U.S. ARMY
TRANSPORTATION RESEARCH COMMAND
FORT EUSTIS, VIRGINIA

SUPPLEMENT
to
TRECOM TECHNICAL REPORT 64-4

CRASH INJURY EVALUATION
PERSONNEL RESTRAINT SYSTEMS STUDY
CH-47 VERTOL CHINOOK

Contract DA 44-177-AMC-888(T)
April 1964

prepared by:

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New York, New York

NOV 16 1964
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Contract DA 44-177-AMC-888(T)
TRECOM Technical Report 64-4

April 1964

SUPPLEMENT
to
PERSONNEL RESTRAINT SYSTEMS STUDY,
CH-47 VERTOL CHINOOK

Crash Injury Evaluation
AvCIR 62-26

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for
U. S. ARMY TRANSPORTATION RESEARCH COMMAND
FORT EUSTIS, VIRGINIA
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See sheets 2 & 3 of this DWG (HC-1-10) for installation personnel restraint system cockpit rework procedure.

HC-1-14 TIEDOWN STRAP
HC-1-12 REINFORCEMENT - LAP BELT ATTACHMENT
HC-1-10 INSTALLATION - CONTROL CABLE & SHOULDER HARNESS
HC-1-11 INSTALLATION - INERTIA REEL
HC-1-24 INSTALLATION - SEAT ASSEMBLY, TROLLEY
HC-1-23 BELT, LAP-TROO PRE CAR
HC-1-15 SHOULDER HARNESS, TROLLEY
HC-1-18 (REP)
HC-1-17 (REP)
HC-1-19 INSTALLATION ACCESS FOR SHOULDER
HC-1-20 REINFORCEMENT - VERTICAL TRACK, SEAT BUCK
HC-1-21 MODIFICATION - CARRIAGE ASSEMBLY [5 SHEETS]
HC-1-25 REINFORCEMENT - LOCK PIN, SEAT BASE

HC-1-30 MODIFICATION DETAILS [7 SHEETS]
REWORK PROCEDURE FOR COCKPIT OF HC-1

1. Remove entire seat assembly from aircraft by removing the counterbalance assemblies from back of the bucket and the pins from floor tracks.

2. Remove following items from seat bucket:
   a. Inertia reel and shoulder straps
   b. Seat belt and belt attachment

3. Remove shrouds and four rollers (C-115-5-3) at forward edge of seat base from the carriage assembly (C-115-5) and lift the bucket from the seat base. The distance (e) between the edge of the annular groove in the roller and the Carriage Plate should be recorded for all eight roller positions as shown in the sketch below:

   ![Diagram of Carriage Plate and rollers](image)

Remove all rollers from Carriage Plate and accomplish rework of plate per HC-1-21.

4. Rework the seat as follows:
   a. Modify Carriage Assembly (C-115-5) per drawing HC-1-21.
   b. Add fasteners to the C-115-3-71 Vert. Track on Seat Bucket per HC-1-20.
   c. Rework seat base diagonal beams per HC-1.
   d. Install heat treated seat belt brackets with high-strength bolts per HC-1-12.
   e. Install seat belt tiedown strap on bucket per HC-1-14.
   f. Rework floor tracks and beams per HC-1-13.
   g. Install Reel Control Cable Clamps per HC-1-19.
   h. Install Inertia Reel on F.S. 95 Bulkhead per HC-1-11.

5. Reassemble Carriage Assembly per HC-1-21 and use necessary laminated shim stock to make distance from groove to plate equal to the distance before disassembly as noted in Step 3. Install carriage assembly on Vert. Track of Seat Bucket and adjust eccentric cams so that no more than .020 inch clearance exists between roller and track at any position on the Track. Tighten the four bolts snugly.
6. Install the Seat Bucket and Carriage Plate (with the four rollers and slides in the forward positions deleted) until the seat bucket and carriage plate are positioned on the seat base.

7. Adjust eccentric cams on outboard side of Carriage Plates so that no more than .020 inch clearance exists between roller and curved track at any position along the track.

8. Check operation of seat bucket on the curved track and the vertical track. It should be noted that the uppermost hole in the Carriage Plate will be blocked off in the rework which will cause the seat bucket to be located 0.5 inches below the existing position. The seat bucket should move freely up and down both tracks. After final adjustments are made, tighten the .31 dia. bolts (in the carriage plate) to 80-100 inch lb., and all larger bolts to 150-200 inch lb. torque.

9. Make functional check to insure that seat positively locks in all five positions on curved track and in all 10 positions on vertical track.

10. Install seat in cockpit, and place the AN392-43 stop pin into the new hole on the floor track as noted in HC-1-13. The horizontal seat movement should now be restricted to four positions rather than the existing five positions. Check seat for free horizontal movement on floor tracks and recheck for free vertical movement on the curved track and straight track.

11. Install the counterbalance rods to back of seat bucket and thread the shoulder straps through the seat back guide.

12. Make functional check of restraint harness as follows:
   a. Check length of center tiedown strap (HC-1-14) to ensure that it can be attached to the lap belt without difficulty and also that it is not too long. The tiedown strap should definitely prevent the belt from moving high enough to pull over the hip bones and into the soft stomach tissue.
   b. Check freedom of movement with inertia reel control handle in automatic-lock position. With seat located in the extreme up and aft position, the pilot should have sufficient shoulder strap travel to allow him to reach all necessary controls.
Detail of slot cut in 3 base plate. Dimension also apply to slot cut in sta. 05 bulkhead.

Spotweld 4 Places as shown.

Detail of support - 1 - 2

Detail of brace - 5

Shown to loads between indicated by

34 reg. turn out

Ref: 105
VIEW LOOKING FORWARD
LEFT HAND SIDE
AT STATION 935 BULKHEAD
2. ZINC CHROMATE ALL OVER

1. REMOVE ALL BURRS

NOTE
- 3/32 DRILL (.093) THRU, 2 HOLES
- 1/64 DRILL (.015) THRU, 2 HOLES
- .950 STOCK
AN4-6A BOLT (1)
AN 365-428 NUT (1)

-113

-117

SAFETY BOLT FITTING △ (REF)

NAS 333P-1C BOLT (3)
(REPLACES AN 502-10-14)
AN 365-1032 NUT (3)
AN 760-10 WASHER (3)

-77 △ (REF)

-75 (REF)

-111 (REF)

BUCKET ASSEMBLY
-115-3 (REF)

SECTION A-A
FULL SIZE

△ RE-HEAT TREAT
180,000 PSI TO 200,000 PSI
DETAIL - REWORKED TRACK SECTION
MADE FROM EXISTING AEROSMITH PART NO.
C-115-B

DETAIL - WEB ASSEMBLY.

EXISTING PIN HOLE LOCATION
NOT TO BE USED AND ALSO
FWD SEAT POSITION.

DRILL #30 (12g) THRU
A1932 PIN WITH COTTER WOVEN
TO LOCATION SHOWN AT FWD
END OF TRACK ONLY.

0.70
0.70
NEW HOLE LOCATIONS MARKED (C)
DRILL 8.18 (1/4") - 0.004" NC 3.152" ID - 100" 12 PLACES
EXISTING HOLE LOCATIONS MARKED (A)
NOTE: THIS SET OF HOLES (A) TO BE DRILLED ON 2 OF AN HOLE

EXISTING PIN HOLE (REF)

K SECTION
WITH PART NR

WEB

SPACER (FOR 1 WEB ONLY)

SPOTWELD SPACER TO WEB AS SHOWN 2 PLACES

WEB ASSEMBLY
One existing plate nut at this location (2 places) and replace with bolts and spacers, 5 shown.

Cap angle
AN0136 - 1205
ON 11451405
FORMER 1454FM (REF)

B.L. 32 ot left - web installed on NdD side
B.L. 10 or left - web installed on NdD side
B.L. 11.93 right - web installed on cutD side
B.L. 32 ot right - web installed on cutD side

Replace existing AN508 bolts with NAS 333-8 bolts, 2 places - 8 pcs per a/c.

To match track section (2 pcs) and of holes see detail on sheet #1.

Bolt (H1-strength) (14 pcs)
5 spacer (5/16 - 0.04?) (14 pcs)
36/5-103 NUT (14 pcs)
Torque to 15-25 in lb.

Grind out to clear.
Bolt head 5/16 approx. top of bend in existing web (1 plc only).

For rivets see sheet #1

For rivets on Sta. 95
Bullhead size detail B
For B.L. 32 ot R only
11451405 (REF)

Rivets (Ref)

Beam assemblies (Ref)

Section A-A (Full size)

4 WEB -
BUCKET ASSY (C115-21) REF
NOTES

1. WHEN INSTALLING THIS TIE DOWN STRAP ATTACHMENT, TIGHTEN THE AN365 NUTS SO THAT THE TWO BOTTOM SHEETS OF THE BUCKET ARE IN CONTACT.

2. CUSHION IS NOT SHOWN.

3. CEMENT DETAIL -1 TO WEBBING BEFORE CLAMPING. USE WEAK CEMENT.
C-15-1 CREW SEAT (AEROSMITH)

G UARD

1/2 IN. 

M520600AI

AN 742-4 CLAMP

M520600AI-2 RIVET (OR EOU)

(TYP. 2 PLACES)

010533 SHOULDER STRAP

(SEE SHEET 3 FOR STRAP TO REEL INSTALLATION)

SEAT POSITION SHOWN
1. HORIZONTAL ADJUSTMENT (BASE) - CENTER
2. VERTICAL ADJUSTMENT (BUCKET) - FULL DOWN
3. POSITION ADJUSTMENT (BUCKET) - FULL DOWN

AUTOMATIC

(LABEL POSITION SHOWN)

MANUAL LOCK

(LABEL POSITION SHOWN)

EXISTING 

HANDLE

FORWARD
Crew seat (Aerosmith)

(-1 Guard
MS206000AD4-2 RIVET (6 REQD) OR EQUIV

-AN742-4 CLAMP
MS206000AD4-3 RIVET (OR EQUIV)
(TYP, 2 PLACES)

Shoulder strap (OEM) to pass aft of the diagonal braces & fore of guard (-1) as shown.

View A-A
Looking forward

△ No weight added, replaces existing parts.

Note:
2. ZINC CHROMATE ALL OVER.

1. REMOVE ALL BURRS.

NOTE:
0.32 STOCK

DETAIL - I

SCALE — FULL SIZE

\( \frac{1}{8} \) DRILL (.125) THRU
6 HOLES
SHOULDER STRAP TO REEL INSTALLATION

STRAP REMOVAL – FULLY EXTEND STRAP AND RETAIN FROM FURTHER ROTATION BY HOLDING WITH \( \frac{3}{2} \) HEX WRENCH IN HOLE PROVIDED. MOVE BOTH STRAP AND INSERT IN DIRECTION OF ARROWS. REMOVE INSERT AND PULL STRAP BACK THRU OPENING.

STRAP REPLACEMENT – REVERSE ABOVE PROCEDURE. INSTALL INSERT TOWARDS SIDE OF SHAFT WITH SINGLE INDENTATION. (CAUTION: SPRING MUST BE \( \frac{1}{2} \) TO \( 1\frac{1}{2} \) REV'S BACK FROM TIGHT).
LOCATIONS OF EXISTING 3/32 RIVETS (APPROX)

3/16 DRILL (.125) THRU MS20600AD4-1 RIVET (SPACED BETWEEN EXISTING 3/32 RIVETS, AS SHOWN)
TYP - 17 PLACES (APPROX)
.187 THRU TO .370 DIA
DIAM 6-4 RIVET PLACES

EXISTING (APPROX)
C115-3-71
VERTICAL TRACK
(REF)

SECT A-A
NOTE: DRILLED BOLT REQD FOR SHROUD MOUNTING

ASSY OF HC-1-21L (LEFT HAND)
I. Position doublers as shown and with bolt hole aligned.
Match drill thru doublers & plate using #10 drill (.166), locate from pilot holes in doublers, countersink 82° to .400 dia. in doublers as indicated (6 places far side).

**NOTES:**

- #36 drill (.106), depth as shown
- #6-32 UNC-3B tap to depth shown

**EXISTING PARTS**

- Bolt (AN5-14A)
- Eccentric Bushing (C115-5-18)
- Spacer (C115-5-17)
- Washer (AN960-716L1) as reqd.
- Roller Assy [consists of roller (C115-5-18), bearing-ball (AN301XPSA) & reqd., and ring-retaining (NAS20-81) & reqd.]
- Screw-set (AN565DBH14)
- Nut (AN364-524)
  (Typ 4 places at B, C, E, & H)
#29 DRILL (.136) THRU
C'SK 100° TO .187 DIA (MAX)
*8-32 NC-3 TAP THRU
SEE NOTE 1

3/8 DRILL (.375) THRU
WAS 5/16 REAM THRU
SEE NOTES 1 & 2

1/2 DRILL (.500) THRU
WAS 5/16 REAM, THRU
SEE NOTES 1 & 2

2. THESE HOLES TO BE SQUARE WITH "PLATE" V

1. CAUTION — THIS "PLATE" IS "HARD ANODIZED" 
   BE NECESSARY TO FACILITATE MACHINING.

NOTES:
DETAIL -1
REWORK "AEROSMITH" PART *C115-5-11 (OLIER PLATE) AS SHOWN.

PLATE " WITHIN .002 PER INCH.
"OLIZED", LOCAL GRINDING MAY BE NEEDED.
7/16 DRILL (.437) THRU
WAS 5/16 REAM, THRU
SEE NOTES 1 & 2
.38 x 45° CHAMFER (TYP)

.25 STOCK

2.34

.88

.50

.50

.25

.64

.25 (TYP)

.61

1.25

.29 DR (.136) THRU (3)

1/2 DR (.500) THRU

DETAIL - 4
INTERNAL RADII ADJACENT TO ANNULAR GROOVE .01 TO .02
(BREAK EXTERNAL EDGES .02 MAX)

1/4 DIA STOCK

---

TABLE OF VARIABLES

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<th>DASH NO.</th>
<th>A</th>
<th>B</th>
<th>C</th>
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<td>-6</td>
<td>.81</td>
<td>.360</td>
<td>3/8 DRILL (.375) THRU CSK 100° TO .770 DIA.</td>
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<tr>
<td>-7</td>
<td>.56</td>
<td>.110</td>
<td>7/16 DRILL (.437 THRU) CSK 100° TO .900 DIA.</td>
</tr>
<tr>
<td>-8</td>
<td>.56</td>
<td>.110</td>
<td>1/2 DRILL (.500) THRU CSK 100° TO 1.030 DIA.</td>
</tr>
<tr>
<td>-9</td>
<td>.81</td>
<td>.360</td>
<td>1/2 DRILL (.500) THRU</td>
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THESE SURFACES TO BE LUBRICATED VIA "DRY FILM/ELECTROFILM" PROCESS AS PER NOTES 2 & 3 OR EQUIV. PROCESS. VENDOR HAS OPTION TO APPLY LUBRICATING PROCESS ALL OVER.
NOTES:

1. REMOVE ALL BURRS

2. HARD ANODIZE PER EMS-241
   TYPE 1 CLASS C (.001 TO .002 THICK)
   AS PER "AIR RESEARCH" SPEC OR EQUIV.

3. DRY FILM LUBRICATE PER EMS-242
   TYPE 1 CLASS B (.0003 TO .0005 THICK)
   AS PER "AIR RESEARCH" SPEC OR EQUIV.

(AIRRESEARCH MFG CO
402 SOUTH 36TH STREET
PHOENIX 34, ARIZONA)
NOTES

1. MATERIAL

2. MAY
NOTES:
1. MATERIAL: STAINLESS STEEL LAMINATED SHIM .040 THICK (.005 INCREMENTS)
2. MAY BE PURCHASED FROM: LAMINATED SHIM CO., INC 81 UNION STREET, GLENBROOK, CONNECTICUT
INSTALLATION PROCEDURE

(a) REMOVE EXISTING 3/16 BOLTS AND LINE-DRILL
LOCK-PIN GUIDE ASSY (CI15-6-101 & -102)
USING 1/4 DRILL.

(b) LOCATE -1 AS PER DWG AND DRILL THRU -1
AT LOCATIONS PER NOTE 1 USING 1/4 DRILL
(c) MATCH DRILL -2 AS PER -1
(d) MOUNT -1 & -2 AS SHOWN AND DRILL 3/16
HOLES THRU -1, TUBING & -2 AT ENDS.
(e) INSERT #10 WASHERS AND TIGHTEN BOLTS
(f) CAUTION — DO NOT CRUSH TUBING

2. ZINC CHROMATE -1 & -2 AFTER FABRICATING.
1. REMOVE BURRS & BREAK ALL EXTERNAL SHARP EDGES
ON -1 & -2 ON ONE SIDE ONLY.

NOTES:

LOCK-PIN G
CI15-6-102
CI15-6-101
(REF)
K-PIN GUIDE
6-6-102 (RH) SHOWN
6-6-101 (LH) OPPOSITE (REF)

G.
HARP EDGES

1/4 DRILL (.250) THRU -1, TUBING & -2
(SEE
AN4DD13A BOLT
NAS1022D4 NUT
( 2 PLACES )

3/16 DRILL (.187) THRU -1, TUBING & -2
(SEE
AN3DD12A BOLT
AN9G0D10 WASHER ( 2 REQD)
NAS 1022D3 NUT
( 2 PLACES )
5-6-42 (SHEAR PANEL) (REF)

DETAIL -1 (SHOWN)

DETAIL -2 SAME AS -1 EXCEPT
1/8 HOLES OMITTED

NG 8 -2

8 -2
2. DACRON WEBBING TYPE II PER SPEC MIL-W-25361
   COLOR- SEA GREEN *1001.

1. STRENGTH REQUIREMENTS SHALL BE IN ACCORD
   WITH SPEC. MIL-H-5364 U.S. AIR FORCE FOR TYP

NOTE:
WEBBING DATA (REF)
WIDTH 1.72
THICKNESS .075

3600* ULTIMATE TEST LOAD

ACCORDANCE FOR TYPE MB-2A

LOADING DIAGRAM
STA 120

VIEW LOOKING OUTBOARD
L.H. SIDE

FITTING HC-1-17

REPLACE WITH AN470-ADS RNETS-4 PLACES

BOLT AN5-5 NUT ACCS5-D052

NOTE: LOCATE IN EXISTING RNET HOLES AS SHOWN

EXTRUSION ALCOA 50934 (REF)

D.L. 808 LEFT

SUPERSTRUCTURE ASY B.L. 808 L. 11451G10

INSTALLATION
L.H. SIDE
Diagram instructions:

**G Outboard Side**

Fitting HC-1-17

Fitting

Beam Assem 114-51105 (Ref.) (Web 025)

Replace existing rivet with AN5-5 bolt & AC365-D052 nut

Cap strip Al Al extrusion and 10134-1604 (Ref.)

Fitting HC-1-18

Bolt AN3-G nut AC365-D032 washer AN2GO-1052 5 req. ea.

Note: Locate in existing rivet holes as shown

View looking outboard R.H. Side

Upperstructure assem Al B-L 1145Sigio (Ref.)

Installation R.H. Side

STA 120

BL 18-39

Right

HC-1-18
4. COVER - I AFTER WELDING TO

3. MAGNETIC

2. WORKMANSHIP

1. BREAK ALL SURFACES

NOTE:
PLATE

PILOT DRILL #40 (.098) 2 HOLES

.50

.50

.88

.160 STOCK

34°

FLAT PATTERN DRAWING OF -1 PLATE

.1 R.

R - 1 ALUM. PLATE WITH ASBESTOS WHEN WELDING TO PREVENT OVERHEATING

INERT GAS WELDING PER SPEC. MIL-1-G868

MANSHIP OF WELDING SHALL BE IN ACCORDANCE WITH SPEC. MIL-T-5021 CLASS A

K ALL SHARP EDGES .02 R
FLAT PATTERN DEVELOPMENT OF -1 PLATE

PILOT DRILL #40 (088)
2 Holes

NOTE WITH ASBESTOS WHEN REDDING SHALL BE IN SPEC. MIL-T-5021 CLASS A
RADIUS .02 R
4. Cone

When

3. Magn

2. Work

Accor

1. Break

NOTE:
4. COVER -1 ALUM. PLATE WITH ASBESTOS WHEN WELDING TO PREVENT OVERHEATING

3. MAGNETIC INSPECTION MIL-I-6868

2. WORKMANSHIP OF WELDING SHALL BE IN ACCORDANCE WITH SPEC. MIL-T-5021 CLASS A.

1. BREAK ALL SHARP EDGES .02 R.

NOTE:
FLAT PATTERN DEVELOPMENT OF -1 PLATE

10.098

TH ASBESTOS OVERHEATING

1-68-68

G SHALL BE IN T-5021 CLASS A.

0.02 R.
NOTES:
1. BREAK ALL SHARP EDGES, .04 MIN. AROUND SLOT.
SEE NOTE 1

1.19

2.43 (REF)

.19 STOCK

.86

1.72

3.04 (REF)
HC-1-22 (END FITTING) 2 REQD
(ALTERNATE END FITTING
U.S. AIR FORCE *52A3720)

2500 LB
EACH END (REF)

THIS BELT SAME AS U.S. AIR FORCE DW
REPLACES AN6516-1 (2 PLACES)
AS U.S. AIR FORCE DWG NO. 49F6550 EXCEPT 16-1 (2 PLACES)
ENLARGED PARTIAL SECT C - C
PREFERRED INSTALLATION
SCALE ~ 1/4
(TYP, 2 PLACES)
LEFT HAND SHOWN, RT HAND OPPOSITE

ENLARGED PARTIAL SECT
(ALTERNATE INSTALLATION
SCALE ~ 1/4
(TYP, 2 PLACES)

ENLARGED DETAIL B
NOTES:

⚠️ "L" LENGTH AS PER AVCIR-10 DWG, TO BE 13.0 INCHES (TRIM 2.0 INCHES)

2. MAY BE PURCHASED FROM: "HI-SHEAR" CORP, 2600 WEST 2475

HC-1-23 * (ALTERNATE)

NC679A4

EMENT TO STRAP

502-6-10 A (OR EQUIV.)

DRILL THRU ONE SIDE OF AT ASSY (2 PLACES)
PER AVCIR-10 DWG, TO BE 13.0 INCHES (TRIM TO SUIT & SEAR).

_SED FROM: "HI-SHEAR" CCRP, 2600 WEST 247TH STREET, TORRANCE, CALIF
- These rivets are to be located when strap is installed. (16) #20 dia drill.

- These lockbolts are to be located when strap is installed. #2 dia (180) drill.

ALPP - EG-1, AN5C bolts optional.
NOTES:
1. ALL SECTIONS NOT SHOWN ON THIS SHEET ARE SHOWN ON SHEET 2.
2. ADD 5-ANODIZED RIVETS AS SHOWN. THE PATTERN IS TO BE SYMMETRIC ABOUT THE TIE-DOWN BOLT, TYPICAL AT STATIONS 193, 217, 221, 265, 289, 293, 303, 313, 327, 341, 385, 409, 419.50 AND 433.
3. LEFT HAND SHOWN, RIGHT HAND SIDES OPPOSITE EXCEPT AS SHOWN. SEE SECTION E-E SHEET 2.
4. WHERE DETAIL 4 FALLS AT FORMERS BEYOND EXISTING R3001(95), HUCK BOLTS AND DRILL HOLE WITH LETTER "O" DRILL AND INSTALL BOLT. WHERE DETAIL 4 FALLS AT FORMER EXISTING 9301 HUCK BOLTS AND DRILL OUT WITH LETTER "F" DRILL AND INSTALL BOLT EXCEPT STATION 482.
5. WHERE BELT ATTACHMENT STRAPS FALLING HOLE IN MAGNESIUM EXTENSION, DRILL HOLE WITH LETTER "O" DRILL AND INSTALL STRAPS, WHEN NEW HOLES ARE NEEDED STRAPS, DRILL THRU WITH LETTER "O" DRILL AND INSTALL BOLT.
6. EQUIVALENT SCREW MAY BE USED.
7. WORKMANSHIP OF WELDING SHALL BE IN ACCORDANCE WITH SPEC. MIL-T-5021 CLAS.
NOTES:
1. ALL SECTION'S NOT SHOWN ON THIS SHEET ARE SHOWN ON SHEET 2.
2. ADD 5-AN4-10ADS RIVETS AS SHOWN. THE PATTERN IS TO BE SYMMETRIC ABOUT THE 5% TIE-DOWN BOLT. TYPICAL AT STATIONS 169, 179, 50, 193, 216, 221, 265, 289, 299, 50, 313, 327, 341, 371, 350, 385, 409, 419, 50, AND 495.
3. LEFT HAND SHOWN. RIGHT HAND SIDE OPPOSITE EXCEPT AS SHOWN. SEE SECTION E-E SHEET 2.
5. WHERE BELT ATTACHMENT STRAPS FALL AT EXISTING HOLES IN MAGNESIUM EXTRUSION, DRILL OUT EXISTING HOLES WITH LETTER "O" DRILL AND INSTALL STRAPS. WHEN NEW HOLES ARE NEEDED FOR STRAPS, DRILL THEM WITH LETTER "O" DRILL.
6. EQUIVALENT SCREW MAY BE USED.
7. WORKMANSHIP OF WELDING SHALL BE IN ACCORDANCE WITH SPEC. MIL-T-5021 CLASS A.
This bolt replaces existing rivet as shown. AN3C bolt optional.

SECTION A-A
STATION 140 ONLY

If interference exists between existing rivet and the nut, replace rivet with AN426 (flush head) rivet of same dia material as existing rivet. Countersink is to be on same side of former as nut.

SECTION C-C
The notes of this section are typical for all stations where 3 eye-bolt is used.
SECTION B-B (TYPICAL FOR ALL 4 INSTALL)

BREAK EDGE OF MAGNESIUM EXTRUSION .04 X 45° CHAMFER.

SECTION E-E

THIS SECTION APPLIES TO RH SIDE ONLY.

MODIFIED RING & EYE BOLT ASSY. ACA-2128.
(SEE SHEET 5), ANS600-416 (WASHER)
M30764-428 (NUT) REQUIRED.

EXISTING WITH MATERIAL AS ON SAME.

1 DIA. SPOTFACE AREA UNDER EYE-BOLT.

STANDARD 3K6 (REF)

AN-5360D-5K6

AN3G5CE-5

STANDARD 160

STA 240

STA 248

GRIND MAGNESIUM EXTRUSION TO THIS DIMENSION.

1145-2159-29(REF)

AN530C8R-8, 29(US6)
DRILL THRU EYE BOLT MAGNESIUM WALL ONLY.
LOCATE AT ASSEMBLY.
THIS NOTE IS TYPICAL FOR ALL STATIONS WHERE # IS USED.

SECTION F-F

THIS SECTION APPLIES TO R H SIDE ONLY.
DETAIL 1
LARGE BELT ATTACHMENT
MATL.- 4130 ANNEALED .040 THICK SHEET.

DETAIL 2
"D" RING
MATL.- 4130 ANNEALED .25 DIA. ROD
THIS PART MAY EITHER BE A WELDED ROD
(AS SHOWN) OR A FORGING.

DETAIL 3
THIS RING AND EYE BOLT IS TO BE
MADE FROM THE CAF-1239 RING &
EYE BOLT ASSEMBLY USED BY THE
DE HAVILLAND AIRCRAFT OF CANADA LIMITED,
TORONTO ON THE AC-1 CARIBOU.

MODIFIE
THIS RING
MADE FI
& EYE B
HELCOP
WTC-109
USE EXIT
(NUT) WH
IS INST
LETTER "O" DRILL THRU AFTER FORMING THIS ASSEMBLY.

WELD IS TO BE LOCATED IN THIS AREA.

DRILL .040

ASSEMBLY OF DETAILS

BEFORE ALPP-T8 IS INSTALLED HEAT TREAT THIS ASSEMBLY TO 150,000 PSI TENSILE STRENGTH.

AFTER HEAT TREATING CADMIUM PLATE BOTH PARTS.

THEN INSTALL THE LOCK BOLT.

(3 ASSEM REQ. PER AIRCRAFT)

MODIFIED RING & EYE BOLT ASSEMBLY

THIS RING & EYE BOLT IS TO BE MADE FROM THE EXISTING RING & EYE BOLT (ACA-2128) ON THE VERTOL HC-1B HELICOPTER.

WHT: 109 LBS. EACH

USE EXISTING ANB0046G (WASHER) & MS20344-428 (NUT) WHEREVER THIS EYE BOLT IS INSTALLED.

WHT: WASHER = .009, WHT: NUT = .011
LETTER "P DRILL' THRU AFTER FORMING THIS ASSEMBLY.

FINAL ASSEMBLY OF DETAILS 2 & 3
HEAT TREAT THIS ASSEMBLY TO 150,000 PSI TENSILE STRENGTH, AFTER HEAT TREATING CADMIUM PLATE BOTH PARTS.
(34 ASSEM REQ PER AIRCRAFT)
5. DACRON WEBBING TYPE II PER SPEC. MIL-W-50777. .065-.085 THICK \times 1.72 WIDE MAX.
   WT. 2.10 OZ./YD. MAX.

4. STITCHING SHALL BE WITH NYLON CORD, MIL-T-49077 NO. 3 SIZE TYPE I OR II, CLASS I, AND SHALL NOT LESS THAN 8 NOR MORE THAN 12 STITCHES IN ACCORDANCE WITH SPEC. DDD-S-751 TYPE 2.

3. ENDS OF STITCHING SHALL BE BACK STITCHED OR SEWN.
2. SEAR ENDS OF ALL WEBBING TO PREVENT FRAYING.
1. STITCHING INDICATED BY DOTTED LINES --- NOTES!
MIL-W-25361

MIL-T-7807B

SHALL CONTAIN
STITCHES PER INCH
51 TYPE 301
CHED 0.5 IN. MIN.
ST FRAYING

DETAIL A
HALF SIZE

SECTION B

STITCH
<table>
<thead>
<tr>
<th>AIRCRAFT</th>
<th>&quot;L&quot; DIM.</th>
<th>NEXT ASSEMBLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC-1</td>
<td>18.1</td>
<td>HC-1-14</td>
</tr>
<tr>
<td>HU-1</td>
<td>16.5</td>
<td>HU-1-11</td>
</tr>
<tr>
<td>AC-1</td>
<td>20.8</td>
<td>AC-1-10</td>
</tr>
</tbody>
</table>

-1) WEBBING
SEE NOTE #5
1. Break sharp edges .02 R.

NOTE:-
DRILL THRU 3/16 DIA.
2 HOLES

& SHARP EDGES .02 R.