REVOLUTION
HELICOPTER CORP., INC.

Mini-500

1905 W. Jesse James Rd. • Excelsior Springs, Missouri 64024
Phone (816) 637-2800 • Fax (816) 637-7936

September 9, 1996

# Revolution Helicopter Airworthiness Directive (AD) #090996

**Effected Aircraft:** All Mini-500 Helicopters shipped before September 18, 1996.

**AD Type:** Urgent (Must be complied with before further operation of the aircraft).

**Subject:** Airframe cracks

In some very isolated cases, we have had reports of cracking occurring on the 1" diameter tube behind the main transmission rear mount. We have attempted to duplicate this problem at the factory, without success. So far, the only common factor of those few cracks that have occurred is that the customer had flown the aircraft for an extended amount of time without tracking or balancing. Although, one customer who has experienced the crack, says that he had tracked and balanced his aircraft from the beginning. The aircraft that have experienced this problem have had anywhere from six to forty hours flight time. Although this is not a fleet wide problem, there should be enough built in durability to withstand a certain amount of misuse. We should also say that even though this crack may occur, it is not in a location that would cause a catastrophic failure in flight. We are taking several steps to increase the strength in the area of the frame around the rear of the transmission. These simple steps will increase the durability of that area by approximately 60%.

**Corrective Action:**

1. Fabricate 2 frame brace modification plates from 1/16 inch 4130 chromolly steel plate as shown in the supplied print. The prints are drawn to scale so you can use them as a pattern.

2. Remove the main transmission. This can be done with the blades installed. Disconnect the three push pull tubes from the control system below the transmission. Disconnect the flex plate from the tail rotor drive shaft. Carefully cradle the blade cones with a strap and lift the entire transmission assembly up off of the frame with a hoist or block and tackle.
NOTE: This must be done to prevent the bearings in the transmission from arcing and being damaged.

3. Refer to the drawing of the frame for installation locations of the brace modification plates. Strip the paint from the areas ware the plates will get welded.

4. Disconnect the battery cables from the battery and remove the ground wire from the engine case.

5. Weld the brace modification plate to the frame as shown in the frame drawing.

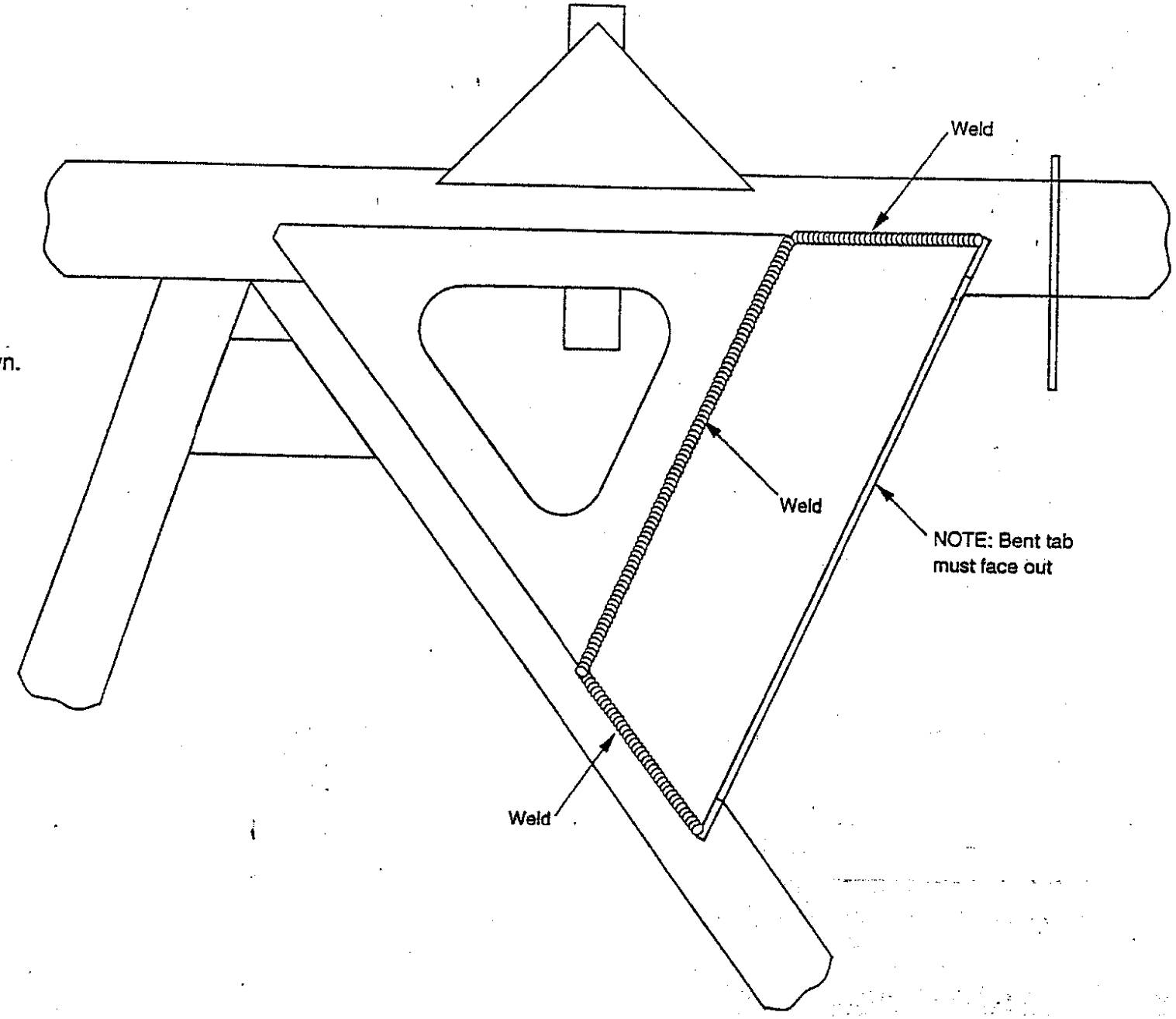
6. Remove the 2 bolts from the plate mounting the tail boom to the air frame.

NOTE: When you reassemble the transmission the following things need to be checked. You do not want any stress to be put on the frame.

7. Set the main transmission in place. If the transmission mounting bolts do not line up without putting stress on the frame, ream out the holes in the transmission case until they fit properly.

8. Line up the holes on the tail boom mounting plate. If they do not line up without stressing the frame, enlarge them booth slightly until they line up.

NOTE: Left side shown. Right side is installed identical.



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| Scale: (1" = 1") | Drawn By: D.F. |
| Date: 09/01/96 | Approved By: |
| Description: Mini-500 / Frame Brace Modification.1 Each | Revised: |
| 1/16" 4130 Steel Plate | Drawing Number: #A0234-5 |

Metric Projection

UNLESS OTHERWISE SPECIFIED
.XX + or - .010"
.XXX + or - .005"
.XXXX + or - .0005"
ANGLES + or - .30' Degree
MACHINED SURFACES 125√ MAX
GROUND SURFACES 32√ MAX
BREAK SHARP EDGES .005" to .015"

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