LANDING GEAR PROXIMITY AND PRESSURE SWITCH PROTECTION / RESTORATION - MAINTENANCE PRACTICES

EFFECTIVITY: ALL

1. General

A. This section gives the general procedures to do the protection and restoration of the landing gear proximity switches and the harness electrical connectors against corrosion and damage.

B. These protection/restoration procedures include:

- Grease application to the harnesses located inside the adaptors of the proximity and pressure switch plug connectors, and to the electrical connectors.
- The application of a coat of lubricant and anticorrosive film on the contacts of the electrical connectors (proximity switches and harness) before the connection of the landing gear proximity and pressure switches.
- Sealing the aluminum bushing and spraying corrosion preventive compound on the electrical connector assembly of the proximity switches.
- The protection of the pressure switches connector by installing a heat-shrinkable boot on the connector.
- The check for contamination and/or corrosion in the electrical pins of the proximity switch and harness and the instructions to do the restoration of the components.
- The check for damage on the harness electrical connectors and instructions to do the restoration of the components.

C. These procedures are applicable to the uplock/dowlock landing gear indication, steering system, nose landing gear door, and air/ground (WOW) system proximity switches and the connector of the pressure switches.

D. 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*
32-60-00-910-801-A ♦	LANDING GEAR PROXIMITY SWITCH AND HARNESS ELECTRICAL CONNECTORS - RESTORATION AND PROTECTION	ALL
32-60-00-910-802-A	CONNECTOR OF THE PRESSURE SWITCH - PROTECTION	ALL

TASK 32-60-00-910-801-A
EFFECTIVITY: ALL

2. LANDING GEAR PROXIMITY SWITCH AND HARNESS ELECTRICAL CONNECTORS - RESTORATION AND PROTECTION

A. General

(1) Obey this procedure when you replace a connector or when you find a discrepancy or contamination on the electrical connector of the proximity switches.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL
AMM TASK 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
AMM TASK 32-63-05-300-801-A/800	PROXIMITY SWITCH - REPAIR
AMM TASK 32-63-05-700-801-A/500	PROXIMITY SWITCH (SENSOR) - FUNCTIONAL CHECK
AMM TASK 32-63-05-700-802-A/500	PROXIMITY SWITCH (SENSOR) - FUNCTIONAL CHECK - ALTERNATIVE PROCEDURE
IPC 32-50-00	NOSE WHEEL STEERING SYSTEM
IPC 32-61-00	LDG INDICATION
IPC 32-63-00	-
SB145-32-0036	-
SWPM 20-21-00	-
SWPM 20-50-00	-
WM 20-50-00/201	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Torque wrench (torque range, refer to Figure 201)	To tighten the backshell	

E. Auxiliary Items

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Rubber Goggles, resistant to phosphate ester-base fluid	Protection for Eyes	1
Commercially available	Rubber Gloves, resistant to phosphate ester-base fluid	Protection for Hands	1

(Continued)

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Brush, Soft Bristled (nonmetal)	To clean the connector and contacts	AR
Commercially available	Cloth, Lint-Free	To dry parts after cleaning	AR
Commercially available	Low-pressure compressed air	To dry parts after cleaning	AR
Commercially available	Tweezer	To remove the proximity switch internal seals	1
Commercially available	Dental Pick	To remove the proximity switch internal seals	1

F. Consumable Materials

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
MEP 08-017	Clarus Grease GGA80TF/B	AR
MIL-L-87177A Type 1, Grade B	Anticorrosive film Lektro-Tech SUPER CORR-A	AR
MIL-PRF-81309, Type II - Class 2	Corrosion Preventive Compound D-5026NS	AR
AMS3281	Polisulfide Sealant PR1776M B2 654 SEMKIT	AR
TT-I-735	Isopropyl Alcohol	AR
ASTM-D-329	Acetone	AR
ASTM-D-740	Methyl-Ethyl-Ketone (MEK)	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Landing gear

I. Preparation

SUBTASK 841-002-A

(1) On the circuit breaker panel, open the AIR/GND A, AIR/GND B, AIR/GND C, AIR/GND D, IND 1 and IND 2 circuit breakers and attach a DO-NOT-CLOSE tag to them.

(2) On the overhead panel, make sure that the BATT 1 and BATT 2 switches are set at OFF, and place a DO-NOT SET-AUTO tag on the BATT 1 and BATT 2 switches.

(3) Make sure that the safety pins of the landing gear are installed. Refer to AMM TASK 32-00-01-910-801-A/200.

(4) For aircraft PRE-MOD SB145-32-0036, make sure that the pressure in hydraulic system No. 1 is fully released (AMM TASK 29-10-00-860-802-A/200).

(5) For aircraft POST-MOD SB145-32-0036, install safety pin of the NLG doors solenoid valve (AMM TASK 32-00-02-910-801-A/200).

J. Protection and Restoration of the Proximity Switches and Harness Electrical Connectors (Figure 201) (Figure 202)

SUBTASK 910-002-A

CAUTION: BE CAREFUL WHEN YOU REMOVE THE HEAT-SHRINKABLE BOOT TO PREVENT DAMAGE TO THE ELECTRICAL CABLE AND ITS CONNECTOR.

(1) For connector that already has heat-shrinkable boot, remove it with a cutting tool.

(a) Be careful when you remove the heat-shrinkable boot for do not cause damage to the harness or connector. Refer to SWPM 20-50-00 standard practices.

(2) Disconnect the backshell from the electrical plug connector (Figure 201), as applicable:

NOTE: To facilitate disconnection of the backshell from its electrical plug connector and prevent damage to these parts, it is strongly recommended that the electrical plug connector be installed to the proximity switch, to permit wrenching.

- Disconnect the backshell (8) from the electrical plug connector (10). Refer to DET. A, Figure 201.
- Disconnect the backshell (3) from the electrical plug connector (2). Refer to DET. B, Figure 201.

NOTE: Apply this step only for backshell repaired with Cantwell Cullen Repair Kit.

(3) Clean the adaptor of the backshell (8), electrical plug connector (10) and electrical plug connector (2) and remove contamination and old grease from them. Refer to SWPM 20-50-00.

(4) Apply Clarus Grease (Figure 201), as applicable:

NOTE: For alternative grease, refer to SWPM 20-50-00.

- Apply Clarus Grease (9) inside the adaptor of the backshell (8) and on the electrical plug connector (10). Refer to DET. A, Figure 201.
- Apply Clarus Grease (1) on the electrical plug connector (2). Refer to DET. B, Figure 201.

NOTE: Apply this step only to backshell repaired with Cantwell Cullen Repair Kit.

CAUTION: HOLD THE CONNECTOR AND TURN ONLY THE BACKSHELL. DO NOT TURN THE CONNECTOR. IF YOU TURN THE CONNECTOR, ITS HARNESS MAY BE DAMAGED . DO NOT TWIST THE HARNESS.

(5) Connect the backshell to the electrical plug connector again (Figure 201), as applicable:

- Connect the backshell (8) to electrical plug connector (10) again. Refer to DET. A, Figure 201.

- Connect the backshell (3) to the electrical plug connector (2) again. Refer to DET. B, Figure 201.

NOTE: Apply this step only to the backshell repaired with Cantwell Cullen Repair Kit.

(6) Apply a torque of 6.2-6.8 N.m (55-60 lb.in) to backshell (3) or (8).

NOTE: Apply this step only to the backshell repaired with Cantwell Cullen Repair Kit or Aerazur Repair Kit.

(7) Disconnect the related electrical connector (4) from the proximity switch (7) and do a check for contamination and/or corrosion on the electrical pins, electrical connector harness and adjacent areas. Refer to DET. C, Figure 201.

(a) If the electrical connector (4) or proximity switch (7) (with its electrical pins) or its electrical harness shows signs of damage, contamination or corrosion, do the maintenance procedures as follows:

1 The connector must be replaced immediately if the cumulative area of corrosion is greater than 10% of the total connector area. If the cumulative area of corrosion is less than 10% of the total connector surface area, the connector can be cleaned or repaired only.

CAUTION: DO NOT USE OTHER PROCEDURE AND/OR CONTACT CLEANER TO CLEAN THE PROXIMITY SWITCHES TO PREVENT DAMAGE TO ELECTRICAL PINS AND SEALS.

2 To clean the wiring side of the electrical connector (4), refer to WM 20-50-00/201 standard practices.

3 To replace the wiring side of the electrical connector (4), use the repair kit, refer to IPC 32-50-00 or IPC 32-61-00 or IPC 32-63-00. Obey the instructions of the applicable wiring manual, chapter WM 20-50-00/201, Standard Practices.

4 To do the maintenance on the electrical connectors, obey the instructions of the SWPM 20-50-00 maintenance practices manual.

5 To do the repair procedures on the electrical wiring and harness, obey the instructions of the SWPM 20-21-00 maintenance practices manual.

6 To clean the proximity switch (7) (with its electrical connector) and/or replace the proximity switch seals, refer to AMM TASK 32-63-05-300-801-A/800.

(8) Clean the proximity switch (7) and remove contamination with a nonmetal brush and alcohol.

(9) Dry with low pressure (less than 25 psi) compressed air or a clean, lint-free cloth. Make sure that the connector surfaces are completely dry.

(a) If, after the component is properly cleaned and dry, there is visual evidence of corrosion damage, it can be necessary to replace the proximity switch.

NOTE: The corrosion preventive compound is not designed to remove corrosion. It will clean and revitalize a suspected connector but cannot replace damaged areas.

WARNING: DO NOT LET LUBRICANT AND ANTICORROSIVE FILM PN LEKTRO-TECH SUPER CORR-A GET IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES. KEEP THE COMPOUND AWAY FROM SPARKS, FLAME, AND HEAT. THE PRODUCT IS A POISONOUS AND FLAMMABLE SUBSTANCE.

CAUTION: DO NOT APPLY THE CORROSION PREVENTIVE COMPOUND MIL-PRF-81309 TO THE INTERNAL SIDE OF THE ELECTRICAL CONNECTOR AND PROXIMITY SWITCH CONNECTOR (PINS). IF YOU NOT OBEY THIS PRECAUTION DAMAGE TO DE PARTS CAN OCCUR.

(10) Before the connection of the connector (4) with proximity switch (7), Apply the Lektro-Tech Super Corr-A (6) to the internal side of the electrical connector and proximity switch pins surfaces. Refer to DET. C and D, Figure 201.

(a) For aerosol applications, apply two coats, if necessary. (Wait 30 seconds after you apply the first coat to apply the second)

(b) Apply the compound for a uniform coverage of the connector and pins from a distance of 25 - 30 cm (10 - 12 in).

NOTE: There is not a definition for the exact amount of spray to be applied, but the product should cover the contacts without excess spray. Excess spray does not cause any damage to the connector contacts and/or rubber, but can cause dirt accumulation.

WARNING: BE CAREFUL WHEN YOU USE THE METHYL-ETHYL-KETONE (MEK). PUT ON SAFETY GOGGLES, PROTECTIVE GLOVES AND CLOTHING. DO NOT BREATHE THE GAS. DO THE WORK IN AN AREA WHICH HAS A GOOD FLOW OF AIR. THE METHYL-ETHYL-KETONE (MEK) IS POISONOUS AND HIGHLY FLAMMABLE.

(c) Excess sprays can be removed with acetone or MEK.

WARNING: MAKE SURE THAT THE CONNECTION BETWEEN PLUG AND RECEPTACLE HAVE A GOOD MATING. IT IS NECESSARY TO MAKE SURE THAT THE PLUG COMPLETELY COVERS THE RED STRIPE ON THE RECEPTACLE BODY. IF YOU NOT OBEY THIS PROCEDURE, DAMAGE AND/OR CORROSION TO THE PROXIMITY SWITCH CAN OCCUR.

(11) Reconnect the electrical connector (4) to proximity switch (7). Refer to DET. C, Figure 201 and refer to SWPM 20-50-00.

WARNING: BE CAREFUL WHEN YOU USE THE POLYSULFIDE SEALANT. PUT ON SAFETY GOGGLES AND PROTECTIVE CLOTHING; DO THE WORK IN AN AREA WHICH HAS A GOOD FLOW OF AIR.

(12) Apply polysulfide sealant (5) to indicated area of the bushing (REF.). Refer to DET. C, Figure 201.

NOTE: Wait until the sealant is dry to touch, before you do the step 13. Refer to Spec. AMS3281.

WARNING: DO NOT LET CORROSION-PREVENTIVE COMPOUND PN D-5026NS (MIL-PRF-81309) GET IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE CORROSION-PREVENTIVE COMPOUND PN D-5026NS (MIL-PRF-81309). KEEP CORROSION-PREVENTIVE COMPOUND PN D-5026NS (MIL-PRF-81309) AWAY FROM SPARKS, FLAME, AND HEAT. CORROSION-PREVENTIVE COMPOUND PN D-5026NS IS A POISONOUS AND FLAMMABLE SUBSTANCE.

CAUTION: DO NOT APPLY THE CORROSION PREVENTIVE COMPOUND MIL-PRF-81309 TO THE INTERNAL SIDE OF THE ELECTRICAL CONNECTOR AND PROXIMITY SWITCH CONNECTOR (PINS). IF YOU NOT OBEY THIS PRECAUTION DAMAGE TO DE PARTS CAN OCCUR.

(13) Apply corrosion-preventive compound PN D-5026NS (MIL-PRF-81309) on the external side of the connected electrical connectors, see Figure 202, as applicable:

- Apply corrosion-preventive compound (4) on the connected electrical connector (2) or (3) and the proximity switch (1) . Refer to DET. A, Figure 202.
- Apply corrosion-preventive compound (5) on the electrical connector (6) and the proximity switch (7). Refer to DET. B, Figure 202.

NOTE: Apply this step to connector with backshell repaired with Cantwell Cullen Repair Kit or Aerazur Repair Kit.

(14) Let the corrosion-preventive compound dry for ten minutes.

(15) Make sure that all harness clamps are correctly installed and that there is no damaged or loose clamps on the electrical harness of the proximity switches.

K. Follow-on

SUBTASK 842-002-A

(1) On the overhead panel, set the BATT 1 and BATT 2 switches to AUTO and remove the DO-NOT-SET-AUTO tag from them.

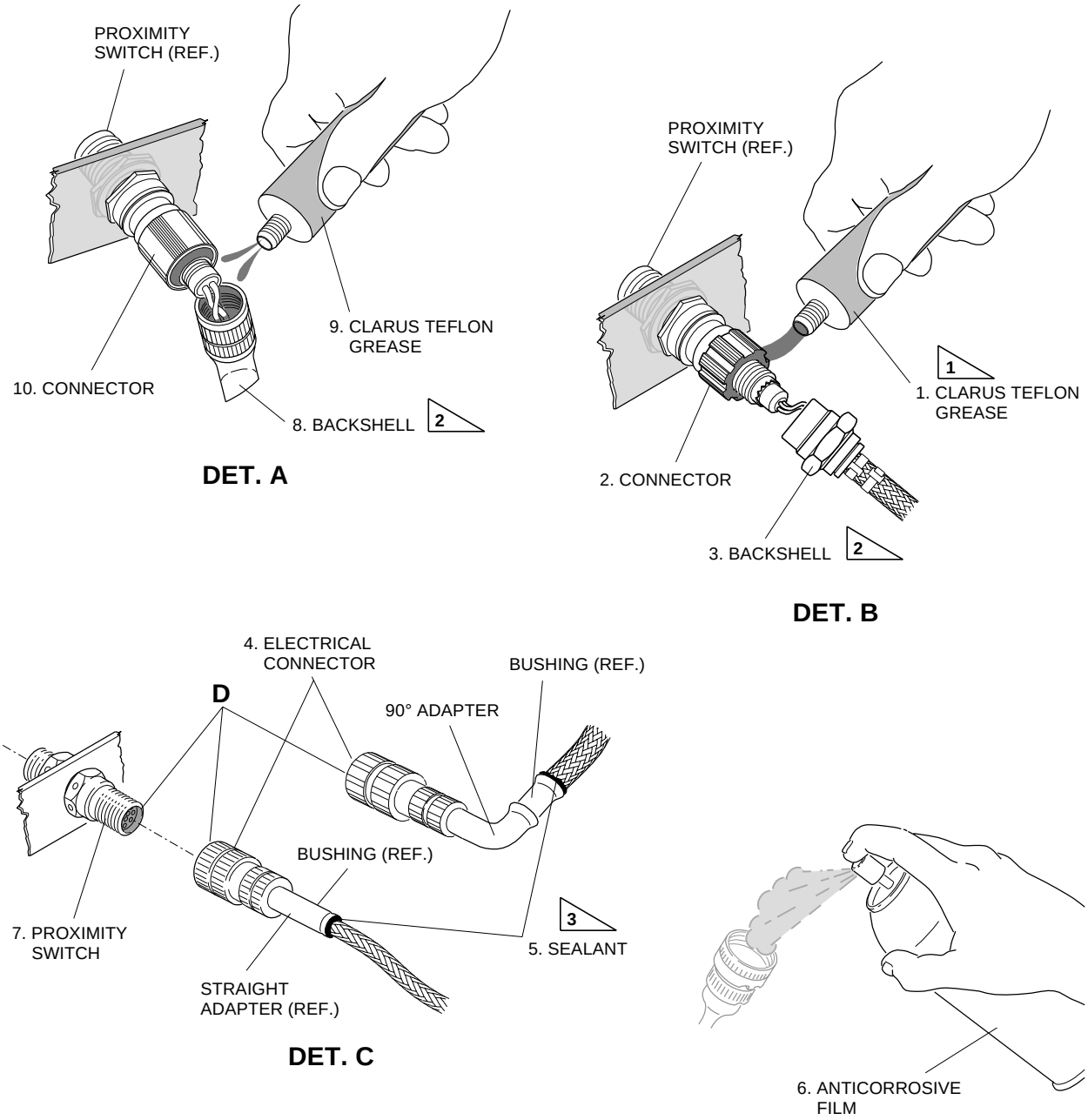
(2) On the circuit breaker panel, close the AIR/GND A, AIR/GND B, AIR/GND C, AIR/GND D, IND 1 and IND 2 circuit breakers and remove the DO-NOT-CLOSE tag from them.

(3) Do the functional check of the proximity switch. Refer to AMM TASK 32-63-05-700-801-A/500 or AMM TASK 32-63-05-700-802-A/500.

(4) For aircraft POST-MOD SB145-32-0036, remove safety pin of the NLG door solenoid valve (AMM TASK 32-00-02-910-801-A/200).

EFFECTIVITY: ALL

Protection of the Proximity Switches and the Electrical Connectors - Landing Gear
Figure 201



1 APPLICABLE ONLY FOR BACKSHELL REPAIRED WITH THE CANTWELL CULLEN REPAIR KIT

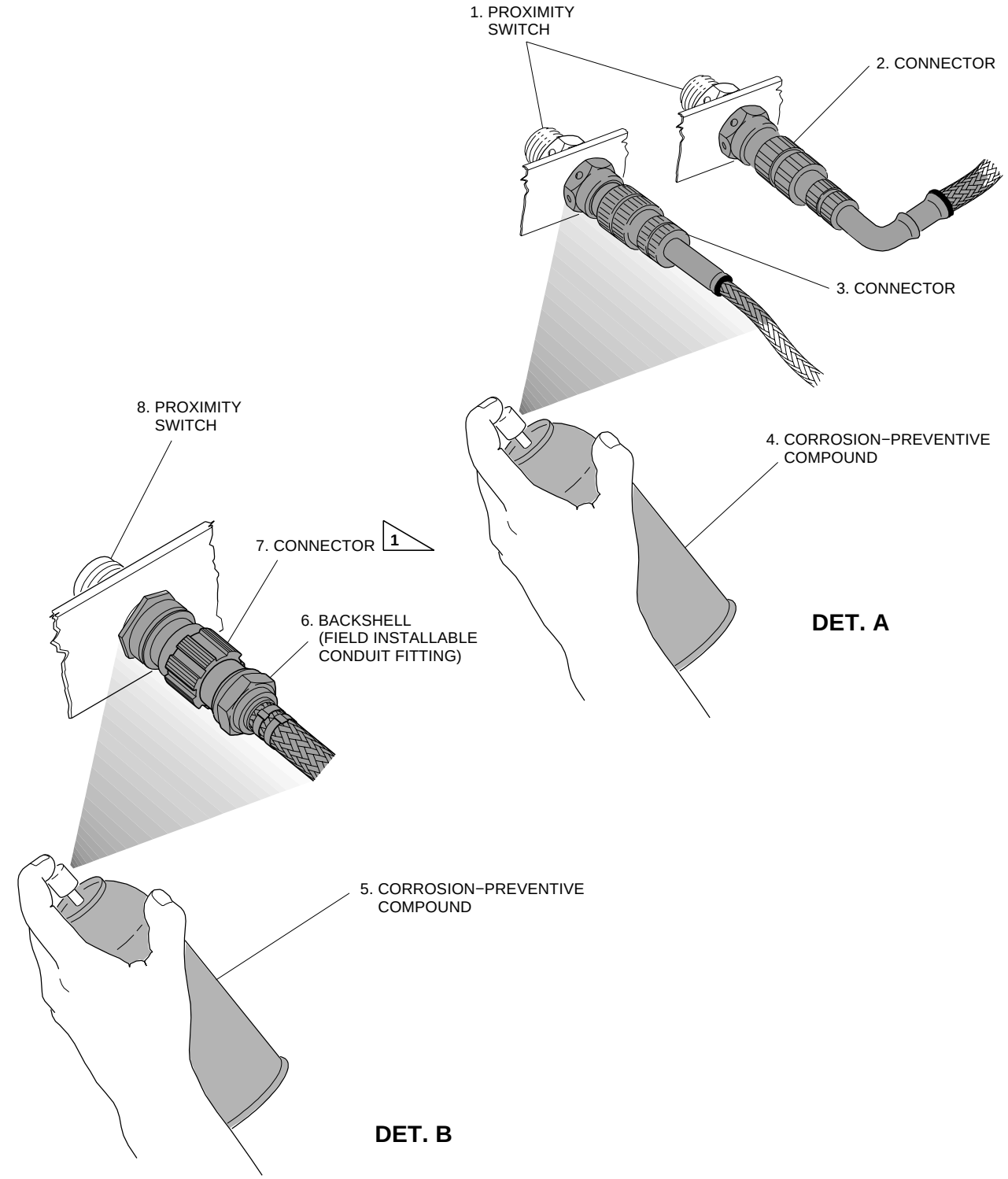
2 TORQUE: 6.2 − 6.8 N.m (55 − 60 lb.in) − APPLICABLE ON CANTWELL CULLEN OR AERAZUR REPAIR KIT

3 APPLICABLE ONLY FOR ELECTRICAL CONNECTOR WITH BUSHING

EM145AMM320517B.DGN

EFFECTIVITY: ALL

Protection of the Proximity Switches and the Electrical Connectors - Landing Gear
Figure 202



1 APPLICABLE FOR CONNECTOR WITH CANTWELL CULLEN OR AERAZUR REPAIT KIT

145AMM320510.MCE

TASK 32-60-00-910-802-A
EFFECTIVITY: ALL

3. CONNECTOR OF THE PRESSURE SWITCH - PROTECTION

A. General

(1) Obey this procedure when you replace a connector or when you find a discrepancy or contamination on the electrical connector of the pressure switches.

(2) This procedure is applicable for the Pressure Switch of the Emergency/Parking Brake (32-44-07/401).

B. References

REFERENCE	*DESIGNATION*
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL
AMM TASK 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
AMM TASK 32-63-05-700-801-A/500	PROXIMITY SWITCH (SENSOR) - FUNCTIONAL CHECK
AMM TASK 32-63-05-700-802-A/500	PROXIMITY SWITCH (SENSOR) - FUNCTIONAL CHECK - ALTERNATIVE PROCEDURE
SB145-32-0036	-
SWPM 20-50-00	-
WM 20-50-00/201	-
WM 20-50-01/201	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Torque wrench (torque range, refer to Figure 203)	To tighten the backshell	

E. Auxiliary Items

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Heat Gun	To supply hot air on the heat-shrinkable boot	1

F. Consumable Materials

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
PN ATUM-32/8-0 (RAYCHEM MENLO) - or similar	Heat-Shrinkable Boot	AR

(Continued)

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
MIL-L-87177	Lubricant and anticorrosive film Lektro-Tech Super Corr-B-12350	As necessary
MEP 08-017	Clarus Teflon Grease GGA80TF/B	As necessary

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Landing gear bay

I. Preparation

SUBTASK 841-003-A

(1) On the circuit breaker panel, open the AIR/GND A, AIR/GND B, AIR/GND C, AIR/GND D, IND 1 and IND 2 circuit breakers and attach a DO-NOT-CLOSE tag to them.

(2) On the overhead panel, make sure that the BATT 1 and BATT 2 switches are set at OFF, and place a DO-NOT SET-AUTO tag on the BATT 1 and BATT 2 switches.

(3) Make sure that the safety pins of the landing gear are installed. Refer to AMM TASK 32-00-01-910-801-A/200.

(4) For aircraft PRE-MOD SB145-32-0036, make sure that the pressure in hydraulic system No. 1 is fully released (AMM TASK 29-10-00-860-802-A/200).

(5) For aircraft POST-MOD SB145-32-0036, install safety pin of the NLG doors solenoid valve (AMM TASK 32-00-02-910-801-A/200).

J. Protection on the Connector of the Pressure Switches (Figure 203)

SUBTASK 910-003-A

CAUTION: BE CAREFUL WHEN YOU REMOVE THE OLD HEAT-SHRINKABLE BOOT SO AS NOT TO DAMAGE THE ELECTRICAL CABLE AND ITS CONNECTOR.

(1) For connector that already has heat-shrinkable boot, remove it with a cutting tool.

(2) Disconnect the backshell (2) from electrical plug connector (3). Refer to DET. A, Figure 203.

NOTE: To facilitate disconnection of the backshell (2) from their electrical plug connector (3) and prevent damage to these parts, it is strongly recommended that the electrical plug connector (3) be installed to the pressure switch (4), to permit wrenching.

(3) Apply Clarus Teflon Grease (1) inside the adaptor of the pressure switch plug connector. Refer to DET. A, Figure 203.

(4) Reconnect the backshell (2) to electrical plug connector (3). Refer to DET. A, Figure 203.

(5) Apply a torque of 16.3-21.7 N.m (144-192 lb.in) to backshell (2). Refer to DET. A, Figure 203.

(6) Disconnect the applicable electrical connector (3) from pressure switch (4) and inspect it for contamination and/or corrosion. Refer to DET. A, Figure 203.

(7) If you find a discrepancy, clean the contacts and threaded surfaces of the electrical connector. Refer to the applicable Wiring Manual, Chapter WM 20-50-00/201, Standard Practices. If necessary, replace the connector with a new connector which has the same PN. Obey the instructions of the applicable Wiring Manual, Chapter WM 20-50-01/201, Standard Practices.

(8) Cut the new heat-shrinkable boot to the dimension indicated in DET. B, Figure 203.

(9) Position the heat-shrinkable boot on the electrical connector. Refer to DET. B, Figure 203.

WARNING: DO NOT LET LUBRICANT AND ANTICORROSIVE FILM PN LEKTRO-TECH SUPER CORR-B-12350 GET IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE LUBRICANT AND ANTICORROSIVE FILM PN LEKTRO-TECH SUPER CORR-B-12350. KEEP LUBRICANT AND ANTICORROSIVE FILM PN LEKTRO-TECH SUPER CORR-B-12350 AWAY FROM SPARKS, FLAME, AND HEAT. LUBRICANT AND ANTICORROSIVE FILM PN LEKTRO-TECH SUPER CORR-B-12350 IS A POISONOUS AND FLAMMABLE SUBSTANCE.

WARNING: MAKE SURE THAT THE CONNECTION BETWEEN PLUG AND RECEPTACLE HAVE A GOOD MATING. IT IS NECESSARY TO MAKE SURE THAT THE PLUG COMPLETELY COVERS THE RED STRIPE ON THE RECEPTACLE BODY. IF YOU NOT OBEY THIS PROCEDURE, DAMAGE AND/OR CORROSION TO THE PROXIMITY SWITCH CAN OCCUR.

(10) Reconnect the electrical connector (3) to pressure switch (4). Refer to SWPM 20-50-00.

NOTE:
- Before the connection of the connector (3), apply the Lektro-Tech Super Corr-B-12350 into the plug connector to prevent corrosion and to clean the contacts. Refer to DET. B, Figure 203.
- There is not a definition for the exact amount of spray to be applied, but the product must cover the contacts without excess spray. Excess spray does not cause any damage to the connector contacts and/or rubber, but can cause dirt accumulation.

(11) Heat up the heat-shrinkable boot. Start heating from the connector to the related harness. Do this with a heating gun or similar equipment. Refer to DET. C, Figure 203.

K. Follow-on

SUBTASK 842-003-A

(1) On the overhead panel, set the BATT 1 and BATT 2 switches to AUTO and remove the DO-NOT-SET-AUTO tag from them.

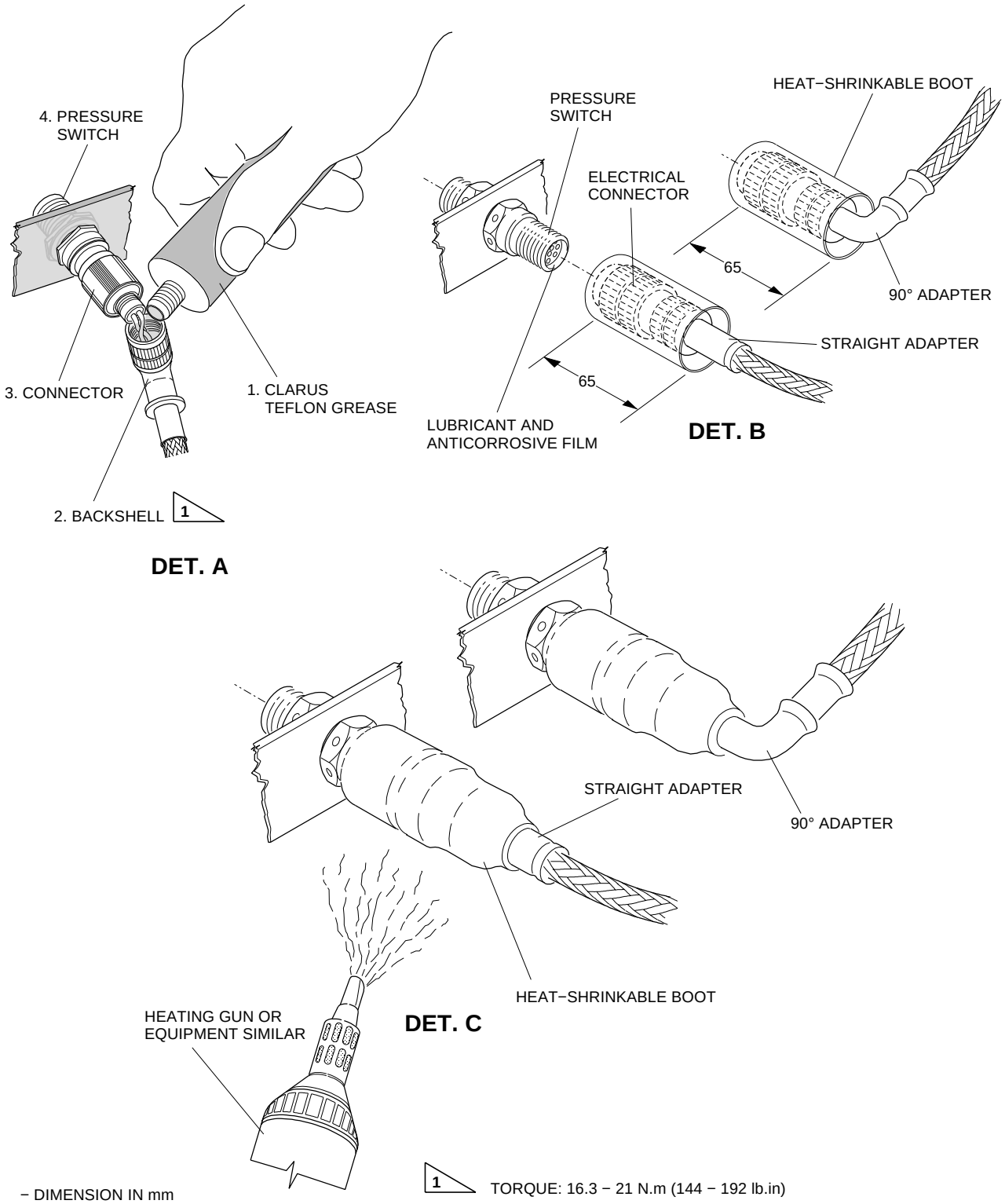
(2) On the circuit breaker panel, close the AIR/GND A, AIR/GND B, AIR/GND C, AIR/GND D, IND 1 and IND 2 circuit breakers and remove the DO-NOT-CLOSE tag from them.

(3) Do the functional check of the proximity switch. Refer to AMM TASK 32-63-05-700-801-A/500 or AMM TASK 32-63-05-700-802-A/500.

(4) For aircraft POST-MOD SB145-32-0036, remove safety pin of the NLG door solenoid valve (AMM TASK 32-00-02-910-801-A/200).

EFFECTIVITY: ALL

Protection of the Electrical Connectors - Pressure Switches
Figure 203



− DIMENSION IN mm

145AMM320329B.MCE