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Service Information Letter

Letter No. A-144

65C30 Series Sealed Control Solenoid Valve Clamp Replacement

1. Planning Information

A. Effectivity

- (1) All Hartzell Engine Technologies LLC (HET) Aircraft Heater 65C30 Series Sealed Control Units are affected by this Service Information Letter if:
 - (a) P/N 10C67-1 Solenoid Valve Assembly is to be installed for any reason.

CAUTION: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS SERVICE INFORMATION LETTER. INFORMATION CONTAINED IN THIS SERVICE INFORMATION LETTER MAY BE SIGNIFICANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THIS SERVICE INFORMATION LETTER OR THE USE OF OBSOLETE INFORMATION MAY CREATE AN UNSAFE CONDITION THAT MAY RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR SUBSTANTIAL PROPERTY DAMAGE. REFER TO THE HET WEBSITE FOR THE MOST RECENT REVISION LEVEL OF THIS SERVICE INFORMATION LETTER.

B. Concurrent Requirements

- (1) None.

C. Reason

- (1) P/N 10C67 is no longer available but existing new or serviceable units may continue to be used with the original clamp arrangement. **This SIL does not require change of a properly operating Solenoid Valve Assembly.**
- (2) Hartzell Engine Technologies has updated the Janitrol P/N 10C67 Solenoid Valve Assembly to P/N 10C67-1 with the principle difference being the shape at the electrical connector.
- (3) Provide instruction to permit use of an updated P/N 10C67-1 Solenoid Valve Assembly in 65C30 Series Sealed Control Units by removing the existing clamp and installing a new clamp assembly which fits the new Solenoid Valve Assembly.

D. Description

- (1) This Service Information Letter is being issued to supply a method to modify the 65C30 Series Sealed Control Unit to permit use of an updated P/N 10C67-1 Solenoid Valve Assembly should the original P/N 10C67 Solenoid Valve Assembly be replaced.

E. Compliance

- (1) Compliance is mandatory whenever a P/N 10C67 Solenoid Valve Assembly is replaced by an updated P/N 10C67-1 Solenoid Valve Assembly in 65C30 Series Sealed Control Units.

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F. Approval

- (1) FAA approval has been obtained on technical data in this publication that affects type design.

G. Manpower

- (1) One half (0.5) manhour is required for the clamp replacement.
 - (a) This does not include time for removal and installation of the Sealed Control Unit from the aircraft/rotorcraft as this will vary with the model and type.
- (2) Two (2.0) manhours are required for Solenoid Valve replacement and leak tests.

H. References

CAUTION: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THE DOCUMENTS.

- (1) HET 95C35 Aircraft Heater Sealed Control Overhaul & Maintenance manual.
- (2) Aircraft/rotorcraft Service or Maintenance manual as may be applicable to your specific make or model aircraft/rotorcraft.

I. Other Publications Affected

- (1) None

J. Weight and Balance

- (1) Not affected

2. Material Information*

- (1) One (1) each, Clamp Assembly P/N 95034.
- (2) Clamp hardware: Two (2) each, Screw P/N MS35266-63, two (2) each, Washer P/N AN960-10L, and two (2) each, Nut P/N MS21044N3.
- (3) One (1) each, Packing, Preformed P/N MS219513-274.
- (4) Two (2) each, Gasket, Copper Special P/N AN900-7.
- (5) Five (5) each, Gasket, P/N 83A83.
- (6) Four (4) each, Nut, Self Locking, P/N MS20365-428A.
- (7) Four (4) each, Washer, Seal P/N 27C30.
- (8) One (1) each, Valve, Solenoid P/N 10C67-1.

* Additional parts may be necessary based on whether the clamp replacement is being done to coincide with overhaul of the Sealed Control Unit or as a repair only.

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3. Accomplishment Instructions

WARNING: THIS PROCEDURE MUST BE PERFORMED BY COMPETENT AND QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH AIRFRAME MAINTENANCE THAT IS SPECIFIC TO THE AIRCRAFT HEATING SYSTEM. FAILURE TO DO SO MAY RESULT IN ECONOMIC LOSS, EQUIPMENT DAMAGE, AND/OR PHYSICAL INJURY.

CAUTION: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS SERVICE INFORMATION LETTER (SIL) AND THE HET 95C35 SEALED CONTROL OVERHAUL & MAINTENANCE MANUAL. ANY INSTALLATION ACTIVITY MUST BE DONE ACCORDANCE WITH THE MOST RECENT REVISION OF THE APPLICABLE AIRCRAFT/ROTORCRAFT MAINTENANCE MANUAL. INFORMATION CONTAINED IN THESE MANUALS OR THIS SIL MAY BE SIGNIFICANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THIS SIL OR THE USE OF OBSOLETE INFORMATION MAY CREATE AN UNSAFE CONDITION THAT MAY RESULT IN DEATH, SERIOUS BODILY INJURY, AND / OR SUBSTANTIAL PROPERTY DAMAGE. REFER TO THE APPLICABLE AIRCRAFT MAINTENANCE MANUAL INDEX FOR THE MOST RECENT REVISION LEVEL OF THEIR PUBLICATIONS. REFER TO THE HET WEBSITE FOR THE CURRENT REVISION LEVELS OF HET PUBLICATIONS.

A. Gaining access and removing the Sealed Control Unit:

NOTE: This procedure must be performed by competent and qualified personnel who are familiar with aircraft/rotorcraft heating systems. Do not depend on this SIL for gaining access to the heater Sealed Control Unit. This instruction requires that you use the applicable aircraft/rotorcraft manufacturer's maintenance manuals or service instructions.

- (1) Remove the necessary panels to gain access to the heater Sealed Control Unit. The location of the heater Sealed Control Unit may vary widely based on the type and model aircraft/rotorcraft.
 - (a) If space does not permit or the unit is being overhauled, the heater Sealed Control Unit must be removed from aircraft/rotorcraft and the clamp change and solenoid valve replacement done on the bench during repair or at overhaul.
 - (b) If space permits, the solenoid valve replacement and clamp change may be done on the aircraft/rotorcraft by removing the base assembly only.
- (2) If Removing Sealed Control Unit from the Aircraft/rotorcraft:
 - (a) Disconnect electrical power including any ground power being applied to the aircraft/rotorcraft. Turn off the fuel source to the Sealed Control Unit.
 - (b) Disconnect the electrical connector from the Sealed Control Unit.
 - (c) Provide a suitable container or shop rags to catch fuel residue from the Sealed Control Unit fuel lines.

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- (d) Crack open the fuel outlet line and catch fuel, if no fuel comes out, disconnect the line completely and cap.
 - (e) Crack open the inlet line and catch fuel, only a small amount of fuel should come out. If fuel continues to flow, check to be sure the aircraft fuel has been shut off. Once fuel has stopped, disconnect the line completely and cap.
 - (f) Disconnect the drain line at the bottom of the Sealed Control Unit. No fuel should be present. If fuel is found leaking into the unit, determine the cause and repair or overhaul.
 - (g) Disconnect four fasteners and remove hardware that attach the Sealed Control Unit to the aircraft/rotorcraft structure. Remove the complete Sealed Control Unit.
- (3) If Procedure is Performed on the Aircraft/rotorcraft:
- (a) Disconnect electrical power including any ground power being applied to the aircraft/rotorcraft. Turn off the fuel source to the Sealed Control Unit.
 - (b) Disconnect the electrical connector from the Sealed Control Unit.
 - (c) Provide a suitable container or shop rags to catch fuel residue from the Sealed Control Unit fuel lines.
 - (d) Crack open the fuel outlet line and catch fuel, if no fuel comes out, disconnect the line completely and cap.
 - (e) Crack open the inlet line and catch fuel, only a small amount of fuel should come out. If fuel continues to flow, check to be sure the aircraft fuel has been shut off. Once fuel has stopped, disconnect the line completely and cap. Proceed to 3.B.
 - (f) It is not necessary to disconnect the drain line at the bottom of the Sealed Control cover, however watch for leaking fuel when the base is removed. No fuel should be present. If fuel is found leaking into the unit, determine the cause and repair or overhaul.
 - (g) This prepares Sealed Control Unit for removal of the base assembly. The base contains and secures all the components including the fuel solenoid valve.

B. Instructions:

NOTE:

If overhauling the 65C30 Sealed Control Unit, HET Janitrol Overhaul Manual 95C35 must be used for all procedures including disassembly, assembly, and testing. If a repair to replace the Solenoid Valve Assembly is being done, use only the instructions in this SIL to effect the repair. Refer to Figure 1 as required.

- (1) To repair or overhaul Sealed Control Unit, it is necessary to remove the base assembly (78) from the jacket and cover assembly (9).

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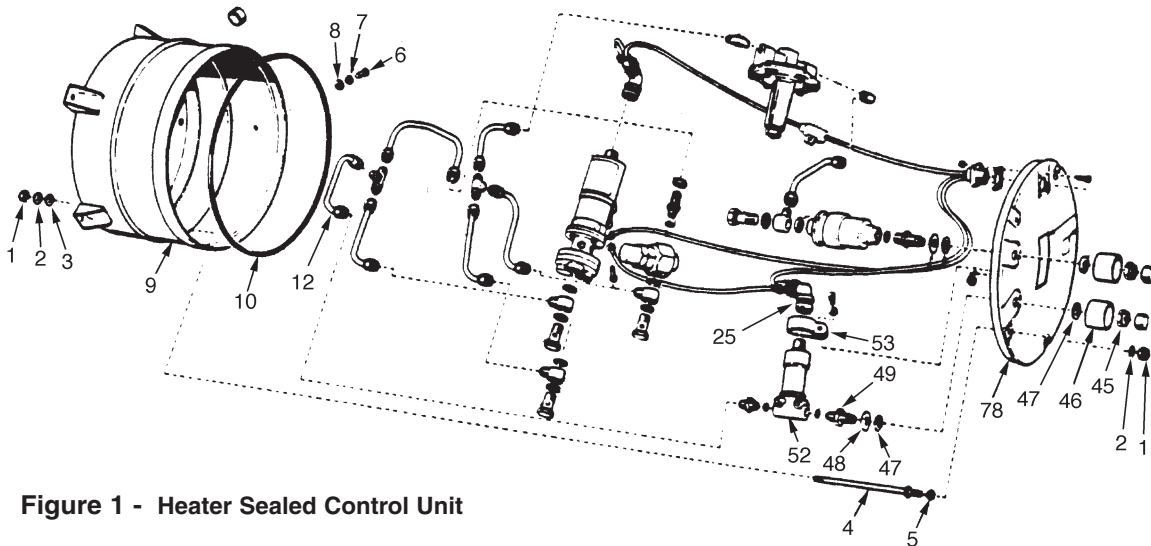


Figure 1 - Heater Sealed Control Unit

NOTE:

Whether on the aircraft/rotorcraft or on the bench, the base removal is the same. It should be noted that the base is heavy as it contains a fuel pump, fuel filter, pressure relief valve, fuel regulator and the fuel Solenoid Valve Assembly. If the base (or entire unit) is being removed from the aircraft/rotorcraft, care must be taken not to drop it.

- (2) Remove the screw (6) from the outer side of the jacket (9) and the four nuts (1) and washers (2) from the base and rock slightly to remove. If the unit is old, the preformed packing (10) may stick. Use a soft mallet and tap around the jacket circumference while hand pulling on the base. Do not pry using metallic tools as damage may occur to the base or jacket. Remove preformed packing (10) and discard.
- (3) Locate the Solenoid Valve clamped to the base as shown in Figure 2.
- (4) Cut the safety wire and disconnect the electrical connector (25) from the mating connector on the Solenoid Valve (52).

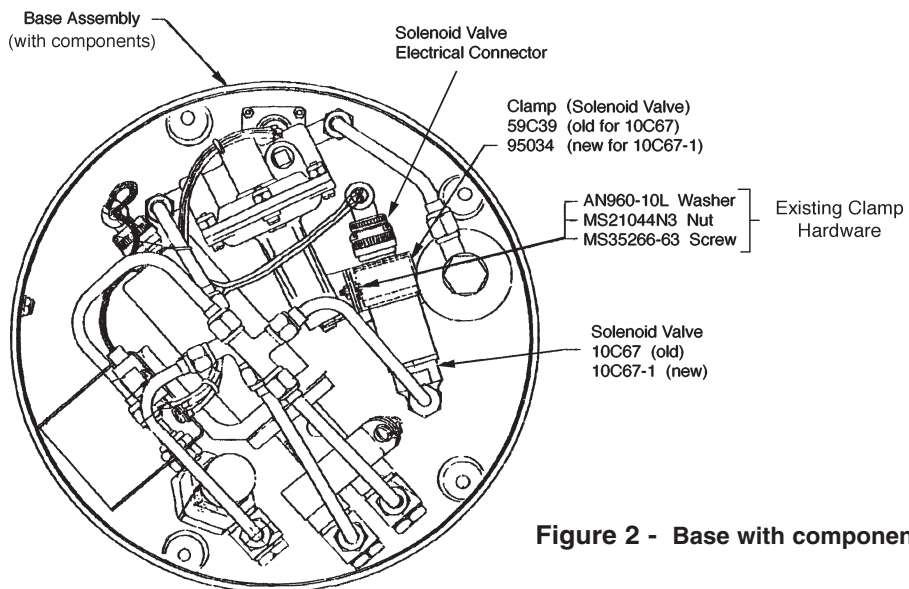


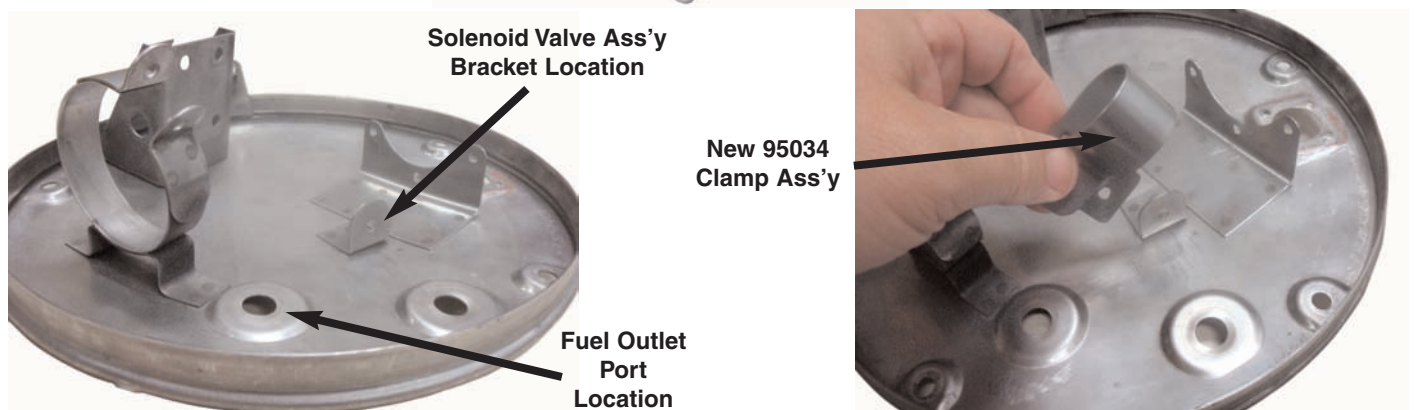
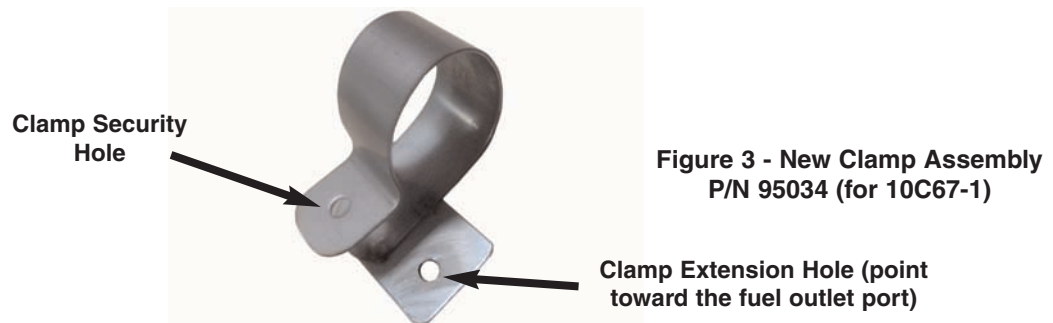
Figure 2 - Base with components

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- (5) Disconnect the B-nuts and remove the fuel tube (12).
- (6) Hold the union (49) using an open-end wrench and remove the nut (45), shroud (46), and gasket (47) on the face of the base assembly. Discard gaskets.
- (7) Using appropriate tool, remove the nut, washer, and screw releasing the old 59C39 clamp (53) and discard the clamp and hardware.
- (8) Note position of the Solenoid Valve Assembly (52) for later reassembly. Slide the union (49) which is attached to the Solenoid Valve out of the base assembly. Remove and discard the gasket (47) from the union assembly. Retain flat washer (48) for later reinstallation. Properly discard the old Solenoid Valve Assembly.
 - (a) If performing an overhaul, continue with the remaining steps of disassembly in the 93C35 Overhaul Manual. When beginning the assembly for overhaul, perform steps 3.B(9) through 3.B(16) before continuing the normal overhaul reassembly and test.
 - (b) If performing a repair only, install the new clamp assembly and new Solenoid Valve Assembly per the steps below.
- (9) Slide new Clamp Assembly P/N 95034 over the new Solenoid Valve Assembly with the clamp extension hole pointing towards the fuel outlet port. Insert new Screw P/N MS35266-63 through the clamp security hole. Place the Washer P/N AN960-10L and the Nut P/N MS21044N3 on the screw snug but do not tighten. (Refer to Figs. 4 & 5.)



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- (10) Using the position noted in step 3.B (8), install the flat washer (48) and new gasket P/N AN900-7 (47) on the union. Insert the union with the arrow pointing towards the base, in the fuel outlet port. Install the new gasket AN900-7 (47), shroud (46), and nut (45) snug but do not tighten. (Refer to Figures 1, 4, & 5.)

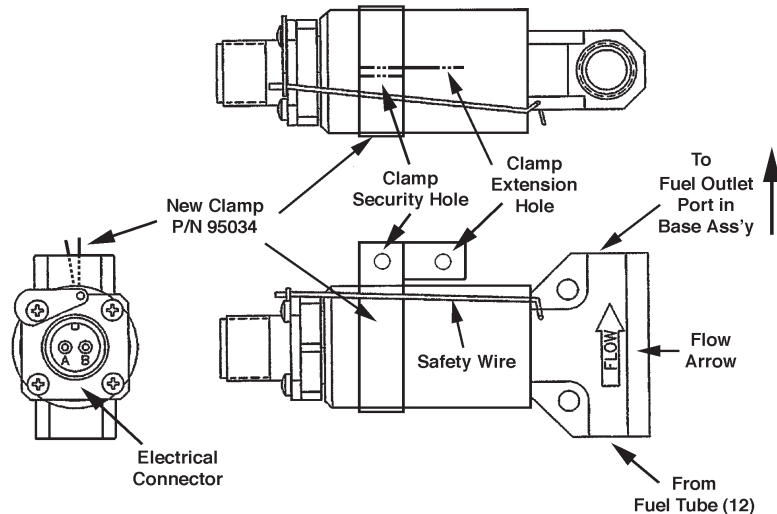


Figure 5 - Solenoid Valve Ass'y Flow Arrow & Clamp Orientation

- (11) Position the new Clamp Assembly so that the hole in the Solenoid Valve Assembly bracket and the clamp extension hole aligns and insert the new Screw P/N MS35266-63 through the hole. Place the Washer P/N AN960-10L and the Nut P/N MS21044N3 on the screw snug but do not tighten. (Refer to Figures 3 & 4.).
- (12) Position the Solenoid Valve so that the fuel tube removed in step 3.B(5) will fit without difficulty.
- (13) Reconnect the fuel tube (12) but do not force. If B nuts will not finger tighten first, then reposition the Solenoid Valve Assembly for proper alignment and tighten. Use standard torque for B nut fittings.
- (14) Tighten the nut against the shroud and gasket from step 3.B(10) making sure to hold the union in place using an open end wrench. Use standard torque.
- (15) Tighten both nuts securing the clamp from steps 3.B(9) & 3.B(11). Use standard torque.

NOTE: If performing an overhaul, refer to the HET Janitrol Overhaul Manual 95C35 and continue with the complete set of instructions for assembly and testing of the 65C30 to complete the overhaul procedure. At 65C30 overhaul completion, proceed to 3.C(1) Return to Service. The remaining 3.B instructions apply to repair when replacing the old Solenoid Valve Assembly with the new P/N 10C67-1 Solenoid Valve Assembly and new clamp.

- (16) Reconnect the electrical connector and apply safety wire properly to secure.
- (17) When assembly of Solenoid Valve and clamp is complete, a leakage test must be performed using a test set up similar to that in Figure 6.
- (18) When performing the fuel leakage test, Stoddard solvent (or equivalent solvent) may be used in the fuel source instead of aviation fuel.

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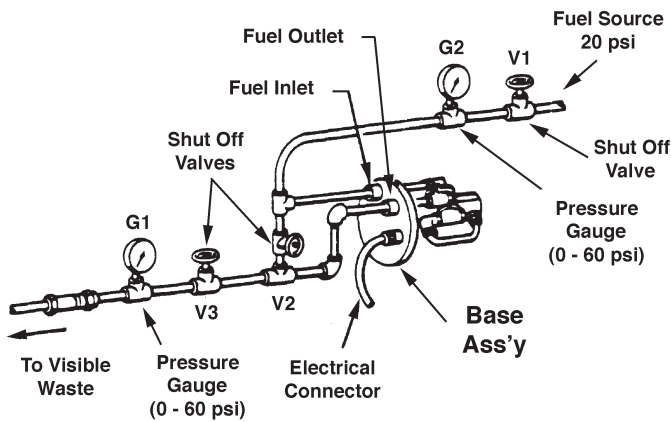


Figure 6 - Test Set Up
Fuel Leakage

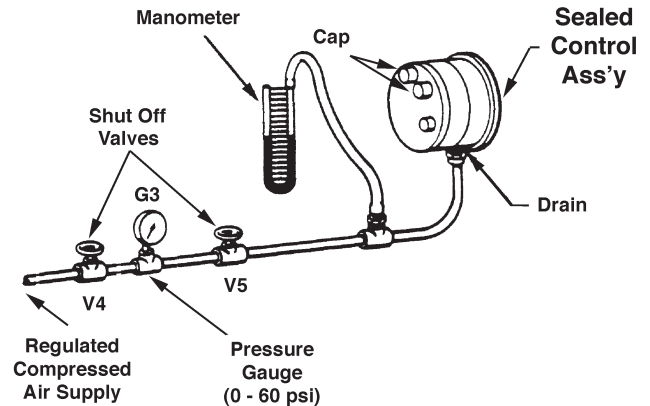


Figure 7 - Test Set Up
Air Leakage

WARNING: IF USING AVIATION FUELS IN THE FUEL LEAKAGE TEST, BE SURE THAT THE TEST IS DONE IN A WELL VENTILATED AREA AWAY FROM ANY IGNITION SOURCES. THESE INCLUDE BUT ARE NOT LIMITED TO WELDING, GRINDING, OR ANY OTHER SPARK GENERATING PROCEDURE OR DEVICE. FAILURE TO OBSERVE THIS CAUTION MAY RESULT IN UNCONTAINED FIRE WITH POSSIBLE PHYSICAL INJURY OR DEATH, EQUIPMENT DAMAGE, AND ECONOMIC LOSS.

(19) Fuel Leakage Test:

- (a) The test set up in Figure 6 consists of a fuel source capable of supplying 20 psi, three shut off valves, two fuel pressure gauges (0-60 psi minimum), and suitable plumbing components configured as shown. Fuel source may be supplied by a gravity tank or fuel pump as long as 20 psi can be achieved.
- (b) Make sure the Sealed Control Base Assembly is in a vertical plane with the fuel inlet at the top in the highest position as shown in Figure 6 and connect all components. (Provide a suitable container to catch waste fuel at the end of the visible waste line.)
- (c) Close shut off valve V2 and open shut off valve V3. Open shut off valve V1 and purge air from the system noting a bubble free line of fuel coming from the visible waste line.
- (d) Close shut off valve V1 to stop fuel from flowing and close shut off valve V3. Open the shut off valve V2.
- (e) Open shut off valve V1 and observe pressure gauge G2. Allow the fuel pressure to stabilize at 20 psi and turn shut off valve V1 off.
- (f) Allow ten (10) minutes to elapse, then observe all fuel fittings, tubes, and components for evidence of fuel leakage. If wet or leaking fuel is found, correct the condition and re-apply the fuel leakage test. If leakage continues or is found in areas other than the Solenoid Valve being replaced, the unit should be completely overhauled.

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- NOTE:** Whether on the aircraft/rotorcraft or on the bench, the base installation is the same. It should be noted that the base is heavy as it contains a fuel pump, fuel filter, pressure relief valve, fuel regulator and the fuel Solenoid Valve Assembly. If the base (or entire unit) is being installed in the aircraft/rotorcraft, care must be taken not to drop it.
- (20) Remove fuel leakage test apparatus and reassemble the base into the jacket and cover assembly. Place new preformed packing (10) on the lip of the jacket (9). It is permissible to lube the packing with Dow Corning DC-4 at installation to help retain the packing while installing the base.
 - (21) In the jacket and cover assembly (9), locate the four support tubes (4) and remove and discard the seal washers (5) and install new P/N 27C30 seal washers.
 - (22) Place the base assembly (78) in the jacket and cover assembly (9) noting the location of the hole in the upper side of the jacket and in the edge of the base assembly. Make sure to align the four support tubes with the applicable holes in the base.
 - (23) With proper location made between the jacket and base assembly, install the screw (6), washer (7), and new Gasket, P/N 83A83 into side of the base loosely to align the base.
 - (24) At the four support tube locations, install the flat washers (2) and new Self Locking Nut (1) P/N MS20365-428A to secure the base to the jacket and cover assembly. Tighten one screw (6) and four nuts (1) using standard torque.
 - (25) Air Leakage Test:
 - (a) Prior to re-connecting aircraft/rotorcraft fuel lines and electrical connector, an air leakage test must be performed using the test set up shown in Figure 7.
 - (b) The test set up in Figure 7 consists of a regulated oil free compressed air source capable of supplying 30 psi, an air pressure gauge (0-60 psi), two shut off valves, a mercury manometer (0-30 inch of mercury minimum), and suitable plumbing components configured as shown. Connection of the test lines and components may be done with the Sealed Control Assembly installed.
 - (c) Cap the fuel inlet and outlet fittings securely and disconnect the drain line (if not done previously). Connect the test set up.
 - (d) Open both shut off valves V4 and V5 and pressurize the Sealed Control Assembly to 10 psi turning off the shut off valve V4 when 10 psi is reached. Check to note pressure gauge G3 is stable and close shut off valve V5.
 - (e) Observe the manometer and record the time it takes for the pressure to drop from eighteen (18) inches of mercury to fourteen (14) inches of mercury. The time must not be less than thirty (30) seconds. If less than this time, the cause of air leakage must be found and corrected and the air leakage test repeated.

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- (26) Remove air leakage test apparatus and remove the caps from the fuel inlet and outlet fittings and attach the drain line.
- (27) Using the most recent aircraft/rotorcraft maintenance manual or service instructions, install the fuel inlet and fuel outlet lines and torque to values found in the manual. (If being returned from overhaul, mount the Sealed Control Assembly with hardware retained or as obtained from the applicable aircraft/rotorcraft manufacturer and torque to the values found in the manual.)
- (28) Connect the aircraft/rotorcraft electrical connector for the Sealed Control Assembly and safety wire as required.

C. Return to Service

- (1) Before attempting a start of the installed heater, pressurize the heater fuel system lines and check lines and fittings to ensure no leaks exist. Be sure all air intake scoops, air ducts, and exhaust tubes are clean and free of debris. Utilize the applicable and most recent aircraft/rotorcraft service instructions or maintenance manual as required.
- (2) Place the aircraft/rotorcraft outside or in a well ventilated area and perform a normal heater start, run, and shutdown. Utilize the most recent aircraft/rotorcraft AFM or POH to determine the procedure for proper operation.
- (3) Using the applicable aircraft manufacturer's maintenance manuals of the latest revision, install any portion of the aircraft that was removed to gain access.
- (4) Make a logbook entry to indicate installation of a new P/N 10C67-1 Solenoid Valve Assembly and completion of the 65C30 Series Sealed Control Solenoid Valve Clamp Replacement by compliance with this Service Information Letter.

4. Contact Information:

- A. All communications regarding this Service Information Letter, must be placed either through Hartzell Engine Technologies Technical Support at (888) 461-6077 or via Fax (334) 386-5450. For the Warranty department, (334) 386-5441.
- B. Written communications must be placed through Hartzell Engine Technologies Technical Support, 2900 Selma Highway, Montgomery, AL 36108, USA.
- C. If E-mail communication is desired, go to our website:<http://www.hartzellenginetech.com> and select "contact" and follow the instructions.

No commercial assistance or warranty applies to this Service Information Letter.