



AIRCRAFT MAINTENANCE MANUAL

IDLE LOCKOUT MICROSWITCH - ADJUSTMENT/TEST

EFFECTIVITY: AIRCRAFT WITH THRUST REVERSERS

1. General

- A. This section gives the procedures to do the check and adjustment of the idle lockout microswitch.
- B. The procedures in this section are given in the sequence below. The tasks identified with (♦) are part of the Scheduled Maintenance Requirements Document (SMRD).

TASK NUMBER	DESCRIPTION	EFFECTIVITY
76-13-03-700-801-A ♦	IDLE LOCKOUT MICROSWITCH - OPERATIONAL CHECK	AIRCRAFT WITH THRUST REVERSERS
76-13-03-820-801-A	IDLE LOCK MICROSWITCH - ADJUSTMENT PROCEDURES	AIRCRAFT WITH THRUST REVERSERS



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TASK 76-13-03-700-801-A

EFFECTIVITY: AIRCRAFT WITH THRUST REVERSERS

2. IDLE LOCKOUT MICROSWITCH - OPERATIONAL CHECK

A. General

- (1) Do this check with the aircraft on the ground, not on jacks. It is not necessary to operate the engines.
- (2) This check has two parts as follows:
 - (a) Operational check of the LH idle lockout microswitch.
 - (b) Operational check of the RH idle lockout microswitch.

B. References

REFERENCE	DESIGNATION
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Cockpit

I. Preparation

SUBTASK 841-002-A

- (1) Energize the aircraft with external DC-power supply ([AMM TASK 20-40-01-860-801-A/200](#)).
- (2) Set the BATT 1 and BATT 2 switches, on the electrical panel, on the overhead panel, to OFF.
- (3) Make sure that the aircraft hydraulic system is not pressurized.

- (4) On the circuit breaker panel, make sure that these circuit breakers are in the closed position:
- AIR/GND A.
 - AIR/GND C.
 - N2 SIGNAL 1A.
 - N2 SIGNAL 1B.
 - N2 SIGNAL 2A.
 - N2 SIGNAL 2B.
- (5) Stop the stall protection system (SPS) as follows:
- (a) On the SPS panel, lift the guard and push the CUTOUT 1 (2) pushbutton.
 Result:
 1 The striped bars of the pushbutton come on.
 2 The warning message SPS1-2 INOP comes into view on the EICAS display.
 3 The warning lights flash.
 4 The aural warning (bell) operates.
NOTE: Push one of the warning light switches to stop the lights and the aural warning.

J. Operational Check of Idle Lockout ([Figure 501](#)) ([Figure 502](#))

SUBTASK 710-002-A

- (1) Do the operational check of the idle lockout microswitch and solenoid on the LH engine as follows:
- WARNING:** • BEFORE YOU OPEN THE N2 CIRCUIT BREAKERS, MAKE SURE THAT SENSORS PITOT 1 - TAT 1/AOA 1, PITOT 3, AND PITOT 2 - TAT 2/AOA 2, ON THE OVERHEAD PANEL, ARE SET AT OFF. THIS WILL PREVENT INJURY TO PERSONS AND DAMAGE TO THE MATERIAL.
- DO NOT APPLY HYDRAULIC POWER TO THE AIRCRAFT, AND DO NOT OPERATE THE THRUST REVERSER WHILE THE MAINTENANCE PERSONS ARE AT WORK.
- (a) On the circuit breaker panel, set these circuit breakers to these positions:
- AIR/GND A - Close.
 - N2 SIGNAL 1A - Open.
 - N2 SIGNAL 1B - Close.
- Result:
 1 The thrust lever does not move below the IDLE position.
- (b) On the circuit breaker panel, set these circuit breakers as follows:

- AIR/GND A - Close.
- N2 SIGNAL 1A - Open.
- N2 SIGNAL 1B - Open.

Result:

- 1 After 6 seconds, you can pull the trigger and move the thrust lever below the IDLE position.
- 2 The EICAS display shows the E1 IDL STP FAIL advisory message.
- 3 The EICAS display shows the ENG1 REV DISAGREE caution message.
- 4 The caution lights flash.
- 5 The aural warning (bell) operates.

NOTE: Push one of the caution light switches to stop the lights and the aural warning.

- (c) Move the thrust lever above IDLE.

Result:

- 1 On the EICAS display, the ENG1 REV DISAGREE caution message goes out of view.

- (d) On the circuit breaker panel, set these circuit breakers as follows:

- AIR/GND A - Open.
- N2 SIGNAL 1A - Open.
- N2 SIGNAL 1B - Open.

Result:

- 1 The thrust lever does not move below the IDLE position.
- 2 On the EICAS display, the E1 IDL STP FAIL advisory message goes out of view.

- (e) On the circuit breaker panel, set these circuit breakers as follows:

- AIR/GND A - Close.
- N2 SIGNAL 1A - Close.
- N2 SIGNAL 1B - Open.

Result:

- 1 The thrust lever does not move below the IDLE position.
- (2) On the circuit breaker panel, close the N2 SIGNAL 1B circuit breaker.
- (3) It is necessary to put the AIR/GND system in operation. Do these steps:
 - (a) On the circuit breaker panel, set these circuit breakers as follows:
 - AIR/GND A - Open.
 - AIR/GND B - Open.
 - AIR/GND C - Open.

- AIR/GND D - Open.

CAUTION: WHEN YOU ARE TO CLOSE THE AIR/GND A, B, C, AND D CIRCUIT BREAKERS, THE TIME NECESSARY FOR YOU TO CLOSE ALL THE FOUR CIRCUIT BREAKERS MUST NOT BE MORE THAN 10 SECONDS.

- (b) On the circuit breaker panel, set these circuit breakers as follows, at the same time:

- AIR/GND A - Close.
- AIR/GND B - Close.
- AIR/GND C - Close.
- AIR/GND D - Close.

- (4) Do the operational check of the idle lockout microswitch and solenoid, on the RH engine, as follows:

- (a) On the circuit breaker panel, set these circuit breakers as follows:

- AIR/GND C - Close.
- N2 SIGNAL 2A - Open.
- N2 SIGNAL 2B - Close.

Result:

- 1 The thrust lever does not move below the IDLE position.

- (b) On the circuit breaker panel, set these circuit breakers as follows:

- AIR/GND C - Close.
- N2 SIGNAL 2A - Open.
- N2 SIGNAL 2B - Open.

Result:

- 1 After 6 seconds, you can pull the trigger and move the thrust lever below the IDLE position.

- 2 The EICAS display shows the E2 IDL STP FAIL advisory message.

- 3 The EICAS display shows the E2 REV DISAGREE caution message.

- 4 The caution lights flash.

- 5 The aural warning (bell) operates.

NOTE: Push one of the caution light switches to make the lights go off and the aural warning stop.

- (c) Move the thrust lever above IDLE.

Result:

- 1 On the EICAS display, the E2 REV DISAGREE caution message goes out of view.

- (d) On the circuit breaker panel, set these circuit breakers as follows:

- AIR/GND C - Open.
- N2 SIGNAL 2A - Open.
- N2 SIGNAL 2B - Open.

Result:

- 1 The thrust lever does not move below the IDLE position.
- 2 On the EICAS display, the E2 IDL STP FAIL advisory message goes out of view.

- (e) On the circuit breaker panel, set these circuit breakers as follows:

- AIR/GND C - Close.
- N2 SIGNAL 2A - Close.
- N2 SIGNAL 2B - Open.

Result:

- 1 The thrust lever does not move below the IDLE position.

(5) On the circuit breaker panel, close the N2 SIGNAL 2B circuit breaker.

(6) It is necessary to put the AIR/GND system in operation. Do these steps:

- (a) On the circuit breaker panel, set these circuit breakers as follows:

- AIR/GND A - Open.
- AIR/GND B - Open.
- AIR/GND C - Open.
- AIR/GND D - Open.

CAUTION: WHEN YOU ARE TO CLOSE THE AIR/GND A, B, C, AND D CIRCUIT BREAKERS, THE TIME NECESSARY FOR YOU TO CLOSE ALL THE FOUR CIRCUIT BREAKERS MUST NOT BE MORE THAN 10 SECONDS.

- (b) On the circuit breaker panel, set these circuit breakers as follows, at the same time:

- AIR/GND A - Close.
- AIR/GND B - Close.
- AIR/GND C - Close.
- AIR/GND D - Close.

K. Follow-on

SUBTASK 842-002-A

- (1) Operate the stall protection system (SPS) as follows:

- (a) On the SPS panel, lift the guard and push the CUTOUT 1 (2) pushbutton.

Result:

- 1 The striped bars of the pushbutton go off.



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2 The warning message SPS1-2 INOP goes out of view on the EICAS display.

(2) On the circuit breaker panel, set these circuit breakers as follows:

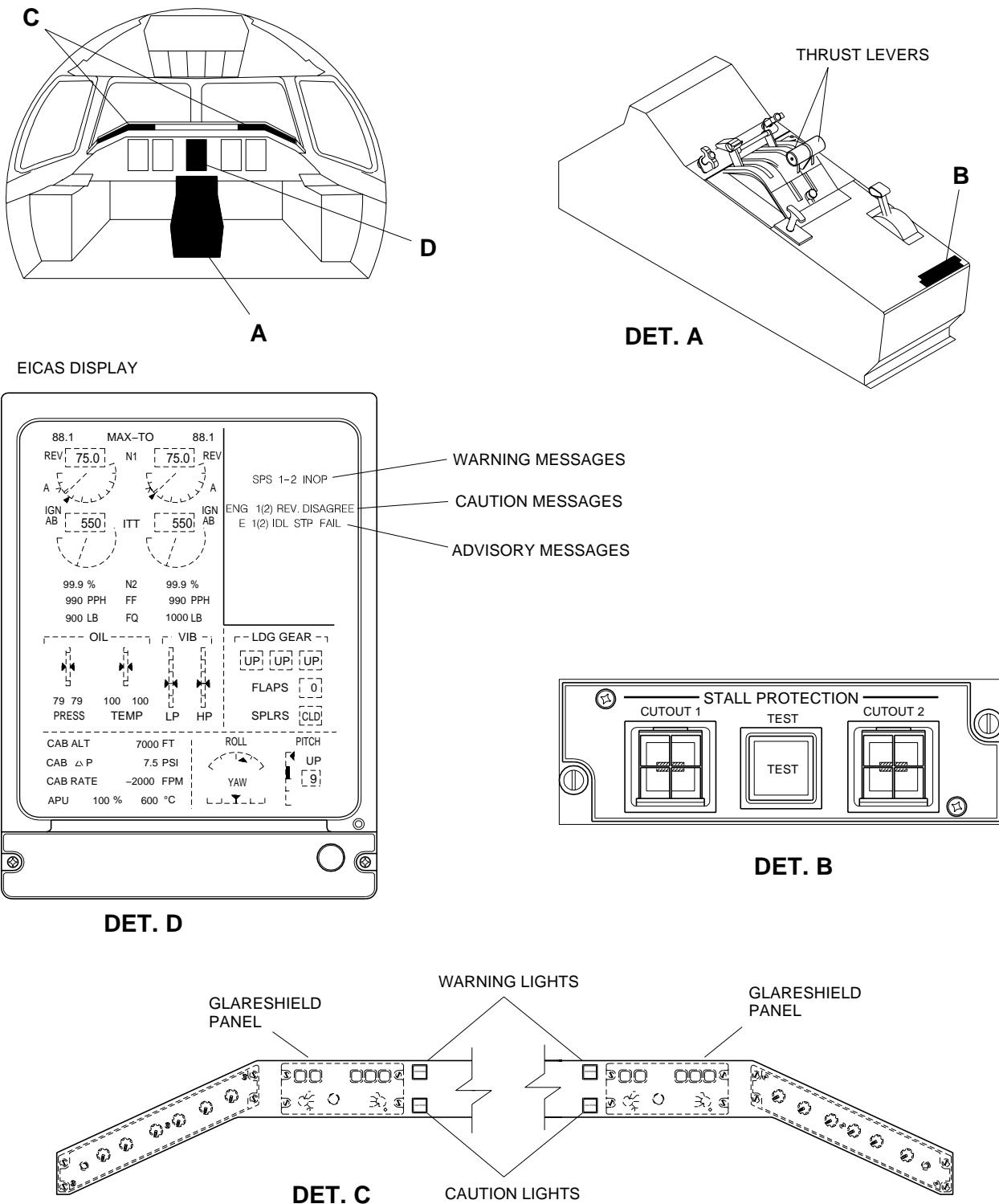
- N2 SIGNAL 1A - Close.
- N2 SIGNAL 1B - Close.
- N2 SIGNAL 2A - Close.
- N2 SIGNAL 2B - Close.

(3) Deenergize the aircraft ([AMM TASK 20-40-01-860-801-A/200](#)).

EFFECTIVITY: SPS PANEL WITHOUT FMS JOYSTICK

Idle-Lockout-Microswitch Operational Check - Controls/Indication

Figure 501

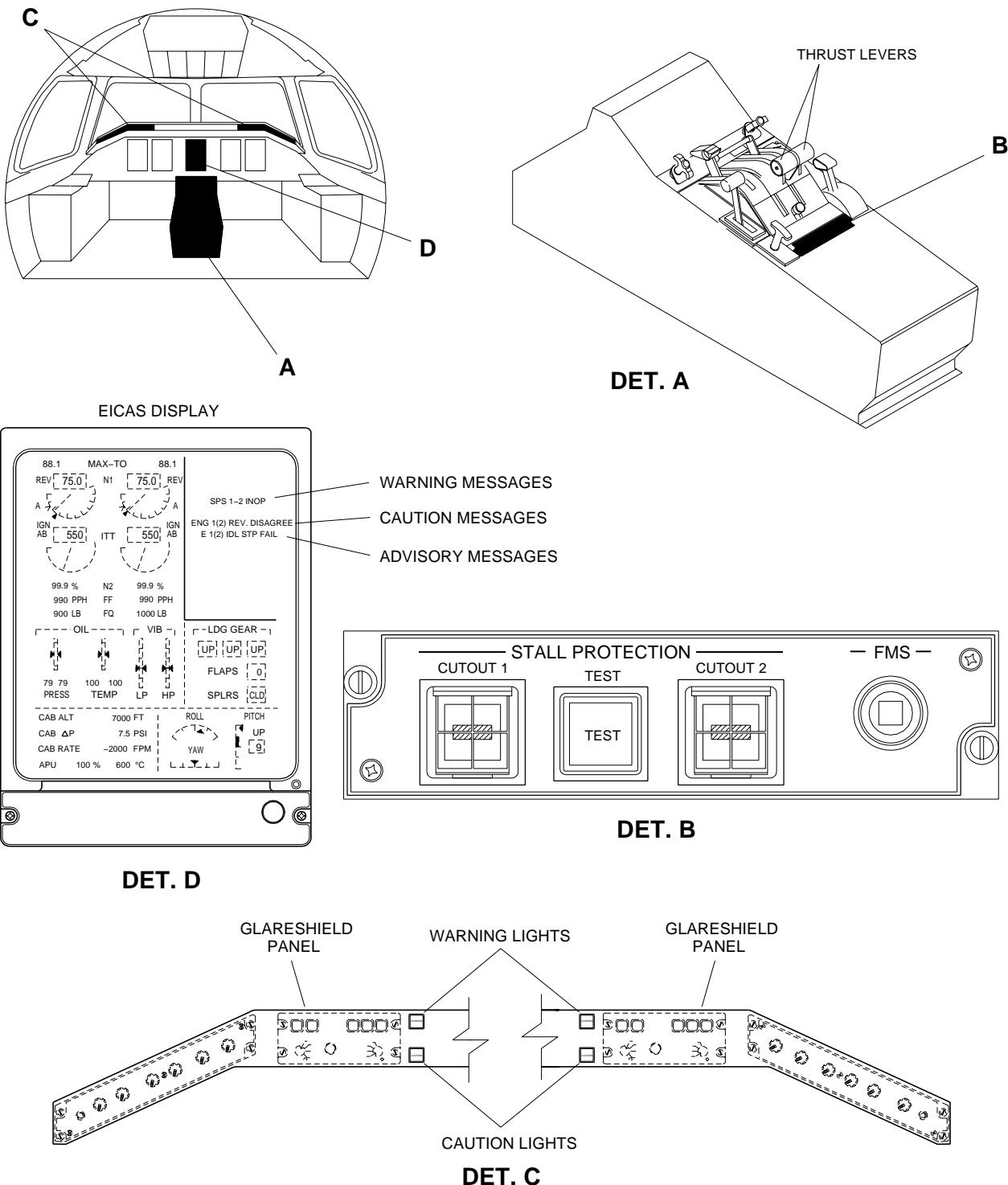


EM145AMM760016B.DGN

EFFECTIVITY: SPS PANEL WITH FMS JOYSTICK

Idle-Lockout-Microswitch Operational Check - Controls/Indication

Figure 502



EM145AMM760046A.DGN

TASK 76-13-03-820-801-A
EFFECTIVITY: AIRCRAFT WITH THRUST REVERSERS
3. IDLE LOCK MICROSWITCH - ADJUSTMENT PROCEDURES
A. General

- (1) This task gives the procedures to adjust the idle lock microswitch. These procedures are applicable to the LH and RH idle lock microswitches.
- (2) The idle lock microswitch is installed at the idle lock quadrant, on the control stand assembly.
- (3) Obey these instructions to adjust the idle lock microswitch.

B. References

<i>REFERENCE</i>	<i>DESIGNATION</i>
AMM MPP 06-41-03/100	- COMPONENT LOCATION
AMM TASK 27-63-03-000-801-A/400	SPEED BRAKE COMMAND LEVER - REMOVAL
AMM TASK 27-63-03-400-801-A/400	SPEED BRAKE COMMAND LEVER - INSTALLATION
AMM TASK 76-11-01-000-801-A/400	CONTROL STAND ASSEMBLY - REMOVAL
AMM TASK 76-11-01-400-801-A/400	CONTROL STAND ASSEMBLY - INSTALLATION
AMM TASK 76-11-05-000-801-A/400	CONTROL STAND MASK - REMOVAL
AMM TASK 76-11-05-400-801-A/400	CONTROL STAND MASK - INSTALLATION

C. Zones and Accesses

<i>ZONE</i>	<i>PANEL/DOOR</i>	<i>LOCATION</i>
223	223OZ	Control pedestal
223	223NZ	Control pedestal
223	223SZ	Control Pedestal
223	223RZ	Control Pedestal

D. Tools and Equipment

<i>ITEM</i>	<i>DESCRIPTION</i>	<i>PURPOSE</i>	<i>QTY</i>
Commercially available	Multimeter	To make sure that there is continuity between the microswitch terminals	

E. Auxiliary Items

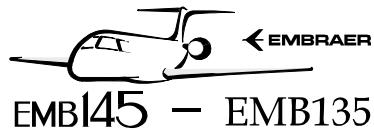
Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable



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H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Cockpit

I. Preparation

SUBTASK 841-003-A

- (1) Remove access panels 223SZ and 223RZ ([AMM MPP 06-41-03/100](#)).
- (2) Remove the control stand mask ([AMM TASK 76-11-05-000-801-A/400](#)).
- (3) Remove the aileron-disconnect indication light from panel 223NZ, but do not disconnect the electrical connector ([AMM TASK 76-11-01-000-801-A/400](#)).
- (4) **NOTE:** To do the step that follows, loosen the aileron-disconnect indication-light harness through access panel 223RZ.

Move access panel 223NZ to the right side of the control pedestal ([AMM MPP 06-41-03/100](#)).

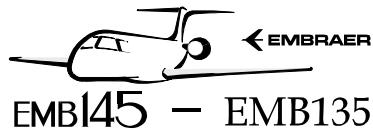
- (5) Remove the speed-brake command lever ([AMM TASK 27-63-03-000-801-A/400](#)).
- (6) Remove the elevator-disconnect indication light from panel 223OZ, but do not disconnect the electrical connector ([AMM TASK 76-11-01-000-801-A/400](#)).
- (7) **NOTE:** To do the step that follows, loosen the elevator-disconnect indication-light harness through access panel 223SZ.

Move access panel 223OZ to the left side of the control pedestal ([AMM MPP 06-41-03/100](#)).

J. Adjustment Procedures ([Figure 503](#))

SUBTASK 820-002-A

- (1) Adjust the idle lock microswitch as follows:
 - (a) Install a multimeter to terminals "C" and "NC" of the idle lock microswitch, and make sure that there is continuity.
Result:
1 There must be continuity across these terminals of the microswitch.
 - (b) Apply 28 V DC to pins A (positive) and B (ground) of the connector of the idle lock solenoid. This will unlock the solenoid and actuate the microswitch.
Result:
1 There must not be continuity across terminals "C" and "NC" of the microswitch.
- (2) If continuity continues, do these steps:
 - Release the nuts (8) and screws (4) that attach the idle lock microswitch (5) to the idle lock quadrant (7).
 - With the idle lock solenoid energized, push the microswitch until the contacts open and the continuity stops.



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- Tighten the nuts (8) and screws (4), and do item 1 again.

NOTE: Do not tighten the microswitch too much to prevent damage to it.

- (3) Remove the 28 V DC from the idle-lock solenoid connector.

K. Follow-on

SUBTASK 842-003-A

- (1) Install access panel 223OZ ([AMM MPP 06-41-03/100](#)).
- (2) Install the elevator-disconnect indication light to panel 223OZ ([AMM TASK 76-11-01-400-801-A/400](#)).
- (3) Install the speed-brake command lever ([AMM TASK 27-63-03-400-801-A/400](#)).
- (4) Install access panel 223NZ ([AMM MPP 06-41-03/100](#)).
- (5) Install the aileron-disconnect indication light to panel 223NZ ([AMM TASK 76-11-01-400-801-A/400](#)).
- (6) Install the control stand mask ([AMM TASK 76-11-05-400-801-A/400](#)).
- (7) Install access panels 223SZ and 223RZ ([AMM MPP 06-41-03/100](#)).

EFFECTIVITY: AIRCRAFT WITH THRUST REVERSERS
Idle Lock Microswitch - Adjustment Procedures
Figure 503

