Ignition Exciter
   A. References
      (1) AMM 71-11-04/201, Fan Cowl Panels
      (2) AMM 71-11-06/201, Core Cowl Panels
      (3) AMM 74-11-01/401, Ignition Exciter
      (4) AMM 74-11-01/701, Ignition Exciter
      (5) AMM 78-31-00/201, Thrust Reverser System
   B. Equipment
      (1) Thread Chasing Die (1.00-20UNEF-3A)
          Tapco USA, Inc., 5605 Pike Rd,
          Loves Park, IL 61111 (Recommended)
          Commercially Available (Alternative) D00333
   C. Consumables
      (1) D00333 Anti-Seize Compound - PMC 9523,
          Molykote Type Z
   D. Access
      (1) Location Zones
          416 Fan reverser (right)
          426 Fan reverser (right)

      (2) Access Panels
          416AR Fan reverser (right)
          426AR Fan reverser (right)

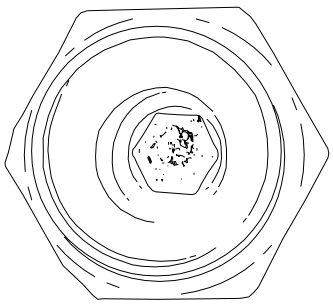
   E. Procedure

      S 866-002-N00
      (1) Open these circuit breakers on the overhead panel P11 and attach DO-NOT-CLOSE tags:
          (a) 11D7, ENGINE STBY IGN 1
          (b) 11D8, ENGINE STBY IGN 2
          (c) For the left engine:
              1) 11M1, L IGN 1
              2) 11M9, LEFT ENGINE BUS PWR SENSE
              3) 11M28, L IGN 2
          (d) For the right engine:
              1) 11M2, R IGN 1
              2) 11M29, R IGN 2
              3) 11M36, RIGHT ENGINE BUS PWR SENSE

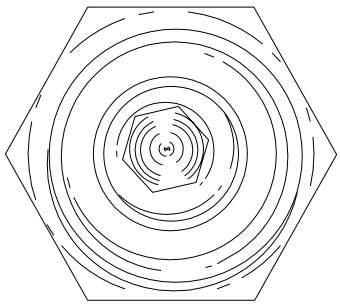




IGNITION EXCITER
B



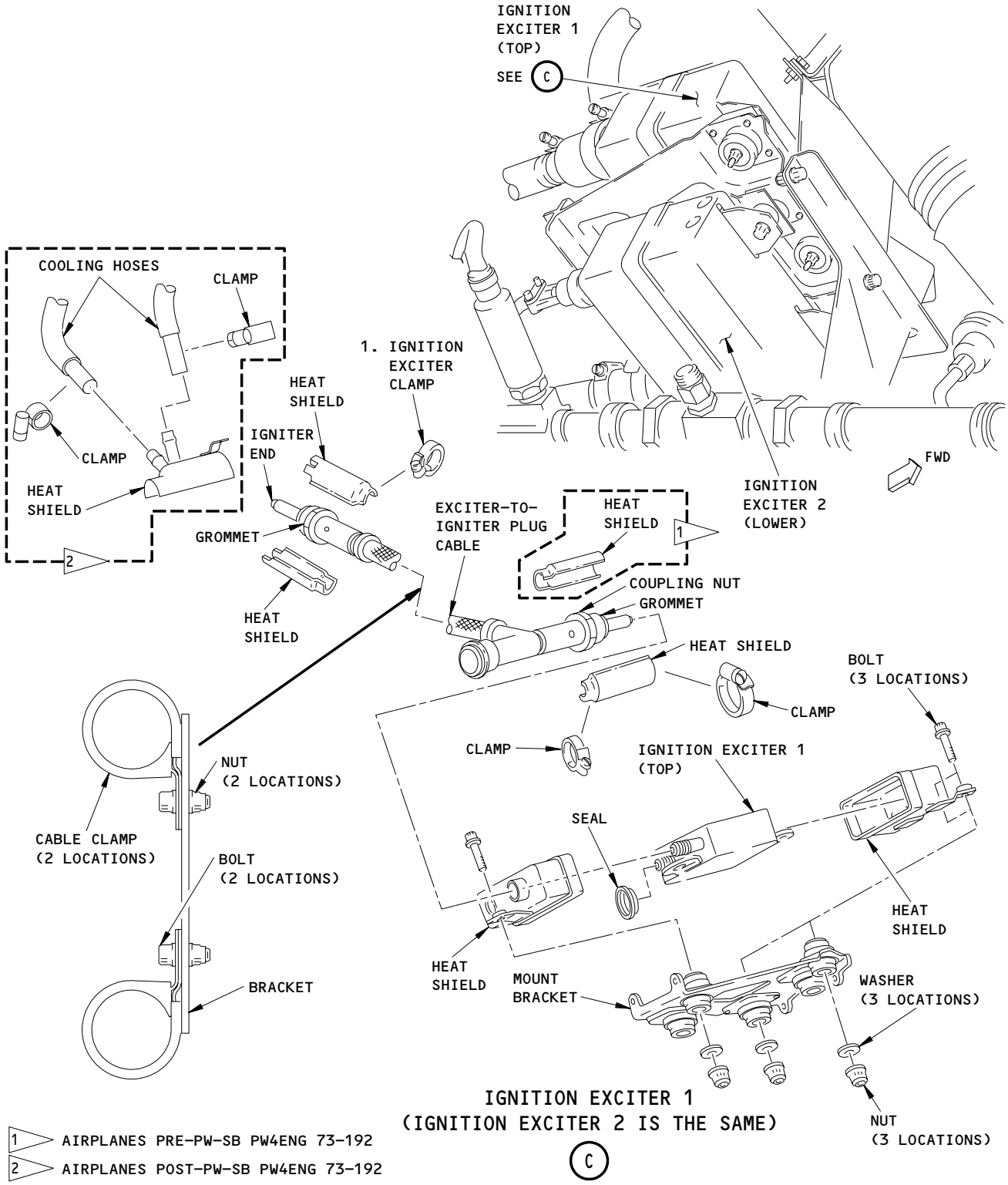
ARCING ON CONTACT BUTTON



NO ARCING ON CONTACT BUTTON

A–A

Ignition Exciter Inspection
Figure 601 (Sheet 1)



IGNITION EXCITER 1
(IGNITION EXCITER 2 IS THE SAME)

C

Ignition Exciter Inspection
Figure 601 (Sheet 2)

S 016-005-N00

(2) Open the right fan cowl panel (AMM 71-11-04/201).

S 046-021-N00

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

(3) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 016-007-N00

(4) Open the right core cowl panel (AMM 71-11-06/201).

S 016-008-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(5) Open the right thrust reverser (AMM 78-31-00/201).

S 216-009-N00

WARNING: THE IGNITION SWITCH MUST BE IN THE OFF POSITION BEFORE YOU REMOVE THE IGNITION COMPONENTS. MAKE SURE THE IGNITION SYSTEM IS NOT ENERGIZED FOR ONE MINUTE BEFORE YOU REMOVE THE IGNITION COMPONENTS. WHEN THE CABLE IS DISCONNECTED FROM THE IGNITER PLUG, GROUND THE CABLE TO MAKE SURE THAT ALL OF THE ENERGY IS OUT OF THE SYSTEM. IF YOU DO NOT FOLLOW THIS PROCEDURE, YOU CAN CAUSE INJURY TO PERSONS.

WARNING: MAKE SURE YOU GROUND THE EXCITER-TO-IGNITER CABLE TERMINAL TO THE BODY SHIELD ON THE IGNITER PLUG. THIS WILL RELEASE THE HIGH VOLTAGE FROM THE IGNITION EXCITER. IF YOU DO NOT OBEY THESE INSTRUCTIONS, INJURIES TO PERSONS CAN OCCUR.

CAUTION: PULL THE CABLE END IN A STRAIGHT DIRECTION WHEN YOU DISCONNECT THE CABLE FROM THE IGNITER PLUG AND FROM THE EXCITER. IF YOU APPLY A LATERAL FORCE ON THE CABLE, YOU CAN CAUSE DAMAGE TO THE CABLE.

(6) If the ignition exciter will be removed (AMM 74-11-01/401):
  (a) Visually examine the ignition exciter for dirt and damage in this area:
    1) Dirt or unwanted items in the contact well area.
      a) If they are found, clean the contact well area (AMM 74-11-01/701).

S 866-029-N00

(7) If the ignition exciter was NOT removed, do these steps to release the high voltage from the ignition exciter:
  (a) Disconnect the cable coupling nut from the igniter plug.
  (b) Immediately ground the exciter-to-igniter cable to the body shield on the igniter plug.

S 216-027-N00

(8) Examine the input connector for bent or damaged pins.
  (a) If the pins are bent, make them straight with long-nose pliers.
  (b) If the pins are damaged, replace the ignition exciter (AMM 74-11-01/401).

S 216-010-N00

(9) Examine the output receptacle well for damage or signs of arcing or flashover on the contact button.
  (a) Pits or discoloration on the contact button are a result of arcing.
    1) You can resurface the contact button to repair small defects caused by arcing (AMM 74-11-01/701).
  (b) Carbon tracking is the result of flashover.
  (c) For these conditions you must replace the ignition exciter (AMM 74-11-01/401).

S 216-011-N00

(10) Examine the threads of each outlet on the ignition exciter.
  (a) Repair minor damage to the threads with the thread chasing die.
  (b) For other than small repairs, you must replace the ignition exciter (AMM 74-11-01/401).

S 216-012-N00

(11) Look for cracks, dents or abrasions on the case of the ignition exciter.

S 436-026-N00

CAUTION: PUSH THE CABLE END IN A STRAIGHT DIRECTION WHEN YOU CONNECT THE CABLE TO THE IGNITER PLUG AND THE EXCITER. IF YOU APPLY A LATERAL FORCE ON THE CABLE, YOU CAN CAUSE DAMAGE TO THE CABLE.

(12) If the ignition exciter was NOT removed, do these steps to connect the igniter-to-exciter cable to the igniter plug and exciter:
  (a) Install the ignition exciter clamp (1) on the cable end that attaches to the igniter plug (Fig. 601).
  (b) Lubricate the coupling nut threads that connect to the igniter plug with the antiseize compound.

    NOTE: Do not apply too much antiseize compound to the coupling nut, or the cable will not have a good contact.

(c) Connect the cable to the igniter plug.
1) Keep the coupling nut sufficiently loose to permit free movement of the cable.
(d) Tighten the coupling nuts at each end of the cable.

S 416-031-N00
(13) If the ignition exciter was removed, install the ignition exciter (if not replaced) (AMM 74-11-01/401).

S 416-013-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(14) Close the right thrust reverser (AMM 78-31-00/201).

S 416-014-N00
(15) Close the right core cowl panel (AMM 71-11-06/201).

S 446-023-N00
(16) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 416-016-N00
(17) Close the right fan cowl panel (AMM 71-11-04/201).

S 866-017-N00
(18) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the overhead panel P11:
(a) 11D7, ENGINE STBY IGN 1
(b) 11D8, ENGINE STBY IGN 2
(c) For the left engine:
1) 11M1, L IGN 1
2) 11M9, LEFT ENGINE BUS PWR SENSE
3) 11M28, L IGN 2
(d) For the right engine:
1) 11M2, R IGN 1
2) 11M29, R IGN 2
3) 11M36, RIGHT ENGINE BUS PWR SENSE

S 716-020-N00
(19) Do the audible check procedure for the ignition system (AMM 74-00-00/501).

IGNITION EXCITER - CLEANING/PAINTING

1. General
   A. This procedure gives the steps to clean the ignition exciter.
   B. There are two ignition exciters on each engine. The exciters are installed on the top right side of the main gearbox. The higher ignition exciter is part of the ignition system 1. The lower ignition exciter is part of the ignition system 2.
   C. You can open the right thrust reverser half to get acces to the ignition exciter.

   TASK 74-11-01-107-005-N00

2. Clean the Ignition Exciter
   A. Equipment
      (1) Brush - Long bristle, non-metallic
      (2) Brush - Short bristle, non-metallic
   B. Consumable Materials
      (1) G02189 Abrasive Rod -MISC 82, Cratex
      (2) G00834 Cloth-clean, lint-free - commercially available
      (3) Solvent - For recommends and approves the use of the solvent (AMM 70-11-13/201).
   C. References
      (1) AMM 71-11-04/201, Fan Cowl Panels
      (2) AMM 71-11-06/201, Core Cowl Panels
      (3) AMM 74-11-01/401, Ignition Exciter
      (4) AMM 78-31-00/201, Thrust Reverser System
   D. Access
      (1) Location Zones
          411 Left Engine
          421 Right Engine

      (2) Access Panels
          414AR Fan Cowl Panel, Left Engine
          416AR Thrust Reverser, Left Engine
          418AR Core Cowl Panel, Left Engine
          424AR Fan Cowl Panel, Right Engine
          426AR Thrust Reverser, Right Engine
          428AR Core Cowl Panel, Right Engine

   E. Procedure

      S 017-001-N00
      (1) Open the right fan cowl panel (AMM 71-11-04/201).

S 017-002-N00

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

(2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 017-003-N00

(3) Open the right core cowl panel (AMM 71-11-06/201).

S 017-004-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Open the right thrust reverser (AMM 78-31-00/201).

S 027-006-N00

(5) Remove the ignition exciter (AMM 74-11-01/401).

S 117-007-N00

(6) Do the steps that follow to clean the ignition exciter.

(a) Remove all unwanted material from the inner contact well with compressor air at a maximum pressure of 30 psig (206.8 kPa).

NOTE: A dirty mating surface can decrease the performance and cause arcs.

WARNING: DO NOT GET THE SOLVENT IN YOUR MOUTH, OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THE SOLVENT. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THE SOLVENT. THE SOLVENT IS A POISONOUS AND FLAMMABLE SOLVENT THAT CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Make the long bristle brush wet with solvent.

(c) Use the long bristle brush to clean the outlet contact well of the ignition exciter.
1) Use the compressor air to dry the surface.
(d) With circular hand movements, use the abrasive rod to remove small quantities of arc damage from the contact button.

NOTE: This will remove the damaged surface layer and make a new surface layer.

(e) Make the circular felt bob wet with solvent.

NOTE: Use a cylinder of felt, 0.5 inch in diameter, 1.75 inch in length (12.7 mm x 44.45 mm) (This can be used with a hand chuck).

(f) With a circular movement, use the circular felt bob to clean the inner ceramic walls.
1) Use the compressor air to dry the surface.
(g) Make the short bristle brush wet with solvent.
(h) Use that brush to clean the ceramic sleeve adjacent to the grommet face.
1) Use the compressor air to dry the surface.

S 427-008-N00
(7) Install the ignition exciter (AMM 74-11-01/401).

S 417-009-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(8) Close the right thrust reverser (AMM 78-31-00/201).

S 447-010-N00
(9) Close the right core cowl panel (AMM 71-11-06/201).

S 417-011-N00
(10) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 417-012-N00
(11) Close the right fan cowl panel (AMM 71-11-04/201).

EXCITER-TO-IGNITER PLUG CABLE - REMOVAL/INSTALLATION

1. General
   A. This procedure has the removal task and the installation task for the exciter-to-igniter plug cable.
   B. There are two exciter-to-igniter plug cables on each engine. The top cable connects the top ignition exciter and is used for the ignition system 1. The lower cable connects to the lower ignition exciter, which is used for ignition system 2.

TASK 74-21-01-004-001-N00

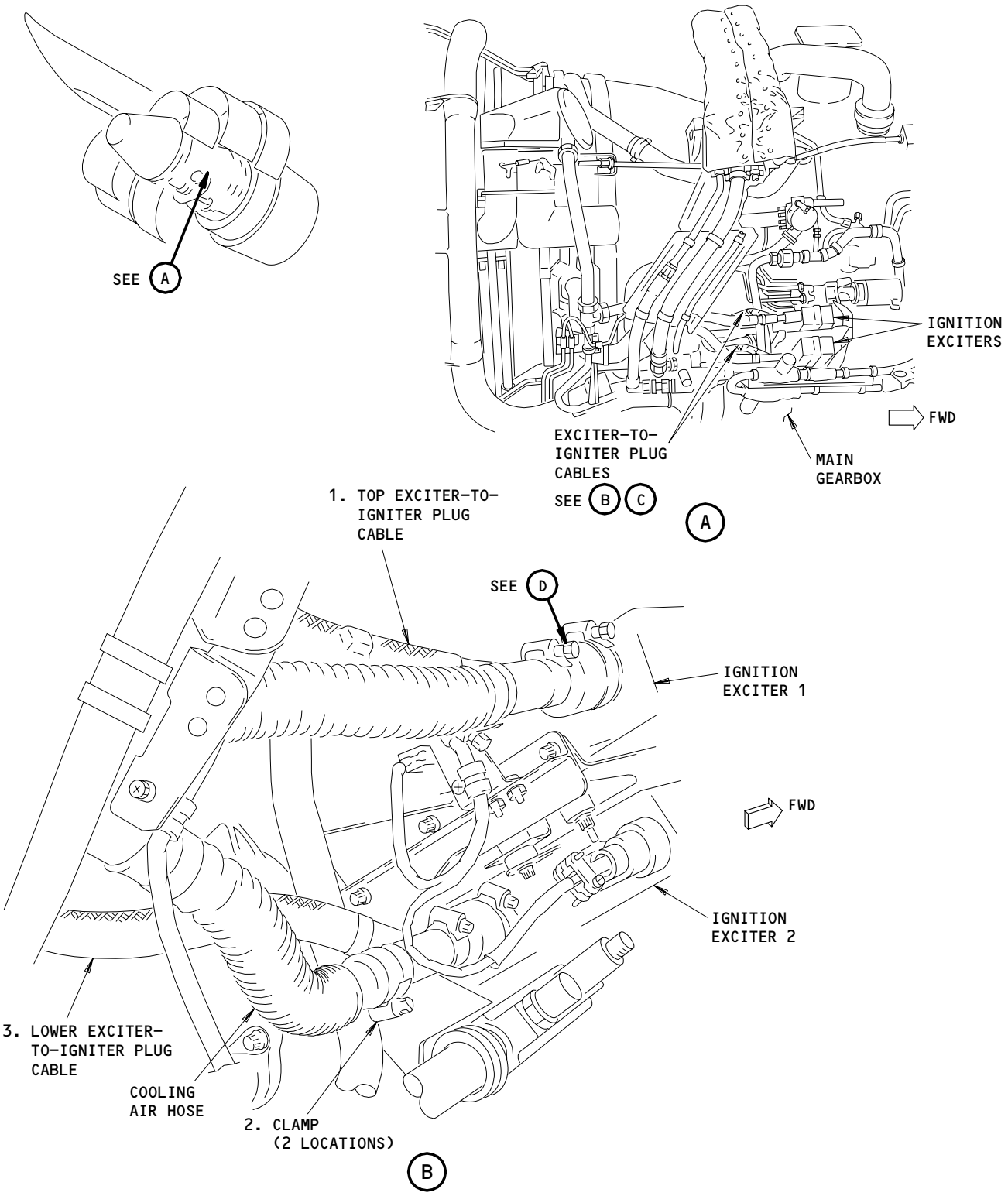
2. Exciter-to-Igniter Plug Cable Removal (Fig. 401)
   A. References
      (1) AMM 71-11-04/201, Fan Cowl Panels
      (2) AMM 71-11-06/201, Core Cowl Panels
      (3) AMM 78-31-00/201, Thrust Reverser System
   B. Access
      (1) Location Zones
          411 Left Engine
          421 Right Engine

      (2) Access Panels
          414AR Fan Cowl Panel, Left Engine
          416AR Thrust Reverser, Left Engine
          418AR Core Cowl Panel, Left Engine
          424AR Fan Cowl Panel, Right Engine
          426AR Thrust Reverser, Right Engine
          428AR Core Cowl Panel, Right Engine

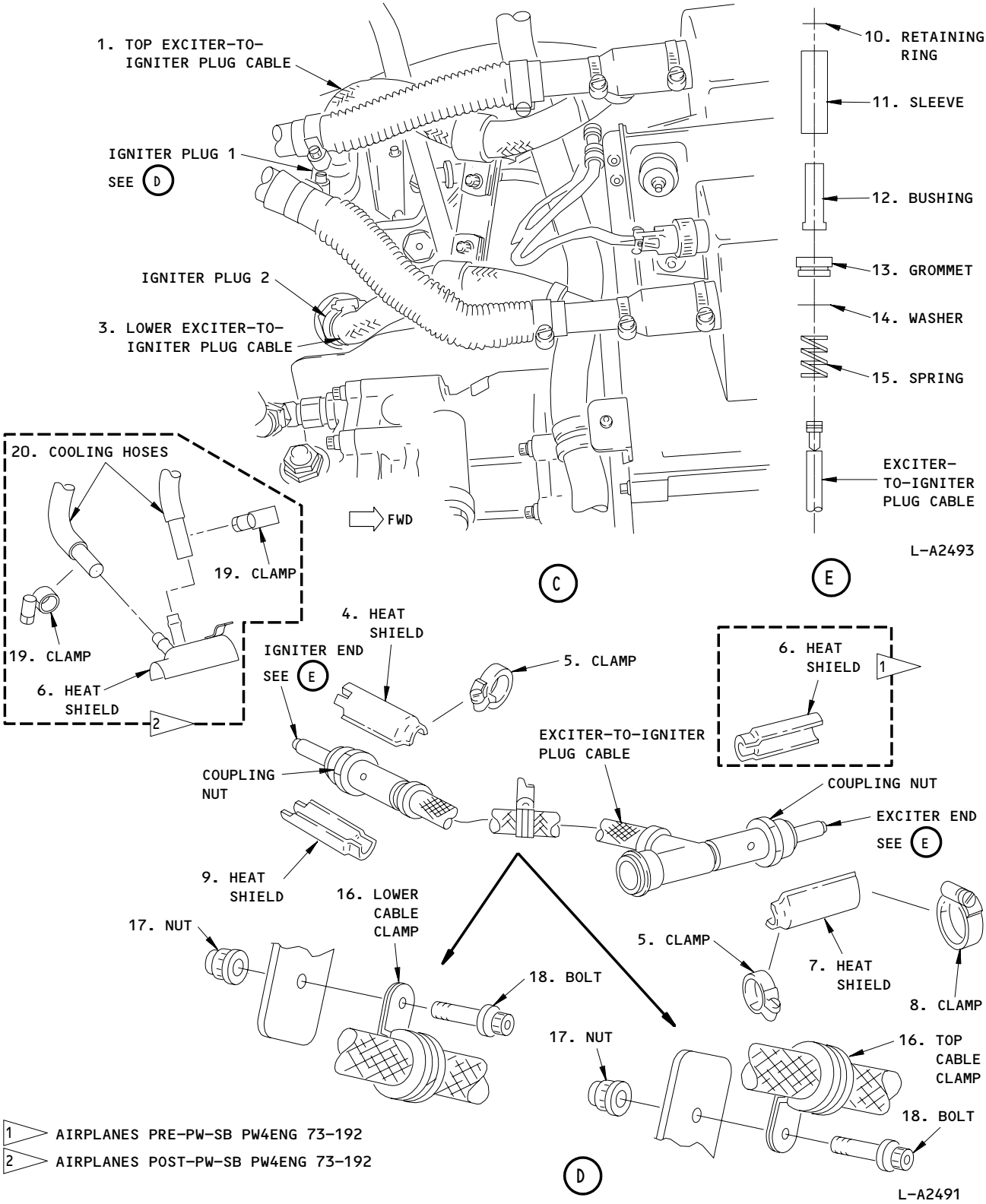
   C. Prepare to Remove the Exciter-to-Igniter Plug Cable.

      S 864-002-N00
      (1) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach DO-NOT-CLOSE tags:
          (a) 11D7, ENGINE STBY IGN 1
          (b) 11D8, ENGINE STBY IGN 2

      S 864-003-N00
      (2) For the left engine, open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
          (a) 11M1, L IGN 1



Exciter-To-Igniter Plug Cable Installation
Figure 401 (Sheet 1)



Exciter-To-Igniter Plug Cable Installation
Figure 401 (Sheet 2)

(b) 11M9, LEFT ENGINE BUS PWR SENSE
(c) 11M28, L IGN 2

S 864-004-N00

(3) For the right engine, open these circuit breakers on the P11 panel and attach DO-NOT-CLOSE tags:
(a) 11M2, R IGN 1
(b) 11M29, R IGN 2
(c) 11M36, RIGHT ENGINE BUS PWR SENSE

S 014-005-N00

(4) Open the right fan cowl panel (AMM 71-11-04/201).

S 044-006-N00

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

(5) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 014-007-N00

(6) Open the right core cowl panel (AMM 71-11-06/201).

S 014-008-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Open the right thrust reverser (AMM 78-31-00/201).

D. Remove the Exciter-to-Igniter Plug Cable.

S 864-009-N00

WARNING: DO NOT TOUCH THE IGNITION SYSTEM COMPONENTS UNTIL YOU DO THESE STEPS. IF YOU DO NOT OBEY THESE INSTRUCTIONS, INJURIES TO PERSONS CAN OCCUR.

(1) Make sure the ignition switch on the pilot's overhead panel, P5, is in the OFF position.
(a) Stop for a minimum of five minutes.

S 034-010-N00

(2) Remove the bolt (18) and nut (17) that attach the clamp (16).

NOTE: The clamp (16) attaches to a bracket that connects the top and the lower exciter-to-igniter plug cables together.

(a) If you will remove the top and the lower cables, remove the bracket from the engine.

S 034-011-N00

(3) Disconnect the hose clamp (2) to remove the cooling air hose from the exciter-to-igniter plug cable (1 or 3).

S 034-012-N00

(4) Do these steps to remove the heat shields at each end of the exciter-to-igniter plug cable:
(a) Loosen the clamp (5) that attaches the heat shields (4 and 9) at the igniter plug.
1) Remove the heat shields (4 and 9) from the cable.
(b) FOR ENGINES WITH SB 73-192; Loosen the clamps (19) that attach cooling hoses (20) to the heat shield (6) at the exciter end of the cable. Remove cooling hoses from the heat shield.

NOTE: Pre SB PW4ENG 73-192 engines do not have W5/W6 wiring harness connector cooling.

(c) Loosen the clamps (5 and 8) that attach the heat shields (6 and 7) at the ignition exciter end of the cable.
1) Remove the heat shields (6 and 7) from the cable.

S 034-013-N00

(5) Loosen the coupling nut on the connector at the exciter.
(a) Loosen the coupling nut sufficiently to permit free movement of the cable, but do not disconnect the cable.

S 034-014-N00

WARNING: MAKE SURE YOU GROUND THE TERMINAL OF THE EXCITER-TO-IGNITER PLUG CABLE TO THE BODY SHIELD ON THE IGNITER PLUG. THIS WILL RELEASE THE HIGH VOLTAGE FROM THE IGNITION EXCITER. IF YOU DO NOT OBEY THESE INSTRUCTIONS, INJURIES TO PERSONS CAN OCCUR.

CAUTION: PULL THE CABLE END IN A STRAIGHT DIRECTION WHEN YOU DISCONNECT THE CABLE FROM THE IGNITER PLUG AND FROM THE EXCITER. IF YOU APPLY A LATERAL FORCE ON THE CABLE, YOU CAN CAUSE DAMAGE TO THE CABLE.

(6) Do these steps to release the high voltage from the ignition exciter:
(a) Disconnect the cable coupling nut from the igniter plug.

(b) Immediately ground the exciter-to-igniter plug cable to the body shield on the igniter plug.
(c) Remove the heat shield clamp (5) from the cable.

S 034-015-N00

(7) Disconnect the coupling nut from the connector on the ignition exciter.
(a) Remove the heat shield clamps (5 and 8) from the cable.

S 024-016-N00

(8) Remove the cable (1 or 3) from the engine.
(a) Remove and discard the grommets (13) from the cable ends.
(b) Install protective caps to the coupling nuts at each end of the cable.
(c) Install protective caps on connectors of the exciter and the igniter plug.

TASK 74-21-01-404-017-N00

3. Exciter-to-Igniter Plug Cable Installation (Fig. 401)
A. Consumable Materials
(1) D00333 Anti-Seize Compound - PMC 9523, Molykote Type Z
(2) D00453 Antigalling Compound - FelPro C300 (PWA 36035)
(3) D00405 Antigalling Compound - (PWA 550-3)
(4) D00137 Oil, Engine - PWA 521B Type II
(5) B00772 Solvent - PMC 9087, Trichlorotrifluorethane
(6) G00834 Cloth, clean and lint-free
B. Parts

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
401	1	Cable - Upper Exciter-to-Igniter Plug	74-21-01	05	35
	3	Cable - Lower Exciter-to-Igniter Plug	74-21-01	05	35
	13	Grommet	74-21-01	05	55

C. References
(1) AMM 71-11-04/201, Fan Cowl Panels
(2) AMM 71-11-06/201, Core Cowl Panels
(3) AMM 74-00-00/501, Ignition System
(4) AMM 74-21-01/601, Exciter-to-Igniter Plug Cable
(5) AMM 74-21-01/701, Exciter-to-Igniter Plug Cable
(6) AMM 74-21-02/601, Igniter Plug
(7) AMM 74-21-02/701, Igniter Plug
(8) AMM 78-31-00/201, Thrust Reverser System

D. Access
(1) Location Zones
411 Left Engine
421 Right Engine

(2) Access Panels
414AR Fan Cowl Panel, Left Engine
416AR Thrust Reverser, Left Engine
418AR Core Cowl Panel, Left Engine
424AR Fan Cowl Panel, Right Engine
426AR Thrust Reverser, Right Engine
428AR Core Cowl Panel, Right Engine

E. Install the Exciter-to-Igniter Plug Cable.

S 434-018-N00
(1) Remove the protective caps from each end of the cable (1 or 3).

S 214-019-N00
(2) Examine the exciter-to-igniter plug cable (AMM 74-21-01/601).
(a) If it is necessary, clean the exciter-to-igniter plug cable (AMM 74-21-01/701).

S 904-020-N00
(3) Examine the high tension contacts, sleeves, (11), and rubber bushings (12), while they are assembled, for signs of arcs or flashover (AMM 74-21-01/601).

NOTE: The signs of arcs are discoloration and concentrations of corrosion at a point. The signs of flashover are carbon tracking marks.

(a) If you find sings of arcs or flashover, do the steps that follow.
1) Remove and discard the retaining ring (10).

2) Remove the sleeve (11) and the rubber bushing (12) from the cable.
   a) Discard the rubber bushing (12).

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

3) Use the solvent and the lint-free cloth to clean the new rubber bushing (12).
4) Move the rubber bushing (12) on the high tension cable.

NOTE: Make sure there is no grease on the external surface of the insulator or on the plug assembly.

5) Move the clean sleeve (11) on the bushing (12) on the high tension cable.
6) Install a new retaining ring (10) on the cable.

S 434-021-N00

(4) If the cable is not a new cable, install new grommets (13) on each end of the cable.

NOTE: Make sure the washer (14) and the spring (15) are installed on the cable ends before you install the grommets (13).

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

(a) Use the solvent and a lint-free cloth to clean the new grommets.

(b) Install the grommet (13) on the cable.

S 434-022-N00

(5) Remove the protective caps from ignition exciter and from the igniter plug.

S 214-023-N00

(6) Examine the igniter plug (AMM 74-21-02/601).
(a) If it is necessary, clean the igniter plug (AMM 74-21-02/701).

S 434-024-N00

CAUTION: PUSH THE CABLE END IN A STRAIGHT DIRECTION WHEN YOU CONNECT THE CABLE TO THE IGNITER PLUG AND THE EXCITER. IF YOU APPLY A LATERAL FORCE ON THE CABLE, YOU CAN CAUSE DAMAGE TO THE CABLE.

(7) Do these steps to connect the igniter-to-exciter plug cable to the exciter and the igniter plug:
(a) Install the clamp (5) on the cable end that attaches to the igniter plug.
(b) Lubricate the coupling nut threads that connect to the igniter plug with the antiseize compound.

NOTE: Do not apply too much antiseize compound to the coupling nut, or the cable will not have a good contact.

(c) Connect the cable to the igniter plug.
1) Keep the coupling nut sufficiently loose to permit free movement of the cable.
(d) Install the two clamps (5 and 8) on the cable end that attaches to the exciter.
1) Install the smaller clamp (5) on the cable before you install the larger clamp (8).
(e) Lubricate the coupling nut threads that connect to the exciter with the antigalling compound (PWA 36035).

NOTE: Do not apply too much antigalling compound to the coupling nut threads. You can use the PWA 550-3 antigalling compound if you do not have the PWA 36035.

(f) Connect the cable to the output receptacle on the exciter.
(g) Tighten the coupling nuts at each end of the cable until the nuts touch (bottom) on the shoulder of the nuts.
1) This torque is usually 140-160 pound-inches (15.8-18.1 newton-meters).

S 434-025-N00
(8) Install the heat shields at each end of the cable.
(a) FOR ENGINES WITHOUT SB 73-192; Attach the heat shields (6 and 7) at the exciter with the clamps (6 and 13).
1) Tighten the clamp screws to 15-18 pound-inches (1.7-2.0 newton-meters).
(b) FOR ENGINES WITH SB 73-192; Position heat shield segments (6, 7) over exciter end of cable. Make sure the segment half (6) with hose fittings has the fittings pointed up.
1) Secure segments with clamps (5, 8). Torque clamp screws to 15 - 18 inch-pounds (1.695 - 2.034 N.m).
(c) FOR ENGINES WITH SB 73-192; Install cooling hoses (20) on heat shield fitting (6) and secure with clamps (19). Torque the hose clamps to 10 - 15 inch-pounds (1.130 - 1.695 N.m).
(d) Install the heat shields (4 and 9) at the igniter plug.
1) Bend the tabs of the heat shields into the groove in the boss, and attach the heat shields with the clamp (5).
2) Tighten the clamp screw to 15-18 pound-inches (1.7-2.0 newton-meters).

S 434-026-N00
(9) Attach the cooling air hose to the cable with the clamp (2).

S 434-027-N00
(10) Install the cable clamp (16) on the cable.
(a) Lubricate the threads of the bolt (18) with the engine oil.
(b) Attach the cable clamp (16) to the bracket with the bolt (18) and the nut (17).
(c) Tighten the nut (17) to 36-40 pound-inches (4.0-4.5 newton-meters).

F. Put the Airplane Back to its Usual Condition.

S 414-028-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Close the right thrust reverser (AMM 78-31-00/201).

S 414-029-N00

(2) Close the right core cowl panel (AMM 71-11-06/201).

S 444-030-N00

(3) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 414-031-N00

(4) Close the right fan cowl panel (AMM 71-11-04/201).

S 864-032-N00

(5) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
(a) 11D7, ENGINE STBY IGN 1
(b) 11D8, ENGINE STBY IGN 2

S 864-033-N00

(6) For the left engine, remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
(a) 11M1, L IGN 1
(b) 11M9, LEFT ENGINE BUS PWR SENSE
(c) 11M28, L IGN 2

S 864-034-N00

(7) For the right engine, remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:
(a) 11M2, R IGN 1

(b) 11M29, R IGN 2
(c) 11M36, RIGHT ENGINE BUS PWR SENSE

S 754-035-N00
(8) Do the audible test of the engine ignition system (AMM 74-00-00/501).

EXCITER-TO-IGNITER PLUG CABLE - INSPECTION/CHECK

TASK 74-21-01-216-001-N00

1. Examine the Exciter-to-Igniter Plug Cable

A. References

(1) AMM 71-11-04/201, Fan Cowl Panels
(2) AMM 71-11-06/201, Core Cowl Panels
(3) AMM 74-21-01/401, Exciter-to-Igniter Plug Cable
(4) AMM 74-21-01/701, Exciter-to-Igniter Plug Cable
(5) AMM 78-31-00/201, Thrust Reverser System

B. Access

(1) Location Zones

415	Fan reverser (Left)
416	Fan reverser (Right)
425	Fan reverser (Left)
426	Fan reverser (Right)

(2) Access Panels

415AL	Fan reverser (Left)
416AR	Fan reverser (Right)
425AL	Fan reverser (Left)
426AR	Fan reverser (Right)

C. Procedure

S 016-002-N00

(1) Open the right fan cowl panel (AMM 71-11-04/201).

S 866-003-N00

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

(2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 016-004-N00

(3) Open the right core cowl panel (AMM 71-11-06/201).

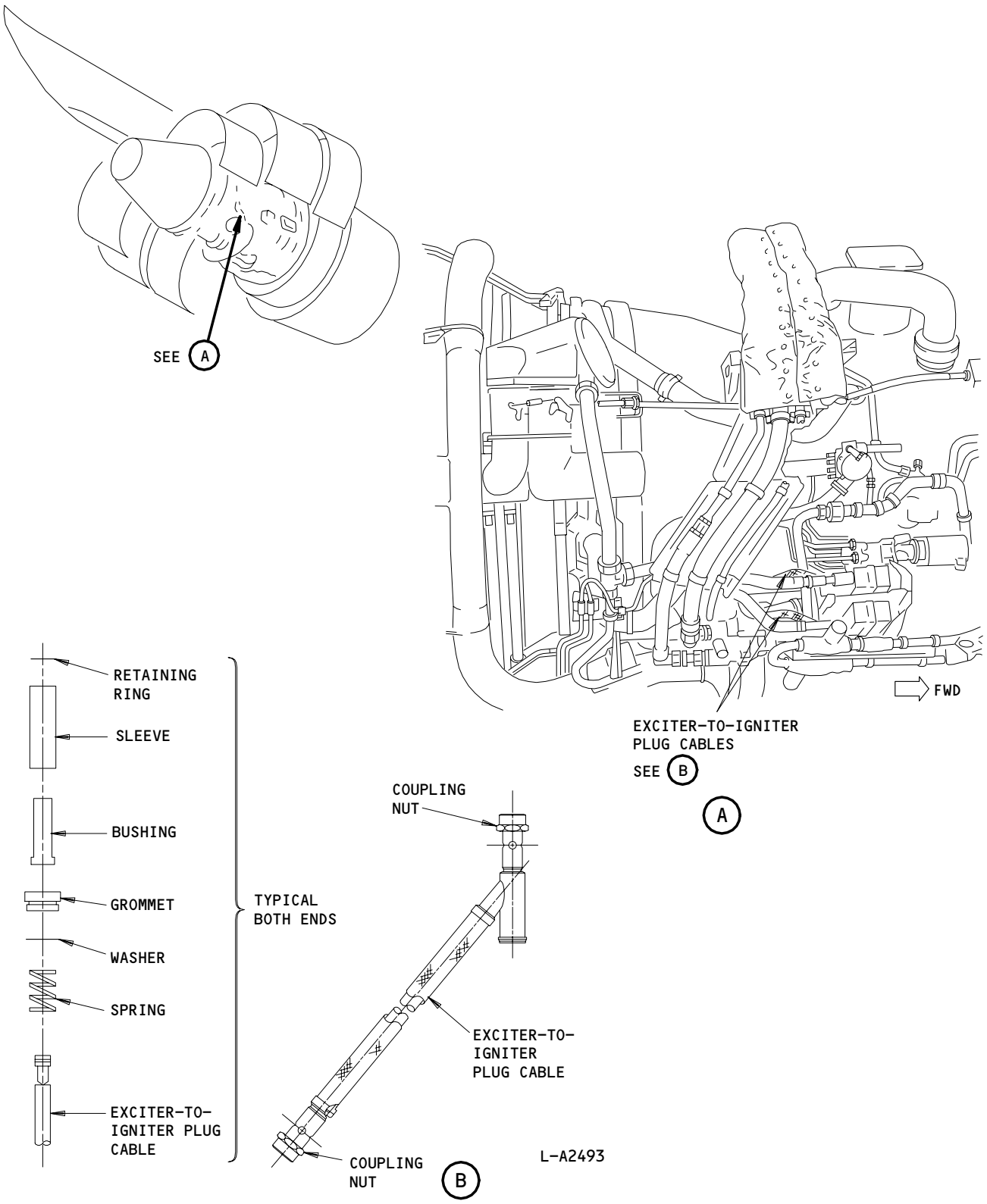
S 016-005-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

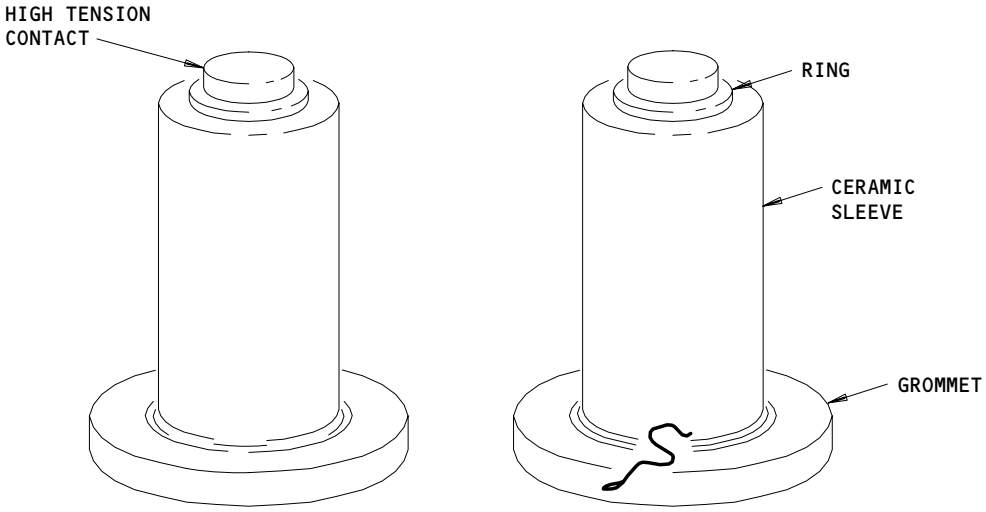
(4) Open the right thrust reverser (AMM 78-31-00/201).

S 026-006-N00

(5) Remove exciter-to-igniter plug cable (AMM 74-21-01/401).



Exciter-To-Igniter Plug Cable Inspection
Figure 601



Ceramic Sleeve Flashover Damage
Figure 602

S 216-007-N00

CAUTION: DO NOT BEND OR PULL ON THE EXCITER-TO-IGNITER PLUG CABLE WHEN YOU EXAMINE IT. DAMAGE TO THE INSULATION CAN OCCUR.

(6) Replace the exciter-to-igniter plug cable if there are any of these conditions (Fig. 601) (AMM 74-21-01/401).
  (a) Look for any cuts or abrasions on the cable.
  (b) Look for any hard, brittle, or cracked areas on the cable.

S 216-008-N00

(7) Examine the ends of the exciter-to-igniter plug cable.
  (a) Examine the coupling nut for worn or damaged threads.
  (b) Move the coupling nut until you can remove the grommet.
    1) Discard the grommet.

NOTE: This inspection and the removal of the grommet are always done at the same time.

  (c) Examine the ceramic sleeves and the rubber bushings on the cable ends (Fig. 602).
    1) If the rubber bushing is hard, brittle, cracked, or shows signs of carbon tracking, replace the bushing (AMM 74-21-01/401).
    2) Clean the ceramic sleeves if signs of carbon tracking are found (AMM 74-21-01/701).

S 116-009-N00

(8) Clean the exposed parts of the cable assemble if there is any oil, dirt, or conductive contaminants on it (AMM 74-21-01/701).

S 416-016-N00

(9) Install a new grommet.

S 426-011-N00

(10) Install the exciter-to-igniter plug cable (AMM 74-21-01/401).

S 416-012-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(11) Close the right thrust reverser (AMM 78-31-00/201).

S 416-013-N00

(12) Close the right core cowl panel (AMM 71-11-06/201).

S 866-014-N00
(13) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 416-015-N00
(14) Close the right fan cowl panel (AMM 71-11-04/201).

EXCITER-TO-IGNITER PLUG CABLE - CLEANING/PAINTING

1. General
   A. This procedure gives the steps to clean the exciter-to-igniter plug cable.
   B. There are two exciter-to-igniter plug cables on each engine. The exciter-to-igniter plug cables are attached to the exciters on the top right side of the main gearbox. The higher exciter-to-igniter plug cable is part of the ignition system 1. The lower exciter-to-igniter plug cable is part of the ignition system 2.
   C. You can open the right thrust reverser half to get access to the exciter-to-igniter plug cables.

TASK 74-21-01-107-001-N00

2. Clean the Exciter-to-Igniter Plug Cable
   A. Consumable Materials
      (1) G02189 Abrasive Rod - MISC 82, Cratex
      (2) Solvent - For recommends and approves the use of the solvent (AMM 70-11-13/201).
      (3) G00834 Cloth - clean, lint-free
   B. References
      (1) AMM 71-11-04/201, Fan Cowl Panels
      (2) AMM 71-11-06/201, Core Cowl Panels
      (3) AMM 74-21-01/401, Exciter-to-Igniter Plug Cable
      (4) AMM 78-31-00/201, Thrust Reverser System
   C. Access
      (1) Location Zones
          411 Left Engine
          421 Right Engine

      (2) Access Panels
          414AR Fan Cowl Panel, Left Engine
          416AR Thrust Reverser, Left Engine
          418AR Core Cowl Panel, Left Engine
          424AR Fan Cowl Panel, Right Engine
          426AR Thrust Reverser, Right Engine
          428AR Core Cowl Panel, Right Engine

D. Procedure

S 017-002-N00
(1) Open the right fan cowl panel (AMM 71-11-04/201).

S 047-003-N00

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

(2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 017-004-N00
(3) Open the right core cowl panel (AMM 71-11-06/201).

S 017-005-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Open the right thrust reverser (AMM 78-31-00/201).

S 027-006-N00
(5) Remove the exciter-to-igniter plug cables (AMM 74-21-01/401).

S 117-012-N00
(6) Do the steps that follow to clean the exciter-to-igniter plug cable.
(a) Remove all unwanted material from the inner spring with compressor air at a maximum pressure of 30 psig (206.8 kPa).

WARNING: DO NOT GET THE SOLVENT IN YOUR MOUTH, OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THE SOLVENT. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THE SOLVENT. THE SOLVENT IS A POISONOUS AND FLAMMABLE SOLVENT THAT CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Make a clean lint-free cloth wet with solvent.

(c) Rub the cloth on the cable to clean it.
1) Use the compressor air to dry the cable.
(d) Make a clean lint-free cloth wet with solvent.
(e) Rub the cloth on the high tension sleeve to clean it.
1) Use the compressor air to dry the high tension sleeve.
(f) With circular hand movements, use the abrasive rod to remove small quantities of arc damage from the contact button.

NOTE: This will remove the damaged surface layer and make a new surface layer.

(g) Make a clean lint-free cloth wet with solvent.
(h) Use the clean lint-free cloth to make sure the high tension contact is clean.
1) Use the compressor air to dry the high tension contact.

S 427-007-N00

(7) Install the exciter-to-igniter plug cable (AMM 74-21-01/401).

S 417-008-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(8) Close the right thrust reverser (AMM 78-31-00/201).

S 417-009-N00

(9) Close the right core cowl panel (AMM 71-11-06/201).

S 447-010-N00

(10) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 417-011-N00

(11) Close the right fan cowl panel (AMM 71-11-04/201).

IGNITER PLUG - REMOVAL/INSTALLATION

1. General
   A. Each engine has two igniter plugs. One of the igniter plugs is located at the 4 o'clock position and the other is located at the 5 o'clock position on the diffuser case (aft looking foward). The upper igniter plug is part of ignition system 1 (upper exciter). The lower igniter plug is part of ignition system 2 (lower exciter).
   B. If the igniter plug boss is not removed then the immersion depth does not need to be measured. If the igniter plug boss is removed then you must measure the immersion depth when you install the igniter plug. The igniter plug boss will be referred to as the boss.

TASK 74-21-02-004-001-N00

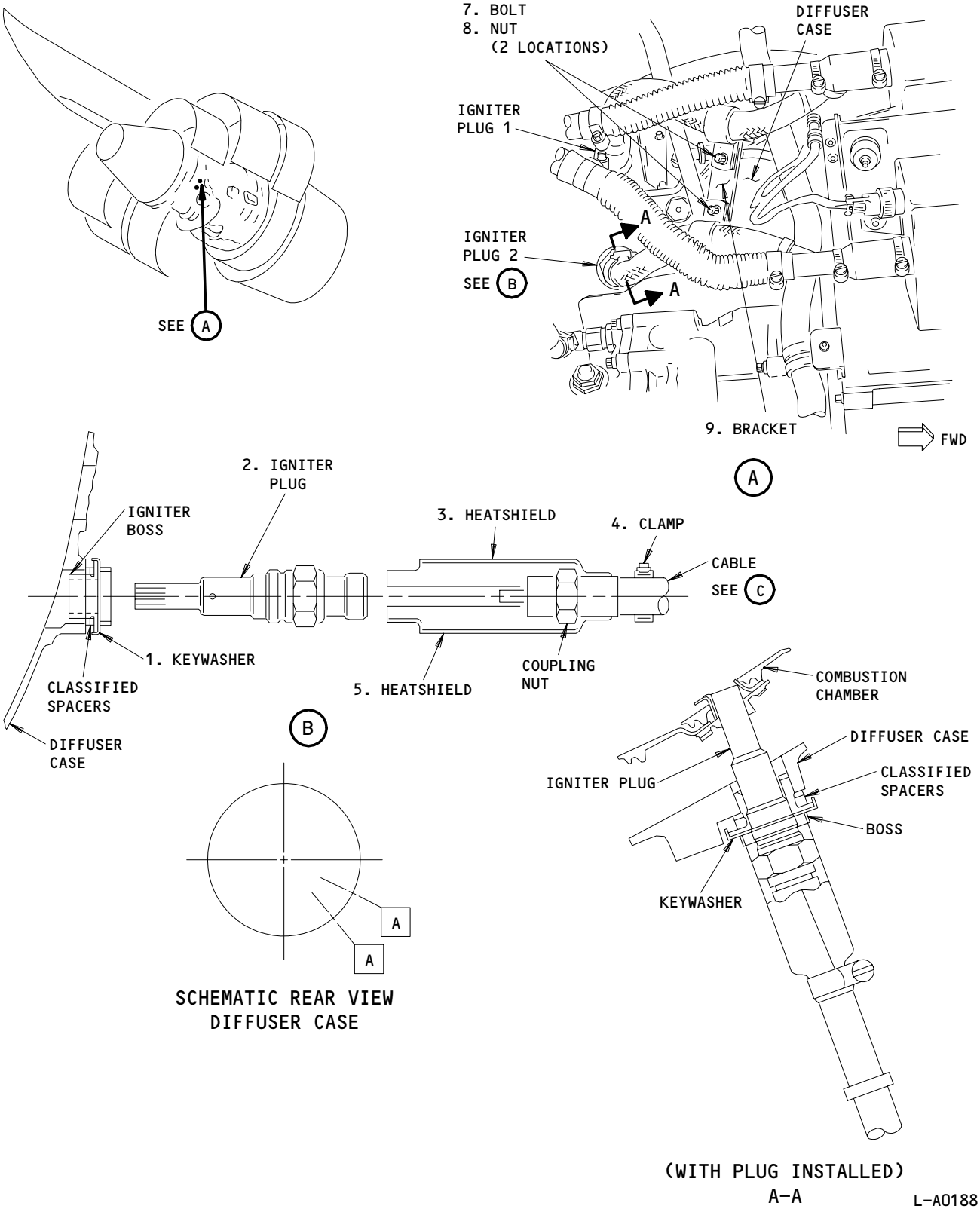
2. Remove the Igniter Plug (Fig. 401)
   A. References
      (1) AMM 71-11-06/201, Core Cowl Panels
      (2) AMM 78-31-00/201, Thrust Reverser System
   B. Access
      (1) Location Zones
          411 Left Engine
          421 Right Engine

      (2) Access Panels
          418AR Core cowl (Right), Left Engine
          428AR Core cowl (Right), Right Engine

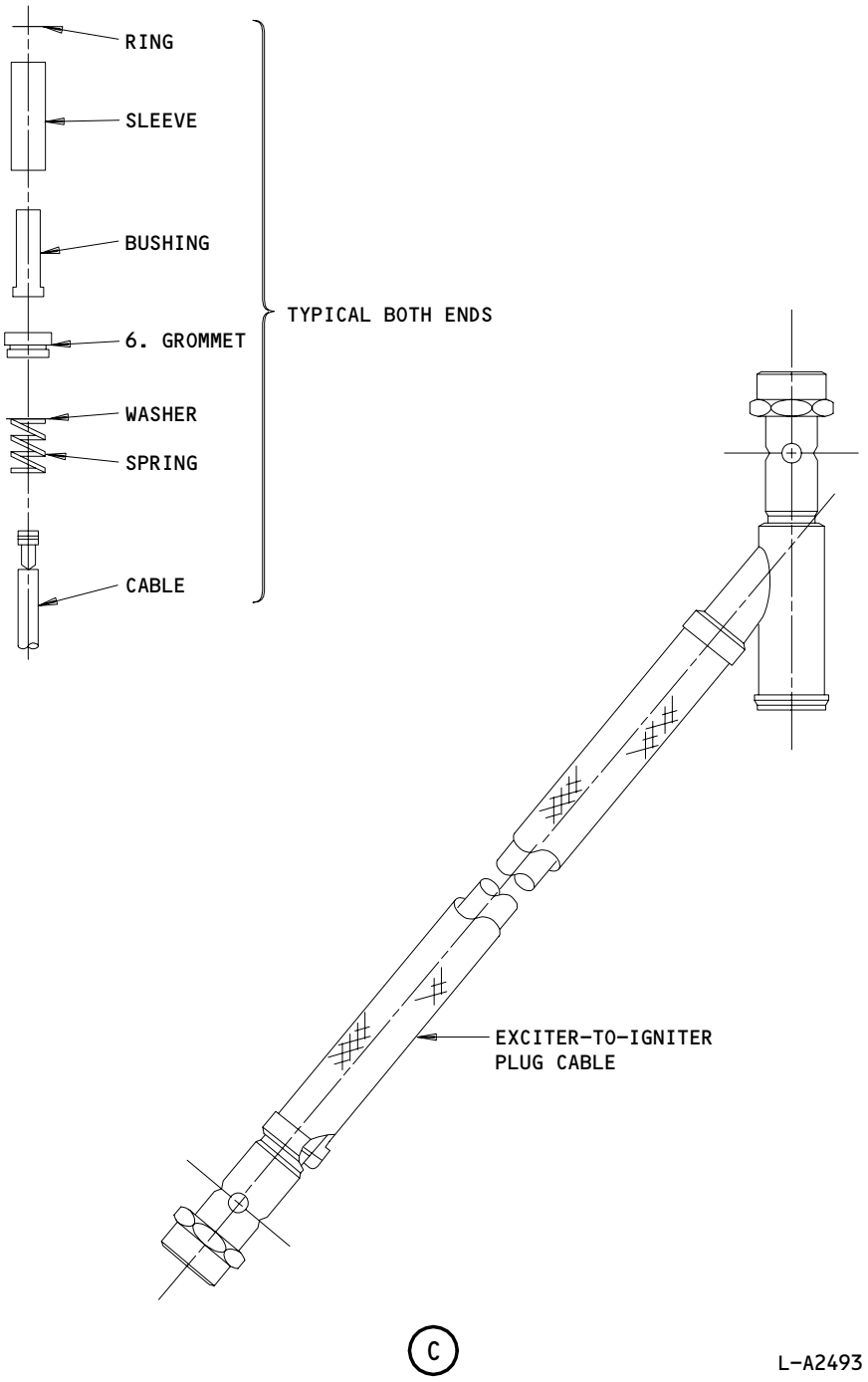
   C. Prepare to Remove the Igniter Plug

      S 864-002-N00
      (1) Open this overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
          (a) 11D7, ENGINE STBY IGN 1
          (b) 11D8, ENGINE STBY IGN 2

      S 864-003-N00
      (2) For the left engine, open these overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
          (a) 11M1, L IGN 1



Igniter Plug Installation
Figure 401 (Sheet 1)



Igniter Plug Installation
Figure 401 (Sheet 2)

(b) 11M9, LEFT ENGINE BUS PWR SENSE
(c) 11M28, L IGN 2

S 864-004-N00

(3) For the right engine, open these overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
(a) 11M2, R IGN 1
(b) 11M29, R IGN 2
(c) 11M36, RIGHT ENGINE BUS PWR SENSE

S 044-044-N00

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

(4) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 014-006-N00

(5) Open the right core cowl panel (AMM 71-11-06/201).

D. Procedure

S 024-045-N00

WARNING: THE IGNITION SWITCH MUST BE IN THE OFF POSITION BEFORE REMOVAL OF ANY IGNITION COMPONENTS. MAKE SURE THE IGNITION SYSTEM IS DE-ENERGIZED FOR AT LEAST ONE MINUTE BEFORE YOU REMOVE ANY IGNITION COMPONENTS. WHEN THE CABLE IS DISCONNECTED FROM THE IGNITER PLUG, GROUND THE CABLE TO MAKE SURE THAT ALL OF THE ENERGY IS OUT OF THE SYSTEM. FAILURE TO FOLLOW THIS PROCEDURE CAN CAUSE INJURY TO PERSONS.

(1) Remove the Igniter Plug:
(a) Remove the bolt (7) and the nut (8) to release the applicable exciter-to-igniter plug cable from the bracket (9).

NOTE: If both igniter plugs are removed then remove bracket (9).

(b) Remove the heatshields (3, 5).
1) Loosen the clamp (4) that holds the heatshields around the igniter plug (2).
2) The clamp may remain on the cable.

(c) Loosen the clamps and remove the heatshields at the exciter end of the cable.
(d) Loosen the coupling nut that holds the Exciter-to-Igniter Plug cable to the exciter.
1) Loosen the nut so the cable can move but do not disconnect the connector.
(e) Loosen the coupling nut that holds the Exciter-to-Igniter plug cable to the igniter plug (2).

CAUTION: ONLY USE FORCE IN AN AXIAL DIRECTION TO DISCONNECT THE EXCITER-TO-IGNITER PLUG CABLE. DO NOT USE LATERAL FORCE OR THE CABLE END CAN BE DAMAGED.

(f) Pull the cable from the igniter plug (2) and touch the igniter plug casing with the cable end to discharge any residual charge.
1) Remove the heatshield clamp (4) from the cable.
(g) Disconnect the coupling nut from the ignition exciter and remove the cable from the engine.
(h) Discard the grommets from the cable ends.
(i) Install protective caps on the cable ends.
(j) Hold the igniter boss with a wrench and remove the igniter plug (2) from the diffuser case.

NOTE: Do not remove the lockwire from the igniter boss. If you remove the igniter boss then you must measure the immersion depth before you install the igniter plug.

(k) If the keywasher (1) is damaged or worn, then remove and discard keywasher.

TASK 74-21-02-404-014-N00

3. Install the Igniter Plug (Fig. 401)
A. Consumable Materials
(1) G00834 Cloth - Cotton, Lintfree

(2) D00244 Antiseize - Silver Goop, PWA 36001 (PWA 9940)
(3) D00333 Compound - Antiseize PMC 9523, Molykote, Type Z
(4) B00782 Solvent - Trichlorotrifluoroethane, PMC 9087
(5) B00192 Solvent - Petroleum, PMC 9001
(6) D00405 Compound - Antigalling, (PWA 550-3)
(7) D00453 Compound - Antigalling, Fel Pro C300 (PWA 36035)

B. Parts

AMM			AIPC		
FIG	ITEM	NOMENCLATURE	SUBJECT	FIG	ITEM
401	1	Keywasher	74-21-02	05	10
	2	Igniter Plug			5
	6	Grommet	74-21-01	05	55

C. References
(1) AMM 71-11-06/201, Core Cowl Panels
(2) AMM 74-00-00/501, Ignition
(3) AMM 74-21-02/601, Igniter Plug
(4) AMM 78-31-00/201, Thrust Reverser System

D. Access
(1) Location Zones
411 Left Engine
421 Right Engine

(2) Access Panels
418AR Core cowl (Right), Left Engine
428AR Core cowl (Right), Right Engine

E. Prepare to Install the Igniter Plug

S 224-048-N00
(1) Do the step that follows if the igniter boss on the diffuser case was removed:
(a) Do the check of the immersion depth of the igniter plug (AMM 74-21-02/601).

S 424-047-N00

(2) If the keywasher was removed, install a new keywasher (1) on the igniter boss.
   (a) Bend the tabs of the keywasher to connect it to the igniter boss.

S 114-016-N00

(3) If necessary, clean the igniter plug threads with petroleum solvent to remove carbon deposits and thread lubricants.

F. Procedure

S 424-049-N00

(1) Install the igniter plug:

CAUTION: DO NOT USE SILVER GOOP ON THE IGNITER PLUG THREADS IF A DIFFERENT LUBRICANT WAS USED BEFORE. IF SILVER GOOP IS USED WERE OTHER LUBRICANTS WERE USED, IT CAN BECOME HARD AFTER THE ENGINE OPERATES.

(a) Apply a layer of antiseize (Silver Goop) to the threads of the igniter plug (2).

NOTE: Do not apply to much antiseize to the igniter plug threads.

(b) Install the igniter plug (2) to the igniter boss.
   1) Hold the igniter boss with a wrench and tighten the igniter plug (2) to 300-360 pound-inches (33.9-40.7 newton-meters).

(c) Remove the protective caps from the ends of the cable.

(d) Inspect the cable end and the high tension contact for arcing or carbon tracking (AMM 74-21-02/601).

(e) Install new grommets on the ends of the cable.

WARNING: ONLY USE THE CLEANING FLUIDS IN AN AREA THAT PERMITS A FREE MOVEMENT OF AIR. THE CLEANING FLUIDS ARE VERY FLAMMABLE AND TOXIC. DO NOT BREATHE THE VAPORS OR LET THE CLEANING FLUIDS TOUCH YOUR SKIN FOR A LONG PERIOD OF TIME.

1) Clean the new grommets with a lint-free cloth moistened with the trichlorotriflouroethane solvent.

2) Slide the new grommets onto the cable.

(f) Install the heat shield clamp (4) over the igniter plug end of the Exciter-to-Igniter Plug cable.

(g) Apply a thin layer of antiseize compound to the threads of the cable coupling nut on the igniter plug end.

NOTE: Do not apply too much antiseize compound.

CAUTION: ONLY USE FORCE IN AN AXIAL DIRECTION WHEN YOU CONNECT THE ENDS OF THE EXCITER-TO-IGNITER PLUG CABLE. IF YOU USE FORCE IN THE LATERAL DIRECTION THE CABLE END CAN BE DAMAGED.

(h) Connect the Igniter-to-Exciter cable to the igniter plug (2) but do not tighten the cable coupling nut.

(i) Install the heatshield clamps, smaller clamp first, over the exciter end of the cable.

(j) Apply a thin layer of antigalling compound (PWA 36035) to the threads of the cable coupling nut on the exciter end of the cable.

NOTE: You can use PWA 550-3 antigalling compound as an alternative if the PWA 36035 antigalling compound is not available. Do not apply too much compound.

CAUTION: ONLY USE FORCE IN AN AXIAL DIRECTION WHEN YOU CONNECT THE ENDS OF THE EXCITER-TO-IGNITER PLUG CABLE. IF YOU USE FORCE IN THE LATERAL DIRECTION THE CABLE END CAN BE DAMAGED.

(k) Connect the Igniter-to-Exciter cable to the ignition exciter but do not tighten the cable coupling nut.

(l) Tighten both of the coupling nuts to 140-160 pound-inches (15.8-18.1 newton-meters).

(m) Install the heatshields (3, 5) at the igniter plug with the clamp (4).
1) Bend the tabs of the heatshields into the groove in the igniter boss before you attach the clamp.
(n) Install the heatshields at the exciter end of the Exciter-to-Igniter Plug cable.
1) Tighten the clamp screws to 15-18 pound-inches (1.7-2.0 newton-meters).
(o) Install the bolt (7) and nut (8) to attach the clamp to the bracket (9).
1) Lubricate the bolt (7) with engine oil.
2) Tighten the bolt (7) and the nut (8) to 36-40 pound-inches (4.1-4.5 newton-meters).

G. Return the Aircraft to Its Usual Condition.

S 864-024-N00
(1) Remove the DO-NOT-CLOSE tag and close these overhead panel P11 circuit breakers:
(a) 11D7, ENGINE STBY IGN 1
(b) 11D8, ENGINE STBY IGN 2

S 864-025-N00
(2) For the left engine, remove the DO-NOT-CLOSE tag and close these overhead panel P11 circuit breakers:
(a) 11M1, L IGN 1
(b) 11M9, LEFT ENGINE BUS PWR SENSE
(c) 11M28, L IGN 2

S 864-026-N00
(3) For the right engine, remove the DO-NOT-CLOSE tag and close these overhead panel P11 circuit breakers:
(a) 11M2, R IGN 1
(b) 11M29, R IGN 2
(c) 11M36, RIGHT ENGINE BUS PWR SENSE

S 414-027-N00
(4) Close the right core cowl panel (AMM 71-11-06/201).

S 444-050-N00
(5) Do the activation procedure for the thrust reversers (AMM 78-31-00/201).

S 714-029-N00
(6) Do the ignition system audible check (AMM 74-00-00/501).

IGNITER PLUG - INSPECTION/CHECK

TASK 74-21-02-206-001-N00

1. Do the Inspection of the Igniter Plug

A. Equipment

(1) Tool - Service Wear Measuring, CT-468 or CT-492

Champion Spark Plug Company
900 Upton
Toledo, Ohio 43601 (Recommended)

Commercially Available (Alternative)

(2) Die - Thread Chasing, 1.00-20UNEF-2A

Tapco USA, Inc., 5605 Pike Rd,
Loves Park, IL 61111 (Recommended)

Commercially Available (Alternative)

(3) Die - Thread Chasing, 15/16-16UN-2A

Tapco USA, Inc., 5605 Pike Rd,
Loves Park, IL 61111 (Recommended)

Commercially Available (Alternative)

(4) Tap - Thread Chasing, PWA 24524

(5) Tap - Thread Chasing, PWA 27641

B. References

(1) AMM 71-11-06/201, Core Cowl Panels

(2) AMM 74-21-02/401, Igniter Plug

(3) AMM 74-21-02/701, Igniter Plug

(4) AMM 78-31-00/201, Thrust Reverser System

C. Access

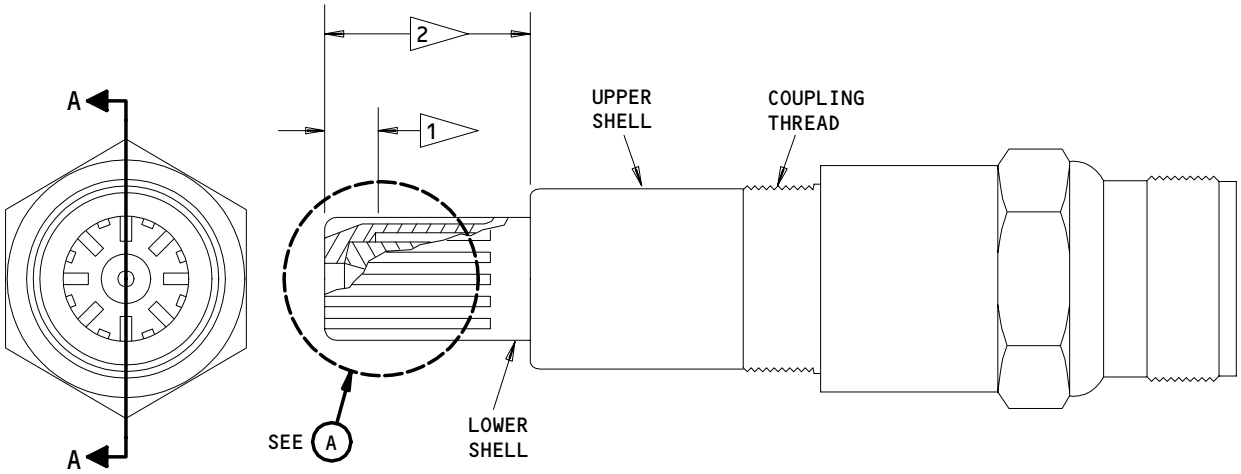
(1) Location Zone

411	Left Engine
421	Right Engine

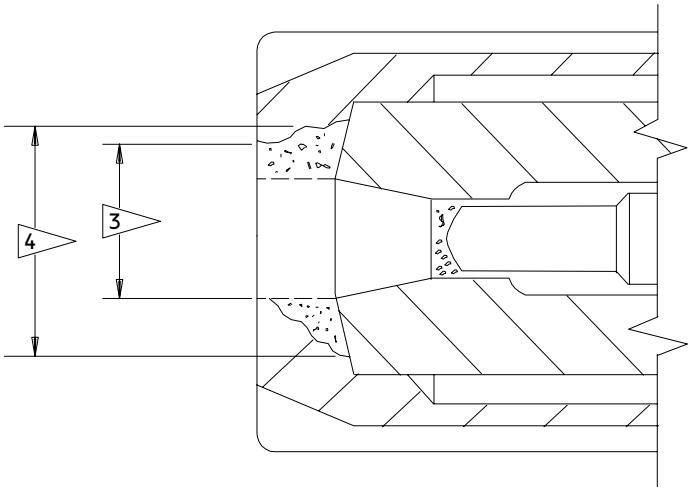
(2) Access Panels

417AL	Core Cowl (Left), Left Engine
418AR	Core Cowl (Right), Left Engine
427AL	Core Cowl (Left), Right Engine
428AR	Core Cowl (Right), Right Engine

D. Prepare for the Inspection of the Igniter Plug



ABRASION LIMITS
A-A



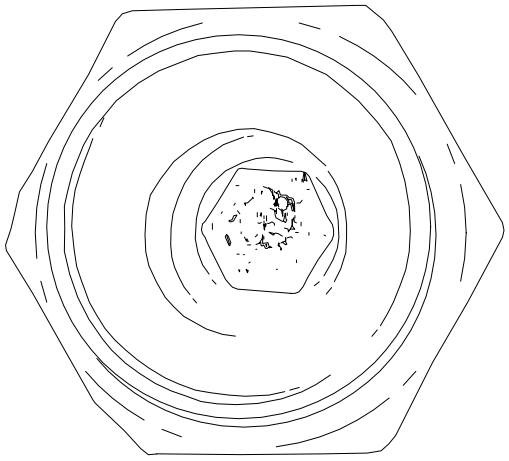
EROSION LIMITS
A

ERODED AREA

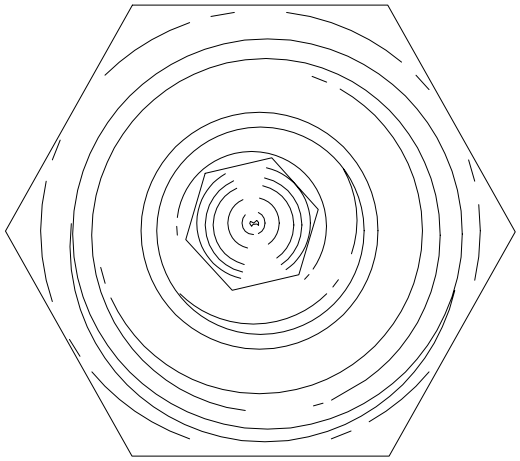
1 PIECE THAT MIGHT BREAK OFF NOT PERMITTED
2 0.030 INCH (0.762 mm) MAXIMUM ABRASION IN THIS AREA
3 0.300 INCH (7.6 mm) DIAMETER MAXIMUM SHELL EROSION
4 0.340 INCH (8.6 mm) DIAMETER MAXIUM UNDERCUT EROSION

L-86364

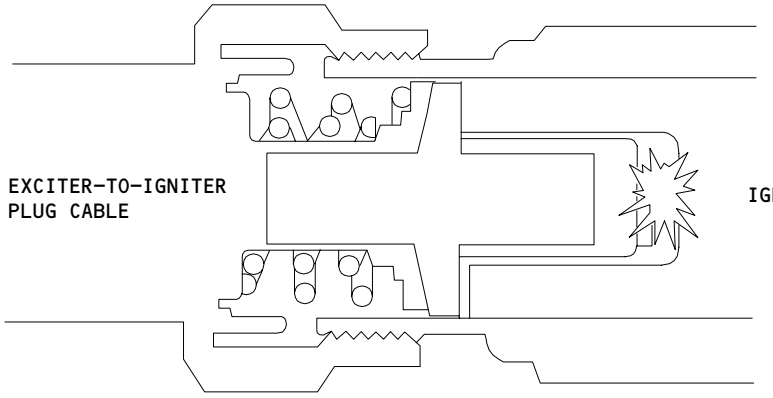
Abrasion and Erosion Limits for Igniter Plugs
Figure 601



ARCING ON CONTACT BUTTON

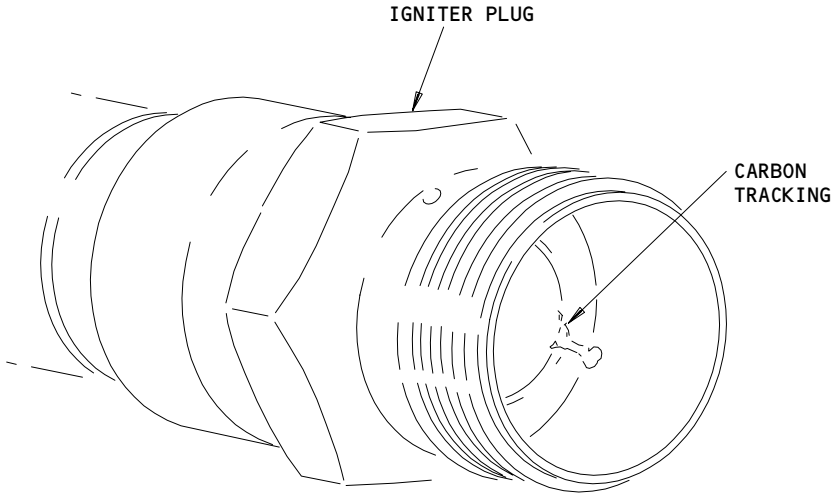


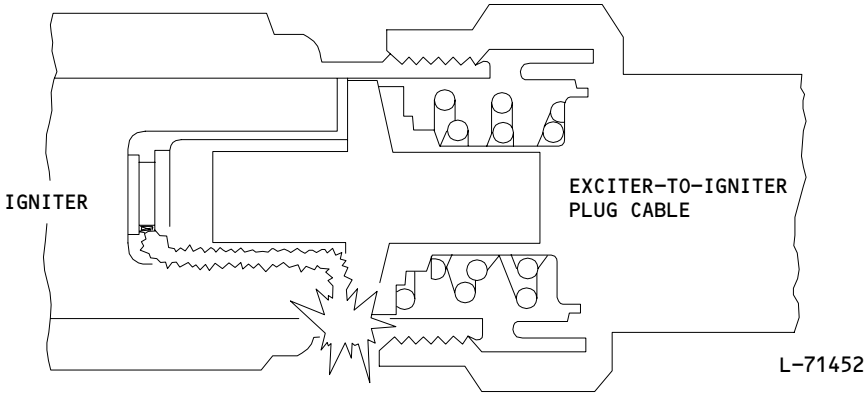
NO ARCING ON CONTACT BUTTON
(NEW IGNITER)



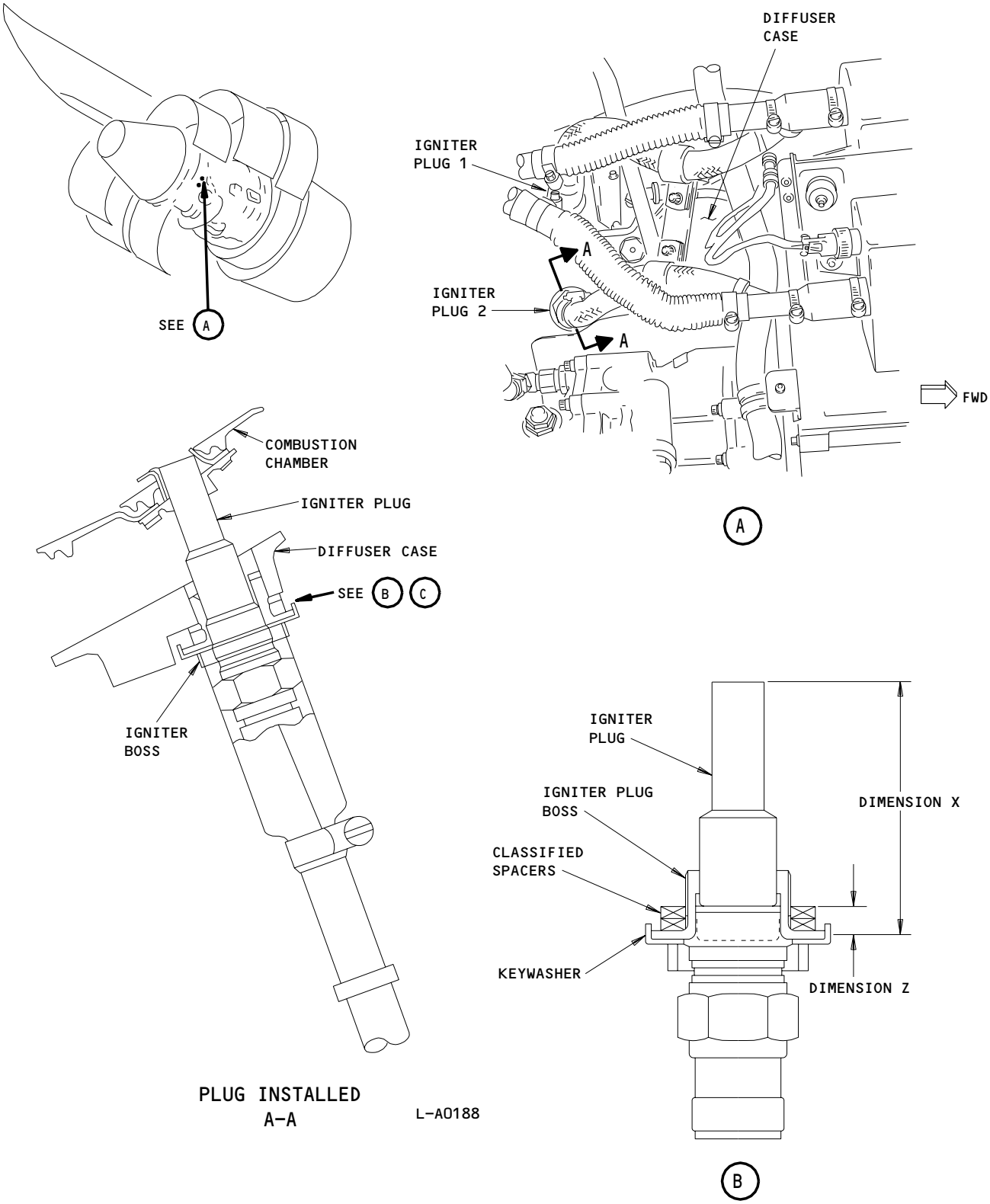
L-70764

Arcing on Contact Button
Figure 602

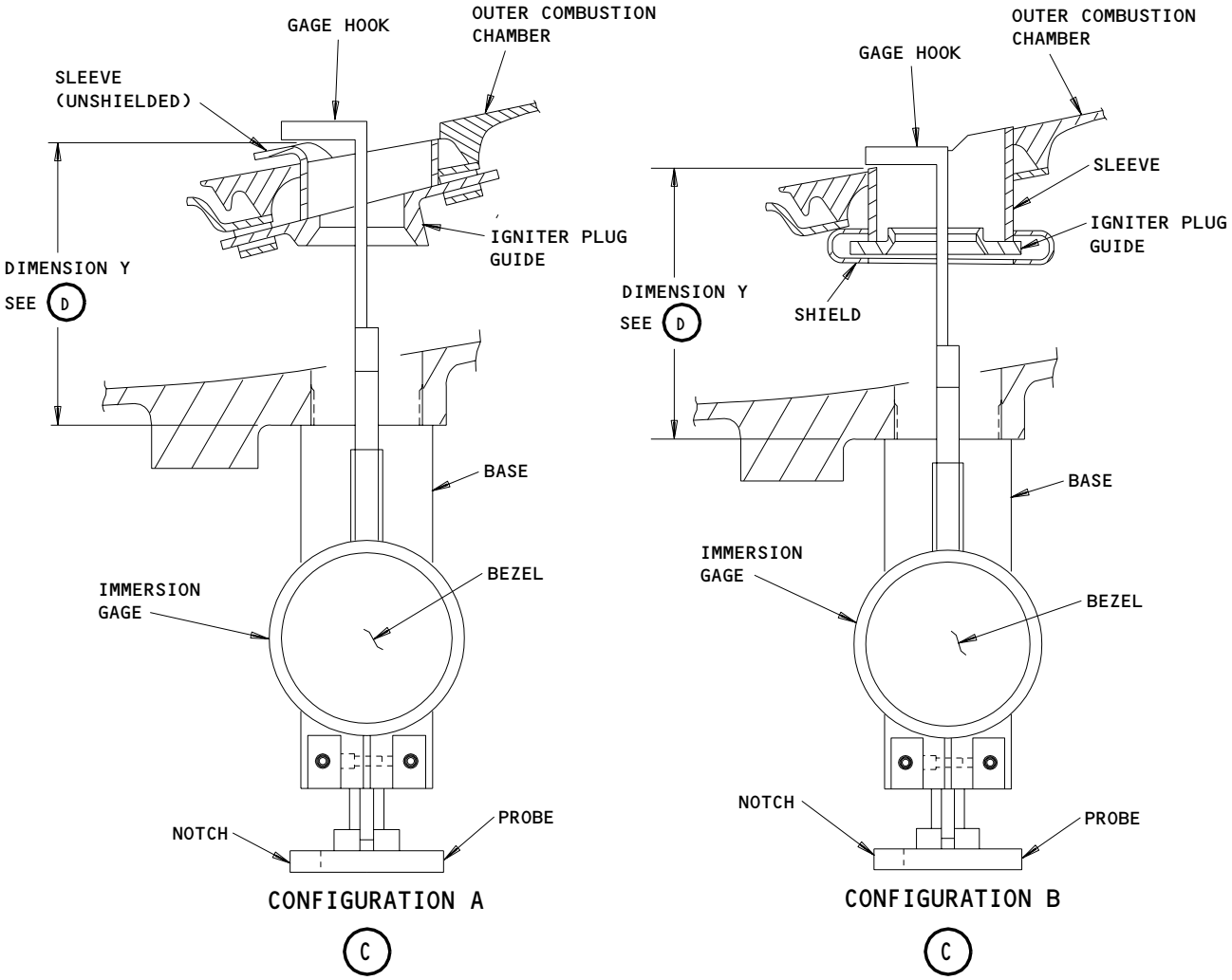


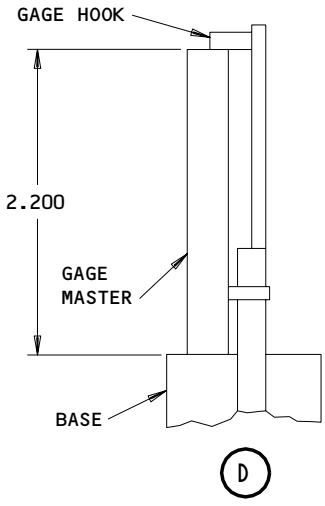


Flashover on Ceramic Insulator
Figure 603



Immersion Depth Check
Figure 604 (Sheet 1)





Immersion Depth Check
Figure 604 (Sheet 2)

SPECIFIED SPACER THICKNESS		CLASSIFIED SPACER (PART NO.)
INCHES	MILLIMETERS	
0.008–0.018	0.20–0.46	741073CL1
0.019–0.028	0.47–0.71	741073CL2
0.029–0.038	0.72–0.97	741073CL3
0.039–0.048	0.98–1.22	741073CL4
0.049–0.058	1.23–1.47	741073CL5
0.059–0.068	1.48–1.73	741073CL6
0.069–0.078	1.74–1.98	741073CL7
0.079–0.088	1.99–2.24	741073CL8
0.089–0.098	2.25–2.49	741073CL9
0.099–0.108	2.50–2.74	741073CL10
0.109–0.118	2.75–3.00	741073CL11
0.119–0.128	3.01–3.25	741073CL12
0.129–0.138	3.26–3.51	741073CL13
0.139–0.148	3.52–3.76	741073CL14
0.149–0.158	3.77–4.01	741073CL15
0.159–0.168	4.02–4.27	741073CL16
0.169–0.178	4.28–4.52	741073CL17
0.179–0.188	4.53–4.78	741073CL18

Immersion Depth Check
Figure 604 (Sheet 3)

S 046-034-N00

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

(1) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 016-003-N00

(2) Open the right core cowl panel (AMM 71-11-06/201).

S 866-025-N00

(3) Open this overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
(a) 11D7, ENGINE STBY IGN 1
(b) 11D8, ENGINE STBY IGN 2

S 866-026-N00

(4) For the left engine, open these overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
(a) 11M1, L IGN 1
(b) 11M9, LEFT ENGINE BUS PWR SENSE
(c) 11M28, L IGN 2

S 866-027-N00

(5) For the right engine, open these overhead panel P11 circuit breakers and attach a DO-NOT-CLOSE tag:
(a) 11M2, R IGN 1
(b) 11M29, R IGN 2
(c) 11M36, RIGHT ENGINE BUS PWR SENSE

E. Procedure

S 226-035-N00

(1) Do the inspection of the igniter plug (Fig. 601, 602, 603).
(a) Remove the igniter plug (AMM 74-21-02/401).
(b) Examine the cable coupling threads and the shell threads on the igniter plug (Fig. 601)
1) If the coupling threads are damaged, chase the threads with a 1.000-20NS die.
2) If the shell threads are damaged, chase the threads with a 0.9375-16NS die.

CAUTION: MAKE SURE THERE ARE NO CRACKS IN THE CERAMIC OF THE IGNITER PLUG. BROKEN CERAMIC MAY BE INGESTED BY THE TURBINE IF THE PLUG IS VERY BADLY ERODED WHICH CAN CAUSE DAMAGE TO THE ENGINE.

(c) Examine each plug for cracks in the ceramic.
  1) Replace the plug if you find any cracks in the ceramic.
  2) Shake the plug and listen for loose pieces to find internal breaks or cracks.

(d) Examine the igniter plug for erosion (Fig. 601).
  1) Use a lighted magnifying glass to see if the shoulder supporting ceramic is worn through.
  2) Wear of Champion igniter plugs may be measured with the service wear measuring tool.

(e) Examine the igniter plugs for abrasion in the lower shell area (Fig. 601).
  1) Replace the igniter plugs if it is worn more than 0.030 inch (0.762 mm) depth (AMM 74-21-02/401).

NOTE: Igniter plug erosion is proportional to total firing time. Although the igniters will continue to fire after the erosion becomes more than the limits, the voltage necessary to fire the igniter plug increases to a level that can put stress on other ignition components, specially the high tension cable.

(f) If you remove the high tension cable from the igniter plug, examine the well of the igniter plug (Fig. 602, 603).
  1) Examine the well of the igniter plug for evidence of arcing or flashover. The igniter plug must be replaced if these conditions are shown (AMM 74-21-02/401).
    a) Arcing may be identified by pitting or discoloration of the contact button (Fig. 602). Minor arcing of the contact button can be cleaned (AMM 74-21-02/701).
    b) Flashover is identified by carbon tracking (Fig. 603).
  2) Examine the well of the igniter plug for presence of oil, dirt and conductive contaminants.
    a) Remove the contamination (AMM 74-21-02/701).

(g) If there were problems with the ignition system, do one of the steps that follow to make sure the igniter guide is there:
  1) Remove the other igniter plug to compare each inner diameter of the opening in the combustion chamber where the igniter plug is installed.
    a) If the diameters are not the same, the igniter guide is gone.

2) Measure the inner diameter of the opening in the combustion chamber where the igniter plug is installed.
   a) If the inner diameter is too large, the igniter guide is gone.

      NOTE: The diameter of the igniter guide is 0.566-0.576 inch (14.38-14.63 mm), and the inner diameter of the opening without the igniter guide is 0.890-0.920 inch (22.61-23.37 mm).

(h) If the igniter guide is gone, do a borescope inspection of the 1st-stage HPT blades (AMM 72-00-00/601).
   1) If the 1st-stage HPT blades are satisfactory, replace the igniter boss with an igniter boss and guide assembly (AMM 74-21-02/801).

      NOTE: See your local Pratt & Whitney representative to get the igniter boss and guide assembly.

   2) If the HPT Blades are not satisfactory, replace the engine (AMM 71-00-02/401).
(i) Install the igniter plug (AMM 74-21-02/401).

   NOTE: If the boss and spacers were not removed, then it is not necessary to measure the immersion depth.

F. Return the Aircraft to Its Usual Condition.

S 866-028-N00
(1) Remove the DO-NOT-CLOSE tag and close these overhead panel P11 circuit breakers:
   (a) 11D7, ENGINE STBY IGN 1
   (b) 11D8, ENGINE STBY IGN 2

S 866-029-N00
(2) For the left engine, remove the DO-NOT-CLOSE tag and close these overhead panel P11 circuit breakers:
   (a) 11M1, L IGN 1
   (b) 11M9, LEFT ENGINE BUS PWR SENSE
   (c) 11M28, L IGN 2

S 866-030-N00
(3) For the right engine, remove the DO-NOT-CLOSE tag and close these overhead panel P11 circuit breakers:
   (a) 11M2, R IGN 1

(b) 11M29, R IGN 2
(c) 11M36, RIGHT ENGINE BUS PWR SENSE

S 416-036-N00
(4) Close the right core cowl panel (AMM 71-11-06/201).

S 446-037-N00
(5) Do the activation procedure of the thrust reverser (AMM 78-31-00/201).

TASK 74-21-02-206-013-N00

2. Igniter Plug Immersion Depth Check (Fig. 604)
A. Equipment
(1) Gage - Immersion, PWA 75509
(2) Tap - Thread Chasing, PWA 24524
(3) Tap - Thread Chasing, PWA 27641
(4) M303, M305, or M307 Bergen Mechanical Crimper
Bergen Cable Technologies Inc
170 Gregg St
P.O. Box 1300
Lodi, NJ 07644-9982
B. Consumable Materials
(1) D00244 Antiseize - Silver Goop, PWA 36001 (PMC 9940)
(2) D00137 Engine Oil - PWA 521
(3) G02334 Lockwire - AS3214-02
(4) G02332 Ferrule - P05-292 (Optional)
(5) G02335 Cable - Safety - P05-291 (Optional)
C. References
(1) AMM 71-11-06/201, Core Cowl Panels
(2) AMM 74-00-00/501, Ignition
(3) AMM 74-21-02/401, Igniter Plug
(4) AMM 78-31-00/201, Thrust Reverser System
D. Access
(1) Location Zone
411 Left Engine
421 Right Engine

(2) Access Zones

417AL	Core Cowl (Left), Left Engine
418AR	Core Cowl (Right), Left Engine
427AL	Core Cowl (Left), Right Engine
428AR	Core Cowl (Right), Right Engine

E. Prepare to do the Igniter Plug Immersion-Depth Check

S 046-038-N00

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

(1) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 016-015-N00

(2) Open the right core cowl panel (AMM 71-11-06/201).

F. Procedure

S 226-039-N00

(1) Do the igniter plug immersion depth-check.
  (a) Remove the igniter plug (AMM 74-21-02/401).
  (b) Remove and discard the keywasher from the igniter plug boss.
  (c) Remove the igniter plug boss and the classified spacers from the diffuser case.
  (d) Clean the threads of the igniter plug boss with the tap (PWA 24524).
  (e) Install the igniter plug boss and a new keywasher to the igniter plug.
    1) Tighten the igniter plug boss by hand.
    2) Make sure the tabs of the keywasher face the igniter plug boss.

(f) Measure the Dimension X from the igniter plug tip to the bottom face of the igniter plug boss (Fig. 604).
   1) Make a record of Dimension X.

(g) Remove the keywasher and the igniter plug boss from the igniter plug and keep it for installation.

(h) Use a light to see inside the igniter boss hole to determine the igniter plug guide configuration (shielded or unshielded) (Fig. 604).

   NOTE: There are two types of igniter plug guide configurations installed in the outer combustion chamber.
   Configuration A has an extended sleeve and no shield.
   Configuration B has a flush sleeve and a shield.

(i) Measure the igniter plug immersion depth with the immersion depth gage (PWA 75509).
   1) Place the immersion gage master between the gage hook and the base and set the bezel to zero.
   2) Insert the immersion gage into the igniter boss hole until the gage base is seated against the case boss.
   3) Rotate the gage base so you can see the bezel.
   4) Hold the base of the gage and rotate the probe until the notch in the probe disk points aft.
   5) Depress the probe and slide the gage toward the rear of the engine. Release the pressure on the probe as necessary to seat the gage hook against the rear inner surface of the outer combustion chamber.
   6) Release the pressure on the probe and make a record of the bezel measurement which will be used to determine Dimension Y.
      a) Add 2.200 inches (55.880 mm) to the measurement, if the measurement is positive, to get Dimension Y.
      b) Subtract the gage measurement from 2.200 inches (55.880 mm) to get Dimension Y, if the gage measurement is a negative value.

(j) Calculate the thickness of the classified spacer(s) necessary.
  1) Do the steps that follow for engines with Configuration A igniter plug guides:
    a) Add 0.025 inch (0.635 mm) to Dimension Y.
    b) Subtract the total from Dimension X to get Dimension Z which is the thickness of the classified spacer(s) necessary.
  2) Do the steps that follow for engines with Configuration B igniter plug guides:
    a) Add 0.125 inch (3.175 mm) to Dimension Y.
    b) Subtract the total from Dimension X to get Dimension Z which is the thickness of the classified spacer(s) necessary.
  3) Select a classified spacer or combination of two spacers to get Dimension Z, plus or minus 0.010 inch (0.254 mm).

    NOTE: The total thickness of the classified spacers must not be more than 0.3 inch (7.62 mm).

(k) Clean the threads in the diffuser case port with the tap (PWA 27641).
(l) Install the keywasher to the igniter plug boss.
  1) Bend the tabs of the keywasher around the flange of the igniter plug boss.
(m) Clean the inner and outer threads of the igniter plug boss with the petroleum solvent to remove carbon deposits and thread lubricants.

CAUTION: DO NOT USE SILVER GOOP ON THE THREADS OF THE IGNITER PLUG BOSS IF A DIFFERRENT LUBRICANT WAS USED BEFORE. IF SILVER GOOP IS USED WHERE OTHER LUBRICANTS WERE USED, IT CAN BECOME HARD AFTER THE ENGINE OPERATES.

(n) Lubricate the outer threads of the igniter plug boss with the silver goop antiseize.

  NOTE: Do not apply too much antiseize to the igniter plug threads.

(o) Install the igniter plug boss into the diffuser case.
  1) Put the clasified spacers on the igniter plug boss.
  2) Tighten the igniter plug boss to 375-440 pound-inches (42.4-49.7 newton-meters).
  3) Safety the igniter plug boss with lockwire or safety cable and safety cable ferrule.

(p) Install the igniter plug (AMM 74-21-02/401).

G. Return the Aircraft to Its Usual Condition

S 416-023-N00

(1) Close the right core cowl panel (AMM 71-11-06/201).

S 446-040-N00

(2) Do the activation procedure of the thrust reversers (AMM 78-31-00/201).

S 716-041-N00

(3) Do the operational (audible) test of the ignition system (AMM 74-00-00/501).

IGNITER PLUG - CLEANING/PAINTING

1. General
   A. This procedure gives the steps to clean the igniter plugs.
   B. Each engine has two igniter plugs. One of the igniter plugs is located at the 4 o'clock position and the other is located at the 5 o'clock position on the diffuser case (aft looking foward). The upper igniter plug is part of ignition system 1 (upper exciter). The lower igniter plug is part of ignition system 2 (lower exciter).
   C. You can open the right thrust reverser to get access to the igniter plug.

TASK 74-21-02-107-001-N00

2. Clean the Igniter Plug
   A. Equipment
      (1) Brush - Long bristle, non-metallic
      (2) Brush - Wire
      (3) Brush - Short bristle, non-metallic
   B. Consumable Materials
      (1) G02189 Abrasive Rod - MISC 82, Cratex
      (2) G00834 Cloth - clean, lint-free
      (3) B00666 Solvent - Methyl Propyl Ketone (MPK)
      (4) Solvent - For recommends and approves the use of the solvent (AMM 70-11-13/201).
   C. References
      (1) AMM 71-11-04/201, Fan Cowl Panels
      (2) AMM 71-11-06/201, Core Cowl Panels
      (3) AMM 74-21-02/401, Igniter Plug
      (4) AMM 78-31-00/201, Thrust Reverser System
   D. Access
      (1) Location Zones
          411 Left Engine
          421 Right Engine

      (2) Access Panels
          414AR Fan Cowl Panel, Left Engine
          416AR Thrust Reverser, Left Engine
          418AR Core Cowl Panel, Left Engine
          424AR Fan Cowl Panel, Right Engine
          426AR Thrust Reverser, Right Engine
          428AR Core Cowl Panel, Right Engine

E. Clean the Igniter Plug

S 017-002-N00

(1) Open the right fan cowl panel (AMM 71-11-04/201).

S 047-003-N00

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

(2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

S 017-004-N00

(3) Open the right core cowl panel (AMM 71-11-06/201).

S 017-005-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Open the right thrust reverser (AMM 78-31-00/201).

S 027-006-N00

(5) Remove the igniter plug (AMM 74-21-02/401).

S 117-007-N00

(6) Do the steps that follow to clean the outer shell of the ingniter plug.

WARNING: DO NOT GET THE SOLVENT IN YOUR MOUTH, OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THE SOLVENT. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THE SOLVENT. SOLVENT IS POISONOUS. FLAMMABLE SOLVENT CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Put the igniter plug in MPK solvent to remove all grease.

NOTE: It is not recommenced that you clean the center electrode hole in the reccess on the firing end of the igniter plug (the end that makes arcs).

(b) Do the steps that follow to clean the outer shell of the igniter plug with the wire brush.
1) Make a non-metallic brush wet with MPK.
2) With that brush, remove unwanted material from the external surface of the firing end of the igniter plug.

NOTE: It is not necessary to make the ceramic surface as clean as the surface of a new ceramic sleeve.

S 117-009-N00

(7) Do the steps that follow to clean the contact well of the igniter plug.
(a) Remove all unwanted material from the inner contact well with compressor air at a maximum pressure of 30 psig (206.8 kPa).

NOTE: A dirty mating surface can decrease the performance and cause arcs.

(b) With circular hand movements, use the abrasive rod to remove small quantities of arc damage from the contact button.

NOTE: This will remove the damaged surface layer and make a new surface layer.

WARNING: DO NOT GET THE PMC 9056 TRICHLORETHANE IN YOUR MOUTH, OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THE PMC 9056 TRICHLORETHANE. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE THE PMC 9056 TRICHLORETHANE. THE PMC 9056 TRICHLORETHANE IS A POISONOUS AND FLAMMABLE SOLVENT THAT CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(c) Make a long briste brush wet with PMC 9056 Trichlorethane solvent.

(d) Clean the contact well with that brush.
1) Use compressor air to dry the contact well.
(e) Make the circular felt bob wet with the PMC 9056 Trichlorethane solvent.

NOTE: Use a cylinder of felt, 0.5 inch in diameter, 1.75 inch in length (12.7 mm x 44.45 mm) (This can be used with a hand chuck).

(f) With a circular movement, use the circular felt bob to clean the inner ceramic walls.
1) Use the compressor air to dry the surface.
(g) Make the short bristle brush wet with PMC 9056 Trichlorethane solvent.
(h) Use that brush to clean the end surface of the ceramic sleeve adjacent to the grommet face.
1) Use the compressor air to dry the surface.

S 427-008-N00
(8) Install the igniter plug (AMM 74-21-02/401).

S 417-013-N00

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS, YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) Close the right thrust reverser (AMM 78-31-00/201).

S 417-012-N00
(10) Close the right core cowl panel (AMM 71-11-06/201).

S 447-011-N00
(11) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

S 417-010-N00
(12) Close the right fan cowl panel (AMM 71-11-04/201).

IGNITER PLUG - APPROVED REPAIRS

1. General
   A. This procedure gives the instructions for the on-wing installation of a new igniter plug boss and guide assembly if the igniter plug guide is missing and a borescope inspection of the 1st-stage HPT blades shows that there is no damage. The installation of the new igniter boss and guide assembly is a temporary solution until PW SB 72-601 is incorporated. This procedure can be used for both igniter plug positions of the engine.
   B. The igniter plug guide is installed in an opening in the outer combustion chamber.
   C. You must get the igniter plug boss and guide assembly from your local Pratt & Whitney representative.
   D. You must open the right core cowl panel, remove the igniter plug and igniter plug boss to get access to the igniter plug guide.

TASK 74-21-02-308-010-N00

2. Igniter Plug Guide Repair
   A. Equipment
      (1) M303, M305, or M307 Bergen Mechanical Crimper
          Bergen Cable Technologies Inc
          170 Gregg St
          P.O. Box 1300
          Lodi, NJ 07644-9982
   B. Consumable Materials
      (1) D00244 Antiseize - Silver Goop, PWA 36001(PMC 9940)
      (2) G02334 Lockwire - AS3214-02
      (3) G02332 Ferrule - P05-292 (Optional)
      (4) G02335 Cable - Safety - P05-291 (Optional)
   C. References
      (1) AMM 71-11-06/201, Core Cowl Panels
      (2) AMM 74-21-02/401, Igniter Plug
      (3) AMM 78-31-00/201, Thrust Reverser System
   D. Access
      (1) Location Zones
          411 Left Engine
          421 Right Engine

      (2) Access Panels
          418AR Core Cowl Panel (Right)
          428AR Core Cowl Panel (Right)

   E. Prepare for the Repair of the Igniter Plug Guide

S 048-014-N00

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

(1) Do the deactivation procedure of the thrust reverser for ground maintenance (AMM 78-31-00/201).

S 018-002-N00

(2) Open the right core cowl panel (AMM 71-11-06/201).

F. Procedure

S 018-015-N00

(1) Remove the igniter plug (AMM 74-21-02/401).

S 358-016-N00

(2) Do the repair for the igniter plug guide.

(a) Remove the igniter plug boss, spacers and keywasher.

1) Measure the dimension A of the igniter plug boss, spacers and keywasher that you removed (Fig. 801).

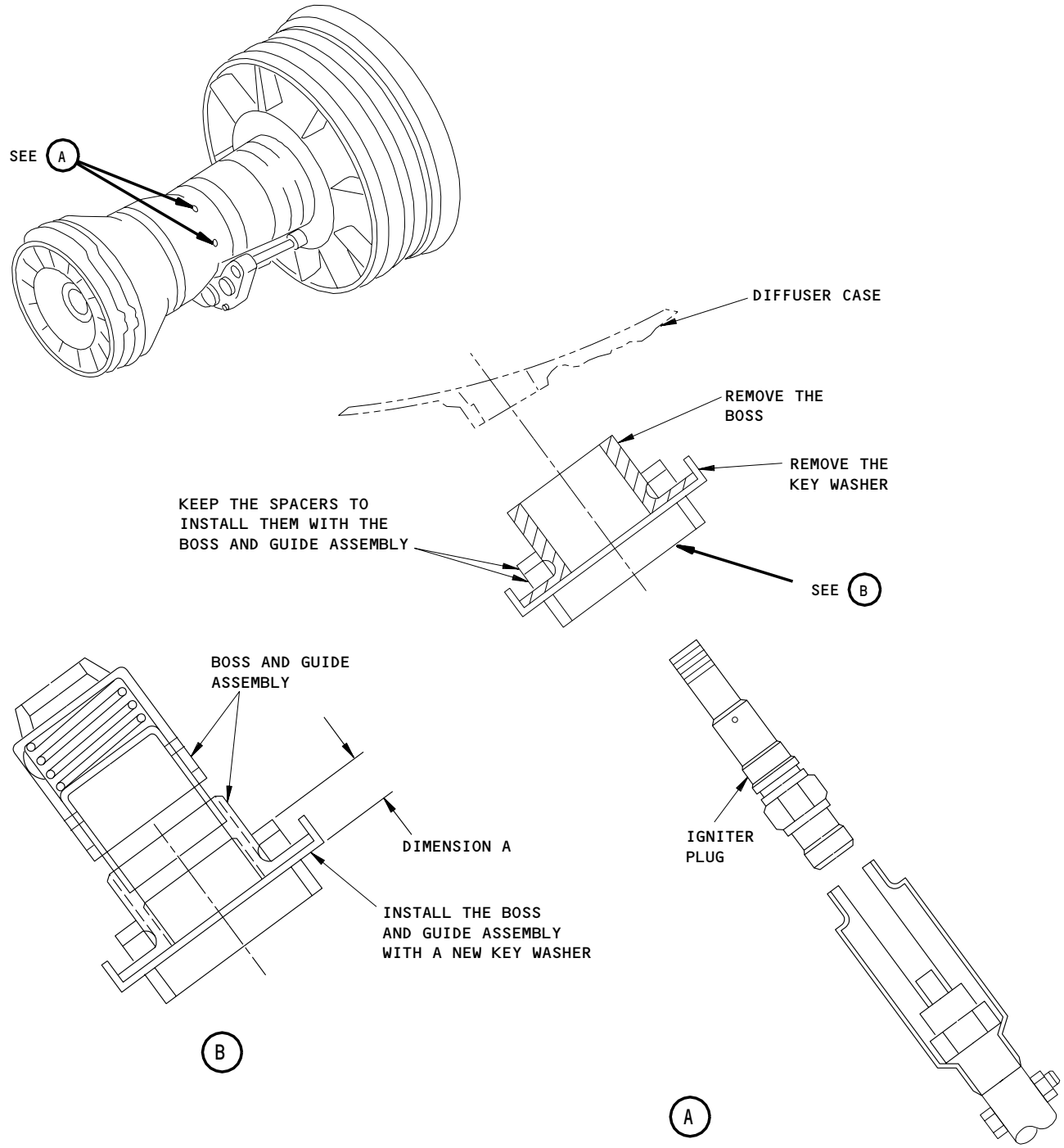
2) Keep the igniter plug boss.

NOTE: The igniter plug boss can be used again when the igniter plug guide and boss assembly is removed and a new igniter plug guide is installed.

3) Discard the keywasher.

(b) Use one or two classified spacers (Table 801), on the new igniter plug boss and guide assembly and keywasher that will make sure the new dimension A is the same as the dimension A you measured.

UAL



Igniter Plug Guide Repair
Figure 801

Classified Spacer Part Number	Spacer Thickness	
	Inches	Millimeters
741073 CL 1	0.008 - 0.018	0.20 - 0.46
741073 CL 2	0.018 - 0.028	0.46 - 0.71
741073 CL 3	0.028 - 0.038	0.71 - 0.97
741073 CL 4	0.038 - 0.048	0.97 - 1.22
741073 CL 5	0.048 - 0.058	1.22 - 1.47
741073 CL 6	0.058 - 0.068	1.47 - 1.73
741073 CL 7	0.068 - 0.078	1.73 - 1.98
741073 CL 8	0.078 - 0.088	1.98 - 2.24
741073 CL 9	0.088 - 0.098	2.24 - 2.49
741073 CL 10	0.098 - 0.108	2.49 - 2.74
741073 CL 11	0.108 - 0.118	2.74 - 3.00
741073 CL 12	0.118 - 0.128	3.00 - 3.25
741073 CL 13	0.128 - 0.138	3.25 - 3.51
741073 CL 14	0.138 - 0.148	3.51 - 3.76
741073 CL 15	0.148 - 0.158	3.76 - 4.01
741073 CL 16	0.158 - 0.168	4.01 - 4.27
741073 CL 17	0.168 - 0.178	4.27 - 4.52
741073 CL 18	0.178 - 0.188	4.52 - 4.78

Spacer Classification Data
Table 801

(c) Lubricate the outer threads of the igniter plug boss and guide assembly with silver goop.

(d) Install the igniter plug boss and guide assembly, spacer(s) and keywasher (Fig. 801).

1) Tighten the igniter plug boss and guide assembly to 375-440 pound-inches (42.4-49.7 newton-meters).

2) Safety the igniter plug boss and guide assembly with lockwire or safety cable and safety cable ferrule.

(e) Report the engine serial number, igniter position number, engine time and cycles and the date that you installed the igniter plug guide and boss assembly to your local Pratt & Whitney representative.

S 218-017-N00

(3) Do the steps that follow until the time the diffuser case is disassembled and PW SB 72-601 is incorporated:

(a) Examine the igniter plug guide and boss assembly for wear before or at each 7000 hours engine time.

(b) Report the engine time and cycles and detailed condition of the parts to your local Pratt & Whitney representative.

NOTE: A monthly report of the condition of the parts is optional.

S 908-006-N00

(4) Do the steps that follow at the subsequent time the diffuser case is disassembled:

(a) Replace the igniter plug guide and boss assembly as specified in PW SB 72-601.

(b) Report the engine serial number, igniter position number, engine time and cycles and the date that the igniter plug guide and boss assembly is replaced to your local Pratt & Whitney representative.

(c) Report the detailed condition of the parts to your local Pratt & Whitney representative.

(d) Give the igniter plug boss and guide assembly to your local Pratt & Whitney representative when PW SB 72-601 is incorporated.

S 418-007-N00

(5) Install the igniter plug (AMM 74-21-02/401).

G. Return the Aircraft to Its Usual Condition

S 418-008-N00

(1) Close the right core cowl panel (AMM 71-11-06/201).

S 448-018-N00

(2) Do the activation procedure of the thrust reverser (AMM 78-31-00/201).