

CURTISS P-40
BULLETINS

ESSCO INC.
426 WEST TURKEYFOOT LAKE RD.
AKRON OH 44319
330-644-7724/FAX 330-644-0886



<u>DATE</u>	<u>TITLE</u>	<u>T.O. NUMBER</u>	<u>Pg.</u>
Oct.29,1943	Carburetor Air Filters,P-40E,E-1,K,M	01-25C-7	1
May 23, 1943	Inspec. Lower Rudder Hinge Access doors	01-25C-10	12
Mar. 10, 1943	Modification of SCR-535A A parts for SCR-695-A, P-40B,C,D,E,	01-25C-11	13
Mar.8, 1943	Same Subject 01-25C-11 for models P-40E,E-1,F,K,L,M,	01-25C-14	22
Sept.4,1943	Installation of 170-Gallon Wing Fuel tanks P-40E,E-1,F,K,L,M,	01-25C-18	31
June 15, 1943	Modification of Wing Fuel Filler Cap Adapter RP-40D,P-40E,E-1,F,K,K-1	01-25C-49	44
Nov. 21,1942	Installation of Narrow Beam Resin lens	01-25C-83	46
July 22,1943	Modifcation of Caburetor Air Duct Sleeve Joint RP-40,B,C,G,	01-25C-106	50
Jan. 27,1944	Removal of Duffle Bag Installation	01-25C-122	53
June 4,1943	Replacement of main landing gear towing ring	01-25C-124	54
Mar.20, 1943	Installation of Felt Seals to Elevator and Rudder Bearings	01-25C-125	56
Oct. 15,1942	Modifcation of Battery Installation P-40F, K-1	01-25C-128	62
June 28,1943	Modifcation of Tail Wheel Steering cables and rudder cables	01-25C-136	63
May 10,1943	Installation of 2-inch oil lines P-40,K, M	01-25C-147	71
Jan. 6,1943	Modification of bulkhead sta. 18 P-40F,K,	01-25C-144	73
June 3, 1943	Reinforcement and rebalancing of ailerons	01-25C-148	77
Jan. 6, 1944	Inspec. of hot and cold carburetor Air Intake Valve Assem. P-40K,K-1, M,N	01-25C-152	80
June 20, 1944	Inspection and Correction of Landing-gear Toe-in, P-40E,E-1,F,K-1,K,L,M,R-1,2,N	01-25C-153	81
Aug.10,1944	Supplement to TO 01-25C-153	01-25C-153A	93
July 22,1944	Modification of the lord type and fabreeka type engine vibration absorbers P-40E,E-1,K,K-1,M,N,R-1,R-2	01-25C-154	94
June 20,1944	Removal of Armor Plate and Wing Guns P-40E-1,F,K,L,M,N,	01-25C-155	98
Nov. 6, 1943	Installation of Fixed Trim Tab to Left-Hand Aileron P-40E,E-1,K,K-1,L,M,	01-25C-156	101
May 22,1944	Replacement of Fuel Cell Handhole cover rings P-40L,N	01-25C-159	102
Jan.1,1944	Modification of propeller spinner RP-40D,E, P-40F,E,K,	01-25C-160	103



<u>DATE</u>	<u>TITLE</u>	<u>T.O. NUMBER</u>	<u>PAGE</u>
July 15, 1944	Reinforcement of the Fuselage at stations 14 and 15 bulkheads P-40F, K, K-1, L, M, N	01-125C-161	106
Oct. 28, 1943	Inspection of Main Landing-Gear retracting links	01-125C-162	109
April 28, 1944	Modification of rudder Assembly P-40E-1, F, K, K-1, L, M, N,	01-125C-165	110
March 24, 1944	Elimination of outer plate-glass windshield panel RP-40D, P-40E, E-1, F, K,	01-125C-166	116
Aug. 1, 1944	Reinforcement of aileron rib at outboard end	01-125C-169	119
Aug. 15, 1944	Rework of pin, folding, rear gun mounts	01-125C-171	125
Sept. 11, 1944	Supplement to TO 01-125C-171	01-125C-171A	127
June 20, 1944	Installation and Maintenance procedure for canopies	01-125C-172	128
Sept. 18, 1944	Inspection of elevator trim tab rod	01-125C-176	132
Sept. 16, 1944	Modification of Cockpit Enclosure canopy installation	01-125C-177	133
Oct. 9, 1944	Supplement to TO 01-125C-177	01-125C-177A	139
May 7, 1942	Installation and adjustment instructions type E-4 gun synchronizer impulse generator system	01-125CD-58	140
Feb. 6, 1942	Replacement of swaged type antenna terminal P-40E	01-25CF-22	144
Feb. 17, 1942	Installation of P-40E, D, Fuselage	01-25CF-24	145
Sept. 7, 1942	Installation of winterization equipment	01-25CF-42	162
Sept. 18, 1942	Replacement of main landing gear tires P-40F	01-25CH-18	166
Sept. 9, 1943	Modification of Nose-Type Carburetor Air Filter P-40F, L,	01-25CH-31	167
May 21, 1943	Installation of Manual Cowl Flap Control	01-25CH-47	181
Aug. 12, 1943	Installation of Carbon Microphone adapter M-299 P-40F	01-25CH-48	189
Sept. 20, 1943	Replacement of coolant drain lines P-40F, L	01-25CH-49	193
Feb. 29, 1944	Modification of coolant header tank relief valve P-40F, L,	01-25CH-52	195
Mar. 5, 1944	Cleaning of impact tubes by the flushing method on PD-16A-1 Stromberg injection carburetors P-40F, L	01-25CH-53	196
Aug. 14, 1943	Replacement of carburetor heat control bell crank P-40N	01-25CN-6	200
June 17, 1943	Modification of gun leveling lugs P-40N	01-25CN-7	202



P-40 Series Service Bulletin Cont'd

c)

<u>DATE</u>	<u>TITLE</u>	<u>TO NUMBER</u>	<u>PAGE</u>
Aug.10,1943	Installation of Belly Tank Warning Name plate P-40N	01-25CN-10	204
Sept.6,1943	Relocation of wire bundles P-40N	01-25CN-13	206
Oct.15,1943	Installation of Stronger Main landing-gear axle fitting P-40N	01-25CN-14	208
Nov.6,1943	Installation of stronger main landing gear axle/fitting P-40N	01-25CN-14A	212
Sept. 26,1943	Rework of Hydraulic Tank Supporting brackets P-40N	01-25CN-15	213
Dec.1,1943	Reworking Fuel Tank Selector Valve Dial P-40N	01-CN-18	214
Feb.24,1944	Grooving of brake lining P-40N	01-25CN-20	215
Nov.10,1943	Rerouting wire bundles from battery terminal box to hydraulic pump and battery P-40N	01-25CN-22	219
Oct. 24,1943	Rework of gun leveling lugs P-40N	01-25CN-25	220
Oct.7,1944	Replacement of Oil Scavenger Line Welded elbows P-40N	01-25CN-28	222
July 22,1944	Installation of Data Case P-40N	01-25CN-37	224
March 10-1944	Rework of Rear Cooler Exit Duct P-40N	01-25CN-39	226
July 31,1944	Modifications to Supercharger scroll drain line P-40N Series	01-25CN-43	230



RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25C-7

DIST: 4,5,7
FILE: BEHST

October 29, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—OPERATION, MAINTENANCE, AND INSTALLATION INSTRUCTIONS FOR CARBURETOR AIR FILTERS—P-40E, P-40E-1, P-40K SERIES AND P-40M

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary. Commanding Officers will be responsible that the contents of this Technical Order are brought to the attention of all pilots cleared for operation of the subject airplanes. This Technical Order contains specific instructions for pilots and should be available for Transition Flying Training as contemplated in AAF Regulation 50-16.

1. To reduce excessive oil consumption and other engine malfunctioning caused by induction of dust, sand, and other foreign material into the air intake system, carburetor air filter assemblies will be installed in the airplanes listed below in accordance with the instructions contained in paragraph 3.

MODEL	MODIFICATION	KIT	AF SERIAL NOS.
P-40E	(A),(B),(C),(D), and (E)	"A" and "B"	All
P-40E-1	(A),(B),(C),(D), and (E)	"A" and "B"	All
P-40K Series	(A),(B),(C),(D), and (E)	"A" and "B"	All
P-40M	(A),(B),(C),(D), and (E)	"A" and "B"	43-5403 to 43-5462 inclu
P-40M	(B) only	"B"	43-5463 to 43-5663 inclu

Model P-40M airplanes, AF No. 43-5463 and subsequent, will have modification (A), (C), (D), and (E) incorporated by the contractor prior to delivery. Model P-40M airplanes, AF No. 43-5664 and subsequent, will have modification (B) incorporated by the contractor prior to delivery.

2. The carburetor air filters will be operated and maintained as follows:

a. The control of the valve position is accomplished by means of a push-pull control cable. With the filter control in filter position, that is, with the control pulled out, the carburetor heat control must be in the cold air position. All ground operation including take-offs, landings, and flight up to altitudes of approximately 8,000 feet should be accomplished using "filtered air," that is, with the filter control pulled out. Above 8,000 feet, or whenever the airplane is sufficiently above the sandy or dusty level, unfiltered air may be used, that is, control pushed in. When using unfiltered air, the carburetor heat control may be used in the "FULL COLD" position, or as required.

b. To clean the filter element, open the left- and right-hand doors on the side cowling and remove the air filter units. Remove any accumulation of sand or dust at the rear of the filter unit. Clean the filter element in accordance with the instructions contained in T. O. No. 01-1-23.

3. The instructions for accomplishing this installation, as contained in Curtiss Service Bulletin 490-23, 530-7, revised February 2, 1943, are as follows:

MODIFICATION (A)

- a. Modification of the engine breather vent tube and coolant lines is as follows:

- (1) Remove all cowling from the engine.
- (2) Remove the propeller.
- (3) Remove the front engine breather vent tube, part No. 87-46-724-36, hose and brass nipple from the forward top end of the engine; remove the clamps holding the vent tube to the coolant tube and the engine mount. Cut the tie strings holding the coolant thermostatic wire to the vent tube. (The vent tube and brass nipple are not to be reinstalled.)
- (4) Install a 45-degree elbow, part No. 851-16, where the brass nipple was removed and turn it approximately 45 degrees to the rear in relation to the

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S.C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED
T. O. No. 01-25C-7

Figure 1 - Installation
of Engine Breather
Vent Tube

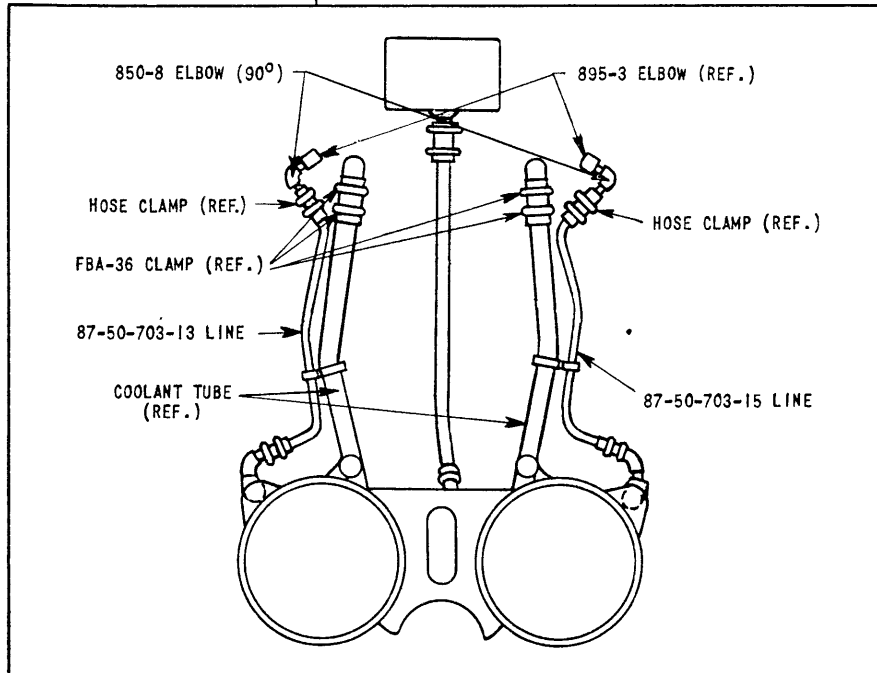
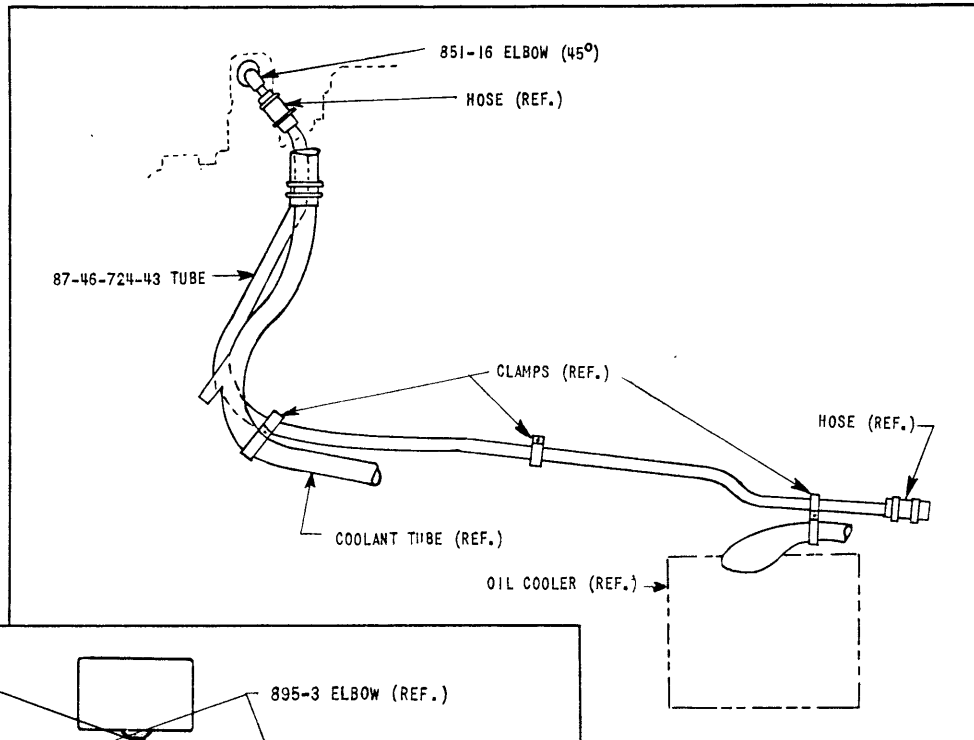


Figure 2 - Modification
of Coolant Vent Lines

horizontal line of the airplane. (See figure 1.) Attach rubber hose from the removed tube to the new vent tube, part No. 87-46-724-43, and install vent tube as shown in figure 1. Connect rubber hose to elbow, part No. 851-16, and connect the vent tube to the rubber hose above the oil cooler using the original clamps. Support the vent tube to the coolant line, engine mount, and oil cooler, using the original clamps. (See figure 1.) Attach cooler thermostatic wire to newly installed vent tube using tie string as in the original installation.

(5) Disconnect the coolant hose from the 45-degree elbows, part No. 853-8, connecting the coolant lines, part Nos. 87-50-703-13 and -15, to the forward end of the left and right engine banks. Remove the 45-degree

elbows, part No. 853-8, from the 90-degree elbows, part No. 895-3, and install 90-degree elbows, part No. 850-8, in their place. Bend the coolant lines, part Nos. 87-50-703-13 and -15, in order to match with the 90-degree elbows just installed, and attach the lines permanently, using original hose and clamps. (See figure 2.)

(6) Loosen clamps, part No. FBA-36, at the hose connections where the coolant tubes are attached at the front of the left and right cylinder banks of the engine. Rotate the clamps so that the adjusting screws point inboard and retighten the clamps. This is done to eliminate interference with the filter boxes to be installed. (See figure 2.)

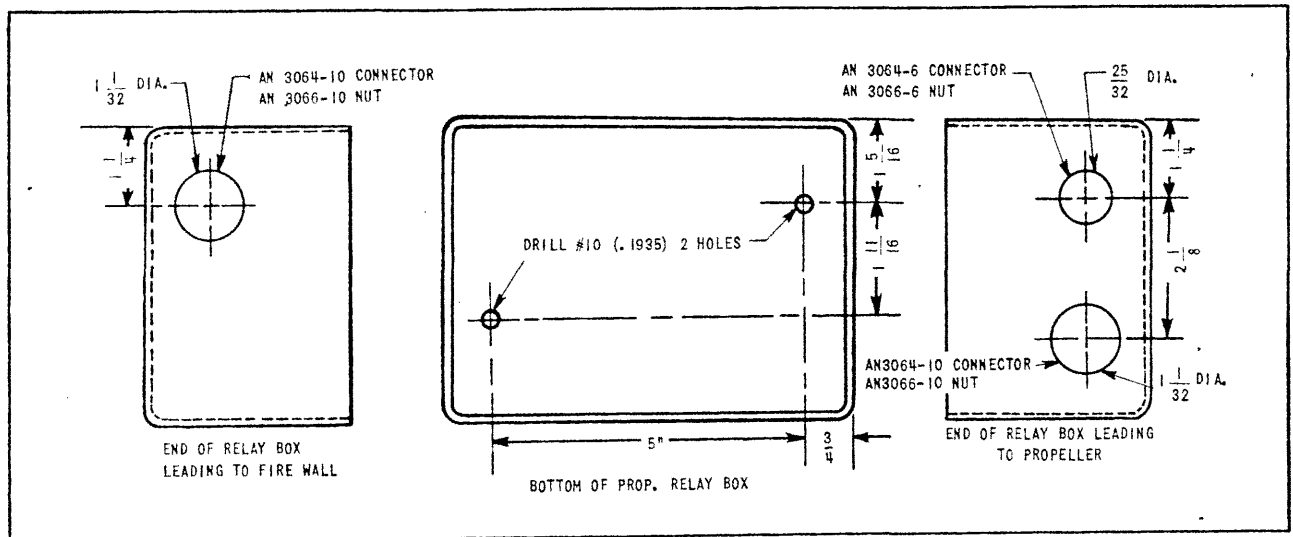


Figure 3 - Relocation of Propeller Relay Box Assembly

MODIFICATION (B)

b. Relocation of the propeller relay box assembly from the top of the forward bulkhead to the engine mounting is as follows:

NOTE The relocation from the bottom of the forward bulkhead (P-40M, AF Nos. 43-5463 to 43-5663 inclusive) starts with the "NOTE" following paragraph 3.b.(2).

(1) Disconnect the battery.

NOTE When disconnecting the electrical connector wires, the identifying numbers of the wires and the terminals to which they are attached will be very carefully noted. Although new wires will be installed, they will bear the same identifying numbers as the original wires. This is very important in order to avoid improper wiring.

(2) Remove the cover from the propeller relay box, part No. 87-66-598, located on the top inside of the forward engine cowl bulkhead and disconnect all wires leading into the relay box. Remove all connections and screws holding the relay box. Remove all clamps holding the following conduits and remove the conduit assemblies; the conduit assembly, part No. 87-66-238-5-23, leading to the propeller governor; the conduit assembly leading to the fire wall; the conduit assemblies, part Nos. 87-88-883-7 and 87-66-238-5-16, leading to the propeller brush housing. Remove the propeller relay assembly from the propeller relay box.

NOTE On P-40M airplanes, AF Nos. 43-5463 to 43-5663 inclusive, having the propeller relay box assembly located on the bottom of the forward bulkhead, the following instructions are applicable for the removal of the propeller relay box:

Remove cover from the propeller relay box, part No. 87-66-598, located on approximately

center inside of the forward engine cowl bulkhead. Disconnect all wires from the propeller relay. Disconnect and remove from the airplane, conduit assembly leading from the propeller relay box to the propeller brush housing; conduit assembly leading from the propeller relay box to the propeller governor, and conduit assembly leading to the upper left-hand side of the fire wall.

Disconnect and remove the elbow fitting from the propeller relay box, remove the screws holding the propeller relay box to the forward bulkhead, and remove the propeller relay box.

(3) Lay out and drill the holes in the propeller relay box as shown in figure 3. Install connector, part No. AN3064-6, and nut, part No. AN3066-6, connector, part No. AN3064-10, and nuts, part No. AN3066-10, in the holes of propeller relay box, indicated in figure 3. Lay out and drill two holes in the bottom of the propeller relay box as shown in figure 3.

NOTE Plug the remaining holes with United Carr plug buttons, part Nos. 481435 and 481645, or other suitable plug.

(4) Lay off and drill one 1-1/32 inch diameter hole and two No. 11 (.1910-inch) holes on the forward engine cowl bulkhead as shown in figure 4, detail "A."

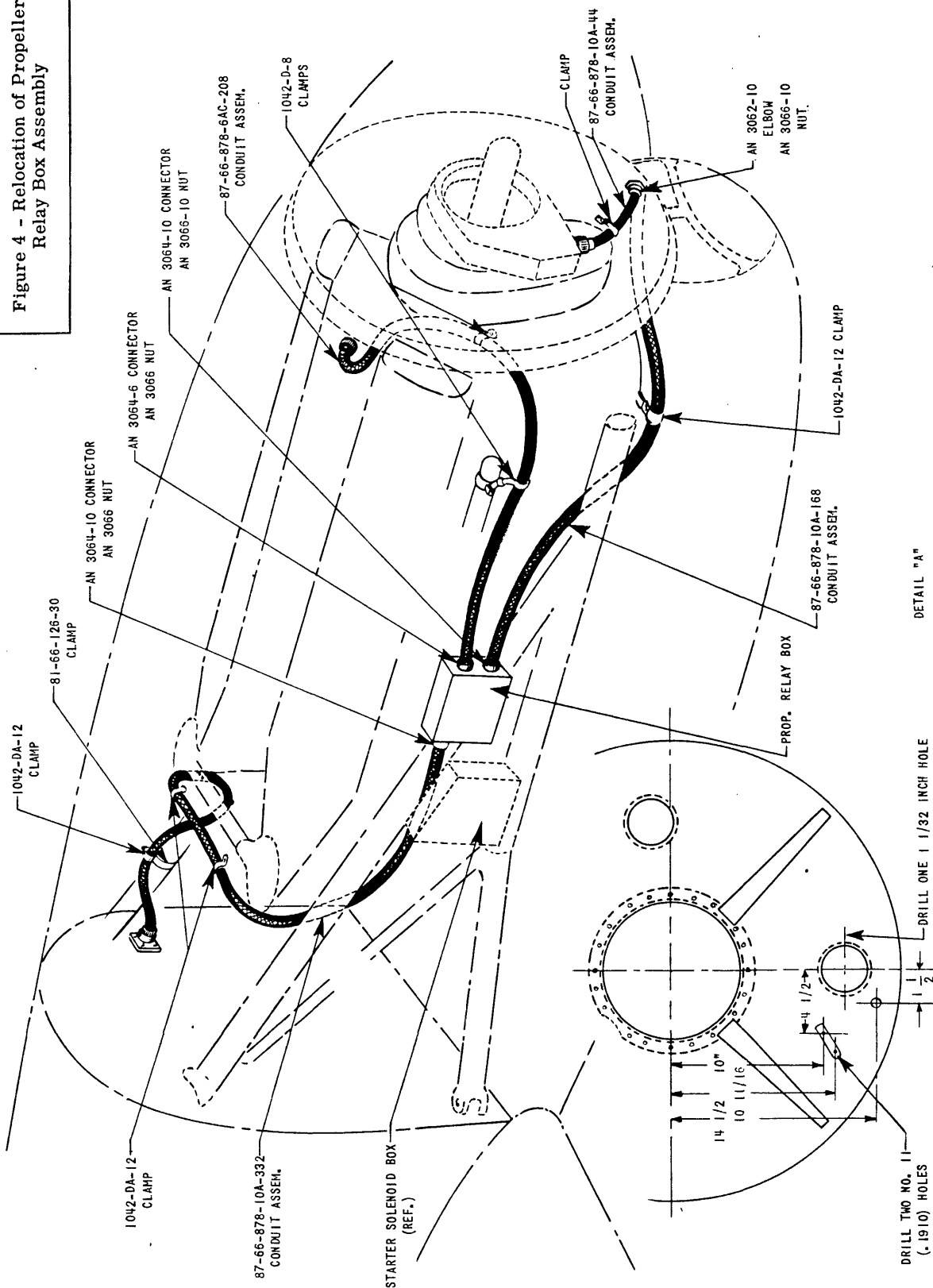
(5) Slip two clamps, part No. 81-66-126-30, over the engine mount. Attach the clamps on the back of the propeller relay box using bolts, part No. AN3-31A, washers, part No. 960-10, and nuts, part No. 365-1032, and space the propeller relay box approximately 3-1/2 inches from the starter solenoid box. (See figure 4.)

NOTE The AN3-31A bolts shall be installed with the head of bolt in the propeller relay box.

(6) Install elbow, part No. AN3062-10, previously removed from the box, to the forward engine cowl bulkhead through the newly drilled hole on the bottom

RESTRICTED
T. O. No. 01-25C-7

Figure 4 - Relocation of Propeller
Relay Box Assembly



RESTRICTED

and secure lightly with nut, part No. AN3066-10. Feed wires, Nos. 24, 25, 26, and 451, through conduit assembly, part No. 87-66-878-10A-44, and assemble the connectors; feed the wires through the elbow, part No. AN3062-10, and assemble the connector to the elbow. Adjust the elbow and tighten the nut securely.

(7) Slip conduit assembly, part No. 87-66-878-10A-168, over the four wires, attach the connector to the elbow, and attach the terminals, part No. 14A3, to the four wires. Secure the connectors of the conduit assembly to the propeller relay box and connect the four wires to their respective terminal posts.

(8) Remove the two screws, washers, and nuts, holding bracket on the face of the forward engine cowl bulkhead, which previously held circuit in place, and replace it where the two new No. 11 (.1910-inch) holes have been drilled, using two bolts, part No. AN3-4, two washers, part No. AN960-10, and two nuts, part No. 365-1032. (See figure 4, detail "A.")

(9) Secure conduit assembly, part No. 87-66-878-10A-168, to the bottom of the engine with clamp, part No. 1042-DA-12, by removing the second nut from the right-hand side. Install clamp and secure with original nut as shown in figure 4.

(10) Install conduit assembly, part No. 87-66-878-6AC-208, to the propeller governor and to the propeller relay box and holding it to the engine with two clamps, part No. 1042-D-8, as shown in figure 4. Install the wires to their respective terminal posts of the propeller relay.

(11) Install conduit assembly, part No. 87-66-878-10A-332, to the left-hand side of the propeller relay box and to the connector on the left-hand side of the fire wall, routing it between the rear top end of the engine and the carburetor. Attach the wires to their respective terminal posts. (See figure 4.)

(12) Remove the two screws that connected the removed conduit to the aft portion of engine as indicated in figure 4 and secure conduit assembly, part No. 87-66-878-10A-332, to the engine with two clamps, part No. 1042-DA-12, and replace the screws.

(13) Remove the bolt, securing clamp, part No. 81-66-126-30, to the left-hand engine mount where warning instruction plate is located, and secure conduit assembly, part No. 87-66-878-10A-332, to this clamp with a clamp, part No. 1042-DA-12. Reinstall the bolt, nut, and washer previously removed.

(14) Replace the propeller relay assembly in the relay box, and replace cover in the relay box.

(15) Reconnect the battery.

(16) Test the propeller control system to check the wiring. The automatic operation of the propeller will then be checked as soon as the engine is again operated.

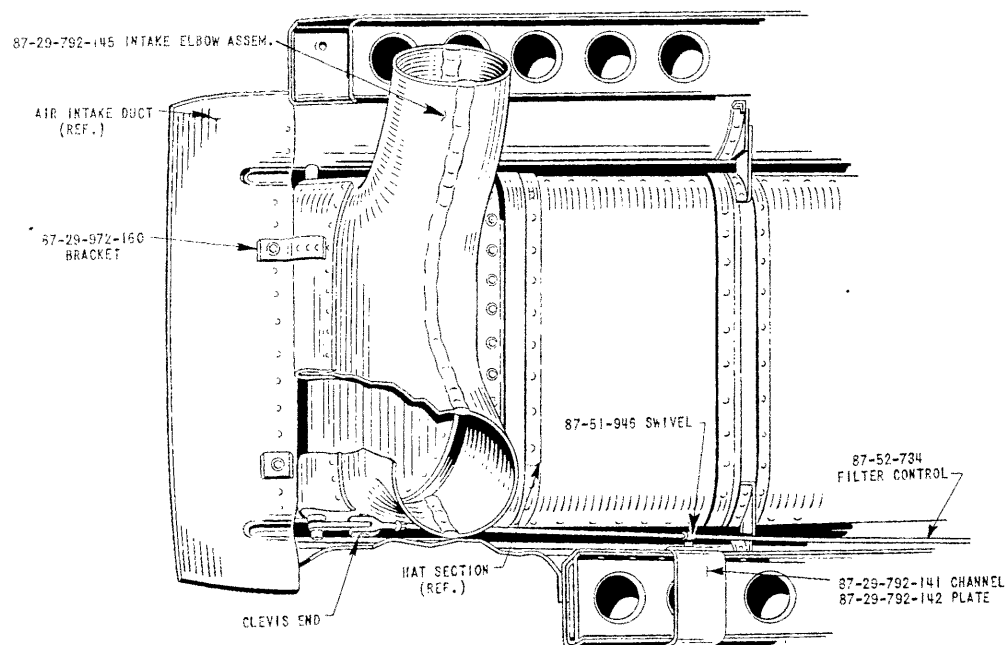
(17) Replace the propeller and the bottom engine cowl.

MODIFICATION (C)

c. Modification of top cowling and installation of carburetor air filter intake elbow.

(1) Turn the top cowling over and cut bottom section of the carburetor air intake duct between the forward hat section and duct forging. Remove all rivets from the flange and hat section and four rivets on the left- and right-hand side of the forward air intake duct where the bottom part is removed. Enlarge rivet holes with a No. 10 (.193-inch) drill. (See figure 5.)

↓ Figure 5 - Air Intake Elbow Installation



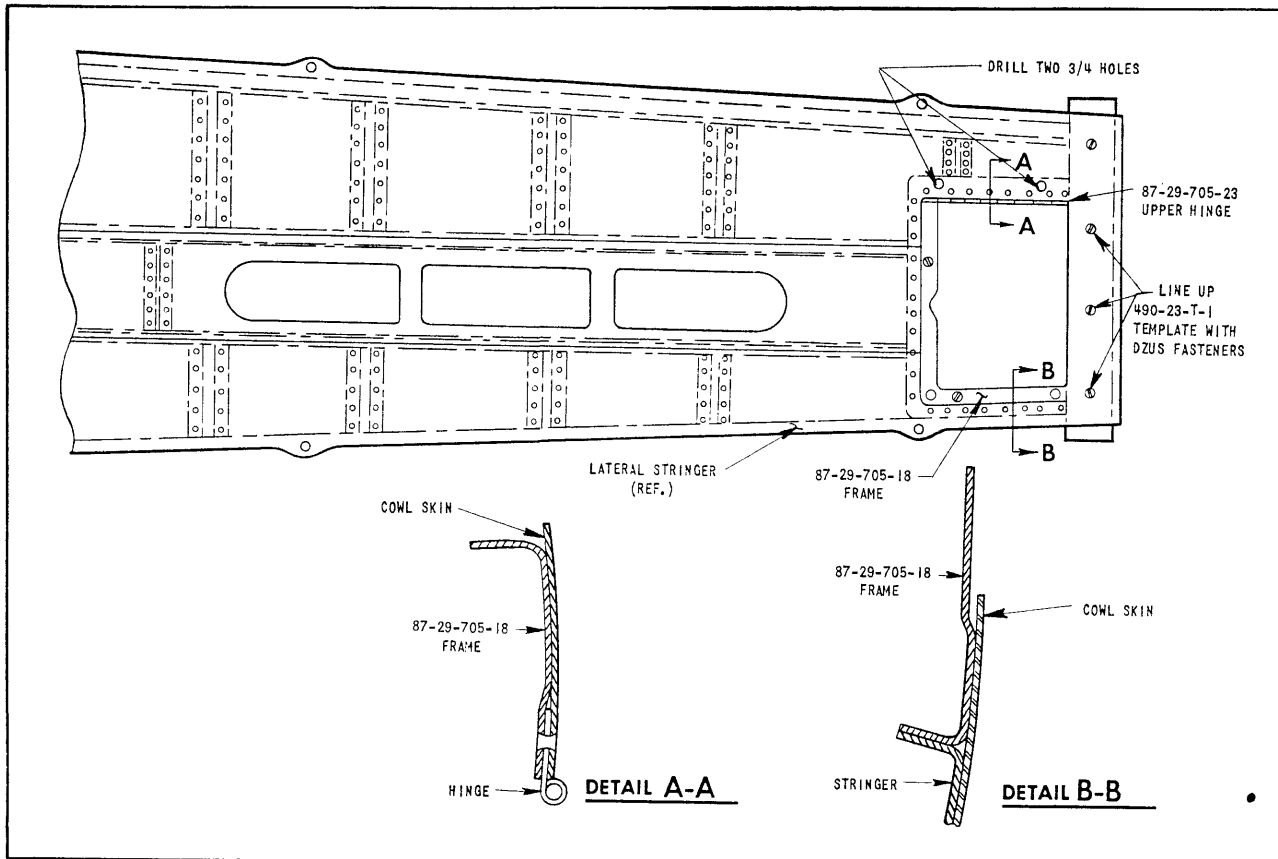


Figure 6 - Air Filter Frame Installation

(2) Place the air filter intake elbow assembly, part No. 87-29-792-145, over the cut-out in the air intake duct and trim aft flange of the air filter elbow assembly to obtain a snug fit between the duct forging and the raised part of the hat section. (See figure 5.)

(3) Transfer rivet holes from the hat section and the air intake duct, where the rivets have been previously removed to the flange of the air filter intake elbow, part No. 87-29-792-145, and drill holes using a No. 10 (.193-inch) drill.

(4) Remove the two rivets from the duct forging that matches the two mounting holes on bracket, part No. 87-29-972-160. Enlarge the holes in the two brackets and forging using No. 10 (.193-inch) drill. (See figure 5.)

NOTE If necessary, trim the leather of the valve to secure the proper fit of the valve in the closed position in the carburetor air intake.

(5) Assemble air filter intake elbow, part No. 87-29-792-145, to the air intake duct using 19 screws, part No. 525-10-7, washers, part No. 960-10, and nuts, part No. 365-1032. (See figure 5.)

(6) Bolt the two brackets, part No. 87-29-972-160, to the forging with two screws, part No. 525-10-9, washers, part No. 960-10, and nuts, part No. 365-1032. (See figure 5.)

(7) Put plate, part No. 87-29-792-142, on channel, part No. 87-29-792-141, so that the two large holes match each other. Press bushing, part No. 87-51-947, into the large hole and transfer the two rivet holes from the plate to the channel. Rivet them together with two rivets, part No. AN442AD4-5.

(8) Remove the two rivets on each side of the channel of the top cowl just forward of the hat section and rivet channel, part No. 87-29-792-141, to the channel of the top cowl with four rivets, part No. AN442AD4-5. (See figure 5.)

(9) Assemble swivel clamp, part No. 87-51-946, to the bushing inserted into channel, part No. 87-29-792-141, with washer, part No. AN960-416, and nut, part No. AN310-4.

(10) Remove one rivet at approximately the center of the second and third sections of the right-hand side of the air intake duct between the hat sections and enlarge hole with a No. 10 (.193-inch) drill.

MODIFICATION (D)

d. Modification of side cowl and installation of carburetor air filter boxes.

(1) Scribe the cut-out for the left- and right-hand doors, part No. 87-29-705-50 L/R, in the left- and right-hand side cowl by lining up the three

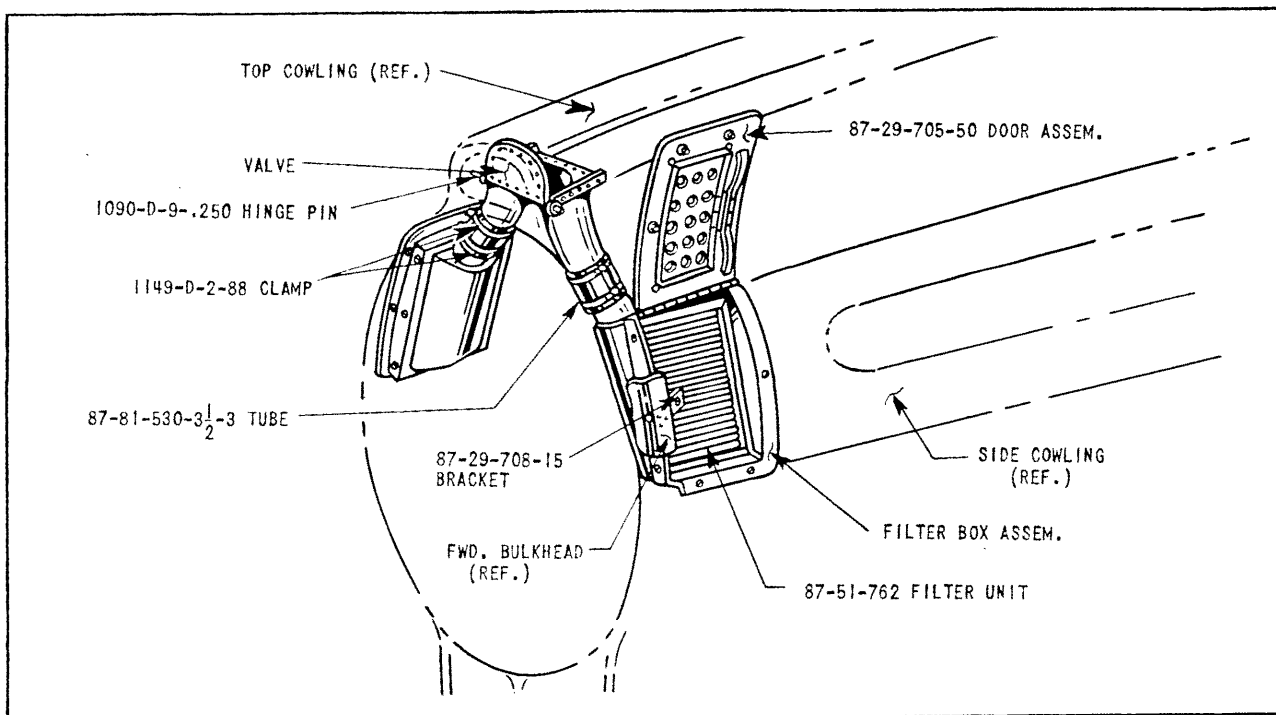


Figure 7 - Installation of Air Filter Assembly

holes of template, part No. 490-23-T-1, with the three lower Dzus fasteners on the forward end of the side cowling and drill two No. 41 (.0960-inch) holes on the top through the cowling. (See figure 6.)

NOTE Care must be taken that template is correctly used for left- and right-hand side.

(2) Cut out the part of cowling and reinforcements within the scribed line and file cowling evenly to scribed line. Enlarge the two No. 41 holes to 3/4-inch diameter. (See figure 6.)

NOTE Use the left and right doors, part No. 87-29-705-50 L/R, as template to accomplish accurate fit.

(3) Place frame, part No. 87-29-705-18, on the inside of the cowling so that the bottom of the frame rests against bottom stringer of the cowling and the two clearance holes in the top for the Dzus fasteners in the frame line up with the two 3/4-inch holes in the cowling. Cut the two lateral angle stringers and stiffener to allow frame, part No. 87-29-705-18, to lay against the skin of the cowling. (See figure 6 and detail.)

(4) Assemble the upper hinge to the door and place the door in its correct position with the upper hinge part between the cowling skin and the frame. Transfer the rivet holes from the frame to the cowling skin and through the upper hinge part of the door with a No. 30 (.1285-inch) drill. Also transfer the eight rivet holes on the bottom flange of the frame abutting the lower stringer of the cowling. Countersink all holes in the cowling skin with a 78-degree countersink.

(5) Rivet the frame to the cowling with 29 rivets, part No. 673D4AD4, the hinge with 8 rivets, part No. 673D4AD5, and the flange on the bottom of the frame to the lateral stringer with 8 rivets, part No. AN455D4-4. (See figure 6.)

(6) Replace the side cowling to the airplane and lock the filter door. Attach bracket, part No. 87-29-708-15, to the Dzus fasteners on the inside of the door and scribe the four holes to the flange of the forward bulkhead of the airplane. (See figure 7.)

(7) Remove the bracket, open the filter door, and install filter box, part No. 87-51-770. Transfer the three holes on the forward side of the filter box to the forward bulkhead with a 17/64-inch drill.

(8) Remove the side cowling from the airplane and enlarge the four holes in the flange of the forward bulkhead and bracket, part No. 87-29-708-15, with a No. 30 (.1285-inch) drill. Countersink the four holes on the outside of the flange of the forward bulkhead and rivet the bracket to the inside of the flange with four rivets, part No. 673D4AD6. (See figure 7.)

(9) Remove the filter box from the cowling and install it on to the forward bulkhead with three screws, part No. 526-428-7, washers, part No. 960-416L, and nuts, part No. 365-428. (See figure 7.)

(10) Attach a clamp, part No. 1149-D-2-88, on each of the tubes, part No. 87-81-530-3 1/2-3, and attach tubes to the air filter intake elbow assembly, part No. 87-51-768. (See figure 7.)

(11) Insert the air filter units, part No. 87-51-762, into the left- and right-hand air filter boxes and lock the doors with the Dzus fasteners.

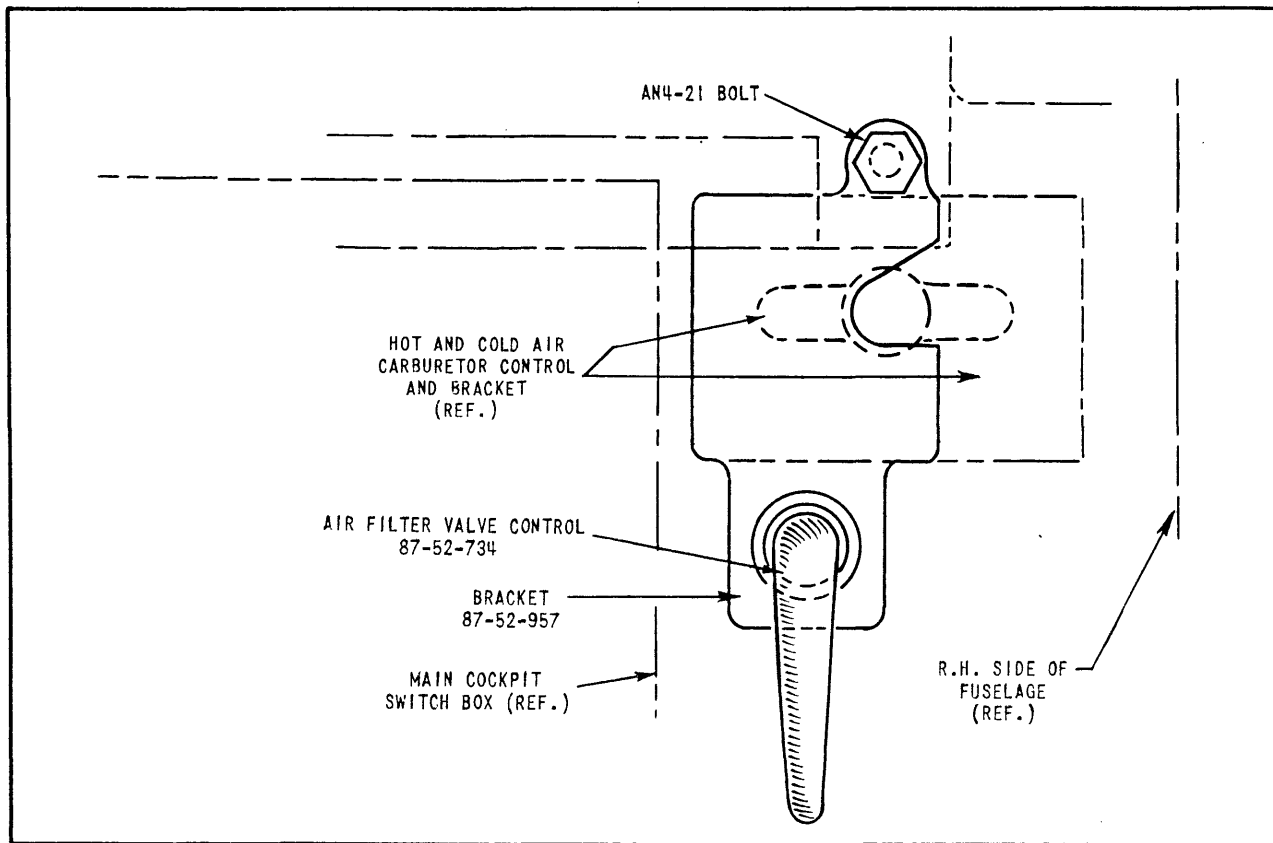


Figure 8 - Installation of Air Filter Control Support Bracket

MODIFICATION (E)

e. INSTALLATION OF AIR FILTER CONTROL.

(1) Remove the 1/4-inch bolt which goes through the rudder pedal support tube directly above the carburetor hot- and cold-air control in the cockpit. Loosen the nut of the carburetor hot- and cold-air control and remove the instruction plate. (See figure 8.)

(2) Install a new filter control support bracket, part No. 87-52-957, and the two halves of the name plate, part No. 87-51-769, such that the holes on the top of the support bracket and the name plate will be fastened to the rudder pedal with bolt, part No. AN4-21. Tighten the new bolt and also tighten the nut on the carburetor hot- and cold-air control. (See figure 8.)

(3) Enlarge the center small hole in the fiber guide plate, located on the right-hand side of the fire wall using a 3/8-inch drill.

NOTE The tachometer shaft also passes through this guide plate.

(4) Remove the clevis end from the air filter control, part No. 87-52-734, and route control through the hole of the lower part of the instruction plate and the hole of bracket, part No. 87-52-957, in the cock-

pit on the right-hand side of the fuselage and through the 3/8-inch diameter hole previously enlarged in the fiber plate at the fire wall. (See figure 9.)

(5) Replace the top cowling on the airplane and route the air filter control, part No. 87-52-734, along the right-hand cowling through the swivel clamp. Attach clevis end to the control and secure clevis end to the arm of the air filter intake elbow assembly, part No. 87-29-792-145, with bolt, part No. AN3-6, nut, part No. AN310-3, three washers, part No. 960-10, and one cotter pin, part No. AN380-2-2. (See figures 5 and 9.)

NOTE It is important that the control in the cockpit is completely pushed in and adjustment be made at the clevis end so that the valve of the air filter intake elbow assembly is in filtered air position.

(6) Secure the air filter control to the screw of the Adel clamp forward of the fire wall which holds the three fuel lines using a clamp, part No. 1042-DS-5, and to the channel of the top cowling where the rivet has been removed, as outlined in paragraph 3.c.(10) with a clamp, part No. 1042-DS-5, screw, part No. 525-1032-7, washer, part No. 960-10, and stop nut, part No. 365-1032. (See figure 9.)

(7) Reinstall all cowling.

RESTRICTED
T. O. No. 01-25C-7

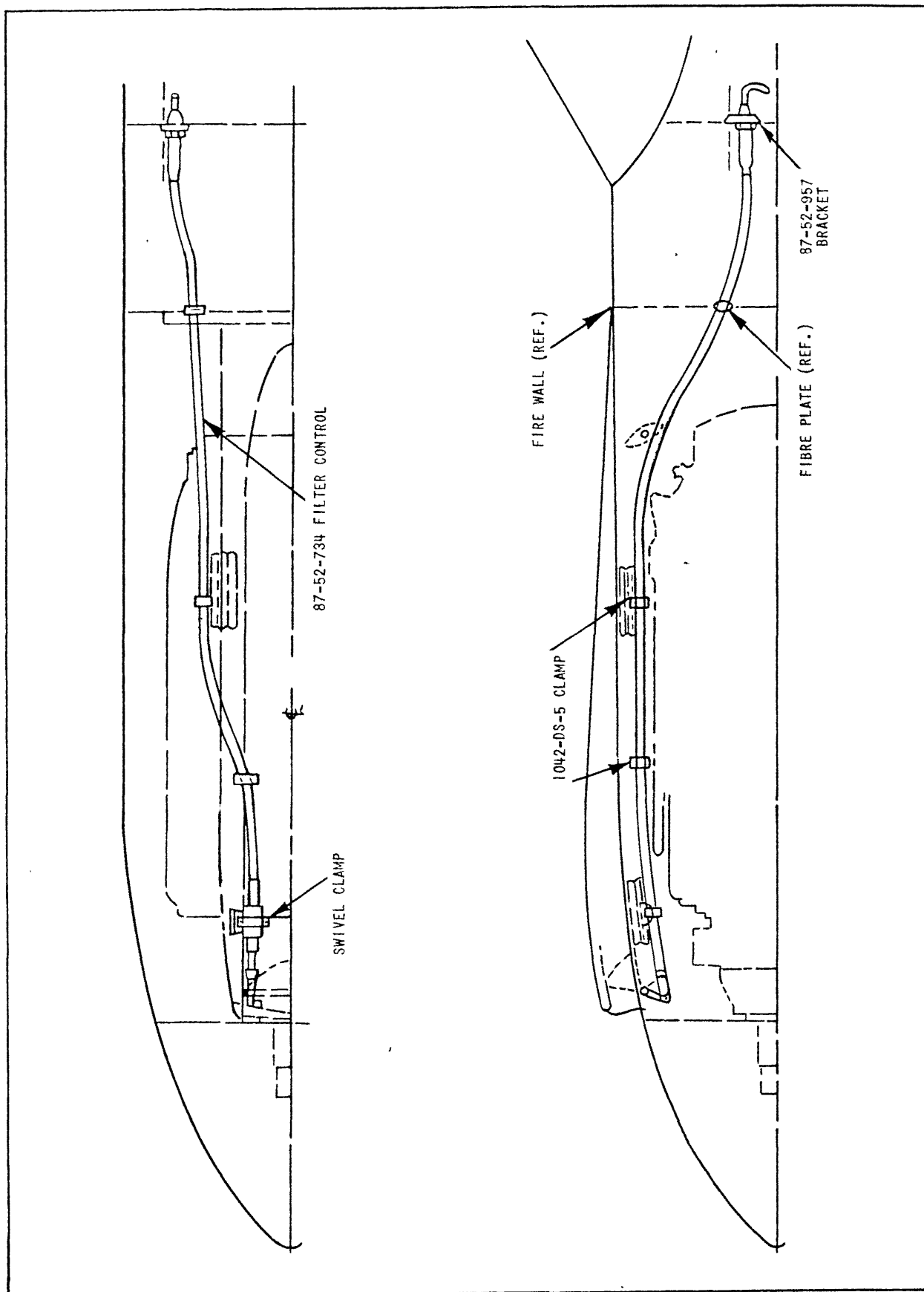


Figure 9 - Installation of Air Filter Control

RESTRICTED
T. O. No. 01-25C-7

4. a. The parts listed below are required per airplane to accomplish this change. These parts will be packed in kits and may be requisitioned from the air depot in accordance with the provisions of T. O. No. 00-35A-15.

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	1390TO-01-25C7A		KIT "A," "Operation, Maintenance, and Installation Instructions for Carburetor Air Filters - P-40E, P-40E-1, P-40K Series, and P-40M," consisting of the following parts:	15	AF Stock
PARTS FOR MODIFICATION (A)					
1		851-16	Elbow - Hose fuel and oil 45 degree, 1-inch tube 3/4-inch PT	04-A	
1		87-46-724-43	Tube - Engine breather vent	01-C	
2		850-8	Elbow - Hose fuel and oil 1/2-inch tube 3/8-inch PT	04-D	
PARTS FOR MODIFICATIONS (C), (D), AND (E)					
1		87-29-792-145	Elbow Assembly - Air filter intake	01-C	
1		87-29-972-160	Bracket	01-D	
21		525-10-7	Screw - Washer head steel 10-32 x 7/16-inch	29	
59		AN960-10	Washer - Plain steel No. 10 bolt	04-A	
26		365-1032	Nut - Self-locking steel 10-32	04-A	
3		525-10-9	Screw - Washer head steel 10-32 x 9/16-inch	29	
1		87-51-946	Swivel Clamp	01-C	
1		87-29-792-141	Channel	01-C	
1		87-29-792-142	Plate	01-C	
6		AN442AD4-5	Rivet - Alum.-alloy flathead type AD 1/8 x 5/16-inch	29	
1		87-51-947	Bushing	01-C	
1		AN960-416	Washer - Plain steel 1/4-inch bolt	04-A	
1		AN310-4	Nut - Aircraft castle steel 1/4-28	04-A	
2		87-29-705-18	Frame	01-C	
2		1090-D-9.250	Hinge Pin	01-C	
2		87-29-705-23	Hinge - (upper half)	01-C	
60		673D4AD4	Rivet - Alum.-alloy countersunk-head, 78 degrees type AD 1/8 x 1/4-inch	29	
16		673D4AD5	Rivet - Alum.-alloy, countersunk-head, 78 degrees type AD 1/8 x 5/16-inch	29	
16		AN455-D4-4	Rivet - Alum.-alloy, brazier-head, type D, 1/8 x 1/4-inch	29	
1		87-29-705-50L	Door Assembly	01-C	
1		87-29-705-50R	Door Assembly	01-C	
2		87-51-762	Filter Unit	01-C	
1		87-51-770L	Filter Box	01-C	
1		87-51-770R	Filter Box	01-C	
1		87-29-708-15L	Bracket	01-C	
1		87-29-708-15R	Bracket	01-C	
8		673D4AD6	Rivet - Alum.-alloy, countersunk-head, 78 degrees type AD, 1/8 x 3/8-inch	29	
6		AN526-428-7	Screw - Buttonhead 1/4 x 28 x 7/16-inch	29	
3		AN960-416L	Washer - Plain carbon steel, 1/4-inch bolt	04-A	
6		365-428	Nut - Self-locking steel 1/4 x 28	04-A	
4		1149-D-2-88	Clamp	01-C	

RESTRICTED
T. O. No. 01-25C-7

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
2		37-81-530-3 1/2-3	Tube	01-C	
1		87-52-734	Air Filter Control and Clevis	01-C	
1		87-52-957	Support Bracket	01-C	
1		AN4-21	Bolt - Aircraft, drilled steel, 1/4- 28 x 2-1/8 inches	04-A	
1		AN3-6	Bolt - Aircraft drilled steel, 10-32 x 3/4-inch	04-A	
1		AN310-3	Nut - Aircraft castle steel, 10-32	04-A	
2		AN380-2-2	Pin - Cotter, steel 1/16 x 1/2-inch	29	
3		1042-DS-5	Clamp	01-C	
1		87-51-769	Name Plate	01-C	
1		490-23-T-1	Template	01-C	
1	1300TO 01-25C7B		KIT "B," "Operation, Maintenance, and Installation Instructions for Car- buretor Air Filters - P-40E, P-40E-1, P-40K Series, and P-40M," consisting of the following parts:	15	AF Stock

PARTS FOR MODIFICATION (B)

1		87-66-878-10A-44	Conduit Assembly and Wires	01-C	
1		87-66-878-10A-168	Conduit Assembly and Wires	01-C	
1		87-66-878-10A-332	Conduit Assembly and Wires	01-C	
1		87-66-878-6AC-208	Conduit Assembly and Wires	01-C	
1		AN3064-6	Connector - Conduit box, alum.- alloy, conduit size 3/8	04-A	
2		AN3064-10	Connector - Conduit box, alum.- alloy, conduit size 5/8	04-A	
1		AN3066-6	Nut - Conduit coupling lock alum.- alloy	04-A	
2		AN3066-10	Nut - Conduit coupling lock alum.- alloy	04-A	
2		81-66-126-30	Clamp	01-C	
2		1042-DA-8	Clamp	01-C	
4		1042-DA-12	Clamp	01-C	
1		481435	Button Plug (United Carr)	29	
1		481645	Button Plug (United Carr)	29	
1		AN3-31A	Bolt - Aircraft, plain steel, 10-32 x 3-1/8 inches	04-A	
2		AN960-10	Washer - Plain steel No. 10 bolt	04-A	
2		365-1032	Nut - Self-locking steel 10-32	04-A	
4		14A3	Terminal - Electrical solderless	08-B	
2		AN3-4	Bolt - Aircraft drilled steel, 10-32 x 1/2 inch	04-A	

b. The parts removed and not reinstalled will be disposed of in accordance with AAF Regulation 65-43.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U. S. A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25C-10

DIST: 5,7
FILE: BEH

May 23, 1943

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—INSPECTION OF LOWER RUDDER HINGE ACCESS DOORS—
P-40 SERIES**

This Technical Order replaces T. O. No. 01-25C-10, dated April 5, 1943.

NOTE: The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being 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 25-hour inspection period, by service activities with the aid of sub-depots, if necessary.

1. To avoid possible fouling of lower rudder hinge access doors, part No. 87-14-012, with the rear edges of the fuselage skin, the left and right access doors of all P-40 series airplanes will be removed and not reinstalled.
2. Screws removed from access doors will be reinstalled and carefully checked to insure that 3/16-inch clearance exists between heads of screws and fuselage skin. If necessary fuselage skin will be slightly flared in the affected area to obtain the necessary clearance.
3. Access doors removed will be disposed of in accordance with the provisions of T. O. No. 00-35A-3.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

Compliance with these instructions is MANDATORY on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

FILES: FO

March 10, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS - MODIFICATION OF SCR-535-A GROUP "A" PARTS INSTALLATION TO PERMIT
THE USE OF RADIO SET SCR-695-A - P-40B, P-40C, P-40D, AND P-40E

NOTE: Upon accomplishment of this Technical Order, a notation will be made on the AAF Form 60A of the airplane concerned in accordance with the provisions of T.O. No. 00-20A. The work directed herein will be accomplished as directed in paragraph 1:

1. To permit the use of radio set SCR-695-A in designated P-40B, P-40C, P-40D, and P-40E airplanes prior to AF serial No. 41-5522, the SCR-535-A group "A" parts installation made in accordance with either T.O. No. 01-25CE-18 or T.O. No. 01-25CF-36 will be modified in accordance with the instructions contained in paragraph 2. when directed by the Commanding General, Air Service Command.

2. The instructions for accomplishing this installation are as follows:

NOTE: If radio set SCR-695A is to be installed at the same time that command set SCR-283 is replaced with command set SCR-522, the "695-G" switches will be installed and the SCR-535A group "A" parts will be re-located in accordance with the SCR-522 installation instructions. Antenna AN-95-A and cable WC-549-() will be installed in accordance with paragraphs 2.c. and 2.e. of the following instructions.

a. INSTALLATION OF REMOTE "EMERGENCY"
AND "695-G" SWITCHES. (See figure 1.)

(1) Remove switch box BC-765 and remote SCR-535 switch assembly from starboard side of cockpit and disconnect wiring from the switches.

(2) Remove SCR-535 switch and plate from bracket and bracket from switch box BC-765.

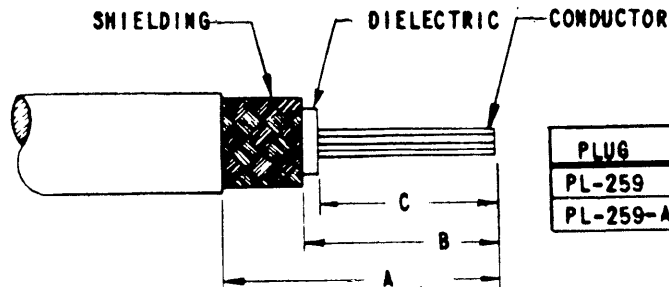
(3) Locate a switch bracket, part No. 43A13506, on each side of switch box BC-765 centered between the ends and with switch mounting flange of each bracket 1/4 inch back from face of switch box. Drill two holes No. 15 drill, through each side of switch box to match bracket mounting holes and install brackets using four screws, part No. AN526-832-8, and four nuts, part No. 365-832.

(4) Cut four 9-foot lengths of aircraft power and lighting cable No. 18 AWG. Solder a terminal lug, part No. 660-50, to one end of each of two wires and connect to terminals of "695-G" toggle switch SW-187. Tin one end of each of the other two wires, form a loop suitable for connecting to terminals of "695-G" push button switch SW-180 and connect to switch.

(5) Install switches on bracket on side of switch box next to "R" in "DANGER," locating toggle switch SW-187 and "695-G ON-OFF" plate, part No. 43A13522, with "OFF" position aft, on forward end of bracket (based on position of switch box before removed) and push button switch SW-180 on aft end. Three screws, part

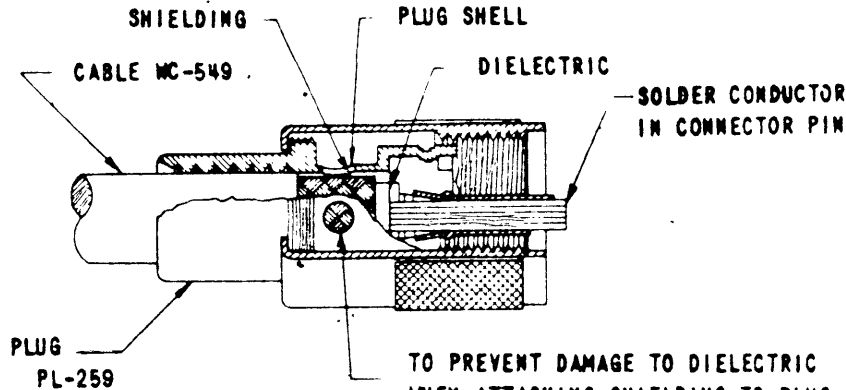
NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S.C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

T. O. NO. 01-25C-11

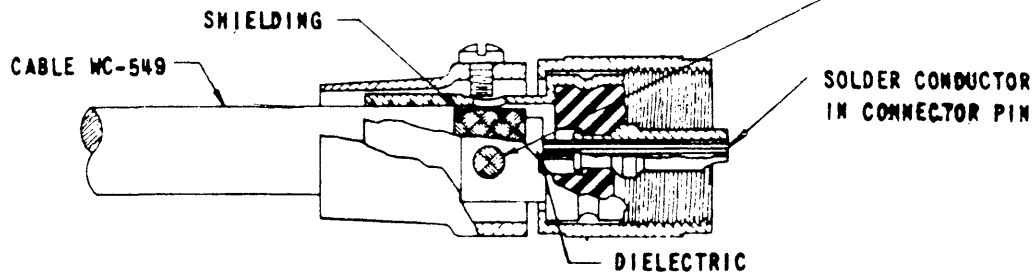


PLUG	A	B	C
PL-259	1	3/4	11/16
PL-259-A	1-1/8	3/4	11/16

PREPARATION OF CABLE WC-549-()
FOR ASSEMBLY WITH PL-259 & PL-259-A

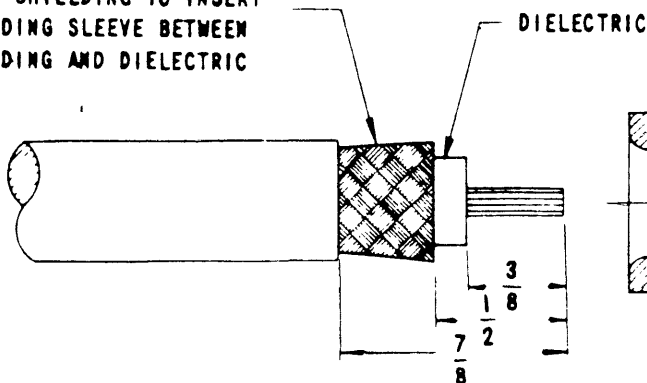


ASSEM. OF WC-549-() CABLE TO PLUG PL-259



ASSEM. OF WC-549-() CABLE TO PLUG PL-259-A

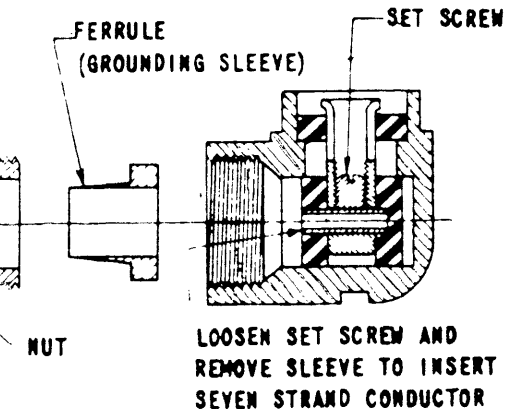
FLARE SHIELDING TO INSERT
GROUNDING SLEEVE BETWEEN
SHIELDING AND DIELECTRIC



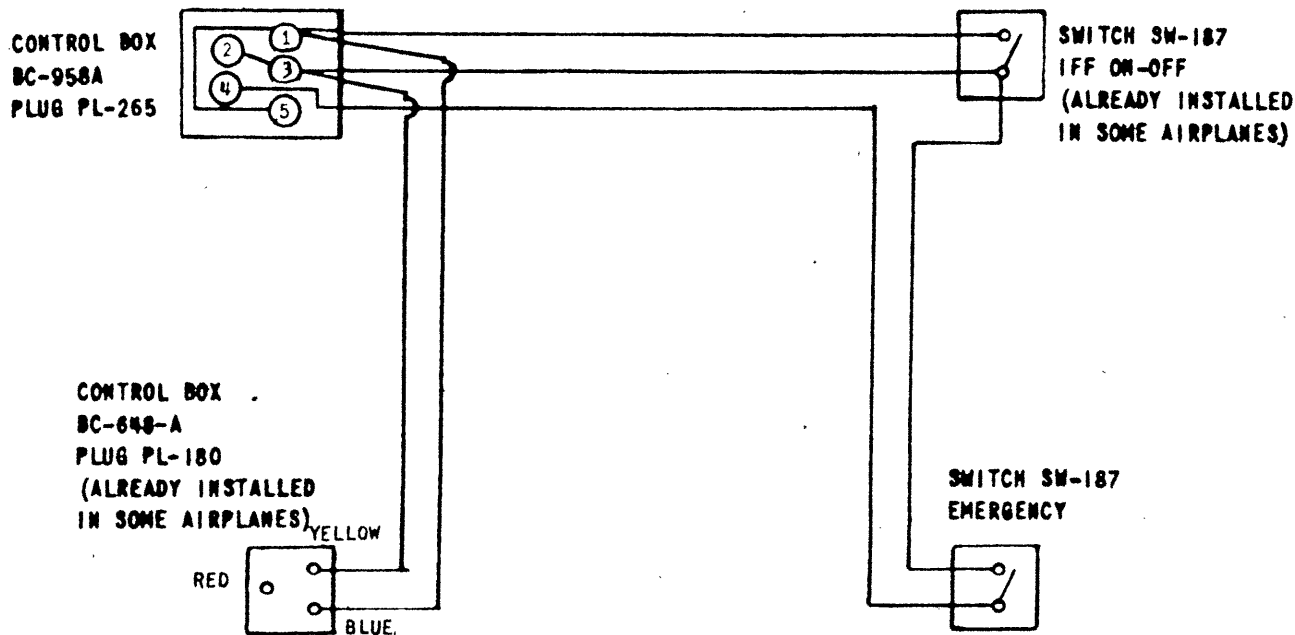
PREPARATION OF WC-549-() CABLE
FOR ASSEM. TO MC-277 CONNECTOR

Figure 1

— 2 —



MC-277 CONNECTOR



TYPICAL REMOTE SWITCH WIRING DIAGRAM - MODIFICATION
SCR-535 INSTALLATION FOR USE WITH SCR-595

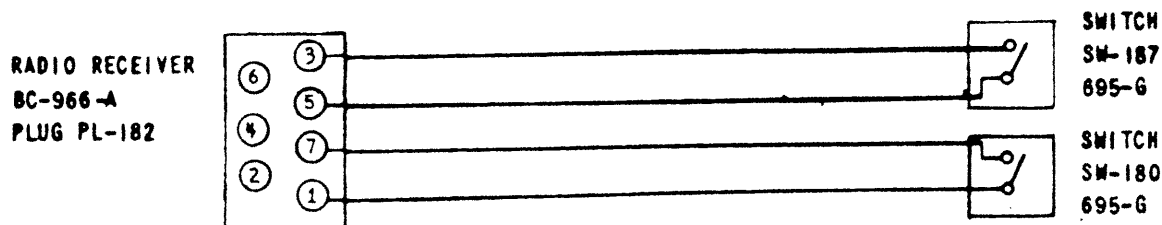
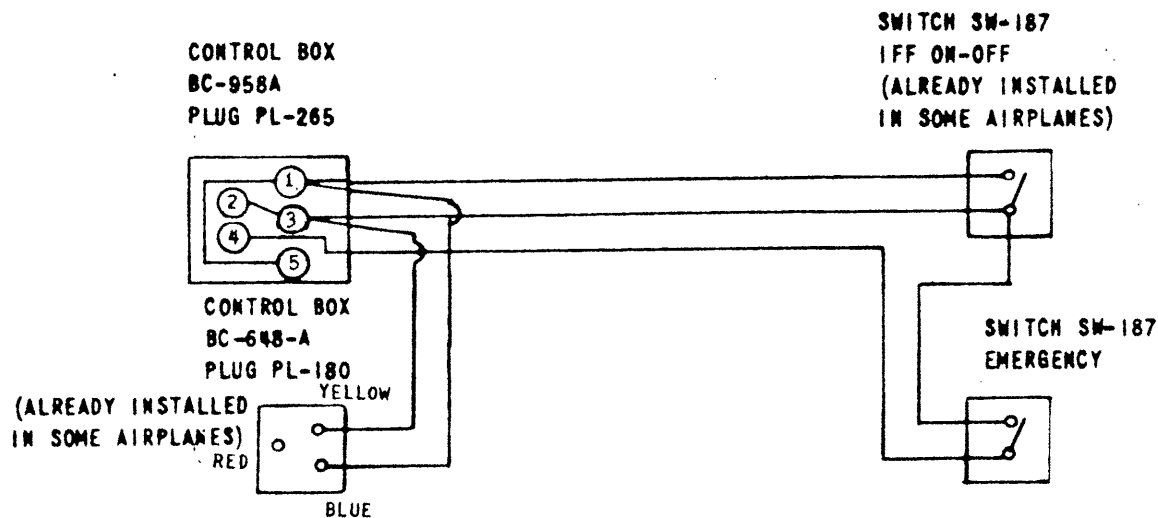


Figure 2 TYPICAL REMOTE SWITCH WIRING DIAGRAM - MODIFICATION
SCR-535 INSTALLATION FOR USE WITH SCR-695
(USED ON PURSUITS ONLY)

No. AN526-832-8, and three nuts, part No. 365-832-8, and three nuts, part No. 365-832, are used to install the two switches.

(6) Install "EMERGENCY" switch SW-187 and guard M-335 on forward end of bracket on side of switch box next to "D" in "DANGER" and the toggle switch (type B-5A) removed in paragraph 2. above and "IFF ON-OFF" plate, part No. 43A13566, on aft end of bracket with "OFF" positions of both switches aft. Three screws, part No. AN526-832-8, and three nuts, part No. 365-832, are used to install the two switches.

(7) Cut a 4-inch and a 9-foot length of aircraft power and lighting cable No. 18 AWG. Solder a terminal lug, part No. 660-50, to each end of the 4-inch wire and to one end of the 9 foot-wire.

(8) Connect the 9-foot wire to either terminal of the "EMERGENCY" switch. Connect one end of the 4-inch wire to other side of "EMERGENCY" switch and to either side of the "IFF ON-OFF" switch.

(9) Reconnect wiring disconnected in paragraph 1. above to switch box BC-765 and to "IFF ON-OFF" switch. The wire connected to the same side of "IFF ON-OFF" switch as the 4-inch wire will later be referred to as "the wire common to both remote switches."

(10) Reinstall switch box BC-765 using four screws, part No. AN526-632-8, and four nuts, part No. 365-632.

(11) Route the five 9-foot wires aft to receiver and control box location following path of the existing switch wiring and tape to these wires at frequent intervals.

(12) At the receiver location connect the four "695-G" switch wires to plug PL-182 in accordance with wiring diagram.

(13) At the control box location disconnect the two remote "IFF ON-OFF" switch wires from plug PL-180, connect the wire common to both remote switches to terminals 2 and 3 of plug PL-265 and connect other wire to terminals 1 and 5.

(14) Connect the 9-foot wire from "EMERGENCY" switch to terminal 4 of plug PL-265.

(15) Cut two 6-inch lengths of aircraft power and lighting cable No. 12 AWG, connecting one wire between blue dot terminal of plug PL-180 and terminals 1 and 5 of plug PL-265 and other wire between yellow dot terminal of plug PL-180 and terminals 2 and 3 of plug PL-265.

NOTE: It is necessary to provide both plugs so that either SCR-535-A or SCR-695-A can be used when required.

b. INSTALLATION OF REMOTE "EMERGENCY" AND "IFF ON-OFF" SWITCHES AND "695-G" SWITCHES IN P-40D AND P-40E AIRPLANES, PRIOR TO AF SERIAL NO. 41-5522. (See figure 1.)

(1) Remove switch box BC-765 from bracket on starboard side of cockpit and disconnect wiring.

(2) Locate a switch bracket, part No. 43A13506, on side of switch box BC-765 next to "D" in "DANGER," centered between the ends and with switch mounting flange 1/4 inch back from face of switch box. Drill two holes, No. 15 drill, through switch box to match holes in bracket and install using two screws, part No. AN526-832-8, and two nuts, part No. 365-832.

(3) Locate a switch bracket, part No. 42A11454, on side of switch box BC-765 next to "R" in "DANGER," centered between the ends and with switch mounting flange 1/4 inch back from face of switch box. Drill two holes, No. 15 drill,

through switch box to match holes in bracket and install using two screws, part No. AN526-832-8, and two nuts, part No. 365-832.

(4) Cut four 9-foot lengths of aircraft power and lighting cable No. 18 AWG. Solder a terminal lug, part No. 660-50, to one end of each of two wires and connect to terminals of "695-G" toggle switch SW-187.

(5) Tin one end of each of the other two wires, form a loop suitable for connecting to terminals of "695-G" push button switch SW-180 and connect to switch.

(6) Install switches on bracket, part No. 43A13506, locating toggle switch SW-187 and "695-G ON-OFF" plate, part No. 43A13522, with "OFF" position aft, on aft end of bracket and push button switch SW-180 on forward end. Three screws, part No. AN526-832-8, and three nuts, part No. 365-832, are used to install the two switches.

(7) Install "EMERGENCY" switch SW-187 and guard M-335 on bracket, part No. 42A11454, with "OFF" position aft, using two screws, part No. AN526-832-8, and two nuts, part No. 365-832.

(8) Cut a 1-foot and a 9-foot length of aircraft power and lighting cable No. 18 AWG. Solder a terminal lug, part No. 660-50, to each end of the 1-foot wire and to one end of the 9-foot wire.

(9) Connect the 9-foot wire to one side of "EMERGENCY" switch and one end of the 1-foot wire to other side.

(10) Reconnect wiring to switch box BC-765 and reinstall on bracket, using four screws, part No. AN526-632-8, and four nuts, part No. 365-632.

(11) Remove the SCR-535 "ON-OFF" toggle switch and plate from bracket on which switch box BC-765 is mounted and connect the free end of the 1-foot wire

to either switch terminal. The wire between this switch terminal and plug PL-180 at control box will later be referred to as "the wire common to both remote switches."

(12) Reinstall switch with "OFF" position aft, using new "IFF ON-OFF" switch plate, part No. 43A13566, two screws, part No. 43A13566, two screws, part No. AN526-832-8, and 2 nuts, part No. 365-832.

(13) Route the five 9-foot wires aft to receiver and control box location following same path as the existing switch wiring and taping to these wires at frequent intervals.

(14) At the receiver location connect the four "695-G" switch wires to plug PL-182 in accordance with wiring diagram.

(15) At the control box location disconnect the two remote "IFF ON-OFF" switch wires from plug PL-180, connect the wire common to both remote switches to terminals 2 and 3 of plug PL-265 and connect other wire terminals 1 and 5.

(16) Connect the 9-foot wire from "EMERGENCY" switch to terminal 4 of plug PL-265.

(17) Cut two 6-inch lengths of aircraft power and lighting cable No. 12 AWG, connect one wire between blue dot terminal of plug PL-180 and terminals 1 and 5 of plug PL-265 and other wire between yellow dot terminal of plug PL-180 and terminals 2 and 3 of plug PL-265.

NOTE: It is necessary to provide both plugs so that either SCR-535-A or SCR-695-A can be used when required.

c. ANTENNA AN-95-A.

(1) Locate antenna mounting bracket, part No. 43B14324, between top center line stringer and first port stringer,

with right angle flange against center line stringer, 60-degree flange against port stringer, and forward edge of bracket 2-1/2 inches aft of second former (station No. 11) aft of fuselage access door.

(2) With bracket as a template, drill two holes, No. 15 drill, through each stringer to match holes in bracket.

(3) Holding bracket in place locate a point on inside of skin directly above the center of the 1-1/4 inch hole in bracket. Cut a 1-1/4 inch hole in skin using this point for the center.

(4) Install a reinforcing plate, part No. 43A3521, on inside of skin around the 1-1/4 inch hole using six rivets, part No. AN426AD3-4. Insert a grommet, part No. AN931-8-20, in the opening.

(5) Install antenna AN-95-A on bracket, with antenna base against bottom face, using the eight each screws, lock washers, and nuts and the rubber gasket supplied with the antenna. Clean the paint from around the eight holes in bracket to provide a good ground path between the antenna base and the bracket.

(6) Install bracket and antenna assembly in the airplane, inserting antenna rod out through the 1/2-inch hole in grommet, using four screws, part No. AN515-8-8, and four nuts, part No. 365-832. Before installing the assembly clean the paint from the outside face of each flange and from the stringers where contacted by the flanges to provide a good ground path between the bracket and the fuselage.

d. MODIFICATION OF ANTENNA AN-95-A.

(1) Some of the antennae AN-95-A, supplied with radio set SCR-595, will be 18 inches in length. In order to provide optimum performance when used with the SCR-695 radio equipment, all antennae AN-95-A 18 inches in length, will be cut

to the standard length of $14 \pm 1/4$ inches in accordance with the following instructions:

(a) Loosen locking nut at base of antenna rod.

(b) Unscrew antenna rod from mounting base retaining lock nut and lock washer.

(c) Place antenna rod in a vise or similar fixture to hold it securely.

(d) Measure 14 inches from threaded end of antenna rod toward opposite end and mark this point.

(e) Cut antenna rod with a hack saw at the point marked.

(f) Remove all burrs and sharp edges resulting from the cut.

(g) Screw the 14-inch length of antenna rod into original mounting, making sure lock nut and lock washer are in place and tightened securely.

e. TRANSMISSION LINE CABLE WC-549- ().

(1) Assemble plug PL-259 (part of antenna AN-95-A) to one end of an 8-foot length of cable WC-549- () and connector MC-277 and cable clamp M-297 to the other end. (See figure 2.)

(2) Connect plug PL-259 to adapter M-359 (part of antenna AN-95-A).

(3) Route cable to starboard along former forward of antenna to radio shelf, forward along starboard side of radio shelf. Secure to former and radio shelf using five clips, part No. 755-8, five screws, part No. AN515-8-8, and five nuts, part No. 365-832.

(4) Cable continues forward along under side of tool case and then into receiver location. Secure cable to tool

case and receiver shelf using three clips, part No. 755-8, two screws, part No. AN515-8-8, one wood screw, part No. AN545-8-4, and two nuts, part No. 365-832. Tape cable where held by the clips and where it will be subject to wear against sharp edges of the airplane structure.

f. INSTALLATION OF GROUP "B" PARTS.

(1) Install radio control unit RC-255-A (BC-965-A, BC-958-A and FT-345-A) in mounting FT-248-A located on shelf in baggage compartment. If difficulty is encountered, file the rectangular openings which engage the hooks on mounting FT-345-A, approximately 1/64 inch deeper.

(2) Connect power control box BC-958-A to power socket SO-158 with plug and cable assembly CB-675-A.

(3) Insert cable harness plug PL-181 in socket of selector control BC-965-A and plug PL-182 in socket of power control box BC-958-A.

(4) Install plug PL-265 on male five prong socket of power control box BC-958-A.

(5) Install receiver BC-966-A in mounting FT-247-A located on shelf in baggage compartment.

(6) Insert cable harness plugs PL-181 and PL-183 and "695-G" switch circuit plug PL-182 into their respective sockets on front of receiver.

(7) Connect antenna cable connector MC-277 to receiver antenna socket.

(8) Do not remove any part of the SCR-535-A antenna installation from the airplane. Tape the two antenna leads up out of the way when radio set SCR-695-A is being used.

(9) Before installing destructor AN-M3 in receiver and inserting plug PL-177 into destructor, check operation of detonator circuit, referring to instruction book supplied with the group "B" parts.

(10) When checking the detonator circuit, if the detonator fuse is found to be more than 20 amperes, remove and replace with the 20-amp 4 AG fuse supplied with the group "A" parts.

3. The following parts are required per airplane to accomplish this modification.

SIGNAL CORPS ISSUE

STOCK NO.	ARTICLE	UNIT	REQUIRED
2S535A/K1	KIT, "Group "A" Parts for Converting SCR-535-A or -AZ Airplane Installations to SCR-695-A or -AZ," consisting of the following components:	ea.	1
	1 - Antenna AN-95-A - Includes adapter M-359 and plug PL-259 (Stock No. 2A275-95A)		
	1 - Cable clamp M-297 (Stock No. 2A397)		
	8 ft. - Cable - WC-549- () (Stock No. 2Z1585-549)		
	1 - Connector MC-277 (Stock No. 2Z3287)		
	1 - Guard M-335		
	1 - Plug PL-265 (Stock No. 2Z7226-265)		
	1 - Fuse FU-42 - 20 AMP 24 V (Stock No. 3Z1942)		
	1 - Fuse FU-59 - 40 AMP 12 V (Stock No. 3Z1959)		
	2 - Switch SW-187 (B-5A) (Stock No. 3Z9849.8)		
	1 - Switch SW-180 (Stock No. 3Z8180)		
	1 - Plug PL-182 (Stock No. 2Z7226-182)		

STOCK NO.	ARTICLE	UNIT	REQUIRED
2S695A/GP1	"Group "B" Parts F/SCR-695-A," consisting of the following components:	ea.	1
	1 - Receiver BC-966-A with tubes (Stock No. 2C4966A.1)		
	1 - Antenna coupling assembly CD-695-A		
	1 - Fuse FU-42, 20 AMP (Stock No. 3Z1942)		
	1 - Radio control unit RC-255-A (Stock No. 2C3690-255A)		
	includes:		
	1 - Selector control box BC-965-A (Stock No. 2C3453-965A)		
	1 - Power control box BC-958-A (Stock No. 2C3453-958A)		
	1 - Mounting plate FT-345-A (Stock No. 2Z6721-345A)		
	1 - Instruction Book		
	1 - Plug and cable assembly CD-675-A complete with 1 plug PL-183 and 1 plug PL-178.		

AIR FORCE ISSUE

QUAN	UNIT	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
8		6500-325450	755-8	Clip - Loop type 1-2 in. tube	04A	AF Stock
4		6500-513500	365-632	Nut - Self-locking steel 6-32	04A	AF Stock
22		6500-513700	365-832	Nut - Self-locking steel 8-32	04A	AF Stock
1		6600-316500	AN931-8-20	Grommet - Neoprene 1-2 in. hole, groove 1-1/4 in. dia x 1-16 in. wide	04B	AF Stock
1 ft		8800-082000		Cable - Aircraft power and lighting No. 12 AWG AN Aeronautical Specification No. AN-J-C-48	08B	AF Stock
45 1/3 ft		8800-082600		Cable - Aircraft power and lighting No. 18 AWG AN Aeronautical Specification No. AN-J-C-48	08B	AF Stock
1			43A3521	Plate - Reinforcing	08B	AF Stock
1			42A11454	Bracket - Switch mounting	08B	AF Stock
2			43A13506	Bracket - Switch mounting	08B	AF Stock
1			43A13522	Plate - 695-G ON-OFF	08B	AF Stock
1			43A13566	Plate - IFF ON-OFF	08B	AF Stock
1			43B14324	Bracket - Antenna mounting	08B	AF Stock
6		6700-489135	AN426AD3-4	Rivet - Alum. alloy counter-sunk head 100° type AD 3-32 x 1-4 in.	29	AF Stock
4		6700-614250	AN526-632-8	Screw - Button head 6-32 x 1-2 in.	29	AF Stock
11		6700-615450	AN526-832-8	Screw - Button head 8-32 x 1-2 in.	29	AF Stock

RESTRICTED

T.O. No. 01-25C-11

QUAN	UNIT	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
11		6700-711200	AN515-8-8	Screw - Machine steel RH 8-32 x 1-2 in.	29	AF Stock
1		6700-850500	AN545-8-4	Screw - Wood steel RH No. 8 x 1-2 in.	29	AF Stock
5		6700-934000	660-50	Terminal - Electrical copper soldering lug light	29	AF Stock

By Command of Lieutenant General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-250-14

Pg 22

FILES: FO

March 8, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS - MODIFICATION OF SCR-535-A GROUP "A" PARTS INSTALLATION TO PERMIT THE USE OF RADIO SET SCR-695-A - P-40E, P-40E-1, P-40F, P-40K, P-40L, AND P-40M

NOTE: Upon accomplishment of this Technical Order, a notation will be made on the AAF Form 60A of the airplane concerned in accordance with the provisions of T. O. No. 00-20A. The work directed herein will be accomplished as directed in paragraph 1.

1. To permit the use of radio set SCR-695-A in designated P-40E airplanes subsequent to AF Nos. 41-5521, and P-40E-1, P-40F, P-40K, P-40L and P-40M airplanes, the SCR-535-A group "A" parts installation will be modified in accordance with the instructions contained in paragraph 2. when directed by the Commanding General, Air Service Command.

2. The instructions for accomplishing these installations are as follows:

a. INSTALLATION OF "695-G" SWITCHES.
(See figures 1 and 3.)

(1) Locate switch bracket, part No. 43A13506, on under side of longeron on starboard side of cockpit above SCR-274 transmitter control unit, flush with inboard face of longeron and with the aft end of bracket 2 inches forward of former (station No. 4).

(2) Drill two holes, No. 15 drill, through under side of longeron to match holes in bracket and install using two screws, part No. AN526-832-8, and two nuts, part No. 365-832.

(3) Cut four 13-foot lengths of aircraft power and lighting cable No. 18 AWG. Solder a terminal lug, part No. 660-50, to one end of each of two wires and connect to terminals of the "695-G" toggle switch

SW-137. Tin one end of each of the other two wires, form a loop suitable for connecting to terminals of the "695-G" push button switch SW-180 and connect to the switch.

(4) Install switches on bracket, locating switch SW-180 on aft end and switch SW-187 with "695-G ON-OFF" plate, part No. 43A13522, on forward end with "ON" position forward. Three screws, part No. AN526-832-8, and three nuts, part No. 365-832, are used to install the two switches.

(5) Dress the four wires aft following existing radio wiring to the receiver location aft of fuselage access door. Tape the wires to the existing wiring at frequent intervals.

(6) At the receiver location connect the four wires to plug PL-182 in accordance with wiring diagram.

b. RELOCATION OF RECEIVER MOUNTING
FT-247-A. (See figure 2.)

(1) To allow the SCR-695-A receiver BC-966-A to clear former (station No. 11) and to provide clearance between projections on the front of the receiver and the tail wheel retracting strut piston rod it is necessary to move the receiver mounting 1/2 inch forward and raise it

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

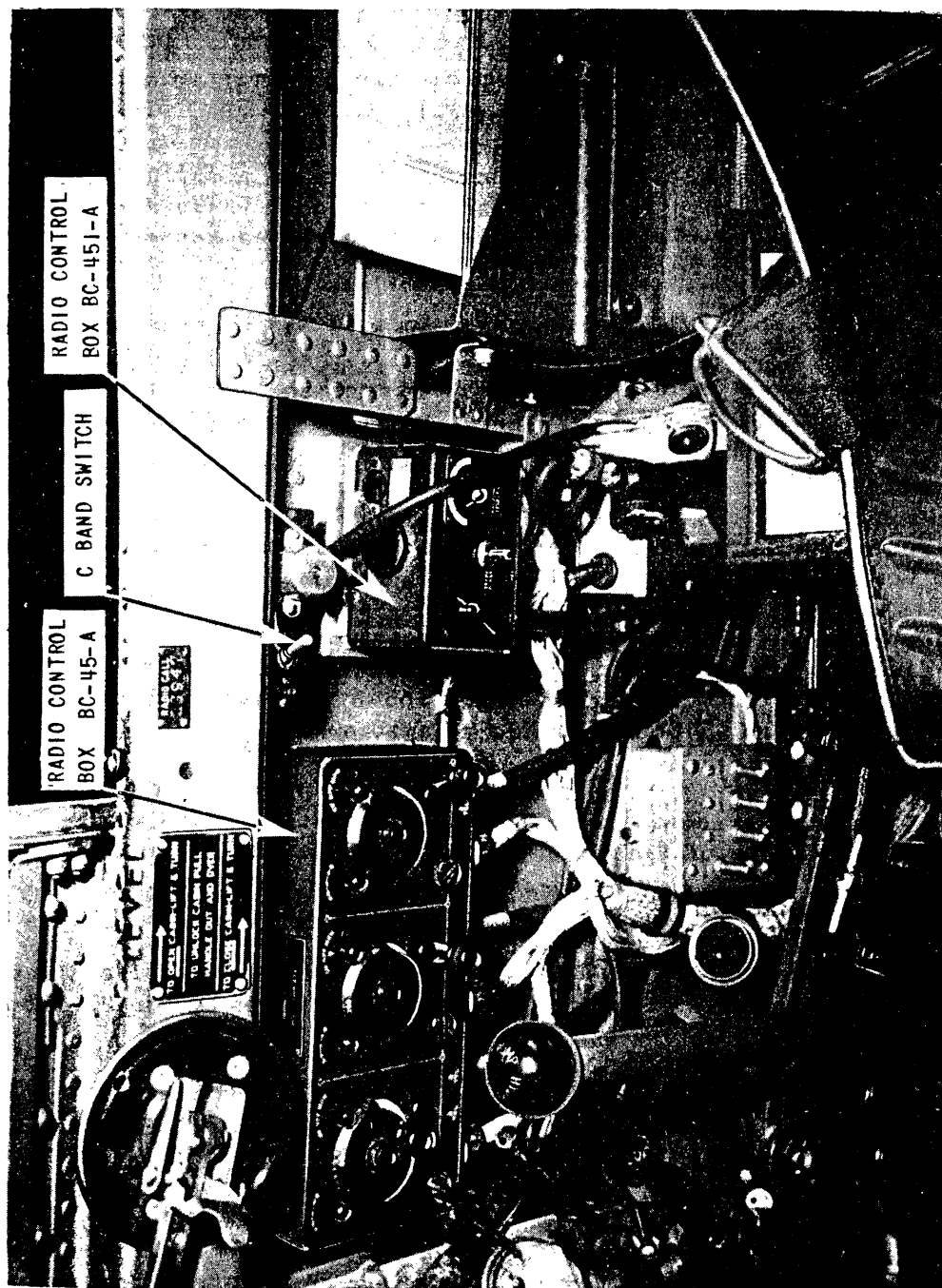


Figure 1 - Installation "695-G" Switches - Starboard
Side of Cockpit

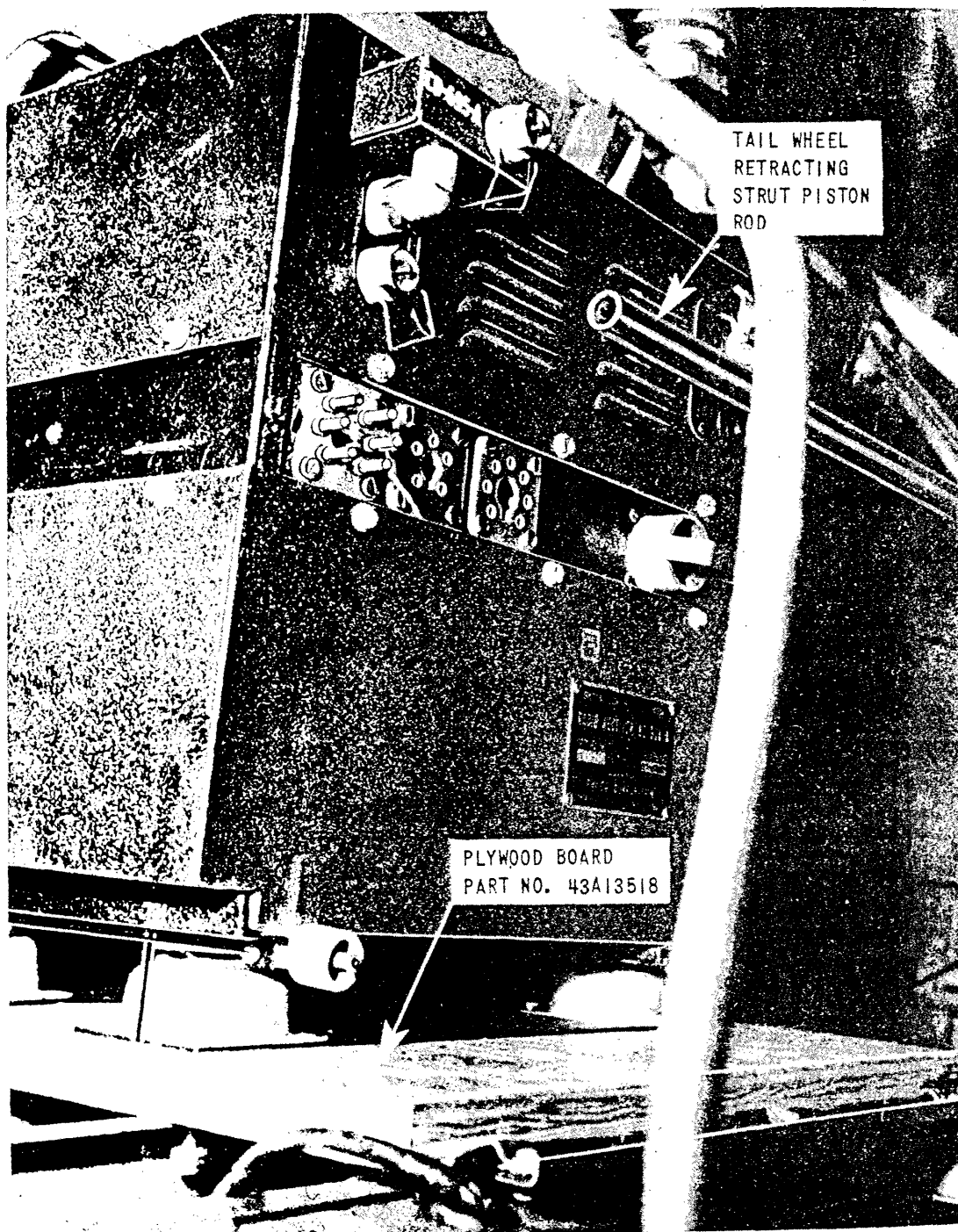
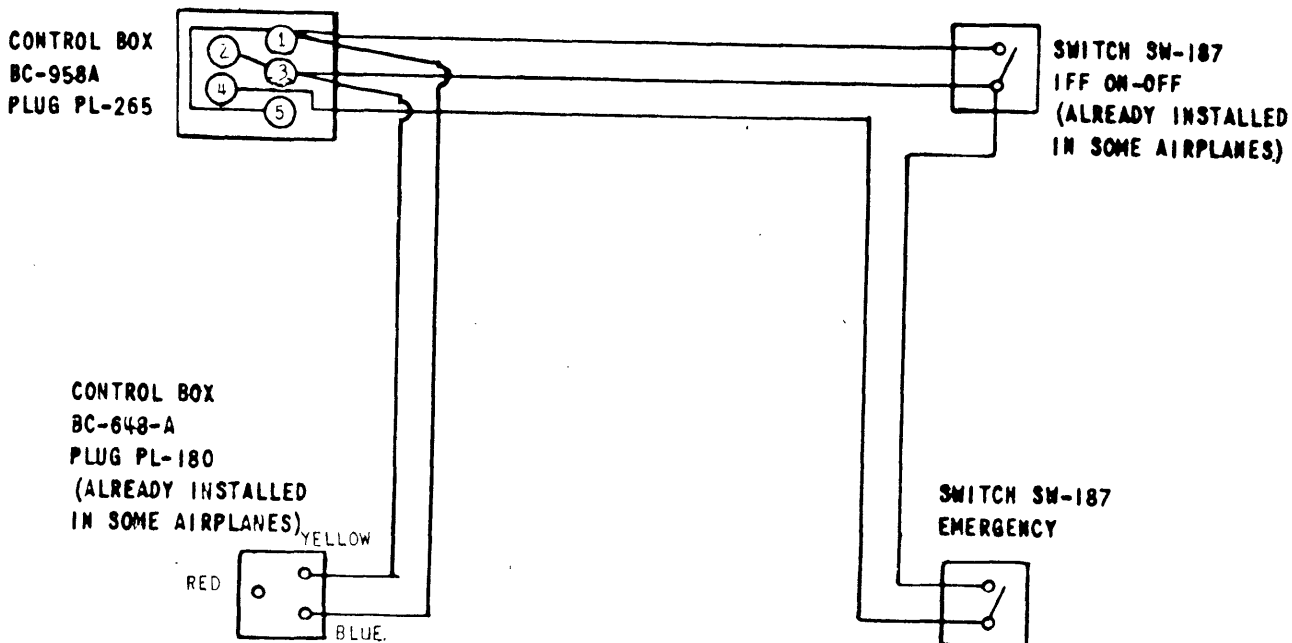


Figure 2 - Receiver Mounting Relocation -
Aft Section of Baggage Compartment

RESTRICTED

T.O. NO. 01-25C-14



TYPICAL REMOTE SWITCH WIRING DIAGRAM - MODIFICATION
SCR-535 INSTALLATION FOR USE WITH SCR-595

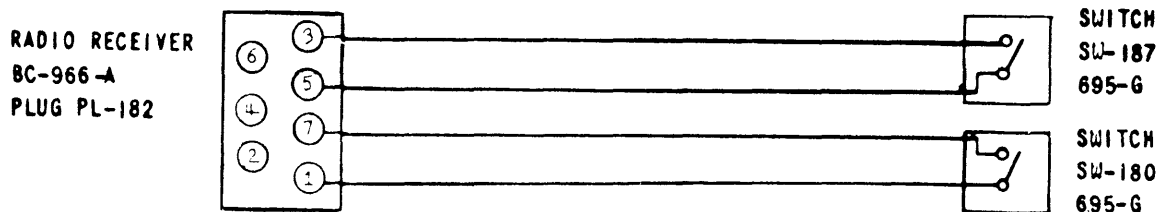
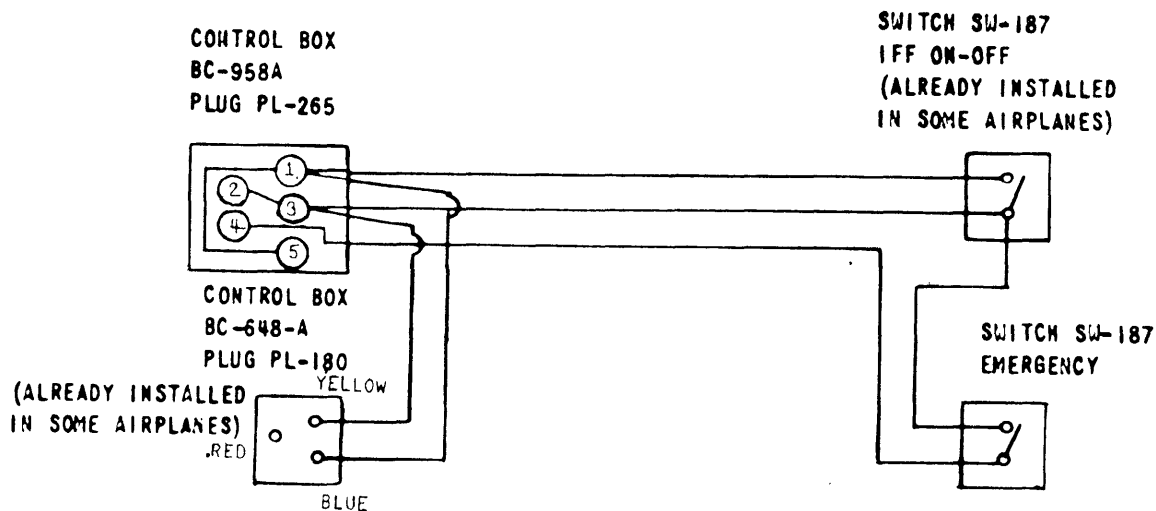
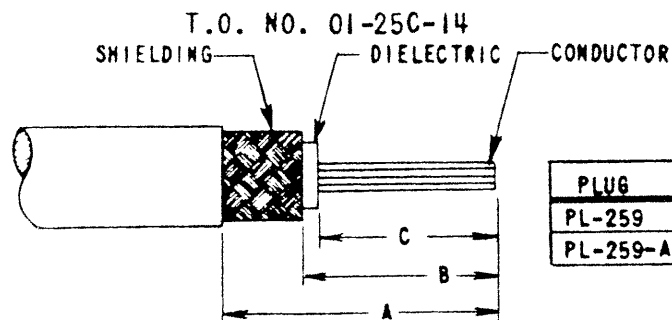
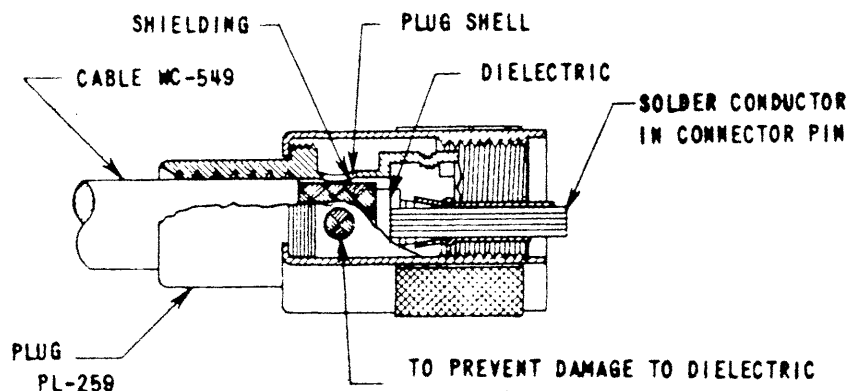


Figure 3 TYPICAL REMOTE SWITCH WIRING DIAGRAM - MODIFICATION
SCR-535 INSTALLATION FOR USE WITH SCR-695
(USED ON PURSUITS ONLY)

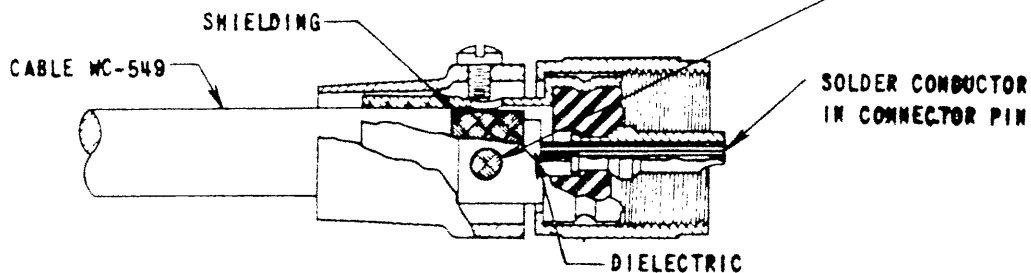


PREPARATION OF CABLE WC-549-() FOR ASSEMBLY WITH PL-259 & PL-259-A



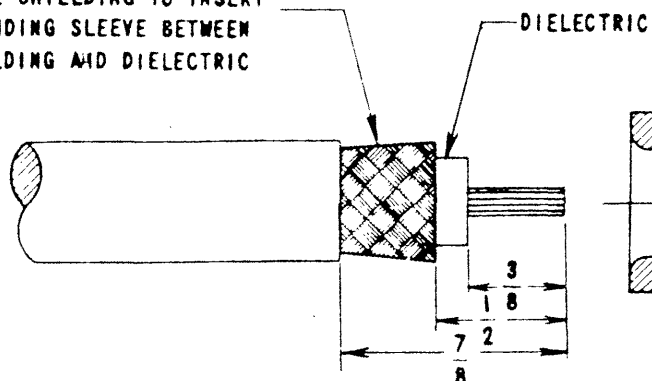
TO PREVENT DAMAGE TO DIELECTRIC WHEN ATTACHING SHIELDING TO PLUG SHELL, SOLDER WITH A HOT IRON AS QUICKLY AS POSSIBLE

ASSEM. OF WC-549-() CABLE TO PLUG PL-259

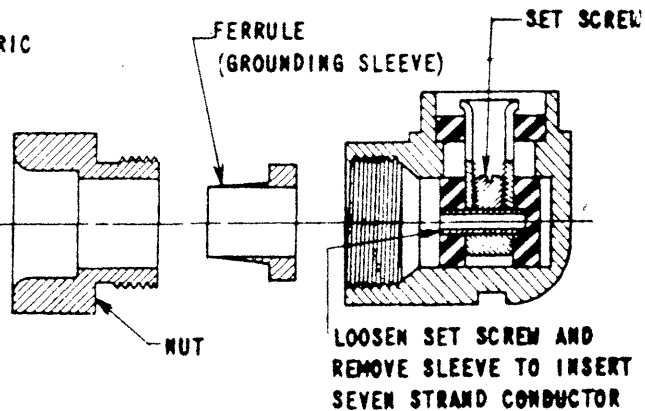


ASSEM. OF WC-549-() CABLE TO PLUG PL-259-A

FLARE SHIELDING TO INSERT GROUNDING SLEEVE BETWEEN SHIELDING AND DIELECTRIC



PREPARATION OF WC-549-() CABLE FOR ASSEM. TO MC-277 CONNECTOR



MC-277 CONNECTOR

Figure 4

3/4 inch. This is accomplished by installing a 3/4-inch plywood board, as follows:

(a) Remove receiver mounting FT-247-A from shelf aft of fuselage access door.

(b) Locate it 1/2 inch forward of its original location and drill new mounting holes, No. 15 drill, through shelf and shelf supports.

(c) Using the new holes, install plywood board, part No. 43A13518, between shelf and mounting with eight screws, part No. AN515-8-20, and eight nuts, part No. 365-832.

c. ANTENNA AN-95-A.

(1) Locate antenna mounting bracket, part No. 43B14324, between top center line stringer and first port stringer, with right angle flange against center line stringer, 60-degree flange against port stringer and forward edge of bracket 2-1/2 inches aft of second former (station No. 11) aft of fuselage access door.

NOTE: Later type of P-40F and P-40K airplanes have factory installed antenna provisions in this approximate location.

(2) With bracket as a template drill two holes, No. 15 drill, through each stringer to match holes in bracket.

(3) Holding bracket in place locate a point on inside of skin directly above the center of the 1-1/4 inch hole in bracket. Cut a 1-1/4 inch hole in skin using this point for the center.

(4) Install a reinforcing plate, part No. 43A3521, on inside of skin around the 1-1/4 inch hole using six rivets, part No. AN426AD3-4. Insert a grommet, part No. AN931-8-20, in the opening.

(5) Install antenna AN-95-A on bracket, with antenna base against bottom face,

using the eight each screws, lock washers and nuts and the rubber gasket supplied with the antenna. Clean the paint from around the eight holes in bracket to provide a good ground path between the antenna base and the bracket.

(6) Install bracket and antenna assembly in the airplane, inserting antenna rod out through the 1/2-inch hole in grommet, using four screws, part No. AN515-8-8, and four nuts, part No. 365-832. Before installing the assembly clean the paint from the outside face of each flange and from the stringers where contacted by the flanges to provide a good ground path between the bracket and the fuselage.

d. MODIFICATION OF ANTENNA AN-95-A.

(1) Some of the antennae AN-95A, supplied with radio set SCR-595, will be 18 inches in length. In order to provide optimum performance when used with the SCR-695 radio equipment, all antennae AN-95A, 18 inches in length, will be cut to the standard length of $14 \pm 1/4$ inches in accordance with the following instructions:

(a) Loosen locking nut at base of antenna rod.

(b) Unscrew antenna rod from mounting base retaining lock nut and lock washer.

(c) Place antenna rod in a vise or similar fixture to hold it securely.

(d) Measure 14 inches from threaded end of antenna rod toward opposite end and mark this point.

(e) Cut antenna rod with a hacksaw at the point marked.

(f) Remove all burrs and sharp edges resulting from the cut.

(g) Screw the 14-inch length of antenna rod into original mounting, making

sure lock nut and lock washer are in place and tightened securely.

e. TRANSMISSION LINE CABLE WC-549-().
(See figure 4.)

(1) Assemble plug PL-259 (part of antenna AN-95-A) to one end of a 4-foot 7-inch length of cable WC-549-() and connector MC-277 and cable clamp M-297 to the other end.

(2) Connect plug PL-259 to adapter M-359 (part of antenna AN-95-A).

(3) Route cable forward from antenna location to the 1/2-inch conduit which is fastened to second former aft of baggage compartment door. The cable follows this conduit to the 90-degree bend in conduit 4 inches aft of where conduit enters battery junction box directly opposite baggage compartment door. Tape cable to conduit at frequent intervals. From point where cable leaves conduit leave 14 inches of cable for attaching to receiver.

f. INSTALLATION OF GROUP "B" PARTS.

(1) Install radio control unit RC-255-A (BC-965-A, BC-958-A, and FT-345-A) in mounting FT-248-A located on starboard side of cockpit aft of instrument panel. If difficulty is encountered, file the rectangular openings which engage the hooks on mounting FT-345-A, approximately 1/64 inch deeper.

(2) Connect power control box BC-958-A to power socket SO-158 with plug and cable assembly CD-675-A.

(3) Insert cable harness plug PL-181 in socket of selector control box BC-965-A

and plug PL-182 in socket of power control box BC-958-A.

(4) Install plug PL-265 on male five-prong socket of power control box BC-958-A.

NOTE: Although the remote "ON-OFF" and "EMERGENCY" switches are not used in this installation, due to the control box being located in the cockpit, it is necessary that plug PL-265 be used to cover up exposed voltage terminals.

(5) Install receiver BC-966-A in mounting FT-247A located aft of fuselage access door.

(6) Insert cable harness plugs PL-181 and PL-183 and "695-G" switch circuit plug PL-182 into their respective sockets on front of receiver.

(7) Connect antenna cable connector MC-277 to receiver antenna socket.

(8) Do not remove any part of the SCR-535A antenna installation from the airplane. Tape the two antenna leads up out of the way when radio set SCR-695-A is being used.

(9) Before installing destructor in receiver and inserting plug PL-177 into destructor, check operation of detonator circuit, referring to instruction book supplied with the group "B" parts.

(10) When checking the detonator circuit, if the detonator fuse is found to be more than 20 amperes, remove and replace with the 20-ampere 4 AG fuse supplied with the group "A" parts.

3. The following parts are required per airplane to accomplish this modification:

STOCK NO.	ARTICLE	SIGNAL CORPS ISSUE	UNIT	REQUIRED
2S695A/GP1	Group "B," "Parts F/SCR-695-A, consisting of the following components:		ea	1

1 - Receiver BC-966-A with Tubes (Stock No. 2C4966A.1)

STOCK NO.	ARTICLE	SIGNAL CORPS ISSUE	UNIT	REQUIRED
	1 - Antenna Coupling Assembly CD-695-A			
	1 - Fuse FU-42, 20 amp (Stock No. 3Z1942)			
	1 - Radio Control Unit RC-255-A (Stock No. 2C3690-255A) includes:			
	1 - Selector Control Box BC-965-A (Stock No. 2C3453-965A)			
	1 - Power Control Box BC-958-A (Stock No. 2C3453-958A)			
	1 - Mounting Plate FT-345-A (Stock No. 2Z6721-345A)			
	1 - Instruction Book			
	1 - Plug and Cable Assembly CD-675-A Complete with			
	1 - PL-183 And 1 - PL-178			

2S535A/K1 KIT, Group "A," "Parts for Converting SCR-535-A or AZ Airplane Installations Either to SCR-595 or to SCR-695-A or AZ, consisting of the following components:

- 1 - Antenna AN-95-A - Includes adapter M-359 and plug PL-259 (Stock No. 2A275-95A)
- 1 - Cable Clamp M-297 (Stock No. 2A397)
- 4-7/12 ft - Cable - WC-549-() (stock No. 2Z1585-549)
- 1 - Connector MC-277 (Stock No. 2Z3287)
- 1 - Guard M-335
- 1 - Plug PL-265 (Stock No. 2Z7226-265)
- 1 - Fuse FU-42 - 20 amp 24 v (stock No. 3Z1942)
- 1 - Fuse FU-59 - 40 amp 12 v (stock No. 3Z1959)
- 2 - Switch SW-187 (B-5A) (Stock No. 3Z9849.8)
- 1 - Switch SW-180 (Stock No. 3Z8180)
- 1 - Plug PL-182 (Stock No. 2Z7226-182)

AIR FORCE ISSUE

QUANTITY	UNIT	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
17		6500-513700	365-832	Nut - Self-locking steel 8-32	04A	AF Stock
1		6600-316500	AN931-8-20	Grommet - Neoprene 1/2 in. hole, groove 1-1/4 in. diameter x 1/16 in. wide	04B	AF Stock
52	ft	8800-082600		Cable - Aircraft power and lighting No. 18 AWG AN Aeronautical Specification No. AN-J-C-48	08B	AF Stock
1			43A3521	Plate - Reinforcing	08B	AF Stock
1			43A13506	Bracket - Switch mounting	08B	AF Stock
1			43A13522	Plate - "695-G ON-OFF"	08B	AF Stock
1			43A13518	Board - Receiver mounting	08B	AF Stock
1			43B14324	Bracket - Antenna mounting	08B	AF Stock

QUANTITY	UNIT	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
6		6700-489135	AN426AD3-4	Rivet - Aluminum alloy countersunk head 100 degree type AD 3-32 x 1/4 in.	29	AF Stock
5		6700-615450	AN526-832-8	Screw - Buttonhead 8-32 x 1/2 in.	29	AF Stock
4		6700-711200	AN515-8-8	Screw - Machine steel RH 8-32 x 1/2 in.	29	AF Stock
8		6700-711550	AN515-8-20	Screw - Machine steel RH 8-32 x 1-1/4 in.	29	AF Stock
2		6700-934000	660-50	Terminal - Electrical copper soldering lug light	29	AF Stock

By Command of Lieutenant General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.



DIST: 5,7
FILE: BEHS

September 4, 1943

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—INSTALLATION OF 170-GALLON WING FUEL TANKS—
P-40E, P-40E-1, P-40F, P-40K, P-40L, AND P-40M**

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished when required by service activities with the aid of sub-depots, if necessary.

1. To provide facilities for installing a 170-gallon long-range auxiliary fuel tank under each wing, P-40E, P-40E-1, P-40F, P-40K, P-40L, and P-40M airplanes will be modified in accordance with the instructions contained in paragraph 2.

NOTE These instructions are applicable to the Ohio Rubber Company composition tank only.

2. The instructions for accomplishing this work as contained in Curtiss-Wright Service Bulletins 170-62, 400-72, 480-4, 490-41, and 550-5, revised April 8, 1943, are as follows:

- a. Remove keel cowl and center section of left and right wing fillets.
- b. Remove wing guns.
- c. Locate and cut one 1-3/8 inch diameter hole in No. 5 web on left and right wing. (See figure 2.)
- d. Install a grommet, part No. AN931-16-22, in each hole.
- e. Locate and cut one 1-3/8 inch diameter hole in each gun access door. (See figure 2.)
- f. Locate and cut one 7/16-inch diameter hole in lower left and right panel skin. (See figure 4.)
- g. By reaching in gun compartment, disconnect wing bomb cables, part No. 87-70-548-62, from bell crank, part No. 87-70-533, and tie down, using tape.
- h. Locate and mark position of wing tank support, part No. 87-45-919, on wing. With care, drill four "F" (.257-inch) holes in panel to match holes lofted in support as shown in figure 4. Drill ten No. 10 (.1935-inch) holes in panel to match holes lofted in support. (See figure 4.)
- i. Using eight each, bolt, part No. AN3-6A, washer, part No. AN960-10, and nut, part No. 365-1032, fasten

tank supports, left and right, part No. 87-45-919-1, and left and right, part No. 87-45-919-2, to left and right panels. (See figures 3, 4, and 5.)

j. Install tube, part No. 87-45-907-1, to bracket assembly, part No. 87-45-928, left and right, using one each, clamp, part No. 1042-DS-4, screen, part No. AN515-8-12, washer, part No. AN960-8, and nut, part No. 365-832.

k. Install pulley, part No. AN210-1A, to bracket assembly, part No. 87-45-928, left and right, using one each, bolt, part No. AN3-10A, and washer, part No. AN960-10.

l. Using two each, bolt, part No. AN3-10A, washer, part No. AN960-10, and nut, part No. 365-1032, install bracket, part No. 87-45-928, left and right, in left and right panel with tube, part No. 87-45-907-1, projecting through 7/16-inch diameter hole. (See figure 5.)

m. Install spring, part No. 58766-1-1/2 (figure 5), using one each, screw, part No. AN515-6-20, washer, part No. AN960-6, and nut, part No. 365-632.

n. Install cable, part No. 87-45-929, to release arm of bomb release mechanism, part No. 87-45-553 (figure 5), using clevis pin, part No. PC2891, and route through tube, part No. 87-45-907-1, and over pulley, part No. AN210-1A, into gun compartment.

o. Install bomb release mechanism, part No. 87-45-533, to supports, part No. 87-45-919, left and right, using two each, bolt, part No. AN26-20, washer, part No. AN960-616, nut, part No. AN320-6, and cotter pin, part No. AN380-C-3.

p. Route cable, part No. 87-45-929, through center hole of fiber guide, part No. 87-70-557, and over pulley assembly, part No. 87-70-550, left and right. (See figure 4.)

q. Solder cable end assembly, part No. EX-39120-1, to end of cable and fasten to bell crank, part No. 87-70-533. (See figure 4.)

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S.C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

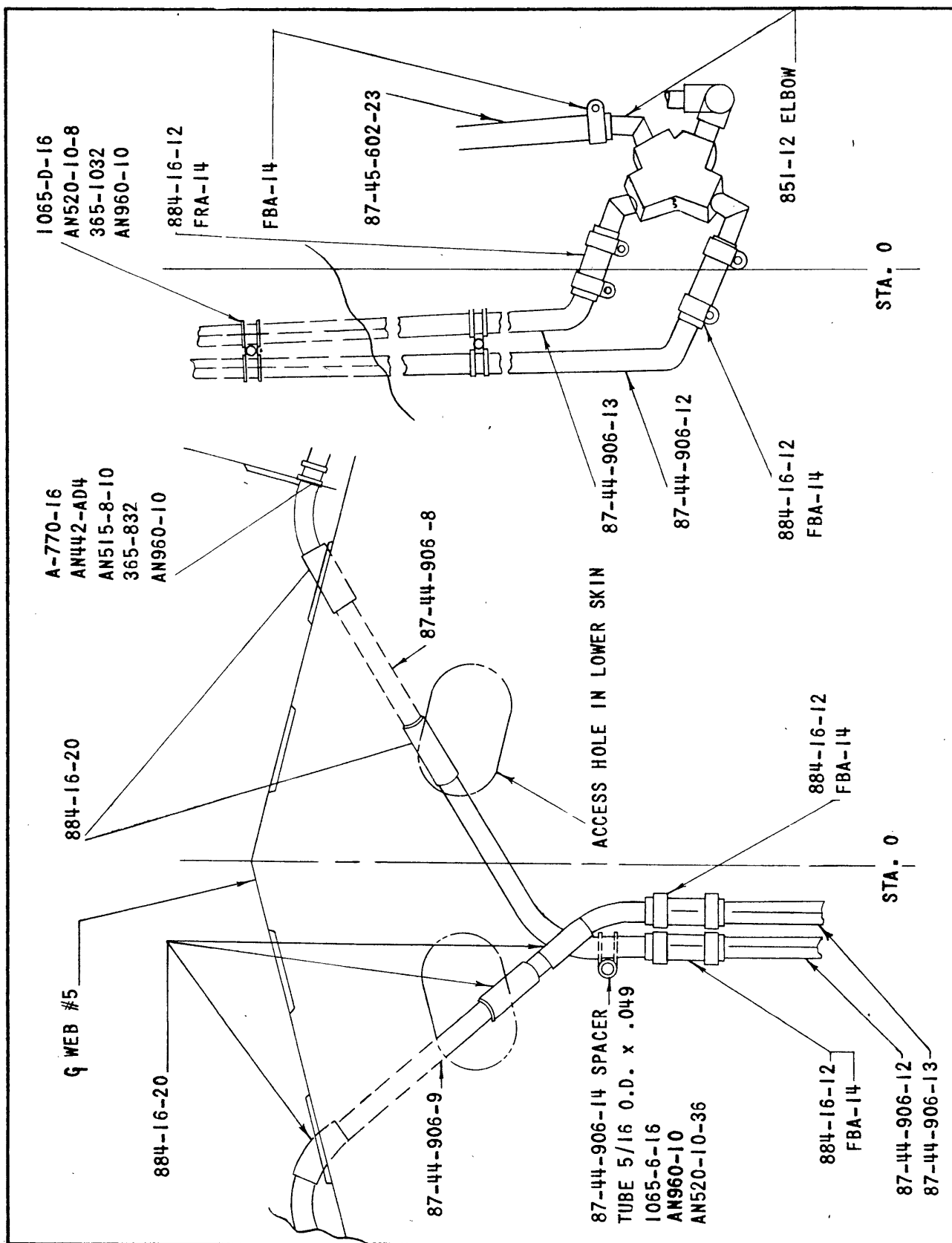


Figure 1

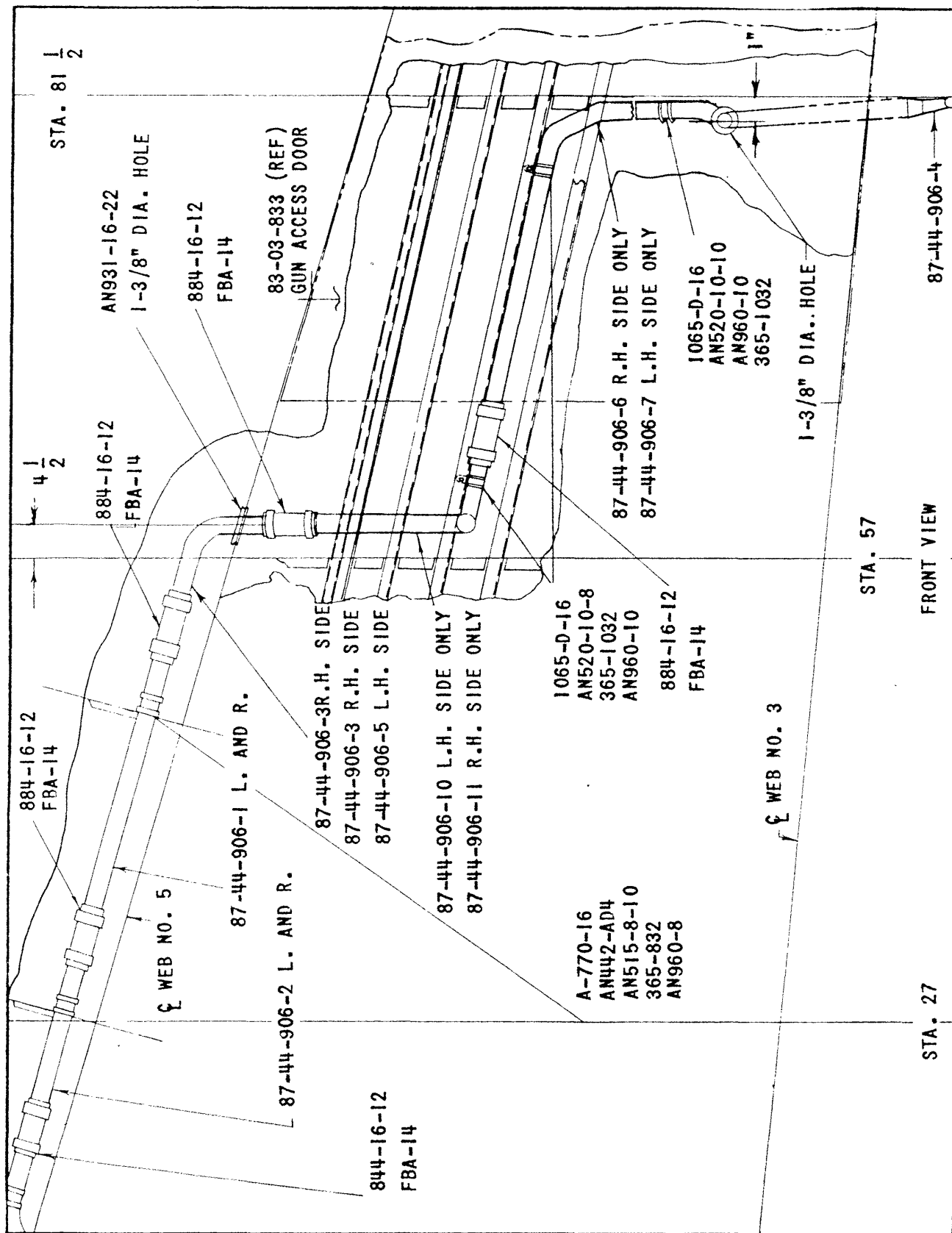


Figure 2

0534

RESTRICTED

T. O. No. 01-25C-18

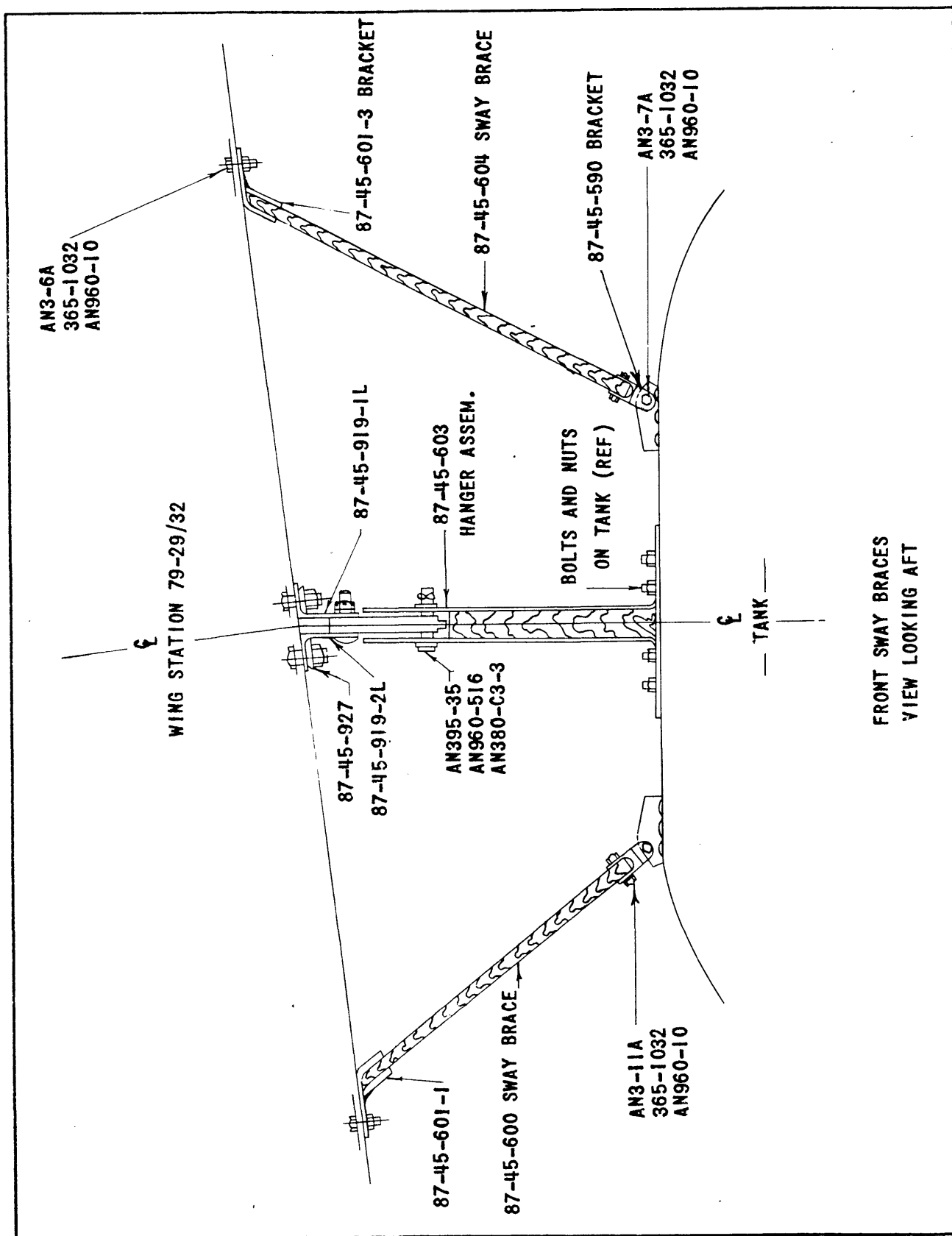


Figure 3

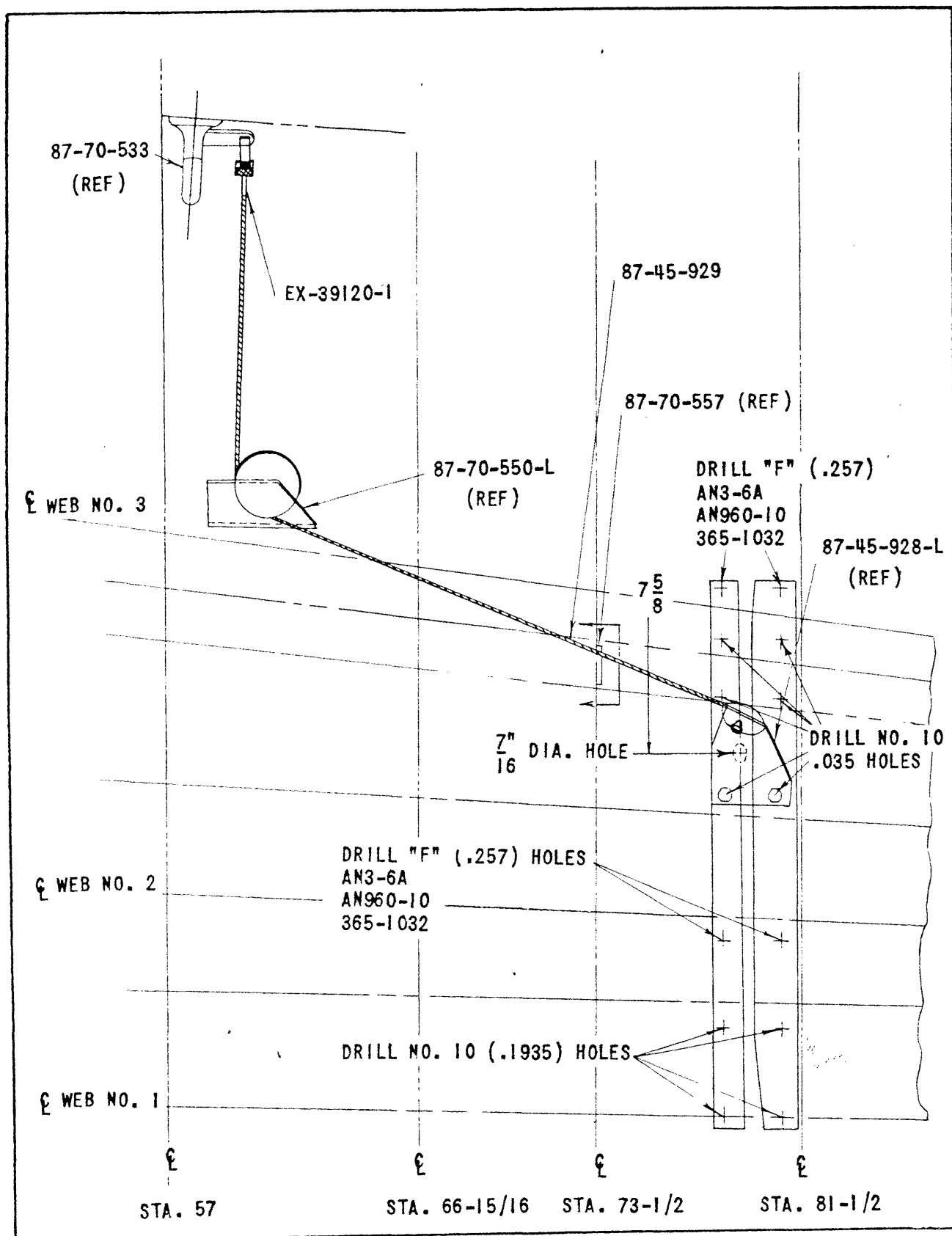


Figure 4

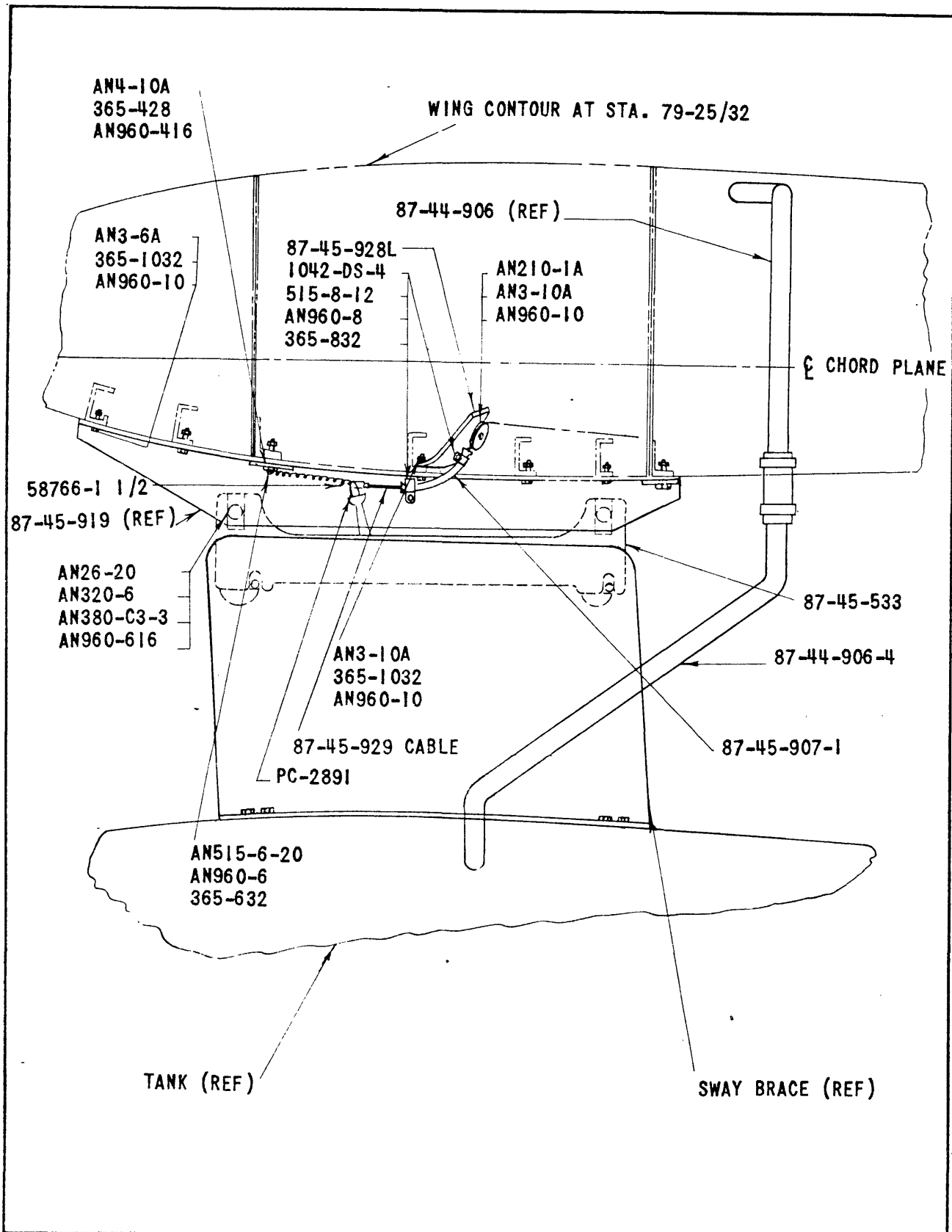


Figure 5

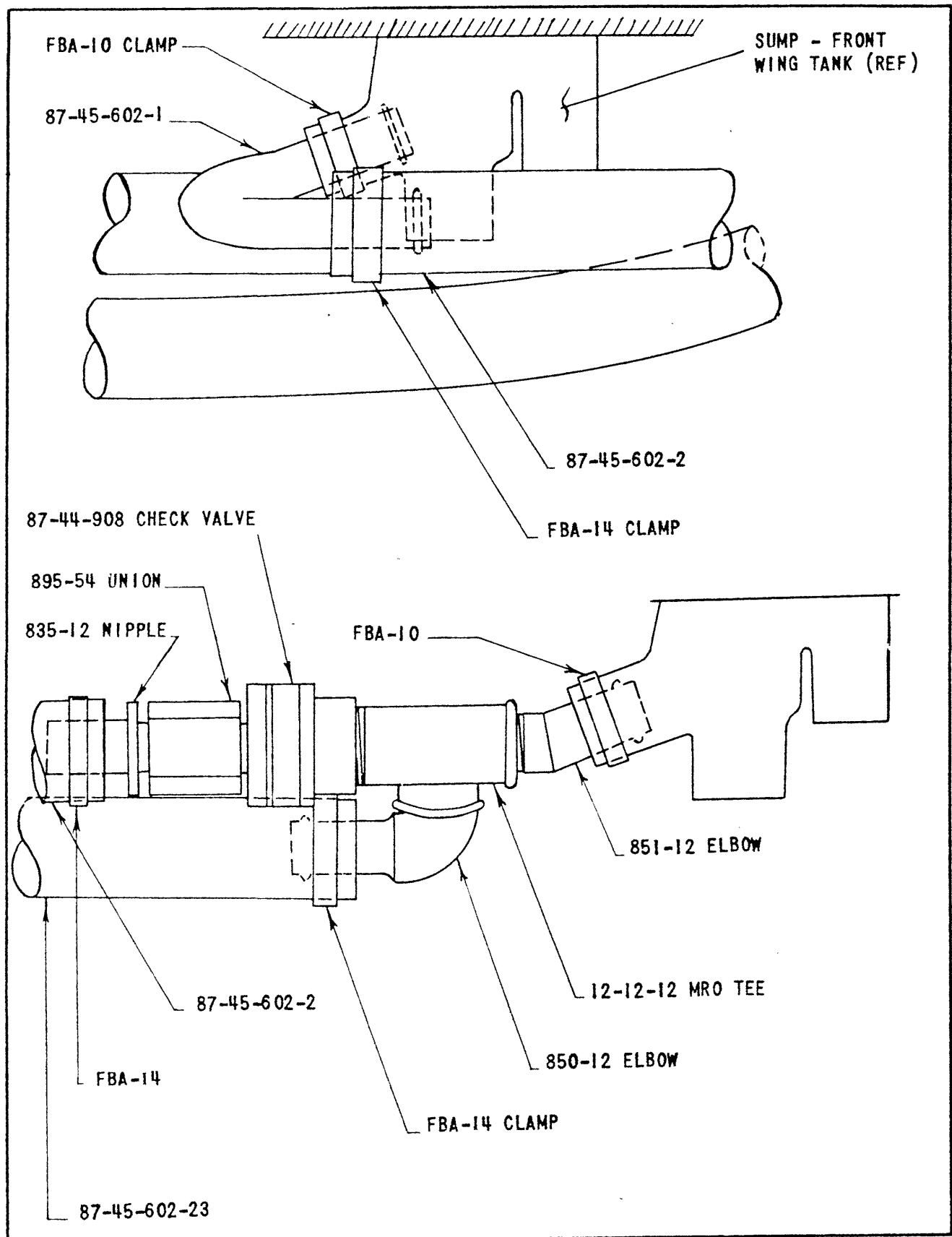


Figure 6

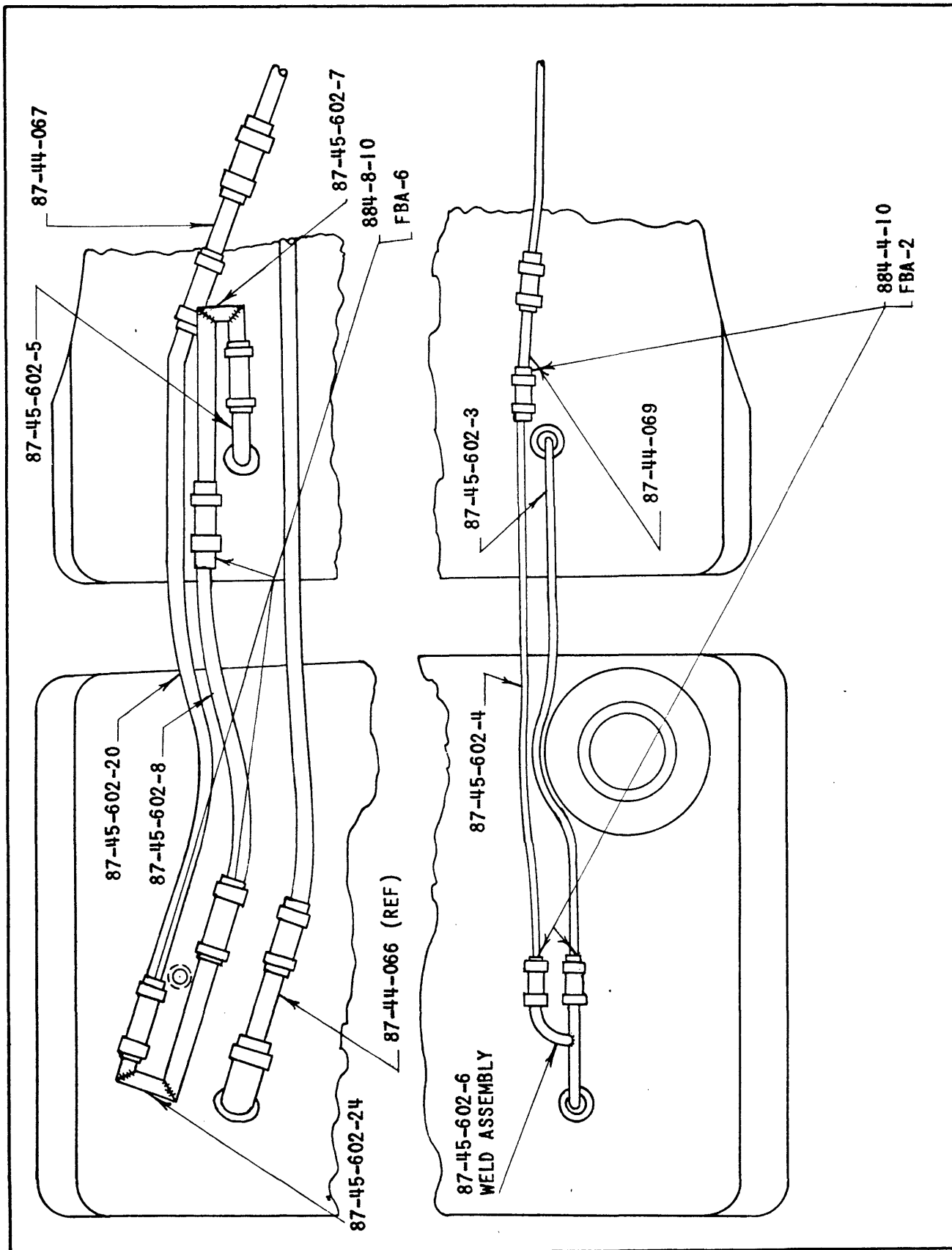


Figure 7

r. Remove present fuel lines between selector valve and front and rear wing tank sumps.

s. Assemble tee fitting, part No. 12-12-12-MRO, check valve, part No. 87-44-908, 45-degree elbow, part No. 851-12, 90-degree elbow, part No. 850-12, union, part No. 895-54, and nipple, part No. 835-12, as a unit. (See figure 6.)

t. Install nipple end of the 45-degree elbow, part No. 851-12, in the open port of the rear wing tank sump, using clamp, part No. FBA-10.

u. Install tube, part No. 87-45-602-1, in the open port of the front wing tank sump (figure 6), using one clamp, part No. FBA-10.

v. Install hose, part No. 87-45-602-2, to tube, part No. 87-45-602-1, using one clamp, part No. FBA-14, at front tank sump and to nipple, part No. 835-12, at rear tank, using one clamp, part No. FBA-14. (See figure 6.)

w. Install hose, part No. 87-45-602-23, to the 90-degree elbow, part No. 851-12, at rear tank sump, using one clamp, part No. FBA-14, and to rear wing port of the selector valve, using one clamp, part No. FBA-14.

x. Clamp hose, part No. 87-45-602-23, to fuselage tank hose, using existing two clamps, part No. 87-44-934, one each, screw, part No. AN520-10-12, washer, part No. AN960-10, and nut, part No. 365-1032.

y. Install tube, part No. 87-44-906-10, on the left panel, and tube, part No. 87-44-906-11, on the right panel, in gun compartment. (See figure 2.)

z. Secure tube, part No. 87-44-906-10, to bulkhead, station 81-1/2, using one each clamp, part No. 1065-D-16, screw, part No. AN520-10-10, washer, part No. AN960-10, and nut, part No. 365-1032. (See figure 2.)

aa. Secure tube, part No. 87-44-906-10, to stringer (figure 2), using one each, clamp, part No. 1065-D-16, screw, part No. AN520-10-8, washer, part No. AN960-10, and nut, part No. 365-1032.

ab. Connect tube, part No. 87-44-906-7, on left panel, and tube, part No. 87-44-906-6, on right panel to tube, part No. 87-44-906-10 (figure 2), using one hose, part No. 884-16-12, and two clamps, part No. FBA-14.

ac. Secure tube to stringer (figure 2), using one each, clamp, part No. 1065-D-16, screw, part No. AN520-10-8, washer, part No. AN960-10, and nut, part No. 365-1032.

ad. Insert tube, part No. 87-44-906-5, on left panel and tube, part No. 87-44-906-3, in right panel through hose in web No. 5 and connect to tube, part No. 87-44-906-7, using one hose, part No. 884-16-12, and two clamps, part No. FBA-14. (See figure 2.)

ae. Connect tube, part No. 87-44-906-1, to tube, part No. 87-44-906-5, using one hose, part No. 884-16-12, and two clamps, part No. FBA-14.

af. Secure tube to bulkhead (figure 2), using one each, angle, part No. A-770-16, screw, part No. AN515-8-10, washer, part No. AN960-8, nut, part No. 365-832, and two rivets, part No. AN442-AD4-4.

ag. Connect tube, part No. 87-44-906-2, left and right to tube, part No. 87-44-906-1, left and right, using one hose, part No. 884-16-12, and two clamps, part No. FBA-14.

ah. Same as step number af.

ai. Insert tube, part No. 87-44-906-8, on left panel through web No. 5 (figure 1) and connect to tube, part No. 87-44-906-2, using one hose, part No. 884-16-12, and two clamps, part No. FBA-14.

aj. Same as step number af.

ak. Install two hose, part No. 884-16-20, on tube (figure 1) to prevent chafing.

al. Insert tube, part No. 87-44-906-9, on right panel through web No. 5 (figure 1) and connect to tube, part No. 87-44-906-2, using one hose, part No. 884-16-12, and two clamps, part No. FBA-14.

am. Same as step number af.

an. Install three hose, part No. 884-16-20, on tube (figure 1) to prevent chafing.

ao. Connect tube, part No. 87-44-906-12, to tube, part No. 87-44-906-8, using one hose, part No. 884-16-12, and two clamps, part No. FBA-14.

ap. Connect tube, part No. 87-44-906-12, to belly tank port of selector valve (figure 1), using one hose, part No. 884-16-12, and two clamps, part No. FBA-14.

aq. Connect tube, part No. 87-44-906-13, to tube, part No. 87-44-906-9, using one hose, part No. 884-16-12, and two clamps, part No. FBA-14.

ar. Connect tube, part No. 87-44-906-13, to former front wing tank port of selector valve (figure 1), using one hose, part No. 884-16-12, and two clamps, part No. FBA-14.

as. Connect tube, part No. 87-44-906-13, to tube, part No. 87-44-906-12, in two places (figure 1), using four clamps, part No. 1065-D-16, two each, screw, part No. AN520-10-8, washer, part No. AN960-10, and nut, part No. 365-1032.

at. Remove screw from tank door and fasten tube, part No. 87-44-906-8, to panel, using spacer, part No. 87-44-906-14, and one clamp, part No. 1065-D-16, one washer, part No. AN960-10, and screw, part No. AN520-10-36. (See figure 1.)

au. Install guns.

av. Connect one hose, part No. 884-16-12, to tube, part No. 87-44-906-10, using one clamp, part No. FBA-14. Route hose through the 1-3/8 inch diameter hole in gun access door and close door.

aw. Connect tube, part No. 87-44-906-4, to the hose, part No. 884-16-12, using one clamp, part No. FBA-14. (See figure 5.)

ax. On left side of fuselage, remove all 1/4-inch vent lines, including tee fitting in rear wing tank vent neck to the hose connection approximately 6 inches aft of rear wing tank vent neck.

ay. Install weld assembly, part No. 87-45-602-6, in the front wing tank vent neck, using one clamp, part No. FBA-2.

az. Install tube, part No. 87-45-602-3, in rear wing tank vent neck, using one clamp, part No. FBA-2, and to weld assembly, part No. 87-45-602-6, using one hose, part No. 884-4-10, and two clamps, part No. FBA-2. (See figure 7.)

ba. Connect tube, part No. 87-45-602-4, to weld assembly, part No. 87-45-602-6, using one hose, part No. 884-4-10, and two clamps, part No. FBA-2. (See figure 7.)

bb. Connect restrictor tube, part No. 87-44-069, with restricted end aft to tube, part No. 87-45-906-4, using one hose, part No. 884-4-10, and two clamps, part No. FBA-2.

bc. On right side of fuselage remove vent tube elbow from rear wing tank vent neck.

bd. Install new vent elbow, part No. 87-45-602-5, in vent neck.

be. Connect weld assembly, part No. 87-45-602-7, to vent tube elbow, part No. 87-45-602-5 (figure 7), using one hose, part No. 884-8-10, and two clamps, part No. FBA-6.

bf. Connect tube, part No. 87-45-602-8, to weld assembly, part No. 87-45-602-7, using one hose, part No. 884-8-10, and two clamps, part No. FBA-6. (See figure 7.)

bg. Connect weld assembly, part No. 87-45-602-24, to tube, part No. 87-45-602-8, using one hose, part No. 884-8-10, and two clamps, part No. FBA-6. (See figure 7.)

bh. Connect tube, part No. 87-45-602-20, to weld assembly, part No. 87-45-602-24, using one hose, part No. 884-8-10, and two clamps, part No. FBA-6. (See figure 7.)

bi. Connect tube, part No. 87-45-602-20, to tube assembly, part No. 87-44-067, using one hose, part No. 884-8-10, and two clamps, part No. FBA-6. (See figure 7.)

bj. Connect tube assembly, part No. 87-44-067, to present existing vent line, using one hose, part No. 884-8-10, and two clamps, part No. FBA-6. (See figure 7.)

bk. Install left and right wing fillets.

bl. Install keel cowling.

bm. In fuselage, cement name plate "Auxiliary Wing Tank Release," part No. 87-45-930, to wing bomb release control.

bn. Cement new name plate, part No. 87-45-605, to the face of the fuel selector gate.

NOTE All parts removed from airplane for this installation should be shipped with the airplane or sent to airplane destination in the event that the regular fuel system and belly tank is to be reinstalled.

bo. Install eight fillet blocks, part No. 87-45-927, and eight each, bolt, part No. AN4-10A, washer, part No. AN960-416, and nut, part No. 365-428, in brackets, part No. 87-45-919. (See figures 3 and 5.)

bp. Remove existing hanger from the top of tank by removing nuts and washers.

bq. Install hanger assembly, part No. 87-45-603 (figure 3), using present nuts and washers.

br. Install outboard sway brace, part No. 87-45-604, to the auxiliary tank by bolting rear weld assembly to the clip on the tank by using bolt, part No. AN3-7A, washer, part No. AN960-10, and nut, part No. 365-1032.

bs. Locate and bolt front weld assembly, part No. 87-45-590, to sway brace, part No. 87-45-604, using two each, bolt, part No. AN3-11A, washer, part No. AN960-10, and nut, part No. 365-1032, and bolt to clip on the tank by using one each bolt, part No. AN3-7A, washer, part No. AN960-10, and nut, part No. 365-1032. (See figure 3.)

bt. Install inboard sway brace, part No. 87-45-600, to the auxiliary tank by bolting rear weld assembly, part No. 87-45-590, to the clip on the tank by using bolt, part No. AN3-7A, washer, part No. AN960-10, and nut, part No. 365-1032.

bu. Locate and bolt front weld assembly, part No. 87-45-590, to sway brace, part No. 87-45-600, using two each, bolts, part No. AN3-11A, washer, part No. AN960-10, and nut, part No. 365-1032, and bolt to clip on tank by using AN3-7A bolt, part No. AN3-7A, washer, part No. AN960-10, and nut, part No. 365-1032. (See figures 3, and 5.)

bv. Install sway brace bracket, part No. 87-45-

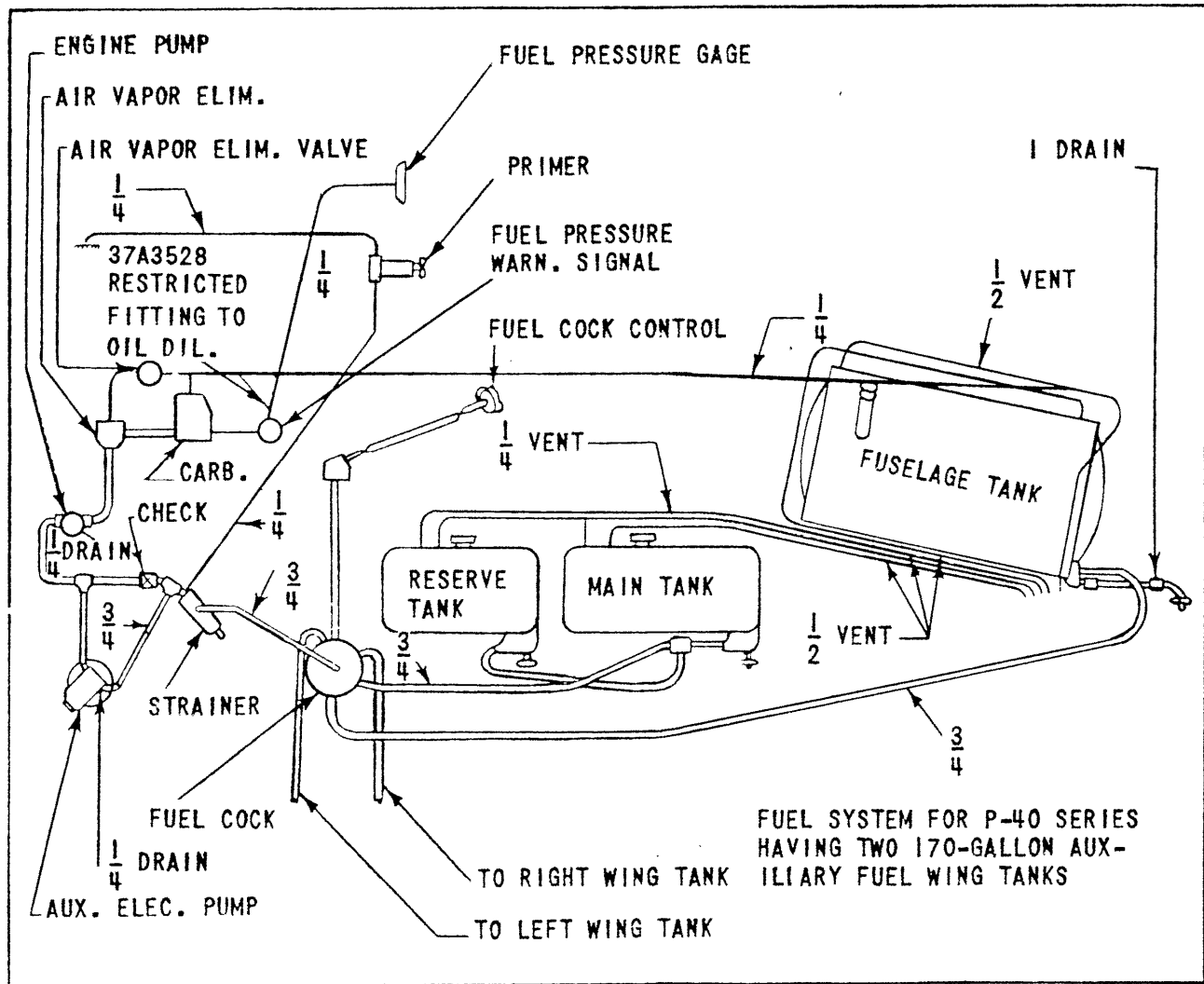


Figure 8 - Fuel System Diagram, Part No. 400-72-1

601-3, on sway braces, part No. 87-45-604, and sway brace bracket, part No. 87-45-601-1, on sway braces, part No. 87-45-600, by slipping brackets on sway braces.

bw. Install tank. (See figure 5.)

bx. Locate position of sway brace brackets on lower wing skin and drill two No. 10 (.194-inch) holes, pin bracket and install brackets, using four each, bolts, part No. AN3-6A, washer, part No. AN960-10, and nut, part No. 365-1032. (See figure 3.)

by. Release tank to check release mechanism and adjust cable, if necessary.

NOTE Do not damage tank when releasing.

bz. When the long-range fuel system is installed, Fuel Diagram 400-72-1 will be cemented on station 5 armor plate in addition to the present diagram.

3. The following parts listed are required per airplane to accomplish this installation. These parts will be packed into kits and supplied in accordance with the provisions of T. O. No. 00-35A-15.

RESTRICTED

T. O. No. 01-25C-18

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	1300TO-01-25C18		KIT, "Installation of 170-Gallon Wing Fuel Tanks - P-40E, P-40E-1, P-40F, P-40K, P-40L, and P-40M," consisting of the following parts:	15	AF Stock

For 87-45-602 Tube Installation:

2	FBA-10	Clamp	04-A
3	FBA-14	Clamp	04-A
1	835-12	Nipple - Hose fuel and oil	04-A
1	895-54	Union - Pipe	04-A
1	87-44-908	Check Valve	01-C
1	851-12	Elbow - Hose fuel and oil	04-A
1	12-12-12 M.R.O.	Tee	01-C
1	87-45-602-23	Hose	01-C
1	87-45-602-2	Hose	01-C
1	87-45-601-1	Tube	01-C
3	884-4-10	Hose - Aromatic synthetic	04-B
6	FBA-2	Clamp	04-A
1	87-44-069	Tube Assembly	01-C
1	87-45-602-4	Tube	01-C
1	87-45-602-3	Tube	01-C
1	87-45-602-6	Weld Assembly	01-C
1	87-45-602-5	Tube	01-C
10	FBA-6	Clamp	04-A
5	884-8-10	Hose - Aromatic synthetic	04-B
1	87-45-602-20	Tube	01-C
1	87-45-602-7	Weld Assembly	01-C
1	87-45-602-8	Tube	01-C
1	87-45-602-24	Weld Assembly	01-C
1	87-44-067	Tube Assembly	01-C

For 87-44-906 Tube Installation:

12	AN442AD4-4	Rivet - Flathead alum. 1/8 in. x 1/4 in.	29
9	AN960-10	Washer - Plain steel No. 10 bolt	04-A
6	AN960-8	Washer - Plain steel No. 8 bolt	04-A
8	365-1032	Nut - Self-locking steel	04-A
6	365-832	Nut - Self-locking steel	04-A
1	AN520-10-36	Screw - Roundhead steel	29
2	AN520-10-10	Screw - Roundhead steel	29
6	AN520-10-8	Screw - Roundhead steel	29
6	AN515-8-10	Screw	29
6	A-770-16	Clamp	01-C
11	1065-D-16	Clamp	01-C
2	AN931-16-22	Grommet - Neoprene	04-B
32	FBA-14	Clamp	04-A
1	851-12	Elbow - Hose fuel and oil	04-A
5	884-16-20	Hose - Aromatic synthetic	04-B
16	884-16-12	Hose - Aromatic synthetic	04-B
2	87-44-906-1	Tube	01-C
2	87-44-906-2	Tube	01-C
1	87-44-906-3	Tube	01-C
2	87-44-906-4	Tube	01-C
1	87-44-906-5	Tube	01-C
1	87-44-906-6	Tube	01-C
1	87-44-906-7	Tube	01-C
1	87-44-906-8	Tube	01-C
1	87-44-906-9	Tube	01-C
1	87-44-906-10	Tube	01-C
1	87-44-906-11	Tube	01-C
1	87-44-906-12	Tube	01-C
1	87-44-906-13	Tube	01-C
1	87-44-906-14	Spacer	01-C

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
For 87-45-907 L/R Cable Installation:					
2		87-45-929	Cable Assembly	01-C	
1		87-45-930	Name Plate	01-C	
1		87-45-605	Name Plate	01-C	
2		PC2891	Pin	01-C	
2		58766 - 1-1/2	Spring	01-C	
2		EX-39120-1	Cable End Assembly	01-C	
4		1042-DS-4	Clamp	01-C	
2		AN960-10	Washer - Plain steel No. 10 bolt	04-A	
4		AN960-8	Washer - Plain steel No. 8 bolt	04-A	
2		AN960-6	Washer - Plain steel No. 6 bolt	04-A	
4		AN515-8-12	Screw - Roundhead steel	29	
2		AN515-6-20	Screw - Roundhead steel	29	
4		365-832	Nut - Self-locking steel	04-A	
2		365-632	Nut - Self-locking steel	04-A	
2		AN210-1A	Pulley - Antifriction bearing control	04-A	
2		AN3-10A	Bolt - Aircraft steel	04-A	
2		87-45-907-1	Tube	01-C	
For 87-45-908 L/R Tank Installation:					
35		AN3-6A	Bolt - Aircraft steel	04-A	
60		365-1032	Nuts - Self-locking steel	04-A	
60		AN960-10	Washer - Plain steel No. 10 bolt	04-A	
8		AN380-C3-3	Cotter pin - Corrosion-resisting steel	01-C	
8		87-45-927	Fillet Block	01-C	
8		AN3-7A	Bolt - Aircraft steel	04-A	
4		AN3-10A	Bolt - Aircraft steel	04-A	
8		AN4-10A	Bolt - Aircraft steel	04-A	
8		365-428	Nut - Self-locking steel	04-A	
8		AN960-416	Washer - Plain steel 1/4 in. bolt	04-A	
4		AN26-20	Bolt - Clevis 3/4 in. x 1-1/4 in.	04-A	
4		AN320-6	Nut - Aircraft shear steel	04-A	
4		AN960-616	Washer - Plain steel 3/8 in. bolt	04-A	
2		87-45-533	Shackle	01-C	
2		87-45-601-7	Bracket	01-C	
2		87-45-601-5	Bracket	01-C	
2		87-45-601-3	Bracket	01-C	
2		87-45-601-1	Bracket	01-C	
16		AN3-11A	Bolt - Aircraft steel	04-A	
2		170-Gal Wing Tank (Ohio Rubber Co.) G.F.E.		03-F	
2		87-45-603	Hanger Assembly	01-C	
1		87-45-919-2 L	Support	01-C	
1		87-45-919-2 R	Support	01-C	
1		87-45-919-1 L	Support	01-C	
1		87-45-919-1 R	Support	01-C	
1		87-45-928 L	Bracket	01-C	
1		87-45-928 R	Bracket	01-C	
1		87-45-605 L	Sway Brace	01-C	
1		87-45-604 R	Sway Brace	01-C	
1		87-45-600 L	Sway Brace	01-C	
1		87-45-600 R	Sway Brace	01-C	
8		87-45-590	Bracket	01-C	
4		395-35	Clevis Pin	04-A	
1		400-72-1	Fuel System Diagram	01-C	

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.



RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25C-49

DIST: 5,7
FILE: BEH

June 15, 1943

AIRPLANES AND MAINTENANCE PARTS

**CURTISS - MODIFICATION OF WING FUEL FILLER CAP ADAPTER
RP-40D, P-40E, P-40E-1, P-40F, P-40K, AND P-40K-1**

This Technical Order replaces T.O. No. 01-25C-49, dated January 9, 1943, revised to amend paragraph 3.

NOTE: The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being 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 50-hour inspection period, by service activities with the aid of sub-depots, if necessary.

1. To assure a leakproof seal between the adapter and filler neck fitting on both front and rear wing fuel tanks, the filler necks will be reworked on the following airplanes in accordance with the instructions contained in paragraph 2.

MODEL	AF SERIAL NOS.
RP-40D	All
P-40E	All
P-40E-1	All
P-40F	41-13600 to 41-19732 inclu
P-40K	42-9730 to 42-10264 inclu
P-40K-1	42-45722 to 42-46321 inclu

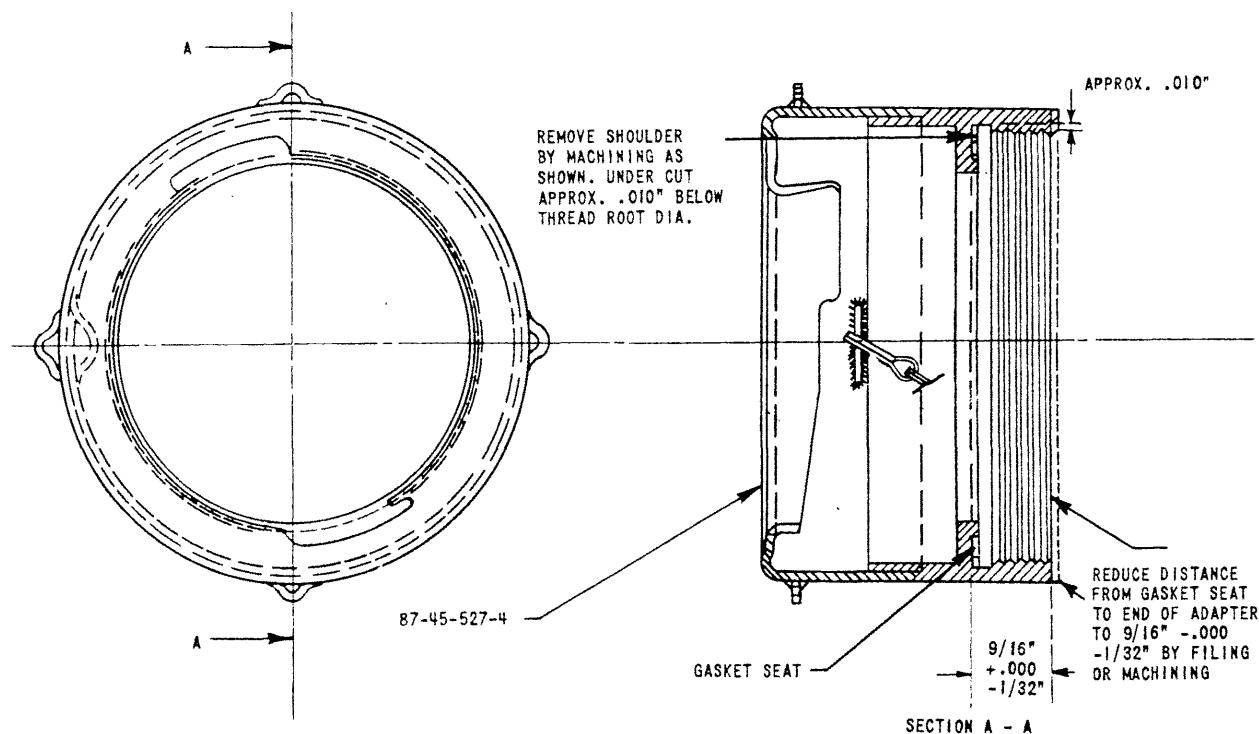


Figure 1 - Modification of Front and Rear Wing Fuel Tank and Filler Cap Adapters

R. A. R. DAYTON--6-12-43--17M

- 1 -

RESTRICTED

Compliance with these instructions is MANDATORY on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

pg 45

RESTRICTED

T.O. No. 01-25C-49

P-40F airplanes, AAF serial No. 41-19733, and P-40K-1 airplanes, AAF No. 42-10265 and subsequent, will have this change incorporated by the contractor prior to delivery.

2. The instructions for accomplishing this change, as contained in Curtiss Service Bulletin Nos. 170-57, 400-49, and 490-20, dated October 17, 1942, are as follows:

a. Remove the wing filler caps by disconnecting the retaining chain.

b. Disconnect the adapter bonding braid by removing the scupper attaching screw which is used to anchor the bonding braid.

c. Unscrew and remove the adapter assembly, part No. 87-45-565, using special adapter wrench, part No. 87-88-596.

NOTE: One each, of the above wrenches has been supplied with every ninth airplane.

d. Rework front and rear adapter assemblies, as shown on figure 1.

e. Reinstall the modified adapters using a new gasket, part No. 87-45-522-1.

NOTE: The gasket shall be lightly coated with lubricating oil at time of installation. Proper positioning of the gasket can be noted by means of a mirror inserted inside the filler neck illuminated by means of a flashlight.

f. Fasten the adapter bonding braid over the head of the scupper retaining screw as in the original installation.

g. Connect the filler caps to the retaining chains as in the original installation.

3. The following parts are required per airplane to accomplish this modification.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
2	6600-271750	87-45-522-1	Gasket - Filler neck, wing fuel tank Ameripol or equal	04-B	AF Stock

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

November 21, 1942

AIRPLANES AND MAINTENANCE PARTS

CURTISS - INSTALLATION OF NARROW BEAM RESIN LENS - P-40 SERIES

This Technical Order replaces T.O. No. 01-25CD-49, dated October 7, 1942, revised to correct Technical Order number and include specific instructions for the installation of narrow beam resin lenses on P-40F airplanes.

NOTE: The work directed herein will be accomplished in accordance with paragraph 1.

1. Narrow beam resin lenses will be installed only in designated P-40 series airplanes when directed by the Commanding General of Field Services, in accordance with the instructions in paragraph 2.

2. The instructions for accomplishing this work are as follows:

a. LENS STOWAGE BOX, PART NO. 43B8458.

(1) Locate lens stowage box in fuselage at any point where (a) there will be no interference with controls or other equipment, and (b) sufficient clearance is available to permit opening of box lid. The box can be installed by screws through its bottom and fuselage plate, or other approximately horizontal part of airplane or its equipment.

(2) Drill a hole (No. 15 drill) through approximate center of bottom of each compartment of box and through the selected support.

(3) Install box with three screws, part No. AN515-8-12 (or longer, if necessary), three washers, part No. AN970-3, and three nuts, part No. 365-832.

b. TOGGLE SWITCH ASSEMBLY B-9A.

(1) Locate switch at any point on switch panel in cockpit where adequate space is available. Space required if switch plate, part No. 43A8461, is used, is 1-1/8 inches by 2-1/4 inches. If this switch plate is not used, space required is 3/4 inch by 2-1/16 inches. Switch handle should be in a line with other switches, if possible, and as close to navigation light switch as available space permits. On P-40F airplanes, the switch location will be on the switch panel below the instrument board, in the

top row between running light and fuel gage light switches. (See figure 1.)

(2) With switch plate as a template, drill a 1/2-inch hole in switch location for switch handle, and two holes (No. 31 drill) to match end holes in switch plate. On P-40F airplanes the location for the 1/2-inch hole will be on a horizontal line with previously installed switches and midway between vertical borders of covering space on switch plate. Drill the 1/2-inch hole (a) and holes (b) and (c) (No. 15 drill) through plate and switch panel. Remove switch plate and stamp or engrave vertically along left border of this blank section division "TALL LIGHTS." Engrave or stamp "BRIGHT" 9/16 inch from top of section and "DIM" 9/16 inch from bottom of section. Use a style and size of letter to match other lettering on the plate.

(3) Solder a terminal, part No. 660-40, on each end of an IRC type MN-2, or equal, 60-ohm 10-watt resistor.

(4) Install resistor across end terminals of switch B-9A.

(5) Solder a terminal, part No. 660-40, on each end of a 12-inch (longer or shorter as required - see (10) following) length of aircraft power and lighting cable No. 16 AWG.

(6) Install one end of this cable on center terminal of B-9A switch.

(7) Solder a terminal, part No. 660-40, on each end of a second 12-inch (longer or shorter as required - see (12) following) length of aircraft power and lighting cable No. 16 AWG.

NOTICE: This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act (U. S. C. 50:31:32). The transmission of this document or the revelation of its contents in any manner to an unauthorized person is prohibited.

(8) Install one end of this cable on bottom terminal of B-9A switch.

(9) Mount switch (vacant terminal up) and switch plate (if used) on switch panel, with two screws, part No. AN520-4-8, and two nuts, part No. 365-448.

(10) Connect free end of cable from center terminal of B-9A switch to center terminal of running light switch.

(11) Disconnect tail light cable from its junction with wing light cables. On P-40F airplanes the cable from tail lights is No. 287. Cables from wing lights are Nos. 185 and 131.

(12) Install free ends of cables from bottom of B-9A switch, and tail lights on any available insulated and unused terminal stud. If no such stud is available, locate a suitable spot on any accessible insulating strip, drill a hole (No. 15 drill) in the strip, and install one

screw, part No. AN515-8-12, with one lock washer, part No. 936A8, and one nut, part No. AN340-8.

(13) Install free ends of cables from bottom of B-9A switch and tail lights on the screw with one nut, part No. AN340-8.

c. RESIN LENS.

(1) Remove lens, part No. 32B1984-5, from the tail lamp on each side of vertical stabilizer.

(2) Install resin lens, part No. 4202-42A6845-1 (red), -3 (green), or -5 (clear) in port tail lamp assembly, and 42A6845-2 (red), -4 (green), or -6 (clear) in starboard tail lamp assembly as directed.

(3) Stow unused lenses in lens stowage box.

3.g. The following parts are required per airplane to accomplish this installation.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1			Resistor - IRC type MN-2 or equal, 60-ohm 10-watt or (for P-40 only) type MW-4 or equal 25-ohm 10-watt	08-B	AF Stock
1	4202-896750	AN3018	Assembly Switch - Toggle type B-9A	03-C	AF Stock
1	4202-42A6845-1		Lens - A-7 and A-8, tail position lamp, narrow beam, resin (red - left-hand)	03-C	AF Stock
1	4202-42A6845-2		Lens - A-7 and A-8, tail position lamp, narrow beam, resin (red - right-hand)	03-C	AF Stock
1	4202-42A6845-3		Lens - A-7 and A-8, tail position lamp, narrow beam, resin (green - left-hand)	03-C	AF Stock
1	4202-42A6845-4		Lens - A-7 and A-8, tail position lamp, narrow beam, resin (green - right-hand)	03-C	AF Stock
1	4202-42A6845-5		Lens - A-7 and A-8, tail position lamp, narrow beam, resin (clear - left-hand)	03-C	AF Stock
1	4202-42A6845-6		Lens - A-7 and A-8, tail position lamp, narrow beam, resin (clear - right hand)	03-C	AF Stock
3	6500-513700	365-832	Nut - Self-locking steel 8-32	04-A	AF Stock
2	6500-513400	365-448	Nut - Self-locking steel 4-48	04-A	AF Stock
3	6500-980400	AN970-3	Washer - Flat for wood No. 10 bolt	04-A	AF Stock
1	4202-43B8458		Box - Lens stowage	03-C	AF Stock
2 ft.	8800-82400		Cable - Aircraft power and lighting No. 16 AWG AN Aeronautical Specification No. AN-J-C-48	08-B	AF Stock

Ps49

RESTRICTED

T. O. No. 01-25C-83

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
*1 (if needed)	4202-43A8461		Plate - Switch (Bright-Off-Dim)	03-C	AF Stock
2	6700-354450	AN345-4	Nut - Machine screw, hex steel 4-48	29	AF Stock
2	6700-705700	AN520-4-8	Screw - Machine steel rd-hd 4-48 x 1/2 inch	29	AF Stock
4	6700-711350	AN515-8-12	Screw - Machine steel rd-hd 8-32 x 3/4 inch	29	AF Stock
6	6700-934100	660-40	Terminal - Electrical copper soldering lug light No. 4	29	AF Stock
2	6700-991680	936A8	Washer - Lock steel internal teeth No. 8 bolt style A	29	AF Stock

* Not required on P-40F airplanes.

By Command of Lieutenant General ARNOLD:

H. J. F. MILLER,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25C-106

DIST: 5,7
FILE: BEH

July 22, 1943

AIRPLANES AND MAINTENANCE PARTS

**CURTISS -- MODIFICATION OF CARBURETOR AIR DUCT SLEEVE JOINT --
RP-40, RP-40B, RP-40C, AND RP-40G**

This Technical Order replaces T.O. No. 01-25C-106, dated January 1, 1943, revised to amend part number in paragraph 2.c.

NOTE The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being 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 sub-depots, if necessary.

1. To reduce the possibility of air leaking from the carburetor air intake duct due to an imperfect seal between the carburetor and the carburetor air intake duct elbow, the carburetor air intake duct will be modified on all P-40, P-40B, P-40C, and P-40G airplanes in accordance with the instructions contained in paragraph 2.

2. The instructions for accomplishing this change, as contained in Curtiss-Wright Service Bulletin No. B-68 and 300-27, dated April 16, 1942, are as follows:

a. Remove right and left side engine cowls.

b. Remove top engine cowl.

c. Cut the carburetor air intake duct elbow, part No. 87-51-043, which is attached to the top engine cowl, part No. 87-29-087, as shown in figure 1.

d. Clamp the neoprene sleeve, part No. 87-51-062 (or some acceptable substitute) and reinforcements, part Nos. 87-51-713-1, -2, -3R, -3L, in place on elbow, part No. 87-51-043, as shown in figure 2.

e. Drill the holes in the reinforcements, part Nos. 87-51-713-1, -2, -3R, -3L, and the neoprene sleeve, part No. 87-51-062, through the elbow, part No. 87-51-043, with No. 30 (.128) drill, as shown in figures 2 and 3.

f. Rivet reinforcements, part Nos. 87-

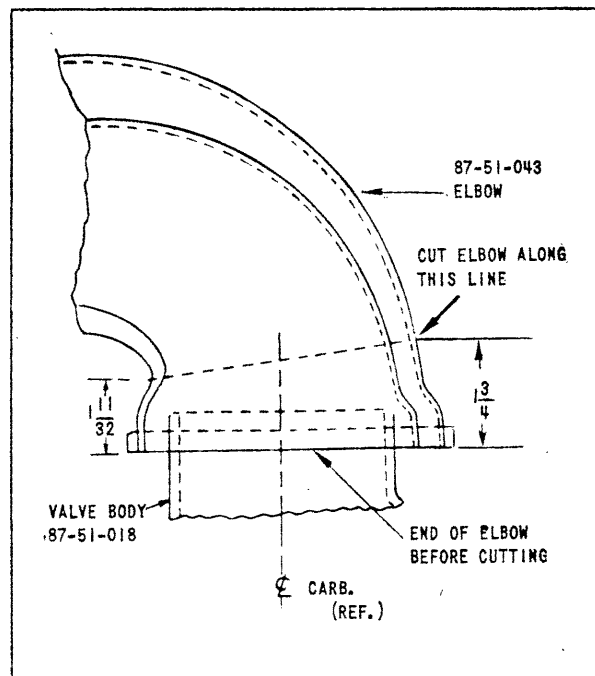


Figure 1 - Carburetor Air Duct Joint

51-713-1, -2, -3R, -3L, and neoprene sleeve, part No. 87-51-062, to elbow, part No. 87-51-043, with 28 rivets, part No. AN456AD4-7.

g. Clamp lower plate assembly, part No. 87-51-063, to carburetor valve body, part No. 87-51-018, as shown in figure 2.

h. Drill the holes in the angles of the lower plate assembly, part No. 87-51-063, through the carburetor valve body, part

R. R. DAYTON--7-21-42--16M

- 1 -

RESTRICTED

Compliance with these instructions is MANDATORY on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C. 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

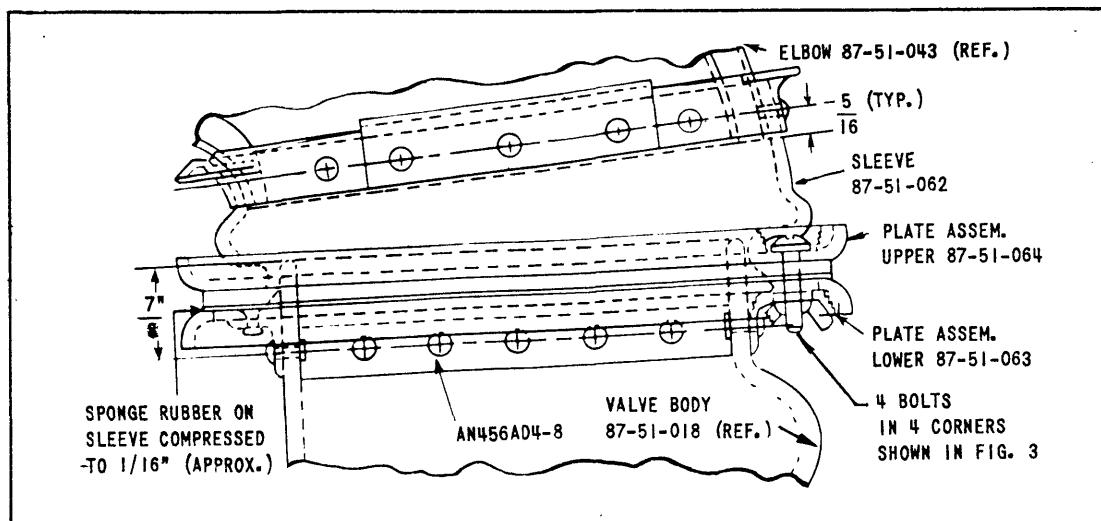


Figure 2 -
Revised Car-
buretor Air
Duct Joint
Assembly

No. 87-51-018, with No. 30 (.128) drill, as shown in figure 2.

i. Rivet the lower plate assembly, part No. 87-51-063, to the carburetor valve body, part No. 87-51-018, with 36 rivets, part No. AN456AD4-8.

j. Slide the upper plate assembly, part No. 87-51-064, on the neoprene sleeve, part No. 87-51-062, as shown in figure 2.

k. Replace the top engine cowl, matching the four bolt holes in the upper plate assembly, part No. 87-51-064, neoprene sleeve, part No. 87-51-062, and

the lower plate assembly, part No. 87-51-063.

l. Install the four screws, part No. AN526-1032-14, with four washers, part No. AN960-10, and four wing nuts, part No. AN350-1032, in the four corner holes, compressing the sponge rubber gasket on the neoprene sleeve, part No. 87-51-062, to approximately 1/16-inch thickness.

m. Reinstall the side engine cowls.

3. The parts listed below are required per airplane to accomplish this change. These parts will be packed in kits and distributed in accordance with the provisions of T.O. No. 00-35A-15.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	1300T0-01-25C106		KIT, "Modification of Carburetor Air Duct Sleeve Joint - P-40, P-40B, P-40C, and P-40G," consisting of the following parts:	15	AF Stock
28		AN456AD4-7	Rivet - Alum. alloy brazier head type AD 1/8 x 7/16 inch	29	
36		AN456AD4-8	Rivet - Alum. alloy brazier head type AD 1/8 x 1/2 inch	29	
4		AN526-1032-14	Screw - Buttonhead 10-32 x 7/8 inch	29	
4		AN350-1032	Nut - Wing steel 10-32	29	
4		AN960-10	Washer - Plain steel No. 10 bolt	04-A	
1		87-51-062	Neoprene Sleeve (or some acceptable substitute)	01-C	
1		87-51-063	Assembly - Lower plate	01-C	
1		87-51-064	Assembly - Upper plate	01-C	

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1		87-51-713-1	Reinforcement	01-C	
1		87-51-713-2	Reinforcement	01-C	
1		87-51-713-3R	Reinforcement	01-C	
1		87-51-713-3L	Reinforcement	01-C	

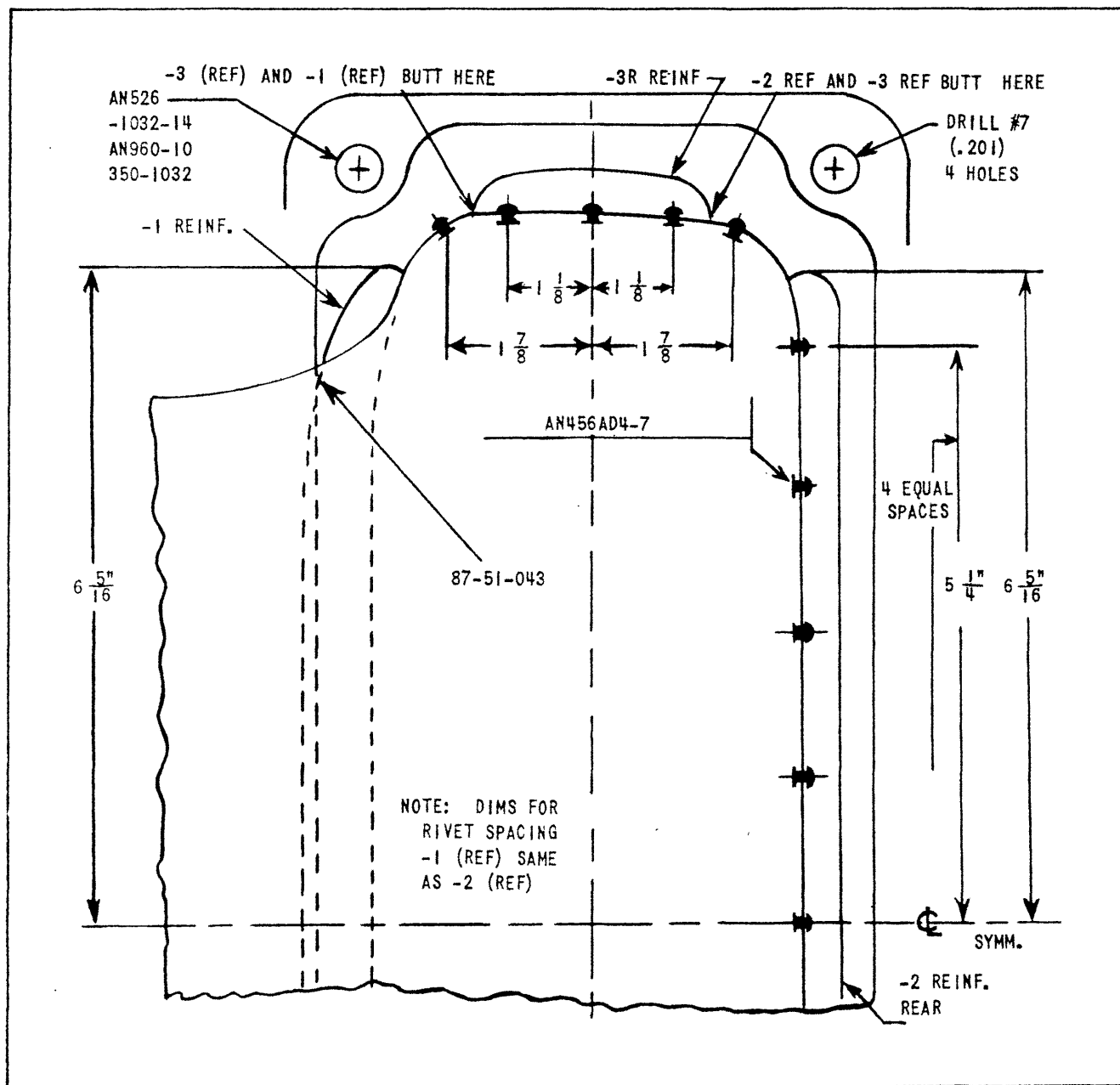


Figure 3 - Attachment Reinforcement Showing Rivet Spacing

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.



RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

1953
TECHNICAL ORDER
No. 01-25C-122

DIST: 4,5,7
FILE: BEHS

January 27, 1944

AIRPLANES AND MAINTENANCE PARTS

CURTISS—REMOVAL OF DUFFLE BAG INSTALLATION—P-40 SERIES

This Technical Order replaces T. O. No. 01-25C-122, dated March 22, 1943, revised to include additional part number in paragraphs 1. and 2.

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A. The work directed herein will be accomplished as soon as possible and not later than the next 50-hour inspection period by service activities with the aid of sub-depots, if necessary.

1. To prevent the possibility of the surface controls becoming fouled due to possible failure of the duffle bag installation, part Nos. 87-88-506, 87-621-1010, and 87-88-556, and also, since no load has been specified for the carrying of spare parts, tools, or any luggage in P-40 series airplanes, the duffle bag installation, part Nos. 87-88-506, 87-621-1010, and 87-88-556, will be removed from the fuselage baggage compartment. Be certain that no cords, hooks, or similar installation, from the duffle bag installation, remain to interfere with the controls.
2. The removed duffle bag installation, part Nos. 87-88-506, 87-621-1010, and 87-88-556, will be disposed of in accordance with AAF Regulation 65-43.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U. S. A.,
Commanding General, Air Service Command.

RESTRICTED

1

Compliance with these instructions is **MANDATORY** on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25C-124

DIST: 5,7
FILE: BEH

June 4, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS - REPLACEMENT OF MAIN LANDING GEAR TOWING RING - P-40 SERIES

This Technical Order replaces T.O. No. 01-25C-124, dated October 29, 1942, revised to include additional information and revise figure 1.

NOTE: The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being 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 25-hour inspection period by service activities with the aid of sub-depots, if necessary. Landing gear oleo strut axle fitting assemblies, part No. 87-31-836 left and right, in stock will have this replacement, incorporating wooden plug in accordance with figure 1, accomplished prior to issue.

1. To provide for the use of towing bar, part No. 42J463, on all P-40 series airplanes prior to P-40K-1 airplane, AF serial No. 42-45722, the present main landing gear towing rings will be removed and replaced with main landing gear tow-

ing lug, part No. 42B1949, in accordance with figure 1 (AF Drawing No. 42D1915 incorporating change "C" dated April 28, 1943). P-40K-1 airplane, AF serial No. 42-45722 and subsequent will be modified by the contractor prior to delivery.

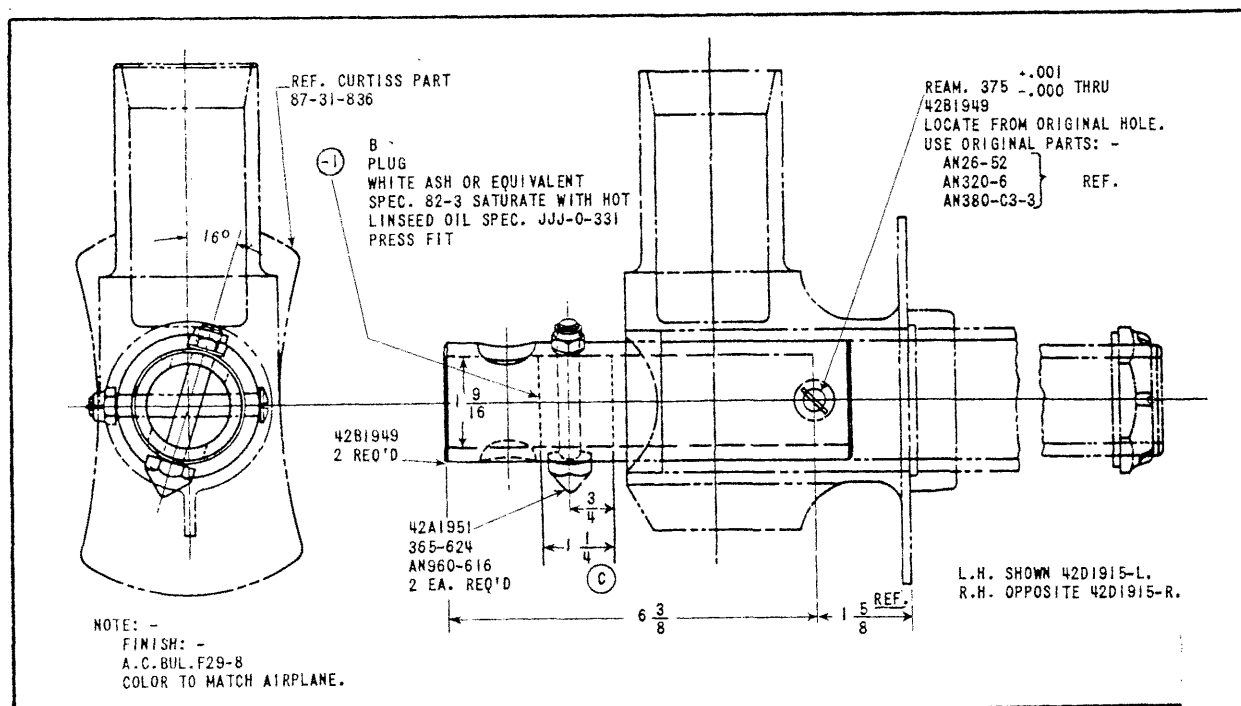


Figure 1

R. & H. DAYTON - 6-4 43-17M

- 1 -

RESTRICTED

Compliance with these instructions is **MANDATORY** on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

NOTE: All P-40 series airplanes will be inspected to ascertain if wooden plug is installed in landing gear towing lug, part No. 42B1949, in accordance with figure 1 as this change was not incorporated by the contractor prior to delivery.

2.g. The parts required per airplane, except the wooden plug, Specification No.

82-3 and linseed oil, Specification No. JJJ-0-331, to accomplish this change and a copy of this Technical Order will be assembled into kits and supplied without requisition to the activities having the airplanes affected. The wooden plug and linseed oil will be procured from AF Stock. Kits for transferred airplanes will be held and the Commanding General, Air Service Command notified immediately.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
2	0104-42D1915-1		Plug - Main landing gear towing lug. Mfr. from:	01-C	Local Mfr.
As req			Lumber - Ash white, Specification No. 82-3-C or equivalent	22	AF Stock
As req	7300-588000		Oil - Linseed boiled type B Specification No. JJJ-0-331	07	AF Stock
1	0104T0-01-25C124		KIT, "Replacement of Main Landing Gear Towing Ring P-40 series," consisting of the following parts:	01-C	AF Stock
2	0104-42B1949		Lug - Main landing gear towing	01-C	
2	0104-42A1951		Bolt - Taper head	01-C	
2	6500-514400	365-624	Nut - Self-locking steel 3/8 24	04-A	
2	6500-984400	AN960-616	Washer - Plain steel 3/8-inch bolt.	04-A	

b. The main landing gear towing rings, part No. 87-31-507 left and right, removed and like parts in stock will be disposed of in accordance with the provisions of T.O. No. 00-35A-3.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

P 526
TECHNICAL ORDER
No. 01-25C-125

FILES: FO

March 20, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS - INSTALLATION OF FELT SEALS TO ELEVATOR AND RUDDER BEARINGS - P-40 SERIES

This Technical Order replaces T.O. No. 01-25C-125, dated November 5, 1942, revised to amend paragraph 3.

NOTE: The work described herein, if required due to terrain conditions, will be accomplished as soon as possible by service activities with the aid of sub-depots, if necessary.

1. To prevent sand and grit from entering the elevator and rudder bearings, felt seal pads will be installed on all P-40 series airplanes that operate under extremely sandy or dusty conditions, in accordance with the instructions contained in paragraph 2.

2. The instructions for accomplishing this change as contained in Curtiss Service Bulletin No. 57, dated September 25, 1942, are as follows:

a. Remove all oil and grime from the outer surfaces of the two elevator fitting bearings and the center and lower rudder hinge bearings. (See figures 1 and 4.)

NOTE: Remove either of the right- or left-hand access doors on the lower section of the rudder to gain access to the lower rudder bearing.

b. Cut 1/8-inch felt into eight split rings as shown on figures 3 and 5.

NOTE: A portion of felt must be removed from the

ring to be installed on the lower rudder bearing to allow clearance of the adjacent torque tube bolt. (See figures 4 and 5.)

c. Coat the outer surfaces of the elevator and rudder bearings with a thin layer of 3M flexible cement, and allow to dry approximately 3 to 5 minutes.

NOTE: Do not allow any cement to enter the inside of the bearings.

d. Install the eight felt rings to the elevator and rudder bearings as shown on figures 2 and 4. Press these rings firmly in place so that the inside diameter of the rings rests flush on the outer surfaces of the elevator and rudder torque tubes. Care should be taken so that the felt is securely cemented in place.

e. Replace the access door on the rudder, removed in paragraph a.

3. The following parts are required per airplane to accomplish this installation.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
50 sq inch	7100-455000		Felt - Gray, extra firm pad, type F-7 1/8 inch thick, Specification No. AN-F-14	21	AF Stock
As req	6600-117010		Cement - Rubber to metal, Specification No. 26544A	04B	AF Stock
As req	7300-042200		or Cement - Walkways, Specification No. 26562	07	AF Stock

By Command of Lieutenant General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

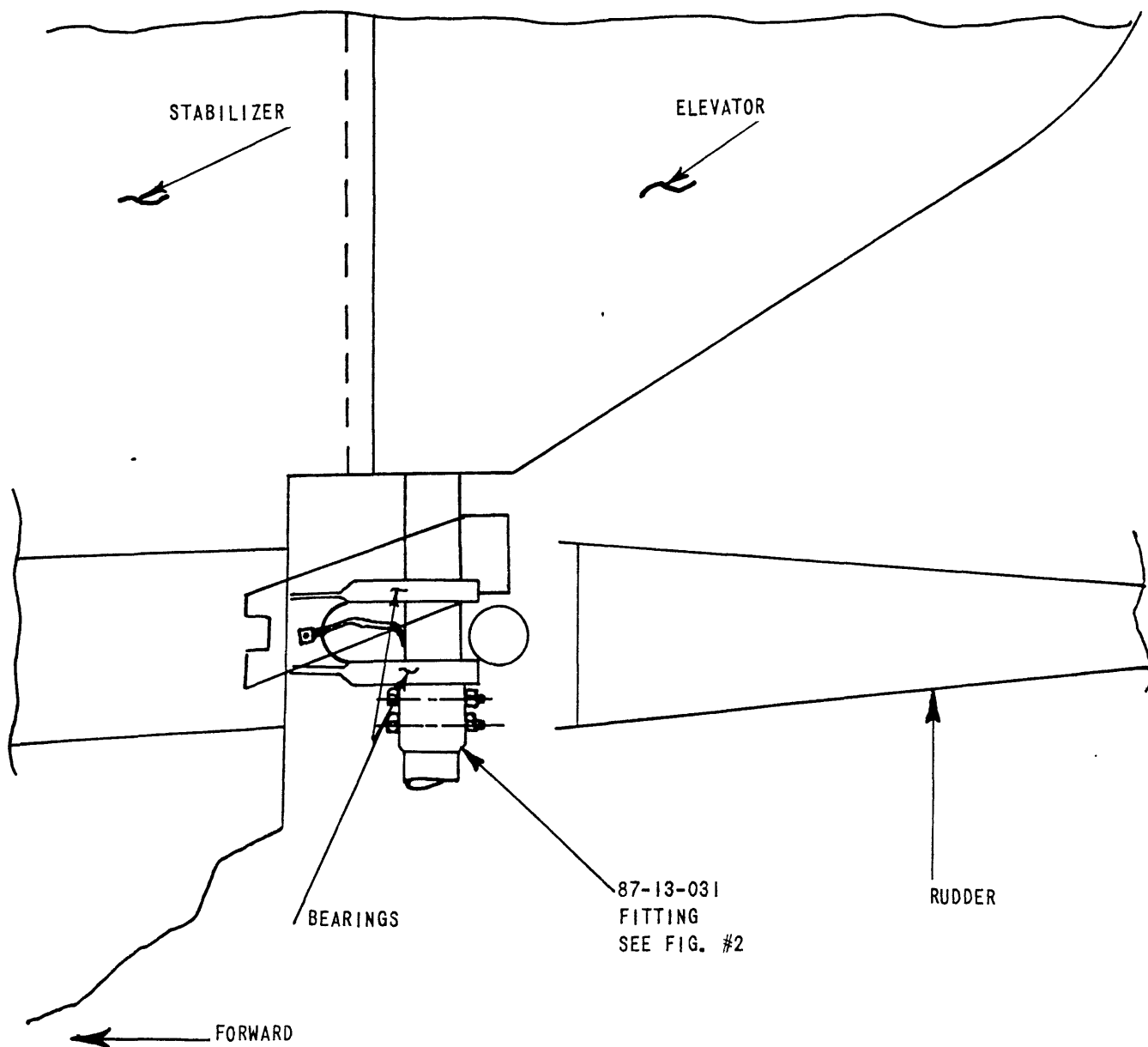


Figure 1- Elevator and Bearing Ass'y Top View

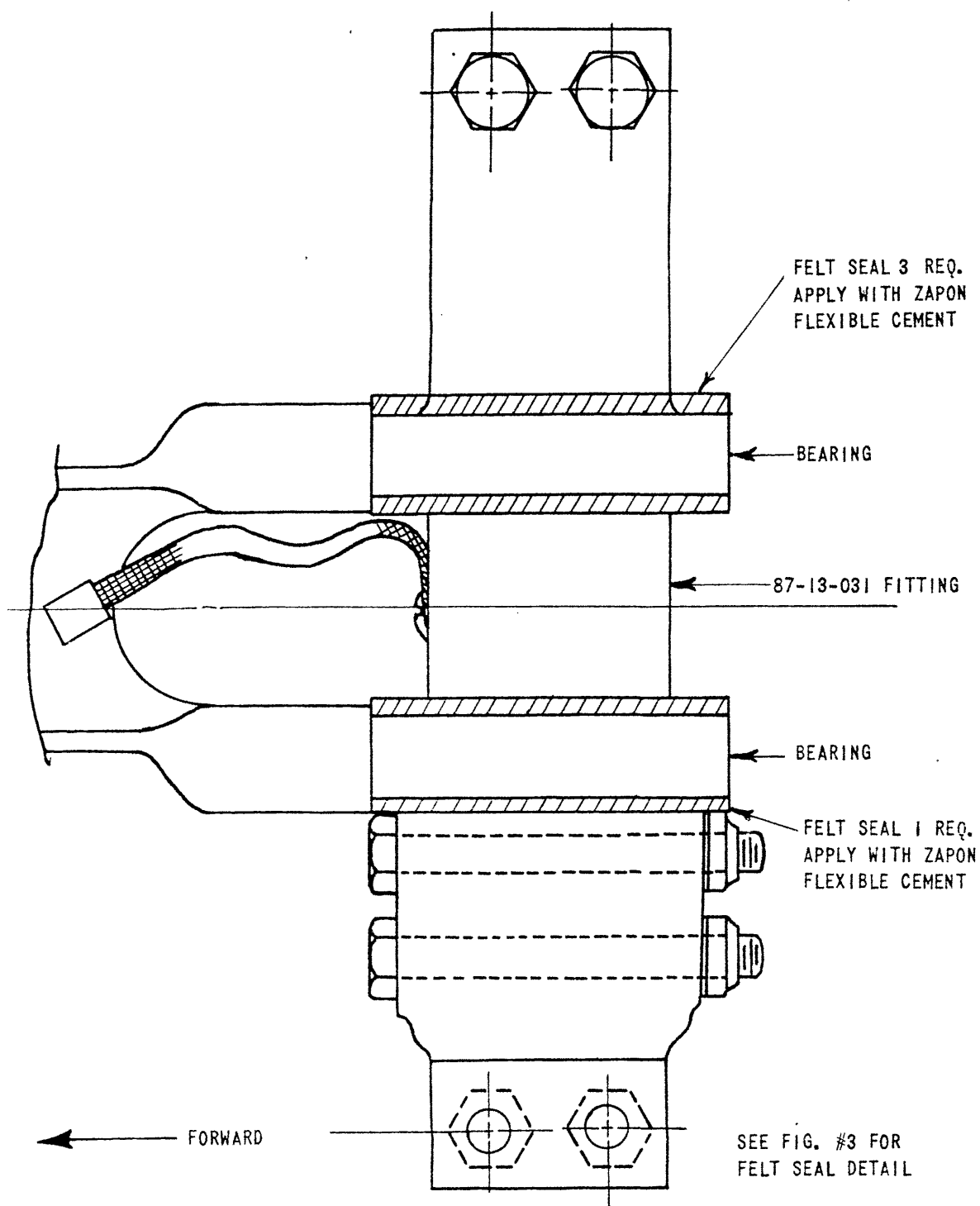


Figure 2- Installation of Felt Seals Elevator Bearing Ass'y Top View

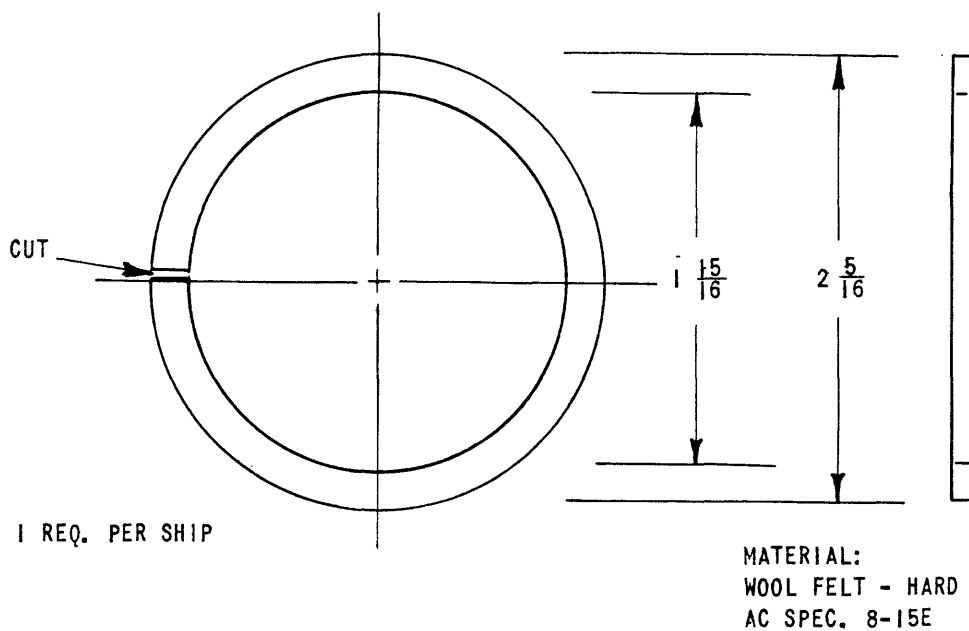
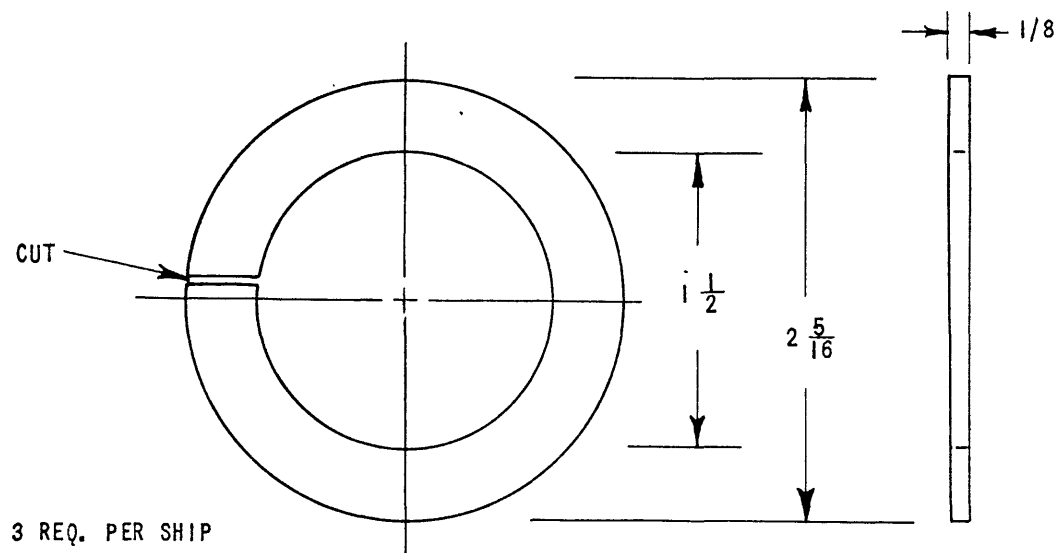


Figure 3- Detail of Felt Seals Elevator Bearings

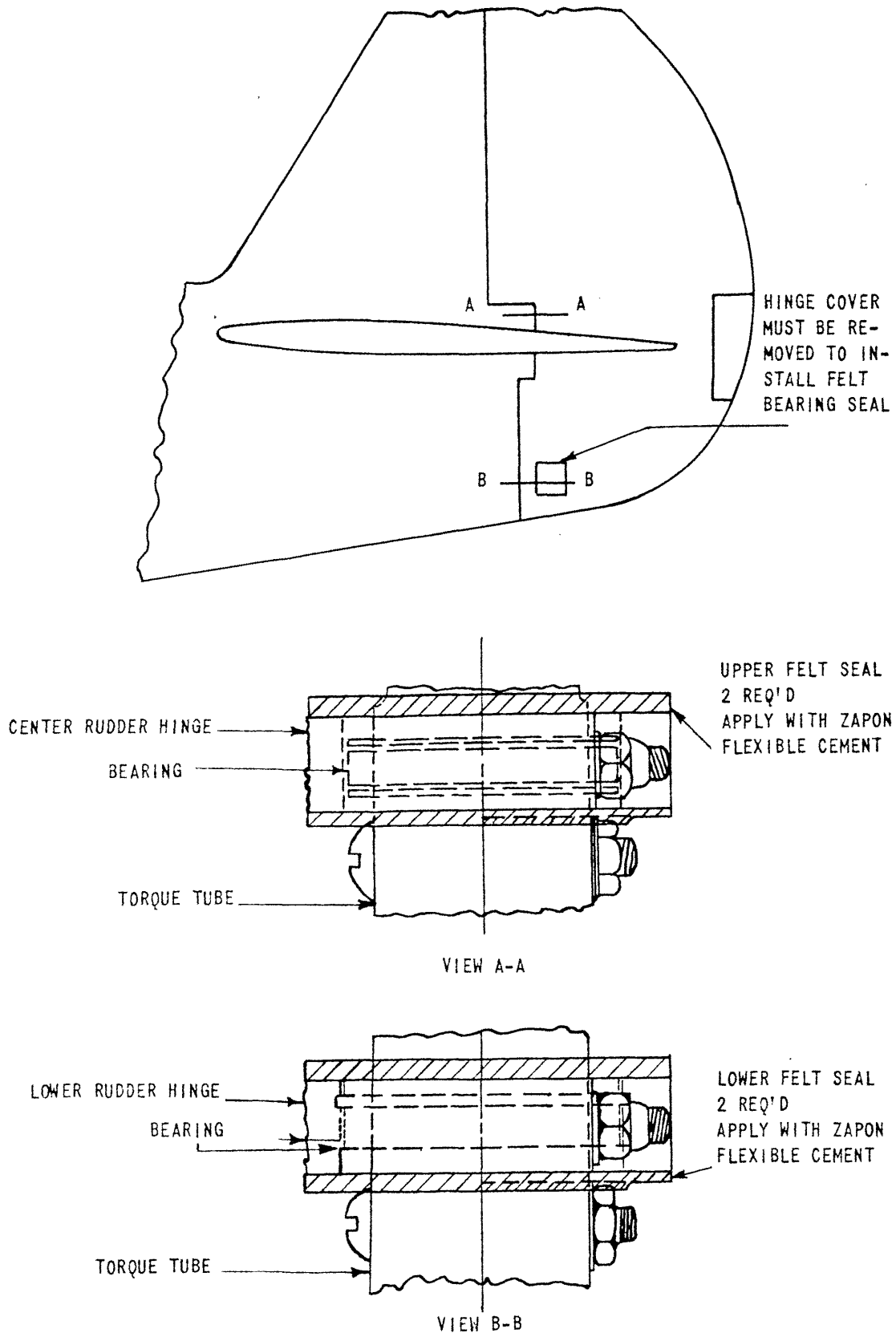
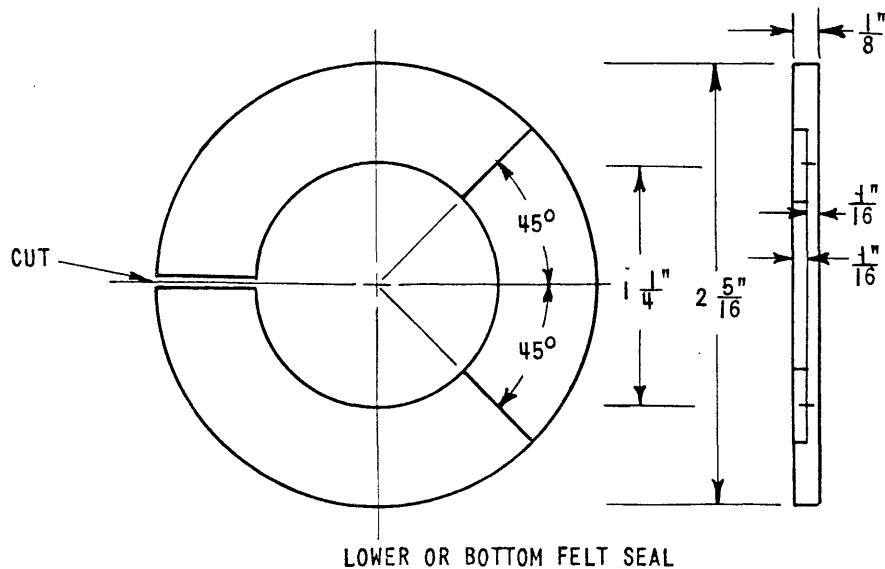
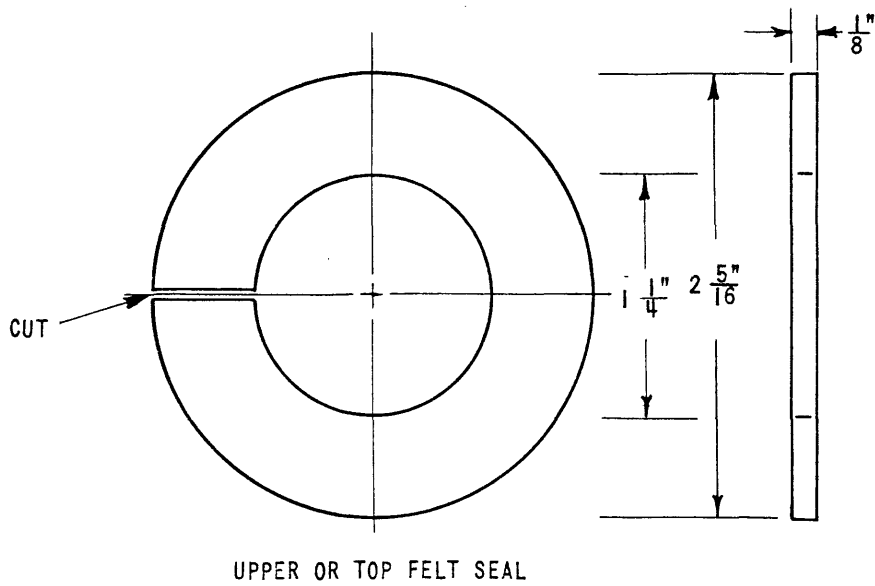


Figure 4- Installation of Felt Seals on Rudder Hinge Bearing



2 EACH REQUIRED PER SHIP
MATERIAL: WOOL FELT - AC SPEC. 8-15E

Figure 5- Detail of Felt Seals for Rudder Bearings

October 15, 1942

AIRPLANES AND MAINTENANCE PARTS

CURTISS - MODIFICATION OF BATTERY INSTALLATION - P-40F AND P-40K-1

NOTE: The provisions of AC Circular 15-60 will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as possible by service activities with the aid of sub-depots, if necessary.

1. To prevent accumulated electrolyte from contacting the terminals and shorting the battery, P-40F airplanes, AF Nos. 41-13600 to 41-14199 inclusive, and P-40K-1 airplanes, AF Nos. 42-45722 to 42-46121 inclusive, will be modified in accordance with the instructions contained in paragraph 2. Model P-40F airplane, AF No. 41-14200 and subsequent, and P-40K-1 airplane, AF No. 42-46122 and subsequent, will have this change accomplished by the contractor prior to delivery.

2. The instructions for accomplishing this change are as follows:

a. Remove the two wing nuts on the side of the battery case and remove the cover of the terminal box.

b. Disconnect wires Nos. 332 and 333 from the battery terminals and disconnect the flexible conduit from the terminal box.

c. Remove the Adel clamp, part No. 782-20, which holds the flexible conduit to the side of the airplane.

d. Remove the cover of the battery junction box and disconnect wires Nos. 332 and 333 from the ground post and the solenoid switch in the battery junction box. Disconnect the flexible conduit on the side of the battery junction box and remove from the airplane together with wires Nos. 332 and 333.

e. Disconnect the two vent lines from the battery. Loosen the two wing nuts on the two studs securing the

battery to the airplane. Lift the battery from its present position and rotate horizontally 180 degrees, and replace the studs and wing nuts. Reinstall the vent lines on the battery.

f. Install the new flexible conduit, part No. 87-66-603-38, with the two new wires Nos. 332 and 333, to the battery and the junction box, reversing the procedure contained in paragraphs 2.b. and 2.d.

g. Replace the cover on the battery terminal box. Reinstall the Adel clamp, part No. 782-20, which was removed in paragraph 2.c.

h. Drill a No. 10 (.193) hole, eight (8) inches forward of station No. 10, in the same stringer on which the above Adel clamp, part No. 782-20, is mounted. Install anew Adel clamp, part No. 782-20, on the flexible conduit and secure to the stringer with a screw, part No. AN520-10-8, washer, part No. AN960-10, and nut, part No. 365-1032.

3. a. The parts required per airplane to accomplish this change and a copy of this Technical Order will be assembled in kits and supplied without requisition direct to the activities having the airplanes affected. If any of the affected airplanes have been transferred, the kits for those airplanes will be forwarded in accordance with T.O. No. 01-1-24, if destinations of airplanes are known. Kits for airplanes transferred to destinations unknown will be held, and the Commanding General, Field Services, Air Service Command, Patterson Field, Fairfield, Ohio, notified immediately.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	0104T0-01-25C128		KIT, "Modification of Battery Installation - P-40F and P-40K-1," consisting of the following parts:	01-C	AF Stock
1	6700-714950	AN520-10-8	Screw - Machine steel, RH, 10-32 x 1/2 inch	29	
1	6500-984000	AN960-10	Washer - Plain steel, No. 10 bolt	04-A	
1	6500-514000	365-1032	Nut - Self-locking, steel, 10-32	04-A	
2	0104-94-270-74		Wire - Size No. 2 AWG (For replacements use cable, aircraft power and lighting, No. 2 AWG, Specification No. 27074 - class 08B)	01-C	
1	0104-87-66-603-38		Conduit Assembly	01-C	
1	6500-338540	AN3064-16	Connector - Conduit box, 1 inch	04-A	
1		782-20	Clamp - Adel	04-A	

b. Conduit and wires removed will be disposed of in accordance with the provisions of T.O. No. 00-35A-3.

By Command of Lieutenant General ARNOLD:

H. J. F. MILLER,
Major General, U.S.A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act (U. S. C. 50:31:32). The transmission of this document or the revelation of its contents in any manner to an unauthorized person is prohibited.



RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

Pg 63
TECHNICAL ORDER
No. 01-25C-136

DIST: 5,7
FILE: BEH

June 28, 1943

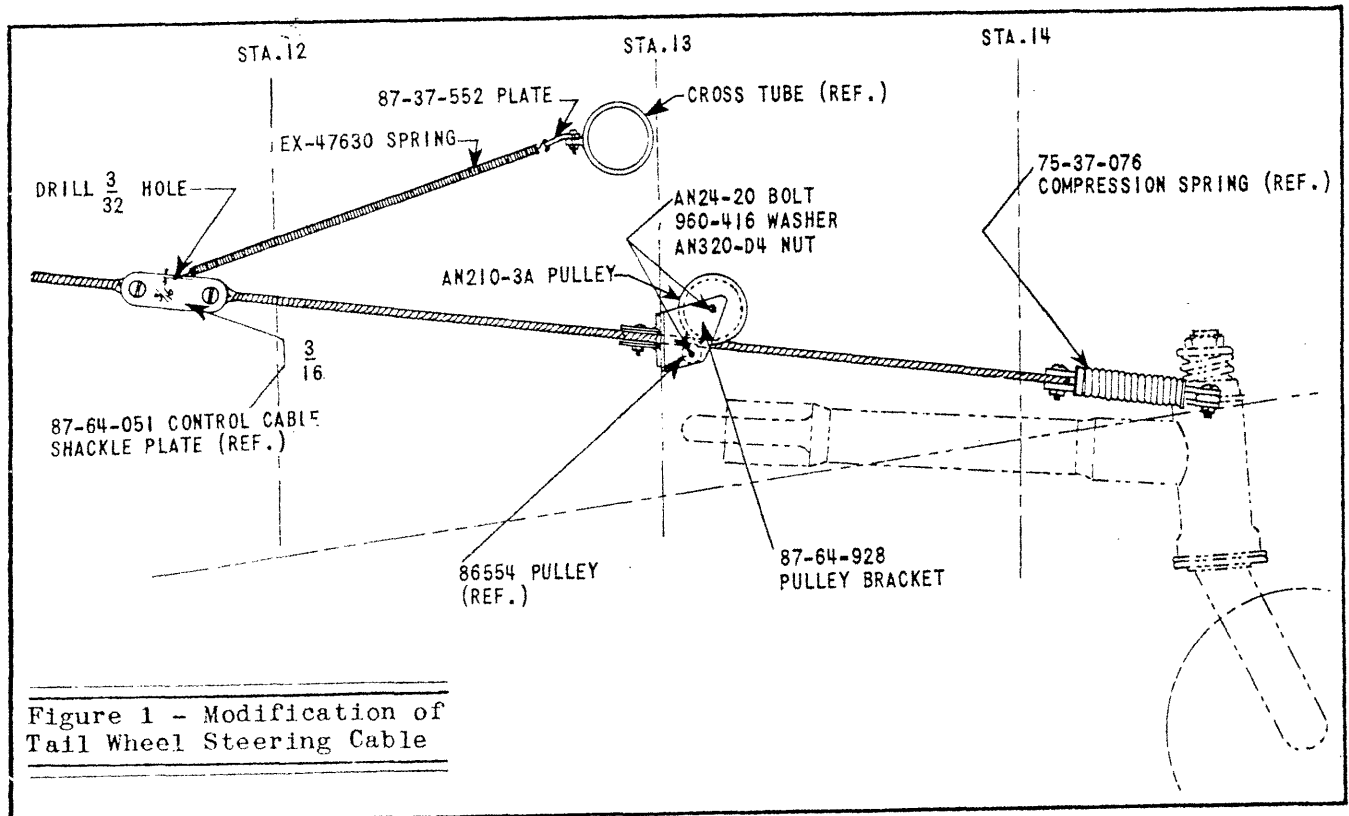
AIRPLANES AND MAINTENANCE PARTS

**CURTISS - MODIFICATION OF TAIL WHEEL STEERING CABLES AND
RUDDER CABLES - P-40 SERIES**

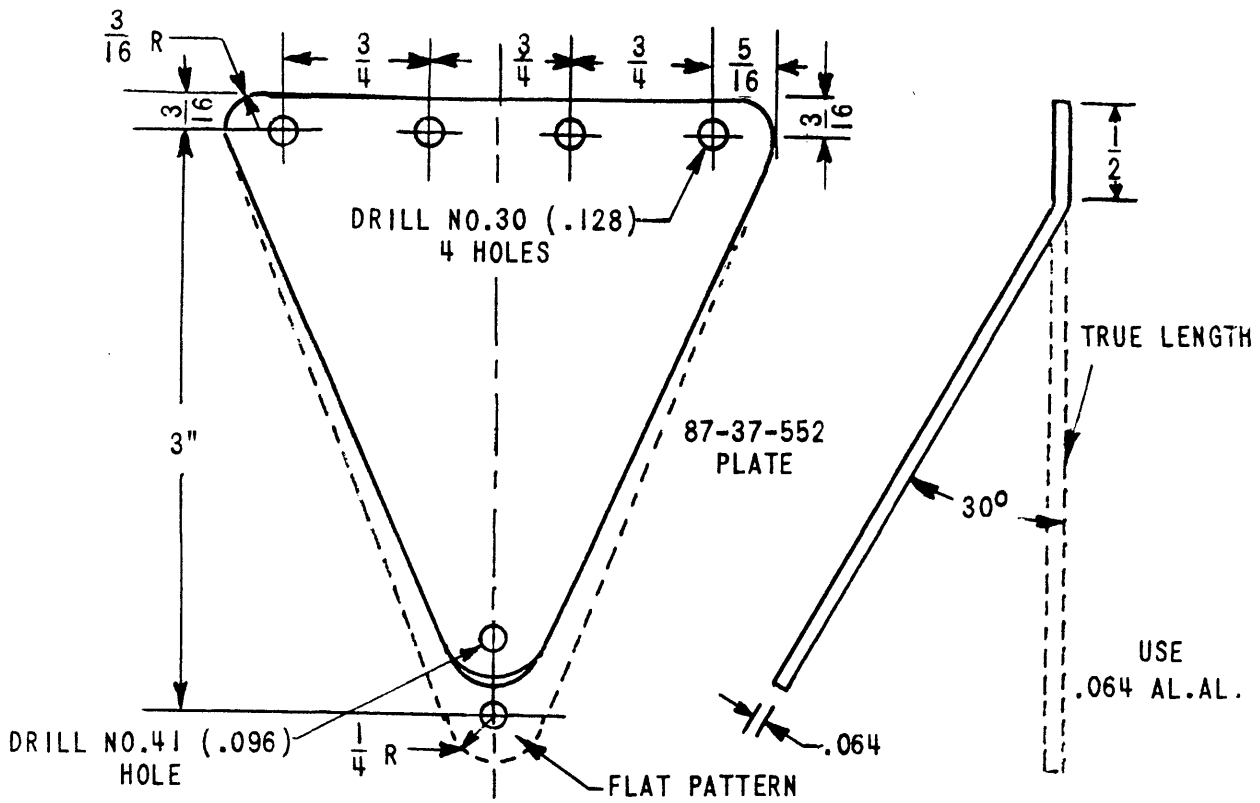
NOTE The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary.

1. To reduce possible damage to the fuselage bulkhead caused by whipping of the tail wheel steering cable during flight, to provide a repair method for fuselage bulkhead in event damage has occurred, and to reduce possible rudder cable failure, the work directed in paragraph 2. will be accomplished on P-40 series airplanes listed below.

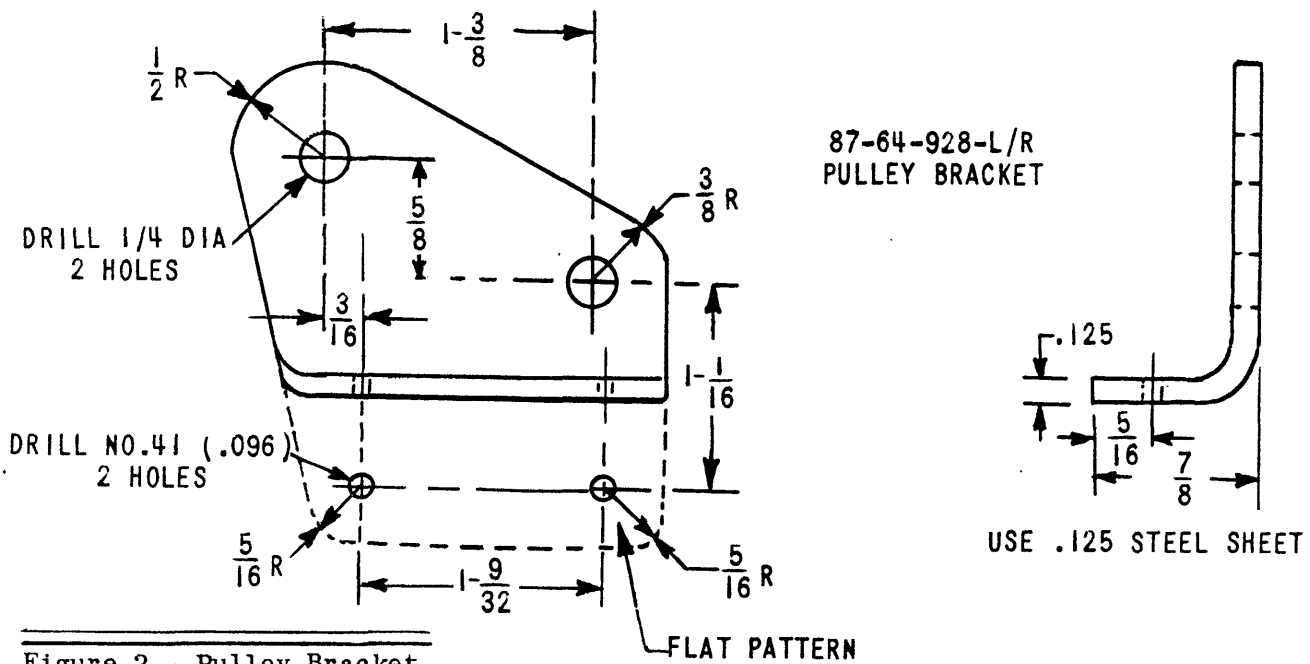
- Change "A" All P-40 series except as noted below.
Change "B" All P-40 series except as noted below.
Change "C" All RP-40, RP-40B, RP-40C, and RP-40G.
Change "D" All RP-40D and P-40E, P-40E-1, AF Nos. 41-24776 to 41-36753 inclusive. P-40F, AF Nos. 41-13600 to 41-13923 inclusive.



NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

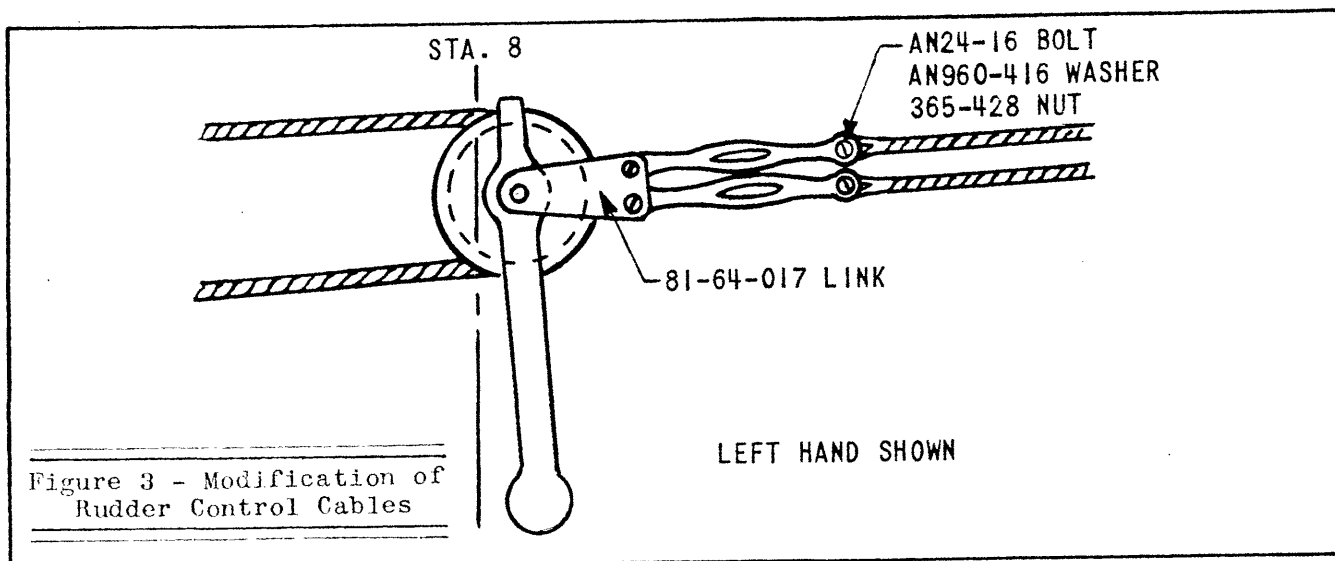


DETAIL (A)



DETAIL (B)

Figure 2 - Pulley Bracket,
Part No. 87-64-928 and
Plate, Part No. 87-37-552



NOTE Change "A" and "B" will be accomplished on P-40M airplanes, AF Nos. 42-10565, 42-10571, 42-10572, 42-10577, 42-10578, 42-10583, and 42-10590 and subsequent, prior to delivery. Change "D" will be accomplished on P-40E-1 airplane, AF No. 41-36754 and subsequent, and P-40F airplane, AF No. 41-13924 and subsequent, prior to delivery.

2. The instructions for accomplishing this change, as contained in Curtiss-Wright Service Bulletin Nos. B-73, 300-33, 170-59, 400-69, 480-9, 490-37, and 530-2, revised March 17, 1943, are as follows:

a. CHANGE "A," MODIFICATION OF THE TAIL WHEEL STEERING CABLE INSTALLATION.

(1) Remove the left- and right-hand turnbuckle from the tail wheel doors and the front six screws holding the canvas covering around the tail wheel.

(2) Remove control cable shackle plates, part No. 87-64-051, from the L/R horn of the tail wheel.

(3) Open the baggage door on the left-hand side of the fuselage and, if necessary, remove the battery, the rear radio rack and oxygen tank.

(4) Remove compression spring, part No. 75-37-076, and guide springs from the L/R hand cables, just forward of station 12 and pull cables through the double pulley assemblies, located at

station 13. Remove the rivets, holding the L/R hand double pulley assemblies and remove the pulley assemblies.

(5) Remove one pulley, part No. 86554, from the pulley assembly, assemble the new pulley brackets, part No. 87-64-928, fabricated in accordance with figure 2, detail (B), using the removed pulley, part No. 86554, and the new pulley, part No. AN210-3A, as shown in figure 1, and secure to station 13 with four screws, part No. 515-8-8, four washers, part No. 960-8, and four nuts, part No. 365-832, using the original holes in station 13.

(6) Remove the two rivets, holding the plate on top of the flange of the cross tube and install new plate, part No. 87-37-552, fabricated in accordance with figure 2, detail (A), as shown in figure 1, with four screws, part No. 515-6-7, four washers, part No. 960-6, and nuts, part No. 365-632, utilizing the two existing holes and drilling the two other holes with a No. 30 (.1285) drill.

NOTE The work directed in change "B" may now be accomplished.

(7) Drill one 3/32-inch diameter hole in the inboard shackle plates as shown in figure 1. Install original cables, compression springs, and shackle plates as shown in figure 1 and attach guide springs, part No. EX-47630, to newly installed plate, part No. 87-37-552, and shackle plates as shown in figure 1 and in conjunction with T.O. No. 01-25C-135.

P364

RESTRICTED

T.O. No. 01-25C-136

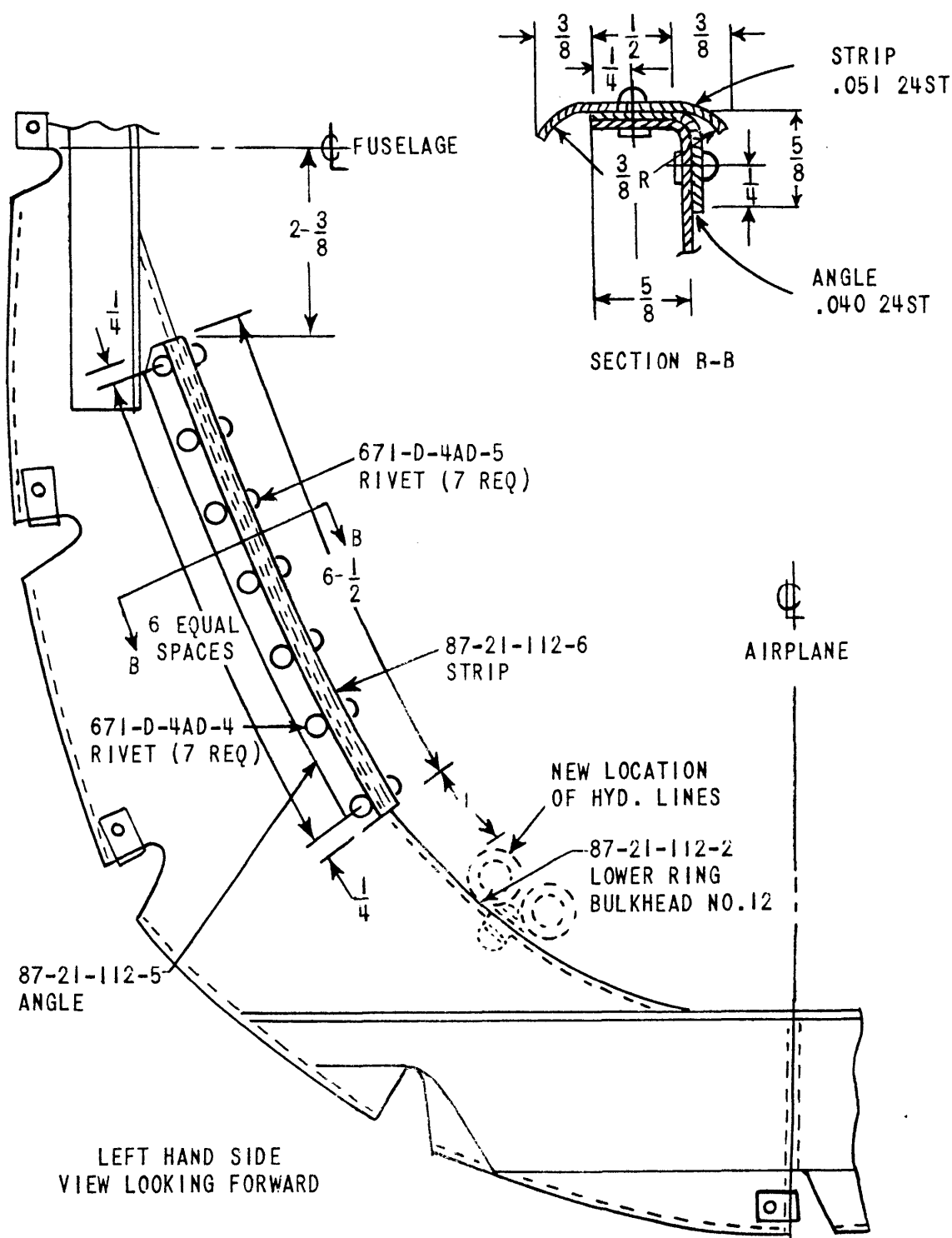
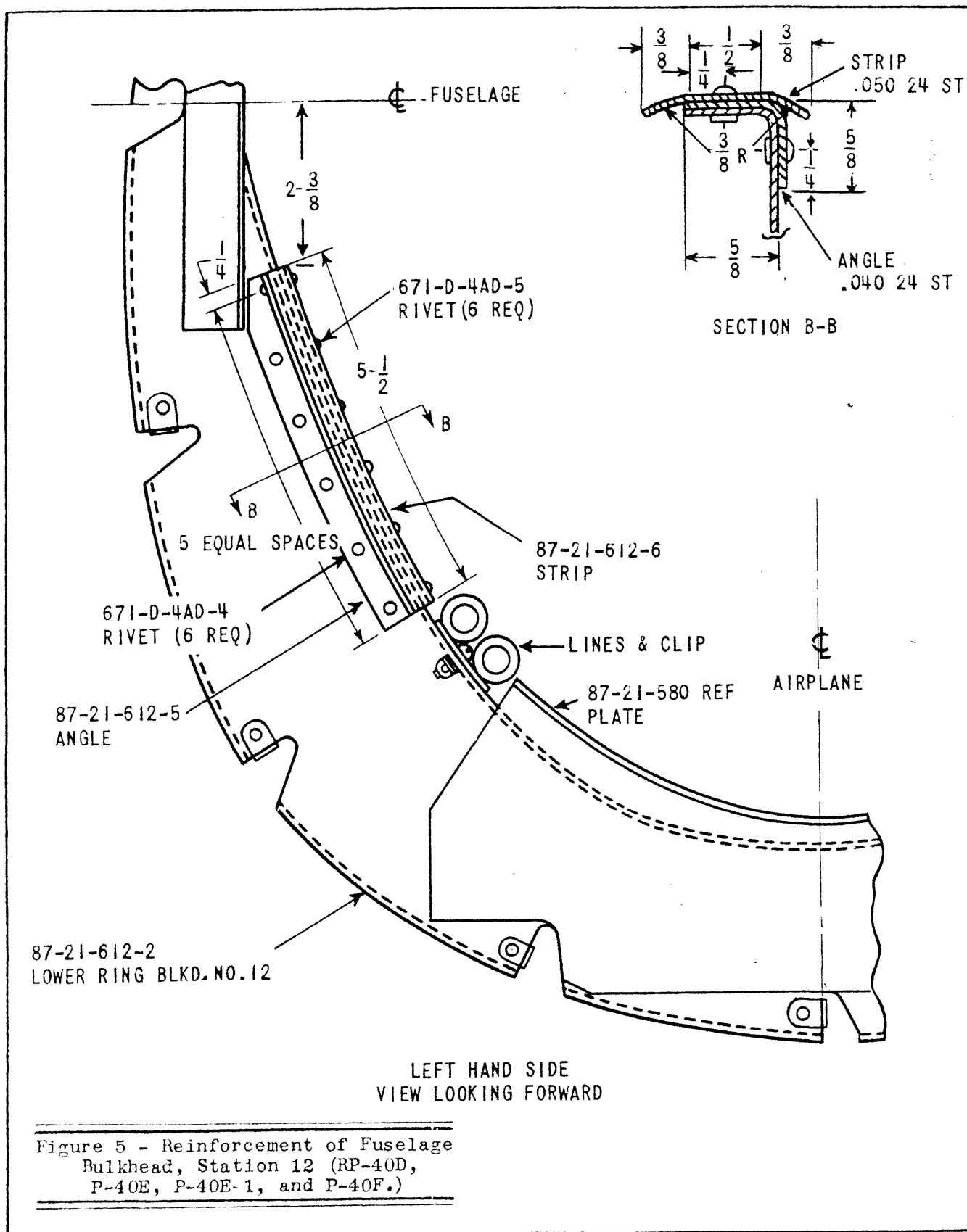


Figure 4 - Reinforcement of Fuselage Bulkhead, Station 12 (RP-40, RP-40B, RP-40C, and RP-40G.)

A967



NOTE The cable tension of the L/R tail wheel steering cables should be such as to permit the insertion of a .010 feeler gage between at least six coils of the compression springs, with the tail wheel off the floor and fully extended. If the removed guide springs should show any evidence of possible failure or permanent set, replace them with the new guide springs, part No. 47630-H.

(8) If necessary, continue with operations outlined in change "C" or "D," otherwise, assembly removed and disconnected parts in reverse sequence of paragraphs 2.a.(1) and 2.a.(3).

b. CHANGE "B," MODIFICATION OF RUDDER CABLE INSTALLATION. - Remove the cotter pin and nuts from the two bolts, part No. AN24-12, holding the two cables to the turnbuckles as shown in figure 3. Replace these with bolts, part No. AN24-16, washers, part No. 960-416, and nuts, part No. 365-428. Left and right identical. Cotter pins and nuts are not to be reinstalled.

c. CHANGE "C," REPAIR METHOD FOR FUSELAGE BULKHEAD STATION NO. 12 (RP-40, RP-40B, RP-40C, AND RP-40G).

(1) Loosen clip of hydraulic lines on upper portion of station 12 bulkhead, and also remove bolt, part No. AN520-10-8, from lower clip on bulkhead flange.

(2) Inspect bulkhead 12. If flange on lower ring, part No. 87-21-112-2, is badly damaged, it should be repaired. A small hole should be drilled at the end of any crack which is longer than the width of the flange. If flange is bent only, straighten it.

(3) Using aluminum alloy sheet, Specification No. QQ-A-355, make angle, as shown in cross section (B-B) of figure 4 and approximately 6-1/2 inches long. The production part number for this angle is 87-21-112-5L.

(4) Hold angle against bulkhead flange of lower left-hand ring with upper end 2-3/8 inches from top of center line stringer. Drill seven No. 30 (.128) holes through angle and bulkhead as shown in figure 4.

(5) Rivet angle to lower ring with seven rivets, part No. 671-D-4AD-4.

(6) Cut another strip, either stainless steel or Alclad, approximately 1-1/2 x 6-1/2 inches and bend down edges as in section B-B of figure 4.

(7) Holding the strip on the top of the angle and bulkhead, drill seven No. 30 (.128) holes through strip, angle, and bulkhead. Rivet with seven rivets, part No. 671-D-4AD-5.

(8) With another angle and strip of the same dimensions, repeat procedure as outlined in paragraphs 2.c.(4), (5), and (7), to add rubbing strip to right-hand side of bulkhead.

(9) Push the two hydraulic lines on left-hand side down through loosened upper clip until lower clip is approximately 1 inch from lower end of rubbing strip, part No. 87-21-112-6.

(10) Drill No. 10 (.1935) hole, with hole in clip as guide, through flange. Install bolt and tighten clip in place on bulkhead flange.

(11) Tighten upper clip and adjust rubbing strips on tubing to match new respective position of fuselage stringers.

d. CHANGE "D," REPAIR METHOD FOR FUSELAGE BULKHEAD STATION NO. 12 (RP-40D, P-40E, P-40E-1, AND P-40F).

(1) Inspect bulkhead No. 12. If flange on lower ring, part No. 87-21-612-2, is badly damaged, it should be cut off and repaired. A small hole should be drilled at the end of any crack that is longer than the width of the flange. If flange is bent only, straighten it.

(2) Take angle, part No. 87-21-612-5L, or similar angle made of aluminum alloy sheet, Specification No. QQ-A-355, and holding it with upper end 2-3/8 inches from top of center line or stringer and against flange of lower left-hand ring, drill six No. 30 (.128) holes through pilot holes in angle and spaced as shown on figure 5. Rivet angle to lower ring with six rivets, part No. 671-D-4AD-4.

(3) Place the strips, part No. 87-21-612-6, or similar strip of stainless

P569

steel or aluminum alloy, in place on angle and drill six No. 30 (.128) holes through pilot holes of strip. Rivet strip to angle and flange with six rivets, part No. 671-D-4AD-5.

(4) With other angle, part No. 87-21-612-5R, and strip, part No. 87-21-

612-6, repeat procedure as in paragraphs 2.c.(2) and (3) on right-hand side lower ring.

3.a. The following parts are required per airplane to accomplish these modifications.

Change "A" "

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
2	0104-87-64-928L		Bracket - Pulley	01-C	Local Mfr.
2	0104-87-64-928R		(See detail B, figure 2.)		
As req			Mfr. from:		
			Steel - Mild carbon	23-A	AF Stock
			cold rolled flat		
			bar 1-8 x 2-1/2		
			inches Specification		
			No. AN-QQ-S-646,		
			Stock No. 6800-		
			581400		
2	0104-87-37-552		Plate (See detail A, figure 2.)	01-C	Local Mfr.
As req			Mfr. from:		
			Alum. Alloy - Sheet	23-A	AF Stock
			condition A, annealed .064 inch		
			Specification No.		
			QQ-A-355, Stock No.		
			6800-140-700		
2	6500-629100	AN210-3A	Pulley - Control cable	04-A	AF Stock
			2 inch OD		
4	6500-983900	AN960-8	Washer - Plain	04-A	AF Stock
			steel No. 8 bolt		
4	6500-513720	365-832	Nut - Self-locking	04-A	AF Stock
			steel 8-32		
4	6500-983801	AN960-6	Washer - Plain steel	04-A	AF Stock
			No. 6 bolt		
4	6500-513500	365-632	Nut - Self-locking	04-A	AF Stock
			steel 6-32		
4	6700-708200	AN515-6-7	Screw - Machine	29	AF Stock
			steel 6-32 x 7/16		
			inch		
4	6700-711200	AN515-8-8	Screw - Machine steel	29	AF Stock
			8-32 x 7/16 inch		

Change "B"

4	6500-071080	AN24-16	Bolt - Clevis 1/4	04-A	AF Stock
			28 x 1 inches		
4	6500-984200	AN960-416	Washer - Plain steel	04-A	AF Stock
			1/4 inch bolt		
4	6500-514100	365-428	Nut - Self-locking	04-A	AF Stock
			steel 1/4 x 20		

Change "C"

1	0104-87-21-112-5L		Angle (See figure 4.)	01-C	Local Mfr.
	0104-87-21-112-5R				

RESTRICTED

T.O. No. 01-25C-136

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1 As req	0104-87-21-112-5R		Mfr. from: Alum. Alloy - Sheet condition A annealed .040 inch Specification No. QQ-A-355, Stock No. 6800-140500	23-A	AF Stock
2 As req	0104-87-21-112-6		Strip (See figure 4.) Mfr. from: Alum. Alloy - Sheet condition A annealed .051 inch Specification No. QQ-A-355, Stock No. 6800-140600	01-C	Local Mfr.
14	0104-607330	671-D4AD-4	Rivet - Alum. alloy solid modified head 1-8 x 1/4 inch	01-C	AF Stock
14	0104-607360	671-D-4AD-4	Rivet - Alum. alloy solid modified brazier head 1-8 x 5/16 inch	01-C	AF Stock
Change "D"					
1	0104-87-21-612-5L		Angle (See figure 5.)	01-C	Local Mfr.
1	0104-87-21-612-5R		Angle (See figure 5.) Mfr. from: Alum. Alloy - Sheet condition A, an- nealed .040 inch Specification No. QQ-A-355, Stock No. 6800-140500	01-C	Local Mfr.
As req			Strip (See figure 5.) Mfr. from: Alum. Alloy - Sheet condition A, an- nealed .051 inch Specification No. QQ-A-355, Stock No. 6800-140600	23-A	AF Stock
2 As req	0104-87-21-612-6		Strip (See figure 5.) Mfr. from: Alum. Alloy - Sheet condition A, an- nealed .051 inch Specification No. QQ-A-355, Stock No. 6800-140600	01-C	Local Mfr.
12	0104-60733	671-D-4AD-4	Rivet - Alum. alloy solid modified brazier head 1/8 x 1/4 inch	01-C	AF Stock
12	0104-607360	671-D-4AD-5	Rivet - Alum. alloy solid modified brazier head 1/8 x 5/16 inch	01-C	AF Stock

b. The parts removed and not reinstalled will be disposed of in accordance with provisions of T.O. No. 00-35A-3.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25C-147

DIST: 5,7
FILE: BEH

May 10, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—INSTALLATION OF 2-INCH OIL LINES—P-40K AND P-40M

This Technical Order replaces T. O. No. 01-25C-147, dated April 8, 1943, revised to amend paragraphs 1. and 2.

NOTE: The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A. 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 sub-depots, if necessary.

1. To provide for improved oil flow all P-40K and P-40M airplanes will be modified as directed in paragraph 2.

ice Bulletin No. 490-44, dated January 26, 1943, revised February 26, 1943, are as follows:

2. The instructions for accomplishing this change as contained in Curtiss Serv-

a. Remove all cowlings adjacent to the oil inlet lines.

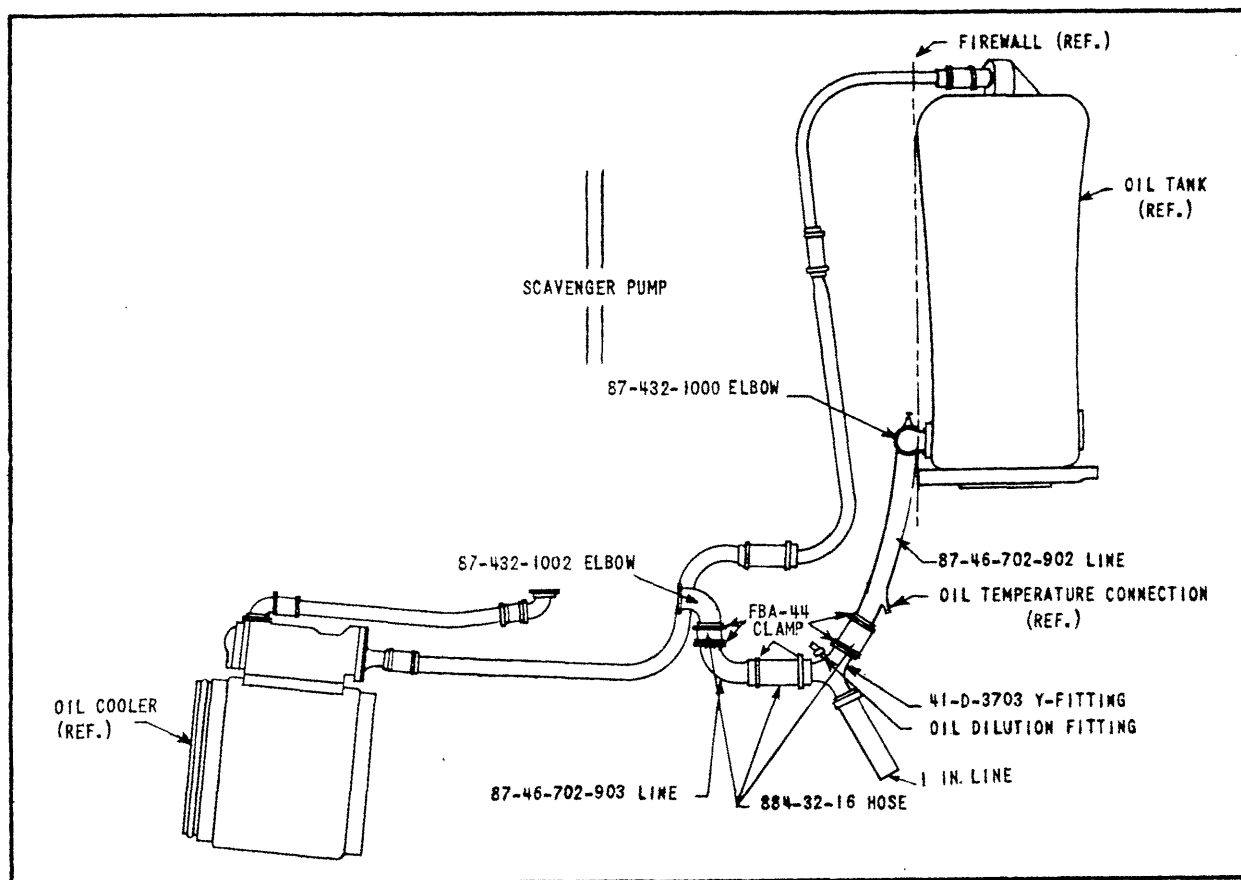


Figure 1 - Modification of Oil System

RESTRICTED

Compliance with these instructions is MANDATORY on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED

T. O. No. 01-25C-147

b. Loosen the hose clamp from the elbow attached to the rear of the scavenger pump and remove the hose from the elbow.

c. Remove the oil dilution line from the fitting on the 1-1/2 inch oil "Y" drain, and the oil temperature line from the fitting on the 1-1/2 inch line. Remove the 1-inch hose and clamp from the oil "Y" drain.

NOTE: One-inch hose and clamp are to be reinstalled on the new two-inch oil "Y" drain.

d. Loosen the hose clamp from the hose connecting the 1-1/2 inch line to the elbow on the bottom of the oil tank and remove the oil line assembly. Remove the flange assembly from the bottom of the oil tank.

NOTE: Nuts are to be reinstalled.

e. Install the new flange elbow assembly, part No. 87-432-1000, to the bottom of the oil tank with the previously removed nuts and install the new line, part No. 87-46-702-902, to the elbow with two FBA-44 clamps and hose, part No. 884-32-16. (See Figure 1.)

f. Assemble the 2-inch oil "Y" drain, part No. 41-D-3703, oil line, part No. 87-46-702-903, and elbow assembly, part No. 87-432-1002, as shown in figure 1 and install to the scavenger pump and to oil line, part No. 87-46-702-902, with hose, part No. 884-32-16, and clamps, part No. FBA-44.

NOTE: Tighten the hose clamps after proper adjustment of the newly installed assembly to 25 inch-pound torque.

g. Reinstall the oil temperature line and oil dilution line respectively to the oil "Y" drain and the 2-inch oil line. (See figure 1.)

h. Reinstall the cowling.

3.a. The parts required per airplane to accomplish this change and a copy of this Technical Order will be assembled into kits and supplied without requisition direct to the activities having the airplanes affected. Kits for transferred airplanes will be held and the Commanding General, Air Service Command notified immediately.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	0104T0-01-25C147		KIT, "Installation of 2-Inch Oil Lines - P-40K and P-40M," consisting of the following parts:	01-C	AF Stock
1	0104-87-432-1000		Elbow	01-C	
1	0104-87-432-1002		Elbow	01-C	
1	0104-41-D-3703		Oil "Y" Drain	01-C	
1	0104-87-46-702-902		Oil Tube 2-in. dia.	01-C	
1	0104-87-46-702-903		Oil Tube 2-in. dia.	01-C	
4	6600-381290	884-32-16	Rubber Hose	04-B	
8	6500-293535	FBA-44	Clamps	04-A	

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

P9 73
TECHNICAL ORDER
No. 01-25C-144

FILES: FO

January 6, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS - MODIFICATION OF BULKHEAD STATION NO. 18 - P-40F AND P-40K

NOTE: The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as possible by service activities with the aid of sub-depots, if necessary.

1. To reduce the possibility of failure of the rudder trim tab flexible cable at bulkhead station 18, caused by chafing, bulkhead station 18 will be reworked on the following P-40F and P-40K airplanes in accordance with the instructions contained in paragraph 2.

MODEL AF SERIAL NOS.

P-40F 41-14270 to 41-14524 inclusive

P-40K 42-9930 to 42-10154 inclusive

P-40F airplane, AF No. 41-14525, P-40K airplane, AF No. 42-10155 and subsequent will have this rework accomplished by the contractor prior to delivery.

2. The instructions for accomplishing this change, as contained in Curtiss Service Bulletin No. 400-52, 490-22, dated November 7, 1942, are as follows:

a. Disconnect rudder trim tab control unit at the rudder.

b. Disconnect rudder control cables at the rudder horn.

c. Disconnect bonding and remove top hinge bolt.

d. Remove upper and lower bearing caps by removing two nuts in each, and remove rudder.

e. Remove the existing rivet, part No. AN426-4-4, located at the front narrow

end of the fairing, part No. 87-21-903-15, on the right side of the fuselage aft of station 18. (See figure 2, section "B-B.")

f. File 1/2 inch from the left and right sides of the existing 2-inch hole in the bulkhead through which the flexible trim tab cable passes and remove the remaining top and bottom flared portion of the bulkhead at the top and bottom edges of the hole. This will elongate the hole to 3 inches.

g. Using the stiffener, part No. 87-21-951-6, as a template, place on the bulkhead so the elongated hole of the stiffener is overlaying the filed hole in the bulkhead and the bent ends of the stiffener are aft and flush with the sides of the fuselage. Mark the face of the bulkhead corresponding with the existing nine pilot holes in the stiffener.

h. Remove the stiffener and center punch the marked points on the bulkhead, and drill nine holes with a size 30 (.128) drill.

i. Drill out the nine pilot holes in the stiffener and six pilot holes in the fibre plate, part No. 87-21-951-4, with a size 30 (.128) drill.

j. Install the stiffener, part No. 87-21-951-6, to the bulkhead using three rivets, part No. 671-D-4AD-3, at the left-hand face of the stiffener and the bulkhead.

NOTICE: This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

PS 74

RESTRICTED

T.O. NO. 01-25C-144

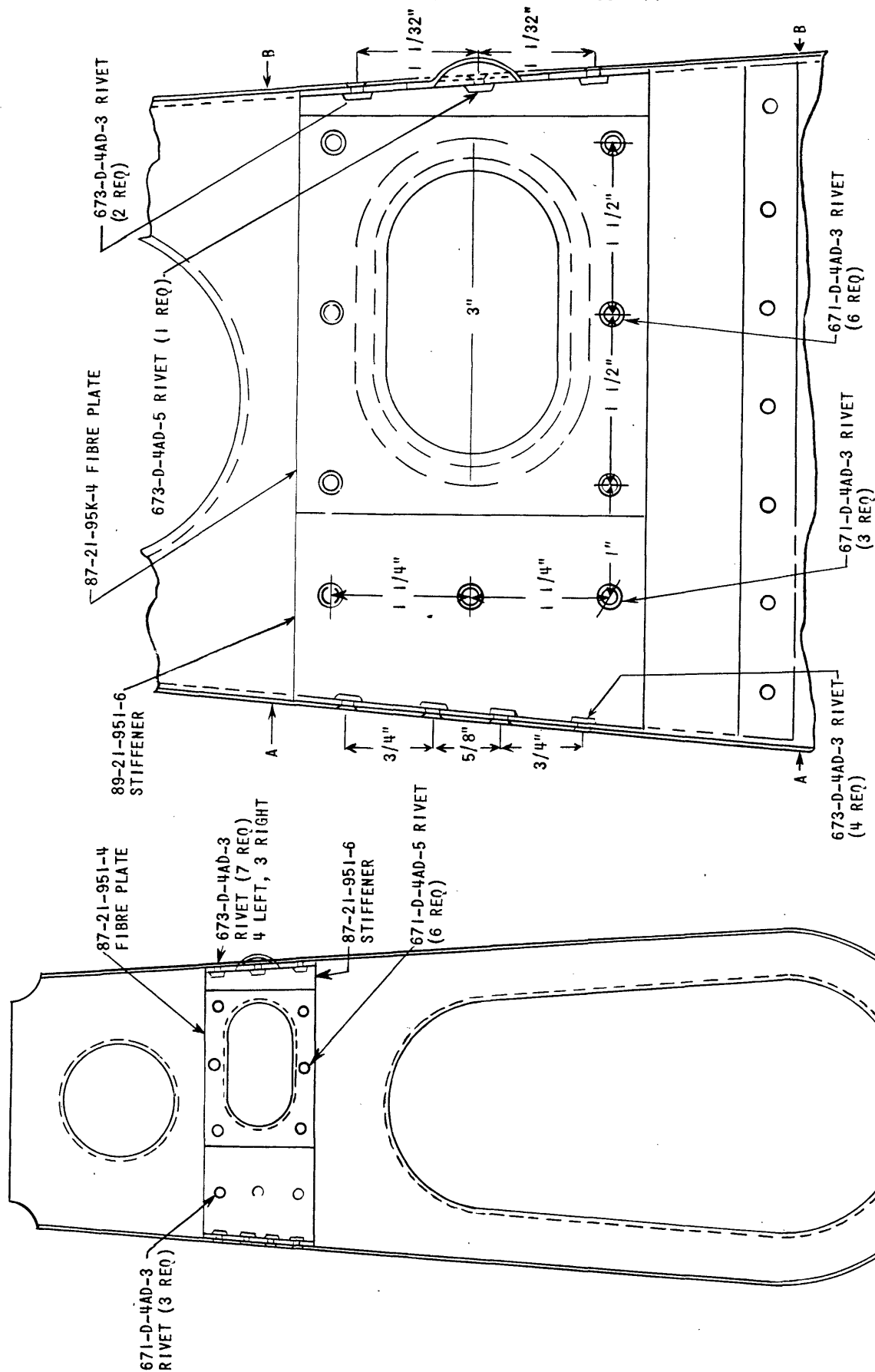


Figure 1 - Station #18 Bulkhead View Looking Forward

Figure 2

RESTRICTED

T.O. NO. 01-25C-144

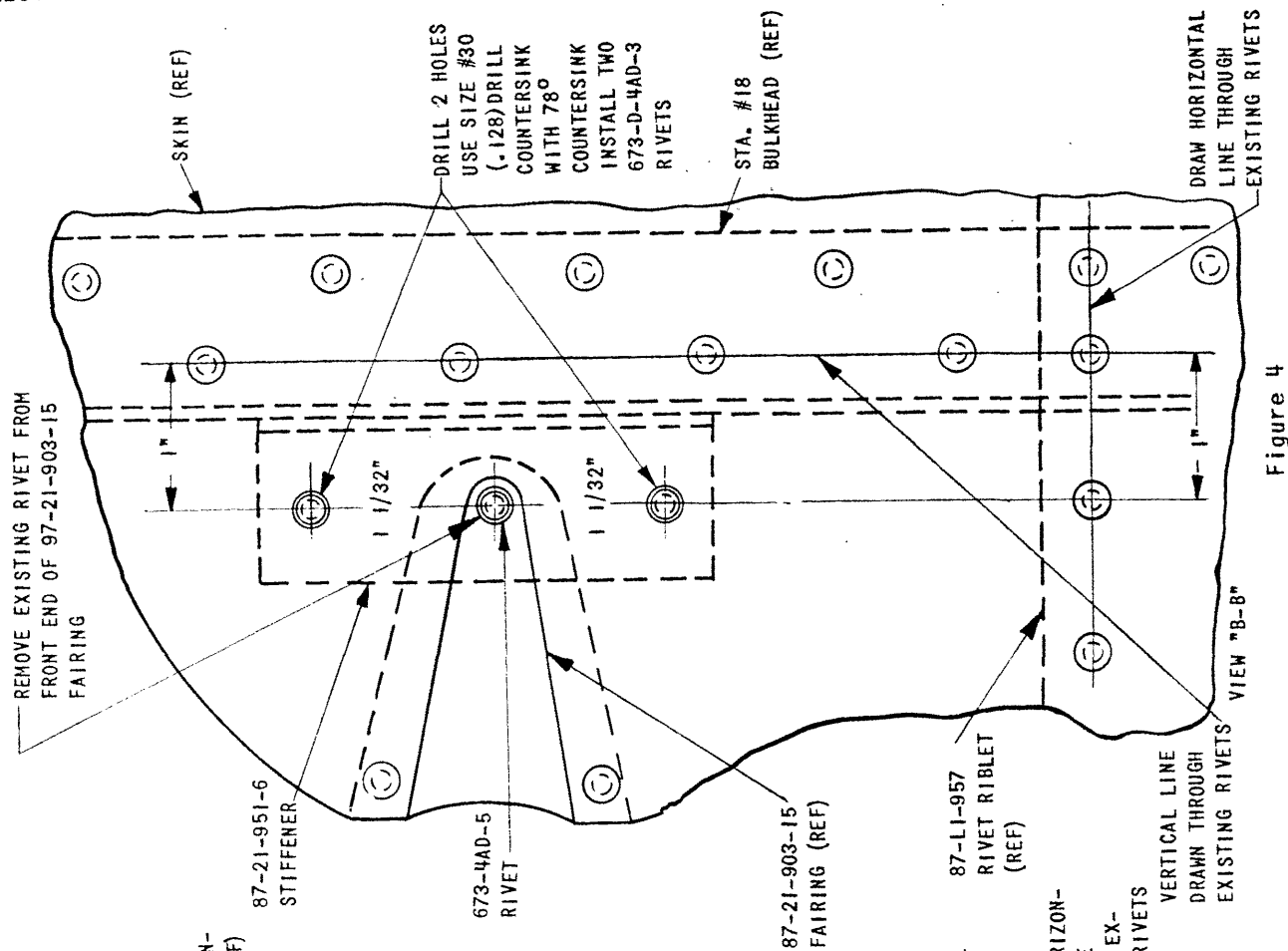


Figure 4

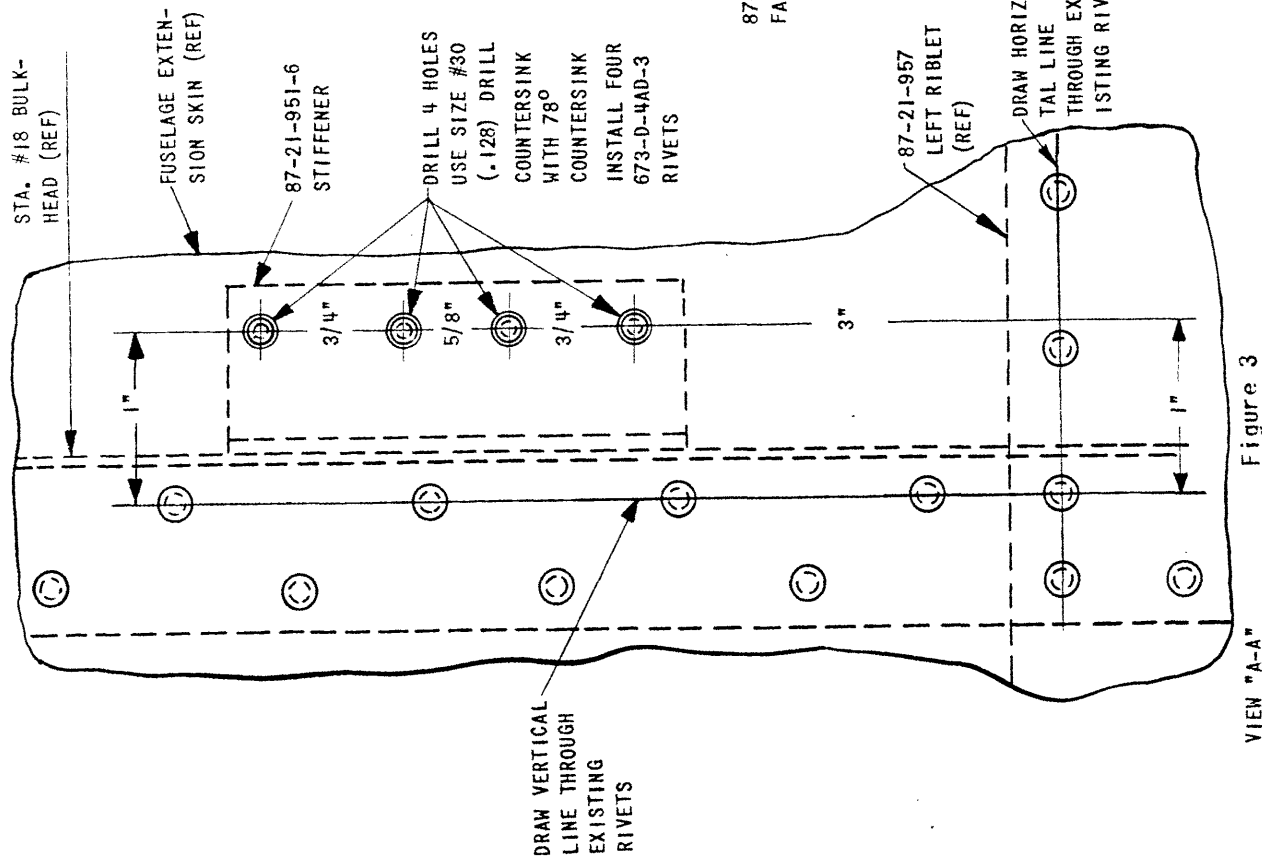


Figure 3

RESTRICTED

RESTRICTED

T.O. No. 01-25C-144

k. Install the fiber plate, part No. 87-21-951-4, to the stiffener and bulkhead using six rivets, part No. 671-D-4AD-5, three rivets at the top and three at the bottom face of the fiber guide. (See figure 2.)

l. Install four rivets, part No. 73-D-4AD-3, on the left-hand side of the fuselage, as shown on figure 2, section "A-A."

m. Install two rivets, part No. 673-D-4AD-3, on the right-hand side of the fuselage, as shown on figure 2, section "B-B."

NOTE: If flexible trim tab cable shows signs of wear, tape over the worn section, and shellac over the taped section.

n. Reversing the procedure used in steps a., b., c., and d. install the rudder and connections using the regular procedure in making the necessary adjustments.

3. The parts required per airplane to accomplish this change, together with a copy of this Technical Order will be assembled in kits and supplied without requisition direct to the activities having the airplanes affected. If any of the affected airplanes have been transferred, the kits for those airplanes will be forwarded in accordance with T.O. No. 01-1-24, if destinations of airplanes are known. Kits for airplanes transferred to destinations unknown will be held and the Commanding General, Air Service Command, notified immediately.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	0104T0-01-25C144		KIT, "Modification of Bulkhead Station No. 18 - P-40F and P-40K," consisting of the following parts:	01-C	AF Stock
1	0104-87-21-951-4		Plate - Fiber	01-C	
1	0104-87-21-951-6		Stiffener	01-C	
6	6700-488951	673-D-4AD-3	Rivet - Alum. alloy counter-sunk head 78 degrees, type AD 1/8 x 3/16 inch	29	
1	6700-488956	673-D-4AD-5	Rivet - Alum. alloy counter-sunk head 78 degrees, type AD 1/8 x 5/16 inch	29	
6	0104-671-D-4AD-5		Rivet use AN456AD4-5	29	
3	0104-671-D-4AD-3		Rivet use AN456AD4-3	29	

By Command of Lieutenant General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25C-148

DIST: 5,7
FILE: BEH

June 3, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS - REINFORCEMENT AND REBALANCING OF AILERONS - P-40 SERIES

NOTE: The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary.

1. To decrease the rolling characteristics by adding an additional balance weight in the leading edge of the ailerons, and to provide increased stiffness to the fabric covering of the ailerons, the following P-40 series airplanes will be reworked in accordance with the instructions contained in paragraph 2.

MODEL	AF SERIAL NOS.
RP-40	All
RP-40B	All
RP-40C	All
RP-40D	All
P-40E (E-1)	All
P-40F	41-13600 to 41-19879 inclu
RP-40G	All
P-40K	All
P-40M	43-5402 to 43-5449 inclu

P-40F airplane, AF No. 41-19880, and P-40M airplane, AF No. 43-5450 and subsequent, will have this change incorporated by the contractor prior to delivery.

NOTE: Production type reinforced ailerons may be identified by a 5/8-inch diameter steel balance rod which extends from the root to the tip of the aileron at the leading edge. It may be observed through the cut-out in the leading edge at the actuating arm.

2. The instructions for accomplishing this change as contained in Curtiss Service Report Nos. B-72, 170-58, 490-36, 300-32, 400-68, 480-3, and 530-1 dated December 2, 1942, are as follows:

a. Clean the surfaces of the ailerons to remove all grease, dirt, etc. The procedure for ailerons with AF regular camouflage and desert camouflage is as follows:

(1) AF Gray and Brown. - Clean the surfaces using dope thinner. Caution must be exercised to avoid excessive use of thinners.

(2) Desert Type Azure Blue, Middlestone (tan) and Brown. - As these are synthetic materials, it is necessary to wash off the camouflage using steel wool and dope thinner. Caution must be exercised to avoid excessive use of thinners. Only a sufficient amount will be used to expose the clean doped surface of the aileron.

b. Locate and attach, by doping, one piece of 4-inch wide tape midway between each pair of ribs along width of aileron on upper and lower surfaces. The

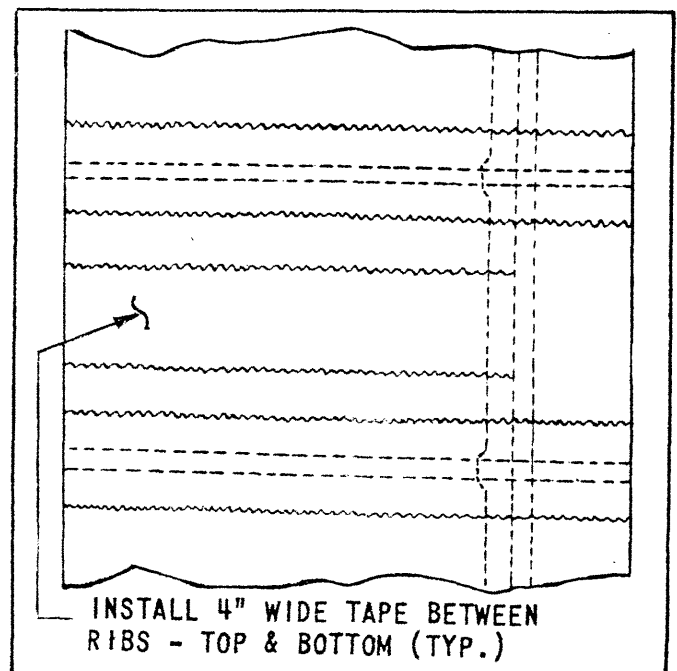
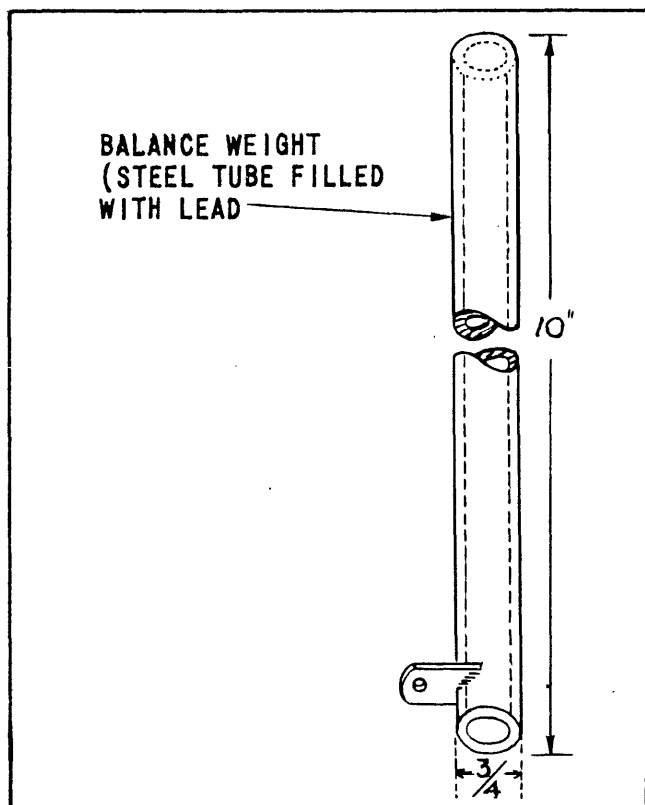


Figure 1

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED



strip will extend from the beam on the upper surface around the trailing edge to the beam on the under side. (See figure 1.)

c. The aileron will be refinished to match the adjacent surfaces, that is, regular AF camouflage is gray and brown, desert camouflage is azure blue, middle-stone (tan) and brown.

d. Fabricate a balance weight as shown in figure 2. This balance weight is similar to the weight, part No. 87-05-017, now part of the aileron assembly except that it is to be 10 inches long and is to weigh 1-1/2 pounds plus or minus 2 ounces. The material to be used is steel tube 3/4-inch outside diameter. The wall thickness shall not be less than .035. A mounting tab will be attached by welding near the end of the tube. The weight will be obtained by filling the tube with lead to the desired weight.

e. Slit the aileron covering at the inboard rib at the leading edge. Drill one 3/4-inch hole through each of the two inboard ribs staying as close to the rib flange as possible. Burrs and sharp edges will be removed. (See figure 3.)

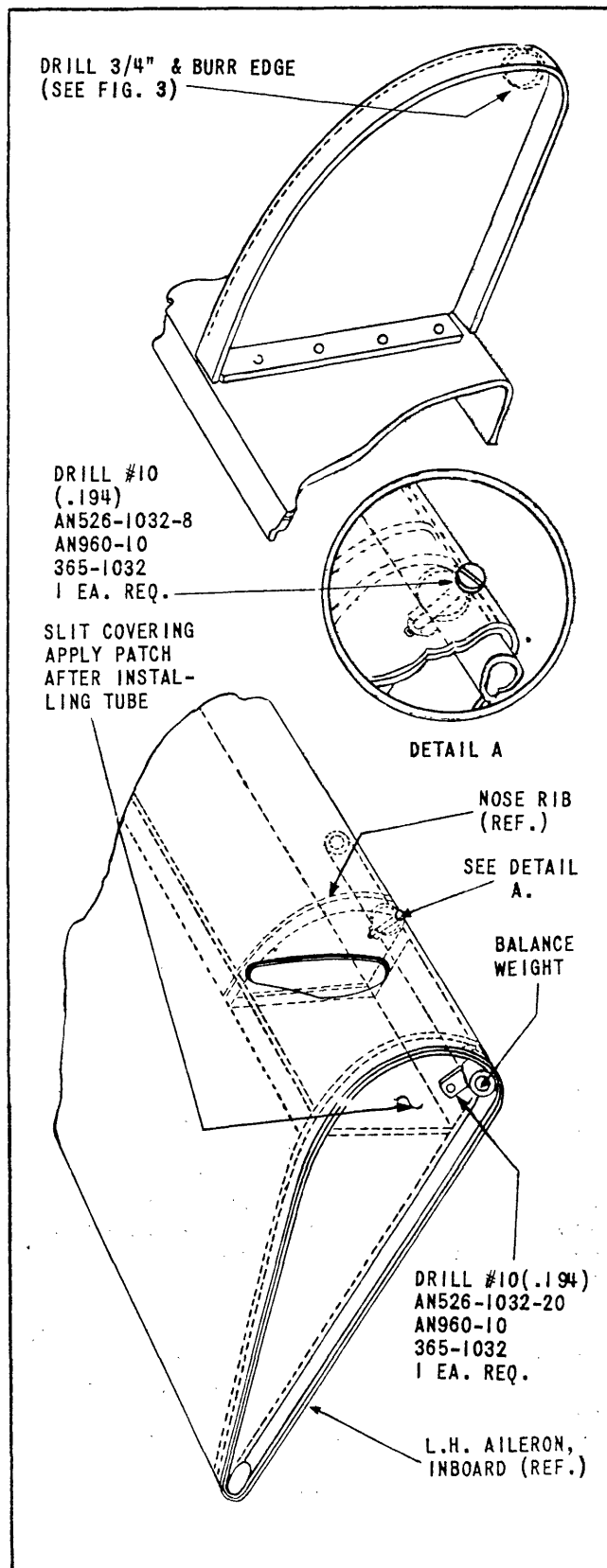


Figure 3

f. Attachment of the balance weight to the aileron is made by inserting the tube through the hole drilled in the end rib and secured to the rib by means of a buttonhead screw, part No. AN526-1032-8, and nut, part No. 365-1032, a washer, part No. AN960-10, is used under the head of the screw. The other end of the tube is attached using a buttonhead screw, part No. AN526-1032-20, inserted through the leading edge of the aileron through the tube and secured by a nut, part No. 365-1032. (See figure 3.) After the installation of the balance weight

is completed the opening at the inboard rib will be closed by means of a piece of fabric doped in place.

g. The above procedure will be repeated on the opposite aileron.

h. Refinish surfaces to match adjacent surfaces.

3.a. The following parts are required per airplane to accomplish this installation and will be obtained by requisition on the air depots.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
4 yds (approx)	7100-798000		Tape - Surface pinked edge 3-3/4 in. wide U.S. Army Specification No. 6-62-C	21	AF Stock
2			Balance Weight Mfr. from:	01-C	Local Mfr
20 in.			Steel - Mild carbon seam- less tubing, 3/4-inch OD x .049-inch wall (figure 2) AN Aeronautical Specification No. AN-WW- T-846 stock No. 6800- 647850	23-A	AF Stock
2			Tab - Mounting Mfr. from: Steel - Mild carbon, quarter hard, sheet, .0375, AN Aeronautical Specification No. AN-S-11 stock No. 6800-638200	23-A	AF Stock
2-1/2 lbs	6800-352000		Lead - Pig grade A, Federal Specification No. QQ-L-171	23-A	AF Stock
2	6700-617800	AN526-1032-8	Screw - Buttonhead 1/2 inch	29	AF Stock
2	6700-618150	AN526-1032-20	Screw - Buttonhead 1-1/4 inch	29	AF Stock
4	6500-514000	365-1032	Nut - Self-locking steel	04-A	AF Stock
4	6500-984000	AN960-10	Washer - Plain	04-A	AF Stock
as req	7300-301000		Dope - Cellulose nitrate, clear, AN Aeronautical Specification No. AN-TT-D- 514	07	AF Stock
as req	7300-309220		Dope - Pigmented nitrate, camouflage dark olive drab, AAF Specification No. 14106-A shade No. 41	07	AF Stock
as req	7300-309340		Dope - Pigmented nitrate, camouflage neutral gray, AAF Specification No. 14106-A, shade 43	07	AF Stock

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25C-152

DIST: 4,5,7
FILE: BEHT

January 6, 1944

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—INSPECTION OF HOT AND COLD CARBURETOR AIR INTAKE
VALVE ASSEMBLIES ON P-40K, P-40K-1, P-40M, AND P-40N**

This Technical Order replaces T. O. No. 01-25C-152, dated October 26, 1943.

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being 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 50-hour inspection period by service activities with the aid of sub-depots, if necessary. Commanding Officers will be responsible that the contents of this Technical Order are brought to the attention of all pilots cleared for operation of subject aircraft. This Technical Order contains specific instructions for pilots and should be available for Transition Flying Training as contemplated in AAF Regulation 50-16. A summary of the periodic inspection prescribed in paragraph 1.c. will be entered in the appropriate section of the Master Airplane Maintenance Instruction Forms maintained with Form 41-B for the airplanes affected.

1. Pending a permanent modification for securing the levers to the hot- and cold-air intake valve shafts, the hot- and cold-air intake valves on all P-40K, P-40K-1, P-40M, and P-40N airplanes will be inspected and modified, if necessary, as follows:

a. Inspect to determine if pins attaching lever, part No. 87-29-743, to the hot-air intake valve shaft, and lever, part No. 87-29-744, to the cold-air intake valve shaft, are sheared or not installed in a firm position. Sheared pins or those that appear worn where pin comes in contact with valve shaft will be replaced with new pins of the same design and properly safetied to the control lever.

b. Inspect to insure that the doors open in the full hot or full cold position, as indicated by the cockpit control.

c. The foregoing inspection will be performed at each 50-hour inspection period and after each abnormal backfiring of the engine.

NOTE It is IMPORTANT that pilots report backfiring of engines, so that inspection can be made.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U. S. A.,
Commanding General, Air Service Command.

RESTRICTED

Compliance with these instructions is MANDATORY on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

20 June 1944

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—INSPECTION AND CORRECTION OF LANDING-GEAR TOE-IN—
P-40E, E-1, F, K, K-1, L, M, R-1, R-2, AND N**

This Technical Order replaces T. O. No. 01-25C-153, dated 2 November 1943, revised to correct information contained therein and airplanes affected.

NOTE As prescribed in T. O. No. 00-20A, appropriate reference to this Technical Order will be entered on AAF Forms 60-A for the airplanes affected. The work and inspections directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary.

1. To check for excessive "toe-in," the airplanes listed in paragraphs 1.a. and b. will be inspected and corrected, if necessary, in accordance with the instructions contained in paragraph 2.

a. The following airplanes equipped with 30-inch wheels are affected by paragraphs 2.a. and c.

MODEL	AF SERIAL NOS.
P-40E	All
P-40E-1	All
P-40F	All
P-40K	All
P-40K-1	All
P-40L	All

MODEL	AF SERIAL NOS.
P-40M	All
P-40R-1	All
P-40R-2	All
P-40N	42-104429 to 42-104828 inclusive

b. The following airplanes equipped with 27-inch wheels are affected by paragraphs 2.b. and c.

MODEL	AF SERIAL NOS.
P-40N	42-104829 to 42-106428 inclusive 43-22752 to 43-24751 inclusive 44-7001 to 44-7200 inclusive

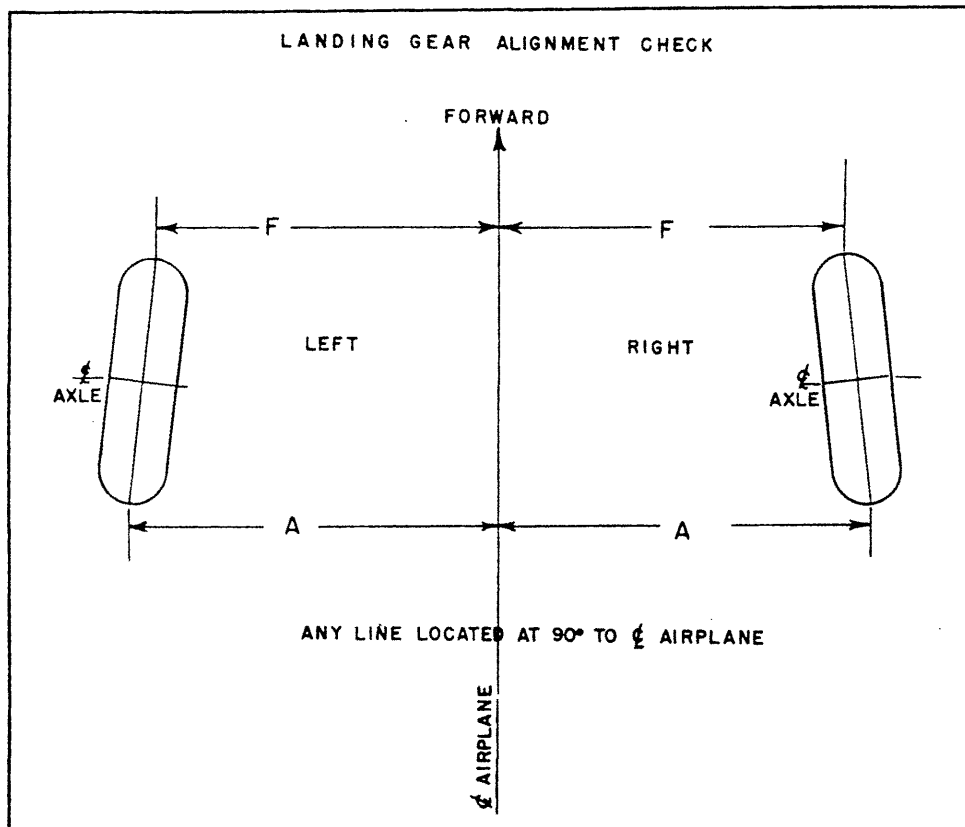


Figure 1

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

P-40N airplane, AF No. 44-7201 and subsequent, will be corrected by the contractor prior to delivery.

NOTE The landing gear "toe-in" must be checked when installing spare retracting struts on all P-40 series airplanes to insure proper "toe-in."

2. The instructions for accomplishing this change as contained in Curtiss Service Bulletin, BR-1, 550-52, 170-74, 400-96, 490-63, 480-34, 530-27, dated 14 April 1944, are as follows:

a. Inspect all P-40E, E-1, F, K, K-1, L, M, R-1, R-2, and N airplanes equipped with 30-inch wheels for "toe-in" exceeding the $3/4$ degree - plus or minus $3/4$ -degree tolerance. Where excessive "toe-in" is found, it will be corrected to the $3/4$ degree - plus or minus $3/4$ -degree tolerance by the addition of shims between the flange of the retracting strut and its wing attaching mount as described herein.

(1) Before inspection of "toe-in" is made, the following preparation shall be accomplished.

(a) Inflate oleo struts with air in accordance with the instructions on the name plate of the landing-gear oleo strut assembly.

(b) Level the airplane laterally with airplane resting in the "3-POINT" position on level surface. This may be accomplished by the use of jacks under the jacking pads at the lower end of the landing-gear oleo strut.

CAUTION When checking "toe-in," the lateral level shall be frequently checked against shifting of the airplane.

(c) Check tires for proper inflation, adding air if necessary.

(2) "Toe-in" inspection shall be accomplished as described herein to determine the number of shims required to properly align the landing gear.

(a) Mark the center line of each tire with chalk. This line should be sharp and clear.

(b) Determine the longitudinal center line of the airplane by means of a plumb bob and line from the nose of the propeller spinner and from the fuselage centering hole, just forward of the tail wheel retracting well. This hole is identified by a circle of red paint. Strike the center line on the ground.

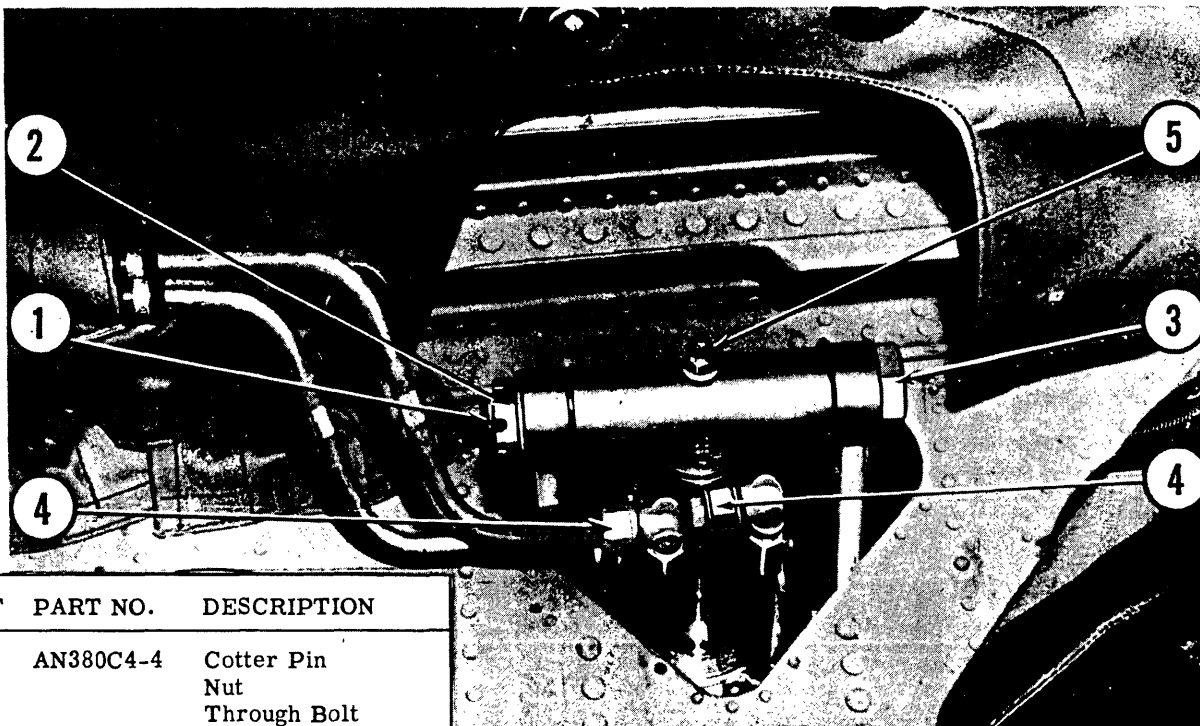
(c) Measure from the airplane center line to the forward center line of the tire, previously marked in preceding subparagraph (a). This dimension shall be identified as "F." Rotate the wheel one-half turn to the rear and measure from the same point on the tire to the airplane center line. This dimension shall be identified as "A." To determine the actual amount of "toe-in," subtract dimension "F" from "A," for example;

"F" = Dimension from airplane center line to forward center line of tire.

"A" = Dimension from airplane center line to rear center line of tire. (See figure 1.)

Actual "Toe-in" = Difference between dimensions "A" and "F."

(d) COMPUTATIONS FOR 30-INCH WHEELS. - The excessive "toe-in" equals the difference between the actual "toe-in" and $25/32$ inch. (Full tolerance "toe-in" $1-1/2$ degrees.) To determine the amount of



REF	PART NO.	DESCRIPTION
1	AN380C4-4	Cotter Pin
2		Nut
3		Through Bolt
4		Hydraulic Fittings
5		Zerk Fitting

Figure 2 - Retracting Strut Assembly as Viewed From Wheel Pocket

(9) Drill a 1/8-inch (.125) hole in T-head to match existing hole in piston rod. (See figure 4.)

(10) Insert a Hammerlock cotter pin into the locking hole and tap it in place with a small hammer until its head extends not more than 1/8 inch out of the piston. As a substitute of the above cotter pin, standard cotter pin, part No. AN380C4-4, may be modified as shown in figure 5.

NOTE By striking the head of the Hammerlock cotter pin, the straight shank (A) is driven over the upturned point of the longer shank (B), automatically spreading the pin and locking it in place. (See figure 5.)

(11) Insert a piece of .050-inch steel safety wire through the head of the Hammerlock or modified cotter pin, wrapping the wire around the piston in the groove at the end of the piston. The ends of the wire shall be twisted and then flattened down to assure clearance between the end of the wire and the recessed end of the packing nut.

(12) Install hole locator, part No. 87-31-505-T-62, and drill guide on actuating strut as shown in figure 6.

NOTE Care must be taken so that the locating fixture is not moved when drilling.

(13) Tighten bolt and drill a 1/4-inch hole through the mounting flange as shown in figure 6.

(14) Remove fixture and install block, part No. 87-31-505-901, as shown in figure 8, using one bolt, part No. AN4-21A, one washer, part No. AN960-416, and one nut, part No. AN365-428. Tap with hammer to insure good contact between mating surfaces of the block and actuating strut.

(a) Remove the T-head from the retracting strut piston by tapping it in a counterclockwise direction with a mallet until it is possible to unscrew the T-head the rest of the way by hand. (See figure 3.)

NOTE Protect the open piston end against dirt and other foreign objects.

(b) Remove any shims, part No. SK7651, installed under T-head.

(8) Reinstall T-head to piston rod and tighten as shown in figure 3.

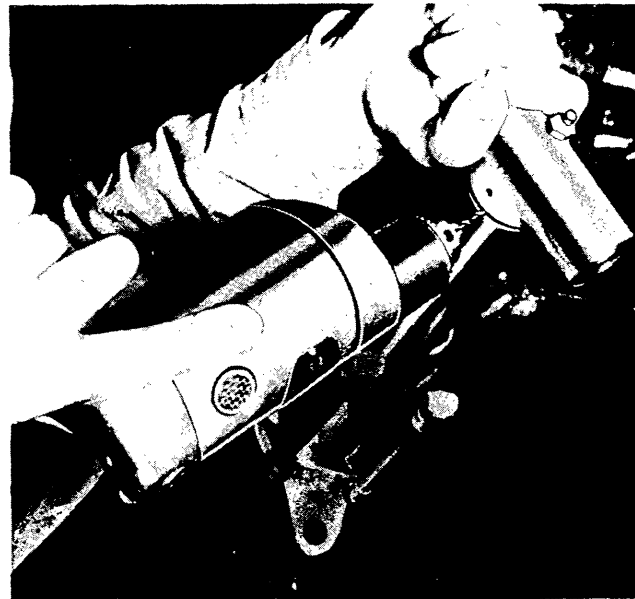
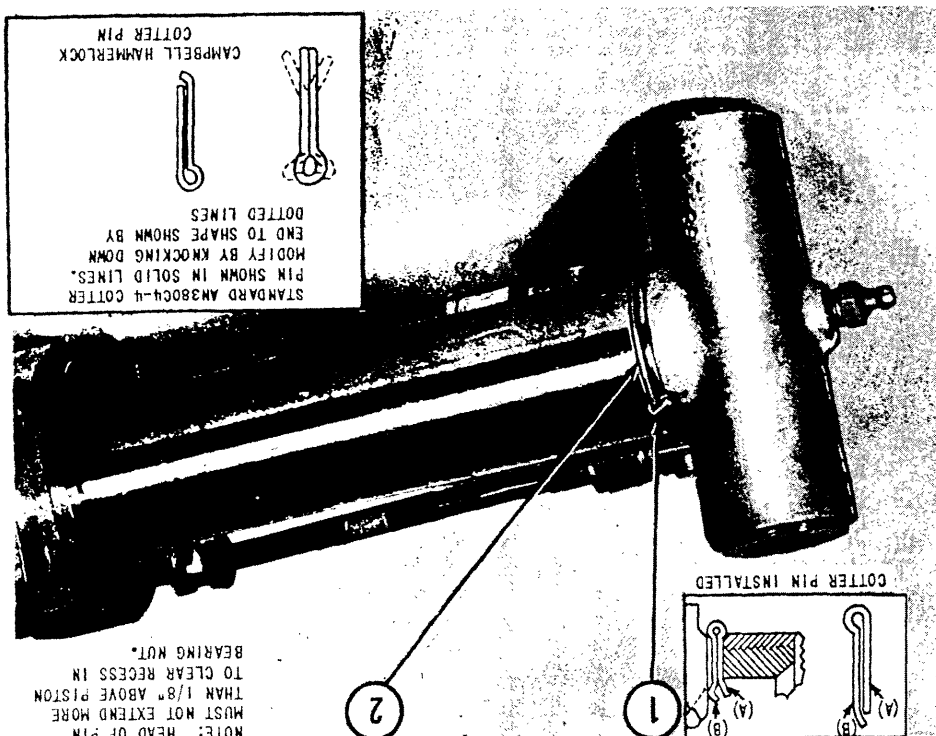


Figure 4 - Drilling Hole in Tee Head to Match Existing Holes in Piston Rod

REF	DESCRIPTION
1	Hammer Lock or Reworked Cotter Pin
2	.050 Steel Safety Wire

Figure 5
Installation of Cotter Pin and Safety Wire



STANDARD AN380C4-4 COTTER PIN SHOWN IN SOLID LINES. MODIFY BY KNOCKING DOWN END TO SHAPE SHOWN BY DOTTED LINES

CAMPBELL HAMMERLOCK COTTER PIN

NOTE: HEAD OF PIN MUST NOT EXTEND MORE THAN 1/8" ABOVE PISTON TO CLEAR RECESS IN BEARING NOT.



Figure 3 - Installing Tee Head on Piston

(3) To install the number of shims determined in charts, proceed as follows:

(a) Hoist or jack the airplane up so that the landing gear may be hydraulically operated.

(b) Open canvas wheel pockets. Hold one wheel in the "DOWN" position and retract the other wheel sufficiently to gain access to the retracting strut T-head and piston. Support the wheel by means of blocks, or equivalent, and remove the bolt which secures the upper retracting links to the retracting strut T-head and disconnect hydraulic lines.

(4) Disconnect the two hydraulic lines and remove the three mounting nuts.

NOTE Cap all open lines to prevent loss of fluid and to keep foreign matter from entering the hydraulic system.

(5) Remove retracting cylinder from wing.

NOTE Do not fully extend or retract piston of strut while it is removed, otherwise it will lock.

(6) Remove the lock wire and Hammerlock cotter pin which locks the T-head to the retracting cylinder and hydraulic lines.

(7) Inspect for installed shims under T-head. Remove any shims found by completing the following instructions.

RESTRICTED

COMPUTED "TOE-IN" CORRECTION CHART - NO. 1

NO. EACH OF -904 AND -905 SHIMS
REQUIRED FOR CORRECTION OF
"TOE-IN" TO 25/32 INCH (1-1/20)

25/32 inch	0
15/16 inch	1
1-3/32 inch	2
1-1/4 inch	3
1-13/32 inch	4

NOTE The 25/32 dimension covers "toe-in" measurement at the forward rear points on the tire and is not to be confused with "toe-in" measurements computed from the oleo strut center line. The following tabulation lists the fractional "toe-in" figures for the 30-inch wheel with corresponding number of shims for correction and may be used when applicable instead of calculating, as described preceding.

$$\text{Formula - Measured "Toe-in" } 25/32 \text{ inch} = \frac{.156}{\text{Number each of -904 and -905 shims.}}$$

correction required, divide the difference by .156. The whole number arrived at, will be the number of 87-31-505-904 and 87-31-505-905 shims required to bring the landing gear to the maximum "toe-in" allowance 1-1/2 degrees. When the "toe-in" does not exceed 25/32-inch dimension given, no corrective action is required.

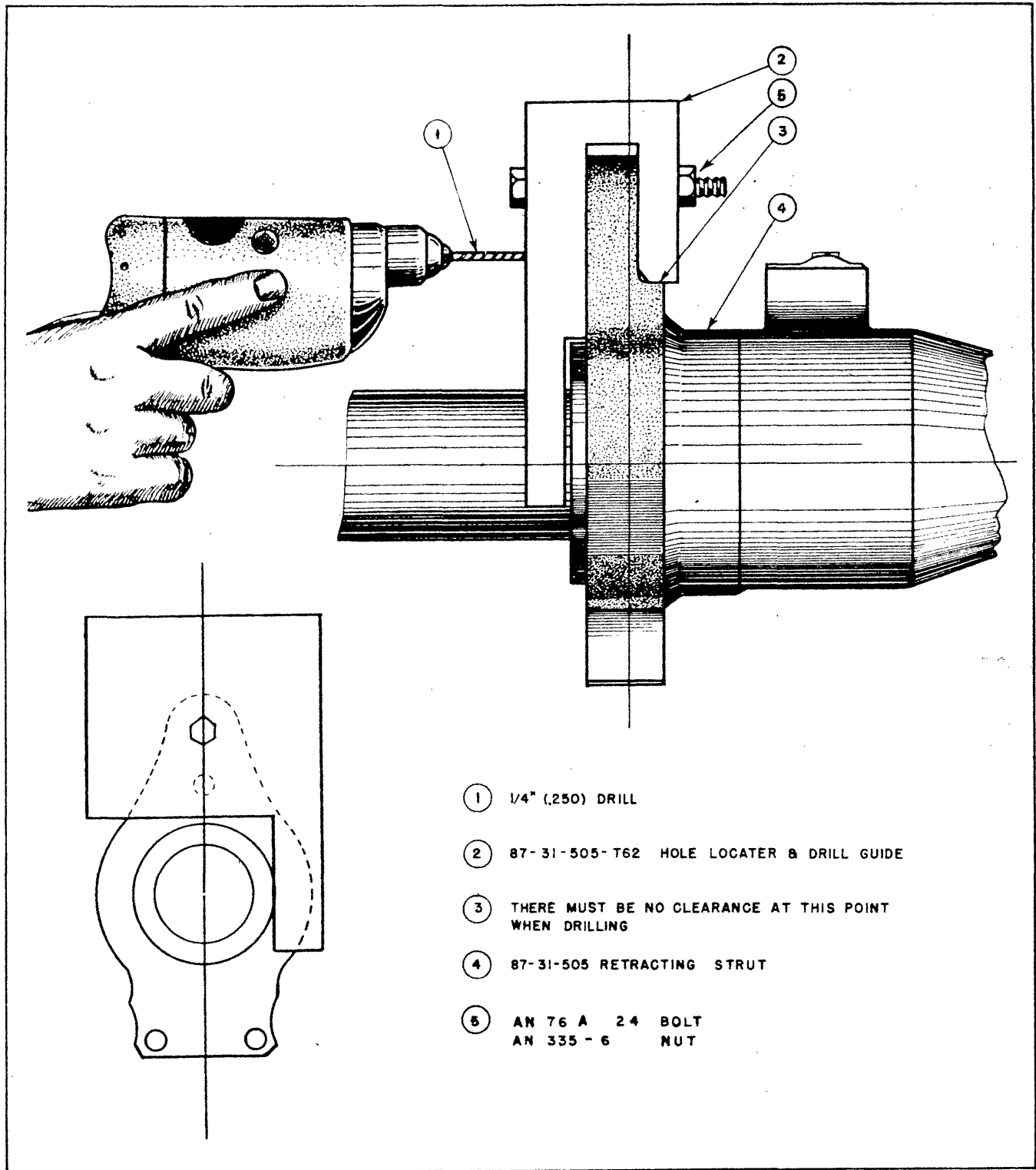


Figure 6

(15) File surface of the block to conform in height with the bearing surface of the actuating strut.

NOTE Do not file existing surface on strut.

(16) Reinstall hydraulic lines on actuating strut.

(17) Select the required number of shims to maintain the "toe-in" within requirements of chart

No. 1 or No. 2, depending on the diameter of the wheel. Install shim plates on studs of mounting bracket in wing.

NOTE Do not use more than four of each shim for one support assembly. Shims, part Nos. 87-31-505-904 and 87-31-505-905, must be used in equal numbers. (See figure 9.)

PS 86

RESTRICTED
T. O. No. 01-25C-153

(18) Reinstall retracting strut into wing maintaining same number of aligning shims in locations from which they were removed.

(19) Install one new 42 E.O. 98 and two AN365-820 Elastic stop nuts.

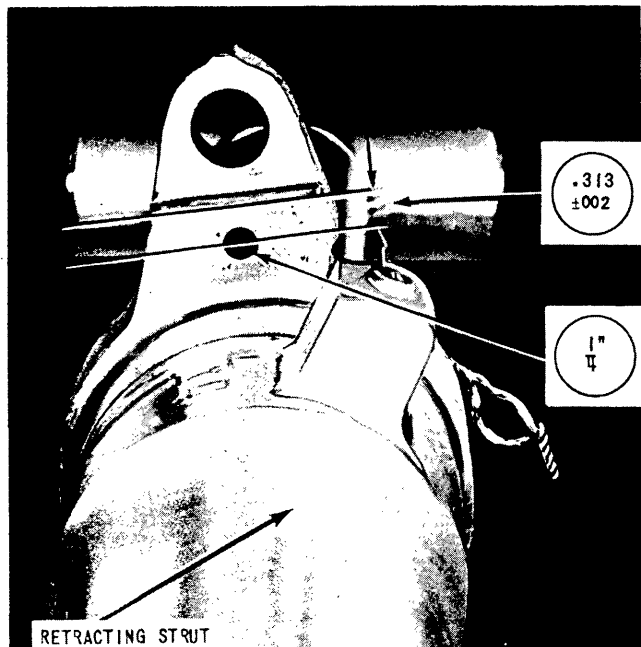


Figure 7 - Size and Location of Hole After Drilling

(20) After tightening, see that there is a minimum of one thread extending beyond the nut.

(21) Reinstall through bolt in landing-gear upper links and T-end of piston rod. Insert nut and cotter pin, part No. AN380C4-4, as shown in figure 2.

(22) Using a Zerk gun, grease through Zerk fitting as shown in figure 2, until grease is visible on exterior of bolt. Replace upper forward circumference of wheel pocket.

(23) Move landing gear upward by hand to notice any binding.

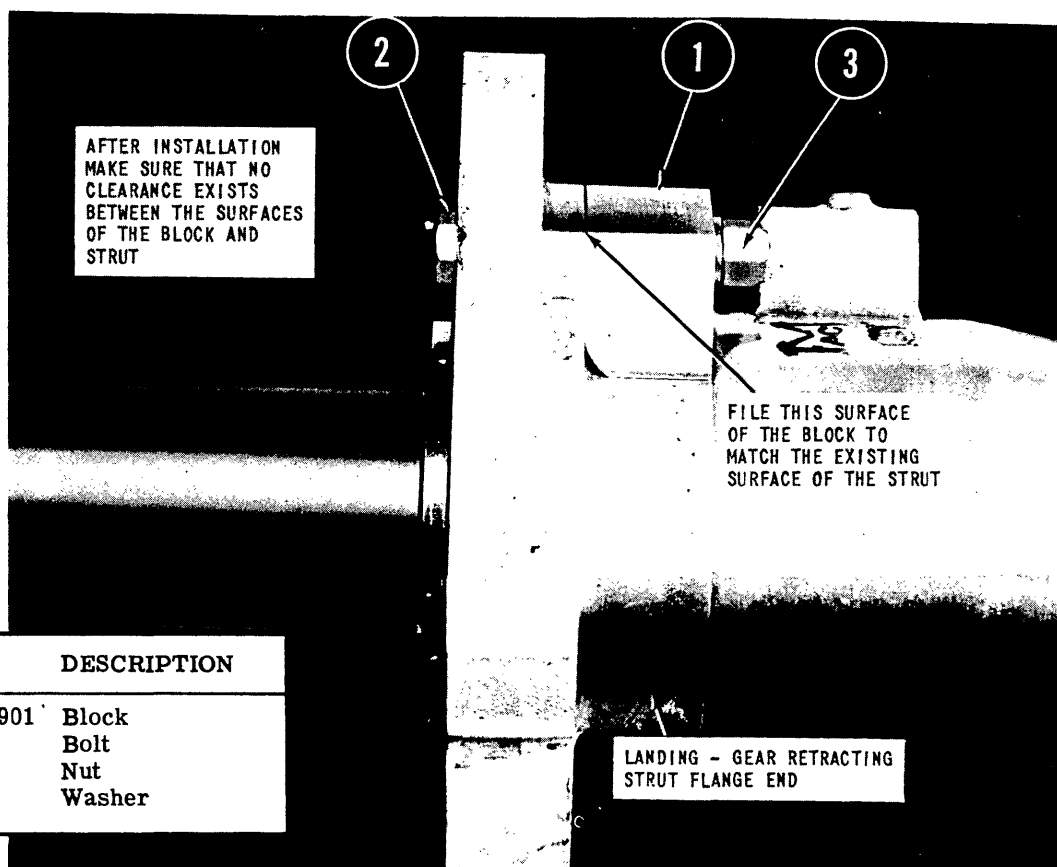
NOTE If there is evidence of binding, correct alignment by the addition or removal of alignment shims between the flange and mount of the retracting strut.

(24) Reconnect hydraulic lines and operate landing gear through several cycles.

(25) If landing gear interferes with upper panel of wing pocket, rework as shown in paragraph 2.c.

(26) Place the battery switch "ON" and adjust the landing-gear warning light by turning the adjusting screw of the bell crank located behind the knee fairing. The warning light must light when one or both landing gears are not locked in the "DOWN" position.

Figure 8



REF	PART NO.	DESCRIPTION
1	87-31-505-901	Block
2	AN4-21A	Bolt
3	AN365-428	Nut
	AN960-416	Washer

NOTE Airplanes equipped with the warning horn must be adjusted so that the horn will blow when throttle is retarded and one or both landing gears are not locked in the "DOWN" position.

(27) Lock landing gear in "DOWN" position, remove jacks, and replenish hydraulic reservoir with fluid, Specification No. 3586.

b. Instructions for determining "toe-in" requirements for P-40 airplanes equipped with 27-inch wheels are:

(1) Use instructions contained in subparagraphs (1), (2)(a), (b), and (c) of paragraph 2.a. to determine "toe-in."

(2) **COMPUTATIONS FOR 27-INCH WHEELS.** - The excessive "toe-in" equals the difference between the actual "toe-in" and 11/16 inch (full tolerance "toe-in" 1-1/2 degrees). To determine the amount of correction required, divide the difference by .130. The whole number arrived at, will be the number of 87-31-505-904 and 87-31-505-905 shims required to bring the landing gear to the maximum "toe-in" allowance 1-1/2 degrees. When the "toe-in" does not exceed the 11/16-inch dimension given, no corrective action is required.

$$\text{Formula} - \frac{\text{Measured "Toe-in" - 11/16 inch}}{.130}$$

Number each of -904 and -905 shims.

NOTE The 11/16-inch dimension covers "toe-in" measurement at the forward and rear points on the tire and is not to be confused with "toe-in" measurements computed from the oleo strut center line. The following tabulation lists the fractional "toe-in" figures for the 27-inch wheel with corresponding number of shims for correction and may be used when applicable instead of calculating as described preceding.

COMPUTED "TOE-IN" CORRECTION CHART - NO. 2

MEASURED "TOE-IN"	NO. EACH OF -904 AND -905 SHIMS REQUIRED FOR CORRECTION OF "TOE-IN" TO 11/16 INCH (1-1/2°).
11/16 inch	0
13/16 inch	1
61/64 inch	2
1-5/64 inch	3
1-7/32 inch	4

NOTE The number of shims specified in most cases listed preceding are calculated to bring the "toe-in" slightly below 11/16 inch (1-1/2 degrees) and are satisfactory.

(3) Rework 27-inch wheel installation when necessary in accordance with instructions contained in subparagraphs (3) to (27) of paragraph 2.a.

c. If, after the inspection and installation prescribed in paragraph 2.a. or b. the tires interfere with the No. 10 stringer in the wheel pocket, the interference will be corrected as follows:

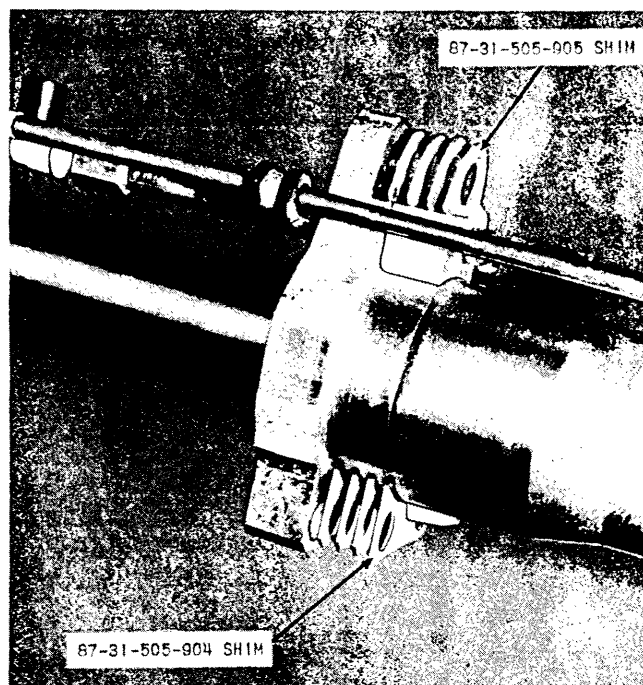


Figure 9 - Relative Position of Shims in Respect to the Flange of Landing-gear Retracting Strut

(1) Remove from the wheel pocket of the airplane the canvas liner which lies against the wheel pocket stringers.

(2) Locate and remove a section of the stringer, part No. 87-03-822-10, located on the bottom of the upper wing surface in the wheel pocket webs, Nos. 3 and 4, in accordance with the details shown in figures 11 and 12.

(3) Locate and drill 13 No. 21 (.159-inch) holes, in accordance with the detail shown in figure 10.

(4) Fabricate a reinforcing angle, using 24ST aluminum-alloy material in accordance with the details shown in figures 10 and 11.

(5) Install the reinforcement angle to the modified stringer, using 13 rivets, part No. 671-D-5AD-6, as shown in figures 11 and 12. Reinstall the removed wheel pocket canvas lining.

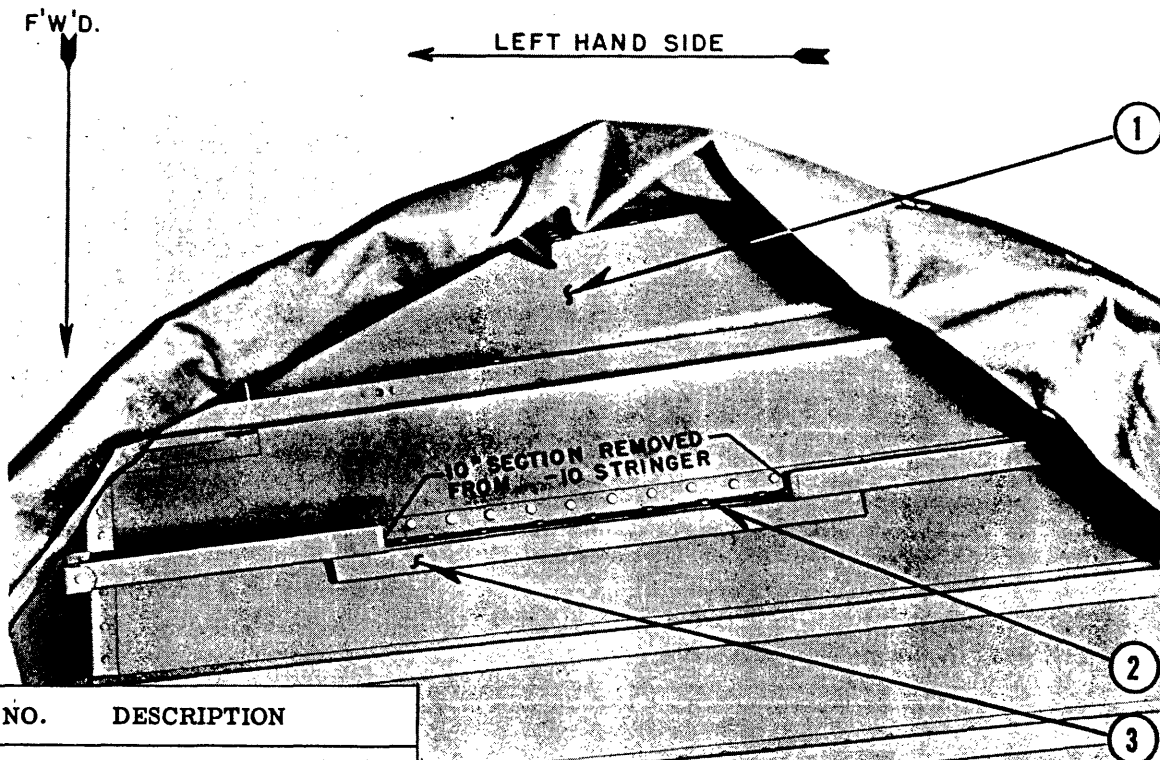
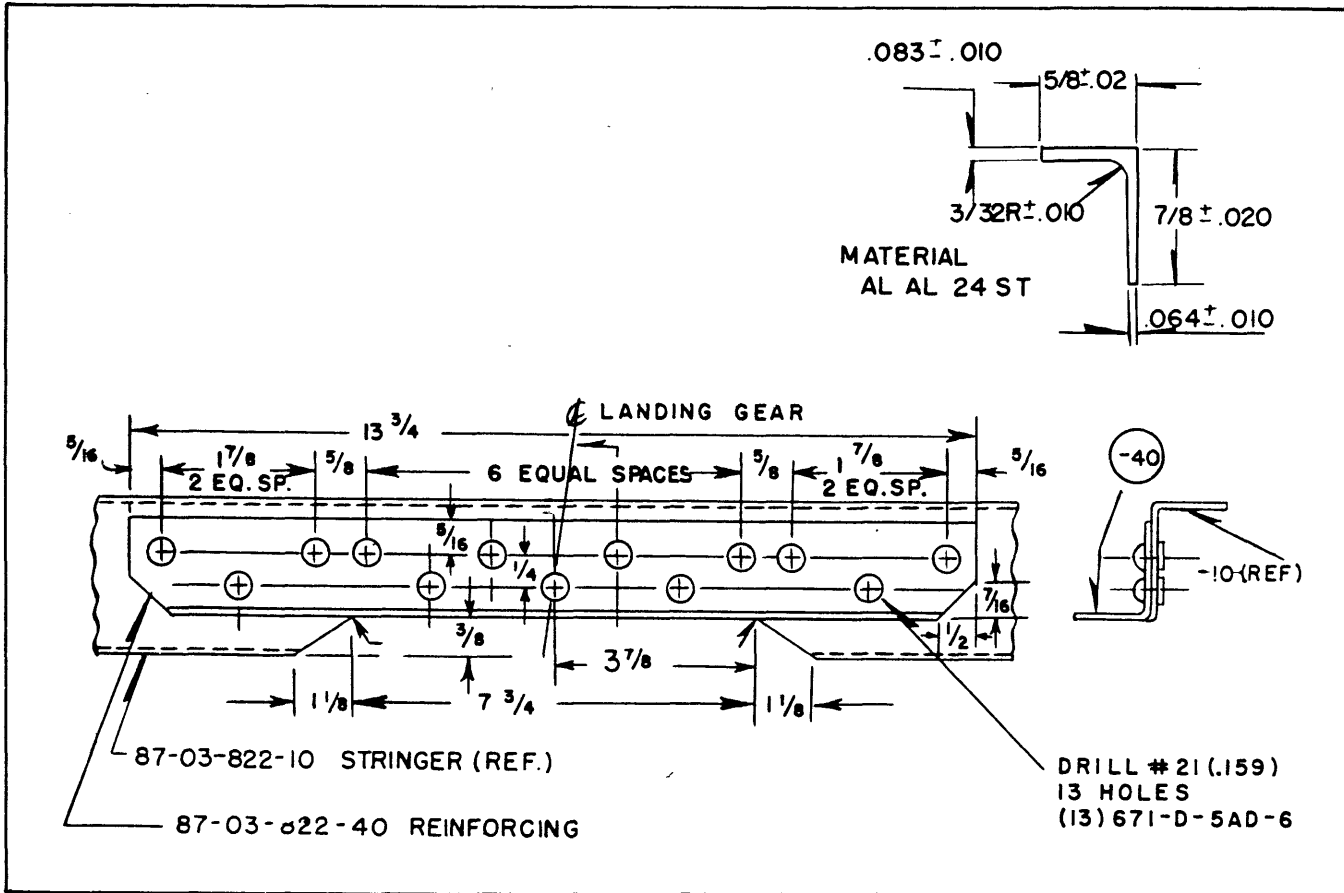
(6) Rework right-hand wheel pocket in a similar manner.

d. FABRICATION OF PARTS IN THE FIELD.

(1) To fabricate block, part No. 87-31-505-901, proceed in the following manner:

(a) Select one piece of stock as specified in figure 13, measuring 4-1/2 inches square and 7/8 inch thick.

(b) Bore a hole measuring 2.978 plus .000 or minus .004 in diameter in the center of the stock.



REF	PART NO.	DESCRIPTION
1		Upper Wing Skin (Ref)
2	671-D-SAD-6	Rivets
3	87-03-822-40	Stringer Rein. Installed

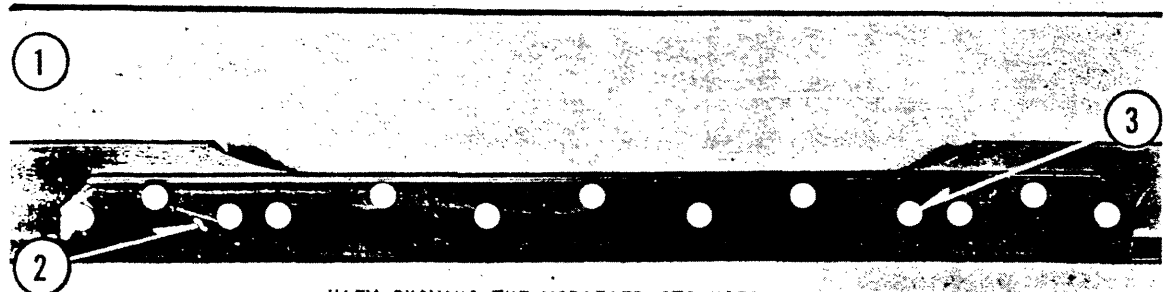
Figure 11 - View Showing the Modification of the Stringer, Part No. 87-03-822-10, in the Left-hand Wheel Pocket P-40N Airplanes

P3 89

Figure 12



VIEW SHOWING INSTALLED 87-03-822-4
REINFORCEMENT



VIEW SHOWING THE MODIFIED STRINGER

REF	PART NO.	DESCRIPTION	REF	PART NO.	DESCRIPTION
1		1/2 x 10 Inch Section Re- moved From the 87-03- 823-10 Stringer	2	87-03-822-40	Stringer Reinforcing
			3	671-D-SAD-6	Rivets (13 Req.)

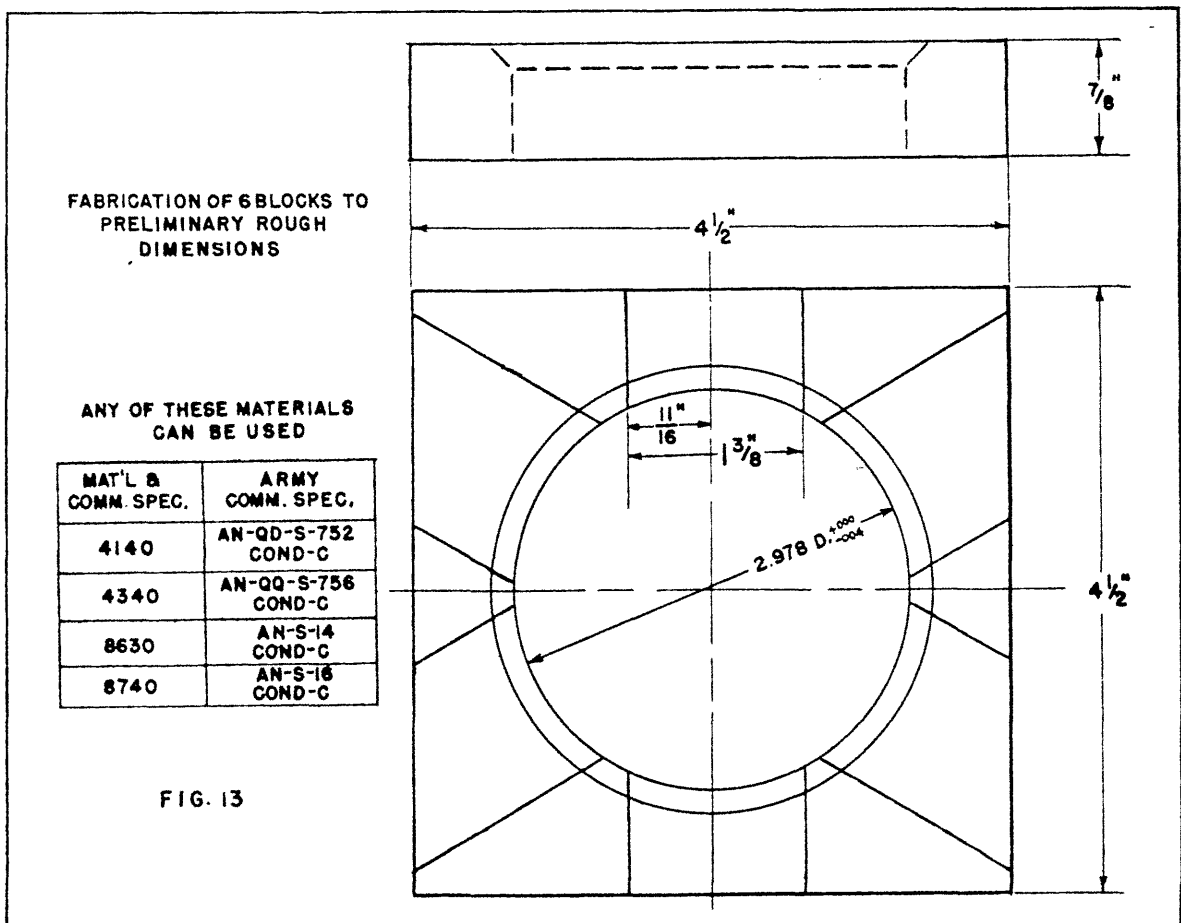


Figure 13 - Fabrication of Six Blocks to Preliminary Rough Dimensions

(c) Chamfer one edge of this hole to 45 degrees x $\frac{3}{16}$ inch.

(d) Cut block $1\frac{3}{8}$ inches wide from the hole outward.

NOTE Six blocks can be made from each piece of material and only two are required per ship.

(e) Drill holes and finish all dimensions as required in figure 14.

(2)(a) Fabricate shims, part No. 87-31-505-904, as specified in figure 15, detail A.

(b) Fabricate shims, part No. 87-31-505-905, as specified in figure 15, detail B.

(3) To make hole locator and drill guide, part No. 87-31-505-T62, proceed in accordance with details in figure 16.

3. a. The following parts are required per airplane to accomplish this change.

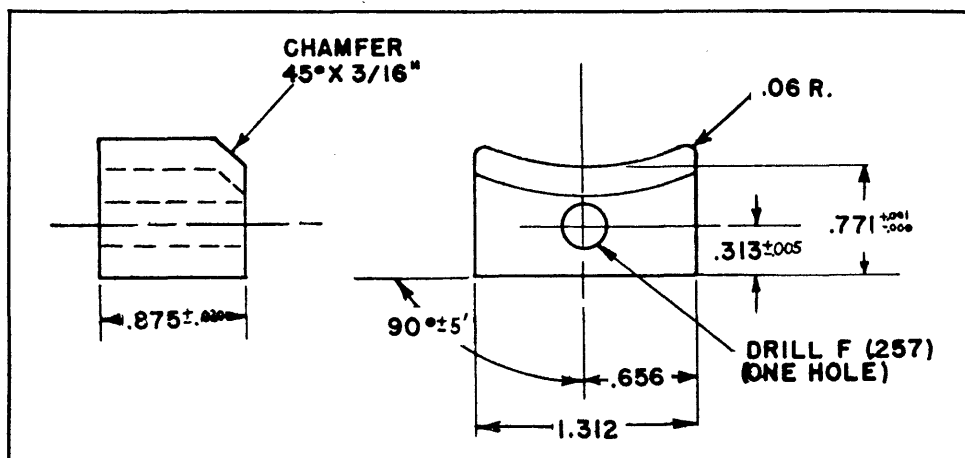


Figure 14 - Finished Dimensions of Block, Part No. 87-31-505-901

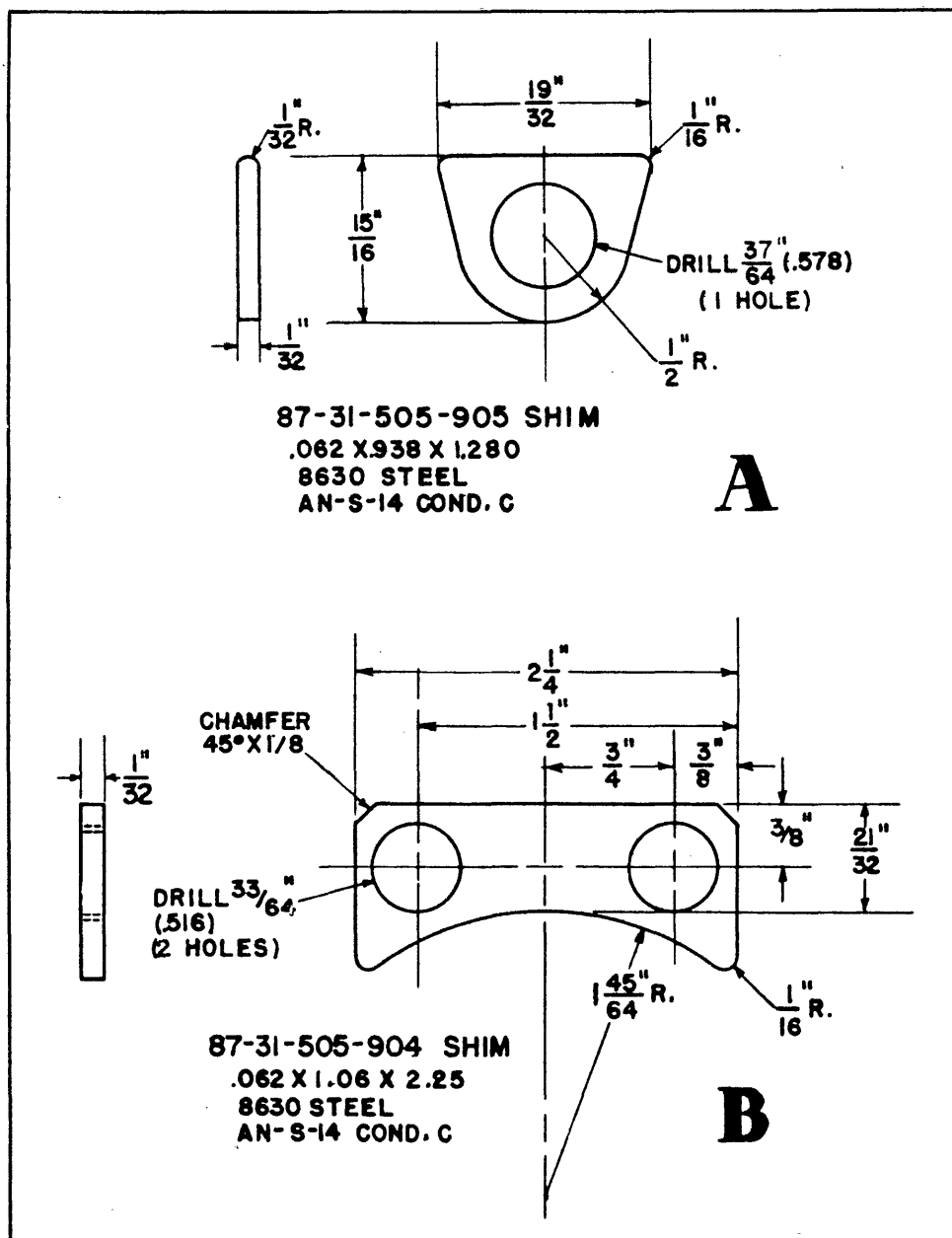


Figure 15

P3 91

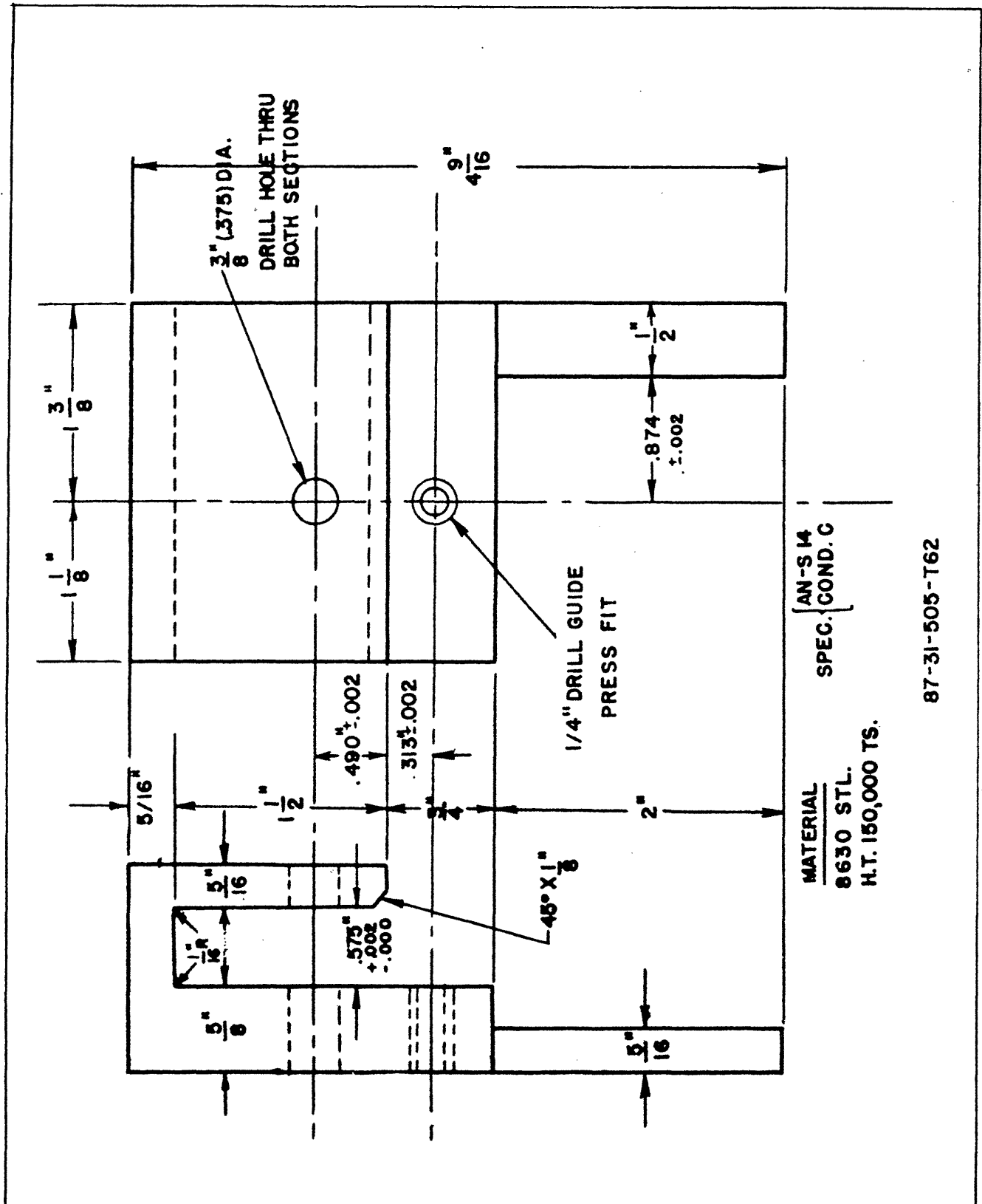


Figure 16 - Landing Gear, Retracting Strut Hole Locator

pg 92

RESTRICTED
T. O. No. 01-25C-153

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
2		87-31-505-901	Block (See figure 13.)	01-C	Local Mfr.
As req			Mfr. from: Steel Chrome Nickel Molyb, Specification No. AN-S-14	23-A	AF Stock
As req			or Steel Chrome Nickel Molyb, Specification No. AN QQ-S-756	23-A	AF Stock
8		87-31-505-905	Shim (See figure 15.)	01-C	Local Mfr.
As req			Mfr. from: Steel Chrome Nickel Molyb, Specification No. AN-S-14	23-A	AF Stock
8		87-31-505-904	Shim (See figure 15.)	01-C	Local Mfr.
2			Mfr. from: Steel Chrome Nickel Molyb, Specification No. AN-S-14	23-A	AF Stock
2	6500-032540	AN4-21A	Bolt - Aircraft steel 2-1/8 inches long	04-A	AF Stock
2	6500-514100	AN365-428	Nut - Self-locking steel, 1/4-28	04-A	AF Stock
2	6500-984200	AN960-416	Washer - Plain steel 1/4-inch bolt size	04-A	AF Stock
4	6500-514600	AN365-820	Nut - Self-locking steel, 1/2 inch -20	04-A	AF Stock
2	6500-514650	42E098	Nut - Self-locking steel, 9/16 inch -18	04-A	AF Stock
2	6700-395300	AN380C4-4	Pin - Cotter corrosion-resistant 1/8 inch x 1 inch	29	AF Stock
2		87-03-822-40	Angle - Reinforcing (See figures 10 and 11.)	01-C	Local Mfr.
			Mfr. from: Alum. Alloy - Bar flat con- dition T, Specification No. QQ-A-354	23-A	AF Stock
26		671-D-5AD-6	Rivets	01-C	AF Stock

b. Special tool, 87-31-5-5-T62 hole locator and drill guide, can be manufactured in accordance with details in figure 16.

c. Parts removed and not reinstalled will be disposed of in accordance with AAF Regulations 65-43.

d. Weight change as a result of this modification is negligible.

By Command of General ARNOLD:

Prepared by Aircraft Section,
Maintenance Div, Hq, ASC.

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

PS 93

SUPPLEMENT TO BASIC TECHNICAL ORDER

RESTRICTED

HEADQUARTERS, ARMY AIR FORCES
WASHINGTON 25, D. C.

TECHNICAL ORDER
NO. 01-25C-153A

10 August 1944

AIRCRAFT AND MAINTENANCE PARTS

CURTISS—INSPECTION AND CORRECTION OF LANDING-GEAR TOE-IN— P-40E, E-1, F, K, K-1, L, M, R-1, R-2, AND N

NOTE This Technical Order supplements T. O. No. 01-25C-153, dated 20 June 1944, to correct over-all dimension noted in detail "A" and add note to figure 15. A SUITABLE REFERENCE TO THIS CORRECTION WILL BE MADE ON PAGE 1 OF THE BASIC TECHNICAL ORDER, AND THE AFFECTED FIGURE INDICATED ACCORDINGLY.

* * * * *

1. Figure 15 of subject Technical Order will be changed as follows:

a. Over-all dimension noted in detail "A," figure 15, which now reads 19/32 inches will be corrected to read 1-9/32 inches.

b. The following note will be inserted near detail "B" of figure 15:

NOTE Shims, part Nos. 87-31-505-904 and -905, manufactured from .062 stock, will be surface ground to 1/32 (.0312-inch) both sides to insure a flat mating surface.

* * * * *

By Command of General ARNOLD:

Prepared by
Aircraft Section,
Maintenance Div,
Hq, ASC.

CLEMENTS McMULLEN,
Major General, U.S.A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



Pg 94
20 July 1944

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—MODIFICATION OF THE LORD TYPE AND FABREEKA TYPE
ENGINE VIBRATION ABSORBERS—P-40E, P-40E-1, P-40K, P-40K-1,
P-40M, P-40N, P-40R-1, AND P-40R-2**

NOTE As prescribed in T. O. No. 00-20A, appropriate reference to this Technical Order will be complied with in this case, 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, on P-40N airplanes. Rework of the affected P-40E, P-40E-1, P-40R-1, P-40R-2, P-40K, P-40K-1, and P-40M airplanes will be accomplished at the next engine change. Maintenance engine installations in stock will be modified prior to issue.

1. To reduce engine vibration, the Lord and Fabreeka type engine vibration absorbers on the following airplanes will be reworked in accordance with the instructions contained in designated sections of paragraph 2.

a. SECTION I

MODEL	AF NOS	KIT
P-40E	All	A
P-40E-1	All	
P-40K	All	
P-40K-1	All	
P-40M	All	
P-40N	42-104429 to 42-104828 inclusive	

b. SECTION II

MODEL	AF NOS	KIT
P-40R-1	All	B
P-40R-2	All	
P-40N	42-104829 to 42-104834 inclusive	
	42-105035 to 42-105109 inclusive	
	42-105117, 42-105125	
	42-105133 to 42-105139 inclusive	
	42-105141 to 42-105167 inclusive	
	42-105171, 42-105172	
	42-105175 to 42-105180 inclusive	
	42-105184 to 42-105192 inclusive	
	42-105195 to 42-105199 inclusive	
	42-105201, 42-105209, 42-105214	
	42-105222	
	42-105228 to 42-105231 inclusive	
	42-105235	
	42-105241 to 42-105245 inclusive	
	42-105247, 42-105263	
	42-105266 to 42-105270 inclusive	
	42-105280, 42-105283, 42-105285	
	42-105289, 42-105290	
	42-105295 to 42-105303 inclusive	
	42-105306	
	42-105310 to 42-105317 inclusive	
	42-105320	
	42-105322 to 42-105325 inclusive	

MODEL	AF NOS	KIT
	42-105331	
	42-105333 to 42-105335 inclusive	
	42-105337, 42-105340	
	42-105342 to 42-105344 inclusive	
	42-105346 to 42-105348 inclusive	
	42-105352 to 42-105354 inclusive	
	42-105358 to 42-105390 inclusive	
	42-105394, 42-105396	
	42-105399 to 42-105407 inclusive	
	42-105412, 42-105416	
	42-105424 to 42-105427 inclusive	
	42-105440	
	42-105455 to 42-105458 inclusive	
	42-105460, 42-105462, 42-105467	
	42-105484, 42-105498, 42-105499	
	42-105525	
	42-105534 to 42-105556 inclusive	
	42-105559 to 42-105561 inclusive	
	42-105563 to 42-105566 inclusive	
	42-105569 to 42-105575 inclusive	
	42-105577, 42-105578, 42-105580	
	42-105587 to 42-105596 inclusive	
	42-105604 to 42-105606 inclusive	
	42-105610 to 42-105612 inclusive	
	42-105622 to 42-105625 inclusive	
	42-105627	
	42-105632 to 42-105639 inclusive	
	42-105641 to 42-105650 inclusive	
	42-105652 to 42-105667 inclusive	
	42-105669 to 42-105678 inclusive	
	42-105682, 42-105683, 42-105685	
	42-105686, 42-105693, 42-105696	
	42-105702, 42-105705	
	42-105707 to 42-105712 inclusive	
	42-105716, 42-105717	
	42-105719 to 42-105721 inclusive	
	42-105726, 42-105728, 42-105729	
	42-105733 to 42-105736 inclusive	
	42-105739	

P-40 N airplanes, AF No. 42-105740 and subsequent, will have this change incorporated by the contractor prior to delivery.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED

2. The instructions for accomplishing this change as contained in Curtiss Service Bulletin 550-21, dated August 19, 1943, are as follows:

a. SECTION I - MODIFICATION OF LORD TYPE ENGINE VIBRATION ABSORBERS. (For airplanes affected, see paragraph 1.a.)

- (1) Remove side, bottom, and top engine cowl.
- (2) Remove the nuts, part No. AN310-8, from the attaching special vertical engine mount bolts, part No. 87-22-717, and disconnect the bonding tabs and bonding braid from the mounts.
- (3) Attach a sling to the engine and hoist the engine so that the vibration absorbers clear the tubular engine mounts approximately 1/16 inch.
- (4) Remove the special vertical engine bolts, part No. 87-22-717, from the engine vibration absorbers and in the engine mount.

(5) Remove the special engine bolts, part No. 87-41-514, from the vibration absorbers and remove the absorbers from the engines.

(6) Remove the stop, part No. 87-22-533, from the top of the rear left and right vibration absorbers and remove a portion of the flanged section of the stop, in accordance with a detail shown in figure 1.

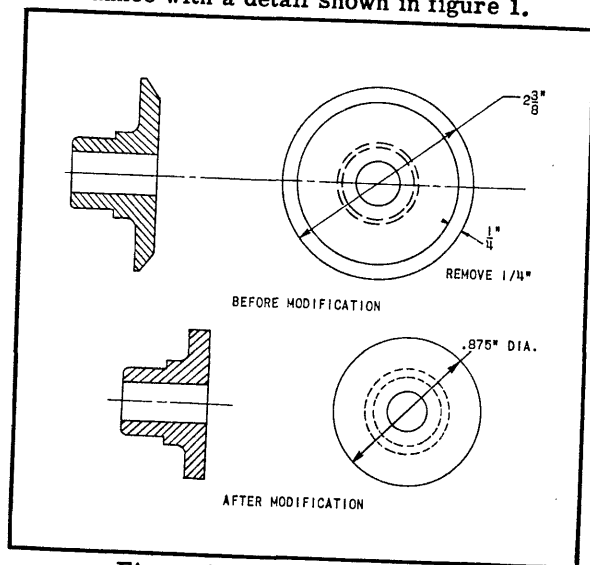


Figure 1 - Detail of the Upper Rear Engine Mount Stop

NOTE If a lathe is not available to remove portion of stop, circumscribe a line around the stop in accordance with the detail shown on figure 1, and grind portion of the stop-off, using caution not to overgrind the scribed line.

(7) Remove the stop, part No. 87-22-542, from the top of the front engine left and right vibration absorbers and remove a portion of the flange section of the stop in accordance with the detail shown in figure 2. following the same notation as given in paragraph 2.a.(6).

(8) Remove the retaining collar, part No. 87-22-529, and the rubber unit absorber, part No. 87-22-541, from the mount housing, part No. 87-22-712, and re-

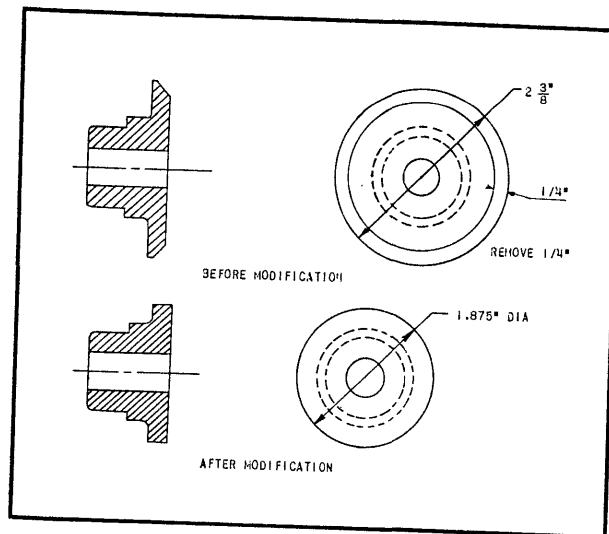


Figure 2 - Detail of the Upper Front Engine Mount Stop

move the bushing, part No. 87-22-528, referring to figures 3, 4, 5, and 6.

NOTE The bushing, part No. 87-22-528, is to be discarded, as it is not used in the modified vibration absorber.

(9) Reinstall the rubber unit absorber, part No. 87-22-541, and the retaining collar, part No. 87-22-529, and install the Fabreeka snubber, part No. 87-710-1015, in place of the removed snubber, part No. 87-22-534. (See figures 3 and 4.)

(10) Reinstall the modified stops, part Nos. 87-22-533 and 87-22-542, to the vibration absorbers, part No. 87-22-702, referring to figures 3 and 4.

(11) Reinstall the modified engine mount vibration absorber to the engine in their respective places, using the special engine bolt, part No. 87-14-514, removed in paragraph 2.a.(5).

(12) Reinstall the special vertical engine bolts, part No. 87-22-717, so that they line up with the existing mounting bolts in the engine mount and slack off in the engine hoist so that the engine rests in place on the engine mounts.

(13) Reinstall removed bonding braids and tabs and install the washers, part No. AN960-816, the nuts, part No. AN310-8, and the cotter pin, part No. AN380-C-3, to the installed vertical engine mount bolts.

(14) Reinstall the top, bottom and side engine cowl.

b. SECTION II - MODIFICATION OF THE FABREEKA TYPE ENGINE VIBRATION ABSORBERS. (For airplanes affected, see paragraph 1.b.)

(1) Follow paragraphs 2.a.(1) through 2.a.(5).

(2) Drill the two vertical mounting holes of each of the mounting blocks using a size 13/16 (.8125-inch) drill. (See figure 7.)

NOTE When drilling holes, use caution so that drill does not score the hole.

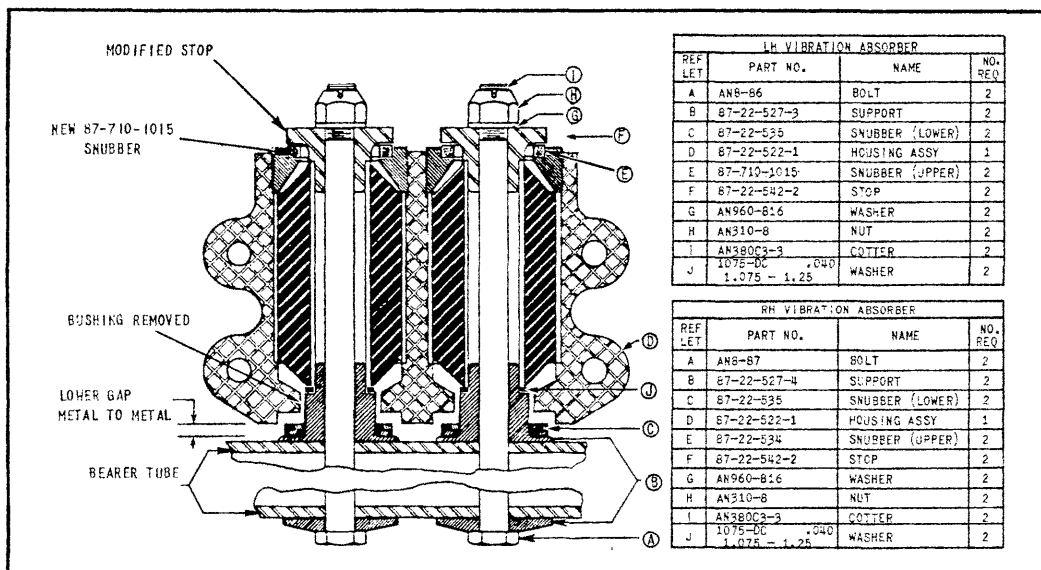


Figure 3 - Front Vibration Absorber After Modification (Lord Type)

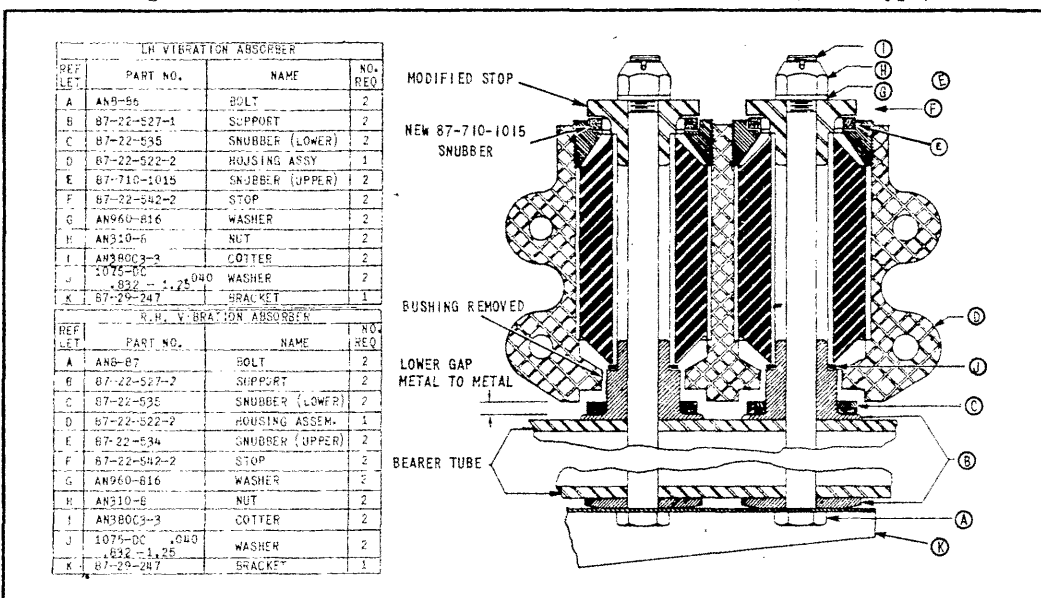


Figure 4 - Rear Vibration Absorber After Modification (Lord Type)

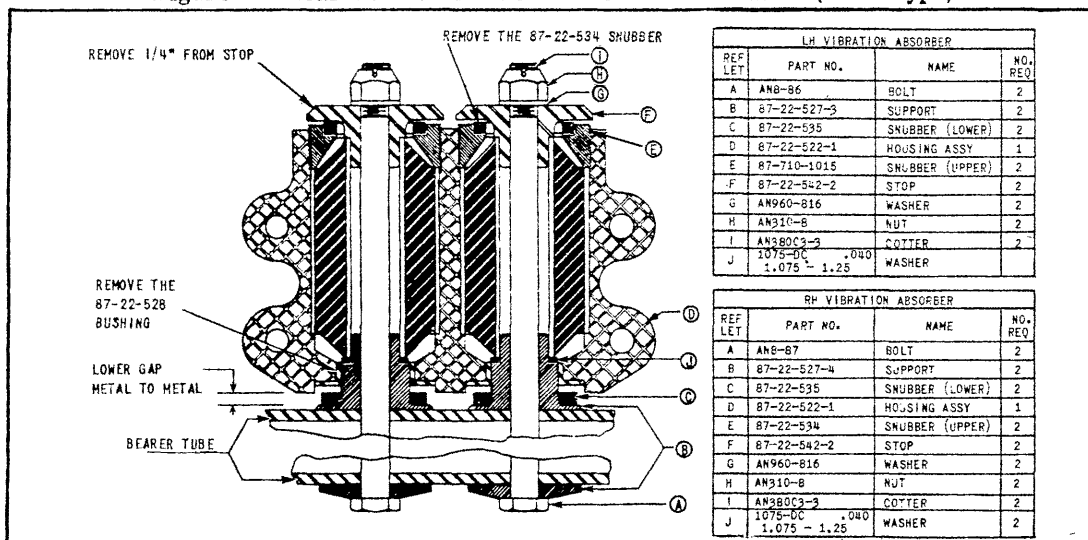


Figure 5 - Front Vibration Absorber Before Modification (Lord Type)

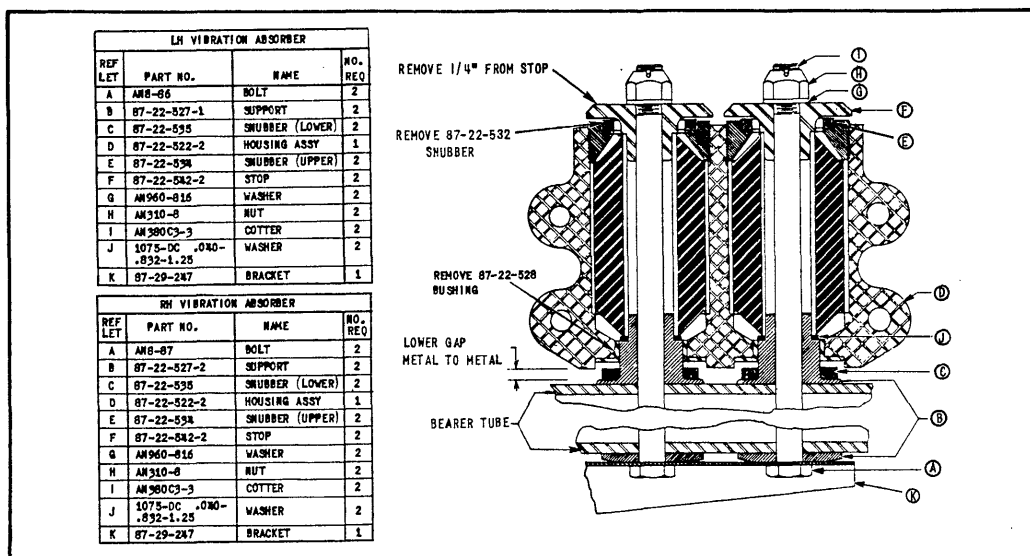


Figure 6 - Rear Vibration Absorber Before Modification (Lord Type)

(3) Install the nonmetallic bushing, part No. 87-710-1012-902, in the 13/16 drilled hole. (See figure 7.)

(4) Reinstall the modified engine mount block to the engine and the engine mounts, using all parts removed and remove the sling from the engine.

(5) Start the engine and run up the engine in a similar manner as that of a ground test. This procedure settles the engine on the mounts.

(6) Tighten up the front engine vertical mounting bolts to 240 inch-pounds, and the rear engine vertical mounting bolts to 120 inch-pounds.

(7) Reinstall the top, bottom, and side engine cowl.

3. a. The following parts are required per airplane to accomplish this change. These parts are furnished as complete kits and will be requisitioned in accordance with T.O. No. 00-35A-15. Parts required for replacement purposes after initial installation, and for rework of spare parts in stock, will be requisitioned as individual parts and not as complete kits from Class 15 Stock.

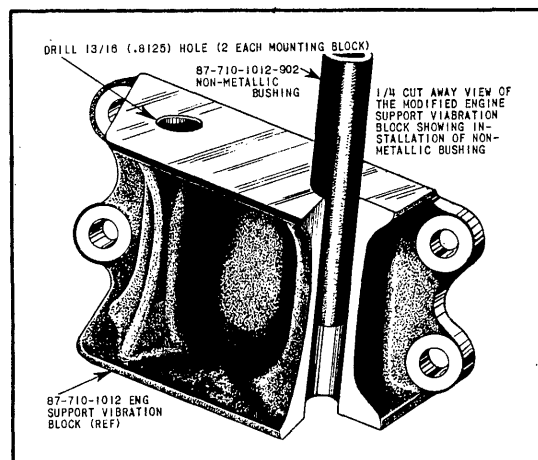


Figure 7 - One-fourth Cut-away View of the Modified Engine Support Vibration Block Showing Installation of Nonmetallic Bushing

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	1300TO-01-24C154A		KIT "A," "Modification of the Lord Type Engine Vibration Absorbers - P-40E, P-40E-1, P-40K, P-40K-1, P-40M, and P-40N, AF Nos. 42-104429 to 42-104828 inclusive," consisting of the following parts:	15	AF Stock
8		87-710-1015	Snubber	01-C	
1	1300TO-01-25C154B		KIT "B," "Modification of The Fabreeka Type Engine Vibration Absorbers - P-40R-1, P-40R-2, and P-40N (See paragraph 1.b. for list of airplanes affected)," consisting of the following parts:	15	AF Stock
8		87-710-1012-902	Bushing	01-C	

b. The parts removed and not reinstalled will be disposed of in accordance with provisions of AAF Regulation 65-43.

By Command of General ARNOLD:

Prepared by Aircraft Section,
Maintenance Div, Hq, ASC.

WALTER H. FRANK,
Major General, U. S. A.,
Commanding General, Air Service Command.

20 June 1944

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—REMOVAL OF ARMOR PLATE AND WING GUNS—P-40E,
P-40E-1, P-40F, P-40K, P-40L, P-40M, AND P-40N**

This Technical Order replaces T. O. No. 01-25C-155, dated 5 February 1944.

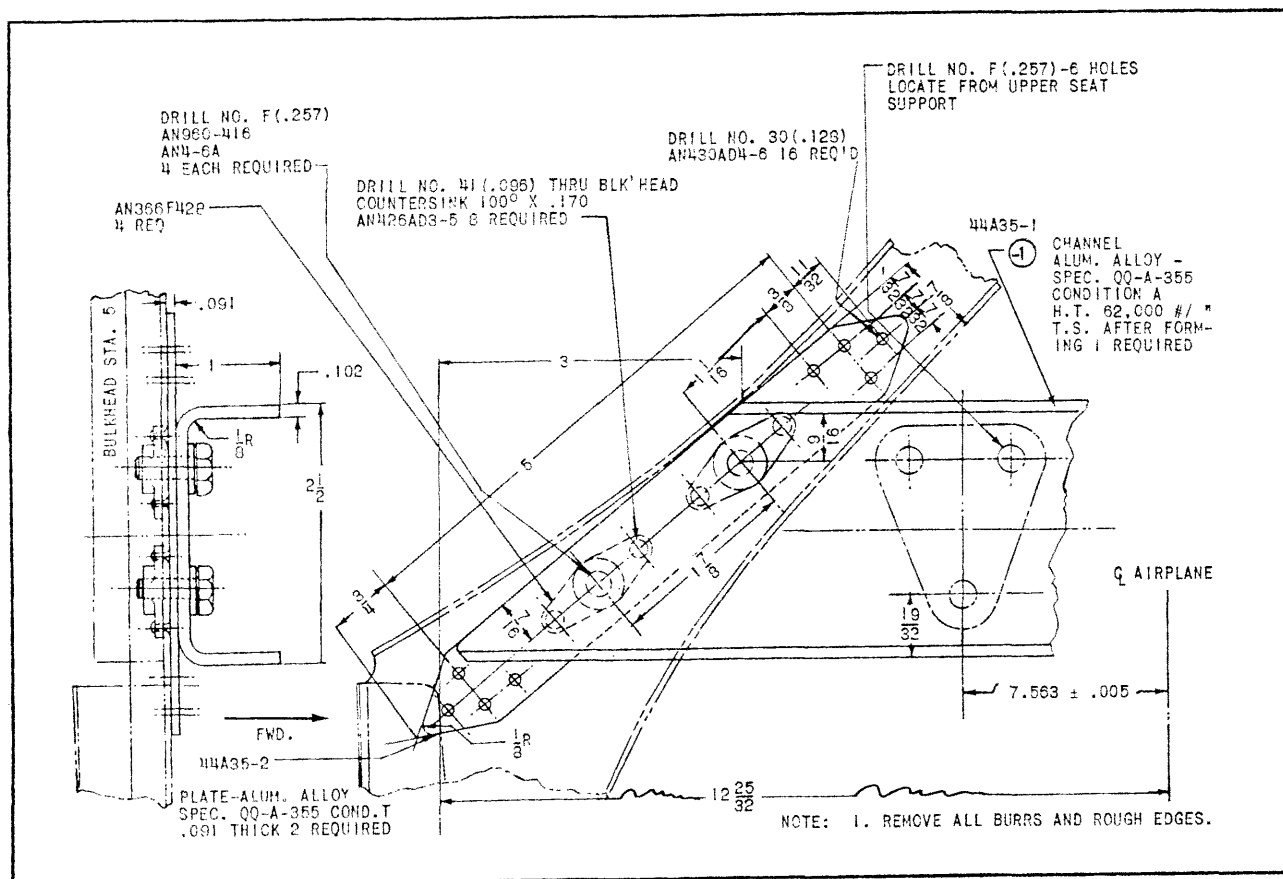
NOTE As prescribed in T. O. No. 00-20A, appropriate reference to this Technical Order will be entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished whenever required, by service activities with the aid of sub-depots, if necessary. When the required work has been completed, these aircraft will be given the auxiliary prefix "T," in accordance with the provisions of AAF Regulation 65-60, dated 11 April 1944.

1. To increase performance while operating in accordance with T. O. No. 02-1-38, the P-40E, P-40E-1, P-40F, P-40K, P-40L, P-40M, and P-40N airplanes used for training purposes may have the wing guns and armor plate removed in accordance with the following instructions.

a. REMOVAL OF WING GUNS.

(1) The wing guns should be removed in pairs to prevent wing heaviness. The number of guns to be

removed will depend on the type of training for which the airplane is employed and the number of guns installed. It is suggested that all guns be removed, if practicable, and that at most only two guns be retained. To obtain the best gunfire pattern and to reduce maintenance to a minimum, the guns installed in the center position should be retained if six guns are installed in the airplane. To further reduce the weight of the airplane, the electrical equipment, ammunition boxes, chutes, and supports for each gun should also be removed.



RESTRICTED
T. O. No. 01-25C-155

CAUTION Seal blast tube openings with fairing cover assemblies, if available, or by placing a fabric section, properly doped, over these openings.

(2) When wing guns are removed, the center of gravity of the airplane is affected. To maintain the location of the center of gravity within safe limits, ballast must be installed in the fuselage between stations 10 and 11 as follows:

(a) REMOVAL OF TWO GUNS AND EQUIPMENT.

MODEL	AF SERIAL NOS.	BALLAST REQUIRED
P-40E	All	None
P-40E-1	All	None
P-40F	All	35 lb
P-40K	42-45722 to 42-46321 inclu	None
P-40K	42-9730 to 42-10364 inclu	None
P-40K	42-10365 to 42-10429 inclu	45 lb
P-40L	All	65 lb
P-40M	All	45 lb
P-40N	42-104429 to 42-106028 inclu	None
P-40N	42-106029 to 42-106245 inclu	10 lb
P-40N	42-106246 to 42-106428 inclu	None
P-40N	43-22752 to 43-24751 inclu	None

(b) REMOVAL OF FOUR GUNS AND EQUIPMENT.

MODEL	AF SERIAL NOS.	BALLAST REQUIRED
P-40E	All	None
P-40E-1	All	None
P-40F	All	70 lb
P-40K	42-45722 to 42-46321 inclu	None
P-40K	42-9730 to 42-10364 inclu	None
P-40K	42-10365 to 42-10429 inclu	70 lb
P-40L	All	90 lb
P-40M	All	70 lb
P-40N	42-104429 to 42-106028 inclu	None
P-40N	42-106029 to 42-106245 inclu	30 lb
P-40N	42-106246 to 42-106428 inclu	10 lb
P-40N	43-22752 to 43-24751 inclu	10 lb

(c) REMOVAL OF SIX GUNS AND EQUIPMENT.

MODEL	AF SERIAL NOS.	BALLAST REQUIRED
P-40E	All	None
P-40E-1	All	None
P-40F	All	100 lb
P-40K	42-45722 to 42-46321 inclu	None
P-40K	42-9730 to 42-10364 inclu	None
P-40K	42-10365 to 42-10429 inclu	100 lb
P-40L	(only 4 guns installed on this model)	

MODEL	AF SERIAL NOS.	BALLAST REQUIRED
P-40M	All	100 lb
P-40N	42-104429 to 42-106028 inclu	20 lb
P-40N	42-106029 to 42-106245 inclu	50 lb
P-40N	42-106246 to 42-106428 inclu	30 lb
P-40N	43-22752 to 43-24751 inclu	30 lb

b. REMOVAL OF ARMOR PLATE.

(1) The following armor plate may be removed:

PART NO.	NOMENCLATURE
87-21-740	Headrest Armor Plate
87-21-520	Bulkhead No. 5 Armor Plate
87-50-527	Coolant Tank Armor Plate (applicable only to P-40E-1 airplanes)

NOTE The bulkhead 5 armor plate, part No. 87-21-520, assists the station 5 bulkhead in carrying the turn-over load; however, the bulkhead without the armor plate web provides sufficient strength to carry the flight and landing loads. Since turn-over structure is no longer required on combat airplanes, the bulkhead 5 armor may be removed from P-40 series airplanes, except P-40N airplanes, when used for training purposes. To further reduce weight, all attaching parts and fittings not required for structural strength should be removed when the armor plate is removed. Be sure to install the name plate removed from the armor plate at bulkhead 5, as it contains the serial and model number of the airplane.

(2) When the bulkhead 5 armor plate is removed, the center of gravity of the airplane is affected. To maintain the location of the center of gravity within safe limits, ballast must be installed in the fuselage between stations 10 and 11 as follows:

MODEL	AF SERIAL NOS.	BALLAST REQUIRED
P-40E	All	None
P-40E-1	All	None
P-40F	All	None
P-40K	42-45722 to 42-46321 inclu	None
P-40K	42-9730 to 42-10364 inclu	None
P-40K	42-10365 to 42-10429 inclu	10 lb
P-40L	All	30 lb
P-40M	All	10 lb

(3) Fabricate and install the cross member at bulkhead 5 to accommodate the upper seat support attachment lugs which were previously fastened directly to the armor plate. (See figure 1.)

2. a. The following parts are required per airplane to accomplish this work.

P5 100

RESTRICTED
T. O. No. 01-25C-155

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1		44A35-1	Channel - Upper seat support cross member (See figure 1.) Mfr. from:	01-C	Local Mfr.
			Alum. Alloy - Sheet condition A annealed .102 inch, Specification No. QQ-A-355, approximately 12-25/32 x 4-1/2 inches, stock No. 6800-145000	23-A	AF Stock
2		44A35-2	Plate - Upper seat support cross member (See figure 1.) Mfr. from:	01-C	Local Mfr.
			Alum. alloy - Sheet condition T heat-treated .091 inch, Specification No. QQ-A-355, approximately 6-1/2 x 7/8 inches, stock No. 6800-145000	23-A	AF Stock
16	6700-502700	AN430AD4-6	Rivet - Alum.-alloy roundhead, type AD, 1/8 x 3/8 inch	29	AF Stock
8	6700-489136-2	AN426AD3-5	Rivet - Alum.-alloy, countersunk head 100-degree, type AD, 3/32 x 5/16 inch	29	AF Stock
4	6800-984200	AN960-416	Washer - Plain, steel, 1/4-inch bolt	04-A	AF Stock
4	6500-032430	AN4-6A	Bolt - Aircraft, plain, steel, 1/2-28 x 3/4 inch	04-A	AF Stock
4	6500-509000	AN366F428	Nut - Plate, self-locking, steel, 1/4-28	04-A	AF Stock

b. Aircraft which have had armor plate and guns removed in accordance with the provisions herein and which have not been previously reclassified as "R" (restricted) aircraft, will be reclassified as "T" aircraft, in accordance with the provisions of AAF Regulation 65-60, dated 11 April 1944; and redesignation will be effected in accordance with the provisions of T. O. No. 01-1-81.

By Command of General ARNOLD:

Prepared by Aircraft Section,
Maintenance Div, Hq, ASC.

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.



DIST: 4,5,7
FILE: BEHS

November 6, 1943

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—INSTALLATION OF FIXED TRIM TAB TO LEFT-HAND AILERON—
P-40E, P-40E-1, P-40F, P-40K, P-40K-1, P-40L, AND P-40M**

NOTE The provisions of T.O. No. 60-20A will be complied with in this case, these instructions being 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 50-hour inspection period by service activities with the aid of sub-depots, if necessary. Maintenance ailerons in stock, part No. 87-05-501-100 LH, equipped with electrically operated trim tabs will be modified prior to issue.

1. To improve the flying characteristics of all P-40E, P-40E-1, P-40F, P-40K, P-40K-1, P-40L, and P-40M airplanes, a ground adjusted, fixed trim tab will be installed on the left-hand aileron in accordance with the instructions contained in paragraph 2.

2. The instructions for accomplishing this change, as contained in Curtiss Service Bulletins 170-70, 400-89, 490-56, 480-24, 530-21, dated September 4, 1943, are as follows:

a. Fabricate aileron trim tab as shown in figure 1.

b. Scribe a line the length of the trim tab to be installed $\frac{5}{16}$ inch from and parallel with the trailing edge of the left-hand aileron and directly outboard of the electrically operated trim tab.

c. Place the new fixed trim tab on top of the trailing edge of the aileron, so that the inboard edge of the new fixed trim tab is $\frac{3}{16}$ inch from the outboard edge of the electrically operated trim tab. Line the holes of the new fixed trim tab up with the scribed line on the trailing edge.

d. Transfer the six holes to the trailing

edge of the aileron and drill with a No. 30 (.1285-inch) drill.

NOTE Care must be taken that the fabric will not be damaged.

e. Rivet the fixed trim tab to the top of the aileron with six AN456AD4-6 rivets.

NOTE Extreme care should be taken not to damage the fabric and/or mutilate the trailing edge of the aileron while riveting the fixed trim tab.

Adjustment of the fixed trim tab is to be determined in accordance with the flight characteristics of each individual airplane.

3. Weight Change: Negligible.

4. The following parts are required per airplane to accomplish this work.

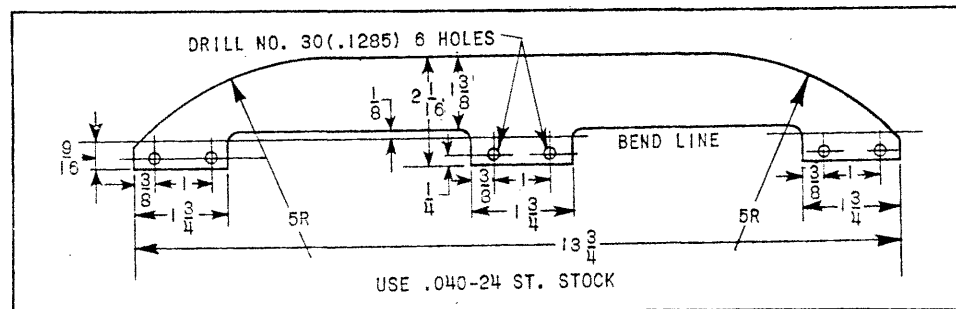


Figure 1 - Trim Tab

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1		75-05-001-40	Trim Tab - Left-hand aileron Mfr. from: Alum.-alloy Sheet - Condition T heat-treated, Specification No. QQ-A-362, .040-inch thickness, approximately 13-1/4 inches x 2-1/16 inches stock No. 6800-142000	01-C	Local Mfr.
6	6700-482410	AN456AD4-6	Rivet - Alum.-alloy brazier-head type AD 1/8 x 3/8 inch	23-A 29	AF Stock AF Stock

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



22 May 1944

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—REPLACEMENT OF FUEL CELL HANDHOLE COVER RINGS—
P-40L AND P-40N**

This Technical Order replaces T. O. No. 01-25C-159, dated 28 January 1944, revised to amend the NOTE, paragraphs 1., and 3.a.

NOTE As prescribed in T. O. No. 00-20A, 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 practicable by service activities with the aid of sub-depots, if necessary, and by manufacturing and modification establishments under the jurisdiction of the Materiel Command when directed by the Materiel Command in accordance with F. O. Memo 150-4. Maintenance fuel cells in stock will be modified prior to installation.

1. To eliminate possible failure of self-sealing fuel cells, part Nos. 87-45-913, fuselage; 87-45-911, front; and 87-45-912, rear, installed in P-40L and P-40N airplanes as a result of warped retainer rings, the fiber retainer rings on the handhole covers manufactured by Goodyear or Hewitt will be replaced with metal retaining rings in accordance with the instructions contained in paragraph 2. Metal retainer rings will be installed during production on wing fuel cells of P-40N airplanes, AF No. 43-23652 and subsequent, and on fuselage fuel cells of P-40N airplanes, AF No. 43-23481 and subsequent.

NOTE It will not be necessary to replace retainer rings on P-40L and P-40N self-sealing fuel cells manufactured by either Firestone or Goodrich since the retainer rings used in the manufacture of these tanks have proved satisfactory in service.

2. The instructions for accomplishing this change as contained in Curtiss-Wright Corporation Service Bulletin 480-28, 550-34, dated 4 October 1943, are as follows:

a. Remove the fuel cells from the airplane. Care will be exercised to avoid damage to the fuel cell.

b. Remove the handhole covers by removing all screws. Carefully remove the fiber ring from the rubber handhole cover. In most cases where warping has occurred, a blunt, flat instrument such as a putty knife may be inserted between the fiber retainer ring and the rubber handhole cover to facilitate separation. Caution will be exercised to prevent damage to the handhole cover.

c. Install a metal ring, part No. 87-420-1025, for Hewitt fuel cells, and part No. 87-420-1026 for Goodyear fuel cells; reinstall cover assembly and screws. Caution will be exercised to insure uniformity when screws are tightened.

NOTE Metal rings for Hewitt and Goodyear fuel cells are not interchangeable.

3. a. The following parts are required per airplane to accomplish this change. These parts will be requisitioned from AF Stock. It will be necessary to specify the fuel cell manufacturer when ordering parts as the retainer rings are not interchangeable.

QTY	STOCK NO.	NOMENCLATURE	CLASS	SOURCE
As req	0104-87-420-1025	Retainer Ring (Hewitt)	01-C	AF Stock
As req	0104-87-420-1026	Retainer Ring (Goodyear)	01-C	AF Stock

b. The parts removed and not reinstalled will be disposed of in accordance with the provisions of AAF Regulation 65-43.

By Command of General ARNOLD:

Prepared by Accessories Section,
Maintenance Div, Hq, ASC.

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED



RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25C-160

DIST: 4,5,7
FILE: BEHS

January 1, 1944

AIRPLANES AND MAINTENANCE PARTS

CURTISS—MODIFICATION OF PROPELLER SPINNER—RP-40D, P-40E SERIES, P-40F, AND P-40K SERIES

This Technical Order replaces T. O. No. 01-25C-160, dated November 15, 1943, revised to correct figure 1.

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary. Spinner assemblies received on contract W535 ac-18685 and now in stock will be re-worked prior to issue.

1. To eliminate all interference between the blade shank and the spinner blade hole throughout the blade angle range, all subject P-40 airplanes will be inspected to determine if the propeller spinners installed meet the requirements set forth in paragraphs 1.a. and 1.b. All spinner assemblies that fail to meet these requirements will be modified in accordance with the instructions contained in paragraph 2.

a. Spinner assemblies, installed on Curtiss propellers using wide blades, part No. 89303-24W, must have a clearance of approximately 1/8 inch at all points throughout the entire blade angle range.

b. Spinner assemblies, installed on Curtiss propellers using narrow blades, part No. 89301-3, must have a clearance of 3/8 inch at points "C" and "D" (figure 1) between the propeller blade shank and the spinner blade hole when the blade is in the high angle (54.4 degrees) position.

c. Spinner assemblies meeting the foregoing requirements will be adaptable to Curtiss propellers using both wide blades, part No. 89303-24W, and narrow blades, part No. 89301-3.

2. The instructions for the modification of spinners, as contained in Curtiss Airplane Division Letter NLK:213, dated February 3, 1943, are as follows:

a. Remove spinner assembly from propeller.

b. Place the assembled spinner, so that the spinner blade holes are completely accessible.

c. Remove the two screws, part No. 1101-D-S-8, from the top of each blade hole cover.

NOTE Do not remove all retaining screws from the cover.

d. Shape the template, part No. MT43-20-T-1 (figure 2), to conform with the spinner contour and secure in position over the blade hole by inserting the two screws removed above, through the template and spinner shell.

e. Inscribe the template pattern on the spinner shell with a sharp scriber.

f. Remove the template and file blade hole to the scribed line. Burr edges carefully.

g. Repeat operation on two remaining blade holes.

h. Clean exposed metal with carbon tetrachloride.

i. Brush on one coat of zinc chromate primer and allow to dry 15 minutes.

j. Spinner assemblies already modified and spinner assemblies meeting the requirements of paragraphs 1.a. and 1.b. will be identified by the 1/2-inch letter M stenciled on the spinner assembly adjacent the blade cut-out hole using enamel, insignia red, U.S. Army Specification No. 3-98 or AN-E-3.

3. The following tool and materials are required to accomplish this modification.

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1		MT43-20-T-1	Template - Spinner blade hole (See figure 2.) Mfr. from: Steel - Low alloy, low carbon sheet .025 in. Specification No. AN-QQ-S-676, stock No. 6800-489300 approximate 7 in. x 8 in.	18 23-A	Local Mfr. AF Stock

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED

RESTRICTED
T. O. No. 01-25C-160

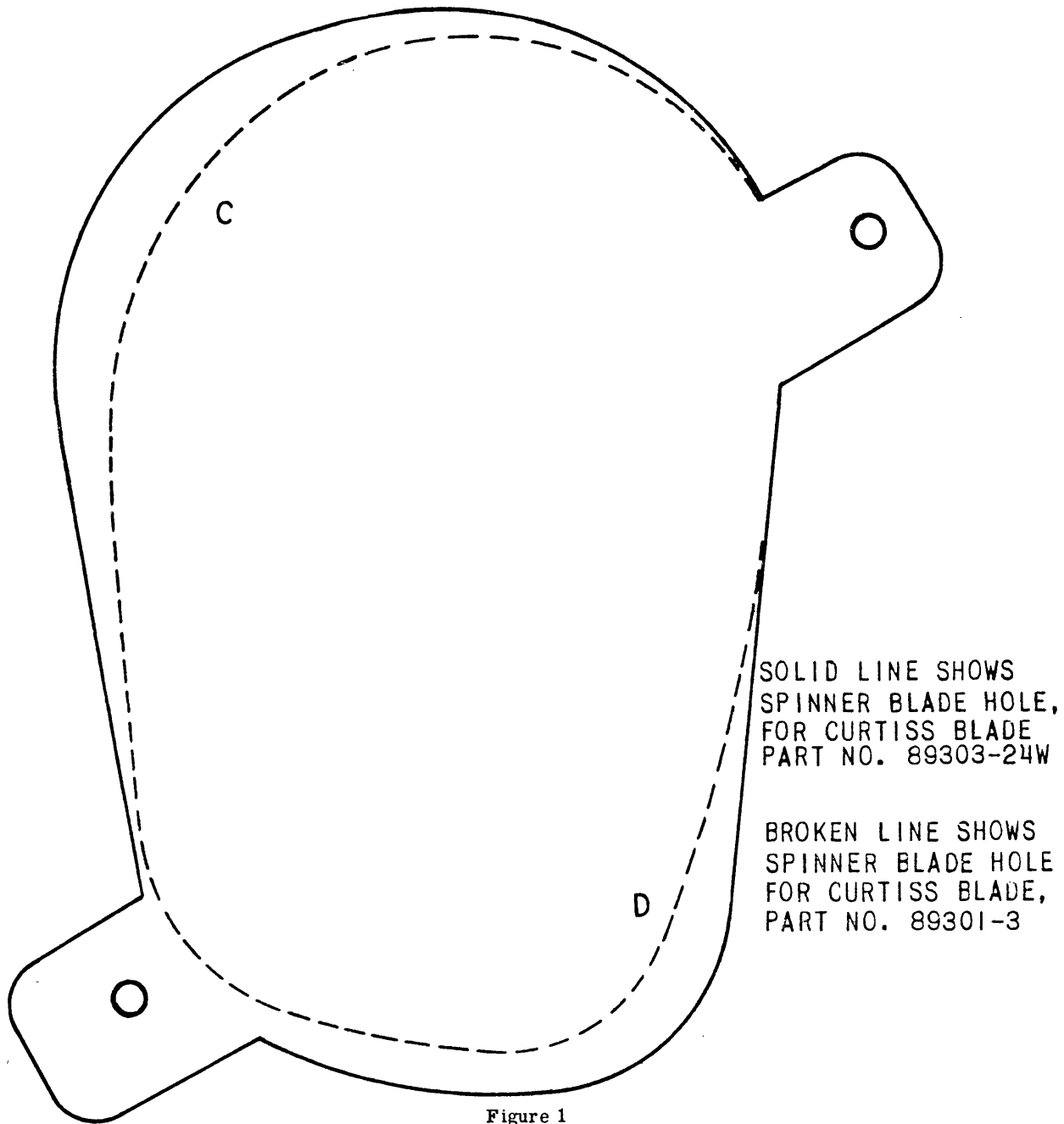


Figure 1

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
As req	7300-788000		Primer Metal - Zinc chromate AN Aeronautical Specification No. AN-TT- P-656a, 1 gal.	07	AF Stock
As req	7300-410000		Enamel - Insignia red U.S. Army Specifi- cation No. 3-98 or AN-E-3, 1 qt	07	AF Stock

RESTRICTED
T. O. No. 01-25C-160

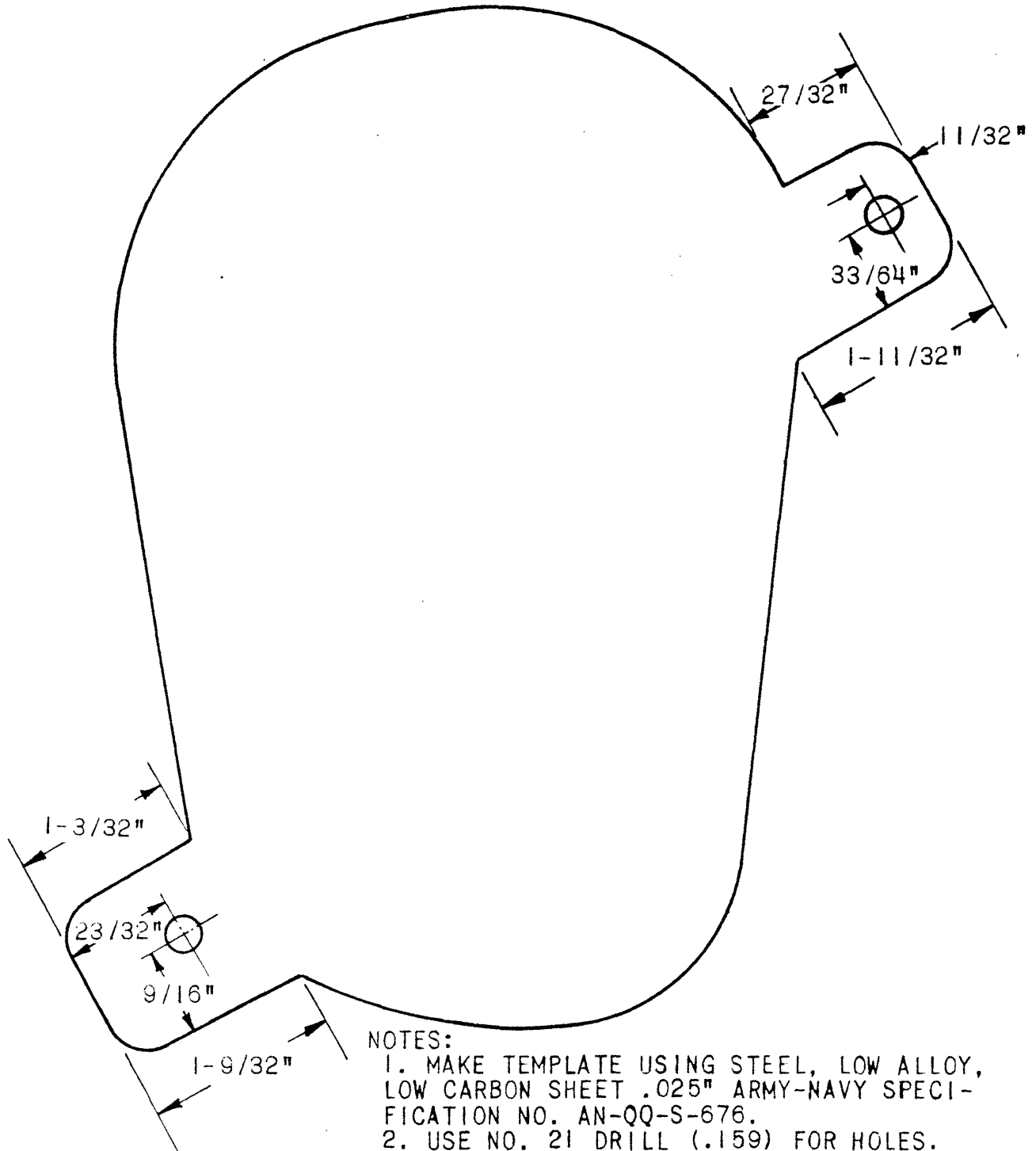


Figure 2

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.



15 July 1944

AIRPLANES AND MAINTENANCE PARTS

CURTISS—REINFORCEMENT OF THE FUSELAGE AT STATIONS 14 AND 15 BULKHEADS—P-40F, P-40K, P-40K-1, P-40L, P-40M, AND P-40N

This Technical Order replaces T. O. No. 01-25C-161, dated 10 January 1944, revised to correct figure 2.

NOTE As prescribed in T. O. No. 00-20A, 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 practicable by service activities with the aid of base maintenance facilities, if necessary.

1. To reduce the possibility of failure due to rudder cable loads, the bulkheads at fuselage stations 14 and 15 on the airplanes listed below will be reworked in accordance with the instructions contained in paragraph 2.

remove the rudder cable pulleys from the pulley brackets on the left- and right-hand side of station 15 bulkhead.

MODEL	AF SERIAL NOS.
P-40F	All
P-40K	All
P-40K-1	All
P-40L	All
P-40M	All
P-40N	42-104429 to 42-106428 inclusive 43-22752 to 43-22951 inclusive

Model P-40N airplane, AF No. 43-22952 and subsequent, will have this feature incorporated by the contractor prior to delivery.

2. The instructions for accomplishing this change as outlined in Curtiss Service Bulletins 400-90, 490-57, 480-26, 530-22, 550-31, dated 18 September 1943 are as follows:

a. Fabricate one each bracket, part No. 87-210-1504 left and right, two brackets, part No. 87-210-1503, and two reinforcing plates, part No. 87-21-197, as shown in figure 1, details (A), (B), and (C) respectively.

b. Remove the left- and right-hand fuselage inspection doors from the fuselage at station 15.

c. Remove the tail wheel canvas cover from the fuselage and

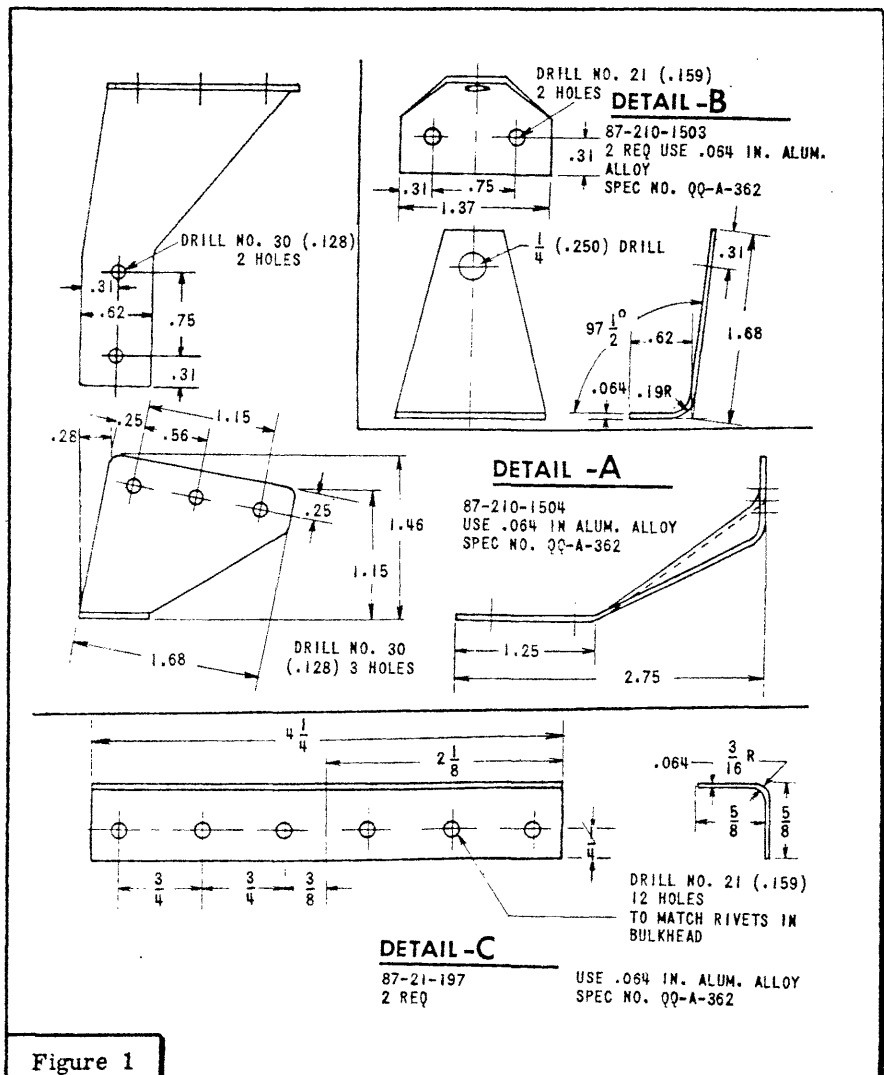


Figure 1

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

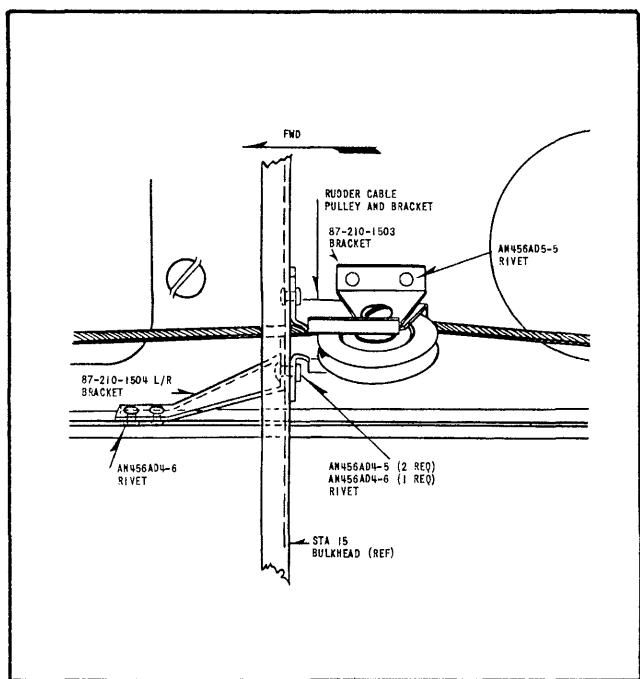


Figure 2 - Reinforcement of the Fuselage
at Station No. 14 and No. 15 Bulkhead

d. Install bracket, part No. 87-210-1503, on top of the pulley bracket in such a manner that the 1/4-inch hole in the bracket will match the hole in the pulley bracket with the new bracket, part No. 87-210-1503, attached. (See figure 2.)

e. Transfer and drill the two holes of the bracket in the skin of the fuselage with a No. 21 (.159-inch) drill and rivet with two rivets, part No. AN456AD5-5. (See figure 2.)

f. Remove the three rivets from the bottom part of the pulley brackets. Install the brackets, part No. 87-210-1504, left and right, on the forward side of the bulkhead at station 15. Rivet the top part of the bracket, part No. 87-210-1504, to the pulley bracket through the bulkhead using two rivets, part No. 456AD4-5, through the outboard holes and with one rivet, part No. AN456AD4-6, through the inboard hole. (See figure 2.)

g. Transfer and drill the two holes in the other leg of bracket, part No. 87-210-1504, to the stringer on which it rests, with a No. 30 (.1285-inch) drill and rivet to the stringer with two rivets, part No. AN456AD4-6. (See figure 2.)

h. Remove the reinforcement plates on the left- and right-hand side of bulkhead No. 14 and install reinforcing plate, part No. 87-21-197, in its place, picking up the same holes on the previous plates. Enlarge the rivet holes in the bulkhead with a No. 21 (.159-inch) drill and rivet the plates to the bulkhead with 12 rivets, part No. AN456AD5-5.

i. Check the rudder cables for its proper tension, reinstall the tail wheel canvas cover and replace the inspection doors on the left- and right-hand side of the fuselage.

3. a. The following parts are required per airplane to accomplish this change.

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1		87-210-1504-L	*Bracket (See figure 1, detail A.)	01-C	Local Mfr
1		87-210-1504-R	*Bracket (See figure 1, detail A.)	01-C	Local Mfr
2		87-210-1503	*Bracket (See figure 1, detail B.)	01-C	Local Mfr
2		87-21-197	*Plate - Reinforcing (See figure 1, detail C.)	01-C	Local Mfr
			*Mfr from:		
			Alum.-alloy Sheet - Cond T, heat treated	23-A	AF Stock
			.064 inch, Specification No. QQ-A-362,		
			stock No. 6800-142020		
28	6700-482680	AN456AD5-5	Rivet - Alum.-alloy brazier-head, type	29	AF Stock
			AD 5/32 x 5/16 inch		
4	6700-482360	AN456AD4-5	Rivet - Alum.-alloy brazier-head, type	29	AF Stock
			AD 1/8 x 5/16 inch		
6	6700-482410	AN456AD4-6	Rivet - Alum.-alloy brazier-head, type	29	AF Stock
			AD 1/8 x 3/8 inch		

b. The parts removed and not reinstalled will be disposed of in accordance with the provisions of AAF Regulation 65-43.

c. The change in weight and balance as a result of this modification is negligible.

By Command of General ARNOLD:

Prepared by Aircraft Section,
Maintenance Div, Hq, ASC.

WALTER H. FRANK,
Major General, U. S. A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTONTECHNICAL ORDER
No. 01-25C-162DIST: 4,5,7
FILE: BEHS

October 28, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—INSPECTION OF MAIN LANDING-GEAR RETRACTING
LINKS—P-40 SERIES

NOTE *A summary of the periodic inspection prescribed in paragraph 1. will be entered in the appropriate section of the Master Airplane Maintenance Instructions Forms maintained with the Form 41-B for the airplanes affected.*

1. To decrease the possibility of collapse of the main landing gear on P-40 series airplanes, the upper retracting links, part Nos. 87-31-519-1 (LH) and 87-31-519-2 (RH), and the lower retracting links, part Nos. 87-31-524 (LH) and 87-31-524 (RH), on the main landing gear will be inspected daily and after any abnormal or unusually hard landing.

NOTE *It is important that pilots report abnormal or unusually hard landings so that this inspection can be made.*

2. Upper or lower retracting links found defective will be replaced immediately by new links obtained from class 01-C stock.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED



April 28, 1944

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—MODIFICATION OF RUDDER ASSEMBLY—
P-40E-1, P-40F, P-40K, P-40K-1, P-40L, P-40M, AND P-40N**

This Technical Order replaces T. O. No. 01-25C-165, dated January 29, 1944, revised to change paragraph 1. and figure 3.

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary, and by manufacturing and modification establishments under the jurisdiction of the Materiel Command when directed by the Materiel Command in accordance with F.O. Memo 150-4. In accordance with T. O. No. 00-20A-2, a reference to the periodic inspection prescribed in the note contained in paragraph 1. will be entered in the Master Aircraft Inspection and Maintenance Guides or Airplane Maintenance Instruction Forms. Rudders, part Nos. 87-14-601, 87-14-901, and 87-14-606, in stock will be reworked prior to issue.

1. To reduce the possibility of rudder failure the airplanes listed below will be reworked in accordance with the instructions contained in paragraph 2.

MODEL	AF SERIAL NOS.
P-40E-1	41-35923 to 41-36953 inclu
P-40F	All
P-40K and P-40K-1	All
P-40L	All
P-40M	All
P-40N	42-104429 to 42-106428 inclu 43-22752 to 43-24252 inclu

Model P-40N airplane, AF No. 43-24253 and subsequent, will be reworked by the contractor prior to delivery.

NOTE Until this modification is accomplished, all affected airplanes will be inspected

at each 50-hour inspection period for indications of rudder beam failure. Inspection may be accomplished by examination of the leading edge of the rudder in the area adjacent to the upper hinge. Failures of the rudder beam are indicated by wrinkling or cracking of the metal nose skin, generally in the area between the upper hinge and the rib below the hinge. Typical failures are illustrated in figures 1 and 2. Rudders which show such signs of failure should be removed and further inspected by removing the fabric covering and examining the rudder

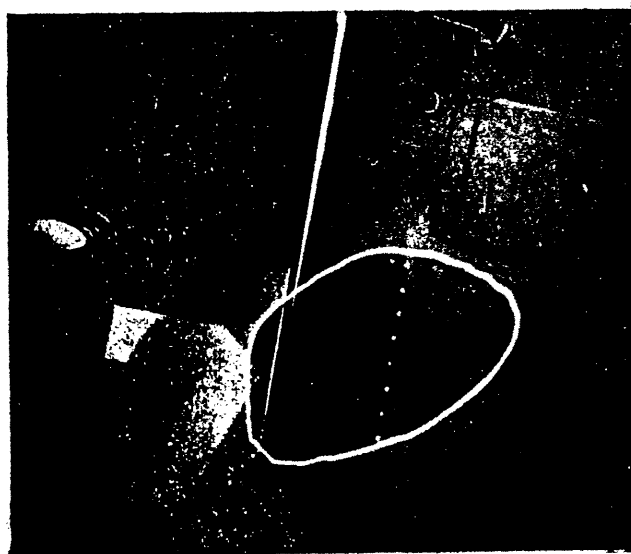


Figure 1 - External Indications
of Rudder Beam Failure

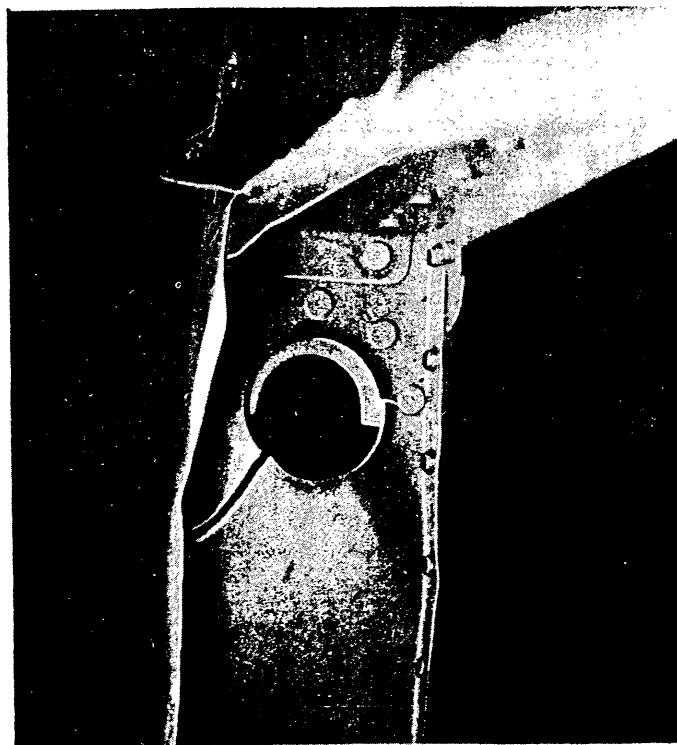


Figure 2 - Rudder Beam Failure

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

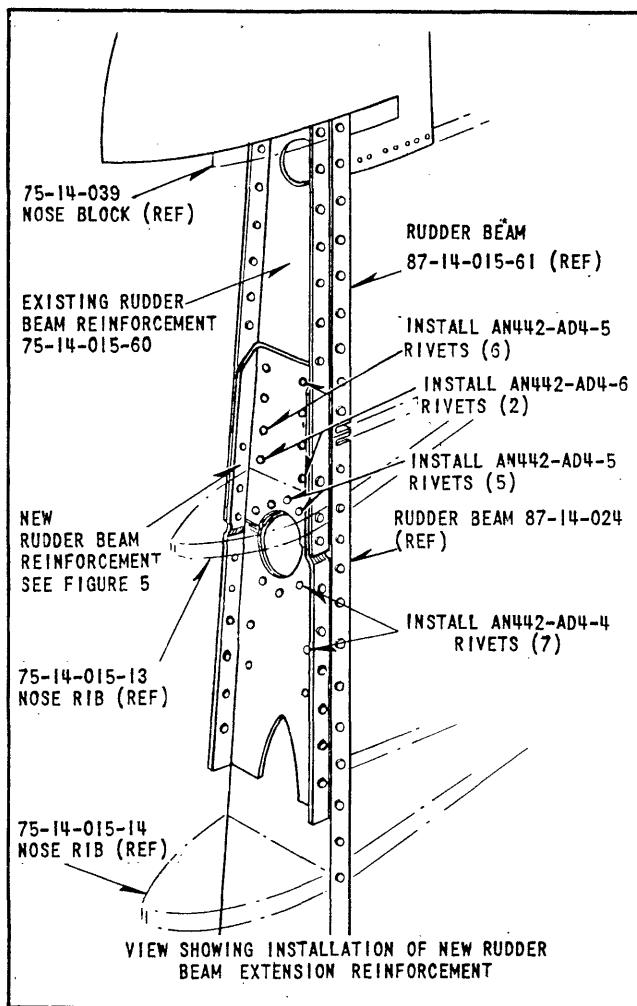


Figure 3 - Showing Installation of New Rudder Beam Reinforcement

beam for deformation and cracks. Damaged sections of the rudder beam should be replaced.

WARNING The failure of a new rudder was attributed to severe shimmy experienced during landings. All airplanes with severe shimmy characteristics should therefore be inspected after each flight for indications of rudder failure. The shimmy damper on these airplanes should be treated as outlined in paragraph 2.x. following.

2. The instructions for accomplishing this modification are as follows:

a. Disconnect the rudder tab control unit at the rudder, and the rudder control cables at the lower rudder horn.

b. Disconnect the bonding and remove the top hinge bolt.

c. Remove the upper and lower bearing caps by removing two nuts securing each cap and remove the rudder from the airplane.

d. Remove the fabric covering from the rudder.

e. Remove 47 rivets, part No. 671-D-4AD, from the left and right sides of the upper nose skin section located at the nose block, part No. 75-14-039, the nose rib, part No. 75-14-015-13 (first nose rib down from the nose block), the nose rib, part No. 75-14-015-14 (second nose rib down from the nose block), and the main beam, part No. 87-14-024.

f. Remove an 18-inch long section of the upper nose skin by cutting the skin 1/4 inch above the rivet holes in the nose rib, part No. 75-14-015-14 (second nose rib down from the nose block). (See figures 3 and 4.)

g. Remove 13 rivets, part No. AN442AD4, from the lower end of the rudder beam reinforcement, part No. 75-14-015-60. The rivets to be removed include the lower four rivets attaching the reinforcement, part No. 75-14-015-60, to the rudder beam extension, part No. 75-14-015-61; the upper two rivets attaching the reinforcement, part No. 75-14-015-60, to the main rudder beam, part No. 87-14-024; the two rivets attaching the nose rib, part No. 75-14-015-13, the rib, part No. 75-14-015-3, the reinforcement, part No. 75-14-015-60, to the main rudder beam, part No. 87-14-024; and the five rivets located in a semicircular pattern around the lightening hole adjacent to the nose rib, part No. 75-14-015-13.

h. Fabricate a doubler extension reinforcement in accordance with the details shown in figure 5.

i. Place the fabricated reinforcement in the proper position on the rudder beam as shown in figure 3 and clamp in place.

j. Match drill the two holes adjacent to those arranged in a semicircular pattern, with the existing holes using a size No. 30 (.1285-inch) drill. Place the nose rib, part No. 75-14-015-13, in position and install two rivets, part No. AN442AD4-6. (See figure 3.)

k. Remove the clamps and match drill the remaining 11 holes above the lightening hole using a size No. 30 (.1285-inch) drill. Install 11 rivets, part No. AN442AD4-5. (See figure 3.)

l. Drill the remaining holes in the beam and reinforcement below the lightening hole employing the pilot holes in the reinforcement as a guide and using a size No. 30 (.1285-inch) drill. Install seven rivets, part No. AN442AD4-4.

m. Fabricate a new nose skin in accordance with the details shown in figure 6, to replace the 18-inch section of skin removed.

n. Match the pilot holes in the new fabricated nose skin with the holes from which the rivets were removed in paragraph 2.e., and attach the new skin to the rudder beam with several Cleco fasteners or equivalent skin fasteners.

o. Install the new nose skin by drilling out the pilot holes with a size No. 30 (.1285-inch) drill.

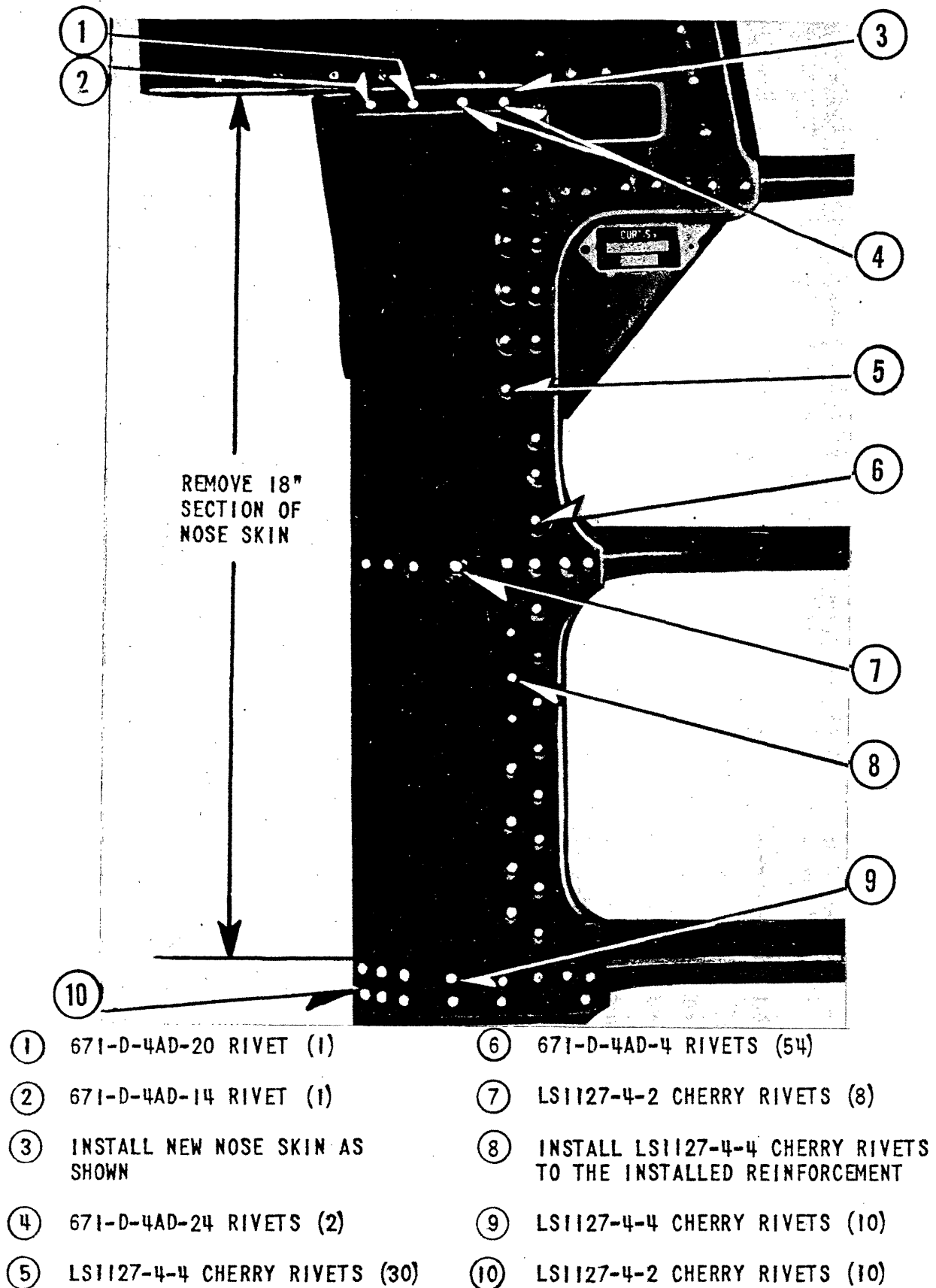


Figure 4 - View Showing Installation of New Rudder Nose Skin

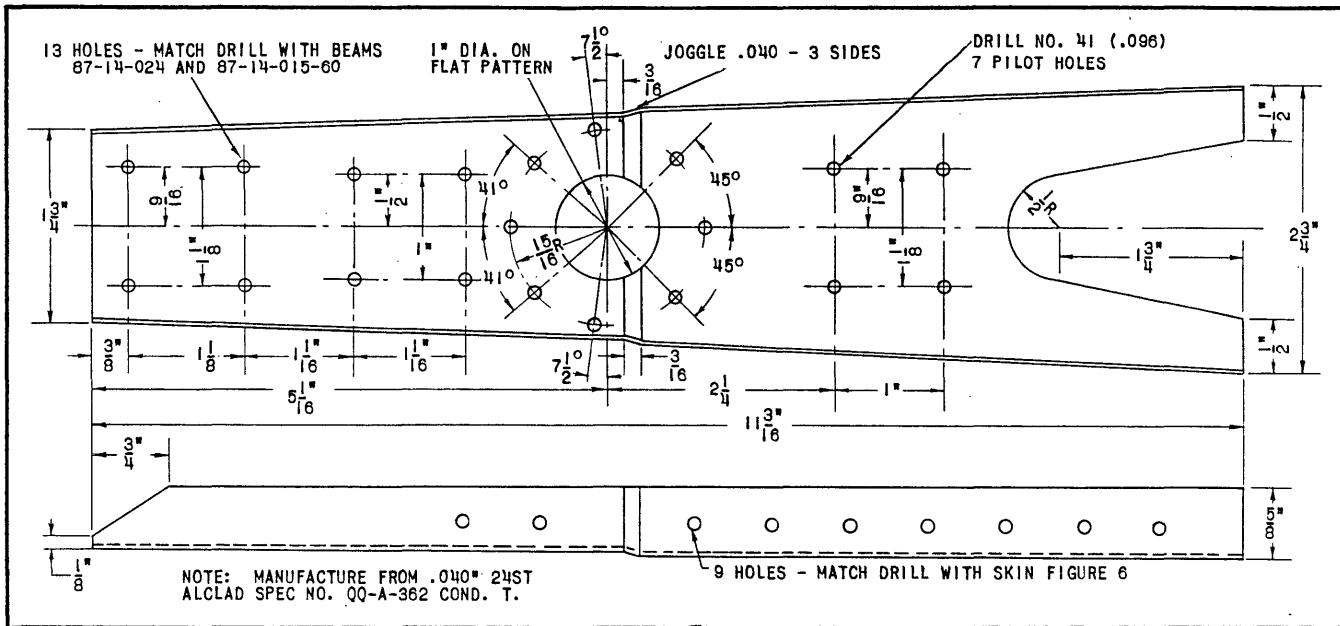


Figure 5 - Detail for Manufacture of Rudder Beam Doubler Extension

p. Install two rivets, part No. 671-D-4AD-24, one rivet, part No. 671-D-4AD-20, and one rivet, part No. 671-D-4AD-14, located at the nose block. (See figure 4.)

q. Install 54 rivets, part No. 671-D-4AD-4, 27 at the aft edge located at the rudder beam of the left and right sides of the new nose skin.

r. Install 30 Cherry rivets, part No. LS-1127-4-4, 15 at each side at the aft edge of the new nose skin located at the rudder beam reinforcement, part No. 75-14-015-60, and the new fabricated reinforcement. (See figure 4.)

s. Install 10 Cherry rivets, part No. LS-1127-4-2, located at the bottom of the new nose skin.

t. Install 10 Cherry rivets, part No. LS-1127-4-4, at the bottom of the new nose skin located at the nose rib, part No. 75-14-015-14 (second rib down from the nose block). (See figure 4.)

u. Install eight Cherry rivets, part No. LS-1127-4-2, to the new skin located at the nose rib, part No. 75-14-015-13 (first nose rib down from the nose block). (See figure 4.)

v. Re-cover the rudder with fabric in accordance with existing instructions.

w. Reinstall the modified rudder to the airplane reversing steps taken to remove the rudder.

x. The instructions for inspection and rework, if necessary, of the tail wheel shimmy damper are as follows:

(1) Jack the tail of the airplane.

(2) With the tail wheel extended remove sufficient screws from the aft portion of the boot to gain access to the top of the tail wheel knuckle.

(3) Disconnect the tail wheel steering cables.

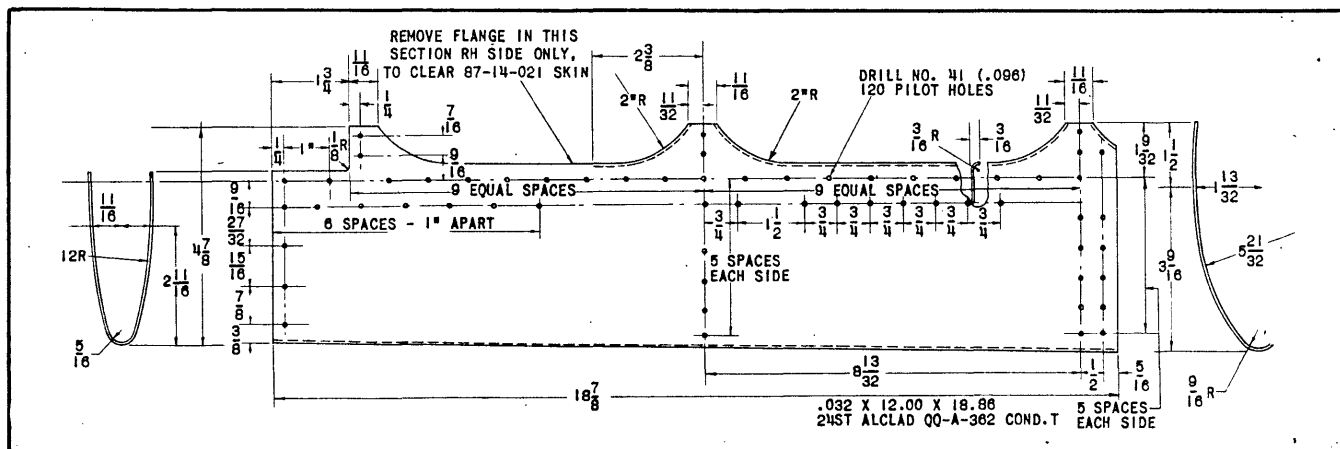


Figure 6 - Detail of Nose Skin Top - Rudder

PS 114

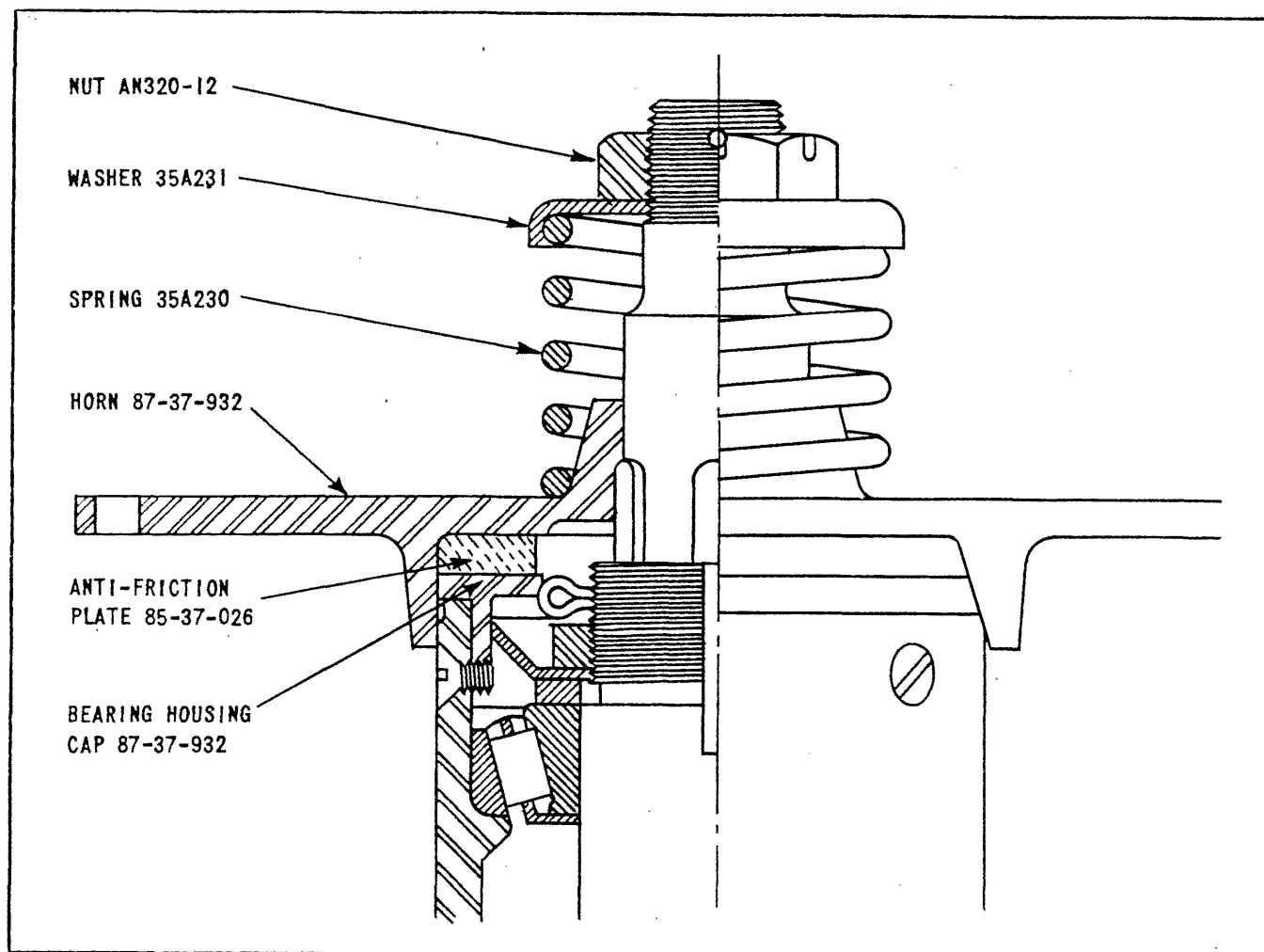


Figure 7 - Steerable Tail Wheel Post - Showing Location of Antishimmy Friction Plate

(4) Remove the cotter key, part No. AN380-C4-5, the nut, part No. AN320-12, the washer, part No. 35A231, and the spring, part No. 35A230, from the top of the tail wheel knuckle. (See figure 7.)

(5) Remove the horn assembly, part No. 87-37-523, and check the antishimmy friction plate, part No. 85-37-026, for the presence of oil, grease, or surface glaze. Remove any oil or grease by washing with gasoline or other suitable solvent. The bearing housing cap should be removed and washed in gasoline if grease or oil has been found on the friction plate. If the surface of the antishimmy friction plate is glazed the plate should be removed from the horn by drilling out the four rivets, part No. AN420C4-7. The friction plate should then be roughened with a wire brush to remove all surface glaze and reinstalled.

(6) Reinstall the parts removed, reversing the procedure outlined above.

y. Adjust the tension and rerig the rudder and tail wheel control cables in accordance with existing instructions. Lower the tail of the airplane to the ground.

z. Set the rudder pedal stops in the cockpit so that the travel of the rudder to left or right of the center line is 30 degrees $\pm$ 2 degrees, but limited to prevent the rudder from hitting the upper hinge (28-degree minimum travel permitted to provide necessary clearance).

3. a. The following parts are required per airplane to accomplish this change.

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1			Reinforcement - Rudder beam extension	01-C	Local Mfr.
			Mfr. from: (See figure 5.)		
			Alum.-alloy - Sheet, cond. T, heat-treated, .040 inch Specification No. QQ-A-362, stock No. 6800-142000	23-A	AF Stock

PS 115

RESTRICTED
T. O. No. 01-25C-165

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1			Skin - Rudder nose top Mfr. from: (See figure 6.)	01-C	Local Mfr.
			Alum.-alloy - Sheet, cond. T, heat-treated, .032 inch Spec- ification No. QQ-A-362, stock No. 6800-141980	23-A	AF Stock
18	6700-481650	LS-1127-4-2	Rivet - Alum.-alloy, brazier-head, self-plugging type, 1/8 x 1/16 inch grip length, Cherry Rivet Co. or equal	29	AF Stock
40	6700-481652	LS-1127-4-4	Rivet - Alum.-alloy, brazier-head, self-plugging type, 1/8 x 1/8 inch grip length, Cherry Rivet Co. or equal	29	AF Stock
1		671-D-4AD-14	Rivet	01-C	AF Stock
			or		
	6700-482585	AN456-AD4-14	Rivet - Alum.-alloy, brazier-head, type AD, 1/8 x 7/8 inch	29	AF Stock
1	0104-671-D-4AD-20		Rivet	01-C	AF Stock
			or		
	6700-482607	AN456-AD4-20	Rivet - Alum.-alloy, brazier-head, type AD, 1/8 x 1-1/4 inches	29	AF Stock
2	0104-671-D-4AD-24		Rivet	01-C	AF Stock
			or		
	6700-482615	AN456-AD4-24	Rivet - Alum.-alloy, brazier-head, type AD, 1/8 x 1-1/2 inches	29	AF Stock
2	6700-497800	AN442AD4-6	Rivet - Alum.-alloy, flathead type AD, 1/8 x 3/8 inch	29	AF Stock
11	6700-497796	AN442AD4-5	Rivet - Alum.-alloy, flathead, type AD, 1/8 x 5/16 inch	29	AF Stock
7	6700-497792	AN442AD4-4	Rivet - Alum.-alloy, flathead, type AD, 1/8 x 1/4 inch	29	AF Stock
54	0104-671-D-4AD-4		Rivet	01-C	AF Stock
			or		
	6700-482310	AN456AD4-4	Rivet - Alum.-alloy, brazier-head, type AD, 1/8 x 1/4 inch	29	AF Stock
1	6700-395320	AN380-C4-5	Pin - Cotter, corrosion-resistant steel, 1/8 x 1-1/4 inches	29	AF Stock
4	6700-534900	AN420C4-7	Rivet - Copper, countersunk head, 1/8 x 7/16 inch	29	AF Stock
As req	7100-238500		Cloth - Mercerized cotton airplane grade A, 36 inches wide, Specifi- cation No. AN-CCC-C-399	21	AF Stock
As req	7100-797000		Tape - Surface, pinked edge, 2-1/4 inches wide, Specification No. 6-62	21	AF Stock
As req	7100-267200		Cord - Cotton, waxed, natural, Z-twist, 3 cord, type 2, Specifi- cation No. AN-V-T-279	21	AF Stock
As req	7300-301500		Dope - Cellulose nitrate, clear, Specification No. AN-TT-D-514	07	AF Stock
As req	7300-303700		Dope - Cellulose nitrate, clear, Specification No. AN-TT-D-551	07	AF Stock
As req	7300-751000		Pigment - Aluminum paste, type 2, class B, Specification No. TT-A-468	07	AF Stock

b. The weight change due to this rework is negligible.

c. Parts removed and not reinstalled will be disposed of in accordance with the provisions of AAF Regulation 65-43.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U. S. A.,
Commanding General, Air Service Command.

Prepared by the Aircraft Section,
Maintenance Div, Hq, ASC.

March 24, 1944

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—ELIMINATION OF OUTER PLATE-GLASS WINDSHIELD PANEL—
RP-40D, P-40E, P-40E-1, P-40F, AND P-40K**

This Technical Order replaces T. O. No. 01-25C-166, dated February 28, 1944, revised to add additional models of airplanes affected.

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished when necessary by service activities with the aid of sub-depots, if necessary.

1. Due to the existing shortage of replacement outer plate-glass windshield panels, part No. 87-26-536, the P-40 airplanes listed below will be reworked to eliminate this panel when necessary, in accordance with the instructions contained in paragraph 2.

MODEL	AF SERIAL NOS.
RP-40D	All
P-40E	All
P-40E-1	All
P-40F	41-13600 to 41-14523 inclusive
P-40K	42-45722 to 42-46321 inclusive 42-9730 to 42-10178 inclusive

Model P-40F airplane, AF No. 41-14524, model P-40K airplane, AF No. 42-10179, and subsequent airplanes have been modified by the contractor prior to delivery.

2. The instructions for accomplishing this modification are as follows:

a. Remove the top front fuselage access door, part No. 87-21-514.

b. Remove five screws, part No. 1101-DS-12, nuts, part No. 365-1032, and washers, part No. AN960-10, from the top windshield retainer, part No. 87-26-535,

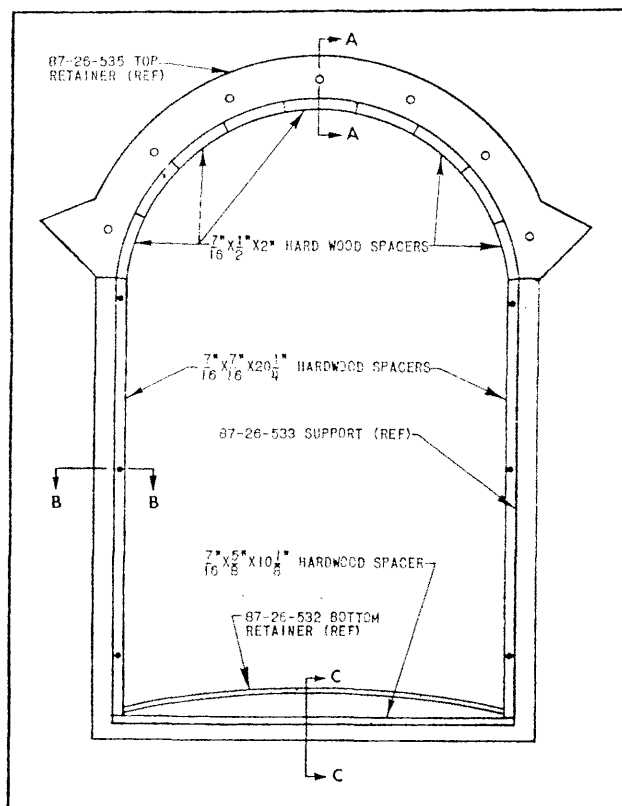


Figure 1 - Front Windshield, Looking Forward

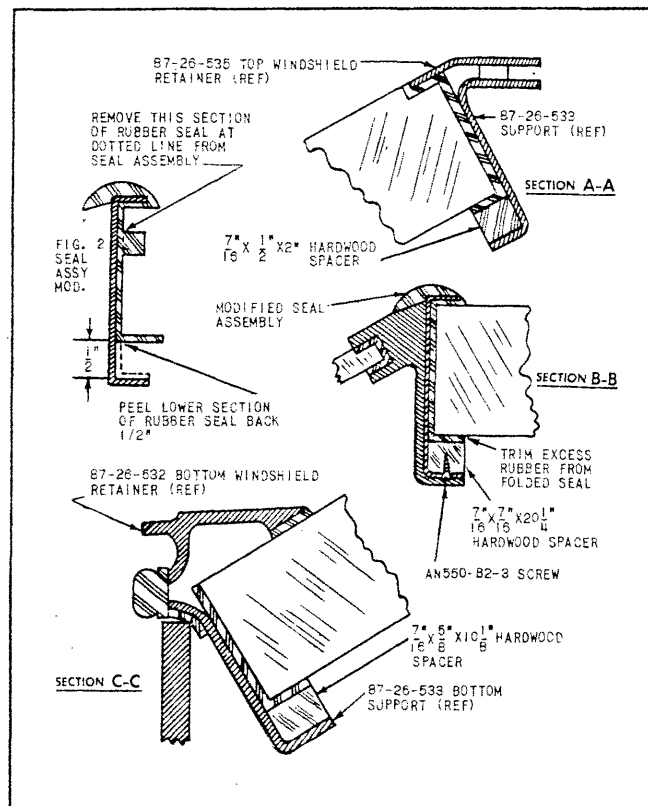


Figure 2

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED
T. O. No. 01-25C-166

located in a semicircle at the top front of windshield. Remove two screws, part No. 1103DS-6, nuts, part No. 365-1032, and washers, part No. AN960-10, located at each side of the retainer, part No. 87-26-535, and remove retainer.

c. Remove two screws, part No. 525-416-12, nuts, part No. 365-428, and washers, part No. AN960-D416. These screws, nuts, and washers are located on each side of the bottom windshield retainer, part No. 87-26-532, at the top rear of the oil tank compartment. Remove the retainer, part No. 87-26-532.

d. Remove the windshield by pushing forward and upward from the cockpit, being careful not to disturb the Everseal at the top and bottom edges of the windshield.

e. Remove two pieces of seal assembly, part No. 87-26-551, from the two sides of the windshield assembly.

f. Remove fiber blocks, part Nos. 87-26-548-1, 87-26-548-2, and fiber blocks, part No. 87-26-549, from the top and bottom of the 1-1/2 inch bulletproof glass.

g. Cut five hardwood spacers measuring 7/16 x 1/2 x 2 inches shaped to fit the radius of the top windshield support, part No. 87-26-533, and cement the spacers to the semicircular inside flange of the support, part No. 87-26-533, so that the 1/2-inch face of the spacers are against the flange of the support. (See figures 1 and 2, section A-A.) These spacers are to be positioned at equal distances, starting at the top center and ending at each side of the semicircle.

h. Cut one hardwood spacer, measuring 7/16 x 5/8 x 10-1/8 inches and cement to the bottom inside flange of the windshield support, part No. 87-26-533, with the 5/8-inch face of the spacer against the flange of the support. (See figures 1 and 2, section C-C.)

i. Remove the section of rubber from the seal assembly, part No. 87-26-551 L/R, and peel a portion of the rubber from the metal of the seal assembly as shown in figure 2.

j. Cut two hardwood spacers measuring 7/16 x 7/16 x 20-1/4 inches. Cement the spacers to the bottom edge of the seal assembly. Drill three holes in each seal assembly at equal distances in the bottom edge of the metal part of the seal assembly, using size 1/16 drill (.0625-inch) and countersink. Using three screws, part No. AN550-B2-B, attach the spacer to the metal part of the seal assembly.

k. Install the seal assemblies to the edges of the 1-1/2 inch bulletproof glass, so that the chamfered top semicircular part of the glass will be outboard of the airplane. The rubber portion of the seal assembly that was peeled back in paragraph 2.i, should be between the glass and the hardwood spacer. Trim the protruding edges of the rubber seal flush with the hardwood spacer. (See figure 2, section B-B.)

l. Install the modified windshield assembly in the airplane.

m. Install the bottom windshield retainer, part No. 86-26-532, with the rubber Everseal attached, using screws, nuts, and washers removed in paragraph 2.c.

n. Install the top windshield retainer, part No. 87-26-535, with the Everseal attached, using screws, nuts, and washers removed in paragraph 2.b.

o. Apply sealer compound to the bottom and top windshield retainer, at the edge where they contact the glass.

p. Reinstall the top front fuselage access door, part No. 87-21-514.

3. The following parts are required per airplane to accomplish this change.

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
6	6700-796050	AN550B2-3	Screw - Wood, brass flathead No. 2 x 3/8 in.	29	AF Stock
As req	6600-118030		Cement - Synthetic rubber, type 11, Specification No. 26571	04-B	AF Stock
As req	7300-227000		Compound - Joint sealing, Specification No. 2-86	07	AF Stock
5			Spacer - 7/16 x 1/2 x 2 in.	01-C	Local Mfr.
			Mfr. from:		
			Lumber - Hardwood, air dry or kiln dry, 1 inch thick, random widths and lengths, stock No. 7200-253700	22	AF Stock
1			Spacer - 7/16 x 5/8 x 10-1/8 in.	01-C	Local Mfr.
			Mfr. from:		
			Lumber - Hardwood, air dry or kiln dry, 1 inch thick, random widths and lengths, stock No. 7200-253700	22	AF Stock
2			Spacer - 7/16 x 7/16 x 20-1/4 in.	01-C	Local Mfr.
			Mfr. from:		
			Lumber - Hardwood, air dry or kiln dry, 1 inch thick, random widths and lengths	22	AF Stock

By Command of General ARNOLD:

Prepared by Aircraft Section,
Maintenance Div, Bq, ASC.

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

20 August 1944

AIRCRAFT AND MAINTENANCE PARTS

CURTISS—RELOCATION OF JACK BOX BC-629 SERIES, RADIO SET SCR-522-A—P-40K AND P-40L

This Technical Order replaces T. O. No. 01-25C-168, dated 25 April 1944.

NOTE As prescribed in T. O. No. 00-20A, 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 practicable by service activities with the aid of base maintenance facilities, if necessary, and by manufacturing and modification establishments under the jurisdiction of the Materiel Command when directed by the Materiel Command in accordance with M.C. Regulation 151-4.

1. INTRODUCTION.

To provide better accessibility, Jack Box BC-629 series, part of Radio Set SCR-522-A, will be relocated in all P-40K and P-40L airplanes prior to AF serial No. 42-10489 in which Radio Set SCR-522-A is installed. The relocation will be accomplished in accordance with the instructions contained in paragraph 2.

2. RELOCATION.**a. PRELIMINARY.**

(1) Remove Jack Box BC-629 series from below data case on right side, and retain. Do not remove Microphone Adapter M-299.

(2) Remove Switch Box BC-345 from the factory installed bracket and disconnect switch box cable from junction box forward of instrument panel on right side.

b. REINSTALLATION.

(1) Locate the retained Jack Box BC-629 series, with socket downward, against bracket from which switch box was removed. (See figure 1.)

(2) Mark location for two holes in back of jack box to match plate nuts in bracket. Remove jack box and drill, using a No. 15 (.1800) drill, holes at the marked locations, using care to avoid damage to wiring or connections in the jack box.

(3) Carefully remove all metal borings from jack box to avoid danger of a short circuit.

(4) Install jack box using two screws, part No. AN526-832-8, into the existing plate nuts.

(5) Tape jack box cables to existing wiring for proper support.

3. a. The following part is required to accomplish this work:

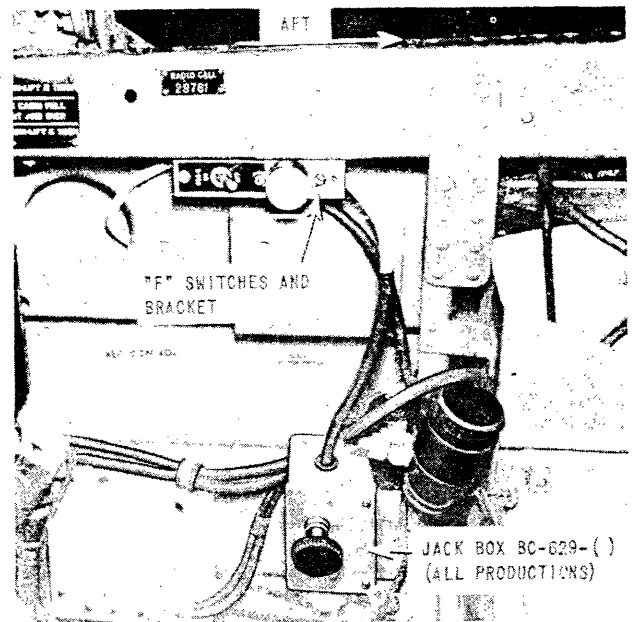


Figure 1 - Right Side of Pilot's Position

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
2	6700-615450	AN526-832-8	Screw - Buttonhead 8 32 x 1/2 inch	29	AF Stock

b. Items removed and not reinstalled will be disposed of in accordance with AAF Regulation 65-43.

By Command of General ARNOLD:

Prepared by Tactical Equipment Section,
Maintenance Div, Hq, ASC.

CLEMENTS McMULLEN,
Major General, U.S.A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED

RECEIVED 11/20/70
SAC, NEW YORK

[illegible]

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

[illegible][illegible]

... ..

AIRPLANES AND MAINTENANCE PARTS

1 August 1944

**CURTISS—REINFORCEMENT OF AILERON RIB AT OUTBOARD END—
RP-40D, P-40E, P-40E-1, P-40F, P-40K, P-40K-1, P-40L, P-40M,
P-40N, P-40R-1, AND P-40R-2**

This Technical Order replaces T. O. No. 01-25C-169, dated 1 May 1944, revised to give additional information.

NOTE As prescribed in T. O. No. 00-20A, 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 practicable by service activities with the aid of base maintenance facilities, if necessary, and by manufacturing and modification establishments under the jurisdiction of the Materiel Command when directed by the Materiel Command in accordance with M.C. Regulation 151-4. All spare aileron assemblies in stock will be reworked prior to issue.

1. To decrease possibility of failure of aileron end rib, the RP-40D, P-40E, P-40E-1, P-40F, P-40K, P-40K-1, P-40L, P-40M, P-40N, P-40R-1, and P-40R-2 airplanes will be reworked in accordance with the instructions contained in paragraph 2. P-40N airplane, AF No. 43-24252 and subsequent, will be modified by the contractor prior to delivery.

2. The instructions for accomplishing this change as contained in Curtiss Service Bulletin 550-49, dated 13 March 1944, are as follows:

NOTE Difference of rivet locations at the lower surface of the aileron at the outboard end rib will identify a modified from an unmodified aileron. It will not be necessary to remove the aileron from the airplane to perform the inspection, unless indications are

present which necessitate further and more thorough inspection. It will not be necessary to cut the fabric on an already modified aileron. The following statements may be helpful in performing the inspection:

On the unmodified aileron, the rivets which attach the lower surface of the nose skin to the aileron nose beam continue along the beam at regular intervals up to the outboard end rib.

The continuity of the line of rivets on the lower surface of the aileron nose skin is interrupted on the modified aileron. Four larger rivets attach the gusset, end rib, nose beam, and nose skin and these rivets are spaced rectangularly and describe the corners of the lower gusset flange.

SECTION I**a. THE NORMAL CHANGE.**

NOTE The normal change is to be accomplished when, after the completion of work outlined in paragraph 2.a.(8), section I, the aileron outboard end rib has been found to be in good condition. Although the installation of a new rib of thicker (.032-inch) material is advised for a section II change, it will not be necessary to replace the original rib (which is constructed from .025-inch material) in a section I change. The additional stiffness provided by the gusset to the end rib assembly is considered sufficient to eliminate possible failures of the rib.

(1) Disconnect the aileron tab control unit (if any) at the aileron. The aileron control arm will slip out when the aileron is removed.

(2) Disconnect the bonding strips and remove the center hinge bolt.

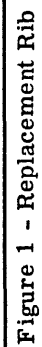
(3) Remove the inboard and outboard hinge bearing caps by removing the nut and bolt assemblies. The aileron may now be removed from the airplane.

(4) Remove the fabric from the outboard end rib to the middle of the 4-inch wide fabric reinforcing strip between the end rib and the second rib.

CAUTION Care must be exercised, when making the incision in the fabric, neither to damage nor score the metal structure and nose skin. It has been proved many times that failures of metal parts, and especially of aluminum-alloy parts, may be traced directly to scoring of the part previously.

(5) Remove the outboard end hinge unit, part No. 75-05-022, by removing the two bolts, part No. AN3-5, and the clevis bolt, part No. AN24-23, attaching this unit to the aileron end. This also disassembles the hinge unit.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



PG 121

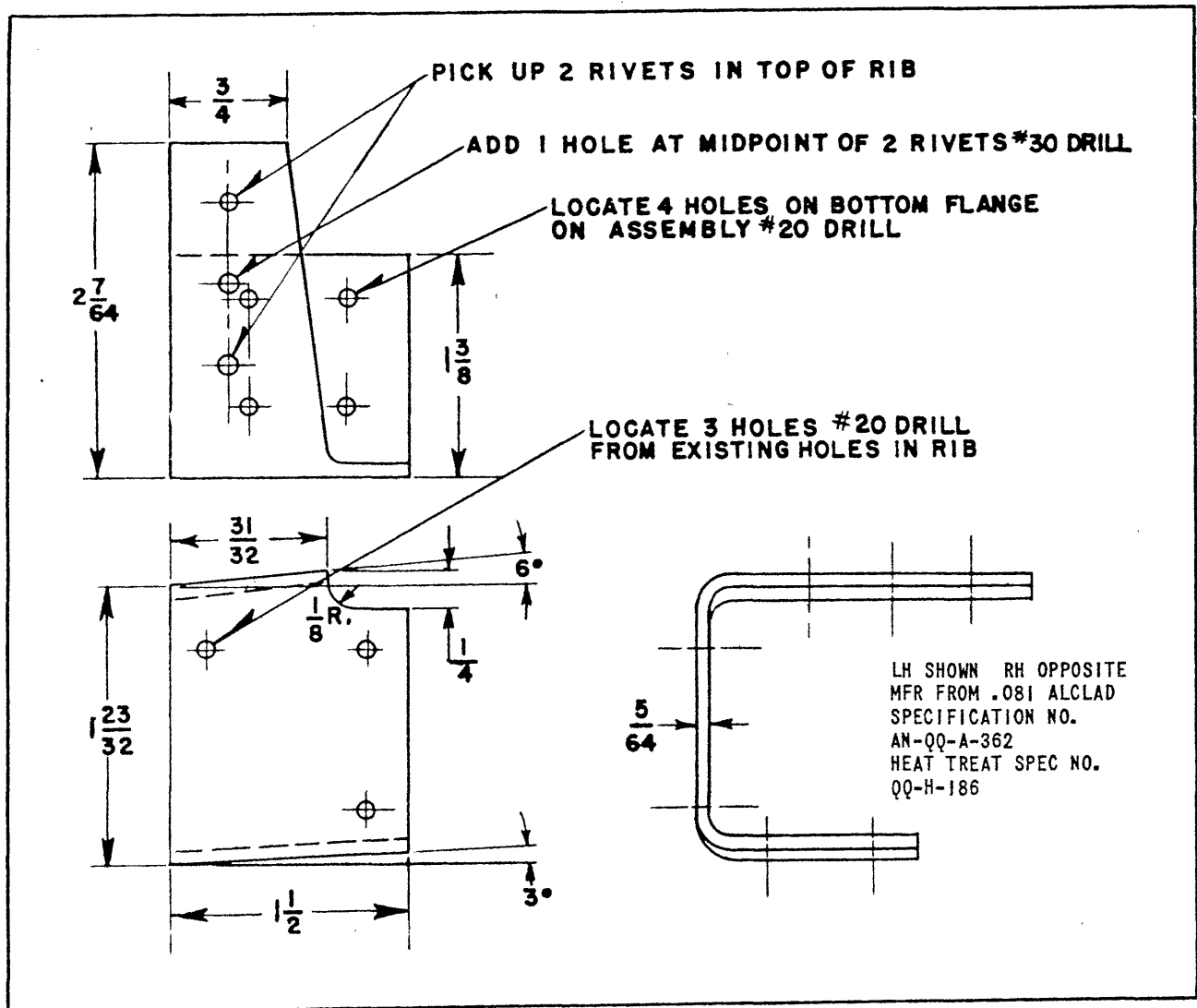


Figure 2 - Aileron Outboard End Gusset, Part No. SK9104

(6) Inspect carefully the hinge bearing, part No. AN201-K4-A, and the flanged casting, part No. 75-05-022. Check for signs of wear, malfunction, or possible failure.

NOTE If the clevis bolt, part No. AN24-23, and nut, part No. AN320-4, are not drilled for cotter pinning, they should be replaced with the proper type. One cause for end rib failures is this bolt working loose and permitting excess play in the hinge bearing unit.

(7) Remove the three rivets, part No. AN456AD5-6, with which the rib, part No. 87-05-001-15 L/R, the spacer, part No. 75-05-016 L/R, and the aileron nose beam end flange are fastened together. The spacer may be removed but not discarded since it will be re-installed.

(8) Inspect the aileron outboard end rib very carefully for any visible signs of failures such as cracks, small fissures, and breaks, etc.

NOTE If the aileron end rib is sound, continue with the normal change. Otherwise, fol-

low the instructions in section II for the change described therein. Parts may be fabricated in accordance with details given in section III, paragraphs (1) and (2) and following general metal working practice.

(9) Place the end beam reinforcing gusset, part No. SK9104 (fabricated in accordance with section III, paragraph (1)), into the rear of the nose beam and behind the flange. (See figure 3.) If necessary, file the forward edge of the gusset to obtain a snug fit. See section III, paragraph (1) for description of this part.

(10) Secure the gusset temporarily to the nose beam with sheet metal holders or clamps. Pick up the existing rivet holes and the holes for the bolts attaching the hinge assembly to the aileron rib. Consult figures 2 and 3 for details.

CAUTION Be certain that the gusset fits snugly in the aileron nose beam without undue strain in any direction. Do not force a fit since any distortion of the beam in assembly will result in an untrue and distorted aileron.

(11) Remove the gusset, drill the holes, and remove burrs and any rough edges.

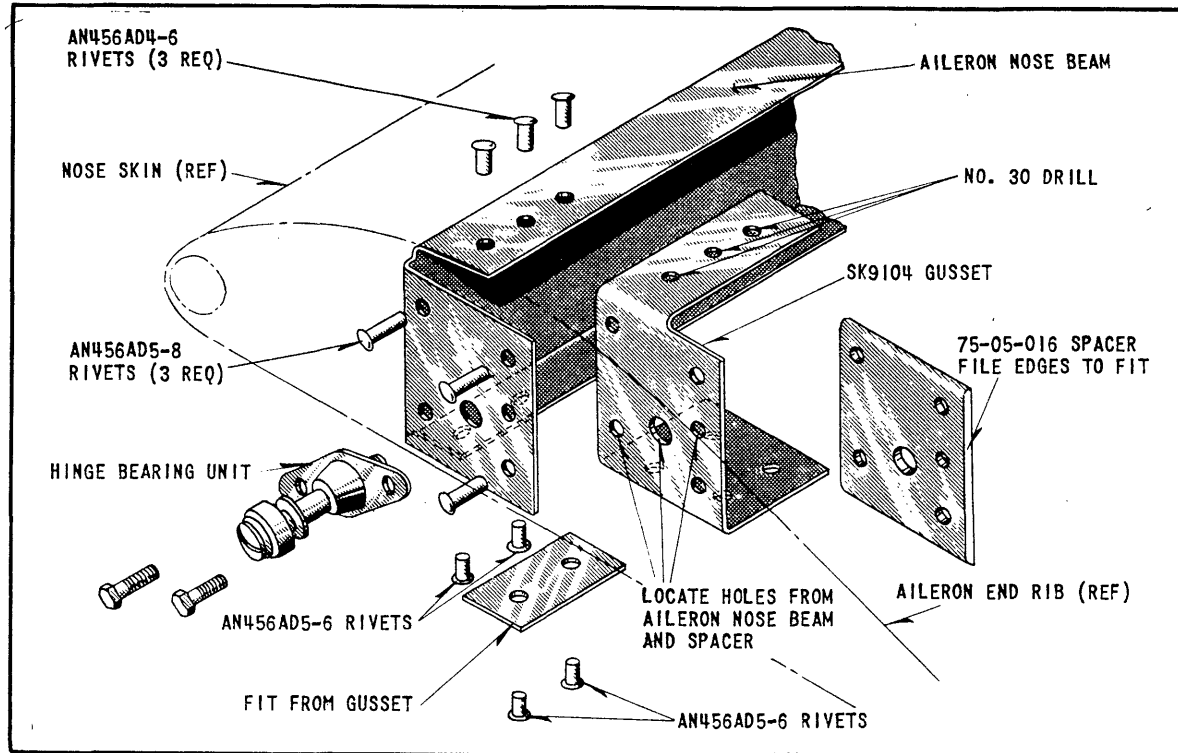


Figure 3 - Assembly Details and Aileron Outboard End Reinforcement

(12) Check carefully the alignment of the holes and recheck the fit of the gusset.

(13) Fasten the gusset, the aileron nose beam, and the nose skin together with three rivets, part No. AN456AD4-6, along the upper surface and two rivets, part No. AN456AD5-6, along the lower surface using existing holes. (See figures 2 and 3.)

(14) Locate the shim plate of .032-inch material between the nose skin and gusset. Secure with two rivets, part No. AN456AD5-6.

(15) Place the spacer, part No. 75-05-016 L/R, behind the gusset and fit the assembly by matching up the existing holes. If necessary, file the upper and lower edges of the spacer to fit. Attach these parts together with three rivets, part No. AN456AD5-8. (See figure 3.)

(16) Reinstall the outboard end hinge unit with the two bolts, part No. AN3-5, nut, and washer assemblies. Reassemble the bearing and casting with the properly drilled bolts and castellated nuts. Cotter pin all bolts. See figure 3 for hinge bearing unit details.

NOTE Due to the addition of an extra thickness of metal in the modified assembly, it may be necessary to change the bolts for longer ones.

(17) Remove the remaining half of the 4-inch wide strip of reinforcing fabric by soaking with the proper solvent. Take care not to injure the aileron covering itself, and clean the fabric.

(18) Cover the end of the aileron and sew to the previously prepared edge with a baseball stitch. After

the new end cover is sewn, apply a coat of dope (clear nitrate) and allow to dry.

(19) Apply a succeeding coat of dope and while the second coat is still wet, apply a 2-inch wide strip of tape over the seam.

(20) Apply a 4-inch strip of reinforcing fabric over the 2-inch strip leaving an overlap on each side.

(21) Replace all the reinforcing tape and fabric that was removed and refinish the end of the aileron.

(22) The aileron is now ready for installation. Raise the aileron until the ball bearings on the ends of the aileron are seated in the upper halves of the split cap fittings and the center hinge on the panel drops into place through a slot in the aileron leading edge. At the same time, guide the ball end of the control arm, with the composition waxed bushing installed, into the socket of the drum in the panel.

(23) Clamp and bolt the end hinges and bolt the center hinge through an access door in the lower aileron surface.

NOTE Because of the design of the bearing retainers, the inboard and outboard caps are not interchangeable.

(24) Connect the bonding strips. Connect the electric trim tab control conduit on the left-hand aileron.

NOTE Some P-40 airplanes are not equipped with trim tabs adjustable in flight. In this case, disregard the instructions on the tab.

SECTION II

b. THIS CHANGE IS TO BE MADE WHEN THE END RIB SHOWS SIGNS OF FAILURE.

(1) Follow the steps as described in the normal change section I through paragraph (8). If the aileron outboard end rib shows any signs of failure, it should be replaced with one made of thicker (.032-inch) material.

NOTE Fabrication details will be found in section III, paragraph 2.c.(2).

(2) Remove the balance bar cap (figure 1, detail A) by removing the AN526-832-8 screw type bolt. The balance bar or weight may now be removed.

(3) Drill out the nose skin rivets, part No. 670-D-4-4, located on the upper and lower surfaces of the aileron nose skin.

CAUTION Care should be exercised in drilling out the rivets so that the rivet holes are not enlarged in the parts.

(4) Remove the three rivets, part Nos. AN456AD4-18, AN456AD4-12, and AN456AD4-14, which are located near the trailing edge. Save the spacers and fillers since these are to be reinstalled. Remove the aileron end rib.

(5) Fit the new aileron outboard end rib to the

nose skin trailing edge, and nose beam. Exercise care in matching and locating the rivet holes so that the aileron is true in assembly. Any distortion at this point will result in a warped aileron.

(6) Fasten the rib temporarily to the aileron with holders and clamps. Check for fit of gusset and other components.

(7) Attach the gusset, part No. SK9104, as described in paragraphs (9) to (13) inclusive in section I.

(8) Secure the rib to the aileron nose beam with the three rivets, part No. AN456AD5-8, as described in paragraph (15) of section I.

(9) Secure the rib to the nose skin with the 12 rivets, part No. AN450C8D4. Recheck alignment of the rib.

(10) Attach the rib and the trailing edge with rivets, part Nos. AN456AD4-17, AN456AD4-12, and AN456AD4-13. Be sure to reinstall the spacer and filler.

(11) Reinstall the balance bar or weight and secure with the cap and bolt assembly.

NOTE See figure 1 for details of this operation.

(12) Complete the change as described in paragraphs (12) to (23) inclusive in section I.

SECTION III

c. FABRICATION OF PARTS.

NOTE Inasmuch as the fabrication of these parts, both the gusset and the aileron end rib, require heat treatment of the metal after forming, it is not feasible to attempt fabrication unless all facilities for performing such work are available. Any change made where the facilities are not available should constitute emergency repair only.

(1) Fabrication of the aileron nose beam outboard end gusset, part No. SK9104.

NOTE This part is to be fabricated for either change.

(a) The gusset is fabricated from a 5-1/4 x 2-inch piece of .081-inch thick material, the specification of which is 24 S.O. Alclad QQ-A-362 condition A. After cutting to shape and forming (See figure 2 for details) the gusset is to be heat-treated according to Specification No. AN-QQ-H-186.

CAUTION The standard minimum bend radius of this material for this thickness is 1/8 inch. Any sharper bend will result in the rupture of the material and subsequent failure.

(b) The gusset is not to be drilled until formed and fitted on the installation since this is the only

method for obtaining a correct fit. If necessary, the forward edge of the gusset may be filed in order to fit the gusset snugly in place.

(2) Fabrication of replacement aileron end rib.

NOTE In the event the aileron end rib is found defective or shows any signs of failure, it should be replaced with a rib of thicker (.032-inch) material. On P-40N airplane, AF No. 43-24052 and subsequent, a rib of .032-inch material is incorporated at the factory prior to delivery.

(a) Consult figure 1 for dimensions, details, and the shape of the end rib. A template may be laid out from the drawings or a rib may be made by duplicating the original rib in curvature.

(b) The material used for the rib is a piece .032 x 4-1/2 x 11-3/4 inch Alclad 24 S.O. Specification No. QQ-A-362 condition A. After forming, the rib should be hardened to Specification No. AN-QQ-H-186 condition A.

NOTE The standard minimum curve radius of .032 Alclad 24 S.O. material is 1/32 inch. Precaution should be taken not to bend this material at a sharper radius.

(c) Attach a plate nut at the balance bar cap (detail A, figure 1) location duplicating the original provision for retaining the balance bar or weight.

89124

RESTRICTED
T. O. No. 01-25C-169

(d) Detail N-N (figure 1) shows the bonding tab provision. The tab is attached with the rivet, part No. AN456AD3-3. See figure 1 for location and detail.

3. a. The following materials are required per airplane to accomplish the work outlined in paragraph 2., section I and subparagraph (1) of section III.

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1		SK9104 L/R	Gusset - (See figure 2.) 5-1/4 x 2 inches Mfr. from: Aluminum Alloy - Sheet condition A annealed .081 inch, Specification No. QQ-A-362, stock No. 6800-141880	01-C 23-A	Local Mfr. AF Stock
2			Shim Spacer - 1-1/2 x 3/4 inches Mfr. from: Aluminum Alloy - Sheet condition T heat- treated .032 inch, Specification No. QQ-A-362, stock No. 6800-141980	01-C 23-A	Local Mfr. AF Stock
6	6700-482410	AN456AD4-6	Rivet - Aluminum-alloy brazier-head type AD 1/8 x 3/8 inch	29	AF Stock
8	6700-482705	AN456AD5-6	Rivet - Aluminum-alloy brazier-head type AD 5/32 x 3/8 inch	29	AF Stock
6	6700-482755	AN456AD5-8	Rivet - Aluminum-alloy brazier-head type AD 5/32 x 1/2 inch	29	AF Stock
6	6700-394950	AN380C-2-2	Pin - Cotter corrosion-resistant steel 1/16 x 1/2 inch	29	AF Stock
1 yard	7100-238500		Cloth - Mercerized cotton airplane grade A, Specification No. AN-CCC-C-399	21	AF Stock
As req	7100-798085		Tape - Surface pinked edge 4 inches wide, Specification No. 6-62	21	AF Stock
As req	7100-796500		Tape - Surface pinked edge 2 inches wide, Specification No. 6-62	21	AF Stock
As req	7100-830210		Thread - Cotton machine silk finish Z twist type 1B2 white 4-cord ticket No. 16, Specification No. V-T-276	21	AF Stock

b. The following additional material may be required in accordance with the instructions in paragraph 2.b., section II and paragraph 2.c.(2), section III.

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
As req			Aileron End Rib - 4-1/2 x 11-3/4 inches Mfr. from: Aluminum Alloy - Sheet condition A annealed .032 inch Specification No. QQ-A-362, stock No. 6800-141830	01-C 23-A	Local Mfr. AF Stock
24	6700-571800	AN450C8D4	Rivet - Tubular aluminum-alloy style C 1/8 x 1/8 inch	29	AF Stock
2	6700-482603	AN456AD4-18	Rivet - Aluminum-alloy brazier-head type AD 1/8 x 1-1/8 inches	29	AF Stock
2	6700-482575	AN456AD4-12	Rivet - Aluminum-alloy brazier-head type AD 1/8 x 3/4 inch	29	AF Stock
2	6700-482585	AN456AD4-14	Rivet - Aluminum-alloy brazier-head type AD 1/8 x 7/8 inch	29	AF Stock
2	6700-482010	AN456AD3-3	Rivet - Aluminum-alloy brazier-head type AD 3/32 x 3/16 inch	29	AF Stock

c. Parts removed and not reinstalled may be disposed of in accordance with the provisions of AAF Regulation 65-43.

By Command of General ARNOLD:

Prepared by Aircraft Section,
Maintenance Div, Hq, ASC.

DELMAR H. DUNTON,
Major General, U.S.A.,
Commanding General, Air Service Command.

Pg 125

15 August 1944

AIRCRAFT AND MAINTENANCE PARTS

CURTISS—REWORK OF PIN, FOLDING, REAR GUN MOUNTS—P-40 SERIES

This Technical Order replaces T. O. No. 01-25C-171, dated 15 May 1944, revised to change length of screw in paragraph 2.b.(2).

NOTE As prescribed in T. O. No. 00-20A, appropriate reference to this Technical Order will be entered on AAF Forms 60-A for airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of base maintenance facilities, if necessary, and by manufacturing and modification establishments under the jurisdiction of the Materiel Command when directed by the Materiel Command in accordance with M.C. Regulation No. 151-4.

1. To insure positive locking of boresighting adjustments, both lateral and vertical, the work directed in paragraph 2. will be accomplished on all P-40E aircraft and subsequent. P-40N, AF No. 44-7501 and subsequent, will have a similar change made in production.

2. This change involves both reworking the folding pin, part No. 87-69-735, and replacing the two set screws, part No. 565A4-8, with fillister-head screws. The procedure for accomplishing this change as given below is for one gun, the same procedure is to be used for each rear mount.

a. REWORKING THE FOLDING PIN.

(1) Remove lockpin assembly, part No. 87-69-938, screw, part No. 1029E-6-5, and washer, part No. AN960-10, and discard them.

(2) Remove pin, part No. 87-69-735.

(3) Rework pin, part No. 87-69-735, in accordance with figure 1 (reworked pin to become part No. 44A22746).

(4) Fabricate one collar, part No. 44A22813, as shown in figure 2.

(5) Install reworked pin, part No. 44A22746, collar, part No. 44A22813, and bolt, part No. AN74-6, and lockwire in accordance with figure 3.

b. REPLACING THE SETSCREWS.

(1) Remove the two setscrews, part No. 565A4-8, in the lower adapter and discard them.

(2) Install two fillister-head screws, part No. AN503-416-10, and lockwire as shown in figure 3.

NOTE It is assumed that the guns are in proper boresighted position, if not, the guns should be boresighted before the lock wiring procedure directed in paragraphs 2.a.(5) and 2.b.(2) is accomplished.

3. a. The following parts are required per gun to complete this change. The parts, or the material for their fabrication (in the case of part No. 44A22813), will be supplied by requisition on the proper supply classes.

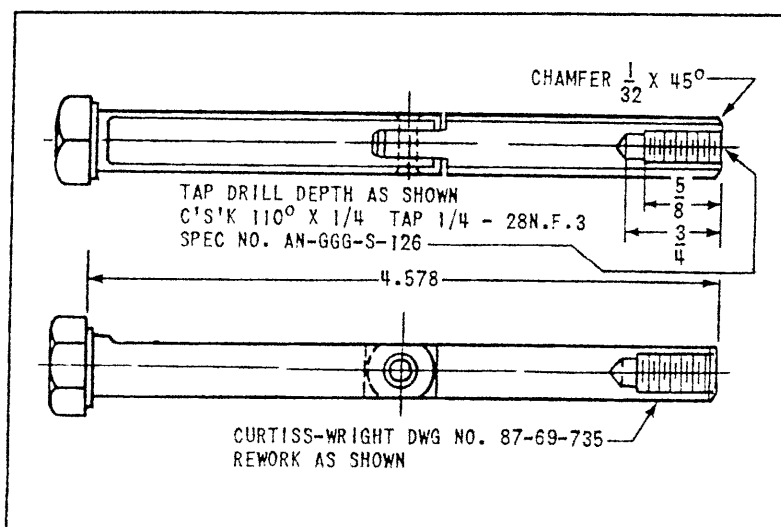
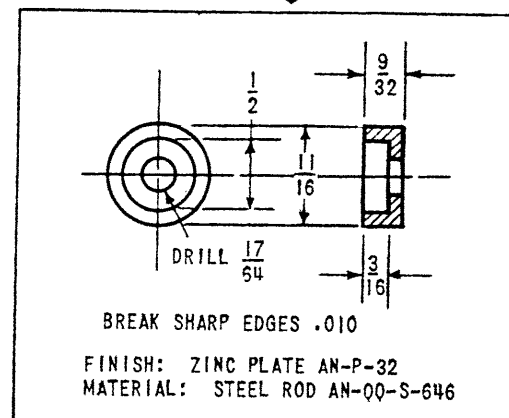


Figure 1 - Rework of Wing Gun Folding Rear Support Pin

Figure 2 - Wing Gun Folding Rear Support Collar



NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED
T. O. No. 01-25C-171

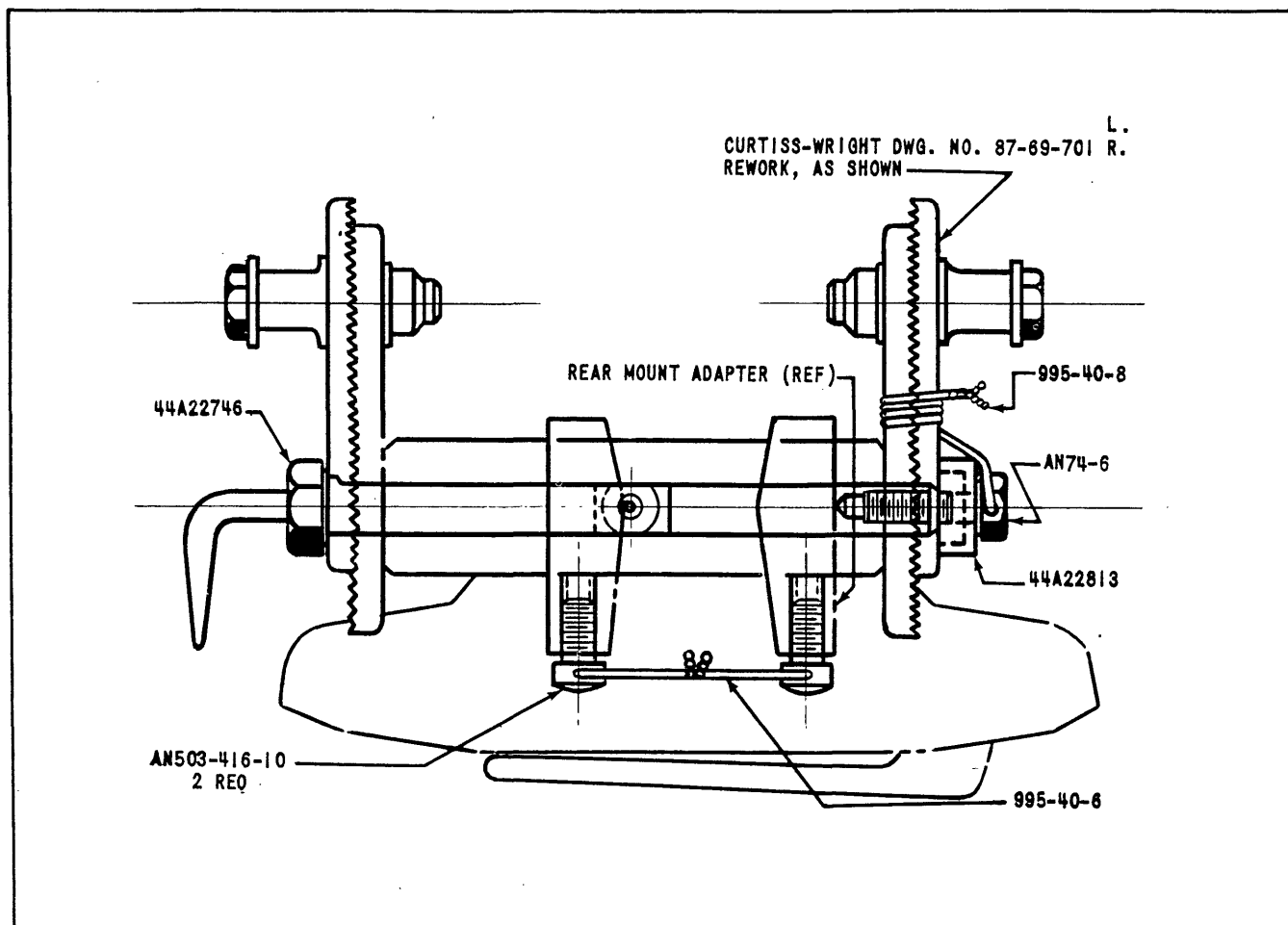


Figure 3 - Installation of Wing Gun

QTY	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	AN74-6	Bolt	04-A	AF Stock
1	44A22813	Collar	01-N	Local Mfr.
As req		Mfr. from: Steel - Mild carbon cold rolled round rod 11/16 in., Specification No. AN-QQ-S-646, stock No. 6800-618000 (See figure 2.)	23-A	AF Stock
2	AN503-416-10	Screw - Drilled fillister-head machine coarse thread	04-A	AF Stock
14 in.	995-40	Lock Wire	23-A	AF Stock

b. The following parts removed per gun in accomplishing this change will be disposed of in accordance with AAF Regulation 65-43.

QTY	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	87-69-938	Lockpin Assembly	01-C	
1	1029E-6-5	Screw	04-A	
1	AN960-10	Washer	29	
2	565A4-8	Setscrews	29	

By Command of General ARNOLD:

Prepared by Tactical Equipment Section,
Maintenance Div, Hq, ASC.

CLEMENTS McMULLEN,
Major General, U.S.A.,
Commanding General, Air Service Command.

PS 127

SUPPLEMENT TO BASIC TECHNICAL ORDER

RESTRICTED

HEADQUARTERS, ARMY AIR FORCES
WASHINGTON 25, D. C.

TECHNICAL ORDER
NO. 01-25C-171A

11 September 1944

AIRCRAFT AND MAINTENANCE PARTS

CURTISS—REWORK OF PIN, FOLDING, REAR GUN MOUNTS—P-40 SERIES

NOTE This Technical Order supplements T. O. No. 01-25C-171, dated 15 August 1944, to make corrections as indicated herein. A SUITABLE REFERENCE TO THIS SUPPLEMENT WILL BE MADE ON PAGE 1 OF THE BASIC TECHNICAL ORDER AND THE CORRECTED PARAGRAPH INDICATED ACCORDINGLY.

1. Paragraph 1. of T. O. No. 01-25C-171, dated 15 August 1944, is hereby amended to read as follows:

* * * * *

"1. To insure positive locking of boresighting adjustments, both lateral and vertical, the work directed in paragraph 2. will be accomplished on all P-40E aircraft and subsequent."

* * * * *

By Command of General ARNOLD:

Prepared by Tactical
Equipment Section,
Maintenance Div,
Hq, ASC.

CLEMENTS McMULLEN,
Major General, U.S.A.,
Commanding General, Air Service Command.



20 June 1944

AIRPLANES AND MAINTENANCE PARTS

CURTISS—INSTALLATION AND MAINTENANCE PROCEDURE FOR SLIDING
CANOPIES—P-40 SERIES

NOTE The inspection and work directed herein will be accomplished by service activities. In accordance with T. O. No. 00-20A-2, a summary of the periodic inspection prescribed in paragraph 1. will be entered in the 50-hour inspection section of the Master Aircraft Maintenance Guides or Airplane Maintenance Instruction Forms.

1. To materially reduce the possibility of canopies being inadvertently lost in flight, all P-40 series airplanes will be inspected at every 50-hour inspection period in accordance with the instructions contained in paragraph 2. The work directed herein will be accomplished concurrently with T. O. No. 01-1-122.

NOTE There are two major items which determine the security and smooth operation of the canopy, namely:

Position and method of safety wiring the release latches.

Fit and maintenance of the several component parts which make up the entire canopy installation.

2. The instructions for accomplishing this inspection and rework, if necessary, as contained in Curtiss Service Instruction Memo 217, dated 6 March 1944, are as follows:

NOTE Prior to installing a canopy, follow the procedure described following.

a. Clean and dry the tracks upon which the canopy roller trucks move. Oil and dirt will make for excessive track wear and cause a loose fit of the trucks.

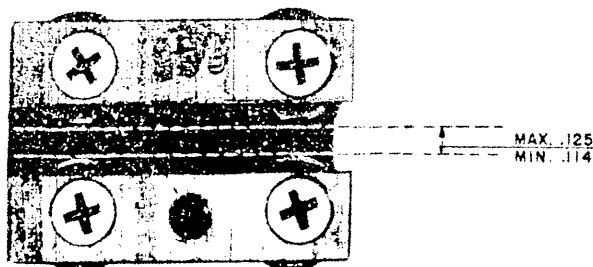


Figure 1 - Showing Permissible Tolerances on Truck Assembly

b. Check four truck assemblies for tight fit on the track. On new truck assemblies, check the gap between the top and bottom rollers for the following tolerances, maximum .125 inch, minimum .114 inch. (See figure 1.) Check the inboard face of the truck extrusion to ascertain if it has a smooth flat surface. If the truck assemblies appear to be satisfactory and the fit on the tracks is slightly loose, it is permissible to close the gap by bending the truck extrusion SLIGHTLY in a convex direction. (See figure 2.) This may be required, due to slight track wear which will occur after a number of service hours. If the gap of the new roller is excessive, discard the roller. Also discard the roller if the extrusion face is concave in shape.

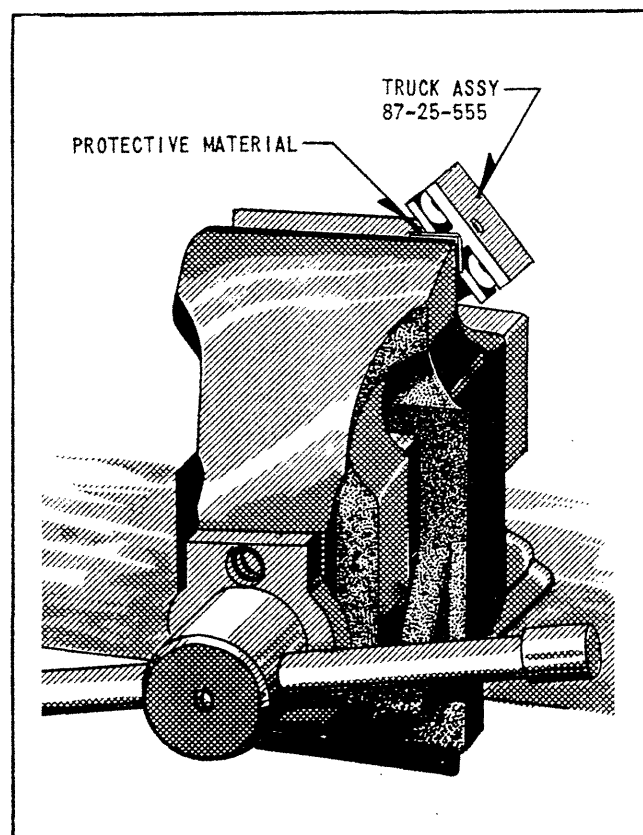


Figure 2 - Method of Bending the Truck Extrusion for Proper Adjustment

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

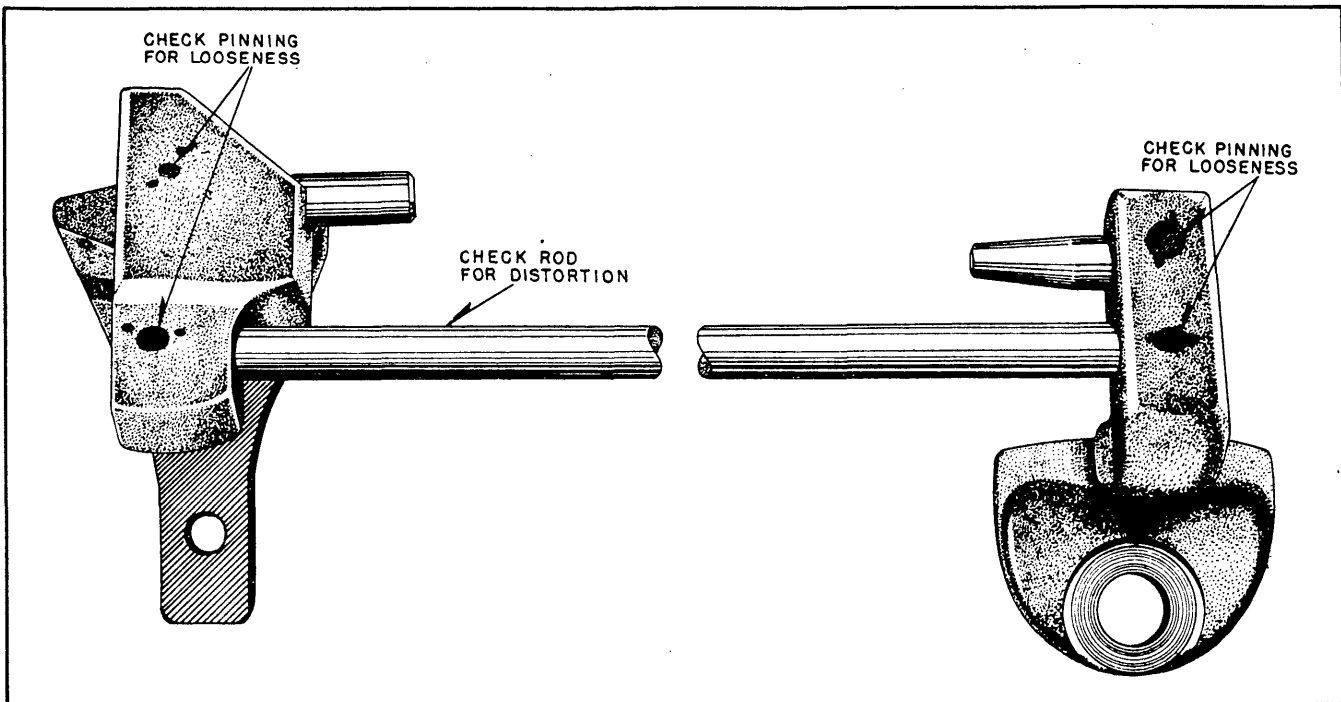


Figure 3 - Link Rod Assembly, Part No. 87-25-623

c. Inspect the link rod assemblies for security of pinnings. Discard any rods which have a distortion. Make sure the front and rear locking pins in the goose-neck fittings are not bent or loose. (See figure 3.)

d. Inspect the canopy visually for warpage, cracked glass, or looseness of the frame. Check the left and right front locking fittings for correctly drilled tapered holes. (See figure 4.) Check the left and right rear locking mechanisms for free movement, and security of attachment. Check the release cables for freedom of travel in the guide tubes.

e. Inspect the canopy control cables, pulleys, and the control handle unit for freedom of movement, frayed wire strands and full travel. Pay particular attention to the soldered fittings where the rear goose-neck fittings are attached for secure solder joints, and undamaged threads.

NOTE Later airplanes have a swaged cable joint at this point, which is more secure than the soldered joint.

f. Check the bolt attachment of the gooseneck fittings to the front truck assemblies. Make sure that the bushings are approximately .002 inch longer than the fitting to permit slight rotation of the fitting on the truck. The bolts must be tight and properly safety wired.

g. Open the canopy latches and install the canopy on the front tapered locking pins and lock the rear pins in the right- and left-hand latches.

h. Roll the canopy forward and lock it shut. Check for canopy fit and tightness. If appreciable play is noted, determine the cause by checking the following:

- (1) Snug mating of front and rear locking pins.

- (2) Springing or bending of the link rods.
- (3) Slack in the release latch mechanism.
- (4) Slack in the roller fit on the tracks.
- (5) Looseness of attachment to control cable.

NOTE Do not allow more than .030-inch fore-and-aft play of the canopy.

Do not allow appreciable side motion of the canopy.

i. If inspection shows the canopy installation to be satisfactory, perform the next step with great care.

(1) Install the safety wire (.032-inch brass or equivalent) at the release latches as shown in figure 5.

(2) The wire must preload each latch in the "LOCKED" position past the "DEAD-CENTER" position.

NOTE Do not fracture the wire by twisting too tight.

(3) Shown in figure 6 is a simple tool which will make the installation of safety wire easier while the canopy is on the airplane.

(4) It may be found that it is more convenient to install safety wire with the canopy free from its attachment. If so, remove the canopy after performing the inspection stated in paragraph 2.h., and thread a fairly long length of safety wire through the release mechanism; then reinstall the canopy to the airplane and complete the safety wiring operation.

20 June 1944

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—INSTALLATION AND MAINTENANCE PROCEDURE FOR SLIDING
CANOPIES—P-40 SERIES**

NOTE The inspection and work directed herein will be accomplished by service activities. In accordance with T. O. No. 00-20A-2, a summary of the periodic inspection prescribed in paragraph 1. will be entered in the 50-hour inspection section of the Master Aircraft Maintenance Guides or Airplane Maintenance Instruction Forms.

1. To materially reduce the possibility of canopies being inadvertently lost in flight, all P-40 series airplanes will be inspected at every 50-hour inspection period in accordance with the instructions contained in paragraph 2. The work directed herein will be accomplished concurrently with T. O. No. 01-1-122.

NOTE There are two major items which determine the security and smooth operation of the canopy, namely:

Position and method of safety wiring the release latches.

Fit and maintenance of the several component parts which make up the entire canopy installation.

2. The instructions for accomplishing this inspection and rework, if necessary, as contained in Curtiss Service Instruction Memo 217, dated 6 March 1944, are as follows:

NOTE Prior to installing a canopy, follow the procedure described following.

a. Clean and dry the tracks upon which the canopy roller trucks move. Oil and dirt will make for excessive track wear and cause a loose fit of the trucks.

b. Check four truck assemblies for tight fit on the track. On new truck assemblies, check the gap between the top and bottom rollers for the following tolerances, maximum .125 inch, minimum .114 inch. (See figure 1.) Check the inboard face of the truck extrusion to ascertain if it has a smooth flat surface. If the truck assemblies appear to be satisfactory and the fit on the tracks is slightly loose, it is permissible to close the gap by bending the truck extrusion SLIGHTLY in a convex direction. (See figure 2.) This may be required, due to slight track wear which will occur after a number of service hours. If the gap of the new roller is excessive, discard the roller. Also discard the roller if the extrusion face is concave in shape.

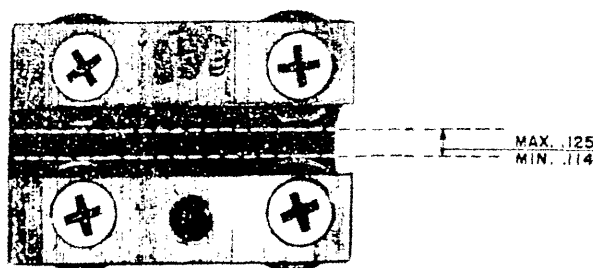


Figure 1 - Showing Permissible Tolerances on Truck Assembly

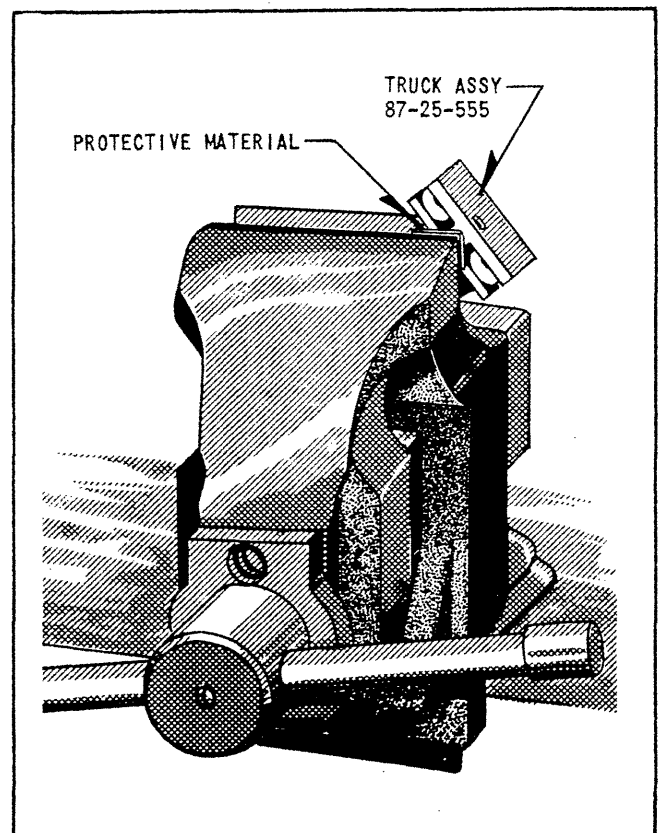


Figure 2 - Method of Bending the Truck Extrusion for Proper Adjustment

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

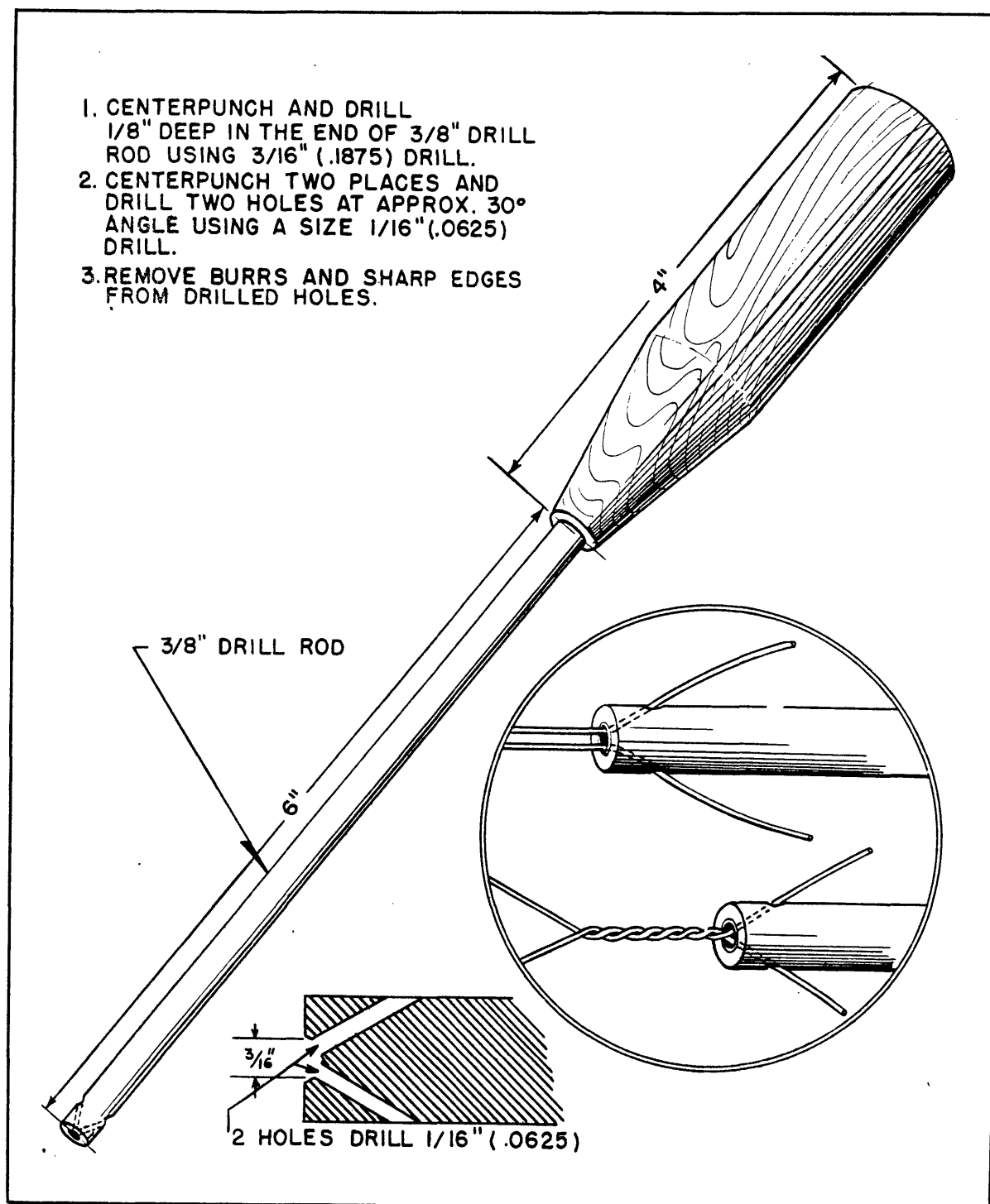


Figure 6 - Tool for Installing Safety Wire While Canopy Is on Airplane

m. In all investigated cases of canopy failure, the fact has been well established that self-jettisoning was accomplished. This can only be caused by improper safety wiring or loose fitting canopies becoming unlocked through the buffeting vibration or high loadings.

By Command of General ARNOLD:

Prepared by Aircraft Section,
Maintenance Div, Hq, ASC.

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

18 September 1944

AIRCRAFT AND MAINTENANCE PARTS

CURTISS—INSPECTION OF ELEVATOR TRIM TAB ROD—P-40 SERIES

This Technical Order replaces T. O. No. 01-25C-176, dated 29 August 1944, revised to change part number of rod assembly.

NOTE The publication of this Technical Order has been expedited as the instructions contained herein are of vital importance and should be disseminated to all affected personnel without delay. As prescribed in T. O. No. 00-20A, appropriate reference to this Technical Order will be entered on AAF Forms 60-A for the aircraft affected. The work directed herein will be accomplished as soon as possible and not later than the next 25-hour inspection period by service activities, with the aid of base maintenance facilities, if necessary, and by manufacturing and modification establishments when directed by the Procurement Division, Air Technical Service Command, in accordance with F.O. Memo 150-4. Rod assemblies, part No. B6-10-1407-2, in stock, will be modified prior to issue.

1. PURPOSE.

In order to prevent possible elevator trim tab actuating rod failure and possible loss of control of the airplane, all P-40 series airplanes trim tab rod assemblies, part No. B6-10-1407-2, manufactured by Breeze Manufacturing Co., or part No. W-3609Y, manufactured by S. S. White Co., or part No. J-76319-P, manufactured by Production Stamping Co., will be inspected and modified in accordance with instructions contained in paragraph 2.

2. INSPECTION AND REWORK.

Rework of trim tab rod will be accomplished as follows:

a. Trim tab rod assembly, Production Stamping, part No. J-76319-P, or Breeze, part No. B6-10-1407-2, or S. S. White, part No. W3609Y, will be checked for proper adjusting ferrule thread engagement of 4-1/2 to 5 threads engaged in the clevis (approximately 13/16 inch from aft end of check nut to end of adjusting ferrule for Breeze and S. S. White parts and 1 inch for Production Stamping part).

b. Rod assemblies found with insufficient threads engaged will be removed and clevis end replaced with

clevis rod end, part No. AN486-4, drawn from AF Stock in order to obtain proper thread engagement. Clevis end will be further positively locked by installing an additional check nut, part No. AN316-4R.

c. All rod assemblies will then be removed and clevis installed on aft end inspected to insure retaining threaded bushing is fully engaged and properly staked.

(1) Rod assembly with partially unthreaded insert bushings will require replacement of complete assembly, part No. B6-10-1407-2, being obtained from AF Stock as replacement for any above part number rod assembly.

(2) Rod assemblies found satisfactory or with slightly loose bushing inserts will be staked with a prick punch at four equidistant points around circumference of retaining bushing securing aft clevis to rod before reinstallation in elevator assembly.

3. SUPPLY INFORMATION.

a. The following parts are required per airplane to accomplish this change:

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
As req	6500-313000	AN486-4	Clevis - Rod end adjusting	04-A	AF Stock
As req	6500-632560	B6-10-1407-2	Rod Assembly - Tie internal 14-7/16 (Breeze)	04-A	AF Stock
4 ea	6500-477000	AN316-4R	Nut - Check. steel RH 1/4 - 28	04-A	AF Stock

b. Parts removed and not reinstalled in accordance with the preceding instructions will be condemned at once and so tagged for disposition as condemned property.

By Command of General ARNOLD:

Prepared by Aircraft Section,
Maintenance Div, Hq, ATSC.

BENNETT E. MEYERS
Major General, U.S.A.
Deputy Director
Air Technical Service Command

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C. 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED

Compliance with these instructions is MANDATORY within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

AIRCRAFT AND MAINTENANCE PARTS

16 September 1944

CURTISS—MODIFICATION OF COCKPIT ENCLOSURE CANOPY
INSTALLATION—P-40 SERIES

NOTE As prescribed in T. O. No. 00-20A, appropriate reference to this Technical Order will be entered on AAF Forms 60-A for the aircraft 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, and by manufacturing and modification establishments when directed by the Procurement Division, ATSC, in accordance with F.O. Memo 150-4. Cabin assemblies, part Nos. 87-25-501 and 87-251-1001, in stock will be modified in accordance with instructions contained in paragraphs 2.a., b., and c. prior to issue. Maintenance link rod assemblies, part Nos. 87-25-623 and component parts, front fitting 87-25-515 L/R, rear fittings 87-25-516, and rod 87-25-525 will be reworked prior to issue in accordance with paragraph 2.c.

1. PURPOSE.

To prevent emergency release mechanism from accidentally releasing due to vibration, the following listed airplanes will be reworked in accordance with the applicable portions of paragraph 2.

MODEL	MODIFICATION
RP-40B	2.a., b., c.
RP-40C	2.a., b., c.
RP-40D	2.a., b., c.
P-40E	2.a., b., c.
P-40F	2.a., b., c.
P-40R-1	2.a., b., c.
P-40K	2.a., b., c.
P-40K-1	2.a., b., c.
P-40L	2.a., b., c.

MODEL

MODIFICATION

P-40R-2	2.a., b., c.
P-40M	2.a., b., c.
P-40N up to AF No. 43-104829	2.a., b., c.
RP-40N-26	2.b.
RP-40N-31	2.b.
P-40N, AF No. 43-104829 and subsequent	2.b. and c.

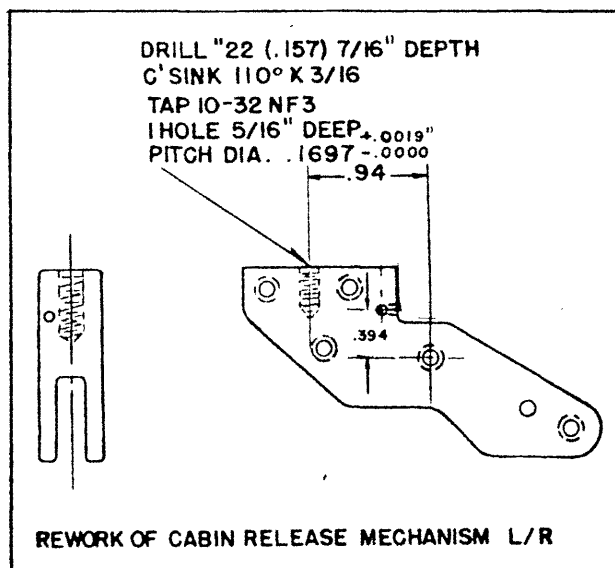


Figure 1

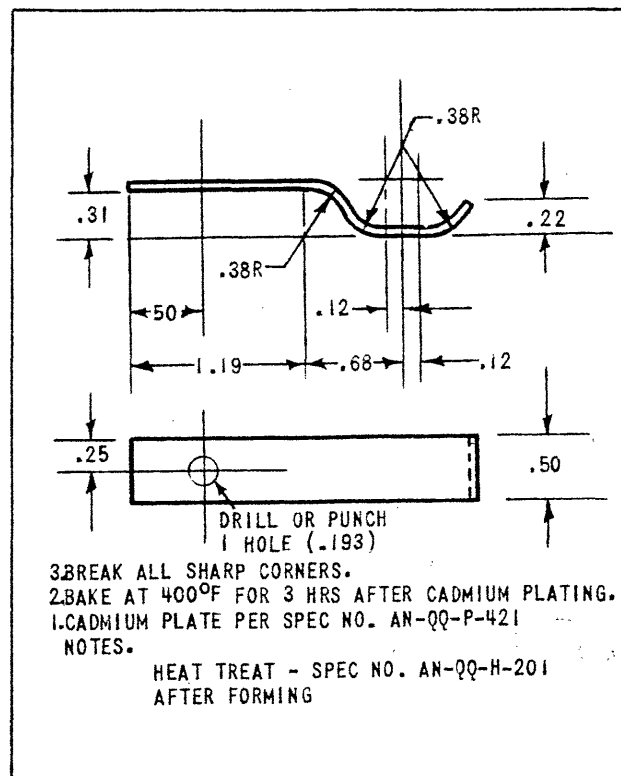


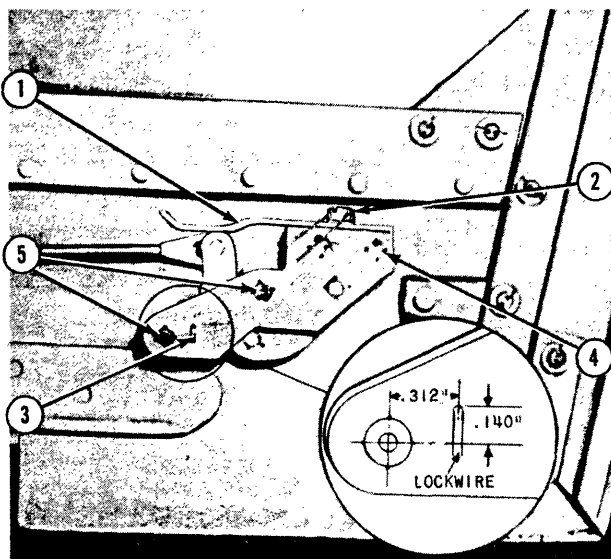
Figure 2

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED

The Drury Ptg. Co. 9-16-44-14,900

Compliance with these instructions is MANDATORY within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.



REF	PART NO.	DESCRIPTION
1	87-25-137	SPRING
2	AN960-10	WASHER
	AN502-10-6	SCREW, .041 IN. LOCKWIRE
3	No. 58 (.042)	THROUGH AND INSERT LOCKWIRE 8 BEND DOWN ENDS 1/4 IN.
4	1101-D-S-9	SCREWS 3 REQ
5	1109-D-S-5A	

Figure 3

P-40N, AF No. 44-7750 and subsequent, will be modified in accordance with instructions contained in paragraph 2.b. prior to delivery. P-40N, AF No. 44-7501 and subsequent, will have change in paragraph 2.c. accomplished prior to delivery.

2. MODIFICATION.

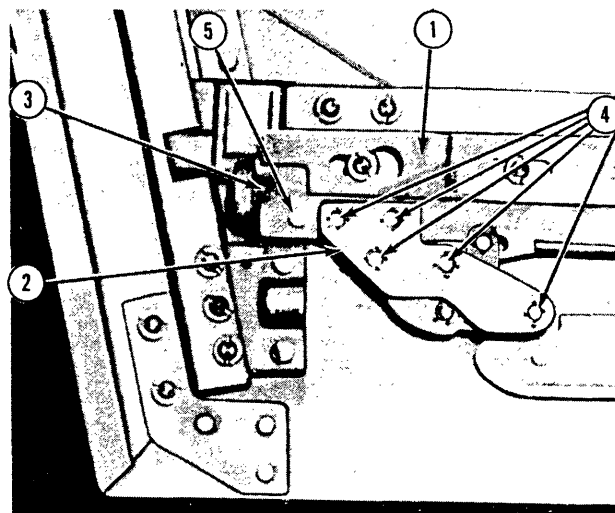
The instructions for accomplishing this change as contained in Curtiss Service Bulletin 550-53, dated 24 April 1944, and Service Bulletin 550-57, dated 29 July 1944, are as follows:

a. Rework of all P-40 type aircraft right-hand side of cabin canopy will be accomplished as follows:

(1) After removing the canopy from the airplane, loosen the five screws to remove the locking mechanism from the left and right sides of the canopy.

(2) Locate and drill one, No. 22 (.157-inch), hole in the left-hand lock housing. Countersink the hole 110 degrees by 3/16 inch and tap with a No. 10-32NF3, thread 5/16 inch deep. (See figure 1.)

(3) Install the 87-25-137 spring manufactured per figure 2 using one AN502-10-6 screw, one AN960-10 washer, and a piece of .041-inch lock wire as required. (See figure 3.)



REF	DESCRIPTION
1	SIDE LOCKING PLATE
2	LOCKING MECHANISM
3	CABIN LOCK FITTING
4	REMOVE SCREWS TO LOCKING MECHANISM
5	REMOVE 2 RIVETS TO REMOVE CABIN LOCK FITTING

Figure 4

(4) Reinstall the lock assembly using the five screws removed in paragraph 2.a.(1); three 1101D-S9 screws and two 1109D-S5A screws. (See figure 3.)

(5) Place both left and right locks in the locked position. Locate and drill a No. 58 (.042-inch) hole through the entire lock and canopy. (See figure 3.)

(6) Insert a piece of lock wire through the hole and bend 1/4 inch down on each side so that the wire must be sheared in order to release the lock. (See figure 3.)

b. P-40 series aircraft prior to P-40N, AF No. 43-104829, have a kick out panel installed on the left-hand side and will require the following rework:

(1) After removing the canopy from the airplane, remove the latch mechanism by removing the five screws shown in figure 4.

(2) Remove the 87-25-534 side locking plate and file to dimension as shown in figure 5, detail B. File one flange of the channel riveted to the canopy as shown in figure 5, detail A.

(3) Remove the two rivets holding the 87-25-155 cabin fitting and file one surface of the lock in accordance with figure 6.

(4) Position the 87-25-154 spring (manufactured per figure 7) and cabin lock fitting to the canopy and rivet as shown in figure 8, using one 673-4AD8 rivet.

P9135

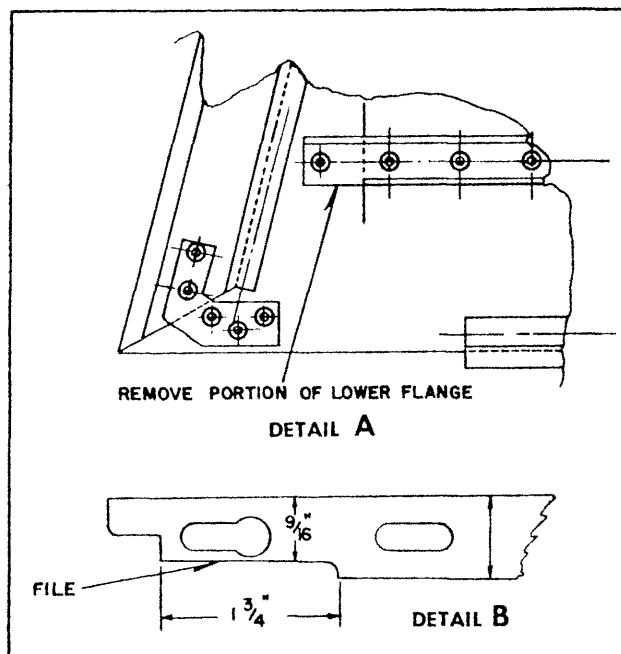


Figure 5

(5) Reinstall the 87-25-156 cabin release mechanism using the five screws removed in paragraph 2.b.(1).

NOTE Pean the ends of the screws to prevent loosening due to vibration.

(6) Stencil the following instructions on each side of canopy in red letters 1/8 inch high. Use the silk screen method and locate as shown in figure 9.

SAFETY STEEL LOCKWIRE .041" DIA.
395-41 - SPECIFICATION NO. AN-QQ-W-435
CHECK EACH PREFLIGHT INSP.
REPLACE EACH 25-HR. INSP.

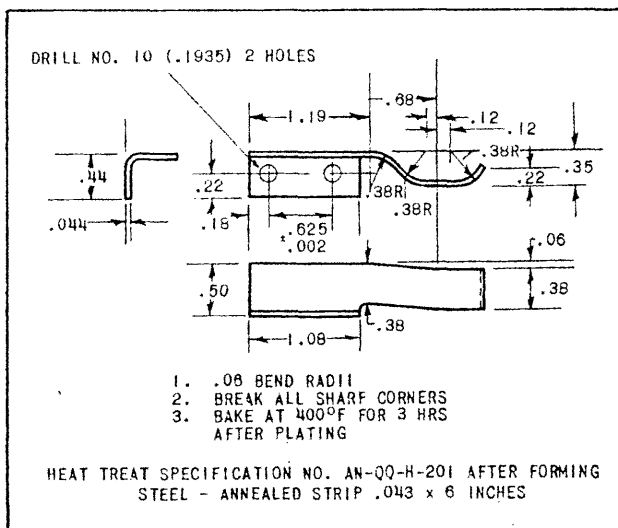


Figure 7

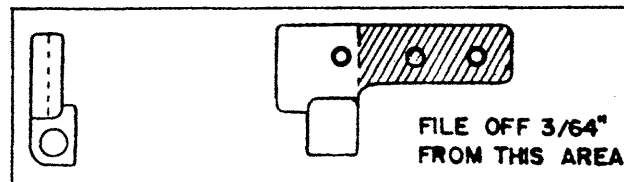


Figure 6

(7) Reinstall the canopy on the airplane.

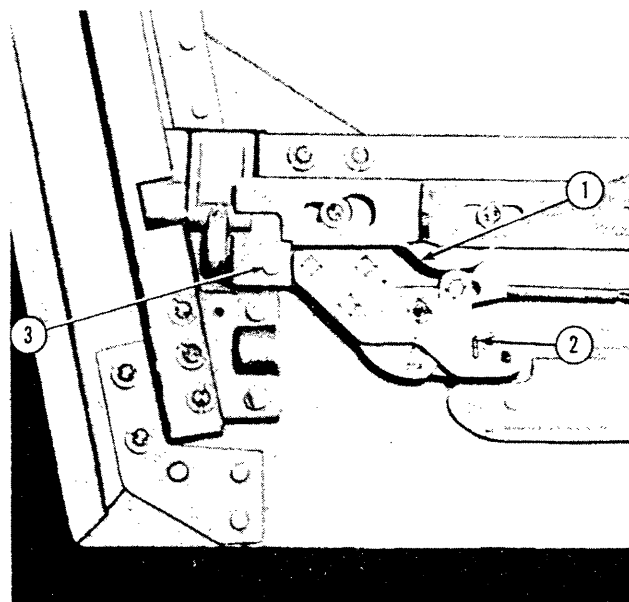
NOTE Rework noted in paragraph 2.c. will be accomplished prior to reinstalling canopy.

c. Remove right and left link rod assembly, part No. 87-25-623, and rework as follows:

(1) Remove the right link rod assembly from the front and rear truck by removing the existing nuts and bolts.

(2) Remove lock pins attaching rod to each end fitting.

(3) Enlarge existing rod hole in the 87-25-644 rear fitting, using an "I" (.2720-inch) drill. Counter-sink hole 110 degrees x .312 inch and tap 5/16 inch - 24NF-3. The pitch diameter of the threads should be .2854 plus .0024 or minus .0000.



REF	PART NO.	DESCRIPTION
1	87-25-154	SPRING
2	No. 58 (.042 IN.)	DRILL THROUGH AND INSTAL STEEL SAFETY LOCKWIRE .041 DIA AND BEND OVER ENDS 1/4 IN.
3	673-4AD-8	RIVET

Figure 8

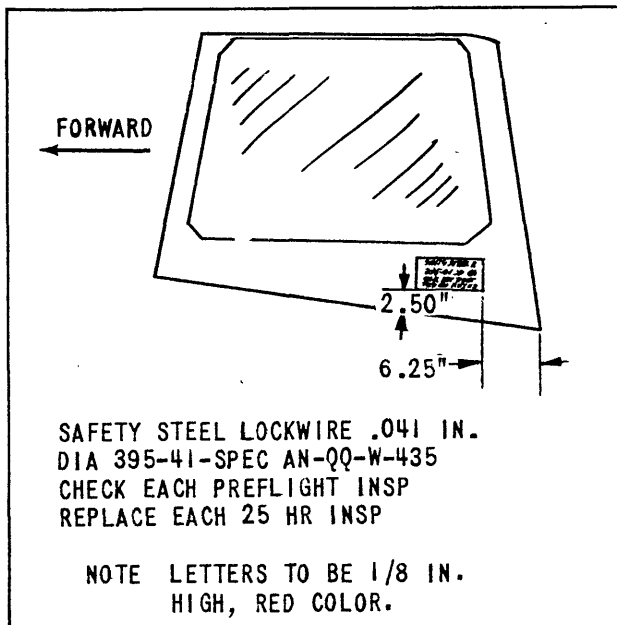


Figure 9

(4) Drill one No. 56 (.0465-inch) hole in the tapped arm of the fitting, part No. 87-25-516, approximately 1/8 inch from the lower edge of the arm at right angles to the tapped hole and on center of the arm.

NOTE For future reference, the existing part No. 87-25-516, of the rear fitting will be changed after rework, to read 87-25-644 L/R.

(5) Cut two 20-15/16 inches length of 5/16-inch diameter 8630 steel rod, Specification No. AN-S-14 condition N, having a heat treat of 125,000 psi.

(6) Turn down one end of each rod to 1/4 inch for a distance of 9/16 inch.

(7) Thread the opposite end of the rod for a distance of 3/4 inch. Threads are to be 5/16 inch - 24NF-3, pitch diameter .2854 plus .0000 or minus .0024, with a maximum of two imperfect threads.

(8) Drill one No. 56 (.0465-inch) hole through the rod, 1 inch from the threaded end, for the application of safety wire.

NOTE This new rod will bear part No. 87-25-645 in place of the old number 87-25-525.

(9) Assemble the 87-25-644 fittings to the threaded end of the rods, part No. 87-25-654. The threaded end of the rod is to be flush to .015 inch from the back face of the 87-25-644 fitting and lockwired to the fitting, using the two No. 56 holes as shown in paragraphs 2.c.(4) and (8). Use .040 brass safety wire.

(10) Insert the 1/4-inch rod ends into the 87-25-515 L/R front fittings maintaining a 20-3/8 inch measure from the back face of the 87-25-644 fitting to the back face of the 87-25-515 fitting. (See figure 10.)

NOTE Should variations in canopy release mechanism exist creating excess for and aft looseness when installed, adjust rod to proper length prior to completing paragraph 2.c.(11), following.

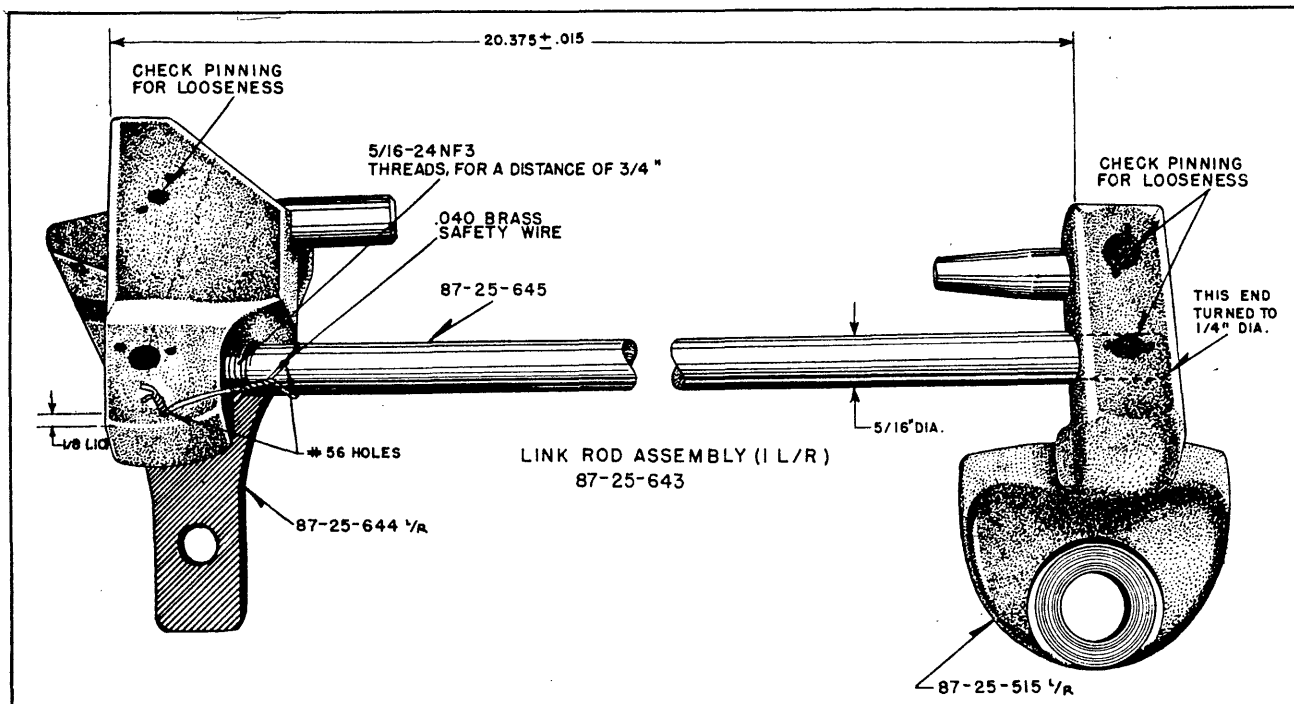


Figure 10

15137

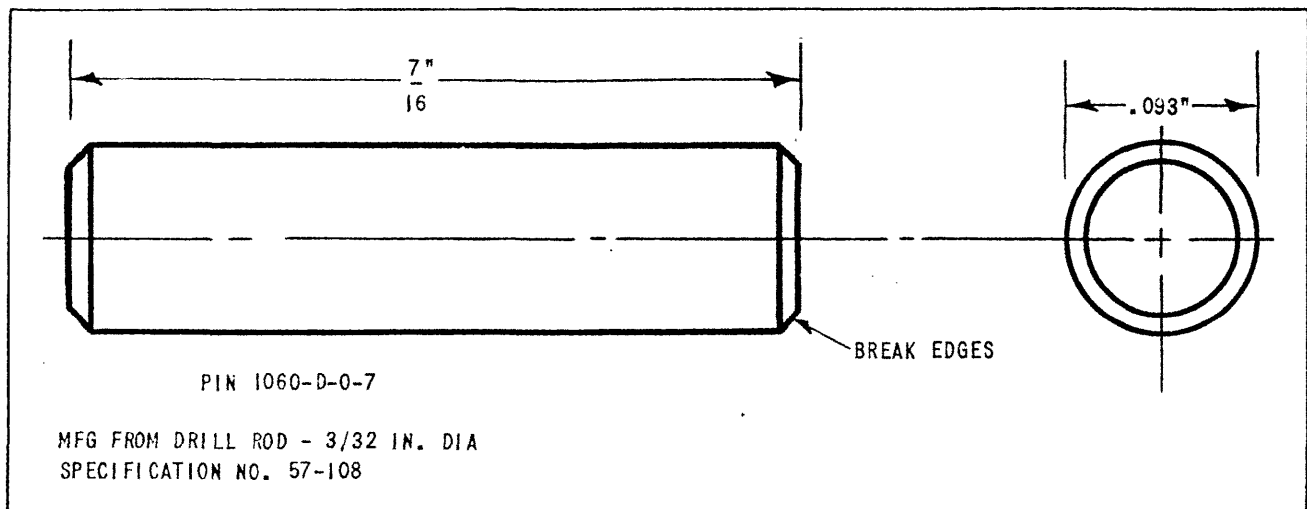


Figure 11

(11) Using a No. 42 (.0935-inch) drill and the existing pin hole in the 87-25-515 fitting as a guide, drill one hole through the 87-25-645 rod for insertion of the 1060D-0-7 pin. (See figure 11.)

NOTE A The 1060D-0-7 pin must be staked after installation and is manufactured per figure 11.

B For future reference, the cabin support assembly 87-25-623 part number will read 87-25-643 L/R after installation of the new rod and rework of the rear fitting.

3. SUPPLY INFORMATION.

a. The following parts are required on airplanes prior to P-40N, AF No. 42-104829, to accomplish this change:

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1		87-25-154	Spring	01-C	Local Mfr
As req			Mfr from: Steel - Annealed strip .043 x 6 inches wide, Specification No. AN-QQ-S-666, stock No. 6800-668200	23-A	AF Stock
1		87-25-137	Spring	01-C	Local Mfr
As req			Mfr from: Steel - Annealed strip .043 x 6 inches wide, Specification No. AN-QQ-S-666, stock No. 6800-668200	23-A	AF Stock
1	6500-984000	AN960-10	Washer - Plain steel	04-A	AF Stock
1	6500-898550	AN502-10-6	Screw - Aircraft fillister-head drilled	04-A	AF Stock
1	6700-488960	673D4-8	Rivet	29	AF Stock
2		87-25-645	Rod	01-C	Local Mfr
As req			Mfr from: Steel - 5/16-inch round rod medium carbon, chrome moly., condition N, Specification No. AN-S-14, stock No. 6800-468450	23-A	AF Stock

P5138

RESTRICTED
T. O. No. 01-25C-177

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
2		1060D-0-7	Pin	01-C	Local Mfr
As req			Mfr from: Steel - Drill rod 3/32 x 7/16 inch, Specification No. 57-108 (See figure 11.) stock No. 6800-400700	23-A	AF Stock
P-40N, AF No. 42-104829 and subsequent, will require the following parts:					
2		87-25-137	Spring	01-C	Local Mfr
As req			Mfr from: Steel - Annealed strip .043 x 6 inches, Specification No. AN-QQ-S-666, stock No. 6800-668200	23-A	AF Stock
2	6500-984000	AN960-10	Washer - Plain steel	04-A	AF Stock
2	6500-898550	AN502-10-6	Screws - Aircraft fillister-head drilled	04-A	AF Stock
2		87-25-645	Rod	01-C	Local Mfr
As req			Mfr from: Steel - 5/16 round rod, medium carbon chrome moly. x 4130, condition N, Specification No. AN-S-14, stock No. 6800-468450	23-A	AF Stock
2		1060D-0-7	Pin	01-C	Local Mfr
As req			Mfr from: Steel - Drill rod 3/32 x 7/16 inch, Specification No. 57-108 (See figure 11.) stock No. 6800-400700	23-A	AF Stock

b. Rods, part No. 87-25-525, removed in accordance with the preceding instructions and all like items in stock will be condemned at once and so tagged for disposition as condemned property.

4. WEIGHT CHANGE.

The weight change effected by this modification is negligible.

By Command of General ARNOLD:

Prepared by Aircraft Section,
Maintenance Div, Hq, ATSC.

BENNETT E. MEYERS
Major General, U.S.A.
Deputy Director
Air Technical Service Command

PS 139

SUPPLEMENT TO BASIC TECHNICAL ORDER

RESTRICTED

HEADQUARTERS, ARMY AIR FORCES
WASHINGTON 25, D. C.

TECHNICAL ORDER
NO. 01-25C-177A

AIRCRAFT AND MAINTENANCE PARTS

9 October 1944

CURTISS—MODIFICATION OF COCKPIT ENCLOSURE CANOPY INSTALLATION—P-40 SERIES

NOTE This Technical Order supplements T. O. No. 01-25C-177, dated 16 September 1944, to make corrections as indicated herein. A SUITABLE REFERENCE TO THIS SUPPLEMENT WILL BE MADE ON PAGE 1 OF THE BASIC TECHNICAL ORDER AND THE AFFECTED NOTE AND PARAGRAPHS CORRECTED ACCORDINGLY.

1. The NOTE preceding paragraph 1. of T. O. No. 01-25C-177, dated 16 September 1944, is hereby amended to read as follows:

NOTE As prescribed in T. O. No. 00-20A, appropriate reference to this Technical Order will be entered on AAF Forms 60-A for the aircraft 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, and by manufacturing and modification establishments when directed by the Procurement Division, ATSC, in accordance with F.O. Memo 150-4. Cabin assemblies, part Nos. 87-25-501 and 87-251-1001, in stock will be modified in accordance with instructions contained in paragraphs 2.a., b., and c. prior to issue. Maintenance link rod assemblies, part Nos. 87-25-623 and component parts, front fitting 87-25-515 L/R, and rear fittings 87-25-516, will be reworked prior to issue in accordance with paragraph 2.c.

2. Paragraph 1. of basic Technical Order is hereby amended to read as follows:

1. To prevent emergency release mechanism from accidentally releasing due to vibration, the following listed airplanes will be reworked in accordance with the applicable portions of paragraph 2.

MODEL	MODIFICATION	MODEL	MODIFICATION
RP-40B	2.a., b., c.	P-40L	2.a., b., c.
RP-40C	2.a., b., c.	P-40R-2	2.a., b., c.
RP-40D	2.a., b., c.	P-40M	2.a., b., c.
P-40E	2.a., b., c.	P-40N up to AF No. 42-104829	2.a., b., c.
P-40F	2.a., b., c.	RP-40N-26	2.a.
P-40R-1	2.a., b., c.	RP-40N-31	2.a.
P-40K	2.a., b., c.	P-40N, AF No. 42-104829	2.a. and c.
P-40K-1	2.a., b., c.	and subsequent	

* * * * *

3. Paragraph 2.a. will have the following note inserted prior to paragraph 2.a.(1).

NOTE Left-hand side of all P-40N airplane canopies on airplanes subsequent to AF Serial No. 42-104829, will also require this rework.

By Command of General ARNOLD:

Prepared by
Aircraft Section,
Maintenance Div,
Hq, ATSC.

BENNETT E. MEYERS
Major General, U.S.A.
Deputy Director
Air Technical Service Command

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

1
21



May 7, 1942

AIRPLANES AND SPARE PARTSCURTISS - INSTALLATION AND ADJUSTMENT INSTRUCTIONS, TYPE E-4,
GUN SYNCHRONIZER IMPULSE GENERATOR SYSTEM, P-40

1. To assure proper installation and adjustment of the Type E-4 gun synchronizer impulse generator system in P-40 airplanes, the work outlined in paragraph 2 will be accomplished whenever necessary.

2. The instructions for accomplishing this work are as follows:

a. The adjustment of cam follower clearance in the impulse generator system is accomplished as follows: (Reference - Technical Order 11-20-3C.)

(1) Remove impulse generator assembly from the engine, see figures 1 and 2.

(2) Adjust cam clearance, see figure 2, by adding or removing shims until a bumping or light pounding can be felt while rotating the driving shaft. This bumping or light pounding is caused by the cam coming in contact with the cam follower.

(3) Remove the type A-1 control plunger, part No. 34B5133, figure 6, and check for 2 5/64 dimension. If a change is required, it may be made by loosening the lock nut and turning the clevis in the appropriate direction. Lock the clevis and packing nut securely.

b. The installation of impulse generator on engine is accomplished as follows:

(1) Install impulse generator on engine.

(2) Screw the end of a 1/4-28 bolt of suitable length into the impulse end of the cam follower in the impulse generator and with the solenoid plunger compressed, turn the propeller in the normal direction of rotation until the cam follower can be pulled out to its maximum length, of travel. While at this point, release the pressure on the plunger, which will hold the cam follower temporarily in this position, and remove the 1/4 inch bolt from the cam follower.

(3) Lubricate the impulse unit assembly, part No. 076031, (see figure 3) if necessary, with Gredag No. 32 grease by means of the lubricator provided with the airplane for this purpose.

(4) Attach the impulse unit assembly by installing the impulse cable attaching screw into the threaded end of the impulse generator cam follower, and tightening the impulse tube coupling nut to the impulse generator housing.

(5) Secure the impulse tube to points on the airplane in as near a straight line as possible between the impulse generator and the attaching point on the gun, at intervals of 18 to 24 inches as permitted by the particular installation. In no instance will a bend have a radius of less than 6 inches, nor will kinks or small bends be permitted.

(6) Install the type E-3 trigger motor assembly, part No. 076023, (see figure 4) to the side plate of the gun using the mounting bolt, part No. 41A1501, and nut, part No. AN380-8, provided for this purpose. Secure with cotter-pin.

(7) Next, screw the trigger motor adjusting screw, part No. 076026, its full length into the trigger motor plunger.

(8) Enter the impulse wire into the threaded end of the trigger motor housing, pass it through the trigger motor assembly, and insert the end (brazed on the wire) into the cupped end of the trigger motor plunger adjusting screw. To accomplish this, it may be necessary to place a screw driver or other tool against the end of the trigger motor plunger and force the plunger forward against the tension of the plunger spring as far as possible.

(9) Screw the impulse tube coupling nut, part No. 068862, firmly onto the trigger motor housing.

c. The adjustment for overtravel is accomplished as follows:

(1) Remove the solenoid from the impulse generator and charge the gun.

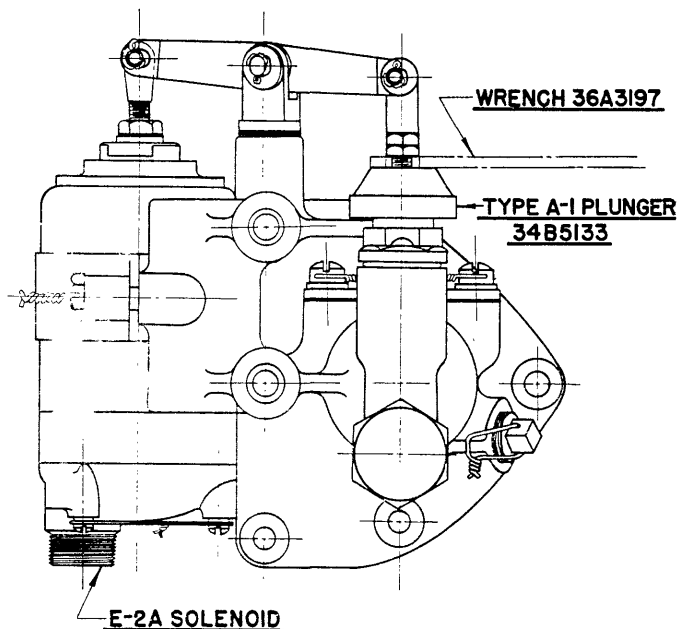
(2) Rotate the propeller very slowly until the high point of the cam comes to rest on the cam follower roller.

NOTICE: This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act (U. S. C. 50:31:32). The transmission of this document or the revelation of its contents in any manner to an unauthorized person is prohibited.

PG 141

RESTRICTED

T.O.NO. 01-25CD-58



IMPULSE GENERATOR ASSEM.
FIGURE 1

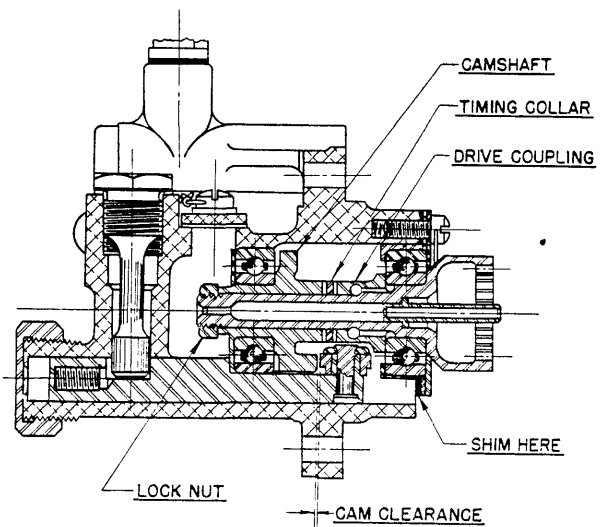
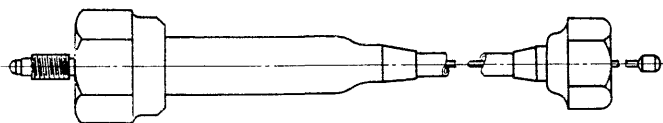
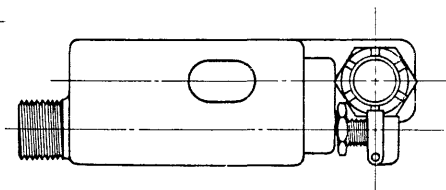
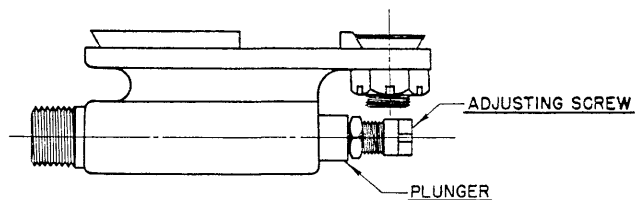


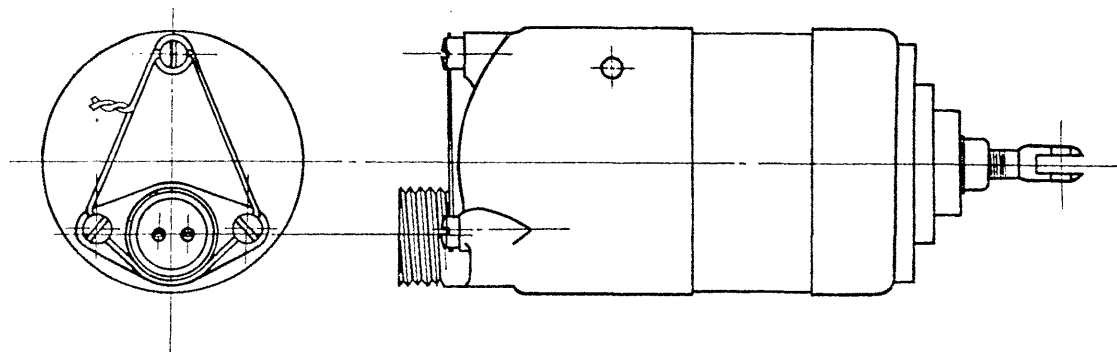
FIG.2-SECTIONAL VIEW OF ALLISON TYPE E-4
GUN SYNCHRONIZER IMPULSE GENERATOR



IMPULSE UNIT
TYPE E-3 076031
FIGURE 3



TRIGGER MOTOR ASSEMBLY
TYPE E-3 076023
FIGURE 4



SOLENOID, TYPE E-2A

FIGURE 5

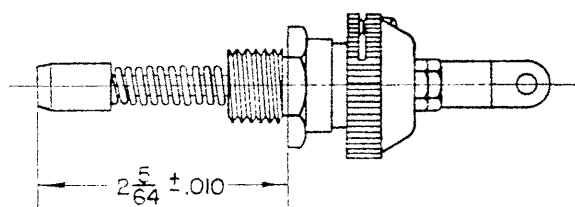


FIG.6 TYPE A-1 CONTROL PLUNGER
ASSEMBLY-34B5133

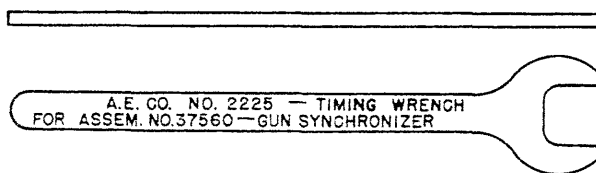


FIGURE 8

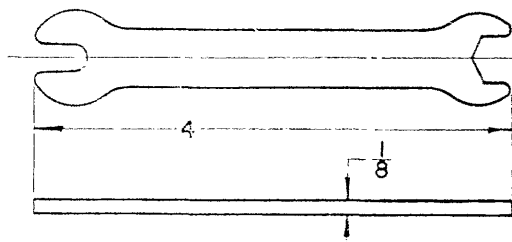


FIG.7-CONTROL PLUNGER ADJUSTING
WRENCH-36A3197

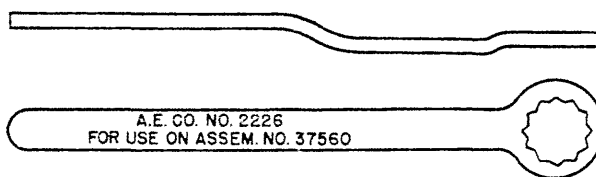


FIGURE 9

pg 143.

RESTRICTED

T. O. No. 01-25CD-58

(3) Regulate the position of the trigger motor plunger by adjusting the trigger motor adjusting screw until the firing pin is released. Tighten the lock nut.

(4) With the lock nut released, back out the adjusting screw from the trigger motor plunger 1/2 to 3/4 turn. This adjustment will produce an over-travel of .021 to .031 inch. Secure the adjusting screw by tightening the lock nut.

(5) Replace the solenoid in the impulse generator.

d. The adjustment for the zero shot position is accomplished as follows: (Reference Technical Order 11-20-4)

(1) Charge gun. (Make sure no ammunition is in the gun.)

(2) Remove cover plate from the generator timing hole.

(3) Rotate propeller in normal direction of rotation until gun clicks, at the same time, note the direction in which the cam shaft is turning.

(4) Remove cotter pin from cam shaft, and loosen lock nut, using Allison wrench, part No. 2226 (see figure 9) provided in engine tool kit.

(5) If the nearest blade is in a position aft of the line of fire, retard the cam shaft. If the blade is in a position forward of the line of fire, advance the cam shaft. Use Allison wrench, part No. 2225, shown in figure 8, for this operation. This wrench is provided in engine tool kit.

NOTE: After loosening the impulse generator shaft nut, the cam shaft may be turned as the teeth of the timing collar slip ratchet fashion over the teeth of the cam shaft or the drive coupling dependent upon the direction in which the cam shaft is turned. If the cam shaft is moved in the direction which will cause a one tooth change between the cam shaft and timing collar, the resultant change in timing will be 15.65°. A rotation in the opposite direction sufficient to cause a change of one tooth in the setting of the timing collar and the drive coupling will result in a change in timing in the opposite direction of 16.36°. Thus, a shifting of one tooth in each direction will result in a net change of 0.71° in timing.

(6) Charge gun. Then rotate propeller in normal direction of rotation until gun clicks. If the position of the zero shot is not within a space extending from the trailing edge of the blade at the time of fire to 3 inches aft of the trailing edge, make necessary adjustment in the manner described in paragraph 5 e above.

(7) Tighten shaft nut and secure with cotter pin. Close cover plate and safety wire.

(8) Recheck the trigger motor to insure that the operation just performed has not caused the overtravel to exceed the limit.

(9) Install the A-1 plunger assembly. To obtain the necessary 1/8 clearance between the packing nut and the clevis lock nut on the plunger, place the control plunger adjusting wrench, part No. 36A3197, in the position shown in figure 1. Adjustment for this clearance may be made by turning the clevis in the solenoid plunger the required amount.

(10) The gun is now ready to fire.

3. The following special tool is required to accomplish this work:

<u>Quantity</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Class</u>	<u>Source</u>
1	36A3197	Wrench, gun synchronizer control plunger. Mfr. from: Steel, mild carbon quarter hard, sheet, .125" thick, Spec. AN-QQ-S-651 approxi- mately 4" long	18 23-A	Local Mfr. A.F. Stock

By Command of Lieutenant General ARNOLD:

H. J. F. MILLER,
Major General, U.S.A.
Commanding General, Air Service Command

RESTRICTED

WAR DEPARTMENT
OFFICE OF THE CHIEF OF THE AIR CORPS
WASHINGTON

05144
01-25CF-22
Page 1

TECHNICAL ORDER
NUMBER 01-25CF-22

February 6, 1942

AIRPLANES AND SPARE PARTS

CURTISS - REPLACEMENT OF SWAGED TYPE ANTENNA TERMINAL - P-40E

NOTE: The provisions of A.C. Circular 15-60 will be complied with in this case, these instructions being entered on A.C. Forms 60-A. The work directed herein will be accomplished when replacement of antenna terminals is necessary by service activities.

1. To provide simple and more easily fabricated antenna terminals, the present swaged type terminals, part No. 87-67-532, used to secure the command radio antenna assembly, part No. 87-67-511, to each wing tip of all P-40E airplanes, will be removed and replaced with modified antenna terminals in accordance with the instructions in paragraph 2.

2. The instructions for accomplishing this change are as follows:

a. Disassemble from the left and right hand wing tip, the antenna terminals, part No. 87-67-532, and the extension wire which extends from each terminal to each of the two Type IN-88 insulators. Remove the two antenna terminals and the extension wire from the ship.

b. In place of the two removed antenna terminals and extension wires on the antenna assembly, part No. 87-67-511, install the modified antenna terminals and extension wires according to the following procedure: (This method is recommended; however, any method of good design may be used).

(1) For airplanes where the distance between the Type IN-88 insulator and the anchorage fitting on each wing tip is more than three (3) feet, use antenna wire, part No. W-106-A of the required length. Pass the wire through a self locking nut, part No. 365B-632, or a nut similar in size and shape, crimp one end of the antenna wire over the nut and fill the nut with solder. The top of the nut is to fit in the wing anchorage fitting, the other end of the antenna wire is to be placed thru the hole in the antenna insulator and properly wrapped. This extension wire and modified terminals are to be installed on both the left and right hand sections of the antenna.

(2) For airplanes where the distance between the Type IN-88 insulator and the anchorage fitting on each wing tip is less than three (3) feet, use steel aircraft control cable, 1/16" diameter of the required length. Fasten one end of the cable to a self locking nut, part No. 365B-632, or a nut similar in size and shape, to one end of the cable by tinning the cable and fanning slightly. Fill the nut with solder. The top of the nut is to fit in the wing anchorage fitting, the other end of the cable is to be placed thru the hole in the Type IN-88 insulator by looping through and wrapping with Safety wire. Solder this entire wrap.

3. a. The following parts are required per airplane to accomplish this work:

QUANTITY	PART NO.	STOCK NO.	NOMENCLATURE	CLASS	SOURCE
As reqd.	-----		Wire, antenna W-106-A		Signal Corps
2	365B-362	65-512000	Nut, self locking nut Brass 6-32"	04-A	A C Stock
As reqd.		65-270370	Cable; extra flex. Preformed 1/16-7 x 7 Spec. 48-35 or Spec. AN-RR-C-43	04-A	A C Stock

b. The antenna terminals, part No. 87-67-532, and extension wires removed will be disposed of in accordance with A.C. Circular 65-12.

By order of the Chief of the Air Corps:

H.J.F. Miller
Brigadier General, U.S.A.
Chief, Air Service Command.

RESTRICTED



WAR DEPARTMENT
OFFICE OF THE CHIEF OF THE AIR CORPS
WASHINGTON

February 17, 1942

TECHNICAL ORDER
NUMBER 01-25CF-24

AIRPLANES AND SPARE PARTS

CURTISS - INSTALLATION OF P-40E WINGS ON P-40D FUSELAGE

NOTE: The work directed herein will be accomplished by service activities when necessary. Report of compliance with this Technical Order (giving airplane Serial No.) will be made on Air Corps Form 55 in accordance with Air Corps Circular 15-55.

1. The instructions contained in Paragraph 2 are for the installation of P-40E wing erection, Part No. 87-06-802, on P-40D fuselages. When either a replacement right or left wing panel assembly, Part No. 87-03-501, or both are required for a P-40D airplane and the corresponding replacements are not available in Air Corps stock, a complete wing erection, Part No. 87-06-802, will be installed. In no case will a P-40D fuselage be equipped with one P-40D wing and one P-40E wing. Serviceable wings will be returned to Air Corps stock for reissuance. When a P-40E wing erection is installed on a P-40D fuselage, the P-40D designation will be removed and the airplane will be given a P-40E designation of the existing serial number. The P-40D airplanes which have the wing erection, Part No. 87-06-802, installed and which are designated as model P-40E airplanes will have all records, reports, and identification markings changed as such.

2. The P-40D fuselage will be prepared for the installation of the wing erection, Part No. 87-06-802, as follows:

a. Electrical

- (1) Open the main switch box covers.
- (2) Locate and install a new relay (Spec. 32185) in the main switch box, using screws, Part No. AN515B6-10 and Part No. AN520B10-12 as shown in Figure 1 of sketch.
- (3) Using a small brush and white paint add the number 371 to the insulator, Part No. 87-66-542-40. Using black paint, obliterate the number 132. See Figure 1 of sketch. This insulator becomes Part No. 87-66-542-50 when the above changes have been made.
- (4) In the same manner as that described in Paragraph (3), add numbers 132, 370, 371 and GND to the insulator, Part No. 87-66-542-41, as shown in Figure 1. This insulator becomes Part Number 87-66-542-47 when the above changes have been made.
- (5) Disconnect wire number 132 at the existing relay and connect it to the terminal marked 132 on the new relay. See Figure 1 of sketch.
- (6) Connect one end of the new jumper, wire number 371, to the existing relay at point where new number 371 has been added. Connect the opposite end of wire 371 to terminal marked 371 on the new relay. See Figure 1 of sketch.
- (7) Connect one end of the new switch wire 370 to the terminal marked 370 on the other end to the gun switch terminal to which wires numbers 111 and 97 are attached. See Figure 1 of sketch.

b. Hydro System

(1) Remove original gun feed, pressure and return hydro lines at existing charger valves as described below:

(a) Remove gun feed line, Part No. 87-33-501-114 from left hand gun charger valve. This line no longer used.

NOTICE: This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act (U. S. C. 50:31:32). The transmission of this document or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED

(b) Remove gun feed line, Part No. 87-33-501-116 from right hand gun charger valve. This line no longer used.

(c) Remove pressure and return lines and fittings from left and right gun charger valves as follows:

1. Right hand charger valve: Part Nos. 87-33-501-124 and -122.
2. Left hand charger valve: Part Nos. 87-33-501-118 and -120.
3. Remove two tees, Part No. 75-33-101-JT-6-2330 to which the lines mentioned in Paragraphs (a) and (b) were attached.

(2) Modify gun charging support bracket, Part No. 87-33-561 to accommodate an additional gun charger valve as described below. The bracket becomes Part Number 87-33-561-10 when it has been modified. Refer to Figure 2 of sketch when making this change.

(a) Replace existing nameplates as follows:

1. Replace Part No. 87-33-557-7, which is marked "left wing guns" with Part No. 87-33-557-4, which is marked "inner left wing guns."
2. Replace Part No. 87-33-557-6 which is marked "right wing guns" with Part No. 87-33-557-3 which is marked "inner right wing guns."
3. Add Part No. 87-33-557-5 which is marked "outer wing guns" directly under Part No. 87-33-557-4 which is referred to in Paragraph 1 above.

(b) Attach gun charger valve, "Bendix 76861", to the bracket, Part No. 87-33-561-5, by means of two screws, Part No. 500-A416-6 and washers, Part AN960-416. The screw heads are to be lockwired together, at this time.

(c) Locate and drill three #10 (.193) holes through the face of support assembly, Part No. 87-33-561. Countersink the three holes 82° 3/8." Attach the charger valve and bracket assembly (Paragraph (1) (b) above) to the support assembly with three screws, Part No. AN510-10-8.

(d) Locate a marker point on the face of the support assembly, Part No. 87-33-561 in the same relation to the new charger valve handle as the two existing marker points are located for the existing charger valve handles. Countersink 82° x 1/8" and paint this recess red.

(3) Hydraulic gun feed lines to the three gun charger valves shall be installed in the following manner. Charger valves will be referred to as 1, 2, and 3 as viewed from the cockpit reading from left to right.

(a) Charger Valve #1 - Connect line, Part No. 87-33-701-114 at the unmarked port of the valve and panel connection as shown in Figure 3.

(b) Charger Valve #2 (New added valve) - Connect line, Part No. 87-33-701-134 to the unmarked port of the valve using elbow, Part No. 87-33-549 and washer, Part No. 1075-D5-.051-.755-1.000 and at panel connection as shown in Figure 3.

(c) Charger Valve #3 - Connect line, Part No. 87-33-701-116 to unmarked port of the valve and panel connection as shown in Figure 3.

(4) Hydro pressure lines shall be connected to the charger valves and panel as described below. Valves will be referred to as in Paragraph (3).

RESTRICTED

RESTRICTED

T. O. NO. 01-25CF-24

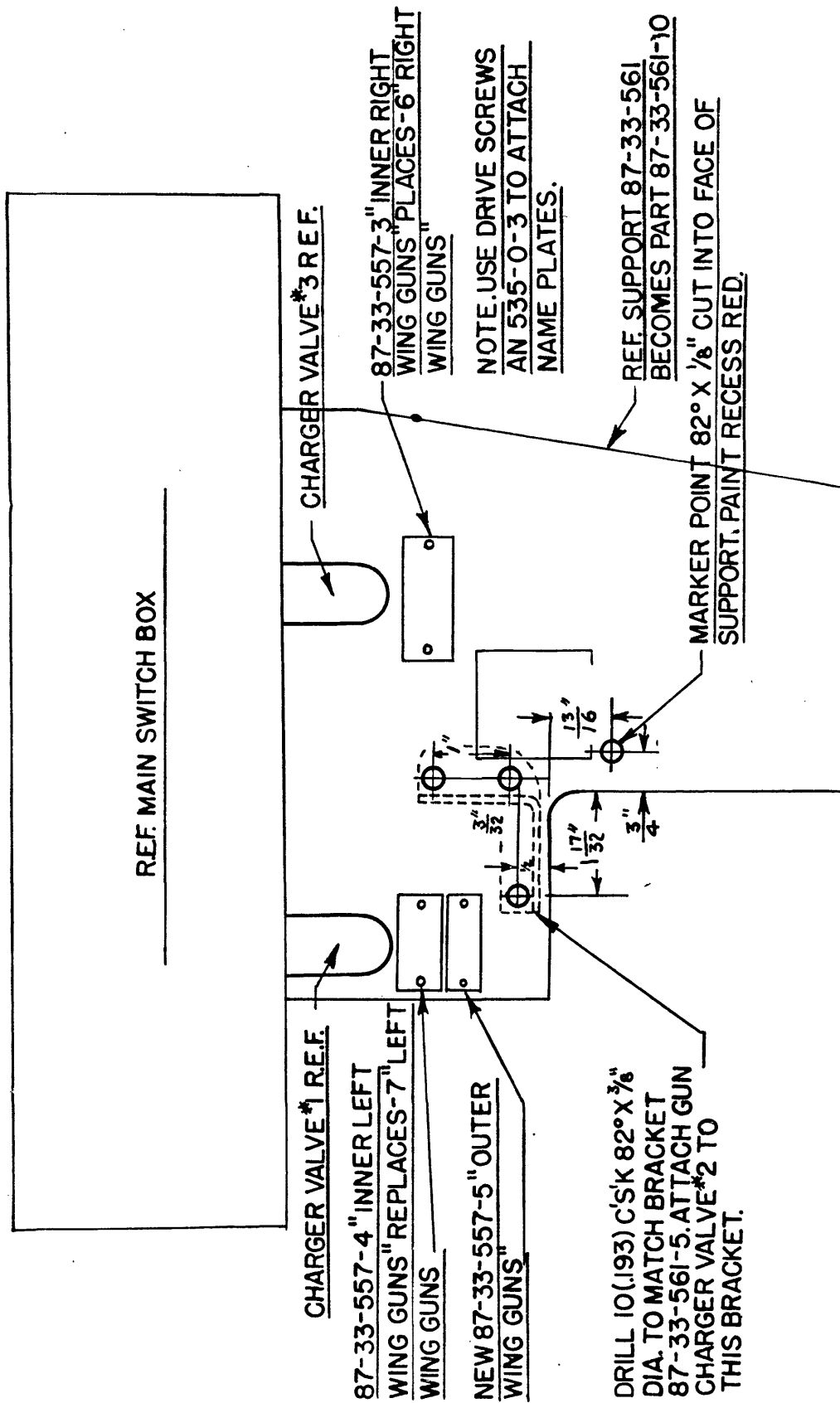


FIG. 2- INSTALLATION OF ADDITIONAL GUN CHARGER VALVE AND NAME PLATE

RESTRICTED

Pg 149

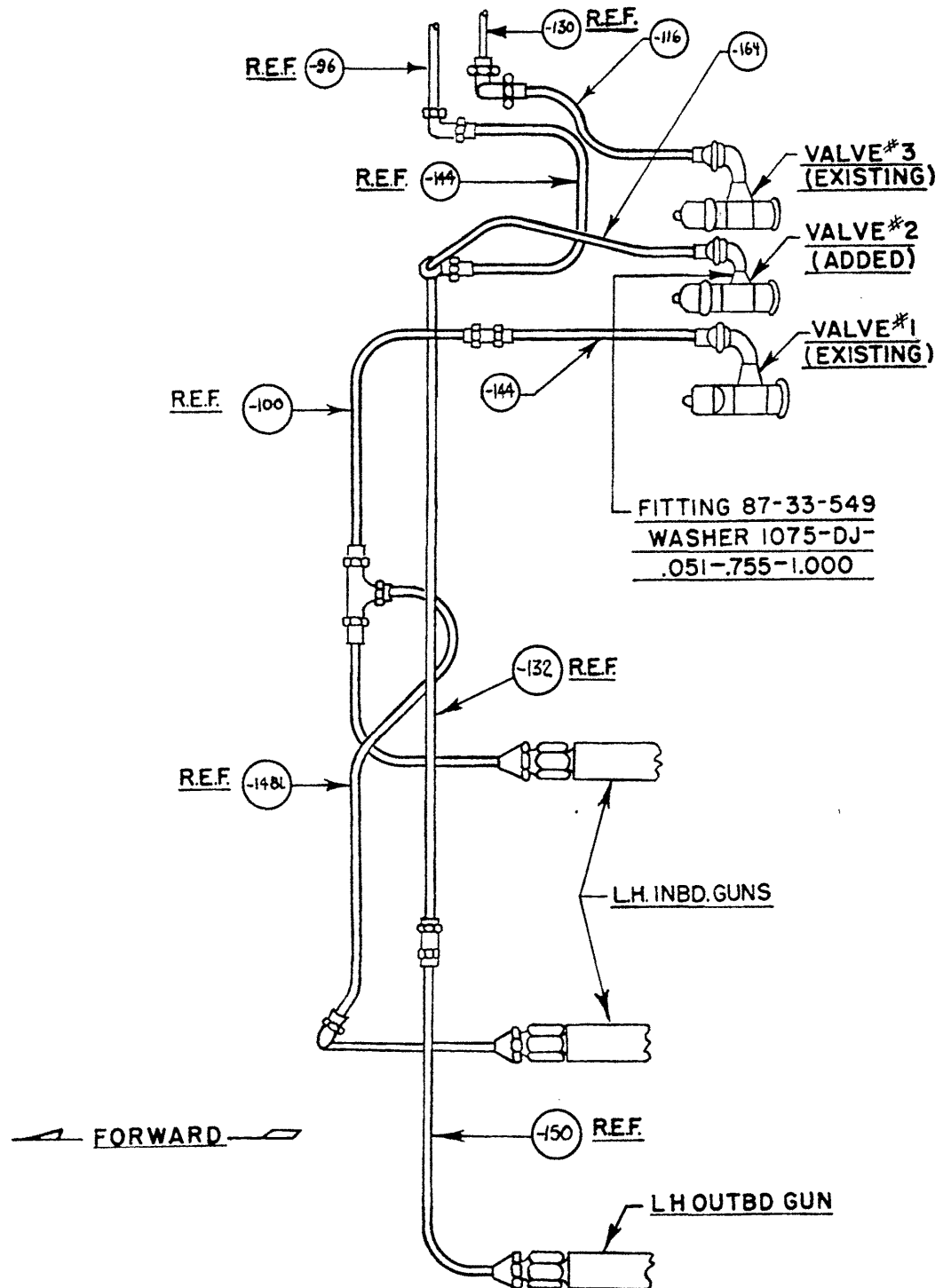
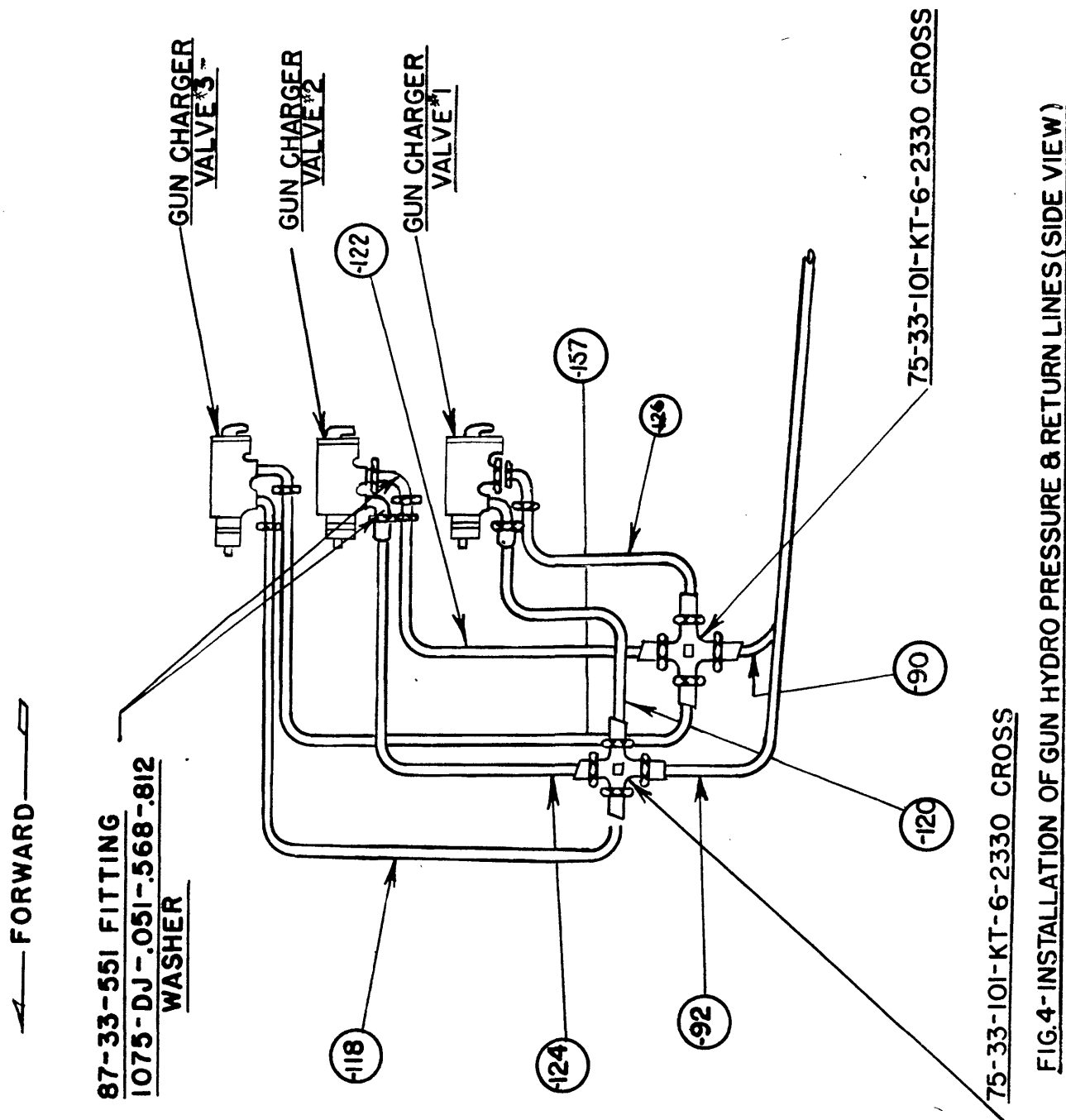


FIG.3-INSTALLATION OF GUN HYDRO FEED LINES-PLAN VIEW

pg 150

RESTRICTED

T. O. NO.01-25CF-24



pg 151 to

- 6 -

159

OMITTED

RESTRICTED

(a) Charger Valve #1 - Connect line, Part No. 87-33-701-118 to the port marked "In" on the valve. See Figure 4.

(b) Charger Valve #2 - Connect line, Part No. 87-33-701-128 to the port marked "In" on the valve using elbow, Part No. 87-33-551 and washer, Part No. 1075-DJ-.051-.568-.812. See Figure 4.

(c) Charger Valve #3 - Connect line, Part No. 87-33-701-124 to the port marked "In" on the valve. See Figure 4.

(d) Connect the lines referred to in paragraphs (a), (b), and (c) to a cross, Part No. 75-33-101-KT-6-2330. See Figure 4.

(e) Connect remaining port of the cross (Paragraph (d)) to the existing line, Part No. 87-33-501-92. This line is attached to the fuselage and runs to the hydro pressure pump.

(5) Hydro return lines shall be connected to the charger valves and panel as described below. Charger valves will be referred to as in Paragraph (3).

(a) Charger Valve #1 - Connect line, Part No. 87-33-701-157 to the port marked "Out" on the valve. See Figure 4.

(b) Charger Valve #2 - Connect line, Part No. 87-33-701-126 to the port marked "Out" on the valve using fitting, Part No. 87-33-559 and washer, Part No. 1075-DE-.051-.755-1.000. See Figure 4.

(c) Charger Valve #3 - Connect line, Part No. 87-33-701-122 to the port marked "Out" on the valve. See Figure 4.

(d) Connect the lines referred to in Paragraphs (a), (b), and (c) to a cross, Part No. 75-33-101-KT-6-2330. See Figure 4.

(e) Connect the remaining port of the cross (Paragraph (d)) to the existing line, Part No. 87-33-501-90. This line is attached to the fuselage and runs to the main hydro return lines. See Figure 4.

3. The following are the additional parts that are required per airplane to accomplish this change:

Quantity	Part Number	Nomenclature	Class	Source
1	87-66-506-370	Relay Jumper Wire	01-C	A.C. Stock
1	Spec. 32185	Relay	11	A.C. Stock
1	87-66-506-371	Relay Switch Wire	01-C	A.C. Stock
1	87-33-561-5	Bracket	01-C	A.C. Stock
3	AN510-10-8	Screw	29	A.C. Stock
1	87-33-557-4	Nameplate "Inner Left Wing Guns"	01-C	A.C. Stock
1	87-33-557-3	Nameplate "Inner Right Wing Guns"	01-C	A.C. Stock
1	87-33-557-5	Nameplate "Outer Wing Guns"	01-C	A.C. Stock
6	AN535-0-3	Drive Screw	29	A.C. Stock
2	500-A416-6	Screw	29	A.C. Stock
2	AN960-416	Washer	04-A	A.C. Stock
1	"Bendix 76861"	Gun Charger Valve	11	A.C. Stock
1	87-33-549	Elbow	01-C	A.C. Stock
1	87-33-551	Elbow	01-C	A.C. Stock
1	87-33-559	Fitting	01-C	A.C. Stock
1	1075-DJ-.051-.755-1.00	Washer	01-C	A.C. Stock
1	1075-DJ-.051-.568-.812	Washer	01-C	A.C. Stock
1	1075-DE-.051-.755-1.00	Washer	01-C	A.C. Stock

RESTRICTED

Quantity	Part Number	Nomenclature	Class	Source
2	75-33-101-KT-6-2330	Cross	01-C	A.C. Stock
1	87-33-701-118	Tube Assembly	01-C	A.C. Stock
1	87-33-701-124	Tube Assembly	01-C	A.C. Stock
1	87-33-701-128	Tube Assembly	01-C	A.C. Stock
1	87-33-701-157	Tube Assembly	01-C	A.C. Stock
1	87-33-701-122	Tube Assembly	01-C	A.C. Stock
1	87-33-701-126	Tube Assembly	01-C	A.C. Stock
1	87-33-701-116	Tube Assembly	01-C	A.C. Stock
1	87-33-701-114	Tube Assembly	01-C	A.C. Stock
1	87-33-701-134	Tube Assembly	01-C	A.C. Stock
1	87-03-703	Intermediate Wing Fillet	01-C	A.C. Stock

By order of the Chief of the Air Corps:

H. J. F. MILLER,
Brigadier General, U.S.A.,
Chief, Air Service Command.

RESTRICTED

PH 162

September 7, 1942

AIRPLANES AND MAINTENANCE PARTS

CURTISS - INSTALLATION OF WINTERIZATION EQUIPMENT - P-40E

NOTE: The provisions of AC Circular 15-60 will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished when necessary by service activities with the aid of sub-depots or at depots as arranged with the control depot. This Technical Order contains specific instructions for pilots and should be available for transition flying training as contemplated in AC Circular 50-4.

1. Airplanes operating in the Arctic regions require certain modifications which are necessary in order that airplanes may overcome icing conditions as well as other effects to extreme cold weather. This is also true of the special ground equipment, such as heaters, starters, wing covers, and shelters. Certain winterization features will be incorporated in the manufacture of aircraft, thus eliminating the necessity of major overhauling when the modifications are made. The work directed in paragraph 2. will be accomplished on P-40E airplanes transferred to extremely cold climates.

2. The instructions for accomplishing this work are as follows:

a. The oil installation system will be modified as shown on AF Drawing No. 42H5374 and drawing No. SAAD42G847. These drawings show the installation of U.A.P. oil coolers, part No. U-6511D8, which are the diffusion type and are equipped with type D-8 valves. The shutters, U.A.P., part No. U-3560-11, and U.A.P., part No. U-3560-13, for the oil cooler and prestone cooler will be installed in the rear of the coolers. The shutter control is mounted on the right side of the cockpit at station 3. Control, part No. AN4010, will be reworked as shown on AF Drawing No. 42B5383. For ground, take-off, and climbing conditions, the oil cooler and radiator shutter may be left in the full open position and the cowl flaps operated in accordance with the existing instructions. In flight, the cowl flaps should be closed as far as possible, (that is, in the streamlined position as a stop is installed on the control lever at that point, and the desired control of the prestone and oil temperature is obtained by the use of the shutters which are operated by control units located on the right side of the cockpit).

b. The cowl flaps will be altered to prevent 100 percent closure in which case the control lever stop will have to be changed as shown on AF Drawing No. 42D5380.

c. Due to the condensation of the moisture collecting in the oil tank sump, a drain valve plug, part No. 42A4846, will be installed in the lowest part of the oil tank sump as shown on AF Drawing No. 42B4844.

d. Oil dilution, as referred to in T. O. No. 02-1-29, is not sufficient when operating under severe low temperatures, since the diluted oil is rapidly used up while bulk of oil in tank

remains solid. To overcome this condition, the oil tank will be equipped with a 750 watt, 110 volt, immersion heater, located as near to sump outlet as possible in accordance with drawing No. SAAD42-608. It may be necessary to energize the heaters from three to five hours before the oil will have reached a fluid condition depending upon whether the temperature of the oil is 0 degrees F or -40 degrees F or the heater may be left energized while the airplane is parked. It is very important that there is sufficient oil in the tank to completely submerge the heating element of the heater.

e. In order that all movable surfaces, controls, and items of equipment will operate at a temperature of -60 degrees F the following group of moving bearings will be lubricated with either Beacon M-285, or grease meeting AF Specification No. AN-G-3.

- (1) Bearing, antifriction hinges, rods, bell cranks, or pulleys.
- (2) Bushings, hinges.
- (3) Actuating or adjusting screws.
- (4) Gear boxes or housings.
- (5) Universal joints.
- (6) Slip or sliding joints.
- (7) Continuous hinges.

f. Reference is made to T. O. No. 29-1-3 for the cleaning, inspecting, and replacement of lubricant. Bearings will be lubricated using tool, part No. 37B-5054, or similar purpose tools.

g. Priming system will be modified in accordance with AF Drawing No. 41D2549, and drawing Nos. SAAD42B818 and SAAD42B659, in order that special priming fluids can be used.

h. Additional heat will be provided to the carburetor and guns as shown on AF Drawing No. 42K6849. A resistance bulb (figure 2, on Specification 94-27321) will be installed in the carburetor air intake stack and connected up with the type F-9 indicator located in pilot's cockpit. The carburetor heat may be controlled throughout the range from full cold to full hot. A slight drop in manifold pressure will be apparent at any fixed throttle position if

NOTICE: This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act (U. S. C. 50-31-32). The transmission of this document or the revelation of its contents in any manner to an unauthorized person is prohibited.

RESTRICTED

T. O. No. 01-25CF-42

the control is moved from full cold position. The carburetor air inlet temperature should be maintained between +15 degrees C and +25 degrees C, and the engine operated at not less than 75 percent power, if there is any indication or possibility that carburetor ice may be encountered. If it is impossible to maintain +15 degrees C carburetor air inlet temperature with the control set full hot, the control should be moved to the full cold position. This should not occur in atmospheric conditions in which ice is at all probable as the use of air inlet temperatures between -18 degrees C and +15 degrees C may produce an icing condition in the induction system. Therefore, if operating in any kind of precipitation or clouds, carburetor air inlet temperatures should be maintained at +15 degrees C to +30 degrees C or below -18 degrees C. Full carburetor heat may be applied to remove ice if formed, but the temperature should be reduced to the +15 degrees C to +30 degrees C range as soon as possible.

i. See T. O. No. 03-5E-4 for installation of either type LS-85 or C34S ceramic spark plugs in Allison engines installed on F-40E airplanes.

j. Engine oil will be changed to comply with T. O. No. 06-10-1.

k. The oil pressure gage lines will be filled with light oil in accordance with T. O. No. 05-40-10.

l. When encountering temperatures as low as 35 degrees F, it may be necessary to reheat the engine using engine heater and canvas hood, part No. 40k6385. A suitable heater to use is the Stewart-Warner model 782Z. In this operation, great care will be exercised to prevent accidental ignition of the gas fumes emanating from the engine breathers due to vaporization of the gasoline in the oil.

m. To prevent oil from congealing in the oil lines, the inlet and return oil lines will be lagged with 1/16 x 1 inch asbestos tape, and then covered with cotton tape, 1 inch wide, Specification AN-BB-T-91. After wrapping, one coat of water glass is applied over all.

n. To enable engine starters to develop the maximum speed at subzero temperatures, the starter will be disassembled and thoroughly flushed and relubricated as follows:

(1) Starter lubricant will consist of a mixture by volume of one part Acheson No. 38 Graphite with one part Uniflow oil, S.A.E., No. 10, for clutch, a small amount of Gredag No. 32, (AF Specification 3592), grease brushed on the gears and a thin coat of grease 375, Specification 3650B grease on the ball bearings.

(2) In lubricating starters for cold weather operation, the grease must be used sparingly; a thin coating over the gears is sufficient. Do not fill the gear teeth. Excessive grease

in the starter retards free running of the parts and reduces the efficiency considerably.

o. The cockpit heating system will be modified to furnish additional heat to the windshield and cockpit. The ducts leading from the prestone and oil cooler radiators to the heating and vent chamber are shown on drawing No. SAAD42G810. An adapter will be attached to the heat and vent chamber for attaching the two flexible ducts in the cockpit. One of these ducts leads to the air space between the windshields from a vent attached to lower part of the windshield. The other flexible duct is long enough for the pilot to use on any part of the windshield inside the cockpit. The end of the duct is held in place with a spring when not in use. The installation of these parts is shown on drawing No. SAAD42-567. Reference is made to T. O. No. 01-25CF-38 for windshield modifications.

p. Bulkhead spinners will be reworked as shown on drawing No. SAAD-42B183 and SAAD42B644.

q. Installation of the propeller hub seals will be made in accordance with T. O. No. 01-25C-77.

r. The lubricant as ordinarily used in the propellers is too heavy. This grease will be removed and the propeller cleaned and replenished with Texaco No. 00.

s. The external power plug will be installed in connection with the battery junction box located forward from station No. 124 as shown on drawing No. SAAD42-571. Details of receptacle are shown on drawing No. SAAD42G277.

t. A type C-4 cockpit light, Specification 94-32294, will be installed aft of station 4 and connected to the junction box, part No. 87-66-586, with a No. 18 cable, Specification 94-32006, 65 inches long in accordance with AF Drawing No. 42D4949.

u. The propeller anti-icing system consists of the following:

(1) Reservoir for holding anti-icer fluid, Specification 14082, electric driven pump with rheostat and propeller slinger rings. The tank, part No. 42G4192, is constructed from aluminum .064 thickness, Specification 57-151-1, and is installed on the right-hand side of the airplane behind the cockpit with brackets, part No. SAAD42-597, and straps, part No. SAAD42-599 between stations 7 and 8. The pump is mounted underneath and in front of the tank on the support, part No. SAAD42-598. The lines leading from the tank to the slinger rings are 1/4 inch diameter copper tubing x .032 wall, Specification WW-T-799. Optional tubing is aluminum 1/4 inch O.D. x .032 wall, Specification WW-T-783. The same type of tubing is used for the drain and overflow lines. The rheostat switch, part No. 42D5150, is mounted in the pilot's cockpit, and is used to control the speed of the motor. The tank has a capacity of two (2) gallons. The amount of fluid pumped depends

P5/69

upon the speed of the motor. The two gallons of de-icing fluid should be sufficient for the cruising area of the airplane. An opening is cut on the right-hand side of vision glass, Curtiss, part No. 87-21-569, to allow for the filling of the anti-icer tank. This opening is fixed with a hinge cover operating from the inside. This change is shown on drawing No. SAAD42D798. A Parker check valve, part No. 404-HST-4D, 1/4 inch tube, outlets, should be installed in the 1/4 inch diameter line a short distance from the slinger rings. Fluid is pumped to the slinger rings where the centrifugal force spreads it out over the propeller blades.

(2) The slipring assembly is disassembled from the hub and slinger ring, part No. 106090, replaces the spinner mounting flange, part No. 104330. The seal, part No. 104836, remains in the assembly. On the clamp ring for blade retention, the clevis pin is removed and collector assembly, part No. 106004, added to each of the three (3) blades. Special bolt, part No. 106049, replaces the existing bolt, part No. AN-5000-10. Nut, part No. 101757, holds the collector assembly in place. The tubes, assembly No. 106091, are attached to the slinger ring in each of the three (3) outlet bosses.

(3) Feed shoes installed on the propeller blade distribute the anti-icer fluid over the blades. The distribution of the anti-icer fluid over the propeller blade is improved by cementing Goodrich Feed Shoes, mold No. 37572 to the blades. Instructions for the installation of feed shoes are made in accordance with Goodrich Drawing No. B-188E. The feed shoes are used in connection with the collector ring, Curtiss part No. 106004, which has the tube from the collector "bucket" or well to deposit the fluid in the grooves of the feed shoes. "Inloid" oil proof cementing is used as a seal along the edges of the feed shoes.

3. Drawings and parts required.

a. The following drawings are required to accomplish this installation:

(1) Installation External Power Plug.

42G4274	42G4277
SAAD42-571	42B4278
42D4276	42A4279

Goodrich B-188E

(2) Installation Carburetor and Gun Hot Air Duct.

42K6849	42D6851M	SAAD42A688
---------	----------	------------

42B6426M
SAAD42D719
SAAD42B670 L/R
42D6857

SAAD42A703
42D6850
42G6421M
SAAD42A700

SAAD42A699
42G6422M
42B6423M R/L
SAAD42A687

(3) Installation Radiator and Oil Cooler Shutters.

42H5374
SAAD42A645
42K5399 (Duct Assembly Cooler)
42D5382M
SAAD42A655
42D5381M

SAAD42A634
42B5398
SAAD42-544
42B5383
SAAD42-583

(4) Installation Cockpit Heating System.

SAAD42G810
SAAD42B660
SAAD42A663

SAAD42A661
SAAD42A646

SAAD42B662
SAAD42A664

(5) Installation Propeller Anti-Icing Equipment.

SAAD42-602
SAAD42D798
42B5150
SAAD42-599

SAAD42D813
42D5236
SAAD42-566
SAAD42A640

SAAD42-597
SAAD42B644
SAAD42-598
42G4193

(6) Installation Priming System.

41B2549

SAAD42B659

SAAD42B818

(7) Installation Winterization Equipment.

SAAD42G847

(8) Installation Oil Tank Immersion Heater.

SAAD42-608

(9) Installation Windshield Defrosting Assembly.

SAAD42-567

(10) Installation Cowl Flap Control Lever Stop.

42D5380

(11) Installation Type C-4 Cockpit Lamp.

42D4949

b. The following parts are required per airplane to accomplish this installation. Service activities desiring to accomplish this work may obtain parts by requisition on the control depots.

Quantity	Stock No.	Part No.	Nomenclature	Class	Source
1	4840-U-6511D8		Cooler - Oil, U. A. P.	03-1	AF Stock
1	4840-U-3560-11		Shutter - Oil assembly temp. regulator	03-1	AF Stock
2	4840-U-3560-13		Shutter - Assembly coolant radiator	03-1	AF Stock

PA 165

RESTRICTED

T. O. No. 01-25CF-42

<u>Quantity</u>	<u>Stock No.</u>	<u>Part No.</u>	<u>Nomenclature</u>	<u>Class</u>	<u>Source</u>
1		D8300-13-4	Pump Assembly Metering Fluid Series J4.0-24-1/8 P.T.	03-I	AF Stock
1		7979	Strainer	03-1	AF Stock
1		R10-1500	Heater - Oil immersion chromalox, E. L. Weigand Co.	03-F	AF Stock
1		AN4010	Shutter Control	03-F	AF Stock
3	0104-106004		Collector - Curtiss part number	01-C	AF Stock
3	0104-106091		Tube - Curtiss	01-C	AF Stock
1	0104-106636		Slinger Ring - Curtiss	01-C	AF Stock
3	0104-106049		Bolt - Curtiss	01-C	AF Stock
3	0104-101757		Nut - Curtiss	01-C	AF Stock
3			Shoe-Feed Propeller (with cement) Mold No. 37572	04-B	AF Stock
1	6100-033170	106806	Bulb - Resistance carbu- retor air thermometer, Specification 94-27321, figure 2	05-D	AF Stock
1	4202-42B3738		Receptacle - Battery chart	03-C	AF Stock
1	4200-371850	G32294C4	Lamp Assembly Cockpit Type C-4, Specification 94-32294	03-C	AF Stock
1	4200-615130		Rheostat - Variable resistance, 50 watt, 15 ohm, Specification 94- 32259	03-C	AF Stock

c. Other parts, not listed above as noted on drawings, will be obtained from local stock or requisition as required.

By Command of Lieutenant General ARNOLD:

H. J. F. MILLER,
Major General, U. S. A.,
Commanding General, Air Service Command.

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

PH 164
TECHNICAL ORDER
No. 01-25CH-18

September 18, 1942

AIRPLANES AND MAINTENANCE PARTS

CURTISS - REPLACEMENT OF MAIN LANDING GEAR TIRES - P-40F

This Technical Order replaces T.O. No. 01-25CH-18 dated June 3, 1942, revised to include additional information.

NOTE: The work directed herein will be accomplished by service activities or sub-depots as soon as possible or whenever replacement of main landing gear wheel tires are necessary.

1. To decrease possibility of main landing gear tires failing on take-offs or landings, rayon cord tires of at least 8 ply will be used on P-40F and subsequent model P-40 series airplanes.

2. Tires of different contractors can be identified as being rayon cord by the word "Rayon" being stamped on the wall of the tires, or by manufacturing date as follows:

a. Firestone Rubber Company, 8-ply, 30-inch rayon cord manufactured since June 1, 1941.

b. U.S. Rubber Company, 8-ply, 30-inch rayon cord manufactured since November 1, 1941.

c. Goodyear Tire and Rubber Company, 8-ply, 30-inch rayon cord manufactured since June 1, 1942.

3. Tires removed and in serviceable condition will be returned to AF Stock for reissuance for other airplanes.

By Command of Lieutenant General ARNOLD:

H. J. F. MILLER,
Major General, U.S.A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act (U. S. C. 50:31:32). The transmission of this document or the revelation of its contents in any manner to an unauthorized person is prohibited.



WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

PS 168
TECHNICAL ORDER
No. 01-25CH-31

DIST: 4,5,7
FILE: BEHS

September 9, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—MODIFICATION OF NOSE-TYPE CARBURETOR AIR FILTER—P-40F AND P-40L

NOTE The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable and not later than the next 50-hour inspection period by service activities with the aid of sub-depots, if necessary. Maintenance filters in stock will be modified prior to issue.

1. To prevent possible collapsing and breaking of the inside filter screen, the nose-type carburetor air filter assembly, part No. 87-51-755, installed in the following P-40F and P-40L airplanes will be modified in accordance with the instructions contained in paragraph 2.

MODEL

AF SERIAL NUMBER

P-40F	41-19733 to 41-20044 inclu
P-40L	42-10430 to 42-10848 inclu

2. The instructions for accomplishing this change as contained in Curtiss Service Bulletin 400-82, dated March 24, 1943, are as follows:

a. Disconnect and remove carburetor air filter, part No. 87-51-755, from the airplane, and remove the felt buffer from the bottom of the filter.

b. Fabricate four reinforcements in accordance with the details given in figure 1.

c. Make a loop of the 21-inch long strip and join the ends with the rivet, part No. 671-D-4-5, at the No. 30 (.1285-inch) holes.

d. To form the loop reinforcement to the contour of the inside of the filter, designate the rivet, part No. AN442-D-4-5, as bottom center of the loop and then flatten out the loop 2-1/4 inches on each side of the rivet. (See figure 2.)

e. Install the loop reinforcement in the air filter 9-1/2 inches from the front shutter end, with the flat side of the loop reinforcement on the bottom of the filter. (See figure 2.)

NOTE Use caution when installing reinforcements so that the wire screen is not damaged.

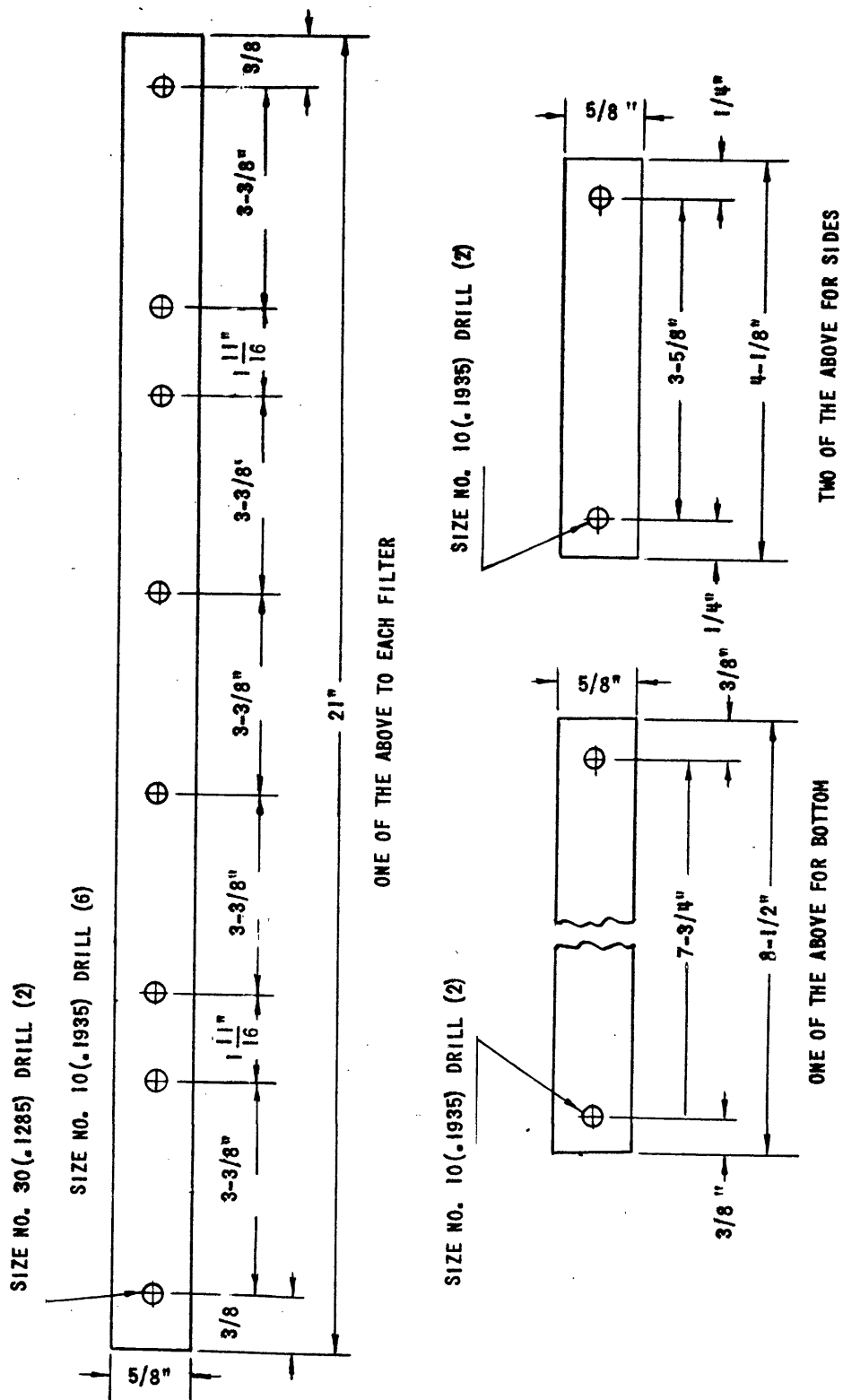
f. Punch six holes through the filter with a sharp-pointed tool, using the holes in the loop reinforcement as a guide.

g. Install the two 4-1/8 inch long strips of outside reinforcements to the filter, one on the left and one on the right top sides using two bolts, part No. AN3-4, two nuts, part No. AN320-3, and two cotter pins, part No. AN380-2-2, to each piece with the head of the bolt on the inside of the filter. (See figure 2.)

h. Install the one bottom strip to the filter, using two bolts, part No. AN3-4, two nuts, part No. AN320-3, and two cotter pins, part No. AN380-2-2, with the heads of the bolts inside the filter.

i. Attach the felt buffer to the bottom strip with two pieces of wire and install the modified filter in the airplane in accordance with T.O. No. 01-25CH-38, "Operation, Maintenance, and Installation Instructions for Carburetor Air Filter."

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S.C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



DETAIL OF 87-51-755 AIR FILTER REINFORCING

Figure 1 - Detail of 87-51-755 Air Filter Reinforcing

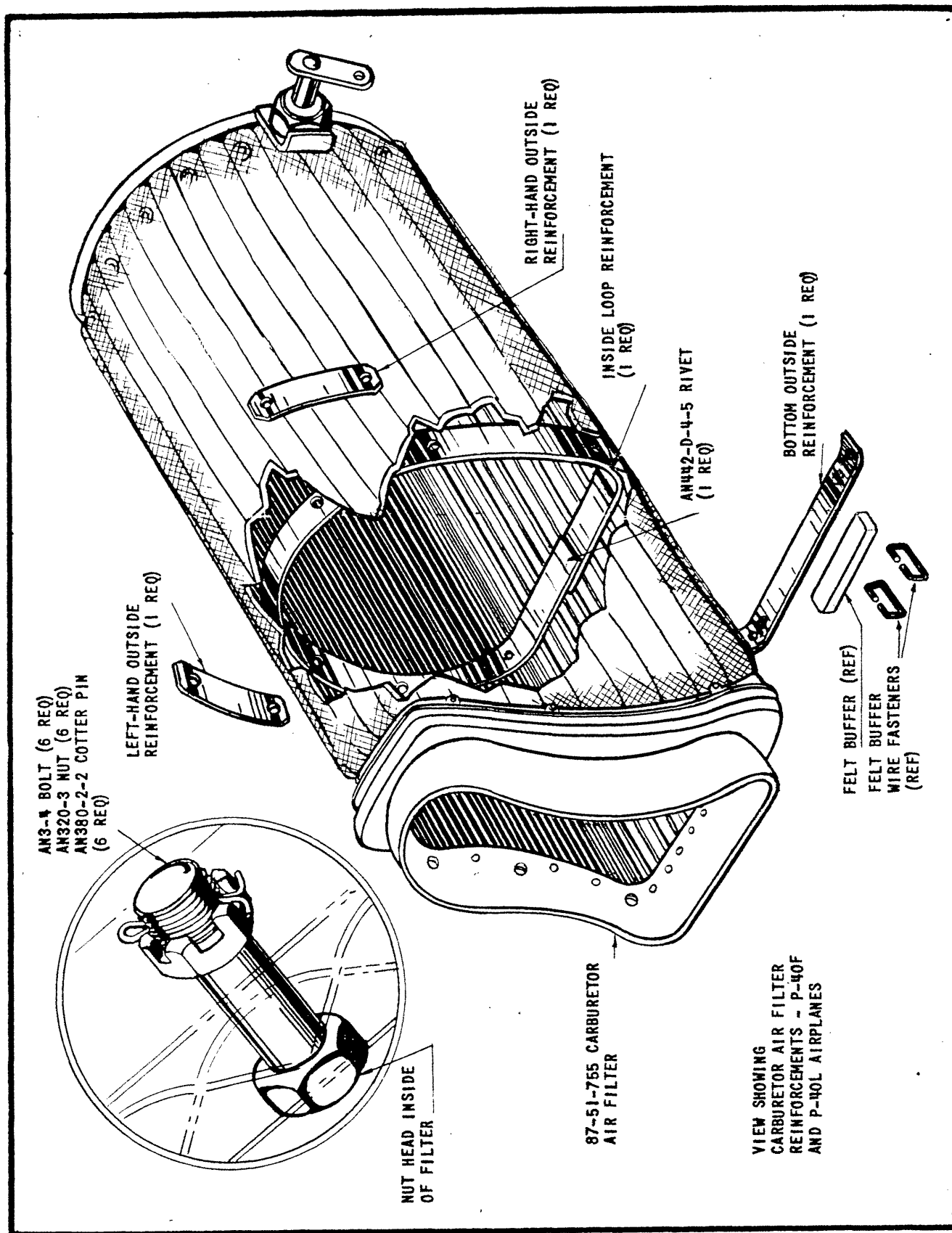


Figure 2 - View Showing Carburetor Air Filter Reinforcements

3. The following parts are required per airplane to accomplish this installation.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
6	6500-014010	AN3-4	Bolt - Steel No. 10-32	04-A	AF Stock
6	6500-468300	AN320-3	Nut - Steel, castle shear No. 10-32	04-A	AF Stock
6	6700-396350	AN380-2-2	Pin - Cotter, steel 1/16 x 1/2 in.	29	AF Stock
1	6700-500100	AN442D4-5	Rivet - Alum.-alloy flathead type D 1/8 x 5/16 in.	29	AF Stock
1			*Reinforcement Strip 21 in. x 5/8 (.051-inch)	01-C	Local Mfr.
2			*Reinforcement Strip 4-1/8 in. x 5/8 (.051-inch)	01-C	Local Mfr.
1			*Reinforcement Strip 8-1/2 in. x 5/8 (.051-inch)	01-C	Local Mfr.
As req			*Mfr. from: Alum.-Alloy Sheet Cond. T Heat-Treated Specification No. QQ-A-362 Stock No. 6800-142010	23-A	AF Stock

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
NO. 01-25CH-32

DIST: 5,7
FILE: BEH

July 14, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS -- REWORK OF MAGNETO COOLING TUBES -- P-40F AND P-40L

This Technical Order replaces T. O. No. 01-25CH-32, dated October 26, 1942, revised to correct previous caution note and include the P-40L airplanes.

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being 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 sub-depots, if necessary.

1. To provide adequate magneto cooling, blast tubes will be installed on the magnetos on all P-40F and P-40L airplanes, unless previously accomplished, in accordance with the instructions contained in paragraph 2.

2. The instructions for accomplishing this work as contained in Curtiss Service Letters, dated July 27, 1942 and March 13, 1943, are as follows:

a. All P-40F and P-40L airplanes will be inspected to see if the position of air blast tube has been changed from the breaker housing to the correct position noted herein.

b. Remove the left- and right-hand side cowlings.

c. Remove the rear clamp and neoprene cap, part No. 87-29-995, from the left- and right-hand spark plug cooling tubes.

d. Install an adapter, part No. 87-46-568, on the

rear of each cooling tube with an FB-36A clamp. (See figure 1.)

e. Install magneto cooling tubes, part No. 87-29-930-28, with hoses, part No. 882-10-11. Attach tubes to the adapters, part No. 87-46-568, with FB-6A clamps, left- and right-hand sides.

CAUTION

Position cooling tubes so that air will be directed against the magneto housing proper just outboard of the screened vent hole in the magneto.

f. Reinstall left- and right-hand side cowlings.

3. a. The following parts are required per airplane to accomplish this change. These parts will be packed in kits and distributed in accordance with the provisions of T. O. No. 00-35A-15.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	1300T0-01-25CH32		KIT, "Installation of Magneto Cooling Tubes - P-40F and P-40L," consisting of the following parts:	15	AF Stock
2		FB-6A	Clamp - Hose (Wittek Mfg. Co.)	04-A	
2		FB-36A	Clamp - Hose (Wittek Mfg. Co.)	04-A	
2		882-10-11	Hose	04-B	
2		87-46-568	Adapter - Magneto cooling tube	01-C	
2		87-29-930-28	Tube - Magneto cooling	01-C	

b. The clamps, part No. GT-48, and the neoprene caps, part No. 87-29-995, removed will be disposed of in accordance with provisions of T. O. No. 00-35A-3.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

Compliance with these instructions is MANDATORY on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

P5172

RESTRICTED

T. O. No. 01-25CH-32

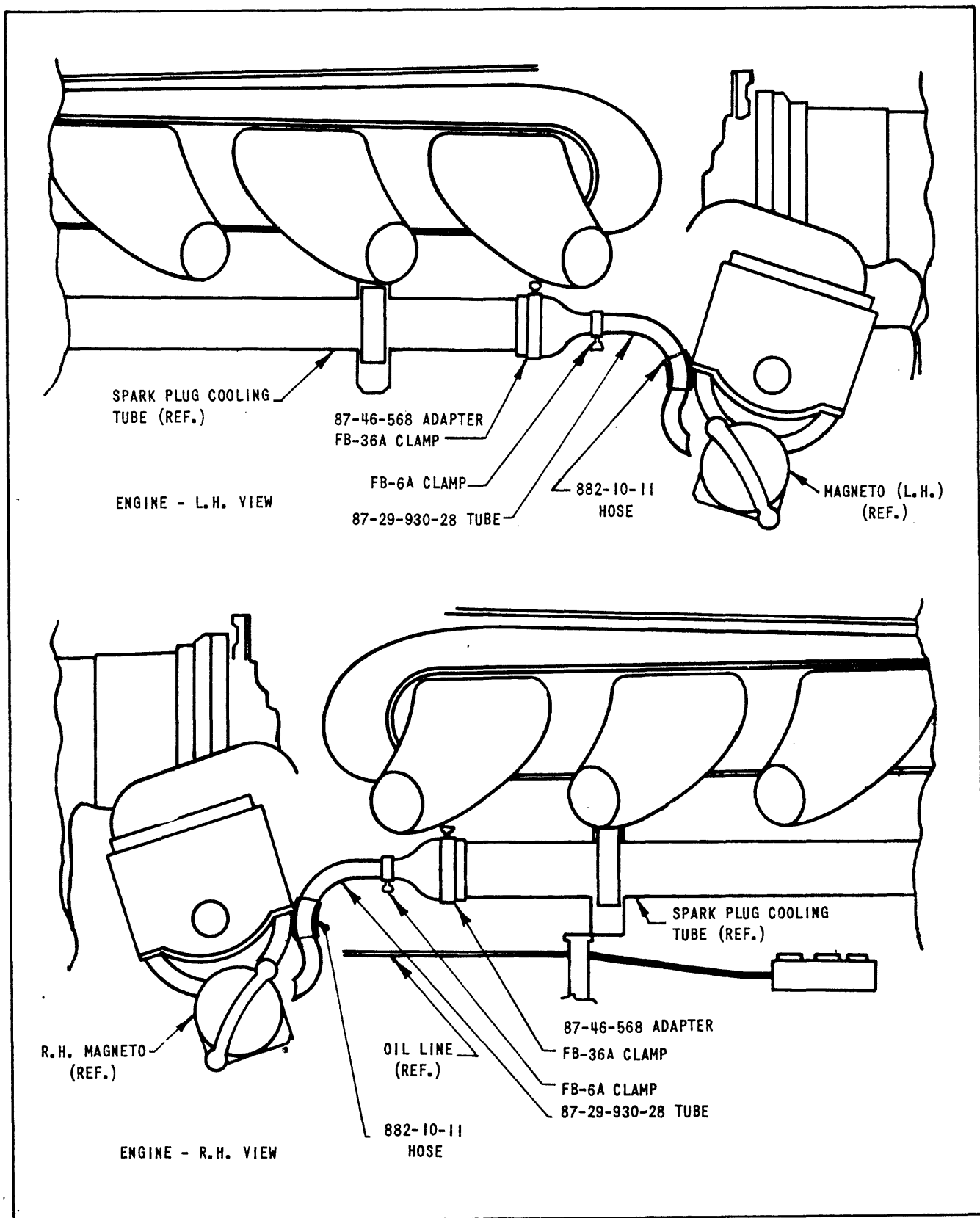


Figure 1 - Installation of Magneto Cooler Tubes

November 5, 1942

AIRPLANES AND MAINTENANCE PARTSCURTISS - OPERATION, MAINTENANCE AND INSTALLATION INSTRUCTIONS FOR CARBURETOR
AIR FILTERS - P-40F

NOTE: The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A. The work directed herein will be accomplished as soon as possible by service activities with the aid of sub-depots, if necessary. This Technical Order contains specific instructions for pilots and should be available for Transition Flying Training as contemplated in AC Circular 50-4.

1. To reduce excessive oil consumption and other engine malfunctioning caused by induction of dust, sand, and other foreign material into the air intake system, carburetor air filter assemblies will be installed on all P-40F airplanes, in accordance with the instructions contained in paragraph 3.

2. The carburetor air filters will be operated and maintained as follows:

a. The control of the valve position is accomplished by means of a push-pull control cable. All ground operation including take-offs, landings, and flight up to altitudes of approximately 5,000 feet should be accomplished using filtered air with the filter control in the "FILTERED AIR" position, that is, pulled out. Above 5,000 feet, or whenever the airplane is above the sandy or dusty level, the unfiltered air may be used, that is, control pushed in. For using unfiltered air the carburetor heat control may be used in the "FULL HOT" or "FULL COLD" position as required.

b. To clean the filter element disconnect the control at the filter valve lever and remove the four machine screws, lift the filter up slightly, and pull forward to remove the filter from the airplane. Clean the filter element in accordance with the instructions contained in T. O. No. 01-1-23.

3. The instructions for accomplishing this installation as outlined in Curtiss Service Bulletin No. 400-44, revised October 5, 1942, are as follows:

a. Remove the right- and left-hand side engine cowling and the forward bottom cowl.

b. Remove the six screws and spacers which secure the ice guard screen in front of the carburetor air intake duct. Reinstall six new shorter screws, part No. AN526-832-6. The original screws, spacers, and ice guard are not to be reinstalled.

c. Drill out the 3/16-inch plug rivet in the right-hand side of the forward bulkhead which is attached to the air intake duct and oil coolers. Enlarge small hole to 5/8 inch diameter and insert one grommet, part No. 931-6-10. (See figure 3.)

d. Enlarge the 3/16-inch hole in right-hand side of the aft bulkhead, which is attached to the air intake duct and oil coolers, to 5/8-inch diameter. Insert one grommet, part No. AN931-6-10.

NOTE: The procedure for enlarging this hole will be the same as that shown on figure 3.

e. Enlarge small diameter hole in the fiber guide plate located on the right-hand side of the fire wall to 3/8 of an inch.

NOTE: The tachometer shaft also passes through this guide plate and the hole to be enlarged will be the second hole inboard from the tachometer shaft.

f. Attach the control unit support bracket, part No. 87-52-957, to the control unit as follows: (See figure 5.)

(1) Depress the small locking button on the control handle and pull the control out until it hits the stop.

(2) With the small button still depressed, remove the small steel locking ball which is located close to the threaded end of the control housing.

(3) Remove the small locking button from the control unit by pulling it out of the housing.

(4) Remove the control knob by removing the Allen setscrew and then unscrewing the knob from the housing.

(5) Remove the rounded control unit attaching nut.

(6) Slip the support bracket, part No. 87-52-957, over the threaded end of the control unit and secure it in place by means of the rounded nut and the hex nut on the control unit.

(7) Reassemble the control unit by reversing the steps outlined in (1), (2), (3), and (4).

NOTICE: This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act (U. S. C. 50:31:32). The transmission of this document or the revelation of its contents in any manner to an unauthorized person is prohibited.

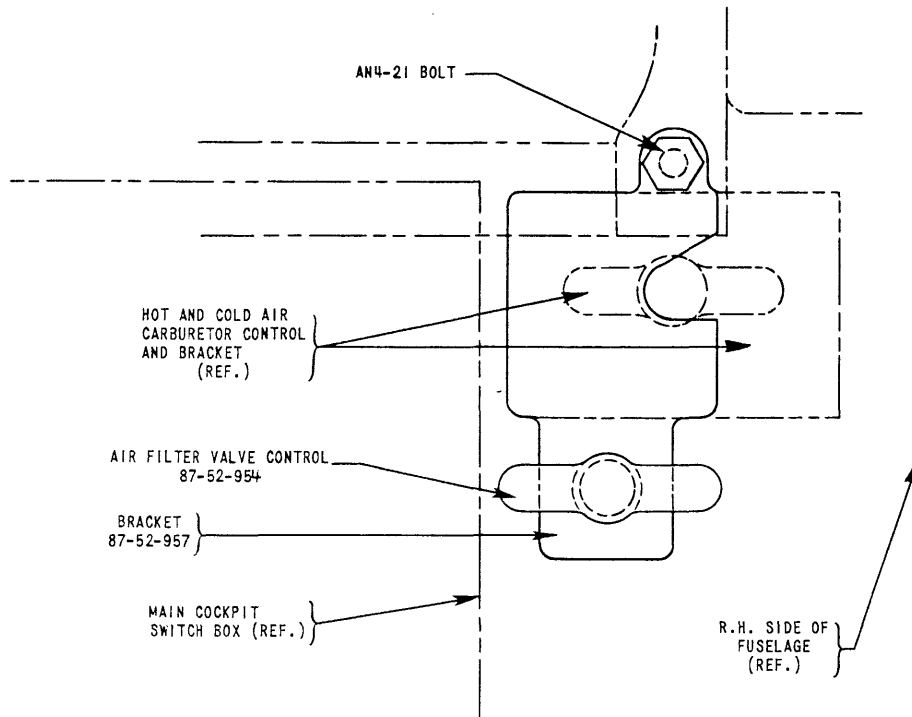


Figure 1

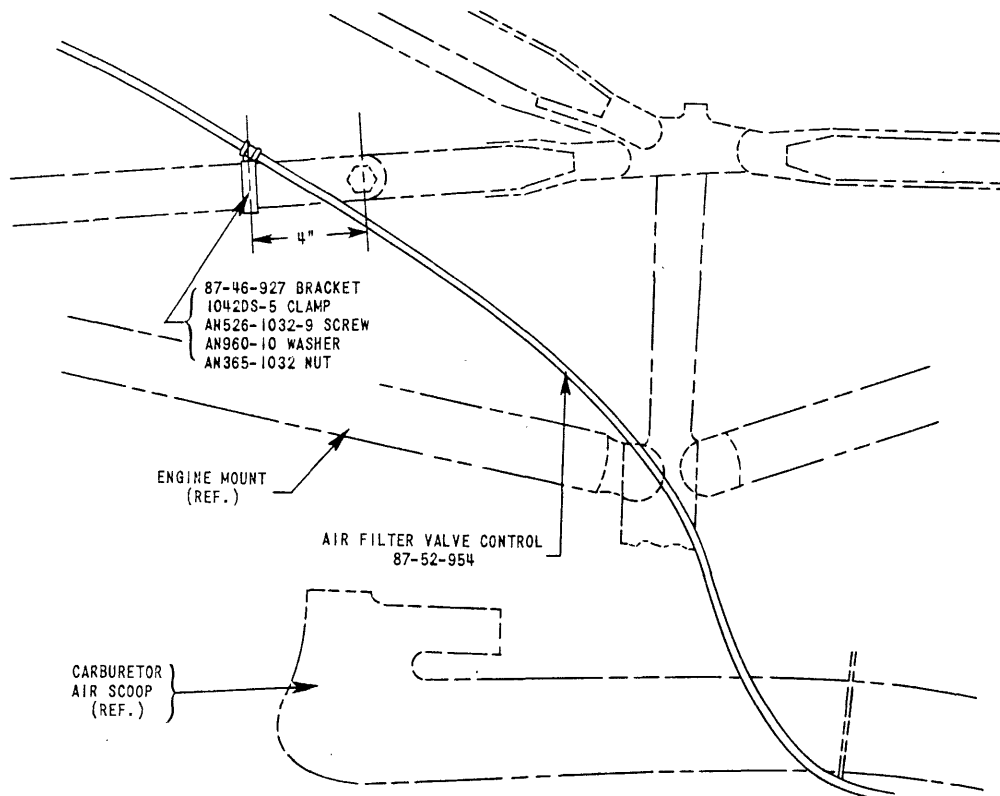


Figure 2

13175

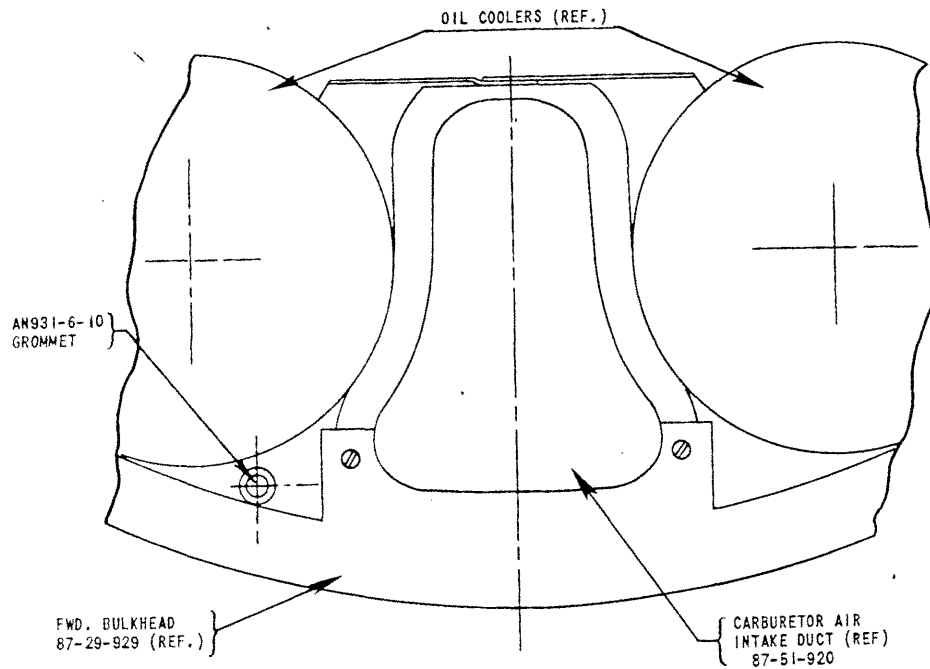


Figure 3

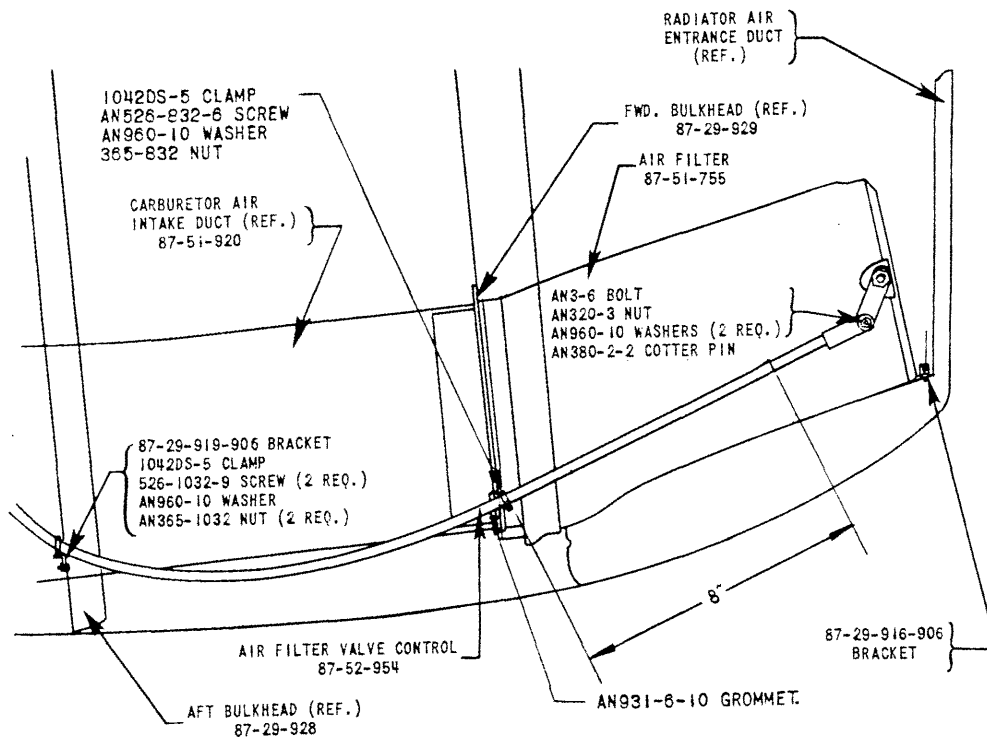


Figure 4

NOTE: TO OPERATE CONTROL

1. DEPRESS LOCKING BUTTON.
2. PULL OR PUSH AGAINST CONTROL KNOB UNTIL CONTROL IS FULL "IN" OR FULL "OUT," THEN RELEASE LOCKING BUTTON.
3. LOCKING OF THE CONTROL IS DUE TO THE STEEL LOCKING BALL BEING PRESSED AGAINST THE CONTROL HOUSING, DUE TO THE SPRING ACTION AT THE LOCKING BUTTON.

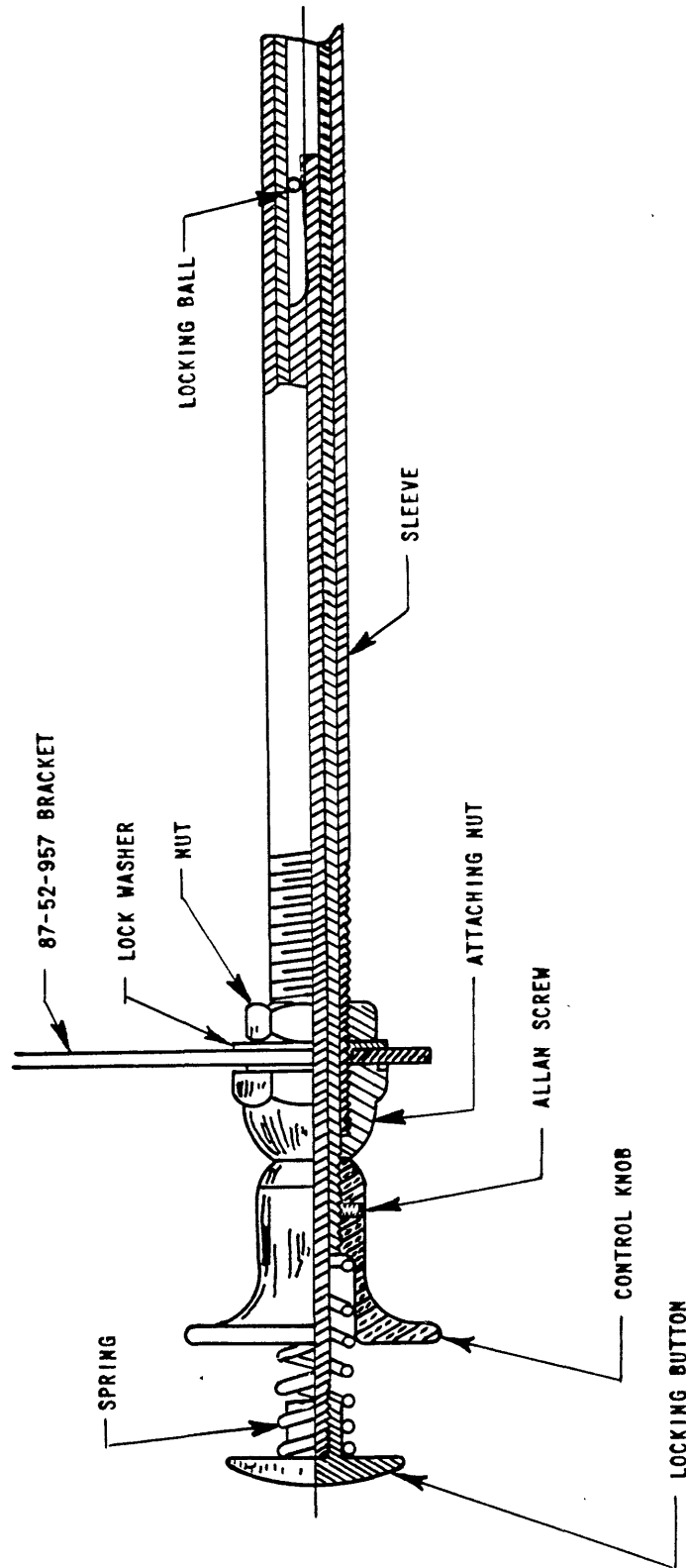


Figure 5 - Installation Instructions For Carburetor Air Filter, 87-51-755

g. Loosen the lock nut which secures the hot and cold air carburetor control in place in the cockpit.

NOTE: This control is located between the main switch box on the right-hand side of the fuselage directly below the instrument board.

h. Remove the 1/4-inch diameter bolt which goes through the rudder pedal support tube directly above the carburetor hot and cold air control.

i. Insert the new filter control support bracket, part No. 87-52-957, between the rudder pedal support tube and the existing carburetor hot and cold air control name plate. Secure the support, part No. 87-52-957, by installing a new 3/4-inch diameter bolt, part No. AN4-21, through the hole in the bracket, part No. 87-52-957, and into the rudder pedal support tube. Tighten the new bolt and also tighten the nut on the carburetor hot and cold air control.

j. Remove the clevis end and the nut and lock washer from the filter control unit, part No. 87-52-954, and insert the end of the control through the new support bracket, part No. 87-52-957. Just as the end of the control passes through the support bracket slip the lock washer and nut over the end of the control. The control shall then be routed forward along the right-hand side of the fuselage and through the 3/8-inch diameter hole previously enlarged in the fiber guide plate at the fire wall. The lock washer and nut shall be turned up on the control at the support bracket, part No. 87-52-957, until it is tight.

k. Attach bracket, part No. 87-46-927, on the right-hand side of the engine mount and add clamp, part No. 1042DS-5, to valve control unit with screw, part No. AN526-1032-9, washer, part No. AN960-10, and nut, part No. AN365-1032. (See figure 2.)

l. Secure the filter control unit to the bottom screw of the first Adel clamp forward of the fire wall, which holds the four fuel lines, using clamp, part No. 1042-DS-5.

m. Remove bolt and nut next to the enlarged hole of the after bulkhead where the valve control unit passes through. Attach bracket, part No. 87-29-916-906 using screw, part No. 526-1032-9. Secure air filter valve control, part No. 87-52-954, to bracket with clamp, part No. 1042-DS-5, screw, part No. AN526-1032-9, washer, part No. AN960-10, and nut, part No. AN365-1032, after adjusting the forward end of valve control unit, part No. 87-52-954, eight inches from the face of the grommet through which it passes, to the forward end of the stationary metal tube, through which control slides. Attach one clamp, part No. 1042-DS-5, to the stationary metal tube of the control directly forward of and abutting the grommet in the forward oil cooler bulkhead. Use screw, part No. AN526-832-6, washer, part No. AN960-10, and nut, part No. 365-832. (See figure 4.)

n. Replace bottom cowl to airplane, remove four screws, two from each side of the center line at the forward edge of the cowl, which holds inside duct to the cowl to match the four holes in the lip of the air filter. (See figure 4.)

o. Install air filter, part No. 87-51-755, into the carburetor air duct and secure to the bottom cowl at the forward edge with four previous removed screws.

p. Each carburetor air filter is provided with two 1/4-inch thick, felt gaskets. When installing the filter, care shall be exercised to see that the filter is a tight fit at the rear end. Both felt gaskets shall be used if necessary. Where one felt gasket will provide a tight fit for the filter, only one shall be used.

q. Remove the third screw from the right-hand of the center line of the air intake cowl where the air filter is secured to the air intake duct. Install bracket, part No. 87-29-916-906, with previous removed screw. (See figure 4.)

NOTE: This bracket serves for attaching valve control unit so that the control unit is not free to vibrate when flights are made with the filter removed.

r. Attach clevis end of valve control unit to the lever of the air filter with bolt, part No. AN3-6, nut, part No. AN320-3, two washers, part No. AN960-10, and cotter pin, part No. AN380-2-2.

s. Check the control for operation making certain that the valve opens and closes against the stops. If the valve does not fully open against the stop, it will be necessary to change the location of the control unit moving it forward enough to permit fully opening the valve.

t. Replace left- and right-hand side engine cowl.

u. The name plate which is attached to the carburetor hot and cold air control reads as follows: At the top it reads, - "Carburetor Air-Pull For Heated Or Filtered Air." At the bottom it reads, "Place Control At Either Hot Or Pull Cold Position." The lettering at the top of this instruction plate shall be altered to read, "Carburetor Air-Pull For Heated Air" by painting out the words "Or Filtered" using black paint.

v. The small paper name plate, located below the relay switches on the main switch box, reading "Check Generator Brushes After Eight Hours of Engine Operating Time for Excessive Wear. Extra Brushes Can be Found in Tool Bag", shall be removed.

w. Paste the carburetor air filter control paper instruction plate below the relay switches and adjacent to the right-hand side of the main switch box. This instruction plate reads:

Carburetor Air Filter Control

- (1) Pull out for "Filtered Air."
- (2) Push in for "Unfiltered Air."
- (3) Control must be full in or full out.

NOTE: When "Filtered Air" is used the carburetor heat control must be in full "Cold" position.

When "Unfiltered Air" is used the carburetor heat control may be used in the full "Hot" or full "Cold" position as required.

x. Locate the generator brush inspection instructions just inboard of the carburetor air filter control instructions, previously at-

tached in paragraph w. This generator brush inspection information is the same as that listed in paragraph w.

4. The parts required per airplane to accomplish this change and a copy of this Technical Order will be assembled into kits and supplied without requisition direct to the activities having the airplanes affected. If any of the affected airplanes have been transferred, the kits for those airplanes will be forwarded in accordance with T. O. No. 01-1-24, if destinations of airplanes are known. Kits for airplanes transferred to destinations unknown will be held, and the Commanding General, Field Services, Air Service Command, notified immediately.

Quantity	Stock No.	Part No.	Nomenclature	Class	Source
1	014TC-01-25CH37		KIT, "Operating and Installation Instructions for Carburetor Air Filters - P-40F", consisting of the following parts:	01-C	AF Stock
1	0104-37-51-755		Filter - Air	01-C	
1	0104-37-52-954		Filter - Valve control unit, air	01-C	
2	0104-37-29-916-906		Bracket	01-C	
5	0104-1042-DS-5		Clamp	01-C	
1	0104-37-46-927		Bracket	01-C	
1	0104-37-52-957		Bracket	01-C	
2	6600-313500	AN931-6-10	Grommet - Neoprene 3/8-in. hole groove 5/8-in. dia 1/16 in. wide	04-B	
1	6500-15240	AN4-21	Bolt - Aircraft drilled steel 1/4-28 x 2-1/8 in.	04-A	
2	6500-14030	AN3-6	Bolt - Aircraft drilled steel 10/32 x 3/4 in.	04-A	
7	6700-615350	AN526-832-6	Screw	29	
3	6700-619850	AN526-1032-9	Screw	29	
3	6500-314000	365-1032	Nut - Self locking steel 10/32	04-A	
1	6500-168300	AN320-3	Nut - Aircraft castle shear steel 10-32	04-A	
5	6500-984000	AN960-10	Washer - Plain steel No. 10 bolt	04-A	
1	6700-396350	AN380-2-2	Pin - Cotter steel 1/16 x 1/2 in.	29	
1			Instruction Plate - Carburetor air filter control	01-C	
1			Instruction Plate - Generator brush	01-C	
1	6500-513700	365-832	Nut - Self-locking steel 8-32	04A	
b. Parts removed and not reinstalled will be disposed of in accordance with the provisions of T. O. No. 00-35A-3.					

By Command of Lieutenant General ARNOLD:

H. J. F. MILLER,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

PS 180
TECHNICAL ORDER
No. 01-25CH-38A

FILES: FO

March 20, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS - OPERATION, MAINTENANCE AND INSTALLATION

INSTRUCTIONS FOR CARBURETOR AIR FILTERS - P-40F

NOTE: This Technical Order supplements T. O. No. 01-25CH-38 dated November 5, 1942. A reference to this supplement will be made on page one of the basic Technical Order, and the correction directed herein will be made in the copy of the Technical Order.

1. The stock number of the kit, paragraph 4., page 6 now reading 0104T0-01-25CH37 will be corrected to read 0104T0-01-25CH38.

By Command of Lieutenant General ARNOLD:

WALTER H. FRANK,
Major General, U. S. A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



RESTRICTED

DIST: 5,7
FILE: BEH

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

pg 181
TECHNICAL ORDER
No. 01-25CH-47

May 21, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS -- INSTALLATION OF MANUAL COWL FLAP CONTROL -- P-40F

This Technical Order replaces T.O. No. 01-25CH-47, dated March 13, 1943, revised to amend note and include additional information in paragraph 3h.

NOTE: The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being 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 sub-depots, if necessary.

1. To permit more rapid adjustment and positive control of the engine cowl flaps thereby decreasing the possibility of engine failure, electric and automatic cowl flap assemblies will be replaced by a manual cowl flap control on P-40F airplanes, AF Nos. 41-13600 to 41-14422 inclusive, in accordance with the instructions contained in paragraph 2. Model P-40F airplanes, AF No. 41-14423 and subsequent, will have the manual cowl flap controls installed by the contractor prior to delivery.

2. The instructions for accomplishing this change as contained in Curtiss Service Bulletin No. 400-71, revised January 4, 1943, are as follows:

NOTE: The provisions of T.O. No. 02-55AA-25 will be complied with on P-40F airplanes, AF Nos. 41-13600 to 41-14275 inclusive, prior to accomplishment of the following change.

NOTE: Steps b. to f. are to be accomplished only on P-40F airplanes, AF Nos. 41-14100 to 41-14422 inclusive, which are equipped with the completely automatic cowl flap control. P-40F airplanes, AF Nos. 41-13600 to 41-14099 inclusive, are equipped with the electrically operated cowl flap control only.

a. Remove the right- and left-side engine cowl, the lower engine cowl and the right-hand wing fillet.

b. Drain the coolant system.

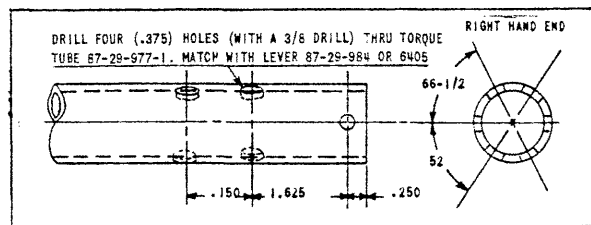


Figure 1 - Rework of Cowl Flap Control Torque Tube 87-29-917

c. Remove the conduit and wires connecting the thermostatic switch, installed on the left-hand end of the coolant header tank and the position switch, located on the left-hand former cowl.

d. Remove the thermostatic switch from the coolant header tank. Install in its place a stopper nut, part No. 87-66-889.

NOTE: Apply thread lubricant to the threads of the stopper nut.

e. Remove the conduit and wires connecting the positioning switch and the shutter junction box, part No. 87-66-926, located on the upper center forward face of the fire wall.

f. Disconnect the screw jack from the positioning switch and remove the switch with its bracket from the left-hand former cowl.

g. Detach the lower end of the screw jack from the bell crank on the torque tube and release the upper end from the gear box.

Compliance with these instructions is MANDATORY on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

Pg 182

RESTRICTED

T.O. No. 01-25CH-47

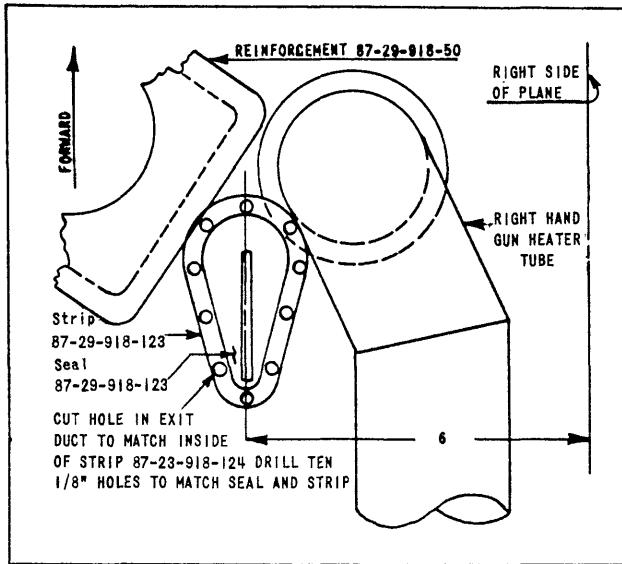


Figure 2 - Rework of Exit Duct 87-29-918 to Install Seal 87-29-918-123

h. Remove the wires and conduit connecting the shutter motor and the shutter junction box. Remove the shutter motor and gear box.

i. Remove the screw jack seal and seal frame from the left-hand side of the exit duct. Place a patch, part No. 87-

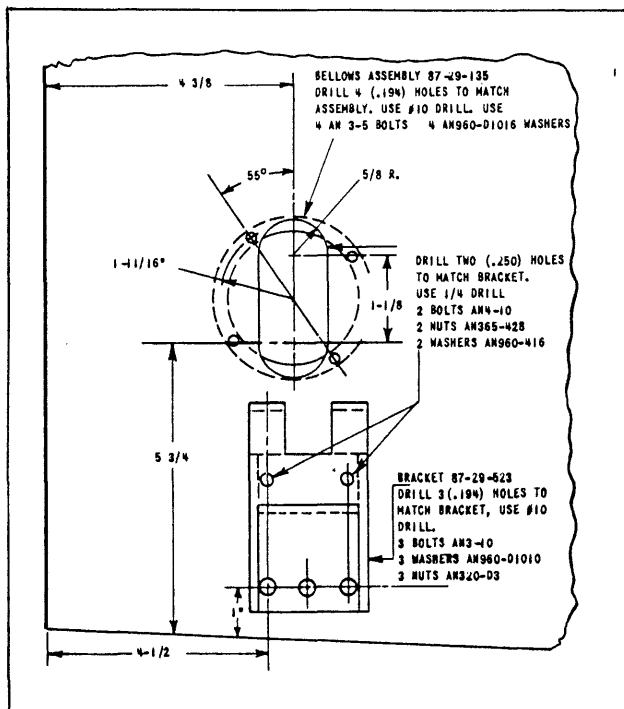


Figure 3 - Section of Lower Right Hand Front of Firewall - P-40F

29-918-901, over the hole in the exit duct and drill eight No. 30 (.128) holes in the exit duct to match the patch. Rivet the patch to the exit duct with eight rivets, part No. 671-D4-AD-4.

j. Remove wire Nos. 37, 34, 151, 152, 376, 377, 378, 379, 391, 394, 406, 407, 408, 409, 815, 816, and 817 from the junction boxes numbered 87-66-733, 87-66-925, and 87-66-926, located on the forward face of the fire wall.

k. Reroute wire No. 7 directly from junction box, part No. 87-66-925, to the fuel pressure signal. Remove junction box, part No. 87-66-926.

l. Remove the wires and conduit connecting the shutter control box, located aft of station No. 3 on the right-hand side of the cockpit, and the main junction box, located forward of station No. 2 on the left-hand side of the cockpit. Remove the shutter control box, part No. 87-66-920.

m. Remove the cowl flap control torque shaft, part No. 87-29-977-1, and drill to match lever, part No. SK6405, as shown in figure 1. Bolt lever, part No. SK6405, to the torque shaft with two bolts, part No. AN25-36, as shown on figure 5.

n. Reinstall the torque shaft.

o. Cut a hole in the right-hand side of the exit duct to match the inside of seal frame, part No. 87-29-918-124, as shown in figure 2.

p. Cut a hole in the lower right-hand corner of the fire wall to match the bellows assembly, part No. 87-29-135, and install bracket, part No. 87-29-523, as shown in figure 3.

q. Remove the second and third bolts aft of station No. 3 in the cockpit from the bottom longeron and wing tee attachment, right-hand side. Install bracket, part No. 87-29-517, with two bolts, part No. AN5-21. Bolt the bracket to station No. 3 bulkhead with two bolts, part No. AN3-10, as shown in figure 4.

r. Install the handle assembly, part No. 87-29-030-1, indicator assembly, part No. 87-29-119-1, and the rack assembly, part No. 87-29-531, on bracket,

PS 184

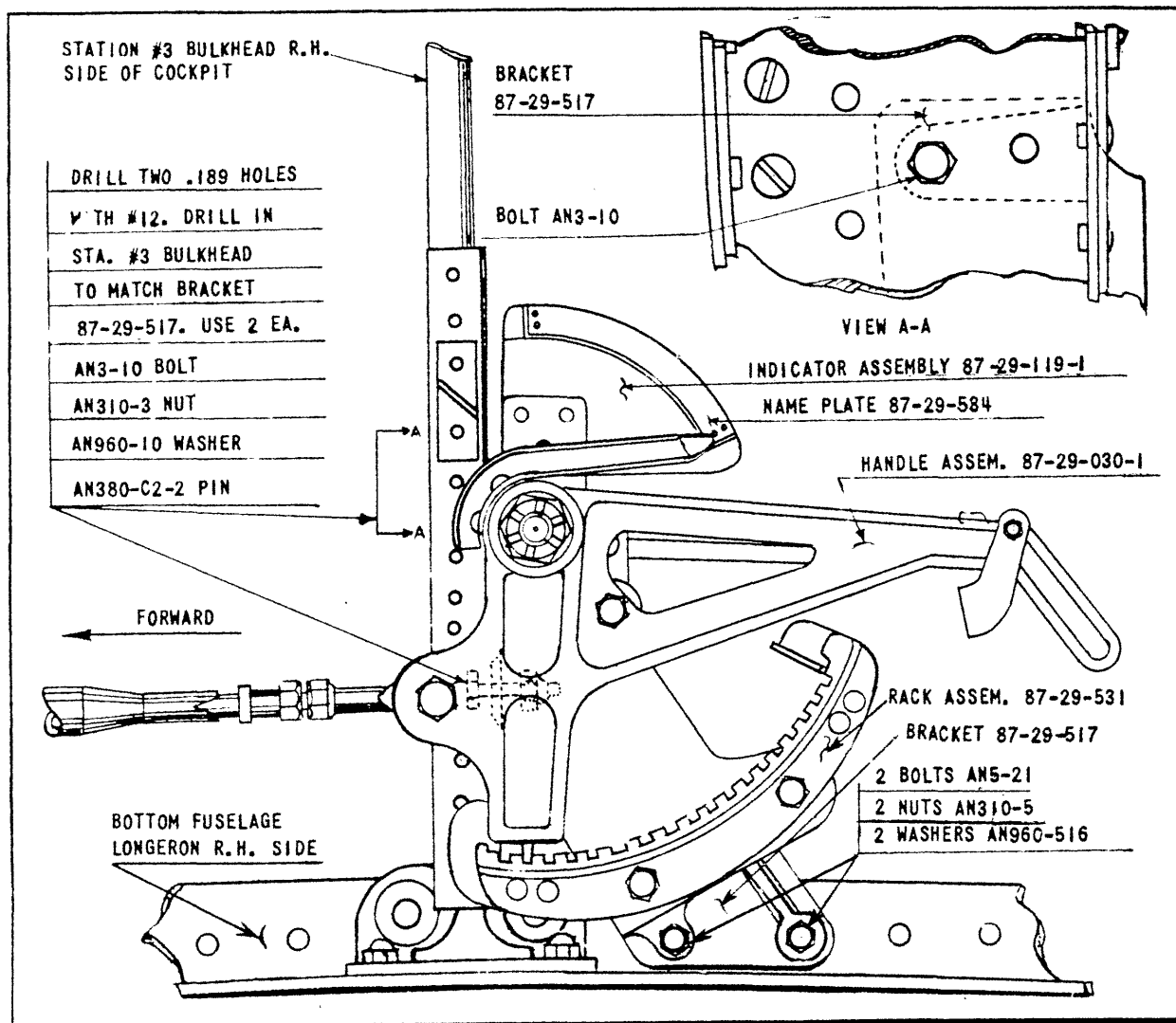


Figure 4 - Installation of Hand Lever, Bracket and Indicator Assemblies
Right Hand Side of Cockpit

part No. 87-29-517, as shown in figure 4.

s. Install lever, part No. SK6418, on bracket, part No. 87-29-523, located on the lower right-hand corner of the fire wall, as shown in figure 5.

t. Connect lever, part No. SK6418, and handle assembly, part No. 87-29-030-1, with rod assembly, part No. 87-29-031. The rod is installed through the bellows assembly. (See figure 5.)

u. Connect lever, part No. SK6418, and lever, part No. SK6405, with rod assembly, part No. 87-29-031-4. The rod is installed through the seal on the exit duct. (See figure 5.)

v. Connect levers, part No. 87-29-990, left and right to the cowl flaps, adjust linkage so that the flap positions correspond with the control handle settings in the cockpit.

w. Reinstall engine cowl and right-hand wing fillet.

3.a. The parts required per airplane to accomplish this change and a copy of this Technical Order will be assembled into kits and supplied without requisition direct to the activities having the airplanes affected. Kits for transferred airplanes will be held, and the Commanding General, Air Service Command, notified immediately.

PS 184 BLANK

P5185

RESTRICTED

T.O. No. 01-25CH-47

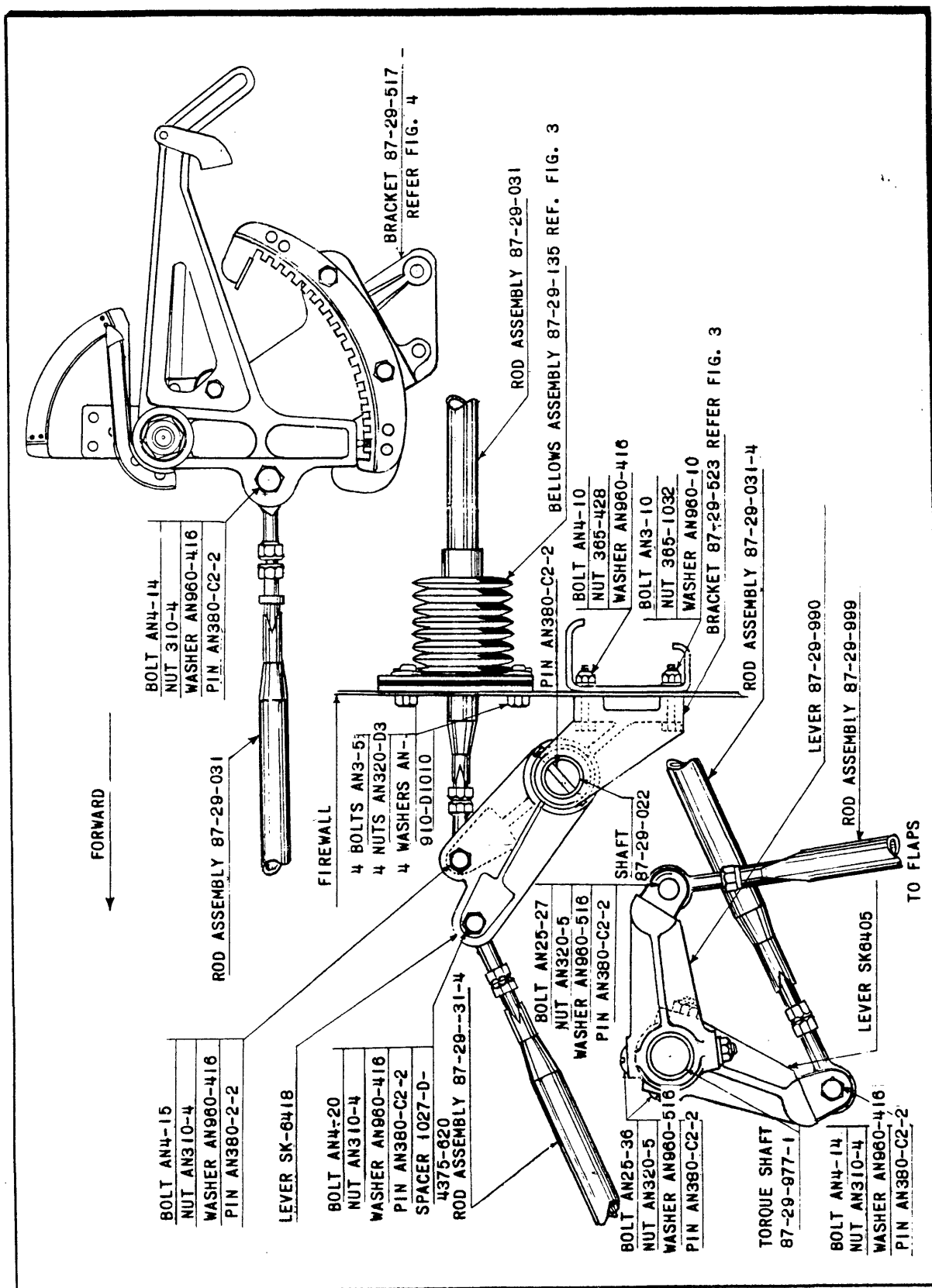


Figure 5 Manual Cowl Flap Control - P-40F Airplanes

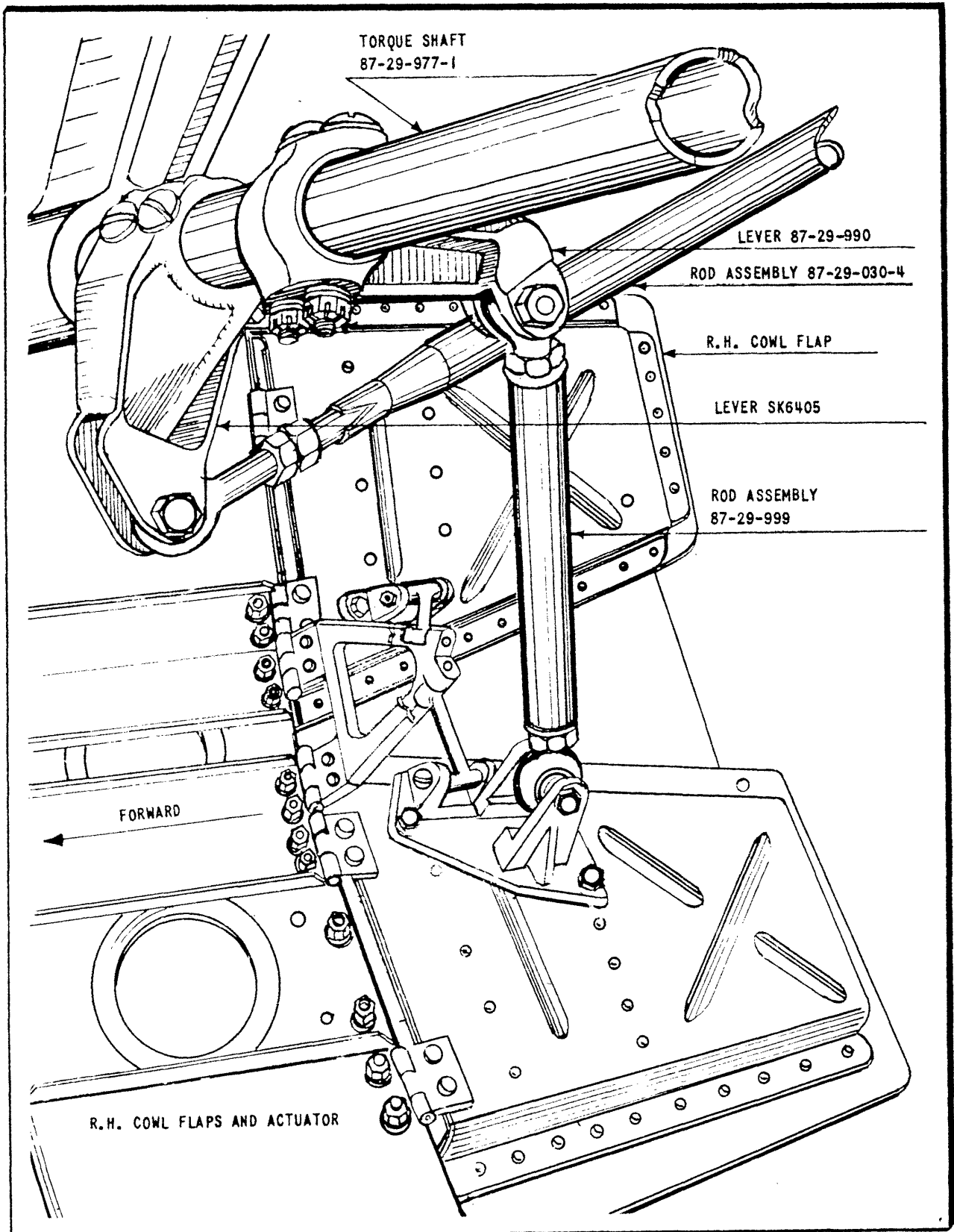


Figure 6

PS 187

RESTRICTED

T.O. No. 01-25CH-47

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	0104T0-01-25CH47		KIT, "Replacement of Electric and Automatic Cowl Flap Control by Manual Cowl Flap Control - P-40F," consisting of the following parts:	01-C	AF Stock
1	0104-1027-D-4375-620		Spacer	01-C	
1	6500-982300	AN960D1016	Washer - Plain alum. alloy 5/8-in. bolt	04-A	
7	6500-984300	AN960-516	Washer - Plain steel 5/16-in. bolt	04-A	
7	6500-984200	AN960-416	Washer - Plain steel 1/4-in. bolt	04-A	
1	6500-985300	AN960-10L	Washer - Plain steel light No. 10 bolt	04-A	
5	6500-981700	AN960-D10	Washer - Plain alum. alloy No. 10 bolt	04-A	
7	6500-984000	AN960-10	Washer - Plain steel No. 10 bolt	04-A	
11	6700-649660	AN520-D10-10	Screw - Machine alum. alloy RH 10 32 x 5/8 in.	29	
2	6500-543900	AN393-49	Pin - Flat head 3/16 x 1-17/32 in.	04-A	
2	6700-395350	AN380-C4-8	Pin - Cotter corrosion resistant steel 1/8 x 2 in.	29	
14	6700-394950	AN380-C2-2	Pin - Cotter corrosion resistant steel 1/16 x 1/2 in.	29	
1	6500-511600	365-D-1032	Nut - Self-locking alum. alloy 10 32	04-A	
3	6500-514000	365-1032	Nut - Self-locking steel 10 32	04-A	
2	6500-514100	365-428	Nut - Self-locking steel 1/4 28	04-A	
1	6500-523100	364-1032	Nut - Self-locking steel, thin 10 32	04-A	
1	6500-469100	AN320-10	Nut - Aircraft castle shear steel 5/8 18	04-A	
6	6500-468600	AN320-5	Nut - Aircraft castle shear steel 5/16 24	04-A	
5	6500-472300	AN310-4	Nut - Aircraft castle steel 1/4 28	04-A	
5	6500-472100	AN310-3	Nut - Aircraft castle steel 10 32	04-A	
2	6500-072340	AN25-36	Bolt - Clevis 5/16 24 x 2-1/4 in.	04-A	
2	6500-072280	AN25-27	Bolt - Clevis 5/16 24 x 1-11/16 in.	04-A	
2	6500-072270	AN25-26	Bolt - Clevis 5/16 24 x 1-5/8 in.	04-A	
1	6500-080920	AN923-27A	Bolt - Clevis plain 10 32 x 1-11/16 in.	04-A	
1	6500-020490	AN10-24	Bolt - Aircraft drilled steel 5/8 18 x 2-1/2 in.	04-A	
1	6500-015230	AN4-20	Bolt - Aircraft drilled steel 1/4 28 x 2 in.	04-A	
1	6500-015200	AN4-15	Bolt - Aircraft drilled steel 1/4 28 x 1-5/8 in.	04-A	

pg 188

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
2	6500-015180	AN4-14	Bolt - Aircraft drilled steel 1/4 28 x 1-1/2 in.	04-A	
2	6500-015160	AN4-12	Bolt - Aircraft drilled steel 1/4 28 x 1-1/4 in.	04-A	
4	6500-015140	AN4-10	Bolt - Aircraft drilled steel 1/4 28 x 1 in.	04-A	
7	6500-014050	AN3-10	Bolt - Aircraft drilled steel 10 32 x 1 in.	04-A	
2	6500-014040	AN3-7	Bolt - Aircraft drilled steel 10 32 x 7/8 in.	04-A	
10	6500-014020	AN3-5	Bolt - Aircraft drilled steel 10 32 x 5/8 in.	04-A	
20	0104-671-D4-AD-4		Rivet	01-C	
1	0104-SK6418		Lever	01-C	
1	0104-87-29-523		Bracket	01-C	
1	0104-SK6405		Lever	01-C	
1	0104-87-29-135		Bellows Assembly	01-C	
1	0104-87-29-031		Rod Assembly	01-C	
1	0104-87-29-031-4		Rod Assembly	01-C	
1	0104-87-29-022		Shaft	01-C	
1	0104-87-66-889		Stopper Nut	01-C	
1	0104-87-29-918-123		Seal	01-C	
1	0104-87-29-918-124		Strip	01-C	
1	0104-87-29-918-901		Patch	01-C	
1	0104-87-29-520-C		Assembly, consisting of the following parts:	01-C	
1	0104-87-29-531		Rack Assembly	01-C	
1	0104-87-29-517		Bracket	01-C	
1	0104-87-29-119-1		Indicator Assembly	01-C	
1	0104-87-29-030-1		Handle Assembly	01-C	
1	0104-87-29-411		Name Plate	01-C	

b. The following parts removed from the airplane and like parts in stock will be disposed of in accordance with the provisions of T.O. No. 00-35A-3.

QUANTITY	PART NO.	NOMENCLATURE
1	87-29-983	Screw Jack
1	87-29-922	Gear Box
1	87-29-988	Shutter Motor
1	87-66-926	Junction Box
1	87-29-834	Seal
1	87-29-835	Seal Frame
1	87-66-920	Shutter Control Box
*1	523-92652	Fulton Sylphon Thermostatic Switch
*1	87-66-748	Positioning Switch Support
*1	87-66-865	Positioning Switch
*1	NAF 1150-8A-192	Conduit
*1	NAF 1150-6AC-216	Conduit

*NOTE: The last five (5) parts were installed on P-40F airplanes AF serial Nos. 41-14100 through 41-14422 only.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.



RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

09 189
TECHNICAL ORDER
No. 01-25CH-48

DIST: 5,7
FILE: BCEHS

August 12, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS -- INSTALLATION OF CARBON MICROPHONE ADAPTER M-299 --
P-40F

NOTE The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary.

1. To permit the use of microphone T-30 (carbon throat type) or microphone T-42 (carbon mask type) interchangeably with microphone T-34 (magnetic) or microphone T-44 (magnetic) in P-40F airplanes in which radio set SCR-522-A is installed, microphone adapter M-299 will be installed in accordance with paragraph 2.

2. INSTALLATION.

a. MICROPHONE ADAPTER M-299.

(1) Mounting plate assembly, part No. 43B14401, if installed, is located on the starboard side of the cockpit directly below the SCR-522 jack box with for-

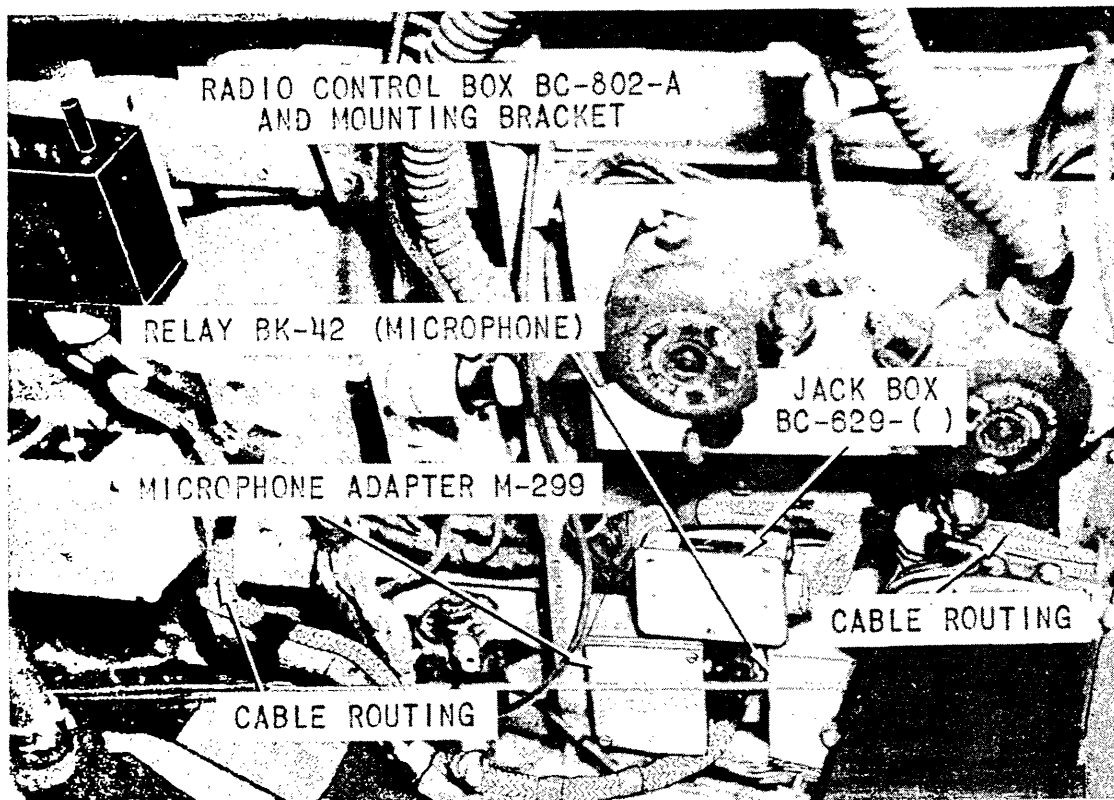


Figure 1. - Right Side of Cockpit - Pilot's Seat Removed

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

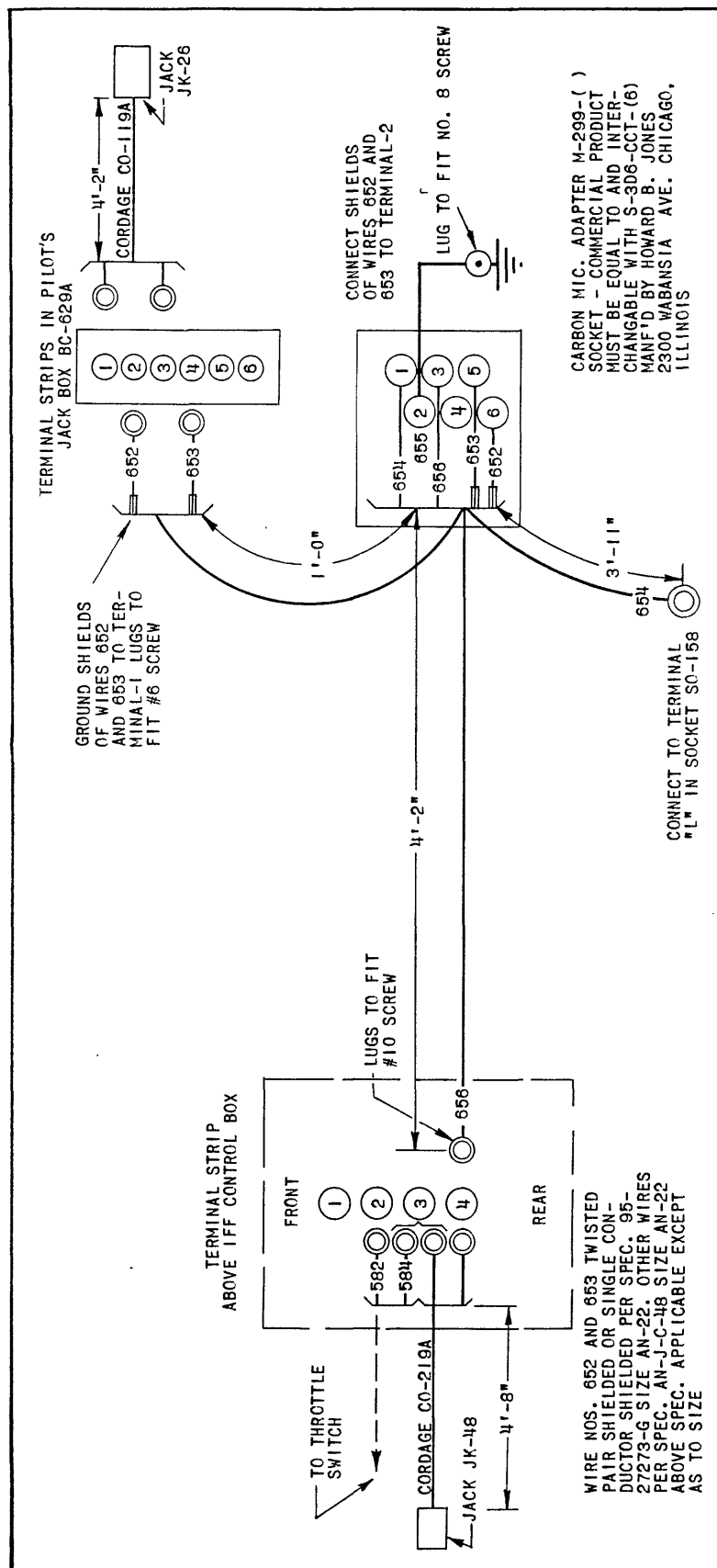


Figure 2. - Wiring Diagram

27191

RESTRICTED

T.O. No. 01-25CH-48

ward end adjacent to the former at station No. 4.

(2) If mounting plate assembly is not already installed, locate assembly with short flange against aft face of former at station No. 4, projecting inboard, and with long flange against bottom face of first stringer below pilot's jack box, and projecting outboard. Drill one hole, No. 15 drill, through short flange and former, and two holes, No. 15 drill, through long flange and stringer. Install using three screws, part No. AN515-8-8, and three nuts, part No. 365-832.

(3) Remove the cover from microphone adapter M-299 and locate adapter on the mounting plate with plug connection facing aft. Attach adapter M-299 to plate using two screws, part No. AN515-8-8, into the two existing plate nuts.

b. CABLE HARNESS.

(1) Check airplane to see if harness for adapter M-299 is installed (wire Nos. 652, 653, 654, and 656). If not, fabricate the harness in accordance with wiring diagram. (See figure 1, drawing No. 43B14468.)

NOTE If the cable harness for adapter M-299 is installed in the airplane, disregard paragraphs 2.b.(2) and (3) below.

(2) Insert the Jones socket on the cable harness into the microphone adapter M-299. Solder a terminal, part No. 660-50, on wire No. 655, and ground to the nearest existing screw, scraping paint to insure good ground. Dress wire No. 656 and wire No. 654 forward. Connect wire No. 654 to terminal "L" in socket SO-158 located on the cockpit floor directly below the IFF control box. Extend wire No. 656 upward on starboard wall to terminal strip, located above IFF control box. Solder a terminal, part No. 660-50, on free end of wire No. 656 and connect to terminal No. 4 of terminal strip.

(3) Pass the two shielded wire Nos. 652 and 653 through the side grommet of the jack box. Solder two terminals, part No. 660-51, and connect wire No. 652 to jack box terminal No. 2 and wire No. 653 to terminal No. 4.

NOTE Solder one end of a 6-inch length of tinned copper braid around ends of shielding on wire Nos. 652 and 653. Solder a terminal, part No. 660-51, on free end and connect to terminal No. 1 in jack box.

(4) Assemble a jack JK-48 on a 4-foot 8-inch length of cordage CO-219-A by connecting one end of cordage CO-219-A to terminals of jack and assembling the jack using a thin coat of butyl acetate compound on each part. Extreme care must be used with this compound as it will make the phenolic soft. Install two terminals, part No. 660-50, on opposite end of cordage and connect to terminal Nos. 3 and 4 on the terminal strip above the IFF control box.

(5) Dress the cordage aft along the starboard wall to a point just aft of and above map case.

(6) Assemble a jack JK-26 on a 4-foot, 2-inch length of cordage CO-119-A. Solder two terminals, part No. 660-51, on opposite end of cordage and connect to terminal Nos. 1 and 3 of jack box.

(7) Dress cordage upward and aft to the same point as cordage CO-219-A.

(8) Attach all cords and cables to existing wiring by taping or using existing clips.

(9) Remove safety wire holding "T-REM" switch handle in "REM" position.

3. The following compliance parts are required per airplane and will be obtained by requisition submitted through routine channels.

SIGNAL CORPS ISSUE

STOCK NO.	ARTICLE	UNIT	REQUIRED
2Z290-299	Microphone Adapter M-299	ea	1
2Z5526	Jack JK-26	ea	1
2Z5548	Jack JK-48	ea	1
3E2119A	Cordage CO-119-A	ft	4 1-4
3E2219A	Cordage CO-219-A	ft	4 2-3

Pg 192

RESTRICTED

T.O. No. 01-25CH-48

AIR FORCE ISSUE

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
As req	8500-238000	- - - -	Butyl Acetate	24	AF Stock
2	8800-875479-2	660-50	Terminal - Electrical copper soldering lug light	08-B	AF Stock
2	8800-875479-22	660-51	Terminal - Electrical copper soldering lug light	08-B	AF Stock
2	6700-711200	AN515-8-8	Screw - Machine steel round-head 8/32 x 1/2 in.	29	AF Stock

NOTE The following parts are required only if mounting plate assembly, part No. 43B14401 is not previously installed.

3	6500-513700	365-832	Nut - Self-locking steel 8/32	04-A	AF Stock
1	- - - - -	43B14401	Plate Assembly Microphone Adapter	08-B	AF Stock
3	6700-711200	AN515-8-8	Screw - Machine steel round-head 8/32 x 1/2 in.	29	AF Stock

NOTE The following parts are required only if cable harness, part No. 43B14468, is not previously installed.

2	8800-875479-2	660-50	Terminal - Electrical copper soldering lug light	08-B	AF Stock
3	8800-875479-22	660-51	Terminal - Electrical copper soldering lug light	08-B	AF Stock
9-1/2 ft	- - - - -	- - - -	Cable - Aircraft power and lighting No. 22 AWG AN Aeronautical Specification No. AN-J-C-48	08-B	AF Stock
2 ft	- - - - -	- - - -	Cable - Aircraft power and lighting No. 22 AWG shielded U.S. Army Spec- ification No. 95-27273	08-B	AF Stock
6 in.	- - - - -	- - - -	Braid - Tinned copper 120 strand 1/8 in. ID AAF Specification No. 40229	08-B	AF Stock

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

P5 193
TECHNICAL ORDER
No. 01-25CH-49

DIST: 4,5,7
FILE: BEHS

September 20, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—REPLACEMENT OF COOLANT DRAIN LINES— P-40F AND P-40L

This Technical Order replaces T.O. No. 01-25CH-49, dated September 4, 1943, revised to include page 2.

NOTE The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable and not later than the next engine change, by service activities with the aid of sub-depots, if necessary.

1. To prevent chafing, the coolant drain lines, part Nos. 87-50-068-14, 87-50-068-12, and 87-50-068-13, installed in P-40F and P-40L airplanes will be replaced in accordance with the instructions contained in paragraph 2.

cowling of the airplane with head toward the inspection door on the lower left cowl looking aft.

2. The instructions for accomplishing this modification are as follows:

f. Install new hose, part No. AN882-16-14, and secure with FB-14 clamp.

a. Remove the lower cowl.

g. Install new coolant drain line, part No. ASCMS3C-1000 (figure 1), and secure with FB-14 clamp.

b. Remove the two FB-14 clamps from the coolant drain line

NOTE The coolant line will be installed to take the best advantage of draining the coolant system through the inspection door on the left cowl looking aft.

c. Remove the coolant drain lines, part Nos. 87-50-068-14, 87-50-068-12, and 87-50-068-13.

d. Remove the elbow, part No. AN850-16, at the coolant pump.

h. Secure the new drain line by tightening the two FB-14 clamps.

e. Install new elbow, part No. AN884-16, and turn to position parallel to the

3.a. The following parts are required per airplane to accomplish this change and will be obtained as indicated.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	6500-368722	AN844-16	Elbow - Hose, pipe thread, 45 degrees bronze 1 inch ID x 3/4 inch PT	04-A	AF Stock
1	6600-369400	AN882-16-14	Hose Aircraft 1 x 3-1/2 inches	04-B	AF Stock
1		ASCMS3C-1000	Tube - Drain coolant Mfr. from:		Local Mfr.
			Alum. Alloy - Tubing cond 1 inch OD x .049-inch wall Specification No. 10235, stock No. 6800-158900.	23-A	AF Stock

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED

T.O. No. 01-25CH-49

COLLANT DRAIN LINE TO BE FABRICATED FROM 1" X .049 X 6 ALUM. TUBING. 1-1/4" BOSS-DRILL 5/8" THRU AND TAP 3/4". BRAZE BOSS TO TUBING PRIOR TO DRILLING TO PREVENT WARPING. USE 3/4" PLUG FROM OLD ASSEMBLY.

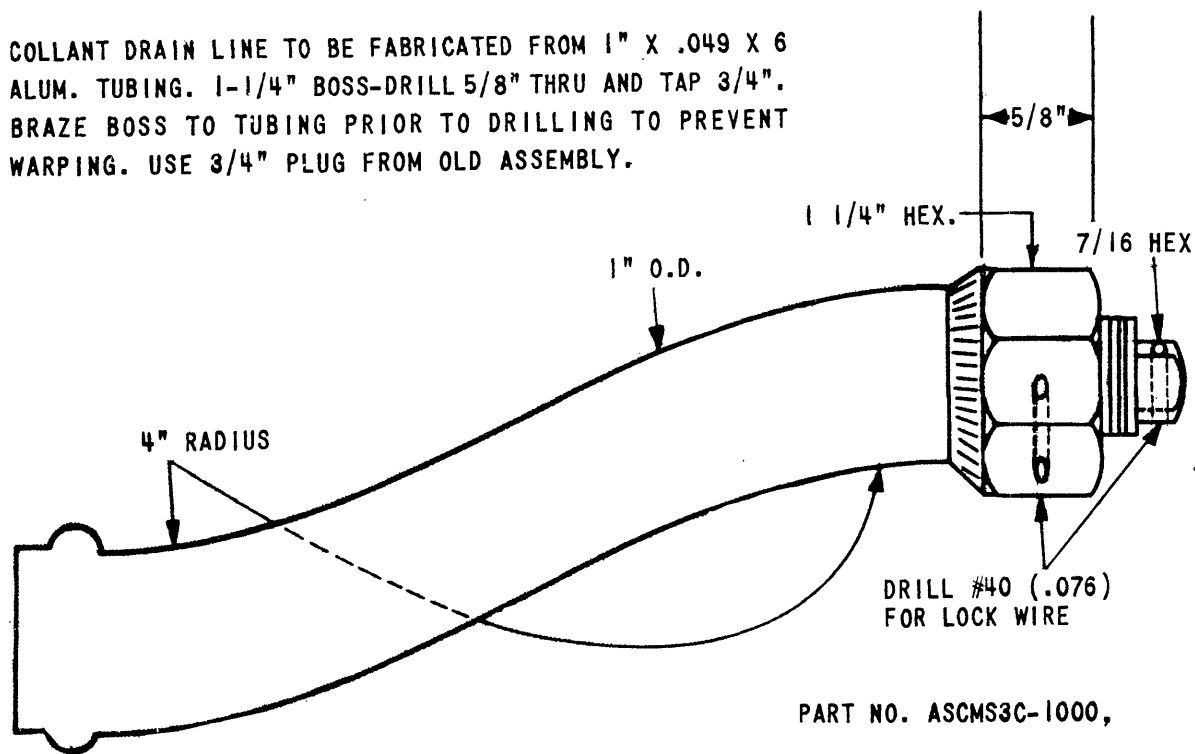


Figure 1 - Fabrication of Coolant Drain Line, Part No. ASCMS3C-1000

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1			Boss - Drain tube Mfr. from: Alum Alloy - Rod cond T 1-1/4 inches, Specification No. QQ-A-354, stock No. 6800- 131100.	23-A	Local Mfr.

b. Parts removed and not reinstalled and those in stock, will be disposed of in accordance with the provisions of AAF Regulation 65-43.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

February 29, 1944

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—MODIFICATION OF COOLANT HEADER TANK RELIEF
VALVE—P-40F AND P-40L**

This Technical Order replaces T. O. No. 01-25CH-52, dated December 27, 1943, revised to correct part number in paragraph 2.d.

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary. Spare relief valves, types DS-A-3J and DS-A-167, in stock will be modified prior to issue.

1. To reduce the possibility of malfunctioning of the coolant system, the header tank relief valve, types DS-A-3J and DS-A-167, will be modified on all P-40F and P-40L airplanes in accordance with the instructions contained in paragraph 2.

2. This modification will be accomplished as follows:

- a. Remove cowling adjacent to header tank relief valve.
- b. Remove valve from the header tank.
- c. Disassemble the valve. (Refer to T. O. No. 03-1-21.)
- d. Remove the thermal bellows assembly, part No. SA-2010B, and, by means of a sharp tool, puncture the bellows so that fluid charge leaks out.
- e. In the recess provided in the bellows top plate, place a 5/8-inch diameter x 5/32-inch thick spacer. This will compensate for the action of the bellows punctured in paragraph 2.d. Reassemble the thermal bellows assembly.

NOTE Modified valves will be identified with white paint applied around the hexagon top of the valve.

f. Replace valve and cowling.

3. After this modification has been accomplished, the valve no longer relieves at 6-10 pounds per square inch on starting, but becomes a 30 pounds per square inch spring-loaded pressure relief valve.

4. The following parts are required per airplane to accomplish this change.

QTY	NOMENCLATURE	CLASS	SOURCE
1	Spacer	01-C	Local Mfr.
	Mfr. from:		
	Brass - Rod hard 5/8 inch, Specification No. QQ-B-636, 5/32 inch long, stock No. 6800-204600 (Bar Stock)	23-A	AF Stock

By Command of General ARNOLD:

Prepared by
Accessories Section,
Maintenance Div,
Hq, ASC.

WALTER H. FRANK,
Major General, U. S. A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



March 5, 1944

AIRPLANES AND MAINTENANCE PARTS

**CURTISS—CLEANING OF IMPACT TUBES BY THE FLUSHING METHOD ON
PD-16A1 STROMBERG INJECTION CARBURETORS—P-40F AND P-40L**

NOTE A summary of the periodic inspection prescribed in paragraph 2, will be entered on the Master Airplane Maintenance Forms, maintained with the Form 41-B for the airplanes affected, in section II of the 50-hour inspection.

1. To reduce the possibility of engine malfunction caused by the carburetor impact tubes becoming clogged with dirt and other foreign matter, the instructions outlined in paragraph 2., will be adhered to on all P-40F and P-40L airplanes equipped with V-1650-1 engines.

2. Impact tubes will be inspected at each 50-hour inspection period to determine the area that is clogged. If this inspection reveals that one-third the area of the impact tube is clogged the following cleaning procedure will be accomplished.

a. Remove the automatic mixture control unit as outlined below. (See figure 1.)

(1) Disconnect the nozzle vent line as shown in figure 1.

(2) Remove the cover, part No. 393165, over the chamber which houses the automatic mixture control unit, by first removing the three nuts, part No. P-60244, and three washers, part No. P-20355.

(3) Remove the automatic mixture control unit after unscrewing the two short screws, part No. P-70035, the two long screws, part No. 393206, and the four small washers, part No. 393278.

b. Connect the source of flushing fuel in the following manner.

(1) Install the adapter assembly, part No. ASC 44A1314, as follows: (See figure 2.)

Align the four small holes in the gasket, part No. 393224, with the four screw holes in the adapter assembly and screw the guide pin, part No. ASC44A1313, into one of the four screw holes in the base of the adapter assembly.

(2) Spread a film of light oil over the packing, part No. P-22149, and insert the adapter assembly into the chamber provided for the automatic mixture con-

trol unit. Make certain that the guide pin enters one of the four screw holes in the bottom of the chamber. Fasten the adapter assembly in place using the two short screws, part No. P-70035, the two long screws, part No. 393206, and the four washers, part No. 393278, which hold the automatic mixture control unit in place.

NOTE The body assembly shown in figure 3 may be made from a scrapped automatic mixture control body, part No. 393178, class 03-D.

(3) A source of flushing fuel may be obtained by running a line from the fuel pressure gage connection of the regulator unit of the carburetor to the 1/8-inch pipe coupling on the adapter assembly. (See figure 2.) The booster pump on the airplane may be used to furnish the necessary flushing pressure.

c. Flush fuel through the impact tubes until they are thoroughly cleaned.

d. After the flushing is completed, disconnect the fuel line from the coupling, and remove the 1/4 inch -28 taper seat plug. (See figure 2.) Allow the fuel to drain from this plug opening before removing the adapter assembly.

e. Remove the adapter assembly and install the automatic mixture control unit. (See figure 1.) Use the guide stem shown in figure 2 to align the screw holes through the bottom of the housing chamber.

f. (1) Install and tighten two screws, part No. P-70035, and two screws, part No. 393206, uniformly in the base, with washers, part No. 393278, in place.

(2) Slide the gasket, part No. 393166, cover, part No. 393165, and washers, part No. P-20355, over the studs on top of the chamber. Fasten the cover down with the three nuts, part No. P-60244.

(3) Connect the nozzle vent line connection.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

Pg 197

RESTRICTED
T. O. No. 01-25CH-53

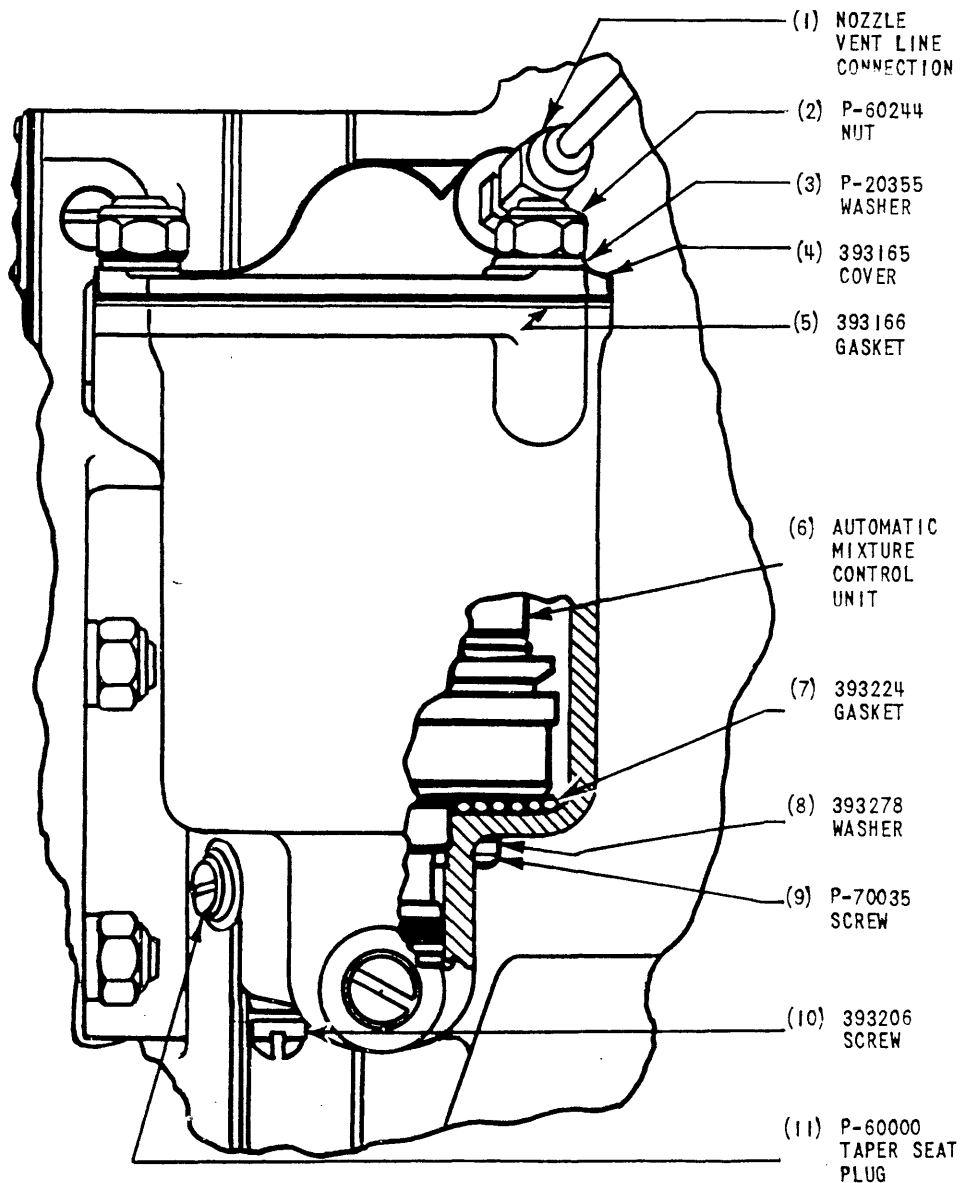


Figure 1

(4) Install the 1/4 inch -28 tapered seat plug, part No. P 60000.

(5) Lockwire the four screws, part Nos. P-70035 and 393206, and the tapered seat plug, part No. P-60000.

Pg 198

RESTRICTED
T. O. No. 01-25CH-53

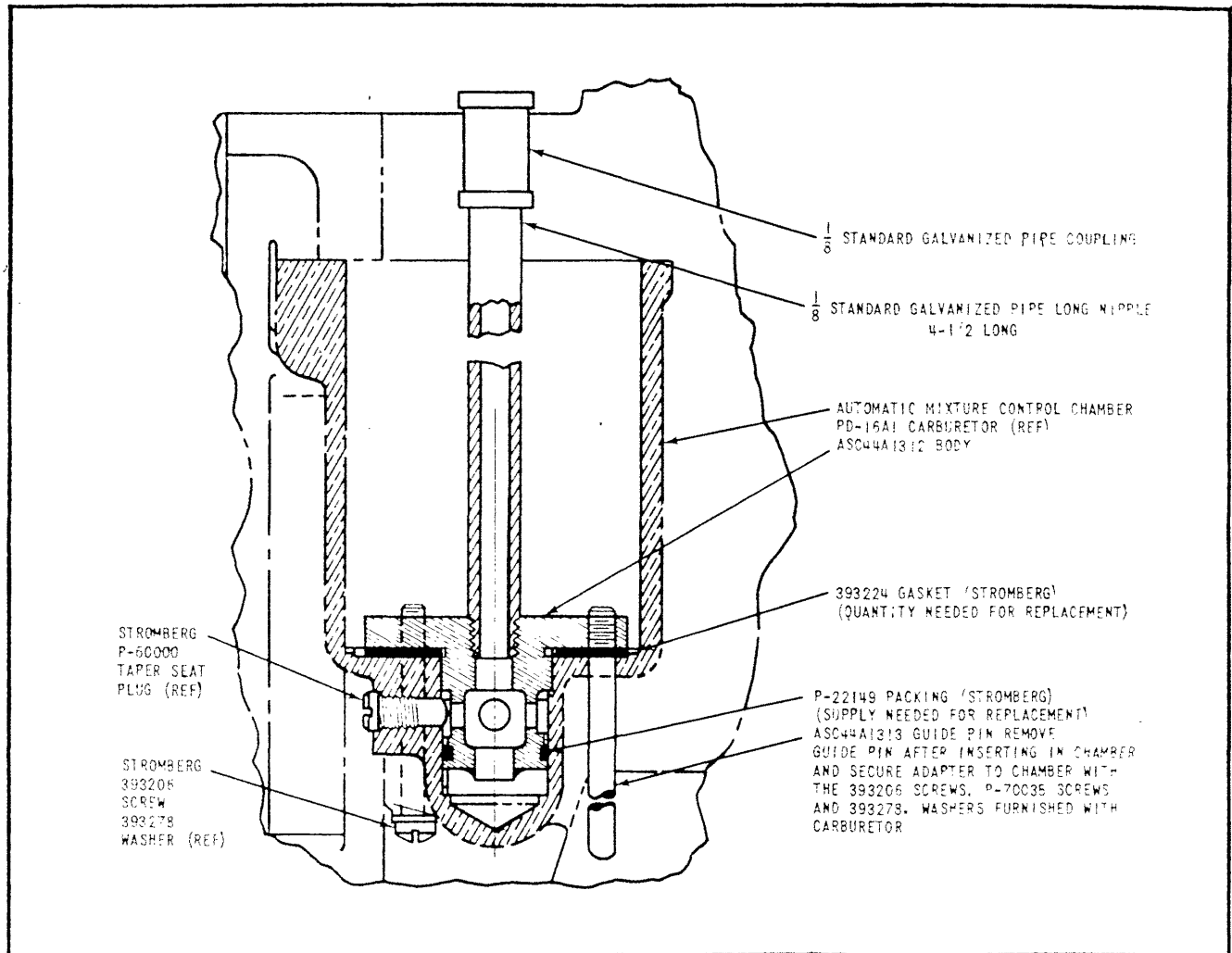


Figure 2 - Adapter Assembly - PD-16A1 Carburetor Impact Tube Flushing

3. The following parts and special tool are required to accomplish the flushing operation outlined in paragraph 2.

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1		ASC44A1314	Adapter Assembly	18	Reworked Stromberg part No. 393178
1	4305-393224		Gasket	03-D	AF Stock
1	4305-P-22149		Packing	03-D	AF Stock

See Following Drawings.

By Command of General ARNOLD:

Prepared by Engine Section,
Maintenance Div, Hq, ASC.

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

RESTRICTED
T. O. No. 01-25CH-53

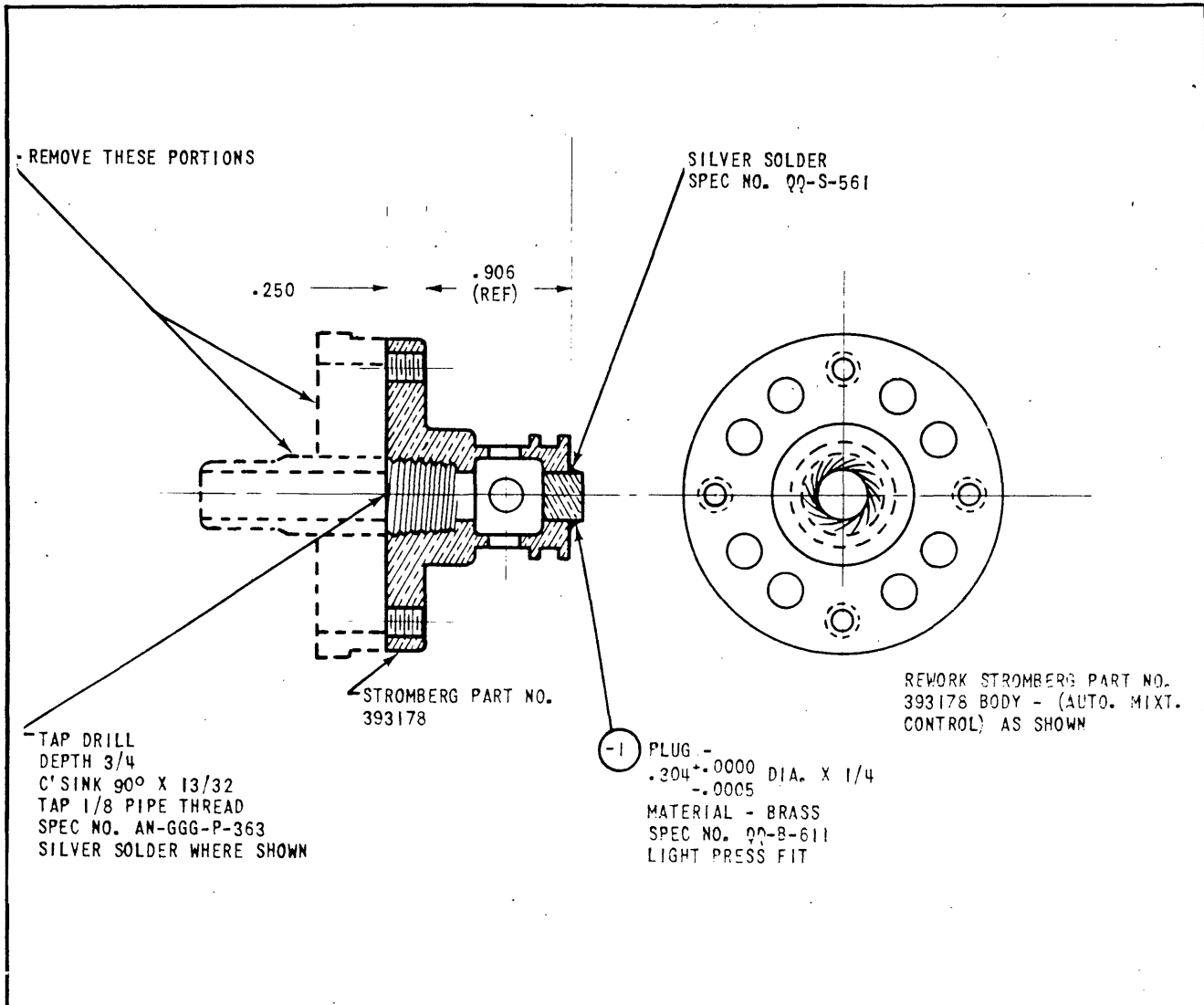


Figure 3 - Body Assembly - PD-16A1 Carburetor Impact Tube Flushing Adapter (Rework)

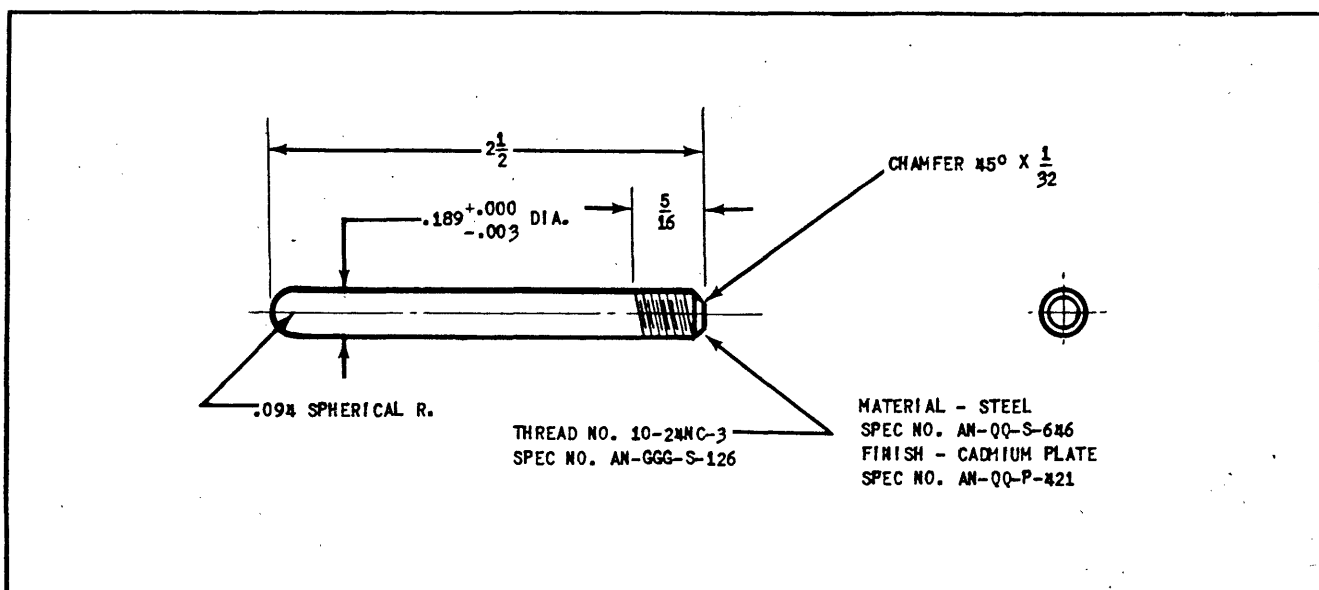


Figure 4 - Pin - PD-16A1 Carburetor Impact Tube Flushing Adapter Guide

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

Pg 200
TECHNICAL ORDER
No. 01-25CN-6

DIST: 5,7
FILE: BEHS

August 14, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS - REPLACEMENT OF CARBURETOR HEAT CONTROL BELL CRANK -
P-40N

NOTE The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work herein directed will be accomplished as soon as possible and not later than the next 100-hour inspection period by service activities with the aid of sub-depots, if necessary. Parts in stock will be modified prior to issue.

1. To prevent possible failure of the carburetor heat control linkage due to insufficient strength of the existing bell crank, part No. 87-52-547, at fuselage station No. 1, a newly designed type bell crank, part No. 87-460-1039, will be installed on the airplanes listed below in accordance with the instructions contained in paragraph 2.

MODEL

AF SERIAL NO.

P-40N 42-104429 to 42-104458 inclu

P-40N airplanes, AF No. 42-104459 and subsequent, will have this modification incorporated by the contractor prior to delivery.

2. The instructions for accomplishing this change as outlined in Curtiss-Wright Service Bulletin 550-2, dated April 10, 1943, are as follows:

a. Remove right-hand side engine cowl at fuselage station 1.

b. Disconnect control rods at bottom and top of both bell cranks as shown in figure 1.

c. Remove bell cranks, part No. 87-52-547, by removing cotter key, part No. AN380C-2-2, nut, part No. AN310-5, washer, part No. AN960-516, and bolt, part No. AN5-14, through bracket and bell cranks.

d. Replace original bell crank, part No. 87-52-547, with new bell crank, part No. 87-460-1039, on the left.

e. Mount bell cranks, part No. 87-460-1039, by using original bolt, part No. AN5-14, nut, part No. AN310-5, washer, part No. AN960-516, and a new cotter key, part No. AN380C-2-2.

f. Connect control rods to bell crank in proper position using nuts, bolts, and cotter keys removed in step b.

g. Replace right side engine cowl.

3.a. The parts listed below are required per airplane to accomplish this change. These parts will be packed into kits and distributed in accordance with the provisions of T.O. No. 00-35A-15.

R. & R. DAYTON 1-13-42-19M

- 1 -

RESTRICTED

Compliance with these instructions is MANDATORY on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

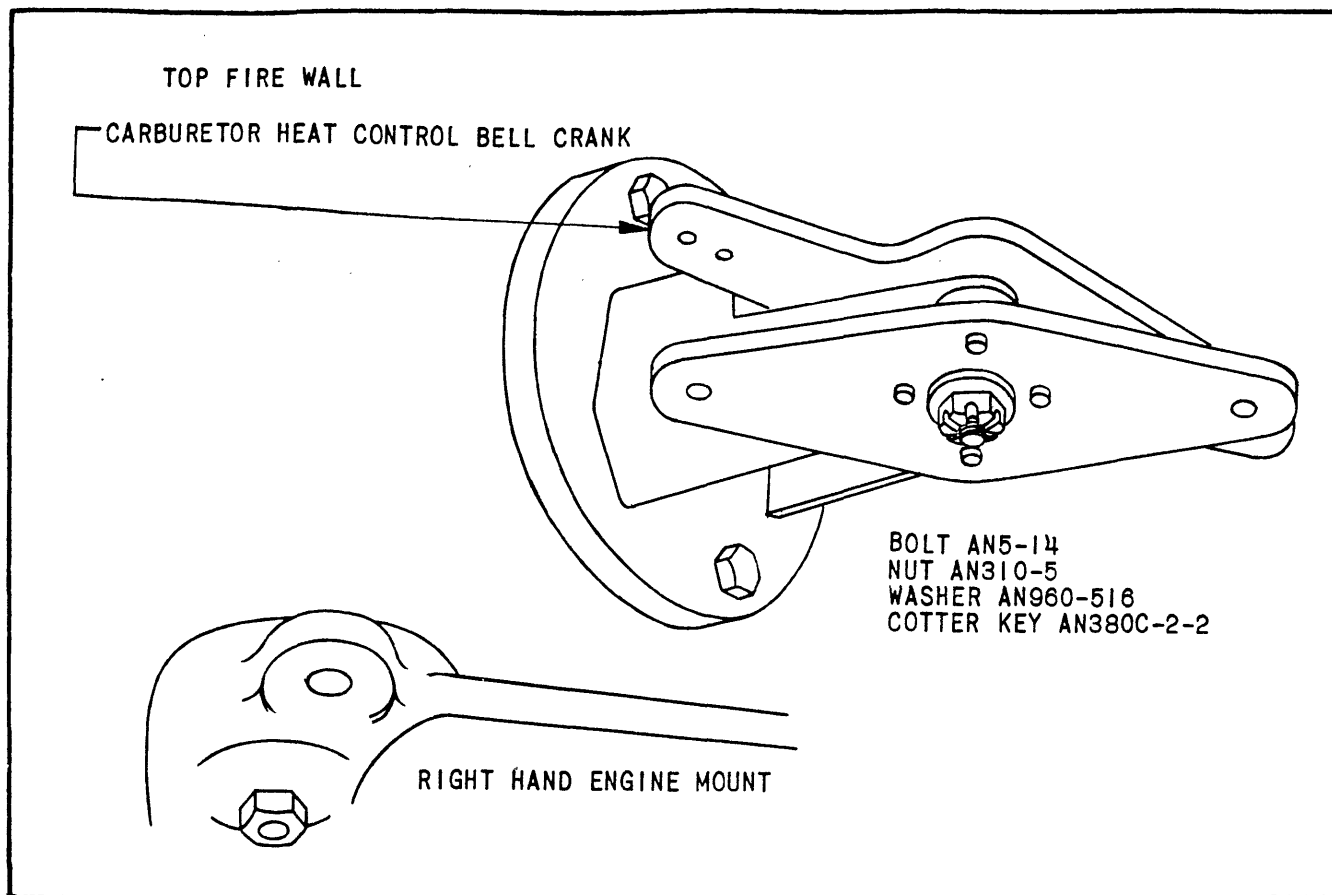


Figure 1 - Bell Crank at Fuselage Station No. 1

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	1300TO-01-25CN6		KIT, "Replacement of Carburetor or Heat Control Bell Crank - P-40N," consisting of the following parts:	15	AF Stock
1		87-460-1039	Bell Crank	01-C	
1		AN380C-2-2	Pin - Cotter corrosion-resistant steel 1/16 x 1/2 in.	29	

b. Bell crank, part No. 87-52-547, removed will be disposed of in accordance with the provisions of T.O. No. 00-35A-3.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

PG 202
TECHNICAL ORDER
No. 01-25CN-7

DIST: 5,7
FILE: BDEH

June 17, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS -- MODIFICATION OF GUN LEVELING LUGS -- P-40N

NOTE The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Form 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary.

1. The gun leveling lugs on certain P-40N airplanes have been found to be installed incorrectly. The use of these lugs in the present position results in improper harmonization of the guns. To correct this condition the gun level lugs on P-40N airplanes, AF serial Nos. 42-104429 to 42-104575 inclusive, will be changed in accordance with the instructions contained in paragraph 2. P-40N airplane, AF No. 42-104576 and subsequent, will have this modification accomplished prior to delivery.

2. The instructions for accomplishing this change as contained in Curtiss

Service Bulletin No. 550-5, dated April 26, 1943, are as follows:

a. Open the sliding cabin and drill out the two rivets that secure the gun leveling lugs, part Nos. 75-21-180-2 and 75-21-180-3, to the left-hand longeron, part No. 87-210-1010-L, as shown in figure 1.

NOTE Care should be taken not to destroy the lugs when drilling out the rivets.

b. Reinstall the gun leveling lugs by reversing their positions so that the

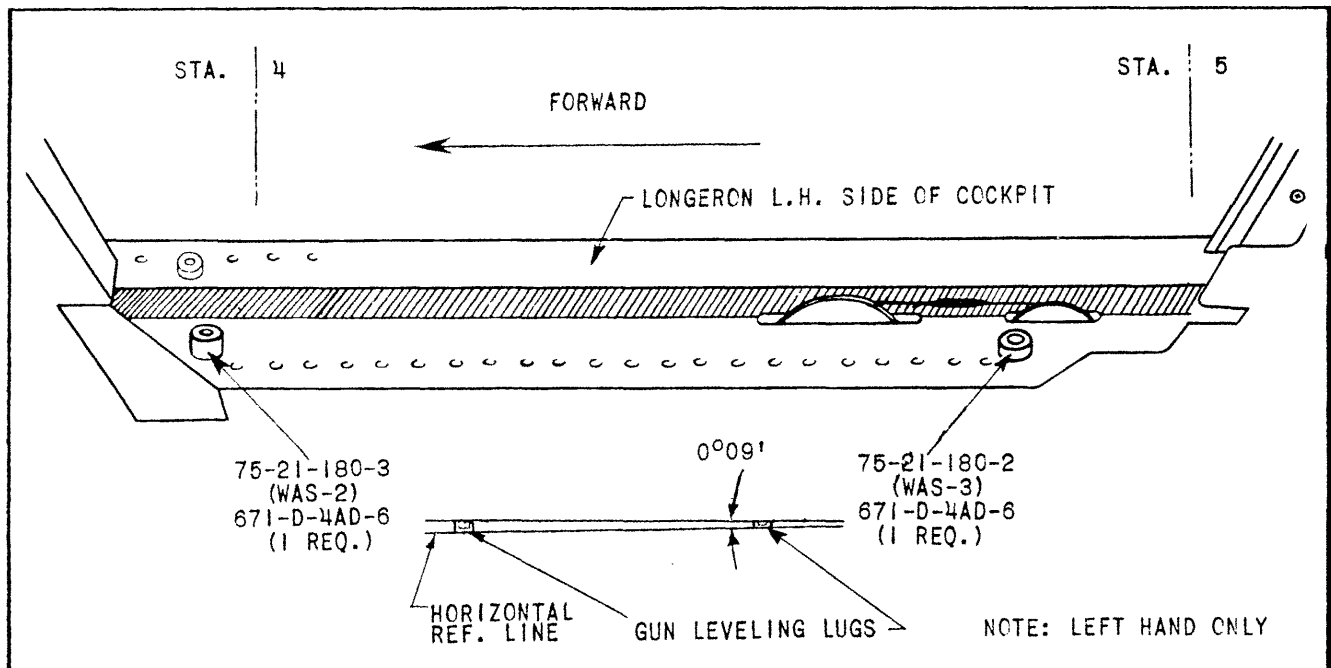


Figure 1

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S.C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

lug, part No. 75-21-180-3, (originally mounted in the rear) will be in the forward location and the lug, part No. 75-21-180-2, (originally in the forward location) will be in the rear location. Each lug will be attached to the longeron by one rivet, part No. AN-430AD4-6.

NOTE It will laid if lugs are rotated 180 degrees when interchanging positions.

c. Level the airplane as instructed in T.O. No. 01-25C-2.

d. Place the surface level on the fuselage level lugs, located on the right-hand longeron, in approximately the same relative location as the gun leveling lugs on the left-hand longeron. Adjust the jack under the tail of the ship until the level bubble comes to the center.

NOTE In cases where the surface level cannot be placed directly on the lugs, a level bar may be used between the surface level and the lugs.

e. Remove surface level (or level bar surface level combination) from fuselage leveling lugs and place on gun level lugs on the left-hand longeron.

f. Set a feeler gage to measure 0.053 inch plus or minus 0.001, and insert between surface level (or level bar) and top of rear gun leveling lug, part No. 75-21-180-2. The bubble of the surface level should now be centered. If not, the necessary gun leveling lug should be filed until bubble rests in the center.

NOTE Extreme care should be taken in filing so that the bar will lie squarely on the lugs.

g. Check back on fuselage leveling lugs to be sure that ship has remained level. If this checks, gun level lugs are now set at a 0 degree 09 minute angle (clockwise) with reference to the fuselage leveling lugs.

3.g. The following parts are required per airplane to accomplish this installation.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
2	6700-502700	AN-430AD4-6	Rivet - Aluminum alloy R.H. type AD 1/8 x 3/8 inch	29	AF Stock

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

PS204
TECHNICAL ORDER
No. 01-25CN-10

DIST: 5,7
FILE: BEH

August 10, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS -- INSTALLATION OF BELLY TANK WARNING NAME PLATE -- P-40N

NOTE The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being 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 25-hour inspection period by service activities with the aid of sub-depots, if necessary.

1. To warn pilots against air speed in excess of 280 mph and aerobatics with belly tank installed, a belly tank warning name plate will be installed on the airplanes listed below in accordance with the instructions contained in paragraph 2.

MODEL

AF SERIAL NOS.

P-40N

42-104429 to 42-104928 inclusive

P-40N airplane, AF serial No. 42-104929, and subsequent will have this change incorporated by the contractor prior to delivery.

2. The instructions for accomplishing this work as contained in Curtiss-Wright Service Bulletin 550-9, dated May 22, 1943, are as follows:

a. Locate name plate, part No. 87-88-593, on instrument board. (See figure 1.)

b. Drill two holes in instrument board to match holes in name plate, using a No. 55 (0.052) drill.

c. Install name plate to instrument board using two drive screws, part No. AN535-00-2.

NOTE If there is an existing name plate in this location, relocate existing name plate to a new advantageous location.

3. The parts listed below are required per airplane to accomplish this change. These parts will be assembled into kits and supplied in accordance with the provisions of T.O. No. 00-35A-15.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	1300T0-01-25CN10		KIT, " Installation of Belly Tank Warning Name Plate, P-40N," consisting of the following:	15	AF Stock

SEE ILLUSTRATION ON NEXT PAGE

U. S. G. DAYTON 8-6-43 1943

- 1 -

RESTRICTED

Compliance with these instructions is MANDATORY on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1		87-88-593	Name Plate	01-C	
2		AN535-00-2	Screw - Drive, RH No. 00 x 1/8 in.	29	

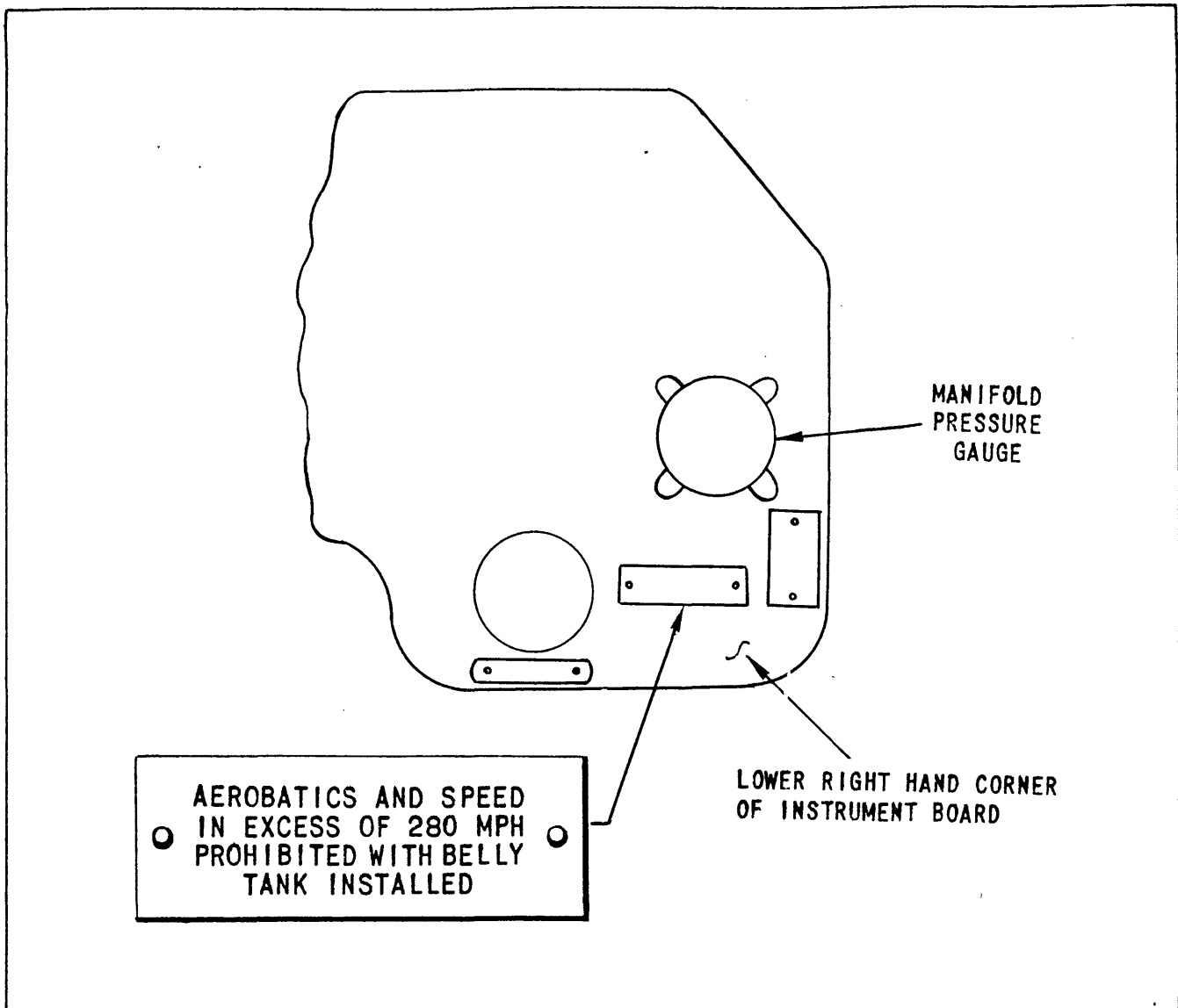


Figure 1 - Installation of Warning Name Plate

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

DIST: 4,5,7
FILE: BEHS

September 6, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—RELOCATION OF WIRE BUNDLES—P-40N

NOTE The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary.

1. To prevent electrical failure caused by the control cables cutting into wire bundles along the left side of the fuselage from stations 6 to 9 inclusive, the following P-40N airplanes will be reworked in accordance with instructions in paragraph 2.

MODEL

AF SERIAL NOS.

P-40N

42-104429 to 42-104638 inclu
42-104640, 42-104643 to 104657 inclu
42-104659, 42-104662 to 104667 inclu
42-104669 to 42-104674 inclu
42-104676

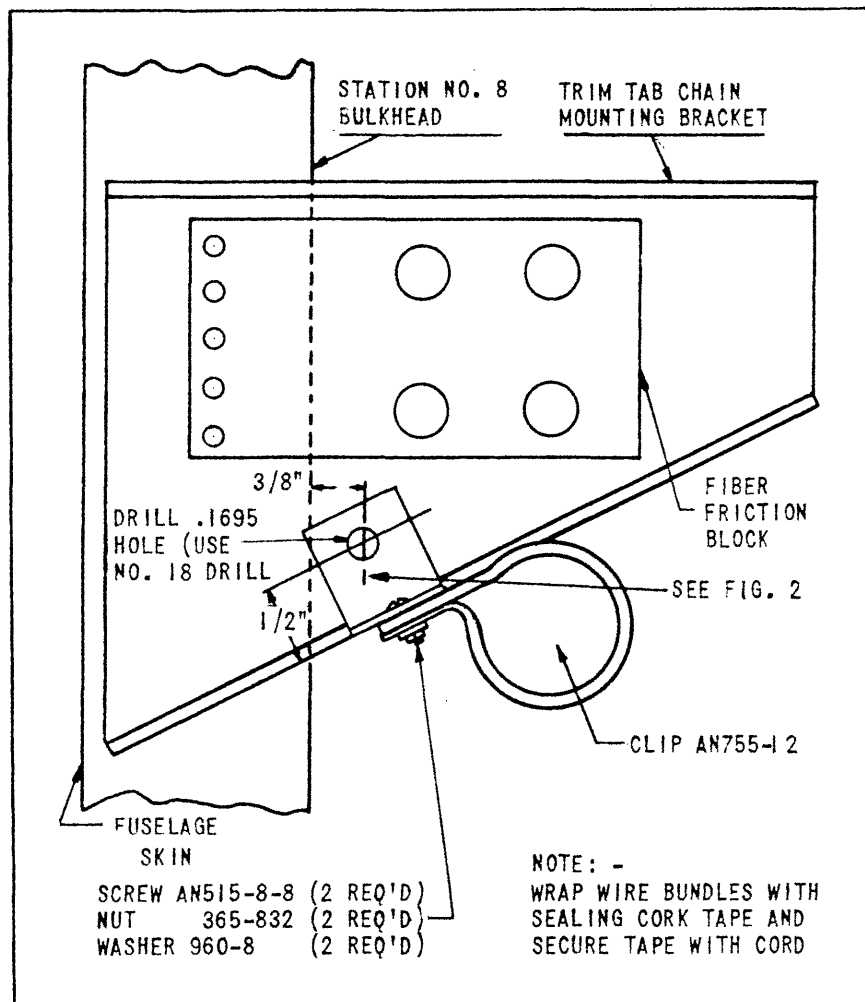


Figure 1 - Relocation Of Wire Bundles To Trim Tab Bracket At Fuselage Station 8

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

15 207

RESTRICTED

T.O. No. 01-25CN-13

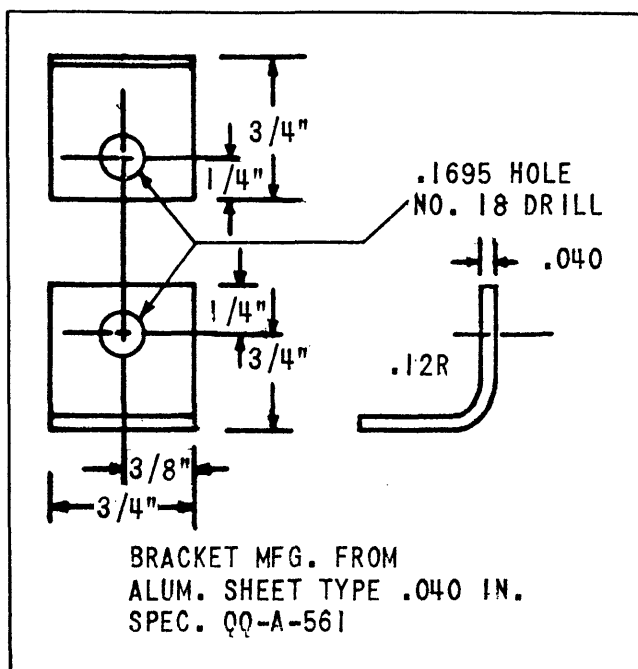


Figure 2 - Design For Bracket

P-40N, serial No. 42-104679 and subsequent airplanes will have this change incorporated at factory.

2. The instructions for accomplishing this change, as contained in Curtiss Service Bulletin 550-7, dated May 20, 1943, are as follows:

a. Remove pilot's seat.

b. Remove armor plate at station 5.

c. Remove the clips from wire bundles on left side of fuselage at stations 6, 7, and 9 bulkheads, and remove the clip from the large

wire bundle only at station 8 bulkhead.

d. Manufacture bracket. (See figure 2.)

e. At station 8 bulkhead, using a No. 18 drill (.1695-inch) drill a hole at the bottom of the trim tab chain bracket. (See figure 1.) Attach the manufactured bracket to the aft side of trim tab chain bracket, using machine screw, part No. AN515-8-8, washer, part No. AN960-8, and nut, part No. 365-832.

f. Reverse position of clips at station 6 bulkhead, putting the large wire bundle above and the small wire bundle below, using the same mounting hole as was originally used.

NOTE The wire bundles will be wrapped with Corprene tape and the tape will be secured with cord at all places where they are fastened in clips or where they may chafe against the stiffeners or braces.

g. Repeat operation c. at station 7 bulkhead.

h. At station 8 bulkhead, attach small wire bundle, replacing it in the original position. Install clip, part No. 755-12, around the large wire bundle and fasten the clip to the bottom of the bracket (figure 1) using screw, part No. AN515-8-8, washer, part No. AN960-8, and nut, part No. 365-832.

i. At station 9 bulkhead, install clip, part No. 755-14, around both wire bundles and fasten it, using the same mounting hole, screw, washer, and nut originally used.

NOTE Be sure the wire bundles clear all control cables.

j. Reinstall armor plate.

k. Reinstall pilot's seat.

3. The parts listed below are required per airplane to accomplish this change.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1			Bracket - 1-1/2 inches x 3/4 inch	01-C	Local Mfr.
			Mfr. from:		
			Aluminum Sheet - Type 1, temper half hard, .040 in. Specification No. QQ-A-561 stock No. 6800-009400	23-A	AF Stock
1	6500-325600	755-12	Clip - Loop-type tube	04-A	AF Stock
1	6500-325650	755-14	Clip - Loop-type tube	04-A	AF Stock
2	6500-513700	365-832	Nut - Self-locking	04-A	AF Stock
2	6700-711200	AN515-8-8	Screw - Machine, steel	29	AF Stock
2	6500-983900	AN960-8	Washer - Plain, steel	04-A	AF Stock
As req	6600-857500		Tape - Sealing cork (Corprene)	04-B	AF Stock
As req	7100-26200		Cord	21	AF Stock

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25CN-14

DIST: 4,5,7
FILE: BEHS

October 15, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—INSTALLATION OF STRONGER MAIN LANDING-GEAR AXLE FITTING—P-40N

This Technical Order replaces T. O. No. 01-25CN-14, dated August 24, 1943, revised to include rework instructions.

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being 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 25-hour inspection period by service activities with the aid of sub-depots, if necessary. A summary of the periodic inspection prescribed in paragraph 1., will be entered in the preflight section of the Master Airplane Maintenance Instruction Forms maintained with Form 41-B for the airplanes affected. Maintenance axle fittings assemblies, part No. 87-310-1017, and those installed on spare landing-gear assemblies in stock will be reworked prior to issue.

1. To reduce the possibility of failure, the left- and right-hand main landing-gear axle fittings, part No. 87-310-1014 (open heel), on the P-40N airplanes listed below will be removed and replaced with a stronger axle fitting, part No. 87-310-1021 (solid heel), in accordance with the instructions contained in paragraph 2. If the parts necessary for this work are not available, a preflight inspection of the axle fitting will continue to be accomplished and if tolerance between axle and axle fitting on inboard side of landing gear exceeds .015 inch with the weight of the airplane on the wheels, the airplane will be grounded until the modification outlined in this Technical Order is accomplished. Upon completion of this rework the above prescribed preflight inspection will no longer be required.

MODEL AF SERIAL NOS.

P-40N * 42-104829 to 42-106078 inclusive

- * The following P-40N airplanes included in these serial numbers have had this change incorporated by the contractor prior to delivery and will not require this rework:

MODEL AF SERIAL NOS.

P-40N 42-105467, 42-105471, 42-105536,
42-105543, 42-105560, 42-105575,
42-105581, 42-105590, 42-105592,
42-105623, 42-105649, 42-105657,
42-105666, 42-105679, 42-105698,
42-105735, 42-105763, 42-105773,
42-105778, 42-105782, 42-105810,
42-105814, 42-105816, 42-105829,
42-105842, 42-105852, 42-105863,

42-105865, 42-105867, 42-105869,
42-105871, 42-105878, 42-105880,
42-105882, 42-105884, 42-105886,
42-105893, 42-105895, 42-105897,
42-104899, 42-105901, 42-105908,
42-105910, 42-105912, 42-105914,
42-105916, 42-105919, 42-105923,
42-105925, 42-105927, 42-105929,
42-105931, 42-105938, 42-105940,
42-105942, 42-105944, 42-105946,
42-105953, 42-105955, 42-105957,
42-105959, 42-105961, 42-105968,
42-105970, 42-105972, 42-105974,
42-105976, 42-105979, 42-105983,
42-105985, 42-105987, 42-105989,
42-105991, 42-105998, 42-106000,
42-106002, 42-106004, 42-106006,
42-106013, 42-106015, 42-106017,
42-106019, 42-106021, 42-106028,
42-106030, 42-106032, 42-106034,
42-106036, 42-106043, 42-106045,
42-106047, 42-106051, 42-106058,
42-106060, 42-106062, 42-106064,
42-106066, 42-106073, 42-106075,
42-106077.

P-40N airplane, AF No. 42-106079 and subsequent, will have this change incorporated by the contractor prior to delivery.

2. The instructions for accomplishing this change as outlined in Curtiss Service Bulletin 550-22, dated September 2, 1943, are as follows:

- Remove side and top engine cowl.
- Attach sling to the lugs on the upper engine

RESTRICTED

Compliance with these instructions is MANDATORY on airplanes within the continental United States. Within theaters of operation, compliance will be at the discretion of Task Force Commanders concerned.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

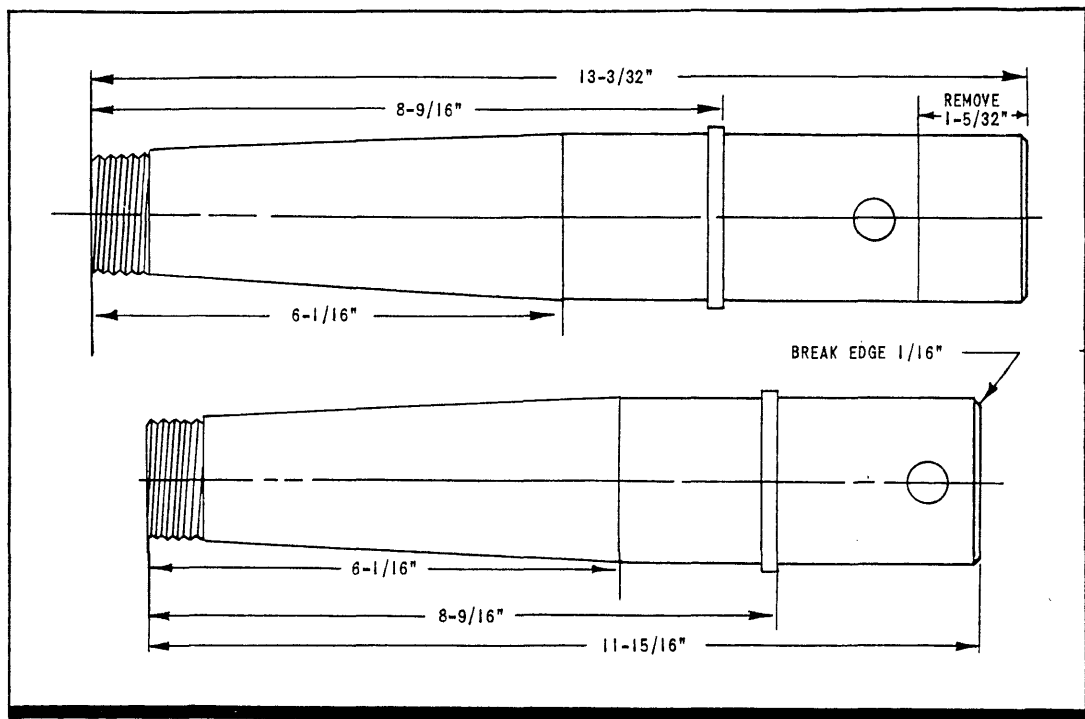


Figure 1 -
Detail View Show-
ing Modification
of Axle, Part No.
87-310-1015

mount forward of the fire wall and hoist the airplane so that the landing-gear wheels are off of the ground.

c. Remove the wheel fairing and remove the wheel from the airplane.

d. Remove the two bolts, part No. AN28-54, at the lower end of the landing-gear oleo pistons and remove the axle fitting assembly, part No. 87-310-1017, from the piston.

e. Remove the landing-gear towing bolt, part No. 87-310-1019, from the axle fitting assembly, and remove the axle from the axle fitting, part No. 87-310-1014.

f. Remove the paint from the butt of the axle. This can be easily removed with paint remover Curtiss Specification No. C1D-9 or AAF Specification No. 14119.

g. Cut a 1-5/32 inch section from the butt of the axle, part No. 87-310-1015, as shown in figure 1.

NOTE It is recommended that when cutting the axle, the speed of the lathe be 87 rpm with a motor speed of 7000 rpm, using amber cutting oil.

h. Install the modified axle, part No. 87-310-1015, in the new axle fitting, part No. 87-310-1021, so that

the existing 9/16-inch towing ring holes line up and center with the 3/4-inch hole in the new axle fitting.

NOTE Axles are to be fitted to the new axle fitting so that a tight fit is made between the new fitting and modified axle.

i. Drill a 17/32-inch (.5312) hole in the axle fitting by inserting the drill in the 3/4-inch hole. Locate the existing 9/16-inch hole in the axle, and using this hole as a guide, proceed to drill opposite side of fitting.

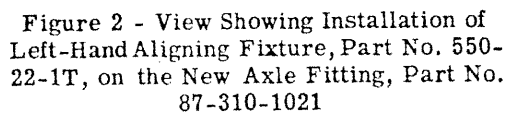
j. Install the plug, part No. 87-310-1021-905, in the 3/4-inch hole of the axle fitting by driving it in place with a lead or wooden hammer.

k. Drill a 17/32-inch (.5312) hole in the plug by locating the drill in the existing 17/32-inch drilled hole of the axle through the hole drilled in paragraph 2.i.

l. Ream the drilled 17/32-inch holes, using a 9/16-inch (.5625) line reamer, and install the removed towing bolt, part No. 87-310-1019, washers, part No. AN960-916, one washer each side of the axle and pin, part No. AN380-C4-4.

NOTE Paint the axle hub with yellow primer paint on final installation to the fitting.

m. Install the modified axle assembly to the landing-gear piston, and place a block of wood on a suitable support under the jack point of the axle assembly.



SERVICE ALIGNING JTG, L/R 550-22-IT
MAY BE MANUFACTURED LOCALLY IF NECESSARY

FRONT VIEW:

- Total width: $2\frac{5}{8}"$
- Top left corner radius: $\frac{1}{8}"$
- Left vertical edge height: $1\frac{9}{16}"$
- Inner hole diameter: $.750 \pm .010 / - .000$
- Hole offset from left edge: $1\frac{1}{4}"$
- Hole offset from top edge: $1\frac{1}{4}"$
- Distance between gear centers: $4\frac{7}{16}"$
- Gear pitch diameters: $1\frac{3}{8}"$ and $2\frac{3}{8}"$
- Gear tooth count: 30
- Angle between centerline and dashed line: 15°
- Horizontal distance from centerline to right gear center: $5\frac{1}{8}"$
- Right gear pitch diameter: $2\frac{3}{8}"$
- Right gear tooth count: 30

SIDE VIEW:

- Top flange thickness: $\frac{1}{4}"$
- Main body height: $6\frac{1}{8}"$
- Bottom flange height: $4"$
- Internal feature height: $2"$
- Base width: $2"$

CROSS SECTION (2):

- Top surface thickness: $1\frac{9}{16}"$
- Feature depth: $1\frac{1}{2}"$
- Note: SURFACES PARALLEL

MATERIAL
STEEL-CHROME MOLYB 4130 ST
SPEC. AN-QQ-S-685

LEFT HAND SHOWN
RIGHT HAND OPPOSITE

THIS SURFACE MUST BE SMOOTH

NOTE: 1 OVER-ALL LENGTH,
BEFORE BENDING $7\frac{1}{2}"$

NOTE: 2 BRAZE $1\frac{1}{4}" \times \frac{3}{8}"$ 4130 ST PLUG
TO FIXTURE AS PER DETAIL

NOTE It is of the utmost importance that the center-punch marks be made exactly in the center of the existing mounting bolt holes.

g. Hoist the airplane and remove the aligning fixture and the axle fitting assembly from the airplane.

r. Drill four 7/16-inch (.4375) pilot holes at the four center-punched marks.

NOTE It is important that the 7/16-inch (.4375) pilot holes be drilled so that the drilled hole will line up with the one on the opposite side. It is recommended that a drill press of sufficient size to take a 1/2-inch drill be used with a "V" block for support when drilling the axle fitting.

RESTRICTED

pg 211

RESTRICTED
T. O. No. 01-25CN-14

NOTE It is recommended that a drill spindle speed of 105 rpm be used with Tycol No. 671 cutting oil or equivalent as a drill lubricant.

t. Install the new axle fitting assembly to the oleo piston. Line up the holes drilled in paragraph 2.i. with the existing 1/2-inch holes in the bottom of the piston. Let the weight of the airplane rest on the axle fitting assembly, and ream the drilled holes with a 1/2-inch (.500) line reamer.

NOTE The drilled holes are to be reamed straight through so that the holes will line up. Use equal parts of white lead and cutting oil on the reamer.

u. Remove the axle fitting assembly from the oleo piston and clean thoroughly. Paint the butt of the axle

fitting with yellow primer paint and reinstall to the oleo piston.

v. Line up holes in oleo piston with the holes in the axle fitting assembly and install the two bolts, part No. AN28-54, the nut, part No. AN320-8, and cotter pin, part No. AN380-3C-4.

w. Reinstall the removed scissors link bolt, and reinstall the landing-gear wheel and fairing.

x. Check the toe-in of the airplanes in accordance with existing Technical Orders.

3. a. The following parts are required per airplane to accomplish this change. These parts will be packed into kits and may be requisitioned from air depots in accordance with the provisions of T. O. No. 00-35A-15.

IMPORTANT: KIT TO BE REQUISITIONED FROM CLASS 15. OTHER ITEMS TO BE REQUISITIONED FROM THE INDIVIDUAL CLASSES AS INDICATED.

QUANTITY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	1300TO-01-25CN14		KIT, "Installation of Stronger Main Landing-Gear Axle Fitting - P-40N," consisting of the following parts:	15	AF Stock
1		87-310-1021 L	Fitting - Axle	01-C	
1		87-310-1021 R	Fitting - Axle	01-C	
2		87-310-1021-905	Plugs - Axle fitting	01-C	

b. The following special tools are required to accomplish this work and will be obtained by requisition on control depot as required, and returned to control depot upon completion of work.

QUANTITY	PART NO.	NOMENCLATURE
1	550-22-1T L	Aligning fixture (See figure 3.)
1	550-22-1T R	Aligning fixture (See figure 3.)

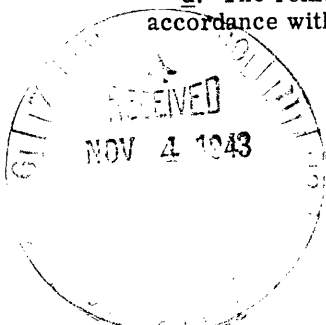
c. The following tools will be required and will be obtained from AF Stock:

QUANTITY	NOMENCLATURE	CLASS	SOURCE
1	H.S. drill 7/16-inch (.4375)	17-B	AF Stock
1	H.S. drill 17/32-inch (.5312)	17-B	AF Stock
1	H.S. drill 15/32-inch (.4687)	17-B	AF Stock
1	H.S. line reamer 9/16-inch (.5625)	17-B	AF Stock
1	H.S. line reamer 1/2-inch (.5000)	17-B	AF Stock

d. The removed axle fitting, part No. 87-310-1014, will be disposed of in accordance with the provisions of AAF Regulation 65-43.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.



Pg 212

SUPPLEMENT TO BASIC TECHNICAL ORDER

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25CN-14A

DIST: 4, 5, 7
FILE: BEHS

November 6, 1943

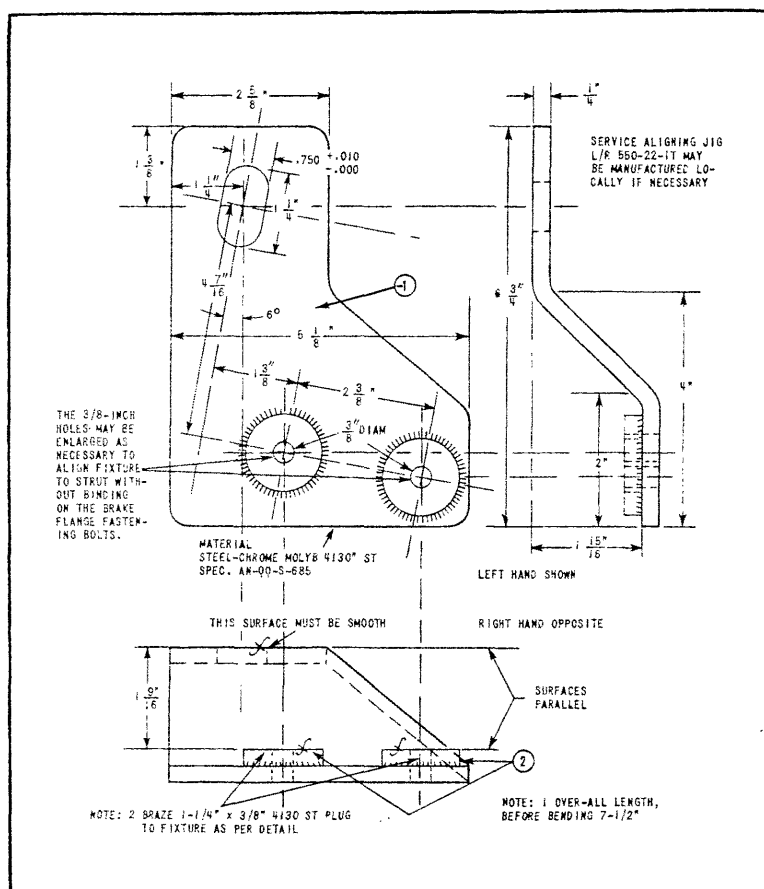
AIRPLANES AND MAINTENANCE PARTS

CURTISS—INSTALLATION OF STRONGER MAIN LANDING GEAR AXLE FITTING—P-40N

NOTE This Technical Order supplements T. O. No. 01-25CN-14, dated October 15, 1943. A REFERENCE TO THIS SUPPLEMENT WILL BE MADE ON PAGE 1 OF THE BASIC TECHNICAL ORDER, AND THE CORRECTIONS DIRECTED HEREIN WILL BE MADE IN THE TECHNICAL ORDER.

1. Figure 3, page 3, of T. O. No. 01-25CN-14, dated October 15, 1943, is corrected to appear as follows:

Figure 3 - Service
Aligning Jig L/R,
Part No. 550-22-1T
(May be manufactured
locally, if necessary.)



By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U. S. A.,
Commanding General Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED

DIST: 4,5,7
FILE: BEH

September 26, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—REWORK OF HYDRAULIC TANK SUPPORTING BRACKETS—P-40N

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished, whenever required, by service activities with the aid of sub-depots, if necessary.

1. To provide for the interchangeability of the (cast) hydraulic tank, part No. 87-33-902, with the (weld) hydraulic tank, part No. SK3802, the left- and right-hand supporting brackets, part No. 87-33-717, on the airplanes listed below will be reworked when necessary, in accordance with the instructions in paragraph 2.

NOTE Due to the differences in fabrication, the welded tank is larger and does not allow sufficient clearance for the SCR695 radio. By reworking the brackets, the hydraulic tank (weld) will be slightly tilted and will permit clearance for the SCR695 radio.

MODEL AF SERIAL NOS.

P-40N 42-105429 to 42-105453 inclusive

P-40Nairplane, AF No. 42-105454 and subsequent, will have this change incorporated by the contractor prior to delivery.

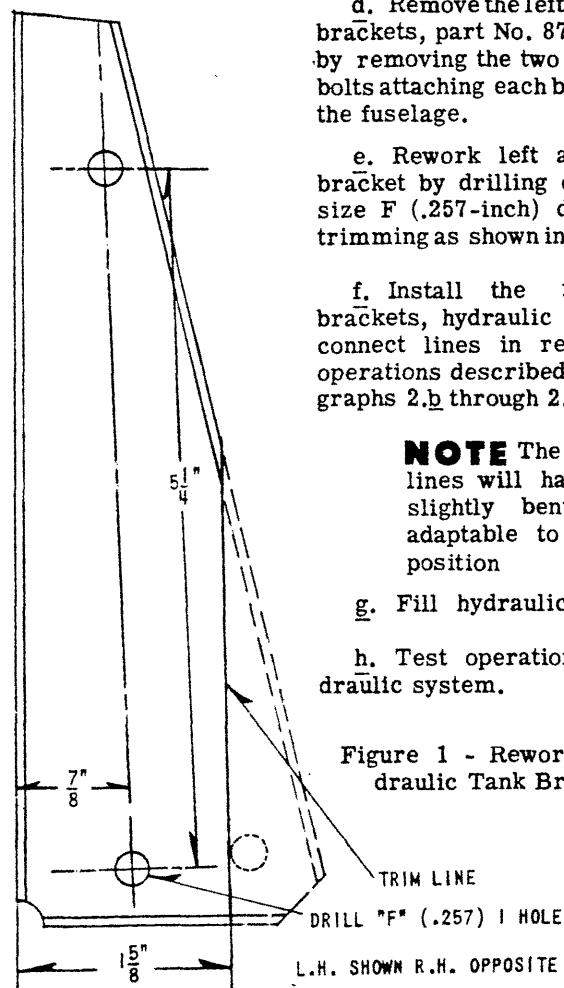
2. The instructions for accomplishing this work as contained in Curtiss Service Bulletin 550-14, dated July 8, 1943, are as follows:

a. Drain the hydraulic system.

NOTE Support the airplane on jack or cradles so that the landing gear and wing flaps can be operated.

b. Disconnect the two outlet lines, the return line, and the vent line from the hydraulic tank located just aft of station 10 bulkhead.

c. Remove the hydraulic tank from the airplane by removing the attaching nuts and bolts.



d. Remove the left and right brackets, part No. 87-33-717, by removing the two nuts and bolts attaching each bracket to the fuselage.

e. Rework left and right bracket by drilling one hole, size F (.257-inch) drill, and trimming as shown in figure 1.

f. Install the reworked brackets, hydraulic tank, and connect lines in reverse of operations described in paragraphs 2.b through 2.d.

NOTE The two outlet lines will have to be slightly bent to be adaptable to new tank position

g. Fill hydraulic system.

h. Test operation of hydraulic system.

Figure 1 - Rework of Hydraulic Tank Bracket

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



DIST: 4,5,7
FILE: BEHS

December 1, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—REWORKING FUEL TANK SELECTOR VALVE DIAL—P-40N

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary.

1. To indicate the proper wing tank gallonage, the fuel selector valve dials on the P-40N airplanes listed below which have had the front (35 gallons) and rear wing tanks (54 gallons) interconnected, will be reworked in accordance with the instructions contained in paragraph 2.

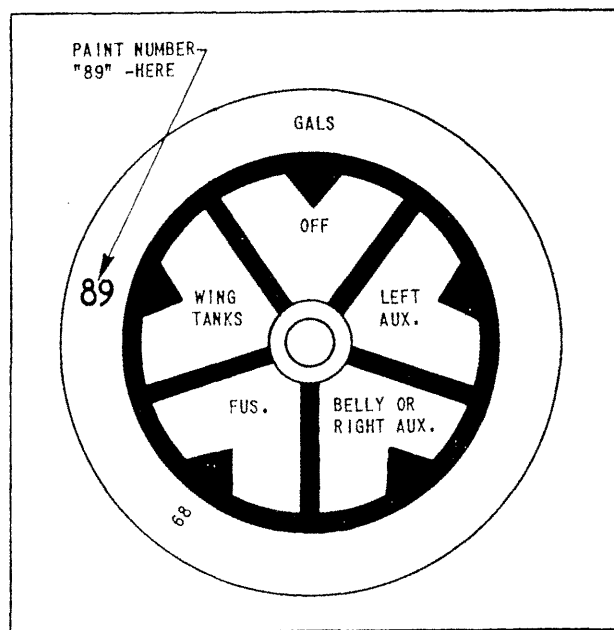


Figure 1 - Reworked Fuel Tank Selector Valve Dial

MODEL

AF SERIAL NOS.

P-40N

42-105129 to 42-106031 inclusive

P-40N airplane, AF No. 42-106032, and subsequent will have this change incorporated by the contractor prior to delivery.

2. The instructions for accomplishing this work are as follows:

NOTE Provisions were made by the contractor to use one right- and one left-hand external auxiliary wing fuel tank on P-40N airplane, AF No. 42-105129, and subsequent. To retain the existing four port fuel selector valve, it was necessary to interconnect front and rear internal wing fuel tanks making a total of fuel capacity of 89 gallons. This releases the other ports (front wing and belly) for use with the auxiliary wing tanks when installed.

- a. Paint out with instrument black enamel the number "54" on the wing tank position of the fuel selector valve dial located in the cockpit.

- b. Paint correct number "89" with white insignia enamel in the same position the number "54" was previously located. (See figure 1.)

3. The following materials are required to accomplish this work:

QTY	STOCK NO.	NOMENCLATURE	CLASS	SOURCE
As req	7300-412000	Enamel - Insignia white, Specification No. AN-E-3	07	AF Stock
As req	7300-414000	Enamel - Instrument black, flat, Specification No. AN-E-3	07	AF Stock

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

February 24, 1944

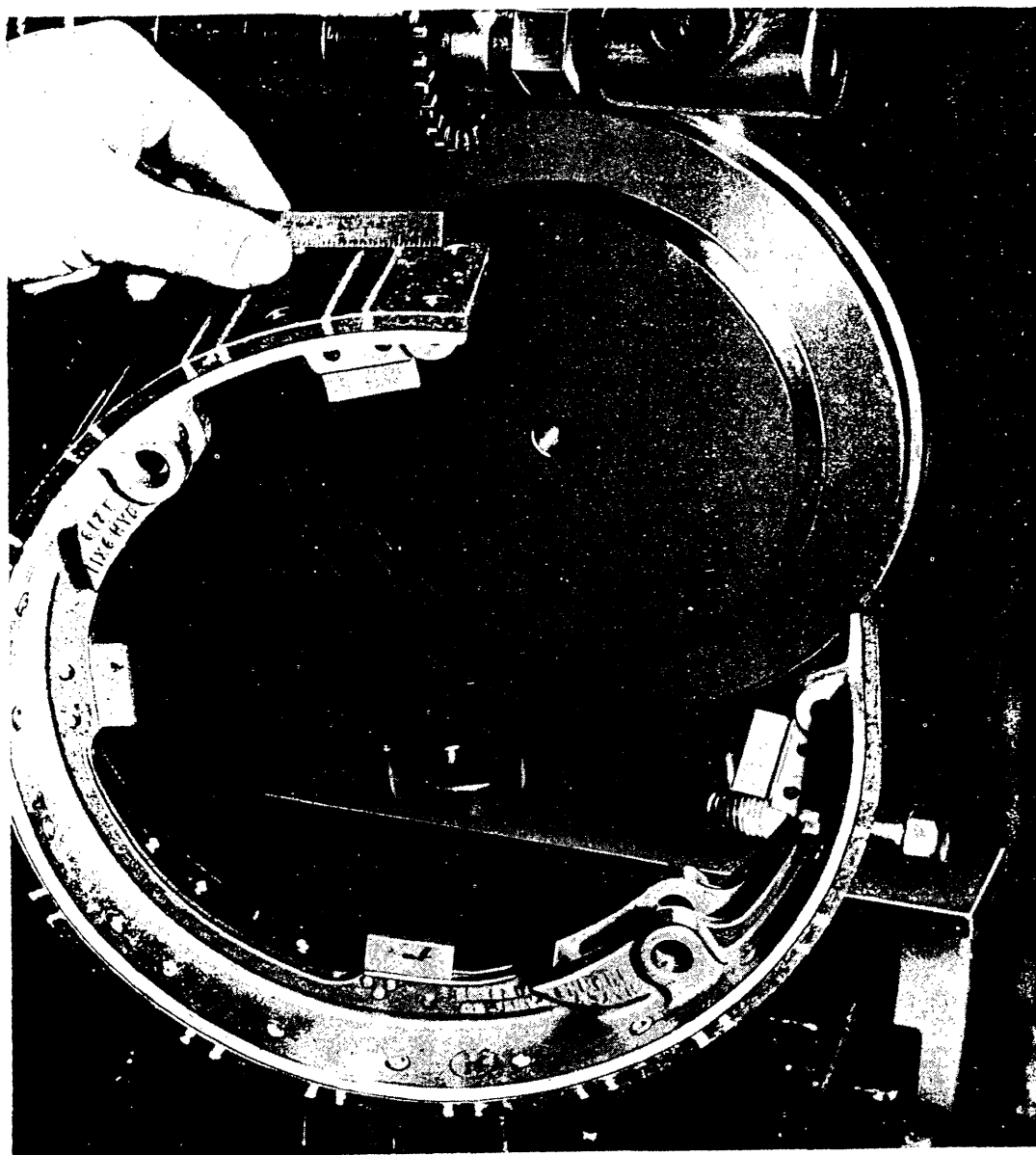
AIRPLANES AND MAINTENANCE PARTS

CURTISS—GROOVING OF BRAKE LINING—P-40N

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished when necessary by service activities with the aid of sub-depots, if necessary.

1. To provide adequate brake action for safe landings and ground handling, the brake linings of the P-40N airplanes listed on the following page will be grooved in accordance with the instructions contained in paragraph 2.

Figure 1 - Marking
Brake Lining
as Directed



NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

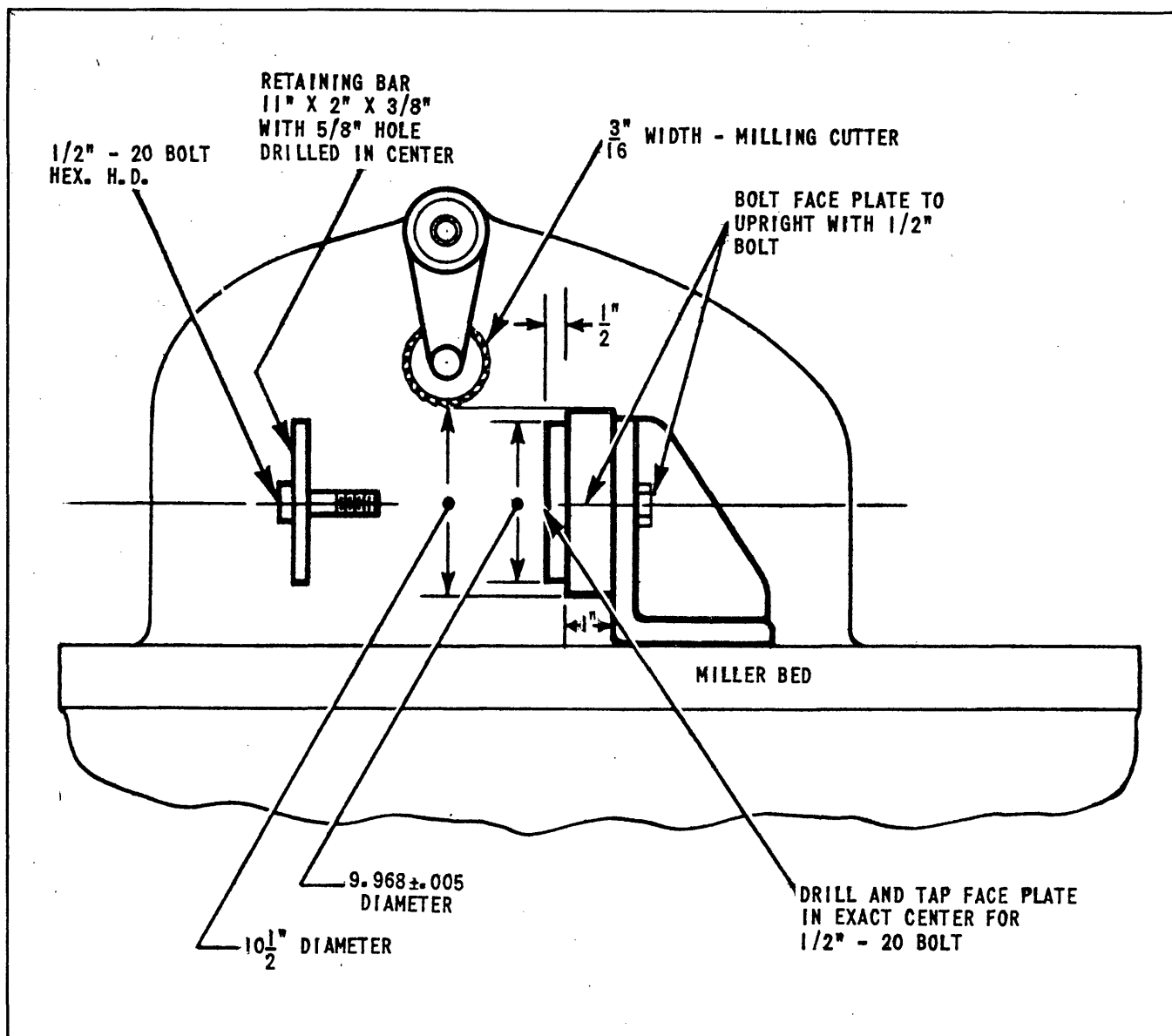


Figure 2 - Milling Machine and Accessories for Grooving Brake Lining

NOTE The brakes should hold when the normal propeller and engine ground test is performed. Grooving should be accomplished as soon as possible on airplanes whose brakes do not hold during this test. Compliance with this Technical Order will prolong the life of the brake linings and increase the efficiency of the brakes. Grooving should be accomplished as soon as practicable on all airplanes.

MODEL	AF SERIAL NOS.
P-40N	42-104829 to 42-106002 inclusive

P-40N airplane, AF No. 42-106003, and subsequent will be modified by the contractor prior to delivery.

2. The instructions for accomplishing this change as contained in Curtiss Service Bulletin 550-39 are as follows:

- Remove the wheels from the airplane.
- Remove the brake shoes from the torque plates.
- Mark each lining with chalk or white pencil $\frac{7}{16}$ inch on each side and parallel with the rivet holes. (See figure 1.)
- Mount the brake shoe on a milling machine using set-up and accessories similar to those shown in figures 2, 3, 4, and 5.
- Align the chalk or pencil mark with the approximate center of the $\frac{3}{16}$ -inch milling cutter, clamp the brake shoe firmly in place and cut the groove across the lining. (See figure 4.)

CAUTION When setting the depth of the cut, allow $\frac{1}{8}$ inch of lining to remain between the bottom of the groove and the metal brake shoe.

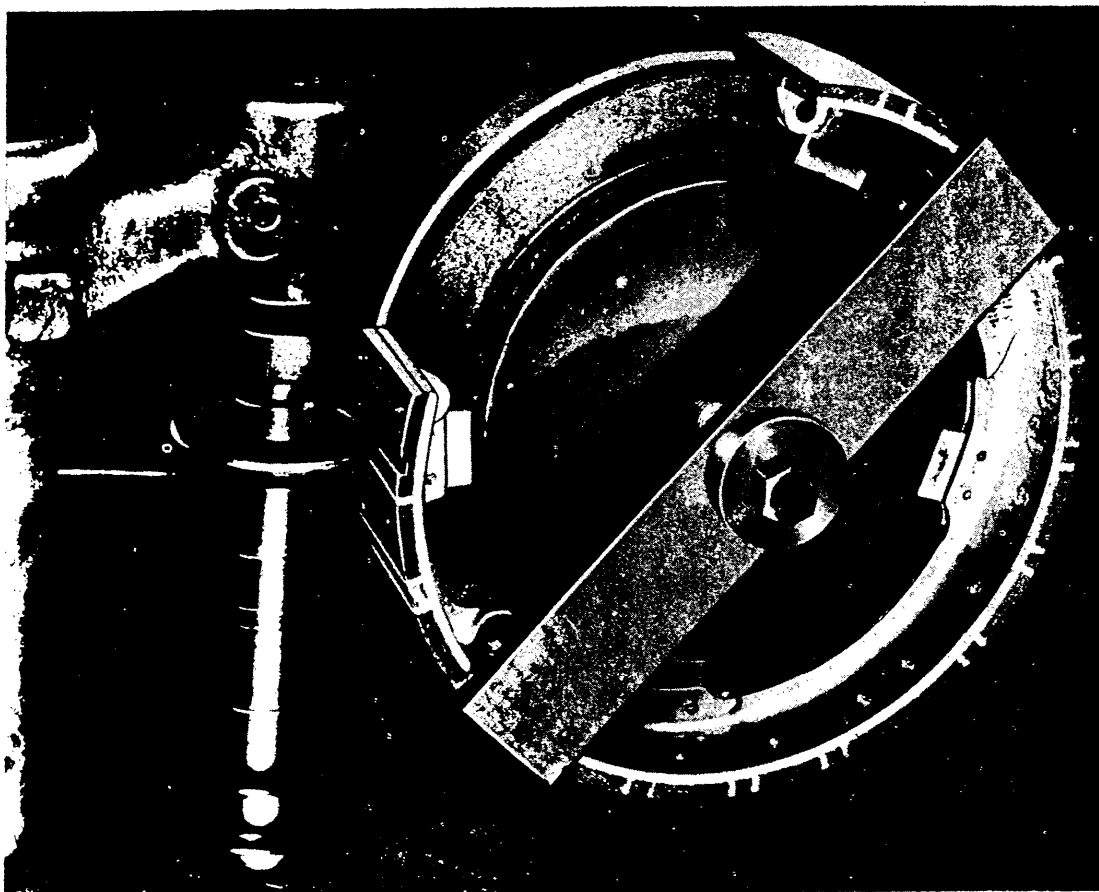


Figure 4 - Grooving the Brake Lining

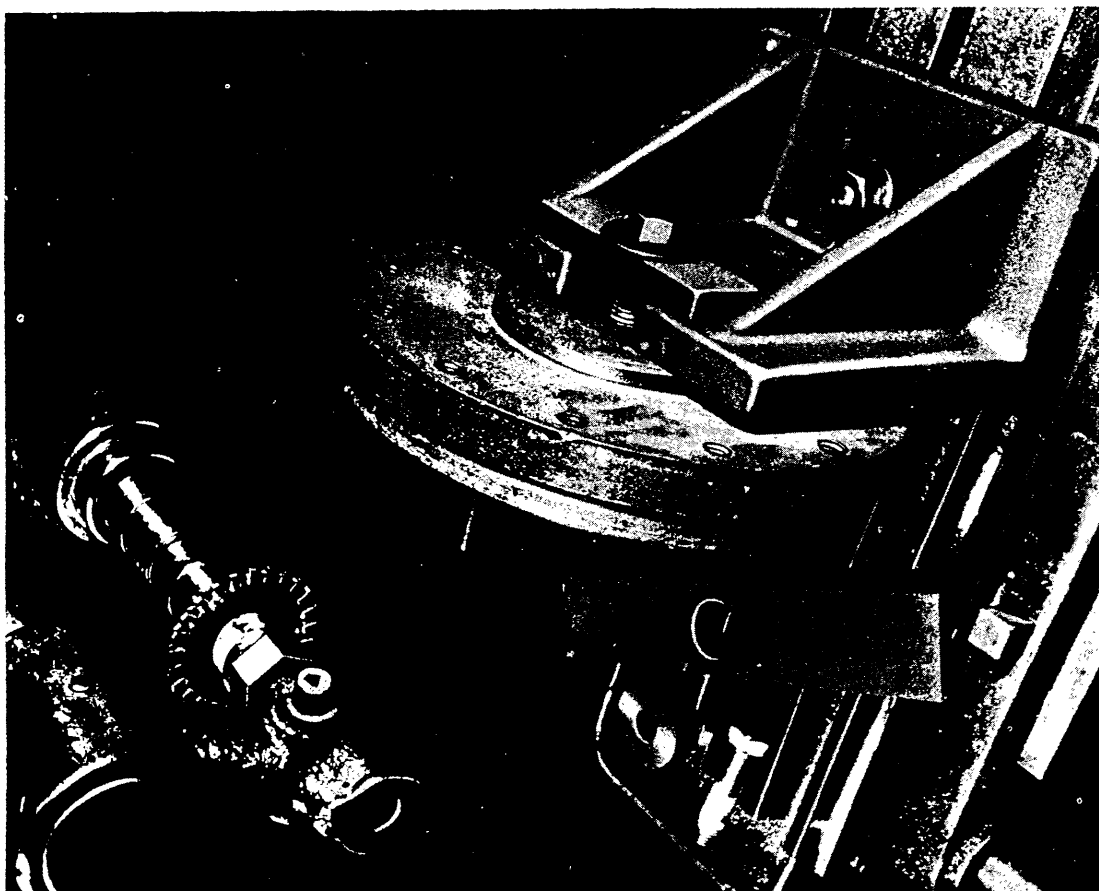


Figure 3 - Milling Machine Ready for Attaching Brake Lining

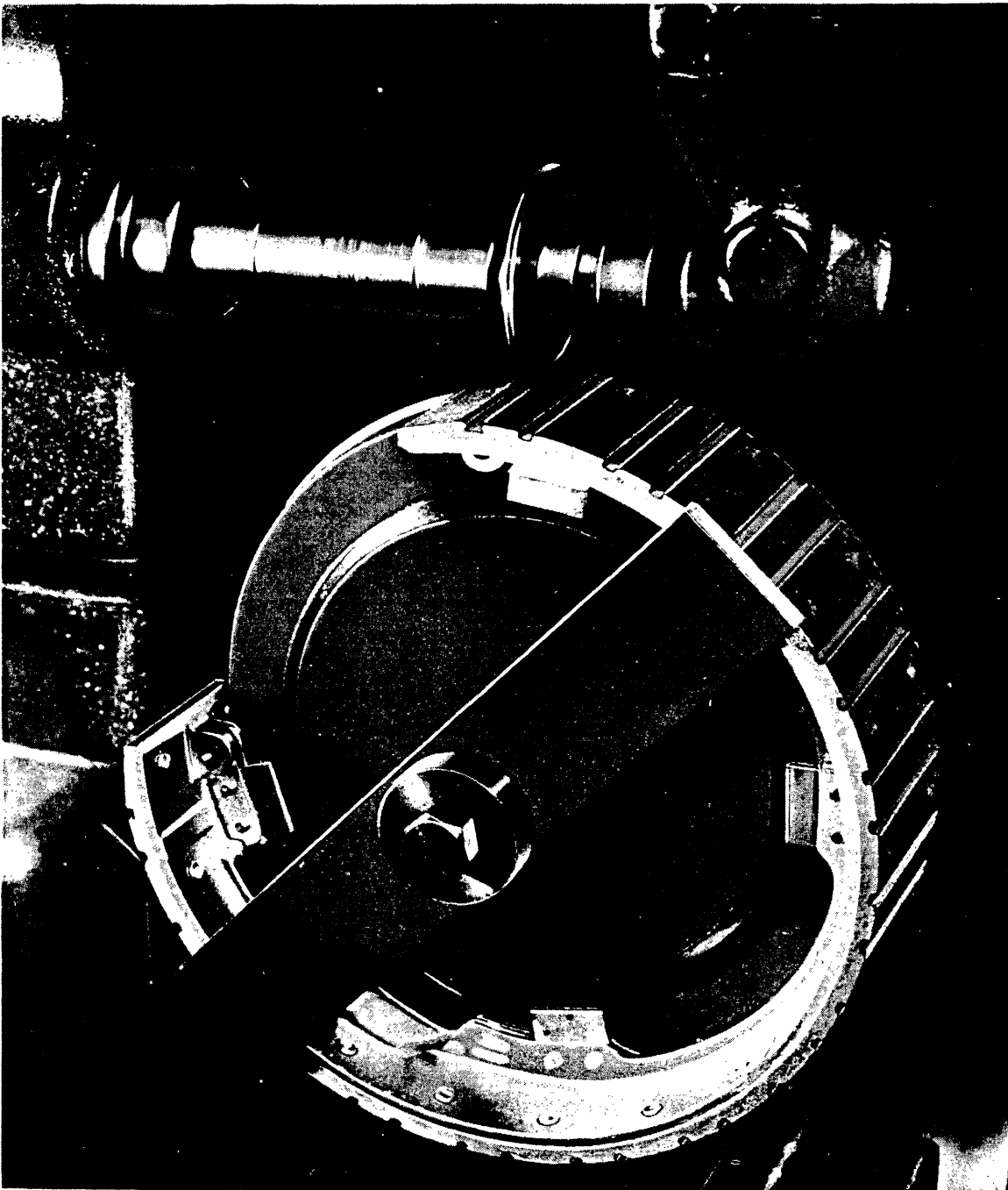


Figure 5 - A
Completed
Brake Lining

f. Repeat the procedure outlined in paragraph 2.e. preceding until the entire lining has been grooved in accordance with the markings on the lining. (See figure 5.)

g. Assemble the brake shoes to the torque plate, install the wheels, and adjust the brake clearance in accordance with existing instructions.

By Command of General ARNOLD:

Prepared by
Aircraft Section,
Maintenance Div,
Hq, ASC.

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

RESTRICTED

RESTRICTED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

TECHNICAL ORDER
No. 01-25CN-22

DIST: 4,5,7
FILE: BEHS

November 10, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—REROUTING WIRE BUNDLES FROM BATTERY TERMINAL BOX TO HYDRAULIC PUMP AND BATTERY—P-40N

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being entered in AAF Forms 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary.

1. To eliminate interference between wire bundles leading from battery terminal box to battery and to hydraulic pump and control cables, the wire bundles will be rerouted in accordance with the instructions contained in paragraph 2., on the following airplanes:

MODEL	AF SERIAL NO.
P-40N	42-104429 to 42-105428 inclusive

Model P-40N airplane, AF No. 42-105429 and subsequent, will have this feature incorporated by the contractor prior to delivery.

2. The instructions for accomplishing this change, as contained in Curtiss Service Bulletin 550-18, dated August 25, 1943, are outlined below:

a. Remove battery terminal cover and disconnect battery leads.

b. Disconnect hydraulic pump wires leading from hydraulic pump terminals.

c. Remove wire bundles from existing clamp located on stringer No. 8 counting from the top down on the right side of the fuselage between stations 9 and 10.

d. Remove existing Tinnerman clamp from clamp angle on stringer No. 8.

e. Remove clamp angle from stringer No. 8 by drilling out rivet, using a 5/32-inch drill. Using No. 18 drill, drill hole in stringer No. 9 and reinstall clamp angle (just removed from stringer No. 8) using one screw, part No. AN515-8-8, and one nut, part No. 365-832.

f. Install Tinnerman clamp removed in paragraph 2.d. on clamp angle installed in paragraph 2.e.

g. Reinstall wire bundles removed in paragraph 2.c., using Tinnerman clamp installed in paragraph 2.f.

h. Reverse procedure as in paragraphs 2.b. and a. respectively.

3. The following parts are required per airplane to accomplish this change:

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	6700-711200	AN515-8-8	Screw - Machine steel, right-hand 8-32 x 1/2 inch	29	AF Stock
1	6500-513700	365-832	Nut - Self-locking, steel, 8-32	04-A	AF Stock

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



DIST: 4,5,7
FILE: BDEH

October 24, 1943

AIRPLANES AND MAINTENANCE PARTS

CURTISS—REWORK OF GUN LEVELING LUGS—P-40N AIRPLANES

NOTE The provisions of T.O. No. 00-20A will be complied with in this case, these instructions being entered on AAF Form 60-A for the airplanes affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of sub-depots, if necessary.

1. It is necessary that the gun leveling lugs be reworked due to the fact the gross weight of the airplane has been changed, which in turn has changed the angle of attack. This work will be accomplished on P-40N airplanes, AF Nos. 42-104904 to 42-106322 inclusive in accordance with the instructions contained in paragraph 2. P-40N airplane, AF No. 42-106323 and subsequent, will have the change accomplished prior to delivery.

2. The instructions for accomplishing this change as contained in Curtiss Service Bulletin 550-27, dated September 15, 1943, are as follows:

- a. Open the sliding cabin hood.
- b. Level the airplane as follows:

(1) Place two jacks under the jacking points in the wing center section and raise

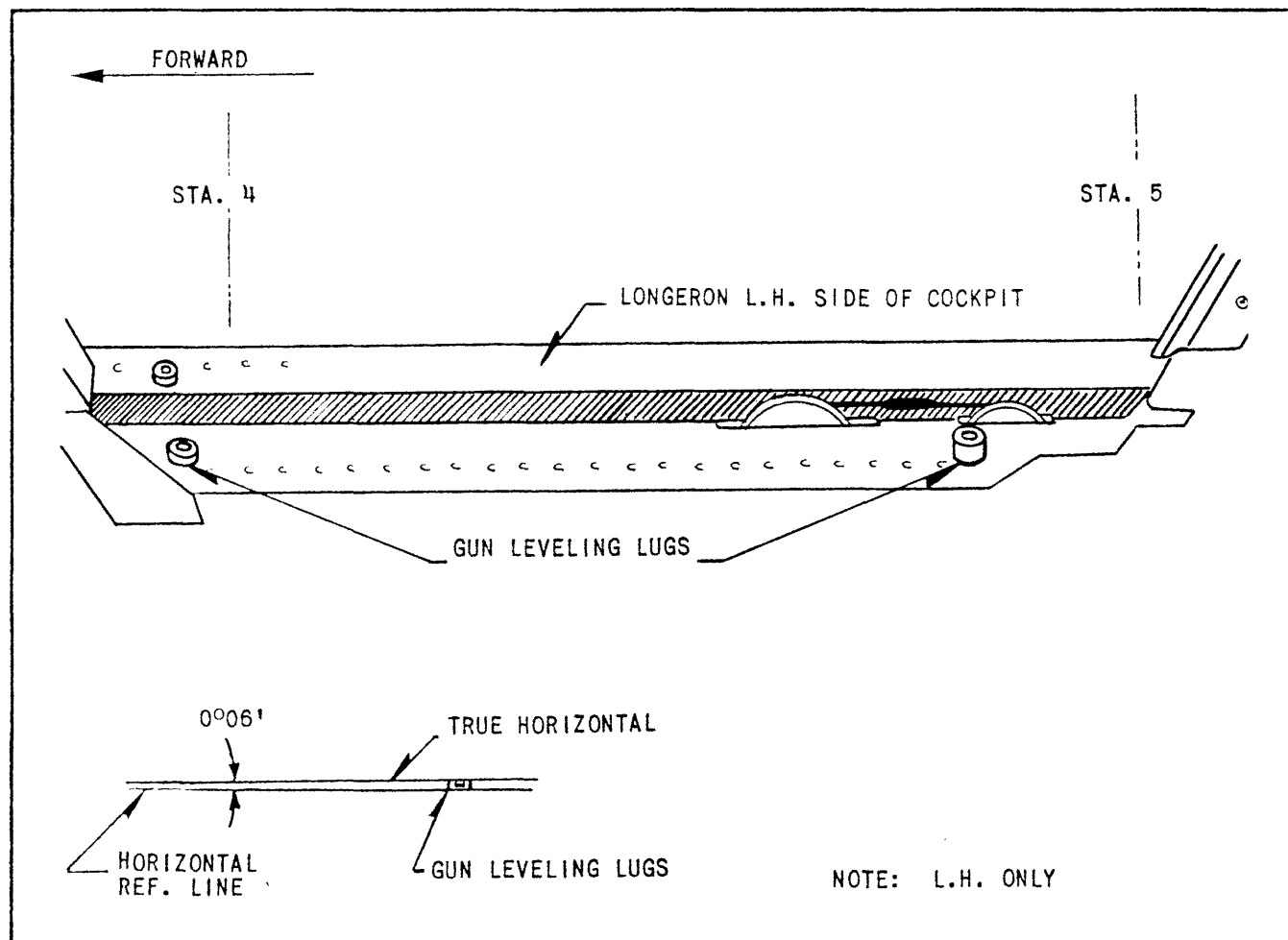


Figure 1

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S.C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

RESTRICTED
T.O. No. 01-25CN-25

the plane an inch or so in order to take a good portion of the weight off the landing gear and in so doing eliminate any deflection.

(2) Place a jack under the jacking point aft of the tail wheel and raise the empennage to the desired height.

NOTE *An alternate method may be used by which a 1-inch round steel bar can be inserted through the appropriate lifting bar socket near the tail and the necessary lifting is then done on either side of this bar. Every precaution must be taken when the airplane is elevated on the jacks to prevent a mishap and damaging effects to the airplane.*

(3) Level the airplane laterally by raising or lowering the appropriate wing jack. Place a surface level, or carpenter's level, on the two lateral leveling lugs located on each side of the cockpit, and bring the level bubble to the center.

c. Place the surface level on fuselage level lugs which are located on the right-hand longeron in approximately the same relative location as the gun leveling lugs have on the left-hand longeron. Adjust the jack under the tail of the ship until the level bubble comes to the center.

NOTE *In cases where the surface level cannot be placed directly on the lugs, a level bar may be used between the surface level and the lugs.*

d. Remove surface level (or level bar, surface level combination) from fuselage leveling lugs and place on gun leveling lugs on left-hand longeron.

e. The forward gun leveling lug should be filed down until the bubble of the surface level passes the center. (See figure 1.)

f. Set a feeler gage to measure 0.036 inch plus or minus 0.001 inch and insert between surface of level (or level bar) and top of forward leveling lug. The bubble of the surface level should now be centered. If not, the forward gun leveling lug should be filed down until bubble rests in center.

NOTE *Extreme care should be taken in filing so that the bar will lie squarely on the lugs.*

g. Check back on fuselage leveling lugs to be sure that ship has remained level. If this checks, airplane will be 0 degrees 06 minutes nose-up when gun leveling lugs are level.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U.S.A.,
Commanding General, Air Service Command.

7 October 1944

AIRCRAFT AND MAINTENANCE PARTS

CURTISS—REPLACEMENT OF OIL SCAVENGER LINE WELDED ELBOWS—P-40N

This Technical Order replaces T. O. No. 01-25CN-28, dated 17 July 1944, revised to amend paragraph 3.a.

NOTE As prescribed in T. O. No. 00-20A, appropriate reference to this Technical Order will be entered on AAF Forms 60-A for the aircraft affected. The work directed herein will be accomplished as soon as practicable by service activities with the aid of base maintenance facilities, if necessary, and by manufacturing and modification establishments when directed by the Procurement Division, Air Technical Service Command, in accordance with F. O. Memo 150-4.

1. PURPOSE.

To eliminate oil leakage by the flanges of elbows, part Nos. SK-6699 and SK-6700, due to warping of the elbow flange seat, an inspection and modification, if necessary, will be accomplished on all P-40N airplanes, prior to and including AF No. 42-106428, as directed in paragraph 2. P-40N airplane, AF No. 43-22752, and subsequent will be modified by the contractor prior to delivery.

2. MODIFICATION.

The instructions for accomplishing this change as contained in Curtiss Service Bulletin 550-37, dated 11 November 1943, are as follows:

- a. Remove bottom cowling.
- b. Inspect oil system installation for elbow, part No. SK-6699, located on the scavenger pump outlet, and elbow, part No. SK-6700, located on the rotary valve inlet. (See figure 1.)
- c. If old elbow, part No. SK-6699, is installed, replace as follows:
 - (1) Drain the oil system.
 - (2) Disconnect oil line, part No. 87-429-1002-43, from elbow, part No. SK-6699, located at the scavenger pump outlet on the lower right-hand side of the engine.
 - (3) Remove elbow, part No. SK-6699, by removing the three attaching nuts, part No. AN960-516.

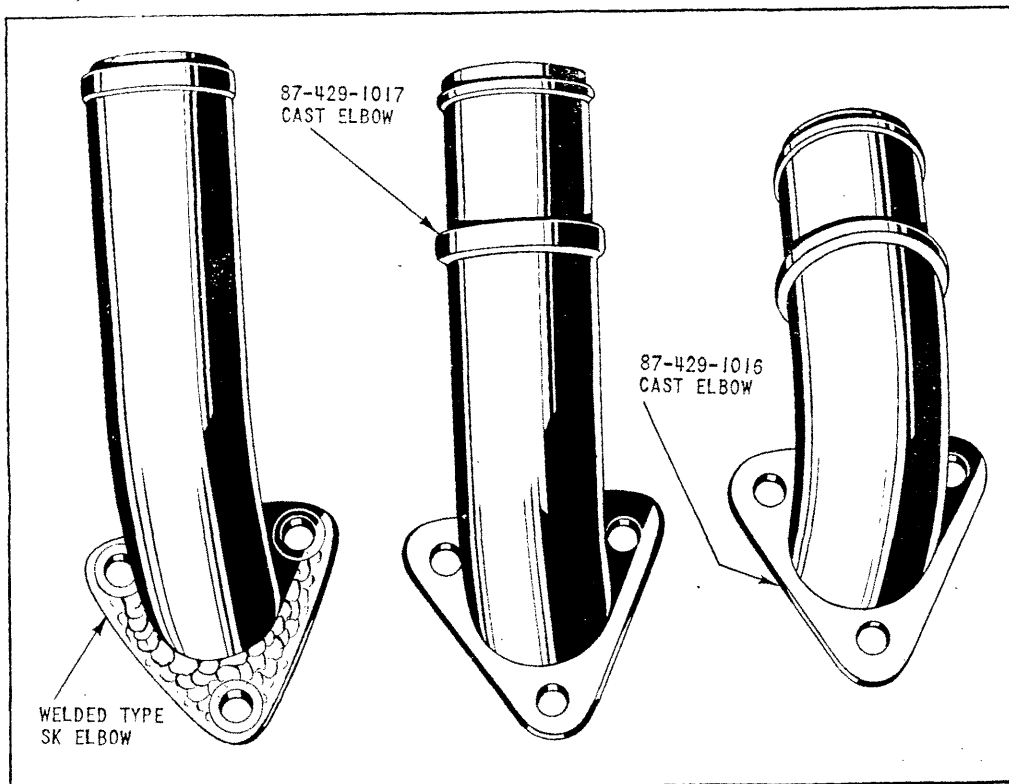


Figure 1

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

R 223

RESTRICTED
T. O. No. 01-25CN-28

(4) Install the new elbow, part No. 87-429-1017, using the three nuts, part No. AN960-516, removed in the preceding operation.

(5) Connect the oil line, part No. 87-429-1002-43, to the new elbow installed in the preceding operation.

d. If old elbow, part No. SK-6700, is installed, replace as follows:

(1) Drain the oil system (unless already accomplished).

(2) Disconnect the oil line, part No. 87-429-1002-43, at the scavenger pump outlet elbow located on the lower right-hand side of the engine (unless already accomplished).

(3) Disconnect the oil line, part No. 87-429-1002-35, at the end of the oil cooler valve located on top of the oil cooler.

(4) Remove oil cooler by removing the four attaching nuts and bolts.

(5) Disconnect the oil line, part No. 87-429-1002-43, from the elbow, part No. SK-6700, located on top of the oil cooler valve.

(6) Remove elbow, part No. 6700, from the top of the oil cooler valve by removing the three attaching nuts, part No. AN960-516.

(7) Install new elbow, part No. 87-429-1016, using the three nuts, part No. AN960-516, removed in paragraph 2.d.(6).

(8) Connect oil line, part No. 87-429-1002-43, to the new elbow installed in preceding operation.

(9) Reinstall oil cooler removed in paragraph 2.d.(4).

(10) Connect oil line, part No. 87-429-1002-35, to the aft end of the oil cooler valve.

(11) Connect oil line, part No. 87-429-1002-43, to scavenger pump elbow.

e. Refill oil system.

f. Reinstall bottom cowl.

3. SUPPLY INFORMATION.

a. The following parts are required per airplane to accomplish this modification:

QTY	STOCK NO.	NOMENCLATURE	CLASS	SOURCE
1	0104-87-429-1017	Elbow - Oil line scavenger	01-C	AF Stock
1	0104-87-429-1016	Elbow - Oil line scavenger	01-C	AF Stock

b. The parts removed and not reinstalled in accordance with the preceding instructions and all like items in stock will be condemned at once, and so tagged for disposition as condemned property.

By Command of General ARNOLD:

Prepared by Miscellaneous Equipment
Section, Maintenance Div, Hq, ATSC.

BENNETT E. MEYERS
Major General, U.S.A.
Deputy Director
Air Technical Service Command

22 July 1944

AIRPLANES AND MAINTENANCE PARTS

CURTISS—INSTALLATION OF DATA CASE—P-40N

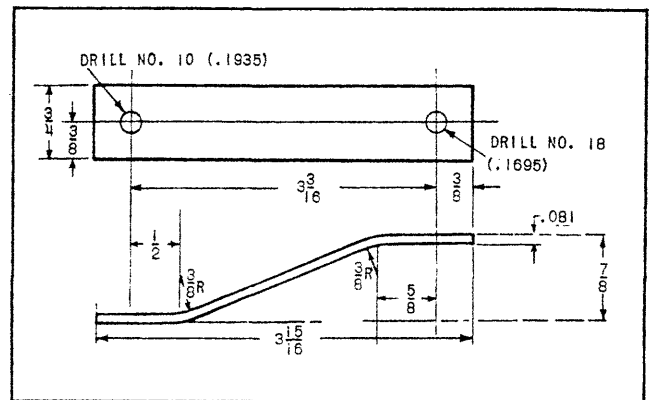
This Technical Order replaces T. O. No. 01-25CN-37, dated 14 February 1944, revised to make corrections to titles of figures.

NOTE As prescribed in T. O. No. 00-20A, 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 practicable by service activities with the aid of base maintenance facilities, if necessary.

1. To provide a suitable container for the "G" file, all P-40N airplanes will be inspected to determine if an approved type data case has been installed on the fuselage access door, part No. 87-21-526, or in the airplane fuselage. A standard aircraft data case, part No. 36G2873, will be installed in accordance with figure 3 in all airplanes not having a data case. The necessary attaching brackets, part Nos. 87-88-621 and 87-88-632, will be manufactured in accordance with the details of figures 1 and 2

2. The following parts are required per airplane to accomplish this change.

Figure 1 - Detail of Bracket, Part No. 87-88-632, for Attaching Data Case to Fuselage Access Door



QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
4	6700-711300	AN515-8-10	Screw - Machine, steel, roundhead 8 - 32 x 5/8 in.	29	AF Stock
4	6700-692050	AN510-10-8	Screw - Machine, steel, flathead 10 - 32 x 1/2 in.	29	AF Stock
4	6500-985300	AN960-10L	Washer - Plain, steel, No. 10 bolt light series	04-A	AF Stock
8	6500-983900	AN960-8	Washer - Plain, steel, No. 8 bolt	04-A	AF Stock
4	6500-523100	364-1032	Nut - Self-locking, thin, steel 10 - 32	04-A	AF Stock
2		87-88-632	Bracket	01-C	Local Mfr.
			Mfr. from: (See figure 1.)		
			Alum. Alloy - Sheet, condition A annealed, .081 in., Specification No. QQ-A-362, stock No. 6800-141880	23-A	AF Stock
1		87-88-621	Bracket	01-C	Local Mfr.
			Mfr. from: (See figure 2.)		
As req			Alum. Alloy - Sheet, condition A annealed, .081 in., Specification No. QQ-A-362, stock No. 6800-141880	23-A	AF Stock
1	4500-188000	36G2873	Case - Aircraft data	03-F	AF Stock

By Command of General ARNOLD:

Prepared by Aircraft Section,
Maintenance Div, Hq, ASC.

DELMAR H. DUNTON,
Major General, U. S. A.,
Commanding General, Air Service Command.

See Following Drawings

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

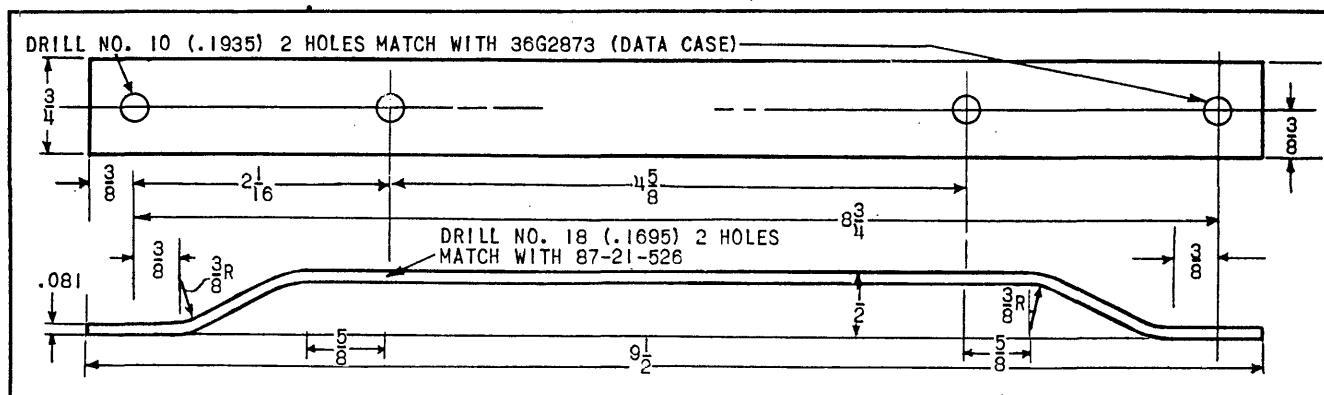


Figure 2 - Detail of Bracket, Part No. 87-88-621, for Attaching Data Case to Fuselage Access Door

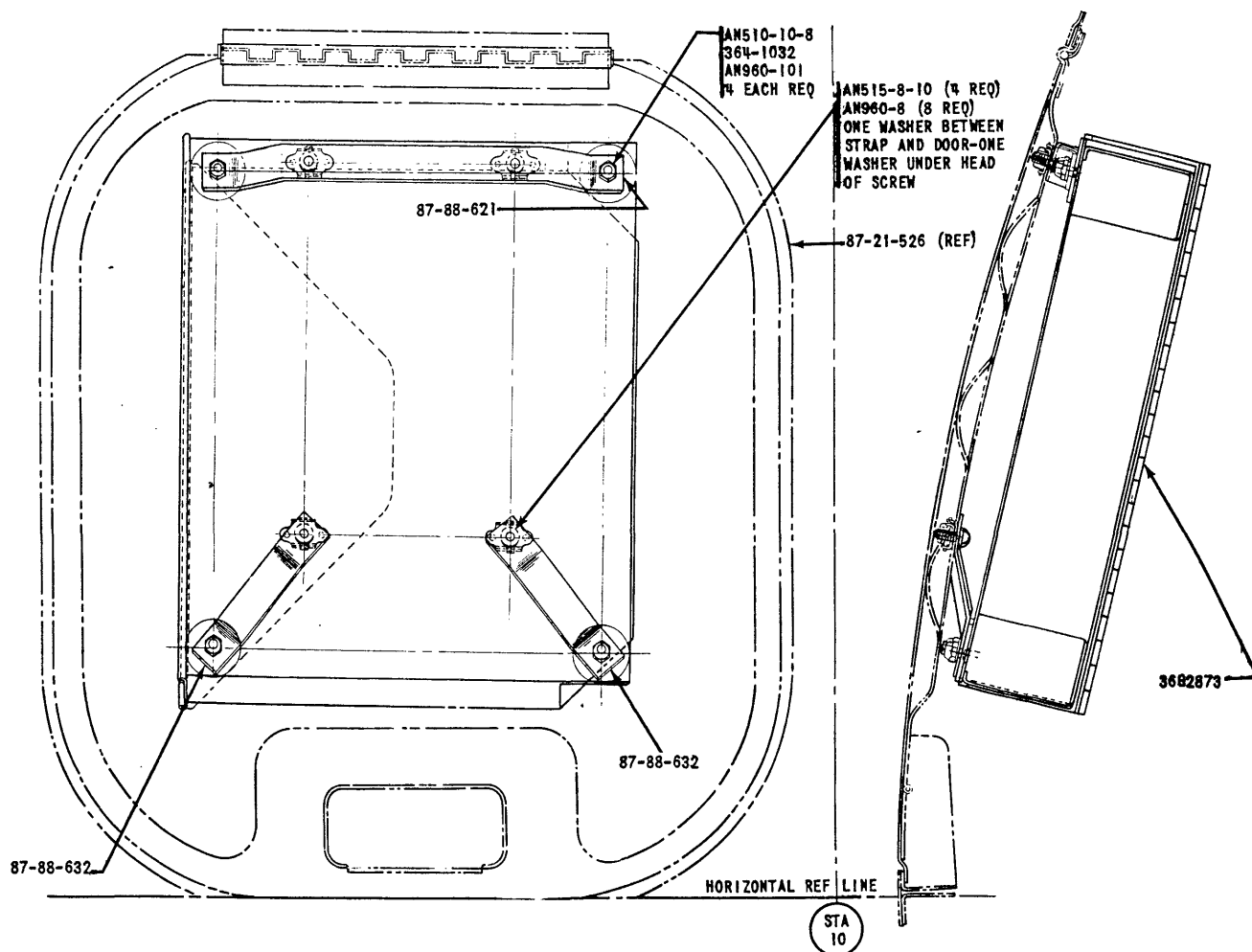


Figure 3 - Installation of Data Case, Part No. 36G2873

P9224
March 10, 1944

AIRPLANES AND MAINTENANCE PARTS

CURTISS—REWORK OF REAR COOLER EXIT DUCT—P-40N

NOTE The provisions of T. O. No. 00-20A will be complied with in this case, these instructions being 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 sub-depots, if necessary. Parts in stock will be reworked prior to issue.

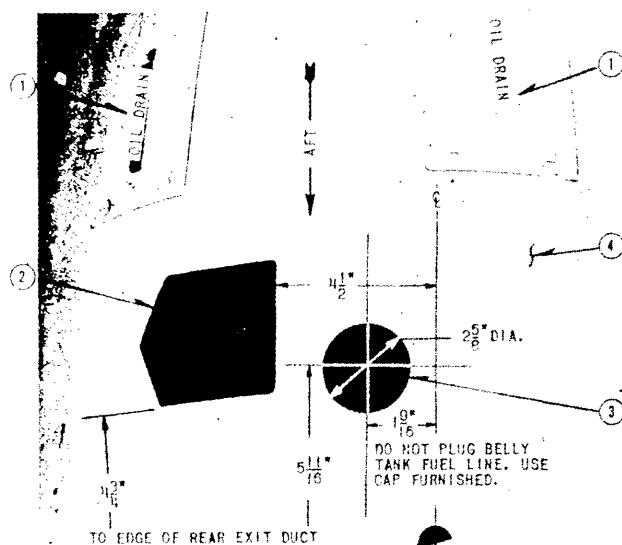
1. To provide better access to auxiliary fuel pump and add a floating grommet for belly tank fuel line, the following airplanes will be reworked in accordance with the instructions contained in paragraph 2.

MODEL	AF SERIAL NOS.
P-40N	42-104429 to 42-104828 inclusive 43-22752 to 43-23651 inclusive

P-40N airplanes, AF No. 43-23652, and subsequent will be modified by the contractor prior to delivery.

2. The instructions for accomplishing this change as contained in Curtiss Service Bulletin 550-41, dated January 20, 1944, are as follows:

- Remove side and bottom engine cowl, left/right, and front wing fairing.
- Disconnect cowl flap control rods from cowl flaps and remove cowl flap assembly from airplane.
- Remove rear cooler exit duct. Remove from duct the existing cover plate and nut plates at the auxiliary pump access hole. Remove existing grommet from belly tank fuel line hole.



REF	PART NO.	DESCRIPTION
1		Oil Drain (Ref)
2		Aux Fuel Pump Cut-Out Match With Door Figure 2
3		Hole For Belly Fuel Line
4	87-730-1035	Rear Cooler Exit Duct (Ref)

Figure 1 - Modification Rear Cooler Exit Duct

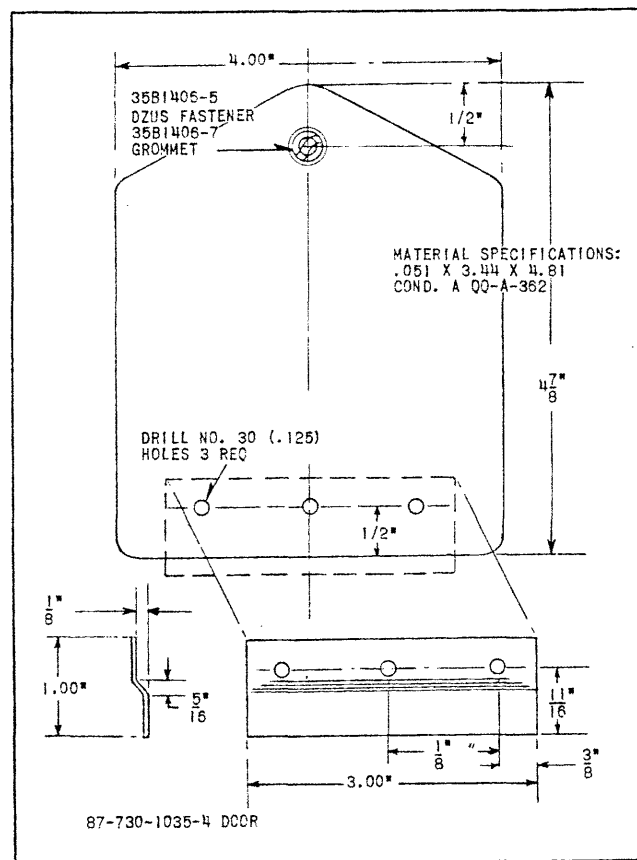


Figure 2 - Detail for Fabrication of Door and Clip

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

pg 227

RESTRICTED
T. O. No. 01-25CN-39

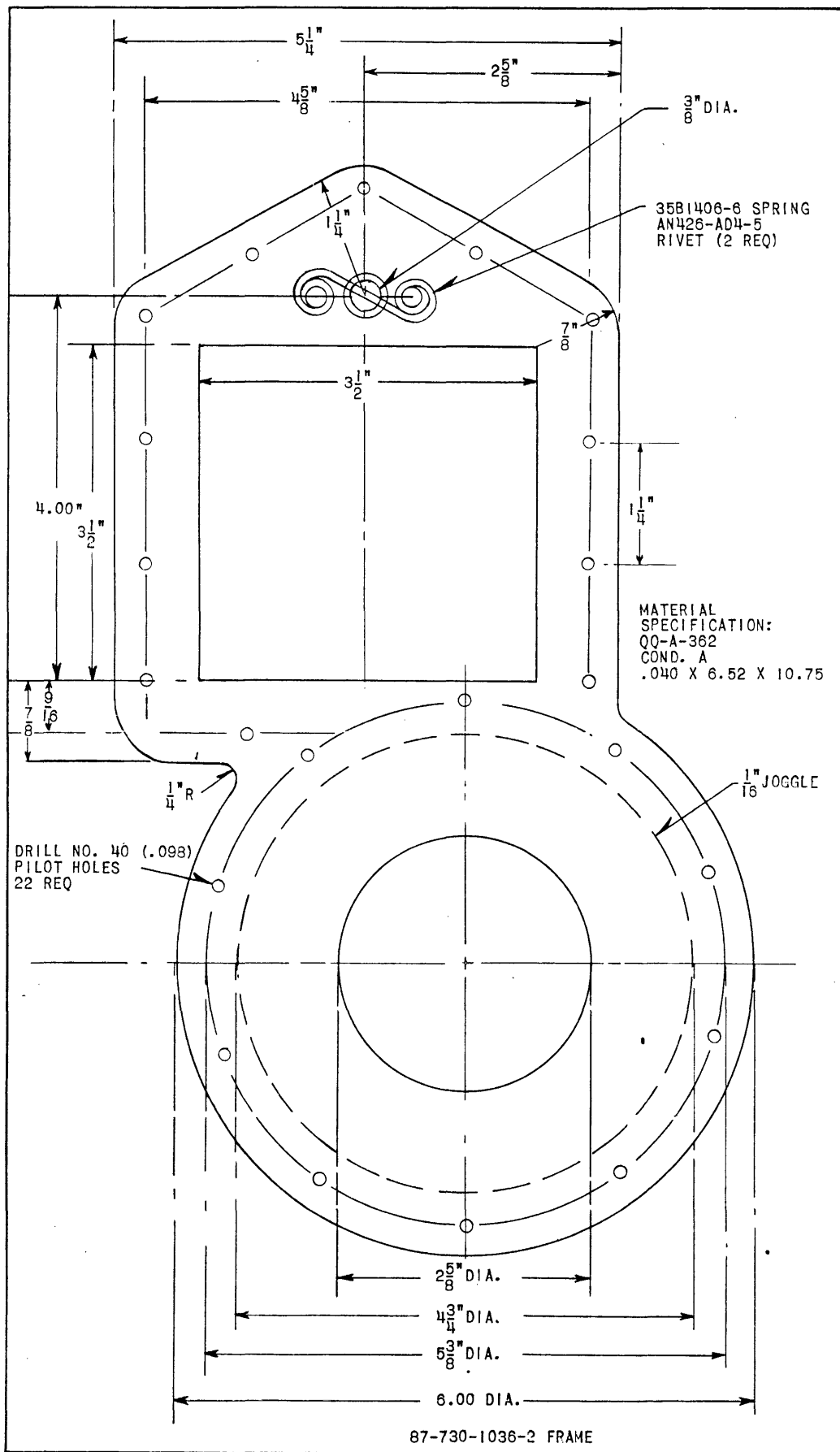


Figure 3 - Detail
for Fabrication of
Frame, Part No.
87-730-1035-2

P5228

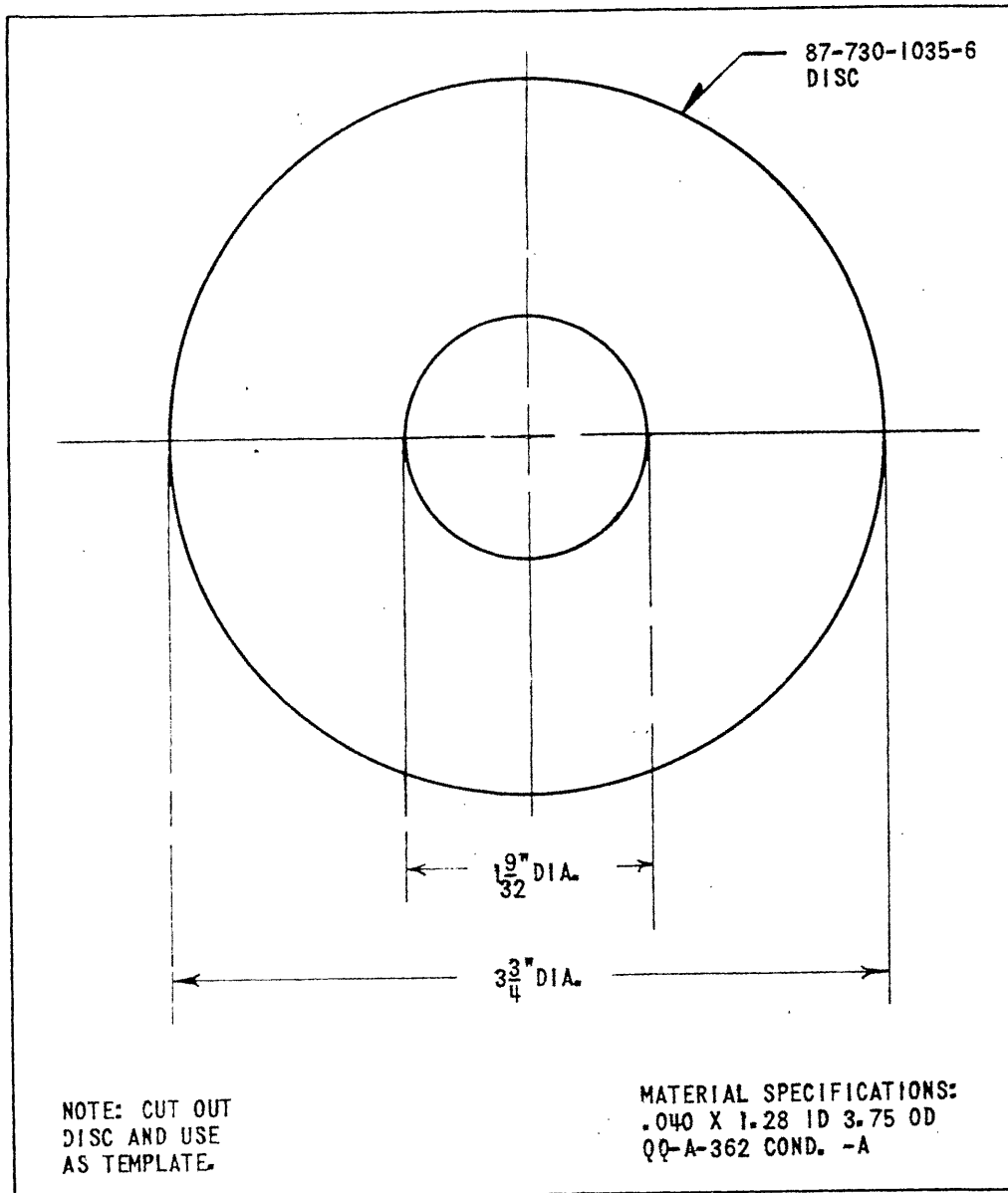
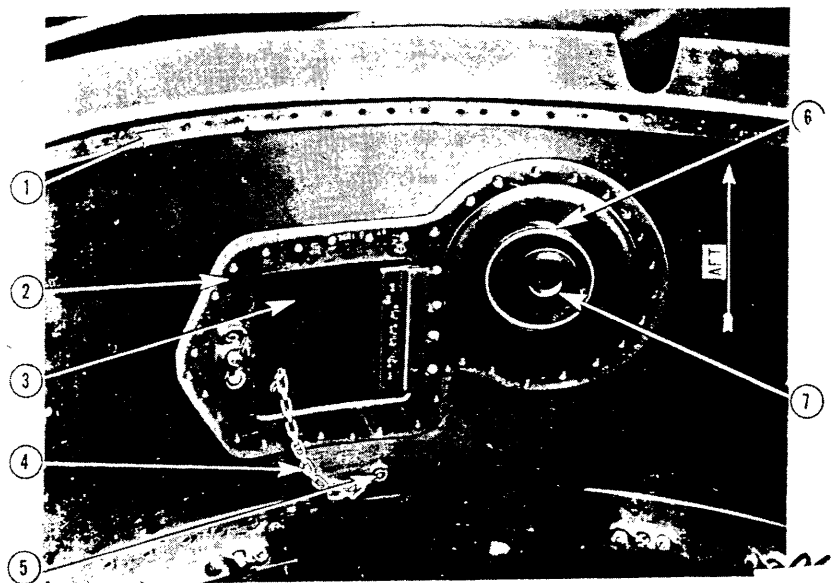


Figure 4 - Detail for
Fabrication of Disc To
Be Used as Template

Figure 5 - Showing
Installation of Frame,
Part No. 87-730-1035-6,
on Inner Surface of Exit Duct

REF	PART NO.	DESCRIPTION
1	87-730-1035	Rear Cooler Exit Duct
2	87-730-1035-2	Frame
3	87-730-1035-4	Door
4	No. 0	Brass Chain
5	AN456AD4-8	Rivet
	AN960-D-6	Washer
6	87-730-1035-6	Disc
7	AN931-14-20	Grommet



PS 229

RESTRICTED
T. O. No. 01-25CN-39

d. Cut two holes in the skin of the exit duct as shown in figure 1.

e. Fabricate access door, part No. 87-730-1035-4, as shown in figure 2. Fabricate clip, part No. 87-730-1035-5, as shown in figure 2. Drill three No. 30 (.125-inch) holes in clip and door as shown in figure 2 and install clip on door using three rivets, part No. AN425AD4-8. Install Dzus fastener, part No. 35B1406-5, and grommet, part No. 35B1406-7, in fabricated door.

NOTE Rivet holes in door are to be dimpled to accommodate countersunk rivets.

f. Fabricate frame, part No. 87-730-1035-2, as shown in figure 3. Install spring, part No. 35B1406-6, in frame using two rivets, part No. AN426AD4-5.

g. Fabricate disc, part No. 87-730-1035-6, as shown in figure 4. Install one grommet, part No. AN931-14-20, in outer hole.

h. Locate frame, part No. 87-730-1035-6, on the inner surface of the exit duct as shown in figure 5, and

drill 22 size No. 30 (.1285-inch) holes in exit duct to match holes in frame.

NOTE Bend frame to conform with curved skin of exit duct.

i. Install frame to exit duct placing disc, part No. 87-730-1035-6, between frame and skin, using 22 rivets, part No. AN425AD4-8.

j. Install one end of chain to access door fabricated in paragraph 2.e. using one rivet, part No. AN456AD4-8, and one washer, part No. AN960-D-6, as shown in figure 5.

k. Install other end of chain to the exit duct skin as shown in figure 5, using one rivet, part No. AN456AD4-8, and one washer, part No. AN960-D-6. Install door as shown in figure 5.

l. Reinstall the rear cooler exit duct cowl flaps and connect the control rods. Reinstall the front wing fairing, side and bottom cowlings.

3. The following parts are required per airplane to accomplish this change.

QTY	STOCK NO.	PART NO.	NOMENCLATURE	CLASS	SOURCE
1	6600-321500	AN931-14-20	Grommet	04-B	AF Stock
As req	6700-188120		Chain - Safety brass No. 0	29	AF Stock
2	6500-983800	AN960-D-6	Washer	04-A	AF Stock
2	6700-482505	AN456AD4-8	Rivet	29	AF Stock
1	6500-442815	35B1406-7	Grommet	04-A	AF Stock
1	6500-916530	35B1406-5	Stud - Cowling fastener (Dzus)	04-A	AF Stock
1	6500-914319	35B1406-6	Spring - Cowling fastener	04-A	AF Stock
2	6700-489141	AN426AD4-5	Rivet	29	AF Stock
25	6700-489550	AN425AD4-8	Rivet	29	AF Stock
1		87-730-1035-4	Access Door	01-C	Local Mfr.
			Mfr. from:		
As req			Alum.-alloy Sheet .040 Condition A, Specification No. QQ-A-362, stock No. 6800-141850	23-A	AF Stock
		87-730-1035-5	Clip	01-C	Local Mfr.
			Mfr. from:		
As req			Alum.-alloy Sheet .051 Condition A, Specification No. QQ-A-362, stock No. 6800-141860	23-A	AF Stock
		87-730-1035-2	Frame	01-C	Local Mfr.
			Mfr. from:		
As req			Alum.-alloy Sheet .040 Condition A, Specification No. QQ-A-362, stock No. 6800-141850	23-A	AF Stock
		87-730-1035-6	Disc	01-C	Local Mfr.
			Mfr. from:		
As req			Alum.-alloy Sheet .040 Condition A, Specification No. QQ-A-362, stock No. 6800-141850	23-A	AF Stock

a. Parts removed and not reinstalled will be disposed of in accordance with AAF Regulation 65-43.

b. Weight change as a result of this modification is negligible.

By Command of General ARNOLD:

WALTER H. FRANK,
Major General, U. S. A.,
Commanding General, Air Service Command.

Prepared by Aircraft Section,
Maintenance Div, Hq, ASC.

P5230

RESTRICTED

HEADQUARTERS, ARMY AIR FORCES
WASHINGTON 25, D.C.

TECHNICAL ORDER
No. 01-25CN-43

31 July 1944

AIRCRAFT AND MAINTENANCE PARTS

CURTISS - MODIFICATIONS OF SUPERCHARGER SCROLL DRAIN LINE - P-40N SERIES

NOTE: The publication of this Technical Order has been expedited as the instructions contained herein are of vital importance and should be disseminated to all affected personnel without delay. As prescribed in T. O. No. 00-20A, appropriate reference to this Technical Order will be entered on AAF Forms 60-A for the airplanes affected. The work prescribed herein will be accomplished immediately by service activities with the aid of base maintenance facilities, if necessary, and by manufacturing and modification establishments under the jurisdiction of the Materiel Command.

1. To prevent coolant solution from being drawn into the induction system and to prevent excessive suction on seals of the coolant and fuel pumps the modification as described in paragraph 2. will be accomplished immediately on all P-40N series airplanes in which the coolant pump drain and/or fuel pump drain and supercharger scroll drain are connected to a common drain.

2. Instructions for accomplishing this change are as follows:

a. Remove all necessary engine cowling to gain access to supercharger scroll drain.

b. Cut the 3/8-inch supercharger drain line between the supercharger scroll and the fuel pump drain line "T" connection approximately 2 inches from "T" connection. Remove supercharger drain line.

NOTE: In P-40 airplanes having a separate drain for the fuel pump the scroll drain will be cut above the coolant drain line "T".

c. Plug the "T" connection from which the line in paragraph b. was removed by crimping the portion of tube remaining on "T".

d. Install a new 3/8-inch aluminum, Specification No. WW-T-787 wall .035 or heavier drain line from the supercharger scroll.

e. Route and clamp with Adel clips, the new supercharger scroll line parallel to the existing fuel and coolant pump drain line.

NOTE: The new line must terminate even with and in the same manner as the remaining fuel and coolant pump drain line.

By Command of General ARNOLD:

Prepared by	CLEMENTS McMULLEN,
Accessories Section,	Major General, U.S.A.,
Maintenance Div; Hq, ASC.	Commanding General, Air Service Command.

NOTICE: This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

