MAGNETIC COMPASS - MAINTENANCE PRACTICES

1. General

A. The airplane is equipped with a magnetic compass, located on top left center of glareshield. The compass is liquid filled, containing a circular, calibrated compass card, visible through a window in compass case, with expansion provisions to compensate for temperature changes. It is equipped with compensating magnets and has two adjusting setscrews, one for North/South headings and one for East/West headings. These setscrews are located on face of compass, behind compass bezel. Lighting is integral and controlled by lower panel lights rheostat, located on left lower instrument panel.

2. Magnetic Compass Removal/Installation

A. Remove Magnetic Compass Assembly (Refer to Figure 201).

(1) Remove screws securing cowl deck cover (11) and remove cowl deck cover (11).

(2) Cut wires (1) at both ends of permanent splice. Identify wires and discard permanent splice.

(3) Remove placard (2).

(4) Remove screws (3).

(5) Remove bezel (4) and compass assembly (7) from mounting bracket (5).

(6) Remove screws (6) and mounting bracket (5).

B. Install Magnetic Compass Assembly (Refer to Figure 201).

(1) Position mounting bracket (5) to glareshield.

(2) Install screws (6).

(3) Position compass assembly (7) and bezel (4) to mounting bracket (5).

(4) Install screws (3).

(5) Install placard (7) on compass bezel (4).

(6) Position wires (1) through grommet (12) in cowl deck.

(7) Splice wires (1).

(8) Position cowl deck cover (11) and secure with attaching screws.

NOTE: Anytime compass assembly (2) has been installed, refer to Align Compass, and perform a compass alignment check.

C. Remove Compass (Refer to Figure 201).

(1) Remove compass assembly (7) from mounting bracket (5). Refer to Remove Magnetic Compass Assembly.

(2) Remove screw (8) and pull compass (10) out of compass cup (9).

D. Install Compass (Refer to Figure 201).

(1) Position compass (10) inside compass cup (9).

(2) Install screw (8) securing compass (10) to compass cup (9).

(3) Install compass assembly (7) as outlined in Install Magnetic Compass Assembly.

NOTE: For calibration of compass (10), compass must be installed in airplane in compass cup (9). Refer to Align Compass, for compass alignment procedures, and Adjust Compass Calibration, for compass calibration procedures.

E. Align Compass (Refer to Figure 201).

NOTE: Compass alignment shall be performed on a calibrated compass rose.

(1) Using a hand held magnetic compass, check all ferrous material parts for magnetism near magnetic compass.

(2) Degauss any parts within two feet which cause greater than a 10 degree deflection, and any part within four feet which causes greater than 90 degree deflection of magnetic compass.

(3) Ensure all electrical instruments for aircraft are properly installed and operating correctly.

(4) Ensure other aircraft and vehicles are of a safe distance away.

(5) Position aircraft on 270 degree heading of compass rose.

(6) With engine running and power lever in idle position, turn on the following: all circuit breakers, all lights except landing lights and reading lights, all avionics systems, and all electrical systems except pitot heat and stall warning heat.

(7) Record compass error in degrees.

NOTE: High readings are positive errors, low readings are negative errors.

(8) Position aircraft on 360 degree heading of compass rose, and repeat steps (6) and (7).

(9) Position aircraft on 90 degree heading of compass rose, and repeat steps (6) and (7).

(10) Position aircraft on 180 degree heading of compass rose, and repeat steps (6) and (7).

(11) Algebraically sum North and South errors, divide this sum by two, and change sign of result. Resulting number is amount and direction of North/South calibration adjustment.

(12) Repeat step (11) for east/west calibration adjustment using East/West errors.

F. Adjust Compass Calibration.

(1) Errors obtained in compass alignment procedure, steps (6) through (12), will be used to determine required amount and degree of calibration for compass.

G. Calibrate Compass.

(1) At one cardinal heading, adjust appropriate calibration screw amount calculated in compass alignment procedure, steps (6) through (12).

(2) Rotate aircraft 90 degrees and adjust appropriate calibration screw and amount calculated.

(3) Rotate aircraft to next two cardinal headings and ensure that no error greater than 5 degrees is present.

(4) With normal aircraft power on and all electrical systems on, rotate aircraft to 30 degree headings (including cardinals). Stop on each heading long enough to allow compass to stabilize.

(5) Record headings indicated by compass at 30-degree positions. No error greater than +5 or -5 degrees is to be allowed.

Figure 201 : Sheet 1 : Magnetic Compass Installation