R22-series Electronic Ignition System (EIS) Upgrade Kit Instructions

Kit replaces retard TCM magneto with EIS. Use KI-272-1A on R22-series S/N 4824 & prior and KI-272-1B on R22-series S/N 4825 & subsequent. Contact RHC Technical Support for nose battery-configured helicopters.

NOTE

Visit www.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 Service if parts are missing or damaged.

NOTE

Kit installation requires Lycoming Service Instruction No. 1569. Visit www.lycoming.com for current revision of noted technical publication.

ITEM	PART NUMBER	KIT CONTENTS	QTY PER KI-272-1A	QTY PER KI-272-1B
1	KI-272-1Instr.	Kit Instructions	1	1
2	B049-14	Harness Assembly	1	1
3	B049-15	Harness Assembly	1	1
4	B158-4-1IN	Heat Shrink, 1 inch diameter (1-inch length)	4	4
5	B263-4	Socket	1	1
6	B263-11	Housing	1	0
7	B263-31	Housing	1	1
8	B304-21	Fuse Assembly	1	0
9	D275-210	Fuse	0	1
10	KI-272-3086	Wire Assembly Includes: [1] B274-16 Wire, 16 gage, 90 inch length (marked "KI-272-3086") [1] B263-3 Pin [1] B263-10 Housing	1	0
11	01F29428-CT	Screws (Lycoming part number)	3	3
12	66K4A3SN-02	EIS (Lycoming part number)	1	1
13	67P20439	Ignition Harness (Lycoming part number)	1	1
14	MS3367-4-9+	Ty-Rap (Note: "+" in part number indicates 20-qty pack)	1	1
15	MS3367-5-9+	Ty-Rap (Note: "+" in part number indicates 20-qty pack)	1	1
16	MS25171-1S	Nipple	1	1
17	MS35206-227+	Screw (Note: "+" in part number indicates 10-qty pack)	1	1
18	MS35333-37	Lockwasher	2	2

Consumable

Loctite C5-A, Copper based Anti-seize (ref: Lycoming Service Instruction noted above)

Special Tools

- Wire stripping and crimping tools
- Heat gun

Kit Instructions

1. Turn BATTERY switch OFF. Disconnect battery per R22 Maintenance Manual (MM) § 33-10.

> NOTE
>
> Parenthetic dash numbers, such as (-166), indicate number marked on wiring insulation (if single conductor), or jacket (if multi-conductor and/or shielded).

2. Refer to R22 Illustrated Parts Catalog (IPC) Figure 96-15. Gain access to, and remove starting vibrator. Slide B158-4-1IN heat shrink over receptacles on wires (-166) & (-584). Apply heat using heat gun. While heat shrink is hot, pinch and close the open end using smooth jaw pliers. Verify wire is insulated and heat shrink is secure. Secure covered wires using appropriately-sized ty-raps.

3. Refer to IPC Figure 53-1. Remove A378 (LH & RH) skirts and panels.

4. Refer to IPC Figure 96-15. Remove LH (retard) magneto from engine per Lycoming Service Instruction (SI) No. 1569; retain mounting hardware and discard magneto gasket.

5. Remove and inspect drive interface per SI 1569.

6. Install drive interface per SI 1569.

7. Refer to Figure 1. Install B049-14 and B049-15 harness assemblies to 66K4A3SN-02 EIS as shown. Internally time EIS per SI 1569.

8. Install EIS using retained hardware and time to engine per SI 1569.

9. **Helicopter S/N 4824 & prior only:**

   a. Refer to Figure 2, and 3A. Locate B415 battery relay. Remove nipple from relay's direct power stud; remove & retain nut securing battery positive cable and remove cable from stud. Insert ring terminal on B304-21 fuse assembly thru nipple and install to stud; install battery positive cable and retained nut. Special torque nut to 80 in-lb; verify security. Torque stripe per MM Figure 2-1. Position nipple over stud and secure using appropriately-sized ty-raps. Cinch ty-rap until snug without over-tightening, and trim tip flush with head. Install B263-11 housing to B304-21 fuse assembly socket; verify security of socket in housing.

   b. Refer to Figure 3A. Connect KI-272-3086 wire to newly installed fuse assembly. Route KI-272-3086 wire along main harness to EIS. Ensure wire has sufficient slack to connect to newly installed EIS without preloading wire. Trim wire to appropriate length. Secure along main harness using appropriately sized ty-raps. Cinch ty-rap until snug without over-tightening, and trim tip flush with head.

   c. Strip KI-272-3086 wire and crimp B263-4 socket on wire. Inspect crimp per MM §23-84. Verify security of socket. Install socket into B263-31 housing. Verify security of socket in housing.

Kit Instructions (continued)

10. **Helicopter S/N 4825 & subsequent only:**
    Refer to Figure 3B. Locate B304-22 fuse assembly adjacent to B415 battery relay. Install D275-210 (10A) fuse; secure using appropriately-sized ty-raps.

11. **Helicopter S/N 4825 thru 4861 only:**
    Refer to Figures 3B, and 4. Locate stowed wire (-3086) covered with black heat shrink. Trim wire five inches from ring terminal end. Strip wire (-3086) and crimp B263-4 socket on wire. Inspect crimp per MM §23-84. Verify security of socket. Install socket into B263-31 housing. Verify security of socket in housing.

12. Refer to Figures 3A or 3B, and 4. Install existing p-lead and shield drain wires to EIS as shown. Connect wire (-3086) to B049-14 harness (power). Slide B158-4-1IN heat shrink over terminal on unused retard wire. Apply heat using heat gun. While heat shrink is hot, pinch and close the open end using smooth jaw pliers. Verify wire is insulated and heat shrink is secure. Secure terminal by securing to adjacent wire bundle using appropriately-sized ty-raps.

13. Install 67P20439 ignition harness using (3) 01F29428-CT screws and special torque screws per SI 1569. Route ignition leads as marked.

14. Install A378 (LH & RH) skirts and panels.

15. Connect battery per MM § 37-10.

16. Perform operation check per SI 1569.

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

    Remove:

Item	Weight	Long. Arm	Long. Moment	Lat. Arm	Lat. Moment
Retard Magneto Ignition System	-5.64 lb	97.89 in.	-552.081 in-lb	4.26 in.	-24.04 in-lb

    Install:

Item	Weight	Long. Arm	Long. Moment	Lat. Arm	Lat. Moment
Electronic Ignition System (Engine LH)	+4.01 lb	98.71 in.	+395.827 in-lb	4.01 in.	16.08 in-lb

18. Make appropriate maintenance record entries.

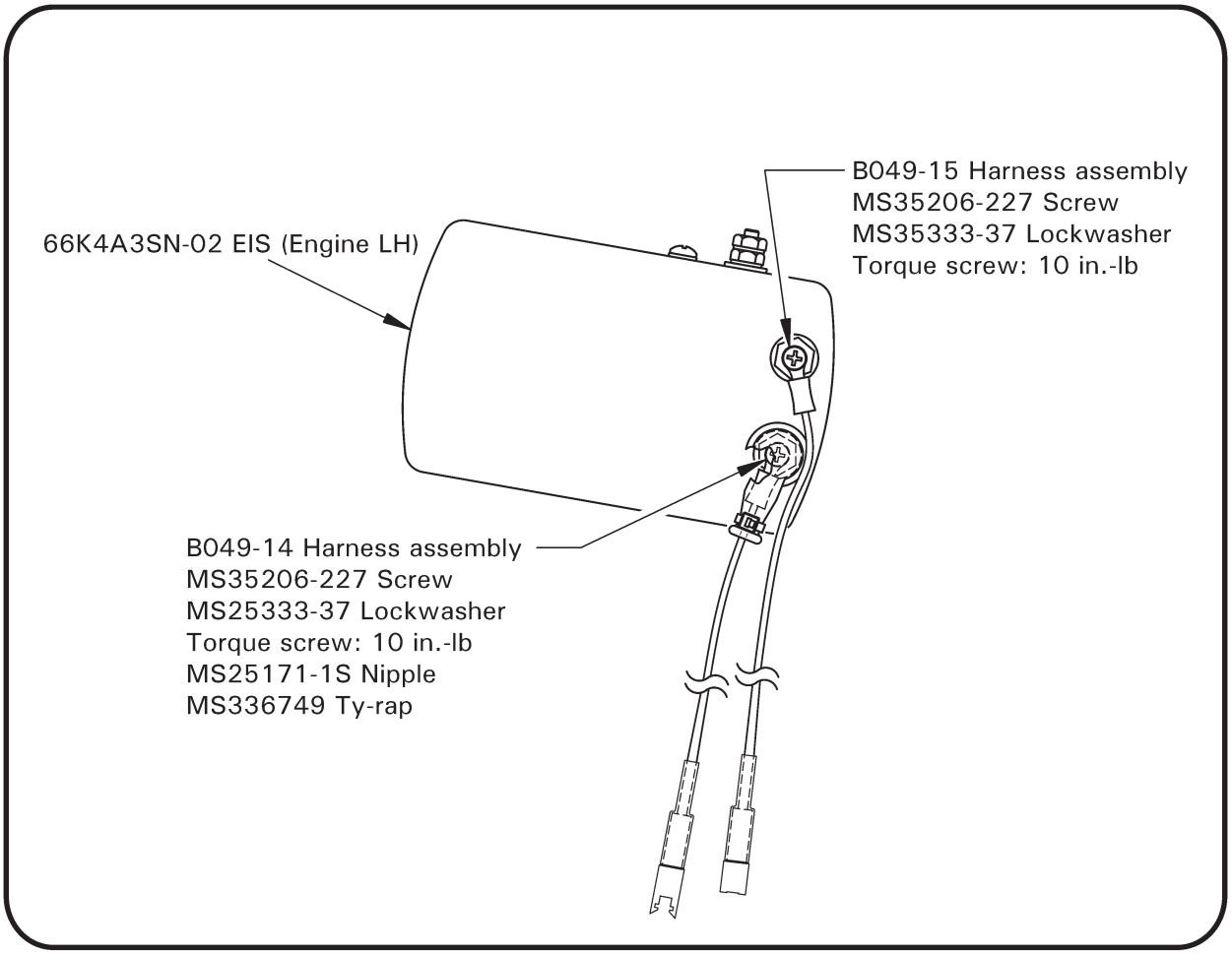

Figure 1 Harness installations

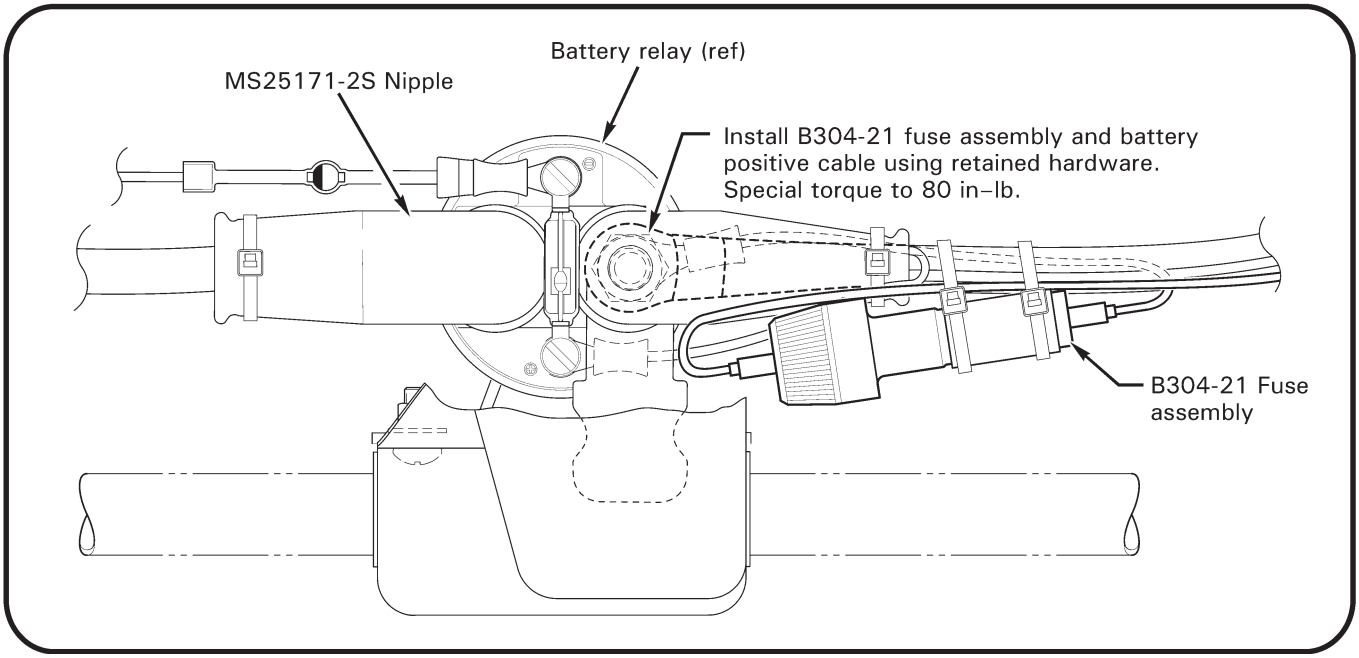

Figure 2 B304-21 Fuse assembly installation

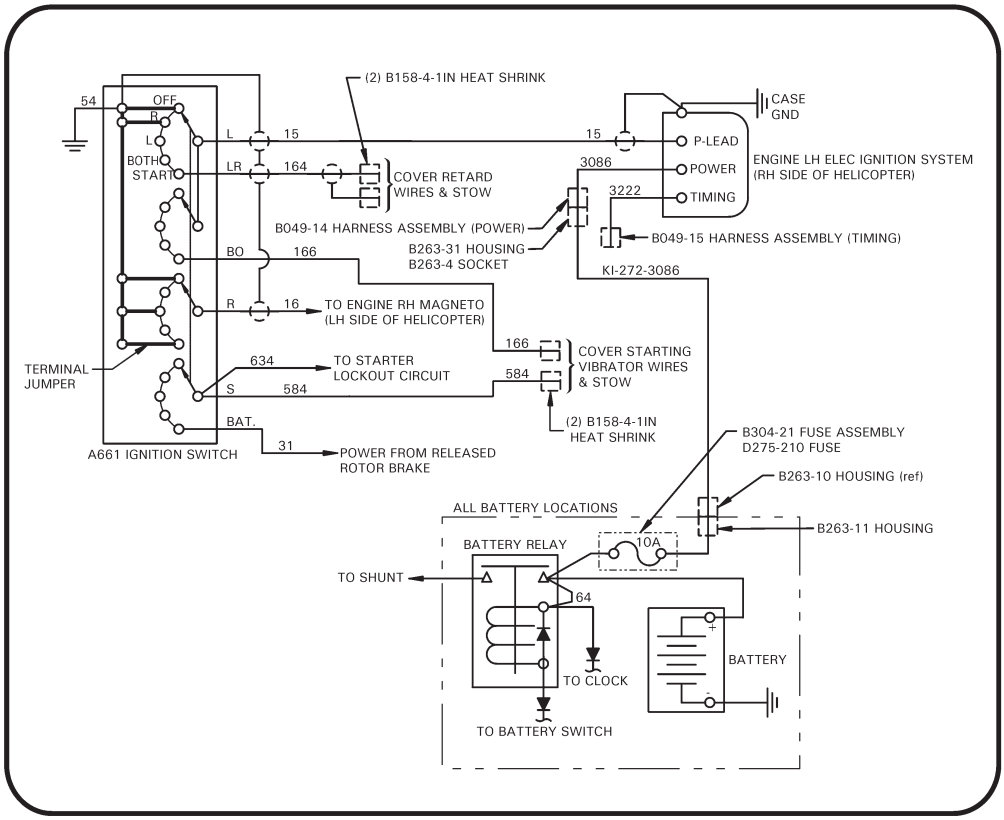

Figure 3A R22 EIS Schematic
(S/N 4824 & prior)

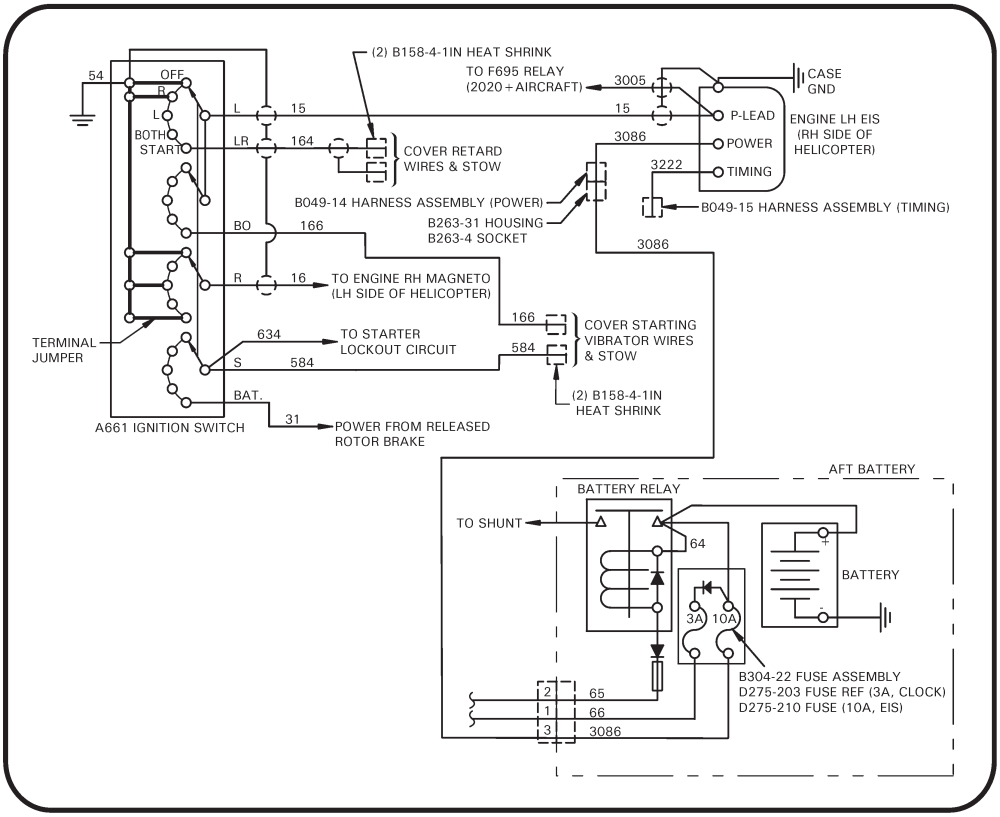

Figure 3B R22-series EIS schematic
(S/N 4825 & subsequent)

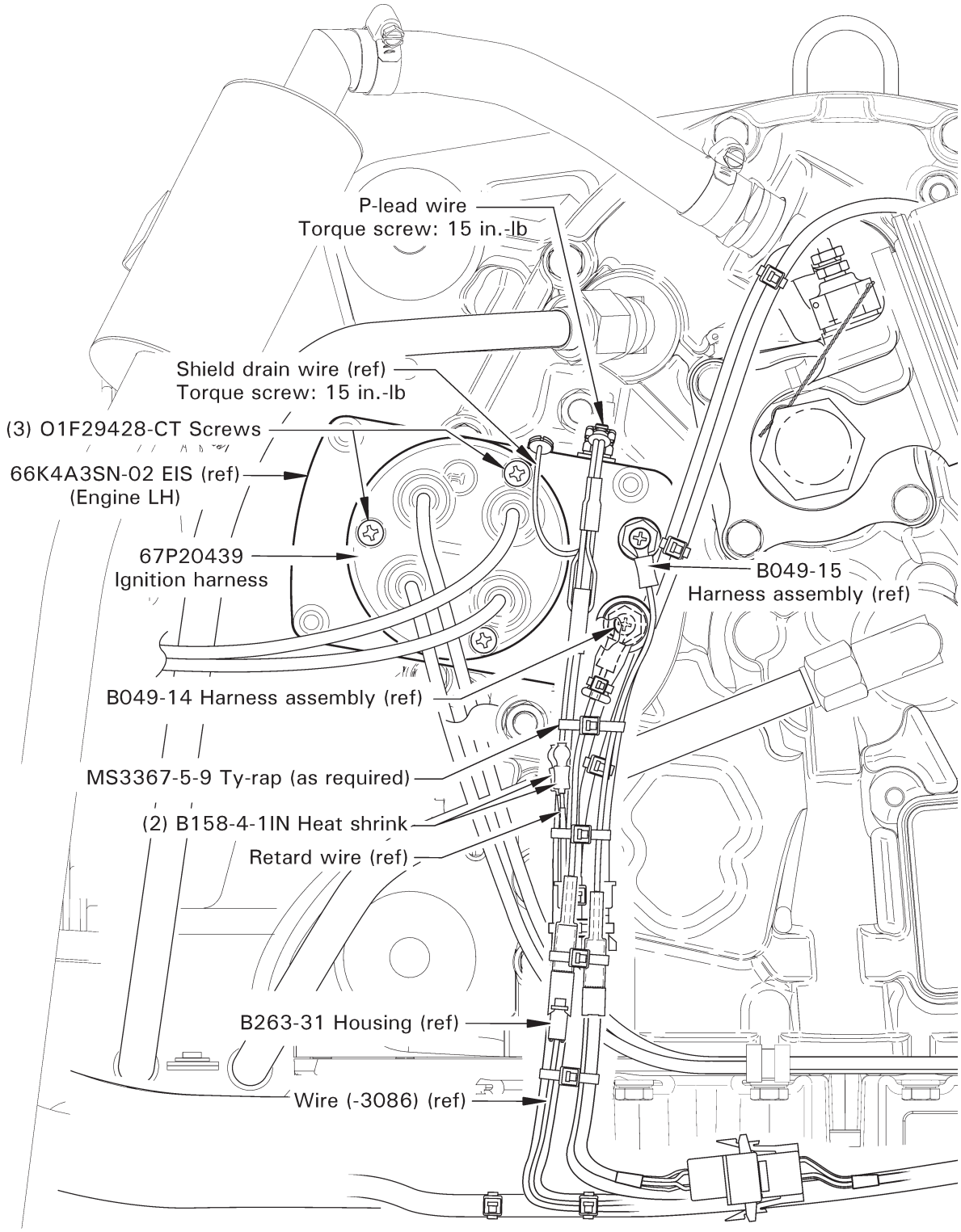

Figure 4 EIS installation, engine LH
(View looking aft)