



AIRCRAFT MAINTENANCE MANUAL

STATIC DISCHARGERS - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove/install the static discharges.
- 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
23-60-01-000-801-A	STATIC DISCHARGER BASE - REMOVAL	ALL
23-60-01-400-801-A	STATIC DISCHARGER BASE - INSTALLA- TION	ALL
23-60-01-000-802-A	NOSE LANDING GEAR STATIC DIS- CHARGER - REMOVAL	ALL
23-60-01-400-802-A	NOSE LANDING GEAR STATIC DIS- CHARGER - INSTALLATION	ALL



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TASK 23-60-01-000-801-A

EFFECTIVITY: ALL

2. STATIC DISCHARGER BASE - REMOVAL

A. General

- (1) This task gives the procedures to remove the static discharger bases from the trailing edge of the ailerons, wing tips, rudder II, elevators, and vertical stabilizer rear fairing.

B. References

REFERENCE	DESIGNATION
SB145-23-0009	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
561		LH Wing tip
573		LH Aileron
661		RH Wing tip
673		RH Aileron
327		Rudder II
321		Vertical stabilizer rear fairing
335		LH Elevator
336		RH Elevator

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 036	Platform, hydraulic	To get access to the task area	
Explosion-proof Heat Guns	P/N CV-4504 or HT-900B or HT-920B or equivalent	To make the base hot for easy removal	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Polyethylene Spatula	To remove the remaining sealant	

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable



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MAINTENANCE MANUAL

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	On the structure

I. Preparation ([Figure 401](#))

SUBTASK 841-002-A

- (1) Put up the hydraulic platform at the necessary height.
- (2) Turn the static discharger (4) counterclockwise to remove it.
- (3) Remove the sealant with the polyethylene spatula.

J. Removal of the Static Discharger Base ([Figure 401](#))

SUBTASK 020-002-A

WARNING: IN ENVIRONMENTS WHERE THERE IS RISK OF EXPLOSION. USE ONLY AN EXPLOSION-PROOF HEAT GUN AND MAKE SURE IT IS SET TO A TEMPERATURE BELOW THE SELF-IGNITION TEMPERATURE OF THE FUELS ABOARD THE AIRCRAFT.

- (1) (PRE-MOD [SB145-23-0009](#)) Use a explosion-proof heat gun (1) at a distance of approximately 30 cm (to prevent a too hot condition):
 - (a) Apply hot air to the static discharger base (3) for approximately 1 minute.
 - (b) At the same time, apply a force (5) of approximately 4,5 kg (10 lb) to one end of the base (3).
NOTE: The heat and force applied for about 1 minute is sufficient to disconnect the static discharger base (3).
 - (c) Remove the static discharger base (3).

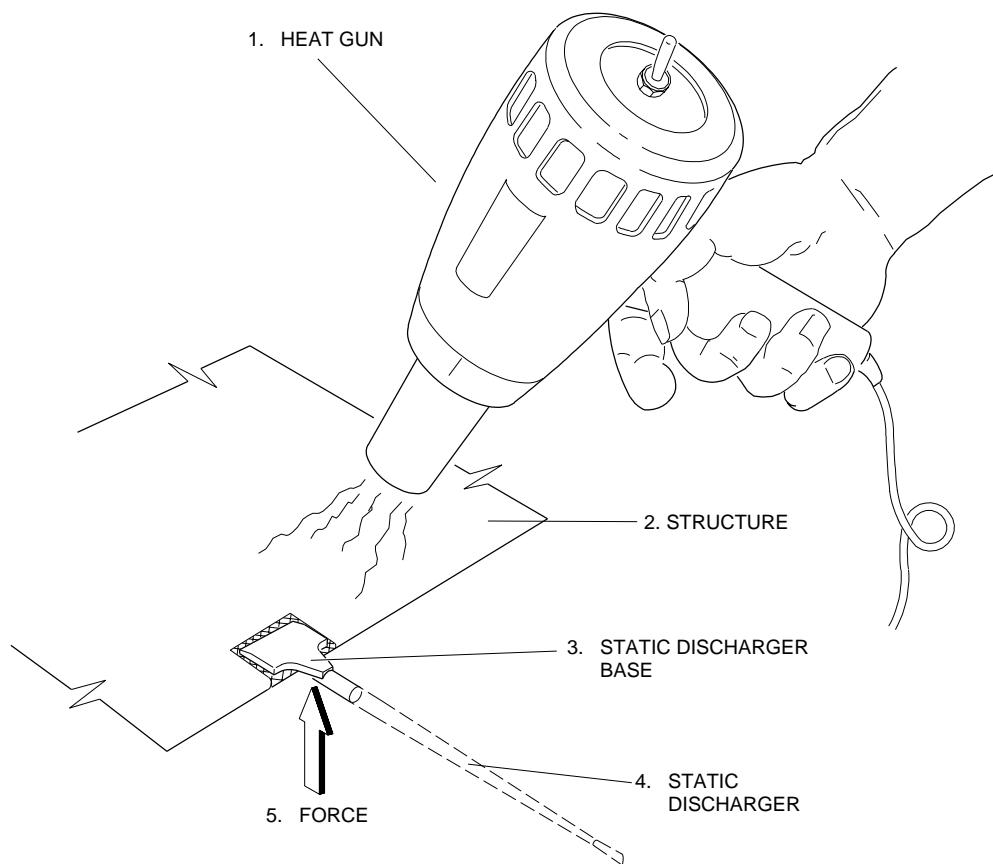
WARNING: IN ENVIRONMENTS WHERE THERE IS RISK OF EXPLOSION. USE ONLY AN EXPLOSION-PROOF HEAT GUN AND MAKE SURE IT IS SET TO A TEMPERATURE BELOW THE SELF-IGNITION TEMPERATURE OF THE FUELS ABOARD THE AIRCRAFT.

- (2) (POST-MOD [SB145-23-0009](#)) Use a explosion-proof heat gun (1) at a distance of approximately 10 cm (to prevent a too hot condition):
 - (a) Apply hot air 150 to 200°C (302 to 392°F) to the static discharger base (3).
 - (b) Use a polyethylene spatula, to remove the base (3).
 - (c) Remove the static discharger base (3).
- (3) Clean the remaining adhesive with a polyethylene spatula.

EFFECTIVITY: ALL

Static Discharger Base - Removal

Figure 401



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MAINTENANCE MANUAL

TASK 23-60-01-400-801-A

EFFECTIVITY: ALL

3. STATIC DISCHARGER BASE - INSTALLATION

A. General

- (1) This task gives the procedures to install the static dischargers on the trailing edge of the ailerons, wing tips, rudder II, elevators, and vertical stabilizer rear fairing.

B. References

REFERENCE	DESIGNATION
AMM TASK 23-60-00-700-801-A/500	STATIC DISCHARGERS - FUNCTIONAL CHECK
MEP 09-058	-
SB145-23-0009	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
573		LH Aileron
661		RH Wing tip
673		RH Aileron
327		Rudder II
335		LH Elevator
336		RH Elevator
321		Vertical stabilizer rear fairing

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 036	Platform, hydraulic	To get access to the task area	
Commercially available	Complete senco gun model 250-6	To apply the sealant	
Commercially available	Senco nozzle No. 420 or 440	To apply the sealant	
Commercially available	Protractor	To measure the installation angles	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Cotton gloves	Safety	AR
Commercially available	Lint-free cloth	To clean the surface	AR
Commercially available	Sandpaper No. 180	To sand the surfaces with coating	

(Continued)

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Sandpaper No. 320	To sand the surfaces not painted	
Commercially available	Wood scraper	To remove the paint coating from painted surface	
Commercially available	Clamp	To attach the base to the surface	
Commercially available	Neutral kraft paper	For protection of the region around the base to be removed	
Commercially available	Adhesive tape	To attach the paper to the surface	

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
MEP 09-058	Adhesive, Conductive (P/N 16307 or P/N: 2-310 or ECCO-BOND 60L or P/N 72-00008 or P/N 72-08116; DIM: KIT-COMP A+B)	AR
Commercially available	Methyl-Ethyl-Ketone	AR
MIL-R-81294	Paint Remover ARDROX-2104	AR
MIL-S-8802	Sealant PR 1440B2	AR
MIL-S-81733	Sealant PS 870B2	AR
Commercially available	Adhesive (P/N EC1300L)	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	On the structure

I. Surface Preparation (Figure 402) (Figure 403) (Figure 404) (Figure 405) (Figure 406) (Figure 407)
SUBTASK 841-003-A

- (1) Put the hydraulic platform at the necessary height.

NOTE: Correctly identify the type of surface to be prepared. The steps below give the correct procedures for each type of surface.

- (2) As a protection, apply neutral kraft paper (8) to the area around the static discharger base (4) and attach the paper with adhesive tape (9).
- (3) To prepare the painted metal surface with coating:
- (a) Apply carefully with a brush a sufficient quantity of paint remover on all the marked surface to get a thick and equal coat.

- (b) Let the remover touch the paint coat for 1 to 10 minutes.
- (c) Remove the layers with a wooden scraper.
- (d) Clean the surface with a clean cloth soaked in distilled water and wipe with a clean and dry cloth.
- (e) Clean the surface with a clean cloth soaked in methyl-ethyl-ketone or trichloroethane.

NOTE: Do not put the cleaning cloth into the solvent because contamination of the container content can occur.

- (f) Wipe it with a clean dry cloth before the solvent becomes a gas.

(4) To prepare metal surfaces with other coatings:

- (a) Sand the surface with sandpaper No. 180 until the coating is fully removed.
- (b) Clean the surface with a clean and dry cloth.
- (c) Clean the surface with a clean cloth soaked in methyl-ethyl-ketone or 1,1,1 trichloroethane.
- (d) Wipe it with a clean and dry cloth before the solvent becomes a gas.

NOTE: Do not put the cleaning cloth into the solvent because contamination of the container content can occur.

(5) (PRE-MOD [SB145-23-0009](#)) To prepare a metal surface with no coating:

- (a) Clean the surface with a clean cloth soaked in methyl-ethyl-ketone or 1,1,1 trichloroethane.
- (b) Wipe it with a clean and dry cloth before the solvent becomes a gas.

(6) (POST-MOD [SB145-23-0009](#)) To prepare a metal surface with no coating:

- (a) Sand the surface with sandpaper No. 180 until the covering is fully removed.
- (b) Clean the surface with a clean and dry cloth.
- (c) Clean the surface with a clean cloth soaked in methyl-ethyl-ketone or 1,1,1 trichloroethane.
- (d) Wipe it with a clean and dry cloth before the solvent becomes a gas.

NOTE: Do not put the cleaning cloth into the solvent because contamination of the container content can occur.

(7) To prepare a surface in composite material:

NOTE: Be careful not to cause damage to the metallic screen because the static discharger base will be bonded on it.

- (a) Sand lightly the surface with sandpaper No. 320 until you get to the metallic screen.

- (b) Clean the surface with a clean and dry cloth.
- (c) Clean the surface with a clean cloth soaked in methyl-ethyl-ketone or 1,1,1 trichloroethane.
- (d) Wipe with a clean and dry cloth before the solvent becomes a gas.

NOTE: Do not put the cleaning cloth into the solvent because contamination of the container content can occur.

- (8) Make a mark (3) on the structure around the static discharger base (4) contour at the correct mounting position. Obey the references of distance (1) and angles (2).

NOTE: When the discharger (6) is connected to the base (4), the two must be in the flight direction (7). If the installation is not correct, there will be a larger force on it and the static discharger life time will decrease due to possibility of body rupture or base disengagement.

- (9) As a protection, apply neutral kraft paper (8) and adhesive tape (9) to the area around the static base (4).

NOTE: Bond strength and durability are better if the surface is correctly prepared.

J. Static Discharger Base - Bonding ([Figure 402](#)) ([Figure 403](#)) ([Figure 404](#)) ([Figure 405](#)) ([Figure 406](#)) ([Figure 407](#))

SUBTASK 420-002-A

CAUTION: • (PRE-MOD SB 145-23-0009) DO NOT MIX THE ADHESIVE WITH THE ACTIVATOR BEFORE YOU APPLY THEM.

- (POST-MOD SB 145-23-0009) BECAUSE THE TWO ADHESIVE COMPONENTS ARE BLACK, IT IS NECESSARY TO MIX THEM FOR 2 MINUTES MINIMUM.

- (1) (PRE-MOD [SB145-23-0009](#)) Do as follows:

NOTE: There is no specific quantity for the application of the adhesive and activator.

- (a) Apply with the applicator brush a thin coat of the activator on the metallic screen (5) of the prepared surface.
- (b) Apply with spatula or knife a coat of adhesive on the contact surface of the static discharger base (4).
- (c) Put the static discharger base (4) in the position of the mark made on the structure (3) and apply a light pressure on it to cause some adhesive to come out.

NOTE: After the installation, the adjustment time is 15 seconds and the handling strength time is 3 minutes.

Do not remove the adhesive which came out not to move the static discharger base from its position.

- (d) Attach the static discharger base (4) with a clamp to a pressure between 5 and 20 psi.

NOTE: After you attach the clamp, do not move the bonding nor increase the pressure for 3 minutes (handling strength time).

- (e) The curing rate is fast, but let the adhesive cure for not less than 10 minutes. This will permit it to set before you install the static discharger (6) to the newly attached base (4).
 - (f) After this time (10 minutes), remove the clamp.
- (2) (POST-MOD [SB145-23-0009](#)) Do as follows:
- NOTE: Adhesive squeeze pack is a pre-measured mix sufficient for the installation of up to 25 discharger bases.
- (a) Remove separator strip from squeeze pack and mix the contents of the pack together for about 2 minutes (usable life, 2 hours from mixing).
 - (b) Cut the corner of the pack to squeeze adhesive onto bonding surfaces.
 - (c) If supplied as bulk adhesive (in cans), use alternative mixing methods as follows:
 - 1 Mix a ratio of 100 parts of resin component A to 15 (± 1) parts of hardener component B.
 - (d) Apply a large quantity of adhesive to the base bonding pad, press firmly into position and attach (temporary), with metallic tape or other correct method.

WARNING: IN ENVIRONMENTS WHERE THERE IS RISK OF EXPLOSION. USE ONLY AN EXPLOSION-PROOF HEAT GUN AND MAKE SURE IT IS SET TO A TEMPERATURE BELOW THE SELF-IGNITION TEMPERATURE OF THE FUELS ABOARD THE AIRCRAFT.

NOTE:

- We recommend the use of warm cure 50 to 70°C (122 to 158°F) for 2 hours. You can use an explosion-proof heat gun to get a fast cure time of 15 minutes. Set the explosion-proof heat gun at level 7 (check if the temperatures are between 150 and 200°C (302 and 392°F) to prevent a too hot condition) and position the tip at 10 cm from the static discharger base (4) on the opposite side of the surface where you applied the adhesive.
- During fast cure, do not use too much heat because this will not let the adhesive harden (refer to MEP 09-058).

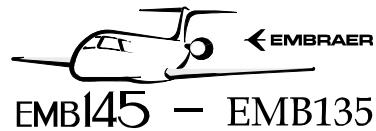
Remove the adhesive tape only 1 hour after fast cure. Do not touch the static discharger base (4) during the cure time.

K. Follow-on

SUBTASK 842-002-A

- (1) Do the functional check of the newly attached base ([AMM TASK 23-60-00-700-801-A/500](#)).
- (2) (PRE-MOD [SB145-23-0009](#)) Prepare sealant PR 1440B2 to be applied along the edges of the bonded surface as follows:

- (a) Weigh the correct ratio (10:1) of the base compound and accelerator. Use only the quantity to be applied.
 - (b) Mix the accelerator and base compound in their containers until you get an equal consistency.
 - (c) Slowly put the accelerator into the base compound and mix for approximately 7 to 10 minutes.
- (3) (POST-MOD [SB145-23-0009](#)) Prepare the sealant PS 870B2 to be applied along the edges of the bonded surface as follows:
- NOTE:** You can use adhesive (P/N 2-310 or ECCOBOND 60L) as an alternative to the sealant. Use the adhesive only when it is necessary to decrease curing time. Do not use the other adhesive alternatives (P/N 16307 or P/N 72-00008 or P/N 72-08116) as sealant.
- (a) Weigh the correct ratio (100:17) of the base compound and accelerator. Use only the quantity to be applied.
 - (b) Mix the accelerator and base compound in their containers until you get an equal consistency.
 - (c) Slowly put the accelerator into the base compound and mix for approximately 4 to 5 minutes.
- (4) To apply the sealant.
- NOTE:**
- At temperature of 24°C (75.2°F) and relative humidity of 50%, the application time is 2 hours, tack-free time is 36 hours, and curing time is 72 hours.
When the temperature increases from 5°C to 8°C (41°F to 46.4°F), the times decrease by half and when it decreases from 5°C to 8°C (41°F to 46.4°F), the times double.
 - (POST-MOD [SB145-23-0009](#)) Alternatively and only when it is necessary to decrease curing time, the adhesive (P/N 2-310 or ECCOBOND 60L) can be used in lieu of sealant with the same application of sealing. Do not use the other adhesive alternatives (P/N 16307 or P/N 72-00008 or P/N 72-08116) as sealant.
- (a) Hold the sealant-gun almost vertically to the surface. This will force the extruded sealant into the joint (discharge base-surface).
 - (b) Apply pressure to the sealant-gun handle and move the sealant-gun along the surface to be sealed.
 - (c) Use a spatula to make the new sealant coat stay in the applicable shape and smooth.
 - (d) Let the sealant cure.
- (5) (PRE-MOD [SB145-23-0009](#)) Apply adhesive P/N EC1300L to the thread of the static discharger and stop for 10 minutes before you install it to its base.



AIRCRAFT
MAINTENANCE MANUAL

NOTE: Do not use LOCTITE to bond the static discharger to its base.
Do not use methyl-ethyl-ketone to clean the static discharger on its base.

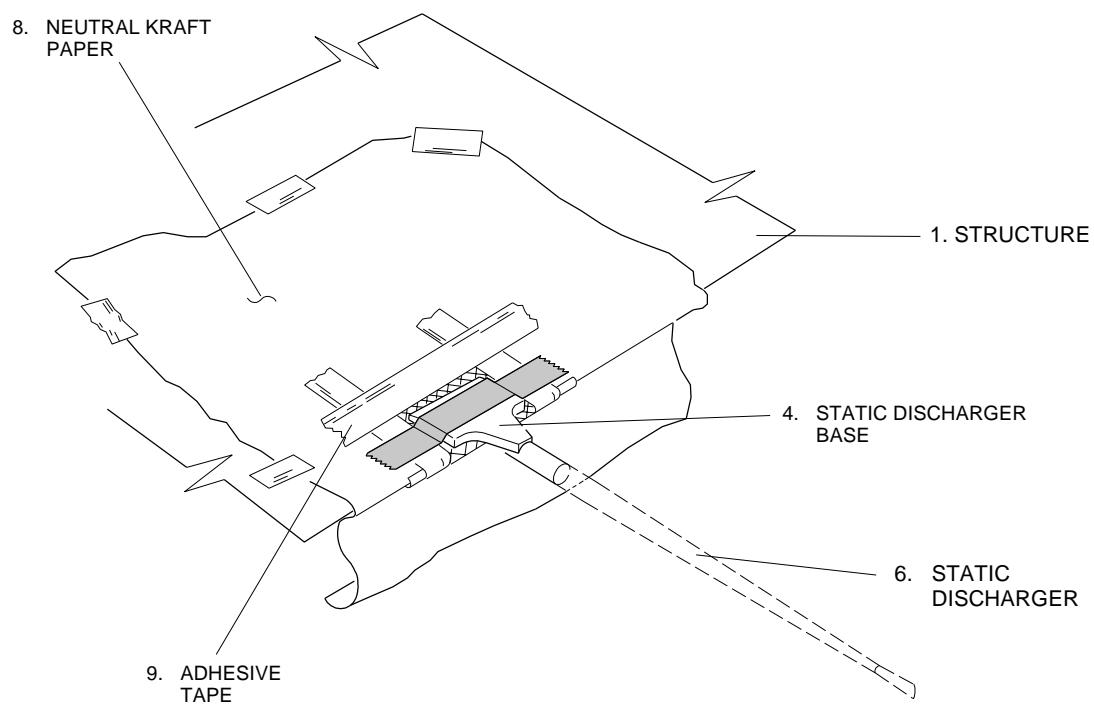
- (a) Turn the static discharger clockwise to install it correctly to the attached base.
- (6) (POST-MOD [SB145-23-0009](#)) Turn the static discharger clockwise to install it correctly to the attached base.

NOTE: Do not use glue to install the static discharger to its base.

EFFECTIVITY: ALL

Static Discharger Base - Installation

Figure 402

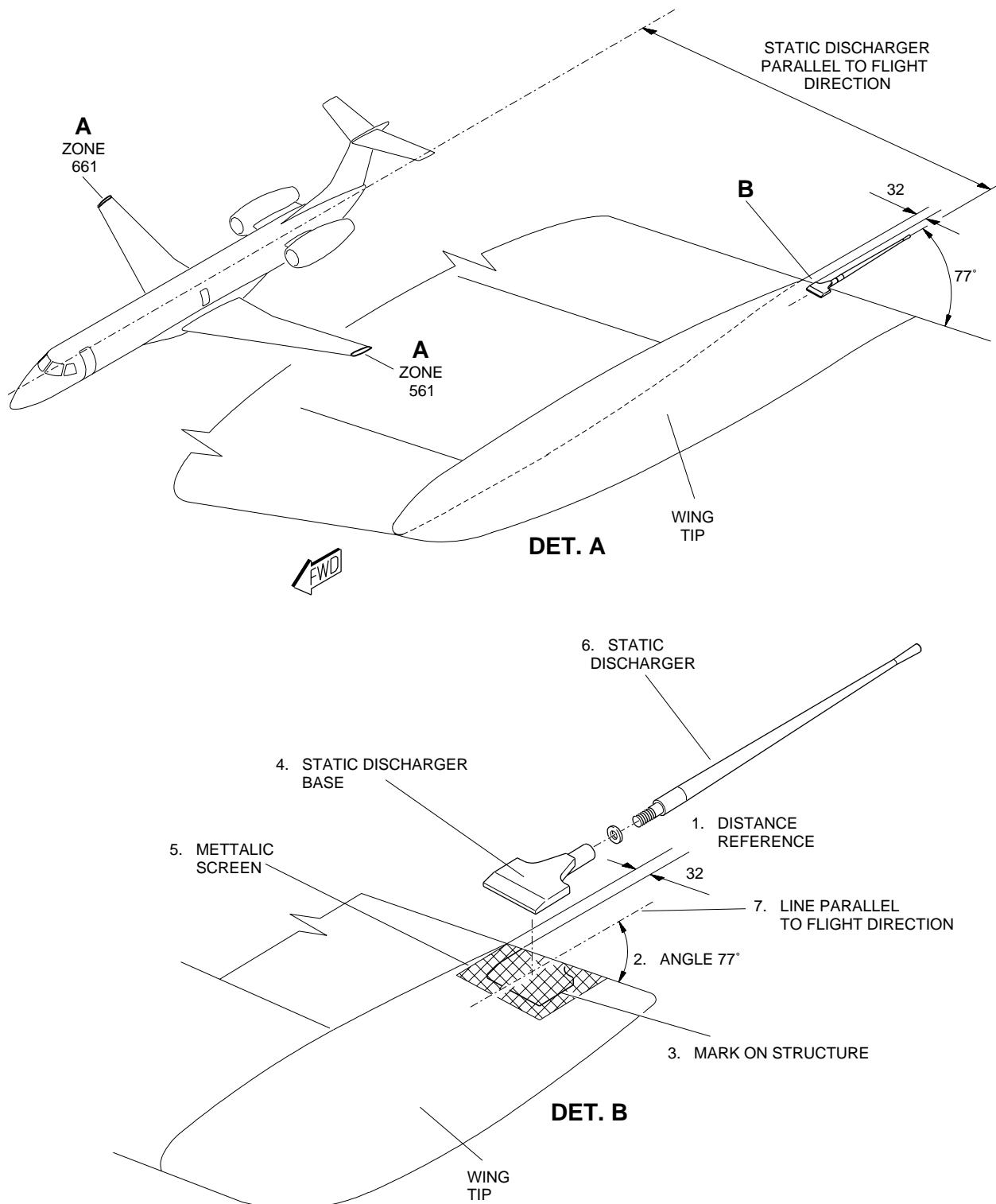


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EFFECTIVITY: ALL

Wing Tip Static Discharger Base - Installation

Figure 403

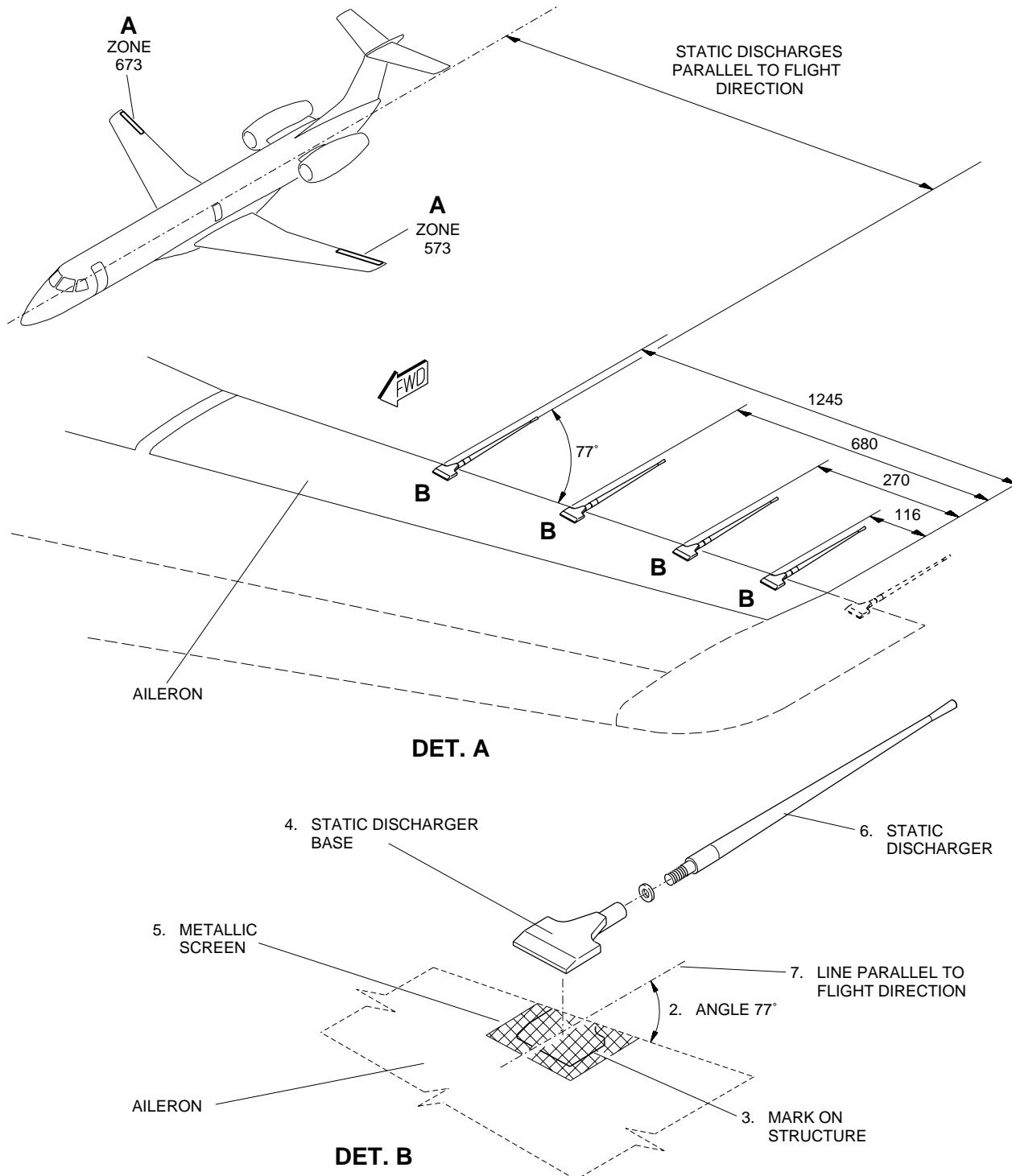


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EFFECTIVITY: ALL

Aileron Static Discharger Base - Installation

Figure 404

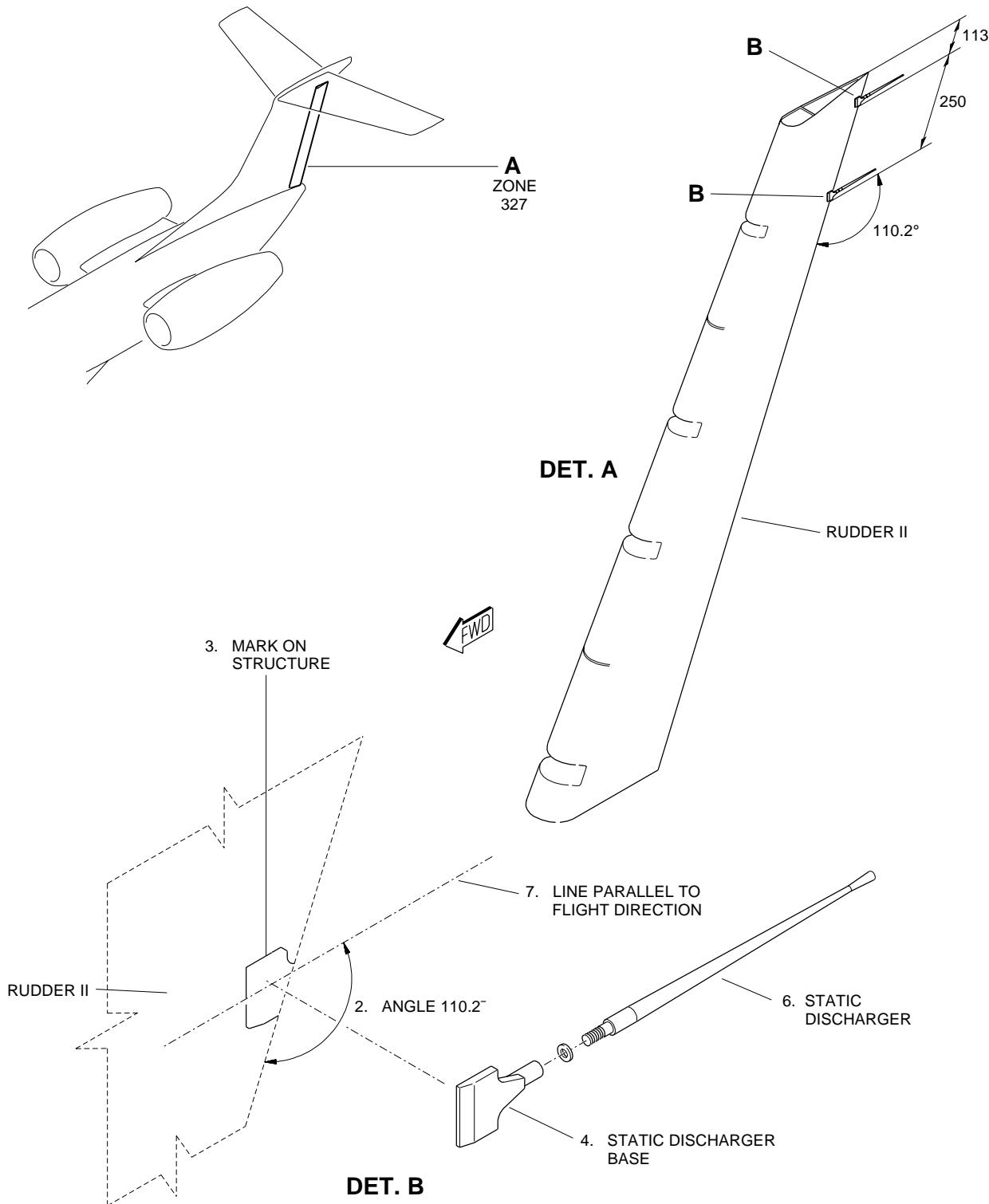


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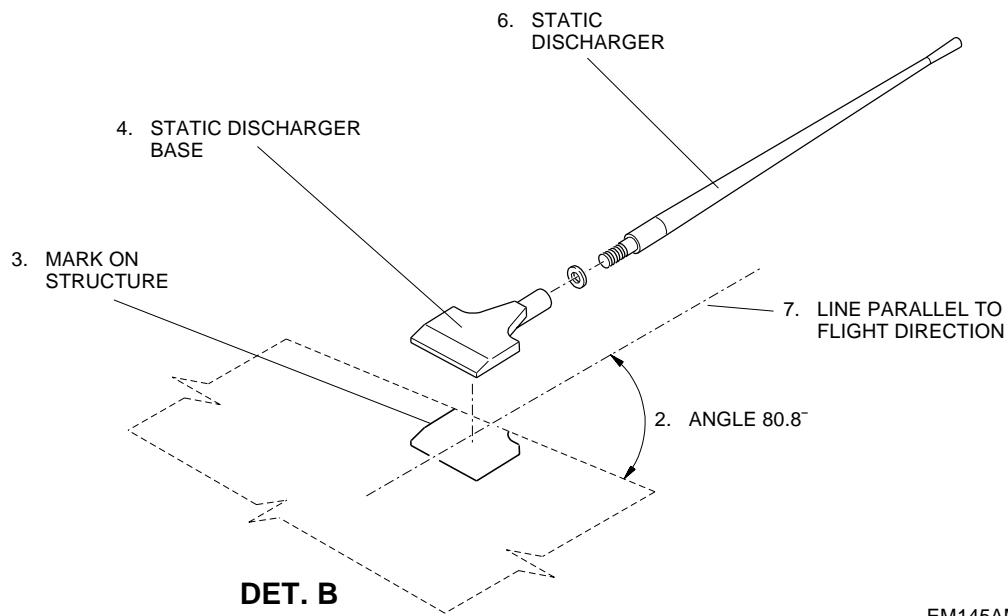
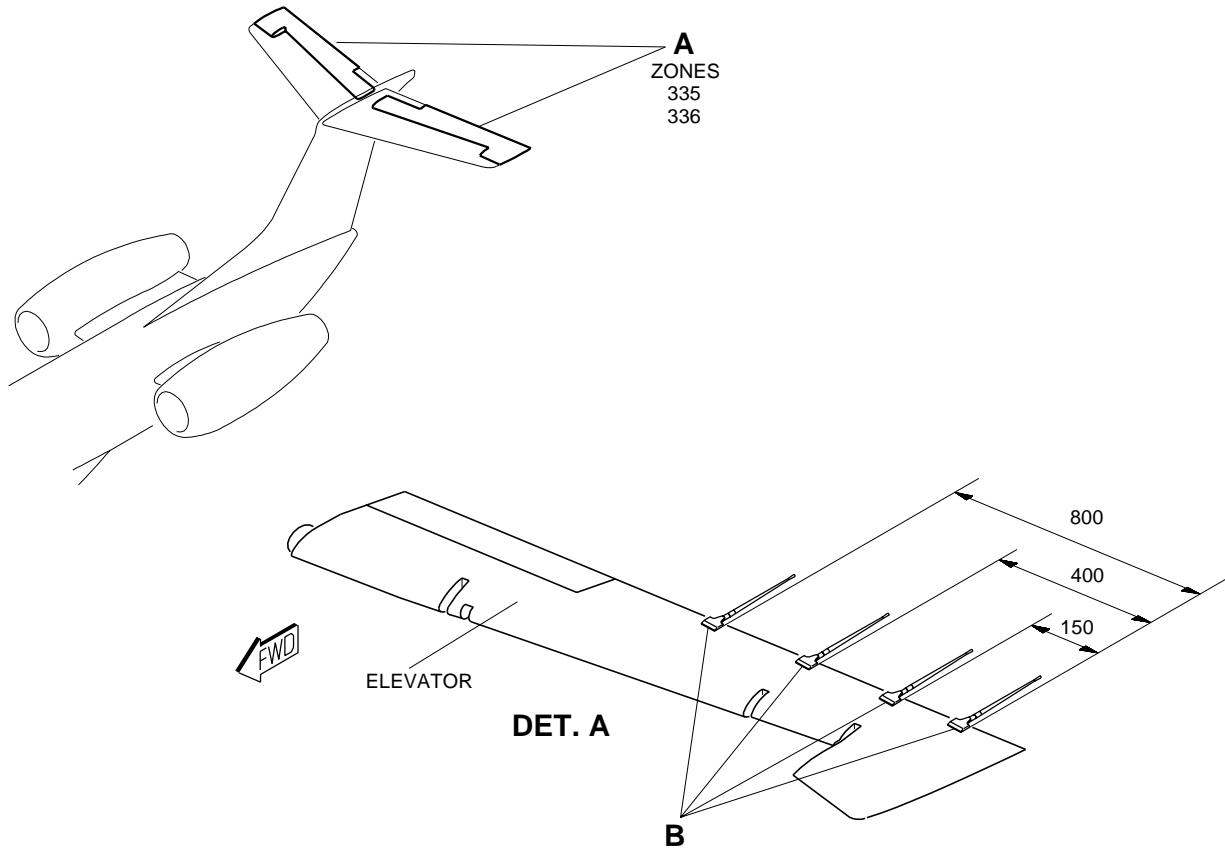
EFFECTIVITY: ALL

Rudder II Static Discharger Base - Installation

Figure 405



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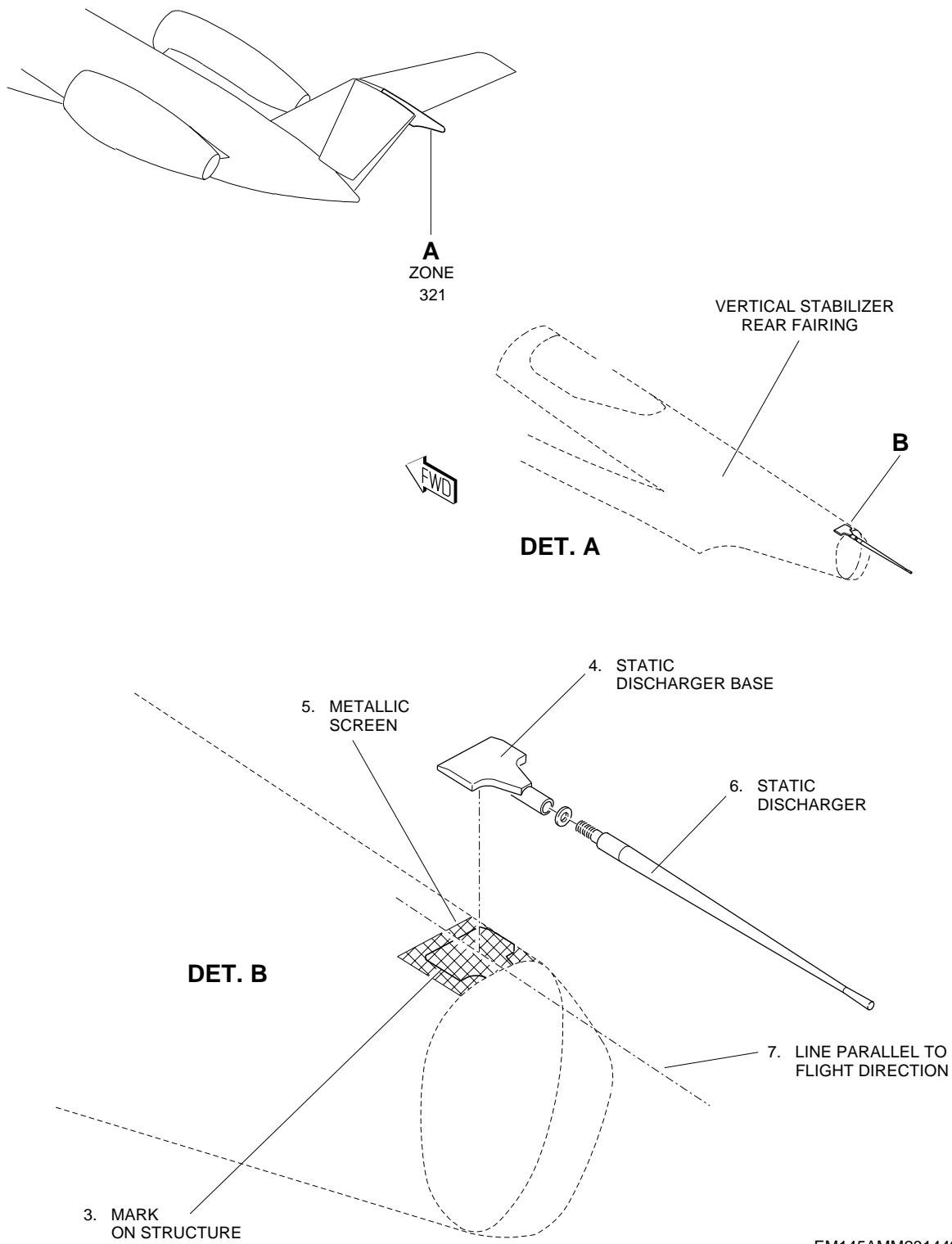
EFFECTIVITY: ALL
Elevator Static Discharger Base - Installation
Figure 406


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EFFECTIVITY: ALL

Vertical Stabilizer Rear Fairing Static Discharger Base - Installation

Figure 407





EMB145 – EMB135

AIRCRAFT
MAINTENANCE MANUAL

TASK 23-60-01-000-802-A

EFFECTIVITY: ALL

4. NOSE LANDING GEAR STATIC DISCHARGER - REMOVAL

A. General

- (1) This task gives the applicable procedures to remove the static discharge installed on the nose landing gear.

B. References

REFERENCE	DESIGNATION
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
711	Not applicable	Nose landing gear

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Allen wrench (3/32 in)	To remove the static discharger	

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	Nose landing gear

I. Preparation

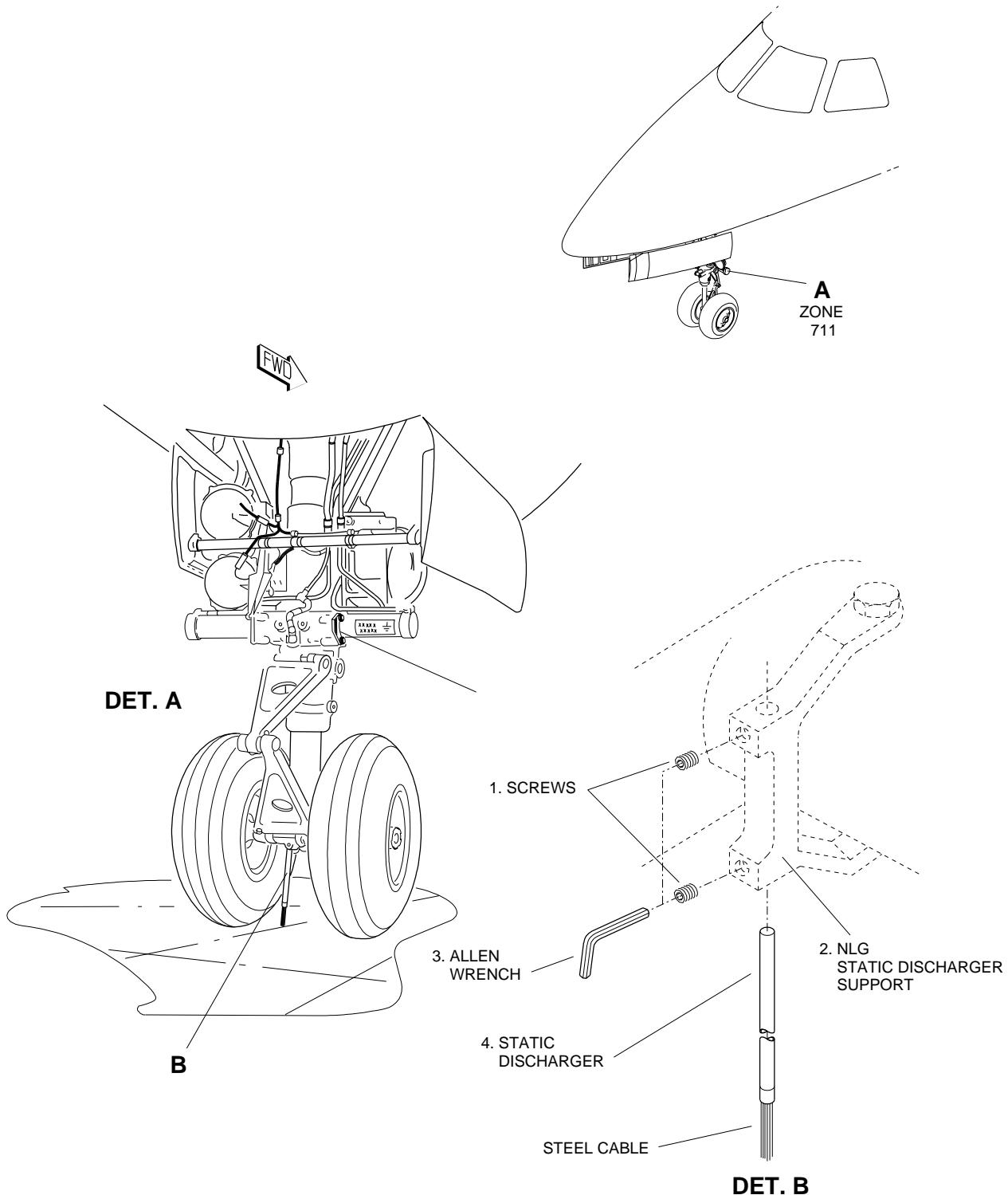
SUBTASK 841-004-A

- (1) Install the ground safety pin ([AMM TASK 32-00-01-910-801-A/200](#)).

J. Removal (Figure 408)

SUBTASK 020-003-A

- (1) Use a 3/32 Allen wrench (3) to remove the screw (1) on the nose landing gear discharger support (2).
- (2) Remove the static discharger (4) from the nose landing gear static support.

EFFECTIVITY: ALL
NLG Static Discharger - Removal/Installation
Figure 408


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MAINTENANCE MANUAL

TASK 23-60-01-400-802-A

EFFECTIVITY: ALL

5. NOSE LANDING GEAR STATIC DISCHARGER - INSTALLATION

A. General

- (1) This task gives the procedures to install the static discharger on the nose landing gear.
- (2) Make sure the ground safety pin is installed ([AMM TASK 32-00-01-910-801-A/200](#)).

B. References

REFERENCE	DESIGNATION
AMM TASK 23-60-00-700-801-A/500	STATIC DISCHARGERS - FUNCTIONAL CHECK
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
711	Not applicable	Nose landing gear

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 045	Milliohmometer	To do the electrical continuity check	
Commercially available	Allen wrench (3/32 in)	Remove/install the nose landing gear static discharger	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

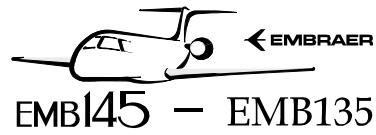
QTY	FUNCTION	PLACE
1	Does the task	Nose landing gear

I. Nose Landing Gear Static - Installation (Figure 408)

SUBTASK 420-003-A

- (1) Install the static discharger (4) in the correct location on the support (2) of the nose landing gear static discharger.

NOTE: The length of the static discharger must be sufficient to do a light pressure against the ground. If necessary, remove a part of the insulation and adjust the discharger as applicable.



**AIRCRAFT
MAINTENANCE MANUAL**

- (2) Tighten the screws (1) to attach the static discharger (4) to the support (2) of the nose landing gear static discharger.

J. Follow-on

SUBTASK 842-003-A

- (1) Do a NLG static discharger functional check ([AMM TASK 23-60-00-700-801-A/500](#)).

