

## AIRCRAFT AND MAINTENANCE PARTS

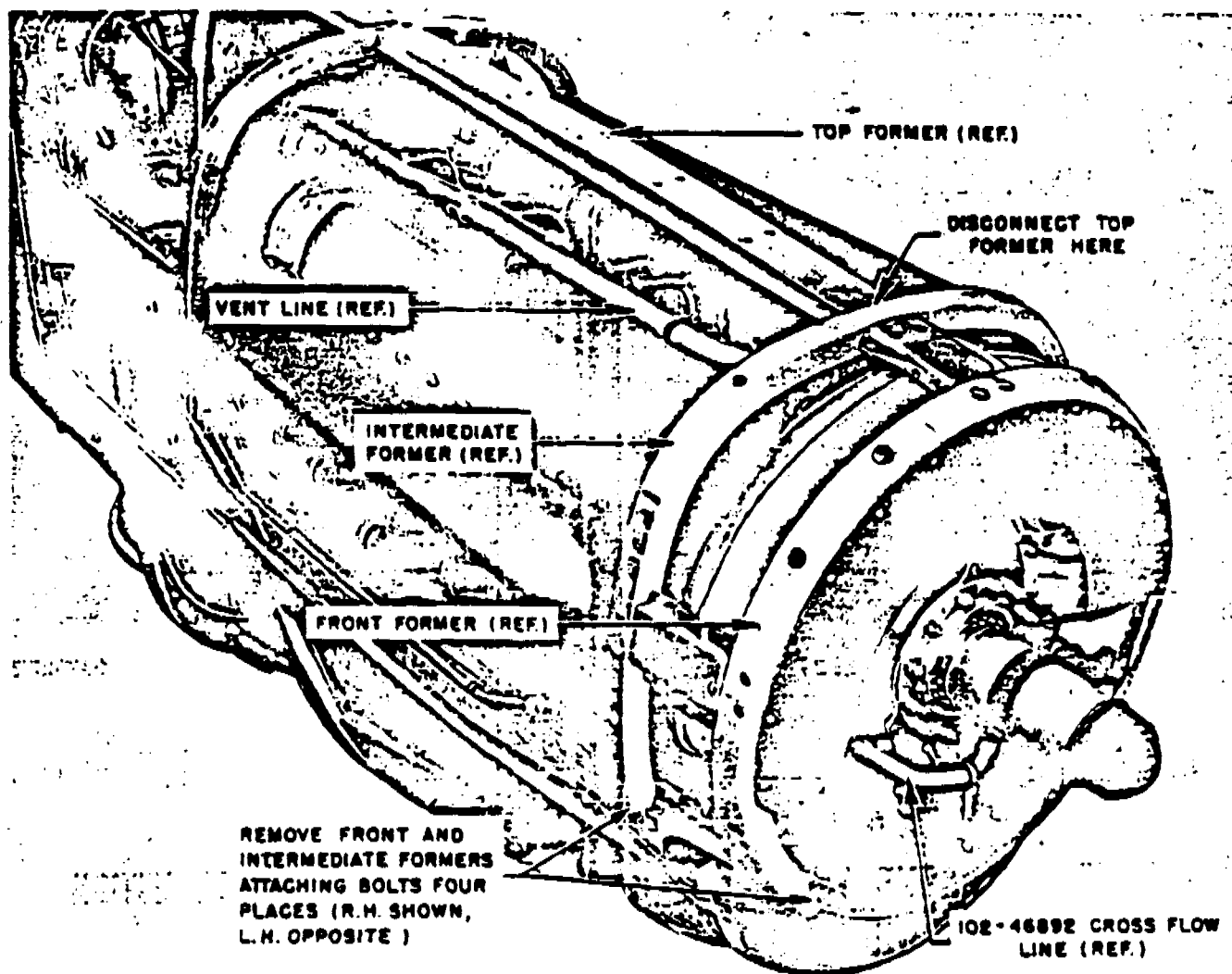
18 January 1945

**NORTH AMERICAN—MODIFICATION OF COOLANT EXPANSION TANK  
ASSEMBLY—P-51B, P-51C, AND P-51D**

**NOTE** As prescribed in T. O. No. 00-30A, appropriate reference to this Technical Order will be entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as possible and not later than the next 100-hour inspection period by service activities, with the aid of base maintenance facilities, if necessary. Maintenance tanks in stock as listed in paragraph 1.b. will be modified prior to issue.

**1. PURPOSE.**

a. To prevent the efficiency of the deaerating scroll tubes being impaired, the expansion tank will be inspected to determine if the tank has been modified.



**Figure 1 - Remove Front and Intermediate Formers to Engine Mount and Disconnect Header Tank Cross-flow Line**

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**RESTRICTED**  
T. O. No. 01-40J-23

Tanks modified previously will have been restamped as part No. 106-46003-100 or 106-46003-75. Unmodified expansion tanks will be removed from the following airplanes and modified in accordance with the instructions contained in paragraph 2.

MODEL	AF SERIAL NOS.	APPLICABLE GROUP AND KIT
P-51B	43-6713 to 43-7202 inclusive	A
	42-106429 to 42-106538 inclusive	A
P-51C	42-103579 to 42-103978 inclusive	A
P-51B, P-51D	42-106539 to 42-106978 inclusive	B
	43-24752 to 43-24899 inclusive	B
†P-51C	43-24902 to 43-25112 inclusive	B
††P-51D	44-13253 to 44-13962 inclusive	B

(1) The following airplanes have been reworked by the Kansas City Modification Center:

MODEL	AF SERIAL NOS.
†P-51C	43-24904, 43-24908, 43-24909, and 43-24938 43-24944 to 43-24947 inclusive 43-24949 and 43-24950 43-24955 to 43-24960 inclusive 43-24962 to 43-24978 inclusive 43-24980 to 43-24989 inclusive 43-24992 and 43-24993 43-25027 43-25034 and 43-25035

(2) The following airplanes were reworked at the factory prior to delivery:

MODEL	AF SERIAL NOS.
††P-51D	44-13917 and 44-13924 44-13928 to 44-13937 inclusive

(3) The following airplanes have been or will be reworked at the factory prior to delivery:

MODEL	AF SERIAL NOS.
P-51C	43-25113 to 43-25251 inclusive 44-10753 to 44-11152 inclusive
P-51D	44-11153 to 44-13252 inclusive 44-13963 and subsequent

**E. MAINTENANCE PARTS AFFECTED.**

PART NO.	CONTRACT	ITEM NO.	NOMENCLATURE
**104-40002RA1	Exhibit C ac-30479	1264	Engine Section
**104-40002RA1	Exhibit B ac-33940	1328	Engine Section
*106-46003RA	Exhibit B ac-33940	1444	Coolant Header Tank Assy - Complete
*106-46003RA	Exhibit C ac-30479	1384	Coolant Header Tank Assy - Complete
**106-46003-50RA	Exhibit C ac-30479	1384A	Coolant Header Tank Assy - Complete
**106-46003-50RA	Exhibit B ac-33940	1444A	Coolant Header Tank Assy - Complete
**106-46003-50RA	Exhibit A ac-40064	709	Coolant Header Tank Assy - Complete

\* - Restamp these tanks 104-46002-75 after rework.

\*\* - Restamp the tanks of these assemblies 104-46003-100 after rework.

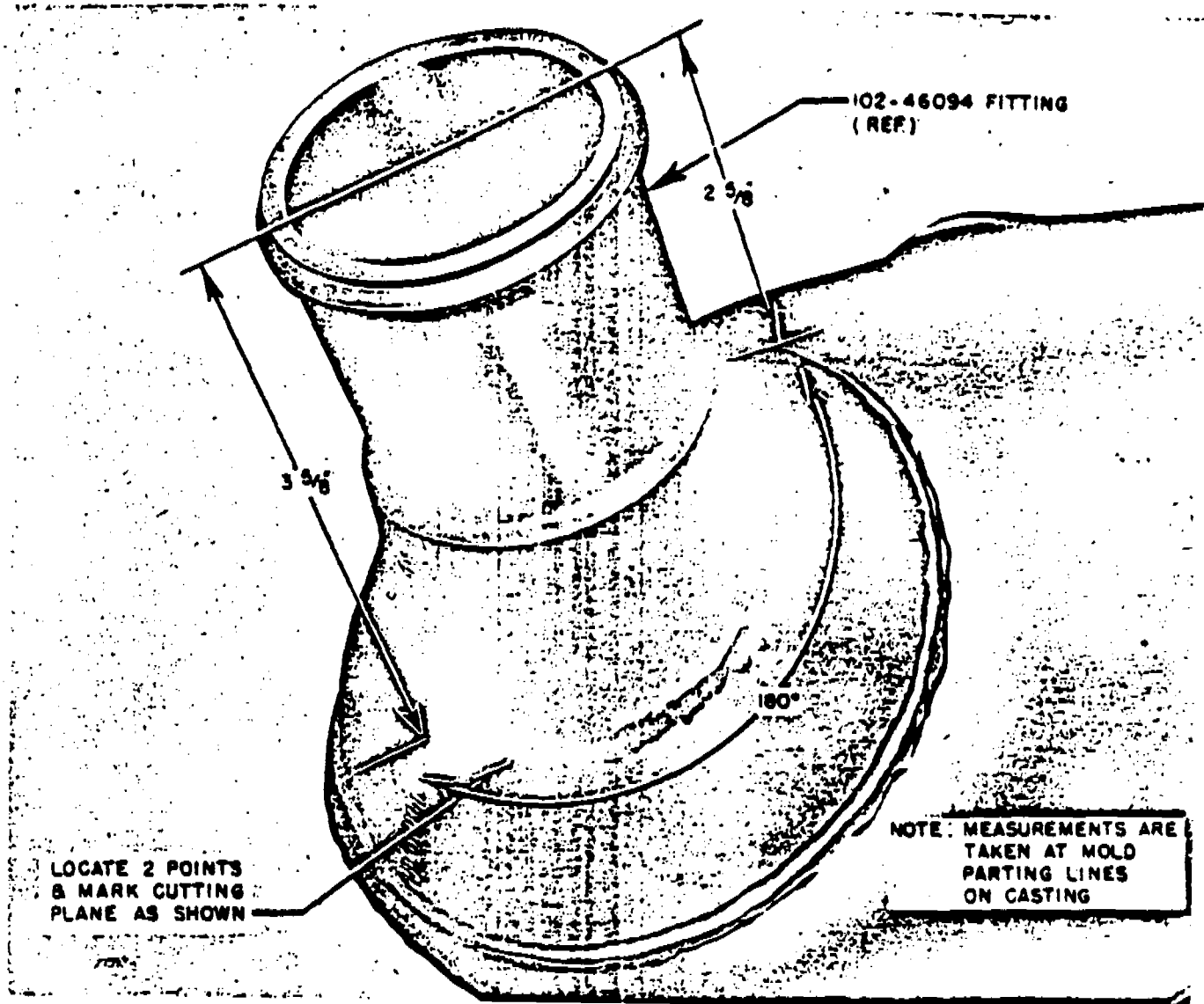


Figure 2 - Indicated Cutting Plane on Tank Outlet Fitting,  
Part No. 102-46094

## 2. MODIFICATION.

The instructions for accomplishing this modification as described in North American Service Bulletin SB/51-179, dated 15 July 1944, are as follows:

- a. Remove the top and side engine cowling.
- b. Remove the four bolts (two on each side), which secure the front and the intermediate formers, part Nos. 102-310210 and 102-310254, respectively to the engine mount. (See figure 1.)
- c. Disconnect the forward end of the top former (longitudinal) part No. 102-31056, from the intermediate former, part No. 102-310254.
- d. Remove the front and intermediate formers from the airplane as a unit. The armor plate will be removed with the unit.

e. Drain the coolant fluid until the fluid level below the expansion tank outlets.

f. Disconnect the two expansion tank outlet lines from the tank at the fittings, part No. 102-460 which are welded to each end of the tank.

g. By reaching through the end of the fitting grasp the end of the two assemblies, part No. 146147, installed inside the tank, determine whether the three weld lugs supporting the outlet ends of tubes are broken by shaking the tubes. If any movement is evident in either of the tubes, the tank will be replaced with a modified tank, part No. 106-46002- or 106-46002-75. Unmodified tanks in which the welds are still intact will be reworked by building up weld on the three lugs as follows:

(1) Disconnect the expansion tank cross-line, part No. 102-46892, from the expansion tank (See figure 1.)

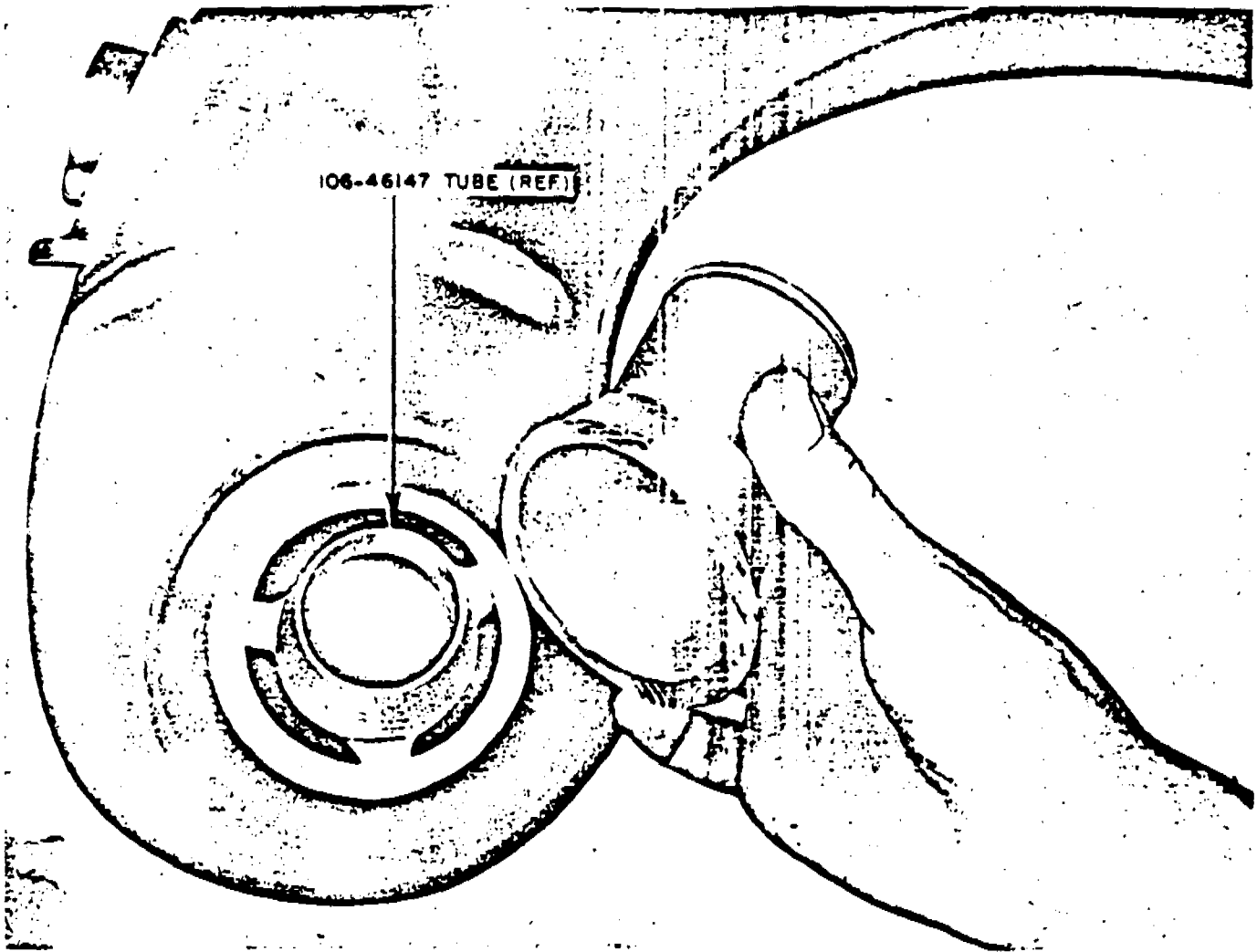


Figure 3 - View After Cutting Showing Three Supporting Lugs Before Rework - Left-hand Outlet Shown

(2) Disconnect the two engine outlet lines and the expansion tank vent line from the tank.

(3) Loosen the two tank support clamps and remove the tank from the airplane.

(4) Mark a cutting plane on each of the tank outlet fittings, part No. 102-46094. (See figure 2.)

(5) Cut the fittings into two parts along the line marked, thus gaining access to the tube support lugs. (See figure 3.)

**CAUTION** Cut around the fittings, taking care not to damage the tube, part No. 106-46147, which extends beyond the cutting plane.

(6) With a file, clean the anodic finish from the existing weld and the areas adjacent to the three lugs.

(7) Build the lugs up with additional weld. (See figure 4.)

(8) Weld the fittings together again. (See figure 5.)

(9) Pressure test tank at 50 psi.

(10) Restamp the reworked tank from Group "B" airplanes as part No. 106-46002-100. Reinstall the expansion tank and replenish the supply of coolant fluid.

**NOTE** When tanks are replaced on Group "A" airplanes, the coolant expansion tank relief valve, part No. SA2005-C, and the vent line, part No. 102-46890, must be replaced with a new relief valve, part No. 104-46890. The expansion tanks, part No. 106-46002, which are installed on Group "A" airplanes will be restamped as part No. 106-46002-75, if reworked.

(11) Reinstall the formers and cowling.

### 3. SUPPLY INFORMATION.

3. The following parts are required per airplane to accomplish this change. These parts are furnished as complete kits for initial installation and will be requisitioned in accordance with T. O. No. 00-35A-15. Parts required for maintenance after initial installation or for modification of spares in stock will be requisitioned from the property classes as indicated.

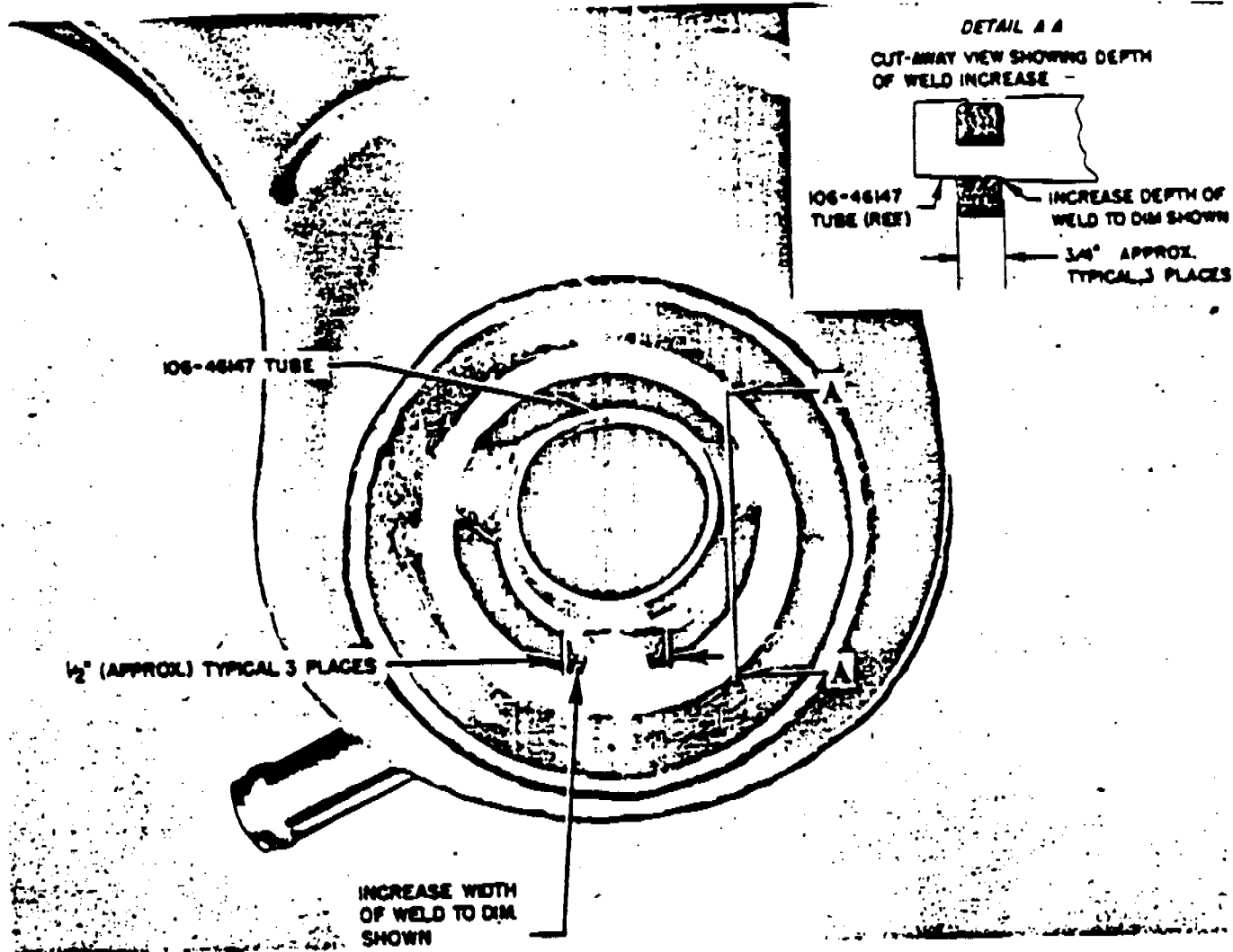


Figure 4 - Building Up the Lug by Additional Weld

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	1300TO-01-40J21A		KIT A, "Modification of the Coolant Expansion Tank Assembly - P-51B, P-51C, and P-51D," consisting of the following parts for Group "A" only:	15	AF Stock
1		106-46002-100	Tank Assembly - Coolant expansion	01-M	
1		104-46890RA	Replacement Kit, "Expansion Tank Relief Valve and Vent Line," consisting of the following parts:	01-M	
1		AN884-8-13	Hose	04-B	
2		FB6	Clamp - Hose 7/8-in. ID	04-A	
2		755-8-2-8	Clip - Integrally alum. bonded (Adel)	04-A	
2		755-16-2-8	Clip - Integrally alum. bonded (Adel)	04-A	
1		755-8	Clip - Loop type	04-A	
3		754-10-8	Screw	01-M	
2		754-8-10	Screw	01-M	
2		AN365-1032	Nut - Self-locking 10-32	04-A	
2		AN340B8	Nut - Machine screw, hex brass	29	
2		AN365-832	Nut - Self-locking	04-A	
2		483D8-8	Spacer	01-M	

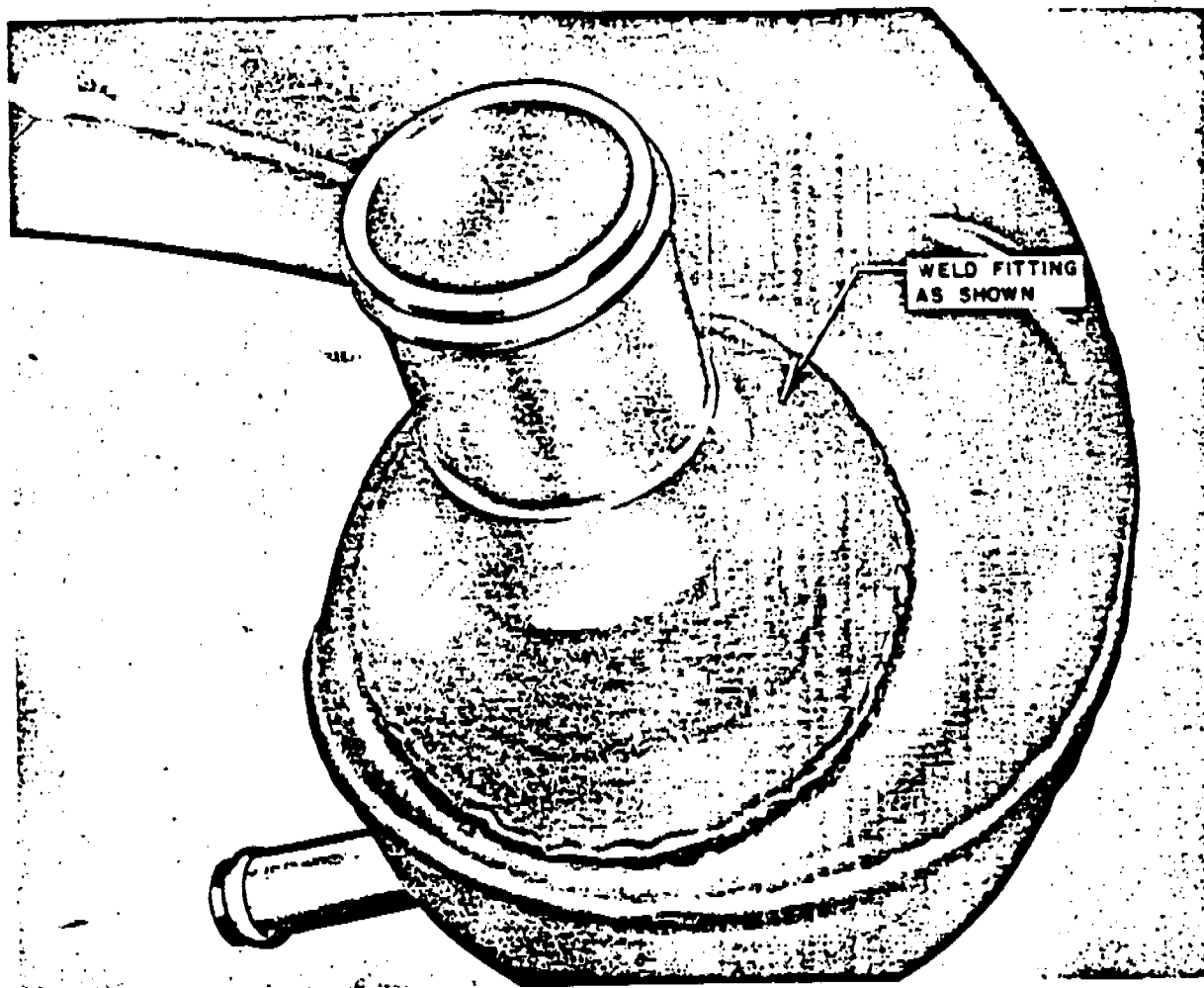


Figure 6  
View  
Showing  
Fitting  
After Re-  
work

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	1300TO-01-60J23		KIT B, "Modification of Coolant Expansion Tank Assembly - P-51B, P-51C, and P-51D," consisting of the following parts, Group "B" airplanes only:	15	AF Stock
1		106-46002-100	Tank Assembly - Coolant expansion	01-M	

**NOTE** The preceding Kits A and B are required only when it is necessary to replace the coolant expansion tanks on the airplanes affected.

b. Defective tanks together with parts removed and not reinstalled in accordance with the preceding instructions will be condemned and so tagged for disposition as condemned property.

**4. MAN-HOURS REQUIRED.**

Approximately 8 man-hours are required to accomplish this change.

**5. WEIGHT CHANGE.**

The weight change effected by this modification is negligible.

By Command of General ARNOLD:

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