



King Air® 100 Series

100	B-2 thru B-89 & B-93
A100	B-1, B-90 and After except B-93
B100	BE-1 and After

Maintenance Manual

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**BEECHCRAFT
KING AIR 100 SERIES
MAINTENANCE MANUAL**

CONTROLLING - MAINTENANCE PRACTICES

PRIMARY GOVERNOR REMOVAL (B-1 and after)

NOTE

The fuel topping governor is an integral part of the primary governor.

- a. Remove the upper forward engine cowl.
- b. Remove the cotter pin, castellated nut, washers and bolt securing the governor control lever to the propeller speed control.
- c. Remove the cotter pin, castellated nut, washer and bolt securing the fuel governor interconnecting rod to the fuel governor control lever.
- d. Remove the cotter pin, castellated nut, washer, bolt and spacer securing the front clevis end to the propeller reversing lever.
- e. Remove the cotter pin, washer, clevis pin and bushing securing the propeller reversing lever to the beta valve.
- f. Remove the safety wire and disconnect the electrical plug from the solenoid on the governor.
- g. Remove the safety wire and disconnect the sensor line from the governor union. Cap or plug open lines and ports.
- h. Remove the four nuts and washers anchoring the governor to the mounting pad on the reduction gearbox case.
- i. Remove governor and governor mounting pad gasket.

PRIMARY GOVERNOR INSTALLATION (B-1 and after)

- a. Install a new gasket over the four studs on the governor mounting pad.

CAUTION

Make sure the gasket is placed on the mounting pad with the raised side of the screen up so that it will fit into the recess on the base of the governor.

- b. Lightly coat the splined shaft of the governor with lubricating grease (12, Chart 201, 91-00-00).
- c. Position the governor on the mounting pad and secure it in place with the four attaching washers and nuts. Torque the nuts to 170 to 190 inch-pounds.

d. Secure the propeller reversing lever to the beta valve with the attaching bushing, clevis pin, washer and cotter pin.

e. Secure the front clevis end to the propeller reversing lever with the attaching spacer, bolt, washers, castellated nut and cotter pin.

f. Secure the fuel governor interconnecting rod to the fuel governor control lever with the attaching bolt, washer, castellated nut and cotter pin.

g. Secure the governor control lever to the propeller speed control with the attaching bolt, washers, castellated nut and cotter pin.

h. Connect the sensor line to the governor union and safety wire.

i. Connect the electrical plug to the solenoid and safety wire.

j. Reinstall the upper forward engine cowl.

LOW RPM SETTINGS (B-1 and after)

CAUTION

To avoid overtorquing the engine during the following procedure, see that torque does not exceed 1000 foot-pounds and that propeller rpm does not drop below 1625.

To adjust the low rpm settings, first position the propeller control in the full high rpm position and advance the power lever to obtain 2075 rpm. Pull the propeller lever back against the detent, then adjust the detent as required to obtain the specified setting (1625 to 1675 rpm).

NOTE

With the power lever in the low idle position, the minimum setting is 1250 rpm.

If the proper setting cannot be obtained by this means, the governor linkage may be lengthened or shortened as a further adjustment.

CAUTION

Check that propeller rpm linkage is adjusted to permit propeller feathering with the synchrophaser turned on and run out to the extremity of its travel.

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HIGH RPM SETTINGS (B-1 and after)

If a high rpm adjustment is required, turn the high rpm stop screw on the governor head in or out as required to obtain 2200 rpm. Make sure the linkage to the control lever will allow sufficient travel for the control arm to contact the stop. If the linkage will not allow sufficient travel, adjust the control linkage at either rod end to obtain the necessary travel. This will in turn require resetting the low rpm and the feathering adjustment.

FEATHERING ADJUSTMENT (B-1 and after)

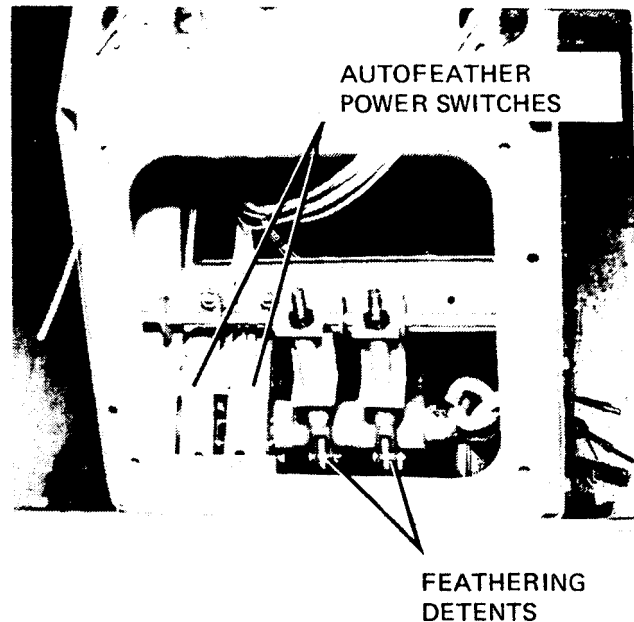
Position the propeller lever in the full high rpm position and advance the power lever to obtain 1900 rpm. Pull the propeller lever back against the detent, then adjust the detent (see Figure 201) as required to obtain 1625 to 1675 rpm (at the detent). Pull the propeller lever past the detent (FEATHER POSITION) and observe that the propeller is in the fully feathered position.

**PROPELLER OVERSPEED GOVERNOR
REMOVAL (B-1 and after)**

- a. Remove the upper forward engine cowling.
- b. Remove the safety wire and disconnect the electrical plugs from the governor solenoids.
- c. If a synchrophaser is installed, tag and disconnect the two propeller synchrophaser sensor wires.
- d. Remove the four self-locking nuts and plain washers securing the governor and remove the governor from the left side of the reduction gear housing.

**PROPELLER OVERSPEED GOVERNOR
INSTALLATION (B-1 and after)**

- a. Install a new gasket on the mounting pad.
- b. Apply lubricating grease (12, Chart 201, 91-00-00) sparingly to the governor splined drive.
- c. Position the governor on the mounting pad and install the four plain washers and self-locking nuts. Apply a torque of 170 to 190 inch-pounds to the mounting nuts.
- d. Connect the electrical plugs to the governor. The solenoid with the receptacle on top is the speed reset solenoid used to test governor operation and the remaining solenoid is used for autofeathering. Safety wire plugs.
- e. Connect the two propeller synchrophaser wires if installed.
- f. Reinstall the upper forward engine cowling.



**Autofeathering Switches and Feathering
Detents (B-1 and after)
Figure 201**

**OVERSPEED GOVERNOR CHECK (B-1 and
after)**

The overspeed unit, mounted on the left side of the reduction gear housing, is preset at the factory to govern at 104 percent N₂ speed (approximately 2288 rpm) and should not normally require readjusting. This setting can be reduced to 2000 ± 50 rpm for testing purposes by means of a testing solenoid. A second solenoid attached to the governor provides a means of immediately dumping oil from the unit for autofeathering. Perform the overspeed governor check as follows:

- a. Run the engine with the power levers set below 1900 rpm and the propeller controls in the full high rpm position.

CAUTION

Do not exceed engine torque limits during this test.

NOTE

Overspeed units that fail to govern at the prescribed settings should be replaced and returned to a qualified service station for repair.

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b. Hold the momentary test switch, on the pilot's RH subpanel, in the PROP GOV TEST position and advance the power levers to INCREASE. The tachometer will indicate 1900 to 2100 rpm when the overspeed governor is operating properly.

GOVERNOR REMOVAL (BE-1 and after)

- a. Remove the upper forward cowling.

NOTE

If a new propeller governor unit is to be installed, lever length adjustment screw and nut must be removed from the unit being removed for installation on the new unit. Refer to Chapter 76-10-01 of the Engine Maintenance Manual.

- b. Disconnect the control linkage assembly between propeller governor and fuel control assembly. Refer to Chapter 76-10-01 of the Engine Maintenance Manual.
- c. Disconnect the electrical leads and oil lines.
- d. Remove the nuts and washers securing propeller governor assembly to the engine.
- e. Remove the propeller governor assembly in a straight line to avoid damage.
- f. Remove the gasket from the propeller governor assembly.

GOVERNOR INSTALLATION (BE-1 and after)

- a. Remove the upper forward cowling.
- b. Remove the governor accessory pad cover.
- c. Coat the governor gasket with grease (96, Chart 201, 91-00-00).
- d. Install the gasket to the propeller governor.

NOTE

If gasket with beveled side is used, install with beveled side of gasket toward the engine accessory pad.

- e. Mount the governor to the accessory pad. Install in a straight line to avoid damage and secure with mounting nuts and washers. Torque nuts to 100 inch-pounds.

f. Install lever length adjustment screw and nut on new propeller governor assembly shaft. Refer to Chapter 76-10-01, Engine Maintenance Manual.

g. Connect controls linkage in accordance with Chapter 76-10-01, Engine Maintenance Manual.

h. Install the upper forward cowling.

i. Perform propeller governor check.

PROPELLER GOVERNOR CHECK (BE-1 and after)

HIGH RPM

CAUTION

Do not exceed a turbine speed of 102.5% rpm, the maximum allowable turbine temperature or engine torque limits during propeller governor checks.

NOTE

If propeller governor does not control rpm within limits specified, adjust high speed stop on propeller governor. (See 76-10-01, Figure 202 Engine Maintenance Manual.) Turning adjustment screw one turn clockwise will reduce engine rpm approximately one percent. Recheck and adjust the linkage between propeller governor and underspeed governor so that maximum stops are contacted simultaneously. Refer to 76-10-01, Engine Maintenance Manual.

a. With speed lever in high speed position, move the power lever slowly toward the maximum position while observing engine speed. Note the maximum engine speed which can be attained regardless of amount of power lever advancement.

b. Return power lever to a position slightly aft of start position. Operate engine for three minutes at taxi condition for cooling, then shutdown engine.

c. For each percent of speed more than 100.5 percent reached in step "a.", turn the propeller governor high speed stop screw one turn clockwise. (See 76-10-01, Figure 202 Engine Maintenance Manual.) For each percent of speed less than 100 percent, turn screw one turn counterclockwise.

d. Restart the engine and repeat steps "a.", "b." and "c.". Continue making this adjustment until the propeller governor maintains the engine speed at 100.0 to 100.5

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percent regardless of the amount of power lever advancement.

LOW RPM

NOTE

If propeller governor does not control rpm within limits specified, adjust low speed stop on propeller governor. (See 76-10-01, Figure 202 Engine Maintenance Manual.) Turning stop screw clockwise one turn will increase engine rpm approximately one percent.

- a. Move the speed lever to maximum position.
- b. Move the power lever to a position approximately half way between flight idle and maximum torque.
- c. Retard speed lever slowly until propeller governor speed does not drop further with reduction in speed lever setting.
- d. The propeller governor shall maintain the engine speed at a minimum setting of 93.5 to 94.5 percent.
- e. Adjust propeller governor low speed stop screw one turn clockwise to increase rpm approximately one percent.

f. Return power lever to a position slightly aft of the start position to engage the latches. Operate engine for three minutes at taxi conditions for cooling, then shutdown engine.

BETA TUBE REMOVAL (BE-1 and after)

- a. Ensure that the propeller is feathered for beta tube removal.
- b. Remove the spinner dome by removing the attaching screws from around the rear circumference.
- c. Remove the beta tube in accordance with 72-10-00 of the Engine Maintenance Manual.

BETA TUBE INSTALLATION (BE-1 and after)

- a. Ensure that the propeller is in the feathered position.
- b. Install the beta tube in accordance with 72-10-00 of the Engine Maintenance Manual.
- c. Install spinner dome. Attach with screws around the rear circumference of the spinner dome.

FEATHER ADJUSTMENT (BE-1 and after)

For the feathering adjustment on BE-1 and after, refer to Chapter 76 of this manual.

“END”