

TECHNICAL BULLETIN

NO. 214-78-18

Bell Helicopter **TEXTRON**

DATE 11-20-78

DATE

REV.

Post Office Box 482 • Fort Worth, Texas 76101

PAGE NO. 1 of 13

SUBJECT: REINFORCEMENT/REPAIR OF TAIL BOOM
P/N 214-030-003-7

HELICOPTERS AFFECTED: All Model 214B/R1 helicopters

COMPLIANCE: At the operator's option or when cracks are discovered in the tail boom bulkheads

DESCRIPTION:

214B heavy lift operators report certain bulkheads in the tail boom are cracking. The addition of doublers and brackets will provide a repair for the bulkheads that have cracked

FAA/DER APPROVAL:

W. Hutchins, 500386

MAILED

DATED 1-5-79

MANPOWER:

It is estimated that a maximum of 36 manhours are required to perform this bulletin.

MATERIAL:

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
214-030-307-15	Bulkhead	1
214-030-308-15	Bulkhead	1
214-030-309-15	Bulkhead	1
214-030-310-21	Bulkhead	1
214-030-311-17	Bulkhead	1
214-030-312-17	Bulkhead	1
.05t 7075-T6	*Al Aly Sheet	2 X 6 inches
QQ-A-250 TEMP T6		
.063t 2024-T3	*Al Aly Sheet	6 X 6 inches
QQ-A-250-TEMP T3		
214-961-146-61	Bracket	1
214-961-146-63	Bracket	1
214-961-146-65	Bracket	1
214-961-146-67	Bracket	1
20-007-15-15-20	Bushing	4
30-015-5	Collar	12
100-048-5-2	Pin	7
100-048-5-4	Pin	5
MS20426AD3-5	Rivet	16
.05t 2024-T3	*Al Aly Sheet 24 X 5 in.	1
QQ-A-250 TEMP T3		

AN APPROPRIATE ENTRY SHOULD BE MADE IN THE AIRCRAFT LOG BOOK UPON ACCOMPLISHMENT
IF OWNERSHIP OF AIRCRAFT HAS CHANGED PLEASE FORWARD TO NEW OWNER

78-11-28-1-1

MS20426AD4-4	Rivet	4
MS20470AD4-4	Rivet	28
MS20470AD4-5	Rivet	700
MS21059L3	Nutplate	8

*Procure locally

SPECIAL TOOLS:

No special tool required

WEIGHT AND BALANCE:

Weight Change + 1.7 lbs.

Ballast required +1.2 lbs

Horizontal
ARM Moment
-6 in. 638 in-lbs.

REFERENCE:

Not affected

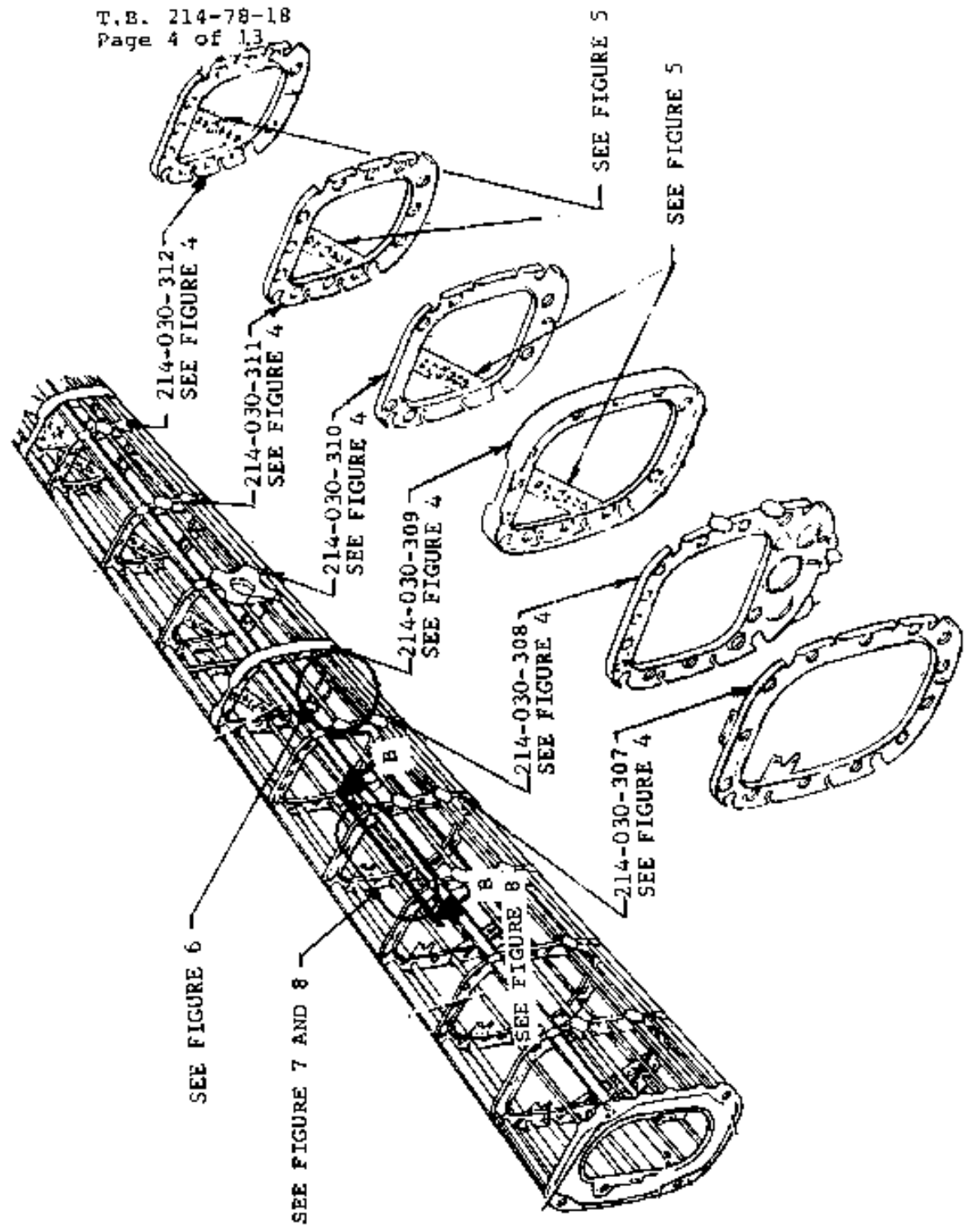
PUBLICATIONS AFFECTED:

None Affected

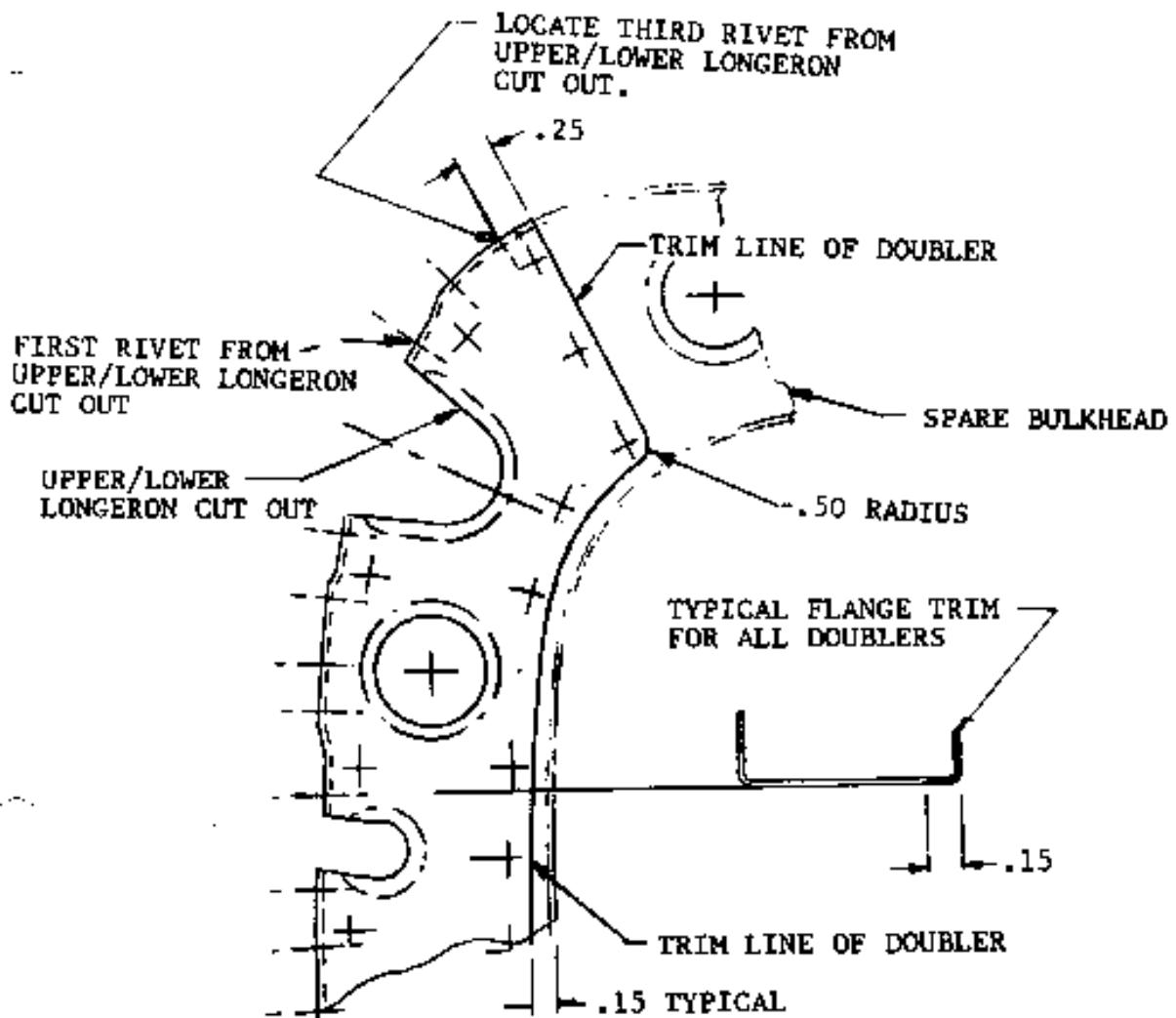
ACCOMPLISHMENT INSTRUCTIONS:

1. Refer to figure 1. Gain access to the interior of the tail boom by removing all the lower access panels.
2. Inspect each bulkhead in the area of the longerons and "J" stringer for cracks. If crack or cracks are found stop drill with a No. 40 drill.
3. Refer to figure 2 and 3. Cut doublers from each spar bulkhead. Locate and drill No. 40 pilot holes, all added holes. Mark each doubler set with bulkhead part number.
4. Disconnect and remove from the guide brackets all control tubes that will interfere with the installation of doublers and new guide brackets.
5. Refer to figure 5. Remove guide brackets from bulkheads. Remove the guides and retain the hardware. Install the nutplates to the new brackets, reinstall the guides with retained hardware.
6. Refer to figure 4. The following instructions are typical for all bulkhead to be repaired. Remove all rivets that fall in the area to be covered by the doubler. Fit the doubler to nest into the bulkhead flange (doublers may require additional trimming to suit each condition). Pick up all holes in the doublers from the bulkheads and all holes in the bulkhead from the doublers. De-burr all holes.

7. Refer to figure 5. Install new guide brackets.
8. Refer to figure 6B. Fabricate doublers "W" and "Y" and clips "X" and "Z". Alodine and prime with epoxy primer.
9. Refer to figures 6 and 6A. Remove the elevator and anti-torque, control bellcranks from support assembly. Remove rivets that fall in the area to receive the doublers. Remove (4) bushings two each side. Temporarily attach doublers and pick up existing holes, de-burr all holes. Locate and install doublers, ream hole and press the bushing in.
10. Refer to figure 6. Remove the rivets attaching the aft clip to the bulkhead. Temporarily attach the clips, pick up existing holes, de-burr all holes. Install clip with Hi-Lok pins and collars.
11. Reinstall the elevator and anti-torque bellcrank and control tubes. Reinstall control tube through guide brackets and reconnect. Adjust guides to give control tube the most clearance.
12. Refer to figures 7 and 8. Fabricate two angles and four clips. Locate the angles and clips. Drill all holes in the skin and bulkhead from the angles and clips. Remove angles and clips, de-burr all holes. Reinstall angles and clip with rivets as called out. Coat angles and clips with epoxy primer. Reinstall all removed panels.



TAIL BOOM REINFORCEMENT
FIGURE 1



NOTE:

1. TYPICAL TRIM LINE FOR BOTH UPPER AND LOWER ENDS AND LEFT AND RIGHT SIDE. SEE FIGURE 3 FOR RIVET SPACING
2. BREAK ALL SHARP EDGES

VIEW SHOWING DOUBLER CUT FROM SPARE BULKHEAD

FIGURE 2

.70
TYPICAL DIM
FROM CUTOUTS
ALL RIVETS

.25 TYPICAL

- NOTE:
1. DOUBLERS MAY REQUIRE ADDITIONAL TRIMMING ON INSTALLATION.
 2. LOCATE ALL ADDED RIVET HOLES IN DOUBLER (EXCEPT THOSE HOLES BEING PICKED UP FROM EXISTING LOCATION) PRIOR TO INSTALLATION.
 3. QTY OF RIVETS WILL VARY FROM DOUBLER TO DOUBLER AT BULKHEAD STATIONS.

1.00

TYPICAL
RIVET PITCH

.70 TYPICAL DIM FROM CUTOUTS
FOR ALL RIVETS

.25 TYPICAL EDGE
DISTANCE FOR ALL
RIVETS

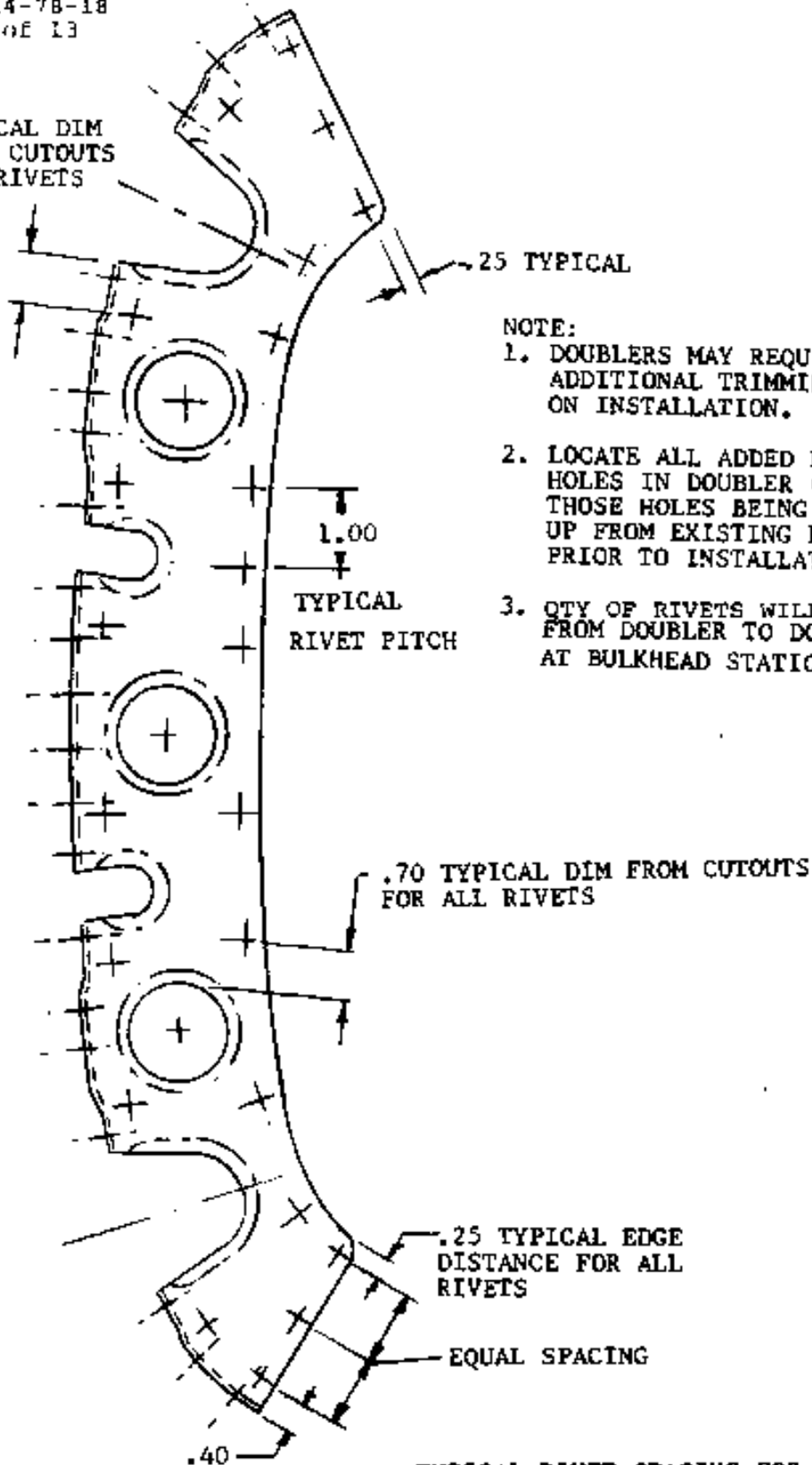
EQUAL SPACING

.40

TYPICAL DIM FROM
FLANGE ALL RIVETS

TYPICAL RIVET SPACING FOR ALL DOUBLERS

FIGURE 3



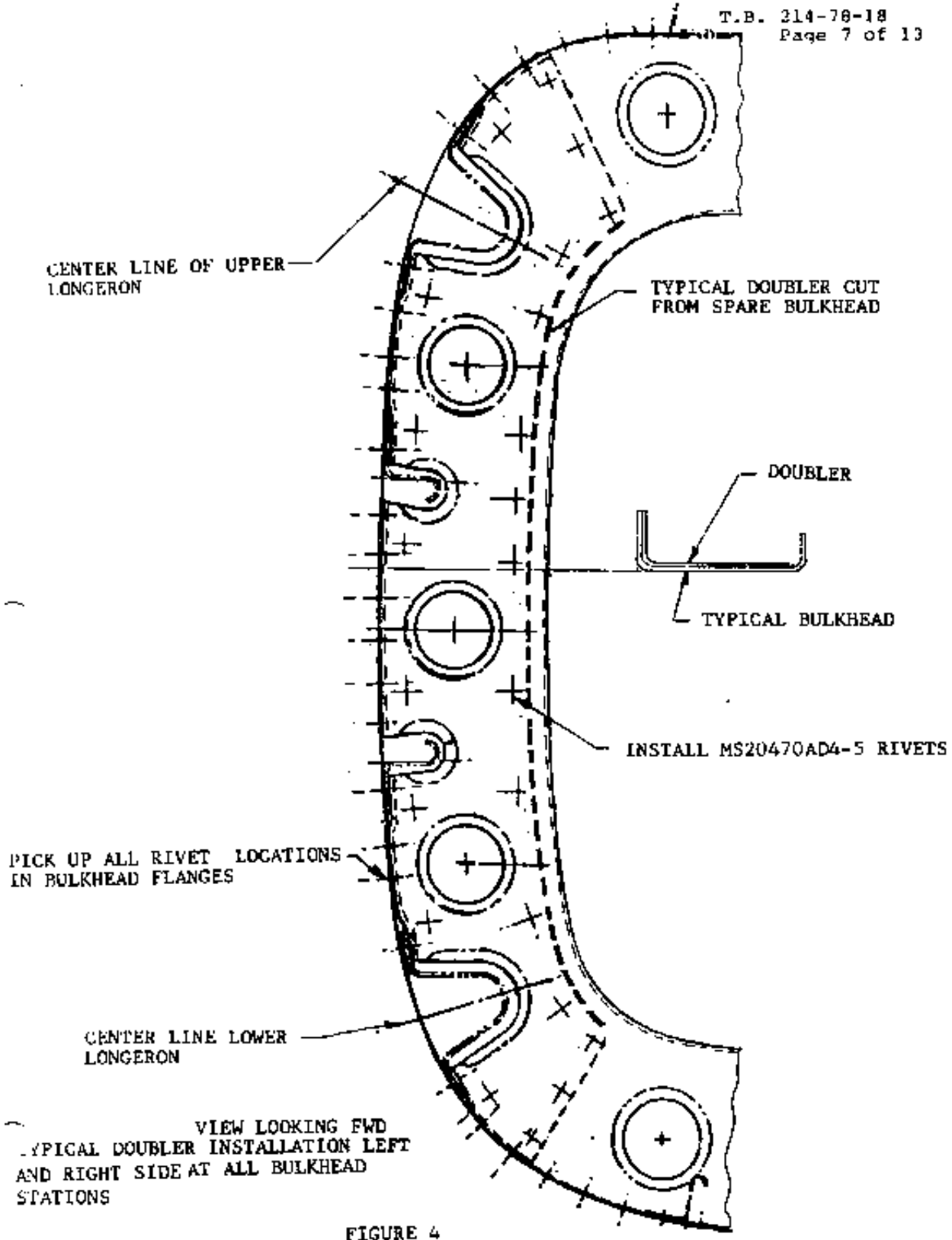
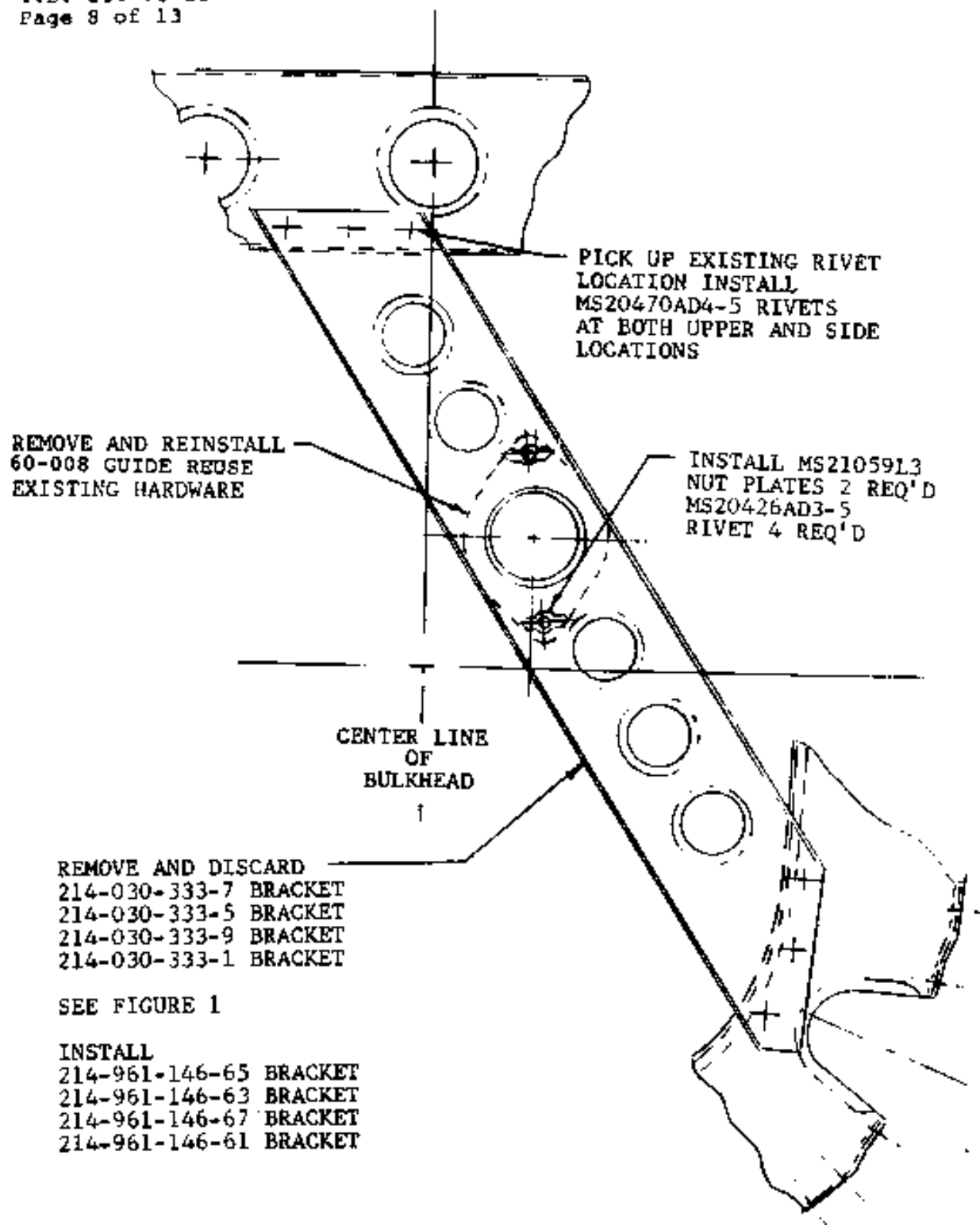
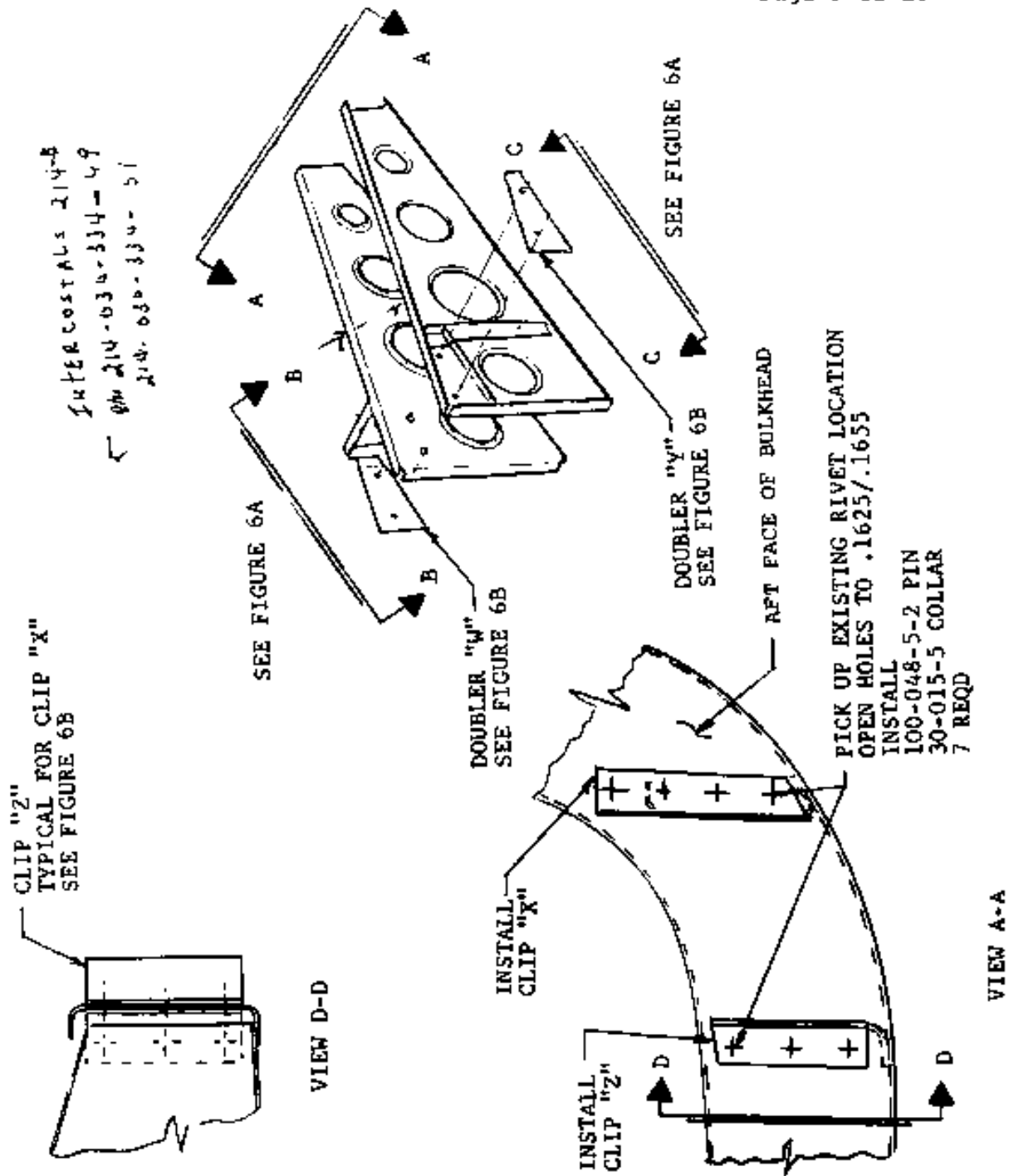


FIGURE 4



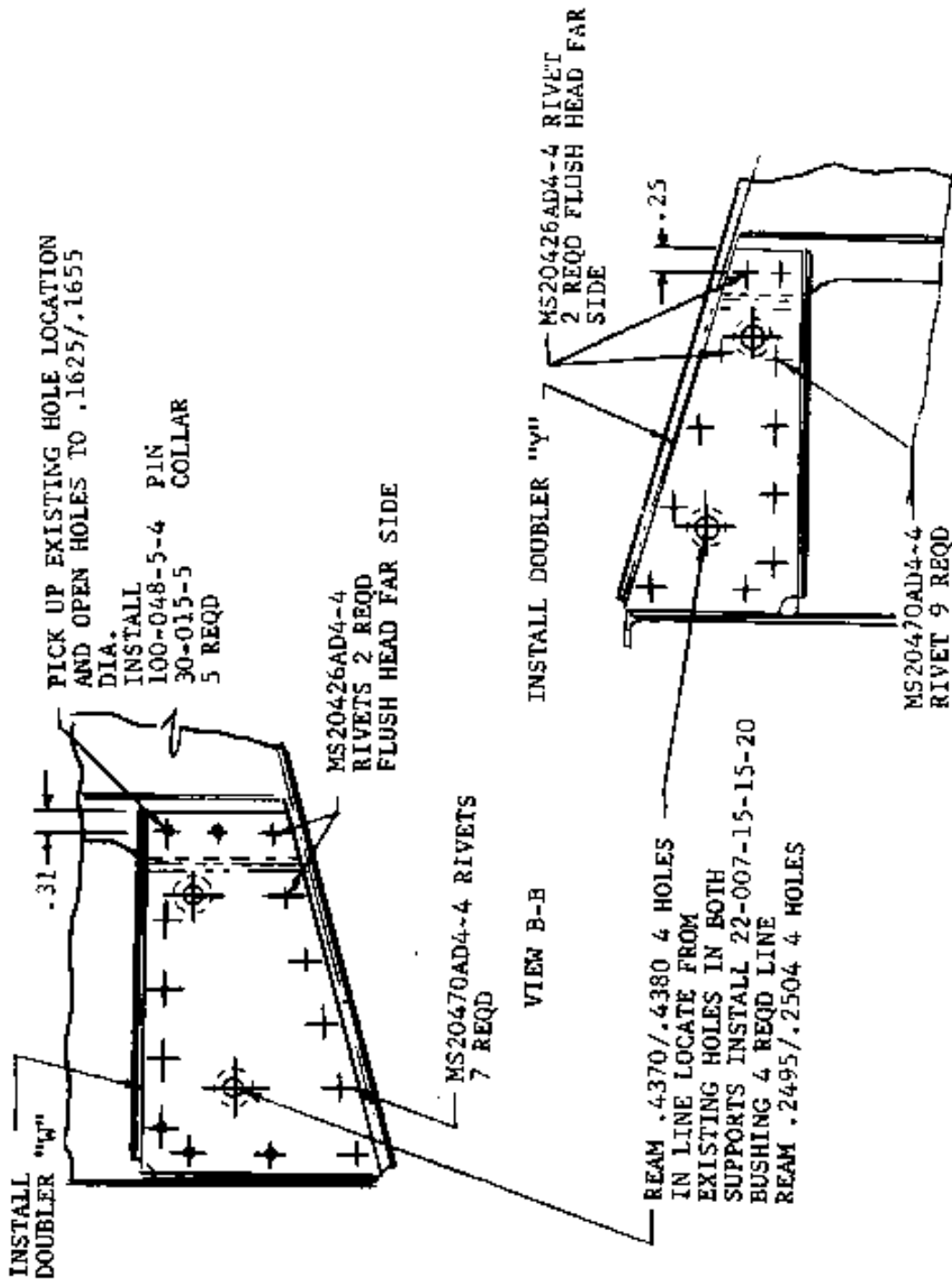
TYPICAL CONTROL GUIDE BRACKET INSTALLATION ON FOUR BHD

FIGURE 5



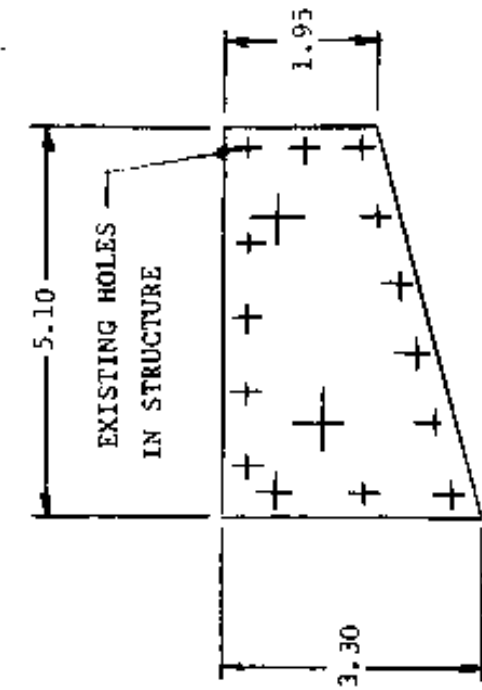
REINFORCEMENT OF ANTI-TORQUE CONTROL SUPPORT BRACKET

FIGURE 6

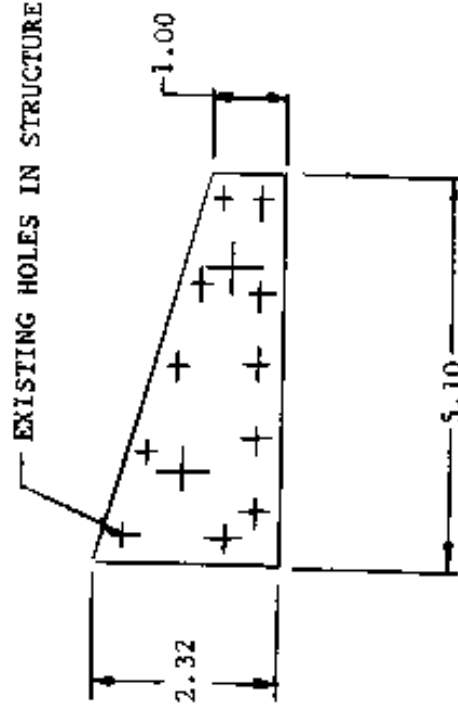


DOUBLER INSTALLATION ON ANTI-TORQUE
 CONTROL SUPPORT BRACKET

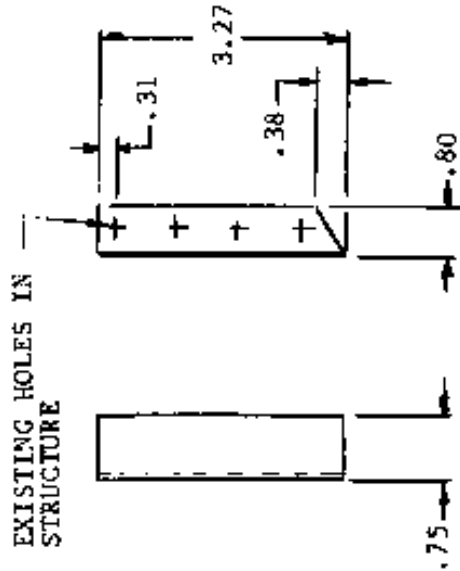
FIGURE 6A



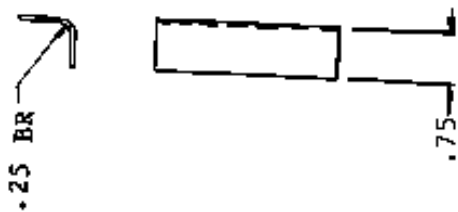
DETAIL OF DOUBLER "W"
 MATERIAL .063t 2024-T3
 QQ-A-250 TEMP-T3 AL-ALY



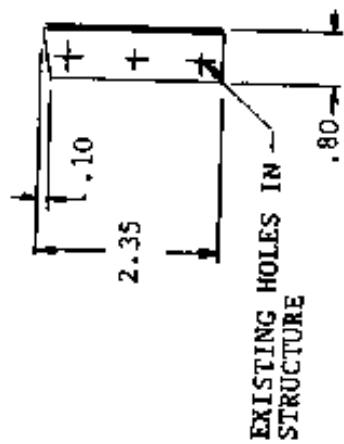
DETAIL OF DOUBLER "Y"
 MATERIAL .063t 2024-T3
 QQ-A-250 TEMP-T3 AL ALY



.25BR
 DETAIL OF CLIP "X"
 MATERIAL .050t 7075-T6 QQ-A-250
 TEMP T6 AL ALY

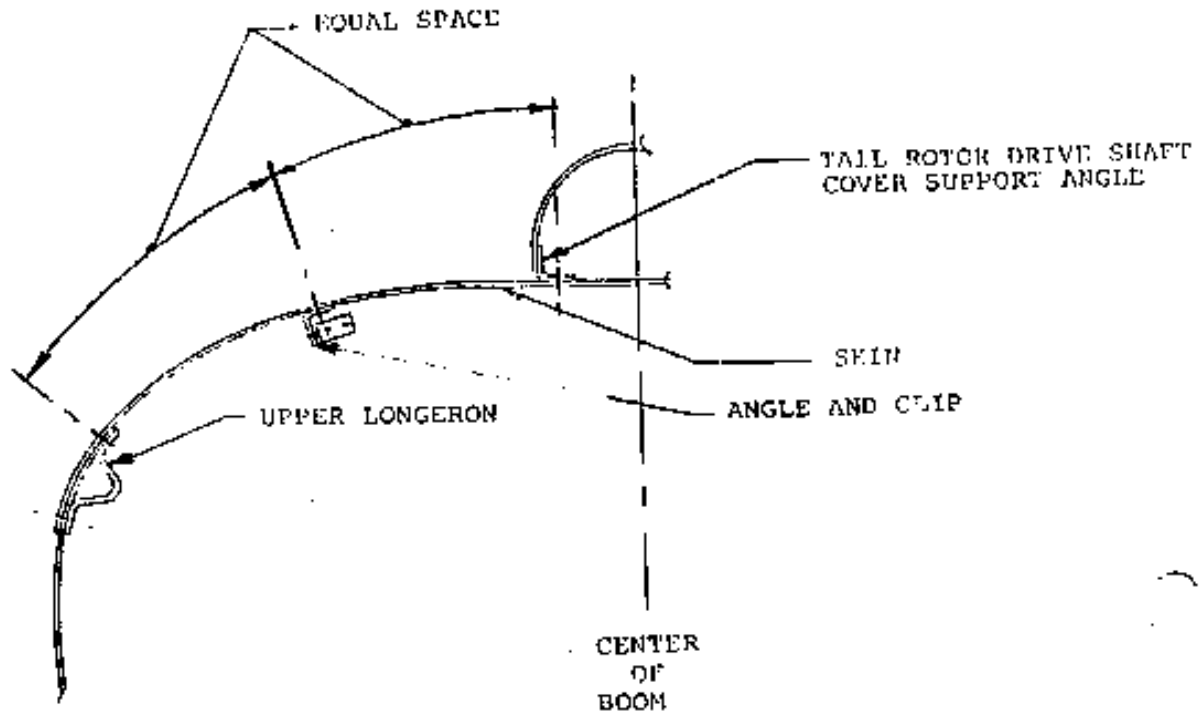


DETAIL OF CLIP "Z"
 MATERIAL .050t 7075-T6 QQ-A-250
 TEMP-T6 AL ALY

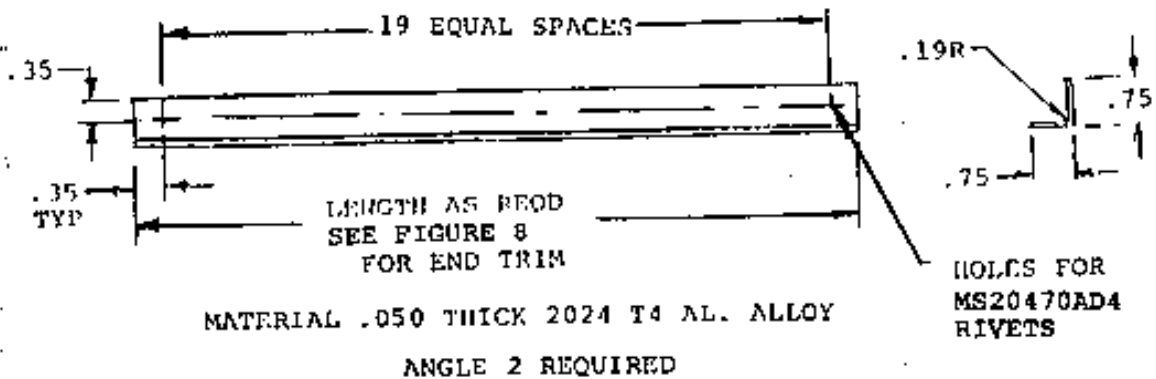


CLIPS AND DOUBLERS DETAILS

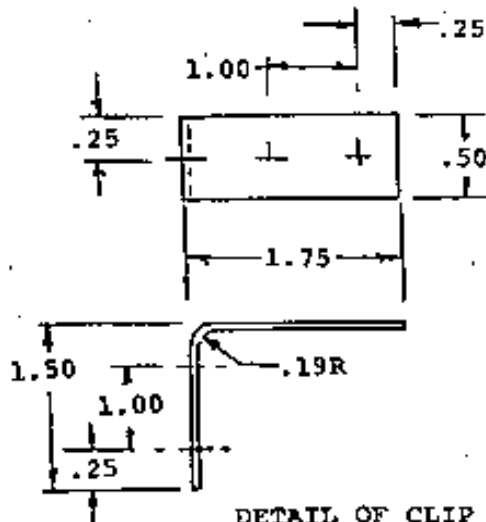
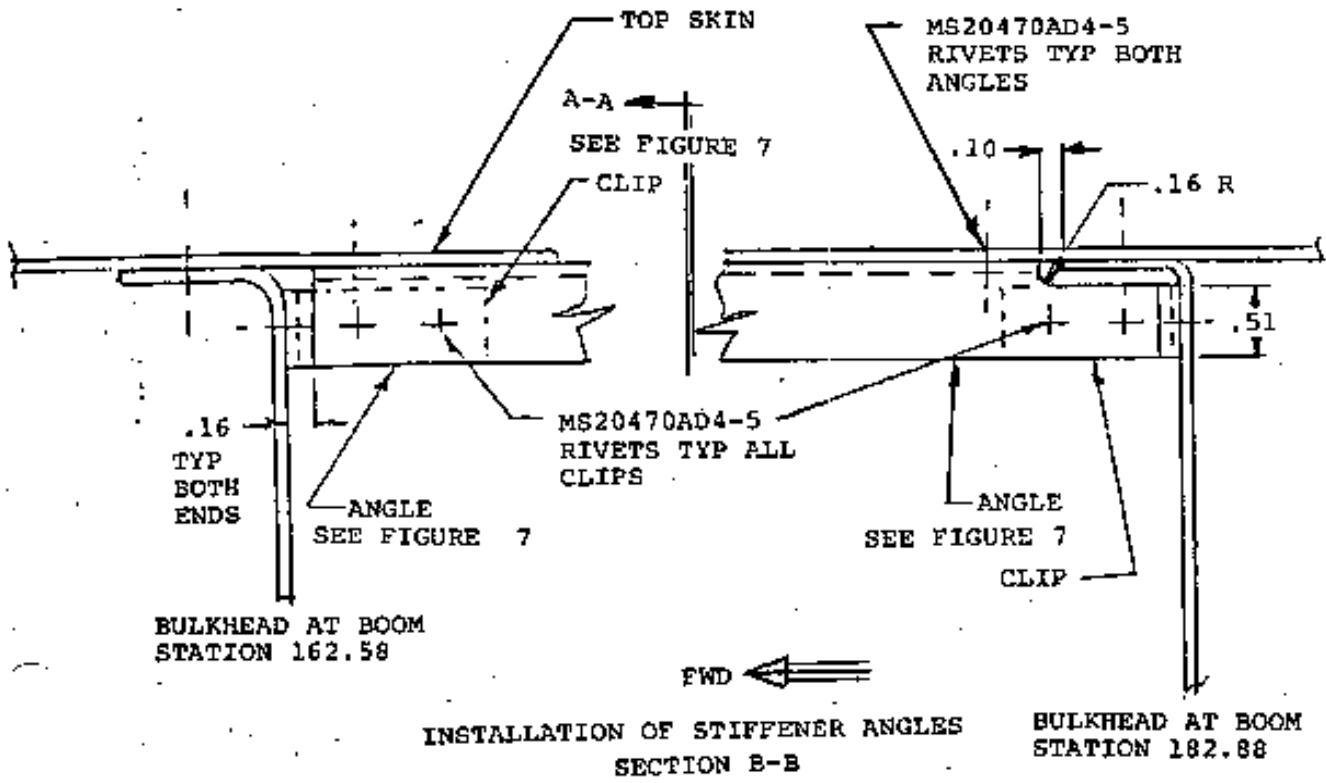
FIGURE 6B



INSTALLATION OF ANGLE
SECTION A-A
SEE FIGURE 8



ANGLE DETAIL AND INSTALLATION
FIGURE 7



DETAIL OF CLIP 4 REQUIRED
MATERIAL .050 THICK 2024-T4 AL ALY
FINISH ALODINE AND PRIME WITH
EPOXY PRIMER

FIGURE 8