

Beech Aircraft Corporation
Wichita 1, Kansas

April 8, 1949

0-49-43

TO ALL BEEHCRAFT BONANZA OWNERS:

Starter Modification

This letter is to advise all owners of BEEHCRAFT Bonanzas prior to Serial D-1950 that the factory has developed and now has available through the BEEHCRAFT distributing organizations a vastly improved starter modification on an exchange basis.

This modification incorporates the use of an Eclipse E-80 heavy duty type electric direct cranking starter which will produce more starting torque for the Continental E-185-1 Engine. BEEHCRAFT Bonanzas Serials D-1950 and after will have the improved starter system installed as standard factory equipment.

For those owners desiring to convert their present starter systems, arrangements have been made with all BEEHCRAFT Distributors and Dealers to handle the kit at a special exchange price of \$150. Installation charges will be at the owner's expense and the modification will require the removal of the engine and the disassembly of the accessory case. It is, therefore, the factory's recommendation that, unless considerable trouble is being experienced with the present starter, the owner have the new starter installed at the next regular engine overhaul.

Very truly yours

BEECH AIRCRAFT CORPORATION



O. Lee Elrick
Parts Sales Manager

OLE:jgn

Remove engine from airplane and remove all accessories and accessory case from engine in accordance with Continental Service Manual.

I. ACCESSORY CASE MODIFICATION (Fig.1)

A. Remove the three studs indicated by arrow from starter mounting pad, and replace with three oversize studs, Part No. 531005-003, identified by pointed end. Set studs to 1.19 inch height above face of accessory case. Do not drive studs in to shoulder, drive to height shown.

After the modifications to the crankcase are completed in accordance with Step 4 of this bulletin, reassemble the accessory case on the crankcase, using a new gasket, Part No. 352069.

B. After the accessory case has been reinstalled on the crankcase, install gaskets, adapter plate, and starter as shown below.

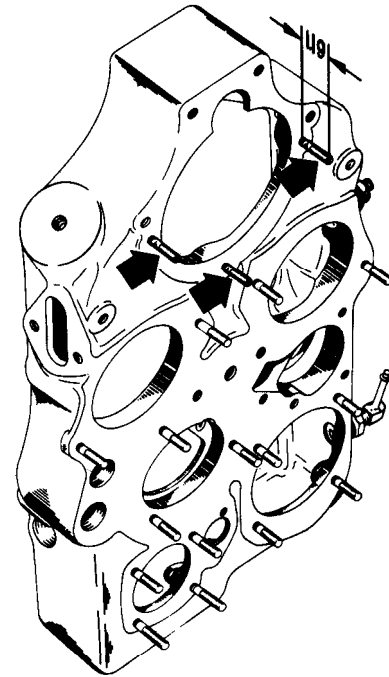


Fig. 1

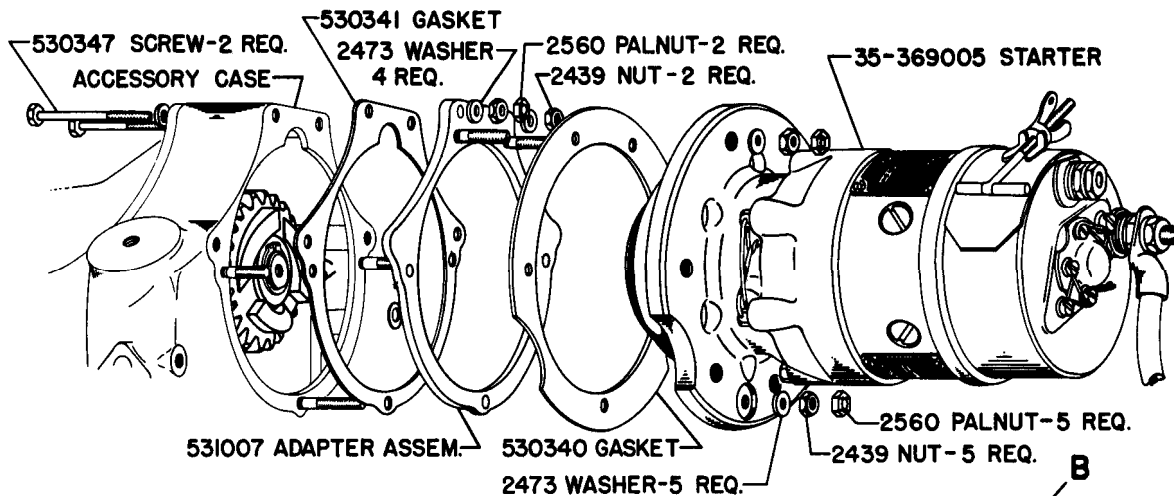


Fig. 2

II. CRANKCASE MODIFICATION (Fig. 3)

- A. Loosen top rear crankcase through bolt.
- B. Remove cotter pins, castle nuts, and starter pivot; remove starter pivot studs from crankcase; and discard all the above parts.
- C. Remove cam drive gear; do not discard.
- D. Remove accessory drive gear and discard.

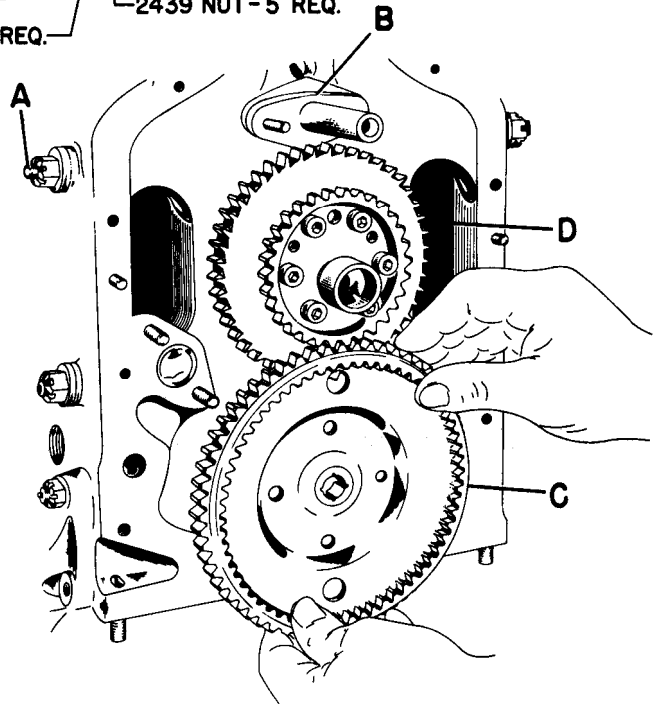


Fig. 3

E. Install 530343 starter pivot assembly with two each 530346 screws and 530878 tab washers as shown in Fig. 4. Bend tab washers as shown to lock screws.

NOTE: The 530343 starter pivot must fit tightly in the hole in the crankcase. On a few engines, the hole is reamed .010 oversize, and these engines are identified by an .010 stamped adjacent to the hole. Special .010 oversize pivots may be ordered from the Parts Sales Department of Beech Aircraft Corporation for these engines. The airplane and engine serial numbers must be furnished when ordering these special pivots.

F. Be sure to retighten and lock through bolt. (-375-425 inch pounds)

G. Install starter gear assembly 530338 with 530339 washer and 530345 lock ring as shown in Fig. 5.

H. Reinstall cam drive gear and lock wire. Note that one hole is offset, so the gear can be installed in only one position.

I. Install new accessory drive gear 530342 and lock wire. Note that this gear has one offset hole, so it can be installed in only one position. Starter gear and accessory drive gear must have .005 min. backlash. Check with feeler gage between teeth. The accessory drive gear must be installed with the tooth with the timing mark on the cam drive gear between the two teeth with timing marks on the accessory drive gear.

III. ENGINE DESIGNATION CHANGE

Accomplishment of the above modifications changes the engine designation from E-185-1 to E-185-8. Also stamp a 'C' after the serial number to denote conversion (Fig. 6). Change the engine nameplate, the engine log book, and the airplane log book to agree. A Repair and Alteration form, Form 337, must be accomplished for this modification. The total weight change is a reduction of two pounds at a moment arm of 44 inches.

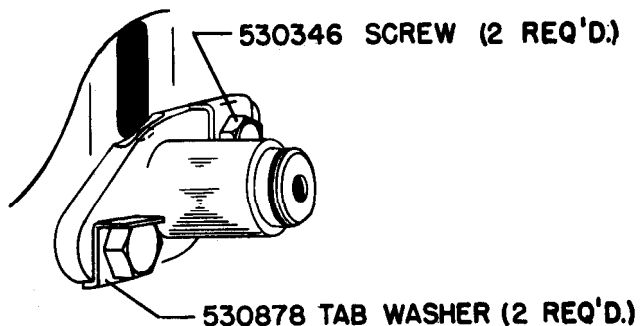


Fig. 4

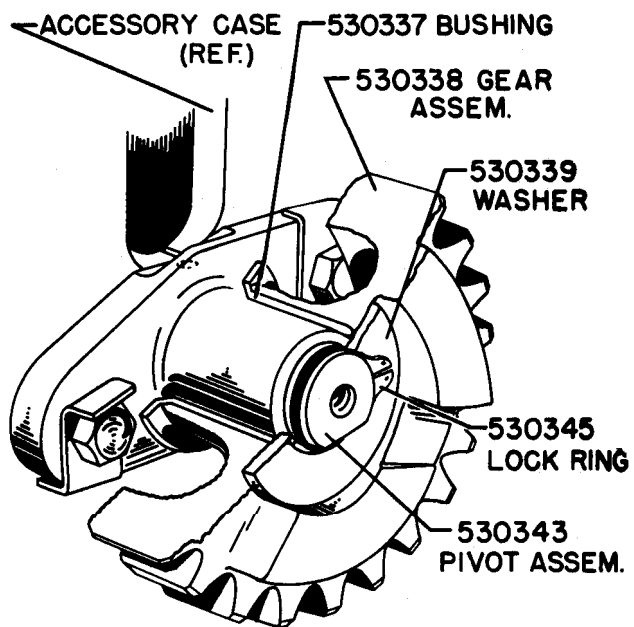


Fig. 5

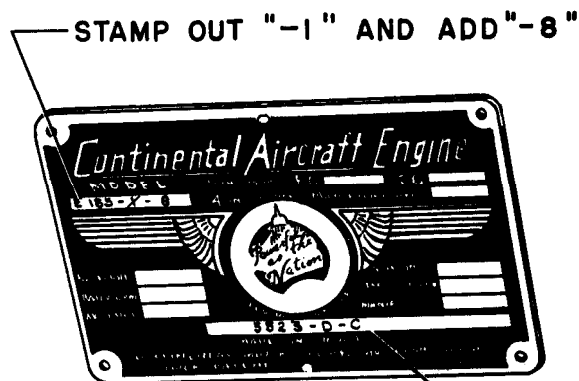


Fig. 6

A. Rework of firewall center channel - all serial numbers. With the engine and hood removed, rework the firewall center channel as shown in fig. 7 and Fig. 8.

1. Measure one inch forward of firewall.
2. Measure 4-1/4 inch down from top of center channel.

Cut out front portion of channel for a distance of 7-5/8 inches as shown.

4. Locate angle reinforcement No. 35-415379, 1/4 inch up from top of cross duct and fasten with eight 1/8-inch rivets in pilot hole locations, two reinforcements required. Cutout on angle is located on right-hand side to clear starter relay.

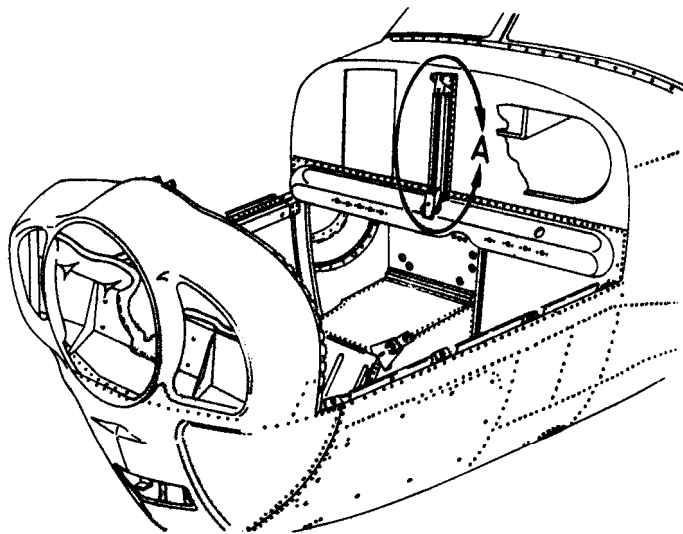


Fig. 7

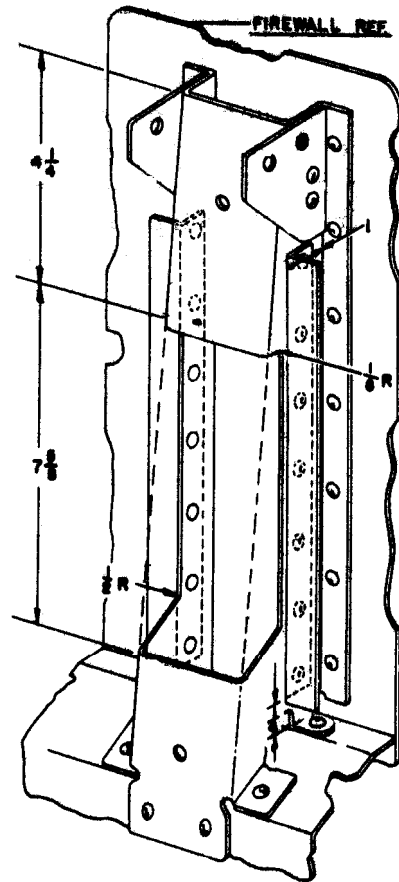


Fig. 8

B. Rework of Generator Blast Tube

1. Serial D-1 to D-150

Since no generator blast tube is installed in Serials D-1 to D-150, no rework is required and the plastic hose provided in the kit may be discarded.

2. Serial D-151 and after

Cut off present generator blast tube as shown Fig. 9.

- b. Install plastic hose supplied in kit on blast tube inlet on firewall and on generator, and route tube around outside of magneto. Rotate the brush cover on the generator so the plastic tube has no sharp bends. Fasten with clamps provided in kit.

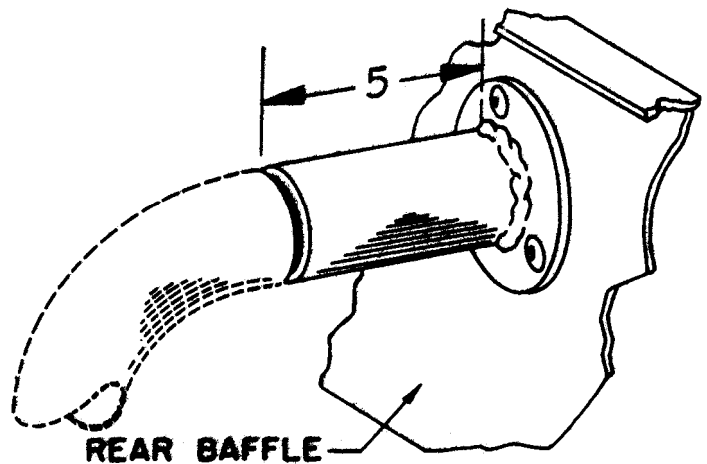


Fig. 9

C. Wiring Changes. After the engine has been reinstalled in the airplane, make the following changes in the starter wiring circuits:

NOTE: This change completely eliminates the latching relay and the pre-rotation resistor. These parts and all associated wiring may be removed from the airplane.

1. Serial D-1 to D-1116, inclusive. (Fig. 10)
These instructions assume that Service Letter No. 10 has been accomplished.

- a. Attach Wire P-53 to (✓) terminal on starter.
- b. Attach one end of new Wire P-68 to battery 'negative' at firewall stud.
- c. Attach other end of P-68 under nut on starter mounting pad.

2. Serial D-1117 to D-1884, inclusive.

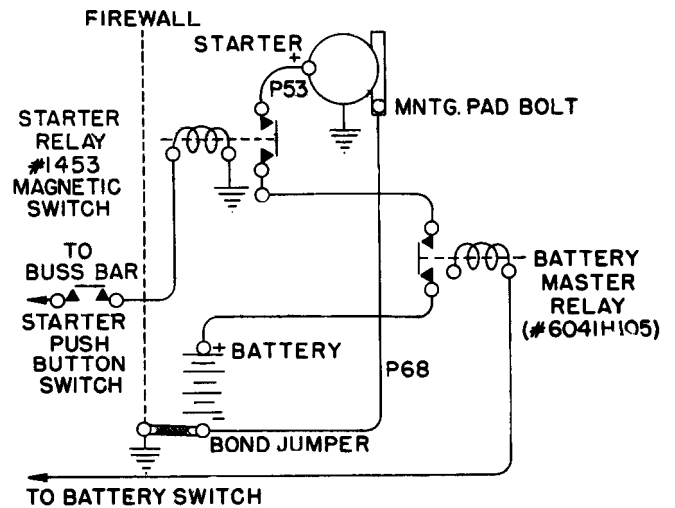
- a. Attach Wire P-53 to (✓) terminal on starter.
- b. Remove battery and battery box from airplane and drill holes in box and firewall as in Fig. 11.
- c. Install stud in firewall as shown.
- d. Attach one end of new Wire P-68 to stud at forward side of firewall, fasten other end under starter mounting nut.
- e. Install AN931-9-5-13 grommet in hole in side of battery box, reinstall battery box, and install battery ground strap from (-) battery post to stud in firewall.

3. Serial D-1885 and After. (Fig. 12)

- a. Fasten one end of Wire P-53 to large post on starter magnetic switch. The other end of P-53 remains attached to the battery master relay.
- b. Install new Wire P-75 (2-gauge copper, eight inches long) from the other large post on starter magnetic switch to the (✓) terminal on the starter.

V. CREDIT INSTRUCTIONS

Fill in the airplane serial number on the "Return for Investigation" tag included with each kit, attach the tag to the original starter and return to Beech Aircraft Corporation, Wichita 1, Kansas, transportation prepaid. Upon receipt of this original starter, a credit will be allowed the BEEHCRAFT distributor or direct factory dealer.



TO BATTERY SWITCH
DIAGRAM E80 STARTER CIRCUIT
AIRPLANE SERIAL D1 TO D1116 INCL.
Fig. 10

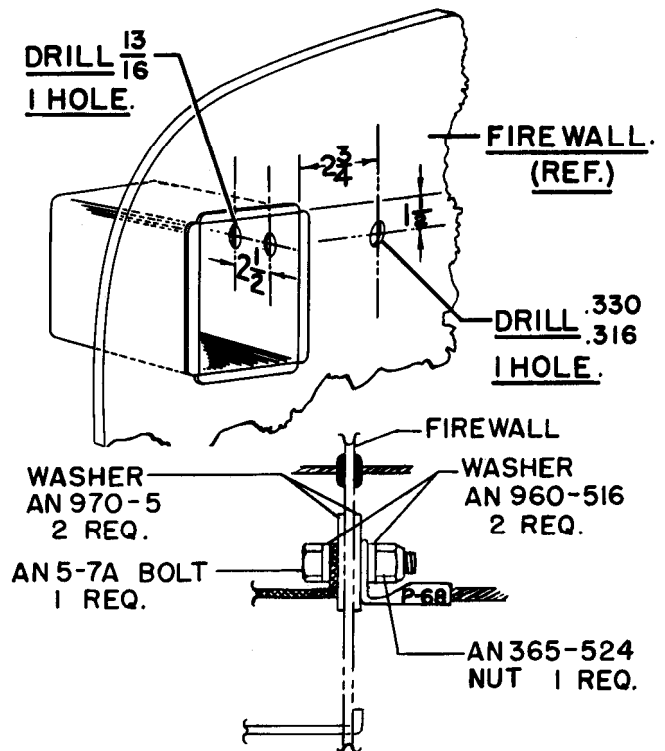


Fig. 11

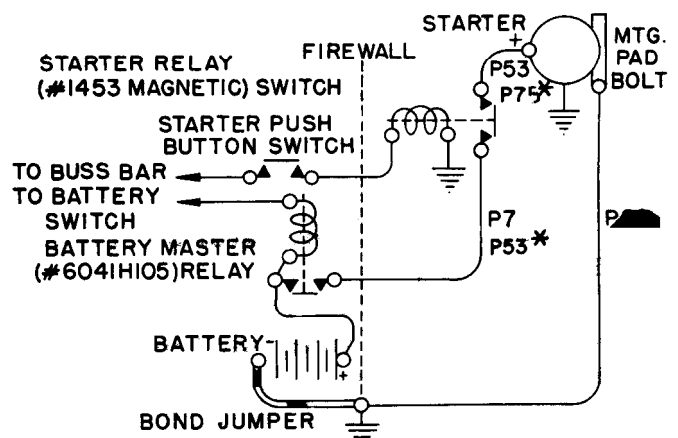


DIAGRAM E 80 STARTER CIRCUIT
AIRPLANE SERIAL D1117 TO 1884 INCL.
* SERIAL D1885 & AFTER

Fig. 12