

WINGS LEADING EDGE AND LEADING EDGE DEVICES WING LEADING EDGE GENERAL REPAIRS

1. Information

For details of materials used during assembly, refer to Chapter 20 Standard Practices - Airframe Manual 125/H-20.

Equipment/Material	Part/Item No.
Grease (low temperature)	078 (Ref. AMM 125/H-20, 20-95-11)
Polysulfide sealant fillet grade	314 (Ref. AMM 125/H-20, 20-95-301)
Polysulfide sealant	324A (Ref. AMM 125/H-20, 20-95-301)
Sealing compound	326 (Ref. AMM 125/H-20, 20-95-301)
Polysulfide sealant	347 (Ref. AMM 125/H-20, 20-95-301)
Smoothing sealant	396 (Ref. AMM 125/H-20, 20-95-301)
Epoxy primer	466 (Ref. AMM 125/H-20, 20-95-401)
Alocrom film treatment	504 (Ref. AMM 125/H-20, 20-95-501)
Tape, adhesive double sided	656 (Ref. AMM 125/H-20, 20-95-601)

2. Stall Test Requirements

A. General

In accordance with the Flight Manual procedures the airplane must be test flown by a pilot familiar with the stall identification system and stall characteristics of the 750, 800, 800XP, 850XP and the 900XP series if:

- (1) The leading edge assembly was removed as a whole for any reason.
- (2) Two or more TKS wing distribution panels on one side are removed or installed.
- (3) Either of the one-piece titanium leading edge sections (Mod. 253166A) are removed or installed.
- (4) Either of the stall triggers is adjusted, replaced, or removed/installed.

For the procedure and technique for intentional stall demonstrations and for the identification and characteristics of the stall refer to the following:

- (a) For Series 800 and 800XP Airplanes refer to the Flight Manual Section 4.10.
- (b) For Series 800XP and 850XP Airplanes with Pro Line 21 installed refer to the Pilot's Operating Manual Section V.
- (c) For Series 900XP Airplanes refer to the Pilot's Operating Manual Section V.
- (d) For Series 750 Airplanes refer to the Pilot's Operating Manual Section V.

Before undertaking the test flight the stall identification system should be checked-out on the ground in accordance with the requirements of the AMM (Refer to Chapter 27, Stall Warning and Identification System -Adjustment/Test).

Do a check of the vortex generators for security and condition and also the leading edge to skin gap fillet reference [Figure 201](#) (800 Series) or [Figure 203](#) (750, 800XP, 850XP and 900XP series).

The results of the above actions on these panels must be recorded, so that if a total of two or more wing distributor panels on one side, or either of the one piece titanium panels have been disturbed since the last stall check flight, a further test flight to check stall characteristics must be done.

If the test flight shows unacceptable low speed stall characteristics refer to paragraph 3. for instructions on correction of stall handling.

3. Correction Of Unacceptable Stall Handling Characteristics

A. General

CAUTION: The most frequent reason for stall behavior being unacceptable on the Hawker 800 is rolling at the stall, generally due to asymmetric stalling of the inner wings. It is also possible for aileron snatch to occur just before, at, or after the stall. Note that, although ideally the airplane should not roll at all, it is acceptable for a moderate roll to occur provided that coarse use of the aileron can limit the roll angle to 20°. There should be no aileron snatching or over-balance at any point in the stall. If the stalling characteristics of an airplane are unacceptable the wing should be inspected to see if any of the following wing profile defects are present. (Aileron snatching is indicative of a defect in the wing leading edge in front of the aileron).

- (1) Examine the joint between the TKS de-icer and the leading edge to see if the profile is smooth or discontinuous in a

chordwise direction, or if the filler at this joint is causing a ridge or is damaged.

- (2) Examine the joint between the leading edge and the main wing skin for chordwise discontinuity.

Defects at the above joints may take the form of either into-wind or out-of-wind steps with an otherwise smooth profile, or a discontinuity due to incorrect profile of either the TKS de-icing strip or the leading edge. Both faults can be present together at any point on a joint.

If these types of defects are found in many places they should be corrected and the stall handling re-check done. If the stalling characteristics are still unacceptable due to rolling at the stall it will be necessary to make an adjustment to the spoilers to correct it. Should aileron snatching be present, there is still a defect on the outboard wing, almost certainly on the side of the upgoing aileron, consult Customer Support, Beechcraft Corporation, before you proceed further.

NOTE: For 800 series airplanes only:

If the inboard portion of the leading edge has only been reinstalled and not changed, then the spoiler will need to be de-riveted if an adjustment is to be made. To do this the nose pressing to which the spoiler is attached must be removed from the leading edge. After removing the rivets, the three bolts attaching the spoiler to the nose pressing should be adjusted until the spoiler is held at such a pressure that firm tapping with a soft mallet will just move it, but there is no chance of it moving accidentally. The nose pressing with the spoiler attached should then be installed to the leading edge and the spoiler adjusted to the required setting by tapping it with a soft mallet. On a new leading edge the spoiler will not have been riveted initially (Ref. paragraph 3. B. (7)).

NOTE: For 800 series airplanes only:

Spoiler setting is measured by holding a straight edge lightly against the bottom wing surface exactly parallel to the chordwise rows of rivets and measuring squarely from the straight edge to the apex of the spoiler, close to each end of the spoiler. Standard spoiler settings are shown (Ref. Figure 202). Not more than 0.05 in. (1.27 mm) of adjustment from the standard settings should be used. If there is strong reason to believe that a larger adjustment is necessary, Beechcraft Corporation must be consulted.

NOTE: For 800 series airplanes only:

If a new spoiler is to be installed refer to Paragraph 4.C.

NOTE: For 750, 800XP, 850XP and 900XP series airplanes only:

If the inboard portion of the leading edge has only been refitted and not changed, then the spoiler attachment bolts, 4 off, will require to be adjusted until the spoiler is held at such a pressure that firm tapping with a soft mallet will just move it, but there is no chance of it moving unintentionally. Adjustment of the spoiler to the required setting is by tapping it with a soft mallet.

NOTE: For 750, 800XP, 850XP and 900XP series airplanes only:

Each of the wing spoiler settings are measured by holding a flexible ruler against the top edge of the TKS panel parallel to the chordwise rows of rivets and measuring from the rear edge of the TKS panel to the rear edge of the spoiler at each end. Standard spoiler setting is shown (Ref. Figure 203, Section A-A). Not more than 0.05 in. (1.27 mm) of adjustment from the standard setting should be used. If a larger adjustment is necessary, Beechcraft Corporation should be consulted.

B. Stall Tests and Procedures for Correcting Stall Handling Characteristics by Spoiler Adjustments

- (1) Measure the spoiler settings as described in 3.A. (2) NOTES and then stall the airplane in all configurations. Record the stall speeds, as identified by the stall identification system, and the stall characteristics. The stall speeds should be corrected for instrument error (if available) and compared with the Flight Manual stall speeds. The speeds are given in the Flight Manual Section 4 or as a supplement.

If there is a difference of 3 knots or more, the rigging of the pitot heads should be examined and if necessary adjusted to bring them within the limits $5^\circ + 1/2^\circ$ nose down. Note however that if the airplane is stalled close to the aft C.G. condition appropriate to ventral tank empty the actual speeds should be approximately 2 knots less than those given in the Flight Manual.

- (2) If the stall behavior is unacceptable, (Ref. paragraph 3.A.) the characteristics and speeds observed should be compared with those described (Ref. paragraph 3.B. (2) (a), (b) and (c)) to decide what adjustment to the spoilers should be made. Refer to paragraph 4.D (800 Series) or 4. E. (750, 800XP, 850XP and 900XP Series) for instructions to adjust and attach the spoilers.

- (a) If the airplane rolls to either port or starboard at the stall, but not always in the same direction, (the severity of the roll may be because of an increase of flap deflection) and the stall speeds are low or in agreement with the scheduled speeds; then both spoilers should be moved 0.020 in. (0.51 mm) up.

- (b) If the airplane stalls substantially wings level with the flaps 0 deg. but becomes laterally unsteady with flap deflection, particularly 45° flap, and stall speeds are high then both spoilers should be moved down 0.020 in. (0.51 mm).
- (c) If the airplane rolls consistently, but not too sharply, in one direction at the stall (roll may increase with flap deflection), with low or normal stall speeds; then both spoilers should be moved up 0.020 in. (0.51 mm).
If the airplane consistently rolls strongly in one direction at the stall (probably including flaps 0°); then the spoiler on the up-going wing should be moved up 0.020 in. (0.51 mm), leave the other spoiler unmoved.
The effect of asymmetric adjustment of the spoilers is more pronounced with flaps deflected than with flaps up. So that if an airplane stalls square with flaps up but drops a wing with flaps extended, this wing drop may well be corrected by asymmetric spoiler adjustment without losing the wings level stall with flaps up.
- (3) After an adjustment is made to the spoiler setting, refer to paragraph 4.D (800 Series) or 4. E. (750, 800XP, 850XP and 900XP Series), it will be necessary to check again the stall characteristics as described in paragraph 2. - Stall test requirements.
- (4) If the stall characteristics have been made acceptable by movement of the spoilers, and the stall speeds (corrected for instrument error) are within 3 kts of the schedules speeds then the spoilers should be riveted or bolted in position, (paragraph 3.B. (7) or (8)). If the stall characteristics remain unacceptable it will be necessary to make a further adjustment to spoiler position.
 - (a) If the stall characteristics have been improved by the movement of both spoilers up or down as in 3.B. (2) (a) or (b) but is not yet acceptable, although the characteristics are similar, then a further movement of the spoilers in the same direction as the first should be made. If however, the initial move appears to have been correct but too large it should be reduced.
 - (b) If the spoilers were both moved up as in 3.B. (2) (c) but no improvement made to the stall characteristics, then the spoiler on the upgoing wing should be moved 0.020 in. (0.51 mm) up as is dealt with severe rolling tendency in 3.B. (2) (c).
If one spoiler only was moved as described in 3.B. (2) (c) and the effect has not been large enough a further similar movement of 0.020 in. (0.51 mm) should be made; if the effect has been too large the movement should be reduced.
 - (c) If the stall characteristics are altered by movement of the spoilers, but not made acceptable, then the next move should be decided by reference to paragraph 3.B. (2) as for an initial move. If only one spoiler has been moved (possibly more than once in the same direction) the stall characteristics should be reviewed as in 3.B. (2) (a) and (b) to decide if a final symmetrical move of both spoilers should be made, as they may both be too high or low.
- (5) After further adjustment is made to the spoiler setting it will be necessary to check again the stall characteristics as described in paragraph 3.B. (3) and review the results and proceed as in paragraph 3.B. (4).
- (6) If the spoilers are set in the optimum position by the above procedure but the stall characteristics are still unacceptable, then a further thorough check of wing leading edge profiles should be made and any necessary corrective action taken.
- (7) 800 series airplanes only:
When a spoiler setting to give satisfactory stall characteristics has been found, the spoilers should be riveted in position on the leading edge so as to prevent inadvertent movement when in service. This should be done by drilling the leading edge through the small countersunk holes in the spoiler and securing the spoiler with four countersunk "blind" rivets Avdel 4032/411 or AGS 2066/411. This operation should be done without removing the nose pressing, to which the spoiler is attached, from the main leading edge. Spoiler position should be measured both before and after riveting to make sure that the spoiler has not moved.
- (8) 750, 800XP, 850XP and 900XP series airplanes only:
When a spoiler setting which gives satisfactory stall characteristics have been found, the spoilers should be bolted in position on the leading edge to prevent accidental movement when in service. Spoiler position should be measured both before and after final tightening of the attachment bolts to make sure that the spoiler has not moved.

4. Removal And Installation Of New, Replacement Or Repaired Leading Edge

A. Information

NOTE: For stall test requirements refer to paragraph 2.
It is acceptable to remove/install the complete leading edge as a single assembly. Upon completion of the installation, do the STALL TEST REQUIREMENTS procedure (Ref. paragraph 2.).

B. Removal of Leading Edge Assembly

- (1) If the inboard leading edge portion is to be removed, remove landing and taxiing lamps (Refer to Aircraft Maintenance

Manual Chapter 33, Wing Tip Navigation and Strobe Light Assembly -Maintenance Practices).

- (2) Remove the bolts that hold the leading edge.

CAUTION: On 750, 800XP, 850XP and 900XP Series airplanes:

When you remove the leading edge, make sure that the central bolt below the vortilon is removed. This bolt is usually covered with sealant and damage could occur if it is not removed.

- (3) Support the leading edge and ease it away from front spar.

NOTE: For airplanes Mod.253166A:

The titanium outboard leading edge skins are coated on the surfaces that are in contact with aluminum alloy, with plasma deposited zinc to prevent bi-metallic corrosion. The zinc spray is made to corrode sacrificially to protect the two component surfaces and produces a white deposit much like aluminum corrosion. It is important that this layer is not removed. If the protective layer is damaged or removed, then repair in accordance with (Refer to Chapter 51, Protective Treatment and Corrosion Prevention).

- (4) With fluid containers put in position, unlock and disconnect the de-icing fluid feed couplings at the inboard and outboard ends of the assembly. Install blanks to open ends of pipelines and couplings.

C. Installation of New, Replacement or Repaired Leading Edge

- (1) Pre-fit the assembly to front spar and make sure that profile of leading edge skin to wing skin is between -0.01 in. (0.25 mm) and + 0.02 in. (0.5 mm) (Ref. Figure 204, Section B-B). Apply sealant (Item 324A) where necessary to achieve this. Then apply low temperature grease (Item 078).
- (2) Make sure that the gap between the leading edge and the wing is between 0.02 in (0.51 mm) and 0.15 in. (3.81 mm) with the leading edge in the installed position.
- (3) Remove blanks from pipelines and couplings of de-icing system and connect up system (Refer to aircraft Maintenance Manual Chapter 30, Distributor Panels -Removal and Installation).
- (4) Ease leading edge on to front spar landing, take care not to damage polysulfide rubber seal, and attach with special countersunk bolts.
- (5) Fill gap between leading edge skin and wing skin with sealant (Item 314 or Item 347) or per gap filling procedure (Refer to Standard Practices - Airframe Manual 125/H-20, Chapter 20, Sealing of Integral Fuel Tanks with Polysulfide Compounds-Maintenance Practices, para 6.C).
- (6) Install landing and taxiing lamps (Refer to Aircraft Maintenance Manual Chapter 33, Wing Tip Navigation and Strobe Light Assembly - Maintenance Practices).
- (7) Install both wing leading edge spoilers.

D. Install/Adjust Leading Edge Spoiler - 800 Series Only

Where a new leading edge spoiler is to be installed or an existing leading edge spoiler repositioned to correct stall characteristics, the following procedure is to be followed (Ref. Figure 201 and Figure 202):

- (1) Drill out existing lock rivets (4 positions) that attach the spoiler to nose pressing.
- (2) Remove countersunk bolts that attach nose pressing/spoiler assembly to the leading edge and remove assembly. Detach spoiler from nose pressing.
- (3) Lightly countersink the rear face of the spoiler lock rivet holes to provide retention feature for Sealing compound (Item 326). Flush fill the four redundant lock rivet holes with Sealing compound (Item 326) in accordance with (Ref. 51-26-00). Holes in nose pressing stay redundant.
- (4) Assemble spoiler to nose pressing and secure temporarily with profile support washers, tab washers and bolts. Tighten the three bolts evenly until spoiler is firmly held against inadvertent movement but can be just moved by firm tapping with a soft mallet. Lock the bolts at this condition.
- (5) Install the nose pressing/spoiler assembly to the leading edge and tighten down evenly on the countersunk bolts.
- (6) Set spoiler to standard setting on (Ref. Figure 201) by firm tapping with a soft mallet where necessary, and after flight tests and adjustment, (Ref. paragraphs 2. and 3.), finally secure, in position.
- (7) Drill/ream and countersink lock rivets at the next available position (Ref. Figure 202).
- (8) Treat all bare surfaces with Alocrom Film treatment (Item 504) and Epoxy Primer (Item 466) in accordance with (Ref. 51-20-11).

E. Install/Adjust Leading Edge Spoiler - 750, 800XP, 850XP and 900XP Series Only

- (1) Remove the countersunk bolts that attach the existing spoiler and remove the assembly from the leading edge (Ref. [Figure 203](#)).
- (2) Assemble the spoiler to the nose pressing, attach the inner retainer plate first with two bolts, distance tubes and washers (Ref. [Figure 203](#), Detail A-A). Position new spoiler and install four of the attachment bolts (Ref. [Figure 203](#), Detail B-B). Tighten the four bolts evenly until the spoiler is held firmly and prevents accidental movement, but can just be moved by firm tapping with a soft mallet. Completely tighten the bolts when the spoiler position is correct.
- (3) Install the nose pressing/spoiler assembly to the leading edge and tighten down evenly on the countersunk bolts.
- (4) Set the spoiler to the standard setting (Ref. [Figure 203](#), Detail A-A) by firm tapping with a soft mallet where necessary. After flight test and adjustment, (paragraphs 2. and 3.), finally tighten in position as shown (Ref. [Figure 203](#), Detail B-B).
- (5) Fill the adjustment slots with smoothing sealant (Item 396).

5. Removal And Installation of Existing Leading Edge

NOTE: It is acceptable to remove/install the complete leading edge as a single assembly. Upon completion of the installation, do the **STALL TEST REQUIREMENTS** procedure (Ref. paragraph 2.).

A. Removal of Leading Edge

Do the procedure that follows in conjunction with [Figure 204](#)

- (1) Attach pairs of light alloy squares to the top surface wing skin and leading edge skin, using double sided tape (Item 656) in accordance with [Figure 204](#), Detail A.
- (2) Do again the procedure detailed in paragraph 5.A. (1) to the bottom surface wing skin and leading edge skin.
- (3) Accurately scribe a line at right angles to the skin butt joint, on the light alloy squares only.
- (4) Accurately set a pair of sharp pointed dividers to a known dimension. Do not adjust these dividers again until the leading edge installation is completed.
- (5) Scribe radius marks across the line made in paragraph 5.A. (3) with the preset dividers.
- (6) Do again paragraphs 5.A. (3) and (5) at all pad positions.
- (7) Put the dividers in a safe place to make sure no adjustment to the fixed setting occurs.
- (8) Remove the Complete Wing Leading Edge Assembly or Single Leading Edge Portion to the Instructions that follow:
 - (a) Remove the landing and taxiing lamps (Refer to Aircraft Maintenance Manual Chapter 33, Wing Tip Navigation and Strobe Light Assembly -Maintenance Practices).
 - (b) Remove the bolts that attach the leading edge.

CAUTION: On 750, 800XP, 850XP and 900XP series airplanes:

When you remove the leading edge, make sure that the central bolt below the vortilon is removed. This bolt is usually covered with sealant and damage could occur if it is not removed (Ref. [Figure 204](#)).

- (c) Support the leading edge and ease it away from the front spar.

NOTE: For airplanes Mod.253166A:

The Titanium Outboard Leading Edge Skins are coated on the surfaces that are in contact with aluminium alloy, with plasma deposited zinc to prevent bi-metallic corrosion. The zinc spray is made to corrode sacrificially to protect the two component surfaces and produces a white deposit much like aluminum corrosion. It is important that this layer is not removed. If the protective layer is damaged or removed, then repair in accordance with (Refer to SRM, Chapter 51, Protective Treatment and Corrosion Prevention).

- (d) With fluid containers put in position, unlock and disconnect the de-icing fluid feed couplings at the inboard and outboard ends of the assembly. Install blanks to open ends of pipelines and couplings.

B. Installation of Leading Edge

Inspect and install the original complete leading edge assembly or original leading edge portion to the instructions that follow:

- (1) Offer up the leading edge assembly or portion to the front spar and make sure that the profile of the leading edge skin to wing skin is between the limits shown (Ref. [Figure 204](#), Section B-B). Apply sealant (Item 324A) where necessary to get this. Then apply low temperature grease (Item 078).
- (2) Remove the blanks from the pipelines and couplings of the de-icing system and connect up the system (Refer to aircraft Maintenance Manual Chapter 30, Distributor Panels - Removal and Installation).

- (3) Ease the leading edge assembly or portion on to the front spar landing, take care not to damage the polysulfide rubber seal and loosely slave bolt the leading edge into position.
- (4) Use the preset dividers to make sure that the distance between the scribed radii (Ref. paragraph 5.A. (5)) is correct at every location.
- (5) Make sure the scribed line (Ref. paragraph 5.A. (3)) is aligned at each location.
- (6) Adjust the leading edge to get both requirements described in paragraphs 5.B. (4) and (5).
- (7) Bolt the leading edge into position.
- (8) Fill gap between leading edge skin and wing skin with sealant (Item 314 or Item 347 or per gap filling procedure (Refer to Standard Practices - Airframe Manual 125/H-20, Chapter 20, [Sealing of Integral Fuel Tanks with Polysulfide Type Compounds -Maintenance Practices](#), para 6.C).
- (9) Make sure functional checks are done in accordance with (Refer to aircraft Maintenance Manual Chapter 30, Distributor Panels - Removal and Installation).
- (10) Install landing and taxiing lamps (Refer to Aircraft Maintenance Manual Chapter 33, Wing Tip Navigation and Strobe Light Assembly -Maintenance Practices Wing Tip Navigation and Strobe Light Assembly -Maintenance Practices).
- (11) Do a stall check in accordance with paragraph 2.

6. Close Up

A. Procedure

- (1) Make sure that the work area is clean and clear of tools and other equipment.

Figure 201 : Sheet 1 : Wing Leading Edge - Installation, Standard Spoiler Settings (800 Series Airplanes Only)

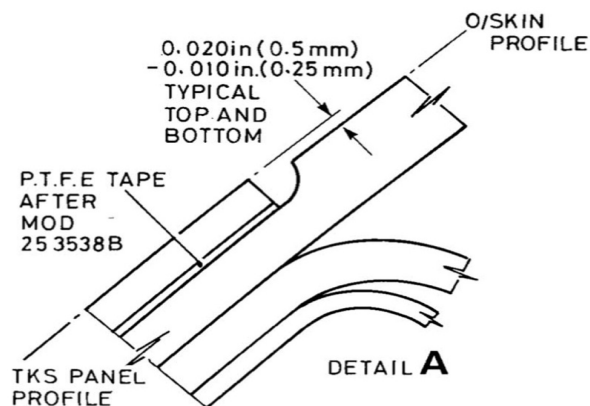
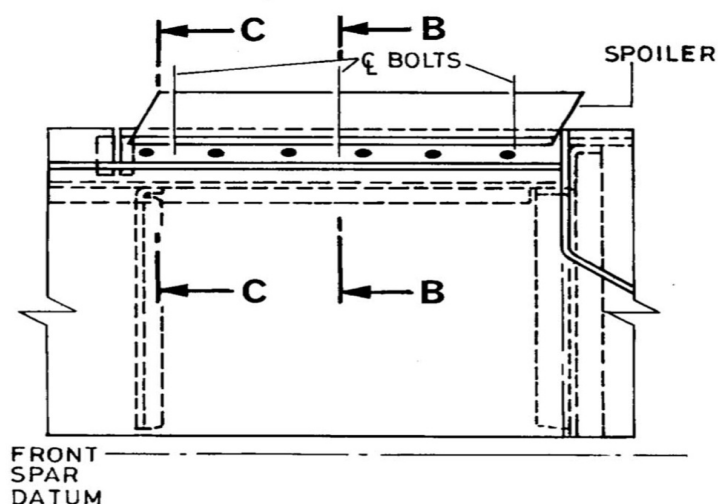
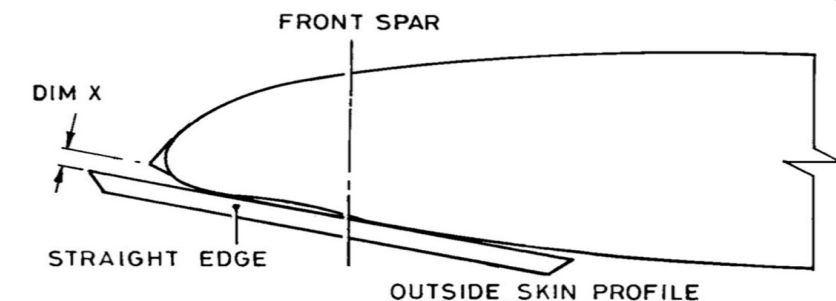
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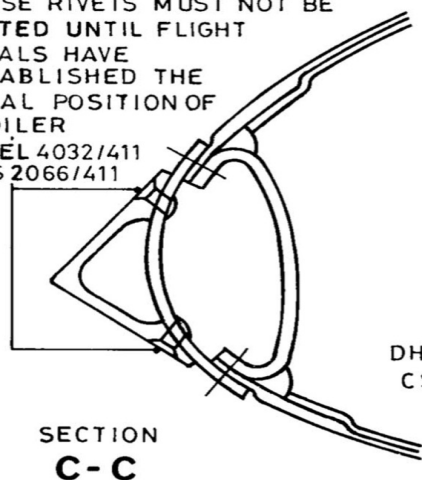
NOTES

SPOILER SETTING IS MEASURED BY HOLDING A STRAIGHT EDGE LIGHTLY AGAINST THE BOTTOM WING SURFACE EXACTLY PARALLEL TO THE CHORDWISE ROWS OF RIVETS IE. AT RIGHT ANGLES TO THE FRONT SPAR AND MEASURING SQUARE TO STRAIGHT EDGE TO THE APEX OF THE SPOILER, CLOSE TO EACH END OF THE SPOILER.

STANDARD SPOILER SETTINGS ARE
X = 1.03 (26.16) AT INBOARD END
X = 0.95 (24.13) AT OUTBOARD END



NOTE
THESE RIVETS MUST NOT BE
FITTED UNTIL FLIGHT
TRIALS HAVE
ESTABLISHED THE
FINAL POSITION OF
SPOILER
AVDEL 4032/411
AGS 2066/411

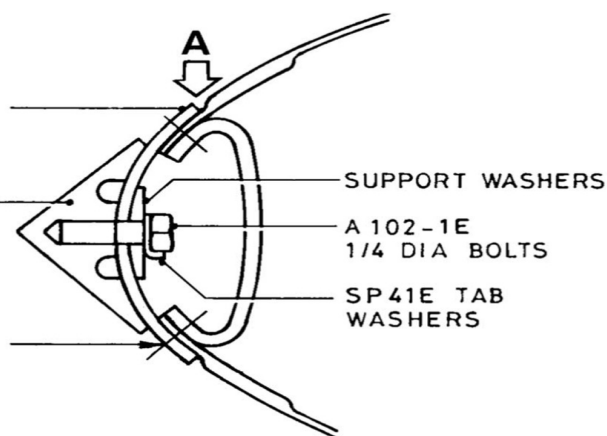


NOSE PRESSING

SPOILER

DHS 1421 2 1/2 DD
CSK. HD. BOLTS

SECTION
B-B



DIMENSIONS IN INCHES
(MILLIMETRES IN BRACKETS)

Figure 202 : Sheet 1 : Alternative Lock Rivet Positions (800 Series Airplanes Only)

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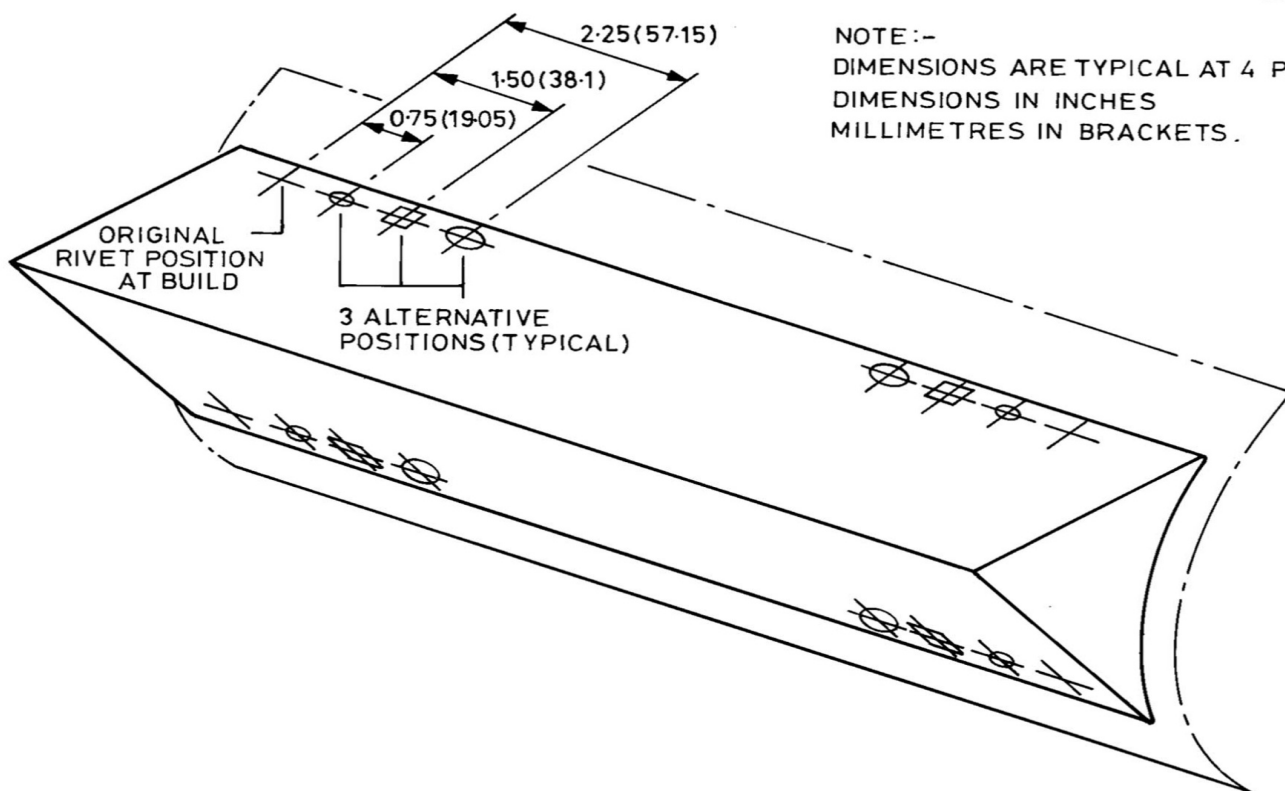


Figure 203 : Sheet 1 : Wing Leading Edge - Removal/Installation (750, 800XP, 850XP and 900XP Series Airplanes Only)

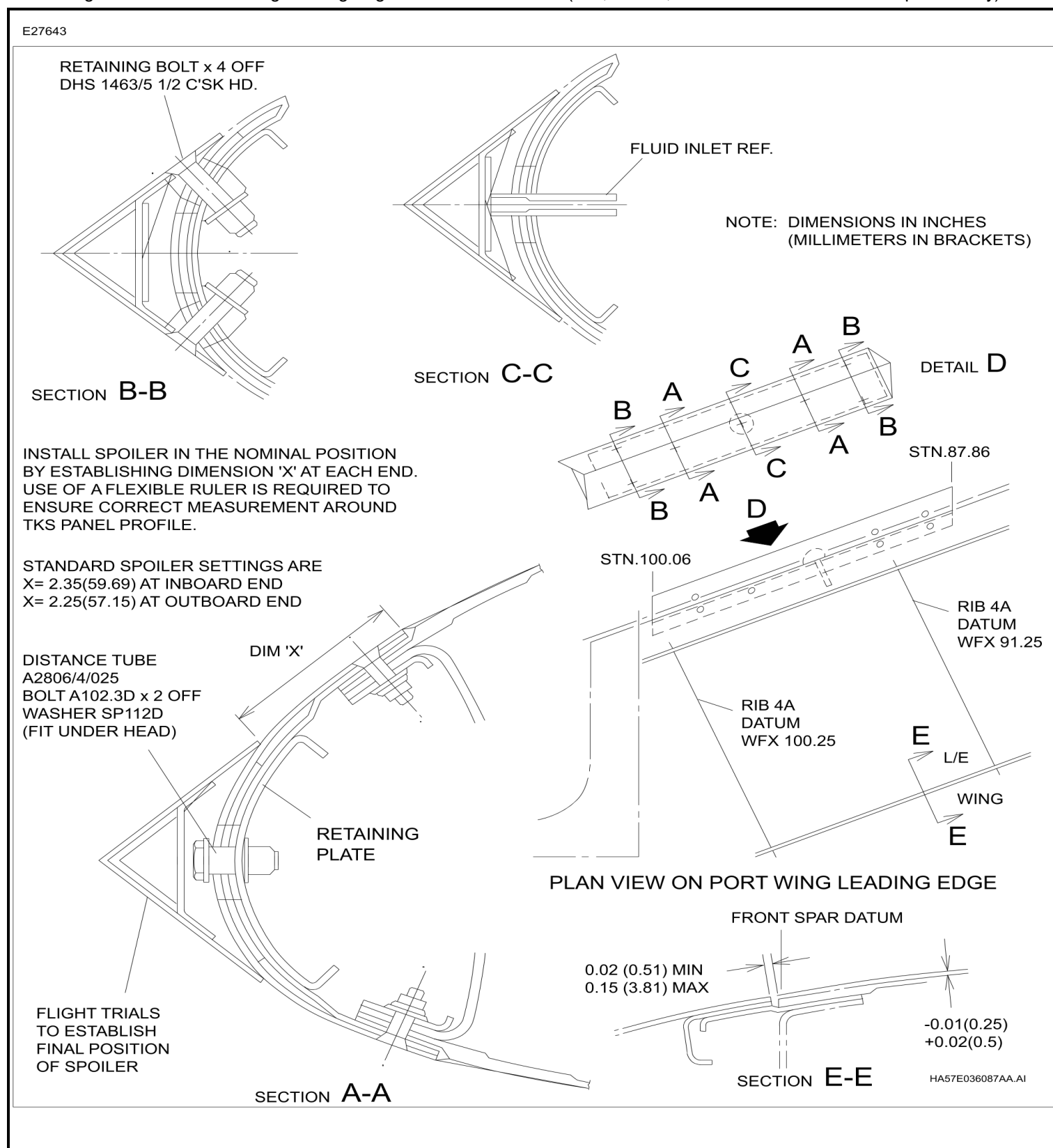
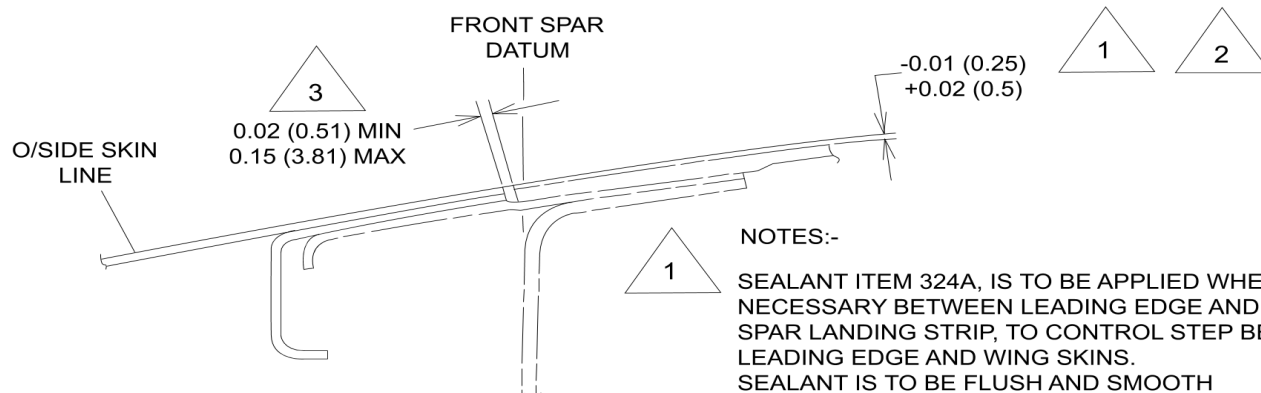
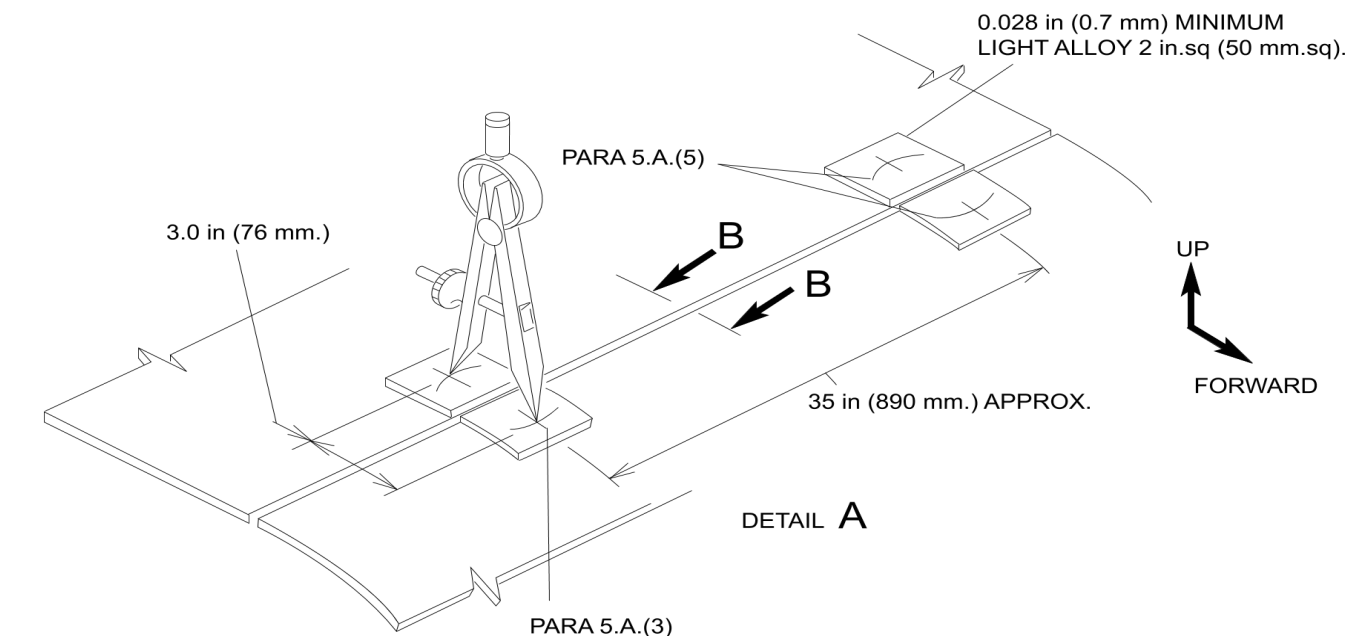


Figure 204 : Sheet 1 : Wing Leading Edge - Removal/Installation

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SECTION B-B
TOP SHOWN BOTTOM SIMILAR

NOTES:-

- 1 SEALANT ITEM 324A, IS TO BE APPLIED WHERE NECESSARY BETWEEN LEADING EDGE AND FRONT SPAR LANDING STRIP, TO CONTROL STEP BETWEEN LEADING EDGE AND WING SKINS. SEALANT IS TO BE FLUSH AND SMOOTH THE CORRESPONDING MATING SURFACE IS TO BE WIPED WITH LOW TEMPERATURE GREASE ITEM 078 TO ACT AS A RELEASE AGENT.
- 2 IF BUTT JOINT NEEDS ADJUSTMENT TO SUIT THESE DIMENSIONS PTFE TAPE ITEM 620B WITH SEALANT ITEM 324A CAN BE USED UP TO A MAXIMUM THICKNESS OF 0.02
- 3 FILL GAP WITH ITEM 314 OR 347. SEALANT TO BE FLUSH AND SMOOTH, TOP AND BOTTOM.

DIMENSIONS IN INCHES (MILLIMETERS IN BRACKETS)

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