Ayres Corporation service bulletin **No. SB-AG-30**

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Service Bulletin No. SB-AG-30
1 October 1992
Revised 1 May, 1993

SPAR CRACKS UNDER AILERON BRACKETS

MODELS AFFECTED:

S2D, All Serial Numbers
S2R, S/N 5000-5099, S.N 1380R, 1416R thru 2582R
2R-R1340, S/NR1340-001 thru R1340-029*
S2R-R3S, S/N R3S-001 thru R3S-011*
S2R-R1820, S/N R1820-001 thru 035*
S2R-T11, S/N T11-001 thru 005*
S2R-T15, S/N T15 (or T27) –001 thru T27-029 and T15-027*
S2R-T34, S/N 6000-6049, S/N T34 (or T41) – 001 thru T41-175 and T34-173DC*
S2R-T45, S/N T45-001
S2R-T65, S2RHG-T65, S/N T65-001 thru –010*
S2R-G6, S/N G6-101 thru G6-104*

* With or without DC suffix

REASON FOR PUBLICATION:

Cracks have been found in the wing rear spar assembly directly under the aileron bracket pads. This bulletin has been written to provide for: (1) inspection of the wing rear spar assembly for cracks; and (2) accomplishing any necessary repairs.

COMPLIANCE:

This action is required within the next 100 hours of service or at the next annual inspection, whichever comes first.

BY WHOM WORK WILL BE ACCOMPLISHED:

A & P mechanic or equivalent

APPROVAL:

Technical content FAA Approved

ACCOMPLISHMENT
INSTRUCTIONS:

I. Inspection and Rework of Aileron Brackets

1. Remove aileron.

2. Gain access to the closed bay just forward of the aileron by:

   a. Enlarging the access holes in the aileron cove skin as shown in Figure 1.

   b. Or, alternately, by peeling the aileron cove skin back after removing the rivets at its top edge, its rib flanges and the angles at its inboard and outboard ends.

3. Remove P/N 52169 aileron brackets, three per side.

4. Using a flat surface, inspect the aileron bracket pads as shown in Figure 2. For reuse, the “X” and “Y” dimensions must not exceed .020 inches. (For brackets that are slightly out of tolerance, it may be possible to straighten the “X” dimension pad by light bending to achieve the required tolerance. Do not bend the legs of the brackets, only the pads.) If the brackets cannot be reworked to pass this check, order new brackets from your dealer. If the old brackets are to be reused, chamfer(round off) the edges of the upper pads as shown in Figure 2, Detail C-1.

II. Inspection and Repair of Outboard Hinge Support Structure
Refer to Figures 3 and 4.

1. Inspect for cracks in the doublers, P/N 52182-1 upper and 52183-1 lower. If no cracks are found, install a new (or inspected and reworked) aileron bracket. Go to step III-1.

2. If cracks are found in these doublers, remove and discard them. Inspect the underlaying spar web, P/N 52177-1, for cracks. If no cracks are found in the spar, install new doublers, cup brackets*, P/N 21450-13 upper and 21450-15 lower, and the aileron bracket. Go to Step III-1.

NOTE: Earlier doublers may have different rivet patterns in the center between the upper aileron bracket attach pads. Later brackets have three rivets. If you have other than the 3-hole doubler, leave the existing holes open in the spar and the 52184-1 angle. Drill the cup bracket, spar and 52184-1 angle to match the 3-hole pattern in the new 52182-1 doubler.

3. If cracks are found in the underlaying spar web, remove the extruded angles, P/N 52184-1 upper and 52184-2 lower, on the forward face of the spar and stop drill the web.

4. Reinstall angles, new doublers, cup brackets and a new (or reworked) aileron bracket. Go to Step III-1.

III. Inspection and Repair of Center Hinge Support Structure
Refer to Figures 3 and 4.

1. Inspect for cracks in the doublers, P/N's 52180-1 upper and 52181-1 lower. If no cracks are found, install a new (or inspected and reworked) aileron bracket. Go to Step IV-1.

2. If cracks are found in these doublers, remove the angle brackets, P/N 52185-1 upper and 52187-1 lower, forward of the spar and inspect the spar web from its front side. If cracks are found in the spar, stop drill these cracks from the front side. Stop drill the doublers from the aft side of the spar. Reinstall the angles, together with the cup brackets* and a new or reworked aileron bracket. Go to Step IV-1.

NOTE: If the two center bolts between the aileron brackets attach pads are too close to the radius of the cup brackets, leave the existing two holes open and drill one hole in the center, low enough to clear the radius. Ref. Drawing 21451, sheet 2. Grind the center of the bottom cup flange as required to clear the aileron push rod/bolt.

IV. Inspection and Repair of Inboard Hinge Support Structure
Refer to Figures 3 and 4

1. Inspect for cracks in the doublers, P/N's 52180-1 upper and 52181-1 lower. If no cracks are found, install a new or reworked aileron bracket. Go to Step V.

2. If cracks are found in these doublers, remove the extruded angles, P/N 52191-1 and 52191-2, forward of the spar and inspect the spar web from its from side. If cracks are

found in the spar , stop drill these cracks from the front side. Stop drill the doublers from the aft side of the spar. Reinstall the angles together with the cup brackets* and a new or reworked aileron bracket. Go to Step V.

V. Close out the enlarged access holes in the aileron cove skin as shown in Figure 5. Parts may be fabricated on site or purchased from your dealer. Or, alternately, reinstall the peeled down cove skin if this method of access was used.

RECORD ENTRY: Make an entry in aircraft records as follows:

Service Bulletin No. SB-AG-30 dated October 1, 1992 entitled “Spar Cracks Under Aileron Brackets” accomplished _____date_____
By _____.

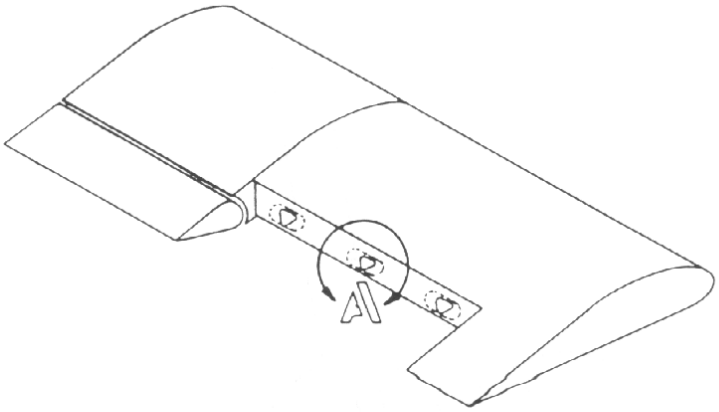
*Footnotes:

(1) If any cracks are found, then all three hinge brackets (on that aileron) should be installed sitting on the new cup brackets. This is necessary in order to keep the hinge line straight.

(2) Since there is a small variance in the rivet patterns wing to wing and ship to ship, the cup brackets have been made oversized in horizontal length. It is permissible to grind off the ends of these brackets up to 3/8 inch in order to allow them to sit down in between existing rivets at the edges of the repaired area. It is also permissible to slide these cup brackets inboard and outboard ± ¼ inch from perfect center in order to avoid rivet interference.

FIGURE 1

ACCESS HOLES



DETAIL A

CUTOUT

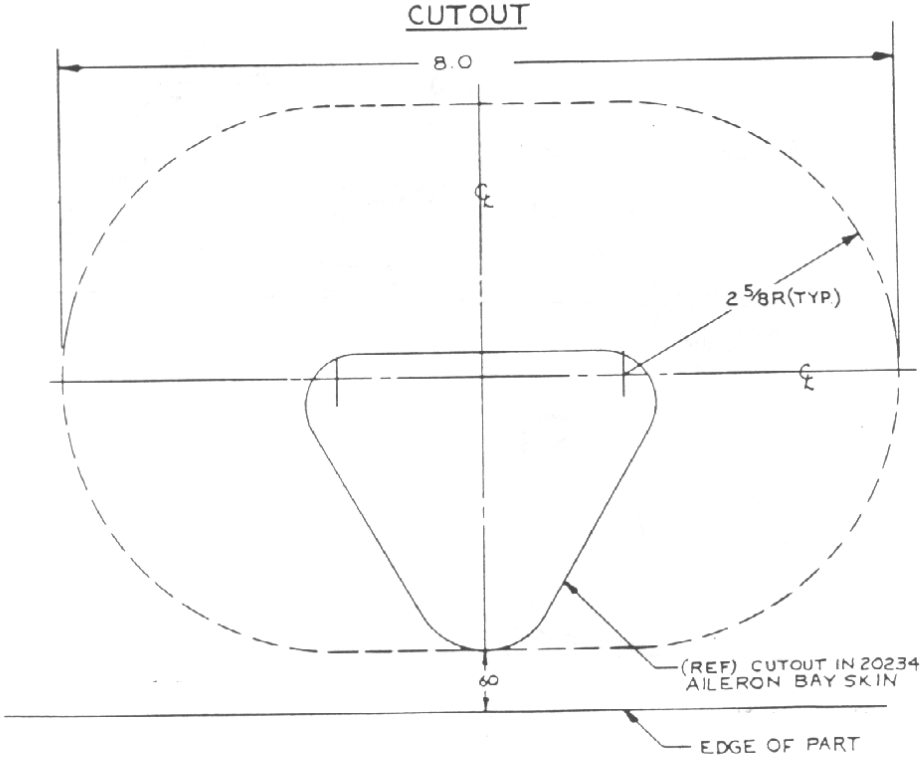
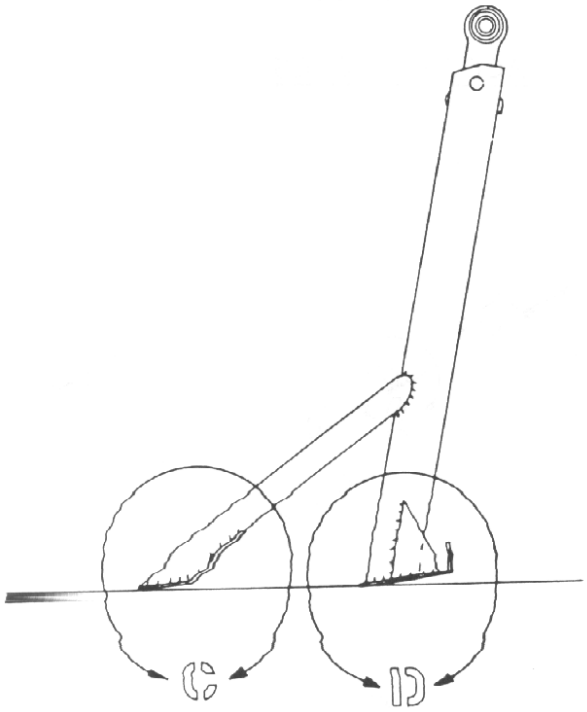
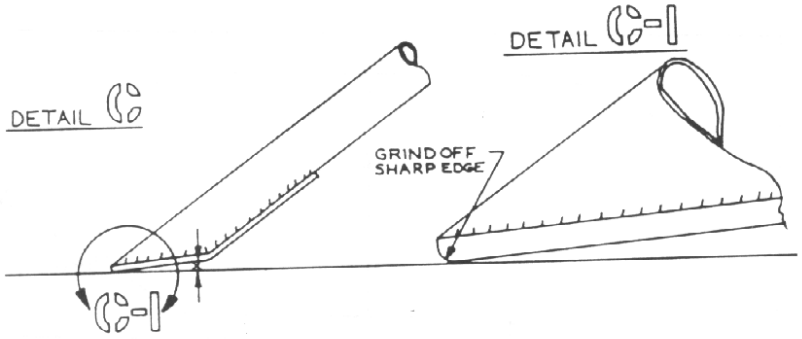
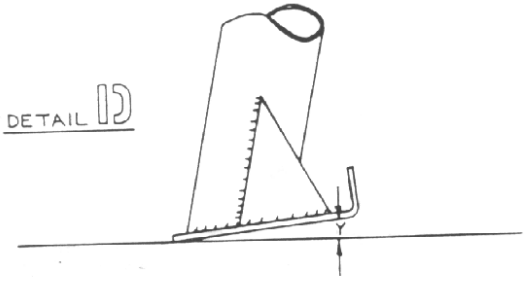


FIGURE 2



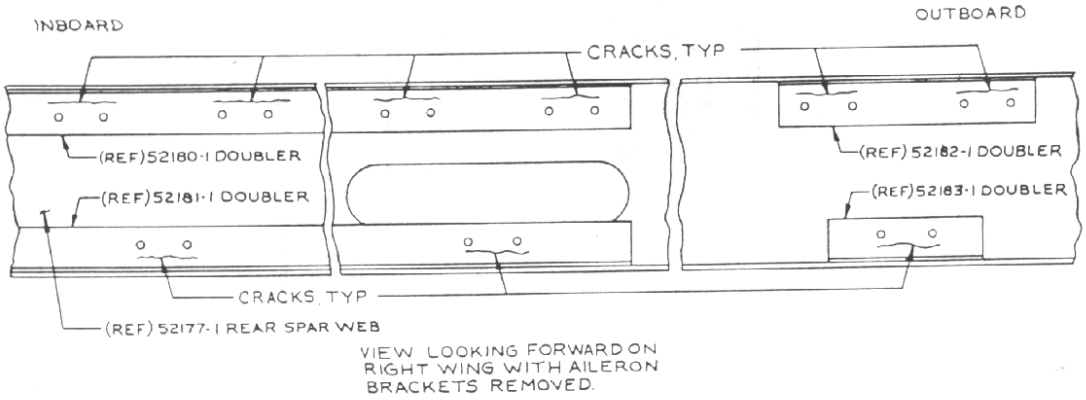




ESK 454

FIGURE 3

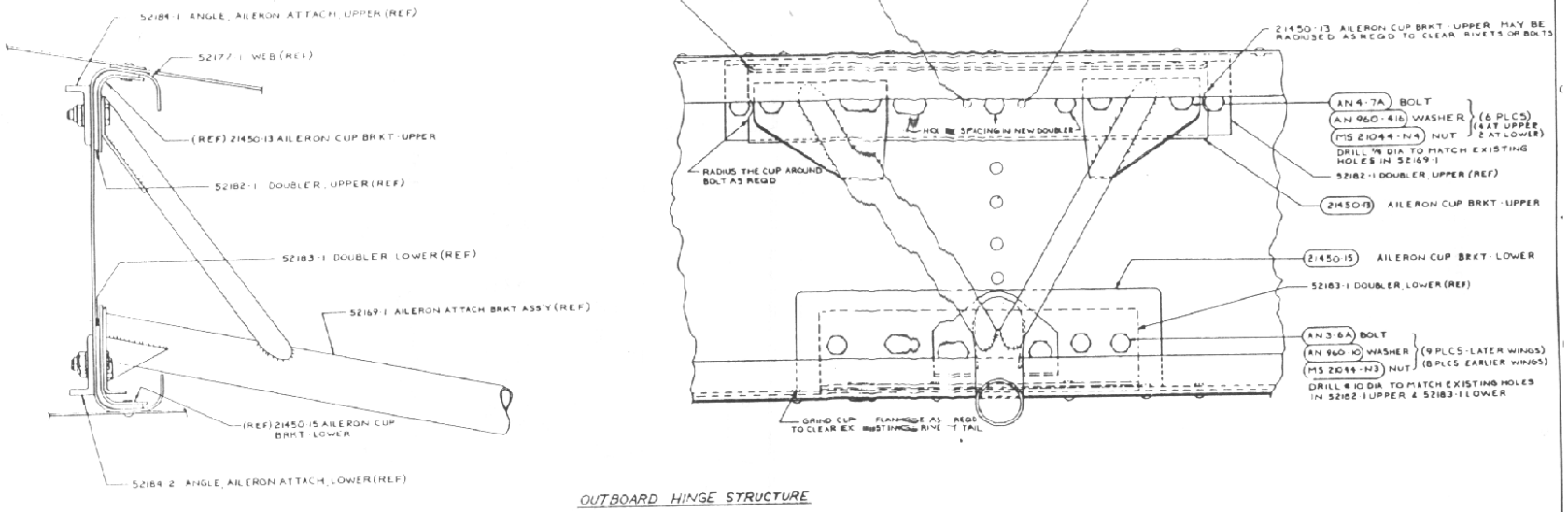
TYPICAL CRACKS



NOTES (1) IF THERE IS ANY QUESTION REGARDING THE EXISTENCE OF A CRACK, USE A DYE PENETRANT TO AID THE INSPECTION.

(2) STOP DRILL ALL CRACKS NO. 50.

FIGURE 4



OUTBOARD HINGE STRUCTURE

REVISION			
LTR	CHANGE	DATE	APP

No. SB-AG-30
1 October 1992
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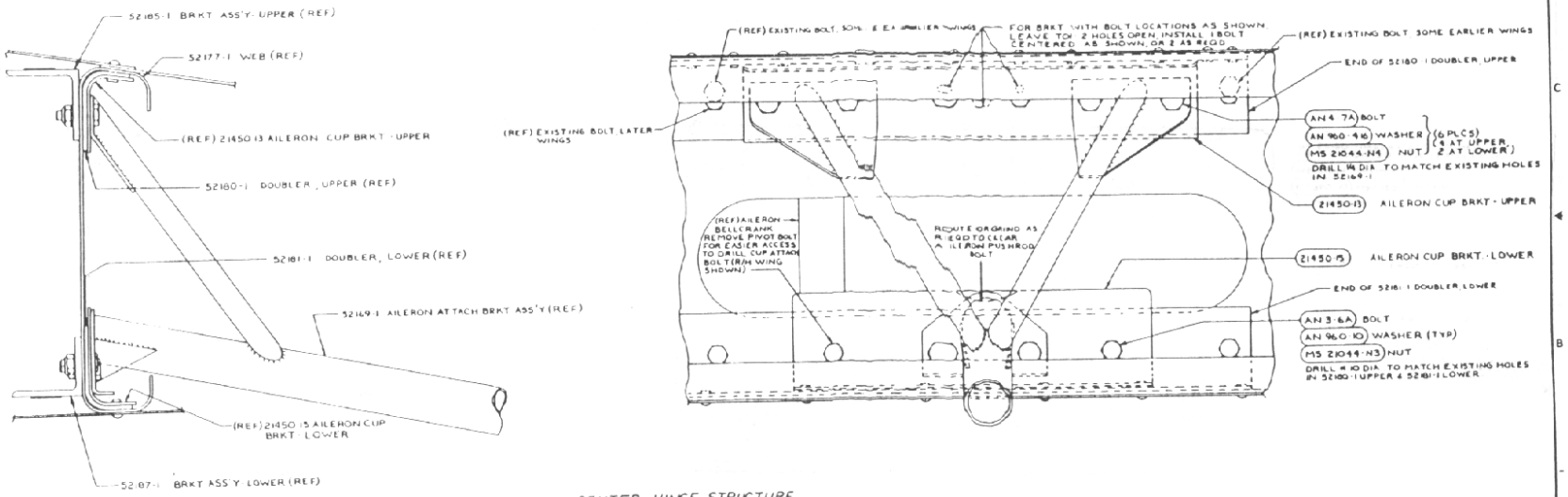
DATE	10-7-92
APPD	C.A.O'Neal
SCALE	Full
SIZE	D
MODEL	520

AYRES CORPORATION
ALBANY GEORGIA

AILERON HINGE INSTL

21451

FIGURE 4



CENTER HINGE STRUCTURE

REVISION			
LTR	CHANGE	DATE	APP

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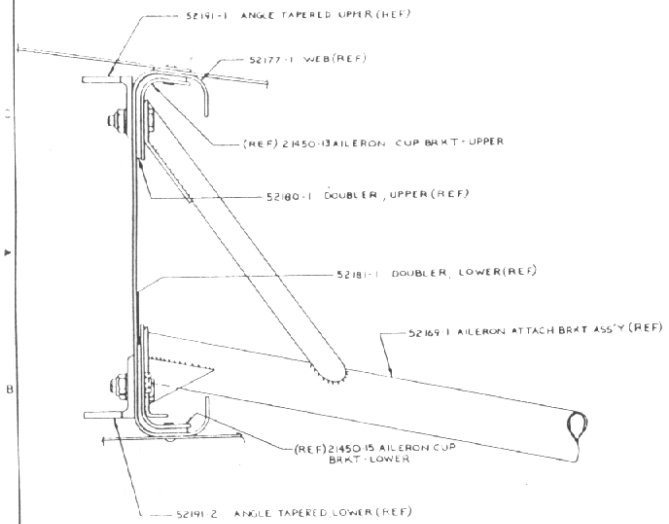
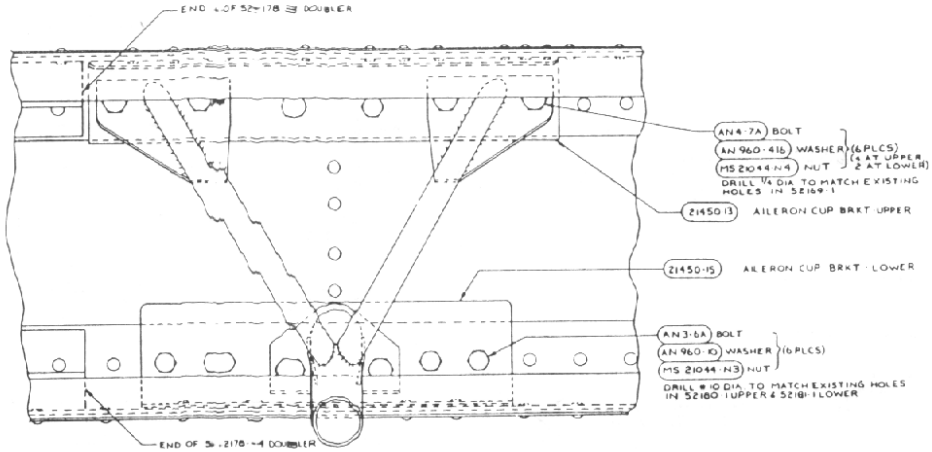
DATE	10-7-92	AYRES CORPORATION	
DRWN	C Owens	ALBANY GEORGIA	
CHKD			
APPD	R. Nicoson		
SCALE	Full		
MODEL	S2R	AILERON HINGE INSTL	21451
			SHEET 2 OF 3

FIGURE 4





INBOARD HINGE STRUCTURE

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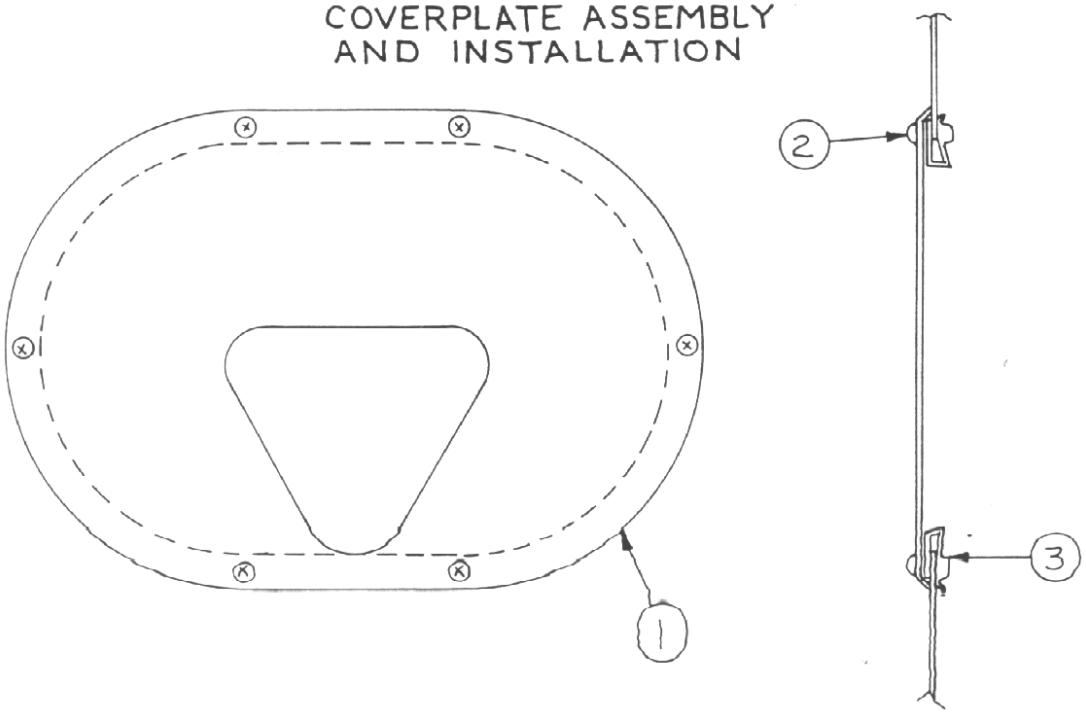
DRN	10-7-92
CHK	C OWENS
PROJ	P. N. Cowell
SCALE	Full
SIZE	
MODEL	52R

AYRES CORPORATION
ALBANY GEORGIA

AILERON HINGE INSTL — 21451

FIGURE 5

COVERPLATE ASSEMBLY AND INSTALLATION



BILL/MATLS			
PART NO.	QTY.	DESCRIPTION	PART NO
1	1	COVER PLATE	21452-1
2	6	SCREW	MS 35206-243
3	6	NUTPLATE	SL 213 081

TYPICAL PER EACH CUTOUT