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ARROW 1

MAINTENANCE INSTRUCTIONS

ELECTRICS - FUEL SYSTEM

71/MAINT 11/7

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M.D.R. 11-E5/41	Relay - Fuel Shut/Off
M.D.R. 11-E5/66	Control Unit - Tank Low Level No. 5
M.D.R. 11-E5/77	Control Unit - Tank Low Level No. 1 & 2
M.D.R. 11-E14/22	Switch - L/P Cock
M.D.R. 11-E21/2	Switch - Refuel Master
M.D.R. 11-E21/3	Switch - Refuel Selector
M.D.R. 11-E23/11	Switch - Refuel Control LH
M.D.R. 11-E24/11	Switch - Refuel Control RH
M.D.R. 11-E113	Valves - Tank Level Sensing
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M.D.R. 11-E127	Valve - F/P By-Pass
M.D.R. 11-E129	Valve - Tank Level Sensing
M.D.R. 11-E130	Valve Switch - Tank S/O
M.D.R. 11-E148	Valve - By-Pass Override No. 1
M.D.R. 11-E149	Valve - By-Pass Override No. 2
M.D.R. 11-E169	Valve - Fuel Cross-feed
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M.D.R. 11-E207	Override Valve - Diff. Air Press. Relief
M.D.R. 11-E210	Valve - Level Sensing #1 Tank
M.D.R. 11-E211	Valve - By-Pass & Refuelling Shut-off #1 Tank
M.D.R. 11-E214	Valve - Tank Level Sensing
M.D.R. 11-E215	Valve Switch - Tank S/O
M.D.R. 11-E218	Valve - Level Sensing
M.D.R. 11-E219	Valve Switch - Tank S/O
M.D.R. 11-E226	Valve - Tank Level Sensing
M.D.R. 11-E227	Valve Switch - Tank S/O
M.D.R. 11-E228	Signal Unit - Fuel Low Level No. 5 Tank
M.D.R. 11-E236	Valve - Tank Level Sensing
M.D.R. 11-E237	Valve - Switch Tank S/O
M.D.R. 11-E248	Valve - Tank Level Sensing
M.D.R. 11-E249	Valve Switch - Tank S/O
M.D.R. 11-E280	Pressure Switch RH
M.D.R. 11-E283	Pump - Tank No. 1
M.D.R. 11-E284	Pump Tank #2
M.D.R. 11-E295	Pressure Switch - Pump L.H.
M.D.R. 11-E299	Valve - Fuel System Isolating
M.D.R. 11-E437	Sensor Liquid Level Tank #2
M.D.R. 11-E438	Signal Unit - Fuel Low Level No. 1 Tank
M.D.R. 11-E1147/5	Switch R/F Adaptor Valve Door
M.D.R. 11-E1148/5	Switch R/F Adaptor Valve Door RH



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1. DESCRIPTION

1.1 General

- 1.1.1 The fuel system comprises two sub-systems, each of which incorporates independently operated and electrically identical circuits. One sub-system feeds the RH engine and consists of six RH wing tanks and the fuselage forward tank. The other sub-system feeds the LH engine and consists of six LH wing tanks and the fuselage aft tank. A cross-feed valve connects the two systems. (Refer to AVRO Dwg. 7-1100-3 sht 6 Fuel Valve Control and Warning).
- 1.1.2 Wing tank No. 5 of each sub-system is designated a collector tank and serves as a sub-system reservoir into which fuel is transferred from the other tanks of the sub-system. The transfer action is accomplished by air pressure tapped from the air conditioning system. Because of a structural strength restriction, the fuselage tanks are subjected to less pressure than the wing tanks. This is compensated for by electrically operated transfer pumps fitted in the delivery lines.
- 1.1.3 A proportionate displacement of fuel from each tank into the collector tank is maintained by a mechanically operated flow proportioner unit. An electrically operated flow proportioner by-pass valve is automatically opened in the event of a malfunction and permits fuel to flow from the storage tanks to the collector tank as required. The flow proportioning system will be superseded by a tank sequencing system and, to facilitate the conversion, certain components and circuits are incorporated which are presently inactive. Conversely, certain components now fitted will be deleted upon the introduction of the tank sequencing system. These components and circuits are mentioned, where appropriate, in the relevant circuit descriptions.
- 1.1.4 Fitted in each of the collector tanks is an engine-driven booster pump to assist fuel flow to the engines. Downstream of the booster pumps, the fuel passes to an oil-to-fuel heat exchanger via electrically actuated isolating valves, one of which is fitted in each fuel line. At the outlet from the heat exchanger, the LH and the RH sub-systems are interconnected by an electrically actuated cross-feed valve which, under normal operating conditions, is retained in the closed position. From the heat exchanger the fuel is supplied to the relevant LH or RH engine fuel connection via electrically actuated low pressure cocks, one of which is fitted in each fuel line.
- 1.1.5 During refuelling, the fuel flow is monitored by electrical control circuits which permit full or partial refuelling of the tanks. The weight of usable fuel in the tanks is indicated by a capacitance type fuel quantity indication system.



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1.1.5 (continued)

(Ref. Maintenance Instructions Report 71/MAINT 12/3 - Instruments - Fuel Contents Indication).

1.2 Fuel Low Level Control Circuits

1.2.1 Independent, electrically identical fuel low level circuits are provided for the LH and RH sub-systems. The following description applies to each side.

1.2.2 Two fuel low level control circuits are provided, one for the fuel collector tank and one for the applicable fuselage tank. The function of the circuits is to provide a DC voltage signal at a predetermined fuel level. Two signals are provided by the collector tank control circuit. One signal is supplied to energize the flow proportioner by-pass transfer relay and operate the flow proportioner by-pass valve. The other signal is supplied to the FUEL LOW indicator light on the master warning system indicator panel. The signal circuits will be interrupted when the fuel level in the collector tank rises above the predetermined low level. (Ref. to para 1.4). When the fuselage tank low level control circuit senses a tank low level condition it will interrupt the supply circuit to the transfer pump by energizing the transfer pump supply relay.

1.2.3 The principle on which the circuit operation is based is that fuel conducts heat more readily than fuel/air vapours. As a result, the heating effect in a resistor will be less when it is immersed in fuel than when it is surrounded by fuel/air vapours. Consequently, if the resistor is of the thermally-sensitive type having an inverse resistance/temperature characteristic, (i.e an increase in temperature results in a decrease in resistance and a decrease in temperature results in an increase in resistance) the resistance value will increase or decrease in proportion to the degree of heat dissipation.

1.2.4 Each circuit includes a level sensor and a control unit. The level sensor is fitted in the relevant fuel tank at the predetermined fuel low level. This unit consists of two temperature-sensitive resistors or thermistors. One thermistor serves as the variable or control leg of a bridge circuit. The other thermistor, which is hermetically sealed, serves as a compensator and is connected in parallel with the reference side of the bridge.



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- 1.2.5 The control unit incorporates the reference resistors of the bridge together with a bridge balance sensing circuit. The sensing circuit is a pilot relay, the coil of which is connected between the reference side and the control side of the bridge. When the pilot relay is energized, it completes the energizing supply of a circuit relay which in turn completes the signal supply.
- 1.2.6 When the level sensor is immersed in fuel, the resistance value of the control thermistor will be such that the bridge is balanced. When the fuel reaches the predetermined low level and the control thermistor is exposed to fuel/air vapours, the heating effect of the thermistor will increase. This results in a proportional decrease in its resistance value and creates a difference of potential between the reference side and the control side of the bridge. This voltage is sufficient to energize the pilot relay resulting in the completion of the signal circuit.
- 1.2.7 The reference thermistor is connected in parallel with the reference side of the bridge, and being hermetically sealed, is responsive only to the ambient temperature of the fuel. Changes in fuel temperature, therefore, do not result in unbalancing of the bridge since such changes affect equally the control thermistor and the reference thermistor, the effect on one being cancelled by the corresponding effect on the other.
- 1.2.8 A metal rectifier is fitted in series with the coil of the pilot relay at the control thermistor end of the coil. A rectifier is also fitted between the reference resistor and the compensating thermistor. This is done to ensure that the bridge is unidirectional in operation.
- 1.2.9 Hermetically sealed current limiters are fitted in the line to each thermistor of the level sensor. The limiters are mounted in the level sensor and function to prevent excessive current draw through the circuit wiring which is routed through the fuel tanks.
- 1.2.10 The #1 and #2 tank circuits operate on 27.5 volts DC which is derived from the main DC bus. The supply to the collector tank circuits, is from the EMERG DC bus. The supply to the collector tank circuit is opened via a control relay. This relay is energized when refuelling operations are being carried out.
- 1.2.11 The fuel low level control circuits will be partially deleted upon the introduction of the C.G. system.



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1.3 Transfer Pump Control Circuits

- 1.3.1 Independent, electrically identical transfer pump control circuits are provided for the LH and the RH sub-systems. The following description applies to each hand.
- 1.3.2 The transfer pump is fitted in the fuel delivery line between the fuselage tank and the flow proportioner unit. The pump is driven by a 3-phase AC motor which derives its supply from the AC primary bus bars via the relay-normally closed contacts of a transfer pump power supply relay. The supply circuit is interrupted when the relay is energized by the completion of either one of two circuits. One circuit is completed by the fuselage tank low level control circuit. The other circuit is completed by the LH main landing gear scissors micro-switch which closes when the aircraft weight is on the main wheels. This switch is common to the LH and RH circuits. To facilitate testing the pumps a ground test safety override switch is fitted in the scissors microswitch supply circuit. The switch is housed on the refuel and test panel located on the lower face of the duct bay forward of the LH speed brake.
- 1.3.3 A differential pressure switch, fitted across the transfer pump, senses the pressure at the inlet and outlet of the pump. When the pump is operating correctly the switch completes a supply circuit to a green press-to-check, indicator light marked TANK PUMP INDICATOR, located on the refuel and test panel which when pressed to check will indicate this condition. If the pressure differential drops to less than 3 psi, the switch transfers the supply signal from the press-to-check indicator light to the warning light marked FUEL PROP, located on the master warning system indicator panel. This action coincides with the opening of a mechanical refuelling shut-off and by-pass valve which permits fuel flow to by-pass the pump. The power supply to the transfer pump differential press switch is derived from the main DC bus via the relay contacts of the pump power supply relay.

1.4 Flow Proportioner - By-Pass Valve Control Circuits

- 1.4.1 Independent, electrically identical flow proportion by-pass control circuits are provided for the LH and RH sub-systems. The following description applies to each hand.
- 1.4.2 The flow proportioner by-pass valve is normally in the closed position and is opened when a low fuel level condition occurs in the collector tank, or when full refuelling is in operation. The valve, when open due to a low fuel level in the collector tank, permits fuel from the storage tanks to by-pass the flow proportioner and flow directly into the collector tank. In the case of fuel refuelling, fuel entering at the refuelling adaptor flows directly into the storage tanks.



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- 1.4.3 The supply to the close field of the valve is derived from the main DC bus via the relay normally closed contacts of a by-pass flight position reset relay and a F/P by-pass relay. The by-pass relay is energized by a signal from the collector tank fuel low level control circuit. When energized, this relay completes a supply circuit to the FUEL PROP indicator light on the master warning system indicator panel and transfers the by-pass valve supply circuit from the "close" field to the "open" field. The FUEL PROP warning light which is common to both the L & RH sub-systems, and the F/P by-pass "open" field circuit, will remain energized, due to a self holding circuit completed by the F/P by-pass relay when energized.
- 1.4.4 The self holding circuit is supplied from the main DC bus via the relay normally closed contacts of the low level sensing relay and the relay closed contacts of the F/P by-pass locking control relay.
- 1.4.5 The supply to the operating coil of the F/P by-pass locking control relay is routed from the emerg. DC bus via the nose U/C scissor switch, so that the holding circuit is inoperative when the aircraft weight is on the U/C.
- 1.4.6 This is necessitated by the fact that on initial switch-on of aircraft power, the reference thermistor (See para 1.2.7) will, prior to heat-up, be of sufficient resistance to unbalance the bridge and initiate a FUEL LOW warning signal and consequent opening of the F/P by-pass valve, and due to the self holding circuit this condition would remain until aircraft power was switched off.
- 1.4.7 The flow proportioner by-pass valve and the associated by-pass relay and by-pass flight position reset relay will be deleted upon the introduction of the C.G. system.

1.5 Crossfeed Control Circuits

- 1.5.1 The fuel crossfeed consists of one electrically actuated crossfeed valve and two electrically actuated isolating valves, one each of the latter for the LH and the RH fuel sub-systems. The electrical control circuits are interconnected in such a manner that when the crossfeed valve is open, the LH or the RH sub-system isolating valve is closed. Alternatively, if both isolating valves are open the crossfeed valve is closed. The crossfeed selection is made on a switch, marked LH ONLY - NORMAL - RH ONLY, located in the front cockpit on the LH console panel El4.



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- 1.5.2 When the cross-feed selector switch is in either the LH ONLY or RH ONLY position, one of two isolating relays is energized. This action completes a supply circuit to close the isolating valve of the hand opposite to that selected. Simultaneously a supply circuit is completed to open the cross-feed valve. When the selector switch is in the NORMAL position, the isolating relays are de-energized and complete supply circuits which open the isolating valves and close the cross-feed valve.
- 1.5.3 The power supply for the cross-feed valves and the isolating valves is derived from the main DC bus. The power supply for the fuel shut-off relays is derived from the emergency DC bus.

1.6 Low Press Cock Control Circuits

- 1.6.1 Independent, electrically identical low pressure cock control circuits are provided for the LH and RH sub-systems. The following description applies to each hand.
- 1.6.2 The engine fuel feed can be shut off by an electrically, actuated low pressure cock fitted in the fuel delivery line upstream of the engine fuel connection. The electrical circuit is controlled by a double-pole selector switch, marked LP FUEL COCKS, located in the front cockpit on the LH console panel E14.
- 1.6.3 With the switch selected to NORMAL, the LP cock is in the open position and it is retained in this position by a guard which prevents inadvertent selection of the switch to OFF. When the switch is in the NORMAL position, a supply circuit derived from the emergency DC bus is completed via the switch contacts to the "open" field of the low pressure cock. When the guard is raised and the switch set to the OFF position, a supply derived from the battery bus is completed via the switch contacts to the "close" field of the low pressure cock, shutting off the L.P. cock.

1.7 Refuelling Control Circuits

- 1.7.1 The refuelling control circuits provide for checking the shut-off and level sensing valves for serviceability before refuelling and permit control of full or partial refuelling operations. During full refuelling, the flow proportioner by-pass valve is open. This permits fuel to by-pass the flow proportioner unit and fill the tanks at random rates. A level sensing valve and a refuelling shut-off valve are incorporated in each tank and operate to discontinue refuelling of each tank as it becomes full. During partial refuelling the flow proportioner by-pass valve is closed and the fuel is directed through the flow proportioner unit which distributes the fuel proportionately among all tanks.



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1.7.1 (continued)

The refuelling operation is stopped when the desired fuel load, as indicated by the fuel quantity indicator in the front cockpit, is reached.

1.7.2 The control and selector switches for the circuits are mounted on the refuel and test panel and on the relevant LH or RH refuel panel.

1.7.3 Mounted on the refuel and test panel are: a REFUELLING MASTER switch and a REFUEL selector switch marked FULL-PARTIAL SEL # 1 SEL #2. These switches are common to the LH and the RH sub-systems.

1.7.4 Mounted on each refuel panel are a REFUEL CONTROL switch and seven green coloured TANK INDICATOR lights.

1.7.5 The refuelling control circuits are inoperative until the double-pole single throw REFUELLING MASTER switch, which is marked ON-OFF and DEFUEL, is selected to ON. When the switch is selected to ON a supply circuit is completed, via the contacts of one pole, to the FUEL PROP indicator light mounted on the master warning system indicator panel. This serves as a safety measure to ensure that the switch is reselected to OFF and DEFUEL when refuelling operations are complete. As an additional safety measure, a mechanical stop is fitted on the inner face of the access door of the refuel and test panel. The stop prevents closing and securing the access door if the REFUELLING MASTER switch is left in the ON position. The remaining pole of the REFUELLING MASTER switch completes a supply to the following circuits of the LH and the RH sub-systems:

1.7.5.1 The coil of the control relay of the collector tank fuel low level circuit.

1.7.5.2 The coil of the circuit control relay of the flow proportioner unit by-pass valve.

1.7.5.3 The coil of a refuel control relay.

1.7.5.4 The refuel selector.

1.7.5.5 The fourteen refuel indicator lights.

1.7.6 The power supply to the collector tank fuel low level circuit is interrupted when the low level sensing relay is energized, by selection of the refuelling master switch to ON. This is done to prevent the circuit exercising control over the by-pass relay.



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1.7.7 Energizing the by-pass flight position reset relay will interrupt the F/P by-pass relay holding circuit, if completed, and re-route the flow proportioner by-pass valve supply circuit via the relay normally closed contacts of a full and partial refuel relay to the "open" field of the flow proportioner by-pass valve. When the refuel selector switch is set to either of the partial refuel positions which are interconnected, the partial refuel relay is energized. This transfers the supply from the "open" field to the "close" field of the flow proportioner by-pass valve.

1.7.8 The refuel control relay, when energized, completes a supply circuit to the refuel control switch, the absolute pressure relief valve and the differential pressure relief override valve which is common to the LH and the RH sub-systems. The pressure relief valves vent the fuel tanks during refuelling. The REFUEL CONTROL switch, when selected to ON, completes the supply to the level sensing valves, one of which is fitted in each fuel tank.

1.7.9 When a REFUEL-FULL operation is selected, the refuel indicator lights will illuminate when their particular tank is full. The circuits to the indicator lights are controlled by micro-switches fitted integrally in each refuelling shut-off valve. For a pre-check of the system before refuelling, refer to para. 4.6.2. Full refuelling operation test.

1.7.10 Access to the refuelling adaptors is gained by releasing the relevant LH or RH refuelling access door. When either panel is released, it permits a micro-switch to close and complete a supply circuit to the FUEL PROP indicator warning light.

1.8 C.G. Circuits

1.8.1 In addition to the components mentioned in the preceding descriptions which are deleted or introduced by the conversion from the flow proportioning system to the C.G. system, electrical circuits are installed and connected to certain components in the fuel tanks. These circuits include seven capacitance units fitted in each sub-system collector tank, and two-fuel/no-air valves and a fuel level sensor fitted in each storage tank, with the exception of tank No. 4 which is provided with one fuel/no-air valve and one fuel level sensor.

2. GROUND EQUIPMENT

2.1 Air Conditioner and Generator AC.



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3. PREPARATION FOR TESTS

These tests should be carried out in conjunction with the airframe/engine technician and Maintenance Instructions Report 71/MAINT 16/3 Fuel System-Refuelling and Defuelling and 71/MAINT 16/4 Fuel System - Fuel Transfer.

- 3.1 Attach the air conditioner and generator AC to the aircraft.
- 3.2 Ensure that the aircraft static grounding cable is securely attached, to the aircraft and to the appropriate grounding point.
- 3.3 Have the air conditioner and generator AC unit started and switch on the supply to the aircraft.

4. FUNCTION TESTS

Refer to the appropriate Maintenance Instructions Report where the tests call for a change in tank fuel level. i.e. 71/MAINT 16/3 Refuel and Defuel - 71/MAINT 16/4 - Fuel Transfer.

4.1 Fuel Low Level Warning Test

NOTE

For the tests outlined in the following paras 4.1 and 4.3. The nose leg scissor micro-switch must be unactuated.

- 4.1.1 Ensure that the current limiter LOW LEVEL, L located on panel E20, is serviceable.
- 4.1.2 Select the MASTER ELEC. switch to the ON position.
- 4.1.3 Select the REFUELLING MASTER switch, located on panel E21, to the OFF and DEFUEL position.
- 4.1.4 Have the level of fuel in the left #5 fuel tank reduced until the warning lights FUEL LOW and AMBER MASTER WARNING, located in the pilot's cockpit, are illuminated. This should occur when the level of fuel reaches approximately 65 percent of full tank capacity. The proportioner by-pass valve should move to the open position and the FUEL PROP warning light should illuminate.
- 4.1.5 Have the #5 LH fuel tank filled. The FUEL LOW warning light should go out. The proportioner by-pass valve should close, and if either the L or RH two point refuelling doors are open the FUEL PROP warning light will remain illuminated.



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- 4.1.6 Close both the L & RH two point refuelling doors and ensure the refuelling master switch is selected to OFF and DEFUEL, the FUEL PROP warning light should go out.
- 4.1.7 Select the MASTER ELEC switch to the OFF position.
- 4.1.8 Carry out the above procedure for the right low level sensing, reading Right for Left.

4.2 Fuel Transfer Pump Test

- 4.2.1 Ensure that the current limiters LOW LEVEL L, A/C FUEL DIFF PRESS and TANK NO. 1 PUMP and TANK NO. 2 PUMP, located on panel E20, are serviceable.
- 4.2.2 Ensure that tanks #1 and #2 are full.
- 4.2.3 Select the MASTER ELEC switch to the ON position.
- 4.2.4 Select the GRND TEST SAFETY OVERRIDE switch, located on E21 panel, to the TEST position.
- 4.2.5 Press the Tank #1 and Tank #2 press-to-check indicators located on E21 panel. Both indicators should illuminate.
- 4.2.6 Release the press-to-check indicators. The indicator lights should go out. Select the GRND TEST SAFETY OVERRIDE switch to the NORMAL position.
- 4.2.7 Have the fuel removed from the #1 and #2 fuel tanks.
- 4.2.8 Select the GRND TEST SAFETY OVERRIDE switch to the TEST position. The fuel transfer pump should not operate if the low level cut-off system is operating correctly.
- 4.2.9 Select the MASTER ELEC switch to the OFF position.

4.3 Fuel Proportioning Warning Test

The warning light FUEL PROP should be illuminated by any of the following:

4.3.1 Refuelling Master Switch

- 4.3.1.1 Ensure that the current limiter A/C FUEL DIFF PRESS located on panel E20, is serviceable.
- 4.3.1.2 Select the MASTER ELEC switch to the ON position.
- 4.3.1.3 Select the REFUELLING MASTER switch, located on panel E21, to the ON position. The warning light FUEL PROP should be illuminated.



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4.3.1.4 Select the REFUELLING MASTER switch to the OFF and DEFUEL position. The FUEL PROP warning light should go out.

4.3.1.5 Select the MASTER ELEC switch to the OFF position.

4.3.2 Fuel Pump Pressure Switches (Tank #1 and Tank #2)

The FUEL PROP warning light should be illuminated when there is no fuel pressure from Tank No. 1 fuel pump but the pump relay is de-energized to signify pump operation.

4.3.2.1 Ensure that #1 and #2 fuel tanks are full.

4.3.2.2 Remove the three current limiters, Tank No. 1 PUMP from panel E20.

4.3.2.3 Ensure that the current limiter REFUEL & TEST PANEL, located on panel E20, is serviceable.

4.3.2.4 Select the MASTER ELEC switch to the ON position.

4.3.2.5 Select the GRND TEST SAFETY OVERRIDE switch, located on panel E21, to the TEST position. The warning light FUEL PROP should be illuminated.

4.3.2.6 Select the GRND TEST SAFETY OVERRIDE switch to the NORMAL position. The warning light FUEL PROP should go out.

4.3.2.7 Select the MASTER ELEC switch to the OFF position.

4.3.2.8 Replace the three TANK No. 1 PUMP current limiters.

4.3.2.9 Carry out the above procedure for No. 2 fuel pump reading "No. 2" for "No. 1". For 4.3.2.3 read A/C FUEL DIFF PRESS.

4.3.3 Low Level Control Units

The fuel proportioner by-pass valve should be in the open position and the FUEL PROP warning light should illuminate on a fuel low level condition.

4.3.3.1 Ensure that the current limiter LOW LEVEL L, located on panel E20, is serviceable and withdraw the current limiter LOW LEVEL R.

4.3.3.2 Select the MASTER ELEC switch to the ON position.

4.3.3.3 Have the fuel level in the left hand #5 fuel tank reduced.



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- 4.3.3.4 When the low level control unit senses the fuel low level condition, the warning light FUEL PROP should be illuminated.
- 4.3.3.5 The fuel proportioner by-pass valve should remain in the open position and the warning light FUEL PROP should illuminate.
- 4.3.3.6 Withdraw the current limiter LOW LEVEL L, and replace the current limiter LOW LEVEL R.
- 4.3.3.7 Carry out the above procedure for the right low level control unit, reading "Right" for "Left".
- 4.3.3.8 Replace the current limiter LOW LEVEL L.

4.3.4 Two Point Refueling Doors (L and R)

When a two point refueling door is opened, the warning light FUEL PROP should be illuminated.

- 4.3.4.1 Ensure that the L & RH #5 tanks are full.
- 4.3.4.2 Ensure that the current limiter A/C FUEL DIFF PRESS, located on panel E20, is serviceable.
- 4.3.4.3 Open the left two point refueling door. The warning light FUEL PROP should be illuminated.
- 4.3.4.4 Close the two point refueling door. The warning light FUEL PROP should go out.
- 4.3.4.5 Carry out the above procedure for the right two point refueling door reading "Right" for "Left".

4.4 Relay Holding Circuit Test. (Ref. paras. 1.4.3 to 1.4.5)

(To be carried out with the aircraft on jacks and raised sufficiently to ensure actuation of the nose leg scissors microswitch)

- 4.4.1 Ensure #1 and #2 fuel tanks are full.
- 4.4.2 Ensure that the current limiter LOW LEVEL L located on panel E20 is serviceable.
- 4.4.3 Select the MASTER ELECTS SW. to the ON position.
- 4.4.4 Have the fuel level in the LH #5 tank reduced sufficiently to ensure operation of the low level sensing circuit. (Below 65% of full tank capacity)
- 4.4.5 The warning lights FUEL LOW and FUEL PROP should illuminate and the LH flow proportioner by-pass valve should open.



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- 4.4.6 Have the LH #5 tank filled, and the FUEL LOW warning light should go out, the FUEL PROP warning light should remain illuminated and the L proportioner by-pass valve should remain open.
- 4.4.7 Lower the aircraft to the "weight on wheels" position and the L flow proportioner by-pass valve should close, and with the L two point refuelling door closed and the REFUEL MASTER switch selected to OFF and DEFUEL the warning light FUEL PROP should be out.
- 4.4.8 Select the MASTER ELEC. switch to the OFF position.
- 4.4.9 Repeat the procedures outlined in paras 4.4.2 to 4.4.8 reading RH for LH.

4.5 Fuel Crossfeed Test

- 4.5.1 Ensure that the circuit breaker FUEL CROSSFEED, located on panel E1, is closed.
- 4.5.2 Ensure that the current limiters, AIR RELIEF OVERRIDE and FUEL CROSSFEED, located on E20 panel, are serviceable.
- 4.5.3 Select the MASTER ELEC. switch to the ON position.
- 4.5.4 Select the FUEL CROSSFEED switch, located in the pilot's cockpit, to the LH only position.
- 4.5.5 Check that the RH system isolating valve position indicator moves to the CLOSED position, the LH system isolating valve position indicator remains in the OPEN position and the crossfeed valve position indicator moves to the OPEN position.
- 4.5.6 Select the FUEL CROSSFEED switch to the RH ONLY position.
- 4.5.7 Check that the RH system isolating valve position indicator moves to the OPEN position, the LH system isolating valve position indicator moves to the CLOSED position and the crossfeed valve position indicator stays in the OPEN position.
- 4.5.8 Select the FUEL CROSSFEED switch to the NORMAL position.
- 4.5.9 Check that the RH system isolating valve position indicator stays in the OPEN position, the LH system isolating valve position indicator moves to the OPEN position and the crossfeed valve position indicator moves to the CLOSED position.
- 4.5.10 Select the MASTER ELEC switch to the OFF position.



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4.6 Low Pressure Cock Valve Test

- 4.6.1 Ensure that the circuit breakers L/P COCK L & R, located on E1 panel, are closed.
- 4.6.2 Select the MASTER ELEC switch to the ON position.
- 4.6.3 Lift the left L/P FUEL COCKS switch guard and select the switch to the forward position.
- 4.6.4 Ensure that the left low pressure cock valve indicator moves to the CLOSED position.
- 4.6.5 Select the left L/P FUEL COCKS switch and guard to the OFF (aft) position.
- 4.6.6 Ensure that the left low pressure cock valve indicator moves to the OPEN position.
- 4.6.7 To function test the right L/P fuel cock, repeat Paras. 4.6.3 to 4.5.6 substituting the "Right" for "Left".
- 4.6.8 Select the MASTER ELEC switch to the OFF position.

4.7 Refuelling and Defuelling Tests

The following tests should be carried out in conjunction with the airframe mechanic.

4.7.1 Refuelling Shut-Off Valve Lights - Functional Tests

- 4.7.1.1 Check that the current limiter REFUEL & TEST PANEL, located on E20 panel, is serviceable.
- 4.7.1.2 Select the MASTER ELEC switch to the ON position.
- 4.7.1.3 Select the REFUELLING MASTER switch, located on E21 panel, to the ON position. The TANK INDICATOR lights on E23 and E24 panels, located in the main wheel wells, should be illuminated.
- 4.7.1.4 Select the MASTER ELEC switch to the OFF position.

4.7.2 Full Refuelling - Operation Test

- 4.7.2.1 Check that the current limiters REFUEL & TEST PANEL, A/C FUEL DIFF. PRESS, and F.P.U. BYPASS L & R, located on E20 panel, are serviceable.
- 4.7.2.2 Select the MASTER ELEC switch to the ON position.



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- 4.7.2.3 Select the REFUELLING MASTER switch, located on E21 panel, to the ON position.
- 4.7.2.4 Select the REFUEL selector switch, located on E21 panel, to the FULL position. The indicator lights on E23 and E24 panels and the L or R a/c fuel proportioning should be illuminated and the fuel proportioner by-pass valves should be in the BY-PASS position.
- 4.7.2.5 Have fuel pressure at a maximum of 60 psig applied at the LH refueling adaptor. The LH indicator lights, located on E23 panel, should stay illuminated, or, on the first refueling of the aircraft go out for a few seconds and then all go on again.
- 4.7.2.6 With all the LH indicator lights illuminated, select the LH REFUEL CONTROL switch, located on E23 panel, to the ON position. All the LH indicator lights should go out.
- 4.7.2.7 Select the LH REFUEL CONTROL switch to the OFF position. Within a few seconds all the LH and indicator lights should be illuminated.
- 4.7.2.8 When all the LH indicator lights become illuminated, select the LH REFUEL CONTROL switch to the ON position. Refueling of the LH sub-system can now be commenced at full pressure.
- 4.7.2.9 When the LH fuel tanks are full, the LH indicator lights should come on.
- 4.7.2.10 Have the fuel pressure at the LH refuelling adaptor relieved, then select the LH REFUEL CONTROL switch to the OFF position.
- 4.7.2.11 Repeat the above procedure for the RH sub-system reading "RH" for "LH" and "E24" for "E23".
- 4.7.2.12 Select the MASTER ELEC switch to the OFF position.
- 4.7.3 Partial Refuelling - Operation Test
 - 4.7.3.1 Carry out the procedures outlined in Paras 4.6.2.1 to 4.6.2.7 excepting para 4.6.2.4.
 - 4.7.3.2 Select the REFUEL switch, located on E21 panel, to the PARTIAL SEL #1 or SEL #2 position. The proportioner by-pass valve should be in the CLOSED position. (Visual Check). The required amount of fuel as shown on the fuel quantity indicator may now be pumped into the LH sub-system.



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4.7.3.3 Carry out the procedure in Para 4.6.3.2 for the RH sub-system.

4.8 Differential Air Pressure Relief Override Valve Test

- 4.8.1 Ensure that the current limiter A/C FUEL DIFF. PRESS, located on panel E20, is serviceable.
- 4.8.2 Select the REFUELLING MASTER switch to the ON position. The operation of the differential air pressure relief and absolute air pressure relief override valves should be audible.
- 4.8.3 Select the REFUELLING MASTER switch to the OFF and DEFUEL position. An audible click should be heard from the valve when they are de-energized.

4.9 By-Pass Override Valve Test (Tanks #1 and #2)

- 4.9.1 Ensure that the current limiters REFUEL & TEST PANEL and A/C FUEL DIFF. PRESS, located on panel E20, are serviceable.
- 4.9.2 Select the MASTER ELEC switch to the ON position.
- 4.9.3 Select the REFUELLING MASTER switch, located on panel E21, to the ON position. The operation of the by-pass override valve to the de-energized position should be audible.
- 4.9.4 Select the MASTER ELEC and the REFUELLING MASTER switches to the OFF position.



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Fuel Flow Proportioner Access Door

REF.#	M.D.R. #	ITEM
1	11-E210	Valve level sensing #1 Tank
1	11-E438	Sensor liquid level
2	11-E214	Valve level sensing # 2 Tank
2	11-E437	Sensor liquid level #2 Tank
3	11-E113-118	Valve level sensing #3 Tank L and RH
4	11-E218-222	Valve level sensing #4 Tank L & RH
5	11-E228-233	Sensor liquid level #5 Tank L & RH
5	11-E114-119	Valve refuelling shut-off #3 Tank L & RH
6	11-E219-223	Valve refuelling shut-off #4 Tank L & RH
7	11-E226-231	Valve level sensing #5 Tank L & RH
8	11-E227-232	Valve refuelling shut-off #5 tank L & RH
9	11-E236-242	Valve level sensing #7 Tank L & RH
10	11-E129-134	Valve level sensing #6 Tank L & RH
11	11-E130-135	Valve refuelling shut-off #6 tank L & RH
12	11-E248-254	Valve level sensing #8 tank L & RH
13	11-E237-243	Valve refuelling shut-off #7 Tank L & RH
14	11-E249-255	Valve refuelling shut-off #8 Tank L & RH
15	11-E1147/5-1148/5	Switch refuelling adaptor door limit L & RH
16	11-E127-128	Flow proportioner L & RH
17	11-E23-E24	U/C Fuel panel L & RH

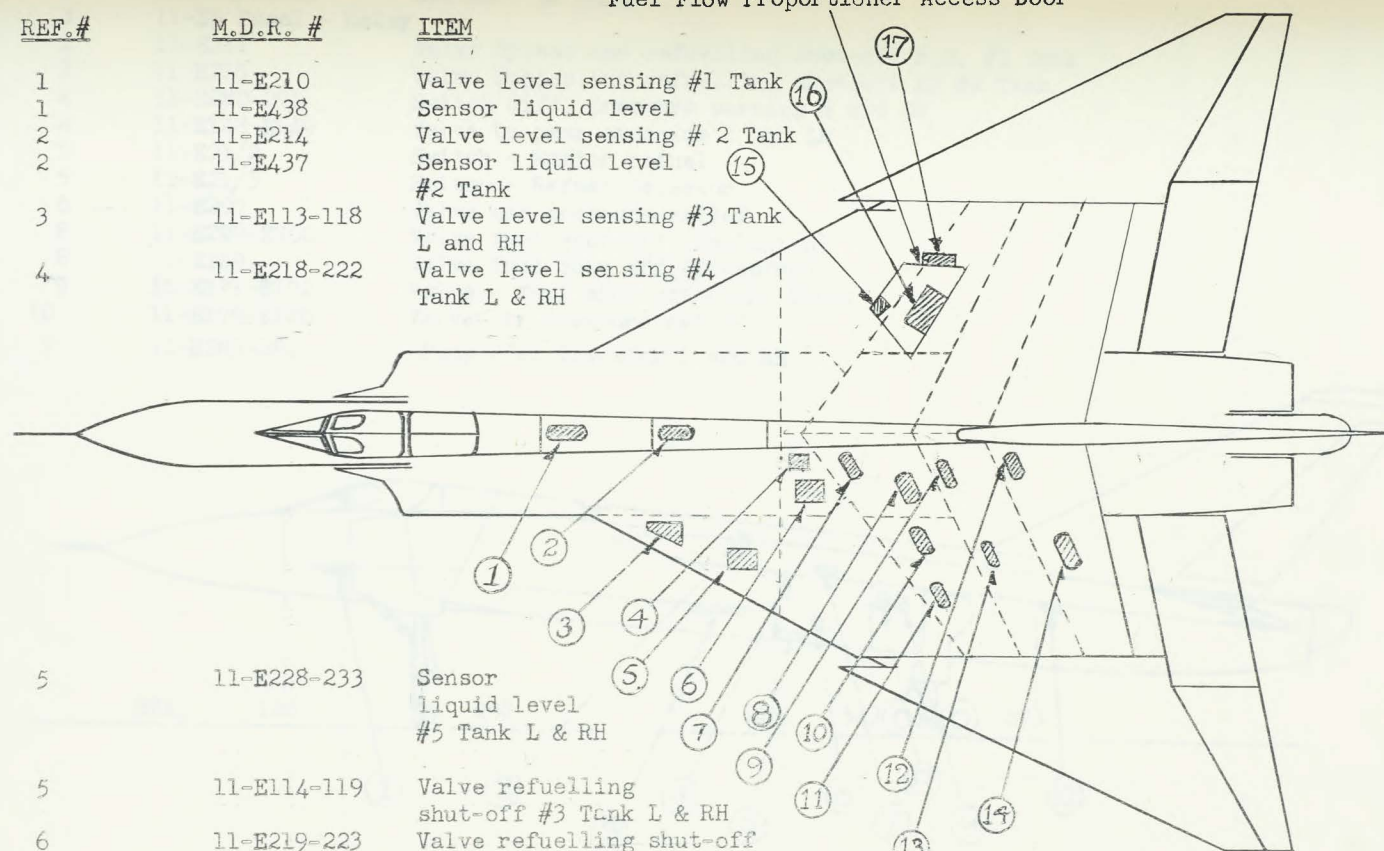


FIGURE 1

COMPONENT ACCESS AND LOCATION DIAGRAM #1

- | | | |
|----|---------------------|---|
| 1 | 11-E14/22-23 | Switch - LP Cock |
| 3 | 11-E5 Panel - Relay | |
| 2 | 11-E211 | Valve Bypass and refuelling shut-off R.H. #1 Tank |
| 2 | 11-E215 | Valve Bypass and refuelling shut-off LH #2 Tank |
| 4 | 11-E280-295 | Switch diff. pressure warning R and LH |
| 4 | 11-E148-E149 | Valve by-pass override R and LH |
| 5 | 11-E21/2 | Switch - Master refuel |
| 5 | 11-E21/3 | Switch - Refuel Selector |
| 6 | 11-E207 | Valve air pressure relief |
| 8 | 11-E299-E300 | Valve fuel shut-off (Isolation) |
| 8 | 11-E169 | Valve fuel shut off (Crossfeed) |
| 9 | 11-E171-E172 | Valve - Fuel shut off (L.P. Cock) |
| 10 | 11-E179-E180 | Valve Air Pressure relief |
| 7 | 11-E283-284 | Pump Fuel Transfer L and RH |

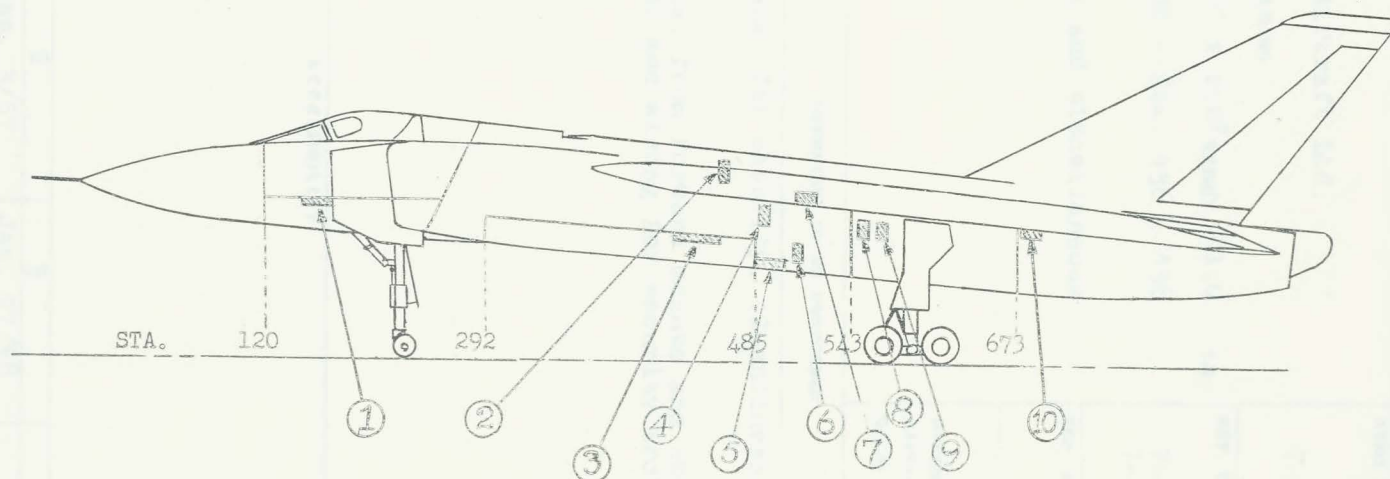


FIGURE 2

COMPONENT ACCESS AND LOCATION DIAGRAM #2



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MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	11-E5
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - ARROW 1 EFF. A/C - 25201		COMPONENT Panel - Main Accessory (For flow Proportioner System)	
MANUFACTURER'S PART NO. N/A				AVRO PART NO.	
MANUFACTURER'S NAME Avro Aircraft Ltd.				7-1154-99 Sht. 1 & 2	
AVROCAN SPEC. NIL E.O. NO.				REF. DWGS.	
ENVELOPE SIZE 40.0" x 20.0" x 6.0" WEIGHT 41.0 LB.				7-1100-2 Sht. 19 7-1100-3 Sht. 6	
LOCATION Missile Bay Roof - Sta. 436 - 458				REF. M.D.R.	
FUNCTION To house relays and miscellaneous equipment.				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
Primary		Check panel for security, cleanliness, and damage.		1 x 5	
Periodic (25 Hrs.)		Drop panel from forward mounts and check equipment and wiring for security and damage.		1 x 15	
ACCESSIBILITY					
Remove missile pack.					
ISSUE	1	2	3		
DATE	Mar. 8/56	Jan. 3/57	Jan. 27/58		
COMPILED	D. Collingwood	D. Collingwood	W02 Wentworth		
CHECKED	G. Emmerson	W02 Wentworth	K.P. Lowe		
APPROVED		R.F. Reid	R.F. Reid		

LUBRICATION				
NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
NIL		Maintenance Platform 4G/1596		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
1. Disconnect 3 AN connectors from E4 panel. 2. Disconnect 1 AN connector from anti-skid control unit. 3. Remove 4 pip-pins from corners of panel. Remove and Replace		1 x 15		

PERFORMANCE DATA	
AC	
EFF	
LOG NO.	
10. NO.	
11. NO.	
12. NO.	
13. NO.	
14. NO.	
15. NO.	
16. NO.	
17. NO.	
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96. NO.	
97. NO.	
98. NO.	
99. NO.	
100. NO.	

ACCESS

BENCH USE

EQUIPMENT

4G/1596

MEN X MIN
EST. ACT

1

1 x 15

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	11-E5/6
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Relay - By-Pass Flight Position Reset	
MANUFACTURER'S PART NO.				AVRO PART NO.	
MANUFACTURER'S NAME				MS - 25024-1	
AVROCAN SPEC.		E.O. NO.		REF. DWGS.	
ENVELOPE SIZE 2.625" x 2.68" x 3.3"		WEIGHT 0.8 LB.		7-1100-2 sht 19 7-1100-3 sht 6	
LOCATION Mounted on panel E5 - located in the missile bay.				REF. M.D.R.	
FUNCTION Energized when the Refuel Master safety switch is selected ON.				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED			MEN X MINUTES
					EST. ACTUAL
On Refuel		Function Test. (See Maintenance Instructions Report 71/MAINT 11/7)			1 x 2
ACCESSIBILITY					
Unobstructed with missile pack removed.					
ISSUE	1				
DATE	25 Nov. 57				
COMPILED	W02 Wentworth				
CHECKED	K.P. Lowe				
APPROVED	R.F. Reid				

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC		Small Maintenance Platform		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
1. Disconnect 14 electrical connections. 2. Remove 4 mounting bolts.		Remove and replace		1 x 25

MAINTENANCE
AERO AIRCRAFT LTD
ATTENTION STANDARD +

S. Brown
L. Hamilton

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

STOCK SPEC.

OVERLAP SIZE 2.625"

LOCATION Mounted on
leg.

FUNCTION Energised w
mit is actuated
test.

INSPECTION
PERIOD

25 Ets.

DATE 1
COMPLETED 25 Nov.
CHECKED W02 Wen
APPROVED K.P. Lo
R.P. Re

ACCESS

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MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	11-E5/7 11-E5/8
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Relay - F/P By-Pass	
MANUFACTURER'S PART NO.				AVRO PART NO.	
MANUFACTURER'S NAME				MS-25024-1	
AVROCAN SPEC.		E.O. NO.		REF. DWGS.	
ENVELOPE SIZE 2.625" x 2.68" x 3.3"		WEIGHT 0.8 LB.		7-1100-2 sht 19 7-1100-3 sht 6	
LOCATION Mounted on panel E5 - located in the missile bay.				REF. M.D.R.	
FUNCTION Energized when the No. 5 tank low level control unit is actuated by the No. 5 tank low level signal unit.				RELIABILITY	
				OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
EST.		ACTUAL		EST. ACTUAL	
25 Hrs.		Check for security of mounting and electrical connections. Function test. (See Maintenance Instructions Report 71/MAINT 11/7)		1 x 10	
ACCESSIBILITY					
Unobstructed. with missile pack removed.					
ISSUE	1				
DATE	25 Nov. 57				
COMPILED	W02 Wentworth				
CHECKED	K.P. Lowe				
APPROVED	R.F. Reid				

1 x 25

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS

DETAILS:

GROUND SUPPORT EQUIPMENT	
SPECIAL TOOLS FOR AIRCRAFT USE	SPECIAL TOOLS FOR BENCH USE
NIL	NIL
GROUND TESTING EQUIPMENT	GROUND HANDLING EQUIPMENT
Air Conditioner and Generator AC	Small Maintenance Platform

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN X MINUTES	
			EST.	ACTUAL
		1. Disconnect 12 electrical connections. 2. Remove 4 mounting bolts. Remove and replace	1 x 25	

MAINTENANCE DATA AIRCRAFT LTD. DISTRIBUTION STANDARD + S. Brown E. Hamilton MANUFACTURER'S PART NO. MANUFACTURER'S NAME A.T.O. SPEC. R.O. NO. ENVELOPE SIZE 2.625" x 2.68" x 3 LOCATION Mounted on panel 55 - 1 by, FUNCTION Energized when the ref switch is selected to the P4	
INSPECTION PERIOD On Refuel	FUNCTION t 71/MAINT 1
Unobstructed With missile	
ISSUE DATE 25 Nov. 57 COMPLETED W02 Wentworth CHECKED R.P. Lowe APPROVED R.P. Reid	1

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	11-E5/15
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Relay - Partial Refuel	
MANUFACTURER'S PART NO.				AVRO PART NO.	
MANUFACTURER'S NAME				MS 25024-1	
AVROCAN SPEC.		E.O. NO.			
ENVELOPE SIZE 2.625" x 2.68" x 3.3"		WEIGHT 0.8 LB.		REF. DWGS. 7-1100-2 sht 19 7-1100-3 sht 6	
LOCATION Mounted on panel E5 - located in the missile bay.				REF. M.D.R.	
FUNCTION Energized when the refuelling selector switch is selected to the PARTIAL #1 or #2 position.				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST. ACTUAL	
On Refuel		Function test. (See Maintenance Instructions Report 71/MAINT 11/7)		1 x 2	
ACCESSIBILITY					
Unobstructed With missile pack removed.					
ISSUE	1				
DATE	25 Nov. 57				
COMPILED	W02 Wentworth				
CHECKED	K.F. Lowe				
APPROVED	R.F. Reid				

ACCESS

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EST. ACT

1 x 25

LUBRICATION NIL					
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS	
DETAILS:					
/					
GROUND SUPPORT EQUIPMENT					
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE			
NIL		NIL			
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT			
Air Conditioner and Generator AC		Small Maintenance Platform			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES	
REPLACEABLE				EST.	ACTUAL
1. Disconnect 14 electrical connections. 2. Remove 4 mounting bolts.		Remove and replace		1 x 25	

SERVICE DATA RECORD	
ENGINE TYPE	ENGINE NO.
A/C TYPE - ATCO	2
E.D. NO.	
WEIGHT	
Based on panel 55 located in the	
be engaged the supply circuit	
the tank pump is opened.	
OPERATION	
Function test. (See M	
TL/MALVT 11/7)	
ACCESS	
Unobstructed	
with missile pack	
1	
25 Nov. 57	
W. M. Wentworth	
A.P. Lowe	
H.T. Held	

ACCESS

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MEN X MINUT

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1 x 25

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	11-E5/9 11-E5/10
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Relay - Pump Control Fuel Tanks No. 1 & 2	
MANUFACTURER'S PART NO.				AVRO PART NO.	
MANUFACTURER'S NAME				MS 25024=1	
AVROCAN SPEC.		E.O. NO.		REF. DWGS.	
ENVELOPE SIZE 2.625" x 2.68" x 3.3" WEIGHT 0.8 LB.				7-1100-2 sht 19 7-1100-3 sht 6	
LOCATION Mounted on panel E5 located in the missile bay.				REF. M.D.R.	
FUNCTION When energized the supply circuit to the No. 1 & 2 fuel tank pumps is opened.				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
25 Hrs.		Function test. (See Maintenance Instructions Report 71/MAINT 11/7)		EST. ACTUAL	
				1 x 10	
ACCESSIBILITY					
Unobstructed with missile pack removed.					
ISSUE	1				
DATE	25 Nov. 57				
COMPILED	W02 Wentworth				
CHECKED	K.P. Lowe				
APPROVED	R.F. Reid				

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC		Small Maintenance Platform		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
1. Disconnect 10 electrical connections. 2. Remove 4 mounting bolts.		Remove and replace		1 x 25

MAINTENANCE

AVRO AIRCRAFT LTD.

CONSTRUCTION STANDARD +

S. Brown
K. Knowlton

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

USUAL SPEC.

ENVELOPE SIZE 3,312" x 3.00"

LOCATION

Mounted on panel B5

FUNCTION

Is energised by operat:
stores emergency jett:
completes the DC suppl:
solenoid, breaks the s:
disconnect, completes:
inoperative with aircr:

INSPECTION

PERIOD

Primary

periodic
(25 hrs)

DATE

1

TIME

6 Dec. 57

COMPILED

K.P. Lowe

CHECKED

W. Wentworth

APPROVED

R.F. Reid

ACCESS

Engineering Div.

ELECTRICS

11-E5/17

A/C TYPE - Arrow 1

EFF. A/C - 25201

Relay - Jettison

AVRO PART NO.

MS 25024-2

E.O. NO.

REF. DWGS.

7-1154-99
7-1100-3 Sht. 6
7-1100-2 Sht. 19

Mounted on panel E5 in Missile Bay

REF. M.D.R.

11-E5

RELIABILITY

OVERHAUL LIFE	1500	HRS.
WASTAGE		
Q.T.R.		

OPERATION TO BE PERFORMED

MEN X MINUTES

EST.	ACTUAL
------	--------

MEN X MENU

EST.	ACT.
------	------

See ref. M.D.R. 11-E5

Function check (pending)

ACCESSIBILITY

Remove missile pack.

1

6 Dec. 57

K. P. Lowe

WO ²	Wentworth
-----------------	-----------

R.F. Reid

LUBRICATION				NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS	
DETAILS:					
GROUND SUPPORT EQUIPMENT					
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE		
Nil			Nil		
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT		
Air conditioner and generator AC			Maintenance platform 4G/1596		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES	
REPLACEABLE				EST.	ACTUAL
Disconnect 10 electrical connections. Remove 4 securing screws.					
Remove and replace.				1 x 12	

MAINTENANCE DATA	
AIRCRAFT LTD. STANDARD + S. Brown L. Knowlton	
MANUFACTURER'S PART NO.	
MANUFACTURER'S NAME	
E.O. NO.	
SPEC. NO. 3,312" x 3,00" x 2.6	
MOUNTED ON PANEL B5 IN M	
Is energised from the main of the. refuel master safe completes a DC supply to the sensing valves and the abs air pressure relief overrid DC supply to the #1 and 2	
REVISION	
REVISION	
REVISION	See ref
REVISION	Function Instruc Fuel sys
AC	
Remove mis	
16 Dec. 57	
L.P. Love	
W. Westworth	
L.P. Reid	

CESS

USE

NT

596

MEN X MINUTE
EST. ACTU

x 12

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	11-E5/24
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Relay - Full and Partial Refuel	
MANUFACTURER'S PART NO.				AVRO PART NO.	
MANUFACTURER'S NAME				MS 25024-2	
AVROCAN SPEC.		E.O. NO.		REF. DWGS.	
ENVELOPE SIZE 3.312" x 3.00" x 2.687" WEIGHT .80 LB.				7-1154-99 7-1100-3 Sht. 6 7-1100-2 Sht. 19	
LOCATION Mounted on panel E5 in Missile Bay.				REF. M.D.R.	
FUNCTION Is energised from the main DC bus by selection of the refuel master safety switch to ON. Completes a DC supply to the L and RH level sensing valves and the absolute and differential air pressure relief override valves, it breaks the DC supply to the #1 and 2 by-pass override valves.				11-E5	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST. ACTUAL	
Primary		See ref. M.D.R. 11-E5			
Refuel		Function check (Ref. Maintenance Instructions Report 71/Maint-16/3) Fuel system/Refuel and defuel.			
		ACCESSIBILITY			
		Remove missile pack.			
ISSUE	1				
DATE	6 Dec. 57				
COMPILED	K.P. Lowe				
CHECKED	WO ² Wentworth				
APPROVED	R.F. Reid				

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
Nil		Nil		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air conditioner and generator AC		Maintenance platform 4G/1596		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
Disconnect 13 electrical connections Remove 4 securing screws.				
Remove and Replace				1 x 14

MAINTENANCE	
AERO AIRCRAFT LT	
DISTRIBUTION: STANDARD 1	
S. Brown	
E. Knowlton	
MANUFACTURER'S PART NO.	
MANUFACTURER'S NAME	
AIRCRAFT SPEC.	
EQUIPMENT SIZE 2.125"	
LOCATION Mounted on	
bay.	
FUNCTION When energized	
switch to ON, open	
1, 2 & 5 tank fuel	
INSPECTION	
PERIOD	
25 Hrs.	One
	con
	Fun
	Rep
Unobs	
With	
NO.	1
DATE	25 Nov, 57
COMPLD	W02 Wentworth
CHCKD	R.P. Lowe
APPROV	R.P. Held

ACCESS

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD.

Engineering Div.

SYSTEM

ELECTRICS

REF. NO.

11-E5/40

DISTRIBUTION: STANDARD +

S. Brown

K. Knowlton

A/C TYPE - Arrow 1

EFF. A/C - 25201

COMPONENT

Relay - Low Level Sensing

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

AVROCAN SPEC.

E.O. NO.

ENVELOPE SIZE 2.125" x 2.6" x 2.34" WEIGHT .44 LB.

LOCATION Mounted on panel E5 - located in the missile bay.

FUNCTION When energized by selecting the Refuel Master switch to ON, opens the supply circuit to the No. 1, 2 & 5 tank fuel low level control units.

AVRO PART NO.

CS-R-122

REF. DWGS.

7-1100-2 sht 19

7-1100-3 sht 6

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 1500 HRS.

WASTAGE

Q.T.R.

INSPECTION

PERIOD

OPERATION TO BE PERFORMED

MEN X MINUTES

EST.

ACTUAL

25 Hrs.

Check for security of mounting and electrical connections.

Function test. (See Maintenance Instructions Report 71/MAINT 11/7)

2 x 5

ACCESSIBILITY

Unobstructed.
With missile pack removed.

ISSUE

1

DATE

25 Nov. 57

COMPILED

W02 Wentworth

CHECKED

K.P. Lowe

APPROVED

R.F. Reid

BENCH USE

EQUIPMENT

G/1596

MEN X MINUTE

EST.

ACTUAL

1 x 14

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC		Small Maintenance Platform		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
1. Disconnect 6 electrical connections. 2. Remove 2 mounting bolts.		Remove and replace		1 x 20

MAINTENANCE

AVRO AIRCRAFT LTD.

ATTENTION: STANDARD +

S. Brown
i. Knowlton

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

PROCESS SPEC.

PROCESS SIZE 2,125" x 2.6

EXAM Mounted on panel E

When energized by
the switch, complete a
reenergize the fuel sys
to closed position.

SECTION
FIELD

Function T
71/MAINT 1

Unobstructe
With missil

1

26 Nov 57

Wentworth

L. Love

L. Reid

ACCESS

Engineering Div.

ELECTRICS

REF. NO.
11-E5/41
11-E5/37

COMPONENT

EFF. A/C - 25201

Relay - Fuel Shut-Off

AVRO PART NO.

CS-R-122

E.O. NO.

REF. DWGS.	7-1100-2	sht 19
	7-1100-3	sht 6

REF. M.D.R.

FUNCTION When energized by a selection of the cross feed switch, complete an electrical supply circuit to energize the fuel system isolating valve to the closed position.

RELIABILITY

OVERHAUL LIFE	1500	HRS.
WASTAGE		
Q.T.R.		

OPERATION TO BE PERFORMED

MEN \times MINUTES

EST.	ACTUAL
------	--------

Function Test. (See Maintenance Instructions Report
71/MAINT 11/7

 2×5

ACCESSIBILITY

Unobstructed
With missile pack removed.

1

25 Nov. 57

W02 Wentworth

K.P. Lowe

R.F. Reid

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC		Small Maintenance Platform		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST. ACTUAL
1. Disconnect 8 electrical connections. 2. Remove 2 mounting bolts.		Remove and replace		1 x 20

MAINTENANCE
 AVRO AIRCRAFT LTD.
 IDENTIFICATION: STANDARD +
 A. Cornish
 S. Brown K. Knowlton
 MANUFACTURER'S PART NO. Sk
 MANUFACTURER'S NAME Minn.
 PROPOSED: E362
 DIMENSIONS 5.16" x 3.5
 LOCATION Mounted on panel
 NOTES Upon receiving a signal from the liquid level, it actuates the fuel cockpit and actuates the by-pass valve
 ESTIMATED
 ACTUAL
 Check that collector is
 This will only be defueled below
 Inspect for signs
 Carry out functional Instructions R
 ACC
 Unobstructed with
 2
 25 June 56
 P.A. Bell St
 G. Beanland
 G. Emerson

ACCESS

NCH USE

TPMENT

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL SYSTEM	16-18
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT	11-E5/67
MANUFACTURER'S PART NO. Sk 62679		MANUFACTURER'S NAME Minn. H'Well Regulator Co.		Switch - Low Level Control Unit L & R Hand	
AVROCAN SPEC. E362		E.O. NO.		7-1654-213	
ENVELOPE SIZE 5.16" x 3.54" x 2.01"		WEIGHT 0.75 (est)		REF. DWGS.	
LOCATION Mounted on panel E5 located in missile bay		FUNCTION Upon receiving a fuel low level warning signal from the liquid level sensor in the collector tank, it actuates the fuel low level warning light in the cockpit and actuates the fuel flow proportioner by-pass valve to the open position.		7-1100-2 sh 19 7-1100-3 sh 6 7-1154-33	
				REF. M.D.R.	
				16-68	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R. Minn. H'Well AEX 25154	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
EST.		ACT		EST. ACTUAL	
On Refuel		Check that low level warning light goes out as the collector tank fills			
		NOTE This will only apply if the collector tank has been defueled below the 70% level.			
Primary Electrics		Inspect for security		1 x 2	
25 Hour Electrics & Airframe		Carry out functional test. See Maintenance Instructions Reports 71/MAINT 11/7 and 71/MAINT 16/4		Pending	
		ACCESSIBILITY			
		Unobstructed with missile pack lowered.			
ISSUE	1	2	3		
DATE	14 Feb. 56	25 June 56	25 Nov. 57		
COMPILED	G. Emmerson	P.A. Bell Sgt	P. A. Bell Sgt		
CHECKED	G. Emmerson	C. Beanland	J. Brumfit		
APPROVED	G. Emmerson	G. Emmerson	R.F. Reid		

1 x 20

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS

DETAILS:

GROUND SUPPORT EQUIPMENT

SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE	
NIL		NIL	
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT	
Air Conditioner and Generator AC Refueler Fuel Quantity Indicating Test Set		Maintenance Platform 4G/1596	

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN X MINUTES	
REPLACEABLE			EST.	ACTUAL
Electrics		1. Lower E5 panel by removing 2 pip pins. 2. Disconnect 1 electrical connector. 3. Remove 4 mounting bolts. 		

MAINTENANCE

AVRO AIRCRAFT LTD.

DISTRIBUTION: STANDARD +

A. Cornish
S. Brown K. Kne

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME Min

AVROCAN SPEC. E 362

ENVELOPE SIZE 5.16" x

LOCATION Mounted on p
Bay.

FUNCTION Upon receiving
the liquid level se
it completes a supp
tank pump control r
opens the supply ci
shutting off the pu

INSPECTION
PERIOD

Primary
25 Hour
Inst
Inst

Unobs

ISSUE
DATE 25 Nov. 57
COMPILED P.A. Bell Sgt
CHECKED J. Brumfit
APPROVED R.F. Reid

CESS

Engineering Div.

FUEL SYSTEM

16-119
11-E5/7

A/C TYPE - Arrow 1

EFF. A/C - 25201

11-E5/78

Switch - Low Level Control Unit
- R & R Hand

MANUFACTURER'S NAME Minn. H^oWell Regulator Co.

AVRO PART NO.

7-1654-213

REF. DWGS.	7-1100-2 sh 19
	7-1100-3 sh 6
	7-1154-33

REF. M.D.R.

16-96

RELIABILITY

OVERHAUL LIFE 1500 HRS.
WASTAGE
Q.T.R Minn. H^o Well - AEX 25154

OPERATION TO BE PERFORMED

MEN X MINUTES	
EST.	ACTUAL

MEN X MINUTE	
EST.	ACTUAL
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
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98	98
99	99
100	100

Inspect for security.

1 x 2

Carry out a functional test. See Maintenance Instructions Reports 71/MAINT 11/7 and 71/MAINT 16/4

Pending

ACCESSIBILITY

Unobstructed with missile pack lowered.

7

25 Nov. 57

P.A. Bell Sgt

J. Brumfit

R.F. Reid

 1×10

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC Refueler Fuel Quantity Indicating Test Set		Maintenance Platform 4G/1596		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
Electrics		1. Lower E5 panel by removing 2 pip pins. 2. Disconnect 1 electrical connector. 3. Remove 4 mounting bolts.		
		Remove and replace		1 x 10

MAINTENANCE	
AVRO AIRCRAFT LTD.	
INSTRUCTION: STANDARD +	
S. Brown X. Knowlton	
MANUFACTURER'S PART NO. 882	
MANUFACTURER'S NAME Cut	
ATROCAS SPEC.	
ENVELOPE SIZE 2.281" x 1.31	
LOCATION	
Mounted on Fire a cockpit L.H. Cons	
FUNCTION	
When selected to NO the emergency DC bu L.P. cock actuator. completes a supply close field of the	
INSPECTION PERIOD	
Primary	
Periodic (25 Hrs)	
DATE	1
BY	6 Dec. 57
COMPILED	X.P. Lowe
CHECKED	W.G. Wentworth
APPROVED	E.P. Reid

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD. Engineering Div.				ELECTRICS	11-E14/22 11-E14/23
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Switch - Low Press. Cock L and R Hand	
MANUFACTURER'S PART NO. 8824K8				AVRO PART NO.	
MANUFACTURER'S NAME Cutler-Hammer					
AVROCAN SPEC. E.O. NO.					
ENVELOPE SIZE 2.281" x 1.312" x .75" WEIGHT .10 LB.				REF. DWGS. 7-1100-3 Sht. 6 7-1100-2 Sht. 5 7-1252-276	
LOCATION Mounted on Fire and Fuel panel E14 front cockpit L.H. Console				REF. M.D.R. 11-E14	
FUNCTION When selected to NORMAL completes a supply from the emergency DC bus to the open field of the L.P. cock actuator. When selected to OFF completes a supply from the battery bus to the close field of the actuator.				RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	ACTUAL
Primary	Function check (Ref. Maintenance Instructions Report 71/Maint-11/7 Electrics fuel system.			1 x 3	
Periodic (25 Hrs)	See ref. M.D.R. 11-E14				
ACCESSIBILITY					
Lift panel clear of console.					
ISSUE	1				
DATE	6 Dec. 57				
COMPILED	K.P. Lowe				
CHECKED	WO ² Wentworth				
APPROVED	R.F. Reid				

CESS

USE

MENT

1596

MEN X MINUTE	
EST.	ACTUAL

1 x 10

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
Nil			Nil			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Air conditioner and generator AC			Cockpit access stand. Small maintenance stand.			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
Disconnect 4 electrical connections. Remove switch locknut and lockwashers. Withdraw switch.						
Remove and replace.				1 x 6		

MAINTENANCE	
AVRO AIRCRAFT LTD.	
DISTRIBUTION: STANDARD +	
S. Brown L. Knowlton	
MANUFACTURER'S PART NO.	
MANUFACTURER'S NAME	
AFROCAN SPEC. E-417	
ENVELOPE SIZE 1-5/16" x 1	
LOCATION Mounted on panel the L.H. Speed Brakes	
FUNCTION	
INSPECTION PERIOD	
On refuel	Function Report
Unobstr	
DATE	1
COMPLETION	22 Nov. 57
COMPLETION	W02 Wentworth
COMPLETION	K.P. Lowe
APPROVED	R.F. Reid

ACCESS

Engineering Div.

REF. NO.
11-E21/2

A/C TYPE - Arrow 1

COMPONENT

EFF. A/C - 25261

Switch - Master Refuel

AVRO PART NO.

CS-S-159-9

E.O. NO.

ENVELOPE SIZE 1-5/16" x 1-1/8" x 3/4" WEIGHT .11 LB.

REF. DWGS.

7-1100-2 sht 23

REF. M.D.R.

2 BENCH USE

OVERHAUL LIFE 1500 HRS.
WASTAGE
O.T.R.

EQUIPMENT

ind.

OPERATION TO BE PERFORMED
1. <u>Check for correct operation of the engine</u>
2. <u>Check for correct operation of the transmission</u>
3. <u>Check for correct operation of the clutch</u>
4. <u>Check for correct operation of the brakes</u>
5. <u>Check for correct operation of the steering</u>
6. <u>Check for correct operation of the suspension</u>
7. <u>Check for correct operation of the exhaust system</u>
8. <u>Check for correct operation of the fuel system</u>
9. <u>Check for correct operation of the electrical system</u>
10. <u>Check for correct operation of the cooling system</u>
11. <u>Check for correct operation of the lubrication system</u>
12. <u>Check for correct operation of the safety system</u>
13. <u>Check for correct operation of the body</u>
14. <u>Check for correct operation of the interior</u>
15. <u>Check for correct operation of the exterior</u>
16. <u>Check for correct operation of the engine</u>
17. <u>Check for correct operation of the transmission</u>
18. <u>Check for correct operation of the clutch</u>
19. <u>Check for correct operation of the brakes</u>
20. <u>Check for correct operation of the steering</u>
21. <u>Check for correct operation of the suspension</u>
22. <u>Check for correct operation of the exhaust system</u>
23. <u>Check for correct operation of the fuel system</u>
24. <u>Check for correct operation of the electrical system</u>
25. <u>Check for correct operation of the cooling system</u>
26. <u>Check for correct operation of the lubrication system</u>
27. <u>Check for correct operation of the safety system</u>
28. <u>Check for correct operation of the body</u>
29. <u>Check for correct operation of the interior</u>
30. <u>Check for correct operation of the exterior</u>

MEN \times MINUTES

EST.	AC
------	----

EST.	ACTUAL
------	--------

Function test - (See Maintenance Instructions
Report 71/MAINT 11/7.

 1×5

Unobstructed

1

22 Nov. 57

W02 Wentworth

K.P. Lowe

R.F. Reid

1 x 6

LUBRICATION				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC		NIL		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST. ACTUAL
		1. Disconnect 4 electrical connections. 2. Remove 1 mounting nut.		
		Remove and replace		1 x 10

MAINTENANCE
AVRO AIRCRAFT LTD.
DISTRIBUTION: STANDARD +

S. Brown
I. Knowlton

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

AVROCAN SPEC. E-295

ENVELOPE SIZE 1.14"

LOCATION Mounted on
L.H. speed brake

FUNCTION For selecti

INSPECTION
PERIOD

On refuel

Fu
71

DATE

DATE

25 Nov.

COMPLETED W02 Wen

CHECKED K.P. Lo

APPROVED R.P. Re

LUBRICATION				
NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC		NIL		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN × MINUTES
REPLACEABLE				EST.
1. Disconnect 3 electrical connectors.				

MAINTENANCE

1700 AIRCRAFT LTD.

SECTION: STANDARD +

L. Brown

L. Lovelton

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

WORK SPEC.

VALVE SIZE 2.28" x 1.31

SECTION Housed on L U/C
Mounted in L ma

SECTION To provide a r
When selected to ON p
opening valves of the

INSPECTION
PERIOD

Primary

Refuelling

Check

Func
71/M

ISSUE

1

DATE

18 Dec.

COMPILED

K.F. Low

CHECKED

WO2 Went

APPROVED

R.F. Rei

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	11-E23/11
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Switch - Refuel Control L.H.	
MANUFACTURER'S PART NO.				AVRO PART NO.	
MANUFACTURER'S NAME				CS-S-159-9	
AVROCAN SPEC. E.O. NO.				REF. DWGS. 7-1162-137 7-1100-3 sht 6 7-1100-2 sht 30	
ENVELOPE SIZE 2.28" x 1.31" x .75" WEIGHT .11 LB.				REF. M.D.R. 11-E23	
LOCATION Housed on L U/C fuel panel E23 Mounted in L main wheel well. Sta. 487				RELIABILITY	
FUNCTION To provide a refuelling control When selected to ON position energizes the level sensing valves of the LH fuel system.				OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
Primary		Check for security (Refer to M.D.R. 11-E23)		1 x 1	
Refuelling		Function check (See Maintenance Instructions Report 71/MAINT 11/7 Electrics & Fuel System)			
ACCESSIBILITY					
Unobstructed with E23 panel removed.					
ISSUE	1				
DATE	18 Dec. 57				
COMPILED	K.P. Lowe				
CHECKED	W02 Wentworth				
APPROVED	R.F. Reid				

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS

DETAILS:

GROUND SUPPORT EQUIPMENT

SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE	
NIL		NIL	
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT	
Air Conditioner and Generator AC		Maintenance platform 4G/1596	

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN X MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 2 electrical connections. Remove locknut and lockwashers.		
		Remove and replace	1 x 5	

MAINTENANCE D

1970 AIRCRAFT LTD.

OPERATION: STANDARD +

S. Brown
A. Howlton

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

ITEM SPEC.

E.O. NO

ITEM SIZE 2.28" x 1.31" x .7.

Mounted on R U/C fuel
located in R Main wheel well

To provide a refuelling
located to CN position energ
lines of the RH fuel system.

SECTION

ITEM

ITEM

ITEM

Check for secur:

Function Check (71/MAINT 11/7 BI

ACC

Unobstructed with

1

13 Dec. 57

1. Love

Wentworth

1. Heid

ACCESS

CH USE

PMENT

6

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	11-E24/11
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Switch - Refuel Control RH	
MANUFACTURER'S PART NO.				AVRO PART NO.	
MANUFACTURER'S NAME				CS-S-159-9	
AVROCAN SPEC. E.O. NO.				REF. DWGS.	
ENVELOPE SIZE 2.28" x 1.31" x .75" WEIGHT .11 LB.				7-1162-136 7-1100-3 sht 6 7-1100-2 sht 31	
LOCATION Housed on R U/C fuel panel E24 Mounted in R Main wheel well Sta. 487				REF. M.D.R.	
FUNCTION To provide a refuelling control, when selected to ON position energizes the level sensing valves of the RH fuel system.				11-E24	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
Primary		Check for security (Refer to M.D.R. 11-E24)		1 x 1	
Refueling		Function Check (See Maintenance Instructions Report 71/MAINT 11/7 Electrics - Fuel System)		1 x 5	
1 x 5					
ACCESSIBILITY					
Unobstructed with E24 panel removed.					
ISSUE	1				
DATE	18 Dec. 57				
COMPILED	K.P. Lowe				
CHECKED	W02 Wentworth				
APPROVED	R.F. Reid				

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
NIL			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Air Conditioner and Generator AC			Maintenance Platform 4G/1596			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
Disconnect 2 electrical connections.		Remove and replace		1 x 5		
Remove locknut & lockwashers.						

MAINTENANCE	
AERO AIRCRAFT LTD.	
STANDARD +	
K. Knowlton	
PART NO. 2-355-1 Rev.	
Schulz Tool &	
E-337 E.O. NO.	
5.5" x 4.10" x 4.0	
Inside No. 3 Fuel Tank	
Operates refueling shut	
sensing a real or simulat	
tion.	
SECTION	
REMO	
Detail	Operation of this
time and	checked on each
this	pre-refueling che
	tank indicator li
	right wheel wells.
	71/MAINT 16/3
	Check valve and el
	damage.
	Carry out a functi
	sub-system in acco
	report 71/MAINT 16,
	Function check fuel
	Instructions report
ACCE	
Remove forward acce	
1	2
Jan 14/57	Apr. 25/57
G. Bell	P.A. Bell S
G. Beanland	G. Beanland
R.F. Reid	R.F. Reid

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.				FUEL	16-72 11-E113
Engineering Div.					
DISTRIBUTION: STANDARD + A. Cornish K. Knowlton S. Brown		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT 11-E118 No. 3 Tank Level Sensing Valve (Type 1)	
MANUFACTURER'S PART NO. 2-355-1 Rev. "M"				AVRO PART NO. 7-1600-12	
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast) AVROCAN SPEC. E-337 E.O. NO.				REF. DWGS. 7-1662-31/32 7-1100-2 SH 30 7-1100-3 shts 6	
ENVELOPE SIZE 5.5" x 4.10" x 4.05" WEIGHT 1.75 LB.				REF. M.D.R.	
LOCATION Inside No. 3 Fuel Tank - Left and Right				RELIABILITY	
FUNCTION Operates refueling shut-off valve in No. 3 tank by sensing a real or simulated "Tank Full" condition.				OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
On refuel Airframe and Electrics		Operation of this unit and its associated shut-off valve is checked on each refueling operation by carrying out the pre-refueling check as required, and observing the No. 3 tank indicator lights on E-23 and E-24 panels in left and right wheel wells. (See Maintenance Instructions Report 71/MAINT 16/3)		2 x 1/2	
25 Hr.		Check valve and electrical connector for security and damage.		2 x 1	
Airframe & Electrics		Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions report 71/MAINT 16/3 Function check fuel system electrics - See Maintenance Instructions report 71/MAINT 11/7		Pending	
				Pending	
ACCESSIBILITY					
Remove forward access panel #3 Tank - 45 screws.				1 x 15	
Remove and replace					
ISSUE	1	2	3		
DATE	Jan 14/57	Apr. 25/57	8 Oct. 57		
COMPILED	Sgt. Bell	P.A. Bell Sgt	P. A. Bell Sgt		
CHECKED	C. Beanland	C. Beanland	J. Brumfit		
APPROVED	R.F. Reid	R.F. Reid	R.F. Reid		

ACCESS

CH USE

PMENT

6

MEN X MINUTE
EST. ACTU

1 x 5

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
nil		Nil		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Refueler Air Conditioner and Generator A-C		Cockpit access stand Maintenance Platform 4G/1596 MATS - Wing		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
Airframe				
1. Defuel applicable A/C fuel system.				
2. Remove tank access panel.				
3. Disconnect 2 x 1/4 servo lines.				
4. Remove 2 mounting bolts and withdraw valve complete with mounting brackets from tank.				
5. Disassemble mounting brackets part No's 7-1662-1083 and 1087 (L.H.) 7-1662-1084 and 1088 (R.H.) from valve.				
Electrics				
1. Disconnect electrical connector.				
Remove and replace		1 x 2		
Remove and replace total		1 x 55		
(Time to defuel not included)				

MAINTENANCE DA

TO AIRCRAFT LTD.

STANDARD +

8, Knowlton

PART NO. 7-355-51 -

NAME Schulz Tool

NO. E-311 E.O. NO.

5.0" x 5.05" x 4.60

Inside No. 3 Fuel Tank -

To control the admission of fuel to the engine, acting as a fuel sensing valve.

Operation of the valve is checked out the pre-re: No. 3 tank indi and right wheel Report No. 71/1

Check valve and damage.

Carry out a function check sub-system in a Report 71/MAINT Function check Instructions Re:

AC

Remove outboard

1

2

Jan 26/5

G. Emmer

G. Emmer

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-10 11-E114
DISTRIBUTION: STANDARD + A. Cornish K. Knowlton S. Brown		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT 11-E119 No. 3 Tank Refueling Shut-Off Valve	
MANUFACTURER'S PART NO. 7-355-51 - Rev. "G"				AVRO PART NO. 7-1600-11	
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast) AVROCAN SPEC. E-311 E.O. NO.				REF. DWGS. 7-1662-31 & 32 7-1100-3 shts 6 & 7 7-1100-2 sht 30	
ENVELOPE SIZE 5.0" x 5.05" x 4.60" WEIGHT 1.66 LB.				REF. M.D.R. 16-72	
LOCATION Inside No. 3 Fuel Tank - Left & Right				RELIABILITY	
FUNCTION To control the admission of fuel to No. 3 tank during refueling, acting under control of No. 3 tank level sensing valve.				OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. Pending	
INSPECTION PERIOD	OPERATION TO BE PERFORMED		MEN X MINUTES		
			EST.	ACTUAL	
On Refuel Airframe & Electrics 25 Hr.	Operation of this valve and its associated level sensing valve is checked on each refueling operation by carrying out the pre-refueling check as required, and observing No. 3 tank indicator lights on E23 and E24 Panels in left and right wheel wells. See Maintenance Instructions Report No. 71/MAINT 16/3		2 x 1/2		
	Check valve and electrical connector for security and damage.		2 x 1		
	Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3		Pending		
	Function check fuel system electrics - See Maintenance Instructions Report 71/MAINT 11/7		Pending		
ACCESSIBILITY					
Remove outboard access panel - No. 3 Tank - 62 screws.					
Remove and replace			1 x 20		
ISSUE	1	2	3	4	5
DATE	May 31/55	Jan 26/56	Aug 16/56	Jan. 10/57	7 Oct. 57
COMPILED	G. Emmerson	G. Emmerson	P.A. Bell Sgt	P.A. Bell Sgt	P.A. Bell Sgt
CHECKED	G. Emmerson	G. Emmerson	C. Beanland	C. Beanland	J. Brumfit
APPROVED			G. Emmerson	R.F. Reid	R.F. Reid

LUBRICATION					
NIL					
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS	
DETAILS:					
GROUND SUPPORT EQUIPMENT					
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE			
Wig-O-Flex Tools		NIL			
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT			
Refueler Air Conditioner & Generator A-C		Cockpit Access Stand Maintenance Platform 4G/1596 MATS - Wing			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES	
REPLACEABLE				EST.	ACTUAL
Airframe		1. De-fuel applicable A/C fuel system. 2. Remove tank access panel. 3. Disconnect 2 servo bleed lines. 4. Disconnect 1 bonding jumper. 5. Disconnect 1 Wig-O-Flex coupling. 6. Remove 8 attachment bolts and remove valve complete with bracket #7-1662-1025. 7. Disassemble valve from bracket = 4 bolts. Remove and replace		1 x 56	
Electrics					
1. Disconnect 1 electrical connector. Remove and replace (Time to defuel not included)		1 x 3			

MAINTENANCE	
AVRO AIRCRAFT LTD.	
DISTRIBUTION: STANDARD +	
S. Brown	
A. Cronish	
K. Knowlton	
MANUFACTURER'S PART NO. 50	
MANUFACTURER'S NAME Ber	
AVROCAN SPEC. E-212	
ENVELOPE SIZE 19.10" x 9.	
LOCATION Front face of	
FUNCTION	
To meter the flow of A/C fuel tanks in an individual tank capacity valve operated by an actuator permits un	
INSPECTION PERIOD	
Primary Airframe	Inspect
On Refuel Airframe & Electrics	Function See Mai and 71/
Periodic (25 Hrs.) Airframe & Electrics	Inspect connect Carry o with ma 71/MAIN
Through wells.	
DATE	1
DATE	19 Jan. 55
CHECKED	G. Emmerson
CHECKED	G. Emmerson
APPROVED	

ACCESS

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD.

Engineering Div.

SYSTEM

FUEL SYSTEM

REF. NO.

16-1
11-E127

DISTRIBUTION: STANDARD +

S. Brown
A. Cronish
K. Knowlton

A/C TYPE - Arrow 1

EFF. A/C - 25201

COMPONENT

Flow Proportioner Unit

11-E128

MANUFACTURER'S PART NO. 50E00-1

MANUFACTURER'S NAME Bendix Aviation Corp.

AVROCAN SPEC. E-212

E.O. NO.

ENVELOPE SIZE 19.10" x 9.5" x 7.5" WEIGHT 22.88 LB.

LOCATION Front face of main spar - U/C bay R & L Hand

AVRO PART NO.

7-1662-2

REF. DWGS.

7-1662-285 & 286

FUNCTION

To meter the flow of fuel out of and into the A/C fuel tanks in amounts proportional to the individual tank capacities. An internal by-pass valve operated by an externally mounted electric actuator permits unmetered fuel flow when required.

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 50 (est) HRS.

WASTAGE

Q.T.R. 8710-960

INSPECTION
PERIOD

OPERATION TO BE PERFORMED

MEN X MINUTES

EST. ACTUAL

Primary
Airframe

Inspect for fuel leaks and security.

1 x 2

On Refuel
Airframe
&
Electrics

Function check the operation of the by-pass valve.
See Maintenance Instructions Report 71/MAINT 16/3
and 71/MAINT 11/7

Pending

Periodic
(25 Hrs.)
Airframe
&
Electrics

Inspect for fuel leaks, security of unit and electrical
connector.
Carry out functional checks on operation in accordance
with maintenance instructions report No's 71/MAINT 11/7
71/MAINT 16/3 and 71/MAINT 16/4

1 x 2

Pending

ACCESSIBILITY

Through hinged door in lower side of wing - main wheel
wells. - 48 screws.

Remove and replace

1 x 24

ISSUE	1	2	3	4	5
DATE	19 Jan. 55	29 Sept. 55	20 Jan. 56	July 12/57	6 Dec. 57
COMPILED	G. Emmerson	G. Emmerson	G. Emmerson	J. Brumfit	P.A. Bell Sgt
CHECKED	G. Emmerson	G. Emmerson	G. Emmerson	Sgt Bell	J. Brumfit
APPROVED				R.F. Reid	R.F. Reid

ENCH USE

JIPMENT

596

MEN X MIN

EST. AC

1 x 56

1 x 3

LUBRICATION				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
Hand	Petroleum Jelly	Pharmaceutical Quality	On Installation	Unobstructed

DETAILS:

"O" rings to be smeared lightly with petroleum jelly.

GROUND SUPPORT EQUIPMENT	
SPECIAL TOOLS FOR AIRCRAFT USE	SPECIAL TOOLS FOR BENCH USE
Wig-O-Flex Tools	NIL
GROUND TESTING EQUIPMENT	GROUND HANDLING EQUIPMENT
Air Conditioner and Generator A-C Refueler Test Set, Fuel Quantity Indicating System Pressurized Air Supply 85 psi max.	Cockpit Access Stand Maintenance Platform 4G/1596

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN X MINUTES	
REPLACEABLE			EST.	ACTUAL
<u>Airframe</u> 1. De-fuel applicable A/C fuel system. 2. Disconnect bonding lead and Wig-O-Flex coupling at proportioner to manifold connection. 3. Remove turnbuckle proportioner attachment bolts - 2 off. 4. Remove proportioner to adaptor mounting bolts - 2 off. 5. Withdraw proportioner from adaptor (observe care to avoid damage to sealing tubes). <u>Electrics</u> 1. Disconnect electrical connector at by-pass valve actuator. <u>Installation Airframe</u> 1. Fit proportioner to adaptor (ensure that mating surfaces are clean, and "O" rings and sealing tubes in place). 2. Install 4 mounting bolts - fit nuts and washers to top bolts <u>only</u> . 3. Adjust turnbuckles where necessary and fit bolts - 2 off. 4. Remove lower mounting bolts and leave holes redundant. 5. Connect Wig-O-Flex coupling and bonding lead. <u>Electrics</u> 1. Connect electrical connector to by-pass valve. <u>Airframe & Electrics</u> 1. Refuel aircraft and carry out functional checks in accordance with Maintenance Instructions Report No's. 71/Maint 11/7, 71/Maint 16/3 and 71/Maint 16/4. Remove and Replace (Defueling time and functional checks not included)				
			1 x 30	

MAINTENANCE

AVRO AIRCRAFT LTD.

DISTRIBUTION: STANDARD +

A. Cornish K. Knowlton
S. Brown

MANUFACTURER'S PART NO. 2-3

MANUFACTURER'S NAME Schulz T

(Cost)
AFROCAN SPEC E-337

ENVELOPE SIZE 5.5" x 4.10"

LOCATION Inside No. 6 fuel

FUNCTION Operates refuel
tank by sensing a real o
condition.

INSPECTION
PERIOD

Refuel - Operati
valve i
out the
the No.
left an
Instruc

Hour Check v
and dam
Carry o
sub-sys
Report

Function:
Instruc

Remove

REV	1
BY	Jan 2/57
CHECKED	Set Bell
APPROVED	C. Beanland
REVIEWED	R.F. Reid

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD. Engineering Div.				FUEL	16-75 11-E129
DISTRIBUTION: STANDARD + A. Cornish K. Knowlton S. Brown		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT 11-E134 No. 6 Tank Level Sensing Valve (Type 1)	
MANUFACTURER'S PART NO. 2-355-1 Rev. "F"				AVRO PART NO.	
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast) AVROCAN SPEC.E-337 E.O. NO.				7-1600-12	
ENVELOPE SIZE 5.5" x 4.10" x 4.05" WEIGHT 1.75 LB.				REF. DWGS. 7-1662- 25 26	
LOCATION Inside No. 6 fuel tank - Left and Right				7-1100-2 SH 30 7-1100-3 shts 6	
FUNCTION Operates refueling shut-off valve in No. 6 tank by sensing a real or simulated "tank Full" condition.				REF. M.D.R.	
				RELIABILITY	
				OVERHAUL LIFE 500 HRS.	
				WASTAGE	
				Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
On refuel -		Operation of this unit and its associated shut-off valve is checked on each refueling operation by carrying out the pre-refueling check as required, and observing the No. 6 tank indicator lights on E23 and E24 panels in left and right wheel wells. (See Maintenance Instructions Report 71/MAINT 16/3		2 x 1/2	
Airframe & Electrics				2 x 1	
25 Hour		Check valve and electrical connector for security and damage.			
Airframe & Electrics		Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3		Pending	
		Function check fuel system electrics - See Maintenance Instructions Report 71/MAINT 11/7		Pending	
ACCESSIBILITY					
Remove inboard access panel #6 tank - 29 screws				1 x 10	
Remove and replace					
ISSUE	1	2	3		
DATE	Jan 2/57	Apr. 25/57	8 Oct. 57		
COMPILED	Sgt Bell	Sgt Bell	P.A. Bell Sgt		
CHECKED	C. Beanland	C. Beanland	J. Brumfit		
APPROVED	R.F. Reid	R.F. Reid	R.F. Reid		

596

1 x 30

LUBRICATION				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Refueler Air Conditioner and Generator A-C		Cockpit Access Stand Maintenance Platform 4G/1596 MATS - Wing		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST. ACTUAL
Airframe				
1. Defuel applicable A/C fuel system.				
2. Remove tank access panel.				
3. Disconnect 2 x 1/4 servo lines.				
4. Remove 4 mounting bolts and withdraw valve from tank.				
		Remove and replace	1 x 25	
Electrics:				
1. Disconnect electrical connector.				
		Remove and replace	1 x 3	
		(Time to defuel not included)		

MAINTENANCE	
AVRO AIRCRAFT LTD.	
CONSTRUCTION: STANDARD +	
A. Cornish	
B. Brown K. Knowlton	
MANUFACTURER'S PART NO. 7-355-51	
MANUFACTURER'S NAME Schulz Tool	
(last)	
AMERICAN SPEC E-311	
E.O. NO	
DEVELOP SIZE 5.0" x 5.05" x 4.60	
LOCATION Inside No. 6 Fuel Tank	
FUNCTION To control the admission of fuel during refueling, acting under pressure level sensing valve.	
DEFECT	
REPAIR	
DEFUEL	Operation of valve is checked out the pre-f 6 tank indicator and right wheel Report 71/MAIL
REPAIR	Check valve and damage. Carry out a full sub-system in Report 71/MAIL Function check Instructions
Remove centre	
1	
Jan. 15/57	8 Oct
Sgt. Bell	P.A.
C. Beanland	J. Br
R.F. Reid	R.F.

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-79 11-E130
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT 11-E135 No. 6 Tank - Refueling Shut-Off Valve	
MANUFACTURER'S PART NO. 7-355-51 Rev. "G"				AVRO PART NO.	
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast) AVROCAN SPEC. E-311 E.O. NO.				7-1600-11	
ENVELOPE SIZE 5.0" x 5.05" x 4.60" WEIGHT 1.66 LB.				REF. DWGS. 7-1662-25 & 26 7-1100-3 shts 6 & 7 7-1662-253 & 254 7-1100-2 sht 30	
LOCATION Inside No. 6 Fuel Tank - Left and Right				REF. M.D.R.	
FUNCTION To control the admission of fuel to No. 6 tank during refueling, acting under the control of No. 6 tank level sensing valve.				RELIABILITY	
				OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
On Refuel Airframe & Electrics		Operation of this valve and its associated level sensing valve is checked on each refueling operation by carrying out the pre-fueling check as required, and observing No. 6 tank indicator lights on E23 and E24 panels in left and right wheel wells. (See Maintenance Instructions Report 71/MAINT 16/3)		2 x 1/2	
25 Hr. Airframe & Electrics		Check valve and electrical connector for security and damage. Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3. Function check fuel system electrics - See Maintenance Instructions report 71/MAINT 11/7		Pending	
				Pending	
ACCESSIBILITY					
Remove centre access panel - No. 6 Tank - 29 screws. Remove and replace				1 x 10	
ISSUE	1	2			
DATE	Jan. 15/57	8 Oct. 57			
COMPILED	Sgt. Bell	P.A. Bell Sgt			
CHECKED	C. Beanland	J. Brumfit			
APPROVED	R.F. Reid	R.F. Reid			

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
Wig-O-Flex Tools			Nil			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Refueler Air Conditioner and Generator A-C			Cockpit Access Stand Maintenance Platform 4G/1596 MATS - Wing			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
<u>Airframe</u> 1. Defuel applicable A/C fuel system. 2. Remove tank access panel. 3. Disconnect 2 servo bleed lines. 4. Disconnect 1 bonding jumper. 5. Disconnect 1 Wig-O-Flex Coupling 6. Remove 4 attachment bolts and remove valve complete with mounting bracket 7-1662-391 7. Disassemble valve from mounting bracket. <div style="text-align: right;">Remove and replace</div>				1 x 38		
<u>Electrics</u> 1. Disconnect 1 electrical connector. <div style="text-align: right;">Remove and replace</div> <div style="text-align: right;">(Time to defuel not included)</div>				1 x 3		

MAINTENANCE

AVRO AIRCRAFT LTD.

OPERATION: STANDARD +

Finish

Drawn

Location

MANUFACTURER'S PART NO. 5-17

MANUFACTURER'S NAME Schulz

SECTION SPEC E542

WING SIZE 5.15" x 4.75"

SECTION Duct Bay - Sta.

FUNCTIONS as a me

press and refueling shu

transfer pump discharge o

ed in the event of a fa

regulator.

FUNCTION	PERIOD
Inspect	indicatio
Inspect s	
Inspect v	damage, c
Function	71/MAINT

Through el

24 Apr. 57

P.A. Bell Sgt

C. Bearland

R.P. Reid

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD. Engineering Div.				FUEL	16-114 11E-148
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Valve - By - Pass Override (RH)	
MANUFACTURER'S PART NO. 5-1256-1				AVRO PART NO.	
MANUFACTURER'S NAME Schulz (c/o East Coast Eng'ring)				7-1656-395	
AVROCAN SPEC. E542 E.O. NO.					
ENVELOPE SIZE 5.15" x 4.75" x 3.25" WEIGHT 1.85 LB.				REF. DWGS.	
LOCATION Duct Bay - Sta. 485				7-1654-341 7-1654-18 sh 3 7-1100-3 sh 6	
FUNCTION Functions as a means to override the by-pass and refueling shut off valve to relieve fuel transfer pump discharge over pressure back to No. 1 Tank in the event of a failure of the RH fuel pressure regulator.				REF. M.D.R.	
				RELIABILITY	
				OVERHAUL LIFE 500 HRS.	
				WASTAGE	
				Q.T.R. Pending	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN X MINUTES	
		EST.	ACTUAL
Primary Airframe	Inspect valve and associated piping for security and indications of leakage.	1 x 2	
Electrics	Inspect security of electrical connector.	1 x 1	
25 Hr. Airframe	Inspect valve and associated piping for security, damage, corrosion and leakage.	1 x 3	
Electrics	Function Test (See Maintenance Instructions Report 71/MAINT 11/7)	Pending	
ACCESSIBILITY			
Through electrics access door - 74 camlocs			
Remove and replace		1 x 7½	

ISSUE	1	2			
DATE	24 Apr. 57	20 Nov. 57			
COMPILED	P.A. Bell Sgt	P.A. Bell Sgt			
CHECKED	C. Beanland	J. Brumfit			
APPROVED	R.F. Reid	R.F. Reid			

ACCESS

CH USE

MENT

96

MEN X MINUTES

EST. ACTUAL

1 x 38

1 x 3

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC Refueler		Workstand		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
Airframe	1. Defuel aircraft (R.H. system) 2. Disconnect fuel piping - 7 couplings. 3. Remove 4 mounting bolts and withdraw valve 4. Remove "TEE" No. CS-F-512-4-6-6			
Electrics	1. Disconnect 1 electrical connector.			Remove and replace 1 x 30
(Defueling time not included)				

MAINTENANCE	
AERO AIRCRAFT LTD.	
OPERATION STANDARD +	
Comish	K. Knowlton
MANUFACTURER'S PART NO.	5-122
MANUFACTURER'S NAME	Schulz
TECHN SPEC.	B542
TECHN SPEC	5.15" x 4.75" x
SECTION	Duct Bay - Sta. 485
Functions as a me	
defueling shut-off val	
discharge over pressu	
of a failure of the	
INSPECTION	
ITEMS	
Inspect v	indicatio
Inspect s	
Inspect v	corrosion
Function	71/MAINT
Through e	
1	
24 Apr. 57	
P.A. Bell Sgt	
C. Seanland	
R.F. Reid	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD.

Engineering Div.

SYSTEM

FUEL

REF. NO.

16-115

11E-149

DISTRIBUTION: STANDARD +

A. Cornish

S. Brown

K. Knowlton

A/C TYPE - Arrow 1

EFF. A/C - 25201

COMPONENT

Valve -

By-Pass Override (L.H.)

MANUFACTURER'S PART NO. 5-1256-1

MANUFACTURER'S NAME Schulz (c/o East Coast Eng'Ring)

AVROCAN SPEC. E542

E.O. NO.

ENVELOPE SIZE 5.15" x 4.75" x 3.25" WEIGHT 1.85 LB.

LOCATION Duct Bay - Sta. 485

FUNCTION Functions as a means to override the by-pass and refueling shut-off valve to relieve fuel transfer pump discharge over pressure back to No. 2 Tank in the event of a failure of the LH fuel pressure regulator

AVRO PART NO.

7-1656-395

REF. DWGS.

7-1654-341

7-1654-18 sh 3

7-1100-3 sh 6

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 500

HRS.

WASTAGE

Q.T.R.

Pending

INSPECTION

PERIOD

OPERATION TO BE PERFORMED

MEN X MINUTES

EST.

ACTUAL

Primary Airframe

Inspect valve and associated piping for security and indications of leakage.

1 x 2

Electrics

Inspect security of electrical connector.

1 x 1

25 Hour Airframe

Inspect valve and associated piping for security, damage corrosion and leakage.

1 x 3

Function Test (See Maintenance Instructions Report 71/MAINT 11/7)

Pending

ACCESSIBILITY

Through electrics access door - 74 camlocs

Remove and replace

1 x 7½

ISSUE

1

2

DATE

24 Apr. 57

20 Nov. 57

COMPILED

P.A. Bell Sgt

P.A. Bell Sgt

CHECKED

C. Beanland

J. Brumfit

APPROVED

R.F. Reid

R.F. Reid

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
NIL			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Air Conditioner and Generator AC Refueler			Workstand			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS			MEN X MINUTES	
REPLACEABLE					EST.	ACTUAL
Airframe	1. Defuel aircraft (L.H. system) 2. Disconnect fuel piping - 7 couplings 3. Remove 4 mounting bolts and withdraw valve 4. Remove "TEE" No. CS-F-516-6-4-6			1 x 30		
Electrics	1. Disconnect 1 electrical connector.					
Remove and replace						
(Defueling time not included)						

MAINTENANCE

AVRO AIRCRAFT LTD.

DISTRIBUTION: STANDARD +

A. Cornish
S. Brown

K. Knowlton

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME Gen

AVROCAN SPEC. E233

ENVELOPE SIZE 7.93" x 7

LOCATION Duct bay - S bases.

FUNCTION Serves as a p a fuel line against f this instal'n to isol systems when the cock "normal" or opens to hand system to both e is set to the RH only

INSPECTION PERIOD	
Primary Airframe	Visu
Electrics	Chec
25 Hr. Airframe	Chec
Electrics	Func
	71/1

Thru

ISSUE	1
DATE	June 6/56
COMPILED	P.A. Bell
CHECKED	C. Beanlar
APPROVED	G. Emmerse

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-65 11-El69
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Valve = 2½" dia. Motor operated - Fuel Shut-off (Crossfeed valve)	
MANUFACTURER'S PART NO. AV 16 B 1337 B				AVRO PART NO.	
MANUFACTURER'S NAME General Controls Co.				7-1600-61	
AVROCAN SPEC. E233 E.O. NO.					
ENVELOPE SIZE 7.93" x 7.68" x 4.79" WEIGHT 4.90 LB.				REF. DWGS. 7-1656-1 7-1656-205 7-1656-207 7-1100-2 sh 24	
LOCATION Duct bay - Sta. 546.52 between heat exchanger bases.				REF. M.D.R.	
FUNCTION Serves as a positive remote method of closing a fuel line against flow in either direction. Used in this instal'n to isolate the left and right hand fuel systems when the cockpit crossfeed selector is set at "normal" or opens to permit flow from right or left hand system to both engines when the cockpit selector is set to the RH only or LH only.				RELIABILITY OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. 425-M.T., 435-M.T., 404-M.T.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
Primary Airframe Electrics		Visual - Check for leakage. Check electrical connector for security.		1 x 1 1 x 1	
25 Hr. Airframe Electrics		Check for security, damage, corrosion and leakage. Function Test (See Maintenance Instructions Report 71/MAINT 11/7)		1 x 2 Pending	
ACCESSIBILITY					
Through hydraulics access panel - 52 camlocs. Remove and replace				1 x 5½	
ISSUE	1	2	3	4	5
DATE	June 6/56	Sept. 28/56	Feb. 4/57	2 May 57	20 Nov. 57
COMPILED	P.A. Bell	P.A. Bell	P.A. Bell	P.A. Bell sgt	P.A. Bell Sgt
CHECKED	C. Beanland	C. Beanland	C. Beanland	C. Beanland	J. Brumfit
APPROVED	G. Emmerson	G. Emmerson	R.F. Reid	H.F. Reid	R.F. Reid

1 x 30

uded)

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
Wig-O-Flex Tools		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC Adjustable Mirror Refueler		Workstand Cockpit Access Stand		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
Airframe	1. Defuel aircraft 2. Carry out procedure for heat exchanger. Removal as per M.D.R. 16-67 3. Remove crossfeed valve from between heat exchange bases by removing 12 capscrews.			1 x 180
	Total Remove and replace			1 x 204
Electrics	1 Remove 1 electrical connector.			1 x 2
(Time to defuel not included)				

MAINTENANCE	
AVRO AIRCRAFT LTD.	
DISTRIBUTION: STANDARD +	
By: Cornish S. Brown K. Knowlton	
MANUFACTURER'S PART NO. AV	
MANUFACTURER'S NAME Gene	
AVROCAN SPEC. E233	
ENVELOPE SIZE 7.93" x 7.61"	
LOCATION In duct bay - heat exchanger.	
FUNCTION Serves as a pos: fuel line against flow this instal'n as a low fuel supply to an engine switches on LH console	
INSPECTION PERIOD	
Primary Airframe Electrics	Visual Check
3 dr. Airframe	Check
Electrics	Function 71/MAIL
Through	
DATE	1
DATE	Sept. 28/56
REMOVED	P. A. Bell
REMOVED	C. Beanland
APPROVED	G. Emmerson

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-69 11-E171
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT 11-E172 Valve - 2 1/2" Dia. Motor Operated - Fuel Shut-Off (L.P. Cook)	
MANUFACTURER'S PART NO. AV 16B 1337 B				AVRO PART NO. 7-1600-61	
MANUFACTURER'S NAME General Controls Co.					
AVROCAN SPEC. E233 E.O. NO.					
ENVELOPE SIZE 7.93" x 7.68" x 4.79" WEIGHT 4.90 LB.				REF. DWGS. 7-1656-203 7-1656-207 7-1100-1	
LOCATION In duct bay - Sta. 555 - Aft of fuel/oil heat exchanger.				REF. M.D.R.	
FUNCTION Serves as a positive remote method of closing a fuel line against flow in either direction. Used in this instal'n as a low pressure cock to shut off the fuel supply to an engine. Actuated by operating the switches on LH console of pilots cockpit.				RELIABILITY OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. United Electro Dynamics 425-M.T, 437 -MT, 404-M.T.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED		MEN X MINUTES		
			EST.	ACTUAL	
Primary Airframe Electrics 25 Hr. Airframe Electrics	Visual - Check for leakage. Check electrical connector for security.		1 x 1 1 x 1		
	Check for security, damage, corrosion and leakage.		1 x 2		
	Function test. (See Maintenance Instructions Report 71/MAINT 11/7)		Pending		
ACCESSIBILITY					
Through hydraulics access panel - 52 camlocs Remove and replace			1 x 5 1/2		
ISSUE	1	2	3	4	
DATE	Sept. 28/56	Feb. 7/57	2 May 57	20 Nov. 57	
COMPILED	P. A. Bell	P.A. Bell	P.A. Bell Sgt	P.A. Bell Sgt	
CHECKED	C. Beanland	C. Beanland	C. Beanland	J. Brumfit	
APPROVED	G. Emmerson	R.F. Reid	R.F. Reid	R.F. Reid	

CESS

CH USE

MENT

MEN X MINUTE

EST. ACTUAL

1 x 180

1 x 24

1 x 20

1 x 2

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
Wig-O-Flex Tools			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Air Conditioner and Generator AC Refueler			Workstand			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
Airframe	1. Defuel applicable A/C system 2. Remove M.P. hose section #7-1600-47 3. Disconnect 2 bonding jumpers, 2 wig-o-flex couplings and remove pipe section No. 7-1656-221 4. Remove 12 x 5/16 cap screws to remove valve.					
	Remove and replace		1 x 56			
Electrics	1. Disconnect 1 electrical connector.					
	Estimate remove and replace		1 x 2			
	Total remove and replace		1 x 58			
	(Time to Defuel not included)					

MAINTENANCE	
AVRO AIRCRAFT	
DISTRIBUTION: STANDARD	
A. Cornish	K. Kr
MANUFACTURER'S PART NO.	
MANUFACTURER'S NAME	
AVROCAN SPEC.	E288
ENVELOPE SIZE	8.3"
LOCATION	Duct Bay skin
FUNCTION	Acts as a dump valve in the
INSPECTION PERIOD	
Primary Airframe	
Electrics	
25 Hr. Airframe	
Electrics	
ISSUE	1
DATE	20 June 4
COMPILED	G. Emmer
CHECKED	G. Emmer
APPROVED	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD.

Engineering Div.

SYSTEM

FUEL

REF. NO.

16-11

11-E179

DISTRIBUTION: STANDARD +

A. Cornish

S. Brown K. Knowlton

A/C TYPE - Arrow 1

EFF. A/C - 25201

COMPONENT

11-E180

Valve - Air Pressure Relief
(Abs. Ref.)

MANUFACTURER'S PART NO. HS 503993

MANUFACTURER'S NAME Hamilton Ltd. (c/o CDN. Pratt and
Whitney)

AVROCAN SPEC. E288

E.O. NO.

AVRO PART NO.

7-1656-4

ENVELOPE SIZE 8.3" x 8.0" x 4.75" WEIGHT 3.0 LB.

LOCATION Duct Bay - Sta. 674.16 - Below Bottom wing
skin

REF. DWGS.

7-1658-113

7-1658-205

7-1658-211 & 12

7-1100-3 shts 6

FUNCTION Acts as a safety valve and remotely controlled
dump valve in the wing tank pressurization system.

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 500 HRS.

WASTAGE

Q.T.R. Pending

INSPECTION
PERIOD

OPERATION TO BE PERFORMED

MEN X MINUTES

EST. ACTUAL

Primary
Airframe

Check valve and associated piping for security.

1 x 2

Electrics

Check electrical connector for security.

1 x 2

25 Hr.
Airframe

Check valve and associated piping for security,
corrosion and damage.
Function test valve (See Maintenance Instructions
Report 71/MAINT 16/2)

1 x 3

Pending

Electrics

Check electrical connector for security.
Function test electrics (See Maintenance Instructions
Report 71/MAINT 11/7)

1 x 2

Pending

ACCESSIBILITY

Through No. 3 Service Door - 34 camlocs.

Remove and replace

1 x 3½

ISSUE	1	6	7		
DATE	20 June 55	29 Aug. 57	20 Nov. 57		
COMPILED	G. Emmerson	P.A. Bell Sgt	P.A. Bell Sgt		
CHECKED	G. Emmerson	J. Brumfit	J. Brumfit		
APPROVED		R.F. Reid	R.F. Reid		

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
Wig-O-Flex Tools			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Pressurized Air Supply 85 P.S.I.G. 0-25 P.S.I.G. Pressure Gauge - 7 off Air conditioner and generator AC			Workstand			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
Electrics	1.	Disconnect 4 electrical connectors. Estimated remove and replace		1 x 12		
Airframe	1.	Disconnect 4 bonding jumpers, 4 wig-o-flex couplings and remove LP pipe sections #7-1658-163 (2 off)				
	2.	Disconnect 4 bond jumpers, 6 wig-o-flex couplings, and remove LP pipe assemblies #7-1658-147 and 148.				
	3.	Disconnect 4 bonding jumpers, 4 wig-o-flex couplings and remove LP pipe sections 7-1658-135 (2 off)				
	4.	Remove 1 support clip and disconnect and remove shut-off control pipe assemblies No's 7-1658-293 and 295.				
	5.	Disconnect 3 bonding jumpers 3 wig-o-flex couplings and remove LP pipe #7-1658-157.				
	6.	Disassemble valve and tray ass'y into right and left hand sections by removing straps #7-1658-221 (2 off EA 4 screws) 1 channel strap 7-1658-283 (4 screws) and 1 spacer block ass'y #7-1658-283 (4 bolts)				
	7.	Remove half tray assemblies (EA 4 bolts) from A/C and disassemble components from tray.				
		Remove and replace		1 x 180		

MAINTENANCE	
AVRO AIRCRAFT LTD.	
CONSTRUCTION STANDARD +	
A. Knowlton	
A. Cornish	
S. Brown	
MANUFACTURER'S PART NO. H	
MANUFACTURER'S NAME Ha	
AFROCAN SPEC. E289	
ENVELOPE SIZE 8.3" x 5.	
LOCATION Duct Bay - F	
FUNCTION Acts as a saf	
fuselage tank pressu	
from over-pressurize	
during rapid climb.	
dump valve to releas	
INSPECTION PERIOD	
Primary	
Airframe	Che
Electrics	Che
25 Hour	
Airframe	Che
	Fu
	71,
Electrics	Che
	co:
	Fu
	Re
	Th
NOTE	1
DATE	25 Oct. 55
COMPILED	G. Emmerson
CHECKED	G. Emmerson
APPROVED	

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-21 11-E207
DISTRIBUTION: STANDARD + K. Knowlton A. Cornish S. Brown		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Valve - Air-Pressure Relief (Diff. Ref.)	
MANUFACTURER'S PART NO. HS 508653				AVRO PART NO.	
MANUFACTURER'S NAME Hamilton Ltd. c/o Gdn. Pratt & Whitney				7-1656-5	
AVROCAN SPEC. E289 E.O. NO.					
ENVELOPE SIZE 8.3" x 5.5" x 8.5" WEIGHT 2.0 LB.				REF. DWGS. 7-1656-1 7-1656-17 7-1656-113 7-1100-3 sht 6	
LOCATION Duct Bay - Fuselage Floor Sta. 492.33				REF. M.D.R.	
FUNCTION Acts as a safety valve (11 p.s.i.g.) in the fuselage tank pressurization system to protect tanks from over-pressurization due to regulator failure or during rapid climb. Also acts as a remotely controlled dump valve to release air from tanks during refueling.				RELIABILITY OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
Primary Airframe Electrics		Check for security of valve and piping. Check Electrical connector for security.		1 x 1 1 x 1	
25 Hour Airframe		Check valve and piping for security, corrosion and damage. Function Test. (See Maintenance Instructions Report 71/MAINT 16/2)		1 x 2	
Electrics		Check electrical connector and solenoid for security, corrosion and damage. Function Test Electrics. (See Maintenance Instructions Report 71/MAINT 11/7)		1 x 2 Pending	
ACCESSIBILITY					
Through electrics access panel RH - 44 camlocs. Remove and replace				1 x 4½	
ISSUE	1	2	3	4	5
DATE	25 Oct. 55	14 Feb. 56	20 Feb. 57	29 Aug. 57	20 Nov. 57
COMPILED	G. Emmerson	G. Emmerson	Sgt Bell	P.A. Bell Sgt	P.A. Bell Sgt
CHECKED	G. Emmerson	G. Emmerson	G. Beanland	J. Brumfit	J. Brumfit
APPROVED				R.F. Reid	R.F. Reid

MEN X MINUTES
EST. ACTUAL

1 x 12

1 x 180

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
Wig-O-Flex Tools			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Pressurization air supply - 85 p.s.i. 0-25 p.s.i.g. Air Pressure Gauge Air Conditioner and Generator AC			Workstand			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
Electrics	1. Disconnect 1 electrical connector Est. remove and replace 1x2					
Airframe	1. Disconnect and remove clamp ass'y - 7-1656-223 2. Remove upstream pressure sensing pipe ass'y -7-1656-143 3. Remove reference pressure sensing pipe ass'y 7-1656-151 4. Disconnect and remove air release valve overboard Drain pipe ass'y 7-1656-149 5. Disconnect 2 bonding jumpers, 2 wig-o-flex couplings and remove pipe 7-1656-259 6. Remove panel 7-1056-2261 from valve mounting structure 7. Disconnect wig-o-flex coupling at valve to flame trap tube joint. 8. Remove 4 attachment screws and remove valve.					
Remove and replace			1 x 48			

MAINTENANCE

AVCO AIRCRAFT LTD.

REVISION: STANDARD +

Author K. Knowlton

MANUFACTURER'S PART NO. 2-3

MANUFACTURER'S NAME Schulz

TEST SPEC. E-337

ENVELOPE SIZE 5.5" x 4.10"

LOCATION Inside No. 2 Fu

FUNCTION Operates No. valve by sensing a real condition.

INSPECTION PERIOD

Refuel Airframe & Electrics

Operate valve out 1 No. 2 wheel.

5 hr. Airframe & Electrics

Check damage Carry sub-Repo Func Inst

Re

Re

Re

1
Jan 2/57
Sgt. Bell
C. Beanlan
R.F. Reid

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD.

Engineering Div.

SYSTEM

FUEL

REF. NO.

16-71
11-E214

DISTRIBUTION: STANDARD +

A. Cornish K. Knowlton
S. Brown

A/C TYPE - Arrow 1

EFF. A/C - 25201

COMPONENT

No. 2 Tank
Level Sensing Valve
(Type 2)

MANUFACTURER'S PART NO. 2-355-61

MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast)

AVROCAN SPEC. E-337

E.O. NO.

AVRO PART NO.

7-1654-361

ENVELOPE SIZE 5.5" x 4.10" x 4.05" WEIGHT 1.75 LB.

LOCATION Inside No. 2 Fuel Tank

REF. DWGS.

7-1654-18
7-1100-2 sh-13
7-1100-3 shs 6

FUNCTION Operates No. 2 tank refueling shut off valve by sensing a real or simulated "Tank Full" condition.

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 500 HRS.
WASTAGE
Q.T.R. Pending

INSPECTION
PERIOD

OPERATION TO BE PERFORMED

MEN X MINUTES

EST. ACTUAL

On Refuel
Airframe &
Electrics

Operation of this unit and its associated tank shut-off valve is checked on each refueling operation by carrying out the pre-refuel check as required, and observing No. 2 tank indicator light on E23 panel in left wheel. See Maintenance Instructions Report 71/MAINT 16/3

1 x 1/2

25 Hr.
Airframe &
Electrics

Check valve and electrical connector for security and damage.
Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3
Function check fuel system electrics - See Maintenance Instructions Report 71/MAINT 11/7

1 x 2

Pending

Pending

ACCESSIBILITY

Remove dorsal fairing over tank - 6 latches.
Remove and replace

1 x 2

Remove tank access panel - 36 bolts
Remove and replace

1 x 12

1 x 4

Remove structural tie bar No. 17 - 2 bolts.

Total - Remove and replace

1 x 18

ISSUE

1

2

3

4

DATE

Jan 2/57

Apr. 25/57

16 Sept. 57

9 Oct. 57

COMPILED

Sgt. Bell

P. A. Bell Sgt

P.A. Bell Sgt

P.A. Bell Sgt

CHECKED

C. Beanland

C. Beanland

J. Brumfit

J. Brumfit

APPROVED

R.F. Reid

R.F. Reid

R.F. Reid

R.F. Reid

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Refueler Air Conditioner & Generator A-C		Cockpit access stand Maintenance Platform 4G/1596 Mats - Wing Tank Protective Mat.		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
<u>Airframe</u> 1. De-fuel L.H. A/C system. 2. Remove dorsal fairing tank access panel and structural tie bar No. 17. 3. Install tank protective mat. 4. Disconnect 2 x 1/4 servo lines. 5. Remove 4 attachment bolts. <u>Electrics</u> Disconnect electrical connector. <div style="text-align: right;">Remove and replace</div> <div style="text-align: center;">(Time to defuel not included)</div>		1 x 40		

MAINTENANCE	
AVRO AIRCRAFT LTD	
DISTRIBUTION: STANDARD +	
A. Cornish	K. Knowlton
MANUFACTURER'S PART NO.	
MANUFACTURER'S NAME	
AVROCAN SPEC. E460	
ENVELOPE SIZE 10.05"	
LOCATION Duct Bay - Mo	
FUNCTION (a) Admitting while acting as sensing valve. (b) Permits fuel to discharge pressure fuel pressure regulator. 2. Permits flow in to by-pass the tank malfunction.	
INSPECTION PERIOD	
On Refuel	0
Airframe & Electrics	v
25 Hr.	c
Airframe	t
Electrics	(
Airframe & Electrics	
ISSUE 1	
DATE	Feb. 22/4
COMPILED	Sgt P.A.
CHECKED	C. Bean
APPROVED	R.F. Re

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL SYSTEM	16-83 11-E215
DISTRIBUTION: STANDARD + A. Cornish S. Brown		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Valve By-Pass And Refueling Shut-Off L.H. (NO. 2 Tank)	
MANUFACTURER'S PART NO. 3-456-51 Iss. "E"				AVRO PART NO.	
MANUFACTURER'S NAME Schulz Tool & Mfg. Co.				7-1656-121	
AVROCAN SPEC. E460 E.O. NO.					
ENVELOPE SIZE 10.05" x 5.95" x 4.875" WEIGHT 2.50 est LB.				REF. DWGS. 7-1656-1 7-1656-197 & 8 7-1654-18 7-1100-R Sh 28	
LOCATION Duct Bay - Mounted on Tank Bulkhead Sta. 478.0				REF. M.D.R.	
FUNCTION (a) Admits fuel to No. 2 tank during refueling while acting under control of No. 2 tank level sensing valve. (b) Permits fuel to re-circulate to No. 2 tank if pump discharge pressure becomes excessive due to a faulty fuel pressure regulator. 2. Permits flow in the reverse direction to allow fuel to by-pass the transfer pump in the event of a pump malfunction.				RELIABILITY OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
On Refuel Airframe & Electrics		Operation of this valve and its associated level sensing valve is checked on each refueling operation by carrying out the pre-fueling check as required and observing No. 2 tank indicator light on E-23 panel in the left wheel well. (See Maintenance Instructions Report 71/MAINT 16/3.)		2 x 1/2	
25 Hr. Airframe Electrics		Check valve for security, damage, corrosion and leakage. Check electrical connector for security.		1 x 2 1 x 2	
Airframe & Electrics		Function check. (See Maintenance Instructions Report 71/MAINT 16/3, 71/MAINT 16/4 and 71/MAINT 11/7)		Pending	
ACCESSIBILITY					
Through electrics access door - 74 camlocs. Remove and replace				1 x 7 1/2	
ISSUE	1	2			
DATE	Feb. 22/57	7 Oct. 57			
COMPILED	Sgt P.A. Bell	P.A. Bell Sgt			
CHECKED	C. Beanland	J. Brumfit			
APPROVED	R.F. Reid	R.F. Reid			

ACCESS

ENCH USE

UPMENT

1596

MEN X MINUTE

EST. ACTU

1 x 40

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
Wig-O-Flex Tools			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Air Conditioner & Generator A-C Refueler Pressurized air supply - 85 p.s.i.g.			Maintenance Platform 4G/1596 Workstand			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
<u>Electrics:</u> 1. Disconnect 1 electrical connector. <div style="text-align: right;">Remove and replace</div>				1 x 2		
<u>Airframe</u> 1. Defuel A/C fuel system. 2. Remove cooling air duct section #7-2256-111 3. Disconnect and remove pump inlet pressure sensing line. 4. Disconnect 2 bonding jumpers 2 Wig-O-Flex couplings, and remove fuel transfer elbow #7-1656-265 5. Disconnect and remove pump discharge pressure sensing line. 6. Disconnect 1 bonding jumper, 2 Wig-O-Flex couplings, and remove fuel transfer pipe #7-1656-275 7. Disconnect primary and secondary servo bleed lines from valve. 8. Remove 4 mounting bolts and withdraw valve to rear. <div style="text-align: right;">Remove and replace</div> <div style="text-align: center;">(Time to De-fuel not included)</div>				1 x 54		

MAIN	
AVRO AIR	
DISTRIBUTION: ST	
A. Cornish	
S. Brown	
MANUFACTURER'S	
MANUFACTURER'S	
Coast)	
AVROCAN SPEC.	
ENVELOPE SIZE 5	
LOCATION Insi	
FUNCTION Oper	
tank by ser	
condition.	
INSPECTION	
PERIOD	
On refuel	
Airframe	
&	
Electrics	
25 Hrs.	
Airframe	
&	
Electrics	
DATE	Jan.
COMPILED	P.A.
CHECKED	C. Be
APPROVED	R.F.

CESS

USE

IENT

5

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-73
DISTRIBUTION: STANDARD + A. Cornish K. Knowlton S. Brown		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT No. 4 Tank Level Sensing Valve (Type 1)	
MANUFACTURER'S PART NO. 2-355-1 Rev. "F"				AVRO PART NO.	
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast)				7-1600-12	
AVROCAN SPEC. E337 E.O. NO.				REF. DWGS.	
ENVELOPE SIZE 5.5" x 4.10" x 4.05" WEIGHT 1.75 LB.				7-1662-417-418 7-1100-2 SH 28 7-1100-3 shts 6	
LOCATION Inside No. 4 tank - Left and Right				REF. M.D.R.	
FUNCTION Operates refueling shut-off valve in No. 4 tank by sensing a real or simulated "tank full" condition.				RELIABILITY	
				OVERHAUL LIFE 500 HRS.	
				WASTAGE	
				Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
On refuel Airframe & Electrics		Operation of this unit and its associated shut-off valve is checked on each refueling operation by carrying out the pre-fueling check as required and observing the No. 4 tank indicator lights on E23 and E24 panels in left and right wheel wells. (See Maintenance Instructions Report 71/MAINT 16/3)		2 x 1/2	
25 Hrs.		Check valve and electrical connector for security and damage.		2 x 1	
Airframe & Electrics		Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3. Function check fuel system electrics - See Maintenance Instructions Report 71/MAINT 11/7		Pending	
				Pending	
ACCESSIBILITY					
Remove inboard access panel #4 tank - 38 screws.				1 x 12	
Remove and replace					
ISSUE	1	2	3		
DATE	Jan. 2/57	Apr. 25/57	8 Oct. 57		
COMPILED	P.A. Bell Sgt	P.A. Bell Sgt	P.A. Bell sgt		
CHECKED	C. Beanland	C. Beanland	J. Brumfit		
APPROVED	R.F. Reid	R.F. Reid	R.F. Reid		

1 x 2

1 x 54

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
NIL			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Refueler Air Conditioner and Generator A-C			Cockpit Access Stand Maintenance Platform 4G/1596 MATS - Wing			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
<u>Airframe</u> 1. Defuel applicable A/C fuel system. 2. Remove tank access panel. 3. Disconnect 2 x 1/4 servo lines. 4. Remove 2 mounting volts, and withdraw valve complete with mounting brackets from tank. 5. Disassemble mounting brackets part nos. 7-1662-1075 and 7-1662-1077 from valve. <div style="text-align: right;">Remove and replace</div>				1 x 50		
<u>Electrics</u> 1. Disconnect electrical connector, <div style="text-align: right;">Remove and replace</div> <div style="text-align: right;">(Time to defuel not included)</div>				1 x 3		

MAINTENANCE	
AVRO AIRCRAFT LTD.	
CONSTRUCTION: STANDARD +	
A. Cornish S. Brown K. Knowlton	
MANUFACTURER'S PART NO. 7	
MANUFACTURER'S NAME Schu	
(Cost)	
AVROCAN SPEC. E311	
SLOPE SIZE 5.0" x 5	
LOCATION Inside No. 4	
FUNCTION To control the during refueling, acti fuel sensing valve.	
INSPECTION PERIOD	
Defuel Airframe and Electrics	Operat valve out th No. 4 left a Report
Def. Airframe and Electrics	Check damage Carry sub-sy Report Function Instru
	Remove
	1
	Jan. 14/57
	Sgt Bell
	C. Beanland
	R.F. Reid

MAINTENANCE DATA RECORD		SYSTEM FUEL	REF. NO. 16-78 11 - E219
AVRO AIRCRAFT LTD. Engineering Div.			
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton	A/C TYPE - Arrow 1 EFF. A/C - 25201	COMPONENT 11-E223 No. 4 Tank Refueling Shut-Off Valve	
MANUFACTURER'S PART NO. 7-355-51 Rev. "G"		AVRO PART NO.	
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast) AVROCAN SPEC. E311 E.O. NO.		7-1600-11	
ENVELOPE SIZE 5.0" x 5.05" x 4.60" WEIGHT 1.66 LB.		REF. DWGS. 7-1662-417 & 418 7-1100-3 shts 6 7-1100-2 sht 13	
LOCATION Inside No. 4 Fuel Tank - Left and Right		REF. M.D.R.	
FUNCTION To control the admission of fuel to No. 4 tank during refueling, acting under control of No. 4 tank level sensing valve.		RELIABILITY	
		OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. Pending	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN X MINUTES	
		EST.	ACTUAL
On refuel Airframe and Electrics	Operation of this valve and its associated level sensing valve is checked on each refueling operation by carrying out the pre-refueling check as required, and observing No. 4 tank indicator lights on E23 and E24 panels in left and right wheel wells. (See Maintenance Instructions Report 71/MAINT 16/3)	2 x 1/2	
25 Hr. Airframe and Electrics	Check valve and electrical connector for security and damage. Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3 Function check fuel system electrics - See Maintenance Instructions Report 71/MAINT 11/7	2 x 1 Pending Pending	
ACCESSIBILITY			
Remove outboard access panel - No. 4 Tank - 62 screws. Remove and replace		1 x 21	

ISSUE	1	2		
DATE	Jan. 14/57	8 Oct. 57		
COMPILED	Sgt Bell	P.A. Bell Sgt		
CHECKED	G. Beanland	J. Brumfit		
APPROVED	R.F. Reid	R.F. Reid		

LUBRICATION Nil				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
Wig-O-Flex Tools		Nil		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Refueler Air Conditioner and Generator A-C		Cockpit Access Stand Maintenance Platform 4G/1596 MATS - Wing		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
Airframe				
1. Defuel applicable A/C fuel system				
2. Remove tank access panel.				
3. Disconnect 2 servo bleed lines.				
4. Disconnect 1 bonding jumper				
5. Disconnect 1 Wig-O-Flex coupling.				
6. Remove 4 attachment bolts.				
		Remove and replace	1 x 43	
Electrics				
1. Disconnect 1 electrical connector.		Remove and replace	1 x 3	
(Time to defuel not included)				

MAINTENANCE

AVRO AIRCRAFT LTD.

CONSTRUCTION: STANDARD +

A. Cornish

S. Brown K. Know

MANUFACTURER'S PART NO. 2

MANUFACTURER'S NAME Sch

(Cost)

AMERICAN SPEC. E337

WING LOPE SIZE 5.5" x 4.1

LOCATION Inside No. 5t

FUNCTION Operates refuel
tank by sensing a re
condition.

INSPECTION
PERIOD

Refuel
Airframe
&
Electrics

Operate
valve
carry
and c
E23 &
(See

Ref.
Airframe
&
Electrics

Check
and c
Carry
sub-s
Report
Funct
Instr

Remov
20 sc

1
Jan. 2/57
Sgt. Bell
C. Beanland
R.F. Reid

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD.

Engineering Div.

SYSTEM

FUEL

REF. NO.

16-74
11-E226

DISTRIBUTION: STANDARD +

A. Cornish

S. Brown

K. Knowlton

A/C TYPE - Arrow 1

EFF. A/C - 25201

COMPONENT

11-E231

No. 5 tank level sensing valve (Type 1)

MANUFACTURER'S PART NO. 2-355-1 Rev. "F"

MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast)

AVROCAN SPEC. E337

E.O. NO.

AVRO PART NO.

7-1600-12

ENVELOPE SIZE 5.5" x 4.10" x 4.05"

WEIGHT 1.75 LB.

REF. DWGS.

7-1662-191

192

7-1100-12 SH 28

7-1100-3 sht 6

LOCATION Inside No. 5 tank - Left and Right

FUNCTION Operates refueling shut-off valve in No. 5 tank by sensing a real or simulated "tank full" condition.

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 500

HRS.

WASTAGE

Q.T.R.

Pending

INSPECTION PERIOD

OPERATION TO BE PERFORMED

MEN X MINUTES

EST.

ACTUAL

On refuel
Airframe
&
Electrics

Operation of this unit and its associated shut-off valve is checked on each refueling operation by carrying out the pre-refueling check as required and observing the No. 5 tank indicator lights on E23 and E24 panels in left and right wheel wells. (See Maintenance Instructions Report 71/MAINT 16/3)

2 x 1/2

25 Hr.

Check valve and electrical connector for security and damage.

2 x 1

Airframe
&
Electrics

Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3
Function check fuel system electrics - See Maintenance Instructions Report 71/MAINT 11/7

Pending

Pending

ACCESSIBILITY

Remove forward access panel - No. 5 tank
20 screws - 9 bolts.

Remove and replace

1 x 10

ISSUE

1

2

3

DATE

Jan. 2/57

Apr. 25/57

8 Oct. 57

COMPILED

Sgt. Bell

P.A. Bell Sgt

P.A. Bell Sgt

CHECKED

C. Beanland

C. Beanland

J. Brumfit

APPROVED

R.F. Reid

R.F. Reid

R.F. Reid

LUBRICATION NIL						
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
NIL			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Refueler Air Conditioner and Generator A-C			Cockpit access stand Maintenance Platform 4G/1596 MATS - Wing			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN × MINUTES		
REPLACEABLE				EST.	ACTUAL	
<u>Airframe</u> 1. Defuel applicable A/C fuel system. 2. Remove tank access panel. 3. Disconnect 2 x 1/4 servo lines. 4. Remove 4 mounting bolts and withdraw valve from tank. <div style="text-align: right;">Remove and replace</div>					1 x 25	
<u>Electrics</u> 1. Disconnect electrical connector. <div style="text-align: right;">Remove and replace</div> <div style="text-align: center;">(Time to defuel not included)</div>					1 x 3	

MAINTENANCE	
AVRO AIRCRAFT LTD.	
DISTRIBUTION: STANDARD +	
A. Cornish K. Knowl S. Brown	
MANUFACTURER'S PART NO. 7	
MANUFACTURER'S NAME Sch (Coast)	
AVROCAN SPEC. E-311	
ENVELOPE SIZE 5.0" x 5	
LOCATION Inside No. 5	
FUNCTION 1) To control tank during refueling No. 5 tank level sens 2) Allows flow in the defueling to provide	
INSPECTION PERIOD	
On Refuel Airframe & Electrics	Oper valv out the in 1
25 Hrs. Airframe & Electrics	Chec Dama Carr, sub- Repo Func Inst
Remo	
DATE	1
DATE	Oct. 25/55
COMPILED	G. Emmerson
CHECKED	G. Emmerson
APPROVED	

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-36 11-E227
DISTRIBUTION: STANDARD + A. Cornish K. Knowlton S. Brown		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT 11-E232 No. 5 Tank Refueling Shut-off Valve	
MANUFACTURER'S PART NO. 7-335-51-2 Rev. "E"				AVRO PART NO. 7-1600-37	
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast) AVROCAN SPEC. E-311 E.O. NO.				REF. DWGS. 7-1662-265 & 266 7-1662-391 7-1100-3 shts 6 7-1100-2 SH 28	
ENVELOPE SIZE 5.0" x 5.05" x 4.60" WEIGHT 1.67 LB.				REF. M.D.R.	
LOCATION Inside No. 5 Fuel Tank - Left & Right				RELIABILITY	
FUNCTION 1) To control the admission of fuel to No. 5 tank during refueling, acting under the control of No. 5 tank level sensing valve. 2) Allows flow in the reverse direction during defueling to provide a means of defueling No. 5 tank.				OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
On Refuel Airframe & Electrics		Operation of this valve and its associated level sensing valve is checked on each refueling operation by carrying out the pre-refueling check as required, and observing the No. 5 tank indicator lights on E-23 and E-24 panels in left and right wheel wells.		2 x 1/2	
25 Hrs. Airframe & Electrics		Check valve and electrical connector for Security and Damage. Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3 Function check fuel system electrics - See Maintenance Instructions report 71/MAINT 11/7		2 x 1 Pending Pending	
ACCESSIBILITY					
Remove outboard access panels - No. 5 Tank - 29 screws. Remove and replace				1 x 10	
ISSUE	1	2	3	4	
DATE	Oct. 25/55	Feb. 14/55	Jan. 10/57	16 Sept. 57	
COMPILED	G. Emmerson	G. Emmerson	P.A. Bell Sgt	P.A. Bell Sgt	
CHECKED	G. Emmerson	G. Emmerson	C. Beanland	J. Brumfit	
APPROVED			R.F. Reid	R.F. Reid	

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
Wig-O-Flex Tools			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Refueler Air Conditioner and Generator A-C			Cockpit Access Stand Maintenance Platform 4G/1596 Mats - Wing			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
<u>Airframe</u> <ol style="list-style-type: none"> Defuel applicable A/C fuel system. Remove tank access panel. Disconnect 2 servo bleed lines. Disconnect 1 bonding jumper. Disconnect 1 Wig-O-Flex coupling. Remove 4 attachment bolts, and remove valve complete with mounting bracket #7-1662-391. Disassemble valve from mounting bracket - 4 bolts. <p style="text-align: right;">Remove and replace</p>				1 x 38		
<u>Electrics</u> <ol style="list-style-type: none"> Disconnect 1 electrical connector. <p style="text-align: right;">Remove and replace</p> <p style="text-align: center;">(Time to defuel not included)</p>				1 x 3		

MAINTENANCE	
AVRO AIRCRAFT	
DISTRIBUTION: STANDARD	
X. Anowilton.	
A. Cornish	
S. Brown.	
MANUFACTURER'S PART	
MANUFACTURER'S NAME	
AVROCAN SPEC. E503	
ENVELOPE SIZE 3.16	
LOCATION In No.	
FUNCTION Senses the collector to an external rel which actuates the pilots cock in the collect	
INSPECTION PERIOD	
Primary	
Periodic (25 hours) Airframe and Electrics.	
Thru	
Rem	
Rem	
Rem	
ISSUE	
DATE	26 Jun
COMPILED	PA Bq
CHECKED	C. Bear
APPROVED	G. Em

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD.

Engineering Div.

SYSTEM

FUEL

REF. NO.

16-68

11-E228

DISTRIBUTION: STANDARD +
K. Nowlton.

A/C TYPE - Arrow 1

COMPONENT

11-E233

A. Cornish
S. Brown.

EFF. A/C - 25201

Sensor - Liquid Level.

MANUFACTURER'S PART NO. FG-56-G ISSK

AVRO PART NO.

MANUFACTURER'S NAME Minneapolis Honeywell.

7-1662-981

AVROCAN SPEC. E503 and E.362E.O. NO.

ENVELOPE SIZE 3.16" x 1.22" x 1.16" WEIGHT .25 LB.

REF. DWGS.

7-1662-191/2

7-1654-213

7-1100-3 sheet 6.

LOCATION In No. 5 (Collector tank) mounted on Rib #2

REF. M.D.R.

16-18

FUNCTION Senses the "low level" condition of fuel in the collector tank and transmits power to operate an external relay (low level warning switch), which actuates the "Low Level" warning light in the pilots cockpit. This will occur when fuel level in the collector tank falls to $70 \pm 3\%$.

RELIABILITY

OVERHAUL LIFE 1500

HRS.

WASTAGE

Q.T.R. Minn. H¹well - AEX 25154.

INSPECTION
PERIOD

OPERATION TO BE PERFORMED

MEN X MINUTES

EST.

ACTUAL

Primary

NIL

Periodic
(25 hours)
Airframe and
Electrics.

Defuel aircraft and ensure that low level warning light comes on at the correct level as determined by capacitance test equipment (See Maintenance instructions reports 71/MAINT 11/7, 71/MAINT 16/4 and 71/MAINT 12/3

Pending.

ACCESSIBILITY

Throught Booster Pump Access Panel-No. 5 tank.

Remove rear Dorsal Fairing. 6 latches.

1 x 2

Remove Damping Equipment as required.

1x 10

Remove Booster Pump Access Panel - 61 screws - 31 bolts.

1 x 30

ISSUE

1

2

3

DATE

26 June 56

31 Jan. 57

10 Dec. 1957

COMPILED

PA Bell Sgt.

PA Bell Sgt.

P.A. Bell Sgt.

CHECKED

C. Beanland.

C. Beanland.

K. Lowe.

APPROVED

G. Emmerson.

G. Emmerson.

R.F. Reid.

LUBRICATION					NIL
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS	
DETAILS:					
GROUND SUPPORT EQUIPMENT					
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE		
NIL			NIL		
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC Refueler Fuel Quantity Indicator Test set Pressurized Air Supply - 85 psi. max.			Cockpit Access Stand. Mats - Wing. Maintenance Platform - 4G/2614		
INTERCHANGEABLE		REMOVAL INSTRUCTIONS		MEN X MINUTES	
REPLACEABLE	X			EST.	ACTUAL
<u>Airframe.</u> 1. Defuel applicable aircraft fuel System. 2. Remove rear Dorsal Fairing, Damping Equipment, and Booster Pump Access Panel. 3. Remove 3 mounting screws. <u>Electrics.</u> 1. Disconnect 1 Electrical connector. Remove and Replace. (Time to Defuel not included)				1 x 2	
				1 x 50	

MAINTENANCE
 AIRCRAFT LTD
 STANDARD +
 K. Knowl
 PART NO.
 NAME Sch
 SPEC. E337
 SIZE 5.5" x 4
 Inside No.
 Operates ref
 sensing a re
 tion.
 SECTION
 TIME
 Oper
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 No 7
 left
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 Check
 and c
 Carry
 sub-s
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 1
 Dec. 26/57
 Sgt P.A. Bell
 C. Beanland
 R.F. Reid

MAINTENANCE DATA RECORD				SYSTEM		REF. NO.	
AVRO AIRCRAFT LTD.				FUEL		16-76	
Engineering Div.						11-E236	
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT No. 7 Tank Level Sensing Valve (Type 1)		11-E242	
MANUFACTURER'S PART NO. 2-355-1 Rev. "F"				AVRO PART NO. 7-1600-12			
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast) AVROCAN SPEC. E337 E.O. NO.				REF. DWGS. 7-1662-23 & 24 7-1100-2 SH 29 7-1100-3 shts 6			
ENVELOPE SIZE 5.5" x 4.10" x 4.05" WEIGHT 1.75 LB.							
LOCATION Inside No. 7 Fuel Tank - Left and Right				REF. M.D.R.			
FUNCTION Operates refueling shut-off valve in No. 7 tank by sensing a real or simulated "Tank Full" condition.				RELIABILITY			
				OVERHAUL LIFE 500 HRS.			
				WASTAGE			
				Q.T.R. Pending			
INSPECTION PERIOD		OPERATION TO BE PERFORMED			MEN X MINUTES		
					EST.		ACTUAL
On Refuel		Operation of this unit and its associated shut-off valve is checked on each refueling operation by carrying out the pre-refueling check as required and observing the No 7 tank indicator lights on E23 and E24 panels in left and right wheel wells. (See Maintenance Instructions Report 71/MAINT 16/3)			2 x 1/2		
Airframe & Electrics							
25 Hour		Check valve and electrical connector for security and damage.			2 x 1		
Airframe & Electrics		Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3 Function check fuel system electrics - See Maintenance Instructions report 71/MAINT 11/7			Pending		
					Pending		
ACCESSIBILITY							
Remove inboard access panel #7 tank - 23 screws, 6 bolts					1 x 10		
Remove and replace							
ISSUE	1	2	3				
DATE	Dec. 26/57	Apr. 26/57	8 Oct. 57				
COMPILED	Sgt P.A. Bell	Sgt Pl A. Bell	P.A. Bell Sgt				
CHECKED	C. Beanland	C. Beanland	J. Brumfit				
APPROVED	R.F. Reid	R.F. Reid	R.F. Reid				

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
NIL			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Refueler Air Conditioner and Generator A-C			Cockpit Access Stand Maintenance Platform 4G/1596 MATS - Wing			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
<u>Airframe</u> 1. Defuel applicable aircraft fuel system. 2. Remove tank access panel. 3. Disconnect 4 mounting bolts and withdraw valve from tank. <div style="text-align: right;">Remove and replace</div>				1 x 25		
<u>Electrics</u> 1. Disconnect electrical connector. <div style="text-align: right;">Remove and replace</div> (Time to defuel not included)				1 x 3		

MAINTENANCE	
AVRO AIRCRAFT	
CONSTRUCTION: STANDARD	
A. Cornish K. S. Brown	
MANUFACTURER'S PART	
MANUFACTURER'S NAME	
(Cost)	
AVROCAN SPEC. E-31	
ENVELOPE SIZE 5.0"	
LOCATION Inside 1	
FUNCTION To connect tank during refueling tank level sensor	
INSPECTION PERIOD	
In Refuel Airframe & Electrics	
Chrs Airframe & Electrics	
DATE	
BY	Jan. 11
INSPECTED	Sgt. Be
CHECKED	C. Bean
APPROVED	R.F. Re

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-80
DISTRIBUTION: STANDARD +		A/C TYPE - Arrow 1	11-E237		
A.Cornish K. Knowlton		EFF. A/C - 25201	11-E243		
S.Brown		COMPONENT No. 7 Tank - Refueling Shut-Off Valve			
MANUFACTURER'S PART NO. 7-355-51 Rev. "G"			AVRO PART NO.		
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast)			7-1600-11		
AVROCAN SPEC. E-311 E.O. NO.					
ENVELOPE SIZE 5.0" x 5.05" x 4.60" WEIGHT 1.66 LB.			REF. DWGS. 7-1662-261 & 262 7-1662-23 & 24 7-1100-3 shts 6 7-1100-2 sht 29		
LOCATION Inside No. 7 Fuel Tank - Left and Right			REF. M.D.R.		
FUNCTION To control the admission of fuel to No. 7 Tank during refueling, acting under the control of No. 7 tank level sensing valve.			RELIABILITY		
			OVERHAUL LIFE 500 HRS.		
			WASTAGE		
			Q.T.R. Pending		
INSPECTION PERIOD	OPERATION TO BE PERFORMED		MEN X MINUTES		
EST.	ACTUAL		EST.	ACTUAL	
On Refuel Airframe & Electrics		Operation of this valve and its associated level sensing valve is checked on each refueling operation by carrying out the refueling check as required, and observing No. 7 tank indicator lights on E23 and E24 panels in left and right wheel wells. (See Maintenance Instructions Report 71/MAINT 16/3)	2 x 1/2		
25Hrs Airframe & Electrics		Check valve and electrical connector for security and damage. Carry out functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3	2 x 1		
		Function check fuel system electrics - See Maintenance Instructions Report 71/MAINT 11/7	Pending		
ACCESSIBILITY					
Remove centre access panel - No. 7 Tank - 29 screws.					
Remove and replace			1 x 10		
ISSUE	1	2			
DATE	Jan. 11/57	8 Oct. 57			
COMPILED	Sgt. Bell	P.A. Bell Sgt			
CHECKED	C. Beanland	J. Brumfit			
APPROVED	R.F. Reid	R.F. Reid			

ACCESS

CH USE

PMENT

596

MEN X MINUTES

EST. ACTUAL

1 x 25

1 x 3

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
Wig-O-Flex Tools			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Refueler Air Conditioner & Generator A-C			Cockpit access stand Maintenance Platform 4G/1596 MATS - Wing			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
<u>Airframe</u> 1. Defuel applicable A/C fuel system. 2. Remove tank access panel. 3. Disconnect 2 servo bleed lines. 4. Disconnect 1 bonding jumper. 5. Disconnect 1 Wig-O-Flex coupling 6. Remove 4 attachment bolts, and remove valve complete with mounting bracket #7-1662-391 7. Disassemble valve from mounting bracket, 4 bolts. Remove and replace				1 x 38		
<u>Electrics</u> 1. Disconnect 1 electrical connector. Remove and replace (Time to defuel not included)				1 x 3		

MAINTENANCE	
AVRO AIRCRAFT LTD.	
CONSTRUCTION: STANDARD +	
K. Knowlton	
MANUFACTURER'S PART NO. 2-355	
MANUFACTURER'S NAME Schulz T	
SPECIFICATION SPEC-B337	
SHAPE SIZE 5.5" x 4.10"	
LOCATION	
Side No. 8 fuel tank -	
ACTION	
Operates refueling shut-off	
Sealing a real or simu	
INSPECTION PERIOD	
Defuel	Operatio
Airframe	is check
Electrics	the pre-
	No. 8 ta
	left and
	Instruct
Hour	Check va
	damage.
Airframe &	Carry ou
Electrics	sub-syst
	Report 7
	Function
	Instruct
Remove 1	
1	
Dec. 26/56	
Sgt. P.A. Bell	
C. Beanland	
R.F. Reid	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD.

Engineering Div.

SYSTEM

FUEL

REF. NO.

16-77
11-E248

DISTRIBUTION: STANDARD +

A. Cornish
S. Brown K. Knowlton

A/C TYPE - Arrow 1

EFF. A/C - 25201

COMPONENT

No. 8 Tank Level Sensing
Valve (Type 1)

11-E254

MANUFACTURER'S PART NO. 2-355-1 Rev. "F"

MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East
Coast)
AVROCAN SPEC. E337 E.O. NO.

AVRO PART NO.

7-1600-12

ENVELOPE SIZE 5.5" x 4.10" x 4.05" WEIGHT 1.75 LB.

LOCATION

Inside No. 8 fuel tank - Left and Right

REF. DWGS.

7-1662-21 & 22
7-1100 2 SH 29
7-1100-3 shts 6

FUNCTION

Operates refueling shut-off valve in No. 8 Tank
by sensing a real or simulated "Tank Full" condition

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 500 HRS.
WASTAGE
Q.T.R. Pending

INSPECTION
PERIOD

OPERATION TO BE PERFORMED

MEN X MINUTES

EST. ACTUAL

On Refuel
Airframe
&
Electrics

Operation of this unit and its associated shut-off valve
is checked on each refueling operation by carrying out
the pre-refueling check as required, and observing the
No. 8 tank indicator lights on E23 and E24 panels in
left and right wheel wells. (See Maintenance
Instructions Report 71/MAINT 16/3

2 x 1/2

25 Hour

Check valve and electrical connector for security and
damage.

2 x 1

Airframe &
Electrics

Carry out a functional check of the refueling/defueling
sub-system in accordance with Maintenance Instructions
Report 71/MAINT 16/3.

Pending

Function check fuel system electric - See Maintenance
Instructions Report 71/MAINT 11/7

Pending

ACCESSIBILITY

Remove inboard access panel #8 tank - 29 screws.

Remove and replace

1 x 10

ISSUE

1

2

3

DATE

Dec. 26/56

Apr. 26/57

8 Oct. 57

COMPILED

Sgt. P.A. Bell

Sgt P.A. Bell

P.A. Bell Sgt

CHECKED

C. Beanland

C. Beanland

J. Brumfit

APPROVED

R.F. Reid

R.F. Reid

R.F. Reid

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS

DETAILS:

GROUND SUPPORT EQUIPMENT	
SPECIAL TOOLS FOR AIRCRAFT USE	SPECIAL TOOLS FOR BENCH USE
NIL	NIL
GROUND TESTING EQUIPMENT	GROUND HANDLING EQUIPMENT
Refueler Air Conditioner and Generator A-C	Cockpit Access Stand Maintenance Platform 4G/1596 MATS-Wing

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN X MINUTES	
			EST.	ACTUAL
REPLACEABLE				
Airframe				
1. Defuel applicable aircraft system. 2. Remove tank access panel. 3. Disconnect 2 x 1/4 servo lines. 4. Remove 4 mounting bolts and withdraw valve from tank.				
Remove and replace			1 x 25	
Electrics				
1. Disconnect electrical connector.				
Remove and replace			1 x 3	
(Time to defuel not included)				

MAINTENANCE

AVRO AIRCRAFT LTD.

INSTRUCTION: STANDARD +

Written K. Knowlton
Brown

MANUFACTURER'S PART NO. 7-34

MANUFACTURER'S NAME Schulz

ORGAN SPEC. E-311

GROUP SIZE 5.0" x 5.05"

LOCATION Inside No. 8 Fuel

FUNCTION To control the
refueling, actin
level sensing valv

INSPECTION
PERIOD

Defuel
Airframe &
Electrics
Operat
valve
out th
No. 8
left a
Instr

Defuel
Airframe and
Electrics
Check
damage
Carry
sub-sy
repor
Funct
Instr

Remov

1
Jan. 14/57
Sgt. Bell
C. Beanland
R.F. Reid

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-81 11-E249
DISTRIBUTION: STANDARD + A. Cornish K. Knowlton S. Brown		A/C TYPE - Arrow 1 EFF. A/C - 25201	COMPONENT No. 8 Tank Refueling Shut-Off Valve		
MANUFACTURER'S PART NO. 7-355-51 Rev. "G"			AVRO PART NO. 7-1600-11		
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast) AVROCAN SPEC. E-311 E.O. NO.			REF. DWGS. 7-1662-21 & 22 7-1662-263 & 264 7-1100-3 shts 6 7-1100-2 sht 29		
ENVELOPE SIZE 5.0" x 5.05" x 4.60" WEIGHT 1.66 LB.			REF. M.D.R.		
LOCATION Inside No. 8 Fuel Tank - Left and Right			RELIABILITY OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. Pending		
FUNCTION To control the admission of fuel to No. 8 Tank during refueling, acting under the control of No. 8 tank level sensing valve.					
INSPECTION PERIOD	OPERATION TO BE PERFORMED		MEN X MINUTES		
EST.	ACT.		EST.	ACTUAL	
On Refuel Airframe & Electrics	Operation of this valve and its associated level sensing valve is checked on each refueling operation by carrying out the pre-refueling check as required, and observing No. 8 tank indicator lights on E23 and E24 panels in left and right wheel wells. (See Maintenance Instructions Report 71/MAINT 16/3)		2 x 1/2		
25 Hr. Airframe and Electrics	Check valve and electrical connector for security and damage. Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions report 71/MAINT 16/3 Function check fuel system electrics - See Maintenance Instructions Report 71/MAINT 11/7		2 x 1 Pending Pending		
ACCESSIBILITY					
Remove centre access panel - Tank No. 8 - 29 screws.					
Remove and replace			1 x 10		
ISSUE	1	2			
DATE	Jan. 14/57	8 Oct. 57			
COMPILED	Sgt. Bell	P.A. Bell Sgt			
CHECKED	C. Beanland	J. Brumfit			
APPROVED	R.F. Reid	R.F. Reid			

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
Wig-O-Flex Tools		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Refueler Air Conditioner & Generator A=C		Cockpit Access Stand Maintenance Platform 4G/1596 MATS - Wing		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
<u>Airframe</u> 1. Defuel applicable A/C fuel system. 2. Remove tank access panel. 3. Disconnect 2 servo bleed lines. 4. Disconnect 1 bonding jumper 5. Disconnect 1 Wig-O-Flex coupling. 6. Remove 4 attachment bolts and remove valve completed with backing plate #7-1662-543 7. Disassemble valve from backing plate - 4 bolts. Remove and replace		1 x 38		
<u>Electrics</u> 1. Disconnect 1 electrical connector. Remove and replace (Time to defuel not included)		1 x 3		

MAINTENANCE
 AIRCRAFT LTD.
 STANDARD +
 Cornish
 Crown K. Knowlton
 MANUFACTURER'S PART NO.
 MANUFACTURER'S NAME Hydra
 SPEC. E-383
 SIZE 3.65" x 3.
 Duct Bay - St
 To sense and s
 the right hand fu
 is available fo
 INSPECTION PERIOD
 Inspe
 indic
 Inspe
 Inspe
 damag
 Inspe
 Carry
 Instr
 Throu
 1
 June 24/55
 G. Emerson
 G. Emerson

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-14 11E-280
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Switch - Diff. Press. Warning RH Fuel Transfer Pump	
MANUFACTURER'S PART NO. 40032				AVRO PART NO.	
MANUFACTURER'S NAME Hydra Electric				7-1656-9	
AVROCAN SPEC. E-383 E.O. NO.				REF. DWGS.	
ENVELOPE SIZE 3.65" x 3.0" x 3.0" WEIGHT .63 LB.				7-1654- 18 sht 3 7-1100-3 sht 6	
LOCATION Duct Bay - Sta. 485				REF. M.D.R.	
FUNCTION To sense and signal a loss of output pressure from the right hand fuel transfer pump. This warning signal is available for ground test purpose only.				RELIABILITY	
				OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R.WYle Laboratories 400 32-02	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
Primary Airframe		Inspect switch and associated piping for security and indications of leakage.		1 x 1	
Electrics		Inspect security of electrical connector.		1 x 1/2	
25 Hour Airframe		Inspect switch and associated piping for security, damage, corrosion and leakage.		1 x 2	
Electrics		Inspect security of electrical connector.		1 x 1/2	
		Carry out a functional test. (See Maintenance Instructions Report 71/MAINT 11/7)		1 x 2	
ACCESSIBILITY					
Through electrics access door - 74 camlocs.					
Remove and replace				1 x 7 1/2	
ISSUE	1	2	3	4	5
DATE	June 24/55	Sept. 29/55	Feb. 17/56	25 Apr. 57	20 Nov. 57
COMPILED	G. Emmerson	G. Emmerson	G. Emmerson	P.A. Bell Sgt	P.A. Bell Sgt
CHECKED	G. Emmerson	G. Emmerson	G. Emmerson	C. Beanland	J. Brumfit
APPROVED				R.F. Reid	R.F. Reid

LUBRICATION					NIL	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS		
DETAILS:						
GROUND SUPPORT EQUIPMENT						
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE			
NIL			NIL			
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT			
Air Conditioner and Generator AC			Workstand			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
Electrics	1.	Disconnect 1 electrical connector.		1 x 15		
Airframe	1.	Disconnect and blank off 2 fuel pressure sensing lines.				
	2.	Remove 2 mounting bolts.				
		Remove and replace				

MAINTENANCE	
AVRO AIRCRAFT LTD.	
CONSTRUCTION: STANDARD +	
I. Knowlton	S. Bro
J. Cornish	
MANUFACTURER'S PART NO. 16	
MANUFACTURER'S NAME Hydro	
EUROPEAN SPEC. E-461	
ENVELOPE SIZE 9.25" x 8.1	
LOCATION Duct Bay - Bo	
SECTION Used in the	
fuelage tank to equal	
inlet of the RH flow	
INSPECTION PERIOD	
Primary Airframe	Check
Electrics	Check pump press test indic
3 Hr. Airframe	Check corro
Electrics	Check test.
Inspection	
through electrical equi	
Removal	
through electrical equi	
and R section - 74 ca	
1	
20 Jun 56	
Sgt. Bell	
C. Beanland	
G. Emmerson	

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-27 11-E283
DISTRIBUTION: STANDARD + K. Knowlton A. Cornish S.Brown		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Pump - Fuel Transfer RH (No. 1 Tank)	
MANUFACTURER'S PART NO. 160-096				AVRO PART NO.	
MANUFACTURER'S NAME Hydro-Aire Inc.,				7-1656-116	
AVROCAN SPEC. E-461 E.O. NO.					
ENVELOPE SIZE 9.25" x 8.125" x 5.5" WEIGHT 6.75 est LB.				REF. DWGS. 7-1656-197 & 8 7-1656-113 7-1656-1 7-1100-2 sh 13	
LOCATION Duct Bay - Bottom wing skin Sta. 492-497				REF. M.D.R.	
FUNCTION Used in the fuel transfer line from No. 1 fuselage tank to equalize the system pressure at the inlet of the RH flow porportioning unit.				RELIABILITY	
				OVERHAUL LIFE 1200 HRS. WASTAGE Q.T.R. Hydro - Aire - 60-097	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	ACTUAL
Primary Airframe	Check pump for security and leakage.			1 x 2	
Electrics	Check security of electrical connector on pump. Check pump function - E21 refuel and test panel. (Ensure press to test lights are serviceable - select ground test switch TEST. Proper pump function will be indicated by a green light)			1 x 2	
25 Hr. Airframe	Check pump and associated piping for security, leakage corrosion and damage.			1 x 3	
Electrics	Check security of electrical connector, carry out function test. (See Maintenance Instructions Report 71/MAINT 11/0 Pending)			1 x 2	
ACCESSIBILITY					
For Inspection Through electrical equipment access panel - RH section - 44 camlocs. Remove and replace				1 x 4 1/2	
For Removal Through electrical equipment access panel. L and R section - 74 camlocs. Remove and replace				1 x 7 1/2	
ISSUE	1	2	3		
DATE	20 Jun 56	30 Jan 57	20 Nov. 57		
COMPILED	Sgt. Bell	Sgt Bell	P.A. Bell Sgt		
CHECKED	C. Beanland	C. Beanland	J. Brumfit		
APPROVED	G. Emmerson	R.F. Reid	R.F. Reid		

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
Wig-D-Flex Tools		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC Refuel/Defuel Equipment Tank Pressurization Airsupply		Workstand		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST. ACTUAL
<u>Airframe</u>				
1. Defuel R.H. A/C system.				
2. Remove electrical access panel L & R hand sections.				
3. Remove cooling air duct section.#7-2256-111				
4. Remove tie #7-1656-383				
5. Remove fuel transfer pipe #7-1656-275				
6. Remove fuel transfer elbow #7-1656-265				
7. Remove fuel transfer "Y" pipe section "7-1656-282				
8. Disconnecting piping to pump diff. pressure switch				
9. Disconnect pressure sensing pipe #7-1656-143				
10. Remove pressure sensing pipes Nos. 7-1656-167, 7-1656-137, 7-1656-155 and 7-1656-161.				
11. Remove diff. pressure regulator - ref. M.D.R. 16-20				
12. Remove 2 rear attachment bolts, and withdraw pump from mounting bracket.				
13. Disassemble fuel pressure regulator from pump.				
<u>Electrics</u>				
1. Disconnect electrical connector.				
Remove and replace (Time to Defuel not included)				1 x 90 1 x 2

MAINTENANCE	
AVRO AIRCRAFT L	
DISTRIBUTION: STANDARD	
L. Cornish	K. Know
MANUFACTURER'S PART NO	
MANUFACTURER'S NAME H	
AVROCAN SPEC. E461	
ENVELOPE SIZE 9.25"	
LOCATION Duct Bay -	
FUNCTION Used in the fuselage tank to eq	
inlet of the LH flow	
INSPECTION PERIOD	
Primary Airframe	Ch
Electrics	Ch
	Ch
	pr
	te
	ir
25 Hr. Airframe	Ch
	co
Electrics	Ch
	Ca
	Re
For Inspection Through electrical	
For Removal Through electrical	
DATE	1
DATE	January 31
COMPILED	Sgt Bell
CHECKED	C. Beanla
APPROVED	R.F. Reid

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-82 11-E284
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Pump - Fuel Transfer LH (No. 2 Tank)	
MANUFACTURER'S PART NO. L60-096 MANUFACTURER'S NAME Hydro-Aire Inc. AVROCAN SPEC. E461 E.O. NO.				AVRO PART NO. 7-1656-115	
ENVELOPE SIZE 9.25" x 8.125" x 5.5" WEIGHT 6.75 est. LB.				REF. DWGS. 7-1656-197 &8 7-1656-1 7-1100-2 sh 13	
LOCATION Duct Bay - bottom wing skin - Sta. 492-497				REF. M.D.R.	
FUNCTION Used in the fuel transfer line from No. 2 fuselage tank to equalize the system pressure at the inlet of the LH flow proportioning unit.				RELIABILITY OVERHAUL LIFE 1200 HRS. WASTAGE Q.T.R. Hydro Aire - 60-096	
INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN X MINUTES			
		EST.	ACTUAL		
Primary Airframe	Check pump for security and leakage.	1 x 2			
Electrics	Check security of electrical connector on pump. Check pump function - E21 refuel and test panel (ensure press-to-test lights are serviceable - select ground test switch to TEST - proper pump function will be indicated by a green light)	1 x 2 1 x 2			
25 Hr. Airframe	Check pump and associated piping for security, leakage, corrosion and damage.	1 x 2			
Electrics	Check for security of electrical connector. Carry out function TEST. (See Maintenance Instructions Report 71/MAINT 11/7)	1 x 2 Pending			
ACCESSIBILITY					
For Inspection Through electrical equipment access panel - RH section - 44 camlocs Remove and replace		1 x 4 1/2			
For Removal Through electrical equipment access panel - L and R sections - 74 camlocs Remove and replace		1 x 7 1/2			
ISSUE	1	2			
DATE	January 30/57	20 Nov. 57			
COMPILED	Sgt Bell	P.A. Bell Sgt			
CHECKED	C. Beanland	J. Brumfit			
APPROVED	R.F. Reid	R.F. Reid			

ACCESS

S FOR BENCH USE

DLING EQUIPMENT

7-1656-

unting

1 x 9
1 x 2

d)

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE			SPECIAL TOOLS FOR BENCH USE	
Wig-O-Flex Tools			NIL	
GROUND TESTING EQUIPMENT			GROUND HANDLING EQUIPMENT	
Air Conditioner and Generator AC Refuel-Defuel Equipment Tank Pressurization Air Supply			Workstand	
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
<div style="display: flex; justify-content: space-between;"> <div style="width: 70%;"> <p>Airframe</p> <ol style="list-style-type: none"> 1. Defuel L.H. A/C system. 2. Remove electrical access panel - L & R hand sections. 3. Remove cooling air duct section - 7-2256-111 4. Remove tie #7-1656-383 5. Remove fuel transfer pipe 7-1656-275 6. Remove fuel transfer elbow 7-1656-265 7. Remove fuel transfer "Y" pipe 7-1656-281 8. Disconnect piping to pump diff. pressures switch. 9. Remove 2 rear attachment bolts and withdraw pump. 10. Disassemble fuel pressure regulator from pump. <p>Electrics 1. Disconnect electrical connector.</p> <p style="text-align: right; margin-right: 50px;">Total Remove and Replace</p> <p style="text-align: right; margin-right: 50px;">(Time to Defuel not included)</p> </div> <div style="width: 25%; text-align: center;"> <div style="height: 100px; border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; margin-bottom: 10px;">1 x 60</div> <div style="height: 50px; border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black;">1 x 2</div> </div> </div>				

MAINTENANCE	
AVRO AIRCRAFT	
DISTRIBUTION: STANDARD	
A. Cornish S. Brown K. Knowlton	
MANUFACTURER'S PART	
MANUFACTURER'S NAME	
AVROCAN SPEC. E383	
ENVELOPE SIZE 3.65"	
LOCATION Duct Bay	
FUNCTION To sense from the left hand signal is available	
INSPECTION PERIOD	
Primary Airframe	
Electrics	
25 Hour Airframe	
Electrics	
DATE	1
COMPILED	Apr. 25/5
CHECKED	P.A. Bell
APPROVED	C. Beanle
	R.F. Reid

MAINTENANCE DATA RECORD				SYSTEM		REF. NO.	
AVRO AIRCRAFT LTD. Engineering Div.				FUEL		16-103 11E-295	
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Switch - Diff. Pressure Warning - LH Fuel Transfer Pump			
MANUFACTURER'S PART NO. 40032				AVRO PART NO.			
MANUFACTURER'S NAME Hydra Electric				7-1656-9			
AVROCAN SPEC. E383 E.O. NO.							
ENVELOPE SIZE 3.65" x 3.0" x 3.0" WEIGHT .63 LB.				REF. DWGS. 7-1654-18 sht 3 7-1100-3 sht 6			
LOCATION Duct Bay - Sta. 485							
FUNCTION To sense and signal a loss of output pressure from the left hand transfer pump. This warning signal is available for ground test purpose only.				REF. M.D.R.			
				RELIABILITY			
				OVERHAUL LIFE 500 HRS.			
				WASTAGE			
				Q.T.R. Wyle Laboratories 40032-02			
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN x MINUTES			
				EST.		ACTUAL	
Primary Airframe		Inspect switch and associated piping for security and indications of leakage.		1 x 1			
Electrics		Inspect security of electrical connector.		1 x 1½			
25 Hour Airframe		Inspect switch and associated piping for security, damage corrosion and leakage.		1 x 2			
Electrics		Inspect security of electrical connector.		1 x ½			
		Function Test. (See Maintenance Instructions Report 71/MAINT 11/7)		Pending			
ACCESSIBILITY							
Through electrics access door - 74 camlocs.							
Remove and replace				1 x 7½			
ISSUE	1	2					
DATE	Apr. 25/57	20 Nov. 57					
COMPILED	P.A. Bell Sgt	P.A. Bell Sgt					
CHECKED	C. Beanland	J. Brumfit					
APPROVED	R.F. Reid	R.F. Reid					

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and generator AC		Workstand		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
Electrics 1. Disconnect 1 electrical connector.		Remove and replace		1 x 15
Airframe 1. Disconnect and blank off 2 fuel pressure sensing lines. 2. Remove 2 mounting bolts.				

MAINTENANCE	
AVRO AIRCRAFT LTD.	
CONSTRUCTION: STANDARD +	
C. Cornish	
A. Brown K. Knowlton	
MANUFACTURER'S PART NO.	
MANUFACTURER'S NAME Ger	
AVRO SPEC. E233	
ENVELOPE SIZE 7.93" x 7	
LOCATION In duct bay -	
Heat exchanger.	
FUNCTION Serves as a p	
fuel line against fl	
Installation it serves	
Aircraft fuel system d	
selection, e.g. RH only	
isolated.	
INSPECTION PERIOD	
Electrics	Visual Check
Electrics	Check
Electrics	Function 71/MAI
Through	
1	
Sept. 28/56	
P.A. Bell	
C. Beanland	
G. Emmerson	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD.

Engineering Div.

SYSTEM

FUEL

REF. NO.

36-70
11-E299

DISTRIBUTION: STANDARD +

A. Cornish

S. Brown K. Knowlton

A/C TYPE - Arrow 1

EFF. A/C - 25201

COMPONENT

11-E300

Valve - 2 1/2" Dia. Motor Operated
Fuel Shut-Off (Isolation Valve)

MANUFACTURER'S PART NO. AV16B-1337B

MANUFACTURER'S NAME General Controls Co.

AVROCAN SPEC. E233

E.O. NO.

ENVELOPE SIZE 7.93" x 7.68" x 4.79" WEIGHT 4.90 LB.

LOCATION In duct bay - Sta. 546-52 - at inlet of Fuel/
oil heat exchanger.

FUNCTION Serves as a positive remote method of closing
a fuel line against flow in either direction. In this
installation it serves to isolate one half of the
aircraft fuel system during operation on a crossfeed
selection.e.g. RH only selection - LH system is
isolated.

AVRO PART NO.

7-1600-61

REF. DWGS.

7-1656-203

7-1656-205

7-1100-2 sh 24

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 500

HRS.

WASTAGE

Q.T.R. United Elelectro Dynamics

425-M.T. 437-M. T. 404-M.T.

INSPECTION
PERIOD

OPERATION TO BE PERFORMED

MEN X MINUTES

EST. ACTUAL

Primary
Airframe
Electrics

Visual - Check for leakage.
Check electrical connector for security.

1 x 1
1 x 1

25 Hrs.
Airframe

Check for security, damage, corrosion and leakage.

1 x 2

Electrics

Function Test (See Maintenance Instructions Report
71/MAINT 11/7)

Pending

ACCESSIBILITY

Through hydraulics access door - 52 camlocs.

Remove and replace

1 x 5 1/2

ISSUE	1	2	3	4
DATE	Sept. 28/56	Feb. 11/57	2 May 57	20 Nov. 57
COMPILED	P.A. Bell	P.A. Bell	P.A. Bell Sgt	P.A. Bell Sgt
CHECKED	C. Beanland	C. Beanland	C. Beanland	J. Brumfit
APPROVED	G. Emmerson	R.F. Reid	R.F. Reid	R.F. Reid

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
Wig-O-Flex Tools		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC Refueler		Cockpit access stand Workstand		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
Airframe	1. Defuel applicable A/C System. 2. Disconnect 2 bonding jumpers, 2 Wig-O-Flex couplings and remove pipe section "7-1656-217 3. Remove 12 x 5/16 cap screws to remove valve.			
		Remove and replace	1 x 54	
Electrics	1 Disconnect 1 electrical connector.			
		Remove and replace	1 x 2	
	Total	Remove and replace	1 x 56	
(Time to defuel not included)				

MAIN	
AVRO AIRC	
DISTRIBUTION: STA	
A. Cornish S. Brown	
MANUFACTURER'S F	
MANUFACTURER'S N	
AVROCAN SPEC. E	
ENVELOPE SIZE 3.	
LOCATION	In No
mount	
FUNCTION It ser	
tank and initi	
to shut-off No	
When used in t	
it has the add	
Low" condition	
signal to the	
provide fuel tr	
INSPECTION	PERIOD
Primary	
Periodic	
25 Hour	
Airframe &	
Electrics	
1	
26 Apr. 57	
P.A. Bell	
C. Beanlar	
R.F. Reid	

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-97 11-E437
DISTRIBUTION: STANDARD + A. Cornish K. Knowlton S. Brown		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Sensor - Liquid Level Tank No. 2	
MANUFACTURER'S PART NO. FG-56-G-Iss "K"				AVRO PART NO. 7-1662-981	
MANUFACTURER'S NAME Minneapolis Honeywell					
AVROCAN SPEC. E362 & E503 E.O. NO.					
ENVELOPE SIZE 3.16" x 1.16" x 1.22" WEIGHT .25 LB.				REF. DWGS. 7-1100-1 7-1100-2 sht 13 7-1654-18 7-1100-3 sht 6	
LOCATION In No. 2 tank - on aft fuel/no air valve mount				REF. M.D.R. 16-119	
FUNCTION It senses a "Fuel Low" condition in No. 2 tank and initiates a signal to the low level switch to shut-off No. 2 tank transfer pump. When used in the C.G. control fuel transfer system it has the additional function on sensing a "Fuel Low" condition, of initiating a signal to the sequence control unit which functions to provide fuel transfer from the tank next in sequence.				RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R. Minn. H'Well -AEX 25154	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	ACTUAL
Primary Periodic 25 Hour Airframe & Electrics	Nil Function check in accordance with Maintenance Instructions Report 71/MAINT 11/7, 71/MAINT 16/4 and 71/MAINT 12/3			Pending	
ACCESSIBILITY Remove dorsal fairing - 6 latches Remove tank access panel - 36 bolts Remove 3 structural tie bars - 6 bolts, 7 support clips, 2 bonding jumpers and 2 saddle clamps. Remove and replace				1 x 2 1 x 12 1 x 34 1 x 48	
ISSUE	1	2	3	4	
DATE	26 Apr. 57	21 June 57	16 Sept. 57	13 Dec. 57	
COMPILED	P.A. Bell Sgt	P.A. Bell Sgt	P.A. Bell Sgt	P.A. Bell Sgt	
CHECKED	C. Beanland	J. Brumfit	J. Brumfit	K.P. Lowe	
APPROVED	R.F. Reid	R.F. Reid	R.F. Reid	R.F. Reid	

LUBRICATION NIL					
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS	
DETAILS:					
GROUND SUPPORT EQUIPMENT					
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE			
NIL		NIL			
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT			
Air Conditioner and generator AC Refueler Pressurized Air Supply - 85 psi Max. Fuel Quantity indicating test set		Cockpit access stand MATS - Wing Maintenance Platform 4G/1596 Tank protective mat.			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES	
REPLACEABLE				EST.	ACTUAL
AIRFRAME: 1. Defuel applicable aircraft fuel system. 2. Remove structural tie bars No. 17, 19 and 20 with hangar ass'y #7-1654-103 3. Install tank protective mat. 4. Remove capacitor unit #7-1654-198 5. Remove 3 mounting bolts - sensor to bracket				1 x 2	
ELECTRICS 1 Disconnect 1 electrical connector Remove and replace (Time to defuel not included)				1 x 45	

MAINTENANCE	
AERO AIRCRAFT LTD.	
STANDARD +	
L. Cornish K. Knowl	
MANUFACTURER'S PART NO. FG	
MANUFACTURER'S NAME Minne	
SPEC. E362 & E503	
SLOPE SIZE 3.16" x 1.	
In No. Tank -	
It senses a "Fu and initiates a signa off No. 1 tank t When used in the C.G. It has the additional condition, of in sequence control uni fuel transfer from th	
INSPECTION PERIOD	
Primary	NIL
Periodic	
25 Hour	Fun
Airframe	Ins
& Electrics	and
Re Re Re	
1	
30 Apr. 57	
P.A. Bell	
C. Beanlan	
R.F. Reid	

MAINTENANCE DATA RECORD		SYSTEM	REF. NO.
AVRO AIRCRAFT LTD. Engineering Div.		FUEL	16-96 11-E438
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201	
MANUFACTURER'S PART NO. FG-56-G Iss. "K"		COMPONENT Sensor - Liquid Level Tank No. 1	
MANUFACTURER'S NAME Minneapolis Honeywell		AVRO PART NO. 7-1662-981	
AVROCAN SPEC. E362 & E503 E.O. NO.		REF. DWGS. 7-1100-1 7-1100-2 sht 13 7-1654-18 7-1100-3 sht 6	
ENVELOPE SIZE 3.16" x 1.16" x 1.22" WEIGHT .25 LB.		REF. M.D.R. 16-119	
LOCATION In No. Tank - On aft Fuel/No Air Valve mount		RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R. Minn. H ¹ Well AEX 25154	
FUNCTION It senses a "Fuel Low" condition in No. 1 tank and initiates a signal to the low level switch, to shut off No. 1 tank transfer pump. When used in the C.G. control fuel transfer system it has the additional function on sensing a "Fuel Low" condition, of initiating a signal to the sequence control unit, which functions to provide fuel transfer from the tank next in sequence.			

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN X MINUTES	
		EST.	ACTUAL
Primary Periodic 25 Hour Airframe & Electrics	Nil Function check in accordance with Maintenance Instructions Report 71/MAINT 11/7, 71/MAINT 16/4 and 71/MAINT 12/3		Pending

ACCESSIBILITY		
Remove dorsal fairing - 6 latches		1 x 2
Remove tank access panel - 36 bolts		1 x 12
Remove 1 structural tie-bar - 2 bolts and 2 support clips		1 x 8
Remove and replace		1 x 22

ISSUE	1	2	3	4
DATE	30 Apr. 57	21 June 57	16 Sept. 57	13 Dec. 57
COMPILED	P.A. Bell Sgt	P.A. Bell Sgt	P.A. Bell Sgt	P.A. Bell Sgt
CHECKED	C. Beanland	J. Brumfit	J. Brumfit	K.P. Lowe
APPROVED	R.F. Reid	R.F. Reid	R.F. Reid	R.F. Reid

LUBRICATION				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC Refueler Pressurized Air Supply - 85 psi Max. Fuel Quantity indicating test Set		Cockpit access stand Mats - Wing Maintenance platform 4G/1596 Tank Protective mat.		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
AIRFRAME		1. Defuel applicable aircraft fuel system		
		2. Remove structural tie-bar #9		
		3. Install tank protective mat.		
		4. Remove capacitor unit #7-1654-197		
		5. Remove 3 mounting bolts - sensor to bracket.		
ELECTRICS		1. Disconnect 1 electrical connector.		1 x 2
		Remove and replace		1 x 20
		(Time to defuel not included)		

MAIN	
AVRO AIR	
DISTRIBUTION: ST	
S. Brown	
K. Knowlton	
MANUFACTURER'S	
MANUFACTURER'S	
AVROCAN SPEC.	
ENVELOPE SIZE	
LOCATION Inside	
FUNCTION	
When actuated to the fuel warning light	
INSPECTION PERIOD	
25 Hrs.	
ISSUE	
DATE	25 Nov
COMPILED	W02
CHECKED	K.P.
APPROVED	R.F.

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	11-E1147/5 11-E1148/5
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT Switch - R/F Adaptor Valve Door Limit	
MANUFACTURER'S PART NO.				AVRO PART NO.	
MANUFACTURER'S NAME				7-1162-161	
AVROCAN SPEC. E-266 E.O. NO.					
ENVELOPE SIZE 2-1/2" x 1-1/4" x 1-1/4" WEIGHT 0.5 LB.				REF. DWGS. 7-1100-3 sht 6 7-1100-2 sht 30,31	
LOCATION Inside the refueling door.				REF. M.D.R.	
FUNCTION When actuated, completes an electrical circuit to the fuel proportioning by-pass relay and F/P warning light.				RELIABILITY	
				OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	ACTUAL
25 Hrs.	Function test. (See Maintenance Instructions Report 71/MAINT 11/7)			1 x 2	
ACCESSIBILITY					
Unobstructed					
ISSUE	1				
DATE	25 Nov. 57				
COMPILED	W02 Wentworth				
CHECKED	K.P. Lowe				
APPROVED	R.F. Reid				

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Air Conditioner and Generator AC		Maintenance platform 4G/1596		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
1. Remove 3 mounting bolts.		Remove and replace		1 x 20
2. Unsolder 2 electrical connections.				

MAINTENANCE	
AVRO AIRCRAFT 1	
CONSTRUCTION: STANDARD	
A. Cornish K.	
S. Brown	
MANUFACTURER'S PART N	
MANUFACTURER'S NAME	
Coast	
AFRICAN SPEC. E337	
ENVELOPE SIZE 5.5"	
LOCATION Inside No	
FUNCTION Operat	
valve by sensi	
condition.	
INSPECTION PERIOD	
On Refuel	
Airframe & Electrics	
25 Hr.	
Airframe and Electrics	
DATE	1
DATE	March 30/
COMPILED	G. Emmers
CHECKED	G. Emmers
APPROVED	

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		FUEL	16-9 11-E210
DISTRIBUTION: STANDARD + A. Cornish S. Brown K. Knowlton		A/C TYPE - Arrow 1 EFF. A/C - 25201		COMPONENT No. 1 Tank Level Sensing Valve (Type 2)	
MANUFACTURER'S PART NO. 2-355-61				AVRO PART NO.	
MANUFACTURER'S NAME Schulz Tool & Mfg. Co. (c/o East Coast AVROCAN SPEC. E337 E.O. NO.				7-1654-361	
ENVELOPE SIZE 5.5" x 4.10" x 4.05" WEIGHT 1.75 LB.				REF. DWGS. 7-1654-18 7-1100-2 sh 13 7-1100-3 shts 6	
LOCATION Inside No. 1 Fuel Tank				REF. M.D.R.	
FUNCTION Operates No. 1 Tank refueling shut-off valve by sensing a real or simulated "Tank Full" condition.				RELIABILITY	
				OVERHAUL LIFE 500 HRS. WASTAGE Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
On Refuel		Operation of this unit and its associated tank shut-off valve is checked on each refueling operation by carrying out the pre-refuel check as required, and observing No. 1 Tank indicator light on E-24 panel in right wheel well. (See Maintenance Instructions Report 71/MAINT 16/3)		1 x 1/2	
Airframe & Electrics					
25 Hr. Airframe and Electrics		Check valve and electrical connector for security and damage.		1 x 2	
		Carry out a functional check of the refueling/defueling sub-system in accordance with Maintenance Instructions Report 71/MAINT 16/3		Pending	
		Function check fuel system electrics - See Maintenance Instructions Report 71/MAINT 11/7		Pending	
ACCESSIBILITY					
Remove dorsal fairing over tank - 6 latches. Remove and replace				1 x 2	
Remove tank access panel - 36 bolts.					
Remove and replace				1 x 12	
Remove structural tie bar #9 - 2 bolts					
Remove and replace				1 x 4	
ISSUE	1	6			
DATE	March 30/55	16 Sept. 57			
COMPILED	G. Emmerson	P.A. Bell Sgt			
CHECKED	G. Emmerson	J. Brumfit			
APPROVED		R.F. Reid			

ACCESS

FOR BENCH USE

L

NG EQUIPMENT

4G/1596

MEN X MIN

EST. ACT.

1 x 20

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
GROUND SUPPORT EQUIPMENT				
SPECIAL TOOLS FOR AIRCRAFT USE		SPECIAL TOOLS FOR BENCH USE		
NIL		NIL		
GROUND TESTING EQUIPMENT		GROUND HANDLING EQUIPMENT		
Refueler Air Conditioner & Generator A-C		Cockpit access stand Maintenance Platform 4G/1596 Mats - Wing Fuel Tank Protective Mat		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST. ACTUAL
(Airframe)		1. Defuel R.H. a/c system. 2. Remove dorsal fairing, tank access panel, and structural tie bar #9. 3. Install tank protective mat. 4. Disconnect 2 x 1/4 servo lines. 5. Remove 4 attachment bolts.		
(Electrics)		1. Disconnect electrical connector. Remove and replace (Time to defuel not included)		1 x 40

MAIN	
AVRO AIR	
DISTRIBUTION: ST	
A. Cornish S. Brown	
MANUFACTURER'S	
MANUFACTURER'S	
AVROCAN SPEC.	
ENVELOPE SIZE 10	
LOCATION Duct	
FUNCTION (a) A while acting valve, (b) Pe pump discharge faulty fuel p 2. Permits fl by-pass the t malfunction.	
INSPECTION PERIOD	
On Refuel Airframe Electrics	
25 hr. Airframe Electrics	
Airframe & Electrics	
ISSUE	
DATE	April
COMPILED	Sgt. E
CHECKED	C. Bea
APPROVED	G. Emu

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD.

Engineering Div.

SYSTEM

FUEL SYSTEM

REF. NO.

16-31
11-E211

DISTRIBUTION: STANDARD +

A. Cornish
S. Brown K. Knowlton

A/C TYPE - Arrow 1

EFF. A/C - 25201

COMPONENT

Valve By-Pass and Refueling
Shut-Off R.H. (No. 1 Tank)

MANUFACTURER'S PART NO. 3-456-51-Iss "E"

MANUFACTURER'S NAME Schulz Tool & Mfg. Co.

AVROCAN SPEC. E460 E.O. NO.

ENVELOPE SIZE 10.05" x 5.95" x 4.875" WEIGHT 2.50 est. LB.

LOCATION Duct Bay - mounted on Tank Bulkhead - Sta. 478,0

AVRO PART NO.

7-1656-121

REF. DWGS. 7-1656-1
7-1656-197 & 8
7-1654-18
7-1100-2 SH 28

REF. M.D.R.

RELIABILITY

COVERHAUL LIFE 500 HRS.
WASTAGE
Q.T.R. Pending

FUNCTION (a) Admits fuel to No.1 Tank during refueling while acting under control of No. 1 tank level sensing valve, (b) Permits fuel to recirculate to No.1 tank if pump discharge pressure becomes excessive due to a faulty fuel pressure regulator.
2. Permits flow in the reverse direction to allow fuel to by-pass the transfer pump in the event of a pump malfunction.

INSPECTION
PERIOD

OPERATION TO BE PERFORMED

MEN X MINUTES

EST. ACTUAL

On Refuel
Airframe
Electrics

Operation of this valve and its associated level sensing valve is checked on each refueling operation by carrying out the pre-refueling check as required and observing No.1 tank indicator light on E-24 panel in the stb'd wheel well. (See Maintenance Instructions Report 71/Maint 16/3)

2 x 1/2

25 hr.
Airframe
Electrics

Check valve for security, damage, corrosion and leakage.
Check electrical connector for security.

1 x 2
1 x 2

Airframe &
Electrics

Function check. (See Maintenance Instructions Report 71/Maint 16/3 and 71/Maint 16/4)

Pending

Function Check Fuel System Electrics -
See Maintenance Instructions Report 71/MAINT 11/7

ACCESSIBILITY

Through electrics access panel - 74 camlocs.

Remove and Replace

1 x 7 1/2

ISSUE	1	2	3	4	5
DATE	April 27/56	August 17/56	November 1/56	February 21/57	16 Sept 57
COMPILED	Sgt. Bell	Sgt. Bell	Sgt. Bell	Sgt. Bell	P.A. Bell Sgt
CHECKED	C. Beanland	C. Beanland	C. Beanland	C. Beanland	J. Brumfit
APPROVED	G. Emmerson	G. Emmerson	G. Emmerson	R.F. Reid	R.F. Reid

LUBRICATION NIL

APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS

DETAILS:

GROUND SUPPORT EQUIPMENT

SPECIAL TOOLS FOR AIRCRAFT USE	SPECIAL TOOLS FOR BENCH USE
Wig-O-Flex Tools	NIL
GROUND TESTING EQUIPMENT	GROUND HANDLING EQUIPMENT
Air Conditioner & Generator A-C Refueler Pressurized Air Supply - 85 p.s.i.g.	Workstand

INTERCHANGEABLE	XX	REMOVAL INSTRUCTIONS	MEN X MINUTES	
REPLACEABLE			EST.	ACTUAL

Electrics:

- 1 Disconnect 1 electrical connector.

Remove and Replace

1 x 2

Airframes:

- 1 Defuel a/c fuel system.
- 2 Disconnect sensing line #-1656-143; disconnect and remove sensing lines #7-1656-167 and 7-1656-161.
- 3 Disconnect 3 bonding jumpers 3 Wig-O-Flex couplings, and remove pressurization pipe assy #7-1656-137.
- 4 Remove cooling air duct section #7-2256-111.
- 5 Disconnect and remove pump inlet pressure sensing line.
- 6 Disconnect 2 bonding jumpers, 2 Wig-O-Flex couplings and remove fuel transfer elbow #7-1656-265.
- 7 Disconnect and remove pump discharge pressure sensing line.
- 8 Disconnect 1 bonding jumper, 2 Wig-O-Flex couplings, and remove fuel transfer pipe #7-1656-275.
- 9 Disconnect primary and secondary servo bleed lines from valve.
- 10 Remove 4 mounting bolts, and withdraw valve to rear.

Remove and Replace
(Time to de-fuel not included)

1 x 78

