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SAFETY DIRECTIVE/ALERT

SD-092122-A

ID NUMBER & REVISION: SD-092122-A
SUBJECT: 4 AWG Wire Harness Crimp Inspections
RELEASE DATE: 09/22/2022
EFFECTIVE DATE: 09/22/2022
SUPERSEDES NOTICE: N/A
AIRCRAFT AFFECTED: **MAKE & MODEL:** A5
SERIAL NUMBERS: ASN 00135 to ASN 00136
ASN 00139 to ASN 00146
ASN 00148 to ASN 00150
ASN 00152 to ASN 00159

REQUIRED ACTION: Immediate inspection and potential re-crimp of all 4 AWG wire to terminal connections

TIME OF COMPLIANCE: Complete inspection instructions before next flight

REVISION HISTORY: A Initial Release

LEVEL OF CERTIFICATION ☐ Pilot/Owner ☒ A & P
REQUIRED (any level checked ☐ LSA Repairman – Inspection ☒ Certified Repair Station
can perform task): ☒ LSA Repairman – Maintenance ☒ Manufacturer

PURPOSE:

ICON has identified that some of the 4 AWG wire harness to terminal connections in the affected aircraft do not meet the required tensile pull force of 140lbs due to improper crimping of the wire harness to the terminal. Therefore, the crimp on certain connections needs to be visually inspected and re-crimped (or replaced) if found to be improperly crimped.

ASSEMBLIES AND PARTS:

Part Number	Description	Quantity	Alternate	
			Part Number	Description
ICA011076	TERMINAL, RING, INSUL. 5/16, 4 AWG	2	PV4-56R	
ICA011075	TERMINAL, RING, YELLOW, 4 x 1/4	4	PV4-14R	
ICA013586	TERMINAL, RING, YELLOW, 90 DEG	2	54748-1	
LOCTITE 243	THREADLOCKER, PRIMERLESS, OIL TOL, REMOVABLE MED STR, BLUE	A/N		
ICA012079	INSPECTORS LACQUER, ANTI SABOTAGE, Orange	A/N		
90116A250	SCREW, MACH, 316SST, M5-.8X10MM	1		
93925A260	WASHER, LOCK, INTERNAL STAR, CRES, M5	1		
90965A160	WASHER, FLAT, CRES, METRIC, M5	1		



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F4TAPEBLACK	TAPE, SELF-FUSING, SILICONE, .02 IN THK, 1 IN WIDE	A/N		
N/A	Powder-Free Nitrile Gloves	A/N		
N/A	Powder-Free Latex Gloves	A/N		
N/A	Isopropyl Alcohol	A/N		

References

ID	Rev	Issue Date	Title
ICA000833	D	06/17/2022	Maintenance Manual, A5
IPC/WHMA-A-620	Amendment 1	08/01/2013	Requirements and Acceptance for Cable and Wire Harness Assemblies (*ICON A5 is Class 2)

Manhours Required:

1. Compliance with disassembly and visual inspection of affected wire harness to terminal connections will require 2 hours.
2. Compliance with the re-crimping/replacement portion of this Safety Directive, if needed, will require two (2) hours. One person will be required to hold the wire harnesses, while the other will be required to perform the crimping.

Special tools, fixtures, or test equipment:

1. It is permissible to create and use tools and fixtures as required to properly carry out the instructions presented within this Safety Directive so long as they do not cause any damage to the aircraft or create any deviation of the aircraft from its intended design.
2. Special Tools Required
 - a. Appropriate equipment for cleaning and surface protection.
 - b. Crimping tool:
 - i. Molex crimper 64001-3900 (see Figure 1)
 - BARE 4 AWG die slot

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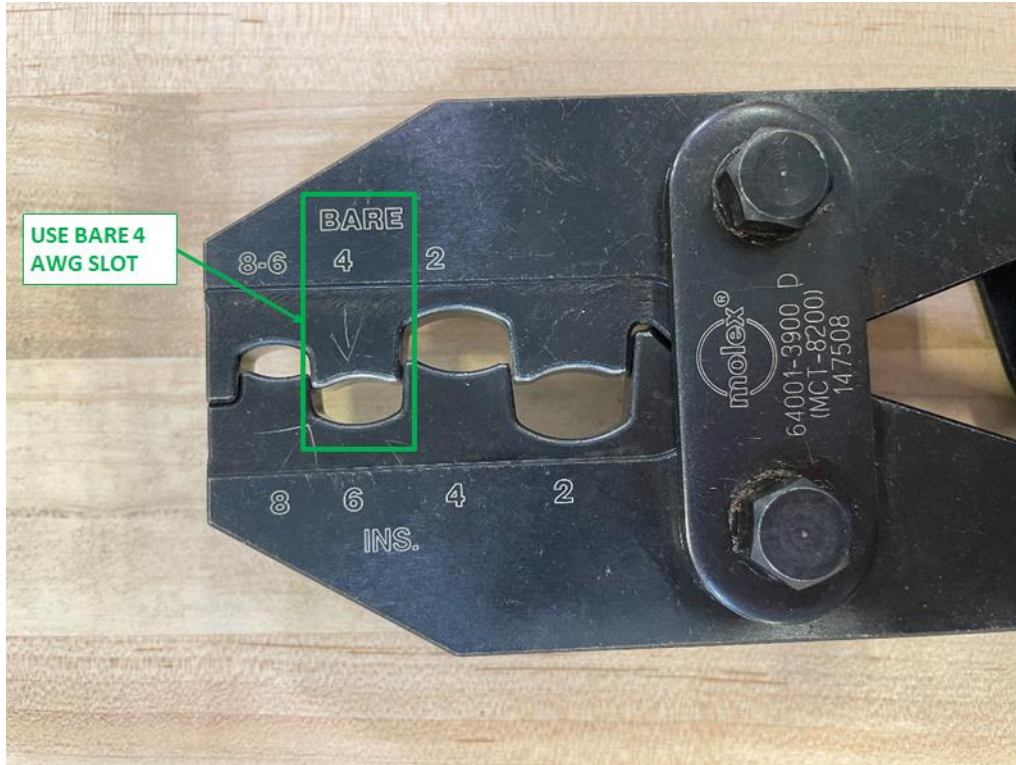


Figure 1 Crimping Tool

IF APPLICABLE, SERVICE KITS:

KIT NUMBER	CONTENT PARTS	DESCRIPTION	QUANTITY
N/A	N/A	N/A	N/A

INSTRUCTIONS:

A. **Removal of existing assemblies, subassemblies, or detail parts:**

Note: It is permissible to disassemble the aircraft as required to permit accessibility, inspection, adjustment, maintenance, and repair in accordance with the latest release of the Aircraft Maintenance Manual, ICA000833.

1. Remove the Right Top Instrument Panel Cover in accordance with Aircraft Maintenance Manual (Section [100547-00](#)).
2. Remove engine cowling in accordance with Aircraft Maintenance Manual (Section [100497-00](#)) steps 1 through 3 to gain access to the engine.
 - Disconnect the Induction Air Duct (Orange) to allow access to the starter solenoid and starter
 - Retain the hardware (clamps)



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B. Inspection Instructions:

NOTE: Ensure that Master Power switch is OFF before beginning the Inspection Instructions.

- 1. Visually inspect the crimp of each terminal listed in Step 2 below using the following criteria:**

Inspection criteria (See Figure 2)

Good/Pass: Visual crimp marks seen on insulation

Bad/Fail: Insulation is smooth and no visible crimp marks

- a. If the terminal crimps are found to be Good/Pass, then no action is required for the specific terminal.
- b. If a terminal crimp is found to be Bad/Fail, re-crimp or replacement of the failed terminal is required. Refer to Section C "Crimping Instructions" below.

NOTE: If it is needed to ferry the airplane to an ICON Service Provider, prior to the flight, a qualified technician must verify that no wire termination is loose by lightly tugging the wire just aft of the termination ring. Wires may appear to have smooth insulation but be crimped enough to complete a one-time ferry flight to the ICON Service Provider location.

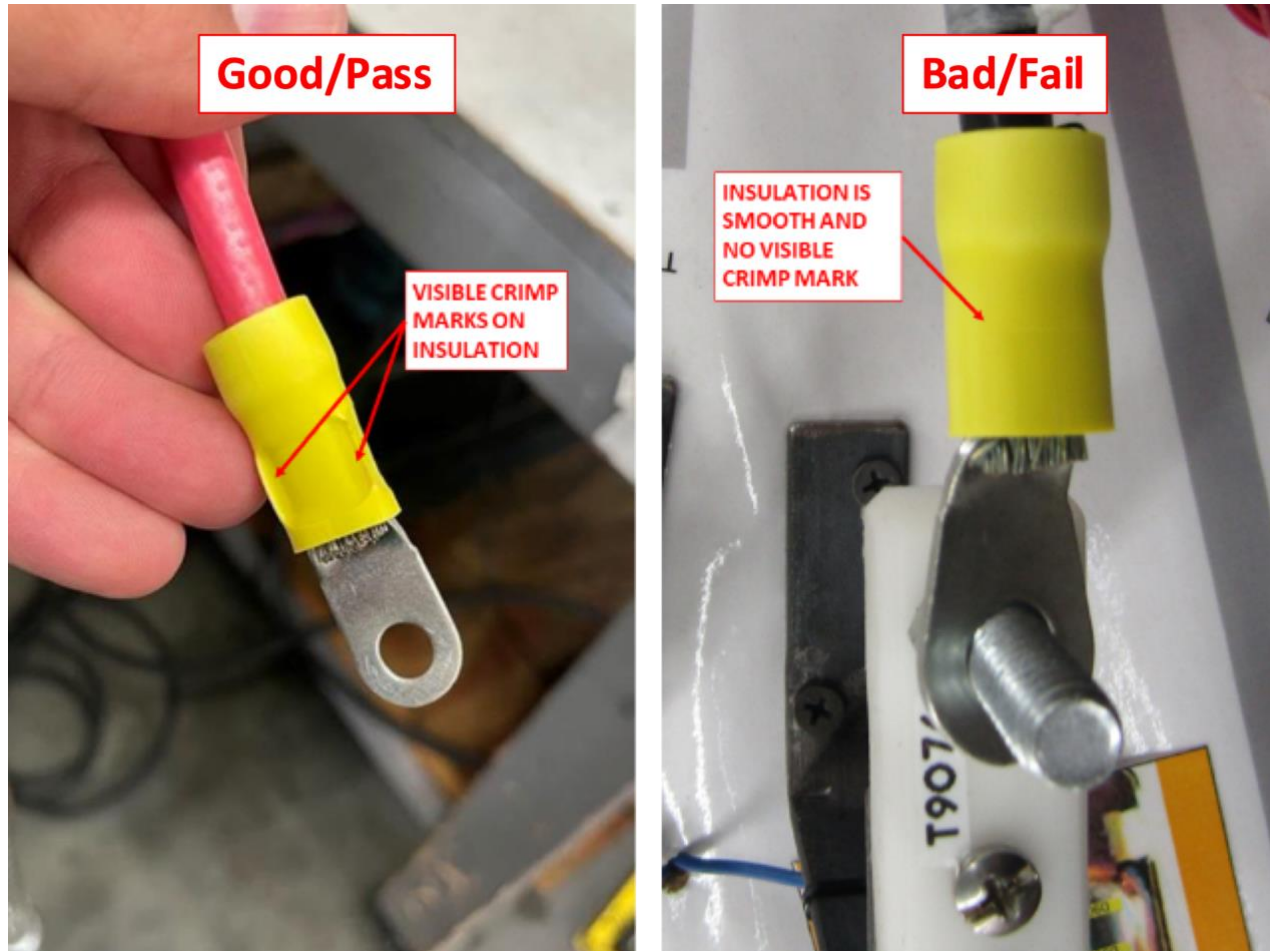
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Figure 2 Terminal Inspection Criteria (Good/Pass and Bad/Fail)

2. Inspect the following area:**a. ENGINE BAY TERMINAL INSPECTION**

- i. T9066 (Connected to RH terminal of the Starter Solenoid) See Figure 3
- ii. T9068 (Connected to LH terminal of the Starter Solenoid) See Figure 3
- iii. T9075 (Connected to Lower FWD Engine block GND) See Figure 4
- iv. T9067 (Connected to Engine Starter Motor) See Figure 5

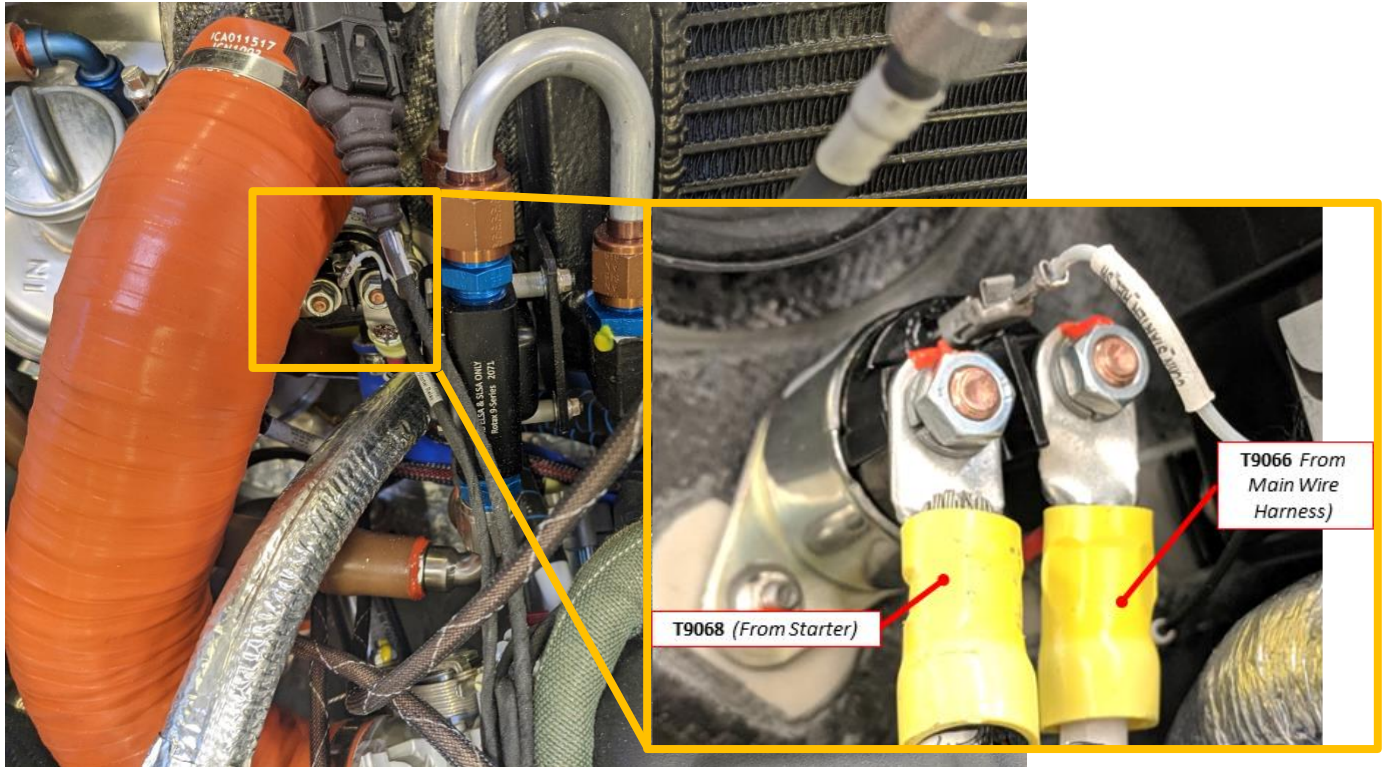
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Figure 3 Starter Solenoid (T9068 & T9066)

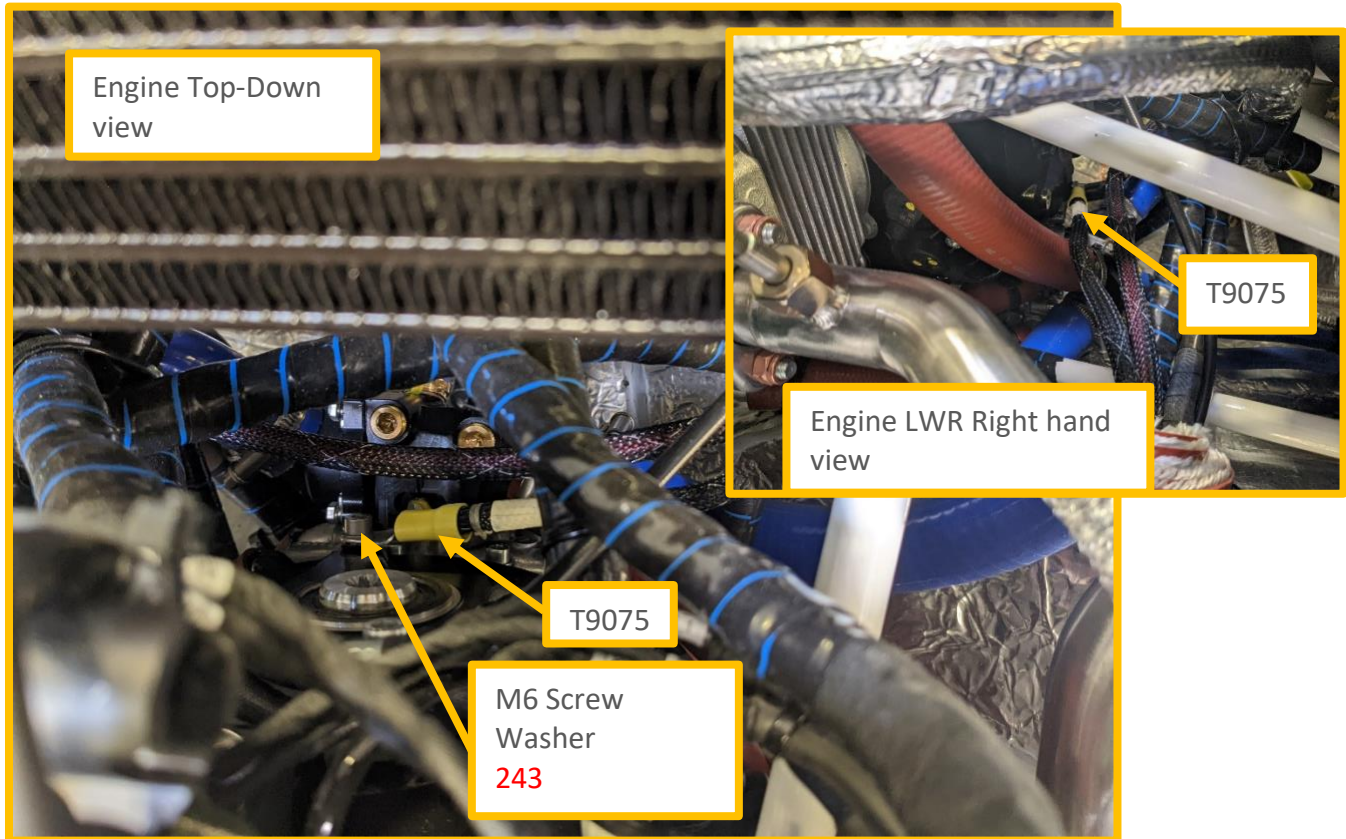
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Figure 4 Engine Block Ground (T9075)

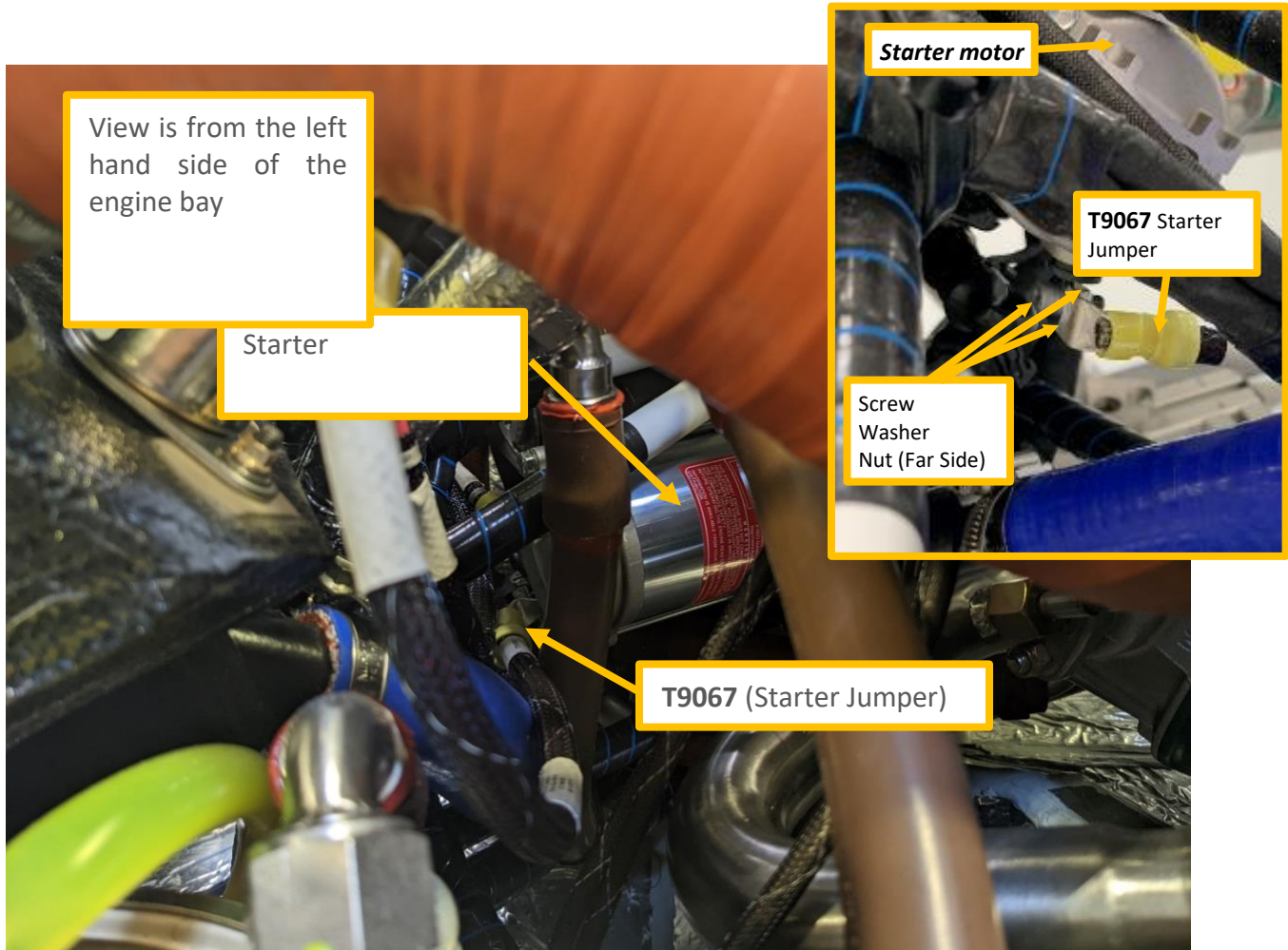
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Figure 5 Engine Starter Motor (T9067)



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b. FWD RH FUSELAGE TERMINAL INSPECTION

- i. T9053 (FWD Master Solenoid) Reference Figure 6
- ii. T9065 (AFT Master Solenoid) Reference Figure 6
- iii. T9054 (Positive Battery Terminal) Reference Figure 7

NOTE: The insulation T9054 may have heat shrink impeding the inspection. It is permissible to carefully cut away the heat shrink. Reference Figure 8

- iv. T9076 (Negative Battery Terminal) Reference Figure 7

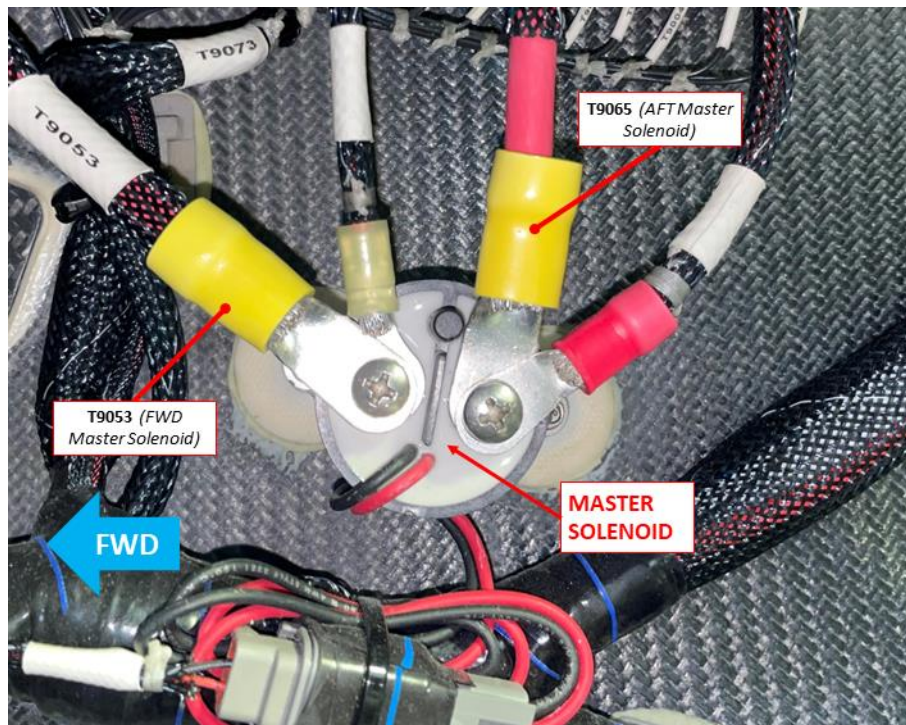


Figure 6 Aircraft Master Solenoid (T9053 & T9065)

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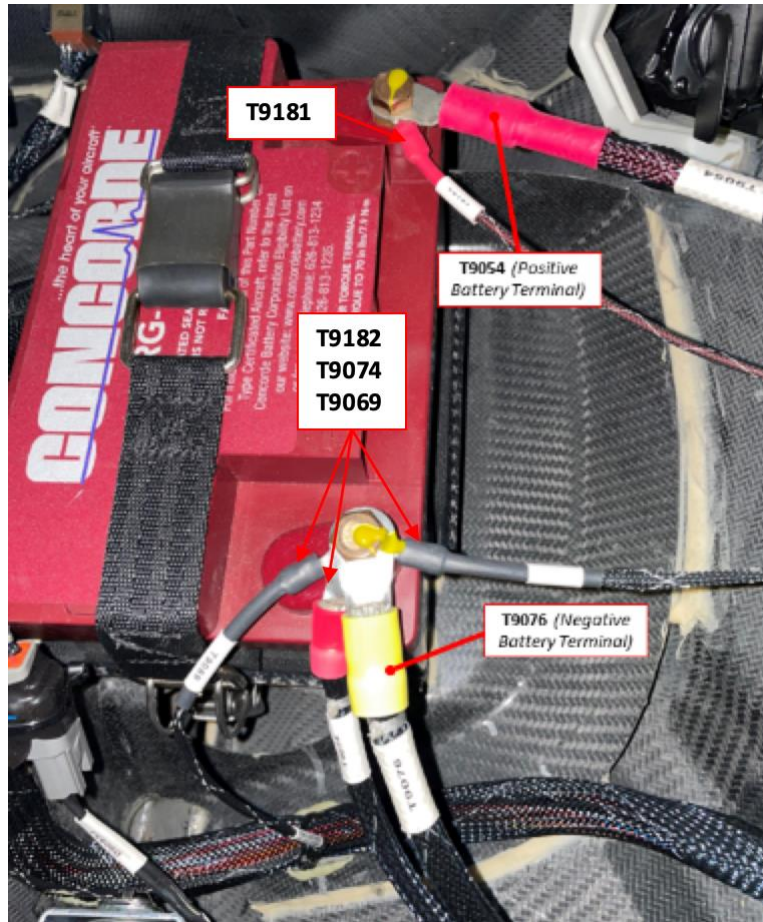
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Figure 7 Battery (T9054 & T9076)



Figure 8 T9054 Heat Shrink



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C. Crimping Instructions (If a Terminal is determined to be Bad/Fail)

NOTE: Ensure that Master Power switch is OFF before beginning the Crimping Instructions.

NOTE: Disconnect the battery terminals before disconnecting any other terminal.

1. Disconnect the affected (failed) terminals prior to crimping.
 - a. Retain all hardware for reinstallation.
2. Using the Molex crimper 64001-3900, and the die slot for **BARE 4 AWG** wire, complete the crimp for each terminal. Reference IPC/WHMA-A-620 for acceptance and defects. If there's damage or insulation becomes loose after crimping, use F4TAPEBLACK to cover ring terminal insulation, do not cover terminal label.
 - a. If necessary, the wires for **T9066** and **T9075** can be routed through the engine bay to create slack for access for crimping. Ensure to make note of the routing prior so that the wire can be routed properly during re-installation.
 - b. If any wires have slipped out of the terminal, they cannot be re-crimped and will need to be replaced with a new terminal. See below for applicable terminal PN's
 - i. **T9066** and **T9067** – ICA013586 (54748-1)
 - ii. **T9068** and **T9075** – ICA011075 (PV4-14R)
 - iii. **T9053** and **T9065** – ICA011075 (PV4-14R)
 - iv. **T9076** and **T9054** – ICA011076 (PV4-56R)
 - c. If the terminal insulation has cracked, or become loose during crimping procedure, secure terminal insulation using 1.5 full wraps of F4 tape. Ensure metal portion of ring terminal and reference designator label are not covered
3. Once all affected terminals are re-crimped or replaced, re-install each terminal using the following instructions:
 - a. **T9066** and **T9068**:
 - i. Connect electrical connections to starter relay with retained hardware, see Figure 3.
 - ii. Using isopropyl alcohol, clean surfaces where thread locker will be applied. Apply LOCTITE 243 to threads of nuts.
 - iii. **T9068** ring terminal **from starter** to **LH ring terminal** on **starter relay** as shown with supplied hardware see Figure 3.
 - iv. **T9066** ring terminal **from main wire harness** to **RH ring terminal** on **starter relay** as shown with supplied hardware see Figure 3.
 - v. Torque hardware to 33-39 in-lbs.
 - vi. Verify installation is complete.
 - vii. Verify wire harness is at least 0.5 inches from sharp edges/corners on plenum box.
 - b. **T9075**:
 - i. Connect ring terminal [**T9075**] from main wire harness to threaded boss on lower LH side of ignition housing on engine using the noted M6 hardware, see Figure 4.



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Using isopropyl alcohol, clean surfaces where thread locker will be applied. Apply Loctite 243 to screw threads.

- ii. Torque fastener to 88 in-lbs.

c. **T9067:**

- i. Attach ring terminal **[T9067]** from Starter Jumper to the Starter Motor using the retained M5 hardware, see Figure 5. It is permissible to bend the Ring Terminal up to 45 Deg.
- ii. Torque fastener to 53 ± 5 in-lb.

d. **T9065 & T9053:**

- i. Secure ring terminals **T9063** and **T9065** from the Main Wire Harness to the A2 side of master solenoid using noted hardware, see Figure 9.
- ii. Secure ring terminals **T9064** and **T9053** from the Main Wire Harness to the A1 side of master solenoid using noted hardware, see Figure 9.
- iii. Torque screws to 12-15 in-lbs.

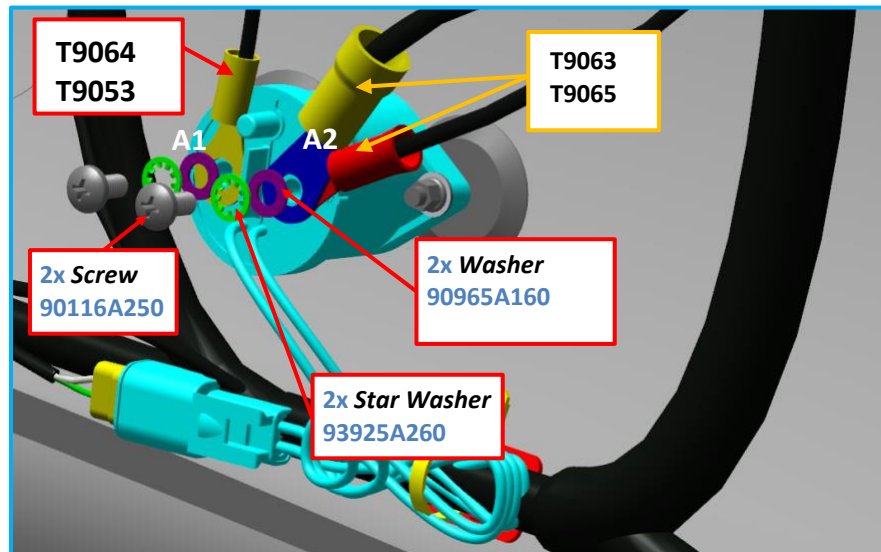


Figure 9 Master Solenoid hardware install

e. **T9054:**

- i. Connect ring terminal **T9181** (Positive Battery Jumper) and **T9054** (Master Relay Jumper) to the positive terminal of the battery.
- ii. Torque the Positive Battery Terminal to 66 to 74 in-lb.
- iii. Using isopropyl alcohol, clean surfaces where inspector lacquer will be applied.
- iv. Apply inspector's lacquer (ICA012079) to the bolt head and onto the adjacent structure.

f. **T9076:**

- i. Connect ring terminal **T9182** (Negative Battery Jumper), **T9076**, **T9074** (Main wire harness) and **T9069** (Bow hook battery jumper) to the negative terminal of the



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- battery.
 - ii. Torque the negative Battery Terminal to 66 to 74 in-lb.
 - iii. Using isopropyl alcohol, clean surfaces where inspector lacquer will be applied.
 - iv. Apply inspector's lacquer (ICA012079) to the bolt head and the adjacent structure.
4. Verification steps:
- a. Verify installation of all affected terminals.
 - b. Check for proper stain relief of electrical Connections.
 - c. Verify the wires do not exit the connector at sharp angles.
 - d. Verify the wires are not stressed (exhibit no freedom of movement).
 - e. Verify the wires are not pinched at connection points of edges near installation.
5. In accordance with the Aircraft Maintenance Manual (ICA000833):
- a. Reinstall engine cowling in accordance with Aircraft Maintenance Manual (Section 100497-00).
 - NOTE:** Before reinstalling engine cowling ensure to reconnect the Induction Air Duct
 - b. Reinstall the Right Top Instrument Panel Cover in accordance with Aircraft Maintenance Manual (Section 100547-00).2.

WARRANTY INFORMATION:

ICON Certified Service Providers: If performed in the stated time of compliance, ICON will cover parts and labor for the inspection (1 person for 2 hours) and crimping (2 people for 2 hours) under Icon's warranty program. Please submit an invoice for warranty reimbursement for labor upon completion of this Safety Directive/Alert. Please reference Safety Directive number SD-092122-A.

MAKE THE FOLLOWING LOGBOOK ENTRY:

"I hereby certify the repair and/or alteration has been completed in accordance with this Safety Directive/Alert and all the referenced documents. Potentially unclear procedures have been clarified with the Aircraft OEM. No issues were observed that might hinder return to service.

The corrective action of Safety Directive/Alert (SD-092122-A) has been complied with (ref. FAA Exemption 10829B)".



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If you have questions, comments, or concerns about this Safety Directive/Alert and/or if you are no longer owner/operator of this aircraft, please forward this information to the present owner/operator and notify ICON Aircraft at:

ICON Aircraft
2141 ICON Way
Suite 100
Vacaville, CA 95688
(855) FLY-ICON or (707) 564-4000
support@iconaircraft.com

Please include the aircraft registration number, serial number, your name, and if known the contact information of the new owner/operator.