

**R66 Engine Electrical Harness & N1 Sensor Upgrade Kit Instructions**

*(To comply with R66 Service Letter SL-46)*

*Applicable to helicopter S/N 0004 thru 1369. Replaces all previous F049-XXX engine harness assemblies with new F049-018 engine harness assembly, and replaces Rolls Royce P/N RR30000206 N1 sensor with RHC P/N F049-019 N1 sensor electrical harness assembly. Helicopter S/N 0274 & prior may require KI-190 for engine oil pressure warning light ground, which can be installed concurrently.*

**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 Service if parts are missing or damaged.

ITEM	PART NUMBER	KIT CONTENTS	QTY
1	KI-296Instr.	Kit Instructions . . . . .	1
2	F049-018	Electrical Harness Assembly – Engine (includes F577-6 bracket) . . . . .	1
3	F049-019R*	Electrical Harness Assembly – N1 Sensor (includes Rolls-Royce P/N RR30000206 N1 sensor) . . . . .	1
4	F173-2	Shield . . . . .	1
5	AS3209-111	O-ring . . . . .	2
6	MS3367-4-9+	Ty-rap (Note: “+” in part number indicates 20-qty pack) . . . . .	1
7	MS3367-5-0+	Ty-rap (Note: “+” in part number indicates 10-qty pack) . . . . .	1
8	MS3367-5-9+	Ty-rap (Note: “+” in part number indicates 20-qty pack) . . . . .	1
9	MS3367-7-9+	Ty-rap (Note: “+” in part number indicates 10-qty pack) . . . . .	2
10	MS21919WCH5	Clamp . . . . .	1
11	MS21919WCH6	Clamp . . . . .	1

\* The letter “R” at end of part number indicates overhaul exchange. A core deposit is required for overhaul exchange components.

**Consumables**

Refer to R66 Maintenance Manual (MM) § 20-70 for approved materials list.

- A257-23 Turbine oil
- High temperature anti-seize, such as CP-63

**Kit Instructions**

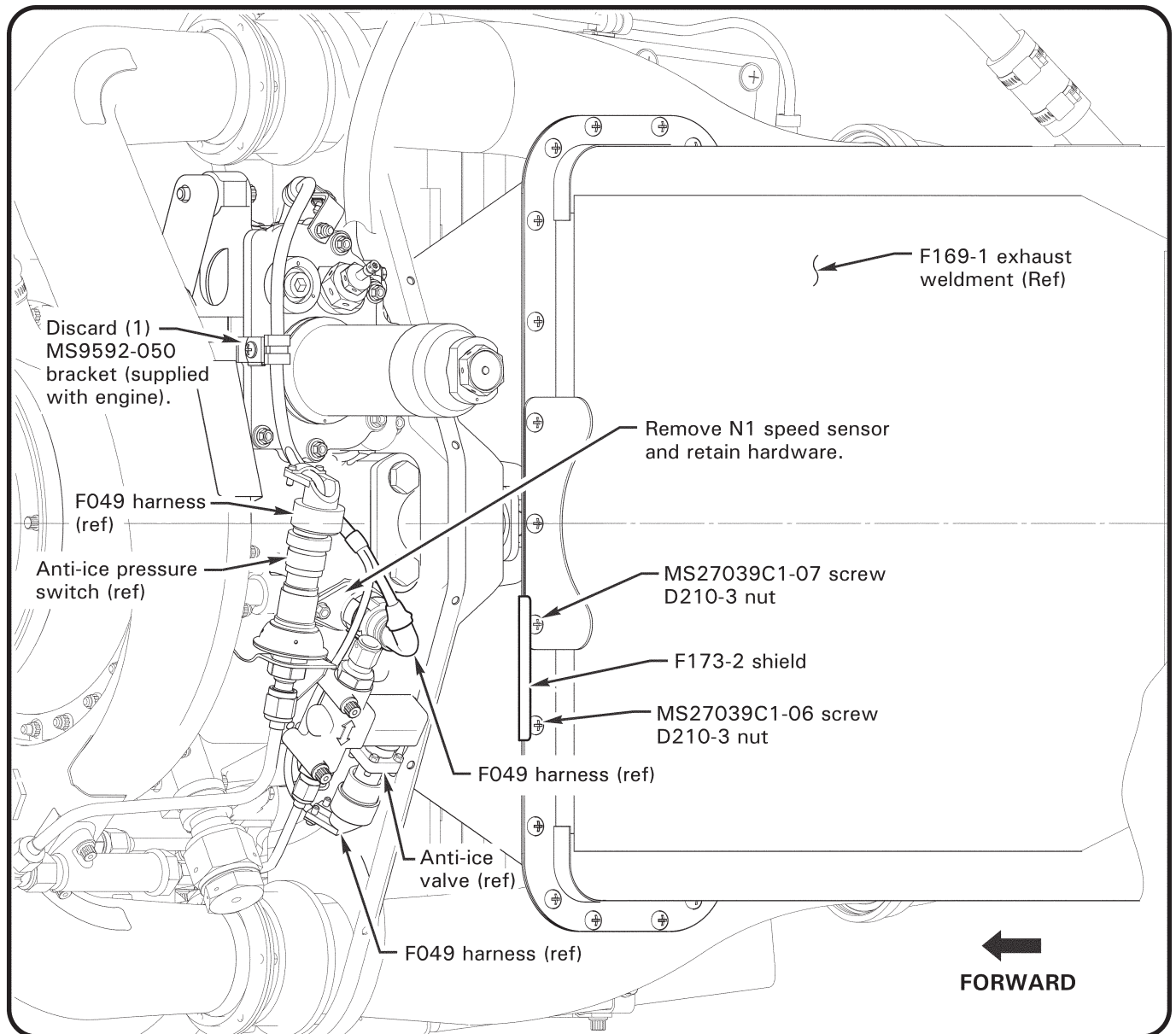
1. Turn BATTERY switch OFF. Disconnect battery negative (ground) cable per MM § 96-11 (lead-acid) or § 96-12 (lithium-ion).
2. Remove G040 engine cowling assembly per MM § 53-21.

3. Remove F049 harness per MM § 71-11, step 4. Retain installation hardware, except (1) MS9592-050 bracket as indicated in Figure 1, and (1) MS21919WCH4 clamp at bracket on engine lube oil filter assembly (see Figure 3, Detail A).
4. Remove N1 speed pick up sensor per Rolls-Royce Operation and Maintenance Manual (OMM) Task 77-11-10-000-801. Return to RHC with a completed RSF 205 Component Return/Authorization, available at <https://robinsonheli.com/> >Customer Support >Forms.

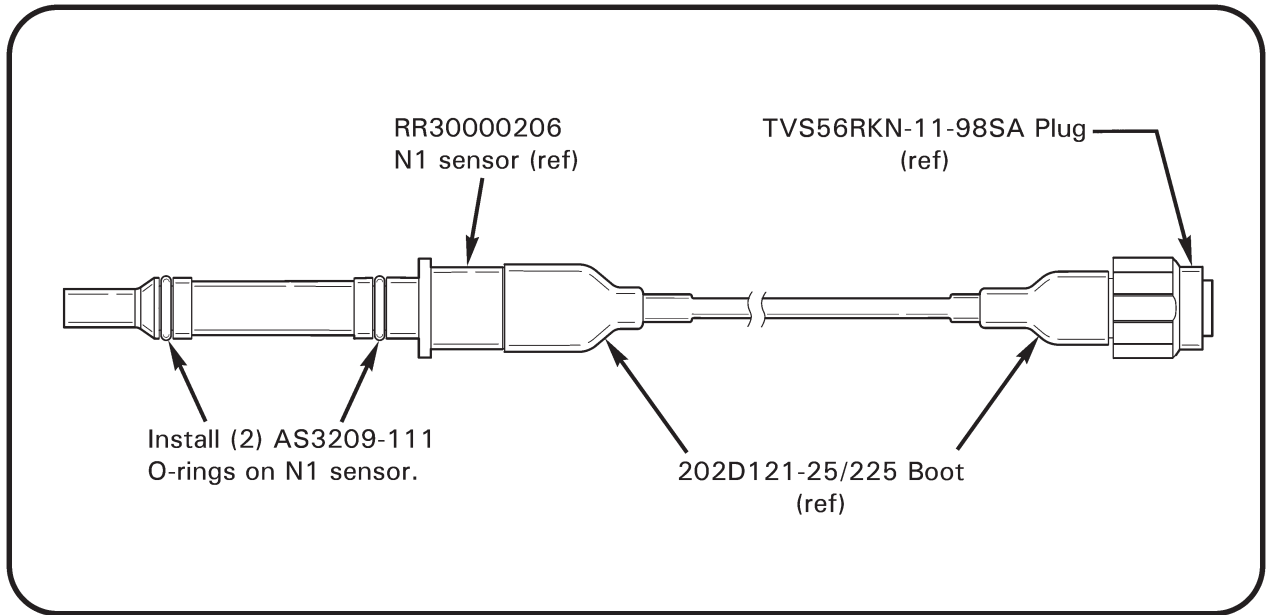
**WARNING**

**Review appropriate Safety Data Sheet (SDS) when working in proximity to hazardous materials. Specific recommendations for use of personal protective equipment are located in the SDS.**

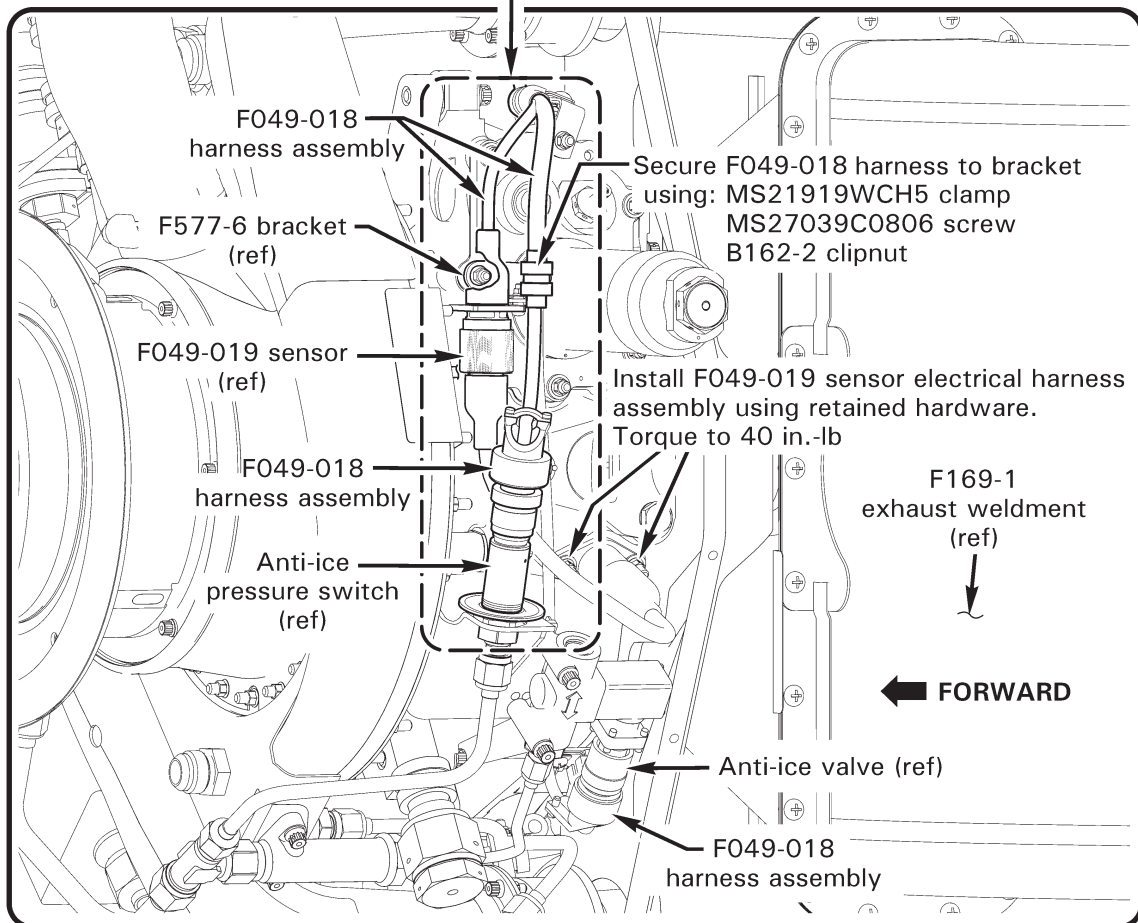
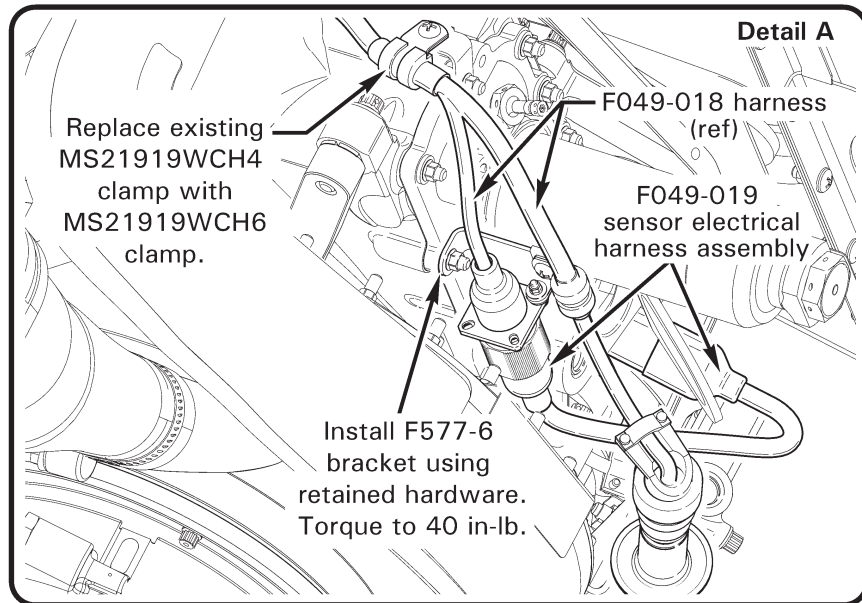
5. Refer to Figure 2. Lubricate (2)AS3209-111 o-rings using A257-23 turbine oil. Install o-rings on F049-019 N1 sensor electrical harness assembly as shown. Apply high temperature anti-seize to the threads of N1 installation studs. Install N1 sensor to engine using retained hardware; torque nuts to 40 in-lb.
6. Refer to IPC Figures 71-3 & 71-5, and Figure 2. Install F049-018 electrical harness assembly per MM § 71-12, step 14.a. thru e., using retained hardware.
7. Refer to Figure 3 and continue F049-018 electrical harness assembly installation as follows:
  - a. Install (supplied) MS21919WCH6 clamp around harness assembly and install on MS9592-050 (engine-supplied) bracket on engine lube oil filter assembly (Detail A).
  - b. Install F577-6 bracket to engine lube oil filter assembly (where MS9592-050 bracket was removed in step 3), using retained hardware. Torque to 40 in-lb. Connect F049-019 N1 sensor electrical harness assembly plug to F049-018 harness assembly receptacle at F577-6 bracket.
  - c. Connect F049-018 harness plugs to anti-ice valve assembly solenoid and anti-ice pressure switch assembly. Install (supplied) MS21919WCH5 clamp around harness assembly and install to F577-6 bracket using retained hardware.
8. Continue F049-018 electrical harness assembly installation per MM § 71-12, step 15.h. thru k..
9. If F173-2 shield is not installed:
  - a. Refer to Figure 1. Remove & retain MS27039C1-06 & MS27039C1-07 screw and D210-3 nuts.
  - b. Using retained hardware, install F173-2 shield as shown. Standard torque screws per MM § 20-32.
10. Connect F049-018 harness assembly to F059 (or F859) cabin harness assembly. Verify security. Secure harnesses using appropriately-sized ty-raps, as required. Cinch ty-rap until snug without over-tightening, and trim tip flush with head.
11. Connect battery negative (ground) cable per MM § 96-11 (lead-acid) or § 96-12 (lithium-ion).
12. Install G040 engine cowling assembly per MM § 53-21.
13. Make appropriate maintenance record entries. Weight and Balance change is negligible.



**FIGURE 1 F049 engine electrical harness assembly**  
(Remove existing harness & bracket from engine)



**FIGURE 2 F049-019 N1 sensor electrical harness assembly**  
(O-ring installation)



**FIGURE 3 F049-018 & F049-019 harness assembly installation**  
(Detail A rotated for clarity)