Group C 5

FUEL FILTER DE-ICING (CODE EFD)

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ILLUSTRATION

TABLE

Introduction

1. This group contains the description and operation of the fuel filter de-icing circuit together with the information required to maintain the equipment in an efficient condition. Routeing and theoretical circuit diagrams are also included. For a general description of the aircraft's electrical system, reference should be made to Groups A1, A2 and A3. Detailed information on the standard items of equipment used will be found in the Air Publications listed in Table 1. STI/Hunter/427 renders the fuel filter de-icing system inoperative by fitting dummy fuses to positions 11 and 12 in the electrical supply panel. In addition the non-return valve, solenoid valve and associated piping are removed to safeguard against failure of the non-return valve.

DESCRIPTION

Fuel filter de-icing

2. To de-ice the fuel filter, an electri-cally driven pump, mounted between frames 43 and 44 on the port side of the engine bay, injects alcohol from a tank, also located in the engine bay, into the filter via the fuel delivery pipe. The alcohol flow is controlled by a solenoid valve, which is incorporated in the pipe-line between the pump and fuel delivery pipe and located just aft of frame 38 in the centre fuselage. The system is automati-cally controlled by a differential pressure switch situated, with the fuel filter, on the starboard side of the engine. To indi-to the ground crew that the system has operated, a solenoid controlled tank contents indicator, is provided on a bracket attached to the aft starboard face of frame 45 in the rear fuselage. A manually operated switch, wired in parallel with the pressure switch, is also mounted on this bracket to enable the installation to be tested on the ground. For a full des-cription of the fuel filter de-icing system, reference should be made to topic 1A, Sect 4, Chap 2.

Note ...

The solenoid of the tank contents indicator is a Type B.U.S.1A solenoid (Ref 5CW/3816), modified to Hawker Pt. No.A.222152.

Operation

3. Ice which collects in the fuel filter is detected by an increase in pressure drop across the filter, resulting in the
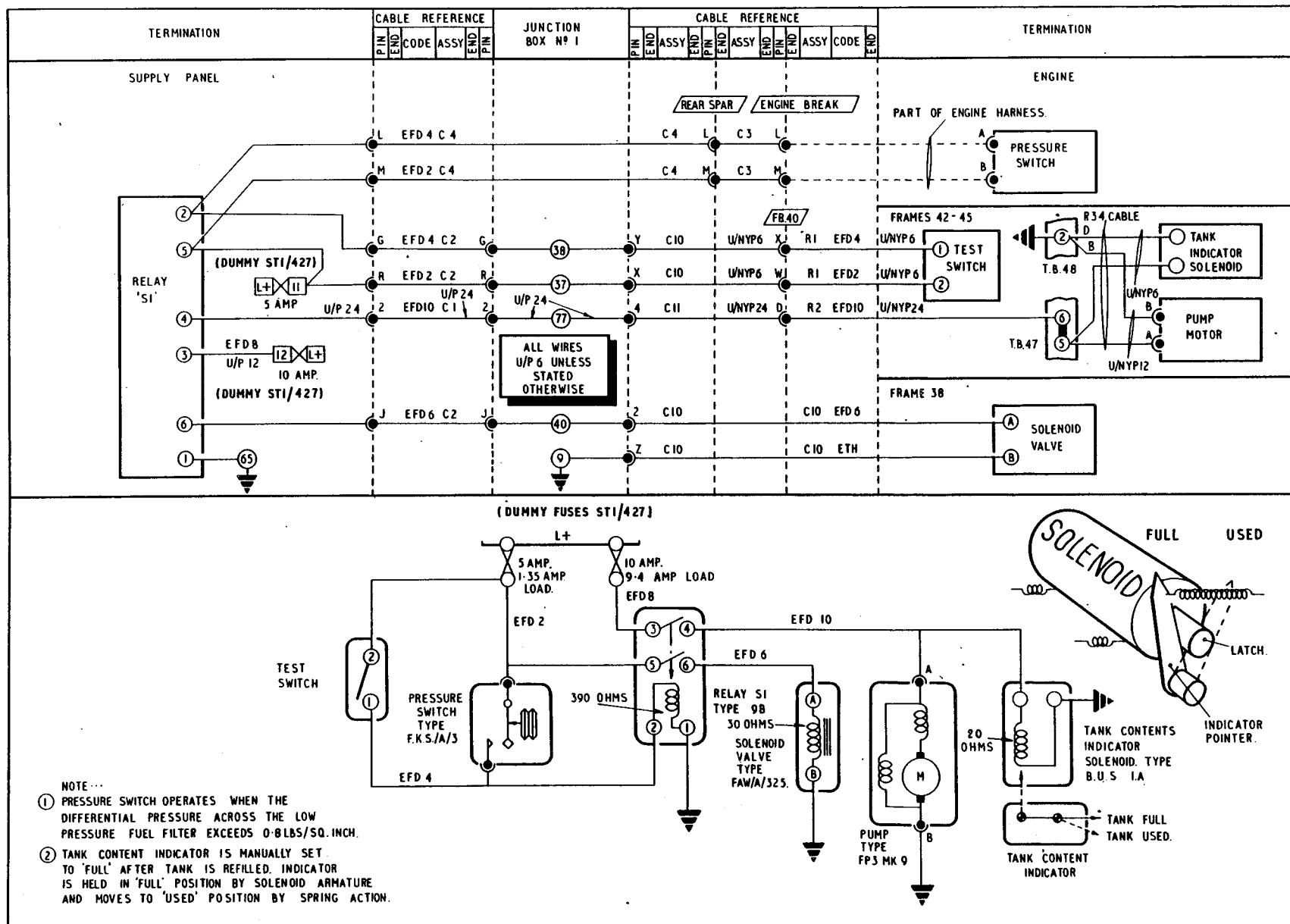
Fig. 1 Fuel filter de-icing (routeing and theoretical)

▶ (STI/Hunter/427 added) ◀

operation of the differential pressure switch. When this switch operates, its contacts close and energize relay S1. When energized, this relay makes both sets of contacts and supplies the solenoid valve, via the contacts fed from the control circuit fuse. It also supplies the pump motor and the tank contents solenoid from the other set of contacts which are independently fused. The solenoid valve opens when energized, allowing the pump to inject de-icing alcohol into the fuel filter via the delivery pipe. When the tank contents solenoid is energized, its plunger is withdrawn to allow the spring-loaded pointer to move over to the word USED, thus showing the ground crew that the installation has operated and that the tank will require refilling. When the ice is cleared and the pressure drop returns to normal, the pressure switch will open, thus de-energizing relay S1 to break its contacts and isolate the supply from the solenoid valve, pump motor and contents solenoid. The solenoid valve will then close, the pump cease to operate and the contents solenoid will be de-energized.

4.   The test switch is wired in parallel with the pressure switch and when closed simulates the pressure switch to enable the system to be tested on the ground without running the engine. The operation of the circuit is similar to that described in para.3.

SERVICING

General

5.   For general servicing of the electrical system, reference should be made to Group A.1. The components should be kept clean and periodically checked for security and serviceability. For electrical testing of the standard components used, reference should be made to the appropriate Air Publications listed in Table 1.

Circuit test

6.   The test switch, accessible via an access door in the starboard side of the rear fuselage between frames 45 and 46, is provided to test the system on the ground at the times quoted in the Servicing Schedule. The switch must not be used until a pressure gauge and relief valve assembly is fitted to the drain valve on the engine delivery pipe as described in Book 1, Sect.4, Chap.2.

Re-setting tank contents indicator

7.   Whenever the system has been used and the tank refilled, the tank contents indicator must be re-set as follows:-

(1)   Gain access to the indicator by removing the access door from between frames 45 and 46 on the starboard side of the rear fuselage.

(2)   Depress the plunger of the solenoid and move the indicator pointer back to the word FULL by rotating the knurled spool at the base of the pointer and allowing the pointer to slide over the depressed plunger.

(3)   Release the plunger to hold the pointer in the set position and finally replace the access door.

REMOVAL AND ASSEMBLY

General

8.   Once access has been obtained, the removal and assembly of the components forming the fuel filter de-icing circuit, should present no difficulties. The location and access to all the components is indicated in Group A.3.

TABLE 1

Equipment type and Air Publication reference

Equipment Type	Air Publication
Priming pump, Type FP.3, Mk.9	A.P.4343D, Vol.1, Book 2, Sect.7
Solenoid valve, Type FAW/A/325	A.P.4343E, Vol.1, Book 1, Sect.1
Pressure switch, Type FKS/A/3	A.P.1275A, Vol.1, Sect.24
Test switch, C.W.C., Type XD.781, No.4	A.P.4343C, Vol.1, Book 1, Sect.1
Relay, Type 9B, No.1	A.P.4343C, Vol.1, Book 2, Sect.3