



EMB145 - EMB135

AIRCRAFT
MAINTENANCE MANUAL

CIRCUIT BREAKER PANEL - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove and install the circuit breaker panel.
- 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
31-16-01-000-801-A	CIRCUIT BREAKER PANEL - REMOVAL	ALL
31-16-01-400-801-A	CIRCUIT BREAKER PANEL - INSTALLA- TION	ALL



EMB145 - EMB135

AIRCRAFT
MAINTENANCE MANUAL

TASK 31-16-01-000-801-A

EFFECTIVITY: ALL

2. CIRCUIT BREAKER PANEL - REMOVAL

A. General

- (1) This procedure gives the instructions to remove the circuit breaker panel.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM SDS 24-40-00/1	

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
225	225DTC	Cockpit ceiling - LH side
113	113DL	Forward fuselage section I

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	On the cockpit ceiling - LH side

I. Preparation

SUBTASK 841-002-A

- (1) Make sure that the GPU pushbutton, on the electrical panel, on the overhead panel, is set at OFF ([AMM SDS 24-40-00/1](#)).
- (2) Attach a DO-NOT-SET-ON tag to the GPU pushbutton.
- (3) Make sure that the BATT1 and BATT2 switches, on the electrical panel, on the overhead panel, are set at OFF.
- (4) Attach a DO-NOT-SET-AUTO tag to the BATT1 and BATT2 switches.
- (5) Make sure that the engines are not in operation.

- (6) Make sure that the APU engine is not in operation.
- (7) Open Main Battery Compartment Door 113DL (AMM MPP 06-41-01/100).
- (8) Cut the lockwire from the power connectors of the main batteries.
- (9) Disconnect the power connectors from the main batteries.

J. Removal (Figure 401)

SUBTASK 020-002-A

CAUTION: DO NOT ENERGIZE THE AIRCRAFT AND DO NOT START THE ENGINES AND APU IF THE CIRCUIT BREAKER PANEL IS NOT INSTALLED.

- (1) Release the seven Dzus fasteners (2).
- (2) Disconnect the eight electrical connectors (10).
- (3) Install protection caps on the eight electrical connectors (10).
- (4) Remove the two screws (21) and washers (20) that attach the two clamps (22) to the connector supports (7).
- (5) Remove the eight screws (9) and washers (8) that attach the two connector supports (7).
- (6) **NOTE:** Make sure that the cables and studs on TB0021, TB0022, TB0023 and TB0024 are well identified and notice their location to make the installation easier. Refer to Wiring Manual as applicable (WM 24-64-50, 24-64-51, 24-64-52 and 24-64-53).

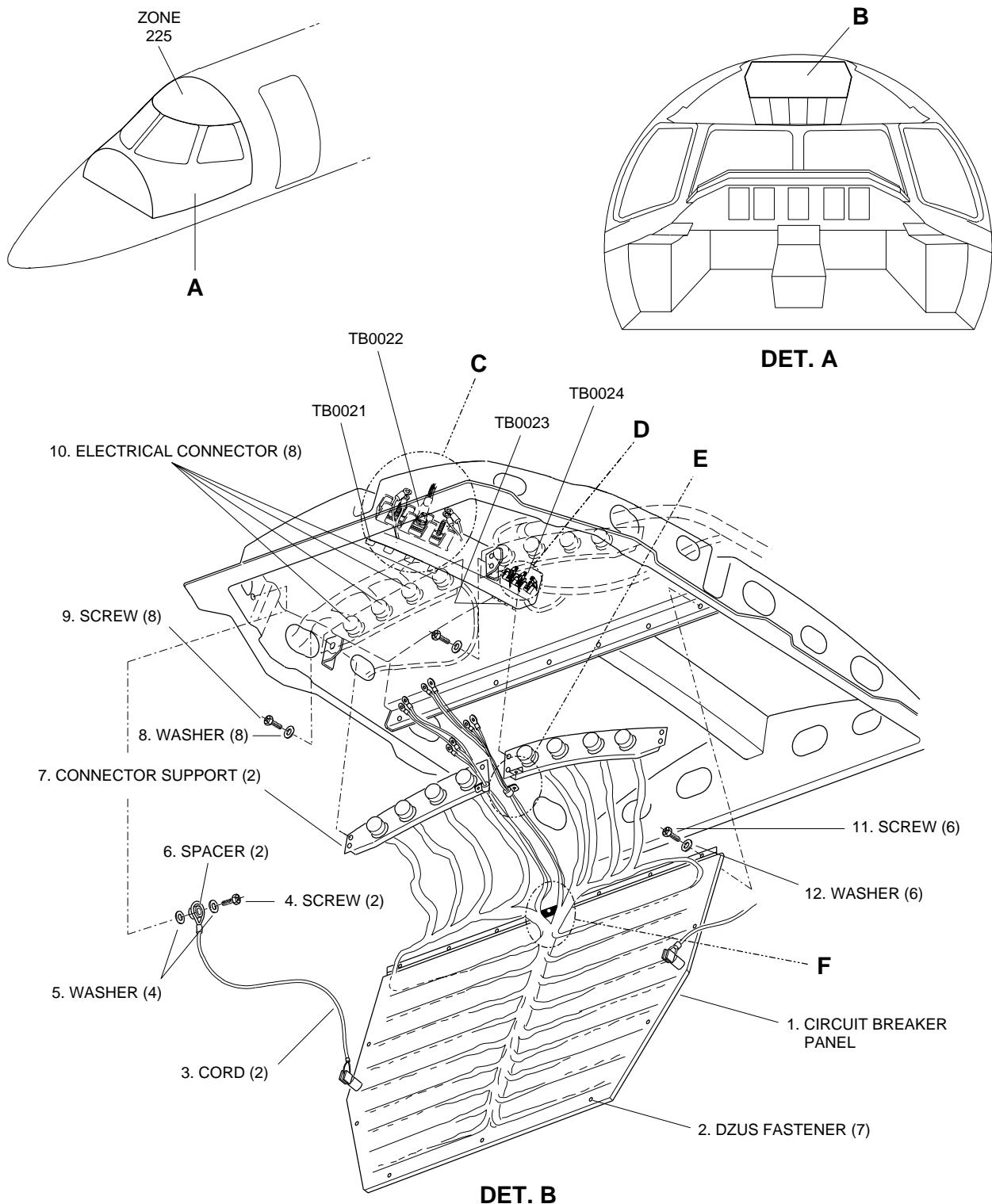
Remove the four nuts (15), lock washers (14) , and washers (13) from TB0021 and TB0022 to release the cable terminals. It is not necessary to remove the two nuts (16) from TB0021 and TB0022, on the middle stub.

- (7) Remove the six nuts (19), lock washers (18) and washers (17) from TB0023 and TB0024 to release the cable terminals.
- (8) Remove the two screws (4), washers (5), and spacers (6) that attach the two cords (3), and lower the circuit breaker panel (1) carefully.
- (9) Remove the screw (29), lock washer (28), steel washer (27), and aluminium washer (25) that attaches the jumper terminal (26) to the hinge (23).
- (10) Remove the other six screws (11) and washers (12).
- (11) Remove the circuit breaker panel (1).

EFFECTIVITY: ALL

Circuit Breaker Panel - Removal/Installation

Figure 401 - Sheet 1

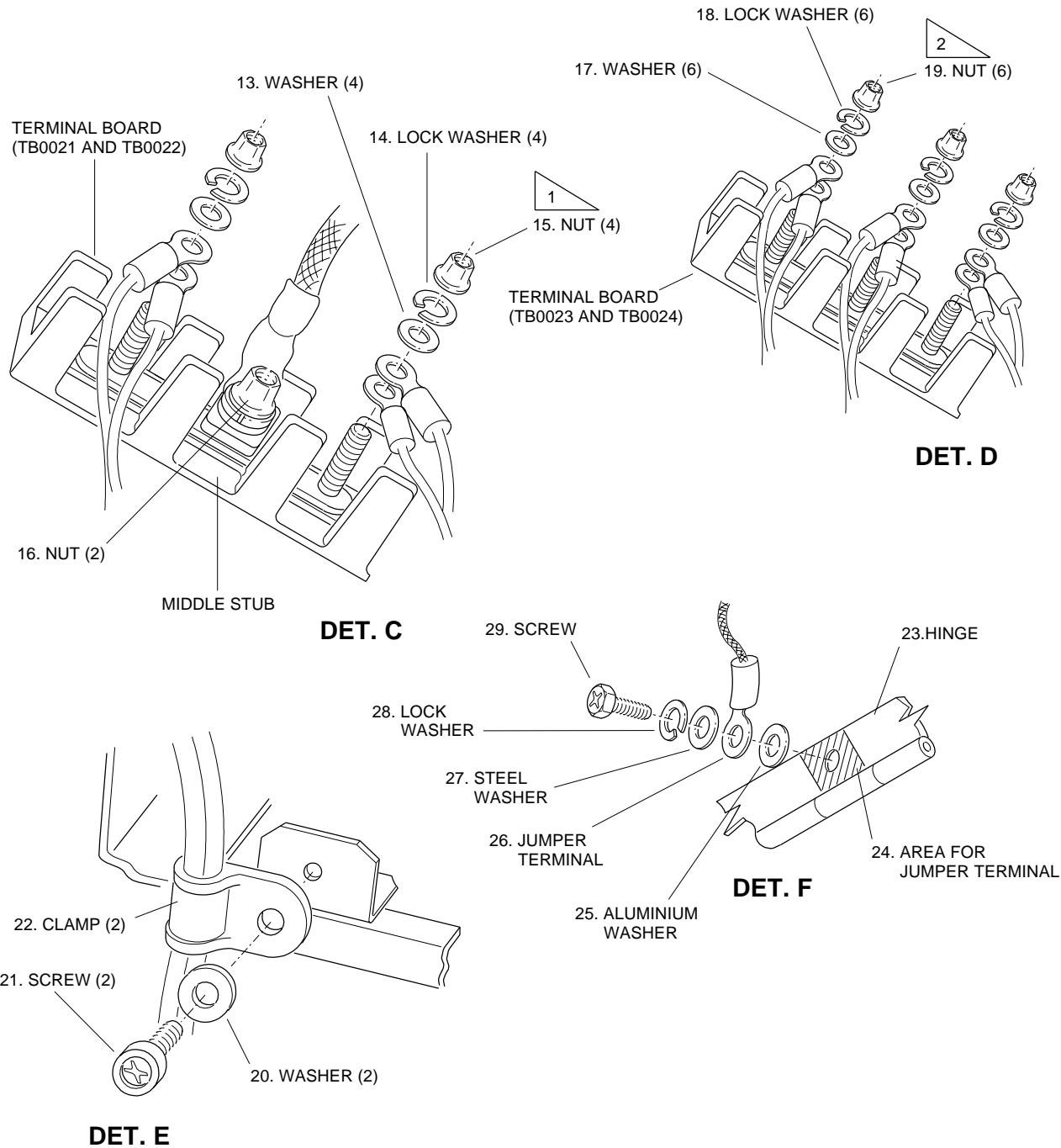


145AMM310256.MCE

EFFECTIVITY: ALL

Circuit Breaker Panel - Removal/Installation

Figure 401 - Sheet 2



1 TORQUE OF 12.43–13.56 Nm (110–120 lb.in)

2 TORQUE OF 2.26–2.82 Nm (20–25 lb.in)

EM145AMM310257A.DGN

TASK 31-16-01-400-801-A
EFFECTIVITY: ALL
3. CIRCUIT BREAKER PANEL - INSTALLATION
A. General

- (1) This procedure gives the instructions to install the circuit breaker panel.

B. References

<i>REFERENCE</i>	<i>DESIGNATION</i>
AMM MPP 06-41-01/100	-
AMM MPP 20-30-05/200	- MAINTENANCE PRACTICES

C. Zones and Accesses

<i>ZONE</i>	<i>PANEL/DOOR</i>	<i>LOCATION</i>
225	225DTC	Cockpit ceiling - LH side

D. Tools and Equipment

<i>ITEM</i>	<i>DESCRIPTION</i>	<i>PURPOSE</i>	<i>QTY</i>
Commercially available	Torque wrench (For the torque range, refer to Figure 401)	To torque the fasteners correctly	
GSE 050	Multimeter - Digital	To check electrical continuity	

E. Auxiliary Items

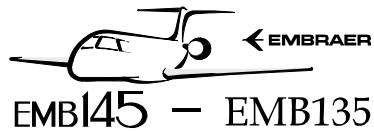
<i>ITEM</i>	<i>DESCRIPTION</i>	<i>PURPOSE</i>	<i>QTY</i>
Commercially available	400-grit sandpaper	To remove Alodine residues	AR
Commercially available	Clean dry cloth	To clean surfaces	AR
Commercially available	Soft-bristled brush	To apply Alodine 1200S	1

F. Consumable Materials

<i>SPECIFICATION (BRAND)</i>	<i>DESCRIPTION</i>	<i>QTY</i>
P/N MS20995C20	Lockwire	400 (mm)
ASTM-D740	Methyl Ethyl Ketone (MEK)	AR
MIL-C-5541	Alodine 1200S	AR
MEP 10-057	Fluid-Resistant Nylon NYCOTE 7-11-DARK BLUE Varnish	AR

G. Expandable Parts

Not Applicable



EMB145 - EMB135

AIRCRAFT
MAINTENANCE MANUAL

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	On the cockpit ceiling - LH side

I. Installation (Figure 401)

SUBTASK 420-002-A

- (1) Clean the hinge area (24) where the jumper terminal (26) is to be installed, as follows:

- With a clean cloth soaked in Methyl Ethyl Ketone (MEK), clean the area (24) where the jumper terminal (26) is to be installed. Before the MEK evaporates, wipe that area with a clean, dry cloth.
- With a 400-grit sandpaper, remove the old Alodine from that area (24), then do step (a) again.

NOTE: Do not touch the clean surface.

- With a soft-bristled brush, apply Alodine 1200S solution to the area where the jumper terminal is to be installed (24), and let the surface stay wet for two to three minutes. The surface (24) will become yellowish.

NOTE: The Alodine 1200S solution has a pot life of 24 hours. Use a new Alodine solution if it was not prepared in the last 24 hours.

- With a clean cloth soaked in water, wipe the alodized area (24) at least three times, be careful not to cause damage to the Alodine film.

- Let the surface (24) to air-dry.

- With a clean cloth soaked in Methyl Ethyl Ketone (MEK), clean the steel washer (27), aluminium washer (25), lock washer (28) and the jumper terminal (26). Before the MEK evaporates, wipe the terminal with a clean, dry cloth.

NOTE: Do not touch the clean surfaces.

- (2) Install the circuit breaker panel (1). To do this, use the six screws (11) and washers (12) on the hinge (23).

NOTE: The middle screw on the hinge (23) is used to attach the jumper terminal (26). Put the aluminium washer (25), jumper terminal (26), steel washer (27) and lock washer (28) on the middle hole of the hinge (23), before you install the screw (29).

- (3) Apply a thin coat of Fluid-Resistant Nylon NYCOTE 7-11-DARK BLUE Varnish on the middle screw (29) that attaches the jumper terminal (26) to the panel hinge (23).

NOTE: For more information about the varnish, refer to ([AMM MPP 20-30-05/200](#)).

- (4) Install the two screws (4), washers (5) and spacers (6) that attach the two cords (3).

CAUTION: MAKE SURE THAT THE CORRECT ELECTRICAL CABLES ARE INSTALLED AND THE CORRECT TORQUE VALUE IS APPLIED. INCORRECT INSTALLATION WILL CAUSE SERIOUS DAMAGE TO THE AIRCRAFT.

- (5) Install the cable terminals on TB0023 and TB0024. To do this, install the six washers (17), lock washers (18), and nuts (19)
- (6) Install the cable terminals on TB0021 and TB0022. To do this, install the four washers (13), lock washers (14), and nuts (15).
- (7) With a multimeter (GSE 050) measure the electrical continuity between the electrical connectors (10) and CB bars. Refer to Wiring Manual as applicable (WM 24-20-50, 24-36-50, 24-61,50 e 24-62-50).
- (8) Install the eight screws (9) and washers (8) to attach the two connector supports (7).
- (9) Install the two clamps (22) that attach the harnesses to the connector supports (7). To do this, install the two screws (21) and washers (20).
- (10) Remove the protection caps of the eight electrical connectors (10).
- (11) Connect the eight electrical connectors (10).
- (12) Close the circuit breaker panel (1) and attach the seven Dzus fasteners (2).

J. Follow-on

SUBTASK 842-002-A

- (1) Connect the power connectors to the main batteries.
- (2) Put the lockwire on the power connectors of the main battery.
- (3) Close Main Battery Compartment Door 113DL (AMM MPP 06-41-01/100).
- (4) Remove the DO-NOT-SET-AUTO tag from the BATT1 and BATT2 switches.
- (5) Remove the DO-NOT-SET-ON tag from the GPU pushbutton.