R44-series (with A/C) Cockpit Camera Installation Kit Instructions

Eligible for installation on R44 II S/N 14411 & prior, and Cadet S/N 30070 & prior, with air conditioning. If helicopter is currently equipped with D796-1 air conditioning duct assembly, KI-278-2 must be installed congruently. Kit replaces existing air conditioning duct assembly with air conditioning duct assembly containing camera & antenna, and provides instruction for installing required wiring, including splicing camera audio wire with copilot headset audio wires.

NOTE

Visit https://robinsonheli.com to verify kit instructions are current revision. Review instructions before installation; contact RHC Technical Support with questions. Verify kit contents match list; contact RHC Customer Support if parts are missing or damaged.

NOTE

Kit requires separating cabin interior pieces from bulkhead and roof, which may result in deterioration of the foam insulation. Kit does not contain replacement interior parts.

ITEM	PART NUMBER	KIT CONTENTS	QTY
1	KI-275-4Instr.	Kit Instructions	1
2	B158-2-1FT	Heat Shrink – Black, 1/8-inch diameter (1 foot length)	1
3	B158-3-1FT	Heat Shrink – Black, 3/16-inch diameter (1 foot length)	1
4	B260-2	Terminal – Ring	1
5	B260-3	Terminal – Ring	2
6	D844-2	Cabin Camera Harness Assembly	1
7	D844-4	Fuse Assembly (includes D275-205 fuse)	1
8	F040-3A	R44 Cockpit Camera Sub-Assembly Includes: [1] D796-3 A/C Duct Assembly [1] F039-3 Enclosure Assembly [1] F712-4 Cover [4] MS21042L08 Nut [4] MS27039C0809 Screw [4] NAS1149FN816P Washer	1
9	F714-4	Flash Drive Assembly	1
10	MS3367-4-9+	Ty-Rap (Note: “+” in part number indicates 20-qty pack)	1
11	MS3367-5-9+	Ty-Rap (Note: “+” in part number indicates 20-qty pack)	1
12	MS3367-7-9+	Ty-Rap (Note: “+” in part number indicates 10-qty pack)	1
13	MS35206-226	Screw	1

Consumables

Refer to R44 Maintenance Manual (MM) § 23-70 for approved materials list.

- A257-8 Rubber lubricant
- B270-5 Adhesive
- B270-8 Adhesive
- Solder (Sn60 or Sn63)

Special Tools:

- Soldering iron
- Wire stripping and crimping tools
- Heat gun
- Small diameter (≈3/32-inch), 3-foot long rigid metal rod, such as a welding rod

Kit Instructions

1. Ensure battery and avionics switches are off. Disconnect battery per MM § 37-10.

2. Refer to MM Figure 2-4. Remove access and inspection panels 3A thru 3E, 4C thru 4H, 5, 6A, and open circuit breaker panel.

3. Refer to R44 Illustrated Parts Catalog (IPC) Figure 21-31. Remove D796 duct assembly by removing screw immediately aft of rotor brake knob assembly and sliding duct forward. Disconnect map light and air conditioning switch connectors. Thread rotor brake knob through bead-chain slot and remove duct assembly.

4. Refer to IPC Figure 97-21. Remove and retain screws securing LH (copilot) C710 cover to C710-3 spacers. Remove and retain screws securing TJ-120 standard headset jack to cover.

NOTE
Parenthetic dash numbers, such as (-3081), indicate number marked on wiring insulation (if single conductor), or jacket (if multi-conductor and/or shielded).

5. Carefully separate headliner from roof as necessary to route wires (-3081) to headset jack.

6. Refer to Figures 1 and 1A. Trim two 1/2-inch lengths of B158-3 heat shrink, and one 1-inch length of B158-2 heat shrink. Strip end of ORG, WHT, & BLU (-3081) wires.

   a. Desolder wire(s) from terminal #2 of TJ-120 jack; pigtail WHT wire (-3081) with desoldered wire(s). Slide one 1/2-inch piece of B158-3 heat shrink onto wires and resolder wire(s) to terminal #2.

   b. Desolder wire(s) from terminal #4 of TJ-120 jack; pigtail BLU wire (-3081) with desoldered wire(s). Slide one 1/2-inch piece of B158-3 heat shrink onto wires and resolder wire(s) to terminal #4.

   c. Solder splice ORG wire (-3081) to existing ORG wire (-1795) and if Bose jack is installed, solder all three ORG wires together. Slide the 1-inch piece of B158-2 heat shrink onto solder spliced ORG wires.

   d. Slide heat shrink over soldered areas and apply heat using heat gun. Verify security.

7. Install TJ-120 jack to LH (copilot) C710 cover using retained screws. Install cover to C710-3 spacers using retained hardware.

Kit Instructions (continued)

8. Refer to R44 IPC Figure 96-81. If required, carefully connect RV-BATT-LIPO500 Battery connector to RV-10251C Battery Extension Harness.

9. Refer to Figure 2. Connect D269-6 receptacle of D844-2 cabin camera harness assembly to camera plug in F040-3A enclosure assembly. Connect map light and air conditioning switch connectors to new duct assembly. Secure connectors together under D797-9 strap, using appropriately-sized ty-raps as required. Cinch ty-rap until snug without over-tightening, and trim tips flush with head.

NOTE

If previously equipped with D796-1 duct assembly, install KI-278-2.

10. Thread rotor brake knob assembly through bead-chain slot for installation. Ensure ty-raps and wiring are clear of rotor brake bead-chain slot for installation. Install duct by simultaneously hooking forward end onto windshield frame and aft end into evaporator box and sliding aft to align screw hole. Install screw.

11. Refer to Figure 3. Remove and retain (4) MS27039C0805 screws securing evaporator to bulkhead, two at lower flange and two at LH flange. With installation screws removed, carefully pivot evaporator away from bulkhead, just enough to route D844-2 harness as shown, clearing lower flange. Using a rigid metal rod carefully route upward behind bulkhead foam insulation on LH (seat back) side, along existing wire bundle to lower edge of evaporator. Secure wire harness wires to rod and carefully retract rod downwards. Using retained hardware install (4) MS27039C0805 screws securing evaporator to bulkhead, ensuring D844-2 harness is clear of flanges.

12. Refer to Figure 4. Route D844-2 harness wire (-3080) to ground stud on C351-1 LH aft seat back brace. Cut wire to length and strip end. Install B260-3 ring terminal to wire. Inspect crimp per MM § 23-84. Verify security of terminal. Install ring terminal to ground stud.

NOTE

A257-8 lubricant may be used to aid routing of wire thru clamps.

13. Refer to Figure 4. Route D844-2 harness wire (-3048) to engine oil pressure switch. Follow main harness aft thru firewall, moving B270-5 sealant as required. Follow wire bundle to oil pressure switch. Trim wire to length and strip end. Install B260-3 ring terminal on wire. Inspect crimp per MM § 23-84. Verify security of terminal. Install ring terminal to “NC” terminal on oil pressure switch. Ensure seal around wire bundle and firewall is restored, adding B270-5 sealant as required.

14. Refer to Figure 5. Select available location on main bus bar. Remove existing installation screw and lockwasher from selected location; discard screw and retain lockwasher. Install D844-4 fuse assembly ring terminal to bus bar using new MS35206-226 screw and retained lockwasher. Secure fuse holder along adjacent wire harness using appropriately-sized ty-raps. Cinch ty-raps until snug without over-tightening, and trim tips flush.

15. Refer to Figure 4. Route D844-2 harness wire (-3079) to main bus as shown, along airframe harness to circuit breaker panel. Carefully remove ty-raps from airfame harness and secure wire (-3079) to airframe harness using appropriately sized ty-rap. Cinch ty-rap until snug without over tightening, and trim tip flush with head. Strip wire and install on D844-4 fuse assembly. Inspect crimp per MM § 23-84. Verify security.

Kit Instructions (continued)

16. Install insulation per MM § 15.400, as required.

17. Install access and inspection panels, as required.

18. Install aft seat back, engine aft, belly and both side cowlings.

19. Connect battery per MM § 37-10 and turn on battery switch.

20. Verify proper installation, security, operation of light, and air conditioning switches. Verify proper rotor brake function.

21. Ensure battery and avionics switches are on. Function check camera installation:

    a. Refer to Cockpit Camera Quick Start Guide available at https://robinsonheli.com.

    b. Refer to Figure 2. Insert F714-4 flash drive assembly into USB port of F039-3 enclosure. Toggle helicopter battery switch ON for minimum 30 seconds; video will record automatically. While video is recording, activate & route an audio source (such as ATIS) to copilot headset. Toggle helicopter battery switch OFF.

    c. Transfer flash drive to a computer and view video. If video is level with cockpit, camera lens is properly adjusted. If no audio is heard, check newly installed wiring.

    d. If horizon slants to the right (as shown in Figure 6), adjust angle by loosening two NAS1352-04-4 screws holding lens (see Figure 2) and rotate lens counterclockwise while facing lens; if horizon slants to the left, rotate lens clockwise. Tighten screws. Repeat steps b & c.

22. Revise helicopter's Weight and Balance Record in Pilot's Operating Handbook (POH) Section 6 to reflect this installation by incorporating the following data:

Item	Weight	Long. Arm	Long. Moment	Lat. Arm	Lat. Moment
KI-275-4 R44-series (with A/C), Cockpit Camera Installation Kit	+0.44 lb	66.01 in.	+28.91 in-lb	-3.5 in.	-1.54 in-lb

23. Make appropriate maintenance record entries.

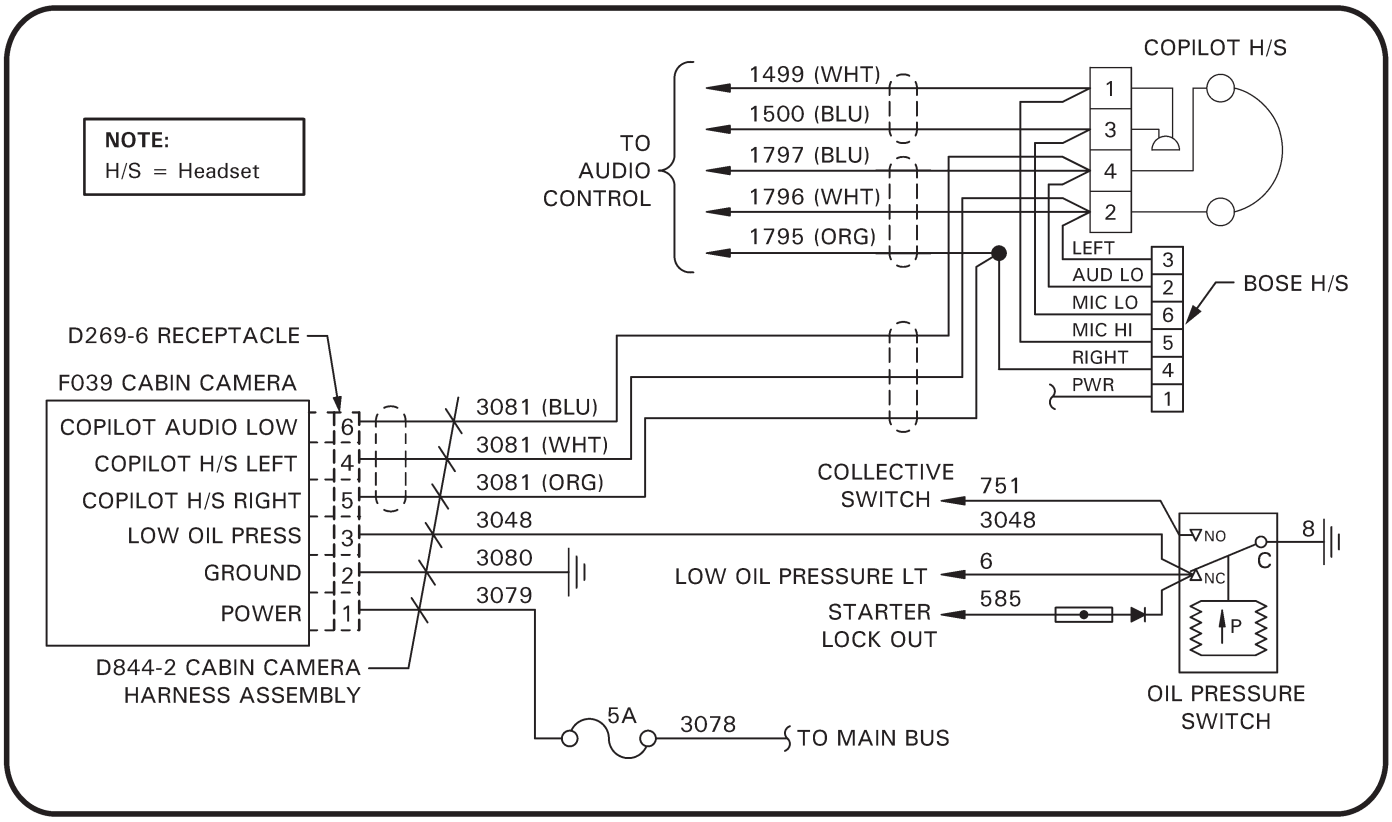


FIGURE 1 Wiring schematic
(typical; see MM § 14.00 for additional wiring diagrams)

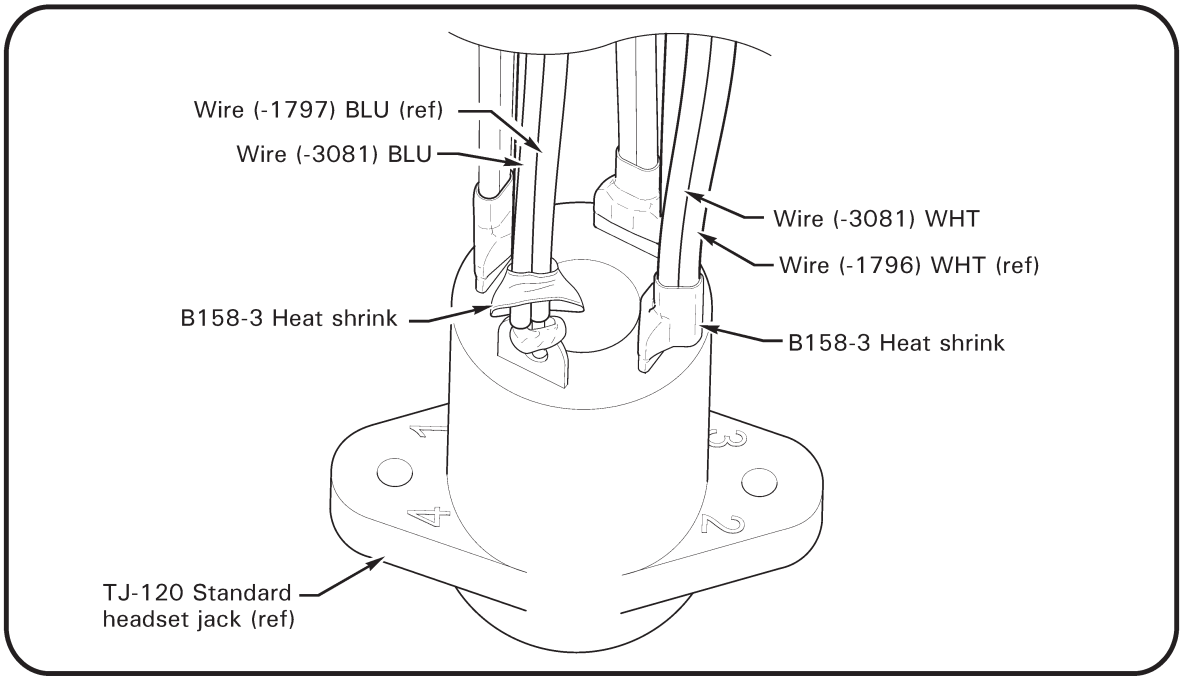


FIGURE 1A Solder splice at TJ-120 jack
(ORG wire splice not shown)

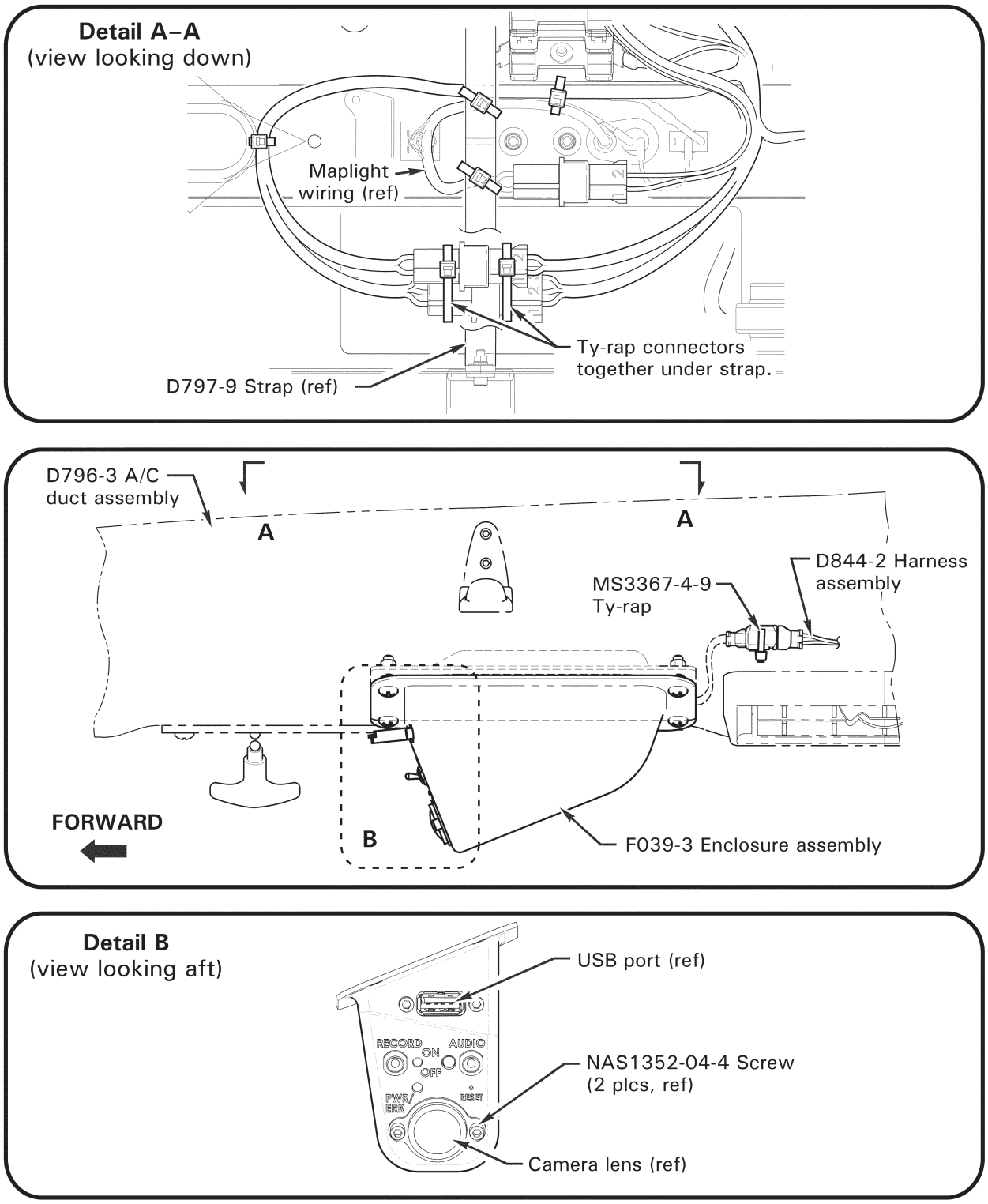


FIGURE 2 Connecting camera to D844-2 harness

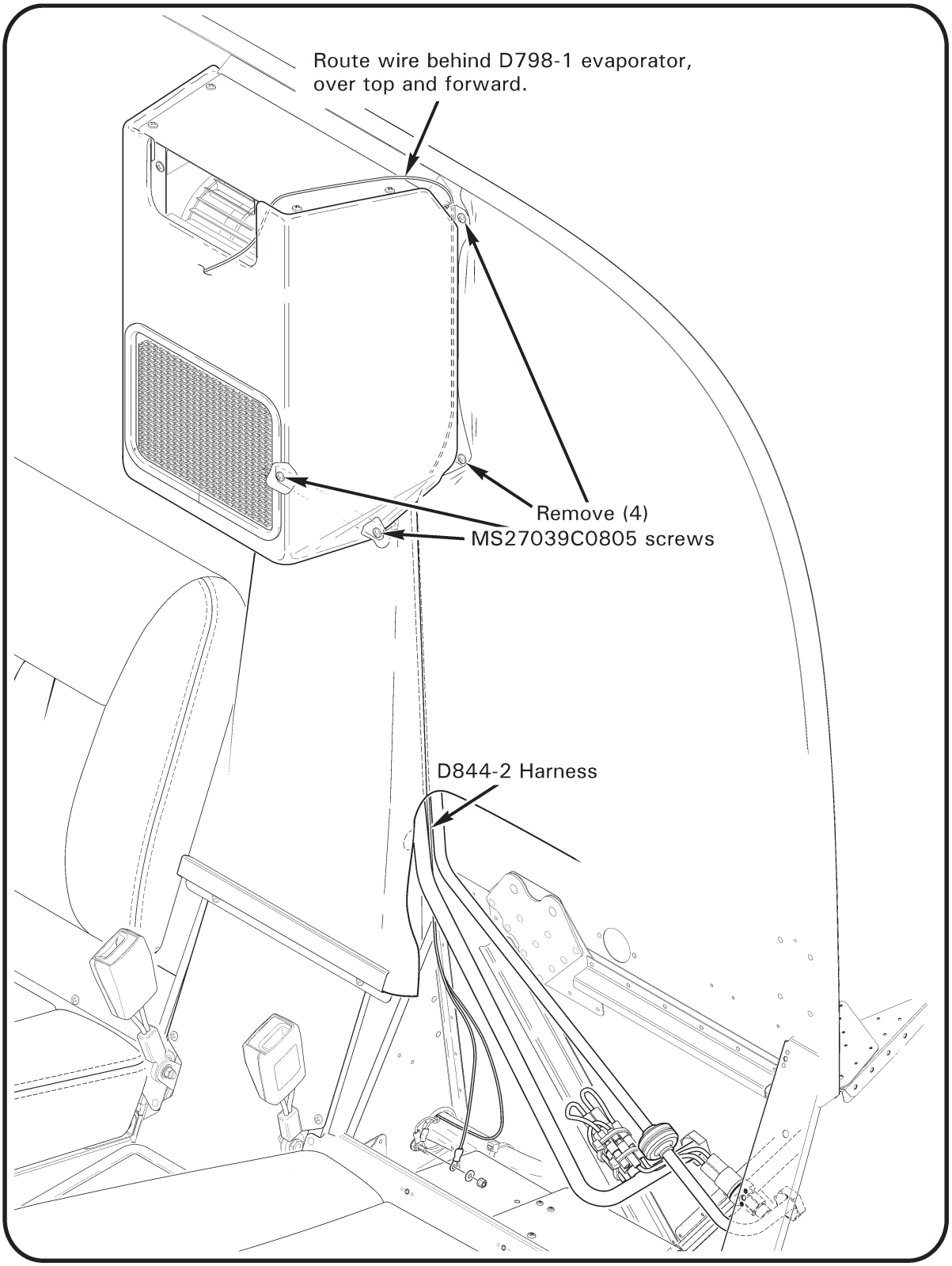


FIGURE 3 location for D844-2 harness wiring
(view looking aft, inboard)

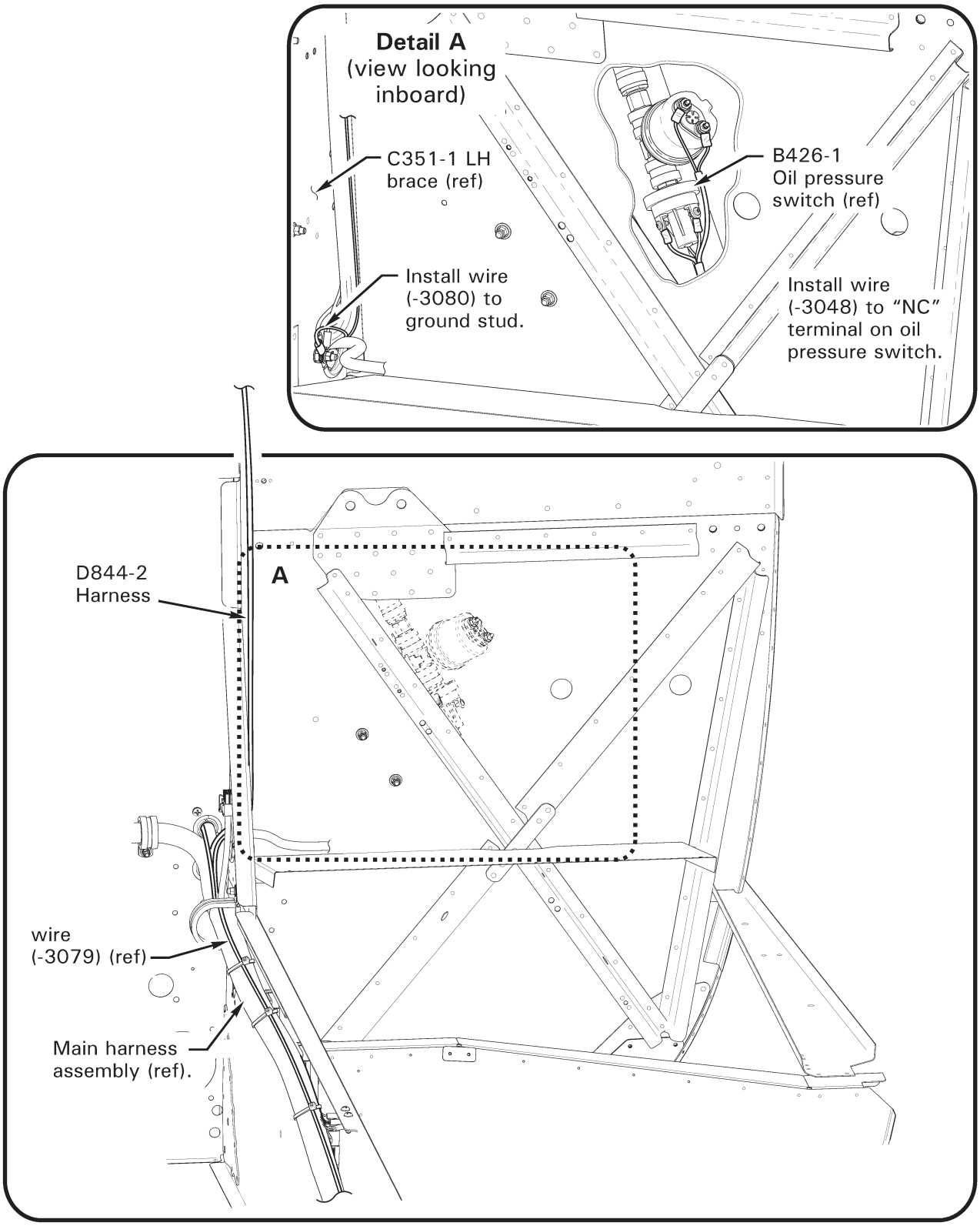


FIGURE 4 Terminating locations for D844-2 harness wiring
(view looking aft)

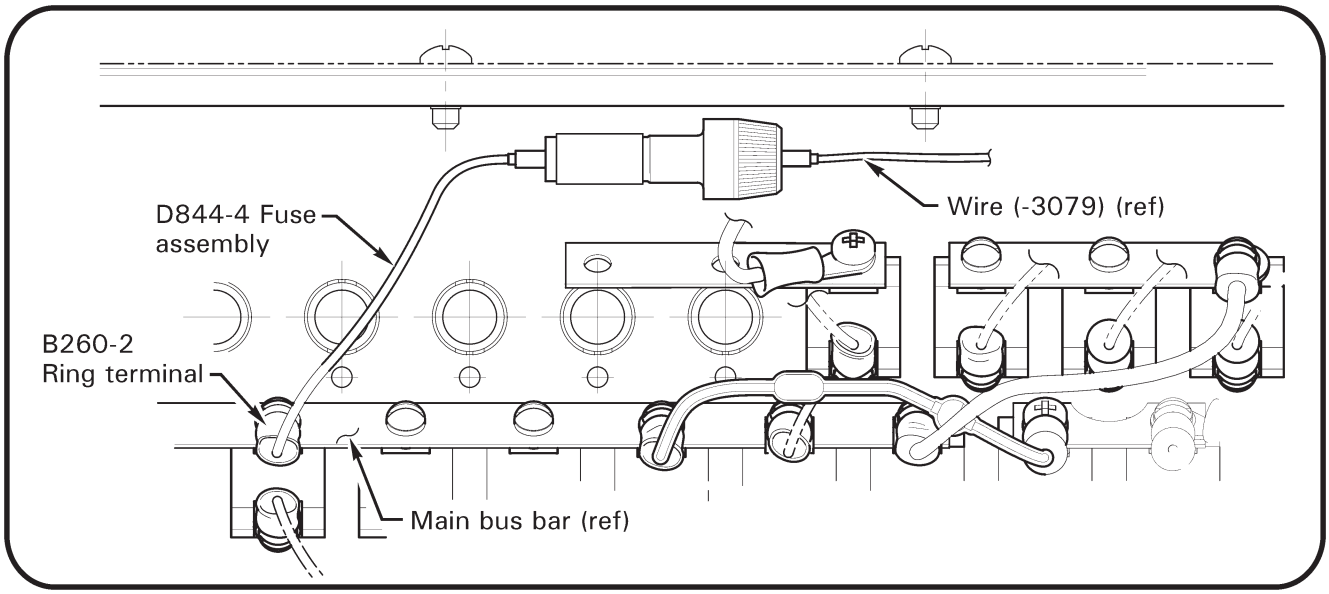


FIGURE 5 Fuse block assembly installation
(location shown for D844-4 is typical)

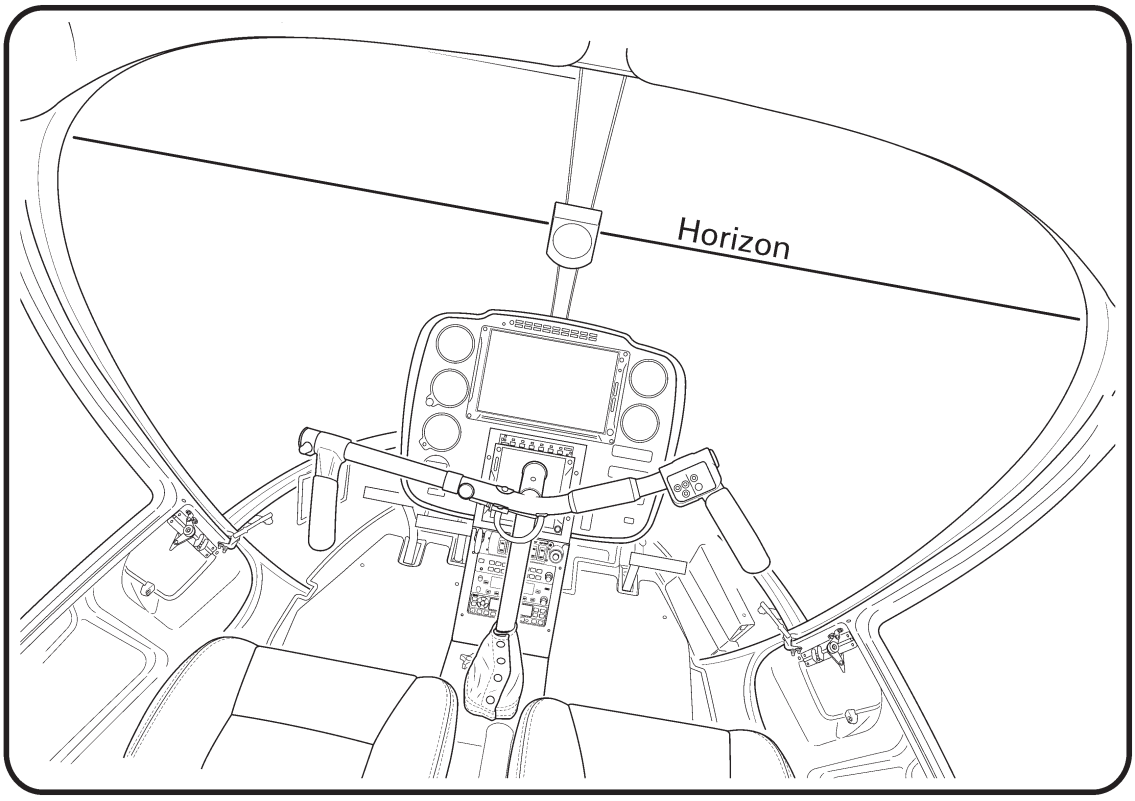


FIGURE 6 Camera view angle
(angle shown requires adjustment)