CHAPTER 13

INSTRUMENT SYSTEM

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CHAPTER 13

INSTRUMENT SYSTEM

13-00 Description

Standard primary instruments include an airspeed indicator, engine and rotor dual tachometer, altimeter, manifold pressure gage, and magnetic compass. Engine gages include an ammeter, oil pressure, oil temperature, cylinder head temperature, and fuel quantity for main and aux (if installed) tanks. Also standard are a clock, a carburetor air temperature gage, and a digital outside air temperature gage. An hourmeter is located on the ledge just forward of the pilot's seat.

For instrument panels with electronic flight displays, a P/N D327 light filter may be used to reduce reflections in the windshield at night. The light filter is installed by clipping it to the front of the display. Filter use is at pilot discretion.

The pitot-static system supplies air pressure to operate the airspeed indicator, altimeter, and vertical speed indicator. The pitot tube is located on the front edge of the mast fairing. The static source is located inside the aft cowling inboard of the cowl door hinge.

Water can be drained from pitot-static lines by removing the plastic drain plugs which are accessible through the inspection panel on the underside of the cabin. Draining lines should only be required if the airspeed indicator or altimeter appears erratic.

Pitot and static sources should be inspected frequently for bugs or other obstructions.

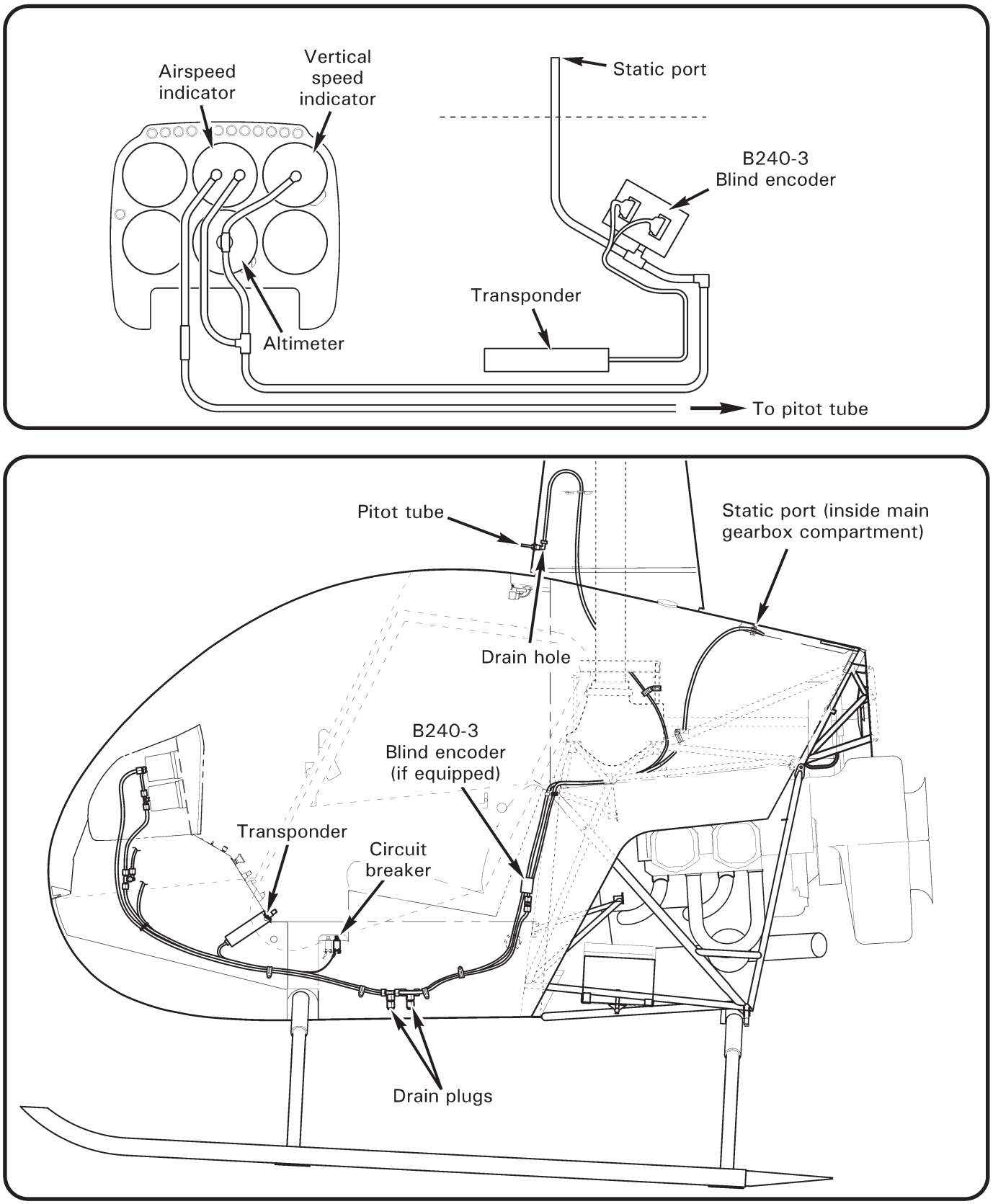

FIGURE 13-1 PITOT-STATIC SYSTEM

13-10 Pitot-Static System

CAUTION

Do not apply suction to pitot system or pressure to static system.

A. Pitot System Leak Test

1. Open mast fairing.
2. Refer to Figure 13-1. Seal drain hole in elbow aft of pitot tube with pressure-sensitive tape. Connect a medical syringe, with plunger withdrawn, to pitot tube via flexible tubing.
3. Slowly apply pressure to pitot line by depressing syringe plunger until airspeed indicator reads 70 knots (plunger will remain in place).
4. Gently tap airspeed indicator glass to remove friction effects.
5. If airspeed indication drops more than 10 knots in one minute, an unacceptable leak is indicated. Slowly release pressure. Locate and repair any leak(s). Retest after any repairs.
6. Remove tape from pitot tube drain hole and verify airspeed indicator has returned to zero.
7. Remove test equipment. Close mast fairing.

B. Static System Leak Test

CAUTION

Airspeed indicator, altimeter, and vertical speed indicator may be damaged if suction to static line is applied or removed rapidly.

1. Refer to Figure 13-1. Set altimeter to location elevation.
2. Connect a medical syringe, with plunger depressed, to static port tube via flexible tubing.
3. Slowly apply suction to static port by withdrawing syringe plunger until altimeter indicates 500 feet greater than location elevation (plunger will remain in place).
4. If altimeter indication drops more than 100 feet in one minute, an unacceptable leak is indicated. Slowly release suction. Locate and repair leak(s). Retest after any repairs.
5. Remove test equipment.

13-20 Primary Instruments

13-21 Vertical Speed Indicator

A. Description

The vertical speed indicator indicates rate of ascent or descent. Check vertical speed indicator for a zero-rate needle indication when rotorcraft is in a stationary hover.

B. Diagram

Refer to Figure 13-1 for pitot-static system diagram.

C. Removal

CAUTION

Protect instrumentation using foam padding or equivalent. Handle instruments like eggs.

1. Turn battery switch off and pull out applicable circuit breaker(s).
2. Remove perimeter screws securing face to console and pull face aft.
3. Remove screws securing instrument to face.
4. Disconnect wiring as applicable.
5. Disconnect pitot/static lines and cap & plug instrument and system fittings, as applicable.
6. Remove instrument and place on foam padding.

D. Installation

CAUTION

Protect instrumentation using foam padding or equivalent. Handle instruments like eggs.

1. Turn battery switch off and pull out applicable circuit breaker(s).
2. Remove caps and plugs and connect pitot/static lines. Verify security.
3. Connect wiring as applicable. Verify security.
4. Install screws securing instrument to face. Verify security.
5. Install perimeter screws securing face to console. Verify security.
6. Perform pitot-static system checks as required per § 13-10.
7. Perform appropriate function checks per § 2.200.

13-21 Vertical Speed Indicator (continued)

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

1. If vertical speed indicator displays climb indication but does not return to zero in level flight, or if indication is erratic:
   a. Inspect static system for water or obstructions, and remove water or obstructions if found.
   b. Perform pitot-static system checks as required per § 13-10.
2. Perform appropriate function checks per § 2.200. If vertical speed indicator still displays erratic indication, or displays no indication, remove indicator per Part C, and return to RHC for inspection.
3. Install airworthy indicator per Part D.

13-22 Airspeed Indicator

A. Description

The airspeed indicator displays airspeed in knots and miles or kilometers per hour. The airspeed indicator operates properly in forward flight only; backward or lateral flight will not indicate correct airspeed. The airspeed indicator will indicate airspeeds up to a maximum of 102 knots (red line).

B. Diagram

Refer to Figure 13-1 for pitot-static system diagram.

C. Removal

Remove airspeed indicator per § 13-21 Part C.

D. Installation

Install airspeed indicator per § 13-21 Part D.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

1. If airspeed indicator displays no indication:
    a. Inspect pitot tube for obstructions and remove obstructions if found.
    b. Inspect pitot tube connection, and tighten connection if loose.
    c. Open upper console and inspect pitot line for kinks or bends.
    d. Perform pitot-static system checks as required per § 13-10.
    e. Perform appropriate function checks per § 2.200. If indicator still displays no indication, remove indicator per Part C, and return to RHC for inspection.
    f. Install airworthy indicator per Part D.
2. If airspeed indicator displays erratic indication:
    a. Inspect pitot-static system connection(s), and tighten connection(s) if loose.
    b. Inspect pitot-static system lines and verify no lines are cracked or broken.
    c. Inspect pitot-static system for water, and remove water if found.
    d. Open upper console and inspect pitot lines for kinks or bends.
    e. Perform pitot-static system checks as required per § 13-10.
    f. Perform appropriate function checks per § 2.200. If indicator still displays erratic indication, remove indicator per Part C, and return to RHC for inspection.
    g. Install airworthy indicator per Part D.

13-23 Dual Tachometer

A. Description

CAUTION

Installation of electrical devices can affect accuracy and reliability of electronic tachometers.

An electronic engine and rotor dual tachometer is standard. Engine tachometer signal is provided by magneto breaker points. Rotor tachometer signal is provided by two magnetic senders at the main gearbox drive yoke. Each tachometer is on a separate circuit with its own circuit breaker. With battery and alternator switches off, the tachometers continue to receive power from the battery through a bypass circuit as long as the clutch actuator switch is in the engage position.

NOTE

Do not stow helicopter with clutch switch engaged. The tachometers are powered with the clutch engaged and will discharge the battery.

NOTE

Do not use magnetized tools.

CAUTION

Protect instrumentation using foam padding or equivalent. Handle instruments like eggs.

B. Removal

1. Turn battery switch off and pull TACHS E (2 amp) and R (2 amp) circuit breakers at panel.
2. Remove perimeter screws securing instrument face to console and pull face aft.
3. Remove screws securing console harness connector to A792 dual tachometer and unplug connector.
4. Supporting instrument, remove screws securing tachometer to face, and remove tachometer.

C. Installation

NOTE

When replacing an A792-4 tachometer with an A792-5 tachometer, install B792-1 dual tachometer harness assembly between tachometer & airframe harness, and tighten two screws on both connectors. Secure B792-1 harness as required with ty-raps.

13-23 Dual Tachometer (continued)

C. Installation (continued)

1. Turn battery switch off and pull TACHS E (2 amp) and R (2 amp) circuit breakers at panel.
2. Install screws securing A792 dual tachometer to instrument face. Verify security.
3. Plug in console harness connector to tachometer and install connector screws. Verify security.
4. Install perimeter screws securing face to console. Verify security.
5. Perform accuracy check and needle synchronization per Part D.

D. Adjustment

NOTE
Adjust rotor tachometer if engine and rotor tachometer needles are not within 1% of each other at 104% RPM.

1. Remove screws securing instrument face panel to upper console and carefully pull panel aft.
2. Run-up helicopter per R22 Pilot's Operating Handbook (POH) Section 6 at 104% engine tachometer indication.
3. Turn adjustment screw on back of tachometer (apply 1/8 turns) clockwise to increase and counterclockwise to decrease rotor tachometer indication. Adjust rotor tachometer to indicate 104%.
4. Shutdown helicopter per POH Section 6. Tighten screws securing instrument panel to upper console.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

Refer to § 1.102 for additional component maintenance.

F. Special Maintenance and Inspections

1. Perform adjustment as required per Part D.
2. If tachometer cannot be adjusted, remove tachometer per Part B, and return to RHC for inspection.
3. Install airworthy tachometer per Part C.

13-24 Altimeter

A. Description

The sensitive altimeter provides altitude information relative to mean sea level when the barometric pressure correction scale is properly set. Check altimeter calibration by setting correction scale to the current altimeter setting and checking the altimeter reading against field elevation; they must agree within 70 feet.

B. Diagram

Refer to Figure 13-1 for pitot-static system diagram.

C. Removal

Remove altimeter per § 13-21 Part C.

D. Installation

Install altimeter per § 13-21 Part D.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

1. If altimeter displays no indication:
    a. Inspect static lines for obstructions and remove obstructions if found.
    b. Perform pitot-static system checks as required per § 13-10.
    c. Perform appropriate function checks per § 2.200. If altimeter still displays no indication, remove altimeter per Part C, and return to RHC for inspection.
    d. Install airworthy altimeter per Part D.
2. If altimeter displays erratic indication:
    a. Inspect static system for water, and remove water if found.
    b. Perform pitot-static system checks as required per § 13-10.
    c. Perform appropriate function checks per § 2.200. If altimeter still displays erratic indication, remove altimeter per Part C, and return to RHC for inspection.
    d. Install airworthy altimeter per Part D.

13-25 Manifold Pressure Gage

A. Description

The manifold pressure gage provides an indicator of absolute air pressure in the engine intake manifold. The red line on the gage indicates the maximum manifold pressure that the rotorcraft is type certificated for at 104% rotor RPM. The manifold pressure gage should indicate within 0.3 inches Hg of ambient barometric pressure when engine is not running.

B. Removal

Remove manifold pressure gage per § 13-21 Part C.

C. Installation

Install manifold pressure gage per § 13-21 Part D.

D. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

E. Special Maintenance and Inspections

Manifold Pressure System Leak Check

1. Disconnect A740-1 line assembly from engine fitting.
2. Connect a medical syringe, with plunger depressed, to line assembly fitting via flexible tubing.
3. Slowly apply suction to system by withdrawing syringe plunger until manifold pressure gage indicates 10 inches Hg (plunger will remain in place).
4. If manifold pressure gage indication rises more than one inch in one minute, an unacceptable leak is indicated. Slowly release suction. Locate and repair leak(s). Retest after any repairs.
5. Remove test equipment.

13-26 Magnetic Compass

> NOTE
>
> United States operators may refer to FAA AC 43-215 for additional information.

A. Description

An internally illuminated, wet-type compass is attached to the center bow between the windshields above the instrument panel.

B. Schematic

Refer to Figure 14-39A for electrical schematic.

C. Removal

1. Remove hardware securing compass mount to windshield bow.
2. Remove hardware securing compass assembly to mount.
3. Remove heat shrink as required and disconnect light bar wires from airframe harness. Remove compass.

D. Installation

1. Install heat shrinks over wires and connect compass assembly's light bar wires to airframe harness. Verify security. Activate heat shrinks.
2. Install hardware securing compass to mount. Verify security.
3. Install hardware securing mount to windshield bow. Verify security.
4. At governed RPM, using the airport compass rose, align the helicopter skids on the rose lines, and record the indicated compass headings at 30° increments. Adjust compass compensator magnets as required until the maximum error at any heading is 5° or less with all avionics operating, all exterior lights on, and dimmer full bright. Record the final readings on the aircraft compass card. Re-check 4 cardinal headings with lights off and all avionics off except COM radio 1 and transponder. Verify maximum error remains 5° or less.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

1. Perform compass deviation check per Part D step 4.
2. If compass cannot be adjusted to limits specified, remove compass per Part C, and install airworthy compass per Part D.

13-30 Engine Gages

13-31 Ammeter

A. Description

The ammeter indicates electrical system loads. System load is measured at the shunt located on the lower-left side of the vertical firewall in the engine compartment.

B. Schematic

Refer to Figure 14-39A for electrical schematic.

C. Instrument Cluster Removal

1. Turn battery switch off and pull out applicable circuit breaker(s).
2. Remove Aspen PFD per § 13-61 if installed.
3. Remove screws securing upper console to lower console and tilt upper console aft.
4. Remove nuts securing console wiring to B144 instrument cluster and remove wiring.
5. Remove screws securing instrument cluster to shell assembly's face plate and remove instrument cluster.

D. Instrument Cluster Installation

1. Turn battery switch off and pull out applicable circuit breaker(s).
2. Position B144 instrument cluster on shell assembly's face plate and install screws. Verify security.
3. Install nuts securing console wiring to instrument cluster studs. Verify security.
4. Tilt console forward and install screws securing upper console to lower console. Verify security.
5. Install Aspen PFD per § 13-61 if removed.
6. Perform appropriate function checks per § 2.200.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

1. Check continuity across two 3-amp fuses in B304-18 fuse assembly (at the ammeter shunt) and replace fuse assembly as required.
2. Inspect wiring for loose, chafed, frayed, or broken wires. Verify no damaged connectors. Verify wiring neatness, proper routing and installation, and security.
3. If ammeter is still inoperative, remove ammeter per Part C, and install airworthy ammeter per Part D.

13-32 Engine Oil Pressure Gage

A. Description

The engine oil pressure gage indicates engine oil pressure and receives its signal from a variable-resistor-type sender located in left-hand forward corner of engine compartment next to hourmeter pressure switch.

B. Schematic

Refer to Figure 14-39A for electrical schematic.

C. Removal

Remove instrument cluster per § 13-31 Part C.

D. Installation

Install instrument cluster per § 13-31 Part D.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

1. Inspect wiring for loose, chafed, frayed, or broken wires. Verify no damaged connectors. Verify wiring neatness, proper routing and installation, and security.
2. Perform appropriate function checks per § 2.200. If accuracy of engine gage is suspected, remove instrument cluster per § 13-31 Part C, and return to RHC for inspection.
3. Install airworthy instrument cluster per § 13-31 Part D.

13-33 Engine Oil Temperature Gage

A. Description

The engine oil temperature gage indicates engine oil temperature and receives its signal from a probe mounted in the engine oil pressure screen housing or oil filter adapter.

B. Schematic

Refer to Figure 14-39A for electrical schematic.

C. Removal

Remove instrument cluster per § 13-31 Part C.

D. Installation

Install instrument cluster per § 13-31 Part D.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

Perform special maintenance and inspections per § 13-32 Part F.

13-34 Cylinder Head Temperature Gage

A. Description

The cylinder head temperature gage indicates the temperature of the #4 cylinder and receives its signal from a thermocouple installed in the #4 cylinder head.

B. Schematic

Refer to Figure 14-39A for electrical schematic.

C. Removal

Remove instrument cluster per § 13-31 Part C.

D. Installation

Install instrument cluster per § 13-31 Part D.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

Perform special maintenance and inspections per § 13-32 Part F.

13-35 Fuel Quantity Gages

A. Description

The fuel quantity gages indicate the fuel level of main and aux (if installed) fuel tanks and receive signals from variable resistance type senders mounted on the bottom of each tank.

B. Schematic

Refer to Figure 14-39A for electrical schematic.

C. Removal

Remove instrument cluster per § 13-31 Part C.

D. Installation

Install instrument cluster per § 13-31 Part D.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

Perform special maintenance and inspections per § 13-32 Part F.

13-36 Carburetor Air Temperature Gage

A. Description

The carburetor air temperature gage is used to determine when carburetor heat is required during possible carburetor icing conditions, such as high humidity. Apply heat as required to keep needle out of yellow band. The carburetor air temperature gage should read approximately the same as the OAT gage when engine is cold.

B. Schematic

Refer to Figure 14-39A for electrical schematic.

C. Removal

Remove instrument cluster per § 13-31 Part C.

D. Installation

Install instrument cluster per § 13-31 Part D.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

Perform special maintenance and inspections per § 13-32 Part F.

13-40 Additional Standard Indicating Equipment

13-41 Clock

A. Description

A manually set electric analog clock is standard equipment; a digital clock is optional.

B. Schematic

Refer to Figure 14-39A for electrical schematic.

C. Removal

1. Turn battery switch off.
2. a. Remove perimeter screws securing face to console and pull face aft, or
   b. Remove Aspen PFD per § 13-61 if installed, and remove screws securing upper console to lower console and tilt upper console aft.
3. Remove screws securing clock to face.
4. Disconnect console wiring from clock wiring at connectors, and remove clock.

D. Installation

1. Turn battery switch off.
2. Connect console wiring to clock wiring at connectors. Verify security.
3. Install screws securing clock to face. Verify security.
4. a. Install perimeter screws securing face to console and verify security, or
   b. Tilt console forward and install screws securing upper console to lower console and verify security; install Aspen PFD per § 13-61 if removed.
6. Perform appropriate function checks per § 2.200.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

1. Check AGC-3 (3 amp) fuse at firewall for evidence of melting and replace fuse as required.
2. Inspect wiring for loose, chafed, frayed, or broken wires. Verify no damaged connectors. Verify wiring neatness, proper routing and installation, and security.
3. If clock is still inoperative, remove clock per Part C, and install airworthy clock per Part D.

13-42 Outside Air Temperature (OAT) Gage/Voltmeter

A. Description

NOTE

No cutting or splicing of OAT probe wires is permitted.

The outside air temperature indicator has a stainless steel probe protruding from chin of rotorcraft and is connected to gage by a calibrated length of cable.

B. Schematic

Refer to Figure 14-39A for electrical schematic.

C. Removal

1. Turn battery switch off.
2. Remove Aspen PFD per § 13-61 if installed.
3. Remove screws securing upper console to lower console and tilt upper console aft.
4. Remove screws securing OAT gage to face.
5. Disconnect console wiring from OAT gage wiring at connectors, and remove gage.

D. Installation

1. Turn battery switch off.
2. Connect console wiring to OAT gage wiring at connectors. Verify security.
3. Install screws securing OAT gage to face. Verify security.
4. Tilt console forward and install screws securing upper console to lower console. Verify security.
5. Install Aspen PFD per § 13-61 if removed.
6. Perform appropriate function checks per § 2.200.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

1. Inspect wiring for loose, chafed, frayed, or broken wires. Verify no damaged connectors. Verify wiring neatness, proper routing and installation, and security.
2. If OAT gage is still inoperative, remove OAT gage per Part C, and install airworthy OAT gage per Part D.

13-43 Hourmeter

A. Description

An hourmeter actuated by engine oil pressure is located on the ledge just forward of the pilot's seat.

B. Schematic

Refer to Figure 14-39A for electrical schematic.

C. Removal

1. Remove screws securing D830-1 hourmeter to ledge just forward of the pilot's seat.
2. Disconnect airframe wiring from hourmeter and remove hourmeter.

D. Installation

1. Connect airframe wiring to hourmeter (A859-42 to positive terminal). Verify security.
2. Install screws securing D830-1 hourmeter to ledge just forward of the pilot's seat. Verify security.

E. Scheduled Maintenance and Inspections

Refer to § 2.400 100-Hour/Annual Inspection.

F. Special Maintenance and Inspections

1. Inspect wiring for loose, chafed, frayed, or broken wires. Verify no damaged connectors. Verify wiring neatness, proper routing and installation, and security.
2. If hourmeter is still inoperative, remove hourmeter per Part C, and install airworthy hourmeter per Part D. Make appropriate maintenance record entries.

13-50 Instrument Markings

See R22 Pilot's Operating Handbook (POH) Section 2 for instrument markings.

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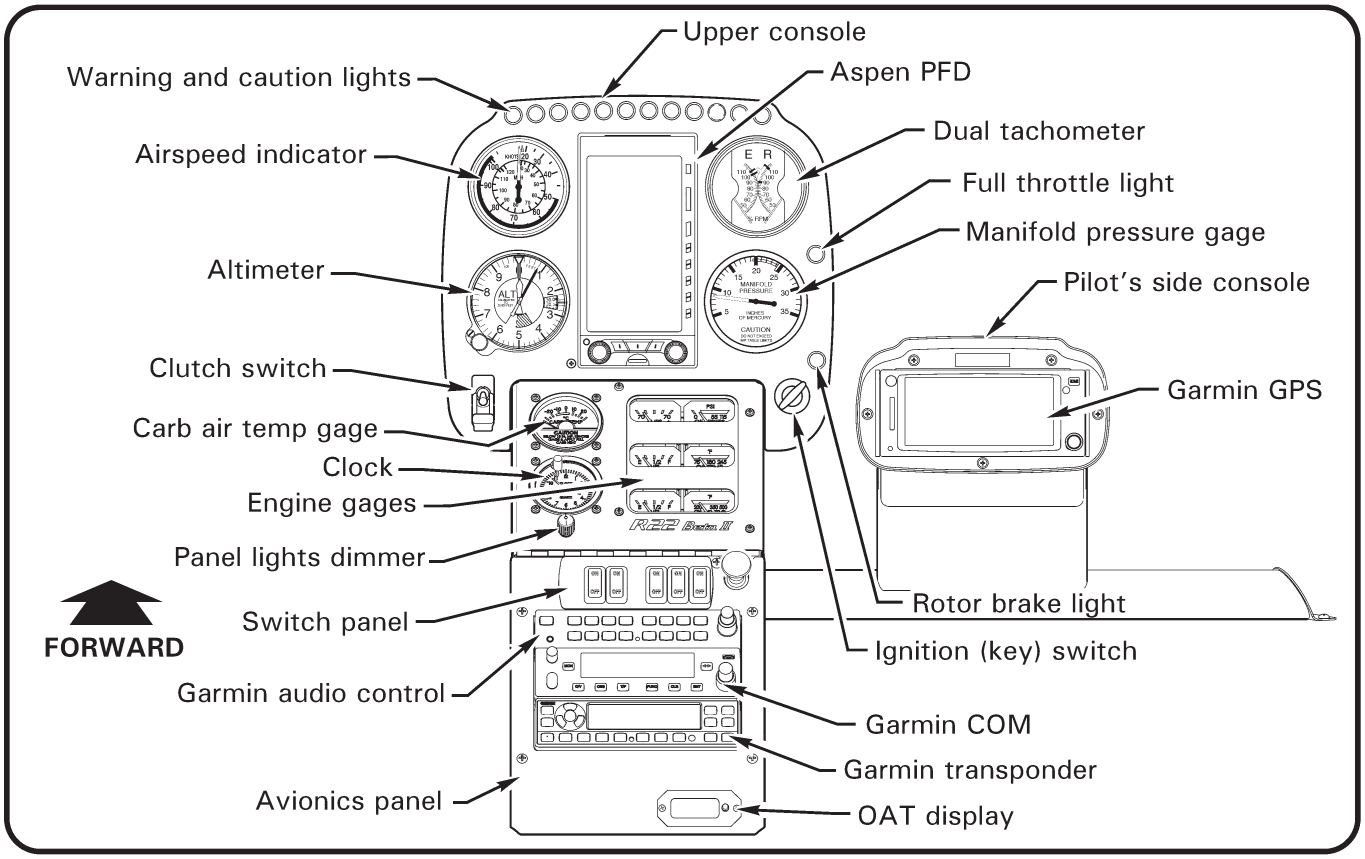

FIGURE 13-2 SIX-INSTRUMENT CONSOLE WITH ASPEN PFD – TYPICAL

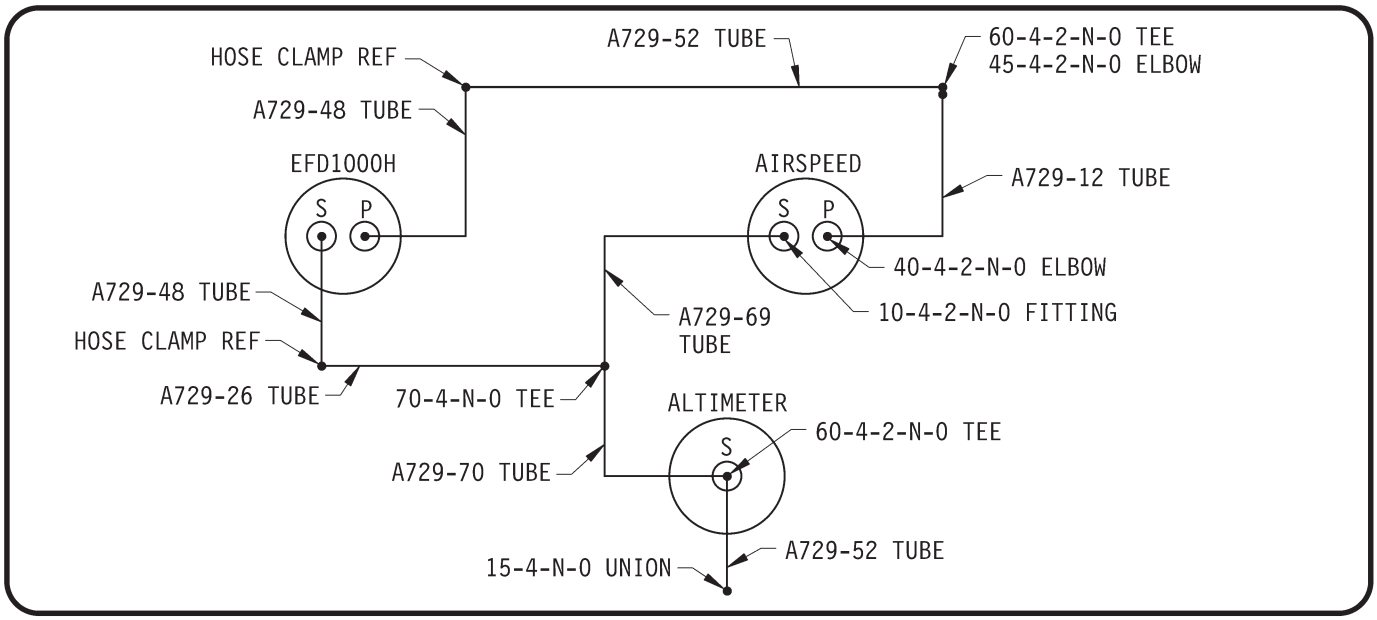

FIGURE 13-3 ASPEN PFD PITOT-STATIC SCHEMATIC

13-60 Electronic Flight Displays

13-61 Aspen PFD Installation

A. Description

The Aspen PFD (Primary Flight Display) is an LCD unit with displays for attitude, altitude, airspeed, heading, and optional NAV (HSI/CDI). The Aspen PFD is a situational awareness aid, to be used in conjunction with required VFR instruments (altimeter, airspeed indicator, and magnetic compass).

The standard Aspen PFD installation configures the lower half of the display as a directional gyro. An optional installation configures the lower half of the display to a Horizontal Situation Indicator (HSI).

B. Schematic

Refer to Figure 14-43 & 14-44 for C800-1 Aspen PFD electrical schematic.

C. Removal

1. Turn battery switch off and pull EFIS circuit breaker (7.5 amp) at panel.
2. Gently depress blue tab at top of Aspen PFD to release display from mounting bracket.
3. Disconnect pitot and static lines from display using quick-disconnect couplers. Temporarily cap pitot and static line fittings at display and in aircraft to prevent contamination.
4. Loosen screws securing airframe wiring harness connector to display, unplug connector, and remove display.

D. Installation

1. Turn battery switch off and pull EFIS circuit breaker (7.5 amp) at panel.
2. Plug airframe wiring harness connector into Aspen PFD display and tighten screws. Verify security.
3. Remove temporary fitting caps and connect pitot and static lines to display using quick-disconnect couplers.
4. Insert display into mounting bracket until blue tab snaps into place. Verify security.
5. Push-in EFIS circuit breaker (7.5 amp) at panel. Turn battery & avionics switches on.
6. Perform appropriate functional checks per Aspen EFD1000H PFD Pilot's Guide. Turn battery and avionics switches off.
7. Perform pitot-static leak check.

13-61 Aspen PFD Installation (continued)

E. Antenna

Refer to § 16-70 for antenna locations & R22 Illustrated Parts Catalog (IPC) Chapter 6.

NOTE
Do not use magnetized tools.

Removal

1. Turn battery switch off and pull EFIS circuit breaker (7.5 amp) at panel.
2. Using plastic scraper, remove B270-1 sealant from around EFIS antenna at corners where it attaches to tailcone.
3. Cut and discard ty-raps as required and disconnect antenna cable at connectors (secured to frame). Remove screws securing antenna and antenna ground wire to tailcone and remove antenna.

Installation

1. Turn battery switch off and pull EFIS circuit breaker (7.5 amp) at panel.
2. Remove paint and primer from antenna and antenna ground wire mating surfaces to ensure electrical ground.
3. Install screws securing antenna and antenna ground wire to tailcone. Verify security.
4. Apply small bead B270-1 sealant (0.1 inch max in height) around antenna at corners where it attaches to tailcone and allow to dry.
5. Connect antenna cable to antenna at connectors; secure to frame using ty-raps. Verify security.
6. Perform ground checks per Part D steps 5 and 6.

F. Scheduled Maintenance and Inspections

The internal battery must be tested for proper operation every 12 months. No calibration is necessary. Other maintenance is on condition. Contact Aspen Avionics at www.aspenavionics.com for instructions for continued airworthiness.

NOTE
Refer to § 34-60 for avionics software information.

13-70 Console Assemblies

NOTE

Refer to R22 Pilot's Operating Handbook Section 7 for views of typical instrument panels, and the Optional Avionics Supplement for views of panels with electronic flight displays.

A. Opening Console

Upper instrument panels that do not include Electronic Flight Displays (EFDs) or other avionics may be "opened" by removing screws securing console assembly to forward keel panels and hinging console aft. Secure console by hinging forward and installing screws. If an EFD or any other avionics are installed in the upper instrument panel, remove console per Part B.

B. Removing Console

1. Remove EFD if installed per § 13-60.
2. Remove avionics if installed and located in upper instrument console per Chapter 34.
3. Remove perimeter screws securing instrument face to console.
4. Disconnect instrument pitot-static lines. Plug lines.
5. Remove screws securing console assembly to forward keel panels. Remove console and disconnect console harness from airframe harness.

C. Installing Console

1. Connect console assembly harness to airframe harness and install screws securing console to forward keel panels.
2. Position instrument face in helicopter, remove plugs, and connect pitot-static lines.
3. Install perimeter screws securing face to console. Verify security.
4. Install avionics per Chapter 34, if removed.
5. Install EFD per § 13-60, if removed.
6. Perform pitot-static system leak check per § 13-10.

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