Beechcraft

CLASS II

SERVICE INSTRUCTIONS

19, 23, 24

No. 0487-359
ATA Code 24-30

SUBJECT:

ELECTRICAL - ALTERNATOR - PART I, INSPECTION OF ALTERNATOR MOUNTING BRACKET; PART II, INSTALLATION OF NEW ALTERNATOR HOUSING THROUGH BOLTS; PART III, CLEARANCE CHECK BETWEEN ALTERNATOR AND ALTERNATOR MOUNTING BRACKET; PART IV, RE-CLAMPING OF ALTERNATOR WIRING BUNDLE.

EFFECTIVITY:

Part I. BEECHCRAFT Model B19, serials MB-481 through MB-520;
Sport B19, serials MB-521 through MB-530;
Model C23, serials M-1285 through M-1361;
Sundowner C23, serials M-1362 through M-1373;
Model A24, serials MA-364 through MA-368;
Model A24R, serials MC-2 through MC-95;
Sierra A24R, serials MC-96 through MC-99.

Part II. The following airplanes if equipped with an alternator having a manufacturing date of March 25, 1971 or earlier stamped in ink on the rear housing:
BEECHCRAFT Model B19, serials MB-481 through MB-510, MB-513, MB-516 through MB-518, and MB-520;
Sport B19, serials MB-521 and MB-522;
Model C23, serials M-1285 through M-1351, M-1353, M-1354, M-1356 through M-1359, and M-1361;
Sundowner C23, serials M-1362, M-1363, M-1365, M-1367, and M-1369;
Model A24, serials MA-364 through MA-368;
Model A24R, serials MC-2 through MC-22, MC-24 through MC-42, MC-44 through MC-70, MC-72, MC-73, MC-75, MC-76, MC-79 through MC-81, MC-84 through MC-86, MC-89 through MC-92, and MC-95.

Part III. The models and serials affected by Part III of these Service Instructions are the same models and serials affected by Part I.

Part IV. BEECHCRAFT Model B19, serials MB-481 through MB-513, MB-516 through MB-518, and MB-520;
Sport B19, serial MB-521;
Model C23, serials M-1285 through M-1351, M-1353, M-1354, and M-1356 through M-1361;
Sundowner C23, serials M-1363, M-1364, and M-1366;
Model A24, serials MA-364 through MA-368;

CLASS II

AW-754, AW-758, AW-767, AW-817

872

Model A24R, serials MC-2 through MC-95;
Sierra A24R, serial MC-96.

REASON:

Parts I and III. To prevent damage to the alternator mounting bracket.

Part II. To preclude separation of the alternator front and rear housings.

Part IV. To prevent the alternator wiring bundle from contacting the adjacent exhaust stack.

COMPLIANCE:

At the next scheduled inspection.

DESCRIPTION:

Part I. The alternator and alternator mounting bracket are to be removed. The bracket is to be inspected for cracks and replaced if cracks are detected.

Part II. The three alternator housing through bolts are to be removed and replaced with bolts having a higher tensile strength.

Part III. The clearance between the alternator and the alternator mounting bracket is to be measured, and reduced if necessary, by installing laminated washers between the alternator and bracket.

Part IV. The existing ties securing the alternator wiring bundle in the engine compartment are to be removed, and the alternator wiring bundle secured at the engine case and to the oil drainback tube of each right hand engine cylinder.

APPROVAL:

FAA Approved - DOA CE-2.

MANPOWER:

Parts I and III. Estimated man-hours: 2.5 hours; 3.0 hours if laminated washers are installed. Suggested number of men: 1 man.

Part II. Estimated man-hours: .5 hour if performed in conjunction with Parts I and III; 1.8 hours if performed separately. Suggested number of men: 1 man.

Part IV. Estimated man-hours: .5 hour. Suggested number of men: 1 man.

MATERIAL:

Parts required for modification are available through the BEECHCRAFT Sales and Service Outlets. The attaching hardware for Part IV of these Service Instructions (one each MS20074-05-04 /M/ bolt, AN936A516 lock washer, AN960-516L washer, MS21919F6 clamp, AN525-10R9 screw, MS21042L3 or NAS679A3 nut, and AN960-10 washer) may be obtained locally. Warranty credit will be allowed for those parts tabulated here that are required, and for labor not to exceed the man-hours as listed under MANPOWER. Warranty claims must

be submitted prior to April 30, 1973. All orders for parts should be accompanied by the information that the parts are on warranty request.

	NEW P/N	OLD P/N	DESCRIPTION	QUANTITY
Part I	No P/N change	76906	Bracket	1 per aircraft
Part II	DIFF10A396AA	C8FF10A396A	Bolt	3 per aircraft
	No P/N change	C8FF10B383A	Locking Tab Retainer	3 per aircraft
Part III	169-910017-43	None	Laminated Washer	As required
Part IV	169-910017-51	None	Clip	1 per aircraft
	TY28M	None	Nylon Clamp	2 per aircraft

SPECIAL TOOLS: None.

WEIGHT AND BALANCE: None.

REFERENCES: None.

PUBLICATIONS AFFECTED: It is recommended that a note be made on Figures 241B, 241C, 241D, 241E, and 359A of all parts catalog copies to "See Service Instructions No. 0487-359."

ACCOMPLISHMENT INSTRUCTIONS: Modification is described in the following procedures. Before beginning any work it will be necessary to remove the engine cowling.

PART I. INSPECTION OF ALTERNATOR MOUNTING BRACKET

1. Make certain that the battery master switch is off.

2. Remove the alternator from the engine. Note installation details such as the alternator electrical connections, attaching parts, and lock wire on attaching parts to insure correct reinstallation.

3. Remove the alternator mounting bracket from the engine.

4. Perform a visual inspection of the alternator mounting bracket for cracks. If cracks are detected, obtain a new 76906 bracket.

5. Install the 76906 alternator mounting bracket on the engine and torque the four bracket attaching bolts to 110 to 150 inch-pounds.

PART II. INSTALLATION OF NEW ALTERNATOR HOUSING THROUGH BOLTS

1. Verify that the alternator has a manufacturing date of March 25, 1971 or earlier stamped in ink on the rear housing. Do not perform Part II of these procedures if the alternator displays a manufacturing date later

than March 25, 1971.

2. If Parts I and III of these procedures are not required, remove the alternator from the engine as described in Part I, Steps 1 and 2.

3. Carefully remove the three existing brass colored through bolts securing the alternator front and rear housings together, and discard the bolts.

CAUTION

Always loosen and tighten the three through bolts alternately in several stages to avoid placing excessively uneven compression forces on the alternator front and rear housings.

4. Replace the discarded bolts with three DIFF10A396AA bright steel bolts, and place a new C8FF10B383A locking tab retainer under each bolt head.

5. Apply a final torque of 45 to 55 inch-pounds to the DIFF10A396AA bolts, making certain that at least one locking tab is tight against a flat on each bolt head when the locking tabs are folded for bolt retention.

6. If Parts I and III of these procedures are not required, place the alternator in position on the engine without tightening the attaching bolts, then reinstall the alternator by referring to Part III, Steps 3 through 6.

PART III. CLEARANCE CHECK BETWEEN ALTERNATOR AND ALTERNATOR MOUNTING BRACKET

1. Place the alternator in position on the engine, but do not torque the mounting bracket bolt or the adjustment arm bolt at this time.

2. Check for a maximum total clearance of .004 inch between the alternator and the alternator mounting bracket. If necessary, reduce the total clearance to .004 inch or less by one of the following methods:

   a. If the total clearance exceeds .004 inch but is less than .020 inch, install a 169-910017-43 laminated washer, peeled to the proper thickness, between one end of the alternator mounting bracket and the alternator.

   b. If the total clearance is .020 inch or more, install one 169-910017-43 laminated washer between each end of the alternator mounting bracket and the alternator. The two washers should be of equal thickness when peeled before installation.

3. Place the alternator drive belt on the pulleys, making certain that the raised belt lap will trail in the direction of rotation to preclude snagging on a possible obstruction.

4. Adjust alternator drive belt tension, using either the deflection method or the slip torque method, both of which are described here.

CAUTION

When adjusting belt tension, do not pry on the alternator cooling fan or the alternator pulley.

a. The deflection method of adjusting belt tension is accomplished by applying downward pressure on the belt at a point midway between the pulleys and noting the amount of belt deflection. The correct values are presented in the following table.

	PRESSURE	DEFLECTION
New Belt*	14 Lbs.	.31 In.
Used Belt	10 Lbs.	.31 In.

b. The slip torque method of adjusting belt tension is accomplished by installing a torque wrench on the alternator pulley retaining nut and measuring the amount of torque (applied in a clockwise direction) required to cause the pulley to slip. Refer to the following table.

	BELT WIDTH	SLIP TORQUE
New Belt*	3/8 In.	11 to 13 Ft.-Lbs.
	1/2 In.	13 to 15 Ft.-Lbs
Used Belt	3/8 In.	7 to 9 Ft.-Lbs.
	1/2 In.	9 to 11 Ft.-Lbs.

*When a new belt is installed, the belt should be checked for conformance to the used belt requirements after 1 hour of operation, at 25 hours, and each 100 hours thereafter.

5. With the alternator belt retained at the proper tension, torque the bolt attaching the alternator to the alternator adjustment arm to 110 to 150 inch-pounds, then torque the alternator mounting bracket bolt to 225 to 300 inch-pounds.

6. Reconnect the alternator wiring bundle to the alternator, making certain that each wire is attached to the terminal from which it was removed.

PART IV. RECLAMPING OF ALTERNATOR WIRING BUNDLE

1. Remove the existing ties securing the alternator wiring bundle in the engine compartment.

2. Obtain a 169-910017-51 clip, an MS20074-05-04 /M/ bolt, an AN936A516 lock washer, and an AN960-516L flat washer. Install the 169-910017-51 clip at the middle hole of the three holes in the right hand side of the bottom of the engine case as shown in Figure 1.

3. Obtain an MS21919F6 clamp, an AN525-10R9 screw, an MS21042L3 or NAS679A3 nut, and an AN960-10 washer. Support the alternator wiring bundle at the 169-910017-51 clip with the MS21919F6 clamp by attaching the clamp to the clip with the AN525-10R9 screw, MS21042L3 or NAS679A3 nut, and AN960-10 washer. (See Figure 1.)