

# **CHAPTER**

# **76**

# **ENGINE CONTROLS**

**(CFM56 ENGINES (CFM56-7))**

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**THRUST LEVERS - REMOVAL/INSTALLATION**

**1. General**

- A. This procedure has two tasks:
- (1) Thrust Levers Removal
  - (2) Thrust Levers Installation.

**TASK 76-11-01-010-801-F00**

**2. Thrust Levers Removal**

(Figure 401, Figure 402, Figure 403, Figure 404, Figure 405, Figure 406, Figure 407, and Figure 408)

**A. General**

- (1) This task gives you instructions on how to remove the thrust levers from the aisle control stand.

**B. References**

Reference	Title
25-11-01-000-801	Captain's and First Officer's Seat Removal (P/B 401)
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
76-11-03-000-801-F00	Control Stand Lightplate Removal (P/B 401)
76-11-03-400-801-F00	Control Stand Seal, Spacer, and Retainer Removal (P/B 401)
76-11-03-400-803-F00	Control Stand Cover and Stop Removal (P/B 401)

**C. Tools/Equipment**

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

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems Part #: F70207-109 Supplier: 81205
SPL-2409	Dowel Set - Thrust Lever, Control Stand Part #: F80195-1 Supplier: 81205
SPL-2411	Tool Set - Control Stand Disassembly Part #: C76002-26 Supplier: 81205

**D. Consumable Materials**

Reference	Description	Specification
G50314	Tape - Masking	BAC5034-4 Type VII Class 2

**E. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

**F. Prepare for the Removal**

SUBTASK 76-11-01-040-001-F00

- (1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.



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SUBTASK 76-11-01-040-002-F00

- (2) Make sure that the left and right engine start switches are off and install a DO-NOT-OPERATE tag.

SUBTASK 76-11-01-860-008-F00

- (3) For engine 1, open these circuit breakers and install the safety tags:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 76-11-01-860-009-F00

- (4) For engine 2, open these circuit breakers and install the safety tags:

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

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SUBTASK 76-11-01-860-013-F00

- (5) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00721	AUTOTHROTTLE DC 1

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 76-11-01-860-006-F00

**WARNING:** MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKERS FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (6) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 76-11-01-040-006-F00

- (7) Do these steps to deactivate the speed brakes and control lever:

- (a) Move the speed brake lever to the DOWN position.
- (b) Move to the forward bay below the flight compartment:
  - 1) Install the rig pin S/B-1 from the rig pin kit, SPL-1585 into the forward drum of the speed brake mechanism.

SUBTASK 76-11-01-010-001-F00

- (8) Do this task: Captain's and First Officer's Seat Removal, TASK 25-11-01-000-801.

SUBTASK 76-11-01-010-007-F00

- (9) Put a mat on the aft electronics panel P8.

NOTE: This will prevent damage to the switches and glass surfaces of the indicators and displays.

SUBTASK 76-11-01-010-002-F00

- (10) Remove these lightplates to get access to the thrust levers (TASK 76-11-03-000-801-F00):
- (a) The first officers stabilizer trim lightplate.
  - (b) The flap indicator lever lightplate.

SUBTASK 76-11-01-010-003-F00

- (11) Remove these retainers and seals to get access to the thrust levers (TASK 76-11-03-400-801-F00):
- (a) The right seal retainer and the right seal.
  - (b) The center seal retainer and the center seal.
  - (c) The left seal retainer and the left seal.

SUBTASK 76-11-01-020-001-F00

- (12) Remove these covers and stops to get access to the thrust levers (TASK 76-11-03-400-803-F00):

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- (a) The stabilizer trim horn cutout switch knob [6] for the stabilizer trim horn cutout switch
- (b) The forward thrust stop and the aft thrust stop
- (c) Move the right side cover assembly forward and carefully lay it on the front of the stand
- (d) The center cover assembly.

SUBTASK 76-11-01-010-005-F00

- (13) Get access to the thrust levers in the control stand as follows:

- (a) Remove the bolt [8] and the right stabilizer trim wheel [7].

NOTE: Keep the left stabilizer trim wheel attached at this time. This will permit you to turn the assembled levers during removal.

- 1) Remove the spacer.

NOTE: The spacer is not installed with the countersunk head bolt.

- (b) Remove four screws [2] and the left upper side panel [1].

- (c) Remove five screws [2] and the left lower side panel [5].

- (d) Remove four screws [2] and the right upper side panel [3].

- (e) Remove four screws [2] the right lower side panel [4].

- (f) Move the stabilizer trim switch panel [10] from the control stand as follows:

- 1) Remove the four screws [9].

- 2) Apply masking tape, G50314 to prevent damage to the surface of the stabilizer trim switch panel [10].

- 3) Move the stabilizer trim switch panel [10] on to the mat.

## G. Thrust Lever Removal

SUBTASK 76-11-01-020-002-F00

- (1) Disconnect the flap indicator assembly as follows:

- (a) Go to the right side of the control stand.

- (b) Remove the nut [16], the washer [14], the washer [15], and the bolt [17] from the lower end of the link assembly [13].

- (c) Safety the link assembly to the control stand.

SUBTASK 76-11-01-020-003-F00

- (2) Disconnect the flap lever position synchro assembly as follows:

- (a) Remove the nut [18] and the bolt [19] from the link assembly [12].

- (b) Safety the link assembly to the control stand.

SUBTASK 76-11-01-020-004-F00

- (3) Disconnect the stabilizer trim controls as follows:

- (a) Turn the left trim wheel until you find the link in the trim chain.

NOTE: This will help if it becomes necessary to disconnect the chain during installation.

- (b) Safety the chain [39] to the stabilizer trim sprocket [40].

NOTE: Do not remove the chain from the sprocket.

- (c) Move to the forward bay below the flight compartment.

- (d) Release the tension from the stabilizer control chain (TASK 27-41-00-820-801).

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SUBTASK 76-11-01-020-005-F00

- (4) Remove the control shaft components (Figure 402):
  - (a) Remove the bolt [8] and the left stabilizer trim wheel [11].
    - 1) Remove the spacer.  
NOTE: The spacer is not installed with the countersunk head bolt.
  - (b) Carefully move the stabilizer trim shaft [31] to the left side of the control stand and do these steps at the same time:
    - 1) Remove the bearing [34].
    - 2) Remove the clamp up bushing [33].
    - 3) Be prepared to catch and remove the bushing [35] as the shaft is moved to the left.  
NOTE: The bushing [35] is between the bearing [41] and the sprocket.
    - 4) Be prepared to catch and move the sprocket and chain.
    - 5) Move the stabilizer trim shaft [31] to the left side until the sprocket [40] clears of the shaft.
    - 6) Move the sprocket and chain to the bottom of the control stand.
  - (c) Reach inside the short shaft [42] from the left side and remove the inside bearing [41].
  - (d) Remove the stabilizer trim shaft [31] from the control stand.
    - 1) Remove the bearing [38].
    - 2) Remove the long bushing [37].
    - 3) Remove the clamp up bushing [36].

SUBTASK 76-11-01-020-006-F00

- (5) Remove the chain guard [67] as follows:
  - (a) Find the stabilizer trim switch panel [10] for the stabilizer trim cutout.
  - (b) Use the 90 degree screwdriver from tool set, SPL-2411 to hold the screw [66].
  - (c) Remove the nut [65], the washer [63], and the screw [66].
  - (d) Remove the upper center screw [62] and the washer [61].
  - (e) Remove the forward screw [64] and the washer [63].
  - (f) Remove the chain guard [67].

SUBTASK 76-11-01-020-007-F00

- (6) Disconnect the electrical harness for Engine 1 thrust lever as follows:
  - (a) Disconnect the electrical connector [85].
  - (b) Disconnect the electrical connector [86].
  - (c) Remove the clamp [81] and the clamp [104].
  - (d) Disconnect the electrical connector [105].
  - (e) Remove the pins 1 and 2 with wires from the electrical connector [105].
  - (f) Move the wires and connectors through the wire guide.

SUBTASK 76-11-01-020-008-F00

- (7) Disconnect the electrical harness for the Engine 2 thrust lever as follows:
  - (a) Disconnect the electrical connector [105].
  - (b) Disconnect the electrical connector [106].

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- (c) Remove the eight clamps [104].
- (d) Disconnect the electrical connector [85].
- (e) Remove the pins 11 and 12 and attached wires from the electrical connector [85].
- (f) Move the wires and connectors thru the wire guide.

SUBTASK 76-11-01-020-009-F00

- (8) Disconnect the applicable thrust lever connecting rod [125] as follows:
  - (a) Go into the lower forward access area under the flight compartment.
  - (b) Disconnect the applicable thrust lever connecting rod [125] from the thrust lever resolver.
    - 1) Remove and discard the cotter pin [124].
    - 2) Remove the nut [121], the washer [122], and the bolt [123].
    - 3) Move the thrust lever connecting rod [125] from the resolver.

SUBTASK 76-11-01-020-010-F00

- (9) Disconnect the thrust lever assemblies as follows:
  - (a) Find the bent tab on the lockwasher [143].
  - (b) Use the lockwasher removal tool from the tool set, SPL-2411 to bend the tab.
  - (c) Bend the tab out of the notch in the nut [144].
  - (d) Put one control shaft wrench from the tool set, SPL-2411 to the left side of the long control shaft [146] to hold it in position.
  - (e) Put one control shaft nut wrench from the tool set, SPL-2411 in position and remove the nut [144] from the long control shaft [146].
  - (f) Remove and discard the lockwasher [143].

SUBTASK 76-11-01-020-011-F00

- (10) For engine 1, remove the lever assembly [141] as follows:

**CAUTION:** BE CAREFUL WHEN YOU INSERT THE DOWEL. IF THE NINE WASHERS DO NOT STAY IN THEIR CORRECT POSITION, DAMAGE CAN OCCUR.

- (a) Put the dowel set, SPL-2409 against the right side end of the long control shaft [146].
- (b) Hit lightly (carefully tap) on the dowel.

**NOTE:** This is to move the long control shaft off the control levers.

- 1) Move the dowel until the thrust lever assembly [141] is on the dowel.

**NOTE:** Do not move the long control shaft [146] from the position it is now in. More movement will let the start lever falls.

- (c) Hold the thrust lever and move the dowel from the lever.
  - 1) Stop the dowel movement when you can lift up the lever.
  - 2) Make sure that the washers [145] are still held by the dowel.
- (d) Remove the thrust lever assembly [141] through the top of the control stand.
- (e) Remove the two washers [145] between the thrust levers if you will remove thrust lever assembly [142] for engine 2.

**NOTE:** Make sure that the washers do not fall into the control stand.

**NOTE:** Do not move the dowel from the position it is in unless you want to remove thrust lever assembly [142] for engine 2.

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SUBTASK 76-11-01-020-012-F00

- (11) For engine 2, remove the thrust lever assembly [142] as follows:

**CAUTION:** BE CAREFUL WHEN YOU INSERT THE DOWEL. IF THE NINE WASHERS DO NOT STAY IN THEIR CORRECT POSITION, DAMAGE CAN OCCUR.

- (a) Put the dowel set, SPL-2409 against the right side end of the long control shaft [146].
- (b) Hit lightly (carefully tap) on the dowel.

NOTE: This is to move the long control shaft off the thrust lever.

- 1) Move the dowel until the thrust lever assembly [142] is on the dowel.

NOTE: Do not move the long control shaft from the position it is now in. More movement will let the thrust lever for engine 1 falls.

- (c) Hold the thrust lever assembly [142] and move the dowel from the lever.
  - 1) Stop the dowel movement when you can lift up the lever.
- (d) Make sure the washers [145] are still held on the long control shaft [146].
- (e) Remove the thrust lever assembly [142] through the top of the control stand.
- (f) Remove the two washers [145] between the thrust levers.

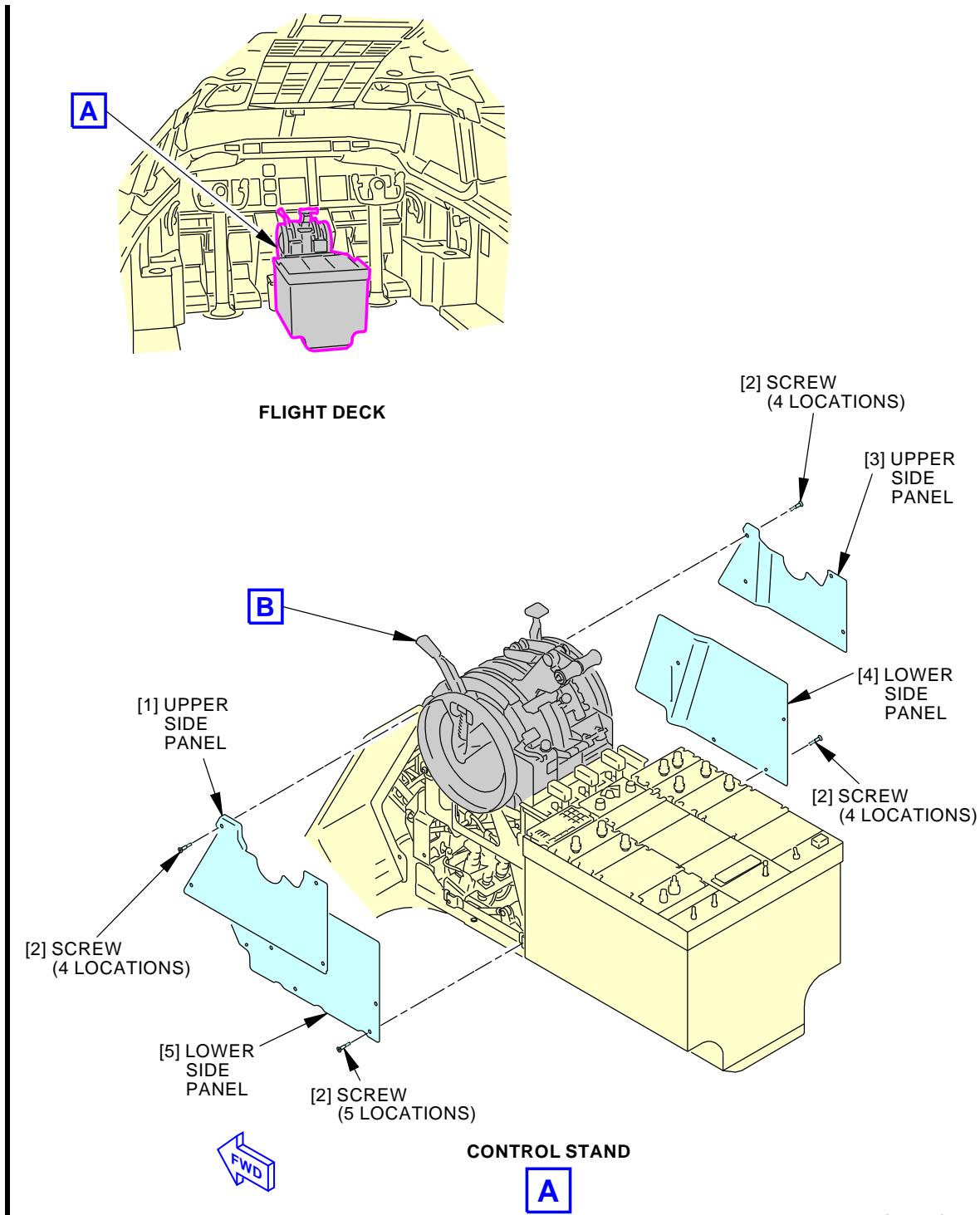
NOTE: Make sure that the washers do not fall into the control stand.

NOTE: Do not move the dowel from the position it is in. More movement will let the start lever falls.

———— END OF TASK ————

EFFECTIVITY  
AKS ALL

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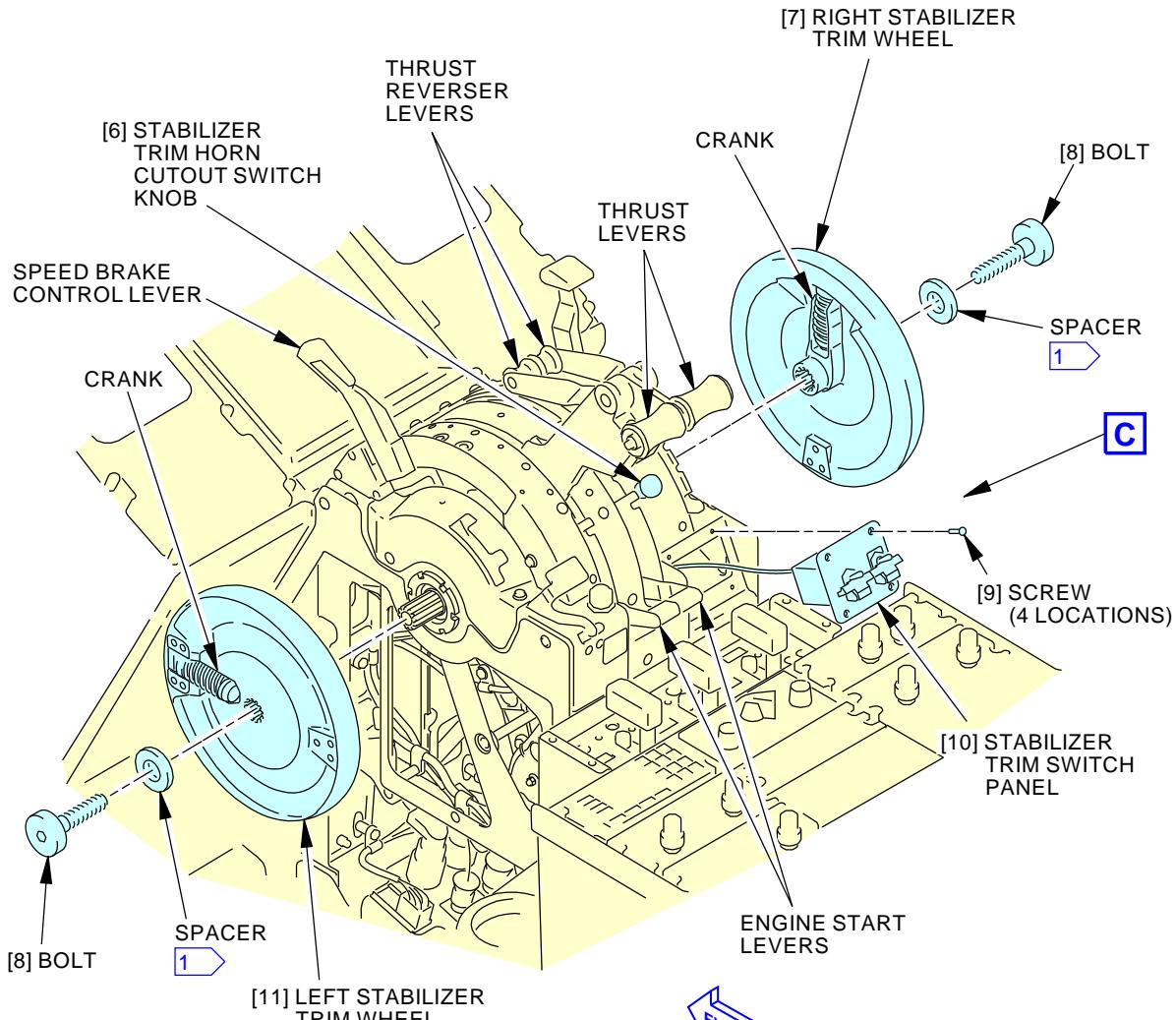
G02533 S0006583041\_V2

**Control Stand Installation**  
Figure 401/76-11-01-990-801-F00 (Sheet 1 of 3)

EFFECTIVITY  
AKS ALL

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**1** SPACER NOT INSTALLED WITH COUNTERSUNK HEAD BOLT

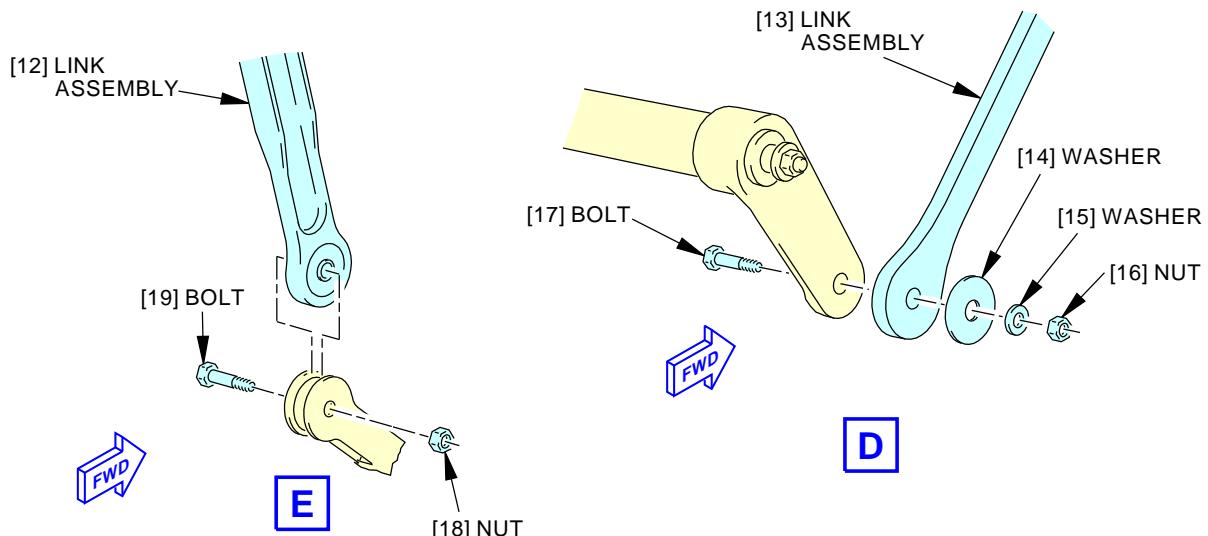
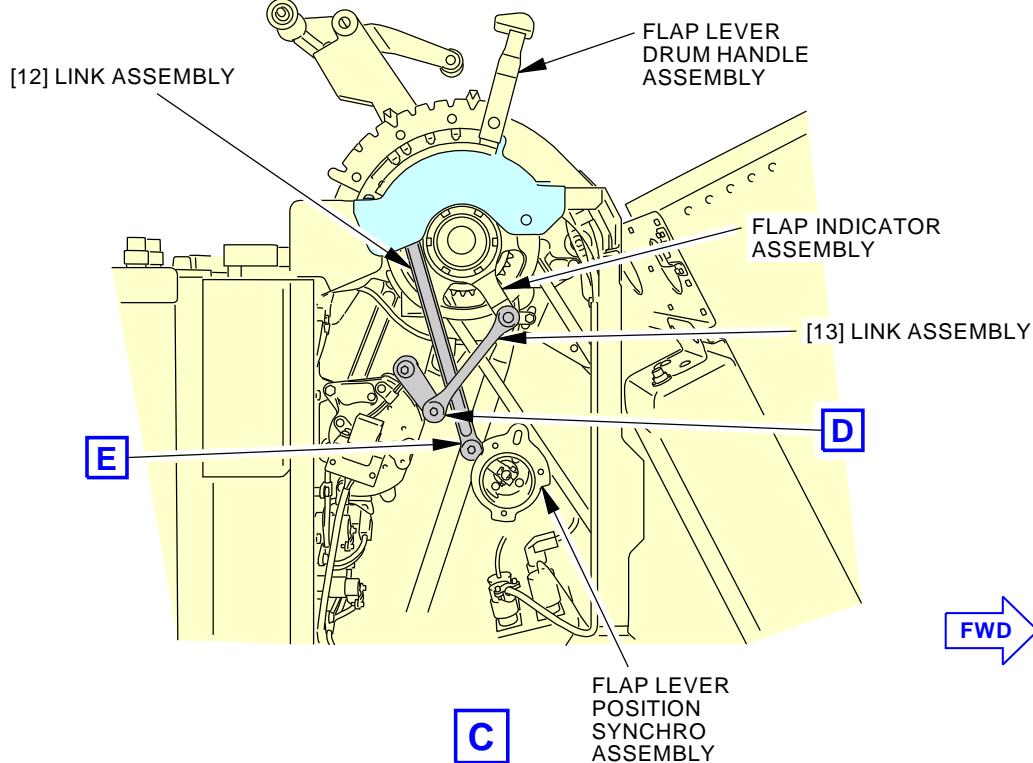
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**Control Stand Installation**  
**Figure 401/76-11-01-990-801-F00 (Sheet 2 of 3)**

EFFECTIVITY  
AKS ALL

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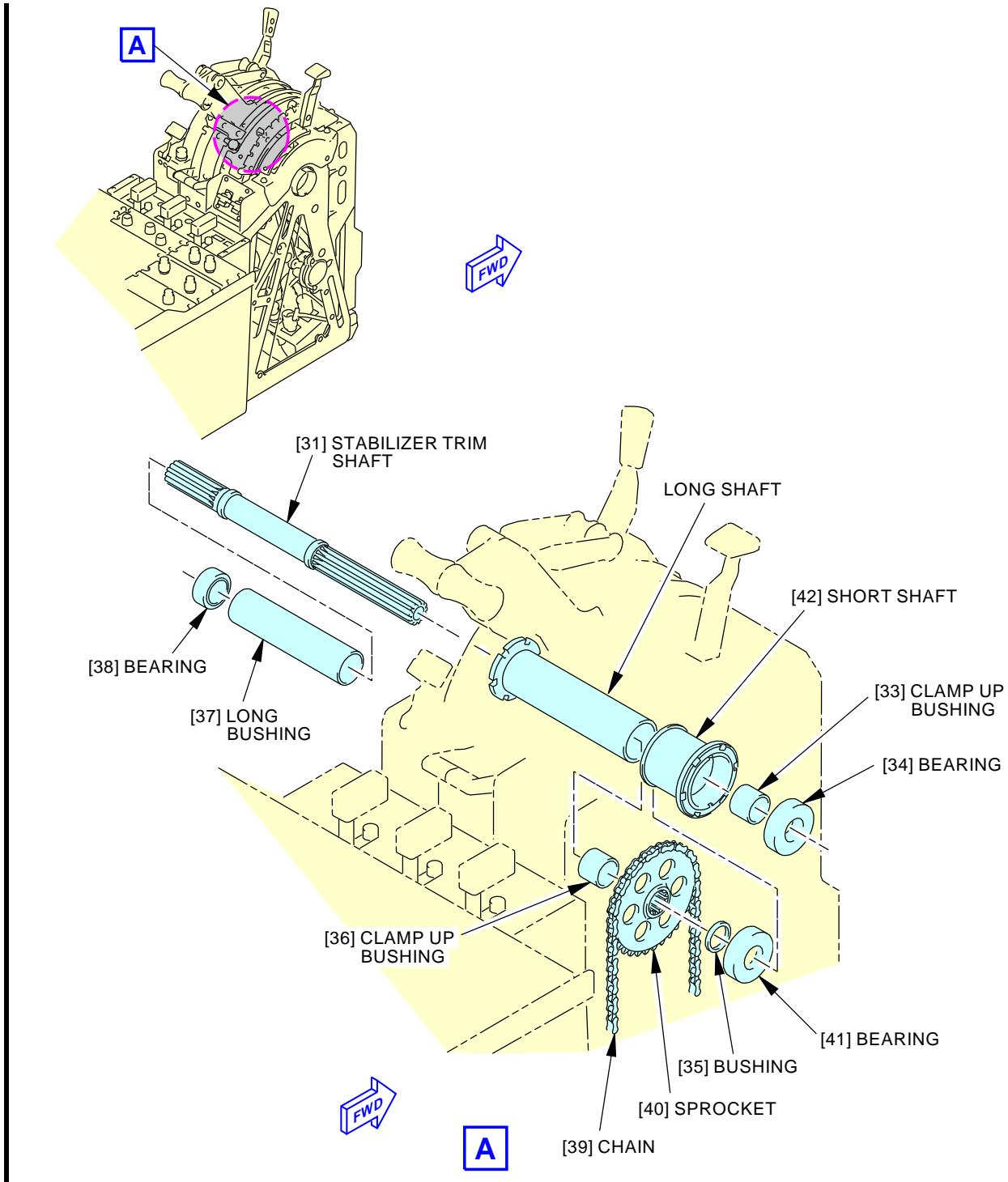
**Control Stand Installation**  
Figure 401/76-11-01-990-801-F00 (Sheet 3 of 3)

EFFECTIVITY  
AKS ALL

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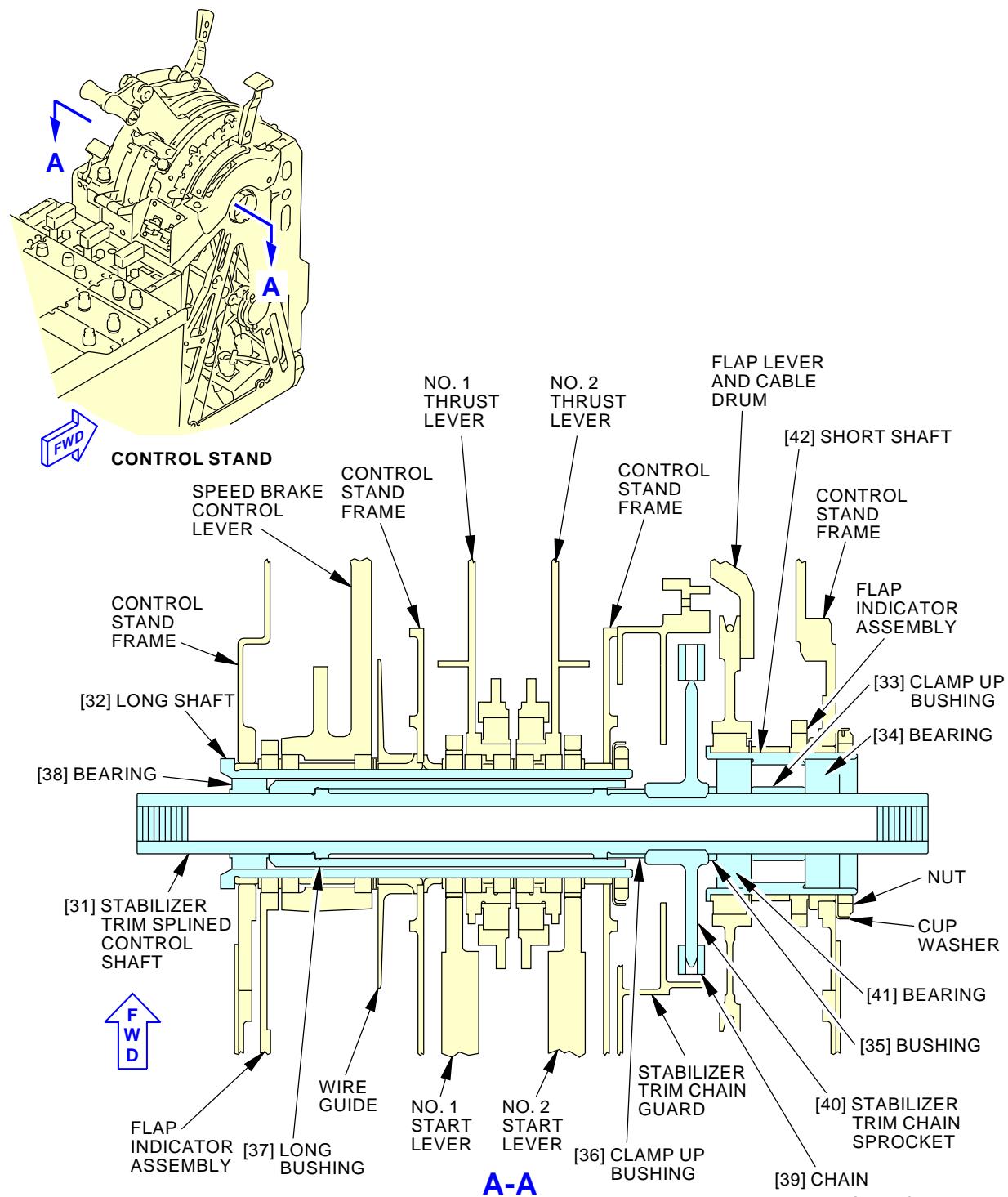
**Control Shaft Components Installation**  
Figure 402/76-11-01-990-802-F00 (Sheet 1 of 2)

EFFECTIVITY  
AKS ALL

**76-11-01**

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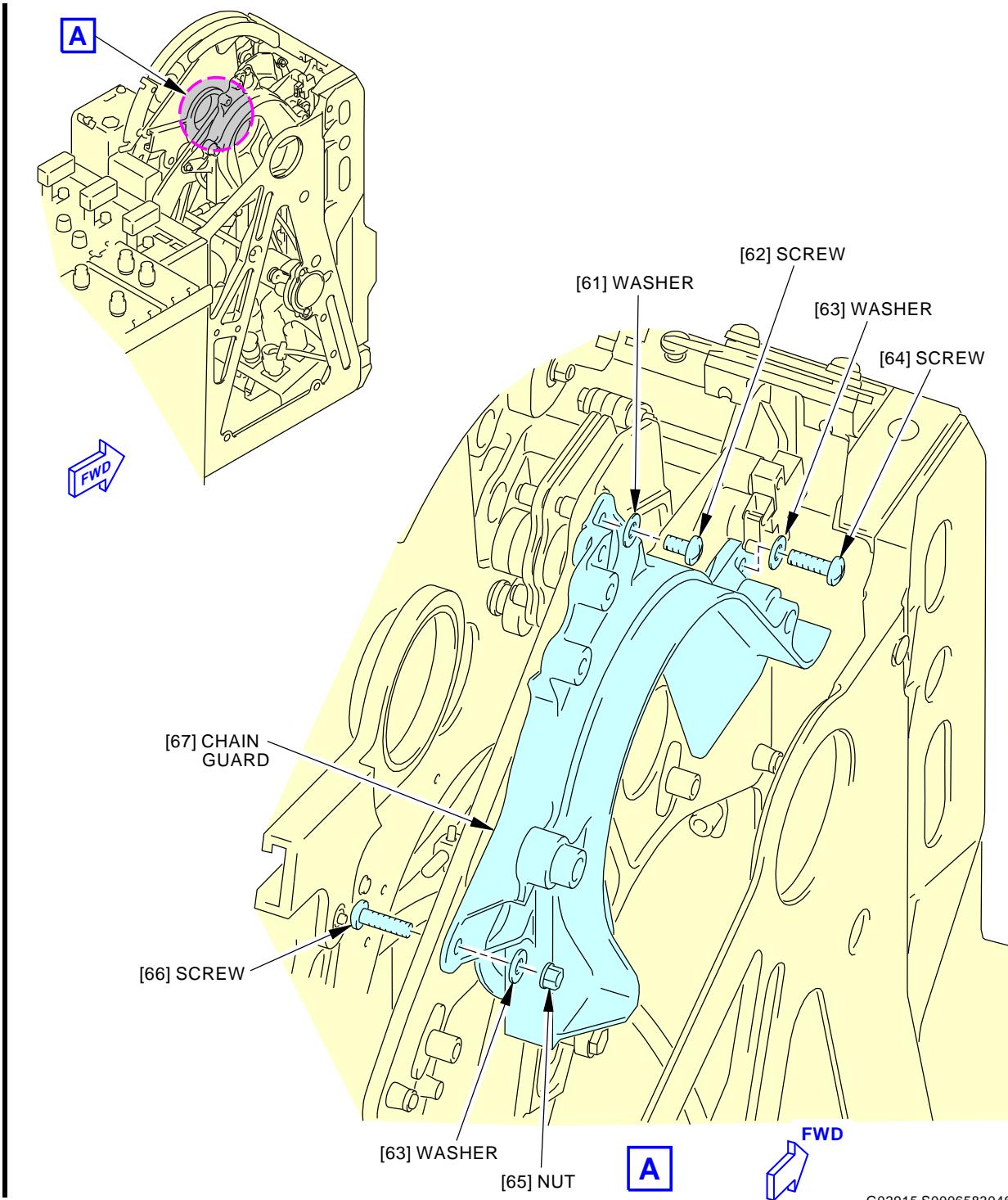
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**Control Shaft Components Installation**  
**Figure 402/76-11-01-990-802-F00 (Sheet 2 of 2)**

EFFECTIVITY  
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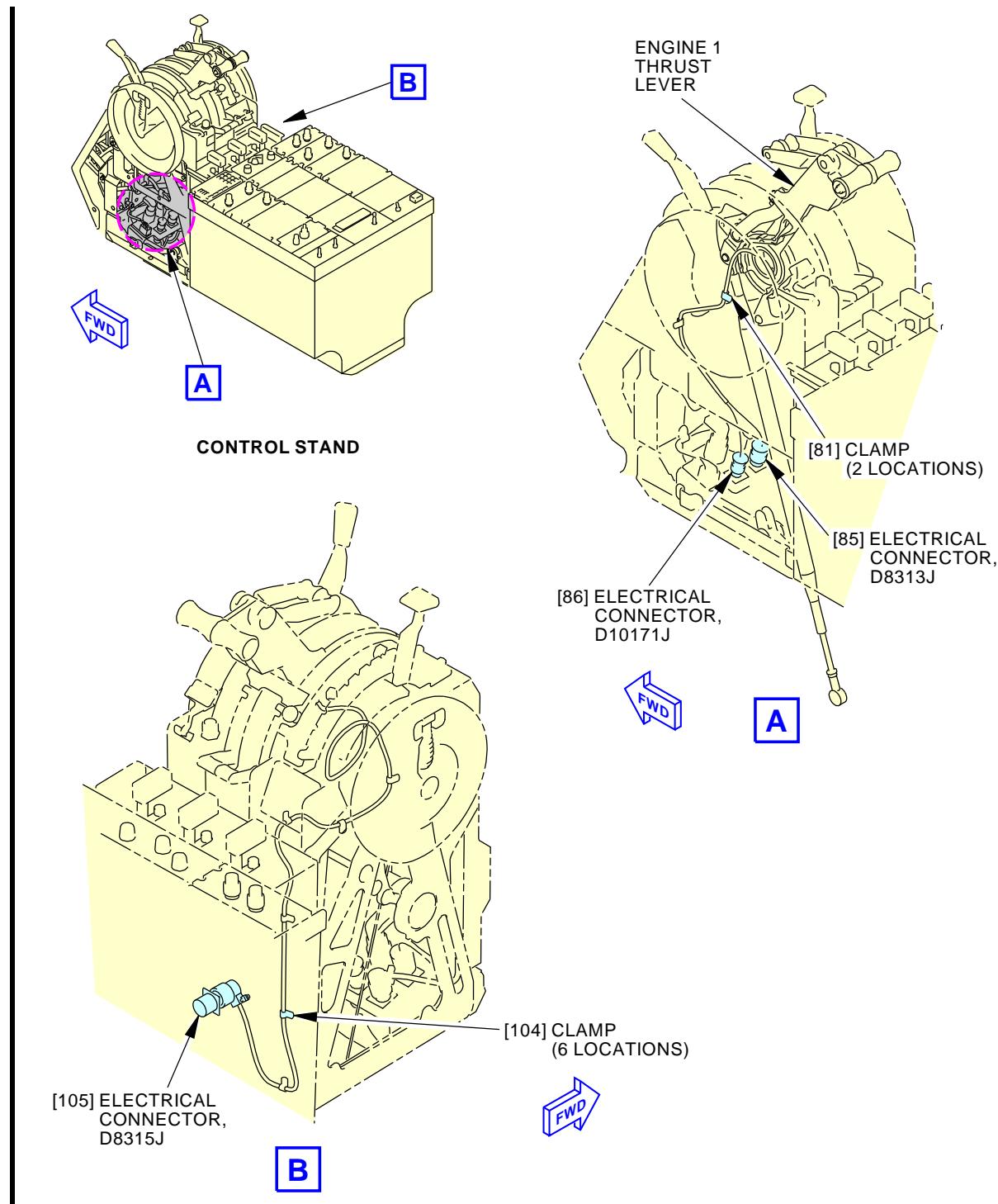
G02915 S0006583046\_V2

**Chain Guard Assembly Installation**  
**Figure 403/76-11-01-990-803-F00**

EFFECTIVITY  
AKS ALL

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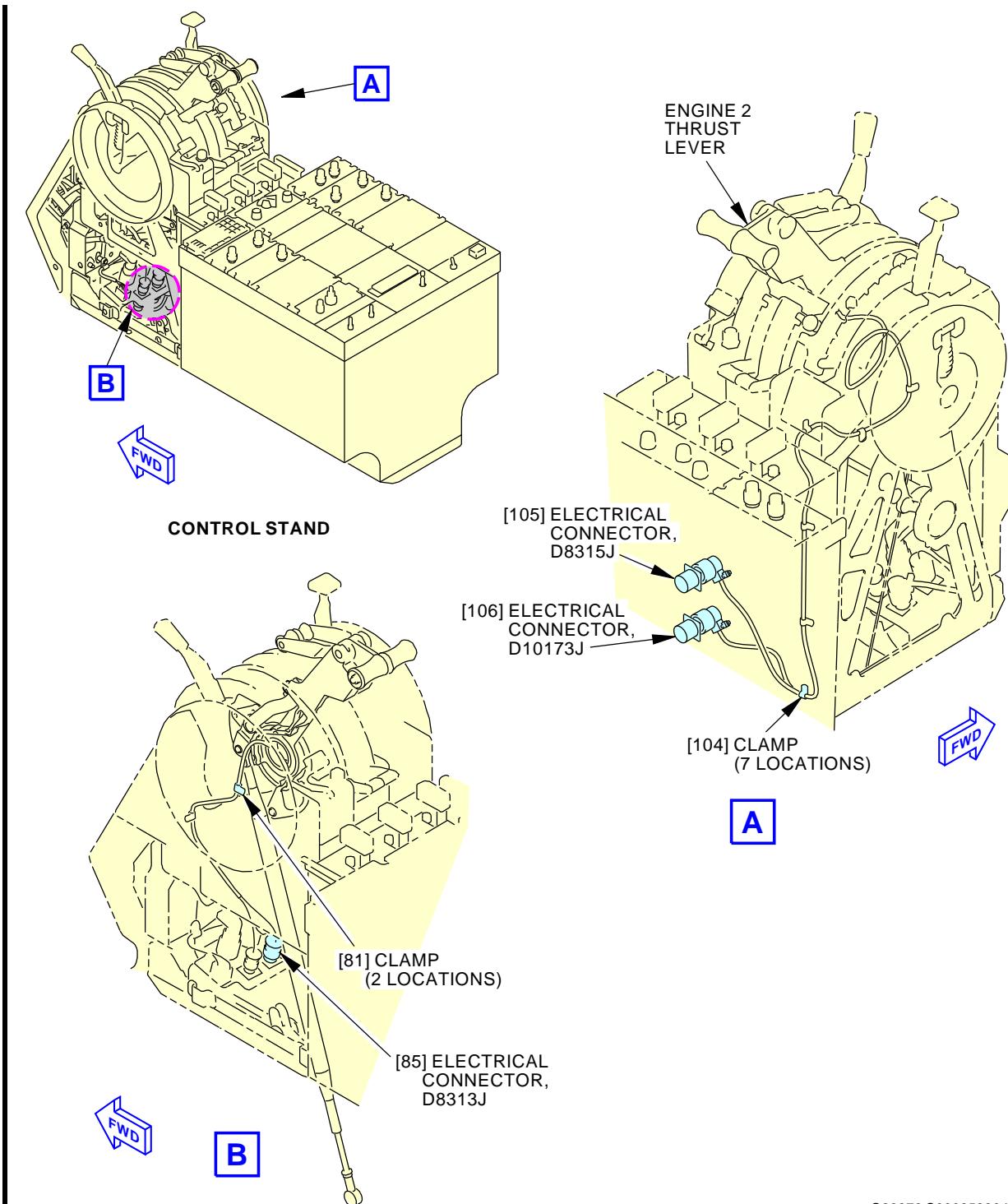
**Engine 1 Thrust Lever Electrical Harness Installation**  
**Figure 404/76-11-01-990-804-F00**

EFFECTIVITY  
**AKS ALL**

**76-11-01**

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### Engine 2 Thrust Lever Electrical Harness Installation

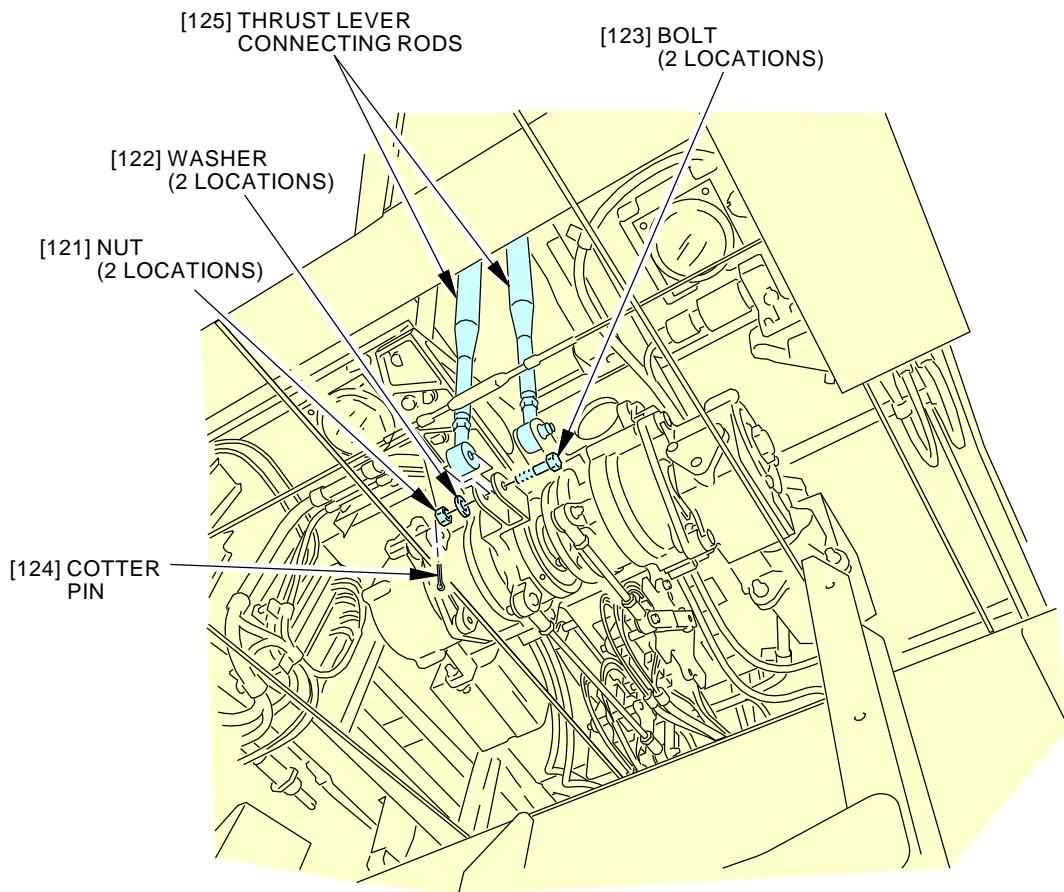
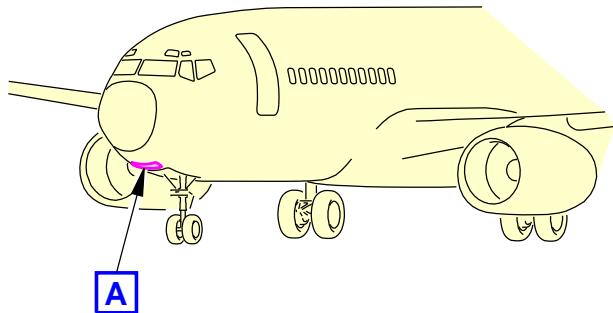
Figure 405/76-11-01-990-805-F00

EFFECTIVITY  
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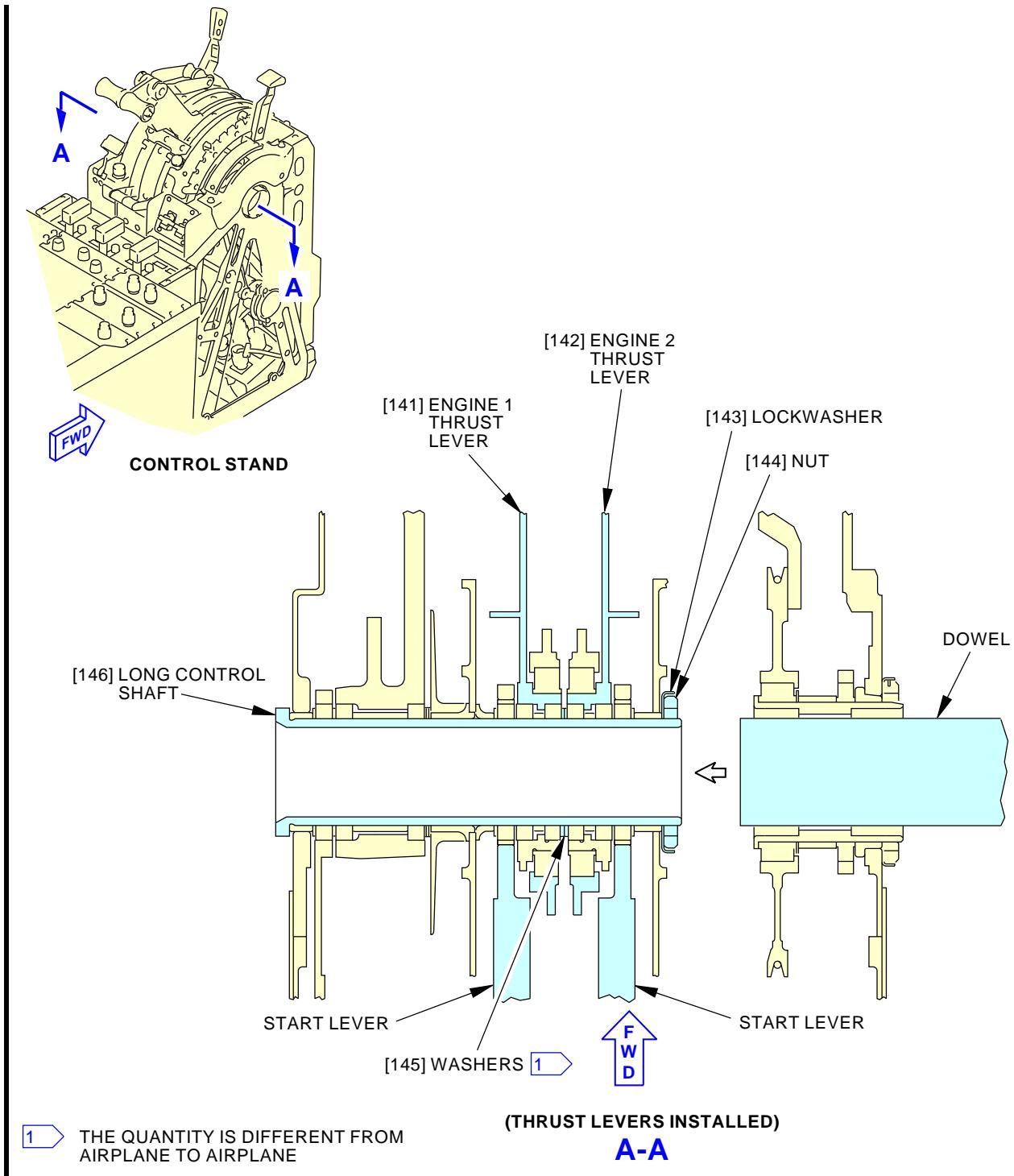
A

G05438 S0006583049\_V2

**Thrust Lever Connecting Rod Installation**  
**Figure 406/76-11-01-990-806-F00**

EFFECTIVITY  
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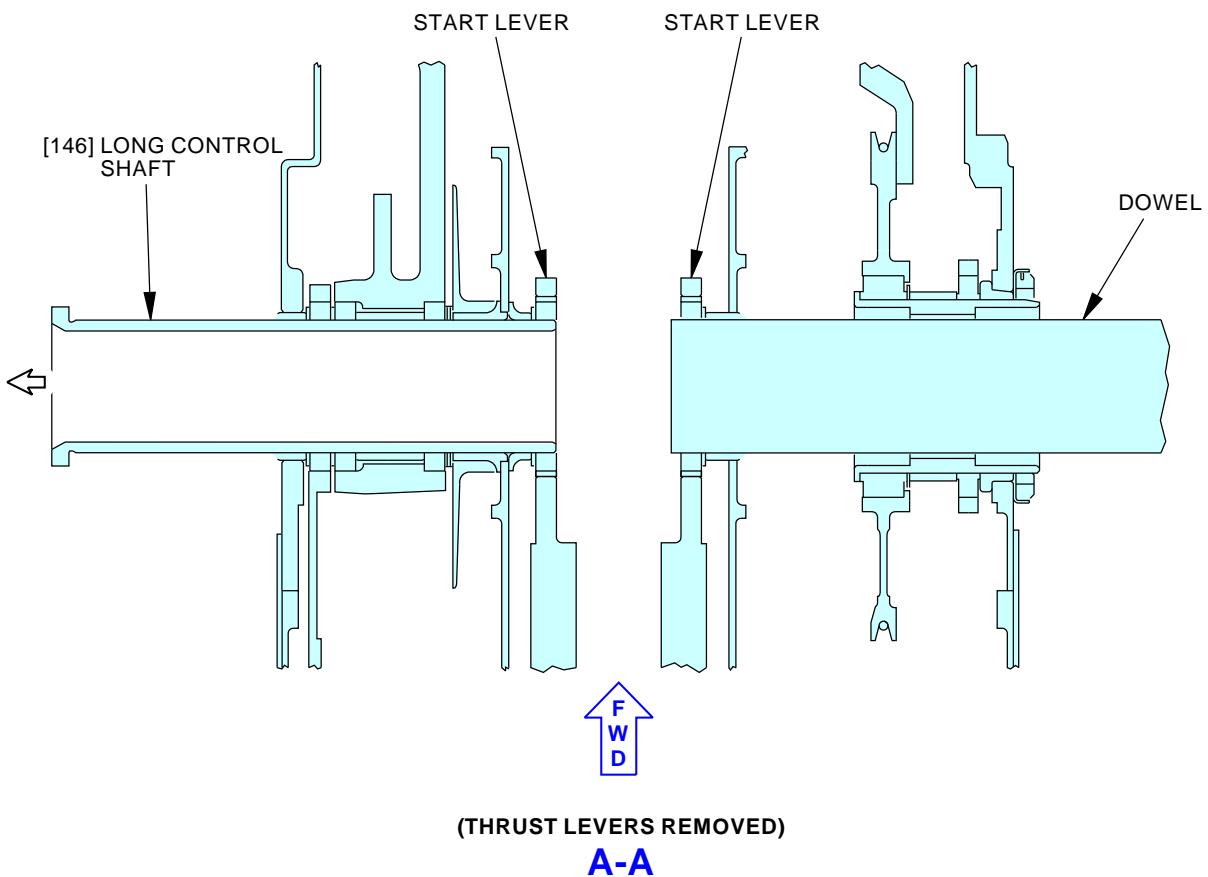
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Thrust Lever Installation  
Figure 407/76-11-01-990-807-F00 (Sheet 1 of 2)

EFFECTIVITY  
AKS ALL

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**Thrust Lever Installation**  
Figure 407/76-11-01-990-807-F00 (Sheet 2 of 2)

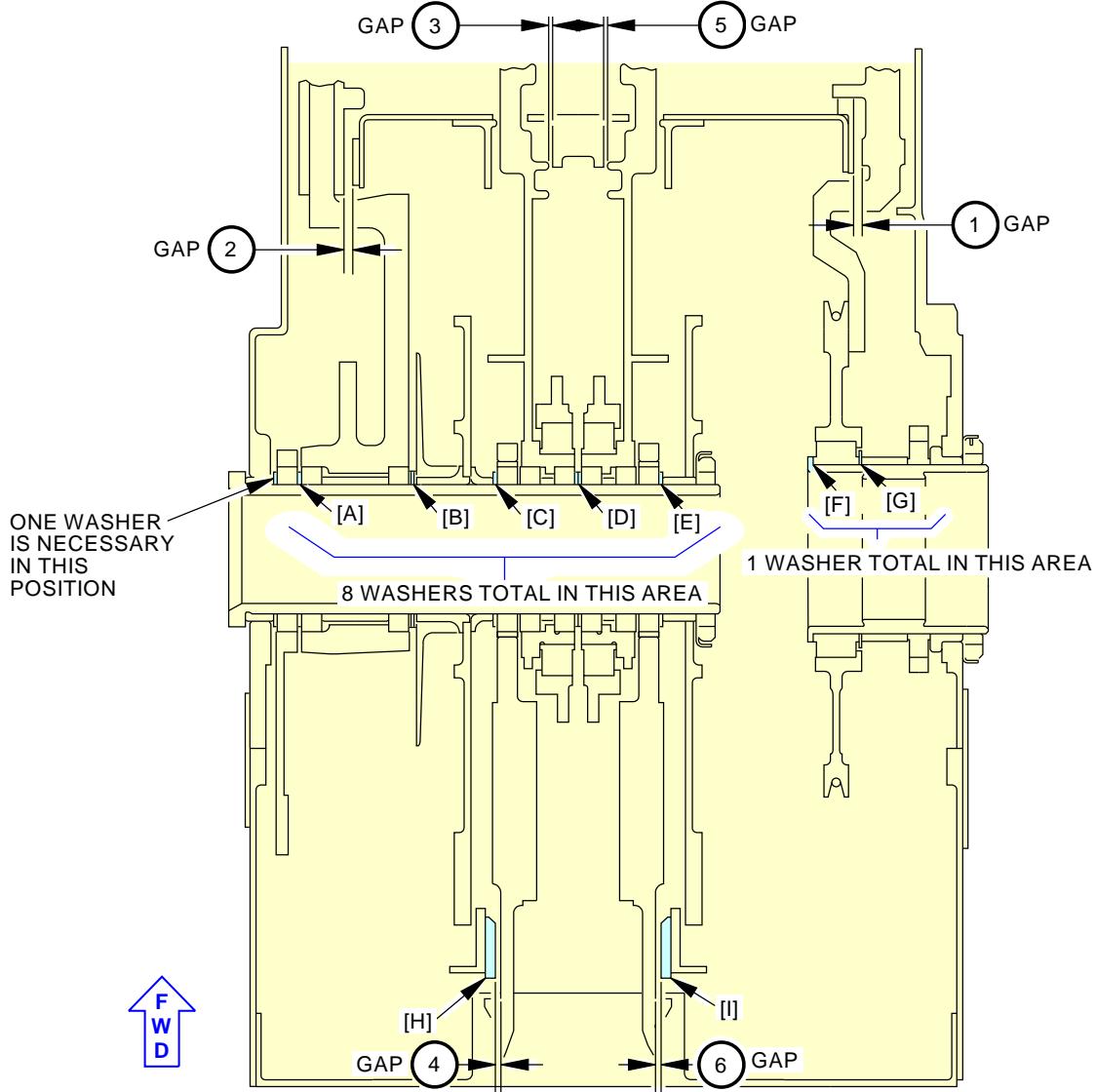
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**Control Shaft Washer (Shim) Limits**  
**Figure 408/76-11-01-990-810-F00 (Sheet 1 of 3)**

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GAP LOCATION	GAP LIMIT	ACTUAL MEASUREMENT	ADJUSTMENT NECESSARY TO GET GAP LIMIT (REFER TO TABLE B FOR SHIM QUANTITY)
1 FLAP LEVER	0.060 MIN	< 0.060	MOVE ONE WASHER FROM [G] TO [F]
2 SPEEDBRAKE LEVER	0.030-0.060	> 0.100	MOVE THREE WASHERS FROM [B] TO [A]
		0.080-0.100	MOVE TWO WASHERS FROM [B] TO [A]
		0.060-0.080	MOVE ONE WASHER FROM [B] TO [A]
		< 0.030	MOVE ONE WASHER FROM [A] TO [B]
3 THRUST LEVER ENGINE 1	0.025-0.054	> 0.054	MOVE ONE WASHER FROM [D] TO [C]
		< 0.025	MOVE ONE WASHER FROM [C] TO [D]
4 ENGINE START DETENT ENGINE 1	0.036-0.090	> 0.090	ADD TWO SHIMS MAX (AS NECESSARY) AT [H]
		< 0.036	REMOVE ONE SHIM AT [H]
5 THRUST LEVER ENGINE 2	0.0325-0.0540	> 0.0540	MOVE ONE WASHER FROM [D] TO [E]
		< 0.0325	MOVE ONE WASHER FROM [E] TO [D]
6 ENGINE START DETENT ENGINE 2	0.022-0.086	> 0.086	ADD THREE SHIMS MAX (AS NECESSARY) AT [I]
		< 0.022	REMOVE ONE SHIM AT [I]

**CONTROL SHAFT ADJUSTMENT GAP LIMITS  
TABLE A**

G11814 S0006583054\_V2

**Control Shaft Washer (Shim) Limits  
Figure 408/76-11-01-990-810-F00 (Sheet 2 of 3)**

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LOCATION	QUANTITY OF WASHERS/SHIMS	
	MAX	MIN
[A]	4	0
[B]	4	0
[C]	2	0
[D]	4	1
[E]	2	0
[F]	1	0
[G]	1	0
[H]	3	0
[I]	4	0

**CONTROL SHAFT ADJUSTMENT WASHER/SHIM QUANTITY LIMITS  
TABLE B**

G27845 S0006583055\_V2

**Control Shaft Washer (Shim) Limits  
Figure 408/76-11-01-990-810-F00 (Sheet 3 of 3)**

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**TASK 76-11-01-420-801-F00****3. Thrust levers Installation**

(Figure 401, Figure 402, Figure 403, Figure 404, Figure 405, Figure 406, Figure 407, Figure 408)

**A. General**

(1) This task gives you instructions on how to install the thrust levers into the aisle control stand.

**B. References**

Reference	Title
25-11-01-400-801	Captain's and First Officer's Seat Installation (P/B 401)
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-62-00-820-801	Speed Brake Control Lever Adjustment (P/B 501)
76-11-03-400-802-F00	Control Stand Seal, Spacer and Retainer Installation (P/B 401)
76-11-03-400-804-F00	Control Stand Cover and Stop Installation (P/B 401)
76-11-03-420-801-F00	Control Stand Lightplate Installation (P/B 401)
76-11-05-820-801-F00	Thrust Lever Angle Resolver Adjustment (P/B 501)

**C. Tools/Equipment**

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

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems Part #: F70207-109 Supplier: 81205
SPL-2409	Dowel Set - Thrust Lever, Control Stand Part #: F80195-1 Supplier: 81205
SPL-2411	Tool Set - Control Stand Disassembly Part #: C76002-26 Supplier: 81205

**D. Consumable Materials**

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

**E. Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
141	Lever assembly	76-11-01-02-008	AKS ALL
		76-11-01-02-365	AKS ALL
142	Lever assembly	76-11-01-02-009	AKS ALL
		76-11-01-02-370	AKS ALL

**F. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

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#### G. Thrust levers Installation

SUBTASK 76-11-01-420-001-F00

- (1) For engine 1, install the thrust lever assembly [141] as follows (Figure 407):

- (a) Apply grease, D00013 to the inside of the thrust lever.
- (b) Put the lever assembly [141] into the control stand.

- 1) Apply a thin coat of grease, D00013 to each side of the washer that you will install.

NOTE: The application of grease, D00013 will help to hold the washers to the thrust lever.

- 2) Make sure that the washers [145] are in their position on the dowel between the thrust levers.
- 3) Hold the thrust lever assembly [141] in the correct position.
- 4) Move the long control shaft [146] through the thrust lever.
- 5) Move the long control shaft [146] through the washers [145].
- 6) Put the long control shaft [146] against the right side end of the dowel set, SPL-2409.
- 7) Move the thrust lever forward and aft.

NOTE: The levers and washers [145] must move freely when you move them from the dowel to the long control shaft.

**CAUTION:** BE CAREFUL WHEN YOU MOVE THE CONTROL SHAFT. IF THE WASHERS DO NOT STAY IN THEIR CORRECT POSITION, DAMAGE CAN OCCUR.

- (c) Move the long control shaft [146] and dowel to the right until all of the lever assemblies and washers [145] are on the long control shaft [146].
- (d) Remove the dowel.

SUBTASK 76-11-01-420-002-F00

- (2) For engine 2, install the thrust lever assembly [142] as follows (Figure 407):

- (a) Apply grease, D00013 to the inside of the thrust lever assembly [142].

- 1) Apply a thin coat of grease, D00013 to each side of the washers [145] that you will install.

NOTE: The application of grease, D00013 will help to hold the washers to the thrust lever.

- (b) Put the thrust lever assembly [142] into the control stand.

NOTE: Make sure that the connecting rod and the wire guide are in the correct install position.

- 1) Make sure that the washers [145] are in their position on the long control shaft [146] between the two thrust levers.

NOTE: Two washers [145] should be between the two thrust levers.

- 2) Hold the thrust lever assembly [142] in the correct position.

- 3) Move the long control shaft [146] through the thrust lever assembly [142].

- 4) Put the long control shaft [146] against the right side end of the dowel set, SPL-2409.

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- 5) Move the thrust lever forward and aft.

NOTE: The levers and washers [145] must move freely when you move them from the dowel to the long control shaft.

**CAUTION:** BE CAREFUL WHEN YOU MOVE THE CONTROL SHAFT. IF THE NINE WASHERS DO NOT STAY IN THEIR CORRECT POSITION, DAMAGE CAN OCCUR.

- (c) Move the long control shaft and dowel to the right until all of the lever assemblies and the washers [145] are on the long control shaft [146].
- (d) Remove the dowel.

SUBTASK 76-11-01-420-003-F00

- (3) Lock the thrust levers as follows:

- (a) Set the keyway on the long control shaft [146] at the top.
- (b) Install a new lockwasher [143].

NOTE: Align the key tab on the lockwasher with the keyway on the long shaft. Do not bend the tab at this time.

- (c) Put one control shaft wrench from tool set, SPL-2411 on the left side of the long control shaft [146] to hold it in position.
- (d) Install the nut [144].
  - 1) Use one control shaft nut wrench from tool set, SPL-2411 to tighten the nut [144].
  - 2) Tighten the nut [144] to 100 in-lb (11.3 N·m) – 150 in-lb (16.9 N·m).

SUBTASK 76-11-01-020-013-F00

- (4) Measure the gap 3, 4, 5, and 6 after you installed the assembly (Figure 408):

- (a) If the gaps are in the limits, no change to the assembly will be necessary.
- (b) If the gaps are not in the limits, follow the instructions in table A and B to get the correct limits:
  - 1) Use the applicable steps in the removal and installation tasks to adjust the washers [145] on the long control shaft [146].

SUBTASK 76-11-01-420-004-F00

- (5) After you set the control levers assemblies correctly, lock the assemblies in their position as follows (Figure 407):

- (a) Make sure that the nut is tightened to 100 in-lb (11.3 N·m) – 150 in-lb (16.9 N·m).
- (b) Bend the rim of the lockwasher [143] into one of the notches of the nut [144]:
  - 1) Use a chisel or lockwasher break tool from tool set, SPL-2411 to bend the rim of the lockwasher [143].
  - 2) Make sure that the bend in the lockwasher is not more than 0.15 inch (2.5 mm) into the notch on the nut [144].
- (c) Move the thrust levers down against the idle stop.

SUBTASK 76-11-01-410-001-F00

- (6) Connect the thrust lever connecting rod [125] ends for the thrust levers as follow (Figure 406):
- (a) Go into the lower forward access area below the flight compartment.
  - (b) Put the rod for engine 1 in its position in the thrust lever resolver.
  - (c) Install the bolt [123] with its head on the inboard side of the rod clevis.

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- (d) Install the nut [121] and the washer [122].
  - 1) Install a new cotter pin [124].
- (e) Set the thrust lever rod for engine 2 to the thrust lever resolver as follows:
  - 1) Install the bolt [123] with its head on the inboard side of the rod clevis.
  - 2) Install the nut [121] and the washer [122].
  - 3) Install a new cotter pin [124].

SUBTASK 76-11-01-420-005-F00

- (7) For the engine 2 thrust lever, connect the electrical harness as follows (Figure 405):
  - (a) Install pin and wire (W0049-0003-22) into location 11 in the electrical connector [85].
  - (b) Install pin and wire (W0049-0004-22) into location 12 in the electrical connector [85].
  - (c) Connect the electrical connector [85].
  - (d) Install the clamp [81] and the clamp [104].
  - (e) Connect the electrical connector [105].
  - (f) Connect the electrical connector [106]

SUBTASK 76-11-01-400-001-F00

- (8) For the engine 1 thrust lever, connect the electrical harness as follows (Figure 404).
  - (a) Install pin and wire (W0051-0001-22) into location 1 in the electrical connector [105].
  - (b) Install pin and wire (W0051-0002-22) into location 2 in the electrical connector [105].
  - (c) Connect the electrical connector [105].
  - (d) Install the clamp [81] and the clamp [104].
  - (e) Connect the electrical connector [85].
  - (f) Connect the electrical connector [86].

SUBTASK 76-11-01-020-014-F00

- (9) Install the chain guard as follows (Figure 403):
  - (a) Put the chain guard [67] in its position.
  - (b) Install the screw [62] and the washer [61].
  - (c) Install the forward screw [64] and the washer [63].
  - (d) Install the aft screw [66] through the thrust lever opening.
  - (e) Use the 90 degree screwdriver from tool set, SPL-2411 hold the screw [66].
  - (f) Install the nut [65] and the washer [63].

SUBTASK 76-11-01-020-015-F00

- (10) Install the control shaft components as follows (Figure 402):
  - (a) Install the clamp up bushing [36] and the long bushing [37] on the stabilizer trim shaft [31].
 

NOTE: Put the clamp up bushing on the end with the longest splines.
  - (b) Put the bearing [41] into the inside end of the short shaft.
  - (c) Move the stabilizer trim shaft [31] into the control stand from the left side.
 

NOTE: Put the end of the shaft with the longest splines in first.
  - (d) Move the sprocket [40] and the chain [39] up from the bottom of the control stand.
  - (e) Put the sprocket [40] on the splined end of the stabilizer trim shaft [31].

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- 1) Move the control shaft thru the chain sprocket.
- (f) Put the bushing [35] on the splined end of the stabilizer trim shaft [31].
  - 1) Move the shaft through the bushing [35].
- (g) Move the shaft through the bearing [41] until the end is moved out through the short shaft [42].
- (h) Install the bearing [38] on the left side of the stabilizer trim shaft [31].
- (i) Install the clamp up bushing [33] on the right side of the stabilizer trim shaft [31].
- (j) Install the bearing [34] on the right side of the stabilizer trim shaft [31].
- (k) Lightly tap the stabilizer trim shaft [31] from the left side.

NOTE: Do this task to make sure that the assembled parts are tight and in the correct position.

## SUBTASK 76-11-01-420-006-F00

- (11) Activate and adjust the stabilizer trim assembly as follows:
  - (a) Remove the temporary wire tie from the chain [39] and the sprocket [40].
  - (b) Adjust the stabilizer control chain (TASK 27-41-00-820-801).

## SUBTASK 76-11-01-410-002-F00

- (12) Connect the flap lever synchro assembly as follows (Figure 401):
  - (a) Put the link assembly [12] in the clevis for the flap lever position synchro assembly.
  - (b) Install the nut [18] and the bolt [19].

## SUBTASK 76-11-01-420-007-F00

- (13) Connect the stabilizer trim indicator as follows:
  - (a) Put the link assembly [13] to the arm.
  - (b) Install the nut [16], the washer [15], and the bolt [17].

## SUBTASK 76-11-01-040-007-F00

- (14) Activate the speed brake lever as follows:
  - (a) Go into the access area under the forward flight compartment floor.
  - (b) Remove the rig pin from the rig pin kit, SPL-1585 from the forward drum of the speed break assembly.
  - (c) Do this task: Speed Brake Control Lever Adjustment, TASK 27-62-00-820-801.

## SUBTASK 76-11-01-010-006-F00

- (15) Install the access covers on to the control stand as follows.
  - (a) Install the left upper side panel [1] with the four screws [2].
  - (b) Install the left lower side panel [5] with the five screws [2].
  - (c) Install the right upper side panel [3].with the four screws [2].
  - (d) Install the right lower side panel [4] with the four screws [2].

## SUBTASK 76-11-01-420-008-F00

- (16) Install the wheel assemblies for the stabilizer trim as follows:
  - (a) Install the right stabilizer trim wheel [7].
    - 1) Install the right bolt [8] with countersunk head.
    - 2) Tighten the bolt to 150 in-lb (16.9 N·m) – 170 in-lb (19.2 N·m).
    - 3) Install the bolt [8] and spacer.

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- 4) Do a check of the run-on torque of the bolt.
- 5) Tighten the bolt to 150 in-lb (16.9 N·m) – 160 in-lb (18.1 N·m) more than the run-on torque.
- (b) Install the left stabilizer trim wheel [11] as follows:
  - 1) Put the left stabilizer trim wheel [11] in its position.
    - a) FOR UNLOCKED TRIM WHEEL AND SHAFT; Set the crank of the left trim wheel 75 to 105 degrees away from the setting of the crank on the right trim wheel.  
NOTE: This can be set in either direction.
  - 2) Install the left bolt [8] with countersunk head.
  - 3) Tighten the bolt to 150 in-lb (16.9 N·m) – 170 in-lb (19.2 N·m).
  - 4) Install the left bolt [8] and spacer.
  - 5) Do a check of the run-on torque of the bolt.
  - 6) Tighten the bolt to 150 in-lb (16.9 N·m) – 160 in-lb (18.1 N·m) more than the run-on torque.

**SUBTASK 76-11-01-200-001-F00**

- (17) Do a visual check of the assembly as follows:
  - (a) Move each control through its usual range.
  - (b) Make sure that the electrical bundles do not touch parts.

**SUBTASK 76-11-01-410-003-F00**

- (18) Install the stabilizer trim switch panel [10] for the trim stabilizer as follows:
  - (a) Put the stabilizer trim switch panel [10] on the control stand.
  - (b) Install the four screws [9].

**SUBTASK 76-11-01-700-001-F00**

- (19) Do this task: Thrust Lever Angle Resolver Adjustment, TASK 76-11-05-820-801-F00.

**SUBTASK 76-11-01-410-004-F00**

- (20) Install these covers and stops (TASK 76-11-03-400-804-F00):
  - (a) The right cover and the right side cover assembly
  - (b) The center cover
  - (c) The forward thrust stop and the aft thrust stop.

**SUBTASK 76-11-01-410-008-F00**

- (21) Install the stabilizer trim horn cutout switch knob [6] for the stabilizer trim horn cutout switch.

**SUBTASK 76-11-01-410-005-F00**

- (22) Install these seals and retainers (TASK 76-11-03-400-802-F00):
  - (a) The right seal retainer and the right seal
  - (b) The center seal retainer and the center seal
  - (c) The left seal retainer and the left seal.

**SUBTASK 76-11-01-410-006-F00**

- (23) Install these lightplates (TASK 76-11-03-420-801-F00):
  - (a) The first officers stabilizer trim lightplate
  - (b) The flap lever lightplate.

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SUBTASK 76-11-01-410-007-F00

- (24) Do this task: Captain's and First Officer's Seat Installation, TASK 25-11-01-400-801.

**H. Put the Airplane Back to Its Usual Condition**

SUBTASK 76-11-01-860-007-F00

- (1) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 76-11-01-860-010-F00

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

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 76-11-01-860-011-F00

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

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

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**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

SUBTASK 76-11-01-860-014-F00

- (4) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00721	AUTOTHROTTLE DC 1

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 76-11-01-040-008-F00

- (5) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 76-11-01-860-003-F00

- (6) Remove the DO-NOT-OPERATE tag from the engine start panel.

———— END OF TASK ————

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**ENGINE START LEVER LAMPS - REMOVAL/INSTALLATION**

**1. General**

- A. This procedure contains two tasks:
  - (1) The removal of the Engine Start Lever Lamps.
  - (2) The Installation of the Engine Start Lever Lamps.

**TASK 76-11-02-000-801-F00**

**2. Engine Start Lever Lamps Removal**

**A. General**

- (1) This task includes the steps to remove the Engine Start Lever Lamps.
- (2) The lamps are installed in the Engine Start Lever Caps.

**B. Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**C. Prepare for the Removal**

SUBTASK 76-11-02-860-026-F00

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

**CAPT Electrical System Panel, P18-2**

Row	Col	Number	Name
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

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

**F/O Electrical System Panel, P6-2**

Row	Col	Number	Name
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B

**D. Lamp Removal**

SUBTASK 76-11-02-020-025-F00

**CAUTION:** YOU MUST BE CAREFUL WHEN YOU REMOVE THE COMPONENTS FROM THE CONTROL STAND. DAMAGE TO THE SWITCHES, LIGHTS, LIGHTPLATES, NUTPLATES, WIRE BUNDLES AND THE PAINTED FINISH ON ALL THE PARTS CAN OCCUR.

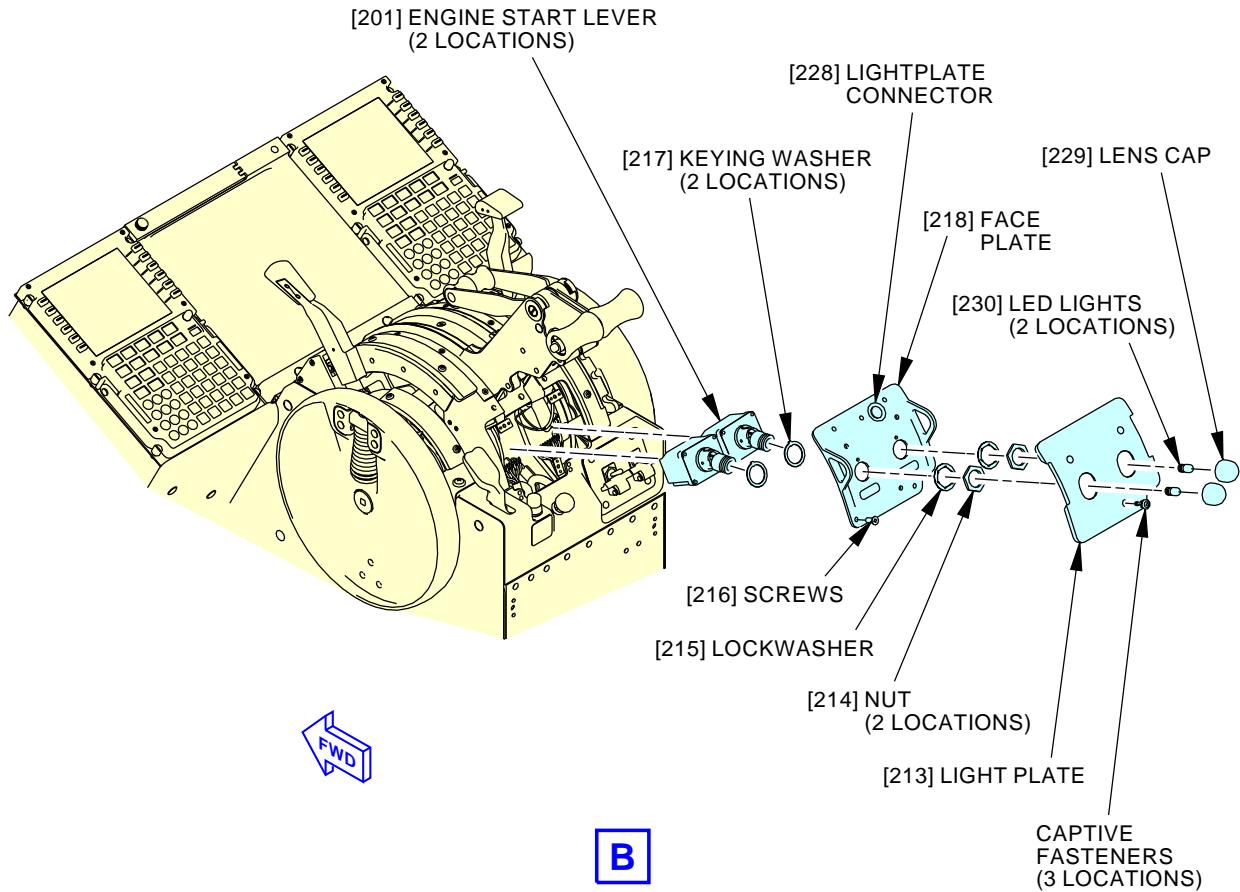
- (1) Remove the Lens Cap [229] from Engine Start Lever [201] by turning it counterclockwise.
- (2) Remove LED Light [230] from the Lens Cap [229].

**— END OF TASK —**

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**Engine Start Lever Lamps Removal**  
**Figure 201/76-11-02-990-808-F00**

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**TASK 76-11-02-400-802-F00****3. Engine Start Lever Lamps Installation**

Figure 201

**A. General**

- (1) This task includes steps to install the Engine Start Lever Lamps.
- (2) The lamps are installed in the Engine Start Lever Caps.

**B. References**

<u>Reference</u>	<u>Title</u>
33-18-00-710-802	Master Dim and Test - Operational Test (P/B 201)

**C. Location Zones**

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Lamp Installation**

SUBTASK 76-11-02-420-009-F00

**CAUTION:** YOU MUST BE CAREFUL WHEN YOU REMOVE THE COMPONENTS FROM THE CONTROL STAND. DAMAGE TO THE SWITCHES, LIGHTS, LIGHTPLATES, NUTPLATES, WIRE BUNDLES AND THE PAINTED FINISH ON ALL THE PARTS CAN OCCUR.

- (1) Install LED Light [230] into the Lens Cap [229].
- (2) Install Lens Cap [229] onto Engine Start Lever [201].
  - (a) Align Lens Cap [229] with Engine Start Lever [201].
  - (b) Gently press Lens Cap [229] onto Engine Start Lever [201] and turn clockwise to tighten cap.

NOTE: No tools are required to install cap, finger tighten only.

NOTE: If the cap does not thread easily, repeat step 2 above.

**E. Put the Airplane Back to Its Usual Condition**

SUBTASK 76-11-02-860-027-F00

- (1) For engine 1, close these circuit breakers and remove safety tags:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B

For engine 2, close these circuit breakers and remove safety tags:

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B

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**F. Do a Test of the Engine Start Lever Lamp**

SUBTASK 76-11-02-710-007-F00

- (1) Do this task: Master Dim and Test - Operational Test, TASK 33-18-00-710-802.

———— END OF TASK ————

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**ENGINE START LEVERS - REMOVAL/INSTALLATION**

**1. General**

- A. This procedure has two tasks:
  - (1) Engine Start Levers Removal
  - (2) Engine Start levers Installation.

**AKS 001-017, 019**

**TASK 76-11-02-010-801-F00**

**2. Start Lever Removal**

(Figure 401, Figure 402, Figure 403, Figure 404 and Figure 405)

**A. General**

- (1) This task gives you instructions on how to remove the start levers from the aisle control stand.

**B. References**

Reference	Title
25-11-01-000-801	Captain's and First Officer's Seat Removal (P/B 401)
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
76-11-03-000-801-F00	Control Stand Lightplate Removal (P/B 401)
76-11-03-400-801-F00	Control Stand Seal, Spacer, and Retainer Removal (P/B 401)
76-11-03-400-803-F00	Control Stand Cover and Stop Removal (P/B 401)

**C. Tools/Equipment**

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

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems Part #: F70207-109 Supplier: 81205
SPL-2409	Dowel Set - Thrust Lever, Control Stand Part #: F80195-1 Supplier: 81205
SPL-2411	Tool Set - Control Stand Disassembly Part #: C76002-26 Supplier: 81205

**D. Consumable Materials**

Reference	Description	Specification
G50314	Tape - Masking	BAC5034-4 Type VII Class 2

**E. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

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AKS 001-017, 019 (Continued)

**F. Prepare for the Removal**

SUBTASK 76-11-02-040-001-F00

- (1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 76-11-02-040-002-F00

- (2) Make sure that the left and right engine start switches are off and install a DO-NOT-OPERATE tag.

SUBTASK 76-11-02-860-009-F00

- (3) For engine 1, open these circuit breakers and install the safety tags:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 76-11-02-860-010-F00

- (4) For engine 2, open these circuit breakers and install the safety tags:

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A



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**AKS 001-017, 019 (Continued)**

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

SUBTASK 76-11-02-860-007-F00

**WARNING:** MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKERS FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (5) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 76-11-02-860-011-F00

- (6) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00721	AUTOTHROTTLE DC 1

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 76-11-02-040-006-F00

- (7) Deactivate the speed brakes and control lever as follows:
- Move the speed brake lever to the DOWN position.
  - Go to the forward bay below the flight compartment.
  - Install a rig pin S/B-1 from the rig pin kit, SPL-1585 into the forward drum of the speed brake mechanism.

SUBTASK 76-11-02-010-001-F00

- (8) Do this task: Captain's and First Officer's Seat Removal, TASK 25-11-01-000-801.

SUBTASK 76-11-02-010-002-F00

- (9) Put a mat on the aft electronics panel P8.

**NOTE:** This will prevent damage to the switches and glass surfaces of the indicators and displays.

SUBTASK 76-11-02-020-015-F00

- (10) Do this task: Control Stand Cover and Stop Removal, TASK 76-11-03-400-803-F00.

**G. Start Lever Removal**

SUBTASK 76-11-02-010-008-F00

- (1) Remove the first officers stabilizer trim lightplate and the flap indicator lever lightplate (TASK 76-11-03-000-801-F00).



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**AKS 001-017, 019 (Continued)**

SUBTASK 76-11-02-010-009-F00

- (2) Remove these retainers and seals (TASK 76-11-03-400-801-F00):
  - (a) The right seal retainer and the right seal
  - (b) The center seal retainer and the center seal
  - (c) The left seal retainer and the left seal.

SUBTASK 76-11-02-010-010-F00

- (3) Remove the stabilizer trim horn cutout switch knob [6].

SUBTASK 76-11-02-010-011-F00

- (4) Remove forward thrust stop and the aft thrust stop (TASK 76-11-03-400-803-F00):

SUBTASK 76-11-02-010-012-F00

- (5) Move the right side cover assembly forward and carefully lay it on the front of the stand.

SUBTASK 76-11-02-020-014-F00

- (6) Remove the center cover assembly(TASK 76-11-03-400-803-F00):

SUBTASK 76-11-02-010-005-F00

- (7) Get access to the start levers in the control stand as follows :
  - (a) Remove the bolt [8] and the right stabilizer trim wheel [7].
 

NOTE: Keep the left stabilizer trim wheel attached so you can turn the assembled levers during removal.
  - (b) Remove the spacer.
 

NOTE: The spacer is not installed with the countersunk head bolt.
  - (c) Remove the four screws [2] and the left upper side panel [1].
  - (d) Remove the five screws [2] and the left lower side panel [5].
  - (e) Remove the four screws [2] and the right upper side panel [3].
  - (f) Remove the four screws [2] and the right lower side panel [4].
  - (g) Remove the four screws [9].
  - (h) Apply masking tape, G50314 to prevent damage to the surface of the stabilizer trim switch panel [10].
  - (i) Move the stabilizer trim switch panel [10] from the control stand to the mat.

SUBTASK 76-11-02-020-001-F00

- (8) Disconnect the flap indicator assembly on the right side of the control stand as follows:
  - (a) Remove the nut [16], the washer [14], the washer [15], and the bolt [17] from the lower end of the link assembly [13].
  - (b) Use a temporary wire tie to safety the link assembly to the control stand.

SUBTASK 76-11-02-020-002-F00

- (9) Disconnect the flap lever position synchro assembly on the right side of the control stand as follows:
  - (a) Remove the nut [18] and the bolt [19] from the lower end of the link assembly [12].
  - (b) Use a wire tie to temporarily safety the link assembly to the control stand.

SUBTASK 76-11-02-020-003-F00

- (10) Disconnect the stabilizer trim controls as follows:

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**AKS 001-017, 019 (Continued)**

- (a) Turn the left trim wheel until you find the link in the trim chain.  
NOTE: This will help if it becomes necessary to disconnect the chain during installation.
- (b) Temporarily safety the chain [39] to the stabilizer trim sprocket [40].  
NOTE: Do not remove the chain from the sprocket.
- (c) Find the forward bay below the flight compartment.
- (d) Release the tension from the stabilizer control chain (TASK 27-41-00-820-801).

**SUBTASK 76-11-02-020-004-F00**

- (11) Remove the control shaft components as follows:
  - (a) Remove the bolt [8] and the left stabilizer trim wheel [11].
  - (b) Remove the spacer.  
NOTE: The spacer is not installed with the countersunk head bolt.
  - (c) Carefully move the stabilizer trim shaft [31] to the left of the control stand and do these steps at the same time on the right side:
    - 1) Remove the bearing [34].
    - 2) Remove the clamp up bushing [33].
    - 3) Be prepared to catch and remove the bushing [35] as the shaft is moved to the left.  
NOTE: The bushing [35] is between the bearing [41] and the sprocket [40].
    - 4) Be prepared to catch and move the sprocket and chain.
    - 5) Move the stabilizer trim shaft [31] to the left until the sprocket [40] clears the shaft.
    - 6) Move the sprocket and chain to the bottom of the control stand.
  - (d) Reach inside the short shaft [42] from the left side and remove the inside bearing [41].
  - (e) Remove the stabilizer trim shaft [31] from the control stand.
    - 1) Remove the bearing [38].
    - 2) Remove the long bushing [37].
    - 3) Remove the clamp up bushing [36].

**SUBTASK 76-11-02-020-005-F00**

- (12) Remove the chain guard as follows:
  - (a) Go to the opening for the stabilizer trim switch panel [10].
  - (b) Use the 90 degree screwdriver from tool set, SPL-2411 to hold the screw [66].
  - (c) Remove the nut [65], the washer [63], and the screw [66].
  - (d) Remove the upper center screw [62] and the washer [61].
  - (e) Remove the forward screw [64] and the washer [63].
  - (f) Remove the chain guard [67].

**SUBTASK 76-11-02-020-006-F00**

- (13) Remove the applicable start lever assembly from the engine start brake assembly as follows:
  - (a) Move the start lever to where you can access the end of the control link.
  - (b) Remove the nut [100], the washer [101], the washer [102], the washer [103], and the bolt [104].

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**AKS 001-017, 019 (Continued)**

SUBTASK 76-11-02-020-007-F00

- (14) Release the start lever assemblies as follows:
- Find the bent tab on the lockwasher [143].
  - Use the lockwasher removal tool from tool set, SPL-2411 to bend the tab out of the notch in the nut [144].
  - Put one control shaft wrench from tool set, SPL-2411 on the left side of the long control shaft [146] to hold it in position.
  - Put the control shaft nut wrench from tool set, SPL-2411 to remove the nut [144] from the long control shaft [146].
  - Remove the nut [144] from the long control shaft [146].
  - Remove and discard the lockwasher [143].

SUBTASK 76-11-02-020-008-F00

- (15) For Engine 1, remove the start lever assembly [141] as follows:

**CAUTION:** BE CAREFUL WHEN YOU INSERT THE DOWEL. IF THE NINE WASHERS DO NOT STAY IN THEIR CORRECT POSITION, DAMAGE CAN OCCUR.

- Put the dowel set, SPL-2409 against the right side of the long control shaft [146].
- Hit lightly (carefully tap) on the dowel.

NOTE: This is to move the long control shaft off the control levers.

- Move the dowel until the start lever assembly [141] is on the dowel.

NOTE: Do not move the long control shaft from the position it is in. More movement will let the washer falls.

- Hold the start lever assembly [141] and remove the dowel from the start lever.
  - Stop the dowel movement when you can lift the start lever.
- Remove the start lever assembly [141] through the top of the control stand.
- Remove the washer [145] from between the start lever and the control stand frame.
 

NOTE: Make sure that the washer does not fall into the control stand.
- Install the start lever assembly [141] before you remove the start lever assembly [142] for engine 2.

SUBTASK 76-11-02-020-009-F00

- (16) For Engine 2, remove the start lever assembly [142] as follows:

**CAUTION:** BE CAREFUL WHEN YOU INSERT THE DOWEL. IF THE NINE WASHERS DO NOT STAY IN THEIR CORRECT POSITION, DAMAGE CAN OCCUR.

- Put the dowel set, SPL-2409 against the right end of the long control shaft [146].
- Hit lightly (carefully tap) on the dowel.

NOTE: This is to move the long control shaft off the start lever.

- Move the dowel until the start lever assembly [142] is on the dowel.

NOTE: Do not move the long control shaft from the position it is in. More movement will let the engine thrust levers or the engine 1 start lever fall.

- Hold the start lever assembly [142] and remove the dowel from the start lever.
  - Stop the dowel movement when you can lift the start lever.

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AKS ALL

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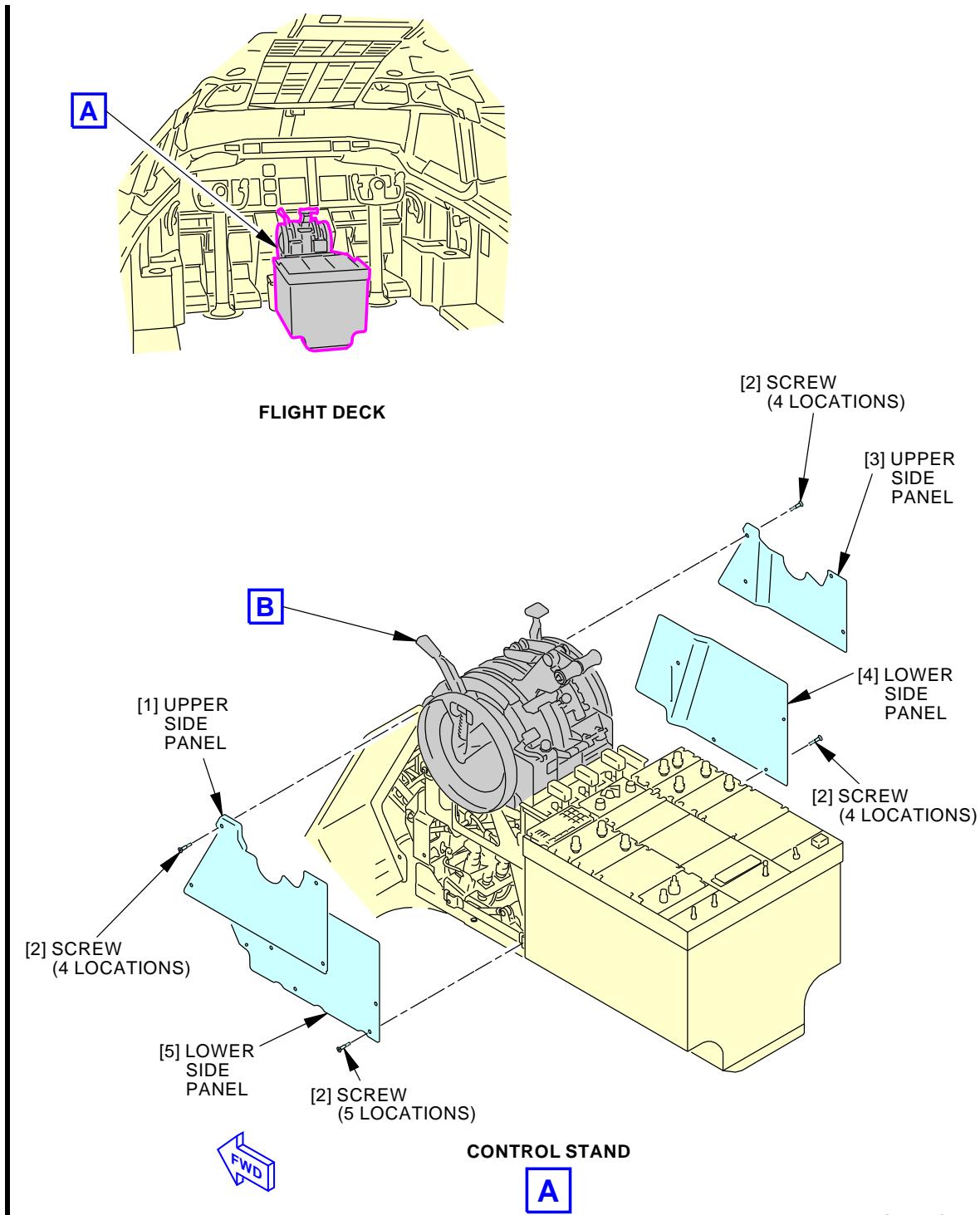
AKS 001-017, 019 (Continued)

- (d) Remove the start lever assembly [142] through the top of the control stand.
- (e) Remove the washer [145] that is between the start lever and the control stand frame.  
NOTE: Make sure that the washer does not fall into the control stand.
- (f) Install the engine 2 start lever assembly [142] before you do the removal of the engine 1 start lever.

———— END OF TASK ————

EFFECTIVITY  
AKS ALL

76-11-02



G29586 S0006583059\_V2

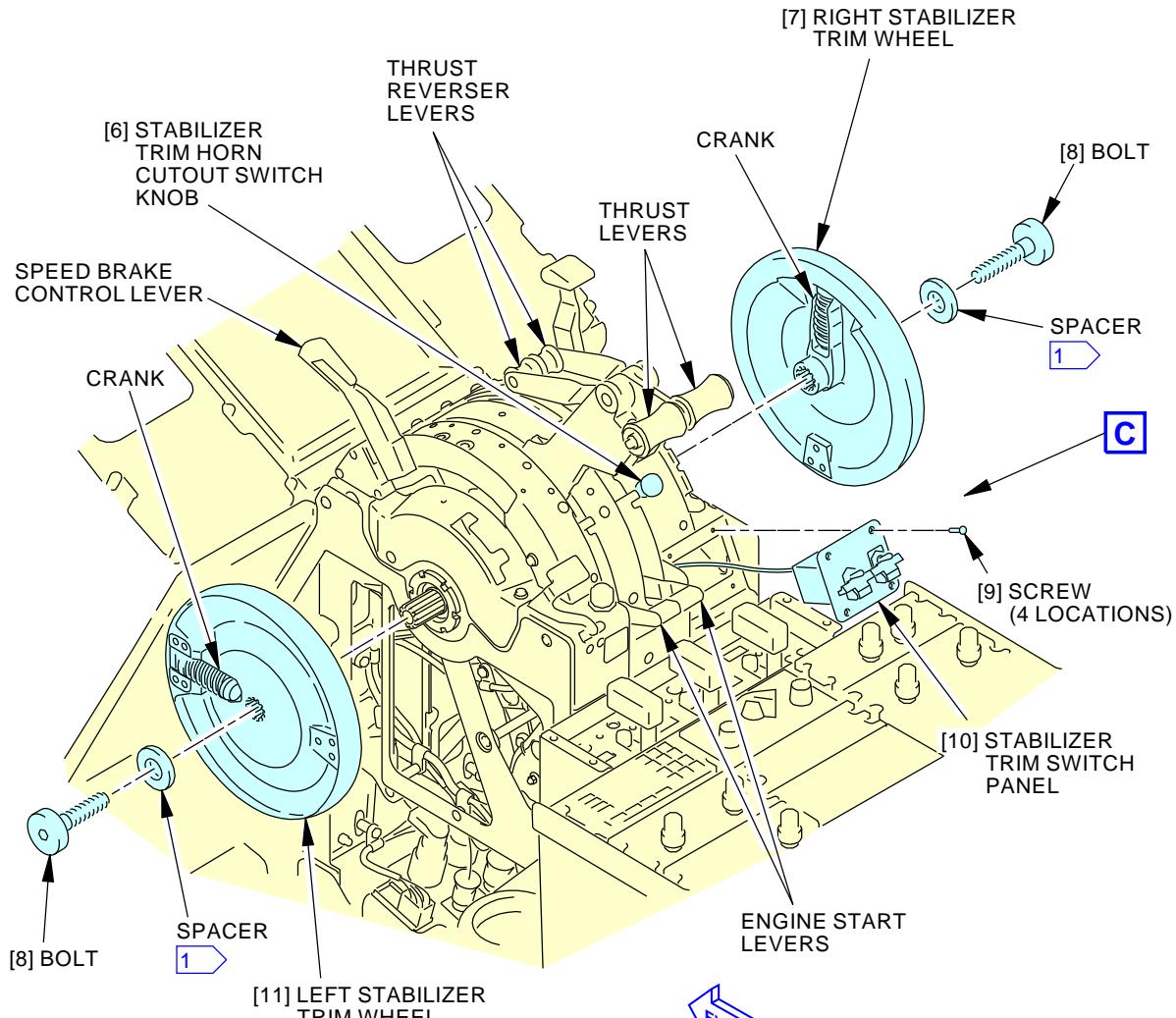
**Control Stand Installation**  
Figure 401/76-11-02-990-801-F00 (Sheet 1 of 3)

EFFECTIVITY  
AKS 001-017, 019

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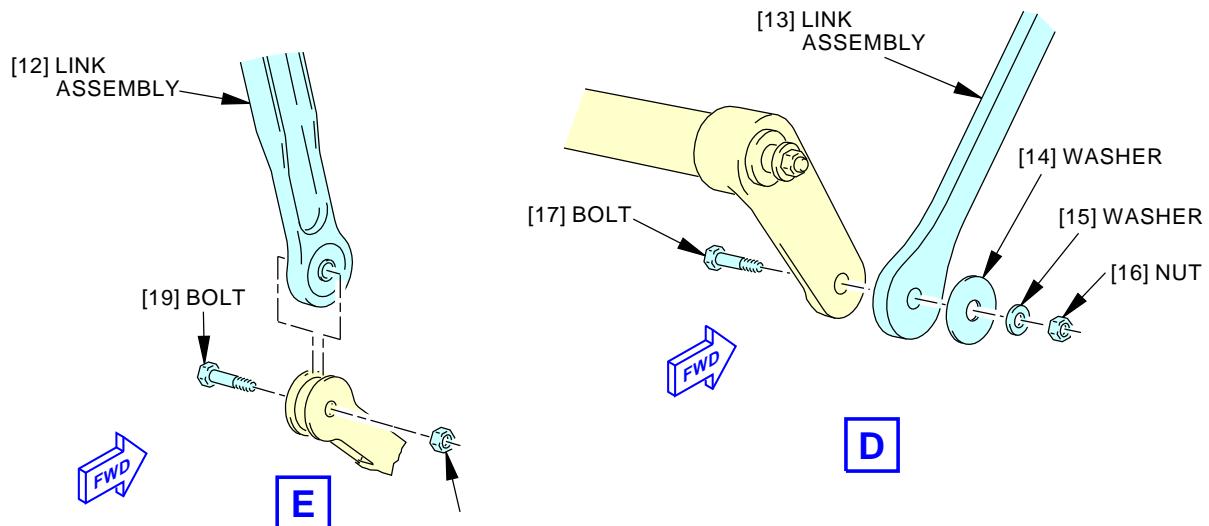
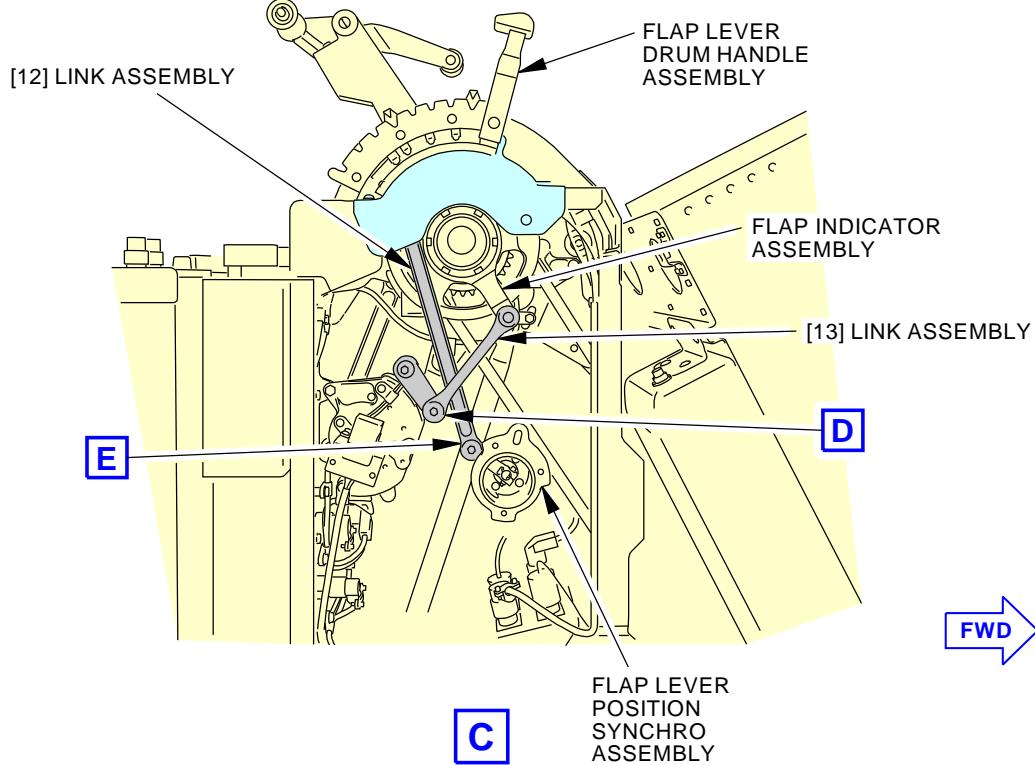
**[1]** SPACER NOT INSTALLED WITH COUNTERSUNK HEAD BOLT

G29588 S0006583060\_V3

**Control Stand Installation**  
**Figure 401/76-11-02-990-801-F00 (Sheet 2 of 3)**

EFFECTIVITY  
AKS 001-017, 019

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G29589 S0006583061\_V2

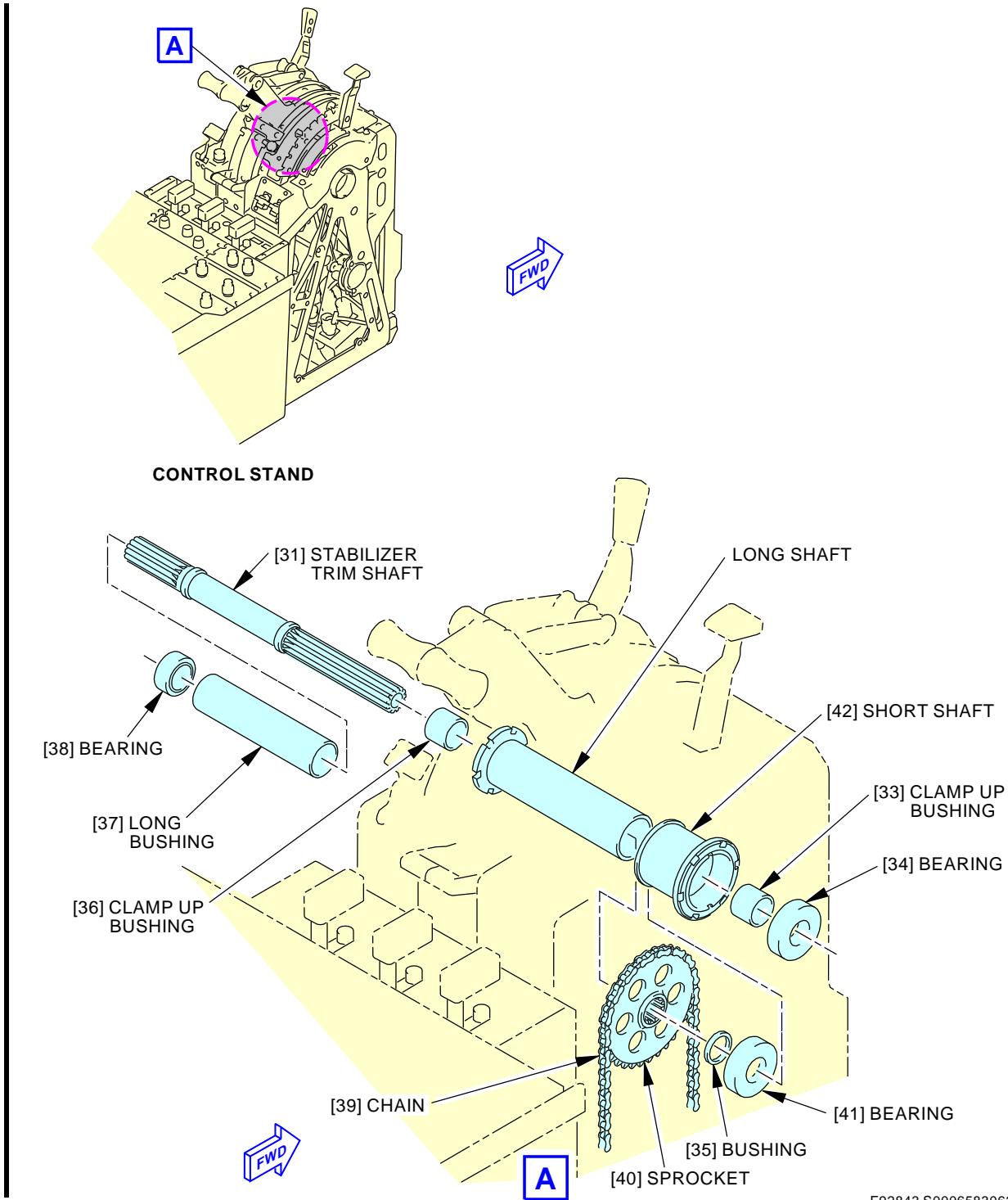
**Control Stand Installation**  
Figure 401/76-11-02-990-801-F00 (Sheet 3 of 3)

EFFECTIVITY  
AKS 001-017, 019

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F92843 S0006583062\_V2

**Control Shaft Components Installation**  
**Figure 402/76-11-02-990-802-F00 (Sheet 1 of 2)**

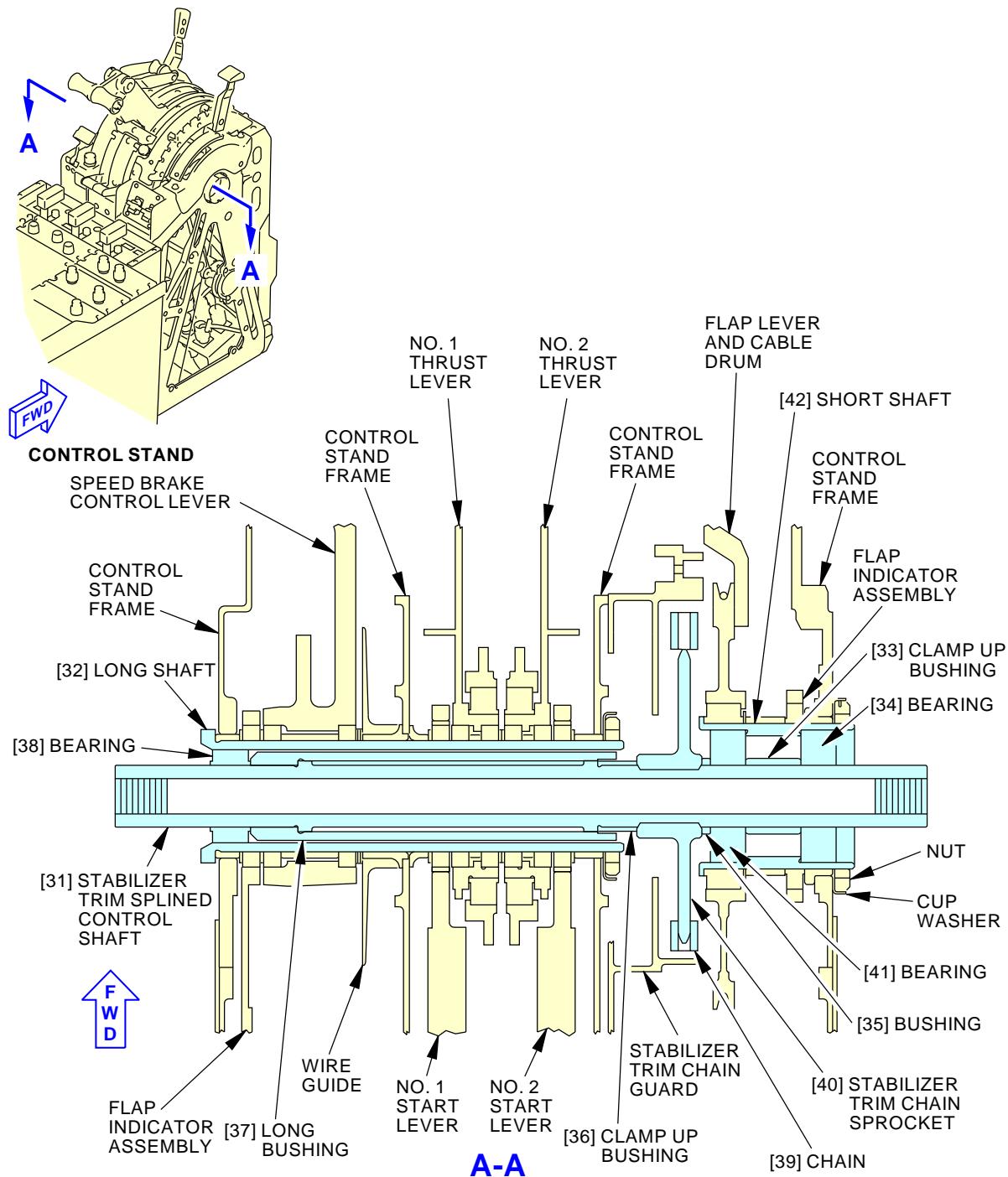
EFFECTIVITY  
 AKS 001-017, 019

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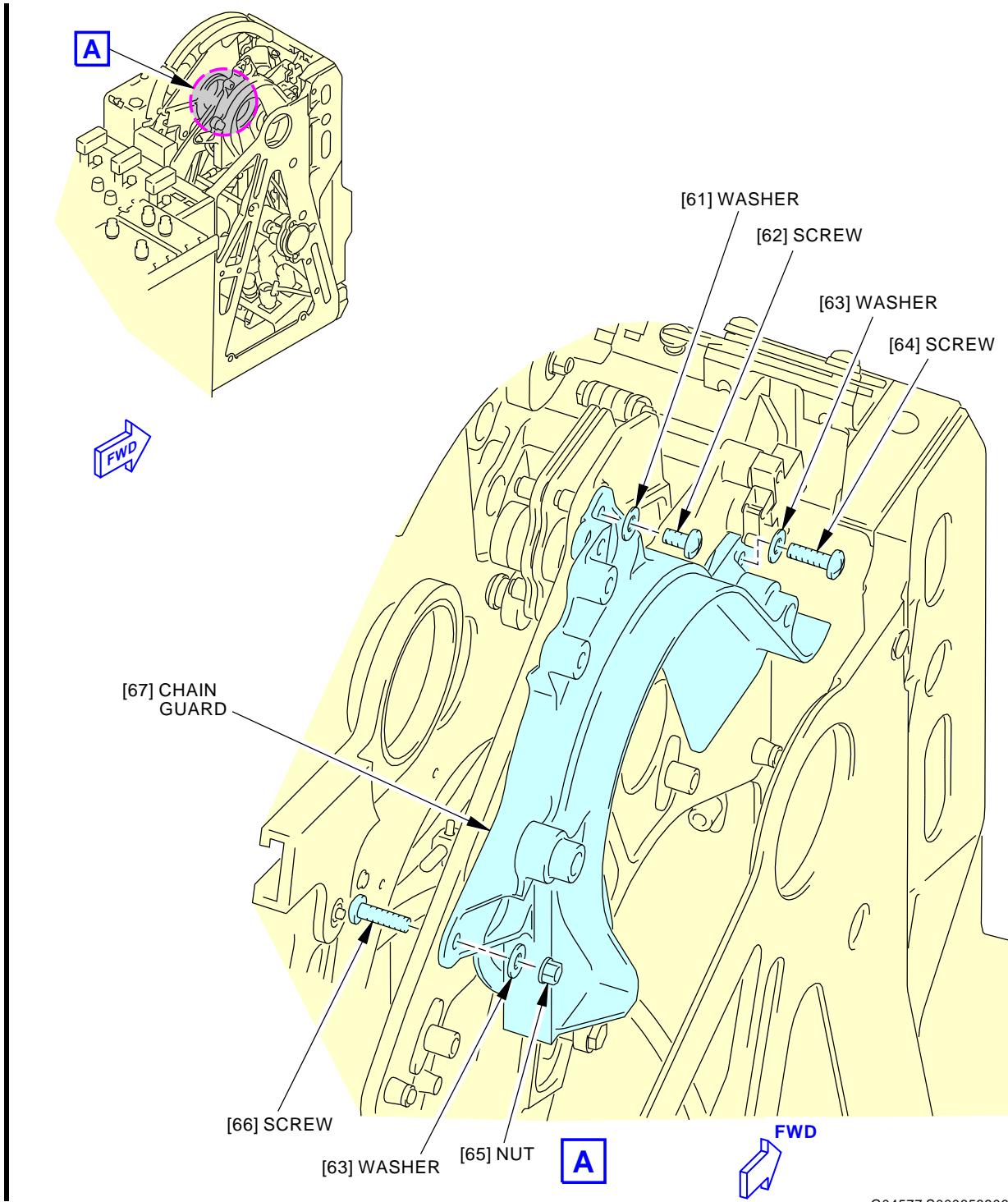
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**Control Shaft Components Installation**  
**Figure 402/76-11-02-990-802-F00 (Sheet 2 of 2)**

EFFECTIVITY  
 AKS 001-017, 019

**76-11-02**



G04577 S0006583064\_V2

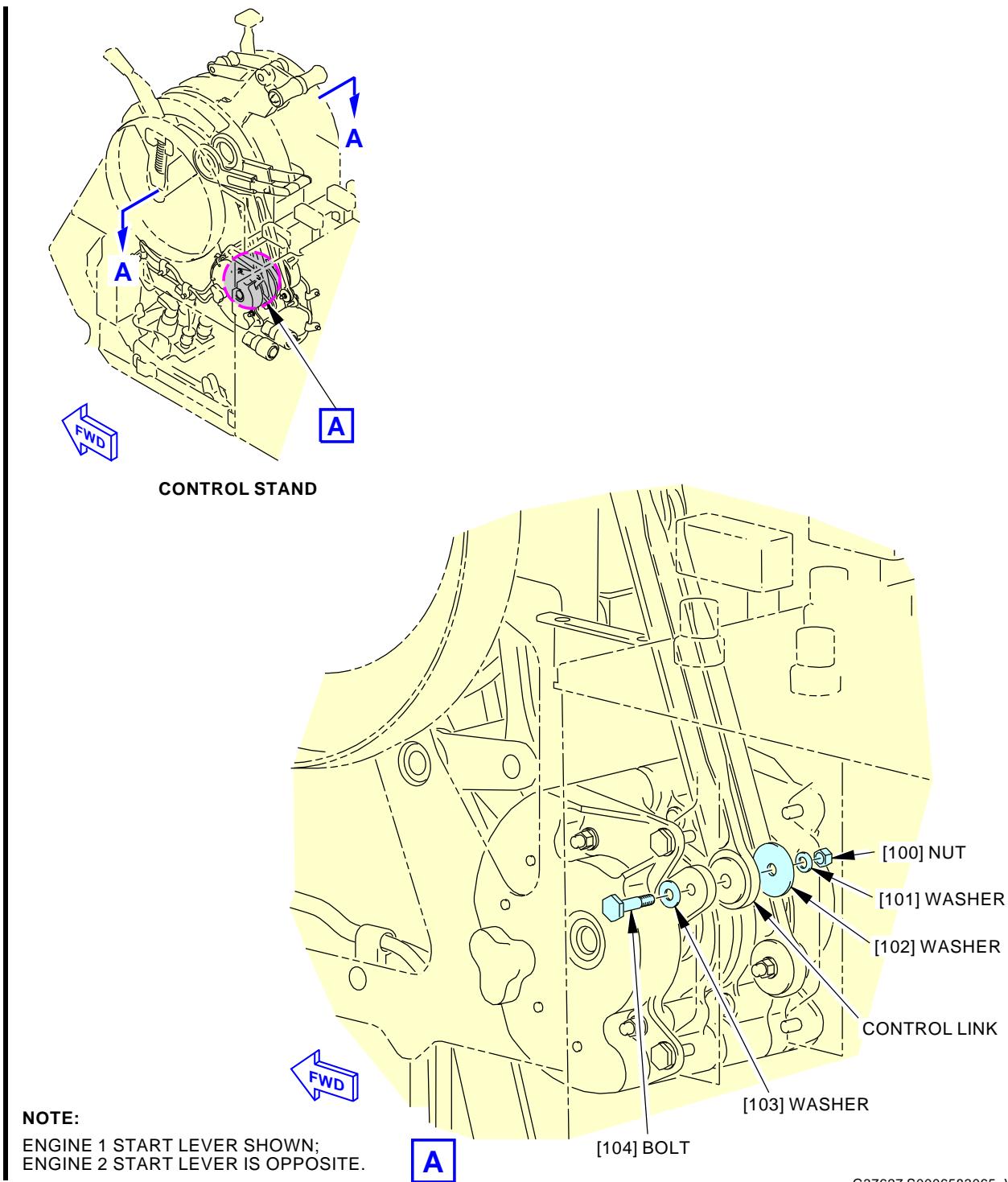
**Chain Guard Assembly Installation**  
Figure 403/76-11-02-990-803-F00

EFFECTIVITY  
AKS 001-017, 019

**76-11-02**

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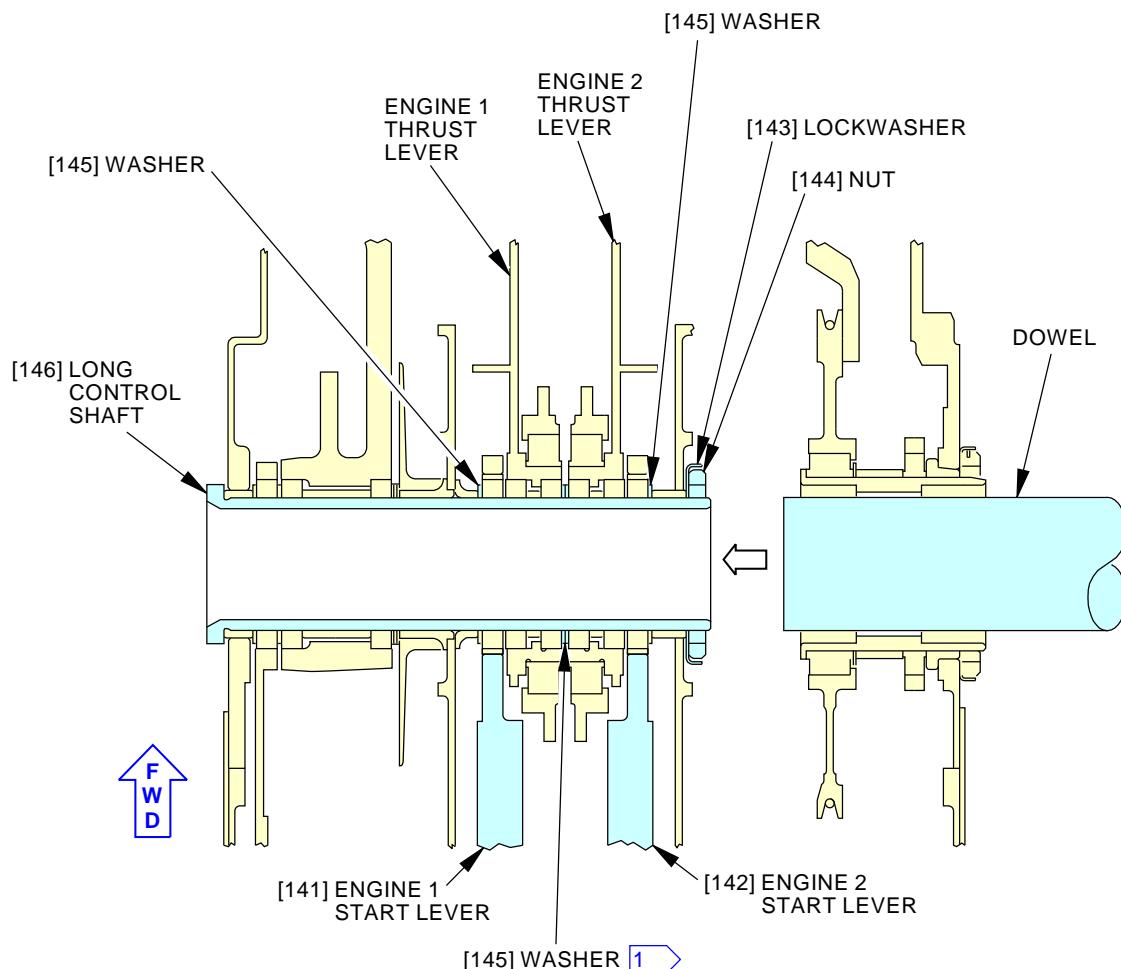
**Start Lever Installation**  
**Figure 404/76-11-02-990-804-F00 (Sheet 1 of 4)**

EFFECTIVITY  
AKS 001-017, 019

**76-11-02**

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**START LEVERS INSTALLED**

**A-A**

**1** THE QUANTITY IS DIFFERENT FROM  
AIRPLANE TO AIRPLANE

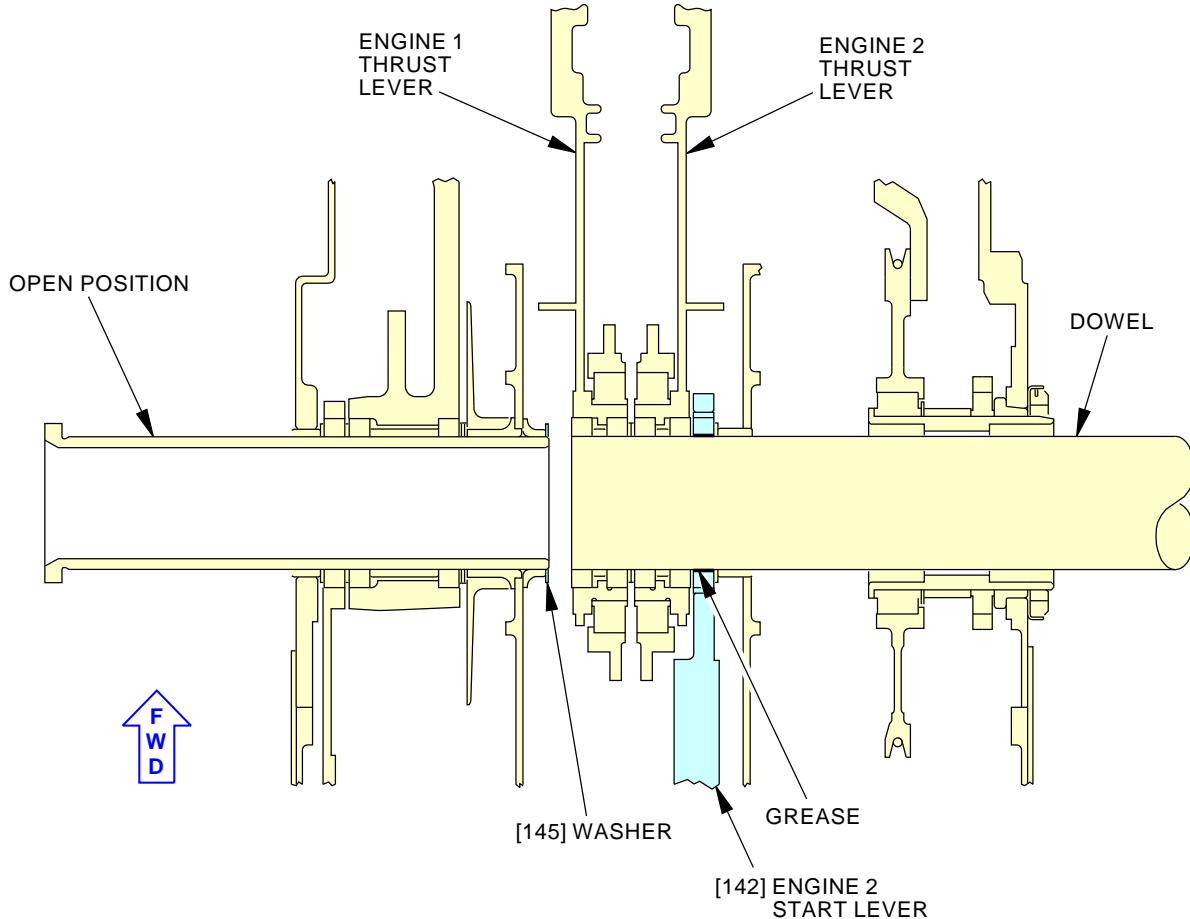
G29597 S0006583066\_V2

**Start Lever Installation**  
**Figure 404/76-11-02-990-804-F00 (Sheet 2 of 4)**

EFFECTIVITY  
AKS 001-017, 019

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ENGINE 1 START LEVER REMOVED

**A-A**

G29608 S0006583067\_V3

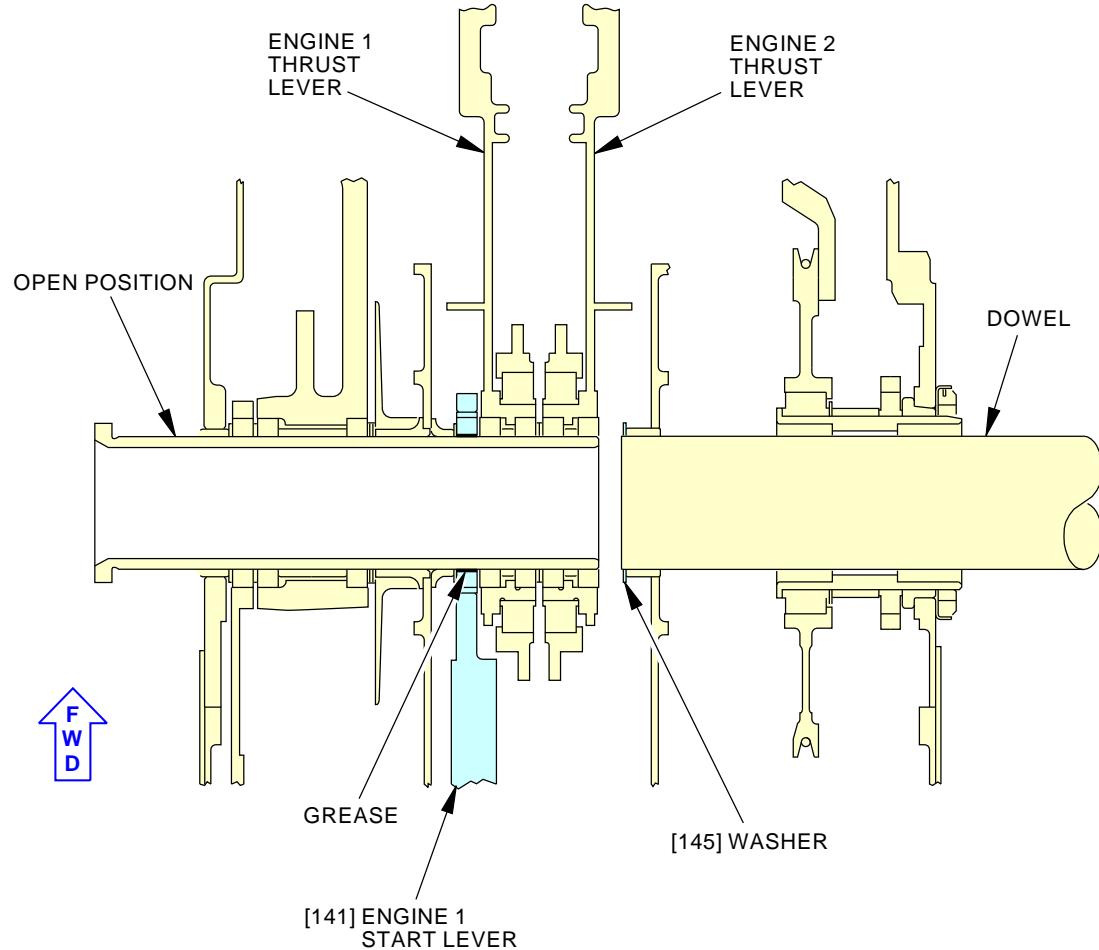
**Start Lever Installation**  
Figure 404/76-11-02-990-804-F00 (Sheet 3 of 4)

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AKS 001-017, 019

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ENGINE 2 START LEVER REMOVED

**A-A**

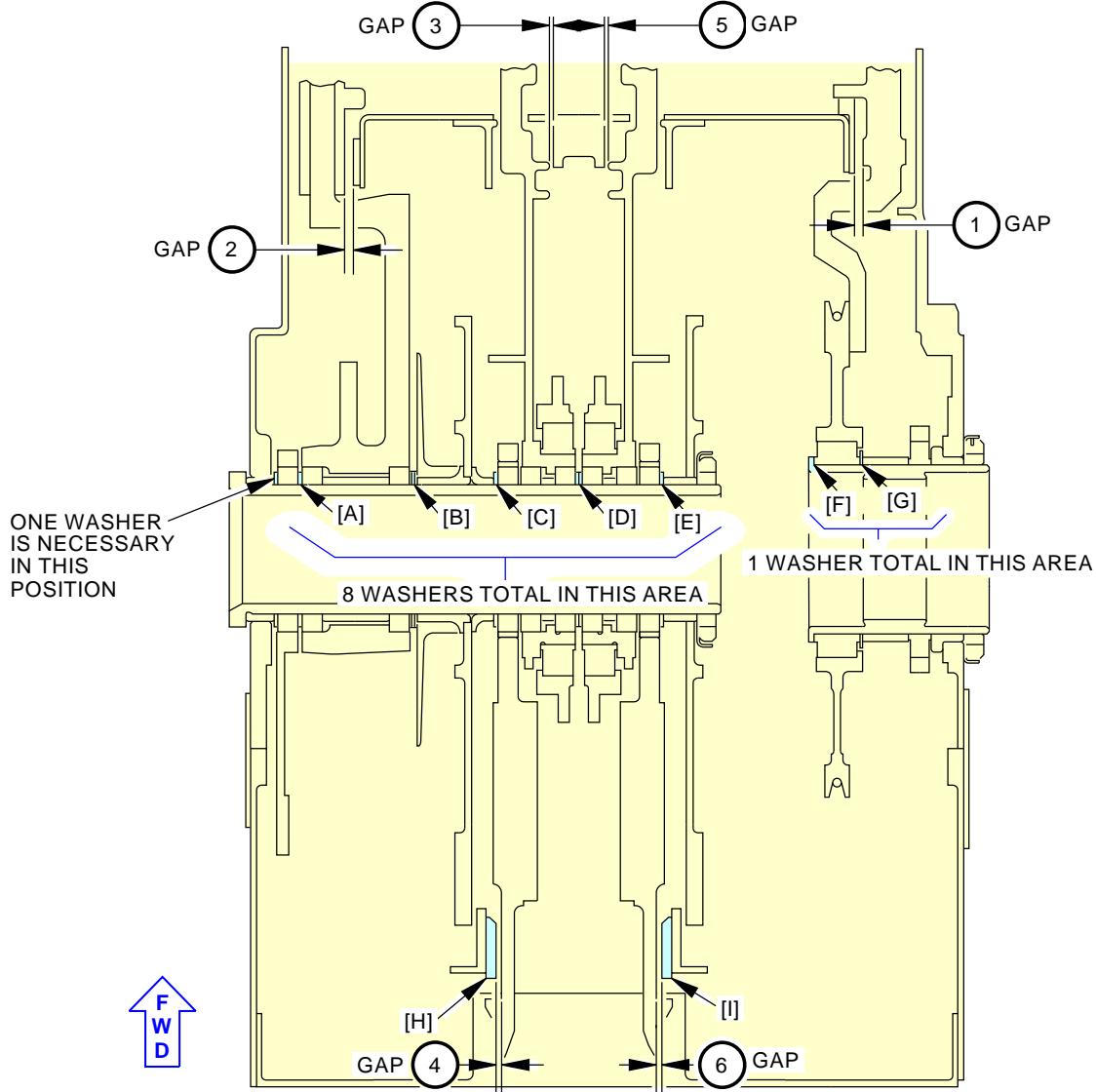
G29614 S0006583068\_V3

**Start Lever Installation**  
Figure 404/76-11-02-990-804-F00 (Sheet 4 of 4)

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**NOTE:**

REFER TO TABLE A FOR CONTROL SHAFT ADJUSTMENT GAP LIMITS.

G29619 S0006583070\_V2

**Control Shaft Washer (Shim) Limits**  
**Figure 405/76-11-02-990-806-F00 (Sheet 1 of 3)**

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GAP LOCATION	GAP LIMIT	ACTUAL MEASUREMENT	ADJUSTMENT NECESSARY TO GET GAP LIMIT (REFER TO TABLE B FOR SHIM QUANTITY)
1 FLAP LEVER	0.060 MIN	< 0.060	MOVE ONE WASHER FROM [G] TO [F]
2 SPEEDBRAKE LEVER	0.030-0.060	> 0.100	MOVE THREE WASHERS FROM [B] TO [A]
		0.080-0.100	MOVE TWO WASHERS FROM [B] TO [A]
		0.060-0.080	MOVE ONE WASHER FROM [B] TO [A]
		< 0.030	MOVE ONE WASHER FROM [A] TO [B]
3 THRUST LEVER ENGINE 1	0.025-0.054	> 0.054	MOVE ONE WASHER FROM [D] TO [C]
		< 0.025	MOVE ONE WASHER FROM [C] TO [D]
4 ENGINE START DETENT ENGINE 1	0.036-0.090	> 0.090	ADD TWO SHIMS MAX (AS NECESSARY) AT [H]
		< 0.036	REMOVE ONE SHIM AT [H]
5 THRUST LEVER ENGINE 2	0.0325-0.0540	> 0.0540	MOVE ONE WASHER FROM [D] TO [E]
		< 0.0325	MOVE ONE WASHER FROM [E] TO [D]
6 ENGINE START DETENT ENGINE 2	0.022-0.086	> 0.086	ADD THREE SHIMS MAX (AS NECESSARY) AT [I]
		< 0.022	REMOVE ONE SHIM AT [I]

**CONTROL SHAFT ADJUSTMENT GAP LIMITS  
TABLE A**

G42261 S0006583071\_V2

**Control Shaft Washer (Shim) Limits  
Figure 405/76-11-02-990-806-F00 (Sheet 2 of 3)**

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LOCATION	QUANTITY OF WASHER/SHIMS	
	MAX	MIN
[A]	4	0
[B]	4	0
[C]	2	0
[D]	4	1
[E]	2	0
[F]	1	0
[G]	1	0
[H]	3	0
[I]	4	0

**CONTROL SHAFT ADJUSTMENT WASHER/SHIM QUANTITY LIMITS  
TABLE B**

G42264 S0006583072\_V2

**Control Shaft Washer (Shim) Limits  
Figure 405/76-11-02-990-806-F00 (Sheet 3 of 3)**

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AKS 001-017, 019 (Continued)

**TASK 76-11-02-420-801-F00**

**3. Start lever Installation**

(Figure 401, Figure 402, Figure 403, Figure 404 and Figure 405)

**A. General**

- (1) This task gives you instructions on how to install the start levers into the aisle control stand.

**B. References**

Reference	Title
25-11-01-400-801	Captain's and First Officer's Seat Installation (P/B 401)
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-62-00-820-801	Speed Brake Control Lever Adjustment (P/B 501)
76-11-03-400-802-F00	Control Stand Seal, Spacer and Retainer Installation (P/B 401)
76-11-03-400-804-F00	Control Stand Cover and Stop Installation (P/B 401)
76-11-03-420-801-F00	Control Stand Lightplate Installation (P/B 401)
76-11-10-420-801-F00	Engine Start Brake Assembly Installation (P/B 401)

**C. Tools/Equipment**

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

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems Part #: F70207-109 Supplier: 81205
SPL-2411	Tool Set - Control Stand Disassembly Part #: C76002-26 Supplier: 81205

**D. Consumable Materials**

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

**E. Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
141	Lever assembly	Not Specified	
142	Lever assembly	Not Specified	
143	Lockwasher	Not Specified	
145	Washer	Not Specified	

**F. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right



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AKS 001-017, 019 (Continued)

**G. Start lever Installation**

SUBTASK 76-11-02-420-001-F00

- (1) For engine 1, install the start lever assembly [141] as follows:

- Apply grease, D00013 to the inner side of the start lever.
- Put the start lever assembly [141] into the control stand.

- Apply a thin coat of grease, D00013 to each side of the washer [145].

NOTE: The application of the grease will help hold the washer [145] to the start lever [141].

- Put the washer [145] in its position on the start lever assembly [141].
- Put the start lever assembly [141] in its correct position.
- Move the long control shaft [146] through the washer [145] and the start lever assembly [141].
- Put the long control shaft [146] against the dowel.

**CAUTION:** BE CAREFUL WHEN YOU MOVE THE LONG CONTROL SHAFT. IF THE NINE WASHERS DO NOT STAY IN THEIR CORRECT POSITION, DAMAGE CAN OCCUR.

- Move the long control shaft and dowel to the right until all of the lever assemblies and washers [145] are on the long control shaft [146].

- Remove the dowel.

- Move the start lever assembly [141] forward and aft.

NOTE: The start lever and washer [145] must move freely.

SUBTASK 76-11-02-420-002-F00

- (2) For engine 2, install the start lever assembly [142] as follows:

- Apply grease, D00013 to the inside of the lever assembly [142].
- Put the start lever assembly [142] into the control stand.

- Apply a thin coat of grease, D00013 to each side of the washer [145].

NOTE: The application of the grease will help hold the washer [145] to the lever.

- Put the washer [145] in its position on the dowel.

- Put the start lever assembly [142] in its correct position.

- Move the long control shaft [146] through the start lever assembly [142].

- Put the long control shaft [146] against the dowel.

- Move the long control shaft [146] through the washer [145].

**CAUTION:** BE CAREFUL WHEN YOU MOVE THE LONG CONTROL SHAFT. IF THE NINE WASHERS DO NOT STAY IN THEIR CORRECT POSITION, DAMAGE CAN OCCUR.

- Move the long control shaft and dowel to the right, until all of the lever assemblies and washers [145] are on the control shaft.

- Remove the dowel.

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**AKS 001-017, 019 (Continued)**

- (e) Move the start lever assembly [142] forward and aft.

NOTE: The start lever and washer [145] must move freely.

SUBTASK 76-11-02-420-003-F00

- (3) Lock the start levers as follow:

- (a) Set the keyway on the long control shaft [146] at the top.
- (b) Install a new lockwasher [143].

NOTE: Align the key tab on the lockwasher [143] with the keyway on the long shaft. Do not bend the tab at this time.

- (c) Put one control shaft wrench from tool set, SPL-2411 on the left side of the long control shaft [146] to hold it in position.
- (d) Install the nut [144].
  - 1) Use one control shaft nut wrench from tool set, SPL-2411 to tighten the nut [144].
  - 2) Tighten the nut [144] to 100 in-lb (11.3 N·m) – 150 in-lb (16.9 N·m).

SUBTASK 76-11-02-020-010-F00

- (4) Measure the gaps 3, 4, 5, and 6 after you installed the assembly as follows:

- (a) If the gaps are in the limits, no change to the assembly is necessary.
- (b) If the gaps are not in the limits, follow the instructions in Table A and B to get the correct limits:
  - 1) Use the applicable steps in the removal and installation task to adjust the washers [145] on the long control shaft [146].
- (c) If the gaps 8 and 9 are not in the limits, follow the instructions in the table A and B to get the correct limits:
  - 1) Use the applicable steps in the removal and installation task to adjust the washers [145] on the long control shaft [146].

SUBTASK 76-11-02-420-004-F00

- (5) After you set the control levers assemblies correctly, lock the assemblies in their position as follows:

- (a) Make sure that you tighten the nut to 100 in-lb (11.3 N·m) – 150 in-lb (16.9 N·m).
- (b) Bend the rim of the lockwasher [143] into one of the notches of the nut [144]:
  - 1) Use a chisel or lockwasher break tool from tool set, SPL-2411 to bend the rim of the lockwasher [143].
  - 2) Make sure that the bend in the lockwasher is not more than 0.15 inch (3.0 mm) into the notch on the nut [144].
- (c) Move the start levers down against the idle stop.

SUBTASK 76-11-02-020-011-F00

- (6) Install the chain guard [67] as follows:

- (a) Put the chain guard [67] in its position.
- (b) Install the upper screw [62] and the washer [61].
- (c) Install the forward screw [64] and the washer [63].
- (d) Install the aft screw [66] thru the thrust lever opening.

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**AKS 001-017, 019 (Continued)**

- 1) Use the 90 degree screwdriver from tool set, SPL-2411 to hold the screw [66].
- (e) Install the nut [65] and washer [63].

SUBTASK 76-11-02-020-012-F00

- (7) Install the control shaft components as follows:

- (a) Install the clamp up bushing [36] and the long bushing [37] on the stabilizer trim shaft [31].  
NOTE: Put the clamp up bushing [36] on the end with the longest splines and the long bushing on the end with the short splines.
- (b) Put bearing [41] into the inside end of the short shaft [42].
- (c) Move the stabilizer trim shaft [31] into the control stand from the left side.  
NOTE: Put the end of the shaft with the longest splines in first.
- (d) Move the sprocket and chain into its position from the bottom of the control stand.
- (e) Put the sprocket on the splined end of the stabilizer trim shaft [31].
  - 1) Move the control shaft through the chain sprocket.
- (f) Put the bushing [35] on the splined end of the stabilizer trim shaft [31].
  - 1) Move the shaft through the bushing [35].
- (g) Move the shaft through the bearing [41] until it protrudes through the short shaft [42].
- (h) Install the bearing [38] on the left end of the stabilizer trim shaft [31].
- (i) Put the clamp up bushing [33] on the inside of the short shaft.
- (j) Install the clamp up bushing [33] on the right side of the stabilizer trim shaft [31].
- (k) Install the bearing [34] on the right end of the stabilizer trim shaft [31].
- (l) Lightly tap the stabilizer trim shaft [31] from the left side.

NOTE: This step is necessary to make sure that the assembled parts are tight and in the correct position.

SUBTASK 76-11-02-020-013-F00

- (8) Connect the applicable start lever assembly to the engine start brake assembly:
- (a) Move the engine start brake assembly lever to the up position.
  - (b) Move the control link to align with the end of the start lever on the start brake assembly.
  - (c) Install the nut [100], the washer [101], the washer [102], the washer [103], and the bolt [104].

NOTE: The bolt head is installed on the outboard side of the control link.

SUBTASK 76-11-02-420-005-F00

- (9) Activate and adjust the stabilizer trim assembly as follows:
- (a) Remove the temporary wire tie from the chain [39] and the sprocket [40].
  - (b) Adjust the stabilizer control chain (TASK 27-41-00-820-801).

SUBTASK 76-11-02-410-001-F00

- (10) Connect the flap lever synchro assembly as follows:
- (a) Put the link assembly [12] in the clevis for the flap lever synchro assembly.
  - (b) Install the nut [18] and the bolt [19].

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**AKS 001-017, 019 (Continued)**

SUBTASK 76-11-02-420-006-F00

- (11) Connect the stabilizer trim indicator as follows:
- Put the link assembly [13] on the arm.
  - Install the nut [16], the washer [15], the washer [14], and the bolt [17].

SUBTASK 76-11-02-040-007-F00

- (12) Activate the speed brake lever as follows.
- Go into the access area below the forward flight compartment floor.
    - Remove the rig pin, part of rig pin kit, SPL-1585, from the forward drum of the speed brake mechanism.
    - Do this task: Speed Brake Control Lever Adjustment, TASK 27-62-00-820-801.

SUBTASK 76-11-02-420-007-F00

- (13) Install the wheel assemblies for the stabilizer trim as follows:
- Install the right stabilizer trim wheel [7].
    - Install the right bolt [8] with the countersunk head.
    - Tighten the bolt to 150 in-lb (16.9 N·m) – 170 in-lb (19.2 N·m).
    - Install the right bolt [8] and spacer.
    - Do a check of the run-on torque of the bolt.
    - Tighten the bolt to 150 in-lb (16.9 N·m) – 160 in-lb (18.1 N·m) more than the run-on torque.
  - Do these steps to install the left stabilizer trim wheel [11]:
    - install the left stabilizer trim wheel [11].
      - FOR UNCLOCKED TRIM WHEEL AND SHAFT:**  
Set the crank of the left trim wheel 75 to 105 degrees from the setting of the crank on the right trim wheel.  
NOTE: This can be set in either direction.
    - Install the left bolt [8] with countersunk head.
    - Tighten the bolt to 150 in-lb (16.9 N·m) – 170 in-lb (19.2 N·m).
    - Install the left bolt [8] and spacer.
    - Do a check of the run-on torque of the bolt.
    - Tighten the bolt to 150 in-lb (16.9 N·m) – 160 in-lb (18.1 N·m) more than the run-on torque.

SUBTASK 76-11-02-200-001-F00

- (14) Do a visual check of the assembly as follows:
- Move each control through its usual range.
  - Make sure that the electrical bundles do not touch parts.

SUBTASK 76-11-02-410-002-F00

- (15) Install the stabilizer trim switch panel [10] for the trim stabilizer as follows:
- Put the stabilizer trim switch panel [10] on the control stand.
  - Install the four screws [9].

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**AKS 001-017, 019 (Continued)**

SUBTASK 76-11-02-410-007-F00

- (16) Install these seals and retainers (TASK 76-11-03-400-802-F00):
  - (a) The right seal retainer and the right seal
  - (b) The center seal retainer and the center seal
  - (c) The left seal retainer and the left seal.

SUBTASK 76-11-02-410-008-F00

- (17) Install these covers and stops TASK 76-11-03-400-804-F00:
  - (a) The right cover and the right side cover assembly
  - (b) The center cover
  - (c) The forward thrust stop and the aft thrust stop
  - (d) The stabilizer trim horn cutout switch knob [6] for the stabilizer trim horn cutout switch.

SUBTASK 76-11-02-410-009-F00

- (18) Install these lightplates (TASK 76-11-03-420-801-F00):
  - (a) The first officers stabilizer trim lightplate.
  - (b) The flap lever lightplate.

SUBTASK 76-11-02-010-006-F00

- (19) Install the access covers on the control stand as follows:
  - (a) Install the left upper side panel [1] with four screws [2].
  - (b) Install the left lower side panel [5] with five screw [2].
  - (c) Install the right upper side panel [3] with four screws [2].
  - (d) Install the right lower side panel [4] with four screws [2].

## H. Put the Airplane Back to its Usual Condition

SUBTASK 76-11-02-480-001-F00

- (1) Remove the protective mats from the aft electronics panel P8.

SUBTASK 76-11-02-410-005-F00

- (2) Do this task: Captain's and First Officer's Seat Installation, TASK 25-11-01-400-801.

SUBTASK 76-11-02-860-012-F00

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

### CAPT Electrical System Panel, P18-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

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AKS ALL

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AKS 001-017, 019 (Continued)

(Continued)

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	8	C01103	ENGINE 1 START VALVE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 76-11-02-860-013-F00

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

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

SUBTASK 76-11-02-860-008-F00

- (5) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 76-11-02-860-014-F00

- (6) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00721	AUTOTHROTTLE DC 1



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AKS 001-017, 019 (Continued)

## F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 76-11-02-040-008-F00

- (7) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 76-11-02-860-004-F00

- (8) Remove the DO-NOT-OPERATE tag from the engine start panel.

SUBTASK 76-11-02-710-001-F00

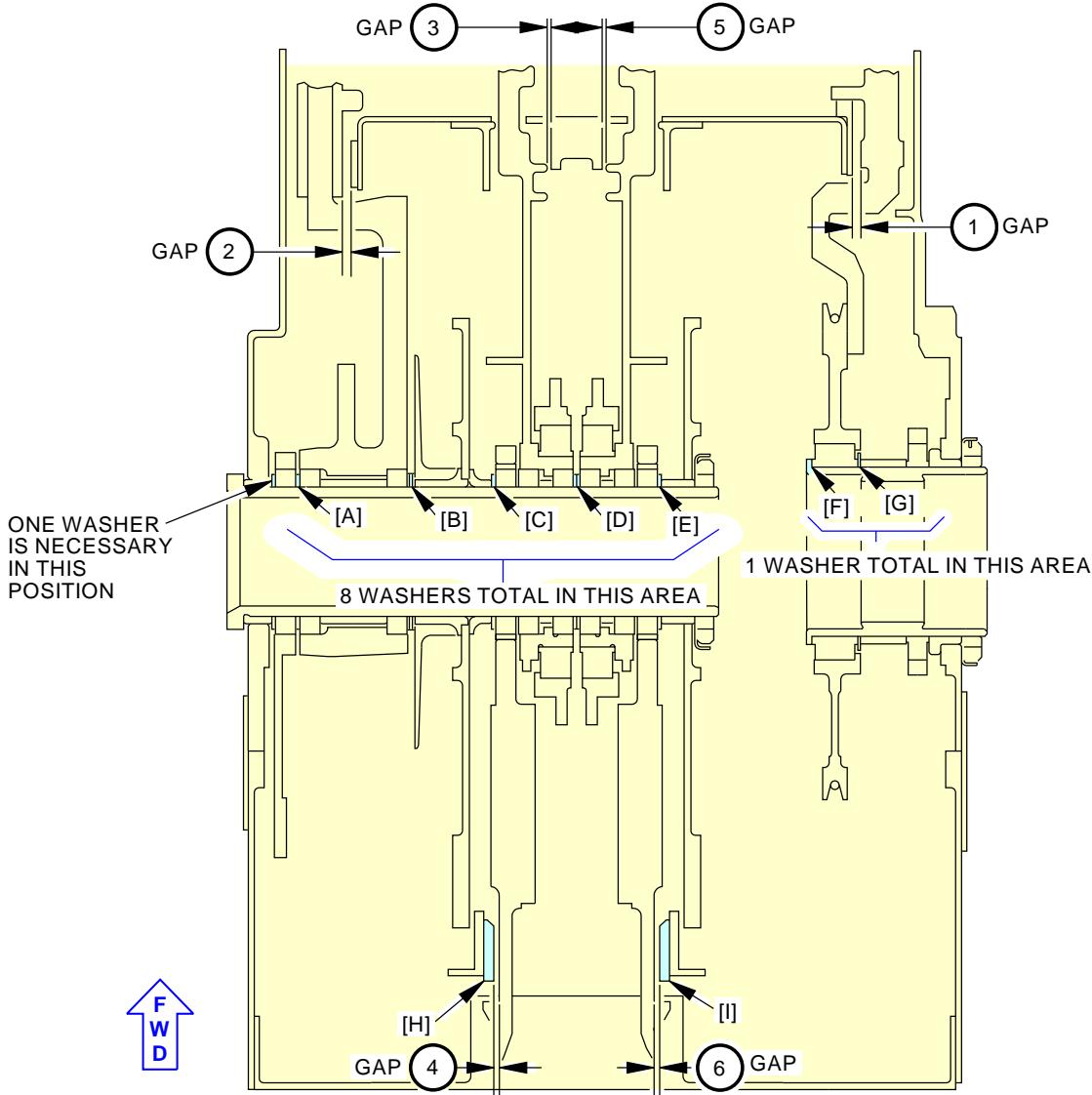
- (9) Do this task: Engine Start Brake Assembly Installation, TASK 76-11-10-420-801-F00.

———— END OF TASK ————

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**NOTE:**

REFER TO TABLE A FOR CONTROL SHAFT ADJUSTMENT GAP LIMITS.

G29619 S0006583070\_V2

**Control Shaft Washer (Shim) Limits**  
**Figure 406/76-11-02-990-805-F00 (Sheet 1 of 3)**

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GAP LOCATION	GAP LIMIT	ACTUAL MEASUREMENT	ADJUSTMENT NECESSARY TO GET GAP LIMIT (REFER TO TABLE B FOR SHIM QUANTITY)
1 FLAP LEVER	0.060 MIN	< 0.060	MOVE ONE WASHER FROM [G] TO [F]
2 SPEEDBRAKE LEVER	0.030-0.060	> 0.100	MOVE THREE WASHERS FROM [B] TO [A]
		0.080-0.100	MOVE TWO WASHERS FROM [B] TO [A]
		0.060-0.080	MOVE ONE WASHER FROM [B] TO [A]
		< 0.030	MOVE ONE WASHER FROM [A] TO [B]
3 THRUST LEVER ENGINE 1	0.025-0.054	> 0.054	MOVE ONE WASHER FROM [D] TO [C]
		< 0.025	MOVE ONE WASHER FROM [C] TO [D]
4 ENGINE START DETENT ENGINE 1	0.036-0.090	> 0.090	ADD TWO SHIMS MAX (AS NECESSARY) AT [H]
		< 0.036	REMOVE ONE SHIM AT [H]
5 THRUST LEVER ENGINE 2	0.0325-0.0540	> 0.0540	MOVE ONE WASHER FROM [D] TO [E]
		< 0.0325	MOVE ONE WASHER FROM [E] TO [D]
6 ENGINE START DETENT ENGINE 2	0.022-0.086	> 0.086	ADD THREE SHIMS MAX (AS NECESSARY) AT [I]
		< 0.022	REMOVE ONE SHIM AT [I]

**CONTROL SHAFT ADJUSTMENT GAP LIMITS  
TABLE A**

G42261 S0006583071\_V2

**Control Shaft Washer (Shim) Limits  
Figure 406/76-11-02-990-805-F00 (Sheet 2 of 3)**

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LOCATION	QUANTITY OF WASHER/SHIMS	
	MAX	MIN
[A]	4	0
[B]	4	0
[C]	2	0
[D]	4	1
[E]	2	0
[F]	1	0
[G]	1	0
[H]	3	0
[I]	4	0

CONTROL SHAFT ADJUSTMENT WASHER/SHIM QUANTITY LIMITS  
TABLE B

G42264 S0006583072\_V2

Control Shaft Washer (Shim) Limits  
Figure 406/76-11-02-990-805-F00 (Sheet 3 of 3)EFFECTIVITY  
AKS 001-017, 019

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**TASK 76-11-02-010-802-F00**

**4. Start Lever Removal**

(Figure 407)

**A. General**

- (1) The start levers are installed on the control stand.

**B. References**

Reference	Title
25-11-01-000-801	Captain's and First Officer's Seat Removal (P/B 401)

**C. Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Prepare for the Removal**

SUBTASK 76-11-02-860-020-F00

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

**CAPT Electrical System Panel, P18-2**

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE

**F/O Electrical System Panel, P6-3**

Row	Col	Number	Name
B	4	C00359	FUEL SPAR VALVE ENG 1
B	5	C00540	FUEL SPAR VALVE IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 76-11-02-860-021-F00

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

**F/O Electrical System Panel, P6-2**

Row	Col	Number	Name
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A

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AKS 018, 020-999 (Continued)

(Continued)

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00360	FUEL SPAR VALVE ENG 2
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

SUBTASK 76-11-02-860-024-F00

- (3) For the control stand lighting, open these circuit breakers and install safety tags:

**Circuit Breaker Panel 5, P8**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
---	---	C00320	ELEX PANEL LIGHTS FWD

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	10	C00284	PANEL & INSTR ELEX PANEL

SUBTASK 76-11-02-010-014-F00

- (4) Do this task: Captain's and First Officer's Seat Removal, TASK 25-11-01-000-801.

SUBTASK 76-11-02-010-015-F00

- (5) Put a mat on the aft electronics panel P8.

NOTE: This will prevent damage to the switches and glass surfaces of the indicators and displays.

SUBTASK 76-11-02-010-013-F00

- (6) Remove side cover [203] and side cover [222] from the control stand:

- (a) Remove the eight quick-release fasteners [204] that hold the side cover [203] to the control stand.
- (b) Remove the 11 quick-release fasteners [204] that hold the side cover [222] to the control stand.
- (c) Remove the side cover [203], side cover [222].



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**AKS 018, 020-999 (Continued)**

**E. Start Lever Removal**

SUBTASK 76-11-02-020-016-F00

**CAUTION:** YOU MUST BE CAREFUL WHEN YOU REMOVE THE COMPONENTS FROM THE CONTROL STAND. DAMAGE TO THE SWITCHES, LIGHTS, LIGHTPLATES, NUTPLATES, WIRE BUNDLES AND THE PAINTED FINISH ON ALL THE PARTS CAN OCCUR.

- (1) Disconnect the four electrical connectors [205], [206], [207], and [208] from the electrical connector panels.

SUBTASK 76-11-02-020-017-F00

- (2) Remove the four clamps [210] from wire bundle [202] and the five clamps [210] from wire bundle [209]:  
  - (a) Remove one bolt [211] and two washers [212] from each clamp [210].

SUBTASK 76-11-02-020-018-F00

- (3) Remove the lens cap [229] from the two engine start levers [201].

SUBTASK 76-11-02-020-019-F00

- (4) Remove the engine control lightplate [213] by loosening the three captive fasteners.

SUBTASK 76-11-02-020-020-F00

- (5) Remove the five screws [216] that hold the face plate [218] to the control stand and tilt the forward edge back approximately 90 degrees for service access.

SUBTASK 76-11-02-020-022-F00

- (6) Carefully remove from the face plate [218], two engine start levers [201], the wire bundles [202] and [209], and the electrical connectors [205], [206], [207], and [208] out of the control stand.

**NOTE:** It is not necessary to remove the lightplate connector [228] from the face plate [218] to have service access to the engine start levers [201].

**NOTE:** Spacers from other wire bundles may need to be loosened to allow movement when removing the engine start lever wire bundle through the service access.

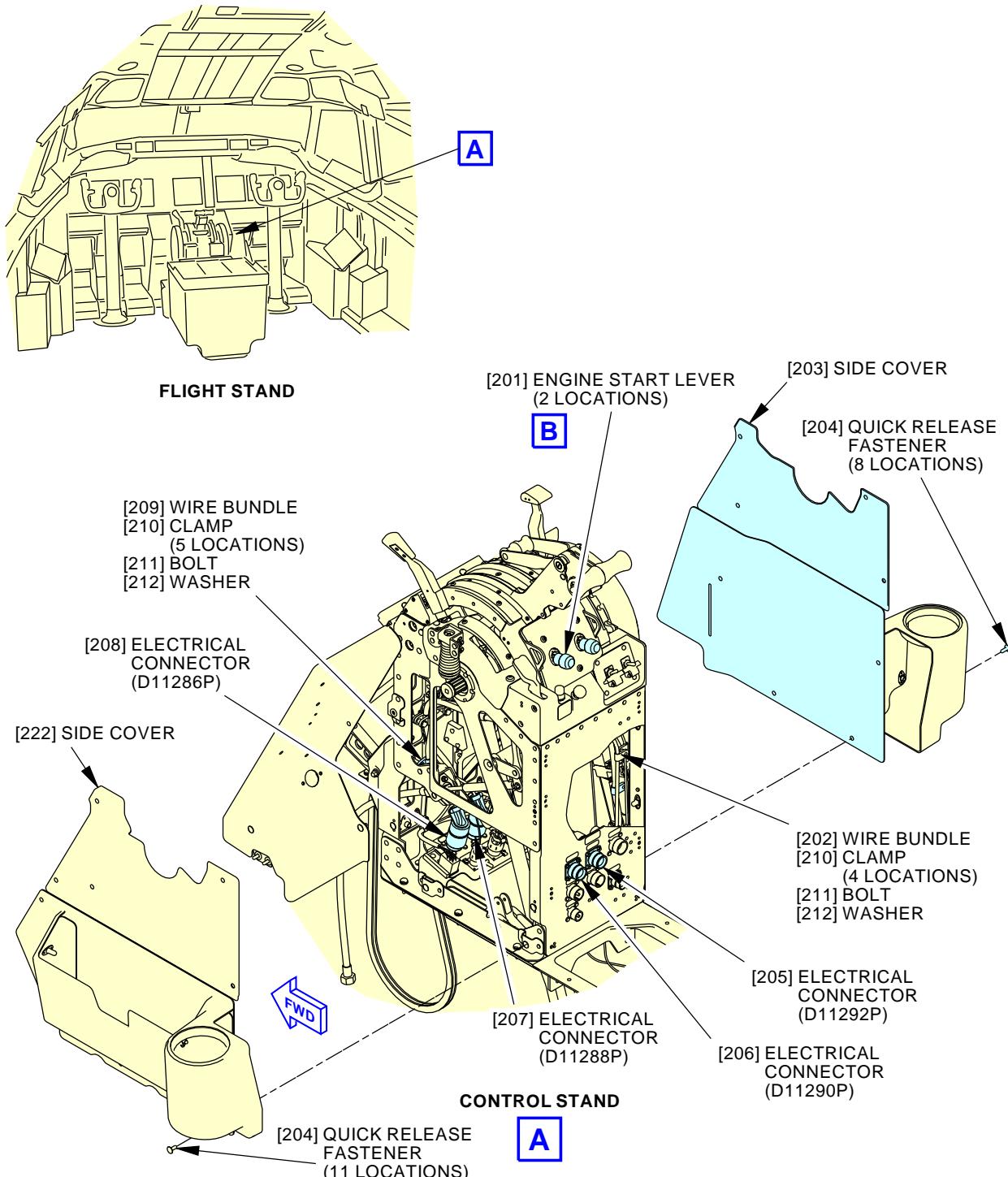
SUBTASK 76-11-02-020-023-F00

- (7) Remove the two engine start levers [201], the two nuts [214], the two keying washers [217], and the two lockwashers [215] from the face plate [218].

———— END OF TASK ————

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**Start Lever Installation**  
Figure 407/76-11-02-990-807-F00 (Sheet 1 of 2)

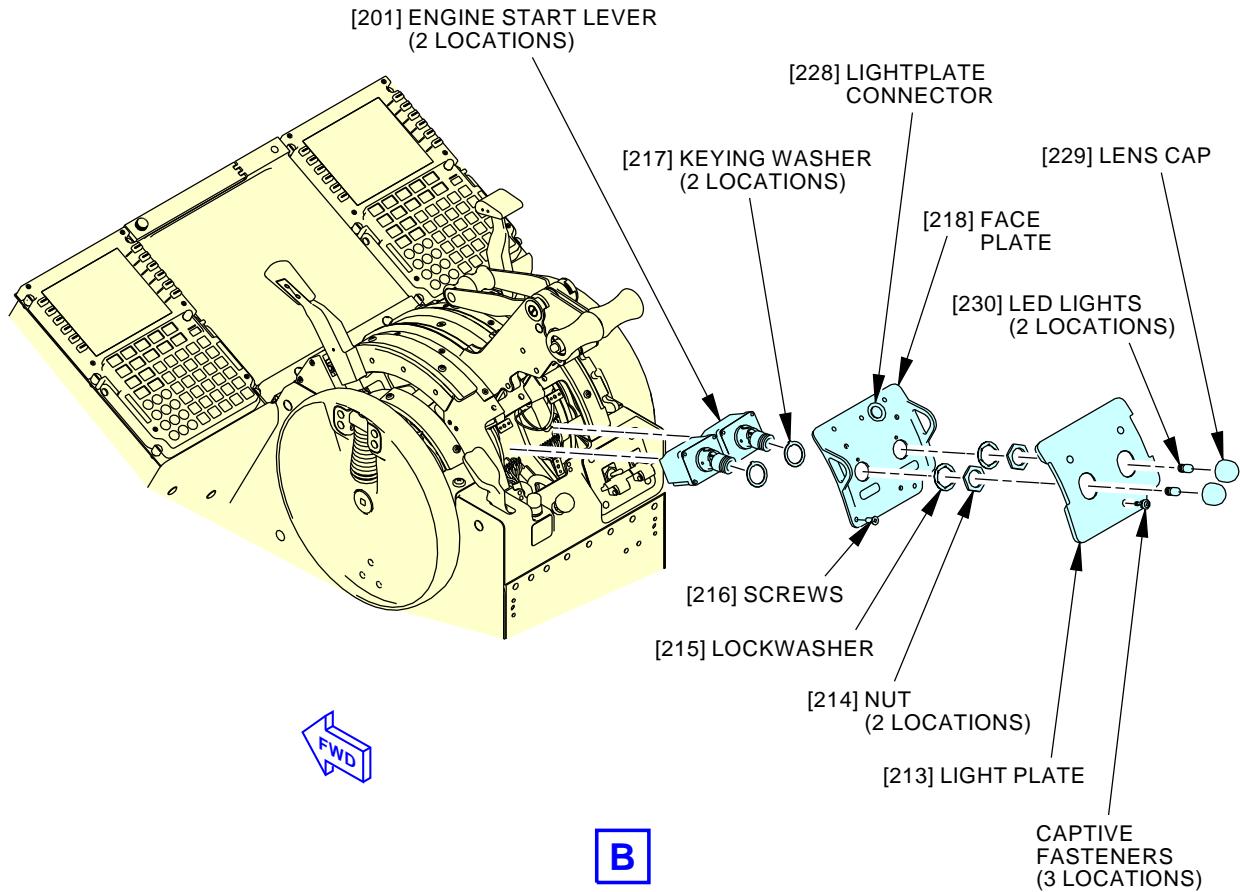
EFFECTIVITY  
AKS 018, 020-999

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**Start Lever Installation**  
**Figure 407/76-11-02-990-807-F00 (Sheet 2 of 2)**

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AKS 018, 020-999 (Continued)

**TASK 76-11-02-400-801-F00****5. Start Lever Installation**

(Figure 407)

**A. References**

Reference	Title
25-11-01-400-801	Captain's and First Officer's Seat Installation (P/B 401)
26-10-00-710-801	Fire and Overheat Detection System - Operational Test (P/B 501)
28-22-00-710-801	Engine Fuel Spar Valve - Electrical Control and Indication Test (P/B 501)
33-18-00-710-802	Master Dim and Test - Operational Test (P/B 201)
71-00-00-700-808-F00	Test 13 - Engine Run - EEC BITE Check (P/B 501)

**B. Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**C. Start Lever Installation**

SUBTASK 76-11-02-420-008-F00

**CAUTION:** YOU MUST BE CAREFUL WHEN YOU REMOVE THE COMPONENTS FROM THE CONTROL STAND. DAMAGE TO THE SWITCHES, LIGHTS, LIGHTPLATES, NUTPLATES, WIRE BUNDLES AND THE PAINTED FINISH ON ALL THE PARTS CAN OCCUR.

- (1) Install the two engine start levers [201]:

- (a) Install the two keying washers [217] on the engine start levers [201].
- (b) Install the face plate [218] over the engine start levers [201]:

**NOTE:** Make sure that the key on the keying washers [217] are engaged in the holes in the face plate [218]. This will make sure that the engine start levers [201] cannot move in the incorrect direction.

- 1) Install the two nuts [214] and two lockwashers [215] on the face plate [218].
- (c) Carefully install the four electrical connectors [205], [206], [207], and [208] and the two wire bundles [202] and [209] in the control stand.
- (d) Install the four clamps [210] on wire bundle [202] and five clamps [210] on wire bundle [209] with one bolt [211] and two washers [212] for each clamp.

**NOTE:** Before you tighten the bolts [211], make sure that you can rotate the face plate [218] along the lower edge at least 90 degrees aft for serviceability. Fasten other moved spacers if loosened during removal of the wiring bundles.

- (e) Connect the four electrical connectors [205], [206], [207], and [208] to the electrical connector panels.
- (f) Install the face plate [218] on the control stand.
  - 1) Install the five screws [216] to install the face plate [218] on the control stand.
- (g) Install the lightplate [213] on the face plate [218].

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**AKS 018, 020-999 (Continued)**

- (h) Install the lens cap [229] on the two engine start levers [201].

**D. Put the Airplane Back to Its Usual Condition**

SUBTASK 76-11-02-410-010-F00

- (1) Install the side cover [203] and the side cover [222] on the control stand.
  - (a) Position the covers on the control stand.
  - (b) Tighten the eight quick-release fasteners [204] that hold side cover [203] to the control stand.
  - (c) Tighten the 11 quick-release fasteners [204] that hold side cover [222] to the control stand.

SUBTASK 76-11-02-480-002-F00

- (2) Remove the protective mats from the aft electronics panel P8.

SUBTASK 76-11-02-410-011-F00

- (3) Do this task: Captain's and First Officer's Seat Installation, TASK 25-11-01-400-801.

SUBTASK 76-11-02-860-022-F00

- (4) For engine 1, remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C00359	FUEL SPAR VALVE ENG 1
B	5	C00540	FUEL SPAR VALVE IND
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 76-11-02-860-023-F00

- (5) For engine 2, Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B

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AKS 018, 020-999 (Continued)

(Continued)

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00360	FUEL SPAR VALVE ENG 2
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

SUBTASK 76-11-02-860-025-F00

- (6) For the control stand lighting, remove the safety tags and close these circuit breakers:

**Circuit Breaker Panel 5, P8**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
---	---	C00320	ELEX PANEL LIGHTS FWD

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	10	C00284	PANEL & INSTR ELEX PANEL

**E. Do a Test of the Start Lever**

SUBTASK 76-11-02-710-002-F00

- (1) Do this task: Master Dim and Test - Operational Test, TASK 33-18-00-710-802.

SUBTASK 76-11-02-710-003-F00

- (2) Do this task: Engine Fuel Spar Valve - Electrical Control and Indication Test, TASK 28-22-00-710-801.

SUBTASK 76-11-02-710-004-F00

- (3) Do this task: Fire and Overheat Detection System - Operational Test, TASK 26-10-00-710-801.

SUBTASK 76-11-02-710-005-F00

- (4) Do this task: Test 13 - Engine Run - EEC BITE Check, TASK 71-00-00-700-808-F00.

**END OF TASK**



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**CONTROL STAND LIGHTPLATES, SEALS, SPACERS, AND RETAINERS, COVERS AND STOPS -**  
**REMOVAL/INSTALLATION**

**1. General**

- A. This procedure has these tasks:
  - (1) Control Stand Lightplate Removal
  - (2) Control Stand Lightplate Installation
  - (3) Control Stand Seals, Spacers and Retainers Removal
  - (4) Control Stand Seals, Spacers and Retainers Installation
  - (5) Control Stand Covers and Stops Removal
  - (6) Control Stand Covers and Stops Installation.

**TASK 76-11-03-000-801-F00**

**2. Control Stand Lightplate Removal**

(Figure 401)

**A. General**

- (1) This task provides the instructions on how to remove a lightplate from the control stand.

**B. References**

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)

**C. Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Prepare for the Removal**

SUBTASK 76-11-03-860-001-F00

**WARNING:** DO THE DEACTIVATION PROCEDURE FOR THE TRAILING EDGE FLAP BEFORE YOU DO WORK ON THE FLAP SYSTEM. THE FLAPS MOVE QUICKLY. THEY CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 76-11-03-860-002-F00

- (2) Make sure that the left and right engine start switches are in off and install a DO-NOT-OPERATE tag.

SUBTASK 76-11-03-860-015-F00

- (3) For engine 1, open these circuit breakers and install the safety tags:

**CAPT Electrical System Panel, P18-2**

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

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(Continued)

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 76-11-03-860-016-F00

- (4) For engine 2, open these circuit breakers and install the safety tags:

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

SUBTASK 76-11-03-860-013-F00

**WARNING:** MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKERS FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (5) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

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## E. Control Stand Lightplate Removal

SUBTASK 76-11-03-020-001-F00

**CAUTION:** BE VERY CAREFUL WHEN YOU REMOVE AND MOVE THE LIGHTPLATES AND THE CONTROL STAND COMPONENTS. DAMAGE TO THE LIGHTPLATES, SWITCHES, NUTPLATES, WIRE BUNDLES AND THE FINISH ON THE PARTS CAN OCCUR.

- (1) Remove the applicable lightplate as follows:
  - (a) For the flap lever indicator lightplate [4], remove the screws [5].
  - (b) For the stabilizer trim lightplate [6] for the First Officer, remove the two screws [7].
  - (c) For the speed brake lightplate [9], remove two screws [8].
  - (d) For the stabilizer trim lightplate [1] for the Captain, remove the two screws [10].
  - (e) Lift the lightplate up to access the wire terminals.

SUBTASK 76-11-03-020-002-F00

- (2) Disconnect the wires from the applicable lightplate [1], the lightplate [4], the lightplate [6], or the lightplate [9]:
  - (a) Remove the two nuts [24] and the two lockwashers [23].
  - (b) Remove the terminal lugs from the studs on the lightplates.
  - (c) Remove the two washers [22].

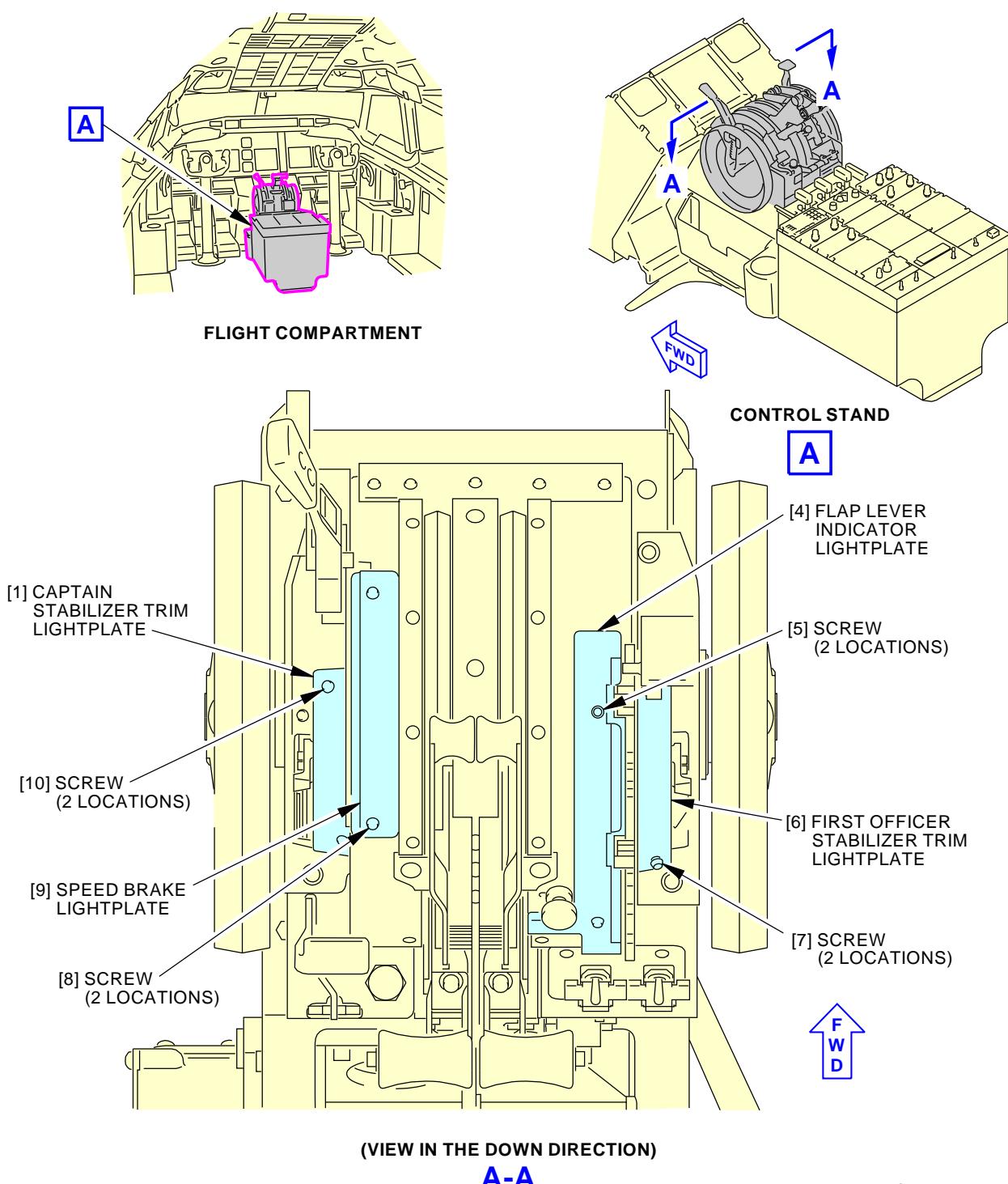
**NOTE:** Do not remove the nut and the washer that attach the two studs to the lightplate.

  - (d) Remove the applicable lightplate [1], the lightplate [4], the lightplate [6], or the lightplate [9].

———— END OF TASK ————

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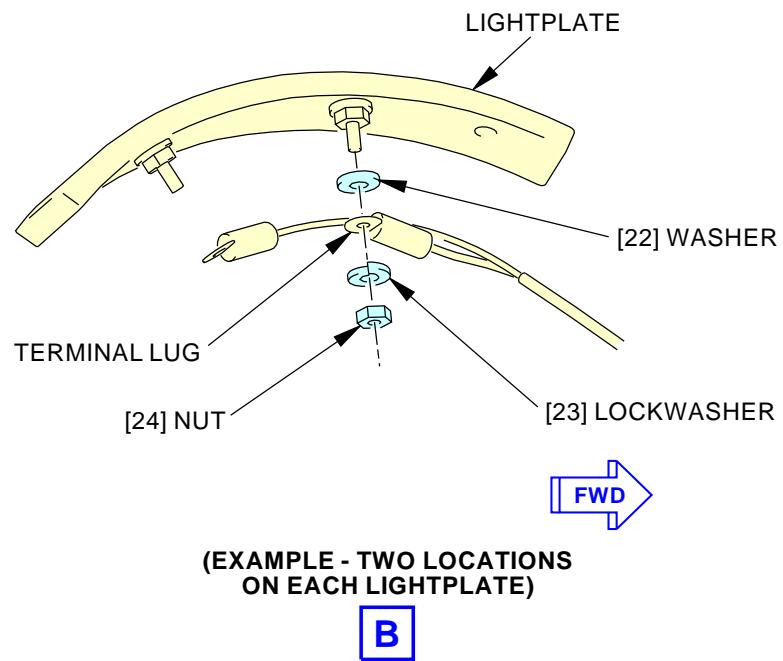
**Control Stand Lightplate Installation**  
Figure 401/76-11-03-990-801-F00 (Sheet 1 of 2)

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Control Stand Lightplate Installation  
Figure 401/76-11-03-990-801-F00 (Sheet 2 of 2)

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**TASK 76-11-03-420-801-F00****3. Control Stand Lightplate Installation**

(Figure 401)

**A. General**

- (1) This task provides the instructions on how to install a lightplate on the control stand.

**B. References**

Reference	Title
27-41-00-700-801	Stabilizer Manual Trim and Trim Indicator Test (P/B 501)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)

**C. Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Control Stand Lightplate Installation**

SUBTASK 76-11-03-420-001-F00

**CAUTION:** BE VERY CAREFUL WHEN YOU INSTALL THE LIGHTPLATES AND THE CONTROL STAND COMPONENTS. DAMAGE TO THE LIGHTPLATES, SWITCHES, NUTPLATES, WIRE BUNDLES AND THE FINISH ON THE PARTS CAN OCCUR.

- (1) Install the wires to the lightplate [1], the lightplate [4], the lightplate [6] or the lightplate [9] as follows:
  - (a) Install two washers [22].
  - (b) Put the two terminal lugs on the lightplate studs.
  - (c) Install the two lockwashers [23] and two nuts [24].

SUBTASK 76-11-03-420-002-F00

**CAUTION:** USE CARE WHEN YOU TIGHTEN THE SCREWS ON THE LIGHTPLATES. DAMAGE TO THE LIGHTPLATES CAN OCCUR IF YOU OVER TIGHTEN THE SCREWS.

- (2) Install the applicable the lightplate [1], the lightplate [4], the lightplate [6] or the lightplate [9] on the cover assemblies as follows:
  - (a) Install the stabilizer trim lightplate [1] for the Captain as follows
    - 1) Install the two screws [10]
    - 2) Adjust the position of the lightplate [1] (TASK 27-41-00-700-801).
  - (b) Install the flap lever indicator lightplate [4] as follows:
    - 1) Install the two screws [5].
    - 2) Adjust the position of the lightplate [4] (TASK 27-51-00-820-802).
  - (c) Install the stabilizer trim lightplate [6] for the First Officer as follows.
    - 1) Install the two screws [7].
    - 2) Adjust the position of the lightplate [6] (TASK 27-41-00-700-801).
  - (d) Install the speed brake lightplate [9].
    - 1) Adjust the position of the lightplate as follows:
      - a) Move the speed brake lever to the aft stop.
      - b) Put the lightplate in its position.

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- c) Align the arrow on the aft face with the center of the "DOWN" bar.

NOTE: Set to plus or minus of one quarter of the "DOWN" bar width.

- 2) Install the two screws [8].

**E. Put the Airplane Back to Its Usual Condition:**

SUBTASK 76-11-03-860-017-F00

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

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 76-11-03-860-018-F00

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

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND



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SUBTASK 76-11-03-860-014-F00

- (3) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 76-11-03-860-010-F00

- (4) Remove the DO-NOT-OPERATE tag from the engine start panel.

———— END OF TASK ————

**TASK 76-11-03-400-801-F00****4. Control Stand Seal, Spacer, and Retainer Removal**

(Figure 402)

**A. General**

- (1) This task provides the instructions on how to remove the control stand seals, spacers and retainers that are below the lightplates on the control stand.
- (2) The retainers hold the seals and spacers in their position on the control stand.

**B. Location Zones**

<u>Zone</u>	<u>Area</u>
211	Flight Compartment - Left
212	Flight Compartment - Right

**C. Prepare for the Removal**

SUBTASK 76-11-03-010-001-F00

- (1) Do this task: Control Stand Lightplate Removal, TASK 76-11-03-000-801-F00.

**D. Control Stand Seals, Spacer, and Retainer Removal**

SUBTASK 76-11-03-020-003-F00

- (1) Remove the left seal [33], the spacer [25], and the seal retainer [31] as follow:
- Remove the four screws [32].
  - Remove the seal retainer [31].
  - Remove the left seal [33].
  - Remove the spacer [25].

SUBTASK 76-11-03-020-004-F00

- (2) Remove the upper center seal [36], the spacer [26], and the seal retainer [34] as follow:
- Remove the three screws [35].
  - Lift the seal retainer [34].
  - Remove the seal retainer from between the thrust levers.
  - Remove the upper center seal [36].
  - Remove the spacer [26].

SUBTASK 76-11-03-020-008-F00

- (3) Remove the lower center seal [30] and the seal retainer [28] as follow:
- Remove the two screws [35].
  - Remove the seal retainer [28].

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(c) Remove the lower center seal [30].

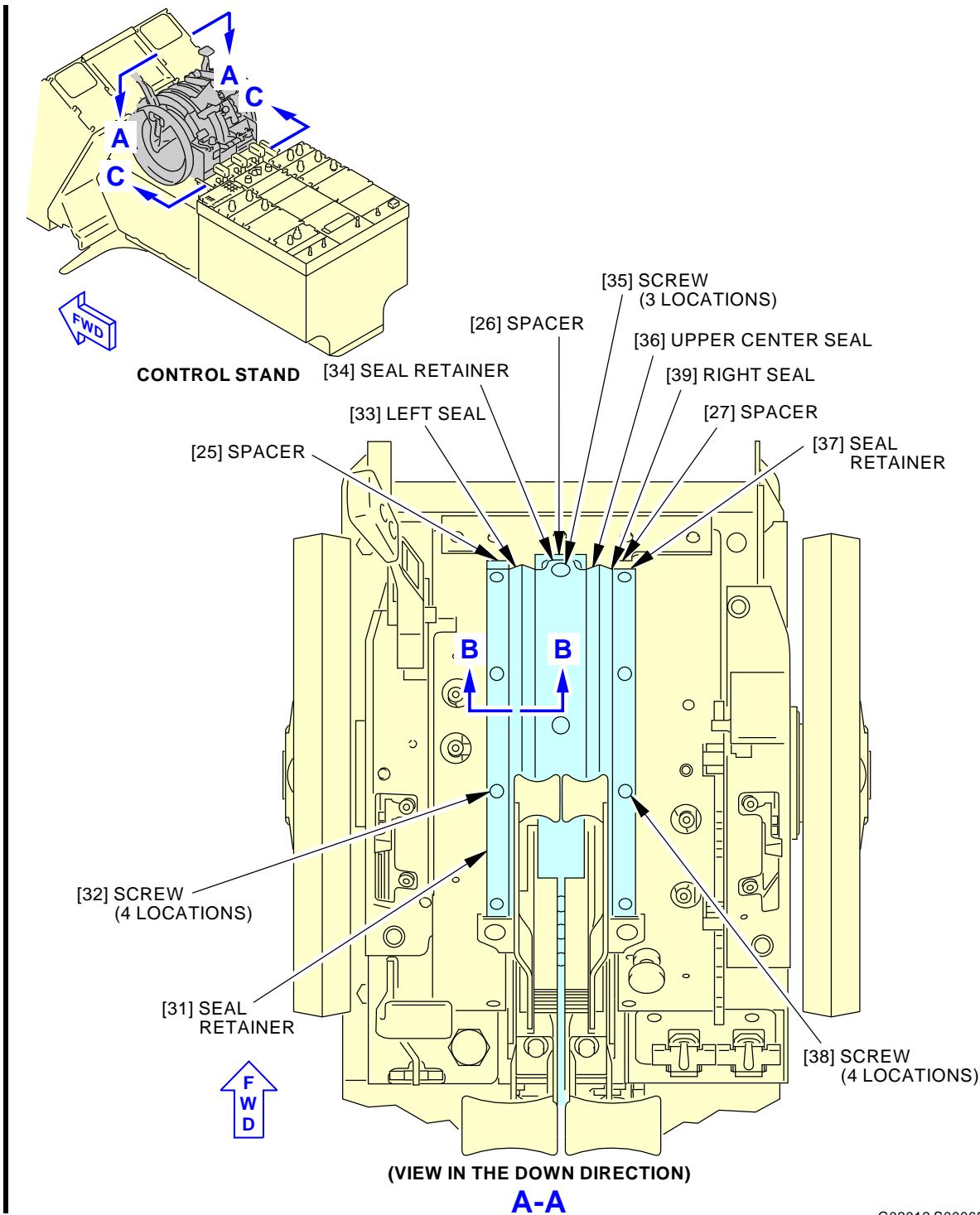
SUBTASK 76-11-03-020-005-F00

- (4) Remove the right seal [39], the spacer [27], and the seal retainer [37] as follow:
- (a) Remove the four screws [38].
  - (b) Remove the seal retainer [37].
  - (c) Remove the right seal [39].
  - (d) Remove the spacer [27].

———— END OF TASK ————

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**Control Stand Seal, Spacer, and Retainer Installation**  
**Figure 402/76-11-03-990-802-F00 (Sheet 1 of 2)**

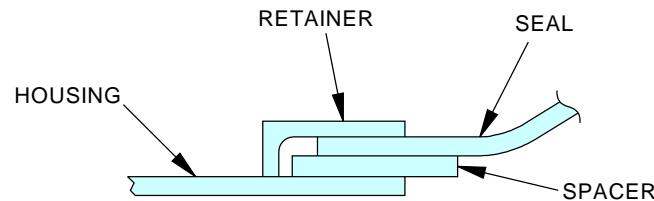
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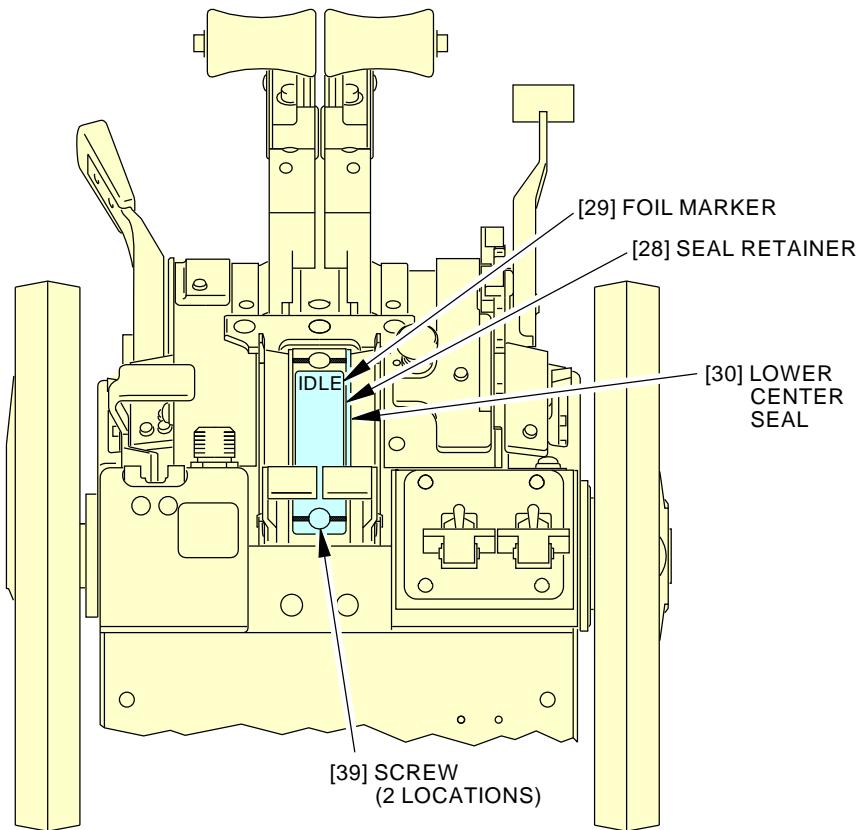
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(EXAMPLE)  
**B-B**



(VIEW IN THE FORWARD DIRECTION)  
**C-C**

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**Control Stand Seal, Spacer, and Retainer Installation**  
**Figure 402/76-11-03-990-802-F00 (Sheet 2 of 2)**

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**TASK 76-11-03-400-802-F00****5. Control Stand Seal, Spacer and Retainer Installation**

(Figure 402)

**A. General**

- (1) This task provides the instructions on how to install the control stand seals, spacers and retainers in the control stand.

**B. Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**C. Control Stand Seal, Spacer, and Retainer Installation**

SUBTASK 76-11-03-420-003-F00

- (1) Install the right seal [39], the spacer [27], and the seal retainer [37] as follows:
  - (a) Put the spacer [27] in its position.
  - (b) Install the right seal [39].
  - (c) Install the seal retainer [37] on the right seal [39].
  - (d) Install the four screws [38].

SUBTASK 76-11-03-420-004-F00

- (2) Install the upper center seal [36], the spacer [26], and the seal retainer [34] as follow:
  - (a) Put the spacer [26] in its position.
  - (b) Put the upper center seal [36] in position between the thrust levers.
  - (c) Put the seal retainer [34] between the thrust levers.
  - (d) Install the seal retainer [34] on the seal.
  - (e) Install the three screws [35].

SUBTASK 76-11-03-420-008-F00

- (3) Install the lower center seal [30] and the seal retainer [28] as follow:
  - (a) Install the lower center seal [30].
  - (b) Install the seal retainer [28] on the seal.
  - (c) Install the two screws [39].

SUBTASK 76-11-03-420-005-F00

- (4) Install the left seal [33], the spacer [25], and the seal retainer [31] as follow:
  - (a) Put the spacer [25] in its position.
  - (b) Install the left seal [33].
  - (c) Install the seal retainer [31] on the seal.
  - (d) Install the four screws [32].

**D. Put the Airplane Back to Its Usual Condition**

SUBTASK 76-11-03-410-001-F00

- (1) Do this task: Control Stand Lightplate Installation, TASK 76-11-03-420-801-F00.

———— END OF TASK ————

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**TASK 76-11-03-400-803-F00****6. Control Stand Cover and Stop Removal**

(Figure 403)

**A. General**

- (1) This task provides the instructions on how to remove the control stand cover and stop.

**B. Location Zones**

Zone	Area
------	------

211	Flight Compartment - Left
212	Flight Compartment - Right

**C. Prepare for the Removal****SUBTASK 76-11-03-010-002-F00**

- (1) For the applicable control stand lightplate, do this task: Control Stand Lightplate Removal, TASK 76-11-03-000-801-F00.

**SUBTASK 76-11-03-010-003-F00**

- (2) For the applicable control stand seal, spacer, and retainer, do this task: Control Stand Seal, Spacer, and Retainer Removal, TASK 76-11-03-400-801-F00.

**D. Control Stand Cover and Stop Removal****SUBTASK 76-11-03-020-006-F00**

- (1) Remove the forward thrust stop [43] as follows:
  - (a) Remove the five screws [40].
  - (b) Remove the forward thrust stop [43].

**SUBTASK 76-11-03-020-010-F00**

- (2) Remove the aft thrust stop [44] as follows:
  - (a) Remove the three screws [45].
  - (b) Remove the aft thrust stop [44].

**SUBTASK 76-11-03-020-007-F00**

- (3) Remove the right side cover assembly [48] as follows:
  - (a) Remove the cutout switch knob [42] for the stabilizer trim horn.
  - (b) Remove the nut [41].
  - (c) Remove the six screws [49].
  - (d) Remove the right side cover assembly [48].

**SUBTASK 76-11-03-020-009-F00**

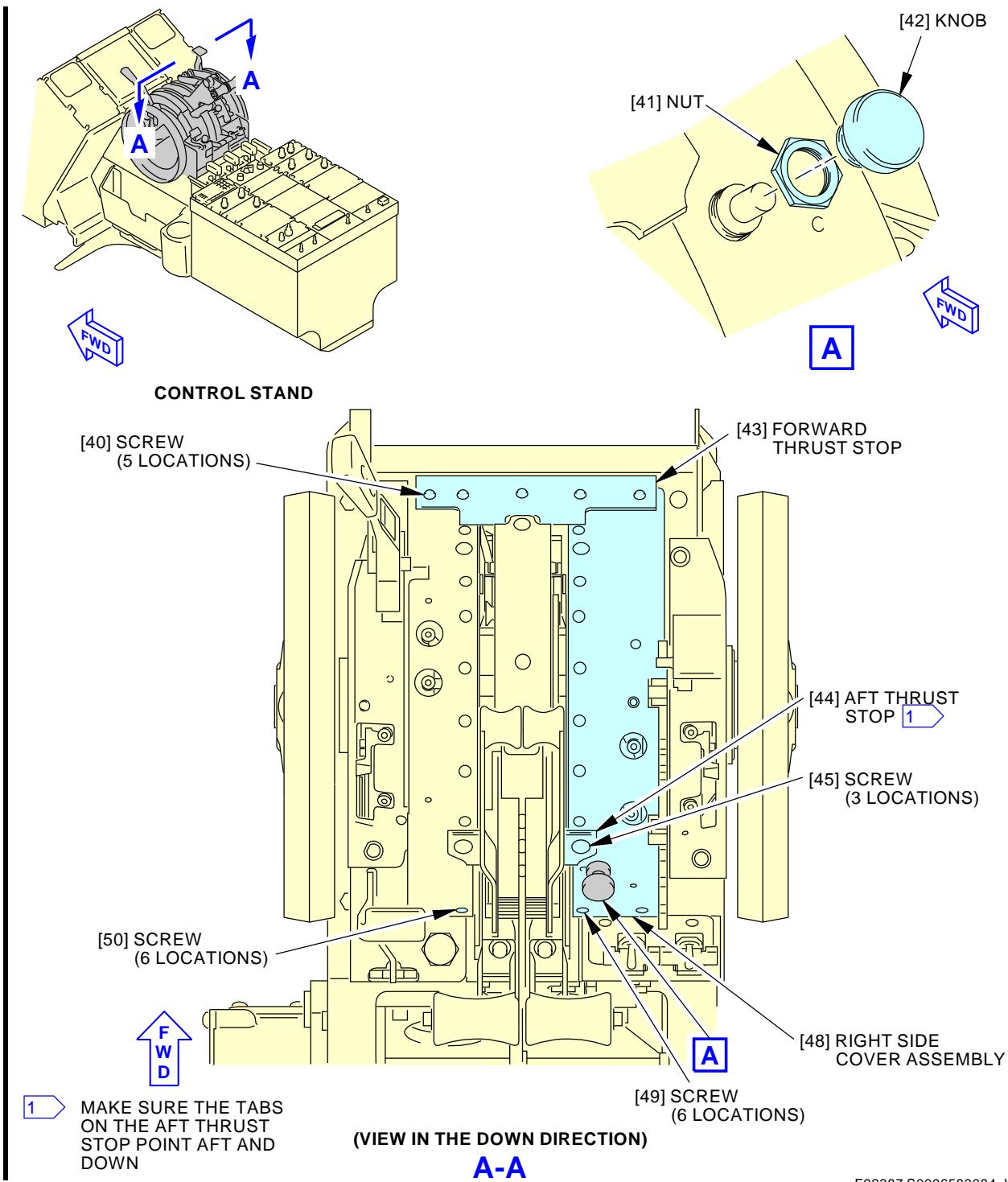
- (4) Remove the left side cover assembly as follows:
  - (a) Remove the six screws [50].
  - (b) Remove the left side cover assembly

———— END OF TASK ————

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**Control Stand Cover and Stop Installation**  
**Figure 403/76-11-03-990-803-F00**

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**TASK 76-11-03-400-804-F00****7. Control Stand Cover and Stop Installation**

(Figure 403)

**A. General**

- (1) This task provides the instructions on how to install the control stand cover and stop.

**B. Location Zones**

Zone	Area
------	------

211	Flight Compartment - Left
212	Flight Compartment - Right

**C. Control Stand Cover and Stop Installation****SUBTASK 76-11-03-420-006-F00**

- (1) Install the right side cover assembly [48] as follows:

- (a) Install the right side cover assembly [48].
  - 1) Install the six screws [49].
  - 2) Put the switch into the right side cover assembly [48].
  - 3) Install the nut [41].
  - 4) Install the cutout switch knob [42] for the stabilizer trim horn:

**SUBTASK 76-11-03-420-009-F00**

- (2) Install the left side cover assembly as follows:

- (a) Put the left side cover assembly in its position.
- (b) Install the six screws [50].

**SUBTASK 76-11-03-420-007-F00**

- (3) Install the forward thrust stop [43] as follows:

- (a) Put the forward thrust stop [43] in its position
- (b) Install the five screws [40].

**SUBTASK 76-11-03-420-010-F00**

- (4) Install aft thrust stop [44] as follows:

NOTE: Make sure that the aft thrust stop is in the correct position. If the aft thrust stop is turned 180 degrees, the thrust reverser will not operate.

- (a) Make sure that the tabs on the aft thrust stop [44] point aft and down.
- (b) Install the three screws [45].

**D. Put the Airplane Back to Its Usual Condition****SUBTASK 76-11-03-410-002-F00**

- (1) Do this task: Control Stand Seal, Spacer and Retainer Installation, TASK 76-11-03-400-802-F00.

**SUBTASK 76-11-03-410-003-F00**

- (2) Do this task: Control Stand Lightplate Installation, TASK 76-11-03-420-801-F00.

———— END OF TASK ————

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**THRUST LEVER ANGLE RESOLVER AND AUTOThROTTLE BRAKE ASSEMBLY - REMOVAL/INSTALLATION**

**1. General**

- A. This procedure has two tasks:
  - (1) Thrust Lever Angle Resolver and Autothrottle Brake Assembly Removal
  - (2) Thrust Lever Angle Resolver and Autothrottle Brake Assembly Installation.

**TASK 76-11-05-000-801-F00**

**2. Thrust Lever Angle Resolver and Autothrottle Brake Assembly Removal**

(Figure 401, Figure 402 and Figure 403)

**A. General**

- (1) This task provides the instructions on how to remove the thrust lever angle resolver and autothrottle brake assembly.
- (2) The thrust lever angle resolver is referred to as the resolver.
- (3) The autothrottle brake assembly is referred to as the brake assembly.
- (4) The resolvers and brake assemblies can be found forward of the nose wheel well, below the flight compartment floor.
- (5) There is one resolver installed on each of the engine 1 and engine 2 autothrottle assemblies.
- (6) There is one brake assembly installed on each of the engine 1 and engine 2 autothrottle assemblies.

**B. References**

Reference	Title
22-31-91-020-801	Autothrottle Servo Motor and Gearbox Removal (P/B 401)

**C. Tools/Equipment**

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

Reference	Description
SPL-2414	Tool Set - Auto Throttle Servo Assembly Part #: J22001-1 Supplier: 81205

**D. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

**E. Access Panels**

Number	Name/Location
112A	Forward Access Door

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**F. Prepare for the Removal**

SUBTASK 76-11-05-860-006-F00

**WARNING:** MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKERS FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (1) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 76-11-05-860-019-F00

- (2) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00721	AUTOTHROTTLE DC 1

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 76-11-05-010-001-F00

- (3) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 76-11-05-860-001-F00

- (4) Attach the DO-NOT-OPERATE tags to the thrust levers.

SUBTASK 76-11-05-010-002-F00

- (5) Do this task: Autothrottle Servo Motor and Gearbox Removal, TASK 22-31-91-020-801.

**G. Thrust Lever Angle Resolver and Brake Assembly Removal**

SUBTASK 76-11-05-020-001-F00

- (1) Disconnect the applicable electrical connectors [11] as follows:

- (a) For engine 1 resolver, disconnect electrical connector [11] (D11158) and the electrical connector [11] (D11160).
- (b) For engine 2 resolver, disconnect electrical connector [11] (D11162) and the electrical connector [11] (D11164).

SUBTASK 76-11-05-020-006-F00

- (2) Disconnect the applicable thrust lever connecting rod end [5] as follows:

- (a) Remove and discard the cotter pin [1].
- (b) Remove the bolt [4], the washer [3], and the nut [2].

SUBTASK 76-11-05-020-007-F00

- (3) Disconnect the applicable control rod [6] as follows:

- (a) Remove the bolt [9], the washer [8], and the nut [7].

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AKS ALL

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SUBTASK 76-11-05-020-008-F00

- (4) Disconnect the cable guard [51] as follows:
  - (a) Remove the bolt [49] and the washer [50] from the support bracket [31].

SUBTASK 76-11-05-020-002-F00

- (5) Disconnect the applicable resolver and brake assembly as follows:
  - (a) Make sure that you support the autothrottle shaft [49] end of the assembly in its normal position.
  - (b) Remove the two bolts [26] and the two washers [27].
  - (c) Remove the bolt [29] and the washer [30].

SUBTASK 76-11-05-020-003-F00

- (6) Remove the support bracket [31] from the autothrottle frame housing as follows:
  - (a) Remove the two bolts [22] and the two washers [21].
  - (b) Remove the nut [25], the two washers [24], and the bolt [23].
  - (c) Remove the support bracket [31].

SUBTASK 76-11-05-020-009-F00

- (7) Move the resolver and brake assembly from the airplane as follows:
  - (a) Carefully remove the resolver and brake assembly from the autothrottle frame housing.  
NOTE: Handle the assembly with care, the resolver is a sensitive instrument.
  - (b) Move the resolver and brake assembly to a clean table to do the subsequent steps.

SUBTASK 76-11-05-020-004-F00

- (8) Remove the resolver as follows:
  - (a) Put the nut wrench on the nut [44] as follows:  
NOTE: The nut wrench is part of auto throttle servo assembly tool set, SPL-2414.
  - (b) Use the shaft wrench to hold the slotted autothrottle shaft [49] when you remove the nut [44].  
NOTE: The shaft wrench is part of the auto throttle servo assembly tool set, SPL-2414.
  - (c) Remove the nut [44] and the spacer [45].
  - (d) Remove the TLA resolver [32] from the autothrottle shaft [49].
  - (e) Remove the three screws [43] and the three washers [48].
  - (f) Remove the plate [46].
  - (g) Remove the bearing [47].
  - (h) Remove the spacer [42] from the autothrottle shaft [49].
  - (i) If it is necessary, remove these parts from the resolver:
    - 1) Remove and discard the cotter pin [56].
    - 2) Remove the seal nut [55] with the seal nut wrench.  
NOTE: The seal nut wrench is part of auto throttle servo assembly tool set, SPL-2414.
  - (j) Remove the scraper [54].

SUBTASK 76-11-05-020-010-F00

- (9) Remove the brake assembly [10] as follows:

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 AKS ALL

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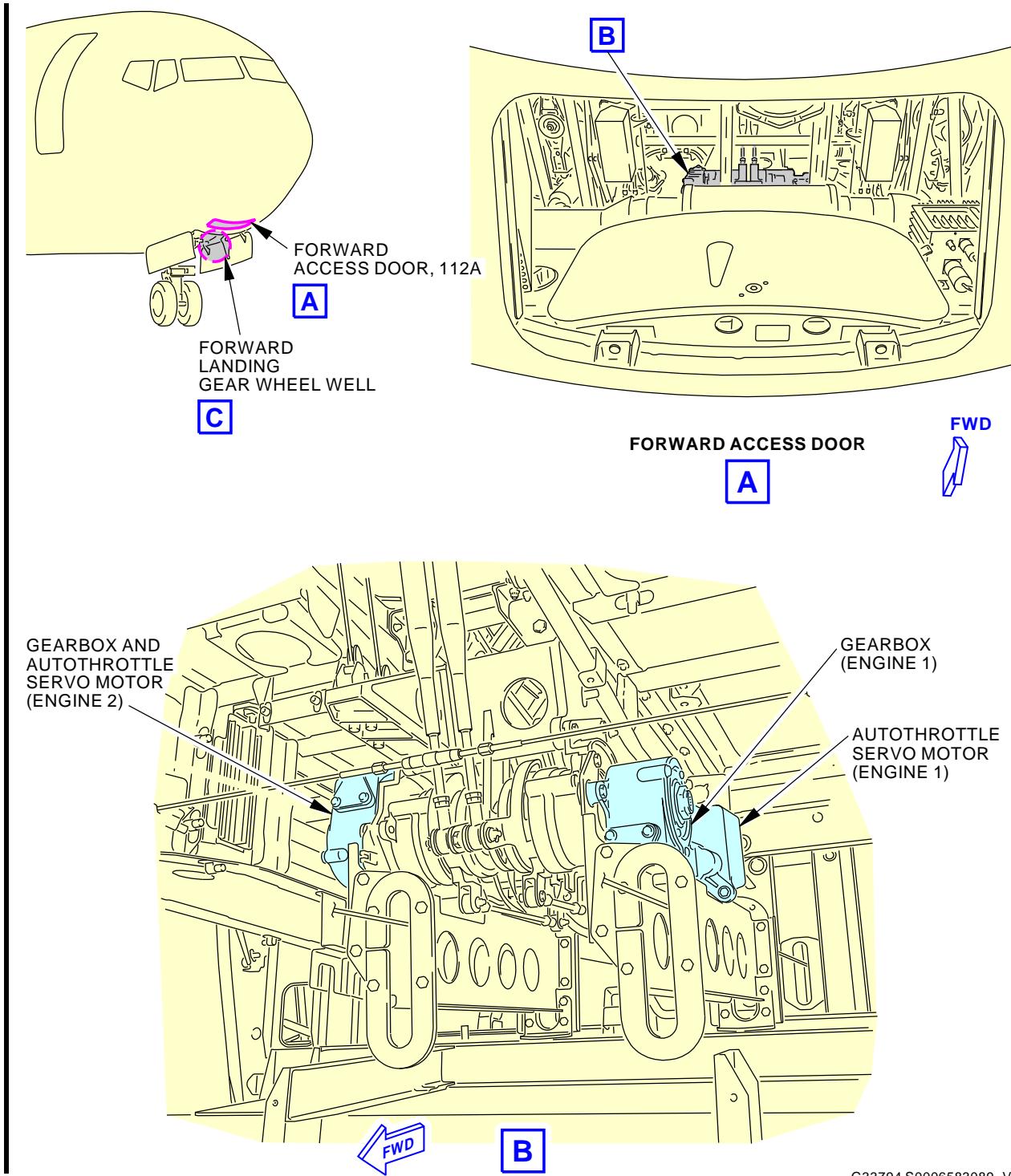
- (a) Move the brake assembly [10] from the autothrottle shaft [49].

———— END OF TASK ——

———— EFFECTIVITY ——  
**AKS ALL**

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G33794 S0006583089\_V2

**Autothrottle Mechanism Installation**  
**Figure 401/76-11-05-990-801-F00 (Sheet 1 of 2)**

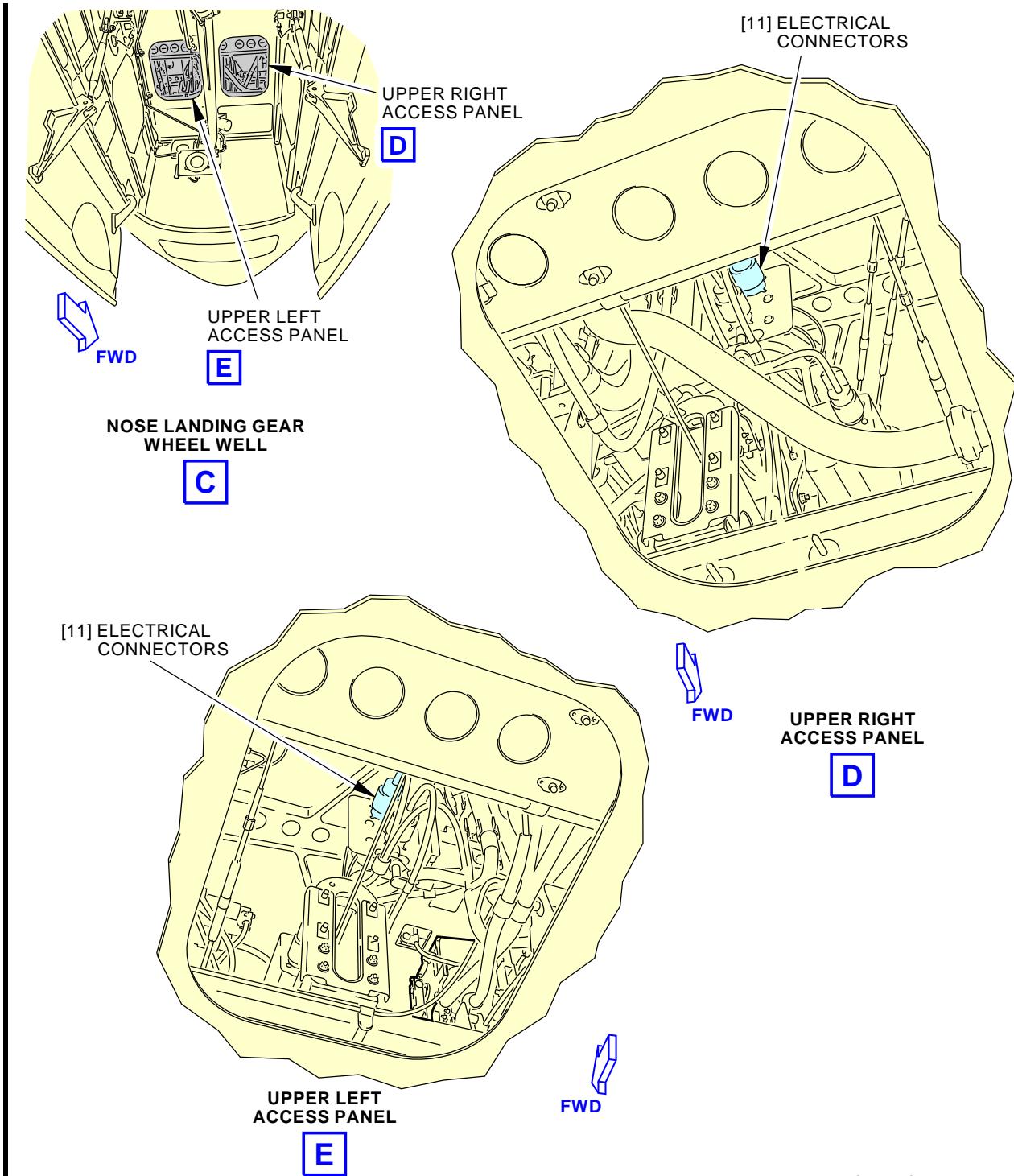
EFFECTIVITY  
 AKS ALL

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**AIRCRAFT MAINTENANCE MANUAL**



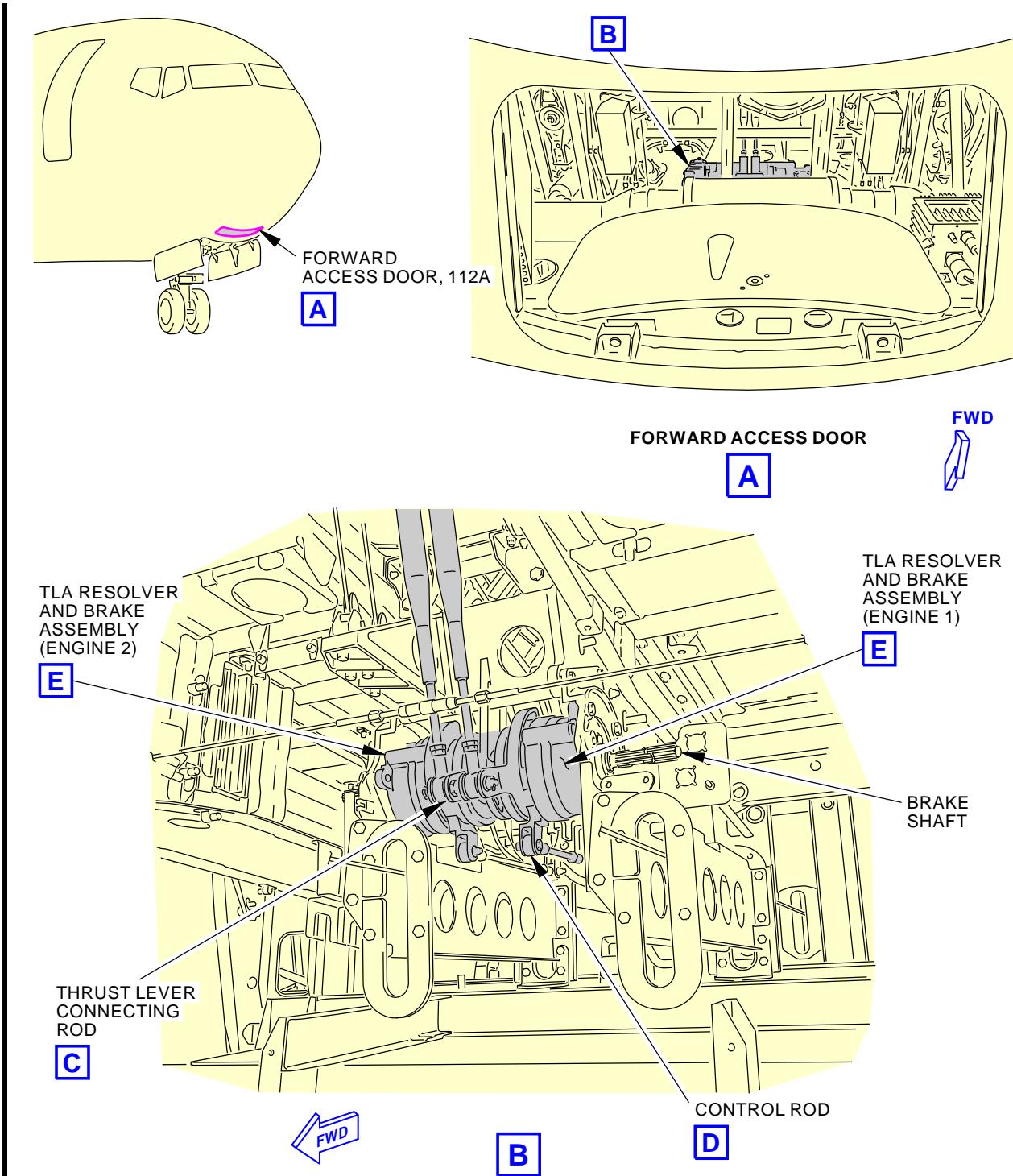
**Autothrottle Mechanism Installation**  
**Figure 401/76-11-05-990-801-F00 (Sheet 2 of 2)**

EFFECTIVITY  
AKS ALL

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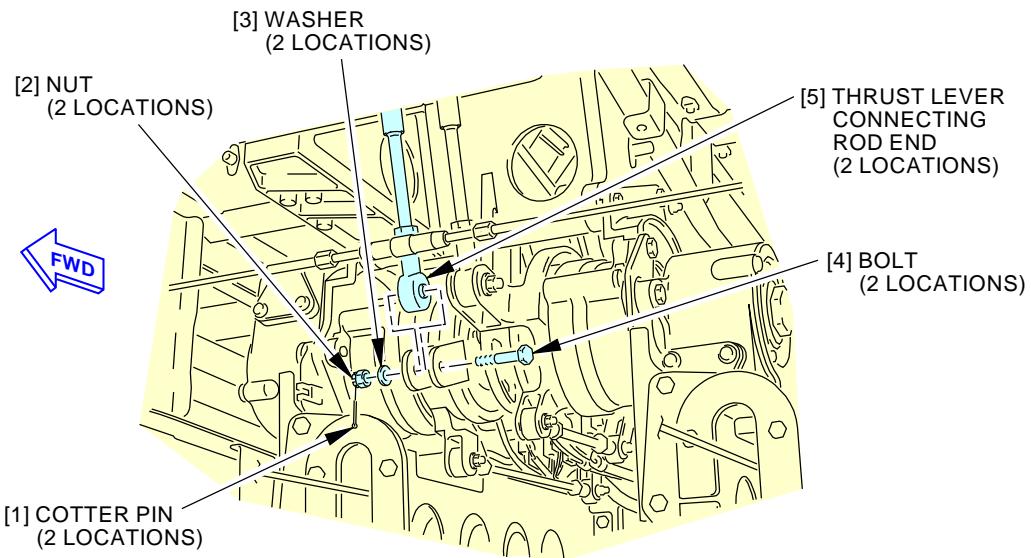
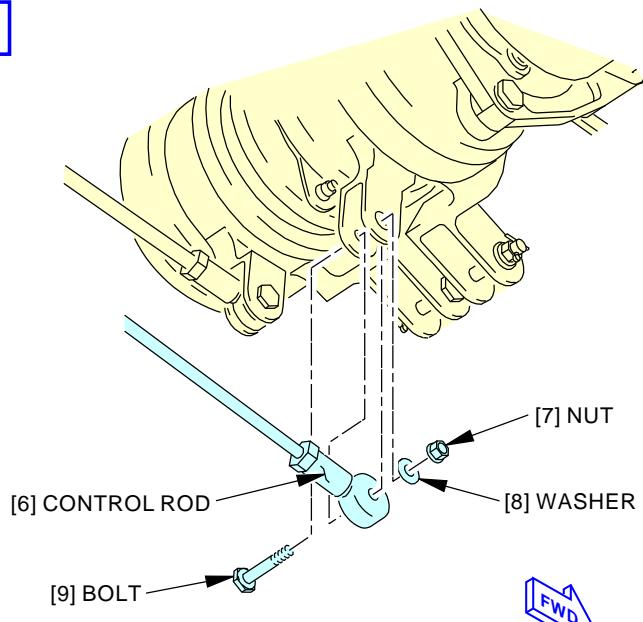
G37229 S0006583091\_V2

**Thrust Lever Angle (TLA) Resolver and Autothrottle Brake Assembly Installation**  
**Figure 402/76-11-05-990-802-F00 (Sheet 1 of 3)**

EFFECTIVITY
AKS ALL

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D633A101-AKS

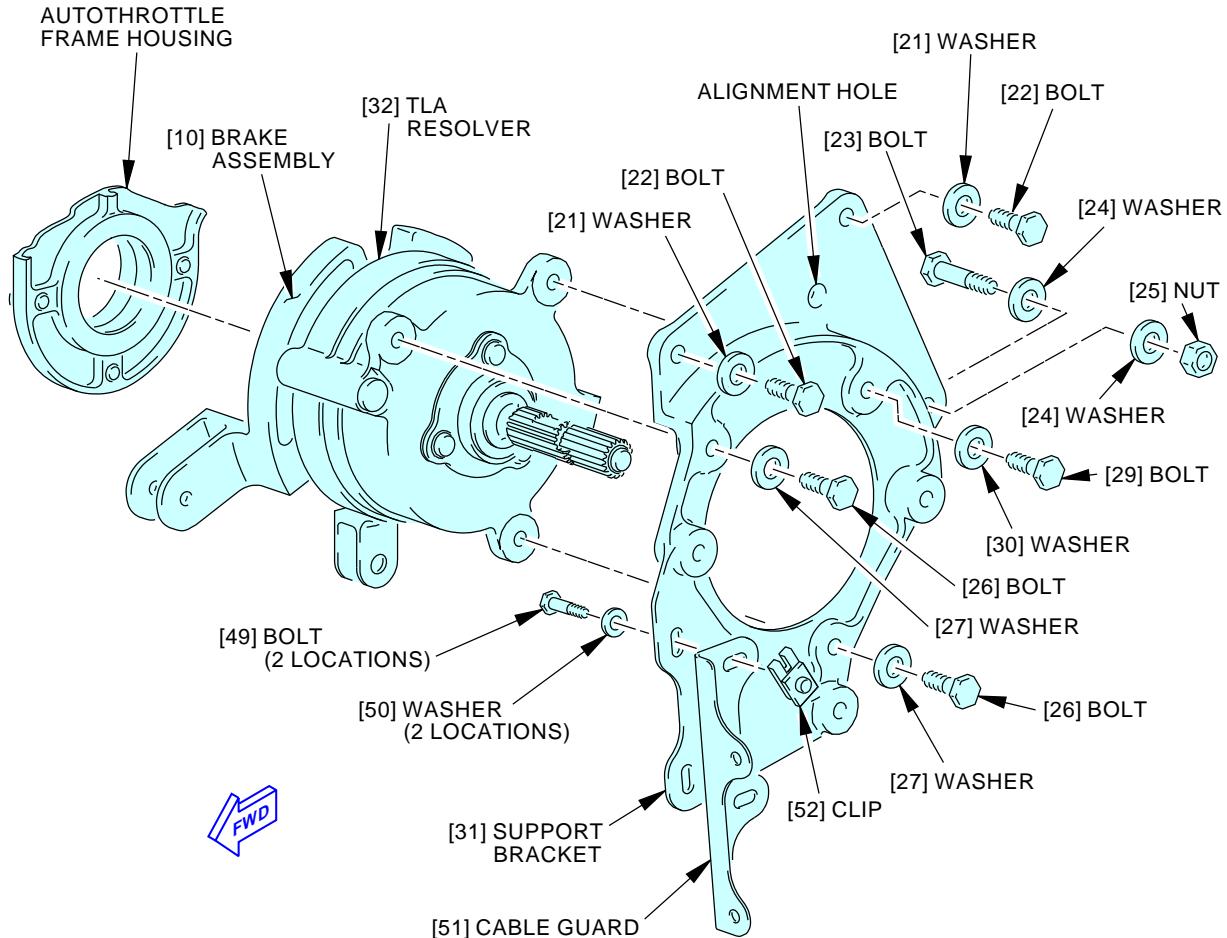
737-600/700/800/900  
AIRCRAFT MAINTENANCE MANUAL(RIGHT SIDE IS SHOWN,  
LEFT SIDE IS EQUIVALENT)**C**(RIGHT SIDE IS SHOWN,  
LEFT SIDE IS EQUIVALENT)**D**

K07665 S0006583092\_V2

Thrust Lever Angle (TLA) Resolver and Autothrottle Brake Assembly Installation  
Figure 402/76-11-05-990-802-F00 (Sheet 2 of 3)EFFECTIVITY  
AKS ALL**76-11-05**Page 408  
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**TLA RESOLVER AND BRAKE ASSEMBLY  
 (ENGINE 1 IS SHOWN, ENGINE 2 IS EQUIVALENT)**

**E**

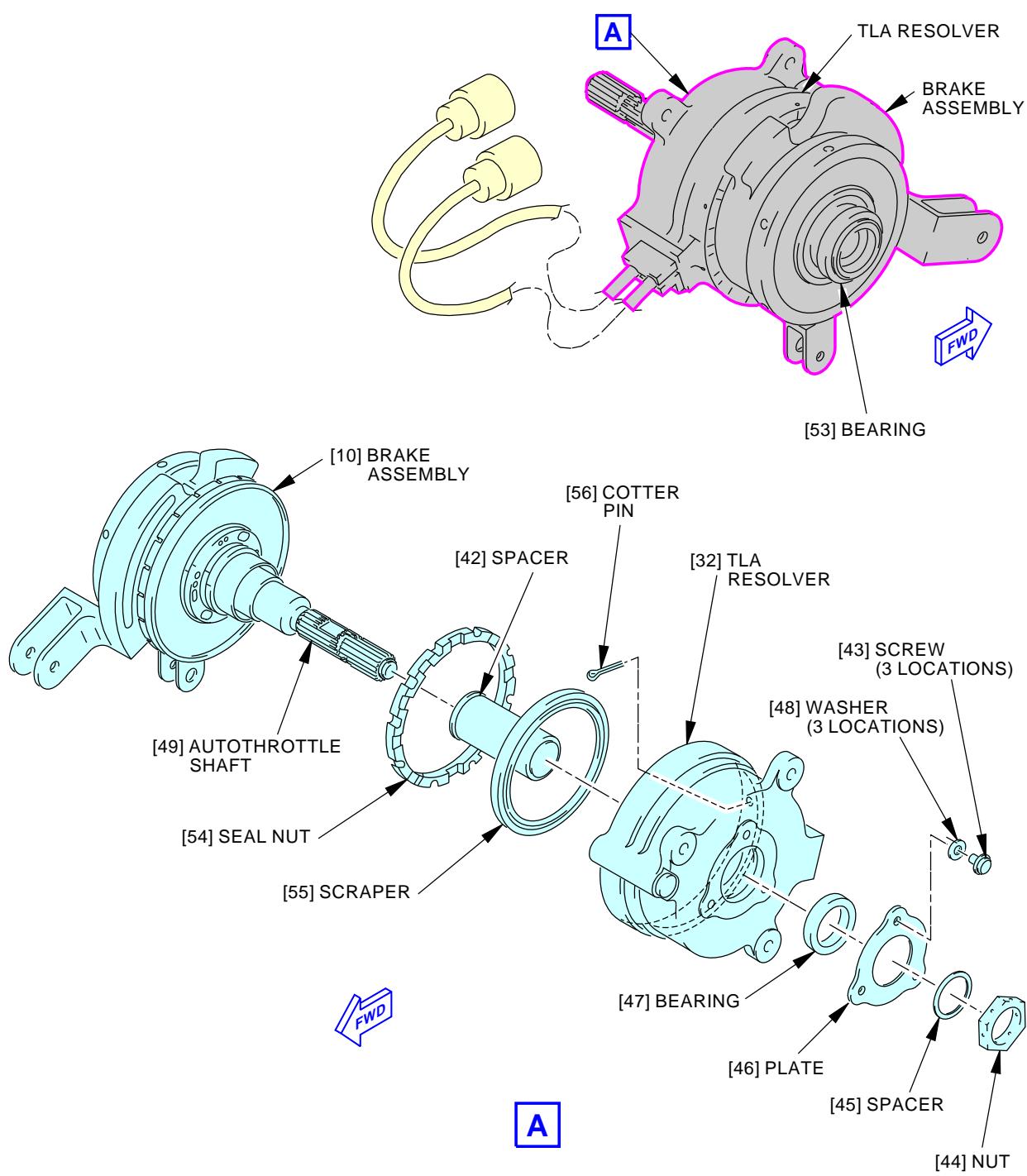
G34482 S0006583093\_V2

**Thrust Lever Angle (TLA) Resolver and Autothrottle Brake Assembly Installation**  
**Figure 402/76-11-05-990-802-F00 (Sheet 3 of 3)**

EFFECTIVITY  
 AKS ALL

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G34382 S0006583094\_V3

**Thrust Lever Angle (TLA) Resolver Assembly Installation**  
**Figure 403/76-11-05-990-803-F00**

EFFECTIVITY  
**AKS ALL**

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**TASK 76-11-05-400-801-F00****3. Thrust Lever Angle Resolver and Autothrottle Brake Assembly Installation**

(Figure 401, Figure 402 and Figure 403)

**A. General**

- (1) This task provides the instructions on how to install the thrust lever angle resolver and autothrottle brake assembly.

**B. References**

Reference	Title
22-31-91-400-801	Autothrottle Servo Motor and Gearbox Installation (P/B 401)
76-11-05-820-801-F00	Thrust Lever Angle Resolver Adjustment (P/B 501)
76-11-05-820-802-F00	Autothrottle Brake Assembly Test (P/B 501)

**C. Tools/Equipment**

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

Reference	Description
SPL-2414	Tool Set - Auto Throttle Servo Assembly Part #: J22001-1 Supplier: 81205

**D. Consumable Materials**

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

**E. Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
10	Brake assembly	22-31-81-01-105	AKS ALL
		22-31-81-02-105	AKS ALL
32	TLA resolver	22-31-81-01-080	AKS ALL
		22-31-81-02-080	AKS ALL

**F. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

**G. Access Panels**

Number	Name/Location
112A	Forward Access Door

**H. Thrust Lever Angle Resolver and Autothrottle Brake Assembly Installation**

SUBTASK 76-11-05-420-007-F00

- (1) Install the brake assembly [10] as follows:
  - (a) Apply grease, D00013 to the autothrottle shaft [49].



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- (b) Install the applicable brake assembly [10] on the autothrottle shaft [49].

SUBTASK 76-11-05-420-001-F00

- (2) Install the spacer [42] as follows:

- (a) Apply a layer of grease, D00013 to the inner side surface of the spacer.
- (b) Install the spacer [42] on the autothrottle shaft [49].

SUBTASK 76-11-05-420-002-F00

- (3) Prepare the TLA resolver [32] for installation as follows:

- (a) If it is necessary, install these parts on the resolver:
  - 1) Install the scraper [54].
  - 2) Install seal nut [55].
    - a) Tighten the seal nut with the seal nut wrench to 0 in-lb (0 N·m) to 40 in-lb (4.5 N·m) more than the run-on torque.
 

NOTE: The seal nut wrench is part of auto throttle servo assembly tool set, SPL-2414.
    - b) Align the slot in the seal nut with the hole in the resolver for the cotter pin.
  - 3) Install the cotter pin [56].
- (b) Install the bearing [47].
- (c) Put the plate [46] in its position.
- (d) Install the three washers [48] and the three screws [43].

SUBTASK 76-11-05-420-003-F00

- (4) Install the TLA resolver [32] as follows:

- (a) Apply a layer of grease, D00013 to the inner side surface of the bearing [47].
- (b) Install the TLA resolver [32] on the autothrottle shaft [49] and the spacer [42].
- (c) Apply a layer of grease, D00013 to the inboard and inside surface of the spacer [45].
- (d) Install the spacer [45] on to the autothrottle shaft.
- (e) Put the nut [44] and the nut wrench onto the slotted shaft.
 

NOTE: The nut wrench is part of the auto throttle servo assembly tool set, SPL-2414.
- (f) Use the shaft wrench to hold the slotted shaft when you tighten the nut [44] onto the autothrottle shaft.

NOTE: The shaft wrench is part of the auto throttle servo assembly tool set, SPL-2414.

- 1) Tighten the nut [44] to 200 in-lb (22.6 N·m) – 220 in-lb (24.9 N·m) more than the run-on torque.

SUBTASK 76-11-05-420-008-F00

- (5) Install the resolver and brake assembly as follows:

- (a) Carefully position the bearing [53] in the autothrottle frame housing.
- (b) Make sure that you support the autothrottle shaft [49] end of the assembly in its normal position.

SUBTASK 76-11-05-420-004-F00

- (6) Install the support bracket [31] to the autothrottle frame housing as follows:

- (a) Put the support bracket [31] in its position on the autothrottle frame housing.
  - 1) Make sure that the alignment pin correctly engages the support bracket [31].

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- (b) Install the nut [25], the two washers [24], and the bolt [23].
- (c) Install the two washers [21] and the two bolts [22].

SUBTASK 76-11-05-420-005-F00

- (7) Connect the TLA resolver [32] to the support bracket [31] as follows:
  - (a) Align the TLA resolver [32] with the support bracket [31].
  - (b) Install the washer [30] and the bolt [29].
  - (c) Install the two washers [27] and the two bolts [26].

SUBTASK 76-11-05-420-009-F00

- (8) Install the cable guard [51] as follows:
  - (a) Put the cable guard [51] on the support bracket [31].
  - (b) Install the bolt [49] and the washer [50].

SUBTASK 76-11-05-420-010-F00

- (9) Attach the applicable control rod [6] as follows:
  - (a) Put the control rod [6] to the brake assembly [10].
  - (b) Install the bolt [9], the washer [8], and the nut [7].

SUBTASK 76-11-05-420-011-F00

- (10) Attach the applicable thrust lever connecting rod end [5] as follows:
  - (a) Put the thrust lever connecting rod end [5] to the brake assembly [10].
  - (b) Install the bolt [4] with its head on the inboard side of the thrust lever connecting rod end [5].
  - (c) Install the washer [3] and the nut [2].
  - (d) Install the cotter pin [1].

SUBTASK 76-11-05-020-011-F00

- (11) Connect the applicable wire harness electrical connectors [11] as follows:
  - (a) For engine 1 resolver, connect electrical connector [11] (D11158) and the electrical connector [11] (D11160).
  - (b) For engine 2 resolver, connect electrical connector [11] (D11162) and the electrical connector [11] (D11164).

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 76-11-05-420-006-F00

- (1) Do this task: Autothrottle Servo Motor and Gearbox Installation, TASK 22-31-91-400-801.

SUBTASK 76-11-05-860-008-F00

- (2) Remove the safety tag and close this circuit breaker:

### F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 76-11-05-860-020-F00

- (3) Remove the safety tags and close these circuit breakers:

### CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00721	AUTOTHROTTLE DC 1

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<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE
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SUBTASK 76-11-05-860-002-F00

- (4) Remove the DO-NOT-OPERATE tags from the thrust levers.

SUBTASK 76-11-05-700-001-F00

- (5) Do this task: Thrust Lever Angle Resolver Adjustment, TASK 76-11-05-820-801-F00.

SUBTASK 76-11-05-410-001-F00

- (6) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
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112A	Forward Access Door
------	---------------------

**J. Thrust Lever Angle Resolver and Autothrottle Brake Assembly Test**

SUBTASK 76-11-05-700-004-F00

- (1) If you replaced the autothrottle brake assembly, do the test for the autothrottle brake assembly (TASK 76-11-05-820-802-F00).

———— END OF TASK ————

EFFECTIVITY

AKS ALL

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**THRUST LEVER ANGLE RESOLVER AND AUTOThROTTLE BRAKE ASSEMBLY - ADJUSTMENT/TEST**

**1. General**

- A. This procedure has two tasks:
  - (1) Thrust Lever Angle Resolver Adjustment
  - (2) Autothrottle Brake Assembly Test.

**TASK 76-11-05-820-801-F00**

**2. Thrust Lever Angle Resolver Adjustment**

(Figure 501 and Figure 502)

**A. General**

- (1) This task provides the instructions on how to adjust the thrust lever angle (TLA) resolver.
- (2) Thrust lever angle resolver is referred to as the resolver.
- (3) The adjustment procedure is the same for each resolver.

**B. References**

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
31-51-00-730-802	Landing Warning System Test (P/B 501)

**C. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Access Panels**

Number	Name/Location
112A	Forward Access Door

**E. Prepare for the Adjustment**

SUBTASK 76-11-05-700-006-F00

- (1) Do this task: Landing Warning System Test, TASK 31-51-00-730-802.

SUBTASK 76-11-05-910-001-F00

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 76-11-05-860-011-F00

- (3) Make sure that these circuit breakers are closed:

**CAPT Electrical System Panel, P18-2**

Row	Col	Number	Name
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
A	6	C01017	FMCS CMPTR 1
D	2	C01372	DISPLAY CTR UPR
D	5	C01359	DISPLAY DEU 1 PRI

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**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	9	C01362	DISPLAY DEU 2 HOLDUP
D	10	C01361	DISPLAY DEU 1 HOLDUP
D	11	C01360	DISPLAY DEU 2 PRI

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	13	C01179	INDICATOR MASTER DIM SECT 7

SUBTASK 76-11-05-860-016-F00

**WARNING:** MAKE SURE THAT ALL PERSONNEL STAY 15 FT (5 M) AWAY FROM THE WEATHER RADAR ANTENNA WHEN THE SYSTEM IS IN OPERATION. IF THE RADOME IS OPEN, THE ANTENNA CAN HIT OR CATCH PERSONNEL WHEN IT MOVES. THE ANTENNA TRANSMITS MICROWAVE ENERGY. THESE CONDITIONS CAN CAUSE INJURIES TO PERSONNEL.

- (4) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 76-11-05-480-001-F00

- (5) Make sure that the Engine START LEVERS are in the CUTOFF position.

SUBTASK 76-11-05-860-012-F00

- (6) Make sure that the ENGINE START switches are in the off position and attach a DO-NOT-OPERATE tag.

SUBTASK 76-11-05-860-014-F00

- (7) Make sure that the engine thrust levers are in the IDLE position.

SUBTASK 76-11-05-860-015-F00

- (8) Make sure that the thrust reversers are in the retracted (stowed) position.

SUBTASK 76-11-05-010-003-F00

- (9) Open this access panel:

**Number      Name/Location**

112A      Forward Access Door

SUBTASK 76-11-05-700-002-F00

- (10) Set up the FMCS CDU for the applicable Engine 1 or Engine 2 resolver adjustment as follows:

- (a) Get access to the FMCS CDU in the flight compartment.
- (b) If the FMCS CDU is not active from other engine tests, do these steps:
  - 1) Press the INIT REF key to show the PERF INIT screen on the FMCS CDU.
  - 2) Push these line select keys (LSK) on the FMCS CDU:

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a) INDEX

b) MAINT

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

c) ENGINE

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

d) ENGINE X for the applicable resolver.

NOTE: This LSK causes the ENGINE X BITE TEST MAIN MENU to show.

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

(c) If the FMCS CDU is active from other EEC tests, do these steps:

- 1) Push the INDEX LSK several times, until the MAINT BITE INDEX shows.
- 2) Push the ENGINE LSK.

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

- 3) Push the ENGINE X LSK for the applicable resolver.

NOTE: This causes the ENGINE X BITE TEST MAIN MENU to show. Also, the ENGINE X1 LSK automatically applies power to the EEC and causes the EEC to initialize. The CDU will show INITIALIZING EEC X, and EEC SORTING FAULT HISTORY DATA for a short time, just before the ENGINE X BITE TEST MAIN MENU shows.

SUBTASK 76-11-05-710-001-F00

(11) Do these steps to find if the applicable Engine X resolver is in limits:

(a) Make sure that the applicable engine thrust lever against the IDLE stop.

(b) Push the INPUT MONITORING LSK.

NOTE: This will cause the CAUTION SCREEN of INPUT MONITORING to show.

(c) Push the CONTINUE LSK.

(d) Push the CONTROL LOOPS LSK.

NOTE: This will cause screen 1 of the CONTROL LOOPS to show.

(e) Push the NEXT PAGE key two times.

NOTE: This will cause screen 3 of the CONTROL LOOPS to show.

(f) Push the TRA line select key (LSK) on screen 3 of the CONTROL LOOPS.

NOTE: This causes the Thrust Lever Resolver Angle (TRA) for channels A and B, of Engine X, to show.

NOTE: The data for the channel that is in control will show first.

1) The TRA POSITION CH A and TRA POSITION CH B indications on the CDU must read  $36.0 \pm 0.8$  degrees.

2) The difference between the TRA POSITION CH A and the TRA POSITION CH B should be less than 0.8 degree.

(g) If the indications are not in the specified range, do the resolver adjustment procedure below for the applicable resolver; and continue the procedure at the step that follows.

EFFECTIVITY  
AKS ALL

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**AIRCRAFT MAINTENANCE MANUAL**

**CAUTION:** DO NOT LET THE SEL POSITION DISPLAY SHOW GREATER THAN 80.0 DEGREES, AS YOU DO THIS STEP. IF THE DISPLAY SHOWS MORE THAN 80.0 DEGREES, YOU MUST MOVE THE THRUST LEVER TO THE IDLE STOP AND START AGAIN. IF YOU DO NOT OBEY THESE INSTRUCTIONS, THE RESULTS OF THE TEST ARE NOT ACCURATE.

- (h) If the POSITION CH A and POSITION CH B indications are in the specified range, do these steps:
  - 1) Slowly move the thrust lever forward until the TRA POSITION reads:
    - a) The TRA POSITION CH A and TRA POSITION CH B indications on the CDU read  $78.0 \pm 2.0$  degrees.
    - b) Stop for a minimum of 2 seconds.
  - (i) Make sure that the thrust lever does not move from this position.
  - (j) Record the value that shows in the POSITION CH A line to the nearest tenth of a degree.

SUBTASK 76-11-05-720-001-F00

- (12) Do these steps to set the alignment with the opposite thrust lever:
  - (a) Push the INDEX LSK four times, to get access to the MAINT BITE INDEX screen.
  - (b) Push the ENGINE LSK.
 

NOTE: This causes the ENGINE/EXCEED BITE INDEX screen to show.
  - (c) Push the opposite ENGINE X LSK.
 

NOTE: This causes the ENGINE X BITE TEST MAIN MENU to show. Also, the ENGINE X LSK automatically applies power to the EEC and causes the EEC to initialize. The CDU will show INITIALIZING EEC X, and EEC SORTING FAULT HISTORY DATA for a short time, just before the ENGINE X BITE TEST MAIN MENU shows.
  - (d) Push the INPUT MONITORING LSK.
 

NOTE: This will cause the INPUT MONITORING menu to show.
  - (e) Push the CONTROL LOOPS LSK.
 

NOTE: This will cause screen 1 of the CONTROL LOOPS to show.
  - (f) Push the NEXT PAGE key two times, to get access to screen 3 of the CONTROL LOOPS.
  - (g) Push the TRA line select key (LSK) on screen 3 of the CONTROL LOOPS.
 

NOTE: This causes the thrust lever resolver angle (TRA) for channels A and B, of Engine X, to show.

NOTE: The data for the channel that is in control will show first.

    - 1) The TRA POSITION CH A and TRA POSITION CH B indications on the CDU must read  $36.0 \pm 0.8$  degree.
    - 2) If the indications are not in the specified range, do the applicable resolver adjustment below and continue the procedure at the step that follows.

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**CAUTION:** MAKE SURE THAT YOU DO NOT MOVE THE INITIAL THRUST LEVER AS YOU DO THIS STEP. DO NOT MOVE THE OPPOSITE THRUST LEVER TO A POSITION THAT IS GREATER THAN THE INITIAL THRUST LEVER. IF YOU DO, YOU MUST MOVE THE OPPOSITE THRUST LEVER TO THE IDLE STOP AND MOVE IT FORWARD AGAIN. IF YOU DO NOT OBEY THESE INSTRUCTIONS, THE RESULTS OF THE TEST ARE NOT ACCURATE.

- (h) Slowly move the opposite thrust lever forward until the knob aligns with the knob on the initial thrust lever,  $\pm 1/16$  of a knob width.
  - (i) Record the value that shows in the POSITION CH A line to the nearest tenth of a degree.
  - (j) Calculate the difference between opposite POSITION CH A and initial POSITION CH A.
- NOTE:** Opposite Engine POSITION CH A — Engine under test POSITION CH A = difference.
- (k) Make sure that the difference is  $0.0 \pm 1.0$  degree.
    - 1) If the indications are not in the specified range, do the resolver adjustment below for the initial or opposite thrust lever.
    - 2) Use the position values which you recorded at IDLE to find which resolver to adjust.
      - a) Choose the resolver which you can adjust to be in the limits at IDLE and at the 78 degree position.
    - 3) Continue the procedure at the step that follows.
  - (l) If the difference is in the specified range, the test is completed.
  - (m) Move the two thrust levers to the idle stop.
  - (n) If you wish to do other tests, push the INDEX LSK several times, until the correct menu shows.
  - (o) To end the test, push the INIT REF key.

**NOTE:** This causes the test to stop and automatically removes electrical power from the EEC.

#### F. Thrust Lever Angle Resolver Adjustment

SUBTASK 76-11-05-820-001-F00

- (1) Adjust the thrust control rod for the applicable resolver until you get the correct value as follows:
  - (a) Move the applicable thrust lever against the IDLE stop.
  - (b) Disconnect the thrust lever from the autothrottle brake assembly
    - 1) Remove the cotter pin [1], the nut [2], and the washer [3].
      - a) Discard the cotter pin [1].
    - 2) Remove the bolt [4].
  - (c) Move the rod end [5] from the autothrottle brake assembly clevis.
  - (d) Move the autothrottle brake assembly clevis to get the correct TRA value on the FMCS CDU.
  - (e) Make sure they are in these limits:
    - 1) POSITION CH A indication reads  $36.0 \pm 0.8$  degree.
    - 2) POSITION CH B indication reads  $36.0 \pm 0.8$  degree.
    - 3) The difference between the TRA POSITION CH A and the TRA POSITION CH B should be less than 0.8 degree.



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- (f) Loosen the jamnut [6] and turn the rod end to align it with the autothrottle brake assembly clevis.
- NOTE: Use the bolt [4] to make sure that the parts are aligned.
- 1) Insert the bolt [4] with the bolt head on the inboard side of the autothrottle brake assembly.
  - 2) Install the washer [3], the nut [2], and a new cotter pin [1].
  - 3) Tighten the jamnut [6] on the control rod to 95 in-lb (10.7 N·m) – 160 in-lb (18.1 N·m).
- (g) Make sure that the POSITION CH A and POSITION CH B indications on the CDU still read  $36.0 \pm 0.8$  degrees, and the difference is less than 0.8 degree.
- 1) If the values are not in the specified range, adjust the thrust control rod until you get the correct values.

SUBTASK 76-11-05-820-003-F00

- (2) Do a check of the adjustment as follows:
- (a) Carefully move the thrust lever to the full forward thrust position.
    - 1) Stop for a minimum of 2 seconds.
    - 2) Make sure that the POSITION CH A and POSITION CH B indications on the FMCS CDU read  $84.0 \pm 1.8$  degrees.
    - 3) If the values are not in the specified range, adjust the thrust control rod again until you get the correct value.

**CAUTION:** MAKE SURE THAT YOU DO NOT MOVE THE INITIAL THRUST LEVER AS YOU DO THIS STEP. DO NOT MOVE THE OPPOSITE THRUST LEVER TO A POSITION THAT IS GREATER THAN THE INITIAL THRUST LEVER. IF YOU DO, YOU MUST MOVE THE OPPOSITE THRUST LEVER TO THE IDLE STOP AND MOVE IT FORWARD AGAIN. IF YOU DO NOT OBEY THESE INSTRUCTIONS, THE RESULTS OF THE TEST ARE NOT ACCURATE.

- (b) Do a check the alignment between the thrust levers.
  - 1) Move the thrust lever that you adjusted to IDLE and stop for a minimum of 2 seconds.
  - 2) Move the thrust lever forward to align with the knob on the other thrust lever, which should be still be set at 78 degrees.
  - 3) Make sure that the knob alignment difference is not more than  $\pm 1/16$  with the other knob.
  - 4) Make sure that the difference in POSITION CH A values is not more than  $0.0 \pm 1.0$  degree.
  - 5) If the difference is not in the specified range, do the thrust lever adjustment again until you get the correct value.
  - 6) If the difference is in the specified range, the check is completed.
- (c) Move the thrust levers to the IDLE stop.
- (d) If you wish to do other tests, push the INDEX LSK several times, until the correct menu shows.
- (e) To end the test, push the INIT REF key.

NOTE: This causes the test to stop and automatically removes electrical power from the EEC.

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## G. Put the Airplane Back to Its Usual Condition

SUBTASK 76-11-05-000-001-F00

- (1) Remove the DO-NOT-OPERATE tag from the start switches.

SUBTASK 76-11-05-010-004-F00

- (2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
---------------	----------------------

112A	Forward Access Door
------	---------------------

SUBTASK 76-11-05-860-009-F00

- (3) Remove the safety tag and close this circuit breaker:

## F/O Electrical System Panel, P6-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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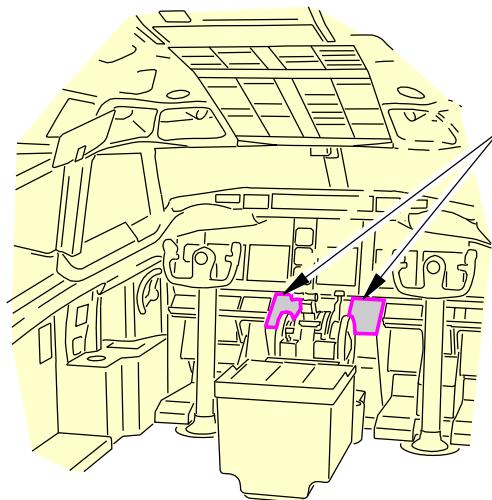
D	13	C00120	WEATHER RADAR RT
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———— END OF TASK ————

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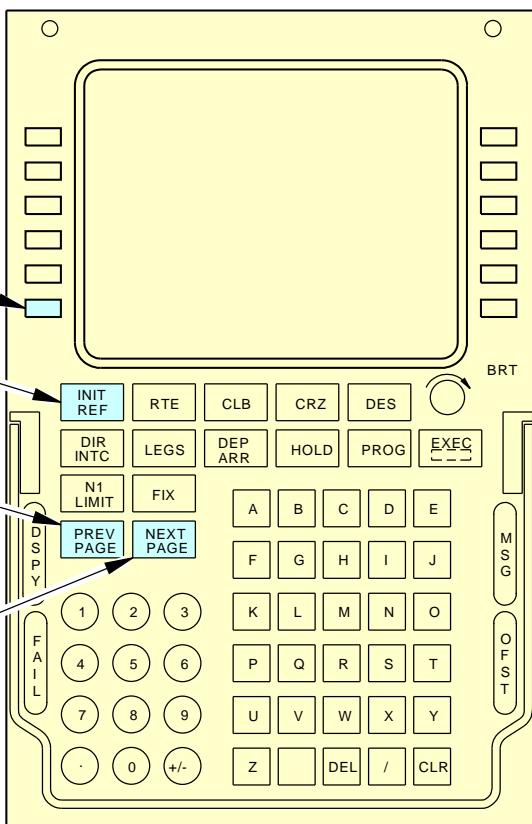
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FLIGHT COMPARTMENT

LINE SELECT KEY (LSK)  
(12 LOCATIONS)INIT REF  
FUNCTION KEYPREVIOUS  
PAGE KEY

NEXT PAGE KEY



FMCS CONTROL DISPLAY UNIT (CDU)

A

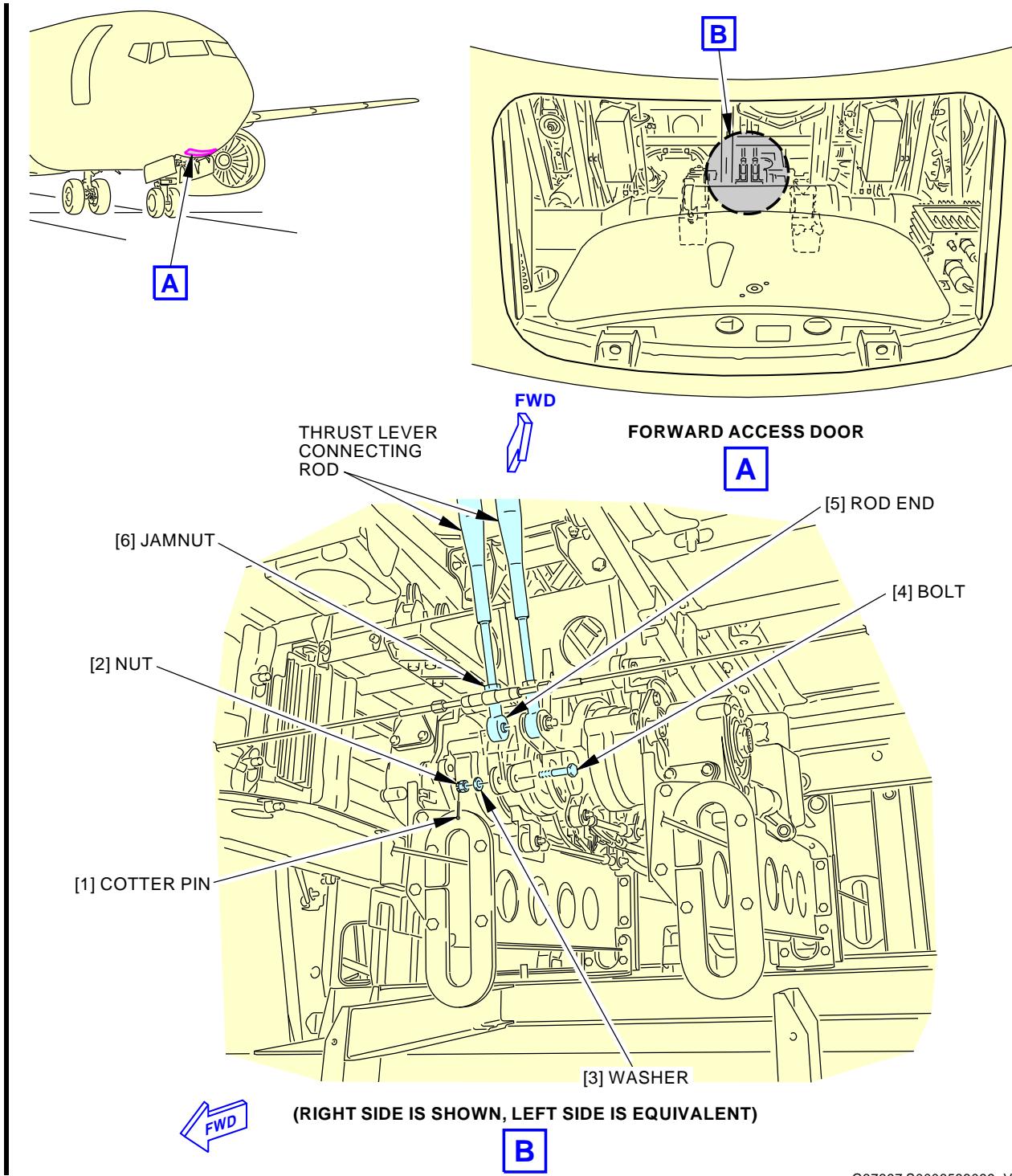
K30366 S0006583098\_V2

**FMCS Control Display Unit Adjustment**  
**Figure 501/76-11-05-990-804-F00**

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**Thrust Lever Angle (TLA) Resolver Adjustment**  
**Figure 502/76-11-05-990-805-F00**

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**TASK 76-11-05-820-802-F00****3. Autothrottle Brake Assembly Test****A. General**

- (1) This task provides the instructions on how to test the autothrottle brake assembly test for the loads that are used to prevent the free movement of the thrust levers.

**B. Tools/Equipment**

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

<b>Reference</b>	<b>Description</b>
COM-1557	Gauge - Force Part #: DG-200 Supplier: 92456 Part #: FDIX 100 Supplier: 0BFD9 Part #: FDIX 50 Supplier: 0BFD9 Part #: LG-050 Supplier: 92456 Part #: LG-100 Supplier: 92456 Opt Part #: DPP-500G Supplier: 92456 Opt Part #: DPPH-150 Supplier: 92456 Opt Part #: DPPH-200 Supplier: 92456 Opt Part #: DPPH-50 Supplier: 92456 Opt Part #: FDI 100 Supplier: 0BFD9 Opt Part #: FDI 50 Supplier: 0BFD9 Opt Part #: FDV 100 Supplier: 0BFD9 Opt Part #: FDV 50 Supplier: 0BFD9

**C. Location Zones**

<b>Zone</b>	<b>Area</b>
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Prepare for the Test****SUBTASK 76-11-05-860-017-F00**

- (1) Make sure that the engine thrust levers are in the IDLE position.

**SUBTASK 76-11-05-860-018-F00**

- (2) Make sure that the reverse thrust levers are in the retracted (stowed) position.

**SUBTASK 76-11-05-860-007-F00**

**WARNING:** MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKERS FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (3) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-1**

<b>Row</b>	<b>Col</b>	<b>Number</b>	<b>Name</b>
D	13	C00120	WEATHER RADAR RT

**E. Autothrottle Brake Assembly Test****SUBTASK 76-11-05-820-004-F00**

- (1) Measure the load that is necessary to operate the forward thrust levers as follows:

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- (a) Put the force gauge, COM-1557 at the aft side of the forward thrust lever.  
NOTE: The spring scale must touch the knob of the forward thrust lever at the center.
- (b) Hold the scale at 90 degrees to the line that connects the knob and the pivot axis of the lever.
- (c) Use the scale to move the forward thrust lever through the full forward travel.
  - 1) Measure the force that is necessary to move the thrust lever.
  - 2) Record the force value.
- (d) Make sure that the load is 2.0 lb (0.9 kg) to 6.0 lb (2.7 kg).
- (e) Remove the force gauge, COM-1557 from the thrust lever.
- (f) Move the spring scale to the forward side of the forward thrust lever you just tested.  
NOTE: The spring scale must touch the knob of the forward thrust lever at the center.
- (g) Hold the scale at 90 degrees to the line that connects the knob and the pivot axis of the lever.
- (h) Do this check of the thrust lever free play:
  - 1) Apply a force of 1.0 lb (0.45 kg) to 1.5 lb (0.68 kg) in the decreasing thrust direction.
  - 2) Make sure the lever moves no more than 0.10 in. (2.5 mm) at the knob centerline.
- (i) Remove the spring scale.
- (j) Move the lever to the idle position.

**F. Put the Airplane Back to Its Usual Condition**

SUBTASK 76-11-05-860-010-F00

- (1) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

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**END OF TASK**


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**REVERSE THRUST INTERLOCK SOLENOID - REMOVAL/INSTALLATION**

**1. General**

- A. This procedure has two tasks:
  - (1) Reverse Thrust Interlock Solenoid Removal
  - (2) Reverse Thrust Interlock Solenoid Installation.

**TASK 76-11-06-000-801-F00**

**2. Reverse Thrust Interlock Solenoid Removal**

(Figure 401 and Figure 402)

**A. General**

- (1) This task provides the instructions on how to remove the reverse thrust interlock solenoid from the autothrottle assembly.
- (2) There are two interlock solenoids installed in the autothrottle and they are not interchangeable.

**B. References**

Reference	Title
20-10-91-000-801	Control Cables Removal (P/B 401)
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
78-31-00-040-802-F00	Thrust Reverser Deactivation For Ground Maintenance (P/B 201)

**C. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Access Panels**

Number	Name/Location
112A	Forward Access Door
114AW	Forward Nose Wheel Well Panel

**E. Prepare for the Removal**

SUBTASK 76-11-06-860-001-F00

**WARNING:** MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE TRAILING EDGE FLAPS, AND THE LEADING EDGE FLAPS AND SLATS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

- (1) Operate the stabilizer trim system to provide cable clearance for access of the autothrottle assembly.
  - (a) Set the stabilizer trim lever at 4.2 degrees or the NOSE UP stop.

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SUBTASK 76-11-06-040-001-F00

**WARNING:** DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

- (2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 76-11-06-040-002-F00

- (3) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK

SUBTASK 76-11-06-040-003-F00

- (4) Make sure the ENGINE START switches are set to off and install DO-NOT-OPERATE tags.

SUBTASK 76-11-06-010-007-F00

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

- (5) Do the deactivation procedure for the thrust reverser for ground maintenance (TASK 78-31-00-040-802-F00).

SUBTASK 76-11-06-010-001-F00

- (6) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
114AW	Forward Nose Wheel Well Panel

SUBTASK 76-11-06-010-002-F00

- (7) Remove the two access panels at the top of the wheel well, to get access to the autothrottle and flap control cables.

SUBTASK 76-11-06-410-001-F00

- (8) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

**F. Reverse Thrust Interlock Solenoid Removal**

SUBTASK 76-11-06-020-001-F00

- (1) Go into the lower forward access area under the flight compartment.

SUBTASK 76-11-06-020-009-F00

- (2) Disconnect the two thrust lever connecting rods [5] from the autothrottle clutch pack as follows:
  - (a) Remove and discard the cotter pins [4].
  - (b) Remove the nuts [3], the washers [2], and the bolts [1].

SUBTASK 76-11-06-020-002-F00

- (3) Go into the nose wheel well, to get access the flap control cables.

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SUBTASK 76-11-06-020-010-F00

- (4) Disconnect the WFA and WFB cables (TASK 20-10-91-000-801).

SUBTASK 76-11-06-020-003-F00

- (5) Disconnect each of the aft two cable guards from the nose wheel well housing as follows:
- Remove the four nuts [6] and the washers [7].
  - Remove the four bolts [8].

SUBTASK 76-11-06-020-004-F00

- (6) Loosen the aft autothrottle attachment bolt [9] and the bolt [10].

NOTE: Do not remove the bolts. You want the autothrottle to pivot from these bolts.

SUBTASK 76-11-06-010-003-F00

- (7) Lower the autothrottle assembly as follows:

NOTE: The forward part of the autothrottle will pivot down from the aft bolt attachments.

- (a) Put wood blocks on the blankets of the nose wheel well.

NOTE: Make sure that you have sufficient wood blocks to keep the autothrottle off the control cables.

- (b) Remove the right bolt [11] and the right washer [12].

- (c) Hold the autothrottle assembly in it position, while you remove the left bolt [13] and the left washer [14].

- (d) Carefully lower the autothrottle assembly until cable guards rest on the wood blocks.

SUBTASK 76-11-06-020-005-F00

- (8) Disconnect the applicable wire bundles as follows (Figure 402, View B) :

- (a) For the right interlock solenoid, do these steps:

1) Disconnect the connector V156.

2) Disconnect the three clamps.

3) Remove the wire bundle from the protective cover.

4) Add protective covers on the electrical connectors and receptacles.

- (b) For the left interlock solenoid, do these steps:

1) Disconnect the connector V155.

2) Disconnect the three clamps.

3) Remove the wire bundle from the protective cover.

4) Add protective covers on the electrical connectors and receptacles.

SUBTASK 76-11-06-020-006-F00

- (9) Remove the applicable rod assembly [20] from the interlock solenoid and latch assembly as follows (Figure 402, view C).

- (a) Remove the nut [21] and the washer [22].

- (b) Remove the bolt [26] and the washer [27].

- (c) Remove the rod assembly.

SUBTASK 76-11-06-020-007-F00

- (10) Remove the applicable interlock solenoid as follows:

- (a) Remove the two nuts [28] and the two washers [29].

- (b) Remove the right interlock solenoid [31] or the left interlock solenoid [32].

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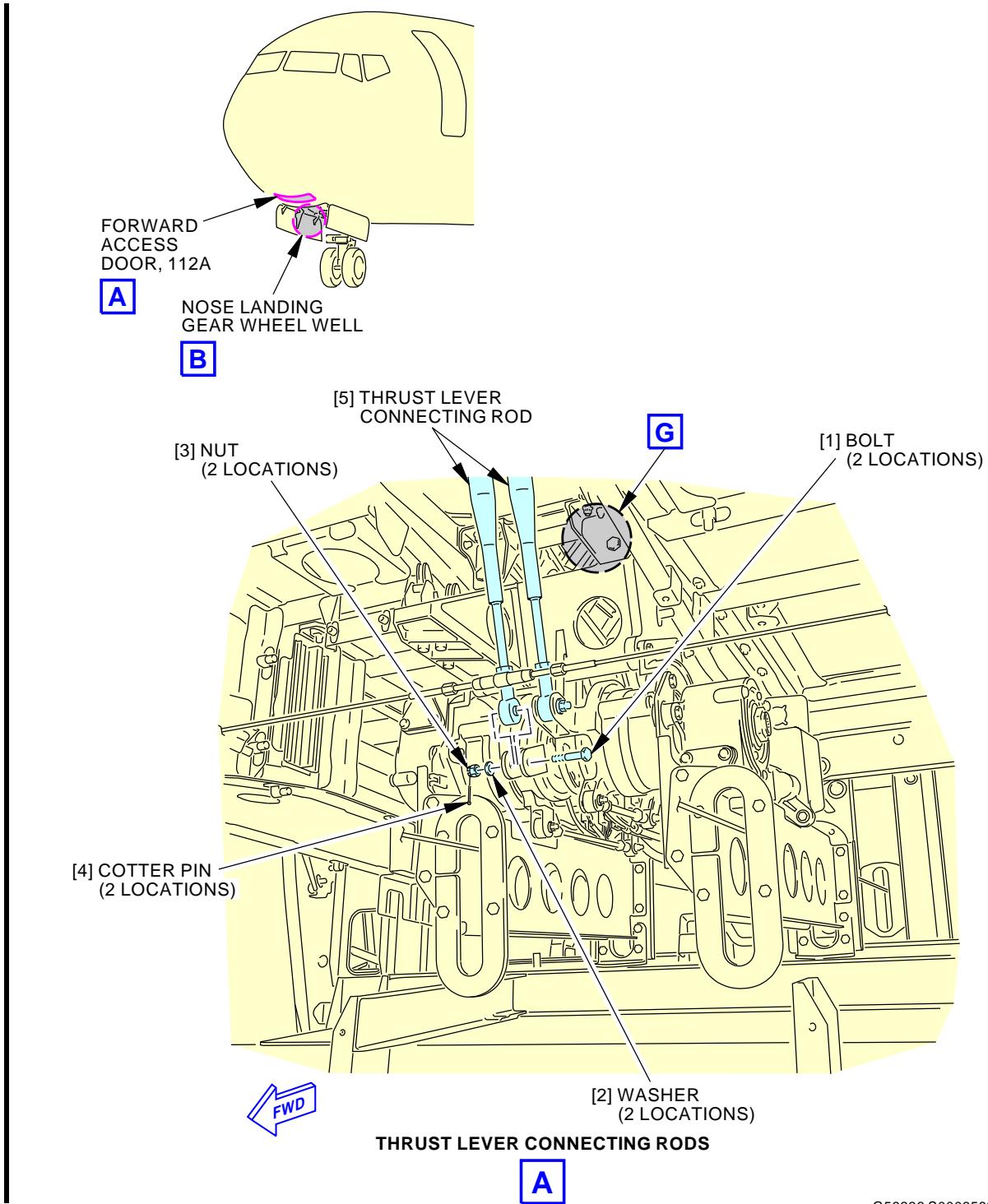
(c) Remove the spacer [30].

———— END OF TASK ————

———— EFFECTIVITY ————  
**AKS ALL**

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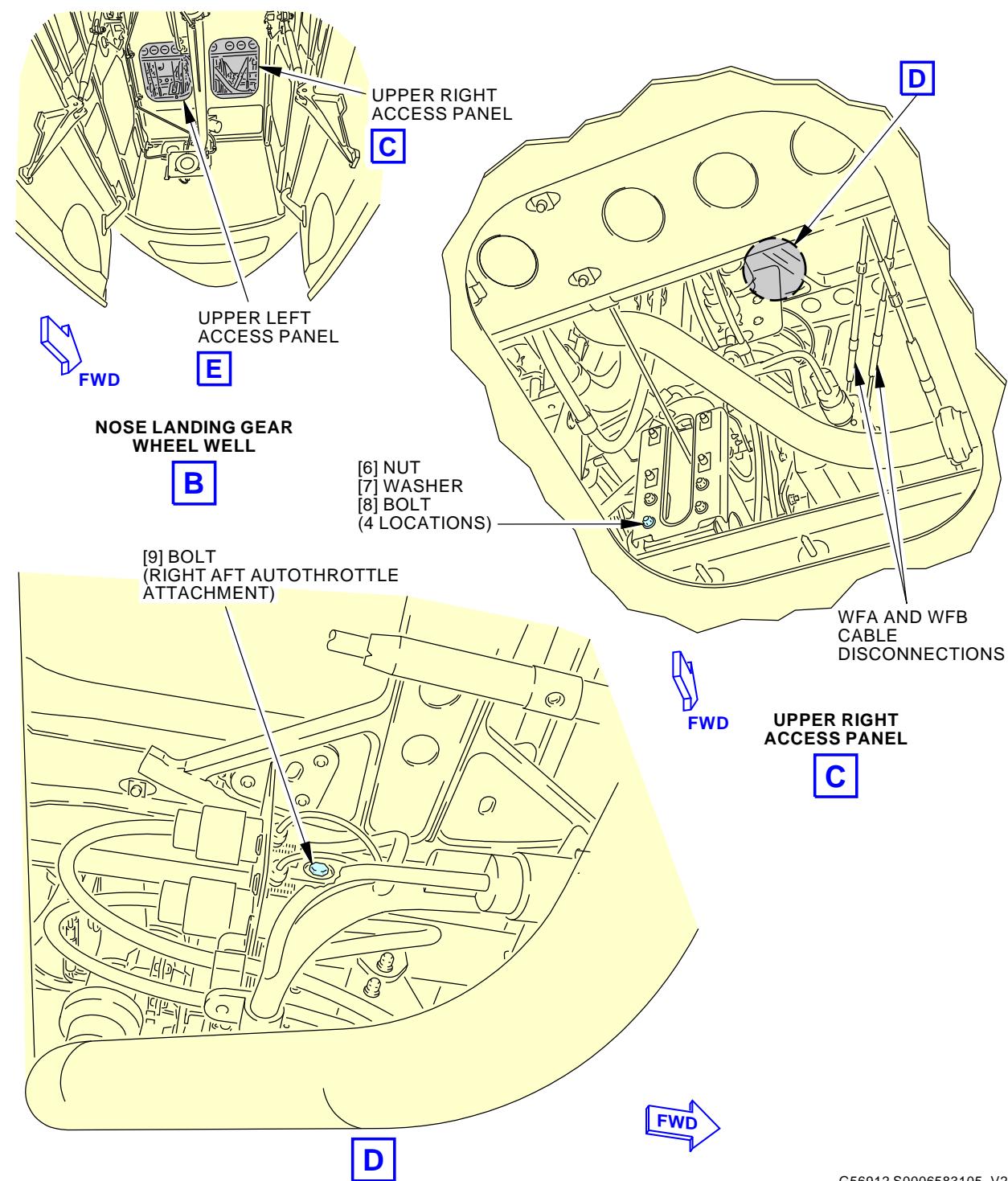


G56236 S0006583104\_V2

**Autothrottle Installation**  
**Figure 401/76-11-06-990-801-F00 (Sheet 1 of 4)**

EFFECTIVITY  
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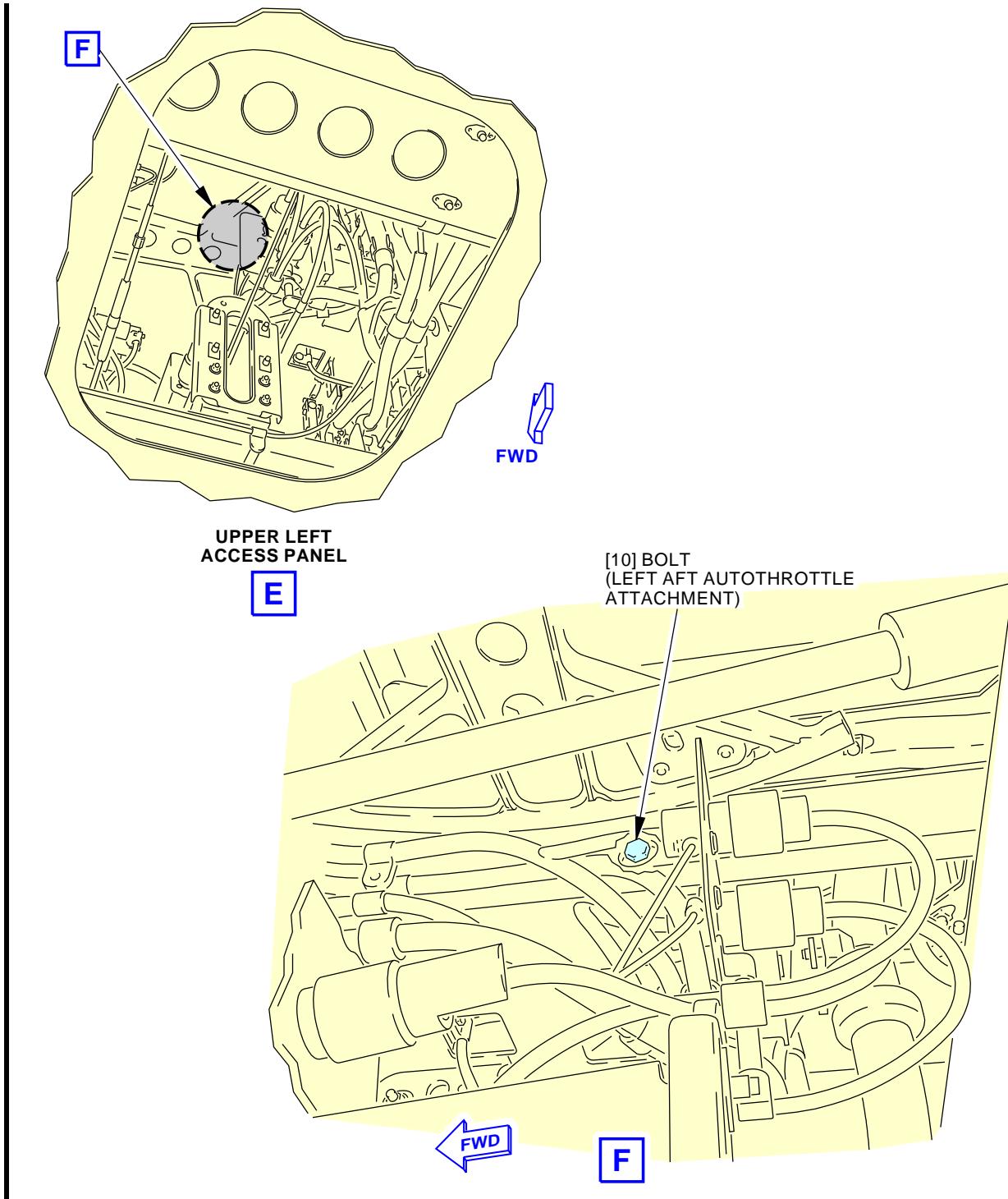
G56912 S0006583105\_V2

**Autothrottle Installation**  
Figure 401/76-11-06-990-801-F00 (Sheet 2 of 4)

EFFECTIVITY  
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G56911 S0006583106\_V2

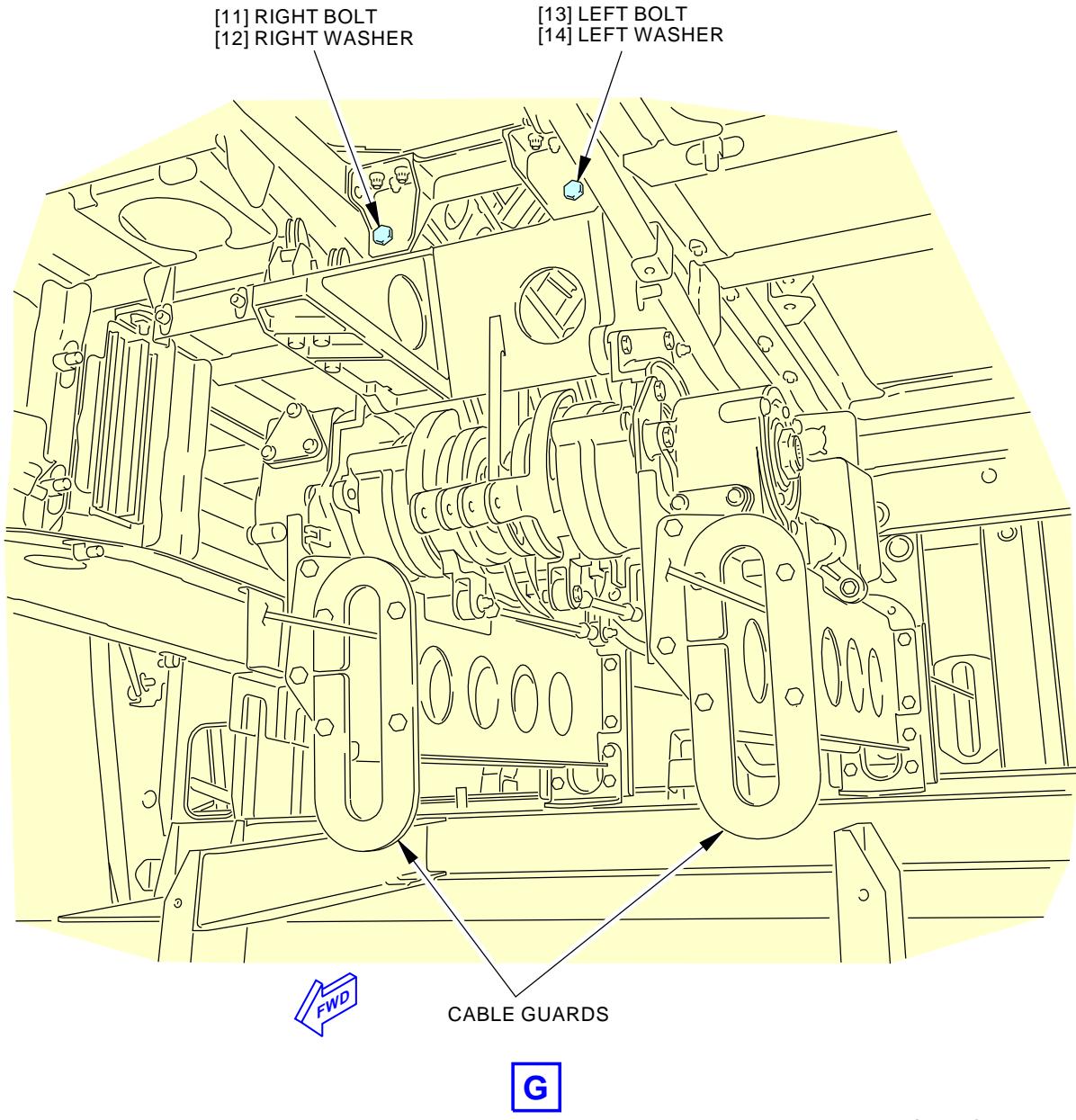
**Autothrottle Installation**  
Figure 401/76-11-06-990-801-F00 (Sheet 3 of 4)

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G57425 S0006583107\_V2

**Autothrottle Installation**  
**Figure 401/76-11-06-990-801-F00 (Sheet 4 of 4)**

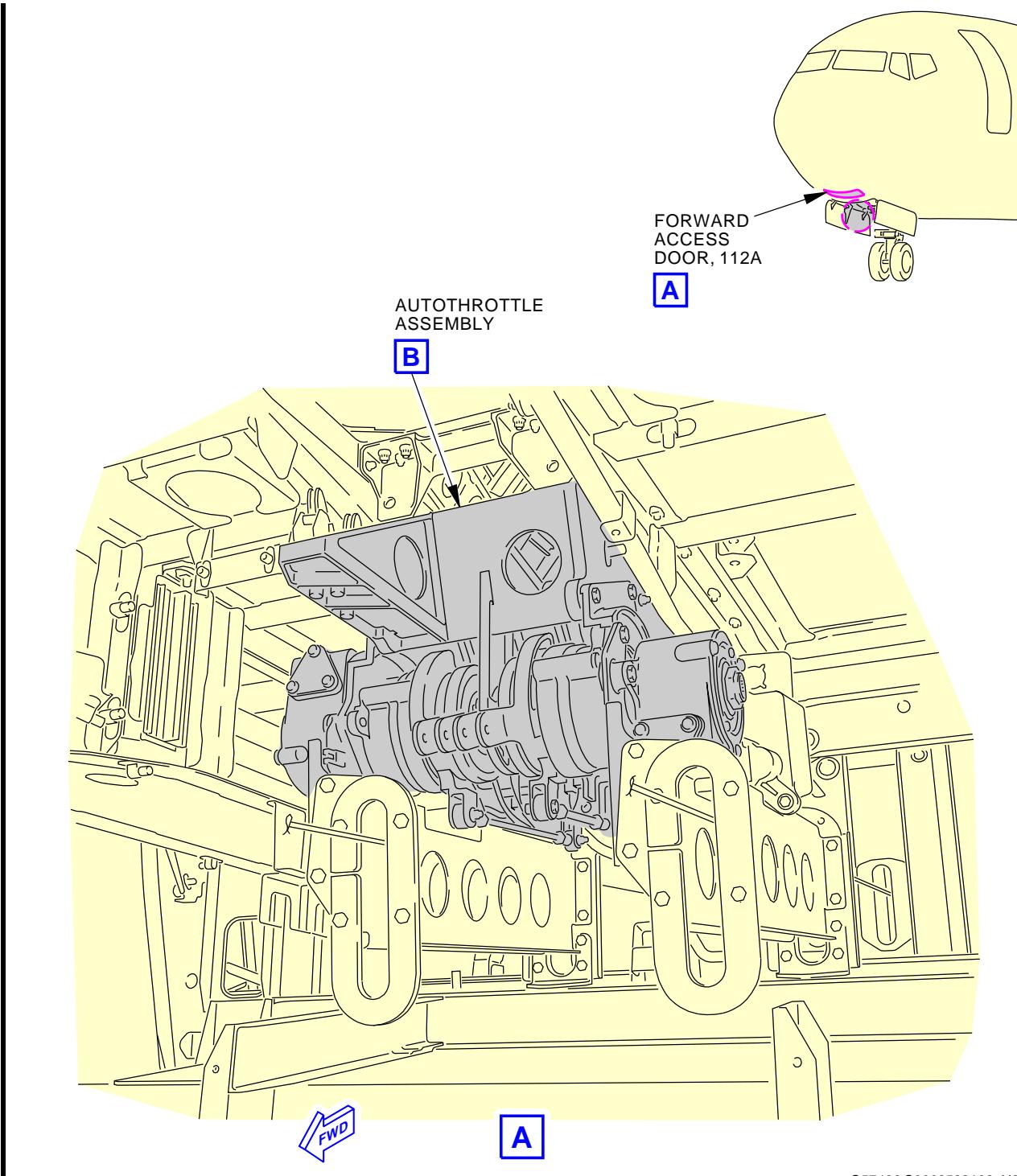
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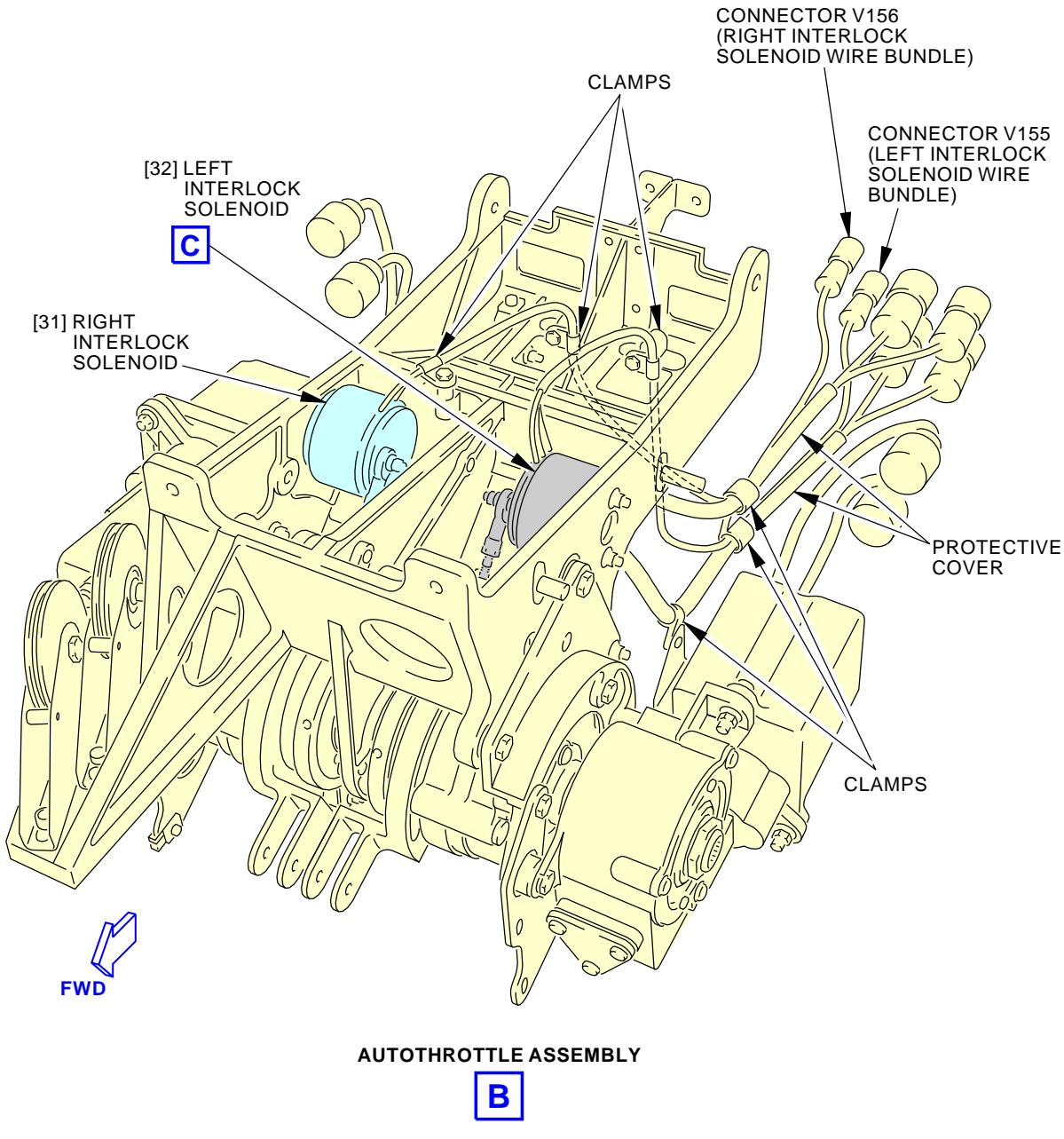
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G57436 S0006583108\_V2

Reverse Thrust Interlock Solenoid Installation  
Figure 402/76-11-06-990-802-F00 (Sheet 1 of 3)EFFECTIVITY  
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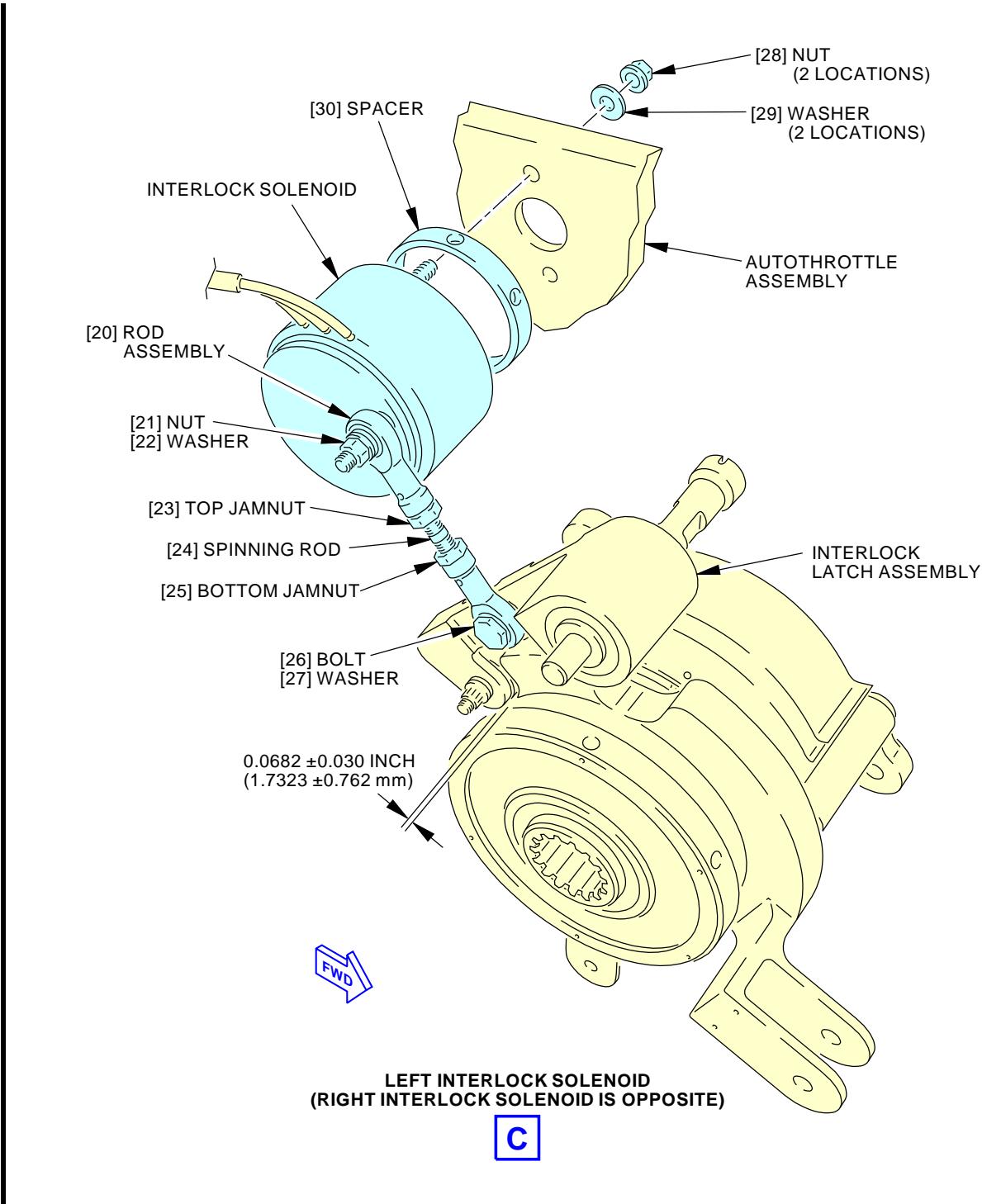
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AIRCRAFT MAINTENANCE MANUAL

G57452 S0006583109\_V3

Reverse Thrust Interlock Solenoid Installation  
Figure 402/76-11-06-990-802-F00 (Sheet 2 of 3)EFFECTIVITY  
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G57466 S0006583110\_V2

Reverse Thrust Interlock Solenoid Installation  
Figure 402/76-11-06-990-802-F00 (Sheet 3 of 3)EFFECTIVITY  
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**TASK 76-11-06-440-801-F00****3. Reverse Thrust Interlock Solenoid Installation**

(Figure 401 and Figure 402)

**A. General**

- (1) This task provides the instructions on how to install the interlock solenoid into the autothrottle assembly.
- (2) There are two interlock solenoids installed in the autothrottle and they are not interchangeable.

**B. References**

Reference	Title
20-10-91-400-801	Control Cables Installation (P/B 401)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
70-20-02-400-801-F00	Tightening Practices and Torque Values (P/B 201)
73-21-00-700-805-F00	T/R LEVER INTLK (Interlock) TEST (P/B 501)
76-11-05-820-801-F00	Thrust Lever Angle Resolver Adjustment (P/B 501)
78-31-00-440-803-F00	Thrust Reverser Activation After Ground Maintenance (P/B 201)

**C. Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
31	Solenoid	76-11-06-01-065	AKS ALL
32	Solenoid	76-11-06-01-065	AKS ALL

**D. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

**E. Access Panels**

Number	Name/Location
112A	Forward Access Door
114AW	Forward Nose Wheel Well Panel

**F. Reverse Thrust Interlock Solenoid Installation****SUBTASK 76-11-06-420-001-F00**

- (1) Install the applicable interlock solenoid [32] or the interlock solenoid [31] as follows (Figure 402, view C):
  - (a) Install the spacer [30].
  - (b) Put the applicable interlock solenoid [32] or the interlock solenoid [31] in its position as follows:
    - 1) Install the interlock solenoid [32] on the left side.
    - 2) Install the interlock solenoid [31] on the right side.
  - (c) Install the two nuts [28] and the two washers [29].
    - 1) Tighten the nuts to 20 in-lb (2.26 N·m) – 25 in-lb (2.82 N·m).



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SUBTASK 76-11-06-420-008-F00

- (2) Install the rod assembly [20] to the interlock solenoid [31] or the solenoid [32] and latch assembly:
  - (a) Put the rod assembly [20] on the interlock solenoid drive pin.
  - (b) Install the nut [21] and the washer [22].
    - 1) Tighten the nut to 20 in-lb (2.26 N·m) – 25 in-lb (2.82 N·m).
  - (c) Set the rod end in its position on the interlock latch assembly.
  - (d) Install the bolt [26] and the washer [27].

SUBTASK 76-11-06-420-002-F00

- (3) Connect the applicable wire bundles for the left interlock solenoid as follows:
  - (a) Make sure you route the bundle correctly.
  - (b) Connect the three clamps.
  - (c) Remove the protective covers from the electrical connectors and receptacles.
  - (d) Connect the connector V155.
  - (e) Put the wire bundle in the protective cover.

SUBTASK 76-11-06-420-009-F00

- (4) Connect the applicable wire bundles for the right interlock solenoid as follows:
  - (a) Make sure that you route the bundle correctly.
  - (b) Connect the four clamps.
  - (c) Remove the protective covers from the electrical connectors and receptacles.
  - (d) Connect the connector V156.
  - (e) Put the wire bundle in the protective cover.

SUBTASK 76-11-06-820-001-F00

- (5) Adjust the latch assembly as follows:
  - (a) Set the distance between the roller and the brake assembly:
    - 1) Loosen the top jamnut [23].
    - 2) Loosen the bottom jamnut [25].
    - 3) Turn the spinning rod [24] to set the distance between the roller and the brake assembly to  $0.0682 \pm 0.0300$  in. ( $1.7323 \pm 0.7620$  mm).
    - 4) Tighten the top jamnut [23] and the bottom jamnut [25].

NOTE: Make sure that the spinning rod does not turn when you tighten the top jamnut and the bottom jamnut.

SUBTASK 76-11-06-420-004-F00

- (6) Attach the forward autothrottle assembly to the floor frame as follows  
 (TASK 70-20-02-400-801-F00):
  - (a) Move the autothrottle assembly up into its location.
  - (b) Install the right bolt [11] and the right washer [12].
  - (c) Install the left bolt [13] and the left washer [14].
  - (d) Remove all of the wood blocks.

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SUBTASK 76-11-06-420-005-F00

- (7) Attach the aft autothrottle assembly to the floor frame as follows  
 (TASK 70-20-02-400-801-F00):
  - (a) Tighten the right bolt [9].
  - (b) Tighten the left bolt [10].

SUBTASK 76-11-06-020-008-F00

- (8) Connect the aft two cable guards to the nose wheel well housing as follow  
 (TASK 70-20-02-400-801-F00):
  - (a) Install the four bolts [8].
  - (b) Install the four nuts [6] and the washers [7].

SUBTASK 76-11-06-420-007-F00

- (9) Attach the flap control cables.
  - (a) Connect the WFA and WFB cables (TASK 20-10-91-400-801).

SUBTASK 76-11-06-420-006-F00

- (10) Connect the two thrust lever connecting rods [5] to the autothrottle clutch pack as follow:
  - (a) Set the applicable connecting rod to the autothrottle clutch pack.
  - (b) Install the nuts [3], the washers [2], and the bolts [1].
 

NOTE: Make sure you put the head of the bolt on the inboard side of the applicable clutch pack.
  - (c) Install new cotter pins [4].

#### G. Put the Airplane Back to its Usual Condition

SUBTASK 76-11-06-710-003-F00

- (1) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK

SUBTASK 76-11-06-710-005-F00

- (2) Do this task: Thrust Lever Angle Resolver Adjustment, TASK 76-11-05-820-801-F00.

SUBTASK 76-11-06-010-005-F00

- (3) Close this access panel:

**Number      Name/Location**

114AW	Forward Nose Wheel Well Panel
-------	-------------------------------

SUBTASK 76-11-06-010-006-F00

- (4) Install the two access panels at the top of the wheel well.

SUBTASK 76-11-06-410-004-F00

- (5) Close this access panel:

**Number      Name/Location**

112A	Forward Access Door
------	---------------------

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SUBTASK 76-11-06-440-004-F00

- (6) Remove the DO-NOT-OPERATE tag from the ENGINE START switches.

SUBTASK 76-11-06-410-005-F00

- (7) Do the activation procedure for the thrust reverser (TASK 78-31-00-440-803-F00).

SUBTASK 76-11-06-440-005-F00

- (8) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

**H. Reverse Thrust Interlock Solenoid Test**

SUBTASK 76-11-06-710-004-F00

- (1) Do this task: T/R LEVER INTLK (Interlock) TEST, TASK 73-21-00-700-805-F00.

———— END OF TASK ————

EFFECTIVITY

AKS ALL

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**AUTOThROTTLE SWITCHPACK ASSEMBLY AND SWITCHES - REMOVAL/INSTALLATION**

**1. General**

- A. This procedure has these tasks:
  - (1) Autothrottle Switchpack Assembly Removal

**AKS ALL; AUTOThROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**

- (2) Autothrottle Switchpack Switch Removal
- (3) Autothrottle Switchpack Switch Installation

**AKS ALL**

- (4) Autothrottle Switchpack Assembly Installation.

**TASK 76-11-07-020-802-F00**

**2. Autothrottle Switchpack Assembly Removal**

(Figure 401)

**A. General**

- (1) This task provides the instructions on how to remove the autothrottle switchpack assembly.
- (2) The autothrottle switchpack assembly for the left engine, M1766 and the autothrottle switchpack assembly for the right engine, M1767 (are referred to as the left and right switchpacks) are inside the forward access door.
- (3) You must get access to the switchpack through the upper nose wheel well panels.
- (4) There are nine switches installed in each switchpack.

**B. References**

Reference	Title
53-14-01-020-801	Nose Wheel Well Access Panels - Removal (P/B 401)

**C. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Access Panels**

Number	Name/Location
112A	Forward Access Door

EFFECTIVITY  
**AKS ALL**

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**E. Prepare for the Removal**

SUBTASK 76-11-07-860-022-F00

**WARNING:** MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKERS FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (1) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 76-11-07-860-026-F00

- (2) For engine 1, open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

**AKS 001-024, 026, 028-999**

A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
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**AKS 025, 027**

A	6	C00148	ANTI-ICE-RAIN ENG 1/WING CONT-ICE DET
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**AKS ALL**

SUBTASK 76-11-07-860-027-F00

- (3) For engine 2, open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**AKS 001-024, 026, 028-999**

B	6	C00149	ANTI-ICE & RAIN ENGINE 2 CONTROL
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**AKS 025, 027**

B	6	C00149	ANTI-ICE-RAIN ENG 2/CONT & ICE DET
---	---	--------	------------------------------------

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

**AKS ALL**

C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND

EFFECTIVITY  
AKS ALL

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SUBTASK 76-11-07-860-015-F00

- (4) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 76-11-07-860-016-F00

- (5) Attach the DO-NOT-OPERATE tags to the thrust levers.

SUBTASK 76-11-07-010-006-F00

- (6) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 76-11-07-010-007-F00

- (7) Remove the applicable top panel in the nose wheel well (TASK 53-14-01-020-801).

**F. Autothrottle Switchpack Assembly Removal****AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**

SUBTASK 76-11-07-020-003-F00

- (1) Remove the a switchpack [9] as follows:
- For the left switchpack [9], disconnect the electrical connectors, D11128P and D11130P.
  - For the right switchpack [9], disconnect the electrical connectors, D11132P and D11134P.
  - Remove the bolt [4], the washer [7], and the nut [8].
  - Move the rod [5] from the crank [6].
  - Remove the two bolts [2], the washers [14], and the nuts [13].
  - Slide the switchpack [9] off the collar [1].
  - Remove the switchpack [9] from the autothrottle assembly.

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH INTEGRATED SWITCHES P/N 254A1150-11, -12, -13, -14**

SUBTASK 76-11-07-020-006-F00

- (2) Remove the applicable switchpack [9] assembly as follows:
- For the left switchpack [9] assembly, disconnect the electrical connectors, D11128P and D11130P.
  - For the right switchpack [9] assembly, disconnect the electrical connectors, D11132P and D11134P.
  - Remove the bolt [4], the washer [7], and the nut [8].
  - Move the rod [5] from the crank [6].



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(Continued)

- (e) Remove the two bolts [2], the washers [14], and the nut [13].
- (f) Slide the switchpack [9] assembly off the bushing [1] and remove the switchpack [9] assembly.

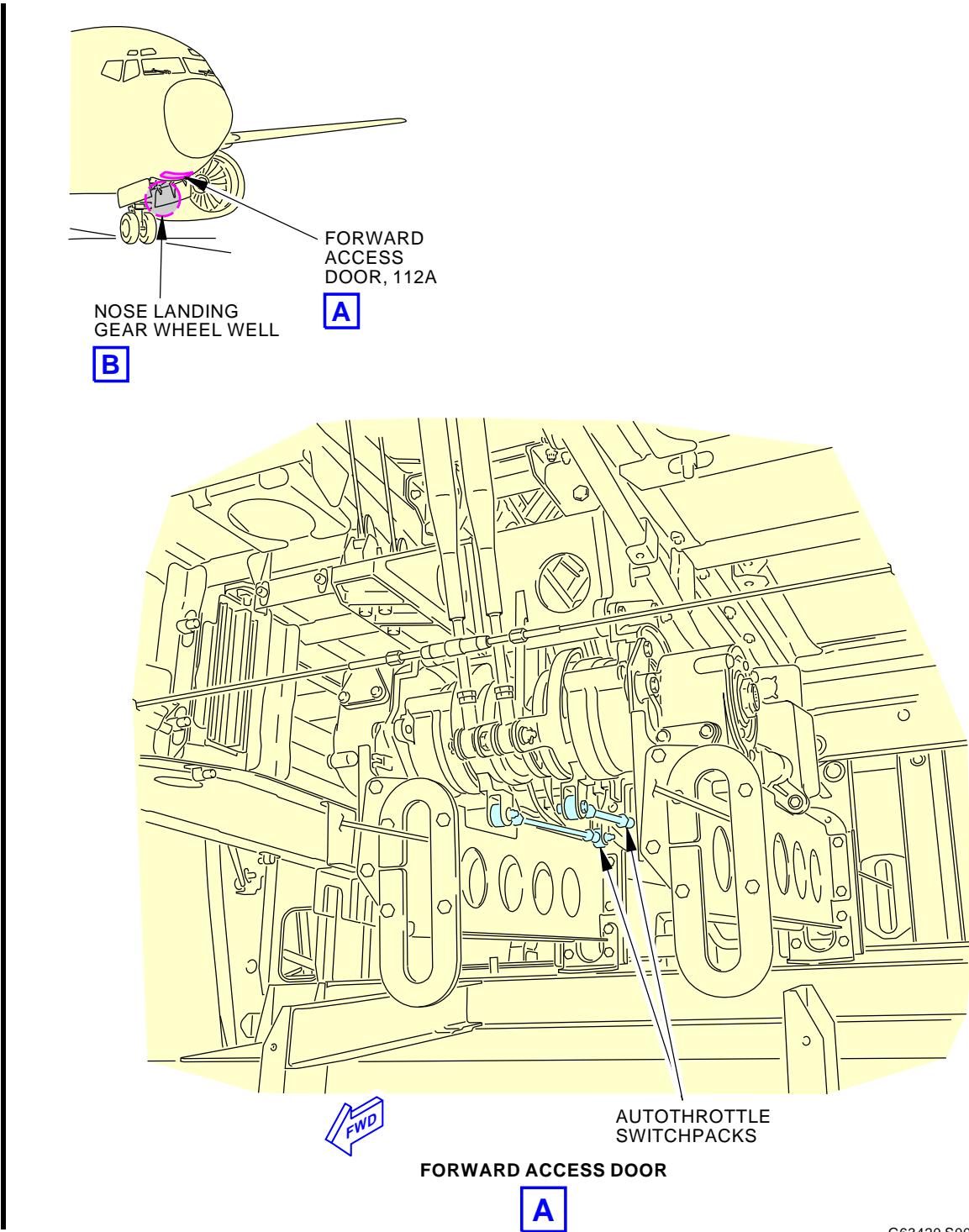
NOTE: It is not necessary to remove the bushing in order to remove the switchpack.

AKS ALL

———— END OF TASK ————

EFFECTIVITY  
AKS ALL

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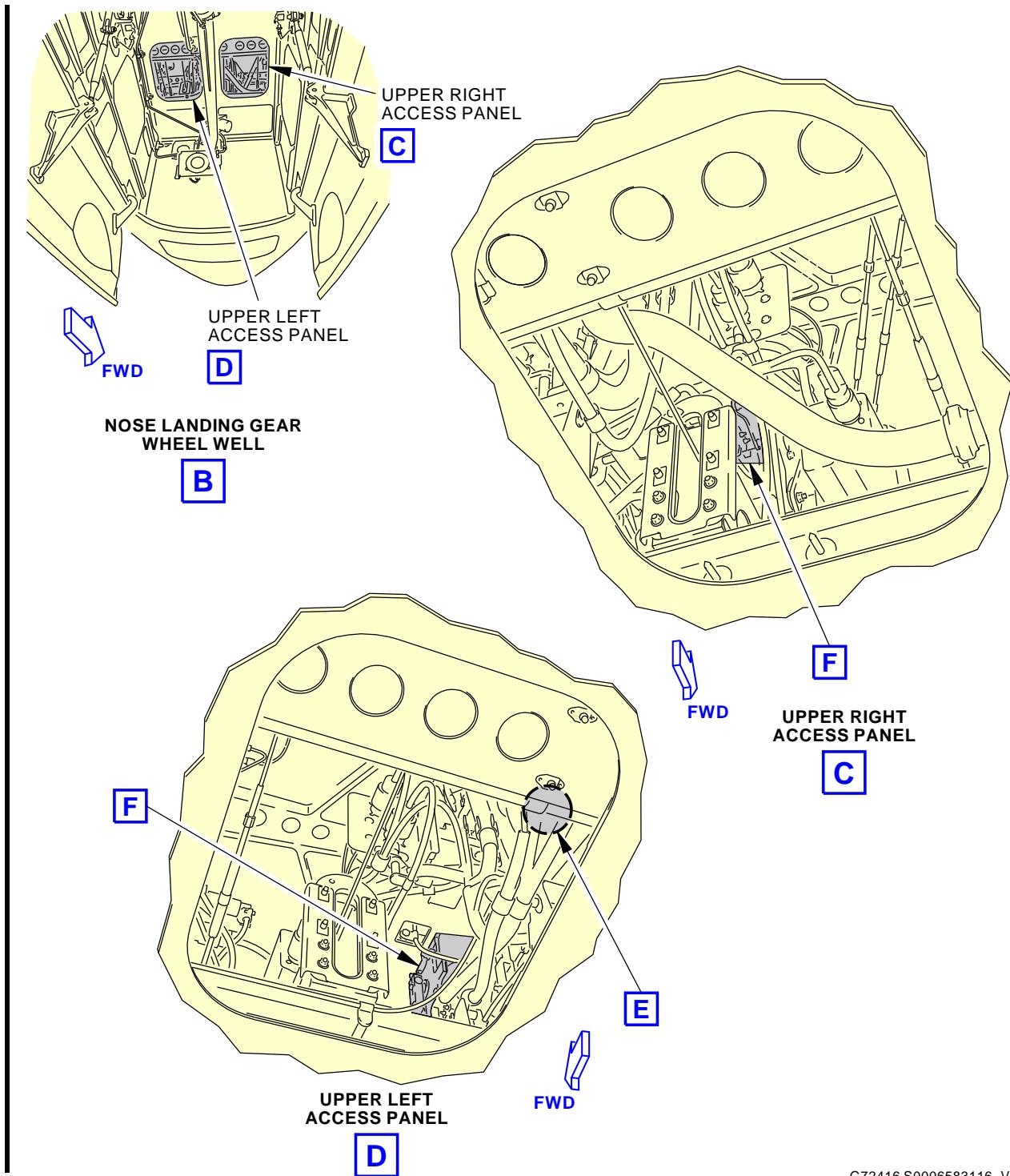
**Autothrottle Switchpack Installation**  
Figure 401/76-11-07-990-801-F00 (Sheet 1 of 5)

EFFECTIVITY  
AKS ALL

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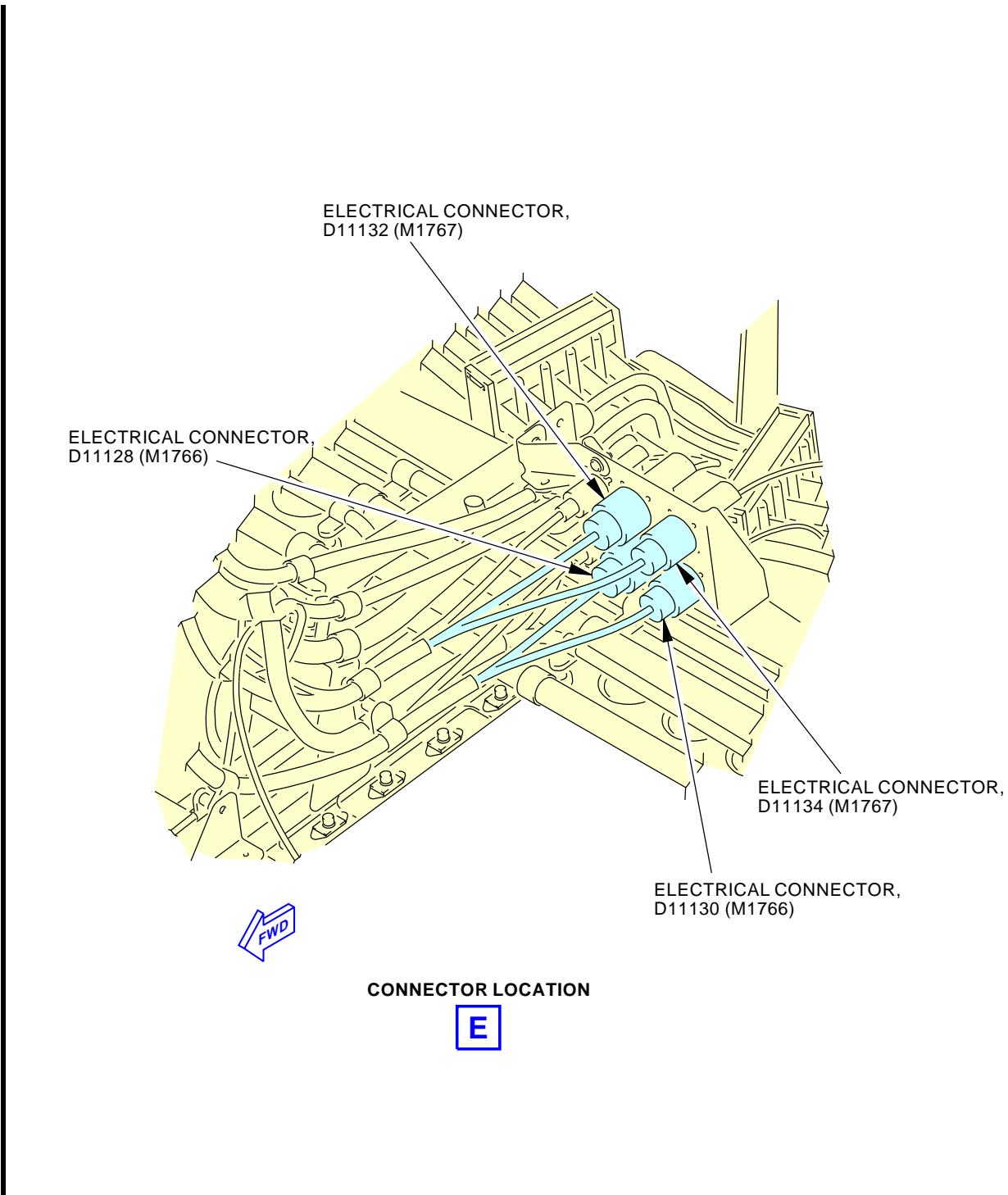
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**Autothrottle Switchpack Installation**  
**Figure 401/76-11-07-990-801-F00 (Sheet 2 of 5)**

EFFECTIVITY  
AKS ALL

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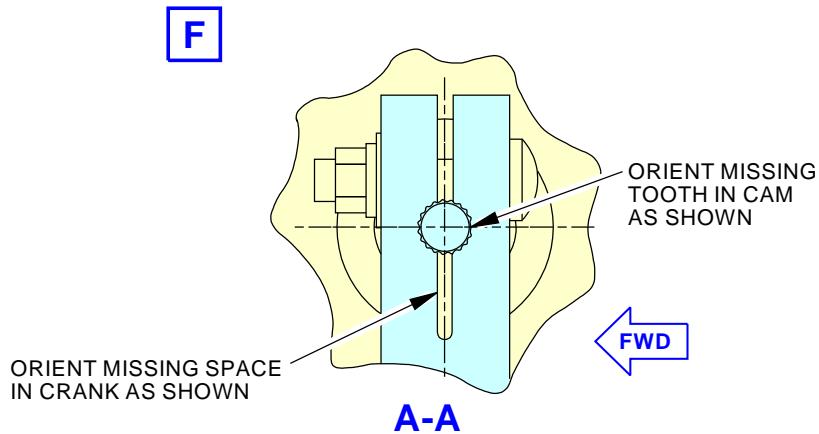
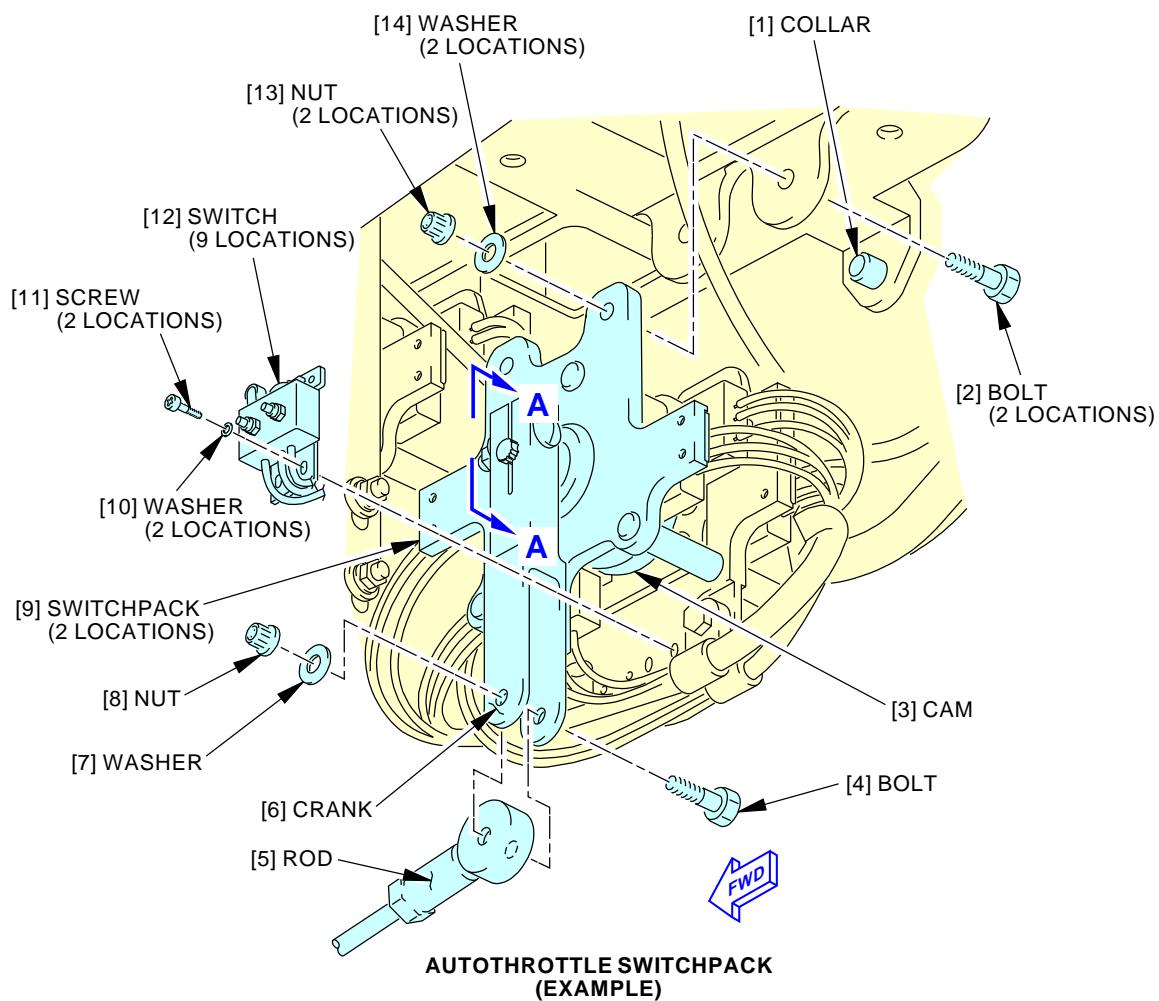
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Autothrottle Switchpack Installation  
Figure 401/76-11-07-990-801-F00 (Sheet 3 of 5)EFFECTIVITY  
AKS ALL

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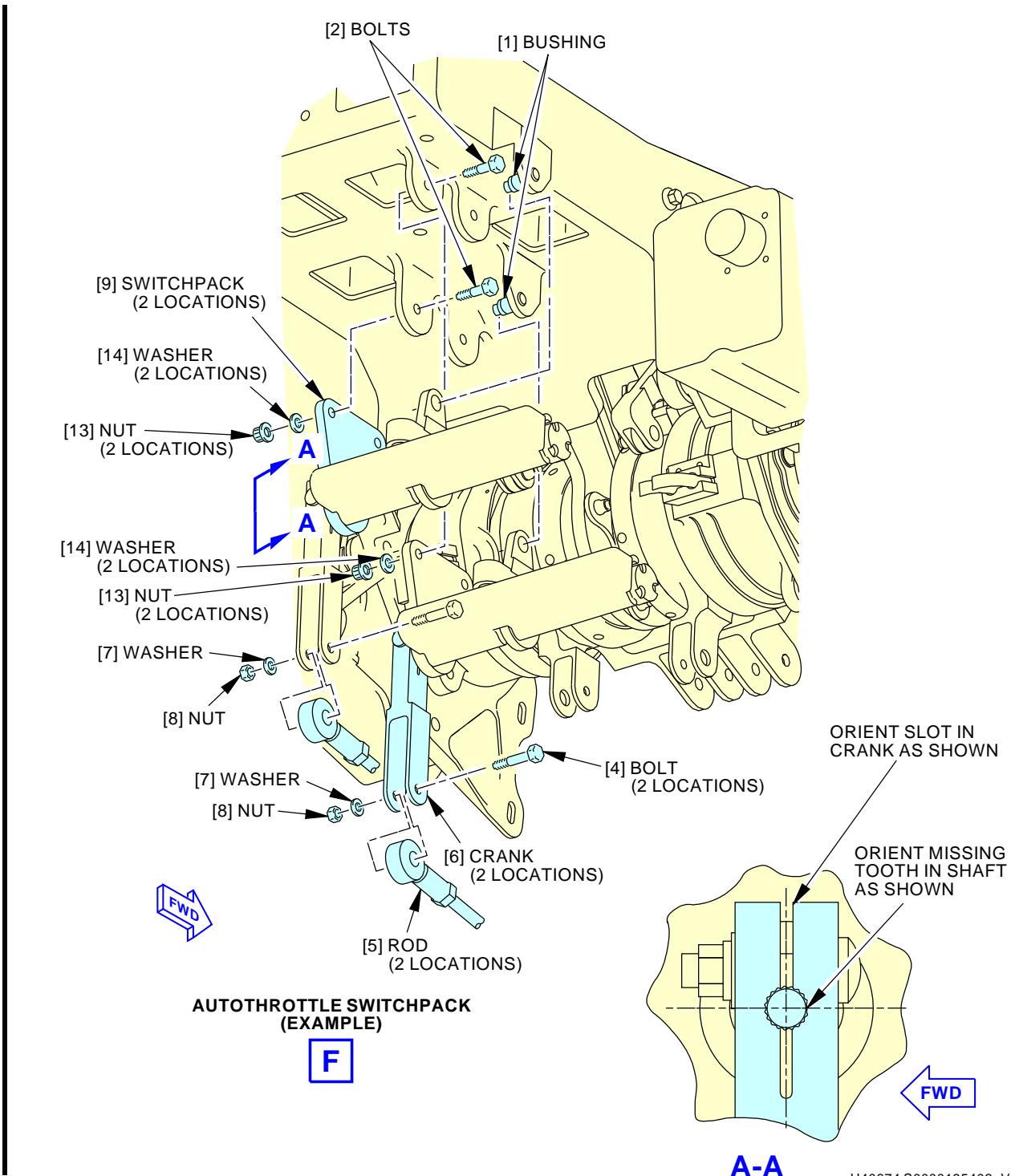
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**Autothrottle Switchpack Installation**  
**Figure 401/76-11-07-990-801-F00 (Sheet 4 of 5)**

EFFECTIVITY  
**AKS ALL; AUTOAUTOTRTHROTTLE SWITCHPACK WITH  
 REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7,  
 -8, -9, -10**

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AIRCRAFT MAINTENANCE MANUALAutothrottle Switchpack Installation  
Figure 401/76-11-07-990-801-F00 (Sheet 5 of 5)**76-11-07**Page 409  
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AKS ALL; AUTOThROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10

**TASK 76-11-07-020-801-F00**

**3. Autothrottle Switchpack Switch Removal**

(Figure 401)

**A. General**

- (1) This task provides the instructions on how to remove an autothrottle switchpack switch from the autothrottle switchpack assembly.
- (2) There are nine switches installed in each switchpack.
- (3) There are six switches that can be removed with the autothrottle switchpack assembly installed.
- (4) For switches S3, S4 and S7 (if the switchpack is still installed), you must remove the applicable switchpack to remove the switch.
- (5) This is a list of the switch number, subject and the System Schematic Manual (SSM) (Table 401).

**Table 401/76-11-07-993-804-F00**

SWITCH	SUBJECT	SSM
	ENGINE 1 SWITCHPACK	
S1	Auto Ground Speedbrake Control	27-62-11
S1	Landing Gear Warning	32-61-21
S2	Autobrake System	32-42-11
S3	Autobrake System	32-42-11
S4	ENG 1 T/R Synchronous Shaft Locks	78-32-51
S5	ENG 1 Thrust Reverser Control	78-34-11
S6	ENG 1 Thrust Reverser Control	78-34-11
S7	Wing Thermal Anti-Ice System	30-11-11
S8	Aural Warning - Takeoff Warning	31-53-11
S8	Weather Radar	34-41-11
S9	Landing Gear Warning	32-61-21
	ENGINE 2 SWITCHPACK	
S1	Auto Ground Speedbrake Control	27-62-11
S1	Landing Gear Warning	32-61-21
S2	Autobrake System	32-42-11
S3	Autobrake System	32-42-11
S4	ENG 2 T/R Synchronous Shaft Locks	78-32-61
S5	ENG 2 Thrust Reverser Control	78-34-21
S6	ENG 2 Thrust Reverser Control	78-34-21
S7	Wing Thermal Anti-Ice System	30-11-11
S8	Aural Warning - Takeoff Warning	31-53-11
S8	Weather Radar	34-41-11
S9	Landing Gear Warning	32-62-21

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**AKS ALL; AUTOThROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**  
(Continued)

**B. References**

<u>Reference</u>	<u>Title</u>
53-14-01-020-801	Nose Wheel Well Access Panels - Removal (P/B 401)

**C. Location Zones**

<u>Zone</u>	<u>Area</u>
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Access Panels**

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

**E. Prepare for the Removal**

SUBTASK 76-11-07-020-005-F00

- (1) For switches S3, S4, and S7 (if the applicable autothrottle switchpack is still installed), do this task: Autothrottle Switchpack Assembly Removal, TASK 76-11-07-020-802-F00.

SUBTASK 76-11-07-860-021-F00

- (2) If you will not remove the applicable autothrottle switchpack to access the remaining switches, do these steps:

**WARNING:** MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKERS FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (a) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

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**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**  
**(Continued)**

- (b) For engine 1, open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**AKS 001-024, 026, 028-999**

A 6 C00148 ANTI-ICE & RAIN ENG 1 & WING CONT

**AKS 025, 027**

A 6 C00148 ANTI-ICE-RAIN ENG 1/WING CONT-ICE DET

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**

- (c) For engine 2, open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**AKS 001-024, 026, 028-999**

B 6 C00149 ANTI-ICE & RAIN ENGINE 2 CONTROL

**AKS 025, 027**

B 6 C00149 ANTI-ICE-RAIN ENG 2/CONT & ICE DET

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**

C 5 C01267 ENGINE 2 THRUST REVERSER SYNC LOCK

C 6 C01413 ENGINE 2 THRUST REVERSER INTLK

C 7 C00277 ENGINE 2 THRUST REVERSER CONT

C 8 C01004 ENGINE 2 THRUST REVERSER IND

- (d) Attach DO-NOT-OPERATE tags to the thrust levers.

- (e) Remove the applicable left or right nose wheel well panel (TASK 53-14-01-020-801).

- (f) Open this access panel:

**Number      Name/Location**

112A      Forward Access Door

**F. Autothrottle Switch Removal**

SUBTASK 76-11-07-020-007-F00

- (1) Remove the connectors for the applicable switch from its switchpack as follows:

- (a) For the left switchpack [9], disconnect the electrical connectors, D11128P and D11130P.
- (b) For the right switchpack [9], disconnect the electrical connectors, D11132P and D11134P.

EFFECTIVITY  
**AKS ALL**

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**AKS ALL; AUTOThROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**  
**(Continued)**

SUBTASK 76-11-07-020-002-F00

- (2) Remove the applicable switch [12] from the switchpack [9] as follows:
  - (a) Remove the two screws [11] and the washers [10].
  - (b) Remove the applicable switch [12].
  - (c) Remove the three switch wires from its associated connector as shown below (Table 402):

**Table 402/76-11-07-993-805-F00**

Switchpack	Switch	Connector	Pins
Left	S1	D11128P	1, 2, 3
Left	S2	D11130P	1, 2, 3
Left	S3	D11130P	4, 5, 6
Left	S4	D11128P	14, 7, 8
Left	S5	D11130P	7, 8, 9
Left	S6	D11130P	13, 14, 15
Left	S7	D11128P	10, 11, 12
Left	S8	D11128P	16, 17, 18
Left	S9	D11128P	22, 23, 24
Right	S1	D11132P	1, 2, 3
Right	S2	D11134P	1, 2, 3
Right	S3	D11134P	4, 5, 6
Right	S4	D11132P	14, 7, 8
Right	S5	D11134P	7, 8, 9
Right	S6	D11134P	13, 14, 15
Right	S7	D11132P	10, 11, 12
Right	S8	D11132P	16, 17, 18
Right	S9	D11132P	22, 23, 24

**— END OF TASK —**

**TASK 76-11-07-400-801-F00**

**4. Autothrottle Switchpack Switch Installation**

(Figure 401)

**A. General**

- (1) This task provides the instructions on how to install an autothrottle switchpack switch on the autothrottle switchpack assembly.

**B. References**

Reference	Title
53-14-01-420-801	Nose Wheel Well Access Panels - Installation (P/B 401)

EFFECTIVITY	
AKS ALL	

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**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**  
(Continued)

(Continued)

Reference	Title
76-11-07-820-801-F00	Switch Check and Adjustment (P/B 501)

**C. Consumable Materials**

Reference	Description	Specification
G01148	Sleeve - Insulation, Electrical, Heat Shrinkable - RT-876	
G51210	Tubing - Highly Flame-Retardant, Low-Shrink Temperature, Polyolefin	AMS-DTL-23053/5 Class 1

**D. Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
12	Switch	Not Specified	

**E. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

**F. Access Panels**

Number	Name/Location
112A	Forward Access Door

**G. Autothrottle Switchpack Switch Installation**

SUBTASK 76-11-07-420-001-F00

- (1) Install the applicable switch [12] on the switchpack [9] as follows:
    - (a) Install a contact on each wire.
    - (b) Put a 1 in. (25.4 mm) long RT-876 sleeve, G01148 or Versafit heat shrink tubing, G51210 on each wire set from the switch housing.
    - (c) Insert the three wires into the associated connector pins as shown below (Table 403):
- NOTE: Each switch circuit (NO, C, or NC) is marked on each wire lead.

**Table 403/76-11-07-993-806-F00**

Switchpack	Switch	Connector	Pin (Lead ID)
Left	S1	D11128P	1 (NO), 2 (C), 3 (NC)
Left	S2	D11130P	1 (NO), 2 (C), 3 (NC)
Left	S3	D11130P	4 (NO), 5 (C), 6 (NC)
Left	S4	D11128P	14 (NO), 7 (C), 8 (NC)
Left	S5	D11130P	7 (NO), 8 (C), 9 (NC)
Left	S6	D11130P	13 (NO), 14 (C), 15 (NC)
Left	S7	D11128P	10 (NO), 11 (C), 12 (NC)

EFFECTIVITY  
**AKS ALL**

**76-11-07**

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**AKS ALL; AUTOThROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**  
(Continued)

**Table 403/76-11-07-993-806-F00 (Continued)**

Switchpack	Switch	Connector	Pin (Lead ID)
Left	S8	D11128P	16 (NO), 17 (C), 18 (NC)
Left	S9	D11128P	22 (NO), 23 (C), 24 (NC)
Right	S1	D11132P	1 (NO), 2 (C), 3 (NC)
Right	S2	D11134P	1 (NO), 2 (C), 3 (NC)
Right	S3	D11134P	4 (NO), 5 (C), 6 (NC)
Right	S4	D11132P	14 (NO), 7 (C), 8 (NC)
Right	S5	D11134P	7 (NO), 8 (C), 9 (NC)
Right	S6	D11134P	13 (NO), 14 (C), 15 (NC)
Right	S7	D11132P	10 (NO), 11 (C), 12 (NC)
Right	S8	D11132P	16 (NO), 17 (C), 18 (NC)
Right	S9	D11132P	22 (NO), 23 (C), 24 (NC)

- (d) Loosely install the applicable switch [12] on the switchpack [9].
- (e) Install two screws [11] and the two washers [10].
- (f) Make sure the replaced wiring is held in the applicable wire bundle sheath.

SUBTASK 76-11-07-820-004-F00

- (2) Adjust the switch [12] as follows:

- (a) Make sure that the applicable switch roller is set on the largest radius of the cam.
- (b) Push the switch [12] to the cam until switch actuation occurs.
- (c) Move the switch [12] 0.005 in. (0.127 mm) – 0.010 in. (0.254 mm) more on the cam and hold the position.
- (d) Tighten the screw [11].

SUBTASK 76-11-07-420-004-F00

- (3) If you did not remove the autothrottle switchpack assembly, do this task: Switch Check and Adjustment, TASK 76-11-07-820-801-F00.

SUBTASK 76-11-07-420-008-F00

- (4) If you removed the autothrottle switchpack assembly, do this task: Autothrottle Switchpack Assembly Installation, TASK 76-11-07-400-802-F00.

## H. Put the Airplane Back to its Usual Condition

SUBTASK 76-11-07-860-029-F00

- (1) Open these circuit breakers and install safety tags:

### F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT



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AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10  
(Continued)

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 76-11-07-860-030-F00

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

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

AKS 001-024, 026, 028-999

A 6 C00148 ANTI-ICE & RAIN ENG 1 & WING CONT

AKS 025, 027

A 6 C00148 ANTI-ICE-RAIN ENG 1/WING CONT-ICE DET

AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10

SUBTASK 76-11-07-860-028-F00

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

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
AKS 001-024, 026, 028-999			
B	6	C00149	ANTI-ICE & RAIN ENGINE 2 CONTROL

AKS 025, 027

B 6 C00149 ANTI-ICE-RAIN ENG 2/CONT & ICE DET

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10

C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT

EFFECTIVITY  
AKS ALL

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**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**  
(Continued)

(Continued)

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C01004	ENGINE 2 THRUST REVERSER IND

SUBTASK 76-11-07-800-004-F00

- (4) Remove the DO-NOT-OPERATE tags to the thrust levers.

SUBTASK 76-11-07-410-003-F00

- (5) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
112A	Forward Access Door

SUBTASK 76-11-07-410-004-F00

- (6) Close the applicable left or right nose wheel well panel (TASK 53-14-01-420-801).

**AKS ALL**

**END OF TASK**

**TASK 76-11-07-400-802-F00**

**5. Autothrottle Switchpack Assembly Installation**

(Figure 401)

**A. General**

- (1) This task provides the instructions on how to install the autothrottle switchpack assembly.

**B. References**

<b>Reference</b>	<b>Title</b>
27-62-00-720-801	Engine Throttle Switch (S1) - Functional Test (P/B 501)
30-11-00-710-801	Wing Anti-Ice - Operational Test (P/B 501)
31-51-00-741-804	Autothrottle Switchpack Test (P/B 501)
32-09-10-710-801	Proximity Switch Electronics Unit (PSEU) - Operational Test (P/B 501)
32-42-00-720-801	Antiskid/Autobrake Control Unit Operational Test (P/B 501)
34-43-00-710-804-003	Weather Radar (WXR) System - Operational Test (P/B 501)
53-14-01-420-801	Nose Wheel Well Access Panels - Installation (P/B 401)
76-11-07-820-801-F00	Switch Check and Adjustment (P/B 501)
78-31-00-700-801-F00	Thrust Reverser Normal Operation Test (P/B 501)

**C. Expendables/Parts**

<b>AMM Item</b>	<b>Description</b>	<b>AIPC Reference</b>	<b>AIPC Effectivity</b>
9	Switchpack	22-31-51-01-400	AKS 001-004
		22-31-51-01-405	AKS 001-004

**D. Location Zones**

<b>Zone</b>	<b>Area</b>
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right



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Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**E. Access Panels**

Number	Name/Location
112A	Forward Access Door

**F. Autothrottle Switchpack Assembly Installation**

SUBTASK 76-11-07-860-031-F00

- (1) Interchangeability Cross-matrix Table:

**ACCEPTABLE COMBINATIONS OF LH & RH AUTOTHROTTLE (A/T) SWITCHPACKS**

		254A1150-( ) LH A/T SWITCHPACKS				
		-1	-7	-9	-11	-13
254A1150-( ) RH A/T SWITCHPACKS	-2	X	X	X	Not Allowed	Not Allowed
	-8	X	X	X	Not Allowed	Not Allowed
	-10	X	X	X	Not Allowed	Not Allowed
	-12	X	X	X	X	X
	-14	X	X	X	X	X

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**

SUBTASK 76-11-07-420-006-F00

- (2) Install a switchpack [9] as follows:

- (a) Make sure the Switchpack Assembly is compatible via the interchangeability cross-matrix table.
- (b) Put the switchpack [9] on the collar [1] of the autothrottle assembly.
- (c) Make sure that the missing tooth in the switchpack cam is in the aft direction (See View A-A).
- (d) Put the space of the crank [6] in the up position.  
*NOTE:* The space in the crank must be 90 degrees to the missing tooth on the cam.
- (e) Install the two bolts [2], the washers [14], and the nuts [13].
- (f) Move the rod [5] into its position on the crank [6].
- (g) Install the bolt [4], the washer [7], and the nut [8].
- (h) Make sure the switchpack wire bundle is held in the applicable wire bundle sheath.
- (i) Do the initial alignment of the switchpack as follows:
  - 1) Do the applicable steps in the switch installation test to show the TRA position values on the FMCS CDU (TASK 76-11-07-820-801-F00).
  - 2) Monitor the continuity of the S5 switch, pins 8 and 9, at the applicable electrical connector D11130P (left switchpack) or D11134P (right switchpack) as you slowly move the thrust lever in the reverse direction.

*NOTE:* There is approximately a 2-second delay between the movement of the reverse thrust lever and when the value shows on the FMCS CDU.

EFFECTIVITY  
**AKS ALL**

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**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**  
(Continued)

- 3) The S5 switch should change from CLOSE to OPEN at a TRA between 31.5 degrees and 32.0 degrees.
- | (j) If the switchpack [9] operation is not in the specified range, do these steps:
  - 1) Loosen the two jamnuts and turn the rod [5] coupling to get the correct TRA position values.  
NOTE: There is approximately a 2-second delay between the adjustment and when the value shows on the FMCS CDU.
    - a) If a larger adjustment is necessary, do these steps:
      - <1> Remove the rod end from the crank.
      - <2> Turn the rod end in 1/2 turns as necessary.
      - <3> Install the rod end to the crank.
    - 2) Tighten the two jamnuts to 24 in-lb (2.7 N·m) - 30 in-lb (3.4 N·m).

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH INTEGRATED SWITCHES P/N 254A1150-11, -12, -13, -14**

SUBTASK 76-11-07-420-007-F00

- (3) Install the applicable switchpack [9] assembly as follows:
  - (a) Make sure the Switchpack Assembly is compatible via the interchangeability cross-matrix table.
  - (b) Put the switchpack [9] assembly on the bushing [1] of the autothrottle assembly.
  - (c) Make sure that the missing tooth in the switchpack cam is in the aft direction (See View A-A).
  - (d) Put the slot of the crank [6] in the up position.  
NOTE: The slot in the crank must be 90 degrees to the missing tooth on the shaft.
  - (e) Install the two bolts [2], the washers [14], and the nuts [13].
  - (f) Move the rod [5] into its position on the crank [6].
  - (g) Install the bolt [4], the washer [7], and the nut [8].
  - (h) Make sure the switchpack assembly wire bundle is held in the applicable wire bundle sheath.
  - (i) Do the initial alignment of the switchpack as follows:
    - 1) Do the applicable steps in the switch installation test to show the TRA position values on the FMCS CDU (TASK 76-11-07-820-801-F00).
    - 2) Monitor the continuity of the S5 switch, pins 8 and 9, at the applicable electrical connector D11130P (left switchpack) or D11134P (right switchpack) as you slowly move the thrust lever in the reverse direction.  
NOTE: There is approximately a 2-second delay between the movement of the reverse thrust lever and when the value shows on the FMCS CDU.
    - 3) The S5 switch should change from CLOSE to OPEN at a TRA between 31.5 degrees and 32.0 degrees.
  - | (j) If the switchpack [9] assembly operation is not in the specified range, do these steps:

EFFECTIVITY  
AKS ALL

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**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH INTEGRATED SWITCHES P/N 254A1150-11, -12, -13, -14**  
**(Continued)**

- 1) Loosen the two jamnuts and turn the rod [5] coupling to get the correct TRA position values.

**NOTE:** There is approximately a 2-second delay between the adjustment and when the value shows on the FMCS CDU.

- a) If a larger adjustment is necessary, do these steps:
  - <1> Remove the rod end from the crank.
  - <2> Turn the rod end in 1/2 turns as necessary.
  - <3> Install the rod end to the crank.

- 2) Tighten the two jamnuts 24 in-lb (2.7 N·m) - 30 in-lb (3.4 N·m).

**AKS ALL**

SUBTASK 76-11-07-700-003-F00

- (4) Do a check of the applicable switch installation (TASK 76-11-07-820-801-F00).

SUBTASK 76-11-07-400-001-F00

- (5) Make sure that you install applicable switchpack connectors as follows:
  - (a) For the left switchpack [9], connect the electrical connectors, D11128P and D11130P.
  - (b) For the right switchpack [9], connect the electrical connectors, D11132P and D11134P.

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH INTEGRATED SWITCHES P/N 254A1150-11, -12, -13, -14**

SUBTASK 76-11-07-210-001-F00

- (6) Do a check of the routing of the applicable switchpack wire bundle:
  - (a) Examine the wire bundle (yellow) near the linkage (crank and rod).
  - (b) Move the thrust lever from idle to full thrust.
  - (c) Make sure that the wire bundle does not touch the linkage.
    - 1) If it is necessary adjust the routing of the wire bundle.
  - (d) Do the check again with the reverse thrust lever.

**AKS ALL**

**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 76-11-07-010-008-F00

- (1) Install the applicable top panel in the nose wheel well (TASK 53-14-01-420-801).

SUBTASK 76-11-07-410-002-F00

- (2) Close this access panel:

**Number      Name/Location**

112A      Forward Access Door

SUBTASK 76-11-07-860-017-F00

- (3) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-2**

<b>Row</b>	<b>Col</b>	<b>Number</b>	<b>Name</b>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

EFFECTIVITY  
**AKS ALL**

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**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

SUBTASK 76-11-07-860-023-F00

- (4) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

SUBTASK 76-11-07-860-018-F00

- (5) For engine 1, remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**AKS 001-024, 026, 028-999**

A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
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**AKS 025, 027**

A	6	C00148	ANTI-ICE-RAIN ENG 1/WING CONT-ICE DET
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**AKS ALL**

SUBTASK 76-11-07-860-019-F00

- (6) For engine 2, remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**AKS 001-024, 026, 028-999**

B	6	C00149	ANTI-ICE & RAIN ENGINE 2 CONTROL
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**AKS 025, 027**

B	6	C00149	ANTI-ICE-RAIN ENG 2/CONT & ICE DET
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**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
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**AKS ALL**

C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND

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SUBTASK 76-11-07-860-020-F00

- (7) Remove the DO-NOT-OPERATE tags to the thrust levers.

#### H. Autothrottle Switchpack Assembly Test

SUBTASK 76-11-07-710-014-F00

- (1) If you replaced the complete autothrottle switchpack assembly, then do all of the tests that are listed below.

NOTE: If you re-install the original switchpack assembly after switch(es) replacement, do the listed test for the replaced switch(es).

SUBTASK 76-11-07-710-015-F00

- (2) If you replaced the S1 switch, do these task: Engine Throttle Switch (S1) - Functional Test, TASK 27-62-00-720-801 and Proximity Switch Electronics Unit (PSEU) - Operational Test, TASK 32-09-10-710-801.

SUBTASK 76-11-07-710-016-F00

- (3) If you replaced the S2 or S3 switch, do this task: Antiskid/Autobrake Control Unit Operational Test, TASK 32-42-00-720-801.

SUBTASK 76-11-07-710-017-F00

- (4) If you replaced the S4, S5 or S6 switch, do this task: Thrust Reverser Normal Operation Test, TASK 78-31-00-700-801-F00.

SUBTASK 76-11-07-710-018-F00

- (5) If you replaced the S7 switch, do this task: Wing Anti-Ice - Operational Test, TASK 30-11-00-710-801.

SUBTASK 76-11-07-710-019-F00

- (6) If you replaced the S8 switch, do these tasks: Autothrottle Switchpack Test, TASK 31-51-00-741-804 and Weather Radar (WXR) System - Operational Test, TASK 34-43-00-710-804-003.

SUBTASK 76-11-07-710-020-F00

- (7) If you replaced the S9 switch, do this task: Proximity Switch Electronics Unit (PSEU) - Operational Test, TASK 32-09-10-710-801.

———— END OF TASK ————

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**AUTOTHROTTLE SWITCHPACK ASSEMBLY AND SWITCHES - ADJUSTMENT/TEST**

**1. General**

- A. This procedure has one task:
- (1) A check and adjustment of the switches for the autothrottle switchpack assembly.

**TASK 76-11-07-820-801-F00**

**2. Switch Check and Adjustment**

(Figure 501)

**A. General**

- (1) This task gives the instructions to do a check of the adjustment of a switch on the autothrottle switchpack assembly (referred to as the switchpack). The switchpack must be installed to do this check.
- (2) There are nine switches in each switchpack.

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**

- (3) Six switches can be adjusted with the switchpack installed. The other three switches can only be adjusted with the switchpack removed.

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH INTEGRATED SWITCHES P/N 254A1150-11, -12, -13, -14**

- (4) The individual switches can not be adjusted when the switchpack is installed.

**AKS ALL**

**B. References**

Reference	Title
53-14-01-020-801	Nose Wheel Well Access Panels - Removal (P/B 401)
53-14-01-420-801	Nose Wheel Well Access Panels - Installation (P/B 401)
76-11-07-020-802-F00	Autothrottle Switchpack Assembly Removal (P/B 401)
76-11-07-400-802-F00	Autothrottle Switchpack Assembly Installation (P/B 401)

**C. Location Zones**

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Access Panels**

Number	Name/Location
112A	Forward Access Door

**E. Prepare for the Check and Adjustment**

SUBTASK 76-11-07-420-003-F00

- (1) If the switchpack is not installed, do this task: Autothrottle Switchpack Assembly Installation, TASK 76-11-07-400-802-F00.

Do not do the post-installation tests at this time.

- (a) Do the initial alignment of the switchpack to make sure that the S5 switch changes from CLOSE to OPEN at a TRA between 31.5 degrees and 32.0 degrees

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SUBTASK 76-11-07-860-014-F00

- (2) If not already done, do these steps to prepare the airplane:

**WARNING:** MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKERS FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

- (a) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

- (b) For Engine 1, do this step:

Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

AKS 001-024, 026, 028-999

A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
---	---	--------	-----------------------------------

AKS 025, 027

A	6	C00148	ANTI-ICE-RAIN ENG 1/WING CONT-ICE DET
---	---	--------	---------------------------------------

AKS ALL

- (c) For Engine 2, do this step:

Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

AKS 001-024, 026, 028-999

B	6	C00149	ANTI-ICE & RAIN ENGINE 2 CONTROL
---	---	--------	----------------------------------

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**AKS 001-024, 026, 028-999 (Continued)**

(Continued)

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

**AKS 025, 027**

B	6	C00149	ANTI-ICE-RAIN ENG 2/CONT & ICE DET
---	---	--------	------------------------------------

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
------------	------------	---------------	-------------

**AKS ALL**

C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND

- (d) Make sure the thrust levers and reverse thrust levers are at their idle stops.
- (e) To gain access to the forward parts of the left or right switchpack, do this step:

Open this access panel:

<u>Number</u>	<u>Name/Location</u>
---------------	----------------------

112A	Forward Access Door
------	---------------------

- (f) Remove the applicable top panel in the nose wheel well (TASK 53-14-01-020-801).

SUBTASK 76-11-07-040-001-F00

- (3) If not already done, do these steps to disconnect the applicable switchpack connectors (Figure 501):
  - (a) For the left switchpack, disconnect the electrical connectors, D11128P and D11130P.
  - (b) For the right switchpack, disconnect the electrical connectors, D11132P and D11134P.

**F. Switch Installation Test**

SUBTASK 76-11-07-700-002-F00

- (1) Do these steps to show engine test menu on the FMCS CDU:
  - (a) Make sure that the applicable engine thrust lever and reverse thrust lever is at the IDLE stop.
  - (b) Get access to the FMCS CDU in the flight compartment.
  - (c) Press the INIT REF key to show the PERF INIT screen on the FMCS CDU.
  - (d) Push these line select keys (LSK) on the FMCS CDU:
    - 1) INDEX.
    - 2) MAINT.

NOTE: This LSK causes the MAINT BITE INDEX screen to show.
  - (e) ENGINE.

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

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- 4) ENGINE X for the applicable resolver.

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

SUBTASK 76-11-07-710-011-F00

- (2) Do these steps to show the TRA values for the Engine X thrust lever:

- (a) Push the INPUT MONITORING LSK.

NOTE: This will cause the CAUTION SCREEN OF INPUT MONITORING to show.

- (b) Push the CONTROL LOOPS LSK.

NOTE: This will cause screen 1 of the CONTROL LOOPS to show.

- (c) Push the NEXT PAGE key two times.

NOTE: This will cause screen 3 of the CONTROL LOOPS to show.

- (d) Push the TRA line select key (LSK) on screen 3 of the CONTROL LOOPS.

NOTE: This causes the thrust lever resolver angle (TRA) for channels A and B, of Engine X, to show.

NOTE: The data for the channel that is in control will show first.

SUBTASK 76-11-07-710-012-F00

- (3) Do these steps to do a check of the applicable switch in the left switchpack:

- (a) Insert a rod below the left reverse thrust interlock solenoid latch.

- 1) Move the latch up and off of the autothrottle brake cam.

- (b) Mechanically restrain the rod to hold the left interlock solenoid off the autothrottle brake cam.

NOTE: This will let the brake house turn and not be limited by the solenoid.

- (c) Move the left thrust lever and reverse thrust lever until the TRA value that shows on the CDU is in the range shown in the table below (Table 501):

NOTE: The forward mechanical stop (full forward thrust) is at 84 +/-1 degrees TRA, the idle stop is at 36 +/-0.25 degrees TRA, and the aft mechanical stop (full reverse thrust) is at 6 +/-1 degrees TRA.

- (d) Do a continuity check at the applicable switch connector.

**Table 501/76-11-07-993-810-F00**

SWITCH	CONNECTOR	PINS	TRA VALUE	CONDITION
S1	D11128P	1-2	8.00-42.00 46.00-82.00	Open Closed
		2-3	8.00-42.00 46.00-82.00	Closed Open
S2	D11130P	1-2	8.00-42.00 46.00-82.00	Open Closed
		2-3	8.00-42.00 46.00-82.00	Closed Open

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Table 501/76-11-07-993-810-F00 (Continued)

SWITCH	CONNECTOR	PINS	TRA VALUE	CONDITION
S3	D11130P	4-5	8.00-42.00 46.00-82.00	Open Closed
		5-6	8.00-42.00 46.00-82.00	Closed Open
S4	D11128P	14-7	8.00-30.00 34.00-82.00	Closed Open
		7-8	8.00-30.00 34.00-82.00	Open Closed
S5 <sup>[1]</sup>	D11130P	7-8	8.00-30.00 34.00-82.00	Closed Open
		8-9	8.00-30.00 34.00-82.00	Open Closed
S6 <sup>[1]</sup>	D11130P	13-14	8.00-30.00 34.00-82.00	Closed Open
		14-15	8.00-30.00 34.00-82.00	Open Closed
S7	D11128P	10-11	8.00-58.00 62.00-82.00	Open Closed
		11-12	8.00-58.00 62.00-82.00	Closed Open
S8	D11128P	16-17	8.00-51.00 55.00-82.00	Open Closed
		17-18	8.00-51.00 55.00-82.00	Closed Open
S9	D11128P	22-23	8.00-62.00 66.00-82.00	Open Closed
		23-24	8.00-62.00 66.00-82.00	Closed Open

\*[1] Resistance fluctuations may occur at TRA value of 30.00–34.00

- (e) Remove the restraint from the left interlock solenoid.
- (f) If any switches are not in the specified limits and they are all out of limits in the same direction, do the following:
  - 1) Monitor the continuity of the S5 switch, pins 8 and 9, at the applicable electrical connector D11130P (left switchpack) or D11134P (right switchpack) to confirm the switch changes from CLOSE to OPEN at a TRA between 31.5 and 32.0 degrees. Note: The S5 switch is adjusted to operate between 31.5 to 32.0 degrees TRA during switchpack installation (TASK 76-11-07-400-802-F00).
  - 2) Loosen the two jannuts and turn the rod coupling to get the S5 switch, pins 8 and 9, to change from CLOSE to OPEN at a TRA between 31.0 and 32.5 degrees so all other switches will also actuate in the specified limits.
  - 3) Tighten the two jannuts to 24-30 in-lb (2.7-3.4 N-m).

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- 4) Check to confirm that all switches operate in the specified limits.
- (g) If the switches are in adjustment, then do the section below to put the airplane back to its serviceable condition.

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH INTEGRATED SWITCHES P/N 254A1150-11, -12, -13, -14**

- (h) If any switches are still not in the specified limits, replace the switchpack.
- 1) These are the tasks: Autothrottle Switchpack Assembly Removal, TASK 76-11-07-020-802-F00 and Autothrottle Switchpack Assembly Installation, TASK 76-11-07-400-802-F00

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**

- (i) If any switches are still not in the specified limits, then do the Switch Adjustment that follows:

**AKS ALL**

SUBTASK 76-11-07-710-013-F00

- (4) Do these steps to check the applicable switch in the right switchpack:
- (a) Insert a rod under the right reverse thrust interlock solenoid latch.
- 1) Move the latch up off of the autothrottle brake cam.
- (b) Mechanically restrain the rod to hold the right interlock solenoid off the autothrottle brake cam.
- NOTE: This will let the brake house turn and not be limited by the solenoid.
- (c) Move the right thrust lever and reverse thrust lever until the TRA value that shows on the CDU is in the range shown in the table below (Table 502):
- NOTE: The forward mechanical stop (full forward thrust) is at 84 +/-1 degrees TRA, the idle stop is at 36 +/-0.25 degrees TRA, and the aft mechanical stop (full reverse thrust) is at 6 +/-1 degrees TRA.
- (d) Do a continuity check at the applicable switch connector.

**Table 502/76-11-07-993-811-F00**

SWITCH	CONNECTOR	PINS	TRA VALUE	CONDITION
S1	D11132P	1-2	8.00-42.00 46.00-82.00	Open Closed
		2-3	8.00-42.00 46.00-82.00	Closed Open
		1-2	8.00-42.00 46.00-82.00	Open Closed
		2-3	8.00-42.00 46.00-82.00	Closed Open
S3	D11134P	4-5	8.00-42.00 46.00-82.00	Open Closed
		5-6	8.00-42.00 46.00-82.00	Closed Open

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Table 502/76-11-07-993-811-F00 (Continued)

SWITCH	CONNECTOR	PINS	TRA VALUE	CONDITION
S4	D11132P	14-7	8.00-30.00 34.00-82.00	Closed Open
		7-8	8.00-30.00 34.00-82.00	Open Closed
S5 <sup>[1]</sup>	D11134P	7-8	8.00-30.00 34.00-82.00	Closed Open
		8-9	8.00-30.00 34.00-82.00	Open Closed
S6 <sup>[1]</sup>	D11134P	13-14	8.00-30.00 34.00-82.00	Closed Open
		14-15	8.00-30.00 34.00-82.00	Open Closed
S7	D11132P	10-11	8.00-58.00 62.00-82.00	Open Closed
		11-12	8.00-58.00 62.00-82.00	Closed Open
S8	D11132P	16-17	8.00-51.00 55.00-82.00	Open Closed
		17-18	8.00-51.00 55.00-82.00	Closed Open
S9	D11132P	22-23	8.00-62.00 66.00-82.00	Open Closed
		23-24	8.00-62.00 66.00-82.00	Closed Open

\*[1] Resistance fluctuations may occur at TRA value of 30.00–34.00

- (e) Remove the restraint from the right interlock solenoid.
- (f) If any switches are not in the specified limits and they are all out of limits in the same direction, do the following:
  - 1) Monitor the continuity of the S5 switch, pins 8 and 9, at the applicable electrical connector D11130P (left switchpack) or D11134P (right switchpack) to confirm the switch changes from CLOSE to OPEN at a TRA between 31.5 and 32.0 degrees. Note: The S5 switch is adjusted to operate between 31.5 to 32.0 degrees TRA during switchpack installation (TASK 76-11-07-400-802-F00).
  - 2) Loosen the two jamnuts and turn the rod coupling to get the S5 switch, pins 8 and 9, to change from CLOSE to OPEN at a TRA between 31.0 and 32.5 degrees so all other switches will also actuate in the specified limits.
  - 3) Tighten the two jamnuts to 24-30 in-lb (2.7-3.4 N-m).
  - 4) Check to confirm that all switches operate in the specified limits.
- (g) If the switches are in adjustment, then do the section below to put the airplane back to its serviceable condition.

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**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**

- (h) If any switches are still not in the specified limits, then do the Switch Adjustment that follows:

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH INTEGRATED SWITCHES P/N 254A1150-11, -12, -13, -14**

- (i) If any switches are still not in the specified limits, replace the switchpack.
- 1) These are the tasks: Autothrottle Switchpack Assembly Removal, TASK 76-11-07-020-802-F00 and Autothrottle Switchpack Assembly Installation, TASK 76-11-07-400-802-F00

**AKS ALL; AUTOTHROTTLE SWITCHPACK WITH REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7, -8, -9, -10**

#### G. Switch Adjustment

SUBTASK 76-11-07-010-004-F00

- (1) For switches S3, S4 and S7 (if the switchpack is still installed), do this task: Autothrottle Switchpack Assembly Removal, TASK 76-11-07-020-802-F00.

SUBTASK 76-11-07-820-003-F00

- (2) Do these steps to adjust the switch:
  - (a) Make sure that the applicable switch roller is set on the largest radius of the cam.
  - (b) Loosen the screws that attach the switch.
  - (c) Adjust the switch to the cam as follows:
    - 1) To make the switch actuation open or close sooner, move the switch toward the cam.
    - 2) To make the switch actuation open or close later, move the switch away from the cam.
  - (d) When the switch is adjusted, tighten the screws.
  - (e) For switches S3, S4 and S7 (if the switchpack was removed), do this task: Autothrottle Switchpack Assembly Installation, TASK 76-11-07-400-802-F00.
  - (f) Move the applicable thrust lever or reverse thrust lever to make sure the switch actuation occurs.
  - (g) Do the above electrical check again for the applicable switch to make sure the adjustment is correct.

**AKS ALL**

#### H. Put the Airplane Back to its Serviceable Condition

SUBTASK 76-11-07-040-002-F00

- (1) If not already done, do these steps to connect the applicable switchpack connectors:
  - (a) For the left switchpack, connect the electrical connectors, D11128P and D11130P.
  - (b) For the right switchpack, connect the electrical connectors, D11132P and D11134P.

SUBTASK 76-11-07-010-005-F00

- (2) If not already done, do these steps:
  - (a) Install the applicable top panel in the nose wheel well panel (TASK 53-14-01-420-801).

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- (b) Close this access panel:

**Number      Name/Location**

112A	Forward Access Door
------	---------------------

- (c) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	13	C00120	WEATHER RADAR RT

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
C	18	C01398	LANDING GEAR TAKEOFF WARNING CUTOFF
D	18	C00451	LANDING GEAR AURAL WARN

- (d) For Engine 1, do this step:

Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>AKS 001-024, 026, 028-999</b>			
A	6	C00148	ANTI-ICE & RAIN ENG 1 & WING CONT
<b>AKS 025, 027</b>			
A	6	C00148	ANTI-ICE-RAIN ENG 1/WING CONT-ICE DET
<b>AKS ALL</b>			

- (e) For Engine 2, do this step:

Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
<b>AKS 001-024, 026, 028-999</b>			
B	6	C00149	ANTI-ICE & RAIN ENGINE 2 CONTROL
<b>AKS 025, 027</b>			
B	6	C00149	ANTI-ICE-RAIN ENG 2/CONT & ICE DET

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AKS 025, 027 (Continued)

## F/O Electrical System Panel, P6-2

Row   Col   Number   Name

## I AKS ALL

C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND

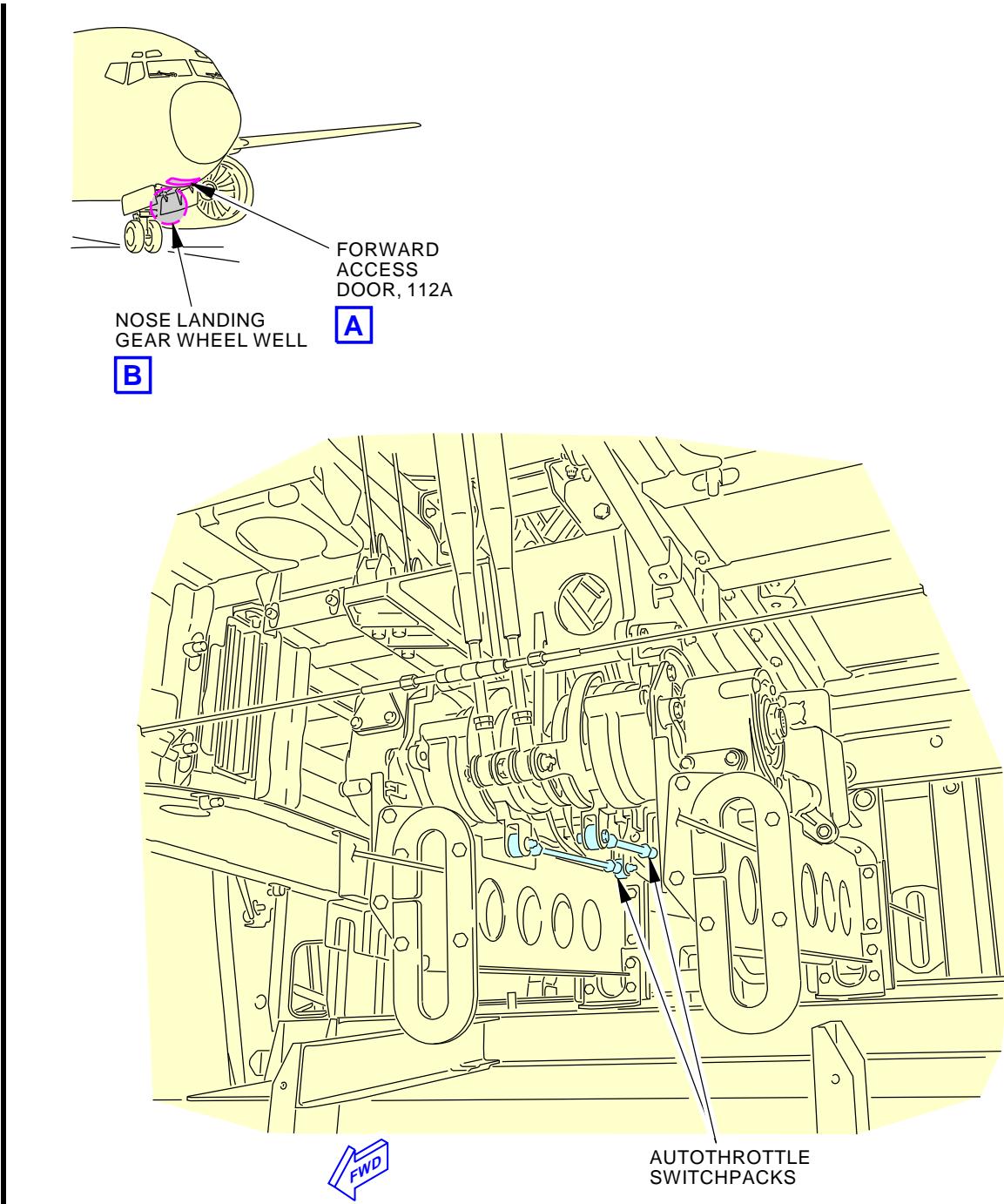
- (f) Do the applicable post-installation test in the autothrottle switchpack assembly installation task (TASK 76-11-07-400-802-F00).

———— END OF TASK ————

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**Autothrottle Switchpack Adjustment/Test**  
Figure 501/76-11-07-990-809-F00 (Sheet 1 of 5)

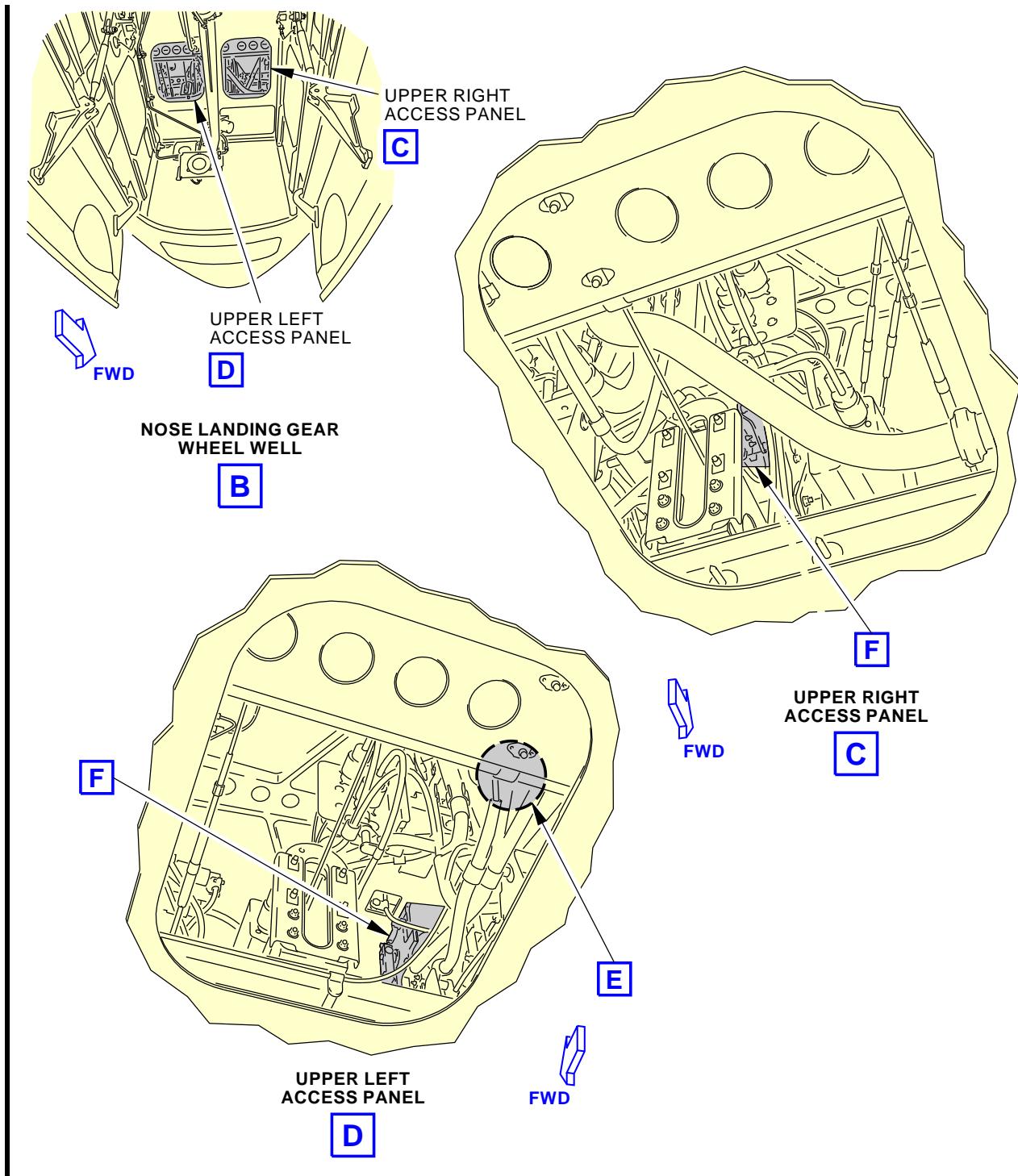
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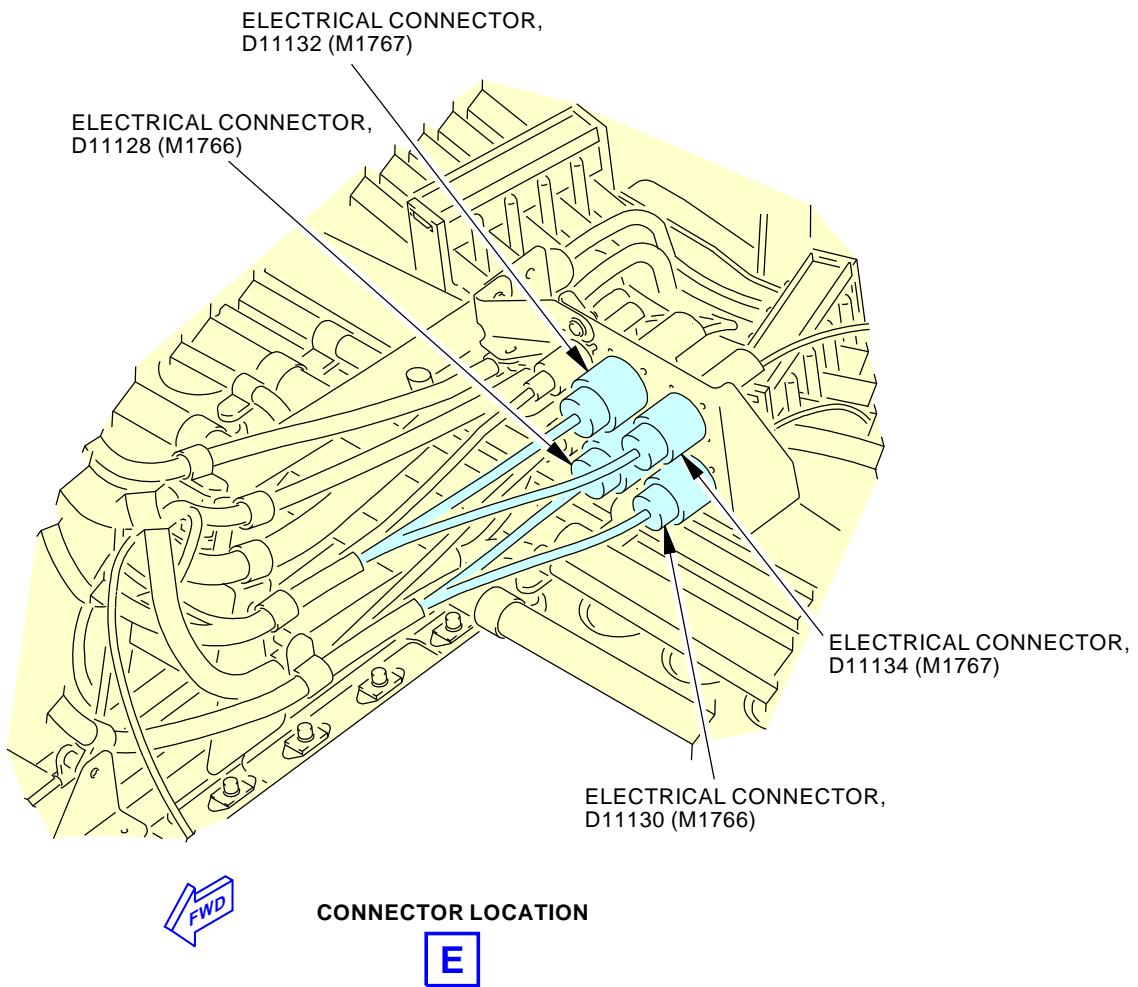
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**Figure 501/76-11-07-990-809-F00 (Sheet 2 of 5)**

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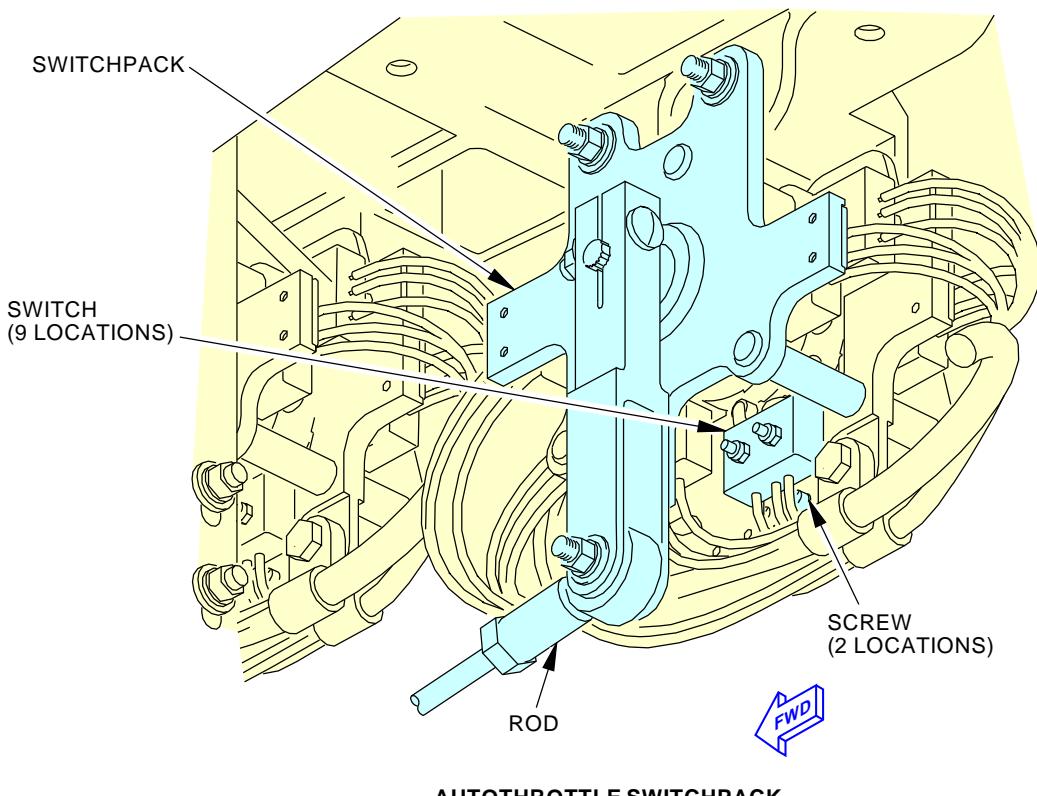
737-600/700/800/900  
AIRCRAFT MAINTENANCE MANUAL

H98444 S0006583131\_V3

Autothrottle Switchpack Adjustment/Test  
Figure 501/76-11-07-990-809-F00 (Sheet 3 of 5)EFFECTIVITY  
AKS ALL

76-11-07

D633A101-AKS



2064925 S0000427640\_V2

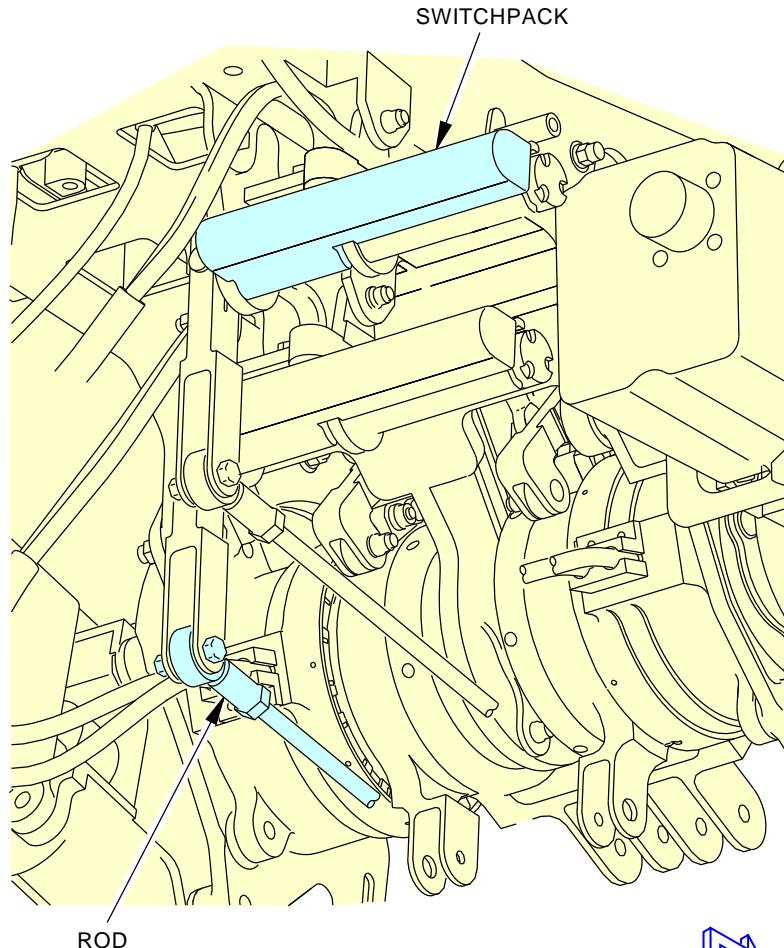
**Autothrottle Switchpack Adjustment/Test**  
**Figure 501/76-11-07-990-809-F00 (Sheet 4 of 5)**

EFFECTIVITY  
AKS ALL; AUTOTHROTTLE SWITCHPACK WITH  
REPLACEABLE SWITCHES P/N 254A1150-1, -2, -7,  
-8, -9, -10

**76-11-07**

D633A101-AKS

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737-600/700/800/900  
AIRCRAFT MAINTENANCE MANUALAUTOTHROTTLE SWITCHPACK  
(EXAMPLE)  
**F**

2065001 S0000427642\_V2

**Autothrottle Switchpack Adjustment/Test**  
**Figure 501/76-11-07-990-809-F00 (Sheet 5 of 5)**

EFFECTIVITY  
AKS ALL; AUTOThROTTLE SWITCHPACK WITH  
INTEGRATED SWITCHES P/N 254A1150-11, -12, -13,  
-14

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

**ENGINE START BRAKE ASSEMBLY - REMOVAL/INSTALLATION**

**1. General**

- A. This procedure has two tasks:
  - (1) Engine Start Brake Assembly Removal
  - (2) Engine Start Brake Assembly Installation.

**TASK 76-11-10-010-801-F00**

**2. Engine Start Brake Assembly Removal**

(Figure 401, Figure 402, Figure 403 and Figure 404)

**A. General**

- (1) This task provides the instructions on how to remove the engine start brake assembly from the aisle control stand.
- (2) The engine start brake assembly is referred to as the start brake assembly.

**B. References**

Reference	Title
25-11-01-000-801	Captain's and First Officer's Seat Removal (P/B 401)

**C. Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Prepare for the Removal**

SUBTASK 76-11-10-040-001-F00

- (1) Make sure that the left and right engine start switches are in OFF and install a DO-NOT-OPERATE tag.

SUBTASK 76-11-10-860-007-F00

- (2) For engine 1, open these circuit breakers and install the safety tags:

**CAPT Electrical System Panel, P18-2**

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE



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**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 76-11-10-860-008-F00

- (3) For engine 2, open these circuit breakers and install the safety tags:

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

SUBTASK 76-11-10-860-012-F00

- (4) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-1**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00721	AUTOTHROTTLE DC 1

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 76-11-10-040-004-F00

- (5) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00360	FUEL SPAR VALVE ENG 2
B	4	C00359	FUEL SPAR VALVE ENG 1
B	5	C00540	FUEL SPAR VALVE IND

SUBTASK 76-11-10-010-001-F00

- (6) Do this task: Captain's and First Officer's Seat Removal, TASK 25-11-01-000-801.

EFFECTIVITY

AKS ALL

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**AIRCRAFT MAINTENANCE MANUAL**

### E. Start Brake Assembly Removal

SUBTASK 76-11-10-010-002-F00

- (1) Get access to the start brake assembly in the control stand as follows:
  - (a) Remove four screws [2] and the left upper side panel [1].
  - (b) Remove five screws [2] and the left lower side panel [5].
  - (c) Remove four screws [2] and the right upper side panel [3].
  - (d) Remove four screws [2] and the right lower side panel [4].

SUBTASK 76-11-10-020-001-F00

- (2) For the start brake assembly (engine 1) [71], disconnect the electrical harness as follows:
  - (a) Remove the electrical connector [23] (D11286P).
  - (b) Remove the electrical connector [22] (D11288P).
  - (c) Disconnect the three clamps [21].

SUBTASK 76-11-10-020-002-F00

- (3) For the start brake assembly (engine 2) [72], disconnect the electrical harness as follows:
  - (a) Remove the electrical connector [42] (D11292P).
  - (b) Remove the electrical connector [43] (D11290P).
  - (c) Disconnect the three clamps [41].

SUBTASK 76-11-10-020-003-F00

- (4) Disconnect the applicable start lever from the start brake assembly as follows:
  - (a) Move the start lever to the IDLE position.
  - (b) Remove the nut [61], the washer [62], the washer [64] and the bolt [65].

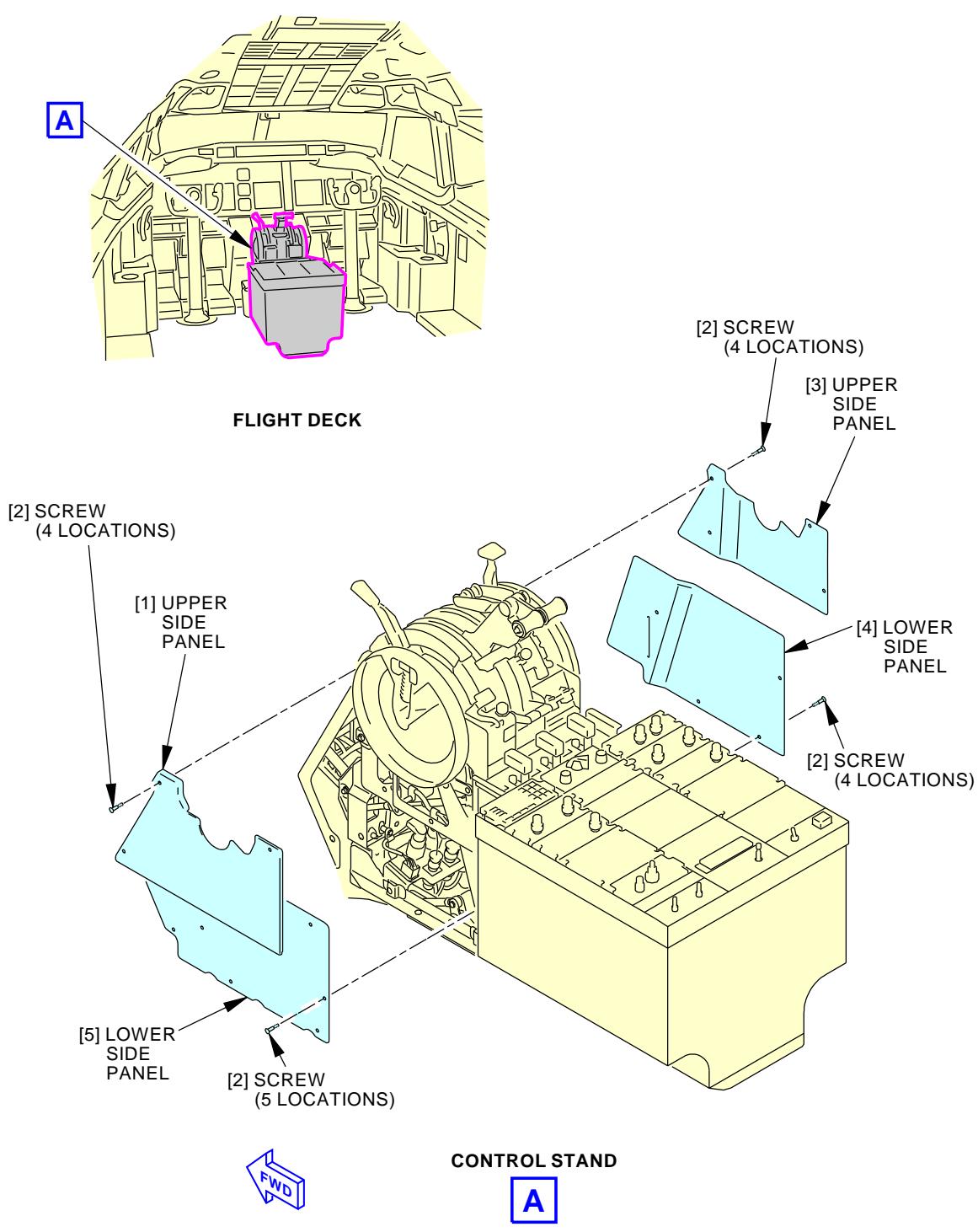
SUBTASK 76-11-10-020-004-F00

- (5) Remove the applicable start brake assembly as follows:
  - (a) Remove the bolt [73] and the washer [74] from the upper aft position.
  - (b) Remove the bolt [73] and the washer [74] from the lower aft position.
  - (c) Do these steps to remove the start brake assembly from the control stand:  
NOTE: The start brake assembly can pivot from its usual position.
    - 1) Remove the nut [66] and the washer [67] from the forward center position.
    - 2) Hold the start brake assembly in its position.
      - a) Remove the bolt [68], the washer [69], and the spacer [70].
    - 3) Remove the applicable start brake assembly down and out of the control stand.

———— END OF TASK ———

EFFECTIVITY  
AKS ALL

**76-11-10**



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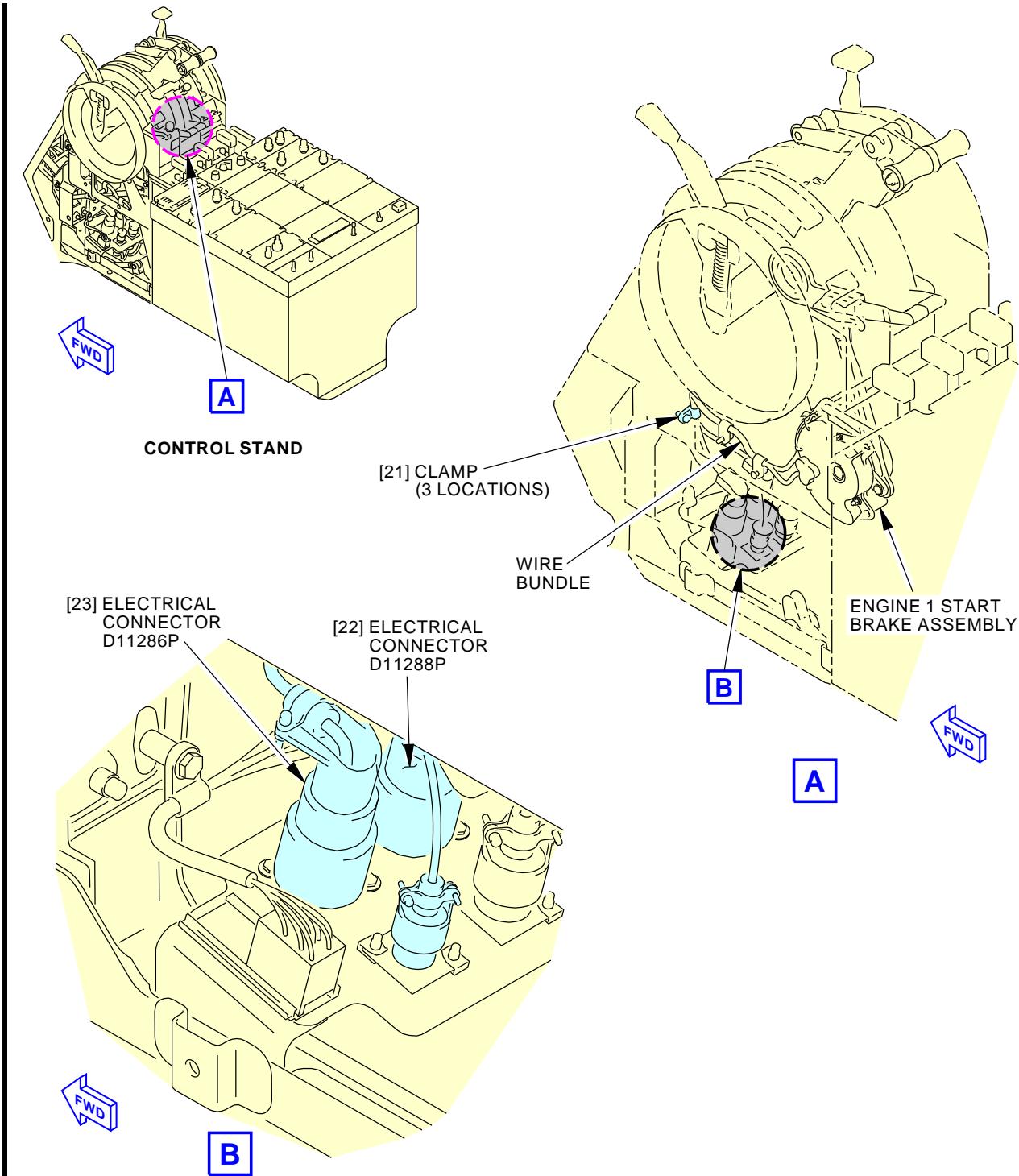
**Control Stand Installation**  
**Figure 401/76-11-10-990-801-F00**

EFFECTIVITY  
AKS ALL

**76-11-10**

D633A101-AKS

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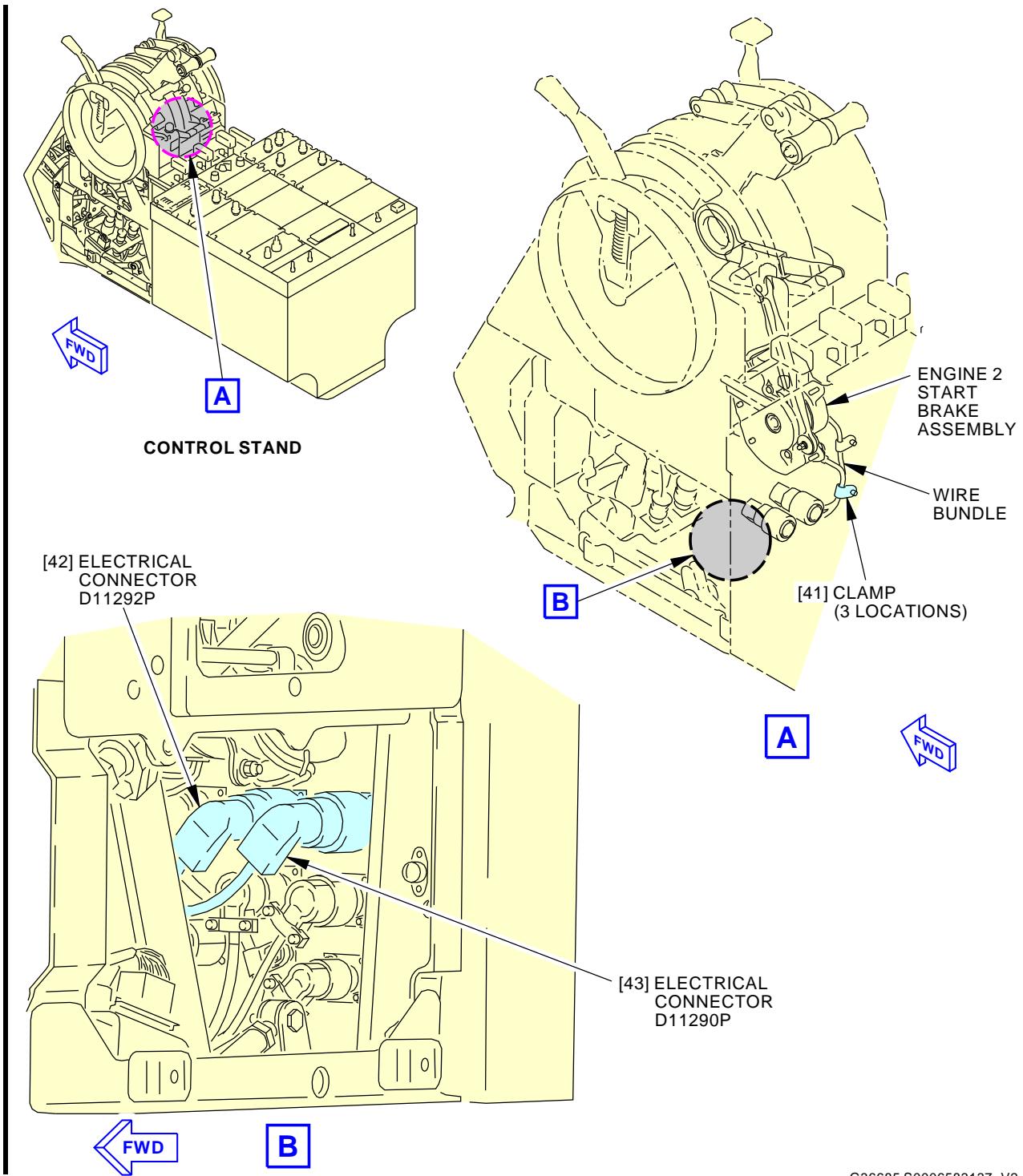
G34581 S0006583136\_V2

**Start Brake (Engine 1 ) Electrical Harness Installation**  
**Figure 402/76-11-10-990-802-F00**

EFFECTIVITY  
**AKS ALL**

**76-11-10**

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G36685 S0006583137\_V2

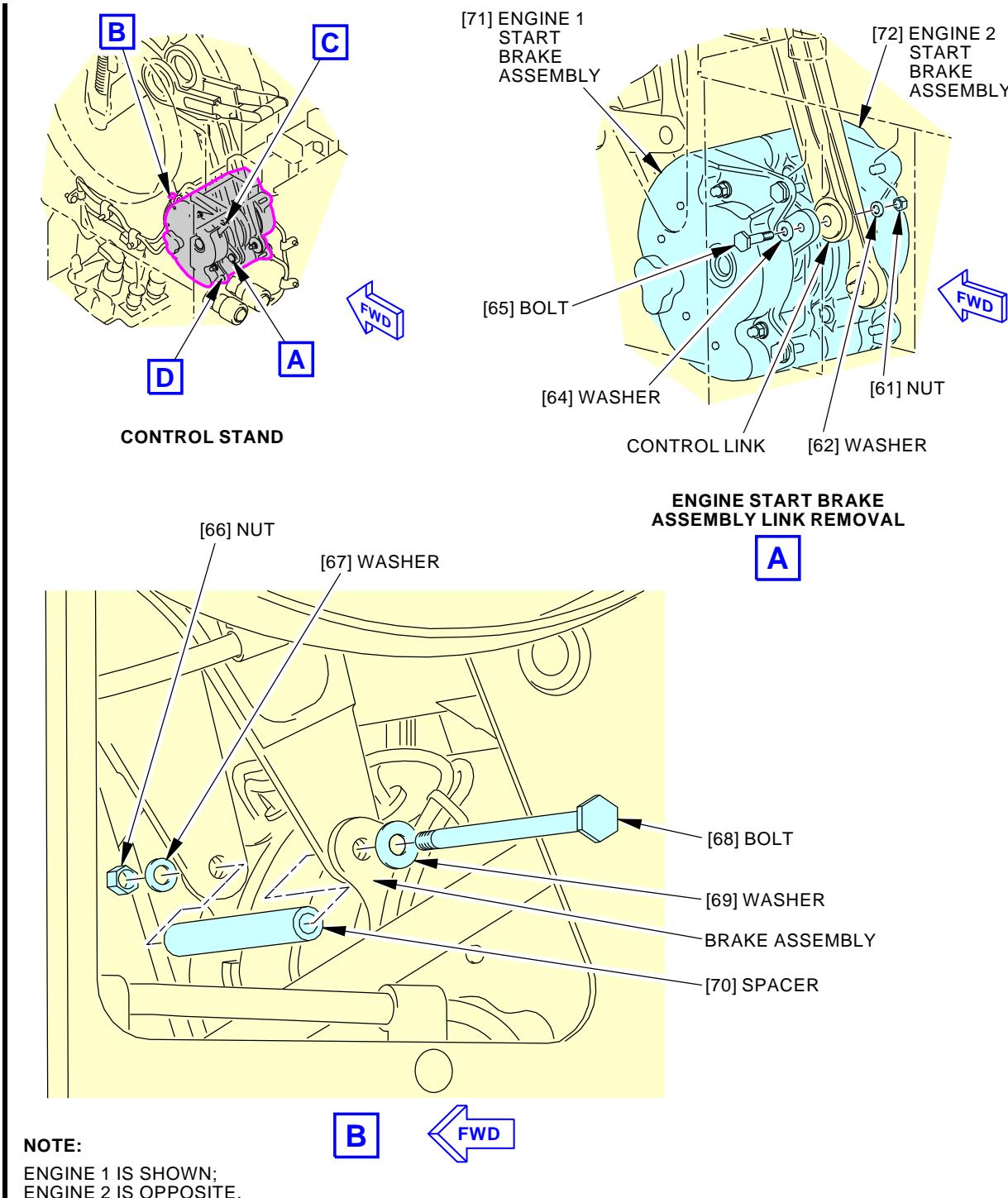
### Start Brake (Engine 2) Electrical Harness Installation

Figure 403/76-11-10-990-803-F00

EFFECTIVITY  
AKS ALL

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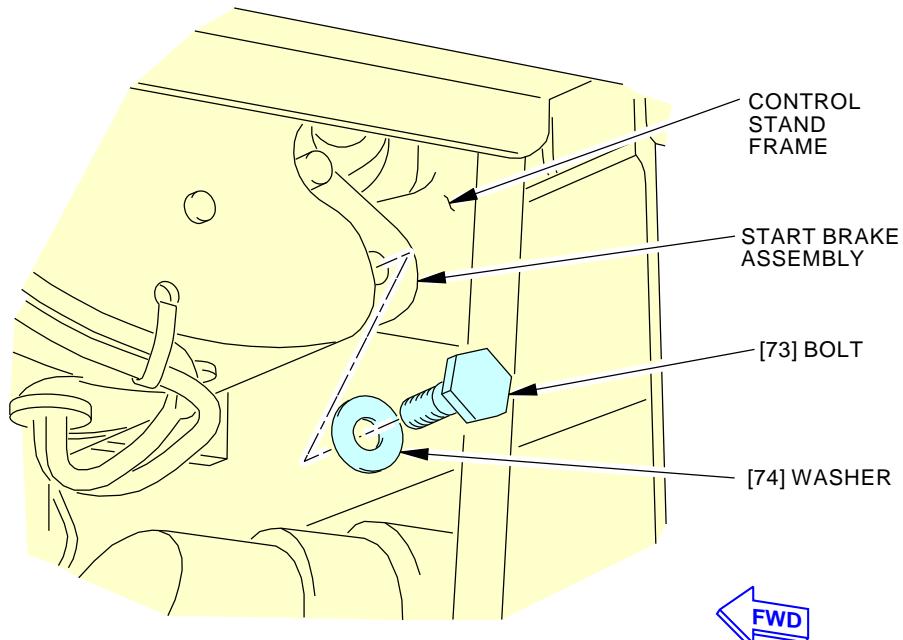
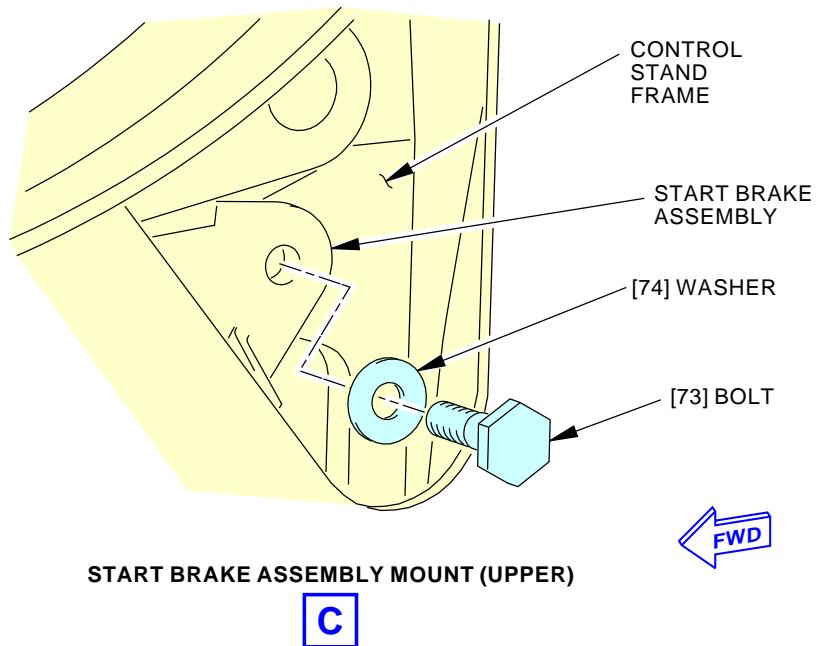
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AIRCRAFT MAINTENANCE MANUAL

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Engine Start Brake Assembly Installation  
Figure 404/76-11-10-990-804-F00 (Sheet 1 of 2)EFFECTIVITY  
AKS ALL**76-11-10**

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## NOTE:

ENGINE 1 IS SHOWN;  
ENGINE 2 IS OPPOSITE.

G34578 S0006583139\_V2

**Engine Start Brake Assembly Installation**  
Figure 404/76-11-10-990-804-F00 (Sheet 2 of 2)

EFFECTIVITY  
AKS ALL

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**TASK 76-11-10-420-801-F00****3. Engine Start Brake Assembly Installation**

(Figure 401, Figure 402, Figure 403 and Figure 404)

**A. General**

- (1) This task provides the instructions on how to install the engine start brake assemblies into the aisle control stand.

**B. References**

Reference	Title
25-11-01-400-801	Captain's and First Officer's Seat Installation (P/B 401)
28-22-00-710-801	Engine Fuel Spar Valve - Electrical Control and Indication Test (P/B 501)
73-21-00-700-804-F00	EEC TEST (P/B 501)
73-21-00-700-809-F00	EEC Discretes Test (P/B 501)
74-00-00-750-801-F00	Ignition System Audible Test (P/B 501)

**C. Tools/Equipment**

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

Reference	Description
COM-754	Scale - Spring, 0-150 Pounds, With Hook and Pad Adapter Kit Part #: DG-200 Supplier: 92456 Opt Part #: DPPH-150 Supplier: 92456
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: C15292 (MODEL T477W) Supplier: 01014 Part #: M1 Supplier: 3AD17 Opt Part #: M1B Supplier: 3AD17

**D. Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
71	Start brake assembly (engine 1)	76-11-10-02-005	AKS 001-017, 019
72	Start brake assembly (engine 2)	76-11-10-02-010	AKS 001-017, 019

**E. Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**F. Engine Start Brake Assembly Installation****SUBTASK 76-11-10-020-005-F00**

- (1) Install the applicable start brake assembly (engine 1) [71] or start brake assembly (engine 2) [72] as follows:
  - (a) Put the start brake assembly (engine 1) [71] or the start brake assembly (engine 2) [72] into its position in the control stand.

NOTE: Put the start brake assembly in its position for the installation of the forward pivot parts.



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- (b) Install the washer [69] and the bolt [68] only through the brake assembly and the first frame of the control stand.
- (c) Put the spacer [70] in its position.
- (d) Move the bolt and washer through the spacer, the second control stand frame, and brake assembly.
  - 1) Install the nut [66] and the washer [67].
- (e) Pivot the speed brake up to do these steps:
  - 1) Install the washer [74] and the bolt [73] for the upper start brake assembly mount.
  - 2) Install the washer [74] and the bolt [73] for the lower start brake assembly mount.

**SUBTASK 76-11-10-020-006-F00**

- (2) Install the applicable start lever to the start brake assembly as follows:
  - (a) Move the start lever to the IDLE position.
  - (b) Move the actuator arm of the start brake assembly to align with the control link.
  - (c) Install the bolt [65], the washer [64], the washer [62], and the nut [61].

**SUBTASK 76-11-10-820-001-F00**

- (3) After you complete the installation of the applicable start brake assembly, do these checks:
  - (a) Move the start lever from the CUTOFF position to the IDLE position 2 or 3 times.
    - 1) The lever must move freely and smoothly.

NOTE: The lever must not touch or catch on parts in the control stand.
  - (b) Measure the resistance in the movement of the start lever from the CUTOFF to the IDLE position as follows:
    - 1) Attach the spring scale, COM-754 to the start lever knob.
    - 2) Make sure that the resistance is not more than 10 lbf (44.5 N).
  - (c) Measure the resistance to get the start lever from its detent position as follows:
    - 1) Attach the spring scale, COM-754 to the start lever knob.
    - 2) Make sure that the resistance is not more than 5 lbf (22.24 N).

**SUBTASK 76-11-10-700-001-F00**

- (4) Do a check of the start brake assembly (engine 1) [71] as follows:
 

NOTE: Do the check only when you replace the LRU.

  - (a) Set the engine 1 start lever to the CUTOFF position.
  - (b) Do a check of the circuit values of the start brake assembly at the CUTOFF position.
    - 1) Use a intrinsically safe approved bonding meter, COM-1550 to measure the circuit values (Table 401).

**Table 401/76-11-10-993-801-F00**

<b>CIRCUIT SETTINGS</b>		
<b>Connector (Switch)</b>	<b>Connector Pin Numbers</b>	<b>Circuit Condition (Switch Settings)</b>
D11286P (S88)	11 and 12	More than 1 megohm
D11286P (S88)	11 and 13	Less than 1 ohm
D11286P (S1024)	15 and 5	More than 1 megohm

EFFECTIVITY  
**AKS ALL****76-11-10**

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**Table 401/76-11-10-993-801-F00 (Continued)**

<b>CIRCUIT SETTINGS</b>		
<b>Connector (Switch)</b>	<b>Connector Pin Numbers</b>	<b>Circuit Condition (Switch Settings)</b>
D11286P (S1024)	15 and 4	Less than 1 ohm
D11286P (S1026)	9 and 8	More than 1 megohm
D11286P (S1026)	9 and 7	Less than 1 ohm
D11288P (S89)	11 and 12	More than 1 megohm
D11288P (S89)	11 and 13	Less than 1 ohm
D11288P (S1025)	15 and 5	More than 1 megohm
D11288P (S1025)	15 and 4	Less than 1 ohm
D11288P (S595)	9 and 8	More than 1 megohm
D11288P (S595)	9 and 7	Less than 1 ohm

- (c) Set the engine 1 start lever to the IDLE position.
- (d) Do a check of the circuit values of the start brake assembly at the IDLE position.
  - 1) Use a intrinsically safe approved bonding meter, COM-1550 to measure the circuit values (Table 402).

**Table 402/76-11-10-993-802-F00**

<b>CIRCUIT SETTINGS</b>		
<b>Connector (Switch)</b>	<b>Connector Pin Numbers</b>	<b>Circuit Condition (Switch Settings)</b>
D11286P (S88)	11 and 12	Less than 1 ohm
D11286P (S88)	11 and 13	More than 1 megohm
D11286P (S1024)	15 and 5	Less than 1 ohm
D11286P (S1024)	15 and 4	More than 1 megohm
D11286P (S1026)	9 and 8	Less than 1 ohm
D11286P (S1026)	9 and 7	More than 1 megohm
D11288P (S89)	11 and 12	Less than 1 ohm
D11288P (S89)	11 and 13	More than 1 megohm
D11288P (S1025)	15 and 5	Less than 1 ohm
D11288P (S1025)	15 and 4	More than 1 megohm
D11288P (S595)	9 and 8	Less than 1 ohm
D11288P (S595)	9 and 7	More than 1 megohm

- (e) If you find that the measured circuits are as shown, do the electrical connector installation steps.

SUBTASK 76-11-10-700-002-F00

- (5) Do a check of the start brake assembly (engine 2) [72] as follows

NOTE: Do the check only when you replace the LRU.

EFFECTIVITY
AKS ALL

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- (a) Set the engine 2 start lever to the CUTOFF position.
- (b) Do a check of the circuit values of the start brake assembly at the CUTOFF position.
  - 1) Use a intrinsically safe approved bonding meter, COM-1550 to measure the circuit values (Table 403).

**Table 403/76-11-10-993-803-F00**

<b>CIRCUIT SETTINGS</b>		
<b>Connector (Switch)</b>	<b>Connector Pin Numbers</b>	<b>Circuit Condition (Switch Settings)</b>
D11290P (S90)	11 and 12	More than 1 megohm
D11290P (S90)	11 and 13	Less than 1 ohm
D11290P (S1027)	15 and 5	More than 1 megohm
D11290P (S1027)	15 and 4	Less than 1 ohm
D11290P (S1029)	9 and 8	More than 1 megohm
D11290P (S1029)	9 and 7	Less than 1 ohm
D11292P (S91)	11 and 12	More than 1 megohm
D11292P (S91)	11 and 13	Less than 1 ohm
D11292P (S1028)	15 and 5	More than 1 megohm
D11292P (S1028)	15 and 4	Less than 1 ohm
D11292P (S596)	9 and 8	More than 1 megohm
D11292P (S596)	9 and 7	Less than 1 ohm

- (c) Set the engine 2 start lever to the IDLE position.
- (d) Do a check of the circuit values of the start brake assembly at the IDLE position.
  - 1) Use a intrinsically safe approved bonding meter, COM-1550 to measure the circuit values (Table 404).

**Table 404/76-11-10-993-804-F00**

<b>CIRCUIT SETTINGS</b>		
<b>Connector (Switch)</b>	<b>Connector Pin Numbers</b>	<b>Circuit Condition (Switch Settings)</b>
D11290P (S90)	11 and 12	Less than 1 ohm
D11290P (S90)	11 and 13	More than 1 megohm
D11290P (S1027)	15 and 5	Less than 1 ohm
D11290P (S1027)	15 and 4	More than 1 megohm
D11290P (S1029)	9 and 8	Less than 1 ohm
D11290P (S1029)	9 and 7	More than 1 megohm
D11292P (S91)	11 and 12	Less than 1 ohm
D11292P (S91)	11 and 13	More than 1 megohm
D11292P (S1028)	15 and 5	Less than 1 ohm

EFFECTIVITY  
**AKS ALL**

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Table 404/76-11-10-993-804-F00 (Continued)

CIRCUIT SETTINGS		
Connector (Switch)	Connector Pin Numbers	Circuit Condition (Switch Settings)
D11292P (S1028)	15 and 4	More than 1 megohm
D11292P (S596)	9 and 8	Less than 1 ohm
D11292P (S596)	9 and 7	More than 1 megohm

- (e) If you find that the measured circuits are as shown, do the electrical connector installation steps.

SUBTASK 76-11-10-420-001-F00

- (6) Connect the electrical harness for the start brake assembly (engine 1) [71] as follows.
- Install the electrical connector [23] (D11286P).
  - Install the electrical connector [22] (D11288P).
  - Attach the three clamps [21].

SUBTASK 76-11-10-020-007-F00

- (7) Connect the electrical harness for the start brake assembly (engine 2) [72] as follows:
- Install the electrical connector [42] (D11292P).
  - Install the electrical connector [43] (D11290P).
  - Attach the three clamps [41].

SUBTASK 76-11-10-010-003-F00

- (8) Install the access covers on to the control stand as follows:
- Install the left upper side panel [1].
    - Attach with four screws [2].
  - Install the left lower side panel [5].
    - Attach with five screws [2].
  - Install the right upper side panel [3].
    - Attach with four screws [2].
  - Install the right lower side panel [4].
    - Attach with four screws [2].

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 76-11-10-860-011-F00

- (1) Remove the safety tags and close these circuit breakers:

### CAPT Electrical System Panel, P18-1

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	1	C00721	AUTOTHROTTLE DC 1

### F/O Electrical System Panel, P6-2

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

EFFECTIVITY	
AKS ALL	

**76-11-10**

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SUBTASK 76-11-10-040-006-F00

- (2) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C00360	FUEL SPAR VALVE ENG 2
B	4	C00359	FUEL SPAR VALVE ENG 1
B	5	C00540	FUEL SPAR VALVE IND

SUBTASK 76-11-10-860-009-F00

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

**CAPT Electrical System Panel, P18-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE

**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 76-11-10-860-013-F00

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

**F/O Electrical System Panel, P6-2**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

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**F/O Electrical System Panel, P6-3**

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

SUBTASK 76-11-10-860-005-F00

- (5) Remove the DO-NOT-OPERATE tag from the engine start switch.

SUBTASK 76-11-10-410-002-F00

- (6) Do this task: Captain's and First Officer's Seat Installation, TASK 25-11-01-400-801.

**H. Engine Start Brake Assembly Test**

SUBTASK 76-11-10-700-003-F00

- (1) Do this task: Engine Fuel Spar Valve - Electrical Control and Indication Test, TASK 28-22-00-710-801.

SUBTASK 76-11-10-700-006-F00

- (2) Do this task: EEC TEST, TASK 73-21-00-700-804-F00.

SUBTASK 76-11-10-700-007-F00

- (3) Do this task: EEC Discretes Test, TASK 73-21-00-700-809-F00.

SUBTASK 76-11-10-700-004-F00

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

**— END OF TASK —**

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**ENGINE START BRAKE ASSEMBLY SWITCH - REMOVAL/INSTALLATION**

**1. General**

- A. This procedure has two tasks:
  - (1) Engine Start Brake Assembly Switch Removal
  - (2) Engine Start Brake Assembly Switch Installation.

**TASK 76-11-11-010-801-F00**

**2. Engine Start Brake Assembly Switch Removal**

(Figure 401, Figure 402 and Figure 403)

**A. General**

- (1) This task provides the instructions on how to remove the start brake assembly switch from the engine start brake assembly.
- (2) There are six switches that are installed in each engine start brake assembly.
- (3) For this procedure the engine start brake assembly will be referred to as the start brake assembly.

**B. References**

Reference	Title
76-11-10-010-801-F00	Engine Start Brake Assembly Removal (P/B 401)

**C. Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Prepare for the Removal**

SUBTASK 76-11-11-010-001-F00

- (1) For the applicable engine, do this task: Engine Start Brake Assembly Removal, TASK 76-11-10-010-801-F00.

**E. Engine Start Brake Assembly Switch Removal**

SUBTASK 76-11-11-020-003-F00

- (1) Remove the rotor assembly [8] as follows:
  - (a) Remove the two bolts [3], one screw [4], the six washers [2], and the three nuts [1].
  - (b) Separate the housing assembly [12].
  - (c) Remove the rotor assembly [8].
  - (d) Keep the three springs [13] and the discs [14] for each housing assembly [12].

SUBTASK 76-11-11-020-001-F00

- (2) Remove the applicable switch [5] for a two-switch installation from a housing assembly [12] as follows:
  - (a) Remove the two screws [7] and the two washers [6].
  - (b) Remove the two switches [5].
  - (c) Remove the switch wires at the applicable brake assembly connector.

SUBTASK 76-11-11-420-003-F00

- (3) Remove the applicable switch [5] for a one-switch installation from the housing assembly [12] as follows:

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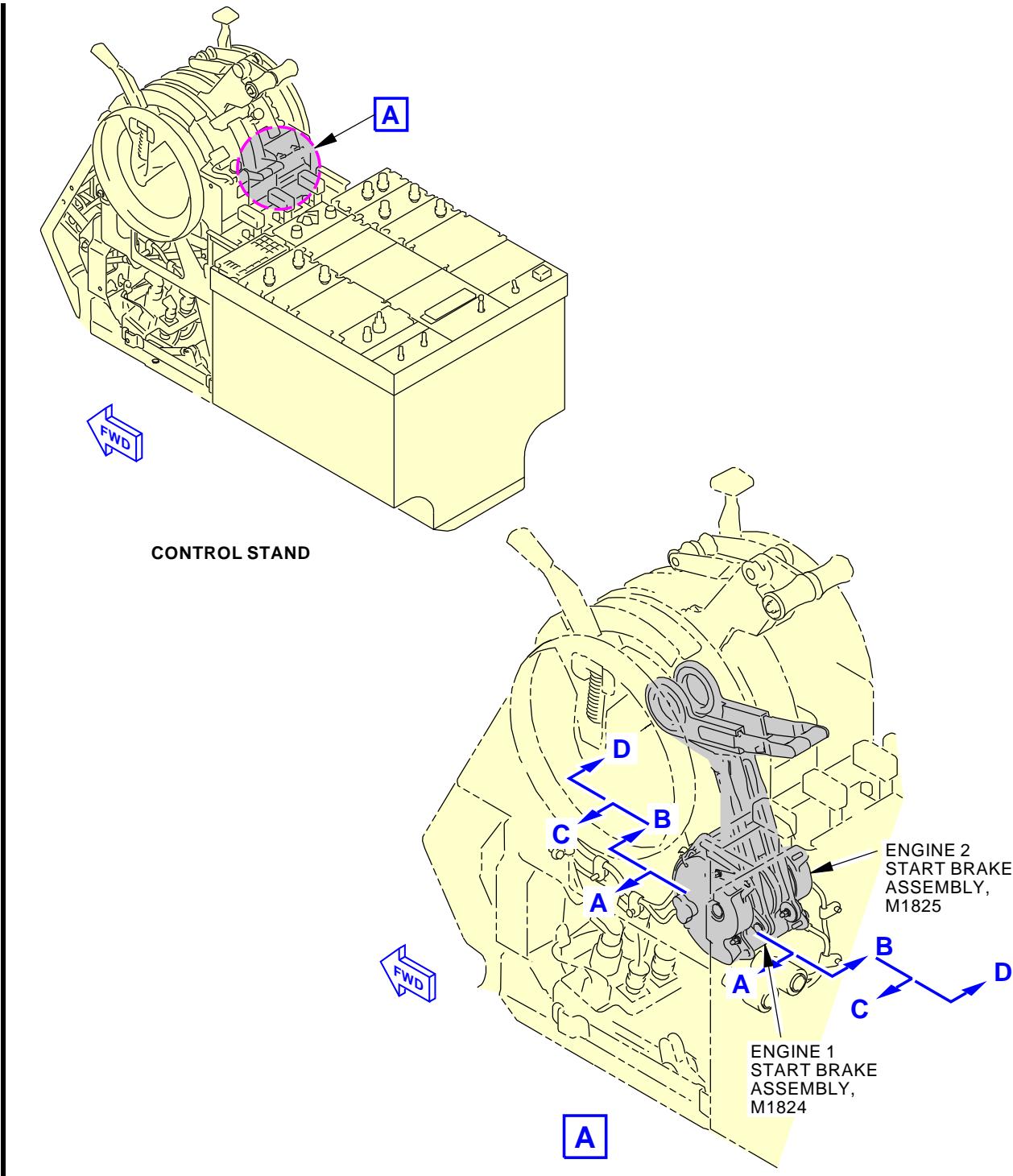
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- (a) Remove two bolt [11], the two washer [10] and the switch [5].
- (b) Remove the switch wires at the applicable brake assembly connector.

———— END OF TASK ————

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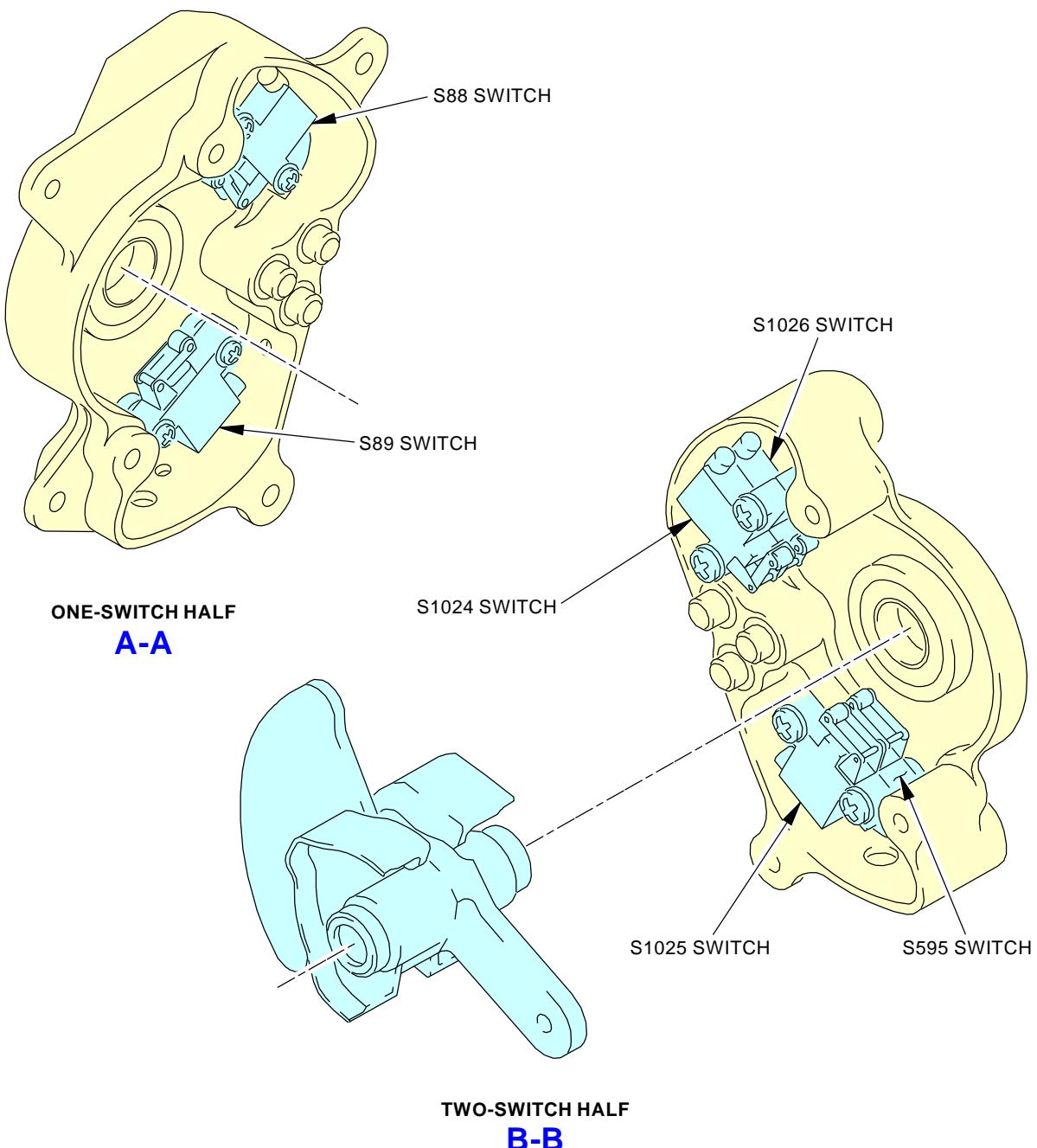
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**Engine Start Brake Assembly Switch Location**  
**Figure 401/76-11-11-990-801-F00 (Sheet 1 of 3)**

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ENGINE 1 START BRAKE ASSEMBLY, M1824

L41195 S0006583149\_V3

**Engine Start Brake Assembly Switch Location**  
**Figure 401/76-11-11-990-801-F00 (Sheet 2 of 3)**

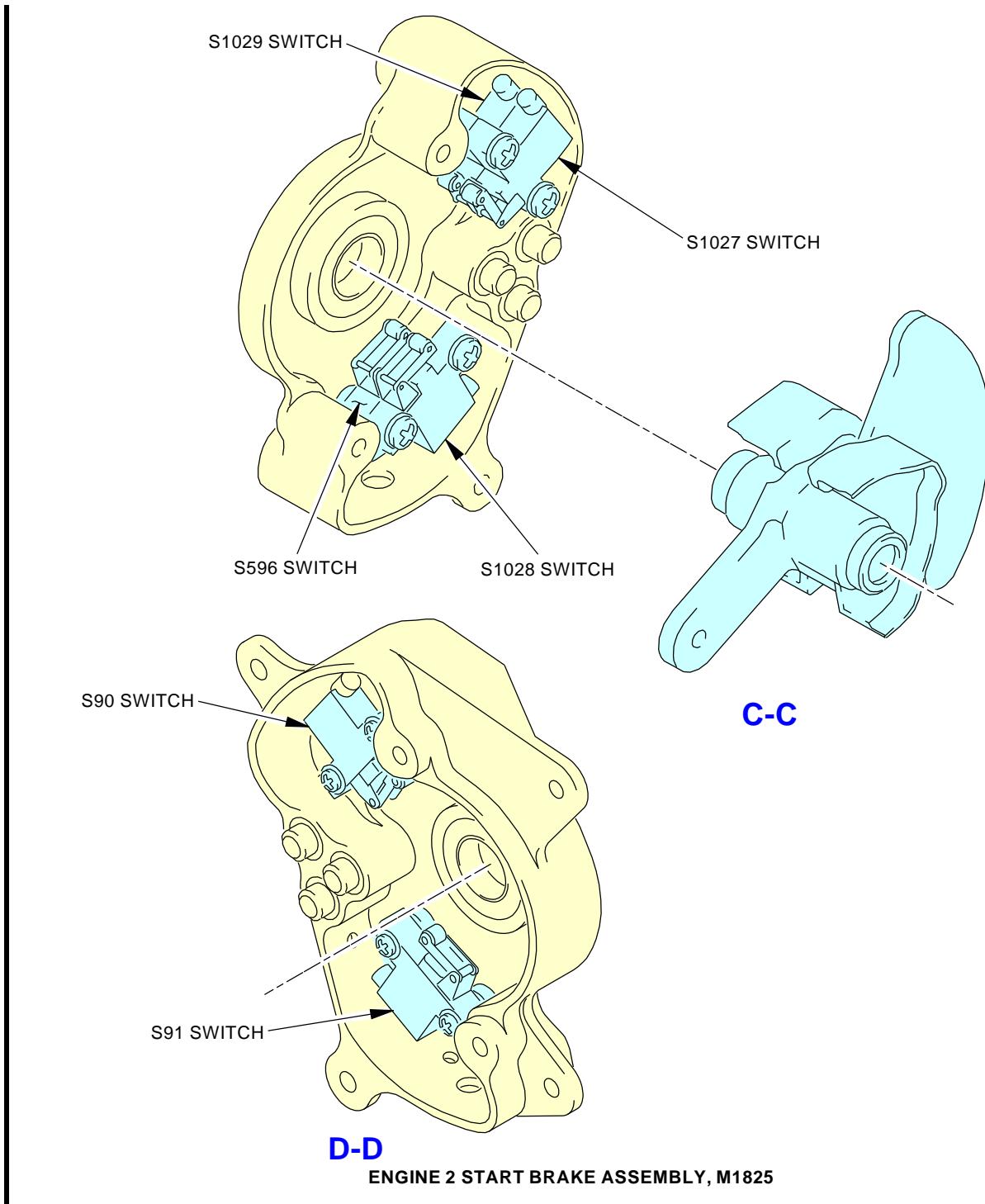
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L49979 S0006583150\_V2

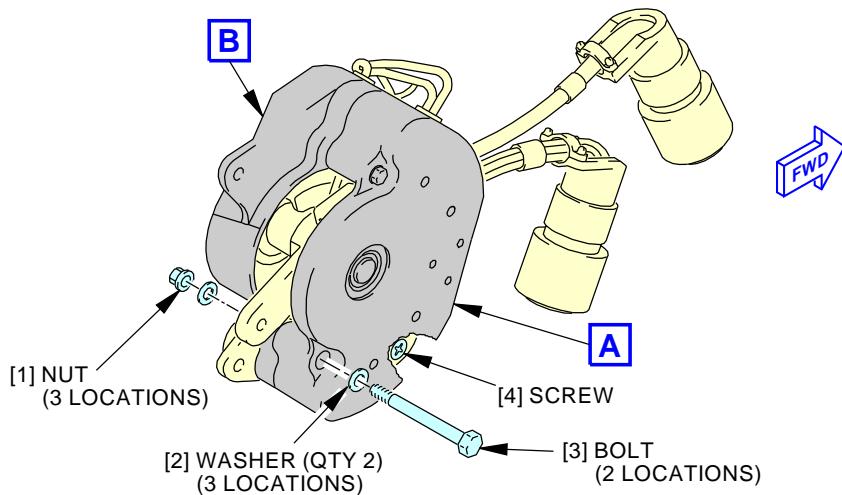
**Engine Start Brake Assembly Switch Location**  
**Figure 401/76-11-11-990-801-F00 (Sheet 3 of 3)**

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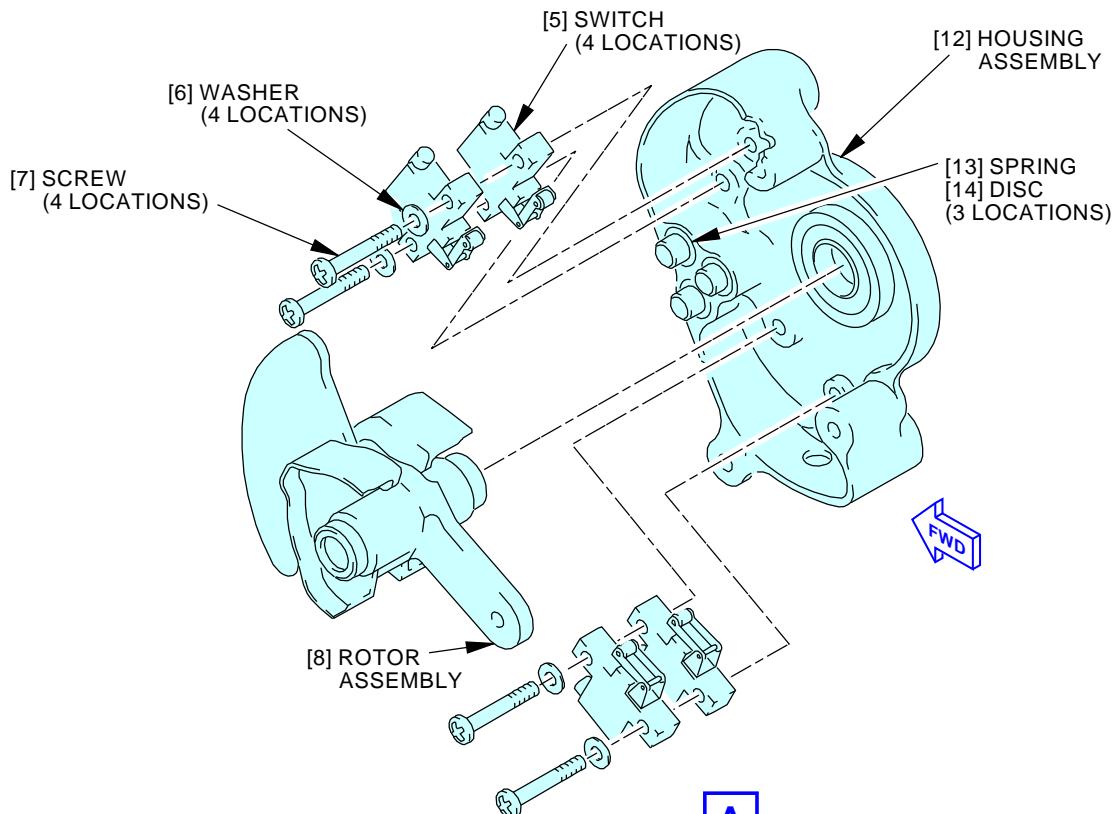
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ENGINE START BRAKE ASSEMBLY



## NOTE:

ENGINE 1 START BRAKE ASSEMBLY IS SHOWN,  
ENGINE 2 START BRAKE ASSEMBLY IS OPPOSITE.

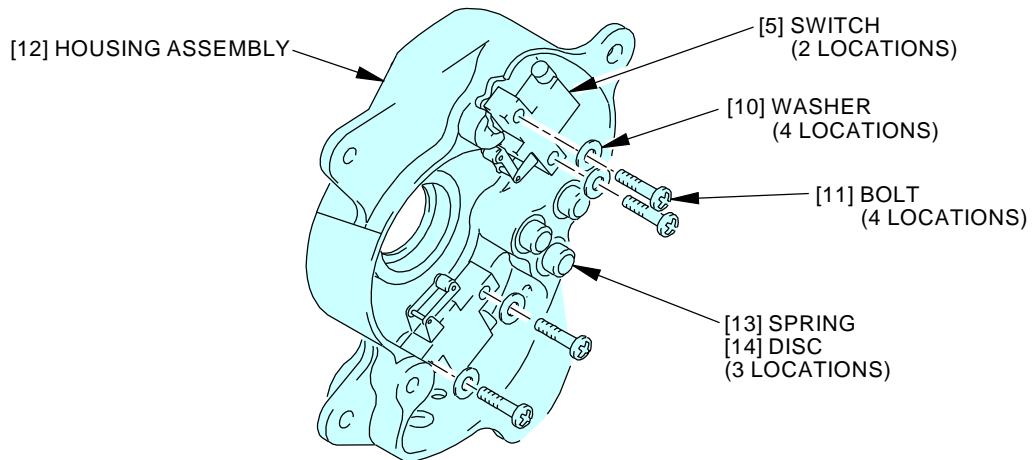
A

L41155 S0006583151\_V4

Engine Start Brake Assembly Switch Installation  
Figure 402/76-11-11-990-802-F00 (Sheet 1 of 2)EFFECTIVITY  
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B

**NOTE:**

ENGINE 1 START BRAKE ASSEMBLY IS SHOWN,  
ENGINE 2 START BRAKE ASSEMBLY IS OPPOSITE.

L41164 S0006583152\_V4

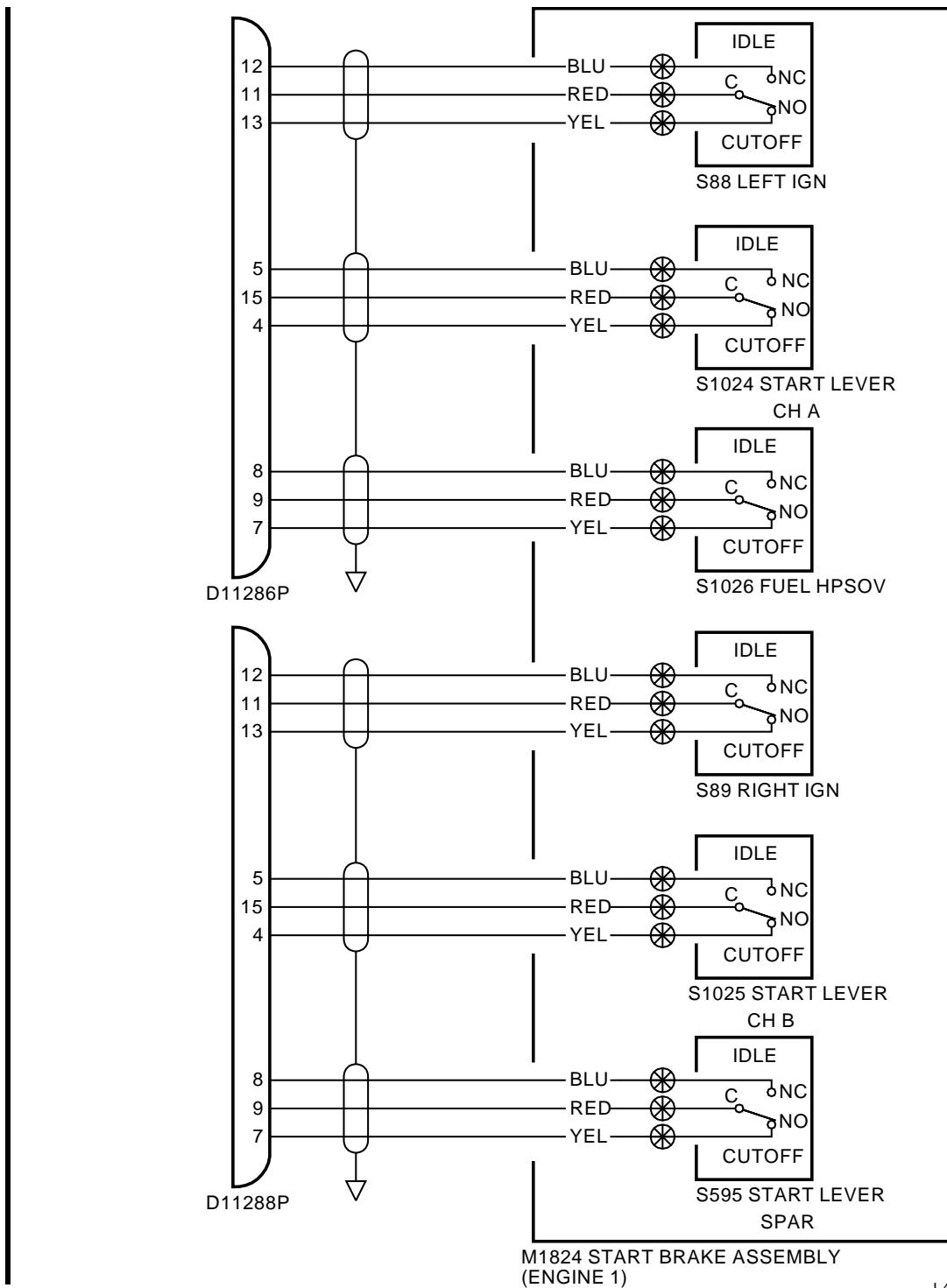
**Engine Start Brake Assembly Switch Installation**  
**Figure 402/76-11-11-990-802-F00 (Sheet 2 of 2)**

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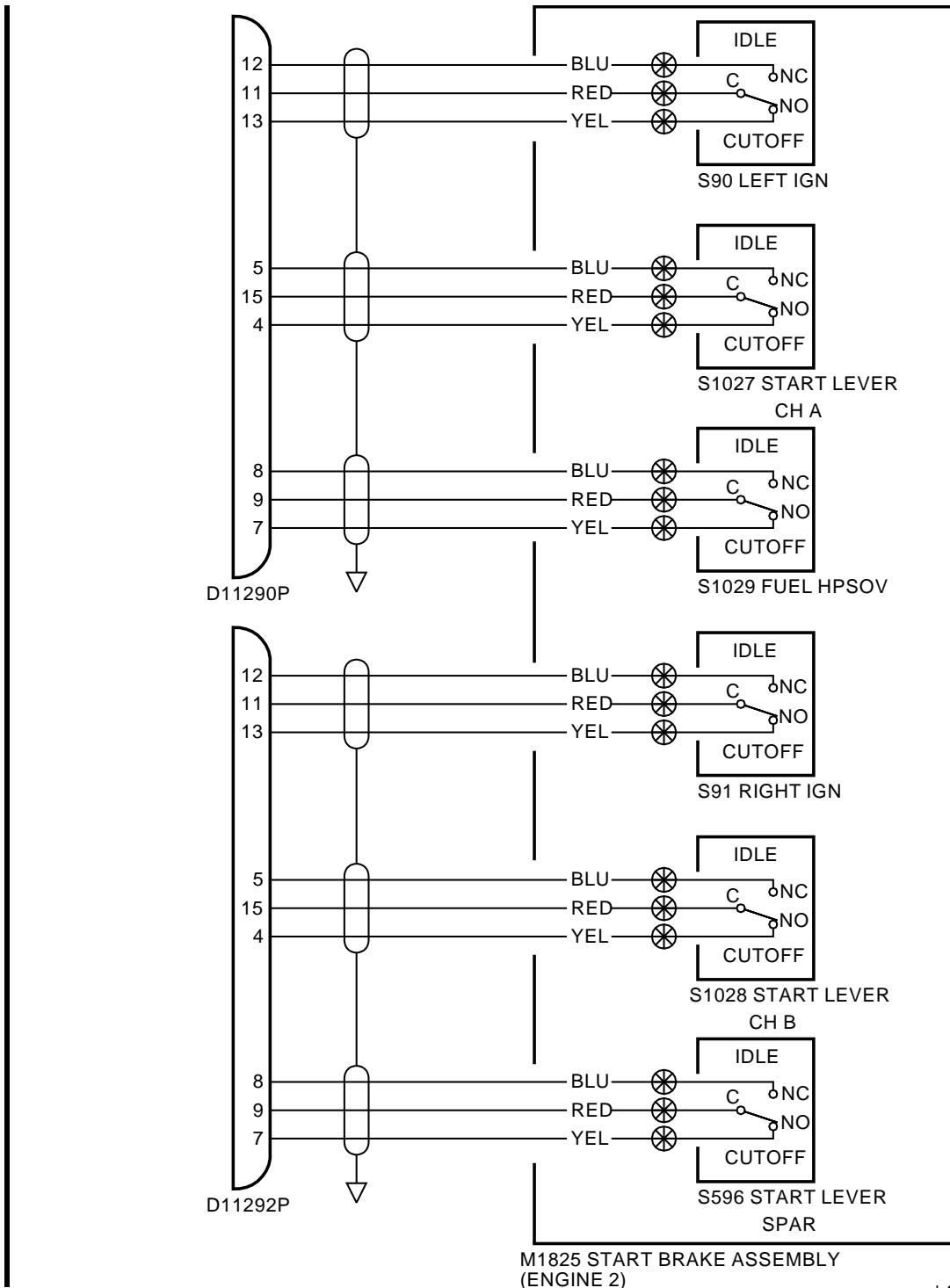


L41264 S0006583154\_V2

**Start Brake Assembly Wiring Diagram**  
**Figure 403/76-11-11-990-804-F00 (Sheet 1 of 2)**

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**Start Brake Assembly Wiring Diagram  
Figure 403/76-11-11-990-804-F00 (Sheet 2 of 2)**

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**TASK 76-11-11-420-801-F00****3. Engine Start Brake Assembly Switch Installation**

(Figure 401, Figure 402 and Figure 403)

**A. General**

- (1) This task provides the instructions on how to install the start brake assembly switch into the engine start brake assembly.

**B. References**

Reference	Title
76-11-10-420-801-F00	Engine Start Brake Assembly Installation (P/B 401)

**C. Location Zones**

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

**D. Engine Start Brake Assembly Switch Installation****SUBTASK 76-11-11-020-002-F00**

- (1) Install the applicable switch [5] for a one-switch installation into the housing assembly [12] as follows:
  - (a) Put the switch wires through the housing assembly [12].
  - (b) Install the switch with the two bolts [11] and the two washers [10].

**SUBTASK 76-11-11-420-001-F00**

- (2) Install the applicable switches [5] for a two-switch installation into the housing assembly [12] as follow:
  - (a) Put the switch wires through the housing assembly [12].
  - (b) Put the two switches [5] into their positions.
  - (c) Install the switches [5] with the two screws [7], and the two washers [6].

**SUBTASK 76-11-11-420-002-F00**

- (3) Install the rotor assembly [8] as follows:
  - (a) Make sure that the surfaces of the rotor assembly [8] are clean before you install it into the housing assembly [12].
  - (b) Install the three springs [13] and the discs [14] in each housing assembly [12].
  - (c) Install the rotor assembly [8].
  - (d) Assemble the housing assemblies [12].
  - (e) Install the two bolts [3], one screw [4], the six washers [2], and the three nuts [1].
  - (f) Install the switch wires at the applicable brake assembly connector.

**E. Put the Airplane back to Its Usual Condition****SUBTASK 76-11-11-010-002-F00**

- (1) Do this task: Engine Start Brake Assembly Installation, TASK 76-11-10-420-801-F00.

———— END OF TASK ———

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