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AN 01-245FB-3

Handbook

Structural Repair

Classification cancelled or changed to Unclass, by authority of ALNAV-59 dated 26 Nov 1958

NAVY MODELS

F2H-1, -2, -2N, -2P

AIRCRAFT

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INTRODUCTION

The purpose of this handbook is to permit evaluation of the extent of any damage on the airplane and then by use of the recommended repairs, restore the airplane to its design strength, shape and alignment.

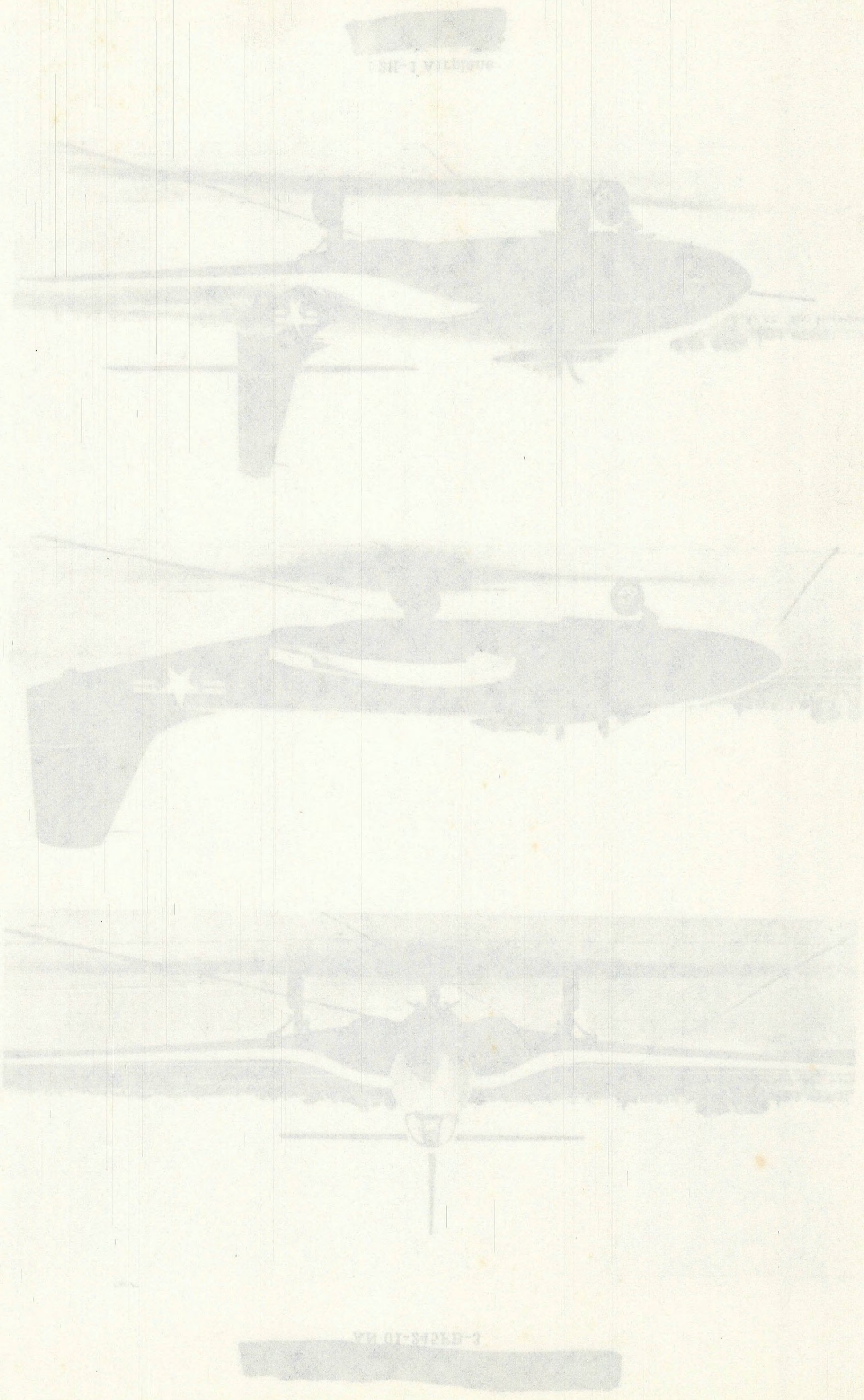
This handbook covers all Navy Model F2H-1, F2H-2, F2H-2N and F2H-2P airplanes. Information in this handbook that pertains only to a particular block of airplanes is so noted by use of airplane model numbers or airplane serial numbers. Information that does not have a model or serial number designation is effective on all airplanes.

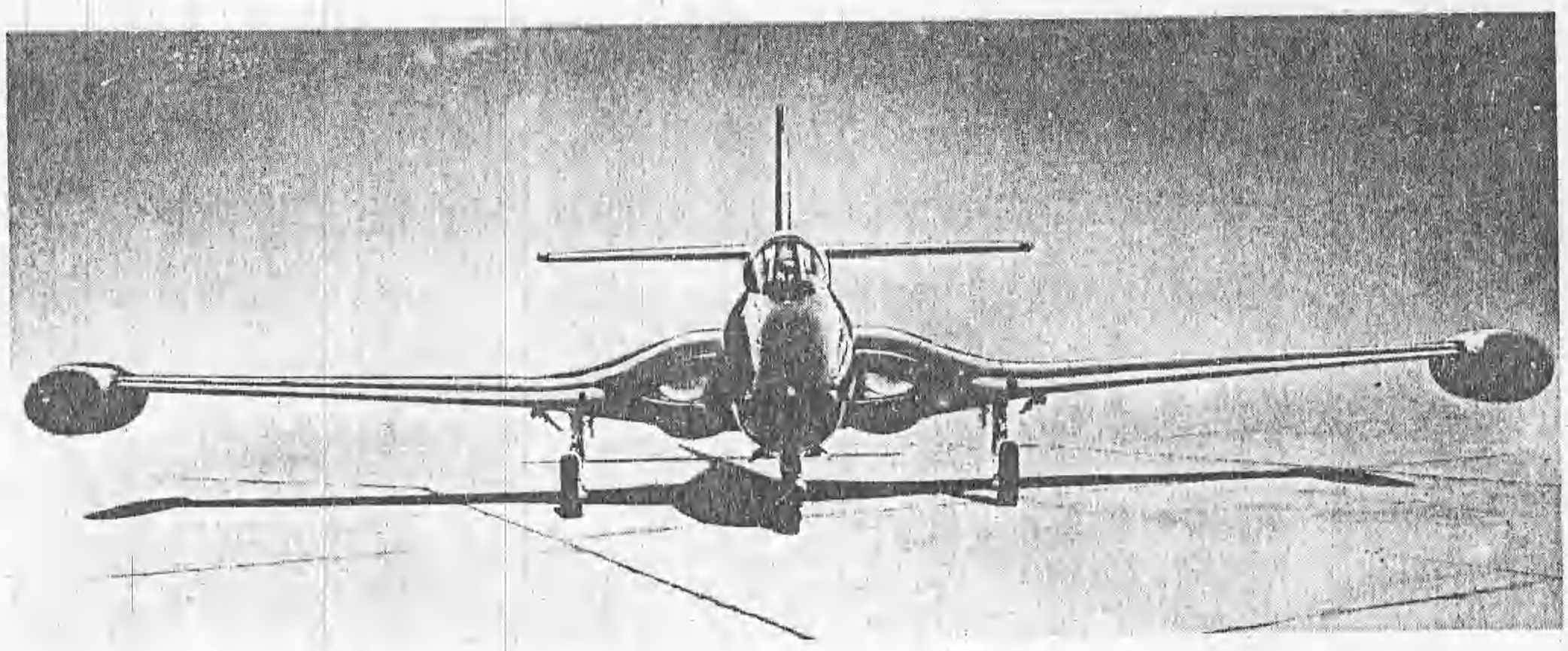
Use this handbook in the following manner:

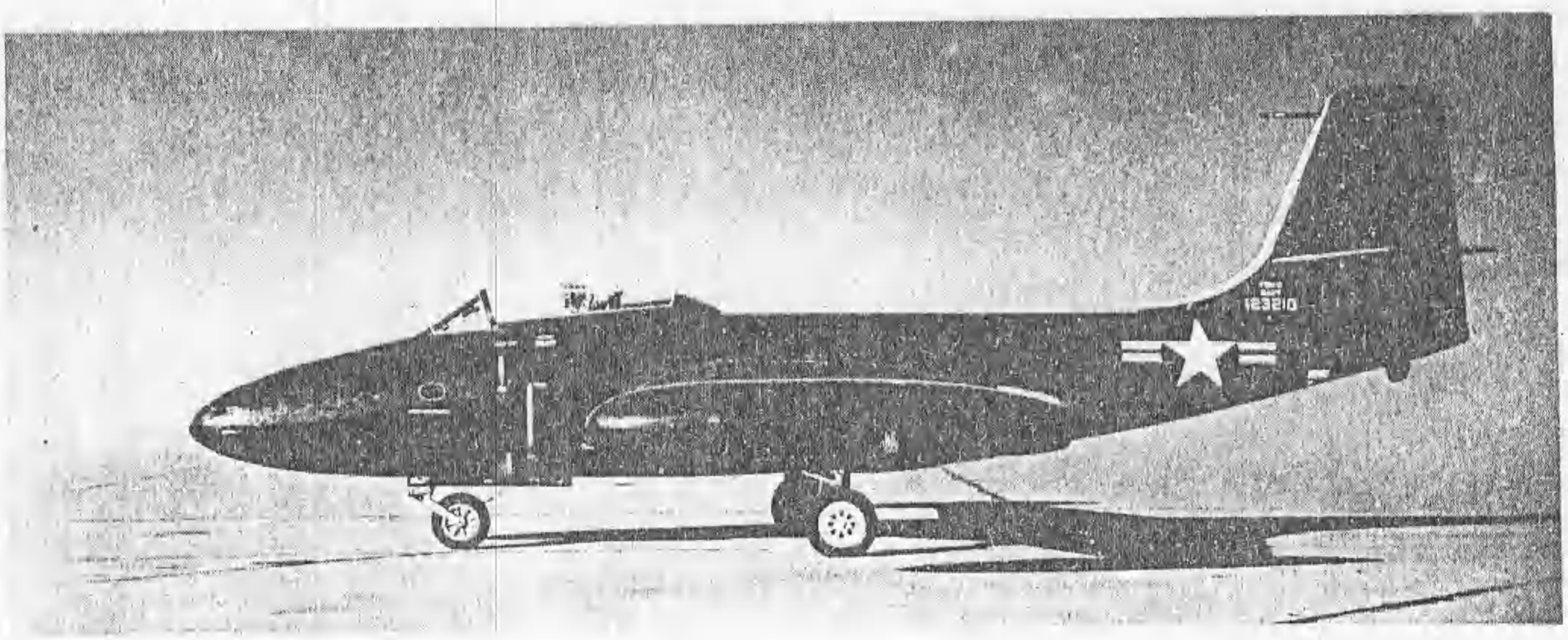
1. Read Section I. This section is of a general nature. It contains information on type of construction, investigation and classification of damage, types of repair, support of structure during repair, leveling, alignment and mass static and dynamic rebalancing of control surfaces.
2. Locate damage on Figure 1-10 in Section I.
3. From the table in Figure 1-10 obtain the number of the figure showing an exploded view of the damaged component.
4. Turn to the exploded view and from it obtain the figure numbers of the internal structure illustration and the skin diagram for the damaged item.
5. From the internal structure illustration and the skin diagram, obtain the figure numbers of all pertinent repair illustrations.
6. By reference to the table of contents, locate and read all text pertaining to the damaged item.
7. Repair the damage by coordinating the information obtained from the text and from the repair illustrations.

This handbook is supplemented by AN 01-1A-1 General Manual for Structural Repair.

F2H-1 Airplane

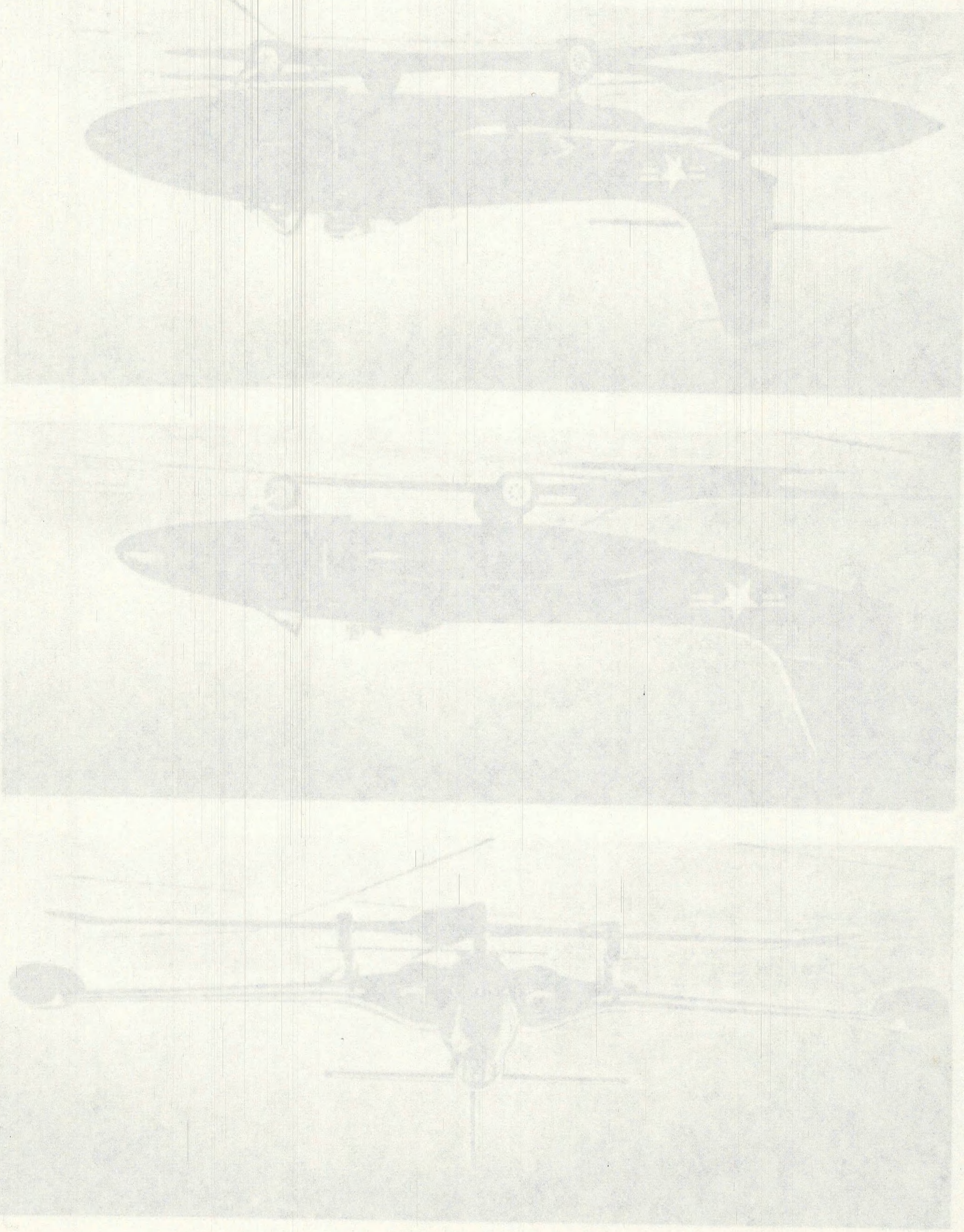


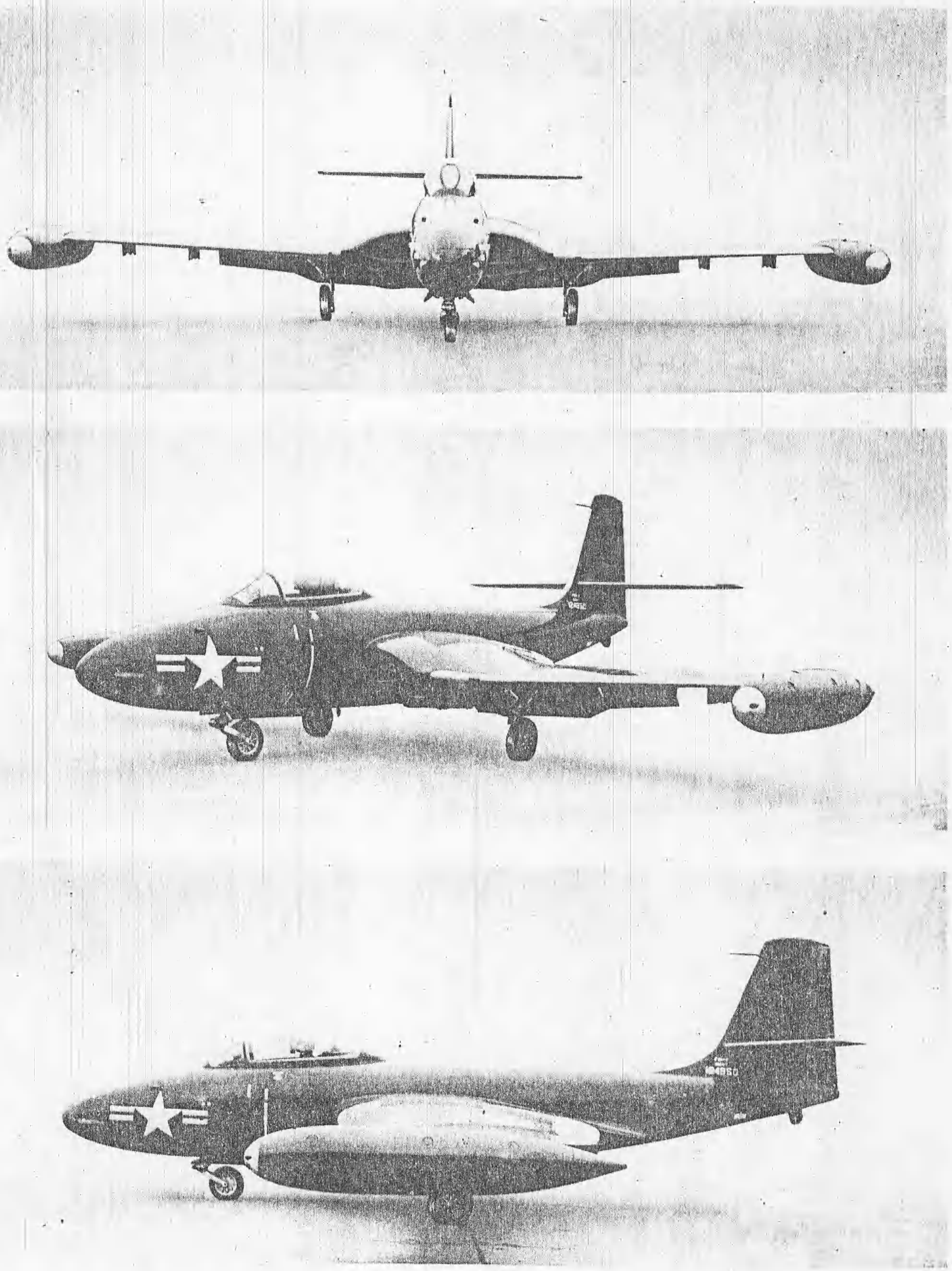




F2H-2 Airpl..e

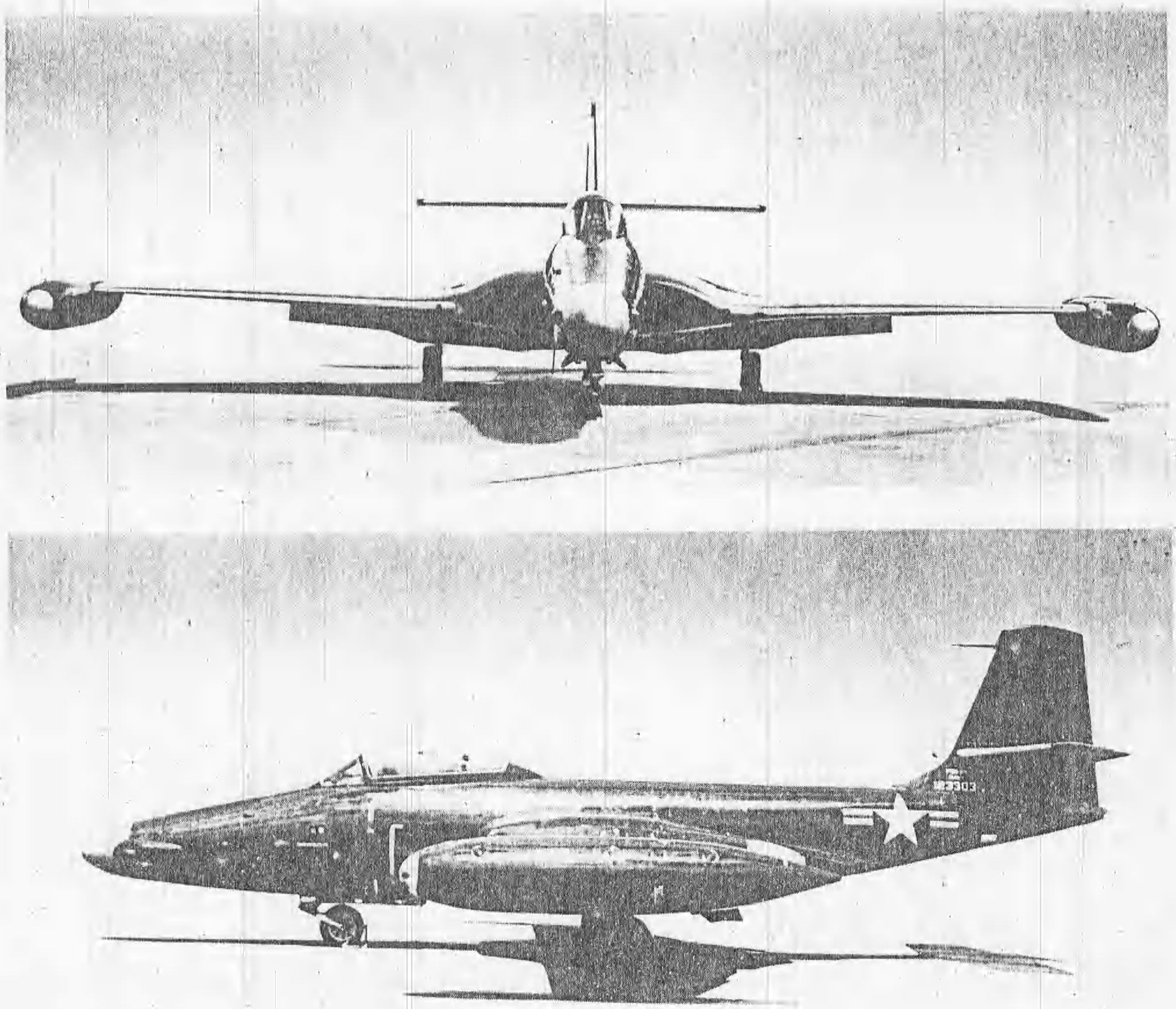
Effective F2H-2 Airplane Nos. [redacted]204 thru 123382



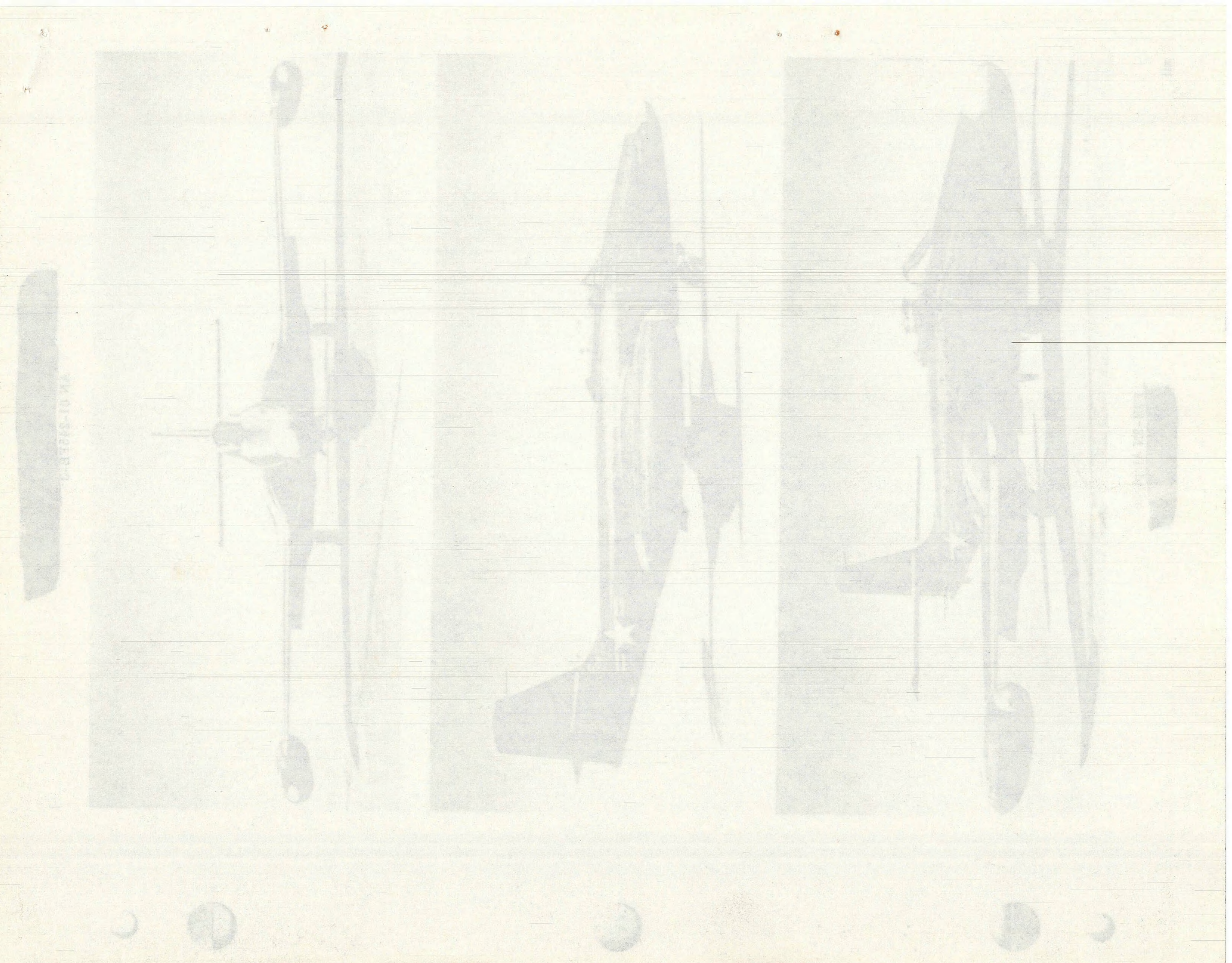


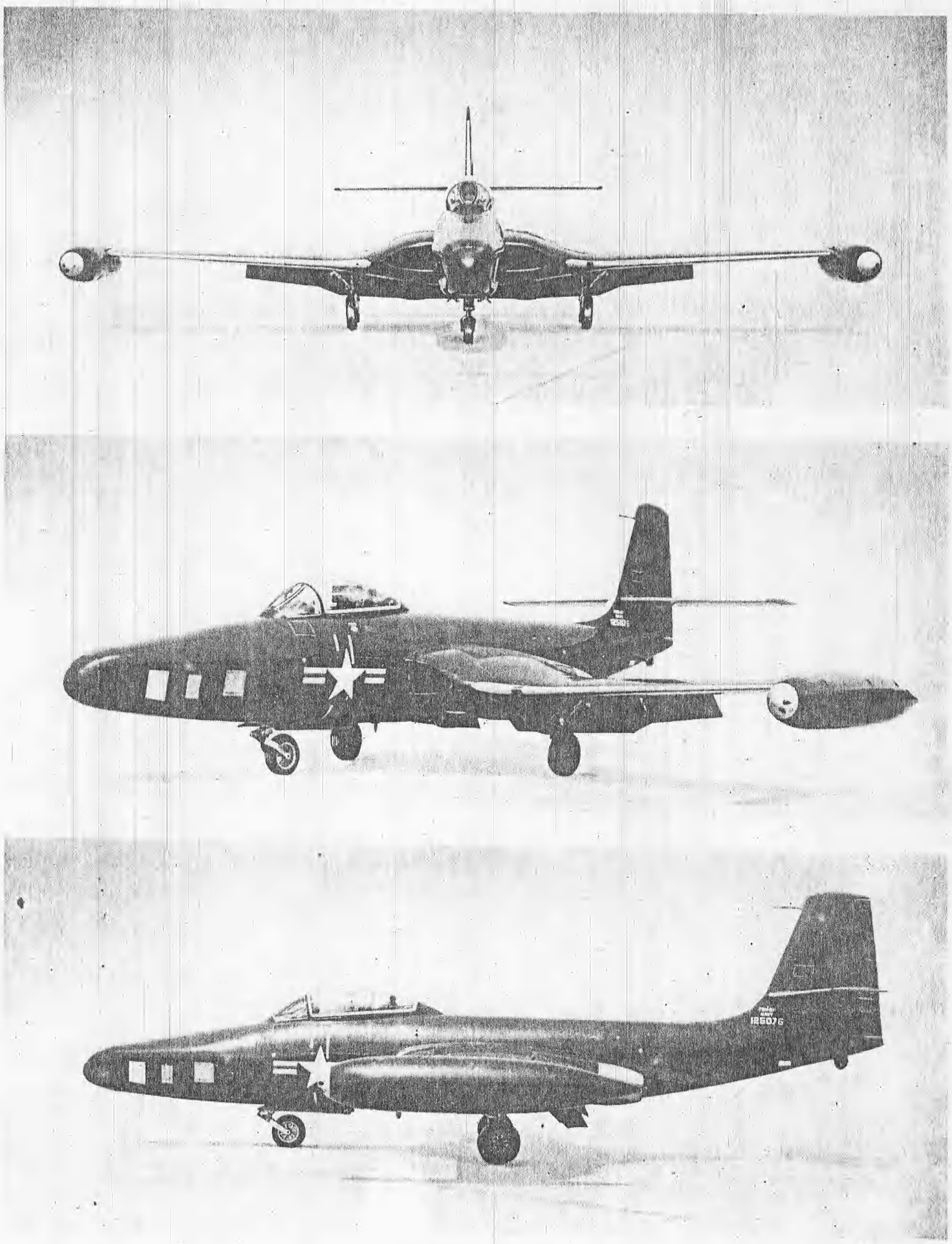
F2H-2 Airplane

Effective F2H-2 Airplanes Nos. 124940 And Up

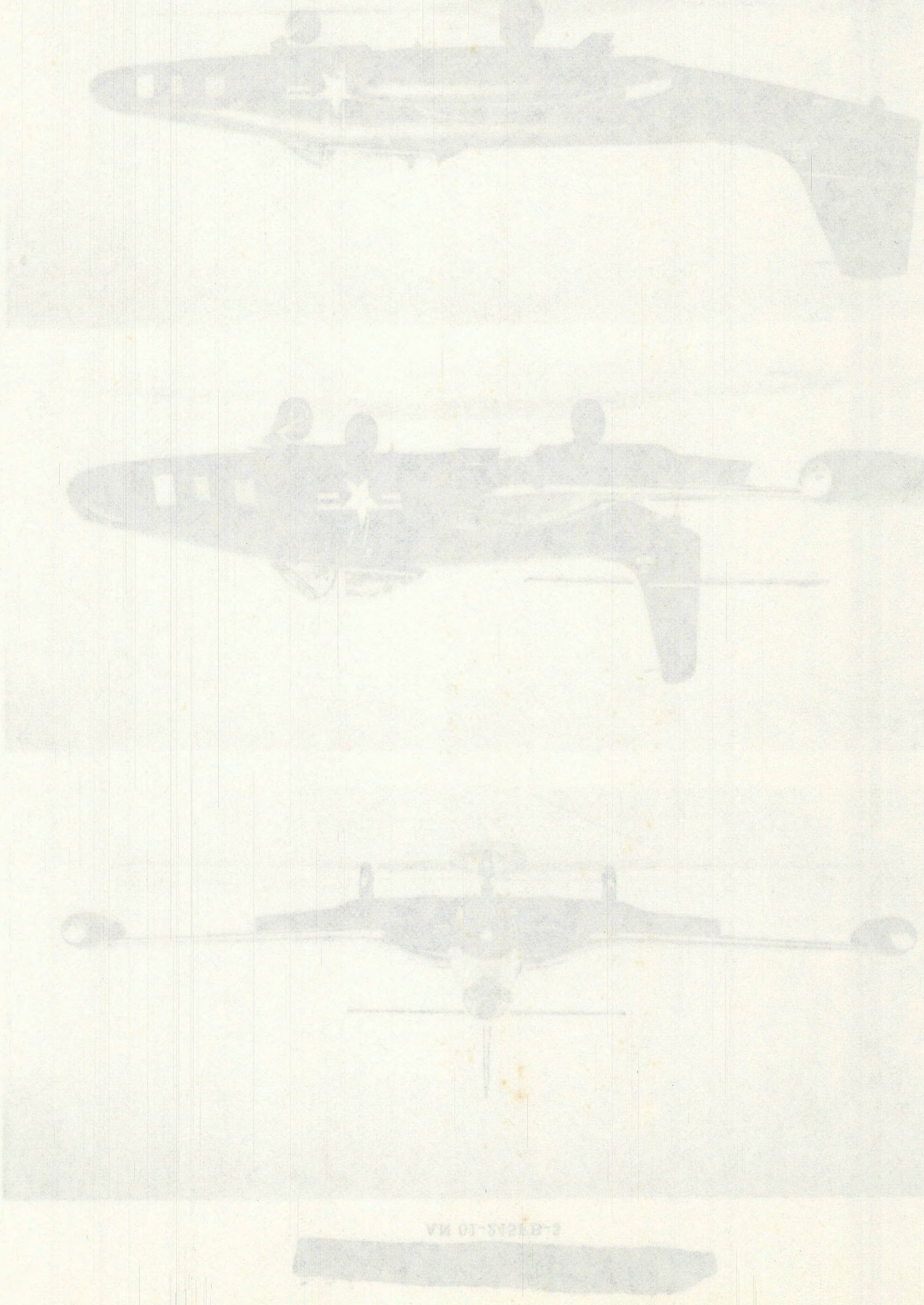


F2H-2N Airplane





F2H-2P Airplane



SECTION I
GENERAL

1-1. DESCRIPTION. The F2H-1, F2H-2, F2H-2N and F2H-2P are single place, low wing, two engine, jet propelled fighter airplanes manufactured by McDonnell Aircraft Corporation. They are designed for either carrier or land based operation and are provided with equipment for catapulting. The F2H-2 is a long range version of the F2H-1. The additional range is obtained by the addition of droppable wing tip fuel tanks. The F2H-2N is a night fighter version of the F2H-2. The F2H-2P is a photographic reconnaissance version of the F2H-2.

1-2. TYPE OF CONSTRUCTION. This airplane is of all metal semi-monocoque construction with the wings, horizontal and vertical stabilizers being full cantilever. The fuselage is made of ring bulkheads, stringers, and longerons reinforced by flush riveted skin. The wings and vertical stabilizer are built up around two main spars with ribs, formers, stringers, and flush riveted skin forming the basic structure. The horizontal stabilizer is built up around one main spar with ribs, stringers, and flush riveted skin forming its basic structure. All movable control surfaces consist of a hinge support spar, ribs, and flush riveted skin. 75S-T aluminum alloy is the principal construction material used throughout the airplane.

1-3. INVESTIGATION OF DAMAGE.

1-4. GENERAL. After a thorough cleaning up of the damaged area, all structural parts should be carefully inspected to determine the extent of the damage. Structural parts should be inspected for holes, cracks, dents, deep scratches, abrasions, distortion, breaks, and worn spots. All riveted and bolted joints in the vicinity of the damaged area should be checked for elongated rivet or bolt holes, and loose, sheared or damaged rivets or bolts. If there is any doubt whether a rivet or bolt has failed, remove the rivet or bolt so that any damage can be detected. Transmission of loads from the damaged area through structural members may cause considerable damage in the adjoining structure. Stress wrinkles are usually an indication of this type of damage. If the damage is extensive, the airplane alignment should be checked.

1-5. LEVELING. Before attempting to check the alignment dimensions, the airplane must be leveled longitudinally and laterally. This is done with the aid of a precision spirit level and the airplane leveling lugs. In F2H-1 and F2H-2 airplanes the longitudinal leveling lugs are located on the gun floor (W.L. 13.12) in the left-hand side of the armament compartment. The lateral leveling lugs are located on the forward bulkhead of the armament compartment (F.S. 54.00) at W.L. 24.50. (See Figure 1-1.) Access to the leveling lugs may be gained through door 4L. In F2H-2N airplanes the longitudinal leveling lugs are located on the vertical web of the box beam at W.L. 19.5 in the left-hand side of the armament and radio compartment. The lateral leveling lugs are located on the radio floor at F.S. 8.27 (see Figure 1-2). Access to the leveling lugs may be gained through door 4L. In the F2H-2P Airplanes the longitudinal leveling lugs are located at the right-hand side of the nose compartment, on the armor plate at F.S. 57.00 and on the bulkhead at F.S. 78.00. The lateral leveling lugs are located on the forward bulkhead (F.S. -12.00) in the nose compartment at W.L. 15.20 (see Figure 1-3). Access to the leveling lugs may be gained through door 3L.

1-6. ALIGNMENT. The alignment of the entire airplane may be checked by obtaining dimensions A, B,

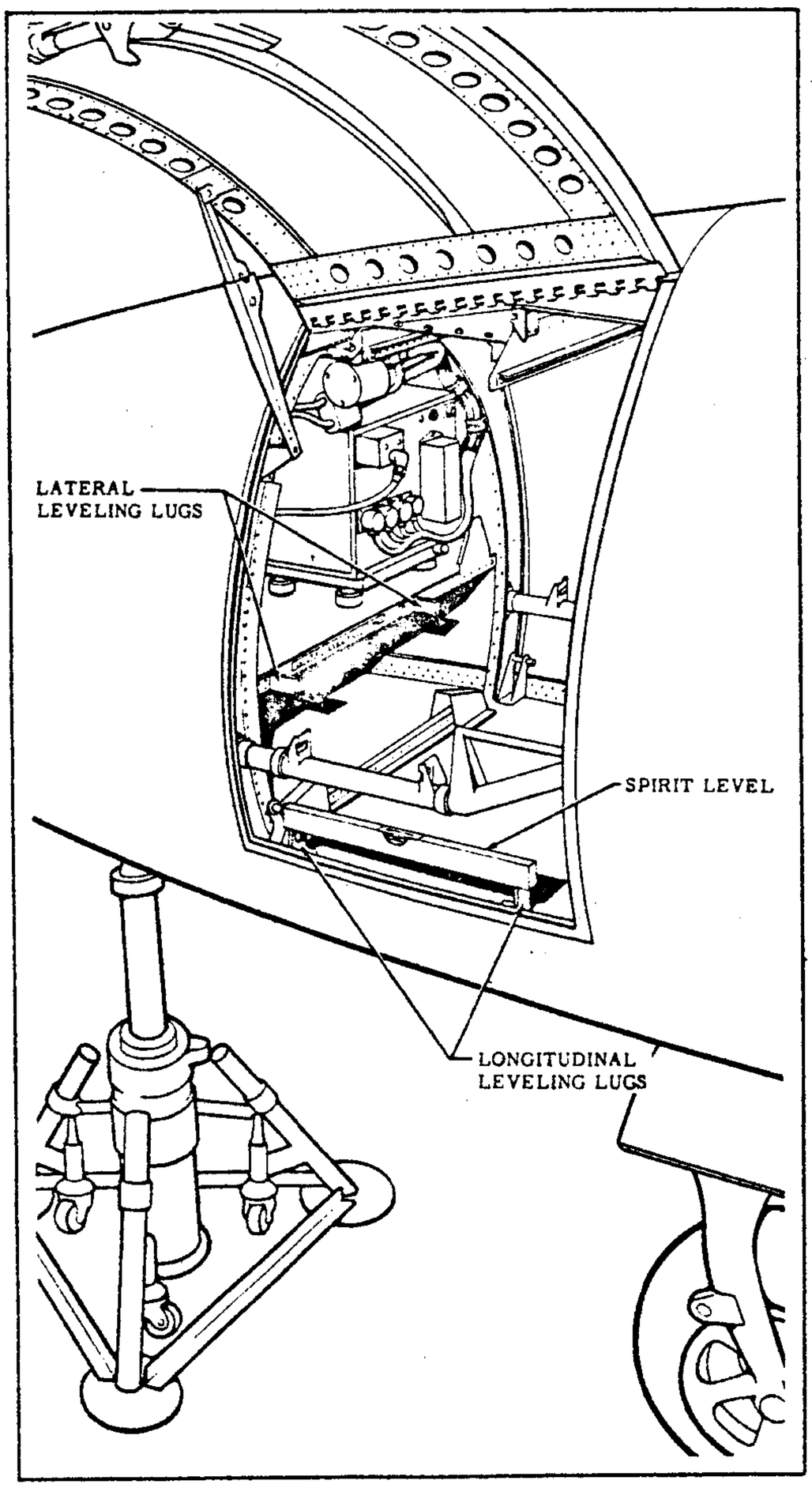


Figure 1-1. Leveling - F2H-1 and F2H-2 Airplanes

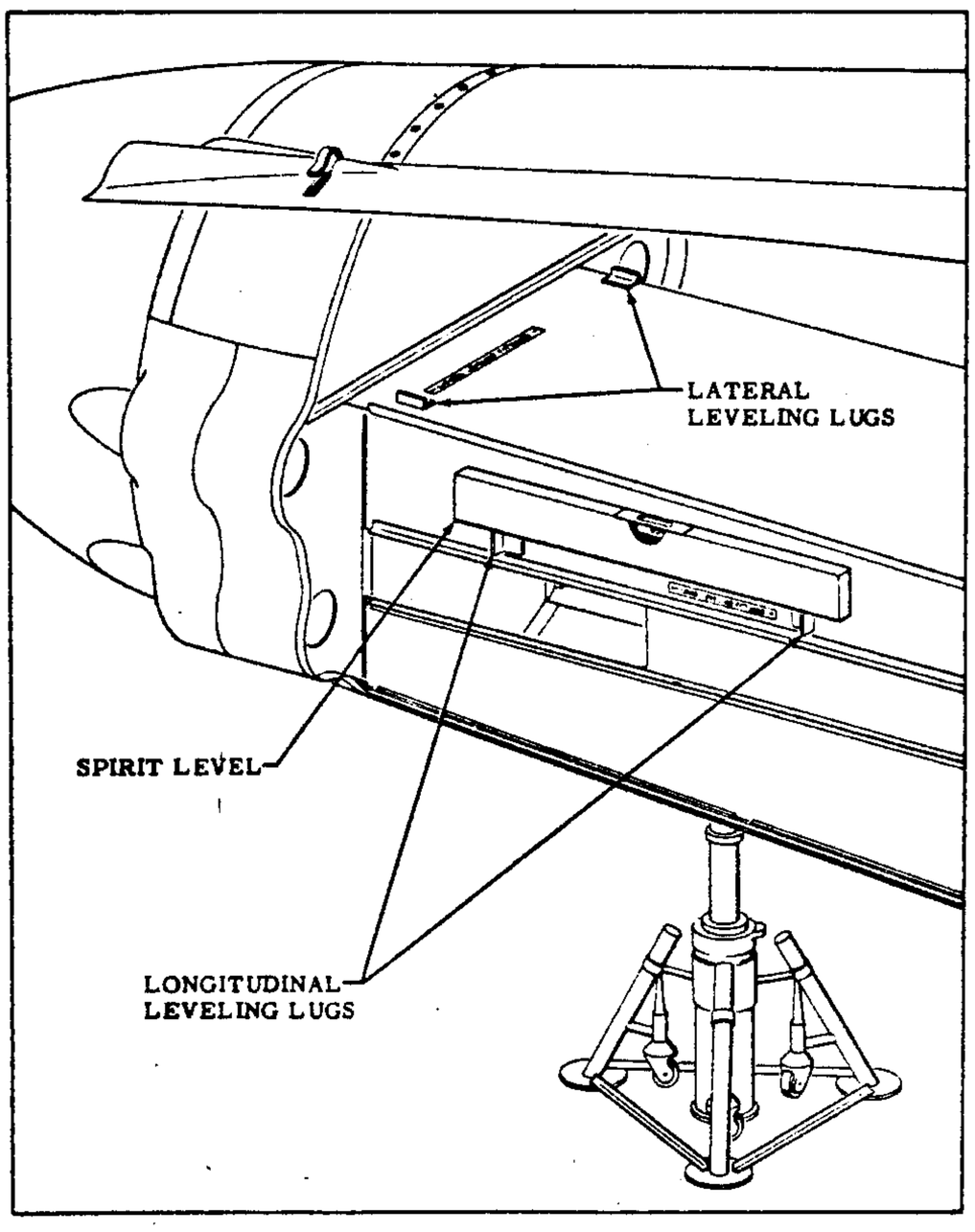


Figure 1-2. Leveling F2H-2N Airplanes

C, D, E and F as shown in Figure 1-5. Dimensions A, B, C and D can be measured directly by use of a tape measure. Dimensions E and F, which are used to measure the dihedral of the wing and horizontal stabilizer, can only be obtained by use of a surveyor's transit. The airplane is properly aligned only when the alignment check dimensions do not exceed the tolerances specified in the table in Figure 1-5. Before an attempt is made to check alignment, all concentrated loads should be removed.

1-7. CLASSIFICATION OF DAMAGE AND TYPES OF REPAIR.

1-8. GENERAL. After the extent of the damage has been determined, the damage done to each part of the affected structure is then classified as either negligible damage, damage repairable by patching, damage repairable by insertion, or damage necessitating replacement of parts.

1-9. NEGLIGIBLE DAMAGE. Negligible damage is damage or distortion that can be permitted to exist as is, or corrected by a simple procedure such as removing dents, stop drilling cracks, temporary fabric patching, etc., without placing restrictions on flight. A No. 40 (.098) drill should not be used for stop drilling cracks on F2H Airplanes. The following table lists the minimum stop drill sizes for various material thicknesses.

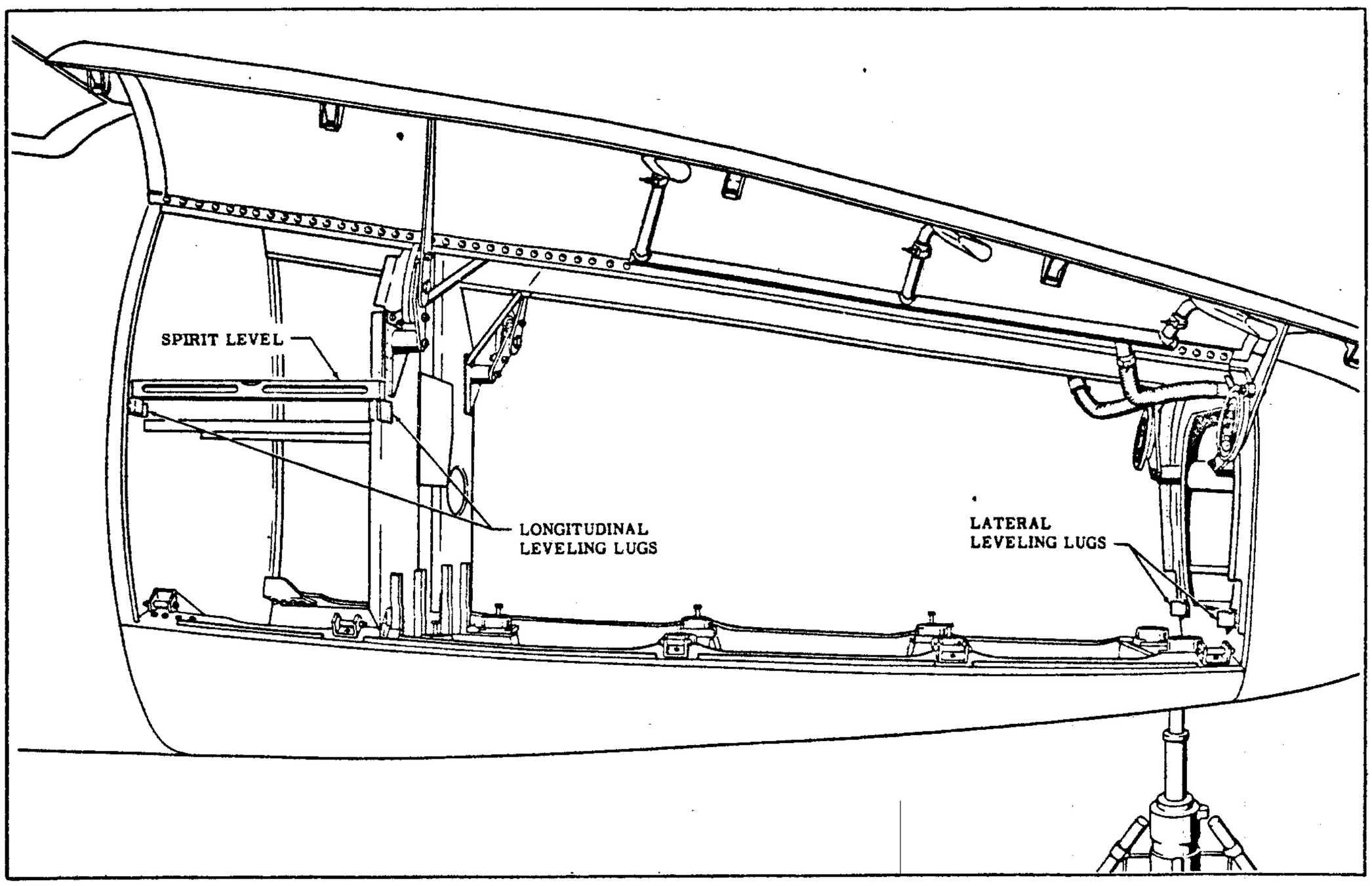


Figure 1-3. Leveling F2H-2P Airplanes

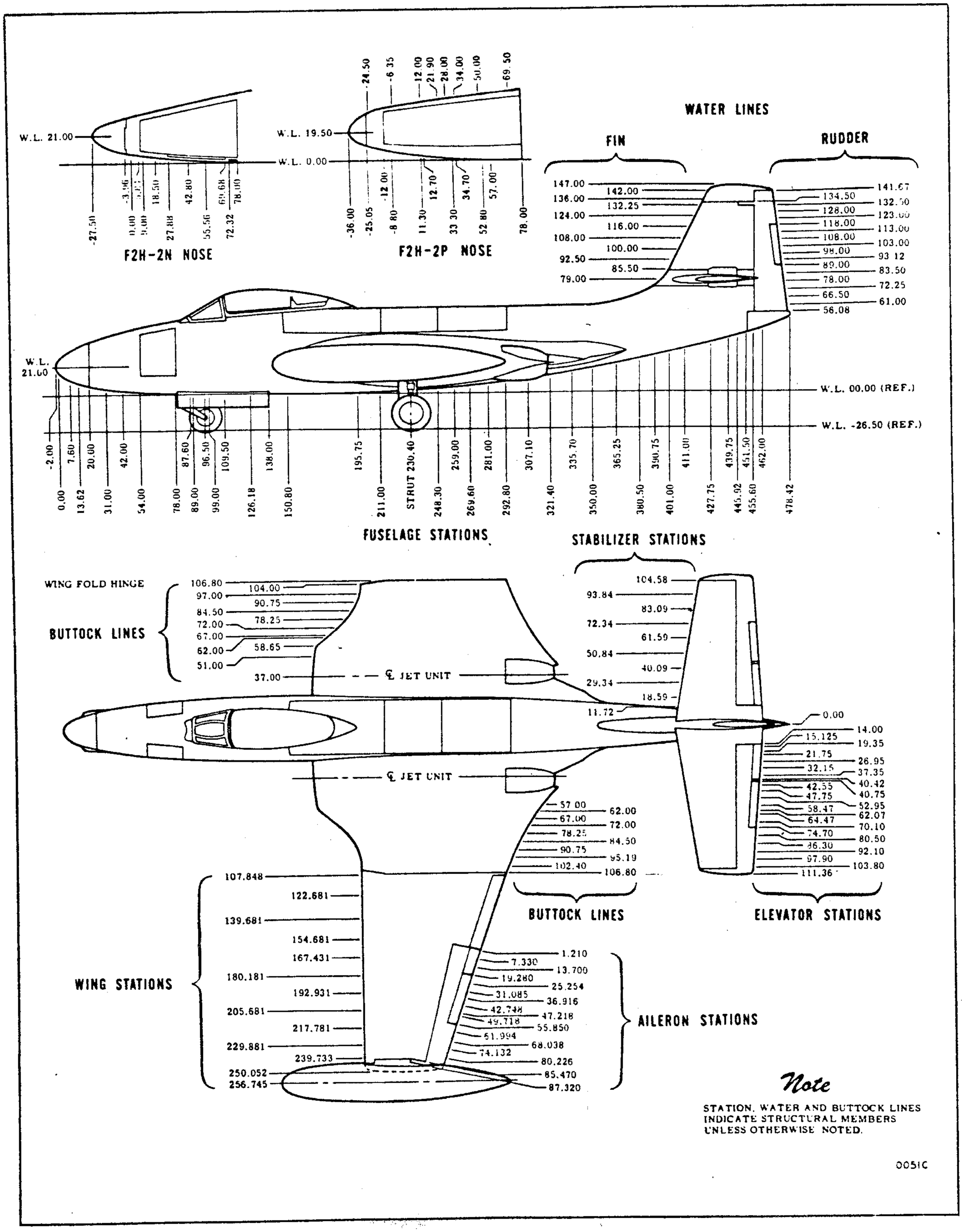
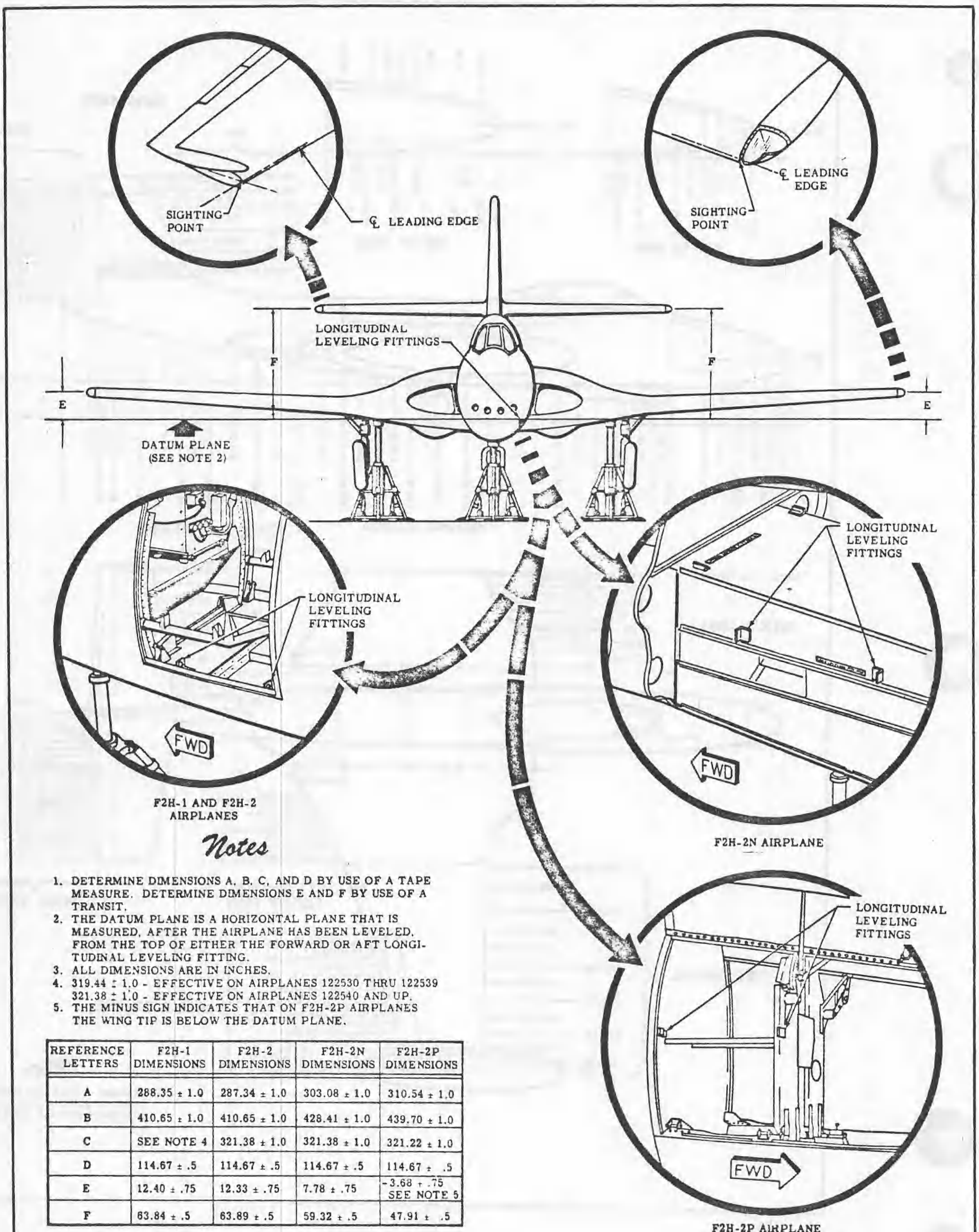


Figure 1-4. Station Diagram



Notes

1. DETERMINE DIMENSIONS A, B, C, AND D BY USE OF A TAPE MEASURE. DETERMINE DIMENSIONS E AND F BY USE OF A TRANSIT.
2. THE DATUM PLANE IS A HORIZONTAL PLANE THAT IS MEASURED, AFTER THE AIRPLANE HAS BEEN LEVELED, FROM THE TOP OF EITHER THE FORWARD OR AFT LONGITUDINAL LEVELING FITTING.
3. ALL DIMENSIONS ARE IN INCHES.
4. 319.44 ± 1.0 - EFFECTIVE ON AIRPLANES 122530 THRU 122539
   321.38 ± 1.0 - EFFECTIVE ON AIRPLANES 122540 AND UP.
5. THE MINUS SIGN INDICATES THAT ON F2H-2P AIRPLANES THE WING TIP IS BELOW THE DATUM PLANE.

REFERENCE LETTERS	F2H-1 DIMENSIONS	F2H-2 DIMENSIONS	F2H-2N DIMENSIONS	F2H-2P DIMENSIONS
A	288.35 ± 1.0	287.34 ± 1.0	303.08 ± 1.0	310.54 ± 1.0
B	410.65 ± 1.0	410.65 ± 1.0	428.41 ± 1.0	439.70 ± 1.0
C	SEE NOTE 4	321.38 ± 1.0	321.38 ± 1.0	321.22 ± 1.0
D	114.67 ± .5	114.67 ± .5	114.67 ± .5	114.67 ± .5
E	12.40 ± .75	12.33 ± .75	7.78 ± .75	-3.68 ± .75 SEE NOTE 5
F	63.84 ± .5	63.89 ± .5	59.32 ± .5	47.91 ± .5

Figure 1-5. Alignment (Sheet 2 of 2 Sheets)

MINIMUM DRILL SIZES FOR STOP DRILLING

MATERIAL THICKNESS	DRILL SIZE	DRILL DIAMETER
.012	#21	.159
.016	#21	.159
.020	#21	.159
.025	#21	.159
.032	#21	.159
.040	#21	.159
.051	#21	.159
.064	#11	.191
.072	#11	.191
.081	#11	.191
.091	#11	.191
.102	#F	.257
.125	#F	.257

Extreme care should be used in classifying any damage as negligible to see that it does not exceed the specified limits for negligible damage. Otherwise failure may occur during critical flight conditions.

1-10. DAMAGE REPAIRABLE BY PATCHING. Damage which exceeds negligible damage limits should be investigated to determine the possibility of using a patch repair. A patch repair is a repair made by adding material or structure, such as a doubler, across or around the damaged area to enable the damaged structure to carry its design load.

1-11. DAMAGE REPAIRABLE BY INSERTION. In some cases if the damage is extensive, it may be impractical to use a patch type repair. In such cases, the damaged portion of the structure may be cut away and replaced with an equivalent section using a rivet or screw splice to attach the equivalent section to the original structure. This type of repair is called an insertion repair.

1-12. DAMAGE NECESSITATING REPLACEMENT OF PARTS. Damaged structure that cannot be repaired by patching or insertion, damaged structural forgings, castings, and heat treated fittings, and damage due to fire since it usually destroys the heat treat properties of the metal, can only be repaired by replacement of parts. It is not practical to repair by patching or insertion such items as spar, rib, and bulkhead stiffeners, small ribs, small skin panels, etc., due to their small size. These items, after having been damaged beyond negligible damage limits, should be replaced.

1-13. SUPPORT OF STRUCTURE DURING REPAIR. During extensive repairs on basic structural components, the airplane must be supported in order to maintain proper alignment. Concentrated loads such as full fuel tanks, engines, etc., must be supported or removed. Removal and replacement instructions for major items are given in AN 01-245FBA-2 'ERECTION AND MAINTENANCE INSTRUCTIONS FOR NAVY MODEL F2H-1 AIRPLANES', AN 01-245FBB-2 'ERECTION AND MAINTENANCE INSTRUCTIONS FOR NAVY MODEL F2H-2 (123204 THRU 123382) AND F2H-2N AIRPLANES', and AN 01-245FBB-2A 'ERECTION AND MAINTENANCE INSTRUCTIONS FOR NAVY MODEL F2H-2 (124940 AND UP) AND F2H-2P AIRPLANES'. When special support fixtures are not available, improvised supports should be made.

1-14. MASS STATIC AND DYNAMIC REBALANCING OF CONTROL SURFACES.

1-15. GENERAL. To prevent serious flutter characteristics during flight operation, all control surfaces must be mass statically and dynamically rebalanced after all repairs. The static balance of a control surface depends on the distribution of weight forward and aft of the hinge line. The dynamic balance of a control surface depends not only on the distribution of weight with respect to the hinge line, but also on the distribution of weight along the span of the control surface. To satisfy both the static and dynamic balance requirements of each control surface, the following rebalancing procedure must be used. See Paragraph 1-16 for rebalancing rudder, Paragraph 1-17 for rebalancing aileron, and Paragraph 1-18 for rebalancing elevator.

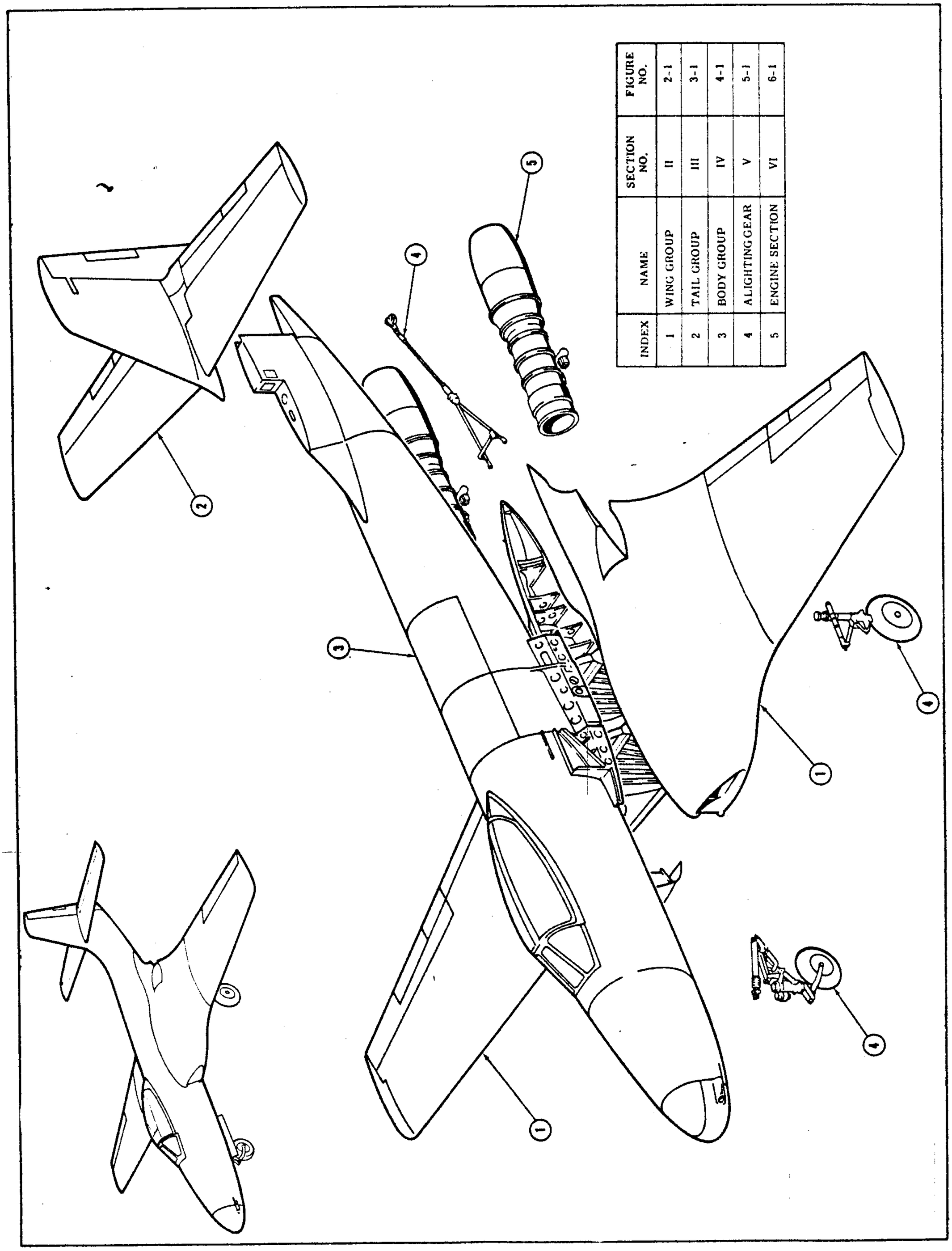
1-16. RUDDER. (See Figure 1-6.) Rebalance rudder complete with final coat of paint, trim tab, and trim tab controls. Support rudder, without the rudder horn and counterbalance (lower balance weight) being attached, on knife edges by bolts passing through the hinge fittings. Place any known weight on the upper balance weight so that the rudder balances horizontally. Then solve the equations below to determine the amount of weight that must be added to or removed from each balance weight to compensate for the repair. If the sign of the answer is positive (+), add the weight. If the sign of the answer is negative (-), remove the weight. Figure 1-6 shows methods of adding weight.

KEY TO SYMBOLS USED:

MDF_U = Moment distribution factor for the upper balance weight. It is obtained from the graph in Figure 1-7.

MDF_L = Moment distribution factor for the lower balance weight. It is obtained from the graph in Figure 1-7.

W = Known weight in pounds. See Figure 1-6.
A = See Figure 1-6.
B = See Figure 1-6.
C = See Figure 1-6.
D = See Figure 1-6.



INDEX	NAME	SECTION NO.	FIGURE NO.
1	WING GROUP	II	2-1
2	TAIL GROUP	III	3-1
3	BODY GROUP	IV	4-1
4	ALIGHTING GEAR	V	5-1
5	ENGINE SECTION	VI	6-1

Figure 1-14. Major Assemblies - Exploded View

SECTION II
WING GROUP

2-1. GENERAL.

2-2. DESCRIPTION. (See Figure 2-1.) The wing is a full cantilever semimoncoque structure. It consists of the center section which is integral with the fuselage, wing outer panels, removable wing tips, center section flaps, outer panel flaps, ailerons, and speed brakes. The wing outer panels are designed to fold upward. Basically the internal structure consists of the front and rear spars, auxiliary spars, ribs, stringers, formers and intercostal assemblies. This structure is covered with flush riveted skin. The depth of the two main spars is increased at the wing roots to allow for the mounting of the engines through the spars. Provisions have been made in the center section between the main spars for attaching and retracting main landing gear. Speed brakes and ailerons are located in the outer panels.

2-3. CENTER SECTION.

2-4. GENERAL.

2-5. DESCRIPTION. The wing center section extends from the wing fold on the left side at W.S. 107.848 to the wing fold on the right side at W.S. 107.848. It is an integral part of the fuselage and is symmetrical about the center line of the airplane. It is built up around two main spars which extend through the fuselage and are continuous from wing fold to wing fold. The two spars are enlarged at the wing roots to accommodate the two jet engines. There are no engine nacelles. The engines are attached through small engine mounts directly to the wing structure. Spanwise formers, located over the engine air ducts, and chordwise ribs complete the internal structure. There are no spanwise stringers. Stressed skin is flush riveted to the internal structure. Large access doors directly above and below the engines, and large fairings between the engines and the fuselage, are provided for easy access to engines and structure. Figure 2-2 shows the internal structure.

2-6. ACCESS FOR REPAIRS. Access for repairs may be gained through external access doors, through the wheel wells, by removal of the air ducts, by removal of the mechanism at the wing fold, and by extension or removal of the flaps. If necessary the skin may be peeled back or removed. Adjacent structure may also be removed. After completing the repair, reassemble all the removed skin and structure to its original condition. As a final measure, a cut out may be made in the skin and covered, upon completion of the repair, with a blind skin patch as shown in Figures B-9 or B-10.

2-7. SKIN.

2-8. DESCRIPTION. The wing center section skin is mostly 75S-T and 24S-T alclad aluminum alloy sheet. The only exceptions are the air intakes which are 61S-T aluminum alloy and a few small nonstructural access doors which are made of magnesium alloy. All skin panels are butt jointed and flush riveted. Refer to Figure 2-3 for the gage and material of the skin panels.

2-9. NEGLIGIBLE DAMAGE. Investigate all rivets around which paint has been chipped for the possibility of rivet tilt. If the rivets appear to be tilted, then remove all paint in that area and measure the tilt as shown in Figure B-1. If the tilt exceeds 4% of the rivet shank diameter, then the rivet must be removed and replaced with a rivet of the same type and diameter. Rivet tilt of 4% or less of the rivet shank diameter is negligible. Any smooth dents in the wing center section skin that are free from cracks, abrasions and sharp corners, and which are not stress wrinkles and do not interfere with any internal structure or mechanism, are negligible. Any small, smooth, isolated nicks which are 1/16 of an inch in depth or less are also negligible. The type or magnitude of any other damage that can be classified as negligible depends on the area of stress intensity, namely, class 2 or class 3 areas (see Figure 2-3) in which it occurs. Any punctures, cracks, deep scratches, deep sharp dents, corroded areas or any other damage which, after trimming or stop drilling, can be enclosed by a 3/4 inch diameter circle in class 2 areas or by a one inch diameter circle in class 3 areas can be considered negligible if this damage is at least two diameters of the enclosing circle away from all existing rivet lines.

Note

Do not use No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Any number of negligible holes are allowed in any skin panel provided the distance between the edges of any two adjacent holes is or exceeds three diameters of the larger hole. Paint all bare metal that is exposed by negligible damage or trimming with two coats of zinc chromate primer.

Note

For aerodynamic reasons, all holes must, and cracks should be covered with doped fabric patches. The fabric patches are temporary and should be replaced with permanent metal patches as soon as practicable.

2-10. WELDING OF CRACKS ALONG TRAILING EDGE OF THE WING CENTER SECTION AFT INBOARD ENGINE ACCESS PANEL. (See Figure 2-4.) Cracks in the engine access panel should be welded by an oxyacetylene flame. All protective coatings, grease, oxides, and foreign matter should be removed from the

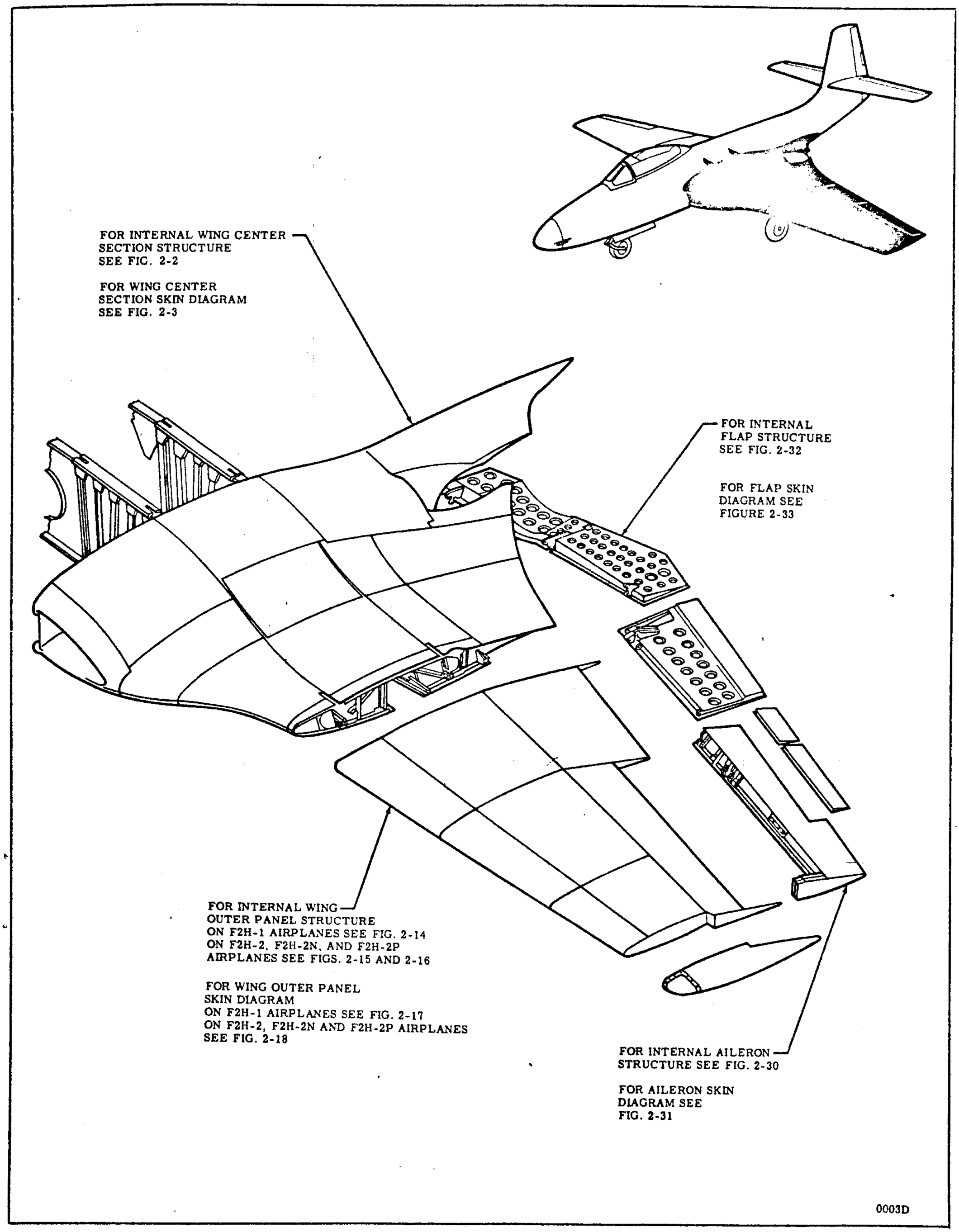


Figure 2-1. Wing Group - Exploded View

surfaces to be welded and from the adjacent area. Cleaning with a wire brush or abrasive paper is a satisfactory method of removing oxides and protective coatings. The trailing edge of the access panel, being made of 61S-T material, should be welded with a 61S welding rod. This welding rod can be a strip cut from any available 61S-T or 61S-O material. As an alternate, a standard 43S welding rod may be used. The use of flux, conforming to specification AN-F-57, is mandatory in gas welding aluminum alloys. However, the flux should be used sparingly for most satisfactory results. The flux should be thoroughly mixed with water in the proper proportions to produce a thin paste. The paste should then be applied, to both the welding rod and the surfaces to be welded, by dipping, or with a small swab or brush. Before welding is started, the crack should be stop drilled with a size 21 (.159) drill. If the crack is of any appreciable length, tack welds should be used to align the surfaces and to prevent distortion during welding. After the crack is welded, all excess welding flux should be completely and promptly removed, as serious corrosion will occur if the flux is allowed to remain on the welded joint. The flux may be removed by first washing with water and then soaking the affected area in a ten percent solution (by weight) of sulphuric acid until all traces of the flux are removed. The affected area should then be washed in running water until all traces of the acid are removed.

2-11. DAMAGE REPAIRABLE BY PATCHING. Skin damage that exceeds negligible damage limits but is not extensive enough to necessitate replacement of a skin panel or a portion of a skin panel, can be repaired by patching. Figure 2-3 has a list of patches that can be used on the wing center section skin. To choose the correct patch, determine the area of stress intensity in which the damage occurs by reference to Figure 2-3. Then from the notes in the figure obtain the recommended patches for this particular area of stress intensity. The blind skin patches that are mentioned in the notes can be used in any area of stress intensity where it is not possible to buck rivets from the inside. Before attempting to install any patch, trim the damaged area to a rectangular pattern leaving a radius of at least 1/2 inch at each corner. To simplify patch installation and rivet pattern layout, the sides of the trimmed hole should lie in spanwise or chordwise directions. When removing existing rivets, care should be taken not to enlarge the rivet holes. Paint all bare metal on the patch and in the damaged area with two coats of zinc chromate primer before assembling the patch.

WARNING

Engineering approval is required for any skin repairs made within one inch of any main spar cap.

2-12. DAMAGE REPAIRABLE BY INSERTION. In the vicinity of skin panel splices or where skin damage is extensive, the patch type repair may be impractical. In such a case an insertion repair may be used. In the insertion repair the damaged portion of the skin is removed, leaving a rectangular hole that extends to one, two or three skin panel splices. In any area of stress intensity, the insertion repair is made in the same manner as patch repairs for that area of stress intensity (see Figure 2-3). The only difference is that in the insertion repair, a doubler is used only along the edges of the hole that do not lie along existing skin panel splices. The gage and material of the insertion are the same as the gage and material of the recommended patches. When attaching the insertion to the existing skin with a doubler, use the doubler and rivet information that is given in the recommended patches for that area of stress intensity. When attaching the insertion along existing skin panel splices, use the same type of rivets and the same rivet pattern that exists along that splice. Before assembling the insertion, paint all bare metal on the insertion and in the damaged area with two coats of zinc chromate primer.

2-13. SPARS.

2-14. DESCRIPTION. The two main spars are of the tension field type. They are made up of extruded and machined tee section caps, a sheet metal web, and are reinforced by formed sheet metal and extruded stiffeners. A section of the lower spar cap on the rear spar under each engine is attached by bolts and can be dropped to facilitate engine removal. The auxiliary spar at F.S. 263.00 is also of the tension field type. It is made up of extruded angle caps, a sheet metal web, and is reinforced by attached wing ribs.

2-15. NEGLIGIBLE DAMAGE. Any small, smooth, isolated nicks or dents on either extruded or sheet metal structure which are 1/16 of an inch or less in depth, are negligible. On extruded sections, any damage to the extreme outer edge of any leg can be considered negligible if the damage after trimming extends inward from the outer edge 1/16 of an inch or less at cross sections containing rivets, or if the damage extends inward 1/8 of an inch or less at cross sections between rivets.

Note

At cross sections containing rivets, a minimum edge distance of 1-1/2 rivet diameters must be maintained. Damage that decreases this edge distance is not negligible.

On sheet metal structure the size of the negligible damage depends on the gage of the material in which it occurs. Before attempting to classify any sheet metal damage as negligible, stop drill all cracks and deep scratches and cut out or trim to a smooth contour all other damage such as punctures, deep sharp dents, corroded areas, etc.

Note

Do not use No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Any damage in sheet metal which after stop drilling or trimming can be enclosed by a 1/2 inch diameter

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Notes

1. REPAIRS FOR CRACKS IN SHEET METAL FLANGES ARE SHOWN IN FIGURE B-19
2. THE EXISTING RIB MATERIAL LISTED IN THE TABLES IS TO BE USED ONLY IN CONJUNCTION WITH APPLICABLE REPAIRS AS LISTED IN COLUMN 4. DO NOT USE THIS MATERIAL AS A BASIS FOR REPAIRING OR REPLACING RIB PARTS NOT COVERED BY THESE 'APPLICABLE REPAIRS'. RIB PARTS OTHER THAN THOSE COVERED BY 'APPLICABLE REPAIRS' ARE NOT ALWAYS MADE OF THIS MATERIAL.

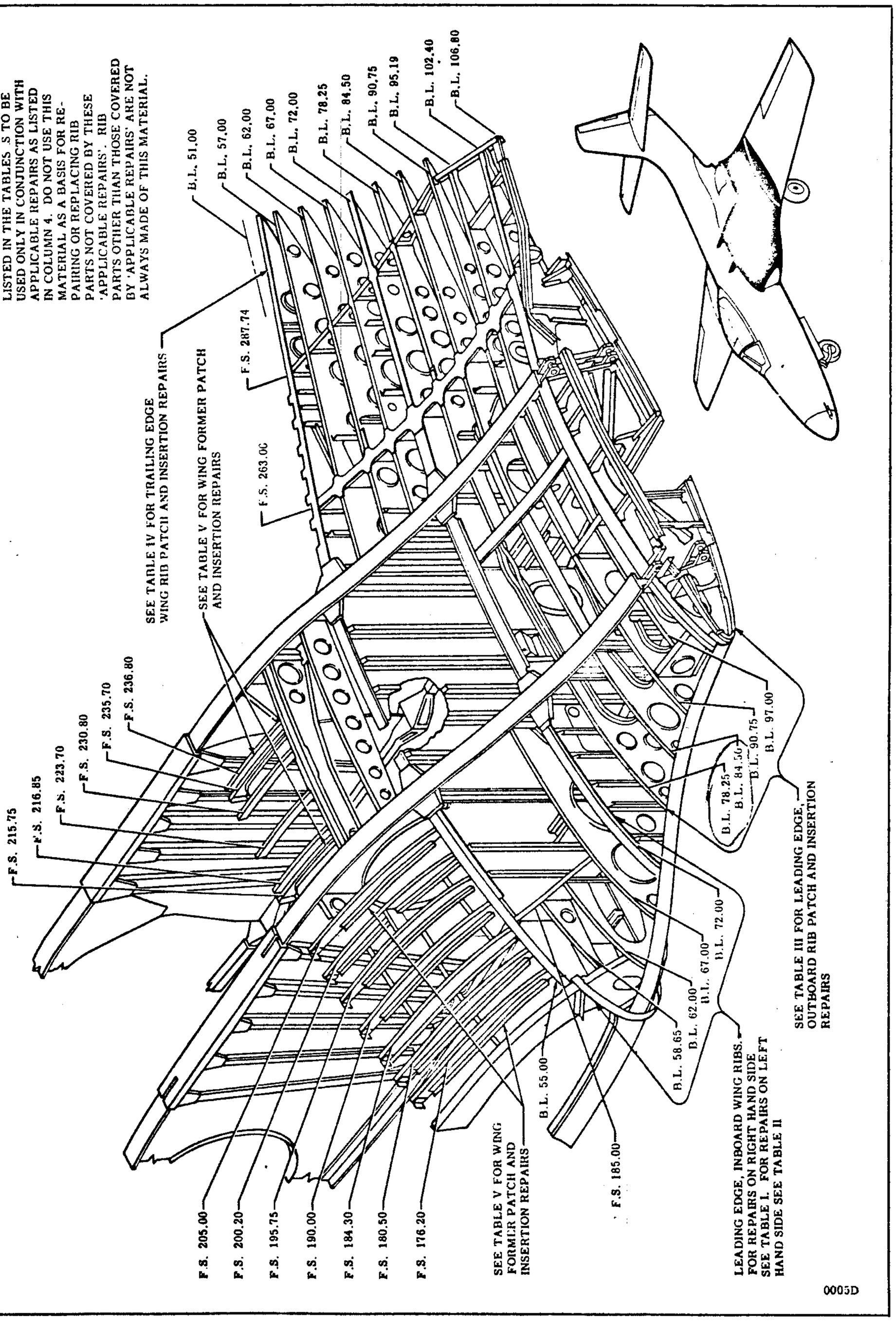

Figure 2-2. Wing Center Section Structure (Sheet 1 of 3 Sheets)

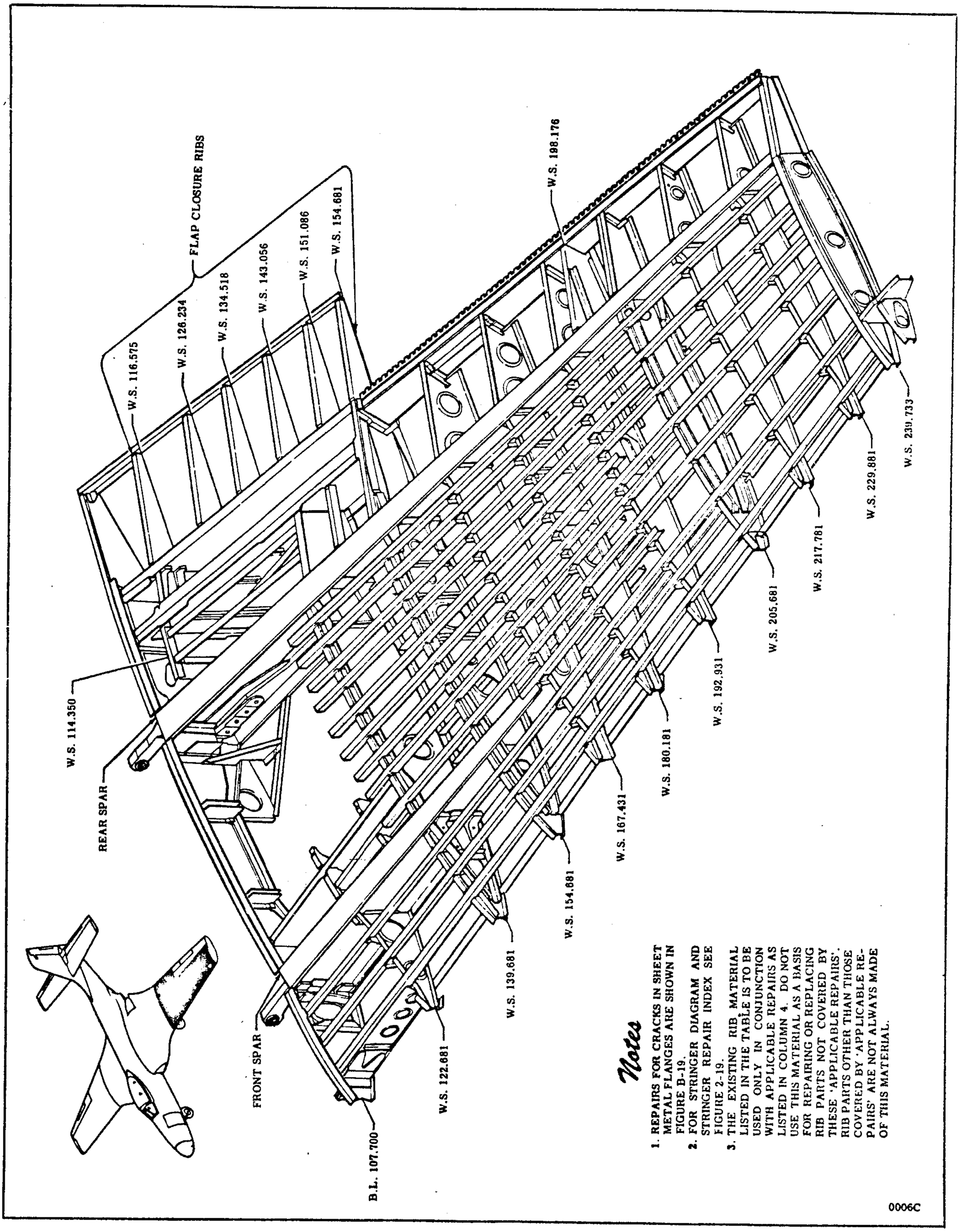

Figure 2-14. Wing Outer Panel Structure. F2H-1 Airplane (Sheet 1 of 2 Sheets)

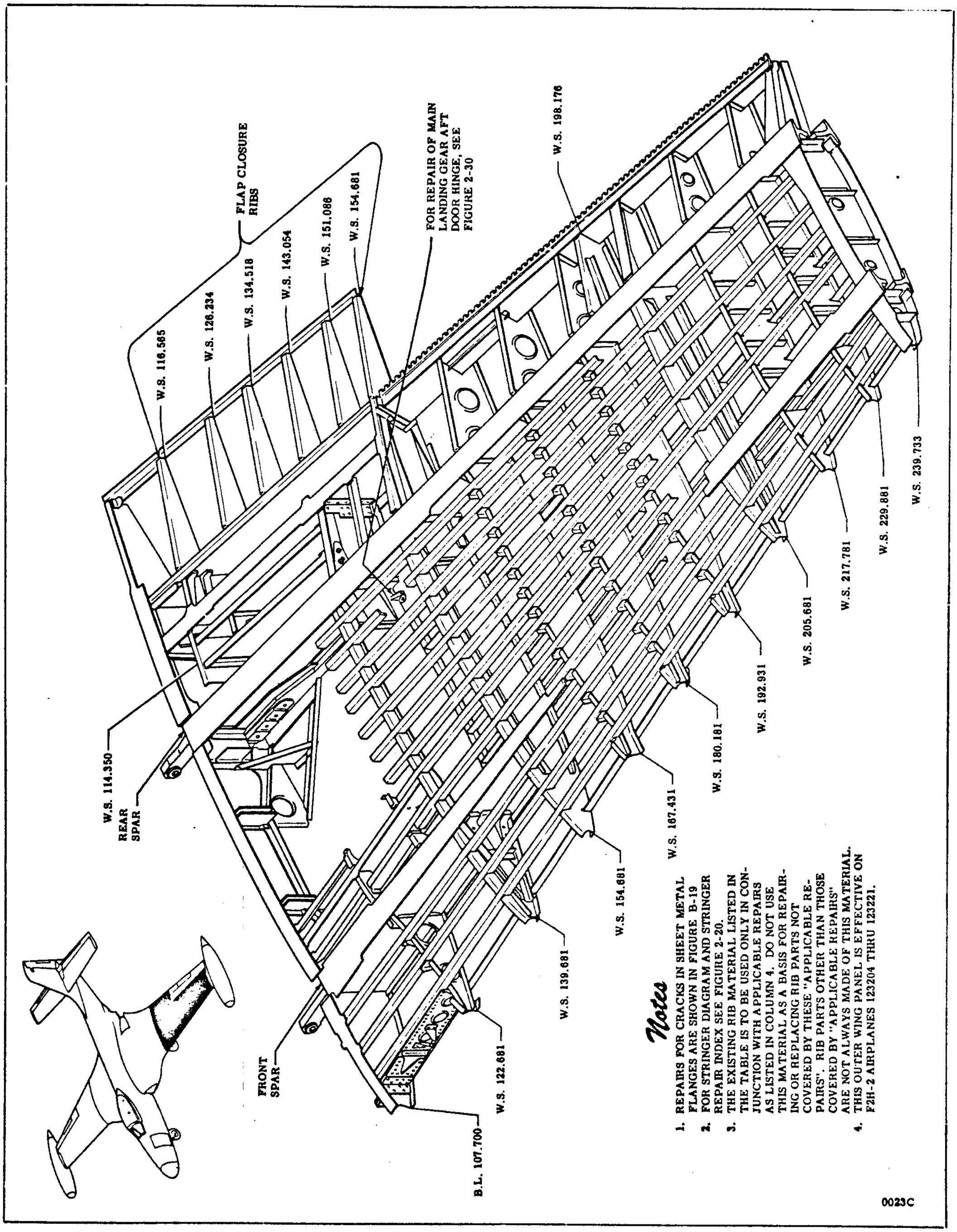

Figure 2-15. Wing Outer Panel Structure. F2H-2 Airplane (Sheet 1 of 2 Sheets)

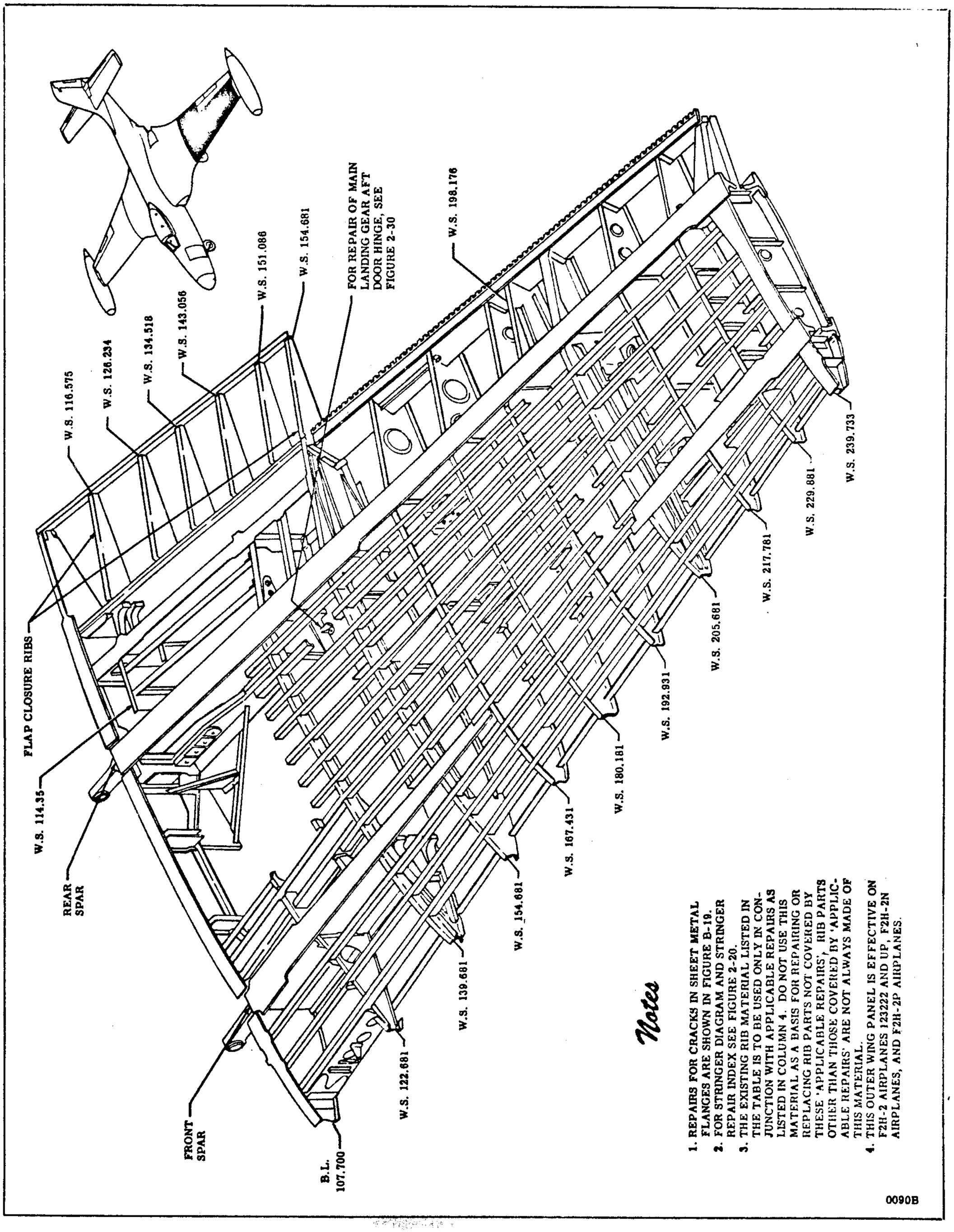

Figure 2-16. Wing Outer Panel Structure. F2H-2, F2H-2N and F2H-2P Airplanes (Sheet 1 of 2 Sheets)

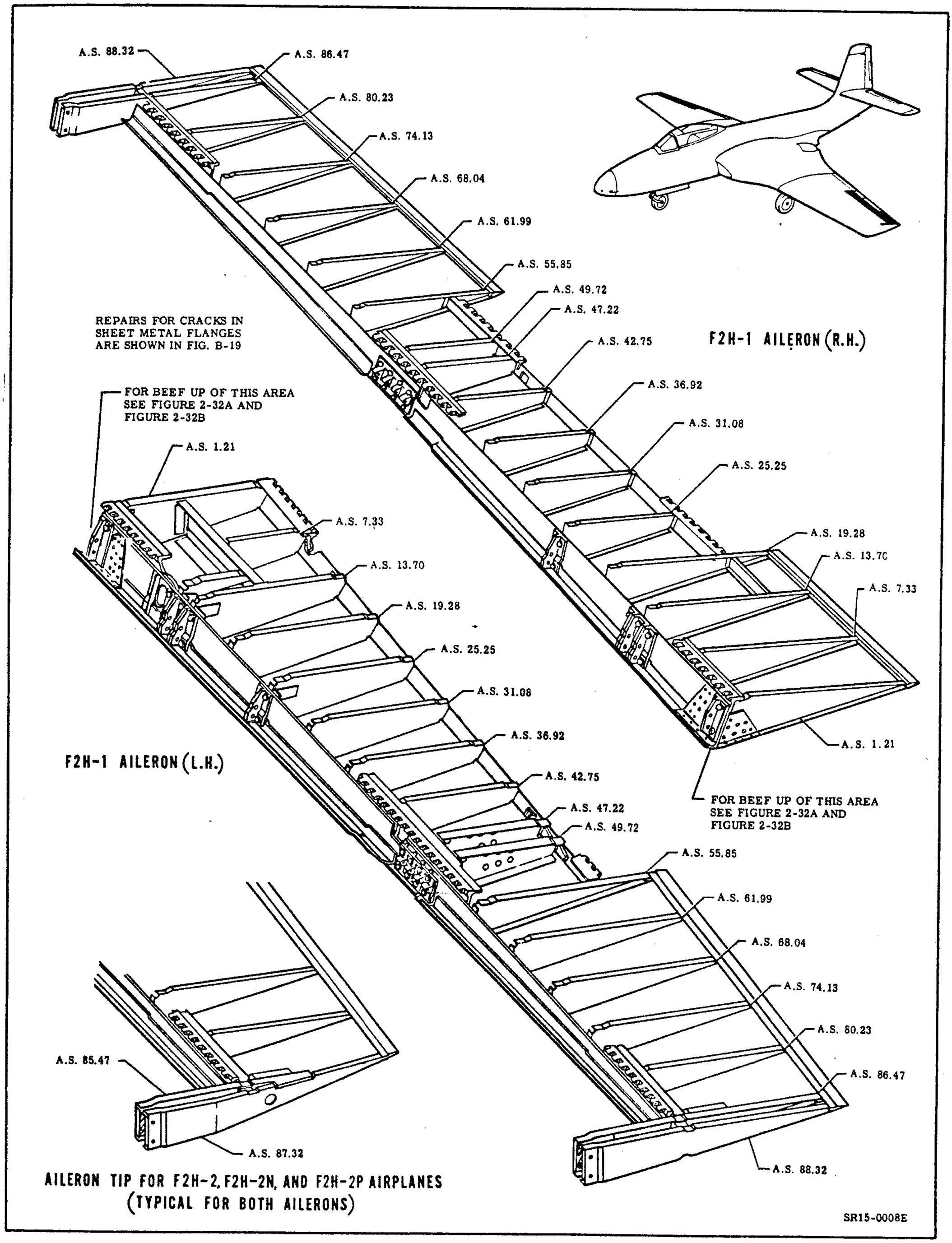

Figure 2-31. Aileron Structure

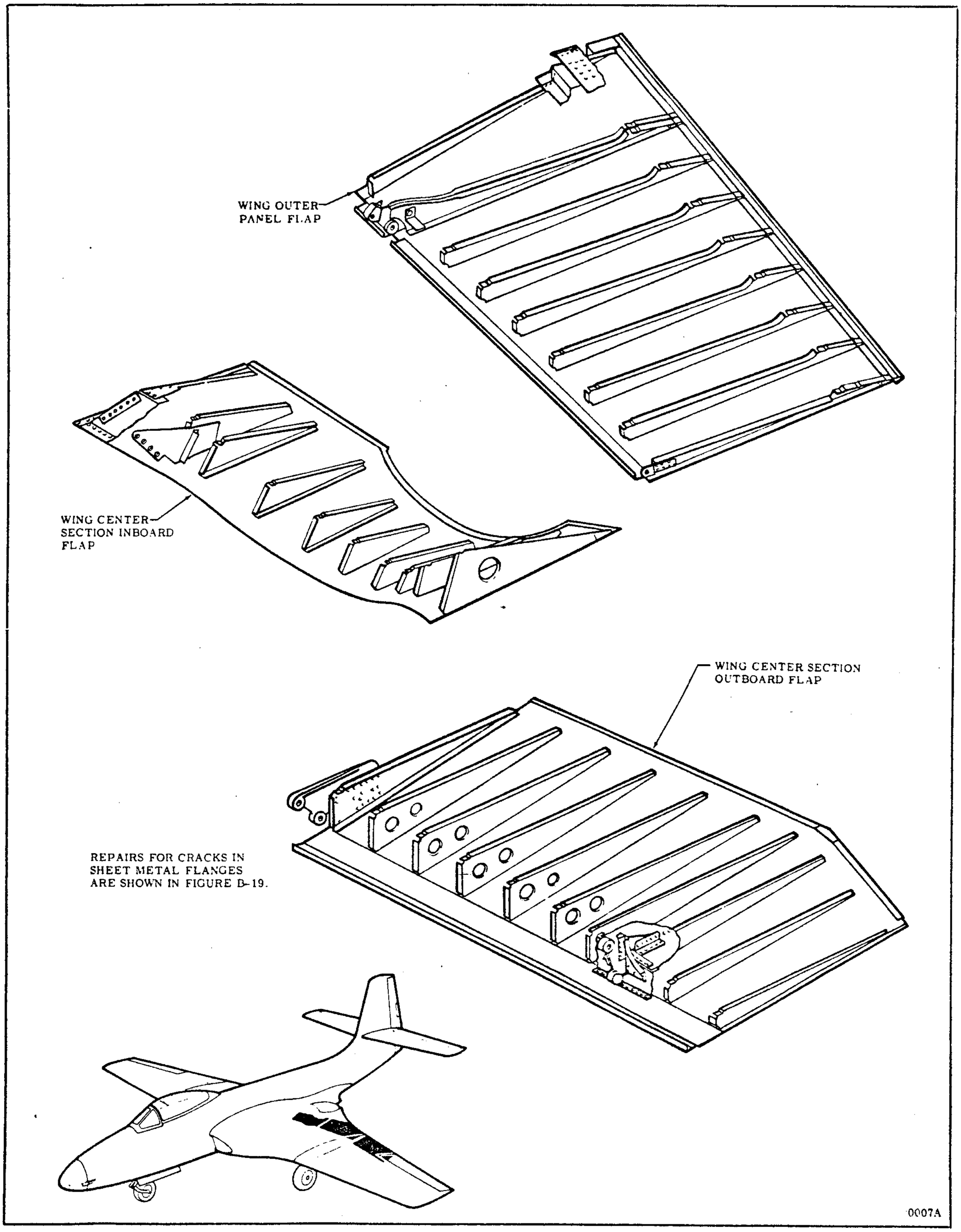

Figure 2-33. Flap Structure

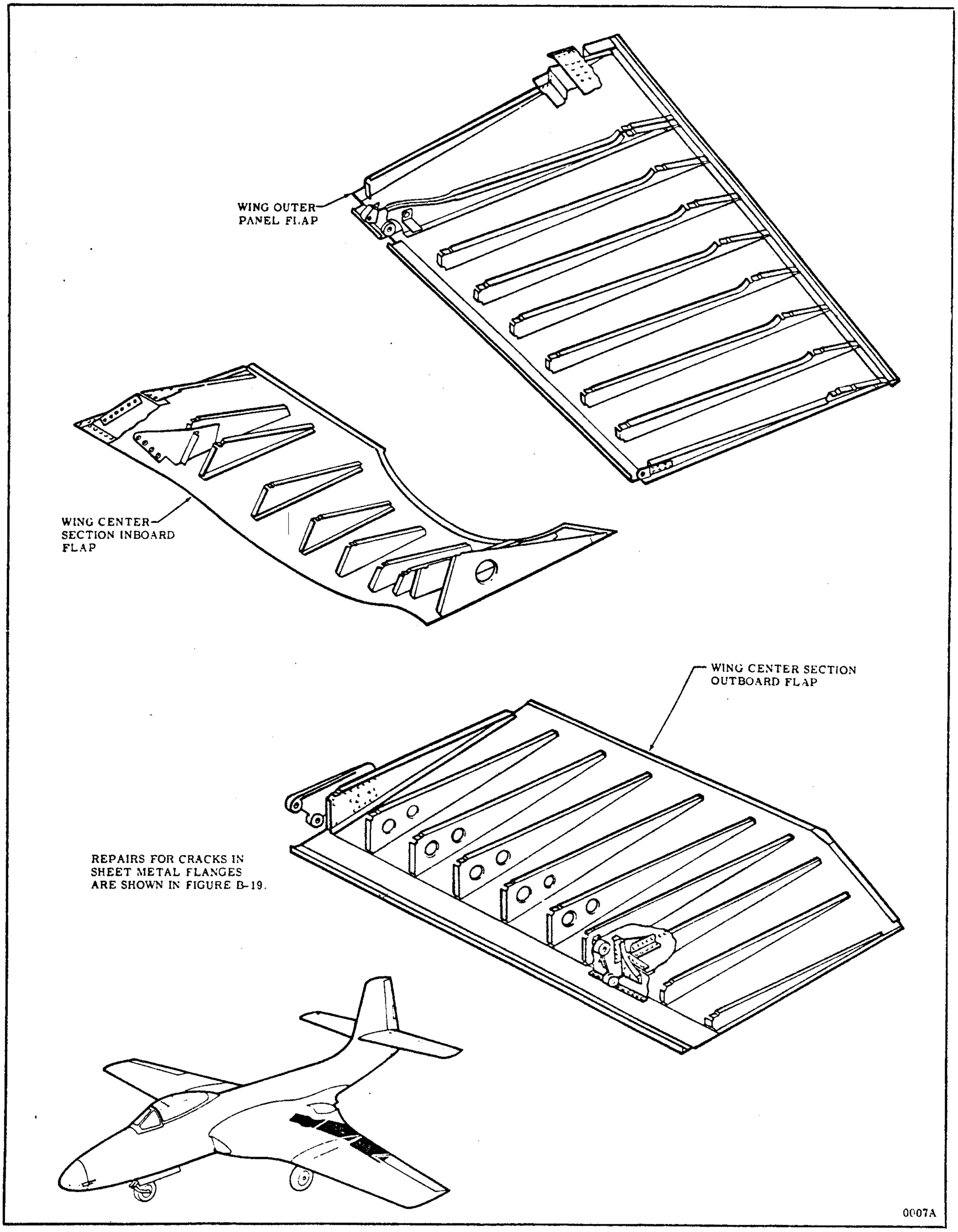

Figure 2-33. Flap Structure

154.681 on the outer panel. The basic flap structure consists of a hinge support spar, ribs, flush riveted outer skin, and waffle type inner skin. Figure 2-32 shows the internal structure.

2-74. ACCESS FOR REPAIRS. Access for repairs may be gained through the holes in the waffle type skin. If necessary, the skin may be peeled away or removed. After completing the repair reassemble the skin to its original condition.

2-75. OUTER SKIN.

2-76. DESCRIPTION. The outer skin on all the landing flaps is made of 24S-T alclad aluminum alloy sheet. This skin is flush riveted to the internal structure. See Figure 2-33 for the gage of the skin panels.

2-77. NEGLIGIBLE DAMAGE. Investigate all rivets around which paint has been chipped for the possibility of rivet tilt. If the rivets appear to be tilted, then remove all paint in that area and measure the tilt as shown in Figure B-1. If the tilt exceeds 4% of the rivet shank diameter, then the rivet must be removed and replaced with a rivet of the same type and diameter. Rivet tilt of 4% or less of the rivet shank diameter is negligible. Any smooth dents in the flap outer skin that are free from cracks, abrasions and sharp corners, and which are not stress wrinkles, and do not interfere with any internal structure or mechanism, are negligible. Any small, smooth, isolated nicks which are 1/16 of an inch in depth or less are also negligible. Any punctures, cracks, deep scratches, deep sharp dents, corroded areas, or any other damage which, after trimming or stop drilling, can be enclosed by a one inch diameter circle, can be considered negligible if this damage is at least two diameters of the enclosing circle away from all existing rivet lines.

Note

Do not use No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Any number of negligible holes are allowed in any skin panel provided the distance between the edges of any two adjacent holes is or exceeds three diameters of the larger hole. Paint all bare metal that is exposed by negligible damage or trimming with two coats of zinc chromate primer.

Note

For aerodynamic reasons all holes must and cracks should be covered with doped fabric patches. The fabric patches are temporary and should be replaced with permanent metal patches as soon as practicable.

2-78. DAMAGE REPAIRABLE BY PATCHING. Skin damage that exceeds negligible damage limits but is not extensive enough to necessitate replacement of a skin panel or a portion of a skin panel can be repaired by patching. Figure 2-33 has a list of patches that can be used on the landing flap skin. The blind skin patches that are mentioned in the notes can be used where it is not possible to buck rivets from the inside. Before attempting to install any patch, trim the damaged area to a rectangular pattern, leaving a radius of at least 1/2 inch at each corner. To simplify patch installation and rivet pattern layout, the sides of the trimmed hole should lie in spanwise or chordwise directions. When removing existing rivets, care should be taken not to enlarge the rivet holes. Paint all bare metal on the patch and in the damaged area with two coats of zinc chromate primer before assembling the patch.

2-79. DAMAGE REPAIRABLE BY INSERTION. In the vicinity of skin panel splices or where skin damage is extensive, the patch type repair may be impractical. In such a case an insertion repair may be used. In the insertion repair the damaged portion of the skin is removed, leaving a rectangular hole that extends to one, two, or three skin panel splices. The insertion repairs are made in the same manner as patch repairs. The only difference is that in the insertion repair, a doubler is used only along the edges of the hole that do not lie along existing skin panel splices. The gage and material of the insertion are the same as the gage and material of the recommended patches. When attaching the insertion along existing skin panel splices use the same type of rivets and the same rivet pattern that exists along that splice. Before assembling the repair, paint all bare metal on the insertion and in the damaged area with two coats of zinc chromate primer.

2-80. SPAR, RIBS, AND WAFFLE TYPE SKIN.

2-81. DESCRIPTION. The spar and all the ribs are made of formed alclad aluminum alloy sheet. The waffle type skin, which derives its name from its numerous flanged lightening holes, is also alclad aluminum alloy sheet.

2-82. NEGLIGIBLE DAMAGE. Any small, smooth nicks or dents that are 1/16 of an inch in depth or less are negligible. The size of any other damage that can be classified as negligible depends on the gage of the sheet metal in which it occurs. Before attempting to classify any sheet metal damage as negligible, stop drill all cracks and deep scratches and cut out or trim to a smooth contour all other damage such as punctures, deep sharp dents, corroded areas, etc.

Note

Do not use No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Any damage in sheet metal which after stop drilling or trimming can be enclosed by a 1/2 inch diameter circle in material that is of .025 gage or thinner, or by a 3/4 inch diameter circle in material of .032 and .040 gage, or by a one inch diameter circle in material that is of .051 gage or thicker, can be considered negligible if the damage is two or more diameters of the enclosing circle from the edge of the material and all existing rivets. Any number of negligible holes are allowed in any sheet metal part as long as the distance between the edges of any two adjacent holes is or exceeds three diameters of the larger hole. Paint all bare metal that

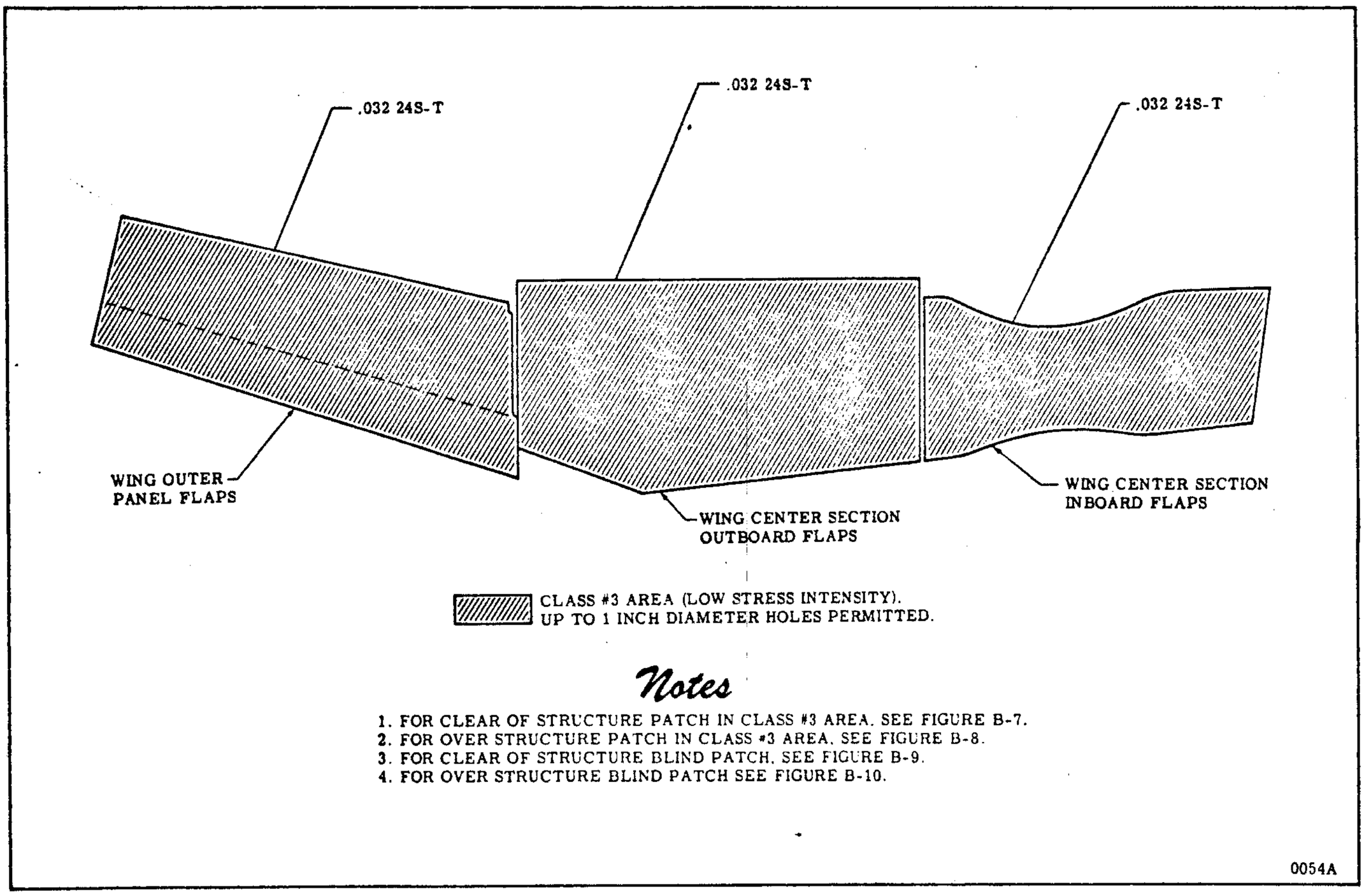

Figure 2-34. Flap Skin Diagram

is exposed by nicks or by trimming with two coats of zinc chromate primer.

2-83. DAMAGE REPAIRABLE BY PATCHING. Patch repairs for cracks in sheet metal flanges are shown in Figure B-19. This type patch can be used to repair cracks in any sheet metal flange on any type of structure. The limitations of this patch are given on the repair illustration. Before patching is attempted, the cracks must be stop drilled.

Note

Do not use No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Before assembling the repair, paint all bare metal with two coats of zinc chromate primer.

2-84. DAMAGE REPAIRABLE BY REPLACEMENT OF PARTS. Parts such as clips, brackets, etc., should be replaced after they have been damaged beyond negligible damage limits. These parts due to their small size are impractical to repair.

2-85. SPEED BRAKES.

2-86. DESCRIPTION. Upper and lower speed brake assemblies are installed in each outer panel just inboard of the aileron and just forward of the outboard flap. Each upper and lower speed brake assembly is made up of two parallel horizontal perforated drag plates connected by two parallel arms. These connecting arms are vertical, when the brakes are extended, and are pivoted to the horizontal position to retract the brakes. The outer drag plate in each upper and lower brake assembly is made of 24S-T aluminum alloy and magnesium alloy parts. The inner drag plate in each upper and lower brake assembly is made up of 24S-T aluminum alloy and stainless steel. The connecting arms are of heat treated steel.

2-87. NEGLIGIBLE DAMAGE. The only damage that may be considered as negligible are small nicks which after being burnished smooth, are 1/16 of an inch or less in depth. No other damage or distortion can be permitted to exist.

2-88. DAMAGE NECESSITATING REPLACEMENT OF PARTS. Parts that have been damaged beyond negligible damage limits or are distorted in any manner that prevents smooth operation of the speed brakes must be replaced.

SECTION III
TAIL GROUP

3-1. GENERAL.

3-2. DESCRIPTION. (See Figure 3-1.) The tail group is of full cantilever design, consisting of the vertical stabilizer, horizontal stabilizer, rudder, elevators and tabs. The elevators are provided with both spring and trim tabs. The rudder has one combination balance and trim tab. The entire tail group, with the exception of the vertical stabilizer tip and the rudder tip, is of metal construction. The two tips are made of fiberglas.

3-3. HORIZONTAL STABILIZER.

3-4. DESCRIPTION. The horizontal stabilizer is an all metal semimonocoque structure. Basically the structure consists of one spar, ribs, stringers, and flush riveted skin. The spar is continuous across the fuselage. Hinge fittings at stabilizer stations 18.735, 61.373, and 104.34 support the elevators. The horizontal stabilizer is attached to the fuselage at W.L. 79.000. Figure 3-2 shows the internal structure.

3-5. ACCESS FOR REPAIRS. Access for repairs may be gained through external access doors or, upon removal of the elevators, through holes in the closure assembly. If necessary, the skin may be peeled back or removed. Adjacent structure may also be removed. After completing the repair, reassemble the removed skin and structure to its original condition. As a final measure, a cut out may be made in the skin and covered, upon completion of the repair, with a blind skin patch as shown in Figure B-9 or B-10.

3-6. SKIN.

3-7. DESCRIPTION. The horizontal stabilizer skin is made of 75S-T alclad aluminum alloy sheet. The skin panels are butt jointed and flush riveted to the internal structure. Refer to Figure 3-3 for the gage of the skin panels.

3-8. NEGLIGIBLE DAMAGE. Investigate all rivets around which paint has been chipped for the possibility of rivet tilt. If the rivets appear to be tilted, then remove all paint in that area and measure the tilt as shown in Figure B-1. If the tilt exceeds 4% of the rivet shank diameter, then the rivet must be removed and replaced with a rivet of the same type and diameter. Rivet tilt of 4% or less of the rivet shank diameter is negligible. Any smooth dents in the horizontal stabilizer skin that are free from cracks, abrasions and sharp corners, and which are not stress wrinkles and do not interfere with any internal structure or mechanism are negligible. Any small, smooth, isolated nicks which are 1/16 of an inch in depth or less are also negligible. The type or magnitude of any other damage that can be classified as negligible depends on the area of stress intensity, namely, class 1, class 2, or class 3 area (see Figure 3-3), in which it occurs. In class 1 areas, any hole which can be trimmed or drilled to a 1/4 inch diameter or less can be considered as negligible after it is filled with a rivet. In class 2 and 3 areas, any punctures, cracks, deep scratches, deep, sharp dents, corroded areas, or any other damage which, after trimming or stop drilling, can be enclosed by a 3/4 inch diameter circle in class 2 areas, or by a one inch diameter circle in class 3 areas, can be considered negligible if this damage is at least two diameters of the enclosing circle away from all existing rivet lines.

Note

Do not use No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Any number of negligible holes are allowed in any skin panel provided the distance between the edges of any two adjacent holes is or exceeds three diameters of the larger hole. Paint all bare metal that is exposed by nicks or trimming with two coats of zinc chromate primer.

Note

For aerodynamic reasons all holes must and cracks should be covered with doped fabric patches. The fabric patches are temporary and should be replaced with permanent metal patches as soon as practicable.

3-9. DAMAGE REPAIRABLE BY PATCHING. Skin damage that exceeds negligible damage limits but is not extensive enough to necessitate replacement of a skin panel or a portion of a skin panel can be repaired by patching. Figure 3-3 has a list of patches that can be used on the horizontal stabilizer skin. To choose the correct patch, determine the area of stress intensity in which the damage occurs by reference to Figure 3-3. Then from the notes in the figure, obtain the recommended patches for this particular area of stress intensity. The blind skin patches that are mentioned in the notes can be used in any area of stress intensity where it is not possible to buck rivets from the inside. Before attempting to install any patch, trim the damaged area to a rectangular pattern, leaving a radius of at least 1/2 inch at each corner. To simplify patch installation and rivet pattern layout, the sides of the trimmed hole should lie in spanwise or chordwise directions. When removing existing rivets, care should be taken not to enlarge the rivet holes. Paint all bare metal on the patch and in the damaged area with two coats of zinc chromate primer before assembling the patch.

3-10. DAMAGE REPAIRABLE BY INSERTION. In the vicinity of skin panel splices or where skin damage is extensive, the patch type repair may be impractical. In such a case an insertion repair may be used. In

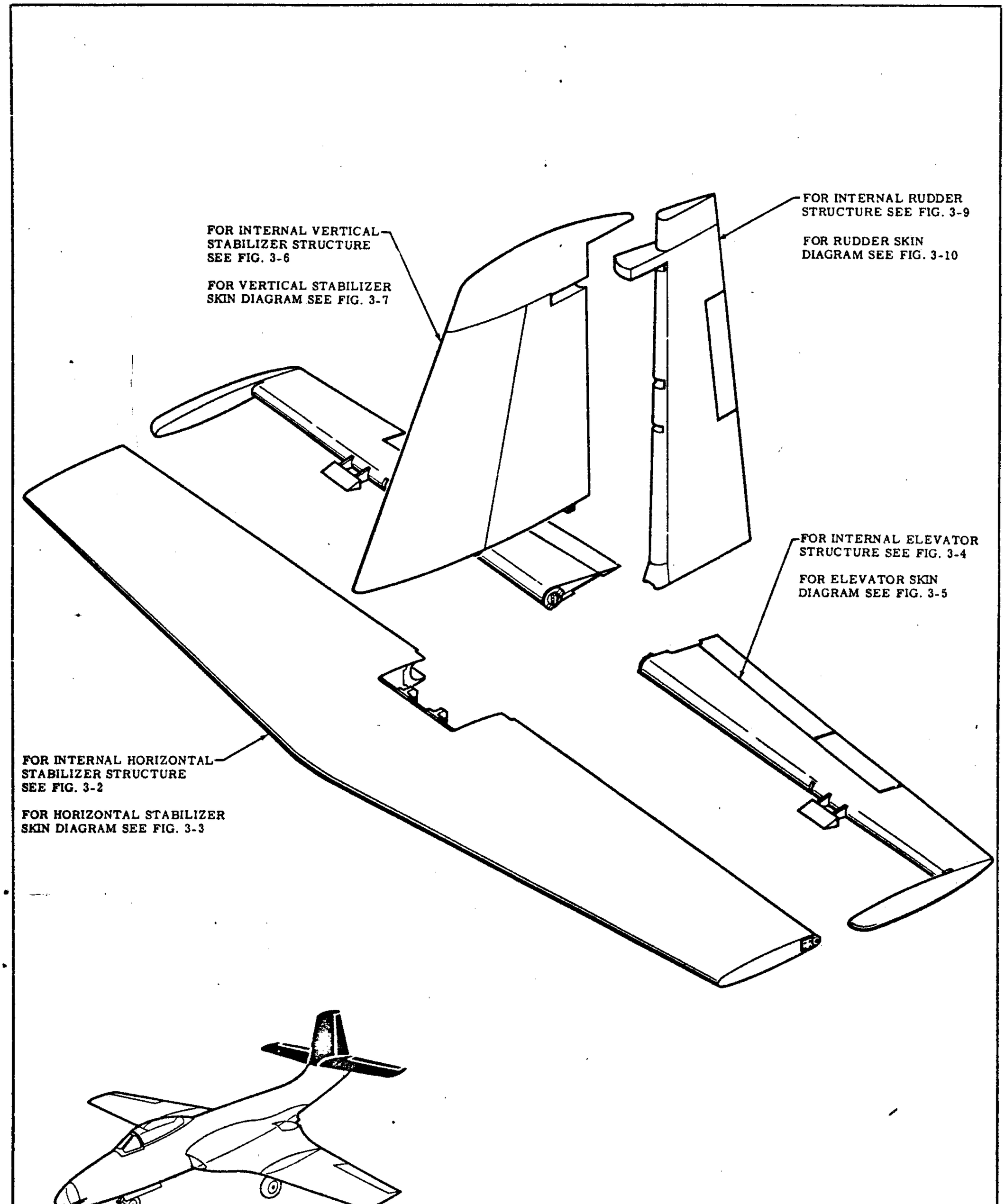

Figure 3-1. Tail Group - Exploded View

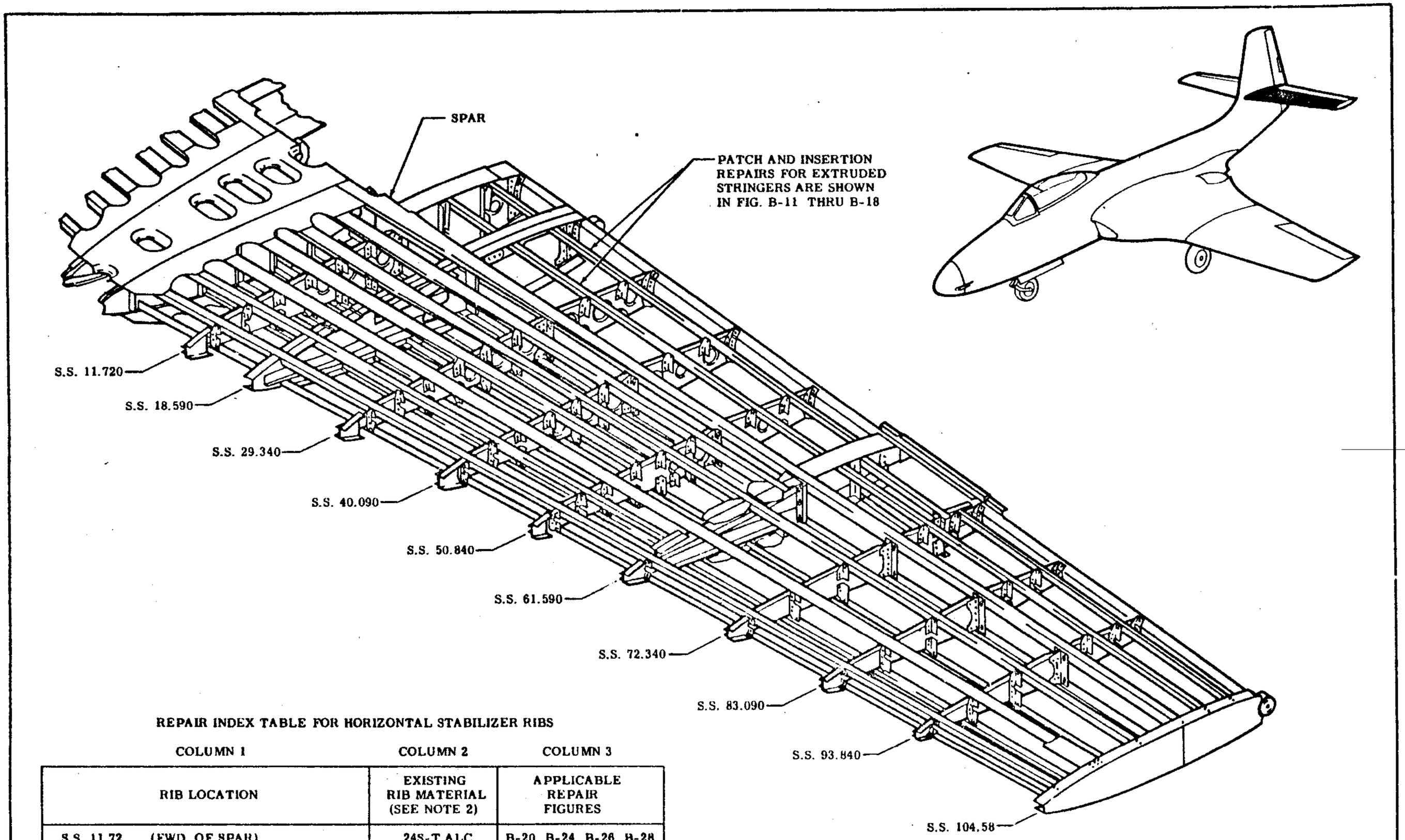

Figure 3-2. Horizontal Stabilizer Structure

REPAIR INDEX TABLE FOR HORIZONTAL STABILIZER RIBS

	COLUMN 1	COLUMN 2	COLUMN 3
RIB LOCATION		EXISTING RIB MATERIAL (SEE NOTE 2)	APPLICABLE REPAIR FIGURES
S.S. 11.72	(FWD. OF SPAR)	24S-T ALC	B-20, B-24, B-26, B-28
S.S. 11.72	(AFT OF SPAR)	75S-T ALC	B-24
S.S. 18.59		75S-T ALC	B-24
S.S. 29.34		24S-T ALC	B-20, B-24, B-26, B-28
S.S. 40.09		24S-T ALC	B-20, B-24, B-26, B-28
S.S. 50.84		24S-T ALC	B-20, B-24, B-26, B-28
S.S. 72.34		24S-T ALC	B-20, B-24, B-26, B-28
S.S. 83.09		24S-T ALC	B-20, B-24, B-26, B-28
S.S. 93.84		24S-T ALC	B-20, B-24, B-26, B-28
S.S. 104.58	ON AIRPLANES: F2H-1, F2H-2 (123204 THRU 123245), F2H-2N (123300)	75S-T ALC	B-24
S.S. 104.58	ON AIRPLANES: F2H-2 (123246 AND UP), F2H-2N (123301 AND UP), F2H-2P	24S-T ALC	B-24

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Notes

1. REPAIR FOR CRACKS IN SHEET METAL FLANGES ARE SHOWN IN FIG. B-19.
2. THE EXISTING RIB MATERIAL LISTED IN THE TABLE IS TO BE USED ONLY IN CONJUNCTION WITH APPLICABLE REPAIRS LISTED IN COLUMN 3. DO NOT USE THIS MATERIAL AS A BASIS FOR REPAIRING OR REPLACING RIB PARTS NOT COVERED BY THESE "APPLICABLE REPAIRS". RIB PARTS OTHER THAN THOSE COVERED BY "APPLICABLE REPAIRS" ARE NOT ALWAYS MADE OF THIS MATERIAL.

cracks.

Note

Do not use a No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Locate the damaged rib in Figure 3-2 as outlined in the introduction. From the index repair table obtain the applicable repairs (Column 3) and the existing rib material (Column 2). The existing rib material will be needed in selecting the insertion and splice material.

Note

The existing rib material listed in the table is to be used only in conjunction with applicable repairs as listed in Column 3. Do not use this material as a basis for repairing or replacing rib parts other than those covered by 'applicable repairs'. Rib parts other than those covered by these 'applicable repairs' are not always made of this material.

In addition to the insertion repairs in Column 3 of the table in Figure 3-2, insertion repairs may be made by combining patch type repairs. Example: A damaged rib that had been trimmed across two flanges and a lightening hole might be repaired by an insertion using two splice parts (one above and one below the lightening hole) which combine the patch repairs in Figure B-21 and B-26. When combining repairs it must be kept in mind that two rows of the proper size rivets must be installed along all trimmed edges on both sides of the splice. Before assembling repair, paint all bare metal with two coats of zinc chromate primer.

3-27. DAMAGE REPAIRABLE BY REPLACEMENT OF PARTS. Ribs that have been damaged to such an extent that they cannot be repaired by patching or insertion should be replaced. Small parts such as clips, brackets, and stiffeners that have been damaged beyond negligible limits should be replaced.

3-28. ELEVATORS.

3-29. DESCRIPTION. The two elevators are all-metal semimonocoque structures. Each elevator is hinged at three points and is interchangeable. A removable tip is attached by screws to each elevator. Figure 3-4 shows the internal structure.

3-30. ACCESS FOR REPAIRS. Access for repairs may be gained through external access doors or through hinge cut outs at the leading edge. If necessary, the skin may be peeled away or removed. Adjacent structure may also be removed. After completing the repair, reassemble the removed skin and structure to its original condition. As a final measure, a cut out may be made in the skin and covered, upon completion of the repair, with a blind skin patch as shown in Figure B-9 or B-10.

Note

In order to prevent the possibility of flutter, rebalance rudder after all repairs. See Section I for rebalancing instructions.

3-31. SKIN.

3-32. DESCRIPTION. The elevator skin is all 24S-T alclad aluminum alloy with the exception of the elevator tip which is 61S-T aluminum alloy. All skin panels are butt jointed and flush riveted to the internal structure. Refer to Figure 3-5 for the gage of skin panels.

3-33. NEGLIGIBLE DAMAGE. Investigate all rivets around which paint has been chipped for the possibility of rivet tilt. If the rivets appear to be tilted, then remove all paint in that area and measure the tilt as shown in Figure B-1. If the tilt exceeds 4% of the rivet shank diameter, then the rivet must be removed and replaced with a rivet of the same type and diameter. Rivet tilt of 4% or less of the rivet shank diameter is negligible. Any smooth dents in elevator skin that are free from cracks, abrasions and sharp corners, and which are not stress wrinkles and do not interfere with any internal structure or mechanism, are negligible. Any small, smooth, isolated nicks which are 1/16 of an inch in depth or less are also negligible. The type or magnitude of any other damage that can be classified as negligible depends on the area of stress intensity, namely, class 2 or class 3 areas (see Figure 3-5) in which it occurs. Any punctures, cracks, deep sharp dents, deep scratches, corroded areas, or any other damage which, after trimming or stop drilling, can be enclosed by a 3/4 inch diameter circle in class 2 areas or by a one inch diameter circle in class 3 areas can be considered negligible if this damage is at least two diameters of the enclosing circle away from all existing rivet lines.

Note

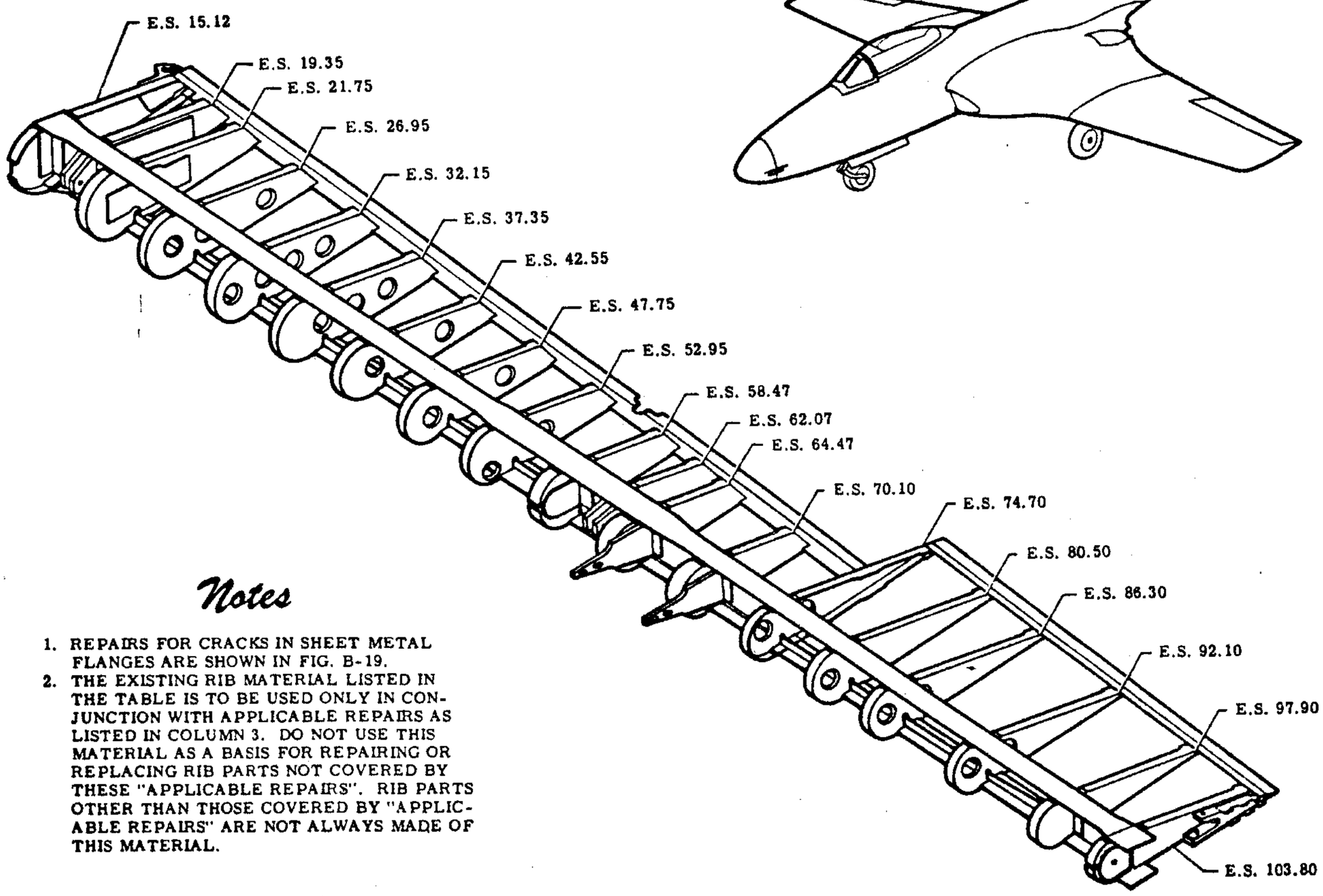
Do not use No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Any number of negligible holes are allowed in any skin panel provided the distance between the edges of any two adjacent holes is or exceeds three diameters of the larger hole. Paint all bare metal that is exposed by nicks or trimming with two coats of zinc chromate primer.

Note

For aerodynamic reasons all holes must and cracks should be covered with doped fabric patches. The fabric patches are temporary and should be replaced with permanent metal patches as soon as practicable.

3-34. DAMAGE REPAIRABLE BY PATCHING. Skin damage that exceeds negligible damage limits but is not extensive enough to necessitate replacement of a skin panel or a portion of a skin panel can be repaired by patching. Figure 3-5 has a list of patches that can be used on the elevator skin. To choose the correct patch, determine the area of stress intensity in which the damage occurs by reference to Figure 3-5. Then from the notes in the figure, obtain the recommended



Notes

1. REPAIRS FOR CRACKS IN SHEET METAL FLANGES ARE SHOWN IN FIG. B-19.
2. THE EXISTING RIB MATERIAL LISTED IN THE TABLE IS TO BE USED ONLY IN CONJUNCTION WITH APPLICABLE REPAIRS AS LISTED IN COLUMN 3. DO NOT USE THIS MATERIAL AS A BASIS FOR REPAIRING OR REPLACING RIB PARTS NOT COVERED BY THESE "APPLICABLE REPAIRS". RIB PARTS OTHER THAN THOSE COVERED BY "APPLICABLE REPAIRS" ARE NOT ALWAYS MADE OF THIS MATERIAL.

REPAIR INDEX TABLE FOR ELEVATOR RIBS

COLUMN 1	COLUMN 2	COLUMN 3
RIB LOCATION	EXISTING RIB MATERIAL (SEE NOTE 2)	APPLICABLE REPAIR FIGURES
E.S. 15.12	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 19.35	24S-T ALC	B-21, B-24, B-29
E.S. 21.75	24S-T ALC	B-21, B-24, B-29
E.S. 26.95	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 32.15	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 37.35	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 42.55	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 47.75	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 52.95	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 58.47	24S-T ALC	B-21, B-24, B-29
E.S. 62.07	75S-T ALC	B-21, B-24, B-29
E.S. 64.47	24S-T ALC	B-21, B-24, B-29
E.S. 70.10	24S-T ALC	B-21, B-24, B-29
E.S. 74.70	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 80.50	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 86.30	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 92.10	24S-T ALC	B-21, B-24, B-26, B-29
E.S. 97.90	75S-T ALC	B-21, B-24, B-29
E.S. 103.80	75S-T ALC	B-21, B-24, B-29

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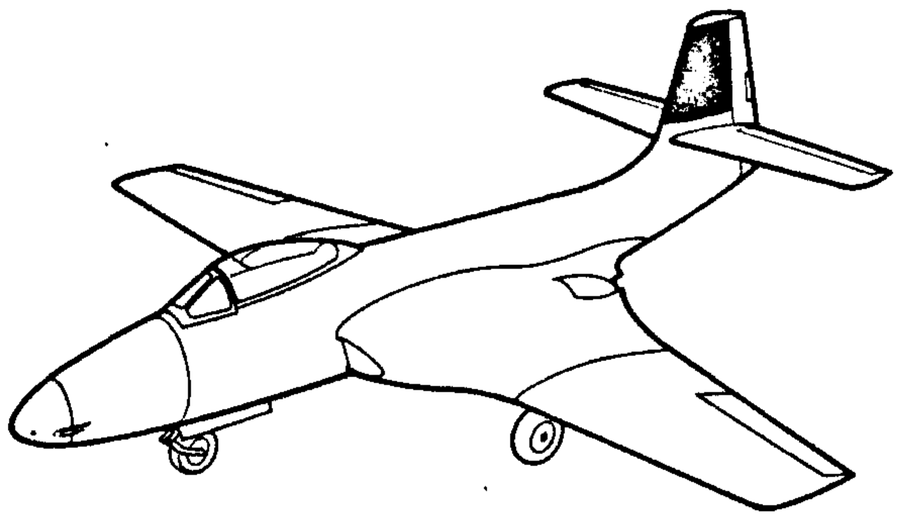
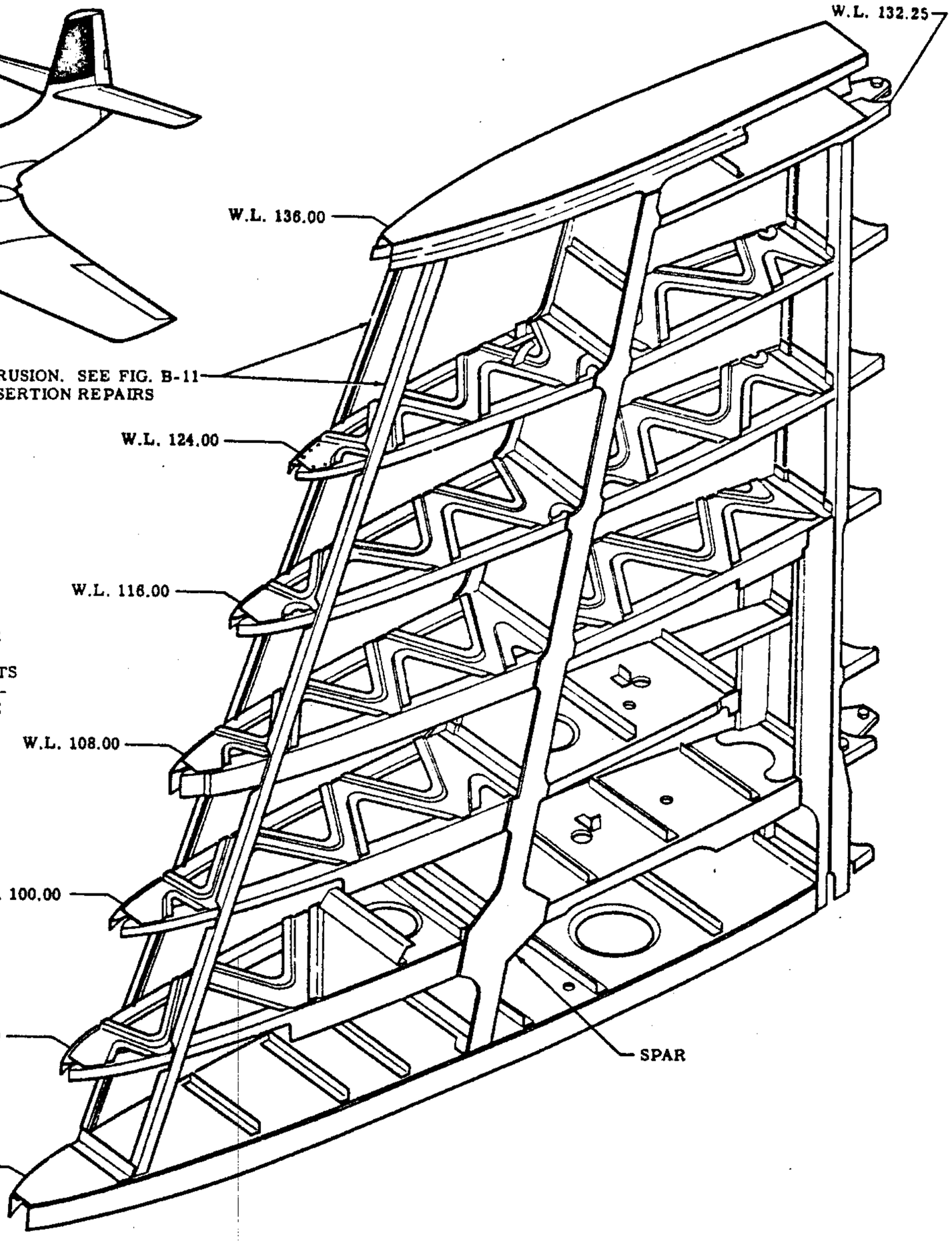
Figure 3-4. Elevator Structure





Notes

1. REPAIRS FOR CRACKS IN SHEET METAL FLANGES ARE SHOWN IN FIG. B-19.
2. THE EXISTING RIB MATERIAL LISTED IN THE TABLE IS TO BE USED ONLY IN CONJUNCTION WITH APPLICABLE REPAIRS LISTED IN COLUMN 3. DO NOT USE THIS MATERIAL AS A BASIS FOR REPAIRING OR REPLACING RIB PARTS NOT COVERED BY THESE 'APPLICABLE REPAIRS'. RIB PARTS OTHER THAN THOSE COVERED BY 'APPLICABLE REPAIRS' ARE NOT ALWAYS MADE OF THIS MATERIAL.

REPAIR INDEX TABLE FOR VERTICAL STABILIZER RIBS

COLUMN 1	COLUMN 2		COLUMN 3
RIB LOCATION	EXISTING RIB MATERIAL (SEE NOTE 2)		APPLICABLE REPAIR FIGURES
	WEB	CAP	
W.L. 85.50	75S-T ALC	75S-T ALC	B-24, B-26
W.L. 92.50 (FWD OF SPAR)	24S-T ALC	75S-T ALC	3-8, B-24, B-27
W.L. 92.50 (AFT OF SPAR)	75S-T ALC	75S-T ALC	B-24, B-27
W.L. 100.00	75S-T ALC	24S-T ALC	3-8, B-22, B-24, B-27, B-30
W.L. 108.00		24S-T ALC	3-8, B-27
W.L. 116.00		24S-T ALC	3-8, B-27
W.L. 124.00		24S-T ALC	3-8, B-27
W.L. 132.25	24S-T ALC	75S-T ALC	B-22, B-24, B-30
W.L. 136.00	75S-T ALC	75S-T ALC	B-24

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Figure 3-6. Vertical Stabilizer Structure

stop drill size.

Locate the damaged rib in Figure 3-4, as outlined in the introduction. From the repair index table obtain the existing rib material (Column 2) and the applicable repairs (Column 3). The existing rib material will be needed in selecting the repair material.

Note

The existing rib material listed in the table is to be used only in conjunction with applicable repairs listed in Column 3. Do not use this material as a basis for repairing or replacing rib parts other than those covered by 'applicable repairs'. Rib parts other than those covered by 'applicable repairs' are not always made of this material.

Study each applicable repair to determine which should be used. It will be noted that these repairs are general and can be varied in size, shape, and location to fit many cases. Any two or more of these repairs may be combined. Example: A rib damaged through a flange and a nearby lightening hole might be repaired with one repair part by combining the repairs in Figure B-21 and B-26. When combining patch repairs keep in mind that two rows of the proper size rivets must be installed along all edges of trimmed damage.

3-45. Patch repairs for cracks in sheet metal flanges are shown in Figure B-19. This type patch can be used to repair cracks in any sheet metal flange on any type of structure. The limitations of this patch are given on the repair illustration. Before patching is attempted, the cracks must be stop drilled, and all other damage must be trimmed.

Note

Do not use a No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Before assembling repair, paint all bare metal with two coats of zinc chromate primer.

3-46. DAMAGE REPAIRABLE BY INSERTION. If a rib is damaged to such an extent that a patch type repair would be impractical, an insertion splice may be made. Before selecting a repair, cut away the damaged portion of the rib and stop drill any remaining cracks.

Note

Do not use a No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Locate the damaged rib in Figure 3-4 as outlined in the introduction. From the index repair table obtain the applicable repairs (Column 3) and the existing rib material (Column 2). The existing rib material will be needed in selecting the insertion and splice material.

Note

The existing rib material listed in the table is to be used only in conjunction with applicable repairs as listed in Column 3. Do not use this material as a basis for repairing or replacing rib parts other than those covered by 'applicable repairs'. Rib parts other than those covered by these 'applicable repairs' are not always made of this material.

In addition to the insertion repairs in Column 3 of the table, insertion repairs may be made by combining patch type repairs. Example: A damaged rib that had been trimmed across two flanges and a lightening hole might be repaired by an insertion using two splice parts (one above and one below the lightening hole) which combine the patch repairs in Figure B-21 and B-26. When combining repairs it must be kept in mind that two rows of the proper size rivets must be installed along all trimmed edges on both sides of the splice. Before assembling repair, paint all bare metal with two coats of zinc chromate primer.

3-47. DAMAGE REPAIRABLE BY REPLACEMENT OF PARTS. Ribs that have been damaged to such an extent that they cannot be repaired by patching or insertion should be replaced. Small parts such as clips, brackets, and stiffeners that have been damaged beyond negligible limits should be replaced.

3-48. VERTICAL STABILIZER.

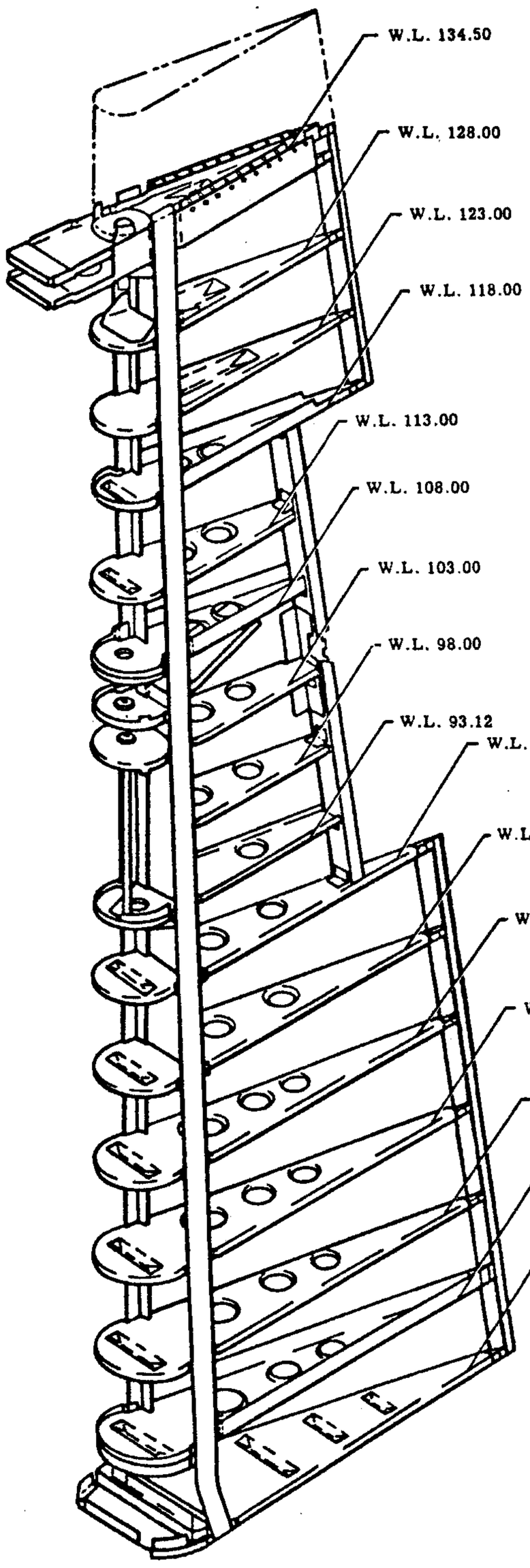
3-49. DESCRIPTION. The vertical stabilizer is a full cantilever structure attached to the fuselage bulkheads and skin by bolts and screws at W.L. 85.50. Basically the internal structure consists of the front and rear spars, two reinforcing stringers at the leading edge, and ribs. Two hinge fittings supporting the rudder are attached to the rear spar at W.L. 92.50 and 131.875. The internal structure is covered with flush riveted skin. A fiberglas tip is attached to the vertical stabilizer at W.L. 135.03. Figure 3-6 shows the internal structure.

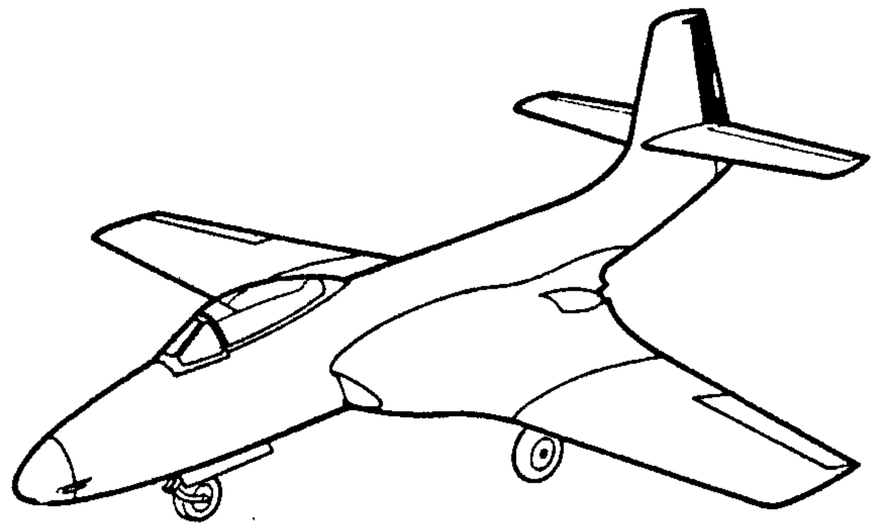
3-50. ACCESS FOR REPAIRS. Access for repairs may be gained through external access doors or, upon removal of the rudder, through holes in the closure assembly. If necessary, the skin may be peeled away or removed. Adjacent structure may also be removed. After completing the repair, reassemble the removed skin and structure to its original condition. As a final measure a cut out may be made in the skin and covered, upon completion of the repair, with a blind skin patch as shown in Figure B-9 or B-10.

3-51. SKIN.

3-52. DESCRIPTION. The vertical stabilizer skin is made of 24S-T alclad aluminum alloy sheet. The skin panels are butt jointed and flush riveted to the internal structure. Refer to Figure 3-7 for the gage of the skin panels.

3-53. NEGLIGIBLE DAMAGE. Investigate all rivets around which paint has been chipped for the possibility of rivet tilt. If the rivets appear to be tilted, then re-





Notes

1. REPAIRS FOR CRACKS IN SHEET METAL FLANGES ARE SHOWN IN FIG. B-19.
2. THE EXISTING RIB MATERIAL LISTED IN THE TABLE IS TO BE USED ONLY IN CONJUNCTION WITH 'APPLICABLE REPAIRS' LISTED IN COLUMN 4. DO NOT USE THIS MATERIAL AS A BASIS FOR REPAIRING OR REPLACING RIB PARTS NOT COVERED BY 'APPLICABLE REPAIRS'. RIB PARTS OTHER THAN THOSE COVERED BY 'APPLICABLE REPAIRS' ARE NOT ALWAYS MADE OF THIS MATERIAL.

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Figure 3-9. Rudder Structure (Sheet 1 of 2 Sheets)

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SECTION IV
BODY GROUP

4-1. GENERAL.

4-2. DESCRIPTION. (See Figure 4-1.) The fuselage on F2H-1 and F2H-2 airplanes is a typical semi-monocoque structure that is stiffened by ring bulkheads and by extruded longerons and stringers. The fuselage is spliced at F.S. 78, 211, 248.3 and 390.75. The main discontinuities are caused by the nose landing gear well, the cockpit, the arresting hook well, and by large access doors provided for gun and fuel tank access. On F2H-2N and F2H-2P airplanes, the fuselage aft of F.S. 78.00 is similar to the fuselage of F2H-2 airplanes. On the F2H-2N airplanes, the primary structure of the fuselage forward of F.S. 78.00 consists of a box beam formed by the radio floor at W.L. 24.88, vertical webs at B.L. 8.00, and the lower skin; the upper structure is supported by bulkheads at F.S. 6.00, 57.60, and 78.00. On the F2H-2P airplanes, the primary structure forward of F.S. 78.00 consists of four longerons, 61S-T skin, and supporting bulkheads; the upper structure consists of two stringers and 24S-T Alclad skin. A forward structure consisting of rings at F.S. -24.5 and -12.0 and 24S-T skin ties together the upper and lower structure of the F2H-2P airplanes.

4-3. COCKPIT PRESSURE SEALING.

4-4. GENERAL. This aircraft is equipped with a cockpit pressurization system which utilizes compressed air from the engine compressor section. Figure 4-2 shows the area of the fuselage that is pressurized. Repairs made to the pressurized enclosure must be pressure sealed per the following instructions.

4-5. EQUIPMENT REQUIRED.

a. Flow gun - Commercial, Monogram Pressure Unit Model FGP-100, made by Monogram Manufacturing Company.
b. Caulking gun.
c. Wood or fiber tool.

4-6. SEALING MATERIALS.

a. Cement - MIL-C-5092, Type III; Commercial, EC-776, made by Minnesota Mining & Manufacturing Company (Solvent - Commercial, Methyl-Isobutyl-Ketone).
b. Sealer - Commercial, EC-750, made by Minnesota Mining & Manufacturing Company (Solvent - Commercial, four parts Methyl-Ethyl-Ketone and one part Methyl-Isobutyl-Ketone).
c. Sealer - MIL-S-7124, Commercial, EC-612, made by Minnesota Mining & Manufacturing Company (Solvent - Commercial Ethylene Dichloride).
d. Sealer - MIL-S-7502, Class B, Type II, Commercial, EC-801 with EC-1031 Accelerator, made by Minnesota Mining & Manufacturing Company (Solvent - None).
e. Sealer - MIL-S-7126, Type II, Commercial, No. 590 Seam Sealing Tape, made by Presstite Engineering Company (Solvent - None).
f. Everseal Tape .062 inch thick, made by Everseal Products Company.
g. Xylene Federal Specification TT-X-916.

WARNING

The cement, sealers and solvents are inflammable. Provide adequate ventilation and fire extinguishing equipment while using.

4-6A. MIL-C-5092, TYPE III (EC-776) CEMENT. This cement should have a viscosity similar to that of thin syrup. Thinning should be avoided, but if absolutely necessary, methyl-isobutyl-ketone shall be used. This cement should be applied with a brush. When used as a primer for sealer EC-750 it shall be allowed to dry for ten minutes before the sealer is applied. For complete drying of this cement it should be allowed to air-dry for four hours with circulating room temperature air, then with circulating warm (175°F) air until the solvent odor has disappeared. After the cement has cured, removal is difficult but can be done by stripping.

4-6B. EC-750 SEALER. This sealer should have a viscosity comparable to that of very viscous syrup and should be used as packaged. If thinning becomes necessary, a mixture of four parts methyl-ethyl-ketone and one part methyl-isobutyl-ketone shall be used. This sealer can be applied with a putty knife or trowel. This sealer "skins-over" within five minutes at room temperature and may be touched without any transfer. It requires approximately three days at room temperature to dry completely.

4-6C. MIL-S-7124 (EC-612) SEALER. This sealer should have a viscosity similar to that of heavy putty and should be used as packaged. In the event it is too heavy, it may be thinned with ethylene dichloride. This sealer can be applied with a putty knife or trowel or can be pressed into slots or crevices by hand. It will not adhere to the hands and can be handled with no ill effects. A prolonged drying period is not required.

4-6D. MIL-S-7502, CLASS B, TYPE II, (EC-801) SEALER. This sealer is packaged in a "dead" condition and must be activated with EC-1031 accelerator

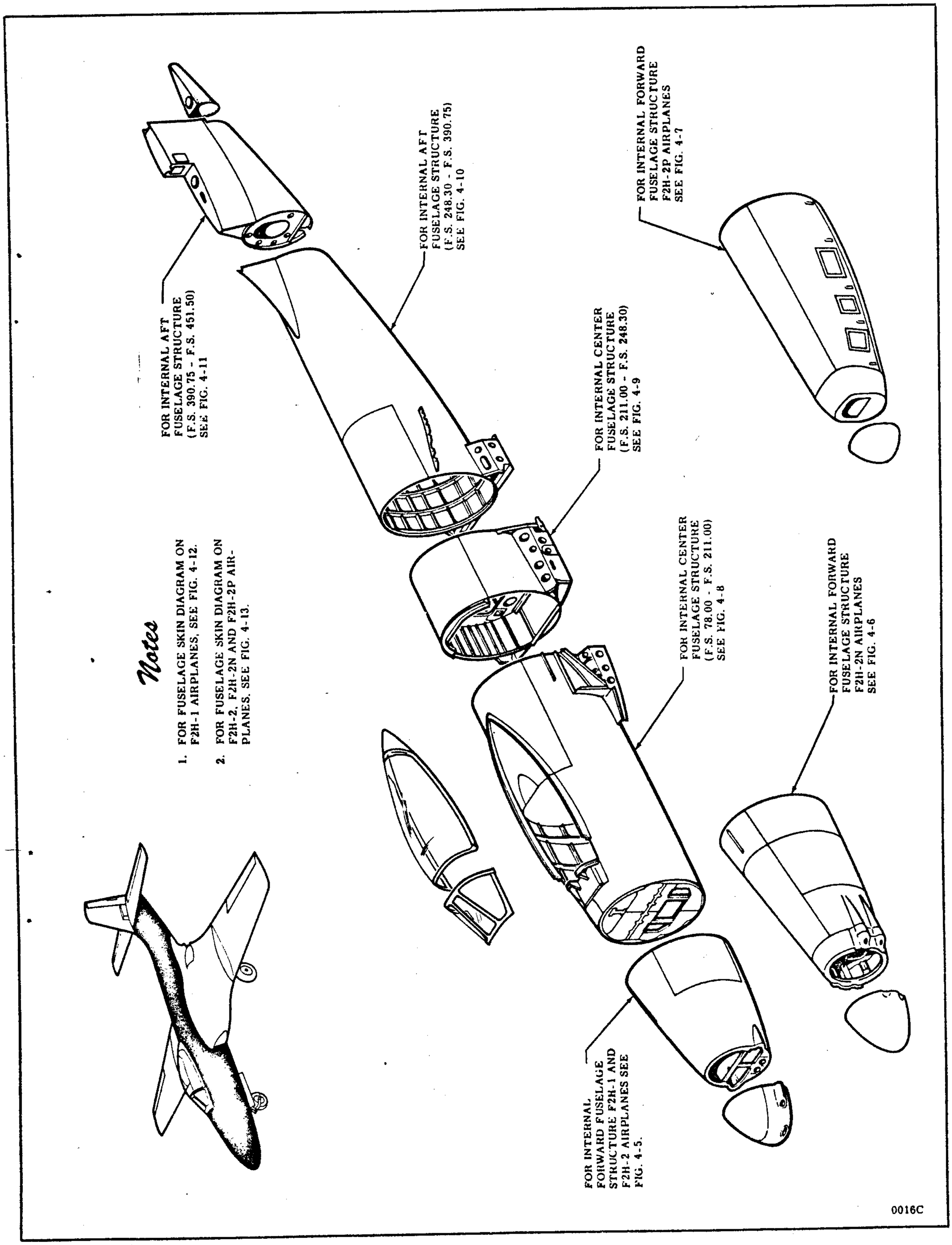


Figure 4-1. Fuselage - Exploded View

before use. The two are furnished in attached containers in the proper proportions (8.3 to 1 by weight) and shall be mixed in only these proportions, that is, a full can of each, or a half can of each, etc. The two must be mixed thoroughly so that no brown spots can be detected in the mixture. Do not mix more than a two hours supply as the accelerated sealer becomes too viscous to handle in this length of time. Accelerated sealer should be applied by a gun or by using a heavy paper shaped into a cone with the small end providing the ejecting hole. It can be applied with a putty knife or trowel. All tools should be cleaned with Xylene (Federal Specification TT-X-916) immediately after use as this sealer cures to a rubber-like mass within two hours and is practically impossible to remove thereafter. This sealer will be set up to a rubber-like mass within two to four hours after acceleration. It will reach an ultimate cure in 72 to 96 hours at room temperature or the curing may be hastened by application of higher temperatures as follows: 120 degrees Fahrenheit, 15 hours, 160 degrees Fahrenheit, 8 hours, 200 degrees Fahrenheit, one-half hour. This sealer has no fast working solvent. If it becomes necessary to remove this sealer, it may be removed by stripping.

4-6E. MIL-S-7126, TYPE II (NO. 590) SEALER. This sealer should have a viscosity comparable to heavy putty and shall be used as packaged. No reduction is possible. This sealer can be applied with a putty knife or trowel, or by hand. No curing time is required.

4-6F. SOLVENT USE AND RESTRICTIONS. It is possible but not desirable to reclaim aging or evaporated cement and sealer; however, this shall be done only with the solvent listed for the applicable material. The following test shall be used to determine the feasibility of cement or sealer reactivation: If the cement or sealer seems too dry, pull the contents out of the can. If it stretches only a short distance and then breaks, it should be destroyed. However, if it stretches like a rubber band and does not break until stretched quite far, solvent may be added to return the cement or sealer to a usable viscosity. When adding solvent to cement or sealer which is drying out, care must be taken to insure complete blending since the cement or sealer dissolves very slowly. The addition of solvent to cement or sealer causes a loss of adhesive quality due to use of solvents which are not chemically pure; therefore, these additions shall be held to a minimum. The cement or sealer must not be thinned more than the original consistency as supplied by the manufacturer. If it is necessary to thin the material due to solvent evaporation, a comparison of viscosity may be made with a fresh material.

4-6G. STRIPPING OF SEALING COMPOUNDS. The materials and methods used for stripping MIL-C-5092, Type III (EC-776), cement and MIL-S-7502, Class B, Type II, (EC-801) sealer from metal surfaces (except magnesium) are as follows:

a. Stripping Compound - Commercial, Turco 2822 made by Turco Products Company (CAUTION: Store in glass containers only).

b. Cleaning Solvent - Commercial, Turco L-800 made by Turco Products Company, or AN-M-5 Methyl-Ethyl-Ketone.

Brush a generous amount of Turco 2822 stripping compound onto the area to be unsealed. Do not permit the stripper to run over areas which do not require removal. Reapply the stripper three times at two minute intervals and check for loosening action. The action of the stripper loosens the bond between the metal and the sealant but does not dissolve the sealant. Additional applications may be required on areas of extra heavy deposits. Scrape off loosened sealant and reapply stripper until all sealant has been removed. The stripper is water rinsable and excessive stripper can be removed with a cloth dampened in water. Before resealing, the stripped area shall be thoroughly cleaned with methyl-ethyl-ketone or Turco L-800 cleaning solvent.

Note

The stripping compound contains chlorinated hydrocarbons, is non-flammable and is less toxic than carbon tetrachloride; however, it should be used in a well ventilated area. If stripping operations are conducted in a confined area, a constant supply of fresh air must be maintained at all times. Rubber gloves shall be worn at all times when handling the stripper. If it accidentally contacts the skin, flush the area thoroughly with water and wash with heavy soap lather. Turco 2822 stripper shall be used on metal surfaces only, except magnesium, and shall not be allowed to contact fiber, plastic, and rubber.

4-7. GENERAL SEALING REQUIREMENTS. Complete all operations such as fitting, filling, drilling and countersinking before applying sealer. Sealers may be applied to primed or unprimed surfaces. It is essential that all surfaces which sealers contact be clean and dry. Oily, greasy and dirty surfaces shall be cleaned with a clean cloth dampened with Xylene (Federal Specification TT-X-916). The cleaning procedure shall be repeated with clean cloths and Xylene until a clean surface is assured. Before applying sealer, wipe surfaces with a clean dry cloth. All rivets, bolts, screws and washers used in pressure designated areas shall be cleaned, dried and dipped in MIL-C-5092, Type III, (EC-776) cement immediately prior to installation and in such a manner so as to coat the entire shanks. If, for any reason, a bolt or screw is removed, it shall be dipped in the cement again prior to reinstallation. Cement MIL-C-5092, Type III, (EC-776), may be brushed on; however, in all applications, the coat must be at least .010 inch thick. EC-776 shall not be applied to faying surfaces that require the use of vinyl tape for corrosion protection of magnesium in dissimilar metal contact. (See Section D-2, Appendix IV.) The joint shall be

closed with only the vinyl tape on the faying surfaces. Sealing will be accomplished by brush applying EC-776 to the joint after closing and filleting with EC-750 as outlined in Paragraph 4-7H.

4-7A. PRESSURE SEALING OF BUTT AND LAP JOINTS. Clean all oily, greasy or dirty surfaces with a cloth dampened in Xylene (Federal Specification TT-X916). It is necessary that all surfaces which the sealer contacts be clean and dry. Sealer may be applied on primed or unprimed surfaces. Apply a brush coat of at least .010 inch thickness of either MIL-C -5092, Type III, (EC-776) cement or EC-750 sealer to each faying surface to be joined and assembled when the cement or sealer becomes tacky. The entire area to be joined must be held together during riveting operation in such a manner that all of the faying surfaces are tightly joined. Fasteners should be used in at least every fourth rivet hole. If the cement or sealer dries before the two surfaces are joined securely with fasteners, it must be removed with solvent and a new coat applied. All rivets must be dipped in MIL-C-5092, Type III, (EC-776) cement immediately prior to installation and in such a manner so as to coat the entire shank. After the joint has been riveted, apply a prime coat of MIL-C-5092, Type III (EC-776), cement to the area to be covered with EC-750 sealer as illustrated in Figure 4-3. After this prime coat has dried for approximately ten minutes, a bead of EC-750 sealer shall be applied to the pressure side of the joint, and must completely cover the faying edge. Using a caulking gun or the flow gun, apply a uniform bead of EC-750 sealer to the pressure side of the joint. Care must be taken to insure a full and uniform bead application which will lap the joint completely. A pressure shall be maintained at the nozzle of the gun sufficient to provide a rapid flow of the sealer to the faying edge. A film will form on the sealer within five minutes after extrusion at room temperature and may be touched without transfer. The sealer will dry in approximately three days at 80 degrees Fahrenheit.

4-7B. SMALL PARTS INSTALLATION. Castings, cable seals, grommets, nut plates, electrical receptacles, etc., shall be installed by accomplishing the same basic requirements as specified in the previous paragraph.

4-7C. PRESSURE SEALING OF HOLES AND SLOTS. Clean all oily, greasy or dirty surfaces with a cloth dampened in Xylene (Federal Specification TT-X-916). It is necessary that all surfaces which the sealer contacts be clean and dry. Sealer may be applied on primed or unprimed surfaces. All holes and slots that are 0.0625 inch or less in width should be sealed per instructions in Paragraph 4-7H. All holes and slots that are between 0.0625 inch and 0.1875 inch in width should be sealed in the following manner: First, brush on a prime coat of MIL-C-5092, Type III, (EC-776) cement at least .010 inch thick on the pressure side of the aperture and allow ten minutes drying time. Then fill the gap on the pressure side with MIL-S-7124 (EC-612) sealer. When sealing crevices, the sealer shall be rolled by hand into a long roll of the required length and diameter and worked into the aperture with a flat fiber or wood tool in such a manner as to penetrate thoroughly and form a fillet approximately four times as wide as the gap. A 0.0625 inch film of EC-750 sealer shall be applied over the MIL-S-7124 (EC-612) sealer so that it extends beyond the MIL-S-7124 (EC-612) sealer at least 0.125 inch in all directions.

4-7E. REPAIR OF DEFECTIVE SEALS. For repair of lap or butt joints, scrape the sealer from the joint or seam for at least three inches on each side of the leak and clean with a cloth dampened with Xylene (Federal Specification TT-X-916). Apply a bead of EC-750 sealer to replace the portion removed in sufficient quantity to assure that the joint or seam is lapped completely. For repair of holes, slots and joggles remove the sealer from the hole, slot or joggle and clean the area with a cloth dampened with Xylene. Replace seal as specified in Paragraph 4-7H. For repair of seal around bolts and screws remove the bolt or screw and coat the hole, bolt and screw with MIL-C-5092, Type III, (EC-776), cement before reinstallation. For repair of seal around rivets remove the rivet carefully to guarantee that the hole is not enlarged. Coat hole and dip rivet in MIL-C-5092, Type III (EC-776) cement before reinstallation.

4-8. ACCESS FOR REPAIRS. Access for repairs

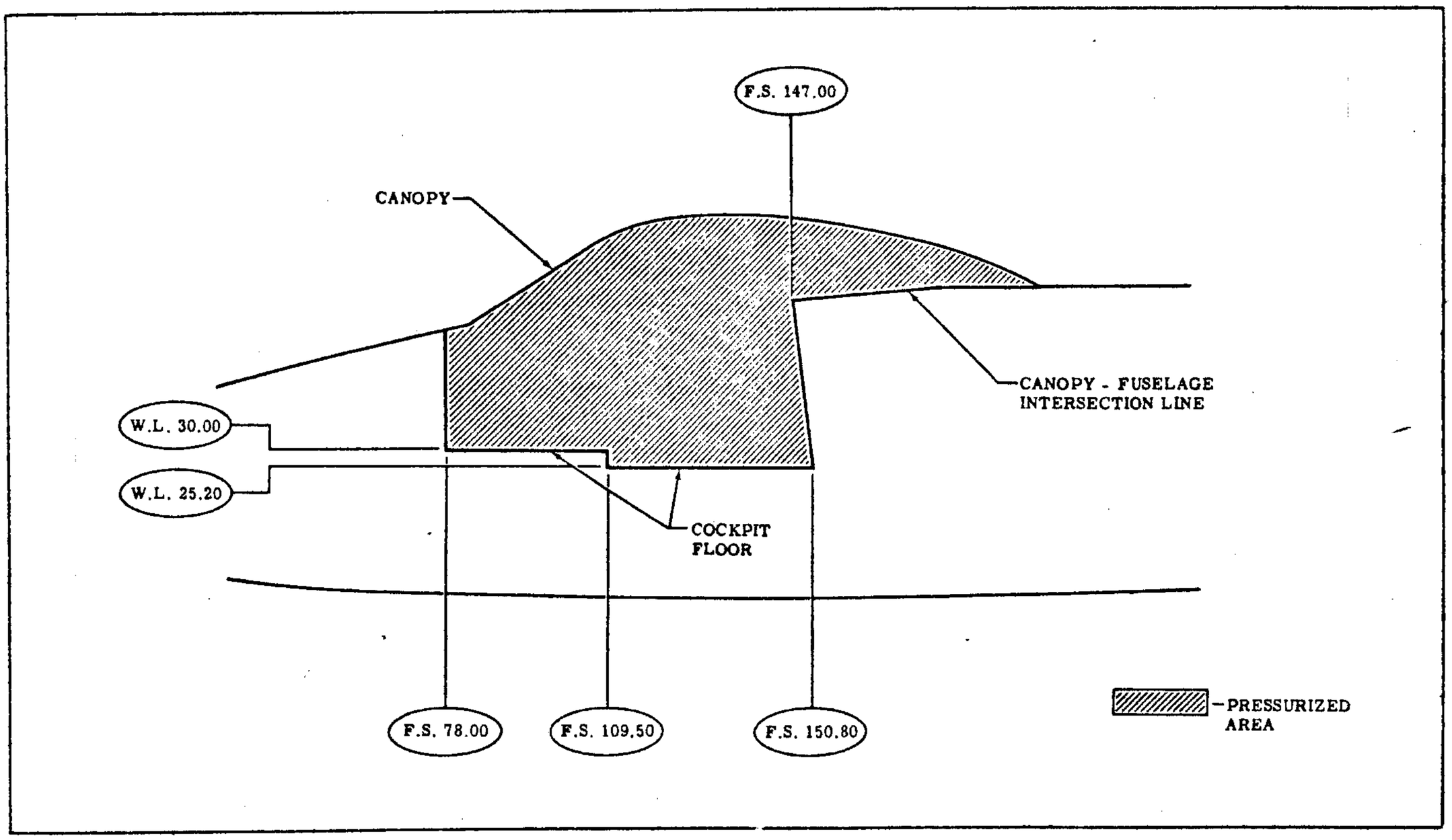


Figure 4-2. Pressurized Area of Fuselage

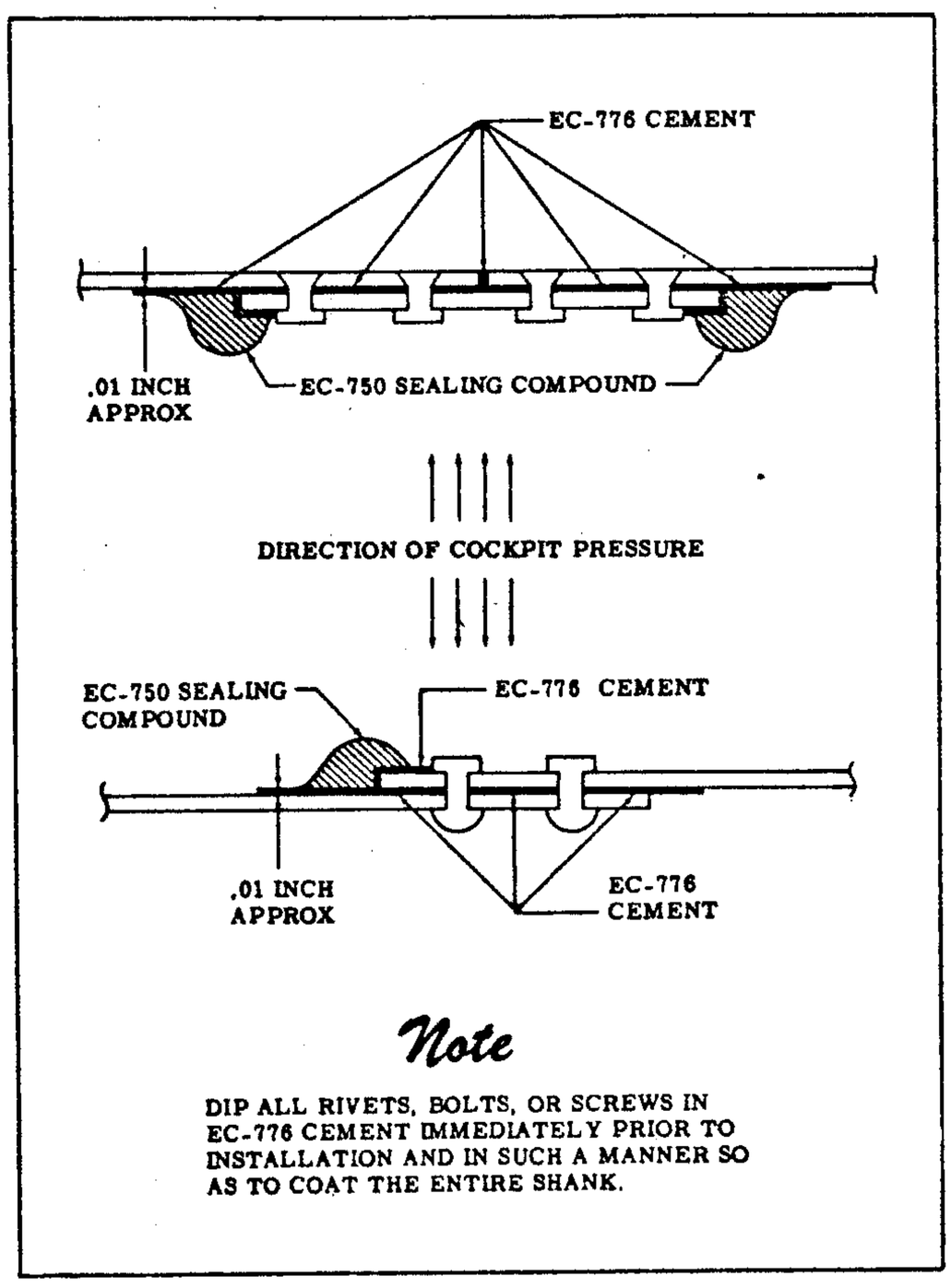


Figure 4-3. Pressure Sealing of Butt and Lap Joints

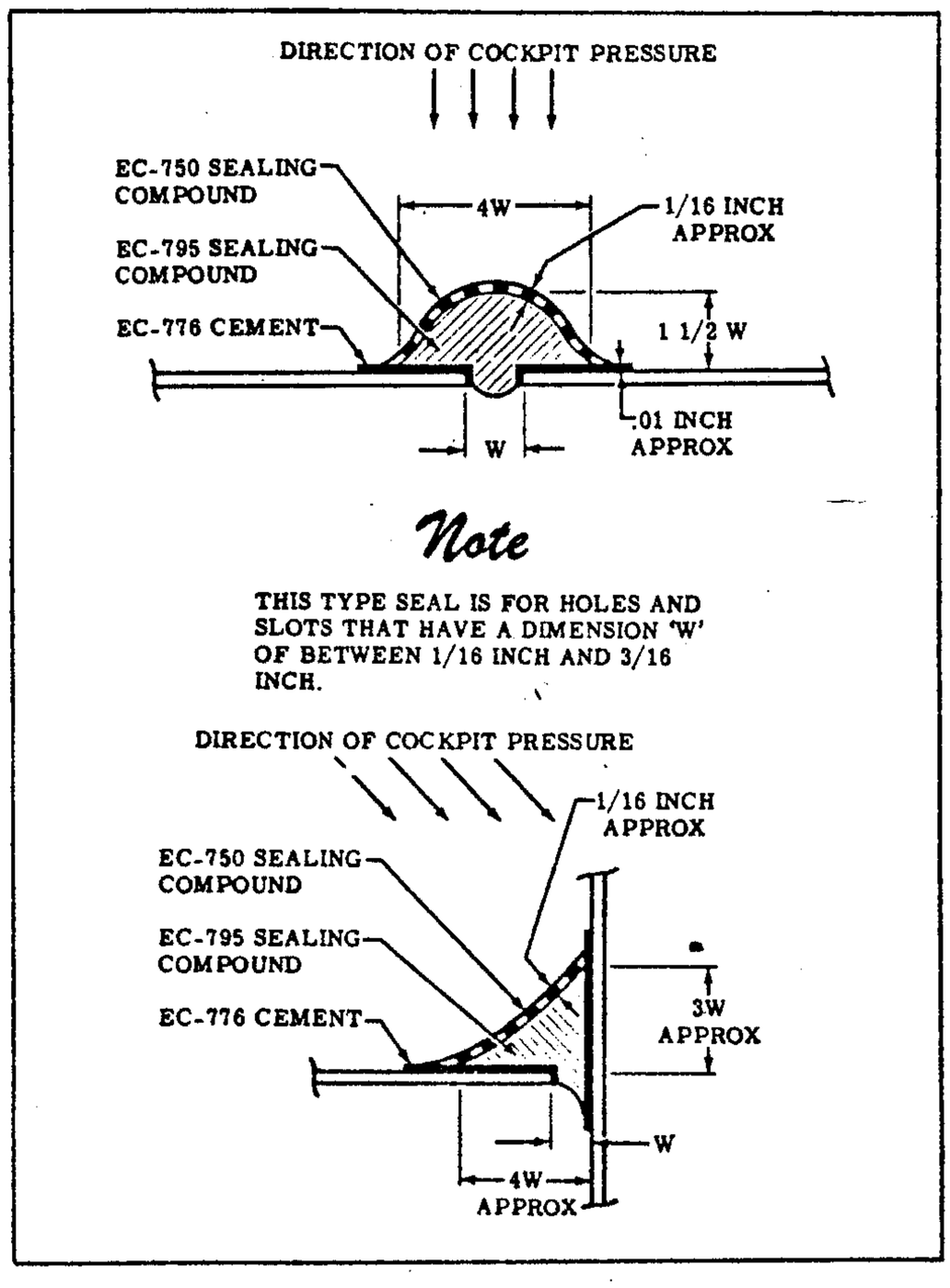


Figure 4-4. Pressure Sealing of Holes and Slots

may be gained through access doors, wheel well, arresting hook well, cockpit, or by removing the nose, tail cone, or the horizontal or vertical stabilizer. If necessary, adjacent structure or skin can be removed. After completing the repair, replace all removed structure and skin to its original condition. As a final measure, a cut out may be made in the skin and covered, upon completion of the repair, with a blind patch as shown in Figures B-9 and B-10.

4-9. SKIN.

4-10. DESCRIPTION. The fuselage skin is mostly 75S-T and 24S-T alclad aluminum alloy sheet. The only exceptions are the removable nose which is 61S-T aluminum alloy and one panel on each side of the fuselage which is 302 stainless steel. Skin panels that are exposed to the air flow are butt jointed and flush riveted. The panels that are not exposed to the air flow, such as panels covered by the wing fairing, are butt jointed but are not flush riveted. (See Figure 4-13.)

4-11. NEGLIGIBLE DAMAGE. Investigate all rivets around which paint has been chipped for the possibility of rivet tilt. If the rivets appear to be tilted, then remove all paint in that area and measure the tilt as shown in Figure B-1. If the tilt exceeds 4% of the rivet shank diameter, then the rivet must be removed and replaced with a rivet of the same type and diameter. Rivet tilt of 4% or less of the rivet shank diameter is negligible. Any smooth dents in the fuselage that are free from cracks, abrasions and sharp corners, and which are not stress wrinkles and do not interfere with any internal structure or mechanism, are negligible. Any small, smooth, isolated nicks which are 1/16 of an inch in depth or less are also negligible. The type or magnitude of any other damage that can be classified as negligible depends on the area of stress intensity, namely, class 1, class 2, or class 3 areas (see Figure 4-13), in which it occurs. In class 1 areas any hole which can be trimmed or drilled to a 1/4 inch diameter or less can be considered negligible after it is filled with a rivet. In class 2 and 3 areas, any punctures, cracks, deep scratches, deep sharp dents, corroded areas, or any other damage which after trimming or stop drilling can be enclosed by a 3/4 inch diameter circle in class 2 areas or by a one inch diameter circle in class 3 areas, can be considered negligible if this damage is at least two diameters of the enclosing circle away from all existing rivet lines.

Note

Do not use No. 40 (.098) drill for stop drilling. See table in Paragraph 1-9 for proper stop drill size.

Any number of negligible holes is allowed in any skin panel provided the distance between the edges of any two adjacent holes is or exceeds three diameters of the larger hole. Paint all bare metal that is exposed by negligible damage or trimming with two coats of zinc chromate primer.

Note

For aerodynamic reasons all holes must and cracks should be covered with doped fabric patches. The fabric patches are temporary and should be replaced with permanent metal patches as soon as practicable.

4-12. DAMAGE REPAIRABLE BY PATCHING. Skin damage that exceeds negligible damage limits but is not extensive enough to necessitate replacement of a skin panel or a portion of a skin panel can be repaired by patching. Figures 4-12 and 4-13 show a list of patches that can be used on the fuselage skin. To choose the correct patch, determine the area of stress intensity in which the damage occurs by reference to Figures 4-12 and 4-13. Then from the notes in the figures, obtain the recommended patches for this particular area of stress intensity. The blind skin patches that are mentioned in the notes can be used in any area of stress intensity where it is not possible to buck rivets from the inside. Before attempting to install any patch, trim the damaged area to a rectangular pattern leaving a radius of at least 1/2 inch at each corner. To simplify patch installation and rivet pattern layout, the sides of the trimmed hole should be either parallel or perpendicular to the longitudinal axis. When removing existing rivets, care should be taken not to enlarge the rivet holes. If the holes are enlarged, then install the next larger size rivet. Paint all bare metal on the patch and in the damaged area with two coats of zinc chromate primer before assembling the patch.

4-13. DAMAGE REPAIRABLE BY INSERTION. In the vicinity of skin panel splices or where skin damage is extensive, the patch type repair may be impractical. In such a case an insertion repair may be used. In the insertion repair the damaged portion of the skin is removed, leaving a rectangular hole that extends to one, two, or three skin panel splices. In any area of stress intensity, the insertion repair is made in the same manner as patch repairs for that area of stress intensity (see Figures 4-12 and 4-13). The only difference is that in the insertion repair a doubler is used only along the edges of the holes that do not lie along existing skin panel splices. The gage and material of the insertion is the same as the gage and material of the recommended patches. When attaching the insertion to the existing skin with a doubler, use the doubler and rivet information that is given in the recommended patches for that area of stress intensity. When attaching the insertion along existing skin panel splices, use the same type of rivets and the same rivet pattern that exists along that splice. Before assembling the insertion, paint all bare metal on the insertion and in the damaged area with two coats of zinc chromate primer.

4-14. STRINGERS AND LONGERONS.

4-15. DESCRIPTION. The fuselage stringers and longerons are mostly extruded plain angles, bulb angles, and tee sections. Some stringers and parts of the longerons are made of formed sheet metal.

4-16. NEGLIGIBLE DAMAGE. Any small, smooth, isolated nicks, which are 1/16 of an inch in depth or less are negligible. Damage to the extreme outer edge of any leg can be considered negligible if the damage after trimming extends inward from the outer edge 1/16 of an inch or less at cross sections contain-

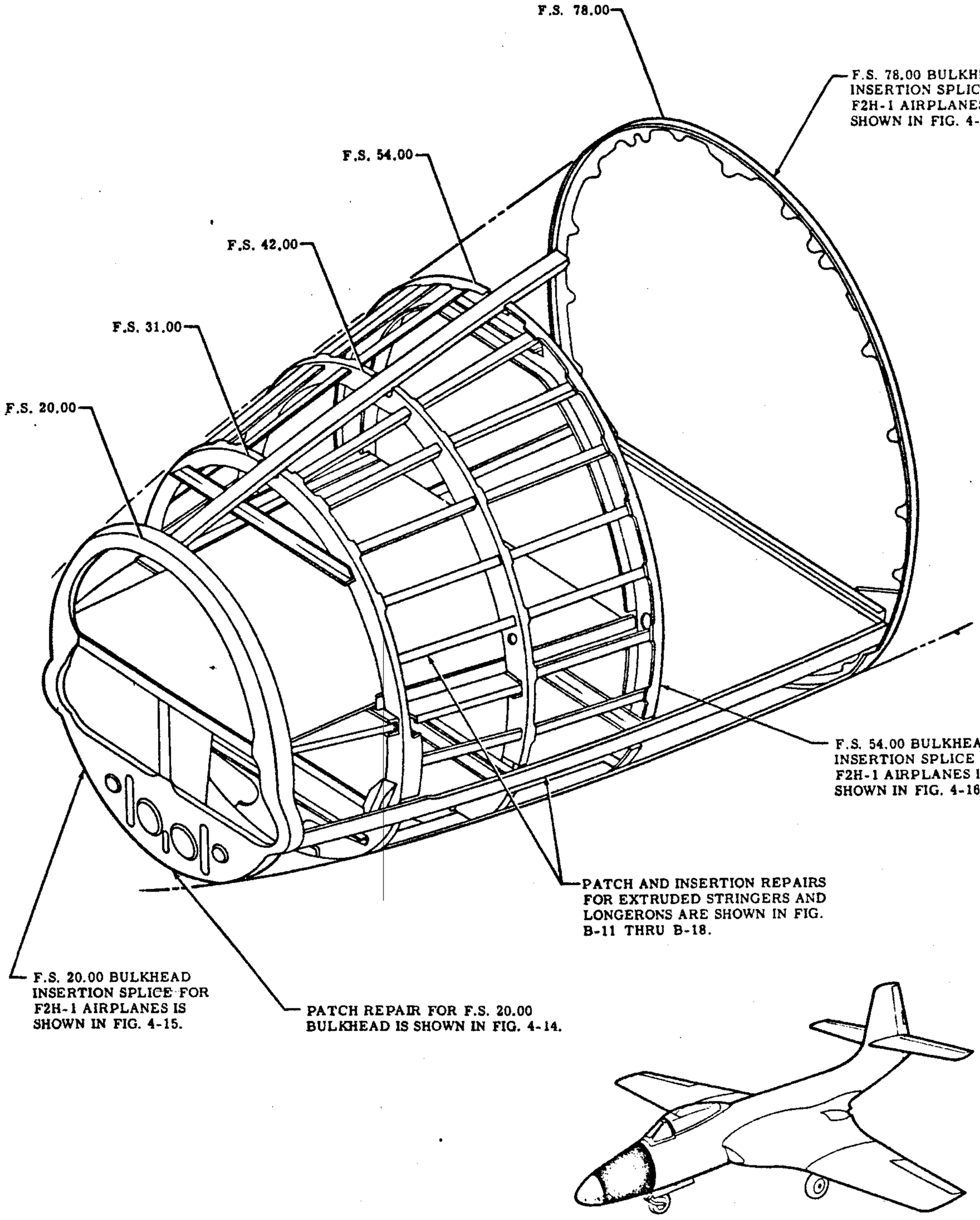


Figure 4-5. Forward Fuselage Structure. F2H-1 and F2H-2 Airplanes

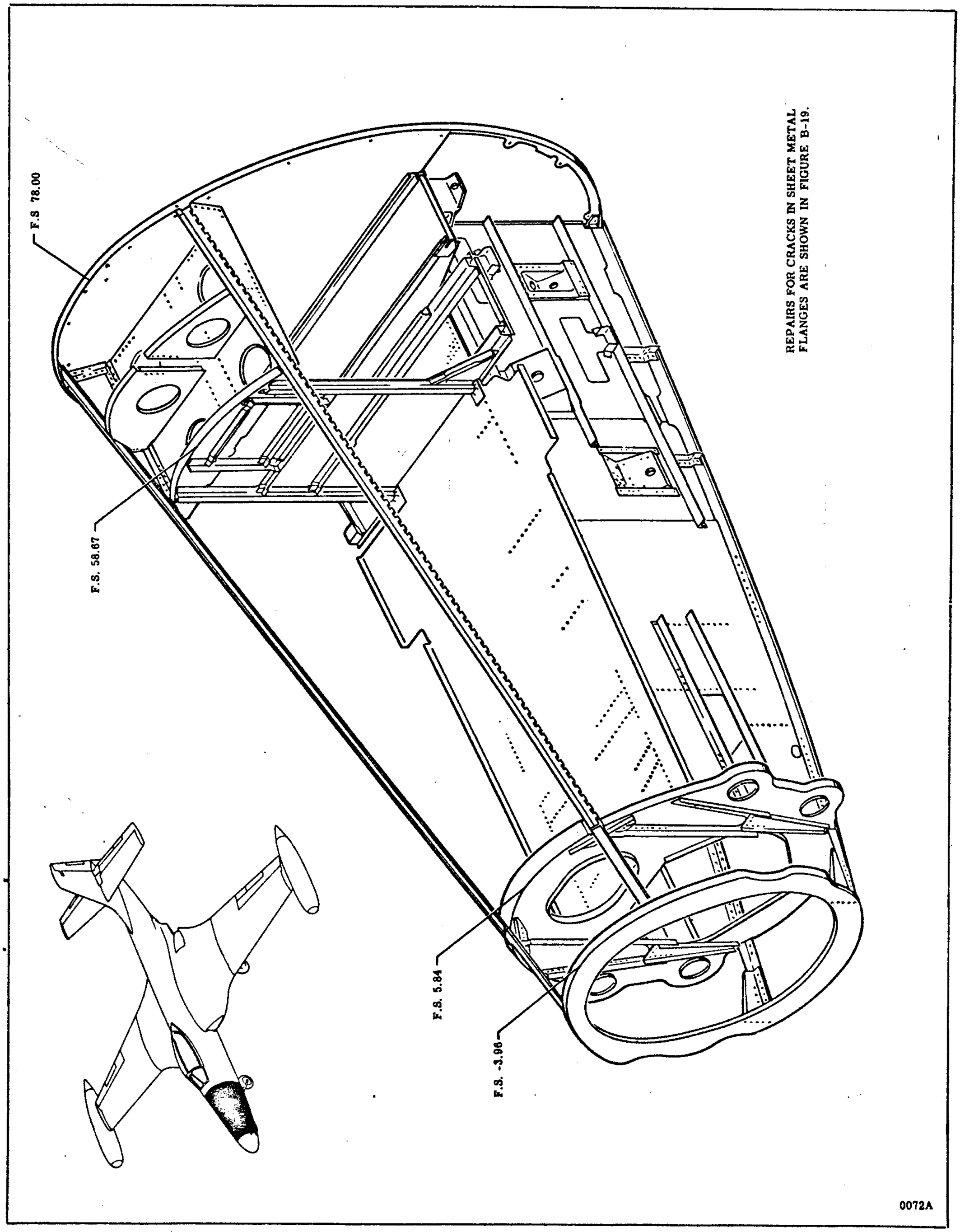


Figure 4-6. Forward Fuselage Structure. F2H-2N Airplanes

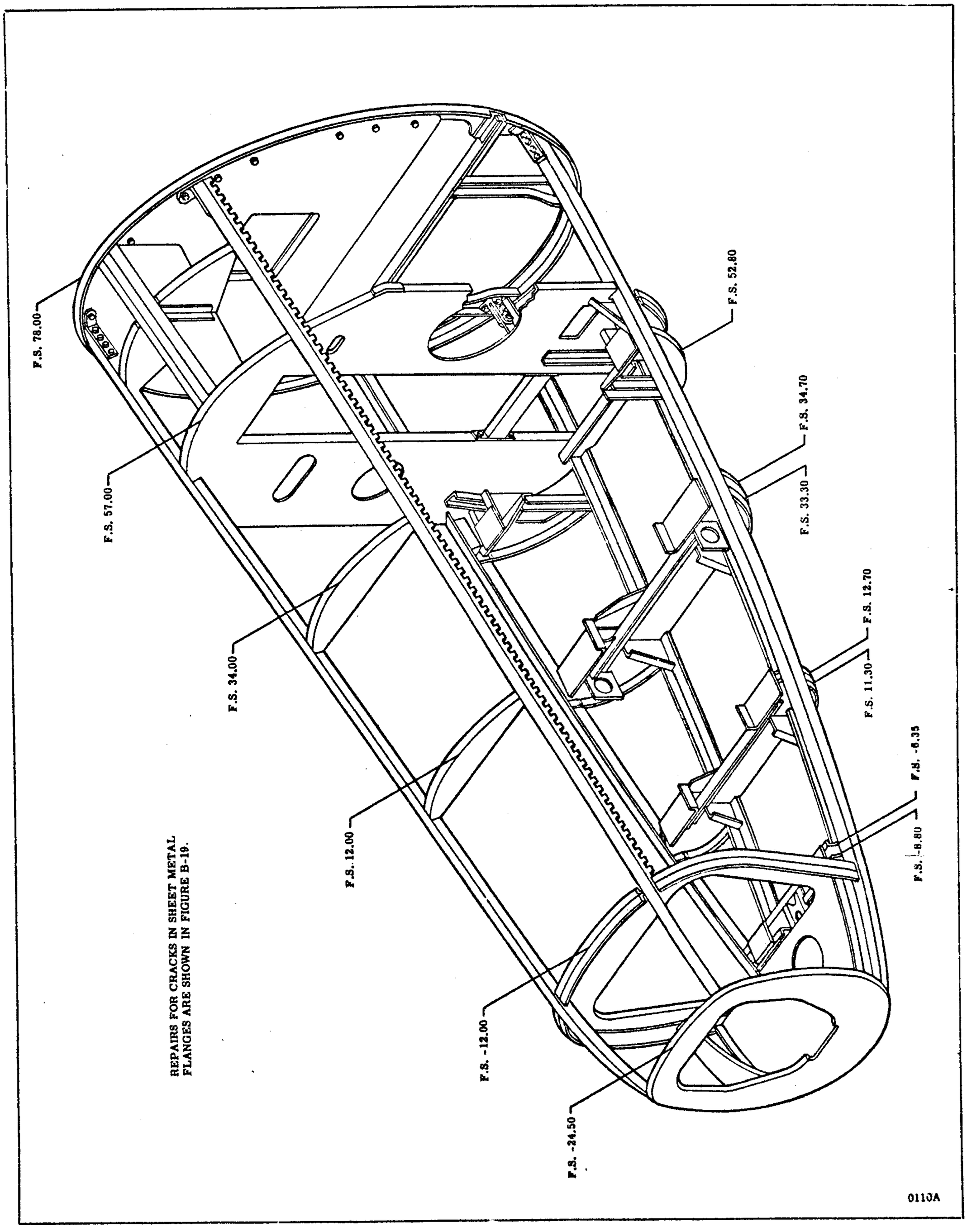


Figure 4-7. Forward Fuselage Structure. F2H-2P Airplanes

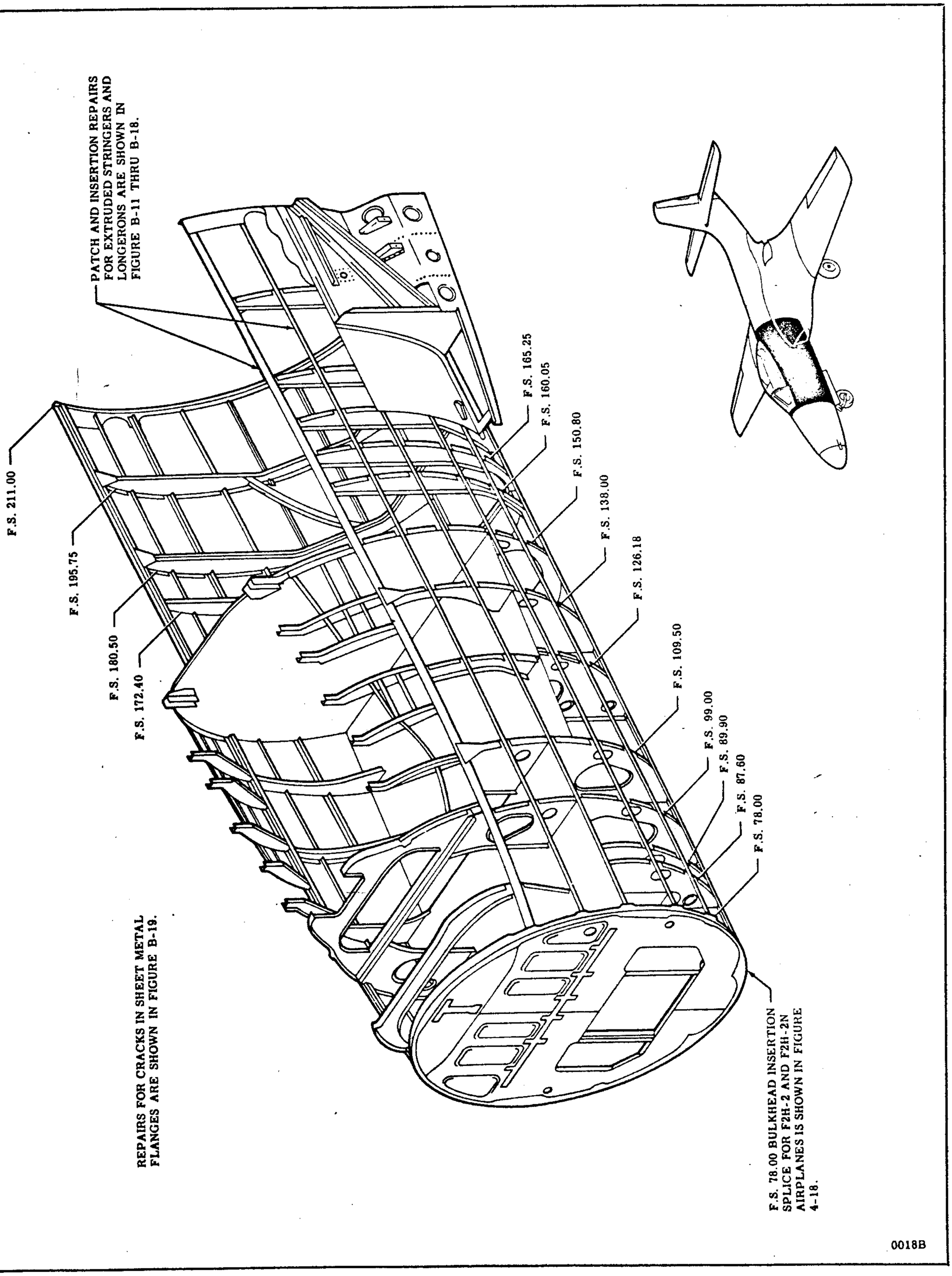
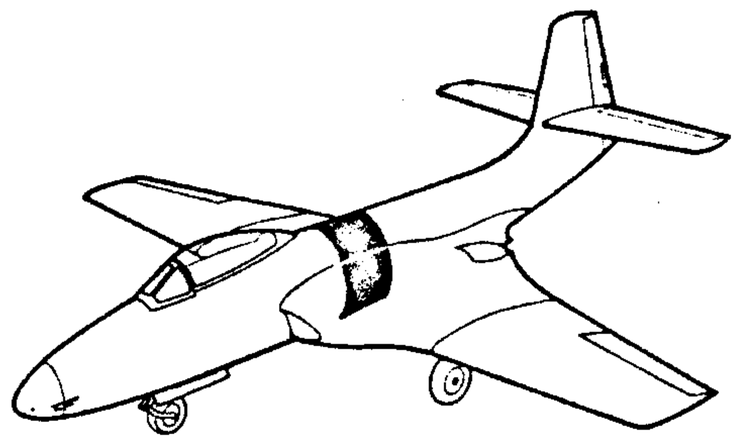


Figure 4-8. Center Fuselage Structure (F.S. 78.00 - F.S. 211.00)



PATCH AND INSERTION REPAIRS FOR EXTRUDED STRINGERS AND LONGERONS ARE SHOWN IN FIGURE B-11 THRU B-18.

REPAIRS FOR CRACKS IN SHEET METAL FLANGES ARE SHOWN IN FIGURE B-19.

0019A

Figure 4-9. Center Fuselage Structure (F.S. 211.00 - F.S. 248.30)

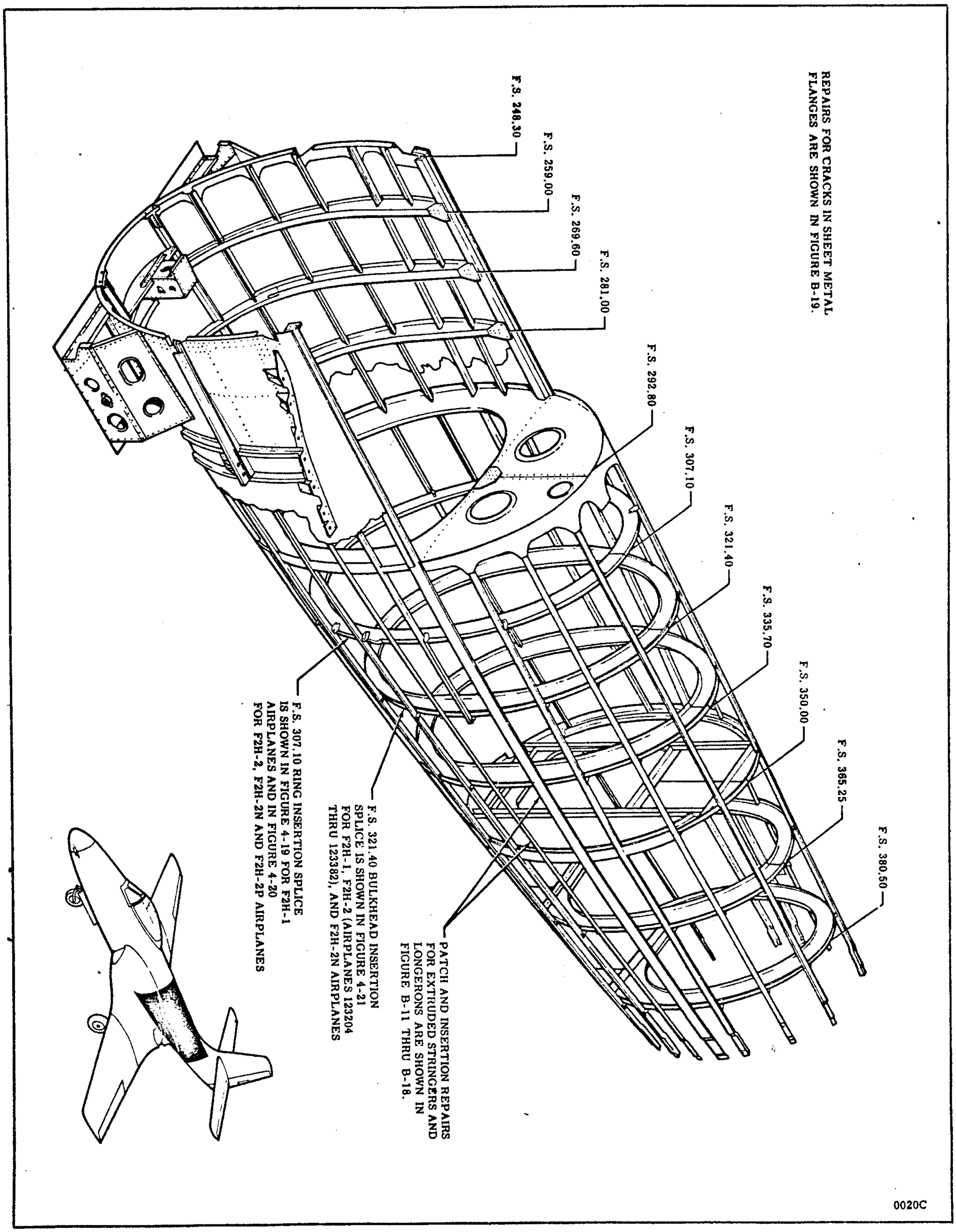


Figure 4-10. Aft Fuselage Structure (F.S. 248.30 - F.S. 390.75)

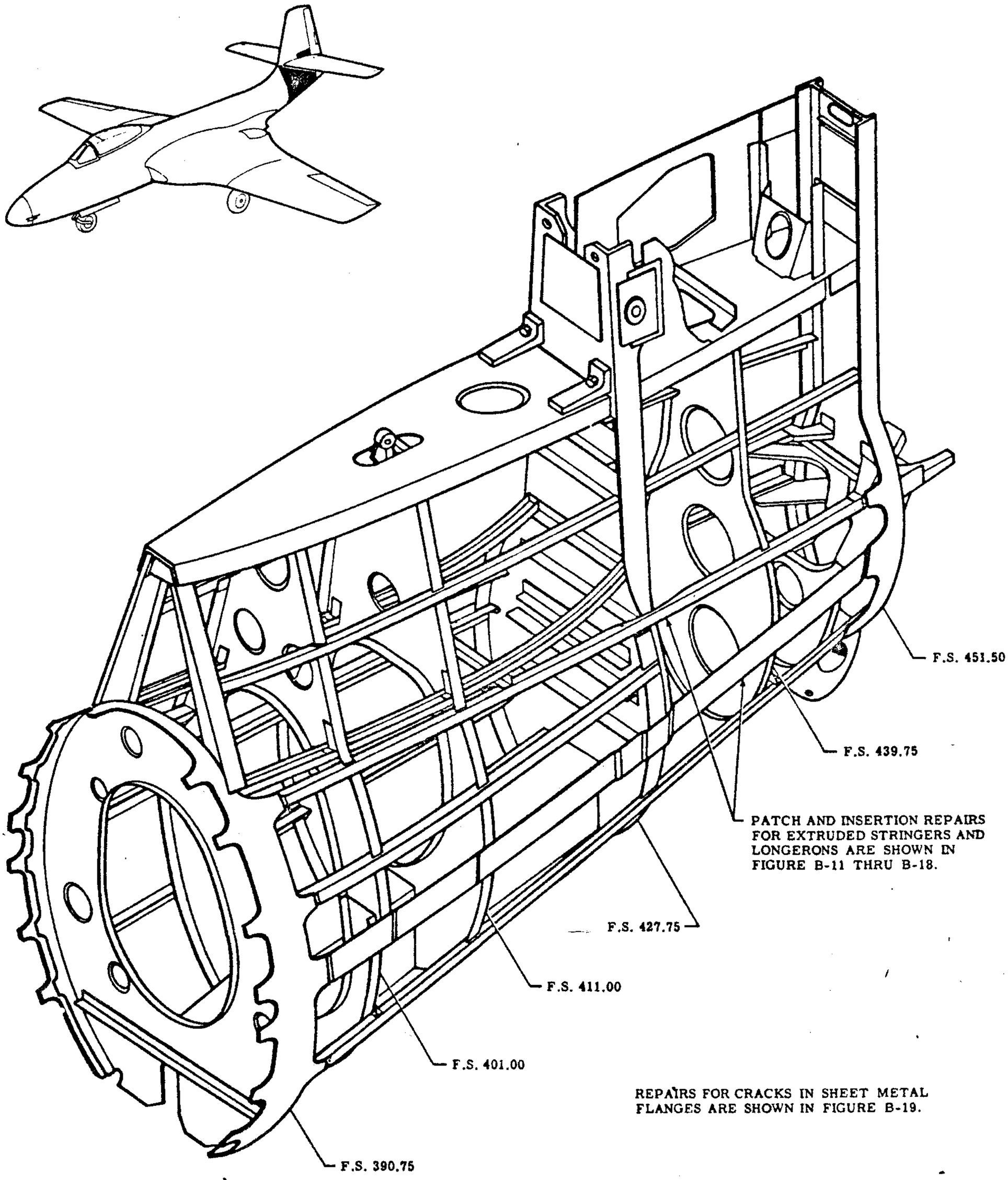
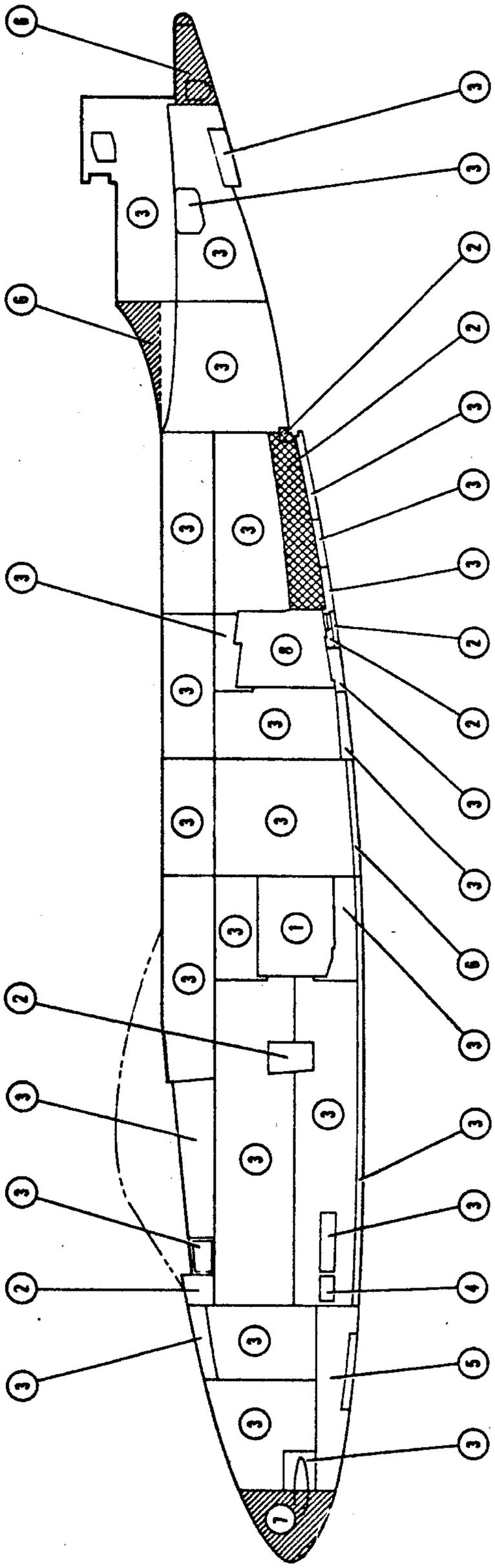


Figure 4-11. Aft Fuselage Structure (F.S. 390.75 - F.S. 451.50)



CLASS #1 AREA (VERY HIGH STRESS INTENSITY)

CLASS #2 AREA (HIGH STRESS INTENSITY)

CLASS #3 AREA (LOW STRESS INTENSITY)

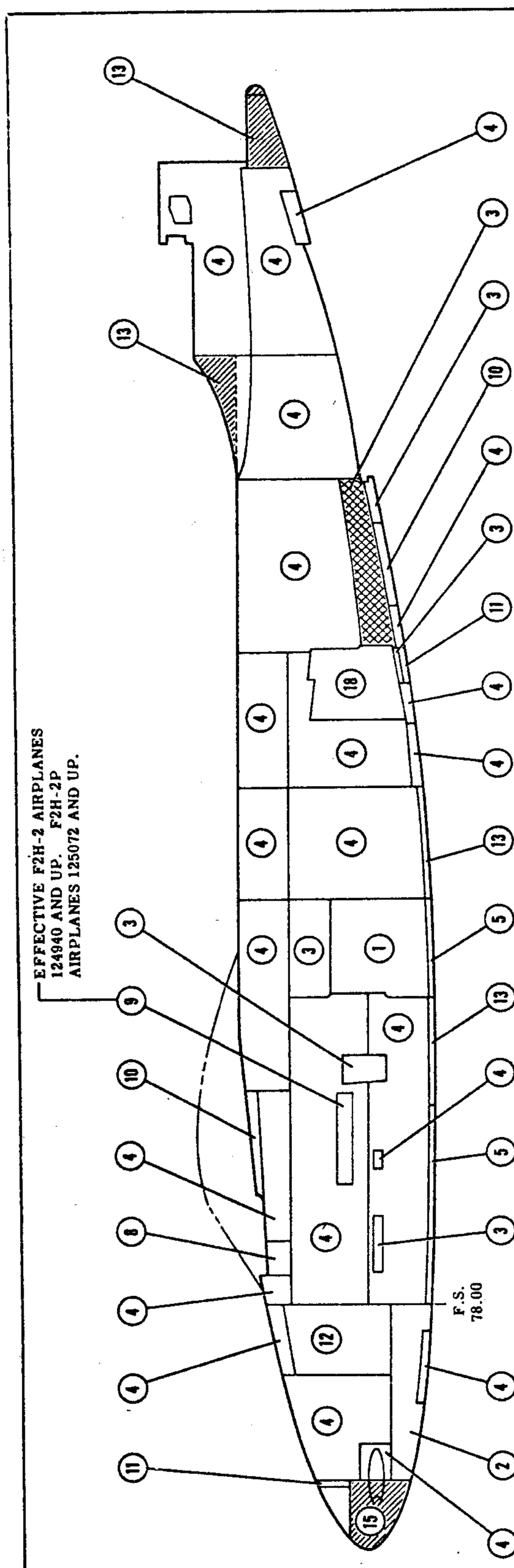
REF. NO.	GAGE	MATERIAL	SPECIFICATION
1	.072	75S-T ALCLAD	AN-A-10
2	.051	75S-T ALCLAD	AN-A-10
3	.040	75S-T ALCLAD	AN-A-10
4	.091	MAZLO AM-C52SH OR DOW FS-1H	AN-M-29 COND.H.
5	.064	24S-T ALCLAD	AN-A-13
6	.032	24S-T ALCLAD	AN-A-13
7	.051	61S-T AL. ALLOY	QQ-A-327
8	.016	302 STAINLESS STEEL	AN-QQ-S-772

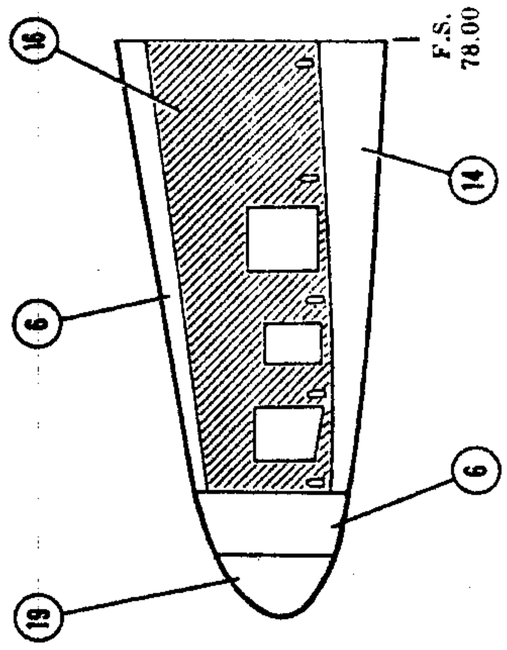
Notes

1. FOR CLEAR OF STRUCTURE PATCH IN CLASS #1 AREA, SEE FIGURE B-3.
2. FOR OVER STRUCTURE PATCH IN CLASS #1 AREA, SEE FIGURE B-4.
3. FOR CLEAR OF STRUCTURE PATCH IN CLASS #2 AREA, SEE FIGURE B-5.
4. FOR OVER STRUCTURE PATCH IN CLASS #2 AREA, SEE FIGURE B-6.
5. FOR CLEAR OF STRUCTURE PATCH IN CLASS #3 AREA, SEE FIGURE B-7.
6. FOR OVER STRUCTURE PATCH IN CLASS #3 AREA, SEE FIGURE B-8.
7. FOR CLEAR OF STRUCTURE BLIND PATCH, SEE FIGURE B-9.
8. FOR OVER STRUCTURE BLIND PATCH, SEE FIGURE B-10.

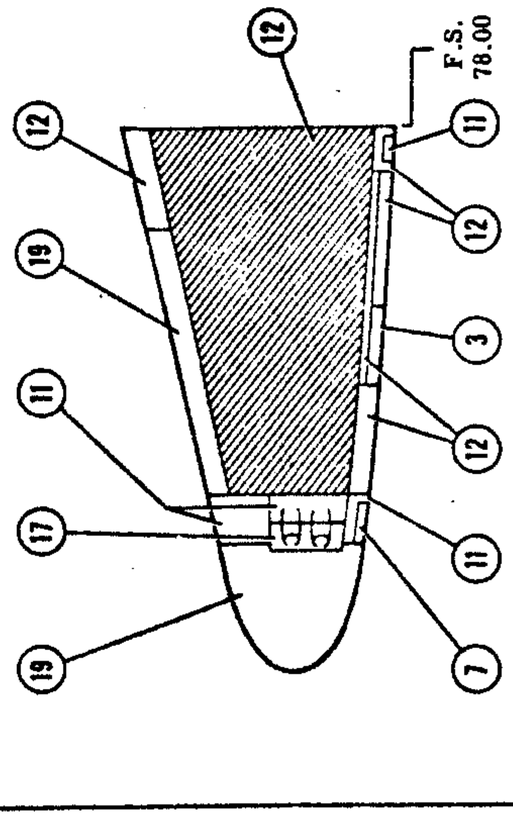
0038D

Figure 4-12. Fuselage Skin Diagram. F2H-1 Airplanes





F2H-2P NOSE



F2H-2N NOSE

REF. NO.	GAGE	MATERIAL	SPECIFICATION
1	.072	75S-T ALCLAD	AN-A-10
2	.064	75S-T ALCLAD	AN-A-10
3	.051	75S-T ALCLAD	AN-A-10
4	.040	75S-T ALCLAD	AN-A-10
5	.032	75S-T ALCLAD	AN-A-10
6	.125	24S-T ALCLAD	AN-A-13
7	.102	24S-T ALCLAD	AN-A-13
8	.081	24S-T ALCLAD	AN-A-13
9	.072	24S-T ALCLAD	AN-A-13
10	.064	24S-T ALCLAD	AN-A-13
11	.051	24S-T ALCLAD	AN-A-13
12	.040	24S-T ALCLAD	AN-A-13
13	.032	24S-T ALCLAD	AN-A-13
14	.375	61S-T AL. ALLOY	QQ-A-327
15	.051	61S-T AL. ALLOY	QQ-A-327
16	.375	52S-O AL. ALLOY	QQ-A-318
17	.050	INCONEL	AN-QQ-N-271
18	.016	302 STAINLESS STEEL	AN-QQ-S-772
19		FIBERGLAS	

CLASS #1 AREA (VERY HIGH STRESS INTENSITY). UP TO 1/4 INCH DIAMETER HOLES PERMITTED AFTER THEY HAVE BEEN FILLED WITH RIVETS.

CLASS #2 AREA (HIGH STRESS INTENSITY). UP TO 3/4 INCH DIAMETER HOLES PERMITTED.

CLASS #3 AREA (LOW STRESS INTENSITY). UP TO 1 INCH DIAMETER HOLES PERMITTED.

Notes

1. FOR CLEAR OF STRUCTURE PATCH IN CLASS #1 AREA, SEE FIGURE B-3.
2. FOR OVER STRUCTURE PATCH IN CLASS #1 AREA, SEE FIGURE B-4.
3. FOR CLEAR OF STRUCTURE PATCH IN CLASS #2 AREA, SEE FIGURE B-5.
4. FOR OVER STRUCTURE PATCH IN CLASS #2 AREA, SEE FIGURE B-6.
5. FOR CLEAR OF STRUCTURE PATCH IN CLASS #3 AREA, SEE FIGURE B-7.
6. FOR OVER STRUCTURE PATCH IN CLASS #3 AREA, SEE FIGURE B-8.
7. FOR CLEAR OF STRUCTURE BLIND PATCH, SEE FIGURE B-9.
8. FOR OVER STRUCTURE BLIND PATCH, SEE FIGURE B-10.

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Figure 4-13. Fuselage Skin Diagram. F2H-2, F2H-2N and F2H-2P Airplanes

SECTION V
ALIGHTING GEAR

5-1. GENERAL.

5-2. DESCRIPTION. The alighting gear is of the tricycle type with the main gear being attached to the wing center section and the nose gear being attached to the forward part of the fuselage. An arresting hook is provided at the aft end of the fuselage for carrier landings. The main gear is retracted into the underside of the wings. The nose gear and arresting hook are retracted into fuselage wells.

Note

For repair purposes consider the nose gear doors and the arresting hook door as part of the fuselage structure and the main gear doors as part of the wing structure.

5-3. MAIN GEAR.

5-4. DESCRIPTION. Each main gear consists of an air-oil shock strut assembly, a side brace assembly, and a wheel and brake. The strut is mounted by means of a trunnion which is part of the strut cylinder. The trunnion pivots in bearing supports which are attached to the front spar and intercostal structure. The upper end of the side brace assembly also pivots in bearing supports which are attached to the intercostals while the lower end attaches to the outboard side of the strut cylinder.

5-5. NEGLIGIBLE DAMAGE. Small, smooth, isolated dents, 1/32 of an inch in depth in structural members of the main landing gear are negligible provided such dents are free from cracks, abrasions and sharp corners and do not interfere with the proper functioning of the gear.

5-6. NOSE GEAR.

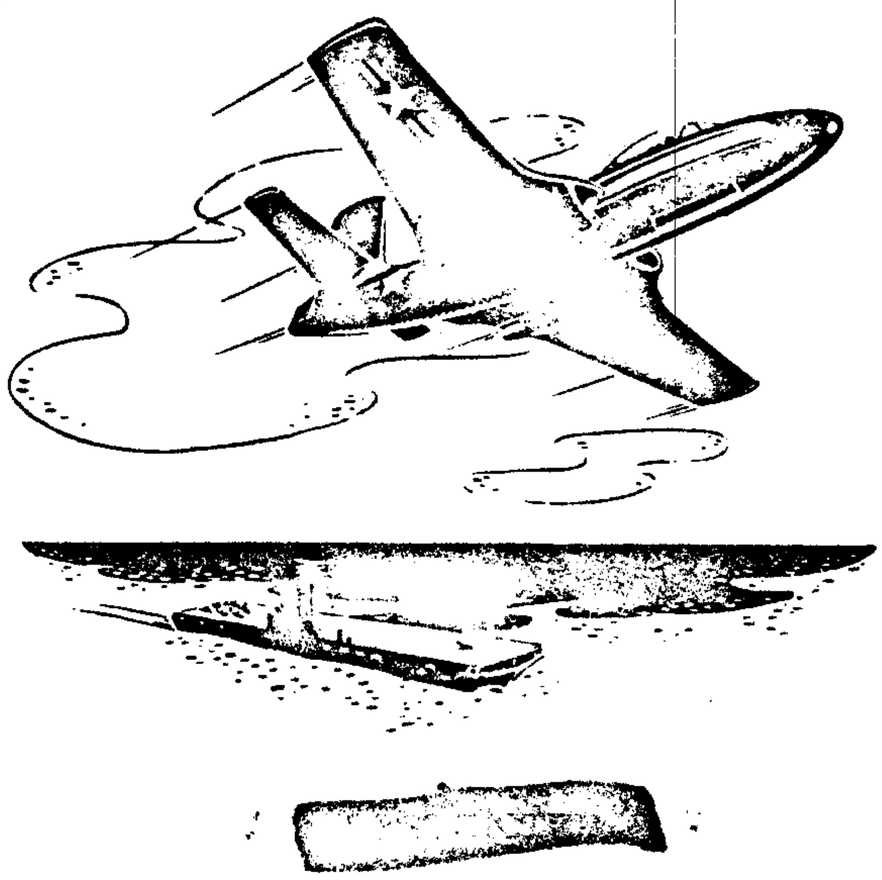
5-7. DESCRIPTION. The nose landing gear is a full swiveling, lever suspension type, consisting of a shock strut and fork assembly, a drag brace assembly, a shimmy damper, and a wheel and tire. The gear retracts into the fuselage and is enclosed by flush clam shell type doors when retracted. The upper ends of the strut and drag brace assemblies are attached by pivot bolts to support bearings mounted in the sides of the nose wheel well.

5-8. NEGLIGIBLE DAMAGE. Small, smooth, isolated dents 1/32 of an inch or less in depth in structural members of the nose landing gear are negligible provided such dents are free from cracks, abrasions and sharp corners, and do not interfere with the proper functioning of the gear.

5-9. ARRESTING GEAR.

5-10. DESCRIPTION. The arresting gear consists of a conventional arresting hook, a dash pot assembly, a pneumatic actuator, and a locking mechanism. The entire mechanism is housed within the aft section of the fuselage. The hook is attached to an 'A' shaped frame by a bolt which permits side movement of the hook. A coil spring keeps the hook centered for retraction. The 'A' frame portion is enclosed by a door which is connected to and actuated by the 'A' frame. The 'A' frame is attached to the fuselage structure at F.S. 350.00.

5-11. NEGLIGIBLE DAMAGE. Small, smooth, isolated dents 1/32 of an inch or less in depth in structural members of the arresting gear are negligible provided such dents are free from cracks, abrasions and sharp corners, and do not interfere with the proper functioning of the gear.



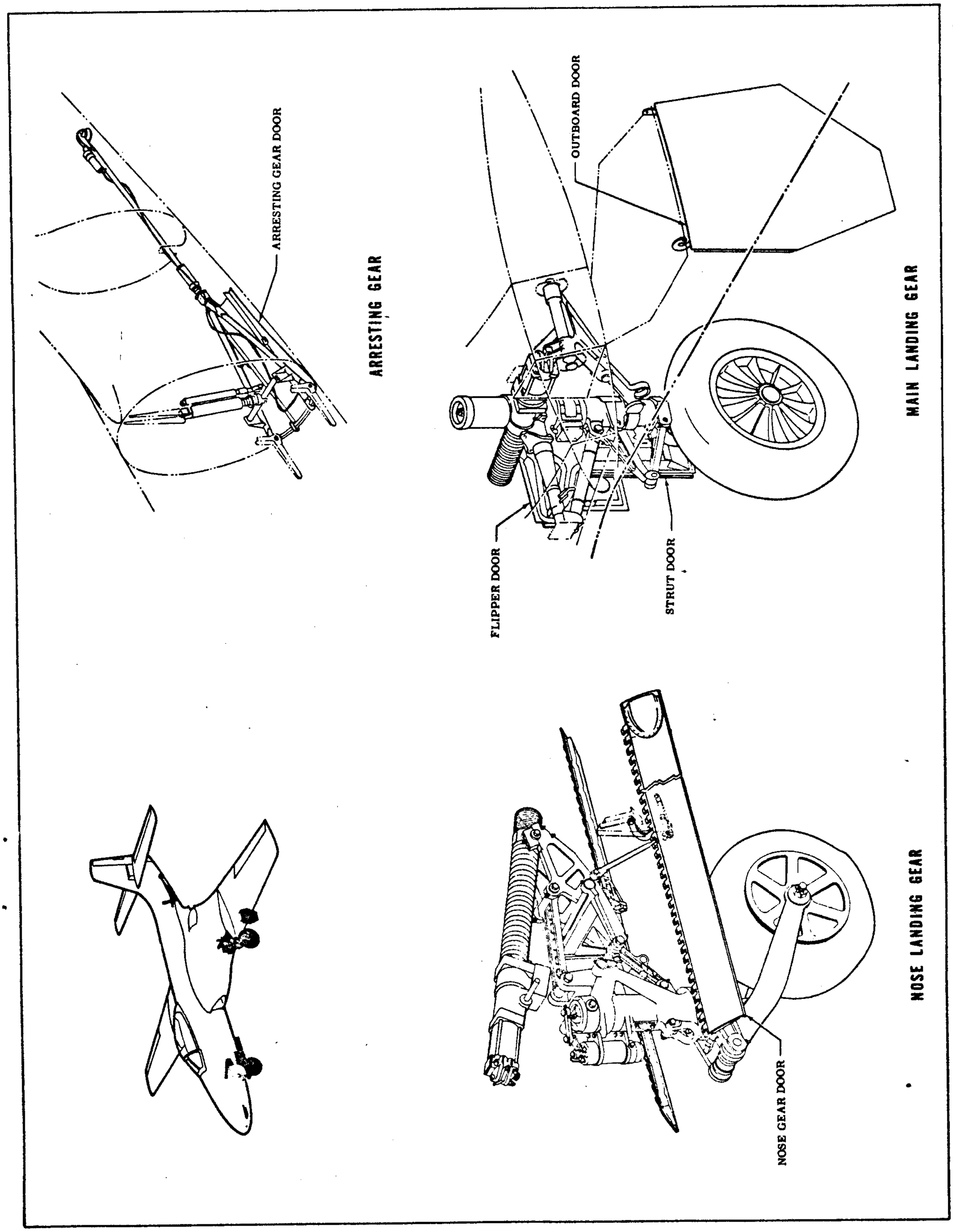


Figure 5-1. Alighting Gear

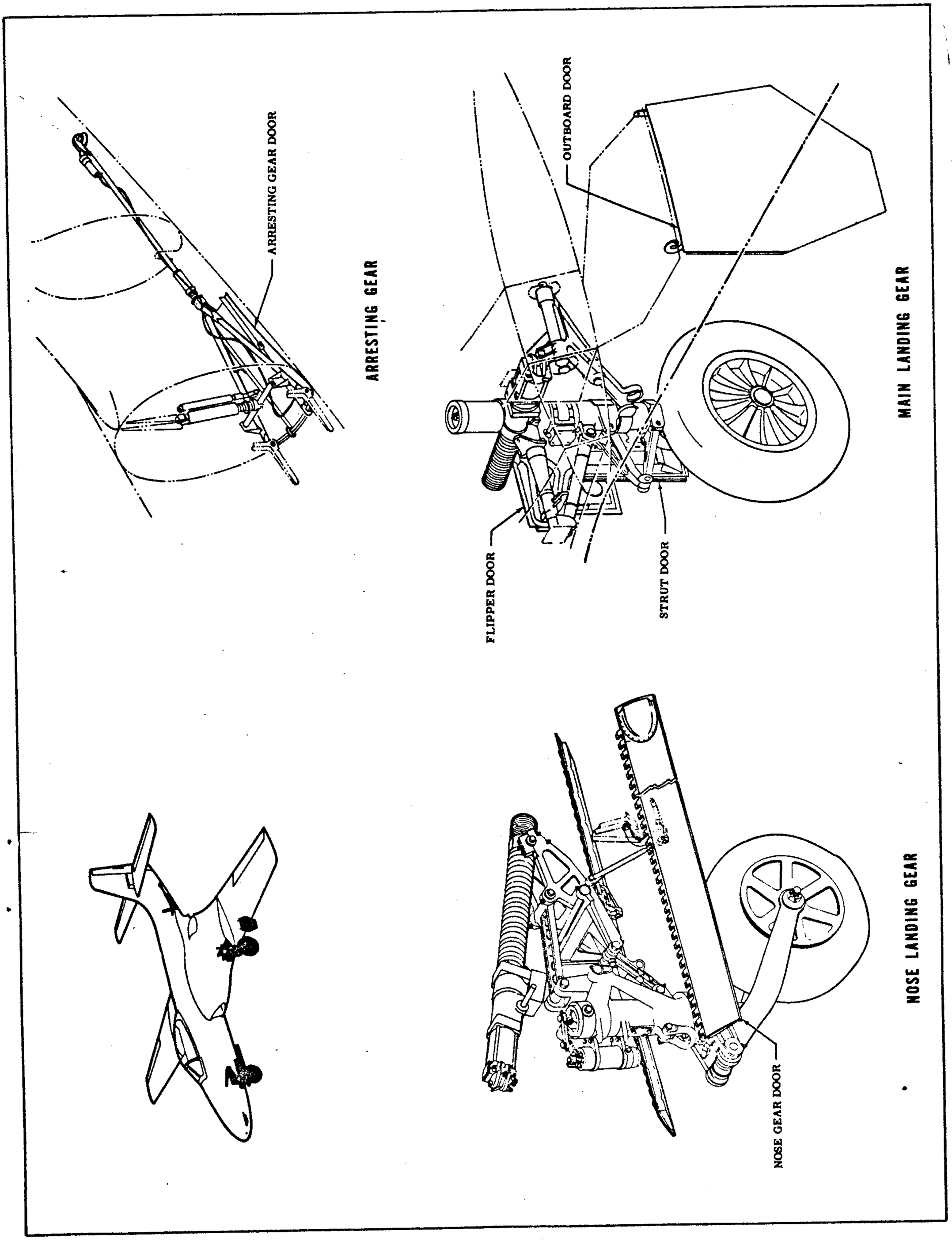


Figure 5-1. Alighting Gear

SECTION VI
ENGINE SECTION

6-1. GENERAL. Since in this airplane the engines are mounted through the wings, the wings themselves are the main engine enclosing and engine supporting structures. The only structure that can be considered as not being wing structure is the air duct and butterfly valve, the aft engine mounts, the forward engine mount, and the forward engine mount support track. The support track, the aft engine mounts, and the forward end of the air duct tie directly into the wing structure.

6-2. AIR DUCT AND BUTTERFLY VALVE.

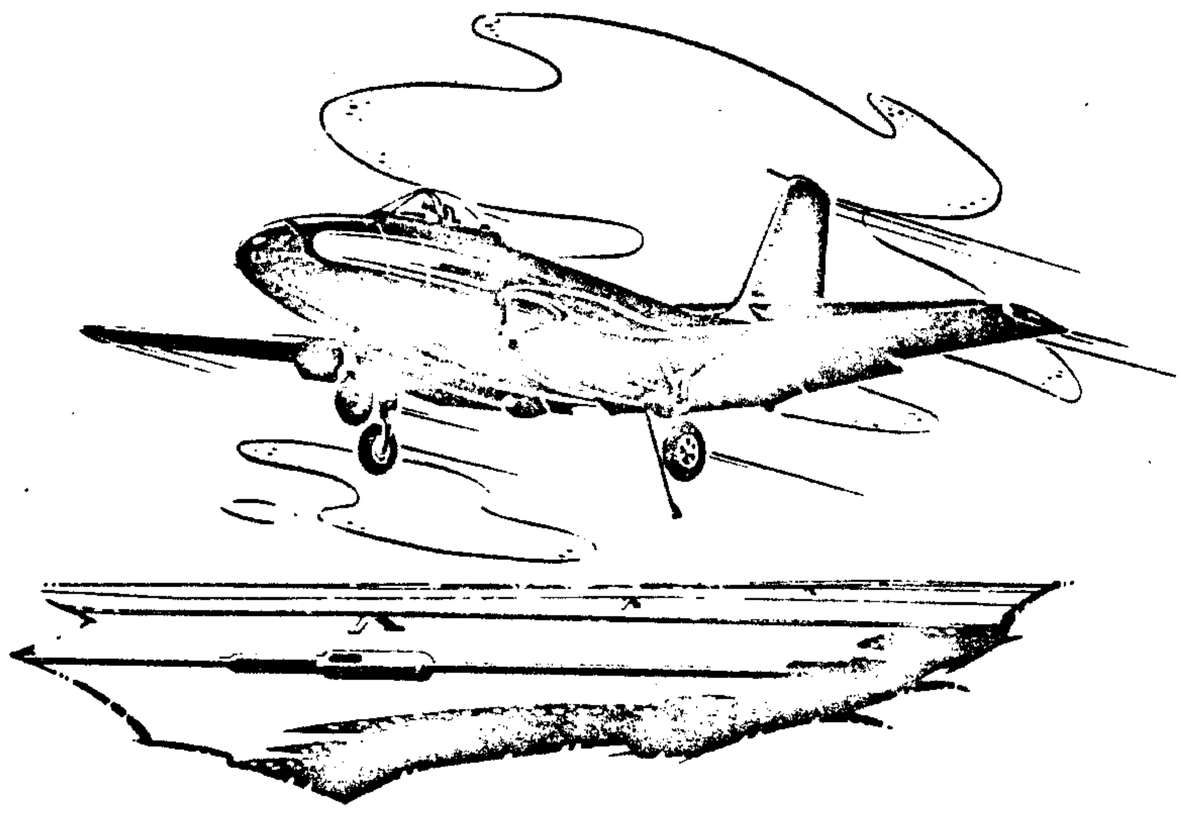
6-3. DESCRIPTION. Each air duct assembly consists of a forward section, a ring in which the butterfly valve is located, an aft section, and an adapter section. The sections are built up of sheet metal, changing in cross section from the shape of the leading edge opening at the forward and to circular at the adapter assembly. The forward and aft duct sections are bolted to the ring which supports the butterfly valve. The adapter is bolted to the oil cooler flange on the engine. A hinged collar attached to the wing structure clamps the aft duct to the adapter. The forward end of the duct is attached to the leading edge structure with flush type screws.

6-4. NEGLIGIBLE DAMAGE. Small, smooth, isolated dents, 1/16 of an inch or less in depth, are negligible provided such dents are free from cracks, abrasions, and sharp corners, and do not interfere with the proper functioning of the butterfly valve.

6-5. ENGINE MOUNTS AND TRACK.

6-6. DESCRIPTION. Each engine is supported in the airplane with three quick release type mounts. The forward mount is located on the top of the engine and is secured to a track in the engine compartment with a swivel connection. The assembly slides aft on the track for engine removal after the latch on top of the wing has been released. The two aft engine mounts are of the split type and are secured to the airplane at F.S. 269.75. The two aft mounts carry the thrust of the engines into the airplane.

6-7. NEGLIGIBLE DAMAGE. Small, smooth, isolated dents, 1/32 of an inch or less in depth, are negligible provided such dents are free from cracks, abrasions, and sharp corners, and do not interfere with the proper functioning of any unit.



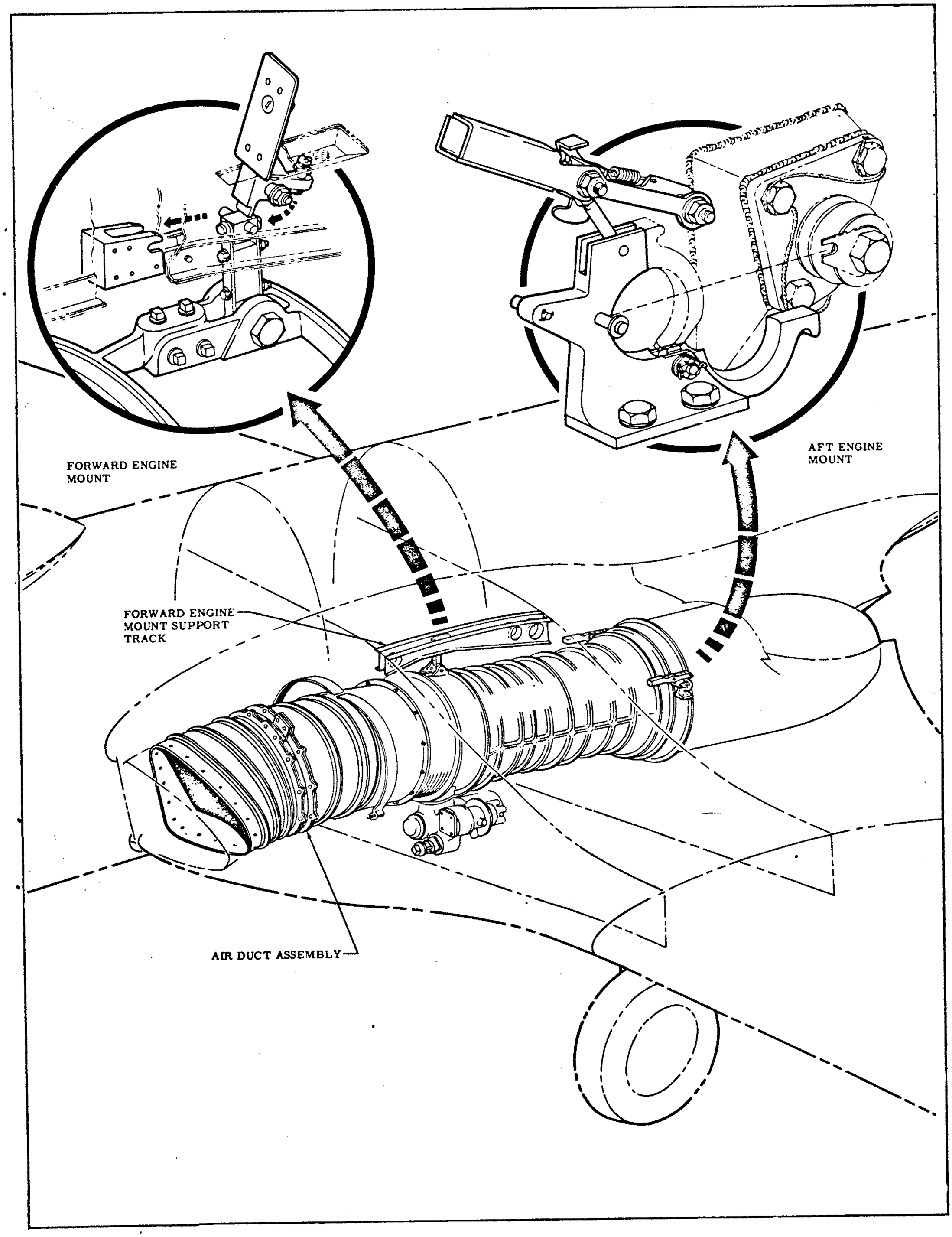
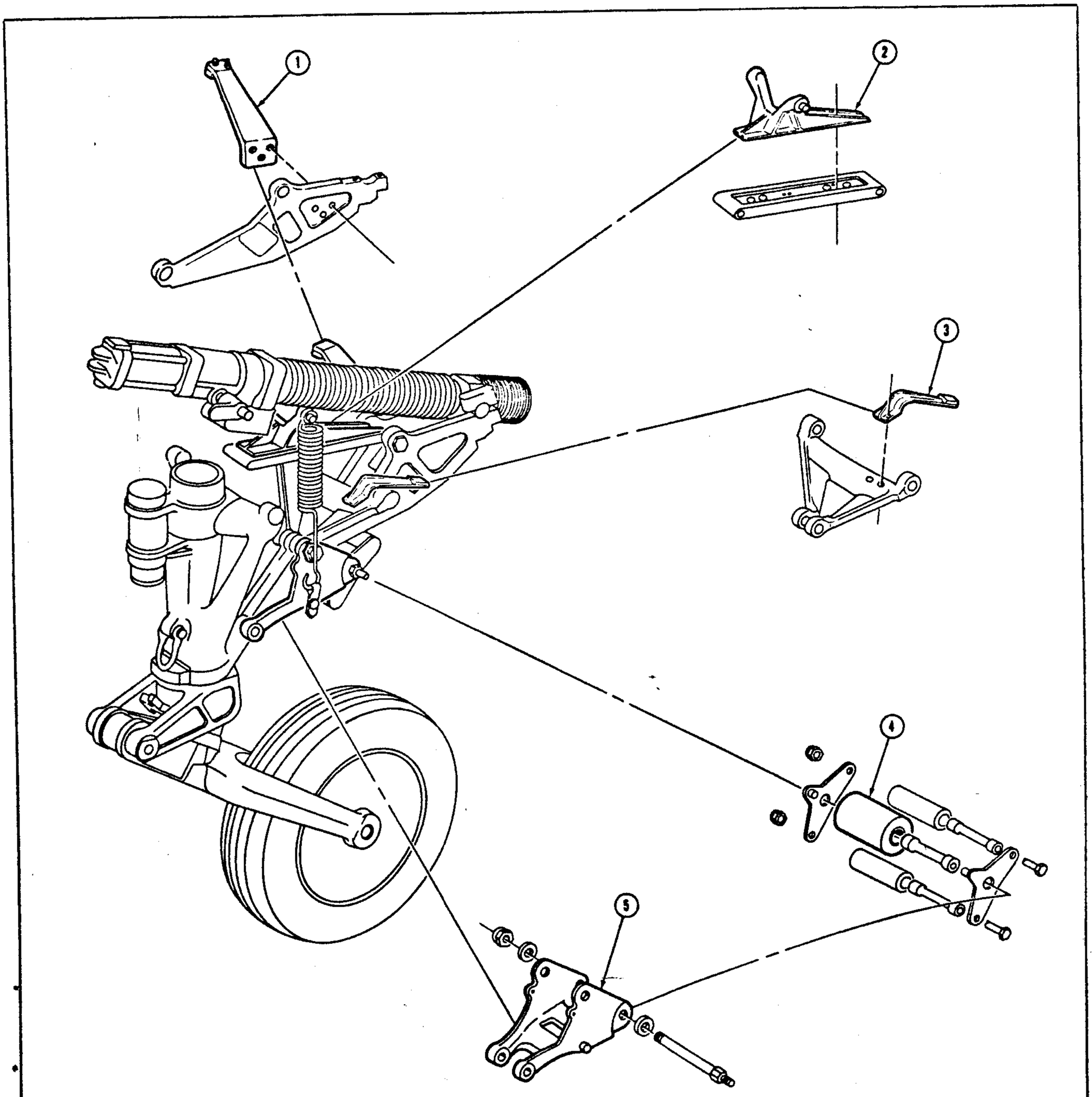


Figure 6-1. Engine Section



CODE NO.	PART NO.	NOMENCLATURE	MATERIAL	EFFECTIVE	REMARKS
1	15-45215-3	NOSE LANDING GEAR UP LIMIT SWITCH STRIKER	MAGNESIUM CASTING	F2H-2P	
2	15-45221-3	NOSE LANDING GEAR OVER-CENTER SPRING SUPPORT	MAGNESIUM CASTING	F2H-2 125018 & UP F2H-2P 125684 & UP	
3	15-45217-3	NOSE LANDING GEAR DOWN LIMIT SWITCH STRIKER	MAGNESIUM	F2H-2P	
4	15-45180-3	NOSE LANDING GEAR KNEELING ROLLER	MAGNESIUM	F2H-2, F2H-2N, F2H-2P	
5	15-45220-3	NOSE LANDING GEAR EMERGENCY EXTENSION TRUSS	MAGNESIUM CASTING	F2H-2 125018 & UP F2H-2P 125684 & UP	

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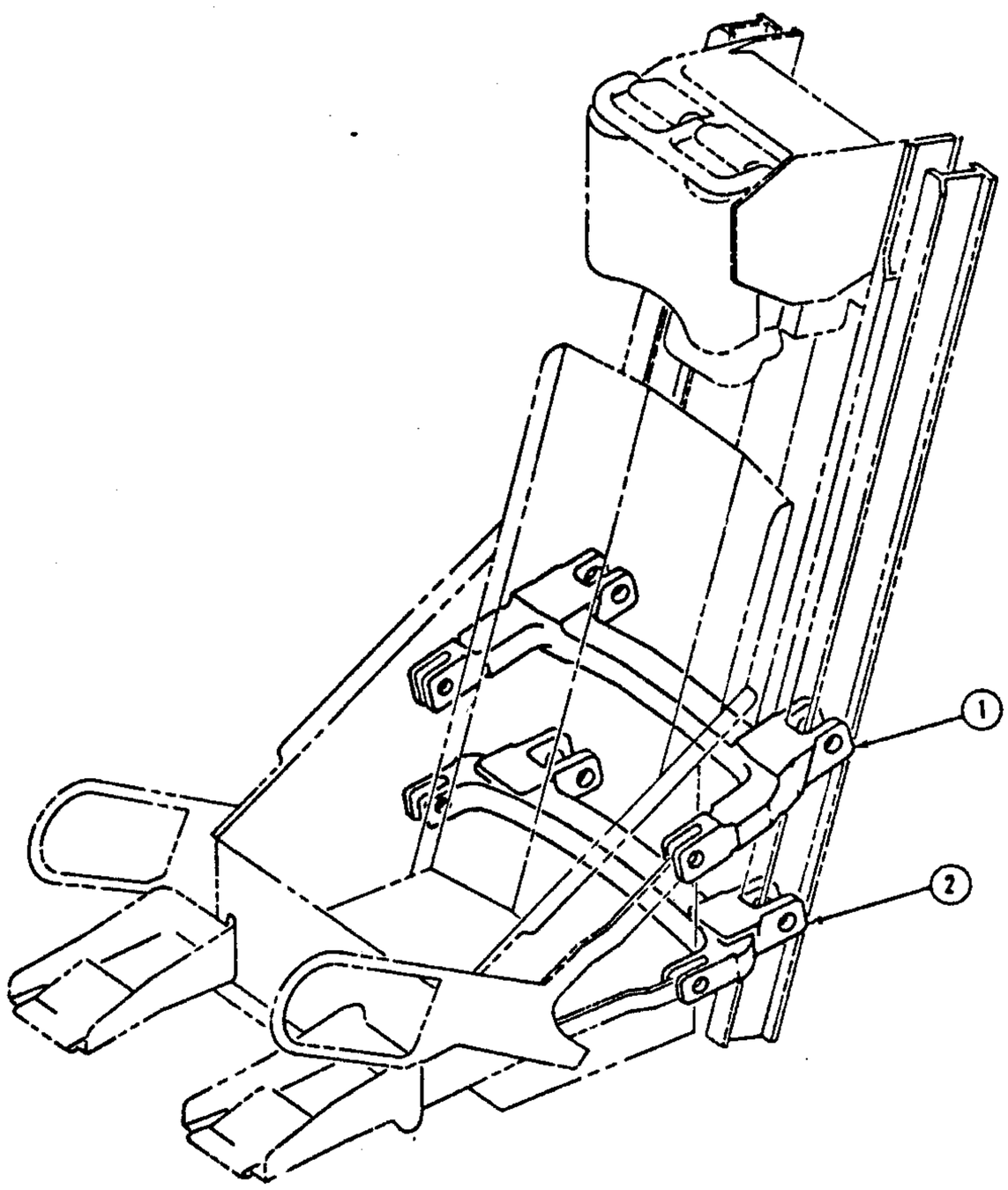
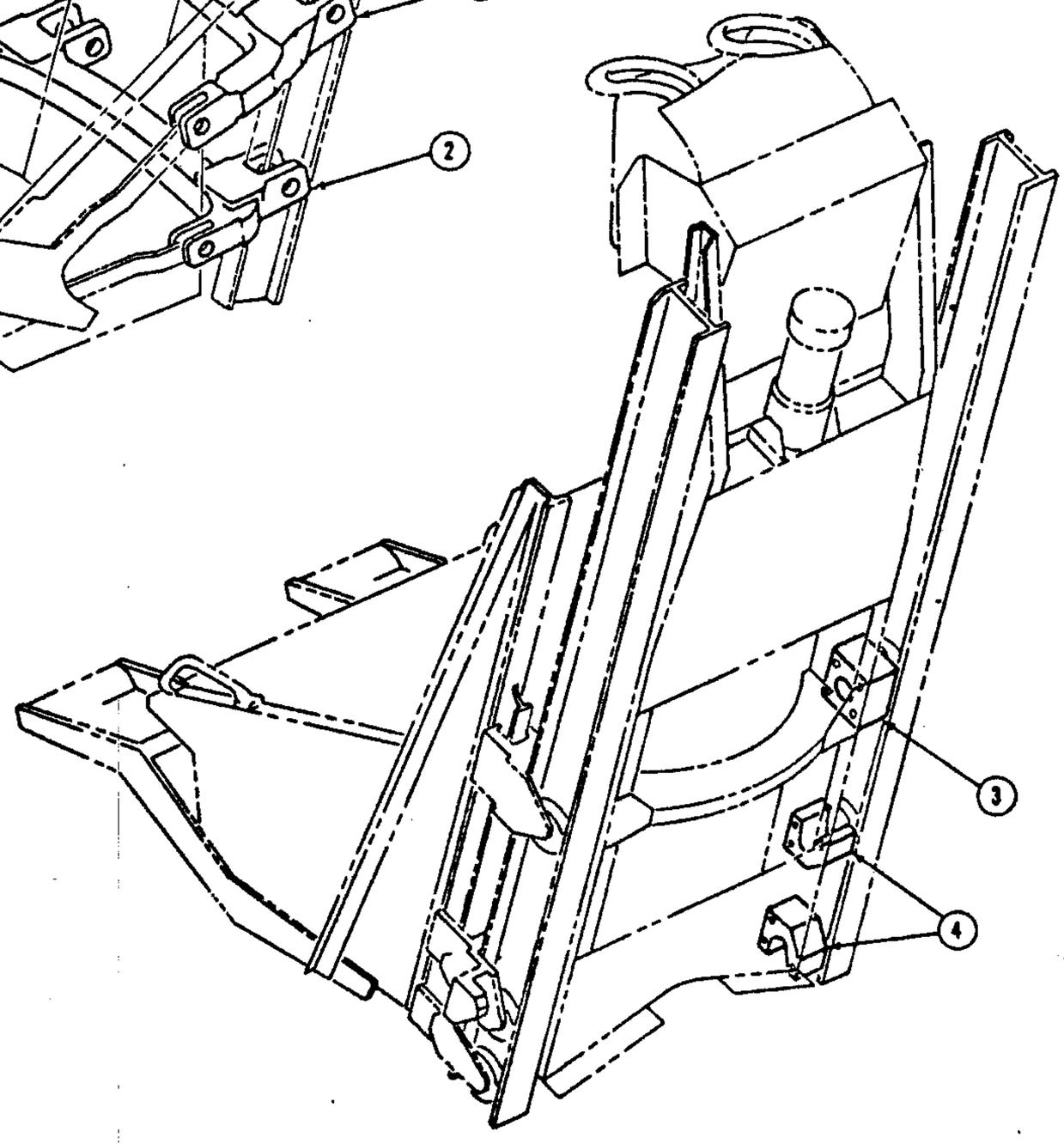
Figure D-3. Dissimilar Metals Diagram - Nose Leading Gear



◀ EJECTION SEAT

THIS SEAT IS EFFECTIVE ON THE FOLLOWING AIRPLANES:
F2H-2 123341 AND UP
F2H-2N 123310 AND UP
F2H-2P



EJECTION SEAT ▶

THIS SEAT IS EFFECTIVE ON THE FOLLOWING AIRPLANES:
F2H-1 122530 AND UP
F2H-2 123204 THRU 123340
F2H-2N 123300 THRU 123309

CODE NO.	PART NO.	NOMENCLATURE	MATERIAL	EFFECTIVE	REMARKS
1	15-80516-5	EJECTION SEAT SLIDE UPPER SUPPORT	MAGNESIUM FORGING	F2H-2 123341 & UP ,F2H-2P, F2H-2N 123310 & UP	
2	15-80516-7	EJECTION SEAT SLIDE LOWER SUPPORT	MAGNESIUM FORGING	F2H-2 123341 & UP ,F2H-2P, F2H-2N 123310 & UP	
3	15-80546-3	EJECTION SEAT UPPER ROLLER SPACER	MAGNESIUM BAR	F2H-2 123204 THRU 123340 F2H-2N 123300 THRU 123309	THIS PART ON R.H. SIDE ONLY
4	15-80547-3	EJECTION SEAT LOWER ROLLER SPACER	MAGNESIUM BAR	F2H-2 123204 THRU 123340 F2H-2N 123300 THRU 123309	THIS PART ON R.H. SIDE ONLY

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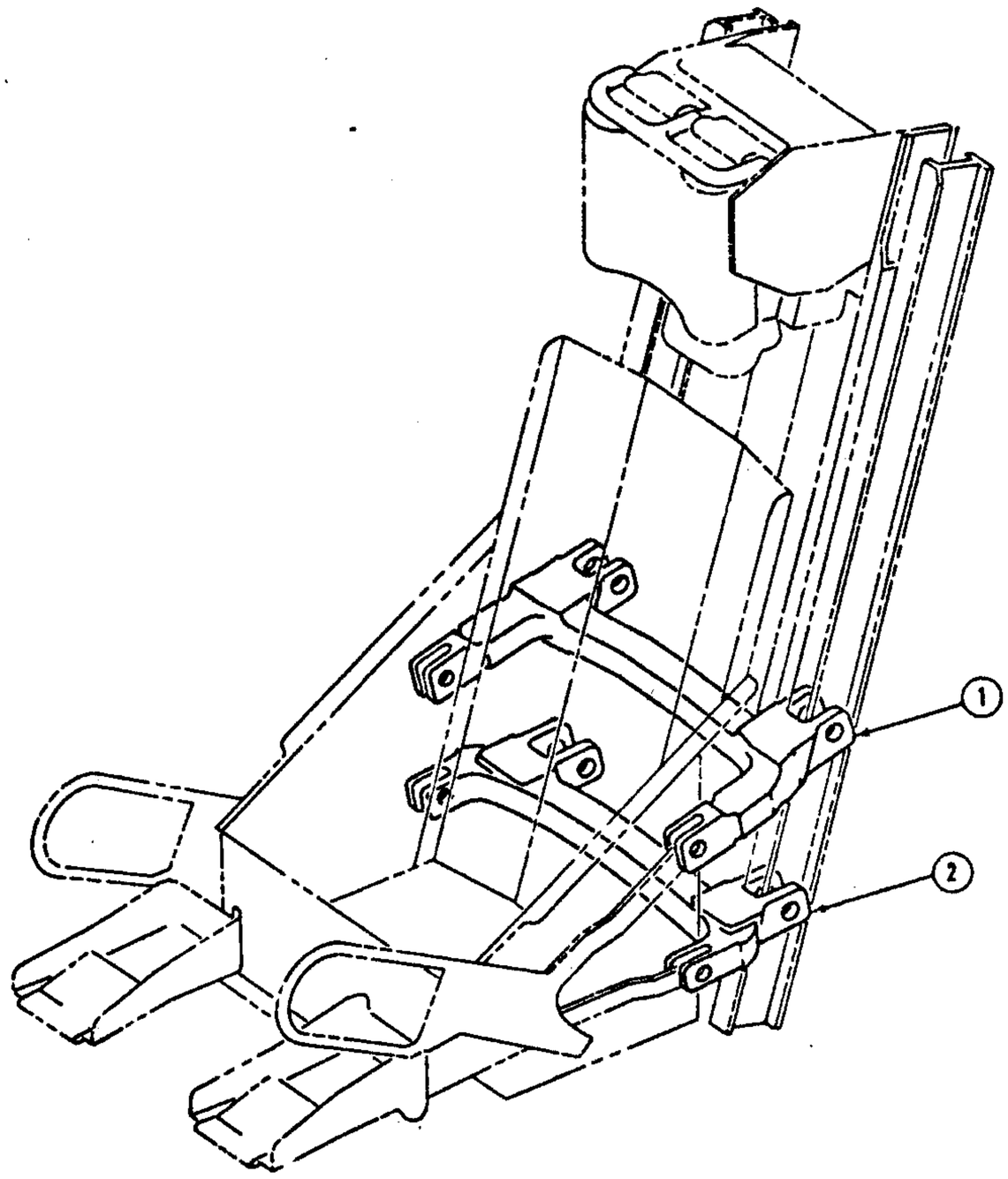
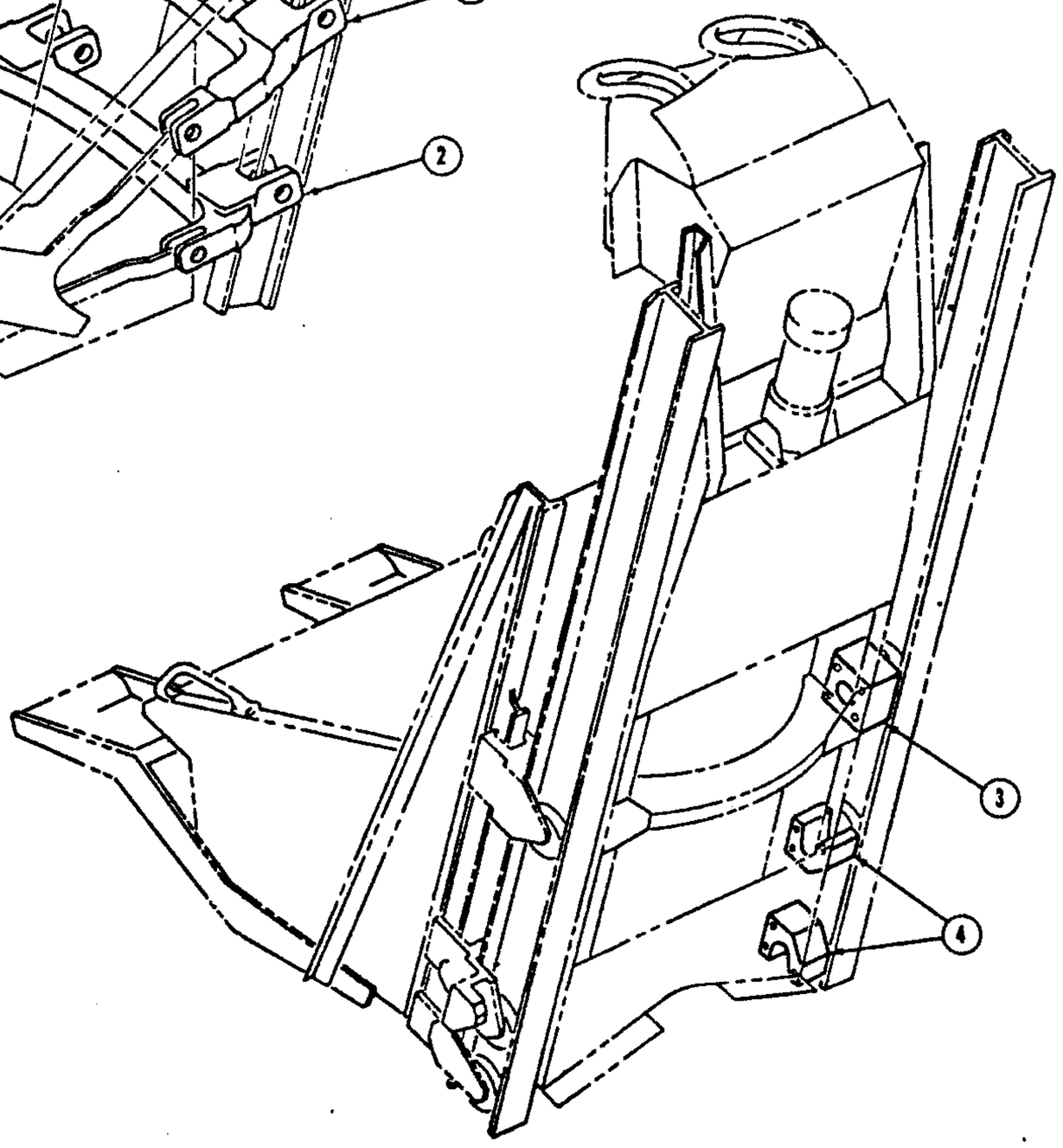
Figure D-2. Dissimilar Metals Diagram - Center Fuselage (Sheet 3 of 3 Sheets)



◀ EJECTION SEAT

THIS SEAT IS EFFECTIVE ON THE FOLLOWING AIRPLANES:
F2H-2 123341 AND UP
F2H-2N 123310 AND UP
F2H-2P



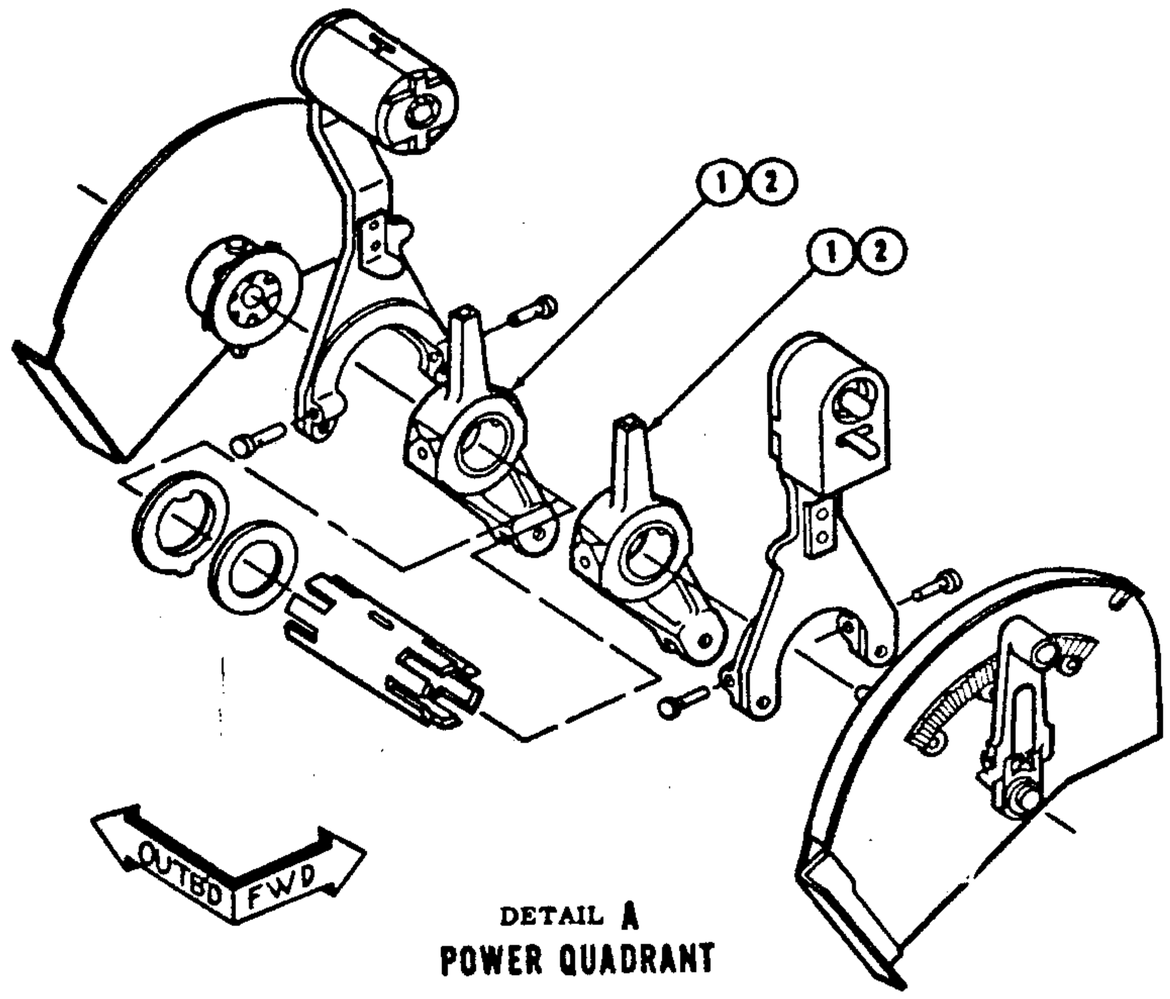
EJECTION SEAT ▶

THIS SEAT IS EFFECTIVE ON THE FOLLOWING AIRPLANES:
F2H-1 122530 AND UP
F2H-2 123204 THRU 123340
F2H-2N 123300 THRU 123309

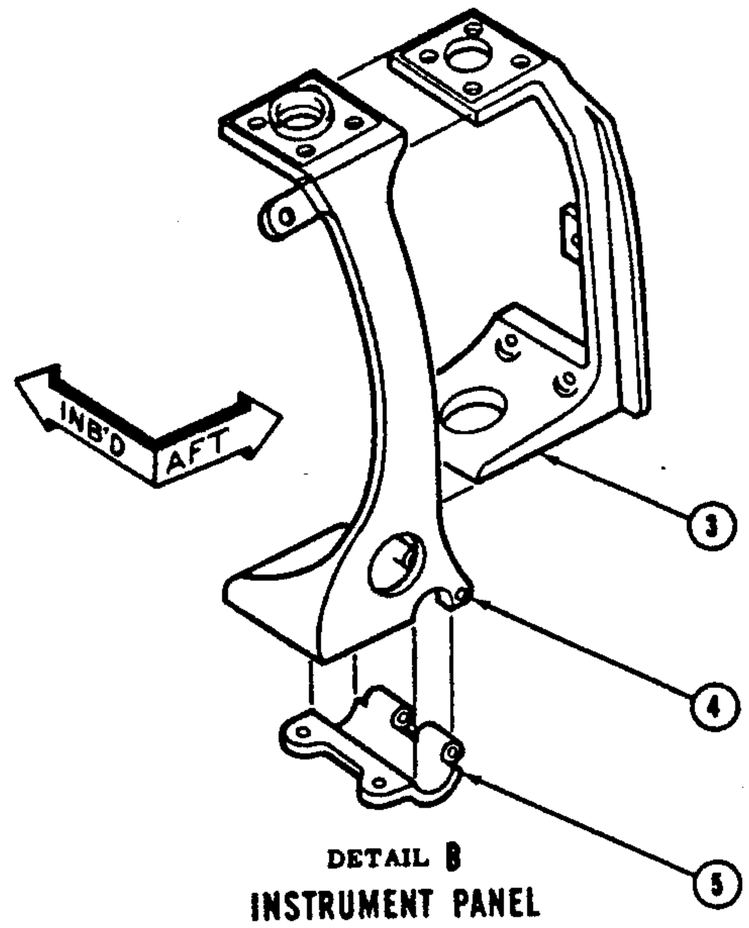
CODE NO.	PART NO.	NOMENCLATURE	MATERIAL	EFFECTIVE	REMARKS
1	15-80516-5	EJECTION SEAT SLIDE UPPER SUPPORT	MAGNESIUM FORGING	F2H-2 123341 & UP ,F2H-2P, F2H-2N 123310 & UP	
2	15-80516-7	EJECTION SEAT SLIDE LOWER SUPPORT	MAGNESIUM FORGING	F2H-2 123341 & UP ,F2H-2P, F2H-2N 123310 & UP	
3	15-80546-3	EJECTION SEAT UPPER ROLLER SPACER	MAGNESIUM BAR	F2H-2 123204 THRU 123340 F2H-2N 123300 THRU 123309	THIS PART ON R.H. SIDE ONLY
4	15-80547-3	EJECTION SEAT LOWER ROLLER SPACER	MAGNESIUM BAR	F2H-2 123204 THRU 123340 F2H-2N 123300 THRU 123309	THIS PART ON R.H. SIDE ONLY

0105A

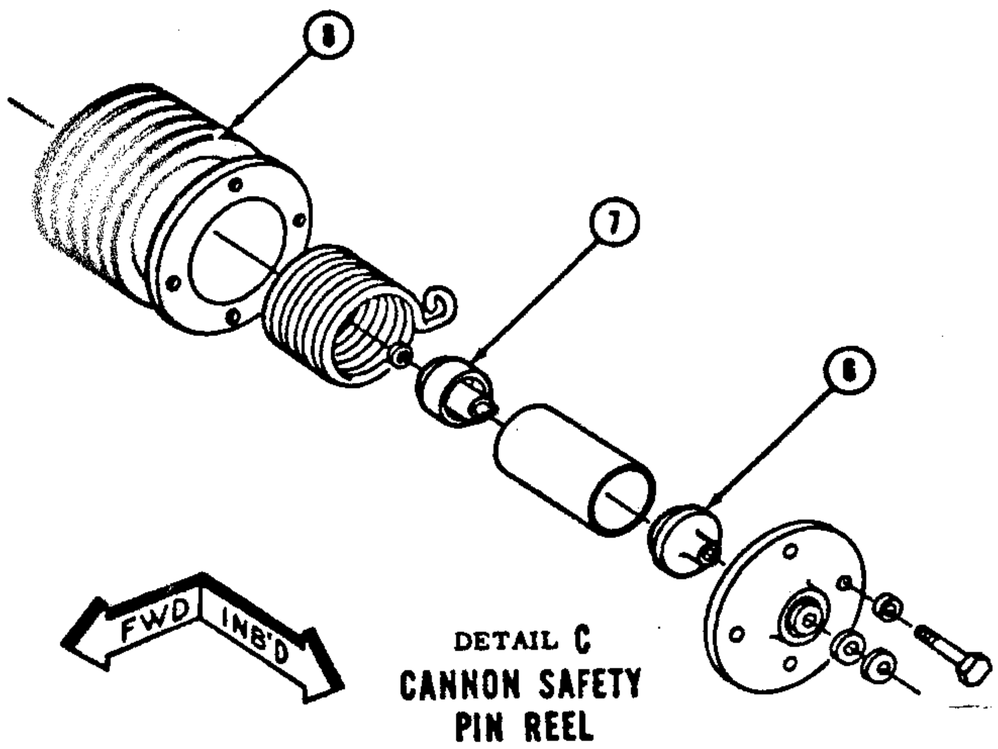
Figure D-2. Dissimilar Metals Diagram - Center Fuselage (Sheet 3 of 3 Sheets)



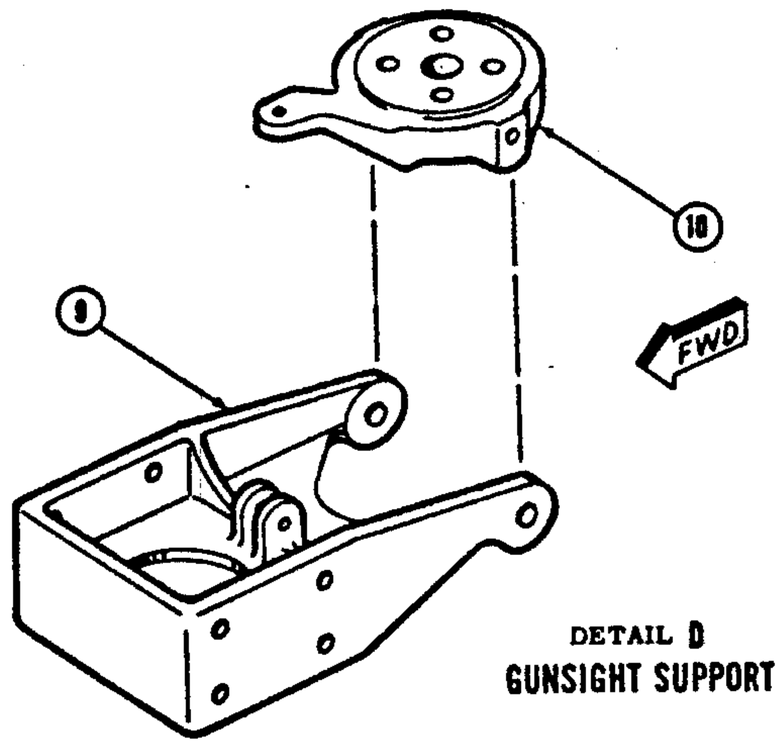
DETAIL A
POWER QUADRANT



DETAIL B
INSTRUMENT PANEL
SHOCK MOUNT



DETAIL C
CANNON SAFETY
PIN REEL



DETAIL D
GUNSIGHT SUPPORT

CODE NO.	PART NO.	NOMENCLATURE	MATERIAL	EFFECTIVE	REMARKS
1	15-54301-3	POWER QUADRANT HANDLE LEVER	MAGNESIUM CASTING	F2H-1 F2H-2 123204 THRU 123221	THIS PART SUPERSEDED BY 15-54383-3, -4
2	15-54383-3, -4	POWER QUADRANT HANDLE LEVER	MAGNESIUM CASTING	F2H-2 123222 & UP F2H-2N, F2H-2P	THESE PARTS SUPERSEDE 15-54301-3
3	15-60037-3, -4	INSTRUMENT PANEL SHOCK MOUNT BRACKET	MAGNESIUM CASTING	F2H-1 122534 & UP F2H-2, F2H-2P	L.H. PART SHOWN R.H. PART OPPOSITE
4	15-60038-3, -4	INSTRUMENT PANEL SHOCK MOUNT SUPPORT	MAGNESIUM CASTING	F2H-1 122534 & UP F2H-2, F2H-2P	L.H. PART SHOWN R.H. PART OPPOSITE
5	15-60039	SHOCK MOUNT SUPPORT CAP	MAGNESIUM CASTING	F2H-1 122534 & UP F2H-2, F2H-2P	L.H. PART SHOWN R.H. PART OPPOSITE
6	15-80333	LEFT END-SAFETY PIN AXLE	MAGNESIUM BAR	F2H-1, F2H-2, F2H-2N F2H-2P	
7	15-80334	RIGHT END-SAFETY PIN AXLE	MAGNESIUM BAR	F2H-1, F2H-2, F2H-2N F2H-2P	
8	15-80290-3	CANNON SAFETY PIN REEL DRUM	MAGNESIUM CASTING	F2H-1, F2H-2, F2H-2N F2H-2P	
9	15-71074	GUNSIGHT SUPPORT BRACKET	MAGNESIUM CASTING	F2H-1 122534 & UP F2H-2 123204 THRU 123382	
10	15-71075	GUNSIGHT SUPPORT	MAGNESIUM CASTING	F2H-1 122534 & UP F2H-2	

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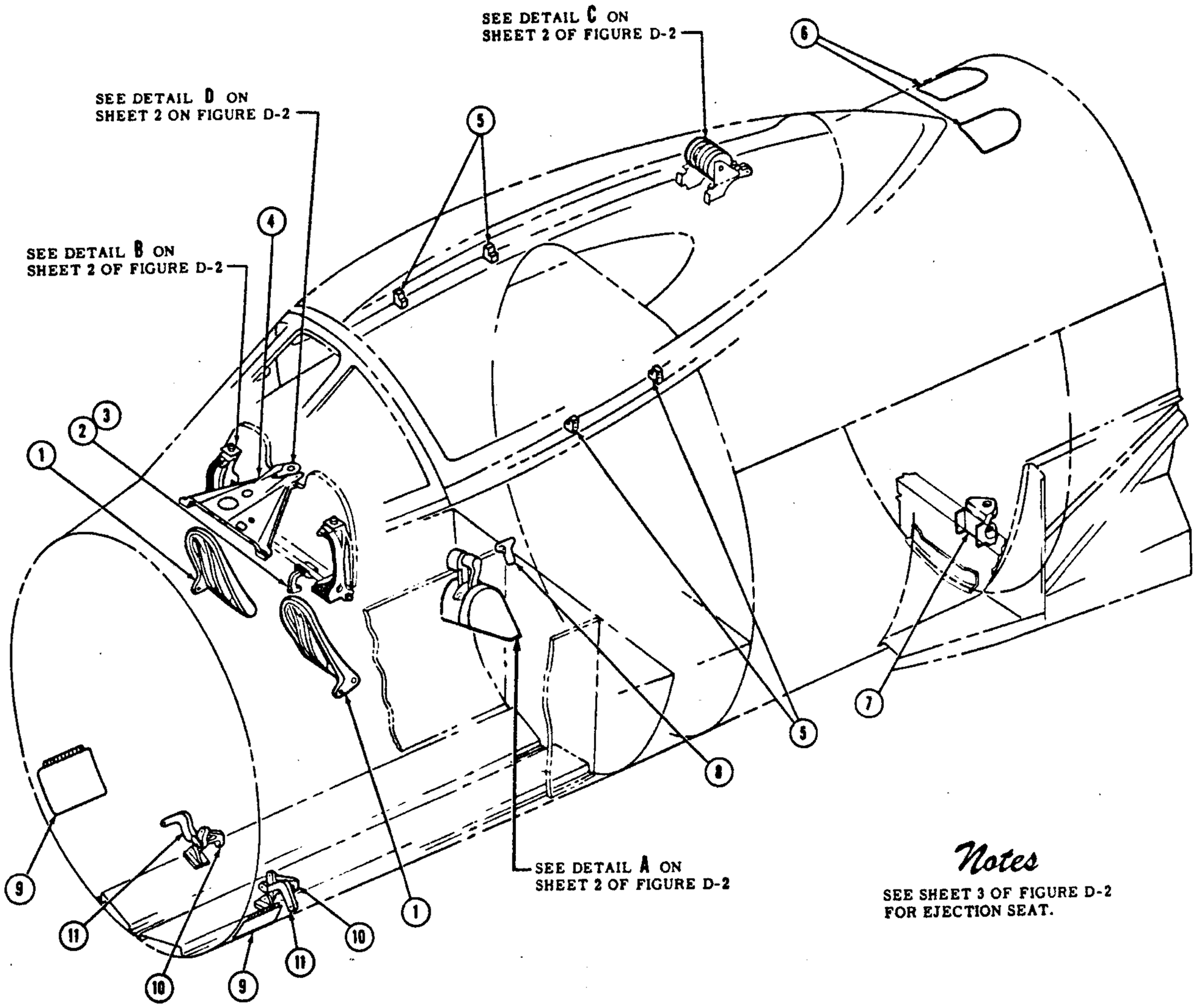
Figure D-2. Dissimilar Metals Diagram - Center Fuselage (Sheet 2 of 3 Sheets)



Notes

SEE SHEET 3 OF FIGURE D-2 FOR EJECTION SEAT.

CODE NO.	PART NO.	NOMENCLATURE	MATERIAL	EFFECTIVE	REMARKS
1	15-61059-3-4	RUDDER PEDALS	MAGNESIUM CASTING	F2H-1, F2H-2 123204 THRU 124965, F2H-2N	
2	15-68319	TIP TANK RELEASE HANDLE BRACKET	MAGNESIUM CASTING	F2H-2 123204 THRU 123382, F2H-2N	
3	15-68471-3	TIP TANK RELEASE HANDLE BRACKET	MAGNESIUM CASTING	F2H-2 124940 & UP F2H-2P	
4	15-71148-3	GUN SIGHT SUPPORT BEAM	MAGNESIUM CASTING	F2H-2 124940 & UP	
5	15-35070	CANOPY DOG FILLER BLOCK	MAGNESIUM PLATE	F2H-1, F2H-2 123204 THRU 123382, F2H-2N	
6	15-32075-31	FUEL TANK FILLER DOOR	MAGNESIUM SHEET	F2H-1, F2H-2 123204 THRU 123382, F2H-2N	
7	15-61087-3	AILERON BELL CRANK SUPPORT FITTING	MAGNESIUM CASTING	F2H-1, F2H-2, F2H-2N, F2H-2P	
8	15-32039	PILOT'S HAND GRIP	MAGNESIUM CASTING	F2H-1, F2H-2, F2H-2N, F2H-2P	
9	15-32054-5-6	GUN SERVICING DOOR	MAGNESIUM SHEET	F2H-1, F2H-2 123204 THRU 123382, F2H-2N	
10	15-46001-3-4	NOSE GEAR DOOR FLOATING ARM	MAGNESIUM FORGING	F2H-1, F2H-2, F2H-2N, F2H-2P	
11	15-46002-3	NOSE GEAR DOOR ARM	MAGNESIUM FORGING	F2H-1, F2H-2 123204 THRU 123282, F2H-2N 123300 THRU 123303	

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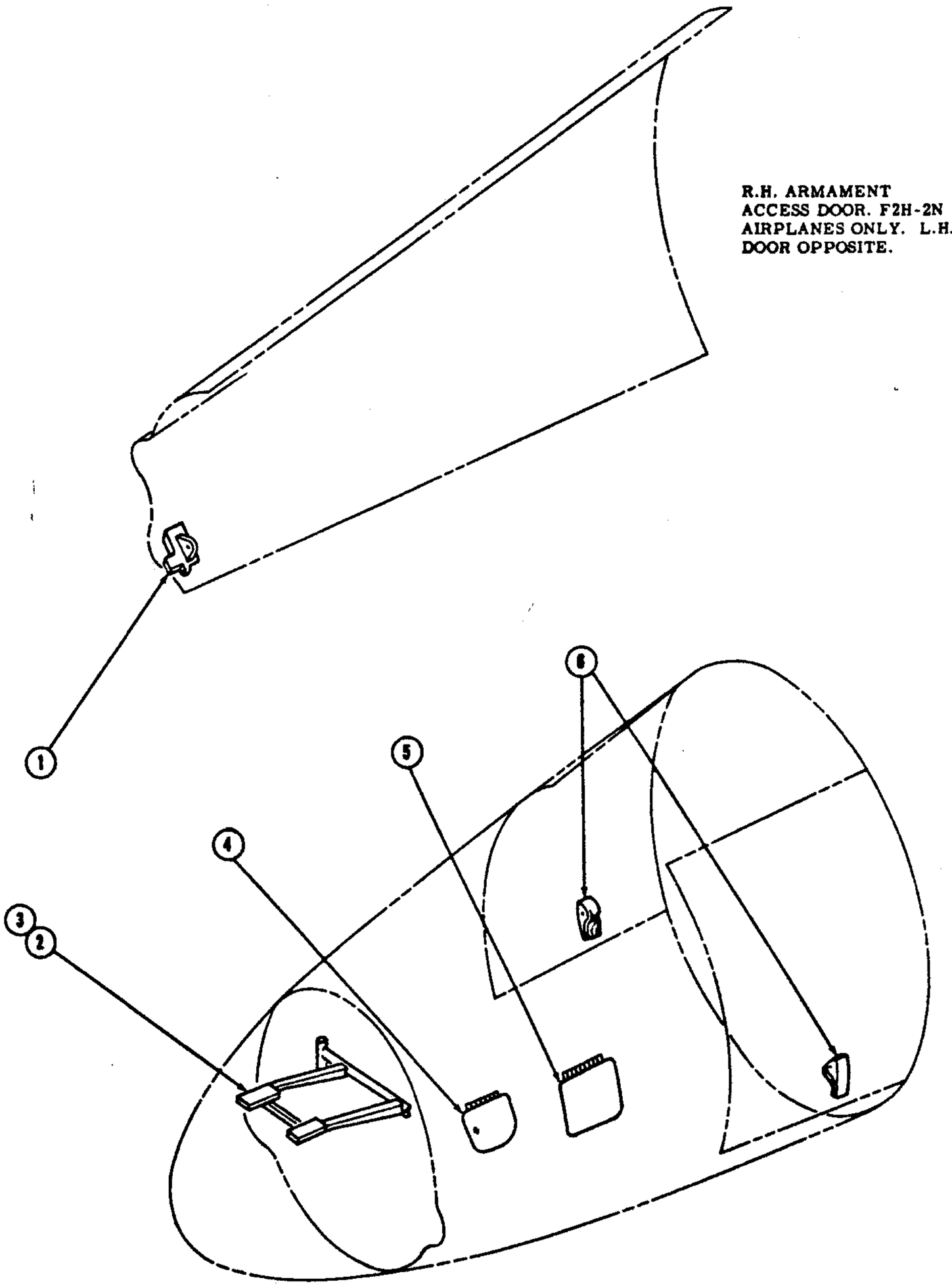
Figure D-2. Dissimilar Metals Diagram- Center Fuselage (Sheet 1 of 3 Sheets)



CODE NO.	PART NO.	NOMENCLATURE	MATERIAL	EFFECTIVE	REMARKS
1	15-37083-3, -4	ARMAMENT DOOR LATCH FITTING	MAGNESIUM PLATE	F2H-2N	R.H.PART SHOWN L.H.PART OPPOSITE
2	15-31173	LOOP ANTENNA SUPPORT	MAGNESIUM CASTING	F2H-1, F2H-2 123204 THRU 123382	
3	15-31173-3	LOOP ANTENNA SUPPORT	MAGNESIUM CASTING	F2H-2 124940 & UP	
4	15-31004-25	RADIO ACCESS DOOR	MAGNESIUM SHEET	F2H-1, F2H-2	
5	15-31074-27	COMPRESSOR ACCESS DOOR	MAGNESIUM SHEET	F2H-1 F2H-2 123204 THRU 123314	
6	15-31016-3, -4	ARMAMENT DOOR LATCH HANDLE	MAGNESIUM CASTING	F2H-1, F2H-2	

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Figure D-1. Dissimilar Metals Diagram - Nose Section

surfaces where the magnesium trailing edge is riveted to the skin.

CHROMIC ACID SOLUTION

24 ounces	CHROMIC ACID (by WEIGHT)
1 gallon	WATER

CAUTION

Suitable protection should be provided for personnel using chemical solutions. Face shields, rubber or plastic approns and rubber gloves are recommended.

After the area has been thoroughly cleaned and degreased, brush on a liberal coat of chromic acid solution. Keep the surfaces wet with the solution at least 10 minutes and then rinse the area with clear water. Care should be taken not to wash the chromic acid solution into inaccessible parts of the structure. Air blast the area until thoroughly dry. Paint with three or four coats of zinc chromate primer.

the tape during installation of repair or replacement parts.

Before applying the tape, chemically treat the magnesium and aluminum faying surfaces per instructions in Paragraphs D-8 and D-9. Apply a heavy coat of zinc chromate primer to faying surfaces after chemical treatment. The vinyl tape should not be used to insulate parts such as castings, forgings, fittings or other parts that are bolted into place and subject to frequent removal and/or adjustment. In lieu of tape, four coats of zinc chromate primer should be applied to the magnesium forging surface and three coats of zinc chromate primer to the aluminum faying surface. Before applying the zinc chromate primer, chemically treat the magnesium and aluminum faying surfaces per instructions in Paragraph D-8 and D-9. On assemblies where the magnesium and aluminum parts cannot be separated, the edges of the faying surfaces must be sealed in order to prevent further corrosion (see Figure D-7). The area around the edges of the faying surfaces should be chemically treated per instructions in Paragraph D-10 before sealing is started. After chemical treatment, brush on a coat of MIL-S-7502, CLASS A SEALER to the edges of the faying surfaces. This coat should extend approximately 1/4 inch on each side of the seam. After allowing the coating to dry for one hour apply a bead of MIL-S-7502, CLASS B SEALER to the seam formed by the magnesium and aluminum parts. If the surfaces of the magnesium and aluminum parts are perpendicular to each other, the MIL-S-7502, CLASS B SEALER bead should be applied as a fillet. If the parts form a butt joint, the MIL-S-7502, CLASS B SEALER bead should be smoothed out so as to cover the seam with a 1/64 inch thick layer of sealer. The sealer should extend at least 1/8 inch on each side of the seam. The sealer should be applied in small quantities at a time, because of its rapid rate of set. Pressure should be applied to the sealer during application in order to pack the sealer into the seams. After allowing the sealer to dry for a minimum of two hours, apply two coats of zinc chromate primer to the treated areas.

D-8. CHEMICAL TREATMENT OF MAGNESIUM. The chemical treatment described in this paragraph applies only to magnesium parts that can be removed for cleaning and treatment.

DICHROMATE SOLUTION

1.5 lbs. SODIUM DICHROMATE (FED. SPEC O-S-595)
1.5 pts. NITRIC ACID (FED. SPEC O-A-88)
WATER - TO MAKE 1 GALLON OF SOLUTION

CAUTION

Suitable protection should be provided for personnel using chemical solutions. Face shields, rubber or plastic aprons and rubber gloves are recommended.

After the part has been cleaned and degreased, brush the dichromate solution onto the surface that will be in contact with aluminum. The solution should be brushed on at room temperature to all magnesium parts except die castings and allowed to remain on the part for a minimum of one minute. The part should then be rinsed thoroughly with water and dried. Die castings should be treated for ten seconds only with dichromate solution that is heated to 125°-135°F. The solution should then be rinsed off and the part dried.

D-9. CHEMICAL TREATMENT OF ALUMINUM. The chemical treatment described in this paragraph applies only to the surfaces of aluminum alloy parts that will be in contact with magnesium.

ALODINE SOLUTION

1 gallon ALODINE LIQUID #500 (Mfd. by American Chemical Paint Co.)
2-1/2 lbs. ALODINE MAKE-UP POWDER #5 (Mfd. by American Chemical Paint Co.)
1/2 gallon WATER

CAUTION

Suitable protection should be provided for personnel using chemical solutions. Face shields, rubber or plastic aprons and rubber gloves are recommended.

Make up the Alodine solution at room temperature, using stainless steel or rubber lined container. Damage to both the solution and container will result if the solution is made or kept in galvanized, glass, procelain-enameled, tin coated or lead lined container. Fluorides in the Alodine attack these materials. After the aluminum surface is thoroughly cleaned and degreased, wet the surface with water. A streaked coating will result if Alodine is applied to a dry surface. Apply the Alodine solution liberally and rapidly to the wet surface. Use a nylon brush as the Alodine solution will rapidly attack ordinary fiber or hair bristles. Allow the Alodine solution to remain on the surface for approximately three minutes. Do not allow the solution to dry on either the bare metal or adjacent primed or painted areas. Apply additional solution if necessary to prevent drying. After the solution has been allowed to remain on the surface for three minutes, rinse off the solution by flooding with water. If rinsing the area would result in the Alodine solution being drained into inaccessible places, then the Alodine solution may be wiped off with a wet cloth in lieu of rinsing. Wipe the surface with clean cloths and blow out the joints and seams with compressed air.

D-10. CHEMICAL TREATMENT OF MAGNESIUM ALUMINUM COMBINATIONS. The chemical treatment described in this paragraph applies only to the area where the magnesium and aluminum parts cannot be separated readily and therefore must be treated together. An area such as this exists on the control

CODE NO.	PART NO.	NOMENCLATURE	MATERIAL	EFFECTIVE	REMARKS
1	15-79218-3	WING FOLD UP LIMIT SWITCH CLAMP	MAGNESIUM CASTING	F2H-2 123204 THRU 123382, F2H-2N	L.H. PART SHOWN R.H. PART OPPOSITE
2	15-79218-5	WING FOLD UP LIMIT SWITCH CLAMP	MAGNESIUM CASTING	F2H-2 123204 THRU 123382 F2H-2N	L.H. PART SHOWN R.H. PART OPPOSITE
3	15-11053-37	MOTOR MOUNT TRACK SPACER BLOCK	MAGNESIUM PLATE	F2H-1, F2H-2 123204 THRU 123382, F2H-2N	L.H. PART SHOWN R.H. PART OPPOSITE
4	15-11053-19	MOTOR MOUNT TRACK SPACER BLOCK	MAGNESIUM PLATE	F2H-1, F2H-2 123204 THRU 123382, F2H-2N	L.H. PART SHOWN R.H. PART OPPOSITE
5	15-11390-5	CENTER SECTION WING GUN CAMERA SUPPORT	MAGNESIUM CASTINGS	F2H-2 124940 & UP, F2H-2P	

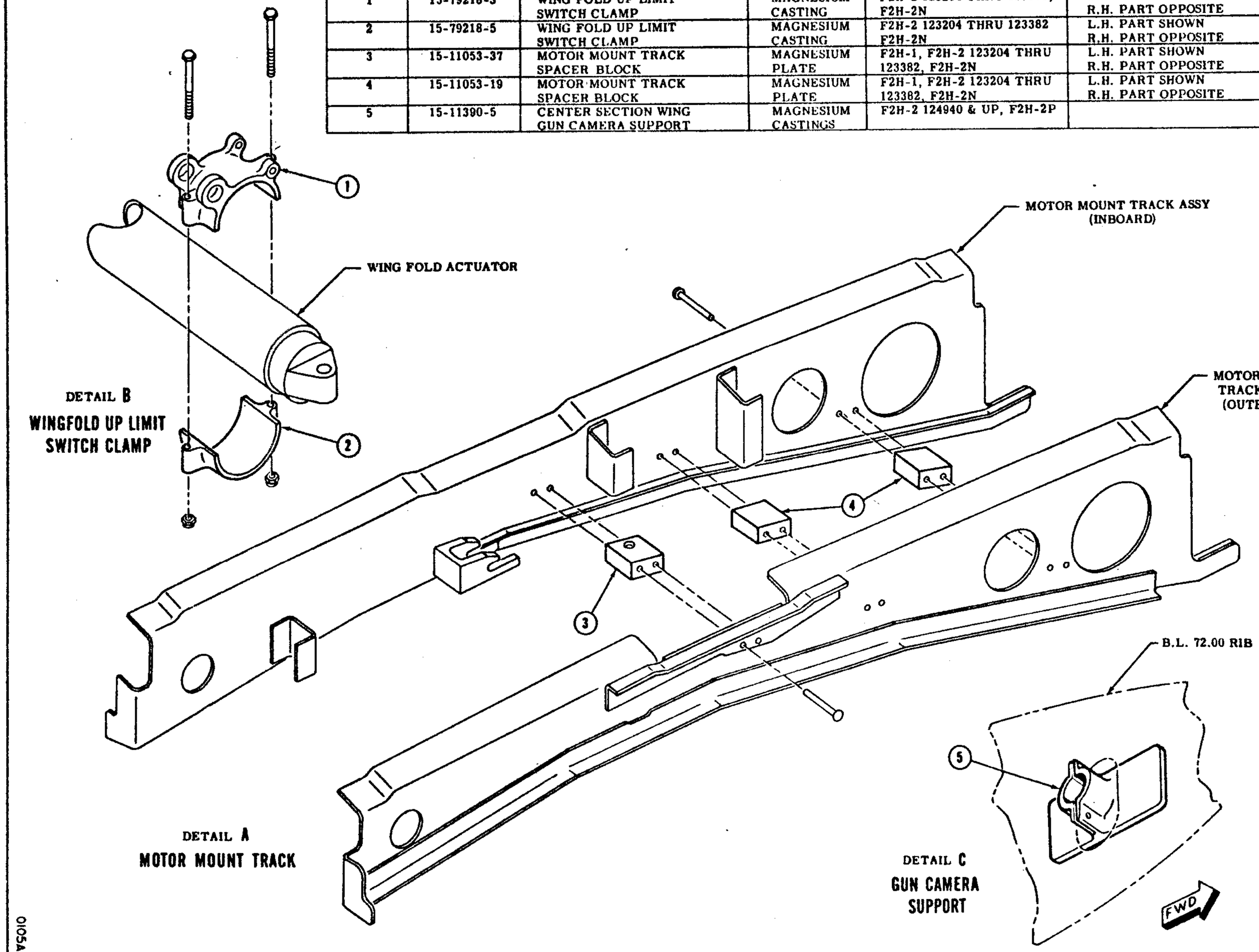
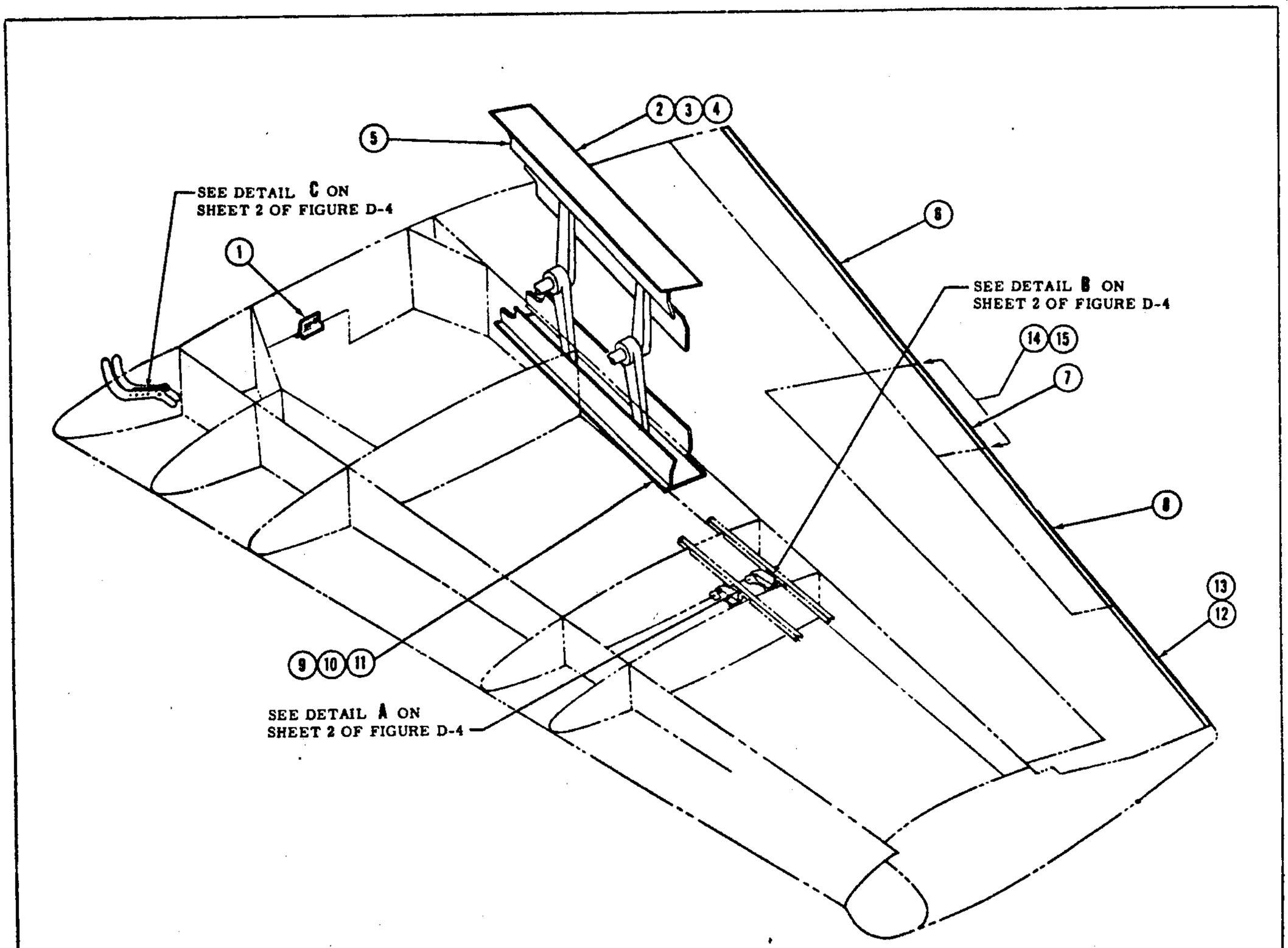


Figure D-4. Dissimilar Metals Diagram - Center Section Wing (Sheet 2 of 2 Sheets)



CODE NO.	PART NO.	NOMENCLATURE	MATERIAL	EFFECTIVE	REMARKS
1	15-42314-3	MAIN LANDING GEAR STRUT BUMPER BLOCK	MAGNESIUM EXTRUSION	F2H-2, F2H-2N, F2H-2P	L.H. PART SHOWN R.H. PART OPPOSITE
2	15-16347-5-6	UPPER SPEED BRAKE OUTER PLATE	MAGNESIUM SHEET	F2H-1 122530 THRU 122539	L.H. PART SHOWN R.H. PART OPPOSITE
3	15-16347-15-16	UPPER SPEED BRAKE OUTER PLATE	MAGNESIUM SHEET	F2H-1 122540 THRU 123559	L.H. PART SHOWN R.H. PART OPPOSITE
4	15-16363-5-6	UPPER SPEED BRAKE OUTER PLATE	MAGNESIUM SHEET	F2H-1 122990 & UP F2H-2, F2H-2N, F2H-2P	L.H. PART SHOWN R.H. PART OPPOSITE
5	15-16347-3-4	UPPER SPEED BRAKE OUTER VERTICLE PLATE	MAGNESIUM SHEET	F2H-1 122530 THRU 122559	L.H. PART SHOWN R.H. PART OPPOSITE
6	15-18005-34-35	OUTER WING FLAP TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1, F2H-2, F2H-2N, F2H-2P	L.H. PART SHOWN R.H. PART OPPOSITE
7	15-17115-9	AILERON TRIM TAB TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1, F2H-2, F2H-2N, F2H-2P	THIS PART ON R.H. SIDE ONLY
8	15-17116-3-4	AILERON BALANCE TAB TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1, F2H-2, F2H-2N, F2H-2P	L.H. PART SHOWN R.H. PART OPPOSITE
9	15-16344-5-6	LOWER SPEED BRAKE OUTER PLATE	MAGNESIUM SHEET	F2H-1 122530 THRU 122539	L.H. PART SHOWN R.H. PART OPPOSITE
10	15-16344-15-16	LOWER SPEED BRAKE OUTER PLATE	MAGNESIUM SHEET	F2H-1 122540 THRU 122559	L.H. PART SHOWN R.H. PART OPPOSITE
11	15-16364-5-6	LOWER SPEED BRAKE OUTER PLATE	MAGNESIUM SHEET	F2H-1 122990 & UP F2H-2, F2H-2N, F2H-2P	L.H. PART SHOWN R.H. PART OPPOSITE
12	15-17016-39-40	AILERON OUTBOARD TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1	L.H. PART SHOWN R.H. PART OPPOSITE
13	15-17202-39-40	AILERON OUTBOARD TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-2, F2H-2N, F2H-2P	L.H. PART SHOWN R.H. PART OPPOSITE
14	15-17016-8	AILERON INBOARD TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1	THIS PART ON R.H. SIDE ONLY
15	15-17202-8	AILERON INBOARD TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-2, F2H-2N, F2H-2P	THIS PART ON R.H. SIDE ONLY

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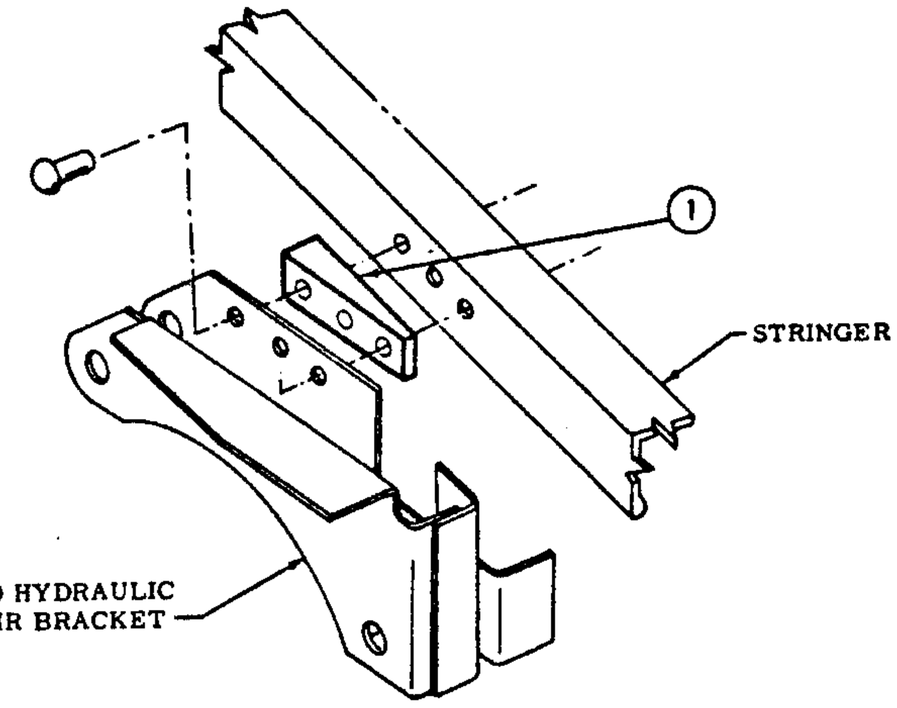
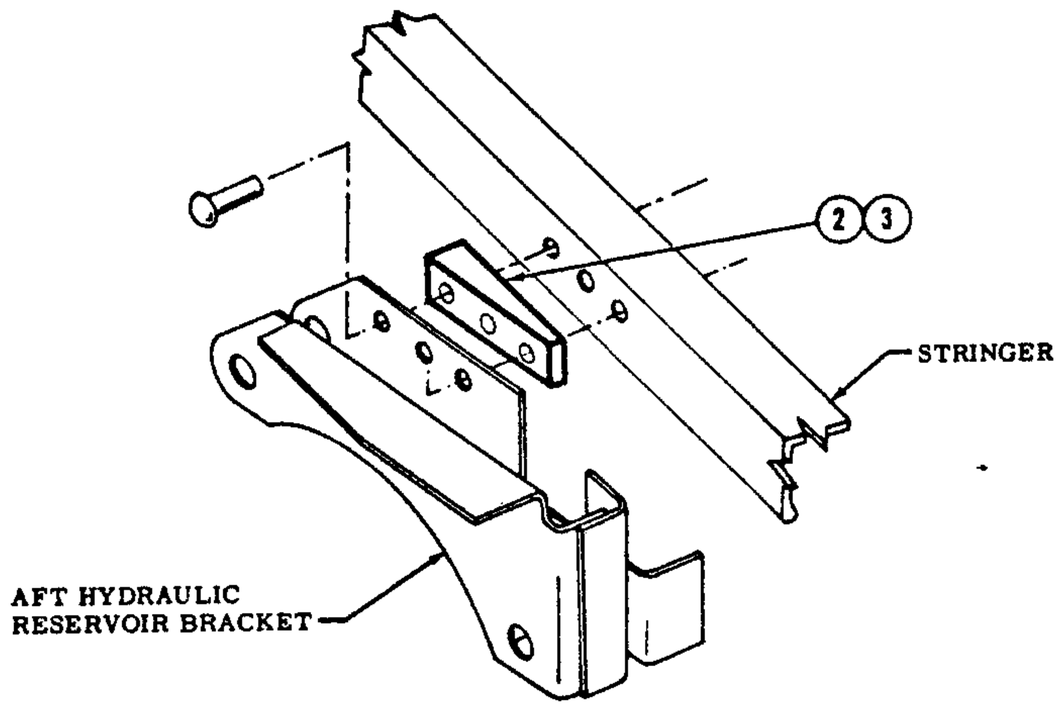
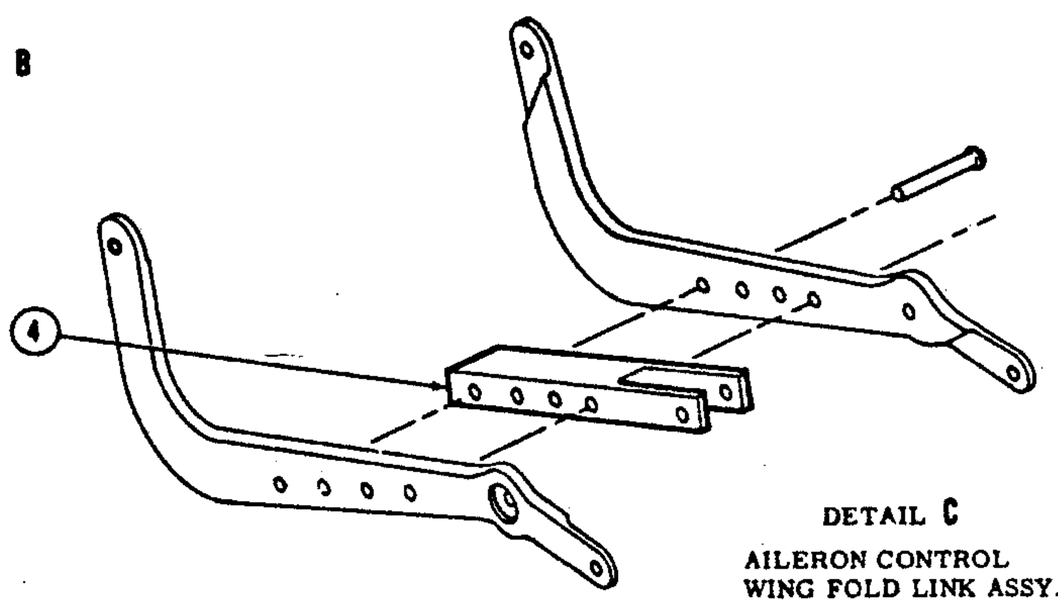
Figure D-5. Dissimilar Metals Diagram - Outer Wing Panel (Sheet 1 of 2 Sheets)



DETAIL A



DETAIL B



DETAIL C

AILERON CONTROL
WING FOLD LINK ASSY.

CODE NO.	PART NO.	NOMENCLATURE	MATERIAL	EFFECTIVE	REMARKS
1	15-69229-9-10	FORWARD HYDRAULIC RESERVOIR BRACKET FILLER	MAGNESIUM PLATE	F2H-1, F2H-2, F2H-2N, F2H-2P	L.H. PART SHOWN R.H. OPPOSITE
2	15-69228-9-10	AFT HYDRAULIC RESERVOIR FILLER BRACKET	MAGNESIUM PLATE	F2H-1, F2H-2 123274 & UP F2H-2N 123303 & UP	L.H. PART SHOWN R.H. PART OPPOSITE
3	15-69228-901-902	AFT HYDRAULIC RESERVOIR FILLER BRACKET	MAGNESIUM PLATE	F2H-2 123204 THRU 123273 F2H-2N 123300 THRU 123302	L.H. PART SHOWN R.H. PART OPPOSITE
4	15-61110-5	AILERON CONTROL WING FOLD LINK ASSEMBLY SPACER	MAGNESIUM SHEET	F2H-2 124940 & UP, F2H-2P	L.H. PART SHOWN R.H. PART OPPOSITE

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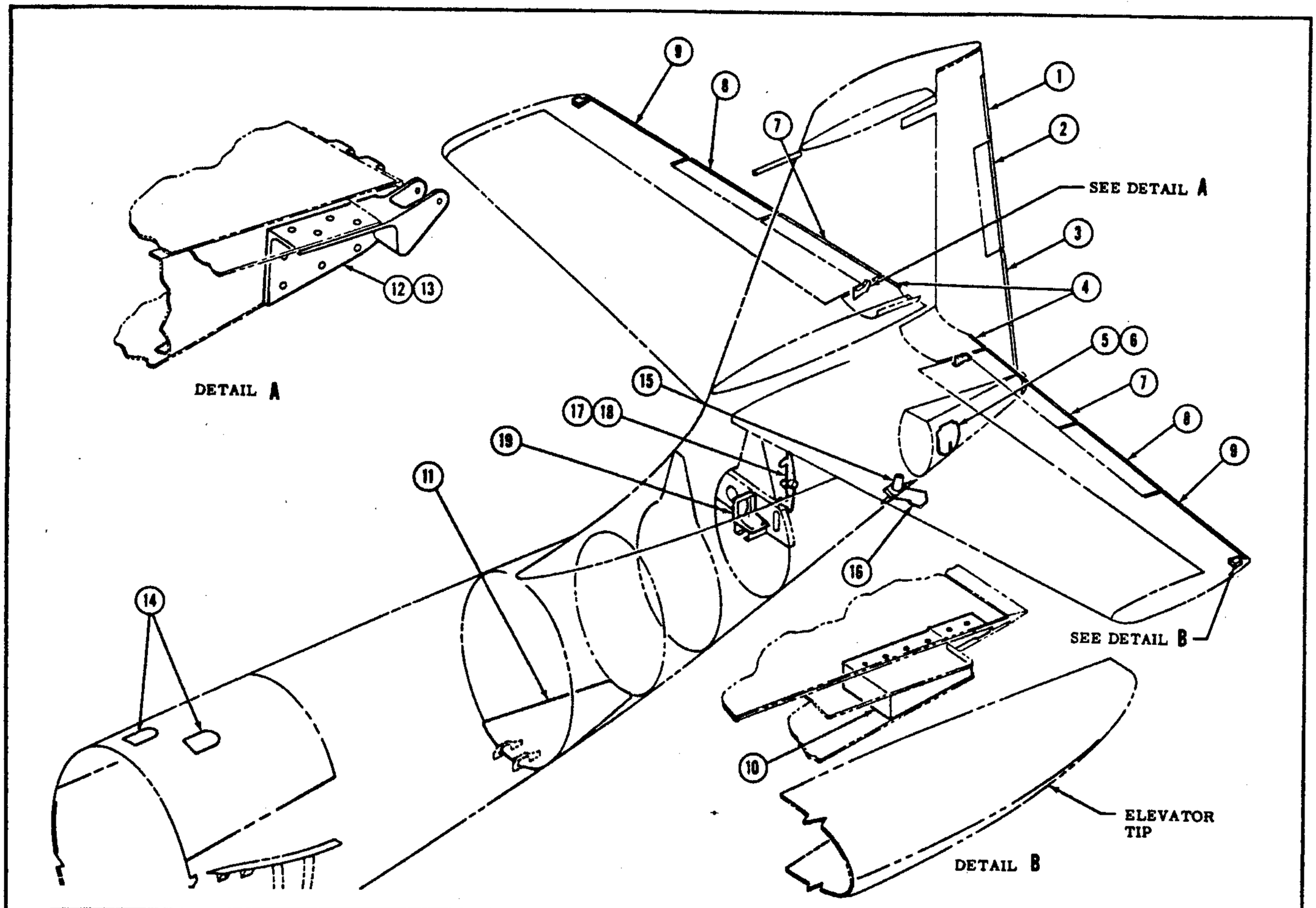
Figure D-5. Dissimilar Metals Diagram - Outer Wing Panel (Sheet 2 of 2 Sheets)



CODE NO.	PART NO.	NOMENCLATURE	MATERIAL	EFFECTIVE	REMARKS
1	15-24002-23	RUDDER TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1, F2H-2, F2H-2N, F2H-2P	
2	15-24004-3	RUDDER TRIM TAB TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1, F2H-2, F2H-2N, F2H-2P	
3	15-24002-21	RUDDER TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1, F2H-2, F2H-2N, F2H-2P	
4	15-25001-25	FIN TO STABILIZER TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1, F2H-2 123204 THRU 123382 F2H-2N	
5	15-33036-35	TAIL CONE ACCESS DOOR	MAGNESIUM SHEET	F2H-1, F2H-2 123204 THRU 123382	
6	15-33146-17	TAIL CONE ACCESS DOOR	MAGNESIUM SHEET	F2H-2N	
7	15-22015-65	ELEVATOR SPRING TAB TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1, F2H-2, F2H-2N, F2H-2P	
8	15-22014-75	ELEVATOR TRIM TAB TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1, F2H-2, F2H-2N, F2H-2P	
9	15-22012-227	ELEVATOR TRAILING EDGE	MAGNESIUM EXTRUSION	F2H-1, F2H-2, F2H-2N, F2H-2P	
10	15-22129	ELEVATOR BLOCK	MAGNESIUM PLATE	F2H-2, 123204 THRU 123382 F2H-2N	
11	15-33094-3	ARRESTING GEAR DOOR	MAGNESIUM SHEET	F2H-2 123204 THRU 123382 F2H-2N	
12	15-22049	ELEVATOR SPRING TAB HINGE FITTING	MAGNESIUM BAR	F2H-1, F2H-2 123204 THRU 123221	
13	15-22124	ELEVATOR SPRING TAB HINGE FITTING	MAGNESIUM CASTING	F2H-2 123222 & UP, F2H-2N	
14	15-32075-31	FUEL TANK FILLER DOOR	MAGNESIUM SHEET	F2H-1, F2H-2 123204 THRU 123382 F2H-2N	
15	15-33285-3	FUEL VENT OUTLET	MAGNESIUM CASTING	F2H-2 125018 & UP F2H-2P 125684 & UP	
16	15-58759-3	FUEL VENT OUTLET MAST	MAGNESIUM CASTING	F2H-2 125018 & UP F2H-2P 125684 & UP	
17	15-61682-13	AUTOPILOT AND YAW DAMPER BELL CRANK	MAGNESIUM CASTING	F2H-2P 125684 & UP	
18	15-61810-3	FUSELAGE STATION 427.75 RUDDER CONTROL BELL CRANK	MAGNESIUM CASTING	F2H-2 125019 AND UP	
19	15-61694-3	RUDDER SERVO MOUNTING BRACKET	MAGNESIUM CASTING	F2H-2 124940 & UP	

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Figure D-6. Dissimilar Metals Diagram - Aft Fuselage and Tail Group