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MAINTENANCE INSTRUCTIONS AVRO

ELECTRICS - POWER SUPPLIES

SECURITY CLASSIFICATION - CONFIDENTIAL

ARROW I

MAINTENANCE INSTRUCTIONS

ELECTRICS - POWER SUPPLIES

71/MAINT 11/10

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1. DESCRIPTION

1.1 General

1.1.1 Electrical power is supplied by two 30 KVA 3-phase alternators mounted on mechanical hydraulic constant speed units, in each engine nose bullet. The constant speed units maintain the output frequency of the alternators at 400 ± 4 CPS. (Steady State). Incorporated in the constant speed unit is a speed sensitive switch, which controls the A-C line relay within a certain frequency range.

1.1.2 The alternators operate two independent supply systems, controlled to 115/200 volts A-C. Each system includes a control panel, a fault detection circuit, a fault control circuit and, in the front cockpit, a control switch and failure indicator light.

1.1.3 In addition to supply the aircraft A-C services, each alternator supplies a transformer-rectifier unit. The output of the transformer-rectifier units operate in parallel and provide 27.5 volts D-C for the D-C services.

1.1.4 Both T.R.U. and control panels are mounted in one air conditioned cabinet located aft of the centre section bulkhead.

1.1.5 An emergency alternator, driven hydraulically and located in the duct bay L.H. side at approximately Sta. 500, provides a limited A-C supply in the event of failure of both alternators or associated control circuitry.

1.1.6 A 24 volts 15 ampere-hour nickel cadmium battery, located in the nose wheel well L.H. side at Sta. 150, supplies certain essential electrical services.

1.1.7 In the event of a failure in one system, loads not essential for flight are shed and essential loads are transferred onto the serviceable system. In the event that both A-C and D-C systems fail, the battery and emergency alternator take over and supply certain emergency services.

1.2 Operation of the A-C Supply

1.2.1 The A-C portion of each control panel performs the following five functions:

1.2.1.1 Utilizes the initial output of the alternator to provide field excitation during output build-up.

1.2.1.2 Provides field excitation control to maintain an average voltage output across the three phases, by means of a magnetic amplifier circuit.

1.2.1.3 Provides field excitation compatible with the load current, by means of a compounding control unit.

1.2.1.4 Permits the alternator to be isolated manually or, in case of failure, automatically by means of a field contactor or field shorting circuit. The field contactor is tripped manually when the alternator control switch in the front cockpit is selected to OFF, or automatically when a grounding fault develops in the alternator or an over-voltage condition develops in the alternator output phases.

1.2.1.5 Detects over-voltage in the output phases and effects the operation of the field contactor.

1.2.2 The 3-phase output of each alternator is supplied via the control panel and a line relay, to the corresponding left or right A,B and C phase bus-bars in the main power panel. The line relays are energized by a supply from the battery via the ON position of the MASTER ELECTRICS switch in the front cockpit and the underspeed switches of the constant speed drive unit.

1.2.3 Primary loads (i.e loads essential for flight) are supplied from the primary A-C bus-bars, which under normal conditions are supplied via a transfer relay from the right hand main A-C bus-bars.

1.2.4 Secondary loads (i.e loads not essential for flight) are connected to the A-C shedding bus-bars which are supplied via a shedding relay from the left hand A-C bus-bars.

1.2.5 If the right hand alternator fails, the failure will be detected by the fault detection circuit, which will cause the fault control circuits to operate. The fault control circuits will trip the isolating circuit, shed the secondary load and transfer the primary load onto the left hand alternator. If the left hand alternator fails no action is taken by the fault control circuits.

1.2.6 If an alternator is isolated, its associated transformer rectifier-unit is also isolated. This cuts off the supply to the coil of the D-C bus shedding control relay, which in turn disconnects the D-C shedding bus from the main D-C bus.

1.2.7 Failure of the right hand alternator will cause a complete shedding of the following:

(a) Right hand main A-C bus-bars.
(b) Right de-icing bus-bars.
(c) Electronics D-C shedding bus-bar.
(d) D-C shedding bus-bar (E28)
(e) Forward D-C shedding bus bar
(f) Electronics A-C shedding bus-bars (from the left hand system)

1.2.8 Simultaneously, the following are transferred to the left hand system:

(a) Primary aft A-C bus-bar
(b) Primary forward A-C bus-bars
(c) Electronics primary A-C bus-bars.

1.2.9 Failure of the left hand alternator will cause a complete shedding of the following:

(a) Left hand main A-C bus-bars.
(b) Left hand de-icing bus-bars.
(c) Electronics A-C shedding bus-bar.
(d) D-C shedding bus-bars.
(e) Forward D-C shedding bus-bars.
(f) Electronics D-C shedding bus-bar.

1.2.10 System fault detection consists of a ground fault relay and a power failure detector which detects a failure of any phase.

1.2.11 During normal operation of the system, the power failure detector completes the supply circuit for the transfer relay of the fault control circuit. In the event of a fault, the power supply to the transfer relay is interrupted by the action of the power failure detector and is transferred to the power failure indicator warning light in the front cockpit.

1.2.12 The ground fault relay detects a ground fault condition in the alternator 3-phase windings and the 3-phase output lines from the alternator through the T.R.U. to the ground fault relay. A sensitive inductive winding controls through rectifiers the action of a relay, which in turn controls the field contactor relay in the T.R.U. This winding is imposed on each phase output line and its ground return and detects any current flow differential in the two wires. Therefore, a ground in any phase will, through the action of this relay, trip the field contactor relay and protect the alternator and associated components.

1.2.13 System fault control circuits include a transfer control relay, an A-C shedding relay and an A-C transfer relay. The three relays operate in conjunction when a fault is detected by the power failure detector.

1.2.13.1 Under normal conditions, the transfer control relay is energized by a power supply from the battery bus via the right hand alternator power failure detector. In the energized position, the transfer control relay completes a supply circuit to the A-C shedding relay coil and to the coil of the right hand A-C transfer relay.

1.2.13.2 The A-C shedding relay serves as the line relay for the A-C shedding bus, which is fed by the left hand alternator.

1.2.13.3 The A-C transfer relay serves as the line relay for the primary A-C bus bars, which are fed by the right hand alternator.

1.2.13.4 In the event of the right hand alternator power failure detector detecting a fault, the supply to the transfer control relay is interrupted. In the de-energized position, the transfer control relay interrupts the supply to the A-C shedding relay coil and to the coil of the right hand A-C transfer relay and completes a supply circuit from the left hand alternator power failure detector to the left hand coil of the transfer relay.

1.2.14 An OFF-RESET-ON control switch for each system is located in the front cockpit. Selecting this switch to the OFF position trips the field contactor relay and permits the engines to be run without alternator generation.

1.2.15 The field contactor is restored to normal operating condition by selecting the control switch to RESET. The control switch must then be selected to the ON position to complete the operating power supply to the ground fault relay and the power failure detector.

1.2.16 The indicator lights in the front cockpit provide a warning when the left hand or right hand alternator power failure detector has operated due to a phase failure.

1.3 Operation of the D-C Supply

1.3.1 The two transformer-rectifier units incorporated in the transformer-rectifier unit and control panels operate in parallel to provide D-C requirements.

1.3.2 The rectified D-C output of both units is supplied to the main D-C bus-bar in the main power panel, E28.

1.3.3 Each transformer-rectifier unit draws its A-C input from the relevant left hand or right hand main A-C bus-bar.
The rated maximum 3-phase line current drawn by each unit is 14 amperes.
The rated maximum rectified output is 110 amperes at 28.5 volts.

1.3.4 Prior to rectification, the A-C input is stepped down by a 3-phase transformer to a value which would provide a rectified output of less than 27.5 volts A-C. This permits voltage regulation to be obtained by inserting a 3-phase booster transformer in series with the stepped down A-C power. The degree of boost is controlled by means of a magnetic amplifier circuit in the primary side of the boost transformer.

1.3.5 An isolating circuit in each transformer-rectifier unit serves to disconnect the A-C input in the event of an overvoltage, reverse current or an abnormally high input current condition. The isolating circuit is comprised of an isolating relay and a re-set relay.

1.3.5.1 The isolating relay contains five sets of contaets. Four of these sets are normally closed and the other set is normally open. The normally closed contacts complete the 3 - phase input supply and a rectified D-C supply to a shedding circuit and a signal relay circuit. The normally open contacts close when the relay is tripped and prepare a return circuit for the re-set relay.

1.3.5.2 The re-set relay latches the isolating relay in the open position, until a pulse is applied from the battery via the re-set switch in the front cockpit.

1.3.6 The operation of the shedding circuit relays and the transformer-rectifier signal relays are inter-related.

1.3.6.1 The shedding circuit consists of a D-C shedding cut-out relay and a D-C shedding bus control relay. The left hand transformer-rectifier unit is connected to the coil of the cut-out relay and the right hand transformer-rectifier unit is connected to the contact of the cut-out relay.

1.3.6.2 When both transformer-rectifier units are operating, the left hand unit energizes the cut-out relay, completing the circuit from the right hand unit to the coil of the shedding control relay. The control relay completes the line supply from the main D-C bus to the D-C shedding bus.

1.3.6.3 In the event of one unit failing, the supply to the coil or contact of the cut-out relay will be interrupted. Either condition will effect the de-energizing of the shedding control relay.

1.3.6.4 The shedding circuit supply from each unit is also supplied to the corresponding left hand or right hand signal relays.

1.3.7 The signal relays, when energized, complete through one leg of each relay, a parallel circuit from the main D-C bus to the operating coil of the reverse current relay which, in the energized position, completes the main D-C supply circuit to the battery and the battery bus. Therefore, in the event of failure of one unit, the reverse current relay will remain energized.

1.3.7.1 If both units fail, the relay interrupts the circuit to prevent the main bus services drawing power from the battery.

1.3.7.2 The signal relays, in the de-energized position, complete supply circuits from the battery bus to the alternator failure indicators in the front cockpit.

1.4 Battery Supply

1.4.1 When one or both of the transformer-rectifier units are operating, the battery is charged from the main D-C bus.

1.4.2 If both transformer-rectifier units fail, the battery is isolated from the main D-C bus-bar but will continue to supply services connected to the battery and emergency D-C bus-bars. This condition will be indicated by the BATT USE indicator light in the front cockpit.

1.4.3 If the MASTER ELECTRICS switch is selected to the OFF position, the battery will supply only those services connected to the battery bus-bar.

1.4.4 During engine start, the battery is isolated by a starting power relay. When power is supplied to the engine starting receptacle, the starting power relay is energized, which isolates the battery and transfers the battery bus load to the engine starting source.

1.4.5 The emergency D-C bus-bar supplies the following services:

(a) Engine starting control circuits.
(b) Relight circuits
(c) Emergency fuel control circuits
(d) Landing gear indication
(e) Speed brake solenoid
(f) Turn and slip indicator
(g) A-C emergency transfer relay
(h) Bail-out circuit
(i) Emergency alternator solenoid
(j) Front and rear cockpit emergency light

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(g) A-C emergency transfer relay
(h) Bail-out circuit
(i) Emergency alternator solenoid
(j) Front and rear cockpit emergency light

(l) Fire detection circuits
(m) Power supply warning

1.4.6 The following services derive power from the battery bus:

(a) Fuel shut-off valves
(b) Fire protection systems
(c) Canopy actuation
(d) Alternator supply line relays
(e) Power supply reset circuits

1.5 External Supply

1.5.1 An external supply receptacle permits an external source of 115/200 volts 3-phase A-C power and 27.5 Volts D-C control to be connected to the aircraft.

1.5.2 With the MASTER ELECTRICS switch in the ON position, the D-C supply is completed to the coils of the external line shedding relay and the external supply line relays.

1.5.3 The line shedding relay isolates the line relays of the alternator system, thus eliminating the possibility of connecting the aircraft and external supplies to the main A-C bus simultaneously.

2. FUNCTION TESTS

Equipment for interphone communication between the engine man in the cockpit, and the electrician at the electrical power system test unit will be required for the following tests.

2.1 Electrical Power System Test (Engines running)

A functional check of the complete electrical power system should be carried out with the engines running at idling speed. Selection of cockpit switches relevant to these checks should be carried out by the engine man in the cockpit.

2.1.1 Ground Test Equipment

(a) Electrical power system test unit
(b) Engine starting unit

2.1.1.1 The electrical power system test unit will facilitate and simplify the electrical power system checks. Located on the front face of the test unit are the following components:

(a) D-C voltmeter
(b) A-C voltmeter
(c) D-C ammeter

2.1.1.1 (continued)

(d) A-C ammeter
(e) Frequency meter
(f) D-C ammeter fuse
(g) A-C ammeter fuse
(h) T.R.U. selector switch
(i) Alternator selector switch
(j) Phase selector switch

2.1.1.2 With the test unit connected to the A-C and D-C electrical power systems at the output terminals of both the transformer rectifier units and control panels, the following checks may be carried out:

(a) The D-C voltage output which should be $28.5 \pm^{0}.5$ Volts at main bus E28 may be checked and adjusted if necessary by means of the D-C control fine adjustment screw on each transformer-rectifer unit.

(b) The D-C current output of both transformer-rectifier units may be checked for balance, in relation to each other.

(c) The frequency of each alternator may be checked by use of the ALT SELECTOR switch.

(d) The A-C voltage which should be $115 \pm .5$ volts at the main bus E28 may be checked and adjusted if necessary on each power system by means of the A-C CONTROL fine adjustment screw on each transformer-rectifier unit.

(e) Single phase A-C voltage and current of each system.

(f) The A-C and D-C fail warning light operation.

(g) Each constant speed drive switch may be checked for drop-out when the appropriate engine is running down.

2.1.2 Preparation for Test

With reference to Figure I and Figure 2, carry out the following:

2.1.2.1 From the right hand T.R.U. and control panel, disconnect the following connections: L1,L2 and L3 from the A-C output terminals and the D-C output + connection from the D-C output terminal.

2.1.2.2 From the power system test unit, select the cable loom and the wires which are idented R. ALT., T.R.U. and R. T.R.U. D-C respectively and connect these to the right-hand T.R.U. and control panel as follows:

(a) Connect the wire L1, L2 and L3 to the respective L1, L2 and L3 A/C output terminals.

(b) Connect the wire F2 of the test unit to the field connection F2 on the T.R.U.

(c) Connect the wire R.T.R.U. D-C + to the D-C + output terminal.

2.1.2.3 The wiring which has been disconnected from the right hand T.R.U. and control panel will be connected to the power system test unit as follows:

(a) Connect the wire L1, L2 and L3 to the cable loom R. ALT. T.R.U. terminal block connections L1/1, L2/1 and L3/1 respectively.

(b) Connect the wire from the D-C output terminal to the terminal block connection R.T.R.U. D-C.

2.1.2.4 The preparation for test of the L.H. T.R.U. and control panel, is the same as that for the R.H. T.R.U. and control panel, except that there is no F2 wire to be connected from the L.H. T.R.U. cable loom.

2.1.2.5 Ensure that all current limiters are serviceable and all circuit breakers are set.

2.1.3 R.H. Sub-System Test Procedure

With the engines running at idle speed, carry out the following:

2.1.3.1 Ensure that with the LH and RH alternator switches selected to OFF, the D-C FAIL, the L and R ALT FAIL and the BATT USE indicator lights and the amber master warning light are illuminated. (See Maintenance Instructions Report 71/MAINT 11/3 - Electrics - Master Warning System)

2.1.3.2 Have the R.H. ALTERNATOR switch in the cockpit selected to ON and the L.H. switch to OFF.

2.1.3.3 Ensure the R ALT FAIL and the BATT USE indicator light go out.

2.1.3.4 Select the ALTERNATOR selector switch on the test unit to RIGHT alternator.

2.1.3.5 Select the T.R.U. selector switch on the test unit to RIGHT T.R.U.

2.1.3.6 Select the PHASE SELECTOR switch to A phase and check the A-C current and the A-C voltage. The voltage reading should be 115 $\pm$ .5 volts.

2.1.3.7 Select the PHASE SELECTOR switch to B phase and check as in Para 2.1.3.6.

2.1.3.8 Select the PHASE SELECTOR switch to C phase and check as in Para 2.1.3.6.

2.1.3.9 Check the frequency of the R.H. alternator. This should be 400 $\pm$ 4 C.P.S.

2.1.3.10 Check the D-C voltage of the R.H.T.R.U. This should be $28.5 \begin{smallmatrix}+0\\-.5\end{smallmatrix}$ volts.

2.1.4 L.H. Sub-System Test Procedure

2.1.4.1 Have the L.H. ALTERNATOR switch in the cockpit selected to ON and the R.H. switch selected to OFF.

2.1.4.2 Ensure that the R ALT FAIL indicator light comes on and the L ALT FAIL indicator light goes out.

2.1.4.3 Carry out the procedures as outlined in the foregoing Paras. 2.1.3.4 to 2.1.3.10, reading 'Left' for 'Right'.

2.1.5 D.C. Load Balance

2.1.5.1 Have the R.H. ALTERNATOR switch in the cockpit selected to ON position.

2.1.5.2 Ensure that the R ALT FAIL, D-C FAIL indicator lights and the amber master warning light go out.

2.1.5.3 With the A-C input maintained at 115 volts and 400 C.P.S., select the test unit T.R.U. SELECTOR switch to R. T.R.U. and then L. T.R.U. Note the D-C ampere readings. These should be equal-within 10% of the rated output of one T.R.U.

2.1.6 Constant Speed Drive Switches

Check the operation of the switches as follows:

2.1.6.1 Have the R.H. engine shut off. During engine run-down, ensure that the constant speed drive switch operates

2.1.6.1 (continued)

between 375 and 360 C.P.S. decreasing frequency.

2.1.6.2 Repeat the procedure outlined in Para 2.1.6.1, reading L.H. for R.H.

2.1.7 Procedure on Completion of Tests

2.1.7.1 Ensure that the MASTER ELECTRICS switch is selected to OFF.

2.1.7.2 Disconnect the power system test unit.

2.1.7.3 Re-connect the appropriate cables to the L.H. and R.H. T.R.U's and control panels.

2.2 Emergency Alternator Test (Engines not running)

This is a ground functional check of the emergency alternator and its associated hydraulic motor, which should be carried out using the electrical system power test unit, the hydraulic test machine trailer and the engine starting unit (for ground D-C supply)

2.2.1 Ensure that the aircraft grounding cable is securely connected between the aircraft and ground.

2.2.2 Disconnect the connector from the emergency alternator, and connect it to its mating connector idented EMERG. ALT. 2 from the electrical systems power test unit.

2.2.3 Connect to the emergency alternator the connector from the test unit idented EMERG. ALT. 1.

2.2.4 Connect the engine starting unit electrically to the aircraft and apply D-C power.

2.2.5 Ensure that the circuit breakers L and R ALT CONT. on E1 circuit breaker panel, are set.

2.2.6 Have the GROUND TEST OVERRIDE switch selected and held in the TEST position.

2.2.7 Select the MASTER ELECTRICS switch to the ON position.

2.2.8 Have the appropriate hydraulic pressure applied and check the frequency reading at the test unit. This should be 400 $\pm$ 20 C.P.S.

2.2.9 Using the PHASE SELECTOR switch on the test unit, check the voltage of each phase. This should be 115 ± 5 volts.

2.2.10 Have the GROUND TEST OVERRIDE SWITCH released to the NORMAL position.

2.2.11 Select the MASTER ELECTRICS switch to OFF. Disconnect the test unit from the aircraft and re-connect the aircraft cabling connector to the emergency alternator.

3. PERIODIC INSPECTIONS

For periodic inspection requirements, refer to Maintenance Report 71/MAINT 00/2 - Preliminary Maintenance Schedule.

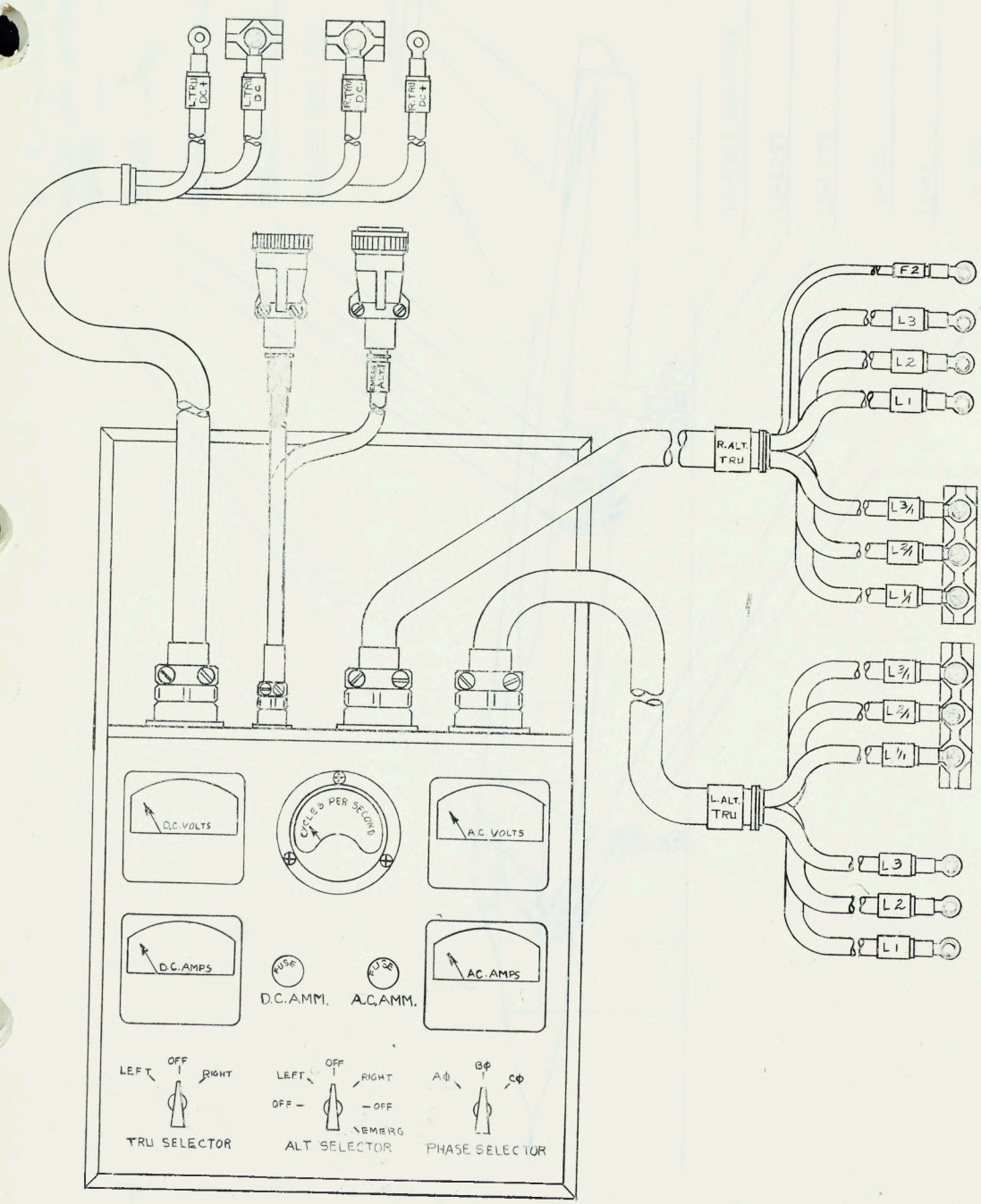

FIGURE 1 : ELECTRICAL SYSTEMS POWER TEST UNIT

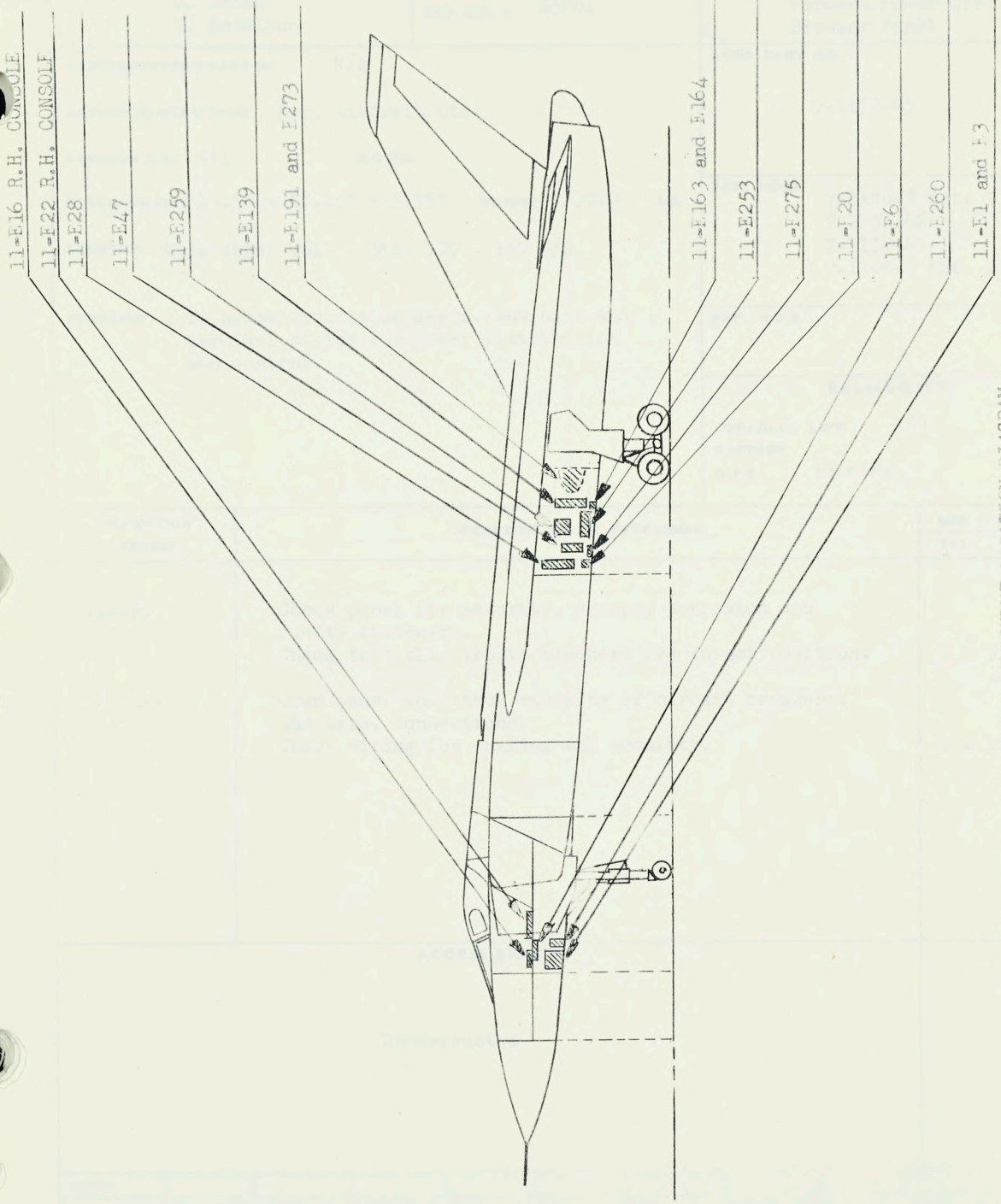

FIGURE 2 COMPONENT LOCATION DIAGRAM

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E1		
DISTRIBUTION: STANDARD + S. Brown, K. Knowlton	A/C TYPE – ARROW 1; EFF. A/C – 25201	COMPONENT: Forward Power Circuit Breaker Panel	
MANUFACTURER'S PART NO. N/A		AVRO PART NO. 7-1152-45	
MANUFACTURER'S NAME Avro Aircraft Ltd.			
AVROCAN SPEC. Nil	E.O. NO.	REF. DWGS. 7-1100-2 Sht. 9; 7-1152-46; 7-1152-47; 7-1100-3 Sht. 2	
ENVELOPE SIZE 19.5" x 18.25" x 5.75"	WEIGHT 30.0 LB.	REF. M.D.R.	
LOCATION Nose wheel well - Sta. 129 - 140 L/H		RELIABILITY: OVERHAUL LIFE 1500 HRS.; WASTAGE; Q.T.R. Pending	
FUNCTION To house circuit breakers, bus bars and terminal strips for power distribution and control.			

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary	Check panel for security, damage, corrosion and faulty fasteners. Check that all circuit breakers are in set position.	1 x 3	
25 hours	Open panel and check security of circuit breakers, bus bars, connections. Check wiring for chafing and security.	1 x 10	

ACCESSIBILITY

Unobstructed

ISSUE	1	2	3	4	
DATE	April 5/55	April 11/56	Jan. 3/57	Oct. 28/57	
COMPILED	C. Wright	D. Collingwood	D. Collingwood	K.P. Lowe	
CHECKED	G. Emmerson	G. Emmerson	WO2 Wentworth	WO2 Wentworth	
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/596

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

1. Disconnect 4 AN connectors from top face of panel.
2. Remove 6 screws from bottom edge of panel hinge.
3. Release 6 camloc fasteners holding panel to structure.
4. Disconnect power wiring from bus bars.

- Remove and replace — 1 x 30

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E3/15		
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton.	A/C TYPE – Arrow 1 EFF. A/C – 25021	COMPONENT: Relay - Primary Emergency A-C Supply Transfer	
MANUFACTURER'S PART NO.		AVRO PART NO.: MS 25024-1	
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.		
ENVELOPE SIZE 2.625" X 2.687" X3.312"	WEIGHT 0.8 LB.	REF. DWGS. 7-1100-3 Sht 2. 7-1152-94 7-1152-81	
LOCATION: Mounted on Panel E3 Nose Wheel Well STA 129-137		REF. M.D.R.: 11-E3	
FUNCTION: Is energised due to a R.H & L.H power failure & transfers the source of supply for certain essential services from the Fwd A-C Primary Bus to the emergency alternator.		RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hrs.	Function Check (See maintenance instructions report 71/Maint 11/10)	1 x 2	
	ACCESSIBILITY: On E3 Panel		

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe				
CHECKED	WO2.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
Nil	Maintenance platform 4G/1596

INTERCHANGEABLE		REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect eleven electrical connections Remove four relay securing screws.		
		Remove and Replace	1 X 15	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM	REF. NO.
ELECTRICS	11-E6

DISTRIBUTION: STANDARD +
S.Brown
K.Knowlton

A/C TYPE – Arrow I

EFF. A/C – 25201

COMPONENT: Forward Relay Panel

MANUFACTURER'S PART NO. N/A

MANUFACTURER'S NAME Avro Aircraft Limited.

AVROCAN SPEC. Nil E.O. NO.

ENVELOPE SIZE 16.24" x 17.44" x 4.0" WEIGHT 18.0 LB.

LOCATION Roof of Nose Wheel Well Sta. 129-149

FUNCTION To house relays.

AVRO PART NO. 7-1152-78

REF. DWGS. 7-1100-2 Sht 10
7-1100-3 Sht 2

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 1500 HRS.

WASTAGE

Q.T.R. Pending

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary	Check panel for security, cleanliness and damage.	1 X 5	
25 hrs.	Remove panel, check relays and wiring for security and damage.	1 X25	
	ACCESSIBILITY Accessible with rudder quadrant Guard removed 4 Camlocs Remove and Replace	1 X 4	

ISSUE	1	2	3	4	
DATE	December 15/55	March 8/56	January 3/57	October 25/57	
COMPILED	C.Wright	D.Collingwood	D.Collingwood	K.P.Lowe	
CHECKED	G.Emmerson	G.Emmerson	WO2 Wentworth	WO2 Wentworth	
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
A-C Ground Power Unit	Maintenance Platform 4 G/1596

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

1. Disconnect aircraft battery.
2. Disconnect external battery supply wire.
3. Disconnect 3 AN connectors.
4. Disconnect ground connection
5. Remove 8 mounting bolts.

Remove and Replace, 1 X 20

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E6/5		
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton.	A/C TYPE – Arrow 1	EFF. A/C – 25021	COMPONENT: RELAY – BATTERY USE.
MANUFACTURER'S PART NO.			AVRO PART NO.: CS- R - 122
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.		
ENVELOPE SIZE 2.60" X 2.50" x 2.125	WEIGHT 0.44 LB.		REF. DWGS.: 7-1100-3 Sht.2; 7-1100-2 Sht 10.; 7-1152-78
LOCATION: E6 panel Nose Wheel Well STA. 129 - 147			REF. M.D.R.: 11 - E6
FUNCTION: In the open or un-energised position it completes the BATT USE warning light circuit, when energised it breaks this circuit.			RELIABILITY: OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hrs.	Function Check (See maintenance instructions report 71/Maint 11/10)	1 x 2	

ACCESSIBILITY

On Panel E6

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe.				
CHECKED	WO2.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
Nil	Maintenance Platform 4G/1596.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 4 electrical Connections Remove 2 relay securing screws.		
		Remove and replace	1 x 8	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E6/11		
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton	A/C TYPE – Arrow 1 EFF. A/C – 25201	COMPONENT: Relay - Fwd Ground Control.	
MANUFACTURER'S PART NO.		AVRO PART NO.: MS 25024-1	
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.	REF. DWGS.: 7-1100-3 Shts.15-6-10 & 2 7-1100 - 3 sht 5. 7-1152-78	
ENVELOPE SIZE 2.625" X 2.687" X 3.312" WEIGHT 0.8 LB.			
LOCATION: E6 panel Nose Wheel Well STA 129 - 147		REF. M.D.R.: 11-E6	
FUNCTION: In the de-energised position completes circuits concerned with (a)Emergency Alternator (b) Air-Conditioning (c)De-icing (d)Fuel valve selection and warning. Its coil circuit is controlled through the R.H. U/C scissors switch		RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hr.	Function Check (See maintenance instructions report 71/Maint 11/10)	1 x 2	
	ACCESSIBILITY On E6 panel		

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe.				
CHECKED	WO2.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
Nil	Maintenance Platform 4G/1596

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 10 electrical connections Remove 2 Relay Securing Screws.		
		Remove & Replace	1 x 10	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E6/16 & 17		
DISTRIBUTION: STANDARD + S. Brown, K. Knowlton	A/C TYPE – ARROW 1	EFF. A/C – 25201	COMPONENT: Relays – T.R.U. Signal LH & RH

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

AVROCAN SPEC. E.O. NO.

ENVELOPE SIZE 2.60" x 2.50" x 2.125 WEIGHT 0.44 LB.

LOCATION E6 panel nose wheel well Sta. 129-147

FUNCTION When energised they complete the circuit for the reverse current relay. De-energised they complete the DC FAIL warning light circuit.

AVRO PART NO.: CS-R-122

REF. DWGS.: 7-1100-3 Sht. 2; 7-1152-78

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 1500 HRS.

WASTAGE

Q.T.R.

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hour	Function Check (See Maintenance Instructions Report 71/Maint-11/10)	1 x 2	

ACCESSIBILITY

On E6 panel

ISSUE	1				
DATE	Oct. 28/57				
COMPILED	K.P. Lowe				
CHECKED	WO2 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
NIL	Maintenance platform 4G/1596.

INTERCHANGEABLE	X
REPLACEABLE	

REMOVAL INSTRUCTIONS

	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Disconnect 8 electrical connections Remove 2 relay securing screws -Remove and replace	1 x 10	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E6-18		
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton.	A/C TYPE – Arrow 1 EFF. A/C – 25201	COMPONENT: Relay Reverse Current.	
MANUFACTURER'S PART NO.		AVRO PART NO.: CS-R-135	
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.		
ENVELOPE SIZE 4.0" X 4.0" X 3.562	WEIGHT EST 1.25 LB.	REF. DWGS.: 7-1100-3 Sht 2. 7-1152-78	
LOCATION: On E6 panel-nose wheel well STA 129-147			
FUNCTION: In the circuit between Main D-C bus & batt. and batt bus. Opens during a reverse current or D-C fail condition.		REF. M.D.R.: 11-E6	
		RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hr.	Function Check (See Maintenance Instructions Report 71 Maint 11/10).	1 x 3	
	ACCESSIBILITY On E6 panel		

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe.				
CHECKED	WO2.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
Nil	Maintenance Platform 4G/1596

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 6 electrical connections Remove 4 relay securing screws.		
		Remove and replace	1 x 12	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E6/19		
DISTRIBUTION: STANDARD + S. Brown, K. Knowlton	A/C TYPE – ARROW 1 EFF. A/C – 25201	COMPONENT: Relay – Emergency Bus.	
MANUFACTURER'S PART NO.		AVRO PART NO.: MS24140-2	
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.	REF. DWGS.: 7-1100-3 Sht. 2, 7-1152-78	
ENVELOPE SIZE: 2.70" x 2.835" x 3.748"	1.0 LB.	REF. M.D.R.: 11-E6	
LOCATION: On E6 panel nose wheel well Sta. 129-147			
FUNCTION: Is controlled by master electrics SW and when energised completes the circuit from Batt Bus to Emerg.. Bus, also completes the supply circuit to the coils of the R.H. external supply relay and the external line shedding relay.		RELIABILITY OVERHAUL LIFE: 1500 HRS. WASTAGE Q.T.R.	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hours	Function Check (See Maintenance Instructions Report 71/Maint-11/10).	1 x 2	

ACCESSIBILITY

On E6 panel.

ISSUE	1				
DATE	Oct. 28/57				
COMPILED	K.P. Lowe				
CHECKED	WO2 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
NIL	Maintenance Platform 4G/1596

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 6 electrical connections Remove 2 relay securing screws - Remove and replace	1 x 10	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E6/20	
DISTRIBUTION: STANDARD + S. Brown, K. Knowlton	A/C TYPE – ARROW 1; EFF. A/C – 25201	COMPONENT: Relay- Starting Power.	
MANUFACTURER'S PART NO.		AVRO PART NO.: CS-R-128	
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.	REF. DWGS.: 7-1100-3 Sht. 2; 7-1152-78	
ENVELOPE SIZE: 4.12" x 4.12" x 4.0"	WEIGHT: 1.94 LB.		
LOCATION: On E6 panel nose wheel well Sta. 129-147		REF. M.D.R.: 11-E6	
FUNCTION: When energised by a supply from the Engine Starting Unit, transfers the source of supply for the Batt. Bus from the Batt to the Engine Starting Unit.		RELIABILITY: OVERHAUL LIFE 1500 HRS.; WASTAGE; Q.T.R.	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hours	Function Check (See Maintenance Instructions Report 71/Maint-11/10)		
	ACCESSIBILITY: On E6 panel		

ISSUE	1				
DATE	Oct. 28/57				
COMPILED	K.P. Lowe				
CHECKED	WO2 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
NIL	Maintenance Platform 4G/1596

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 4 electrical connections		
		Remove 4 relay securing screws		
		-Remove and replace	1 x 10	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E6/23
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton.	A/C TYPE – Arrow 1 EFF. A/C – 25201
COMPONENT: Relay- Primary A-C Failure.	
MANUFACTURER'S PART NO.	AVRO PART NO.: CS-R-122
MANUFACTURER'S NAME	
AVROCAN SPEC. E.O. NO.	REF. DWGS.: 7-1100-3 sht 2 7-1152-78
ENVELOPE SIZE 2.60" X 2.50" X 2.125" WEIGHT 0.44 LB.	REF. M.D.R.: 11-E6
LOCATION E6 panel nose wheel well STA. 129-147	RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.
FUNCTION Its coil is energised by a signal due to a L.H ALT failure, its contacts complete the circuit for a signal due to a R.H ALT failure this signal initiates EMERG ALT operation.	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hr.	Function Check (See maintenance instructions report 71/Maint 11/10)	1 X 2	
	ACCESSIBILITY On E6 panel		

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe.				
CHECKED	WO2.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
Nil	Maintenance Platform 4G/1596

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 4 electrical connections. Remove 2 relay securing screws.		
		Remove and Replace	1 X 10	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: INSTRUMENTS

REF. NO. 12-29 11-E16

DISTRIBUTION: STANDARD +
S. Brown
K. Knowlton

A/C TYPE – ARROW 1

EFF. A/C – 25201

COMPONENT: Panel - Power and Starting

MANUFACTURER'S PART NO. N/A

MANUFACTURER'S NAME Avro Aircraft Limited

AVROCAN SPEC. Nil E.O. NO.

AVRO PART NO. 7-1252-64

ENVELOPE SIZE 5.8" x 2.25" x 3.1" WEIGHT est. 1.92 LB.

LOCATION Pilot's cockpit - R/H console

FUNCTION Houses - Master electric switch.
- Engine start switches.

REF. DWGS. 7-1100-3 Sht. 2
7-1252-65
7-1252-66
7-1252-67

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 1500 HRS.

WASTAGE

Q.T.R. Pending

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary Instruments Electrics	Check security and cleanliness of panel Function (Check switch positions when completed)	1 x 1 1 x 3	
25 hours Instruments Electrics	Lift panel:- Check wiring and hardware for security and damage. Check for faulty fasteners.	1 x 2 1 x 5	

ACCESSIBILITY

Unobstructed.

ISSUE	1	2	3		
DATE	Aug. 21/56	Jan 29/57	Oct. 28/57		
COMPILED	D. Collingwood	WO2 Wentworth	K.P. Lowe		
CHECKED	WO2 Wentworth	D. Collingwood	WO2 Wentworth		
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
Nil	Nil
GROUND TESTING EQUIPMENT	GROUND HANDLING EQUIPMENT
A-C Ground Power Unit	Cockpit access stand.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

1. Unfasten 4 quick fasteners.
2. Disconnect electrical wiring.

- Remove and replace — 1 x 25

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E16/2		
DISTRIBUTION: STANDARD + S.Brown K.Knowlton.	A/C TYPE – Arrow 1	EFF. A/C – 25201	COMPONENT: Switch- Master Electrics
MANUFACTURER'S PART NO.			AVRO PART NO.
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.		
ENVELOPE SIZE 1.3125" X 1.4375" X 2.37"	WEIGHT 0.16 LB.		REF. DWGS. 7-1100-3 Sht 2, 7-1100-2 Sht 6
LOCATION: On E16 power & starting panel pilots R.H. console.			REF. M.D.R. 11-E16
FUNCTION: Controls the D-C supply from the Batt.bus to R.H. and L.H Power failure detectors and constant speed switches, fire protection circuit and the emergency bus. relay.			RELIABILITY: OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hr.	Function Check (See maintenance instructions report 71/Maint 11/10)	1 x 3	
	ACCESSIBILITY		
	Lift panel clear of console.		

ISSUE	1	2			
DATE	July 17/57	October 28/57			
COMPILED	WO2.Wentworth	K.P.Lowe			
CHECKED	J.Ferguson.	WO2.Wentworth.			
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	Cockpit access stand.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 8 electrical connections. Remove switch securing nut and locking washers. Remove and replace	1 X 8	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E20		
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton	A/C TYPE – Arrow I EFF. A/C – 25201	COMPONENT: Aft. Limiter Panel	
MANUFACTURER'S PART NO.: N/A		AVRO PART NO.: 7-1156-18	
MANUFACTURER'S NAME: Avro Aircraft Limited.			
AVROCAN SPEC.: Nil	E.O. NO.:	REF. DWGS.: 7-1100-3 Sht 2 7-1100-2 Sht.28	
ENVELOPE SIZE: 10.0" X 14.5" X 2.5"	WEIGHT: 7.5 LB.		
LOCATION: Forward of R/H speed brake STA 485-495		REF. M.D.R.	
FUNCTION: Houses circuit limiters		RELIABILITY OVERHAUL LIFE: 1500 HRS. WASTAGE Q.T.R.: Pending	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary	Check panel for security, damage and cleanliness Check limiters for condition. Check for faulty fasteners.	1 x 10	
25 hrs.	Release panel, check limiters and wiring for security and damage.	1 X 20	
	ACCESSIBILITY Accessible under hinged access door fastened by 13 quick release fasteners.		
	Open and close	1 x 1½	

ISSUE	1	2	3	4	
DATE	Dec. 15/55	Mar. 8/56	January 3/57	October 28/57	
COMPILED	C.Wright	D.Collingwood	D.Collingwood	K.P. Lowe	
CHECKED	G.Emmerson	G.Emmerson	WO2 Wentworth	WO2 Wentworth	
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 Stand.

INTERCHANGEABLE	X
REPLACEABLE	

REMOVAL INSTRUCTIONS	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
1. Disconnect 2 AN connectors. 2. Release 11 camloc fasteners. Remove and replace	1 X 15	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: INSTRUMENTS

REF. NO. 12-33 11E22

DISTRIBUTION: STANDARD +
S. Brown
K. Knowlton

A/C TYPE – ARROW 1

EFF. A/C – 25201

COMPONENT: Panel - Oxygen

MANUFACTURER'S PART NO. N/A

MANUFACTURER'S NAME Avro Aircraft Ltd.

AVRO PART NO. 7-1252-86

AVROCAN SPEC. Nil E.O. NO.

ENVELOPE SIZE 14.0" x 3.5" x 4.5" WEIGHT 2.36 LB.

LOCATION Pilot's cockpit - R/H console

REF. DWGS. 7-1252-12
7-1252-87
7-1252-92
7-1252-162
7-1100-3 Sht. 2

FUNCTION Houses - Oxygen quantity gauge.
- Navigation light switch.
- Alternator control switches.
- D. C. reset switch.
- Engine bleed indicator lights.

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 1500 HRS.

WASTAGE

Q.T.R. Pending

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary Instrument	Check security and cleanliness of panel	1 x 1	
Electrics	Function (Check switch position after completion.)	2 x 10	
25 hours Instrument	Lift panel:-	1 x 2	
Electrics	Check wiring and switches for security and damage. Check for faulty fasteners.	1 x 2	

ACCESSIBILITY

Unobstructed.

ISSUE	1	2	3		
DATE	Aug. 14/56	Jan. 28/57	Oct. 28/57		
COMPILED	D. Collingwood	WO2 Wentworth	J. Ferguson		
CHECKED	WO2 Wentworth	D. Collingwood	WO2 Wentworth		
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
Nil	Nil
GROUND TESTING EQUIPMENT	GROUND HANDLING EQUIPMENT
A-C Ground Power Unit	Cockpit Access Stand

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Instrument - Remove 6 mounting screws.		
		- Disconnect 1 pipe line from oxygen gauge.	1 x 10	
		- Remove panel.		
		Electrical - Disconnect electrical wiring.	1 x 5	
		- Remove and replace	1 x 15	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E22/2 & 3
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton.	A/C TYPE – Arrow 1 EFF. A/C – 25201
COMPONENT: Switch- Alternator L & R.	
MANUFACTURER'S PART NO.	AVRO PART NO.: CS-S-154
MANUFACTURER'S NAME	
AVROCAN SPEC. E.O. NO.	REF. DWGS.: 7-1100-3 Sht 2.
ENVELOPE SIZE 2.281" X 1.3125" X 0.75" WEIGHT 0.10 LB.	REF. M.D.R.: 11-E22
LOCATION: On E22 Oxygen panel Pilots cockpit - R.H. Console.	RELIABILITY
FUNCTION: Controls the D-C supply between emergency bus and the T.R.U. in the ON-OFF and Reset positions.	OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hr.	Function Check (See maintenance instructions report 71/Maint 11/10)	1 x 3	

ACCESSIBILITY

Lift Panel Clear of Console.

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe.				
CHECKED	WO2.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
Nil	Cockpit Access Stand.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 4 electrical connections. Remove switch securing nut and lockwashers. Remove and replace	1 x 8	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E22/12		
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton	A/C TYPE – Arrow 1	EFF. A/C – 25201	COMPONENT: Switch-Push Button D-C Reset.
MANUFACTURER'S PART NO.			AVRO PART NO.: MS25089-4D
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.		REF. DWGS.: 7-1100-3 Sht 2.
ENVELOPE SIZE .688" X 1.344"	WEIGHT .015 LB.		REF. M.D.R.: 11-E22
LOCATION: On E22 oxygen panel Pilots cockpit R.H. console.			RELIABILITY: OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.
FUNCTION: When pressed completes a D-C supply circuit from the emergency bus to the L.H and R.H T.R.U'S			

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hr.	Function Check (See maintenance instructions report 71/Maint 11/10)	1 X 2	

ACCESSIBILITY

Lift panel clear of console.

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe.				
CHECKED	WO2.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
Nil	Cockpit access stand.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 3 electrical connectors Remove switch securing nut and Lockwashers. Remove and replace	1 X 8	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E28		
DISTRIBUTION: STANDARD + S. Brown, K. Knowlton	A/C TYPE – ARROW 1	EFF. A/C – 25201	COMPONENT: Main Power Panel
MANUFACTURER'S PART NO. N/A			AVRO PART NO. 7-1156-36
MANUFACTURER'S NAME Avro Aircraft Ltd.			
AVROCAN SPEC. Nil	E.O. NO.		REF. DWGS. 7-1100-2 Sht. 25, 7-1100-3 Sht. 2
ENVELOPE SIZE 22.0" x 16.5" x 9.5"	WEIGHT 67.5 LB.		REF. M.D.R.
LOCATION Duct bay - aft. of bulkhead sta. 485			RELIABILITY: OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R. Pending
FUNCTION Distribution of power from the transformer rectifier - control units.			

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary	Check panel for security and damage. Check trays for security. Check limiters for condition. Function Check.	1 x 8	
25 hours	Remove trays, check terminal strips and wiring for security and damage.	1 x 20	
	ACCESSIBILITY		
	Inspection Remove right hand electrical equipment access panel (44 camlocs) - Estimated - Remove and replace	1 x 4½	
	Removal of Panel Remove left and right hand electrical equipment access panels (74 camlocs) Estimated - Remove and replace	1 x 7½	

ISSUE	1	2	3		
DATE	April 27/56	Jan. 3/57	28 Oct. 57		
COMPILED	D. Collingwood	D. Collingwood	K.P. Lowe		
CHECKED	G. Emmerson	WO2 Wentworth	WO2 Wentworth		
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
A-C Ground Power Unit	Maintenance Stand.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		1. Remove trays. 2. Disconnect all external wiring from panel. 3. Remove 4 mounting bolts. - Remove and replace	1 x 60	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E28/11&45		
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton.	A/C TYPE -Arrow 1 EFF. A/C - 25201	COMPONENT: Relay - A-C Line L & R.	
MANUFACTURER'S PART NO.		AVRO PART NO.: MS24168 - 1	
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.		
ENVELOPE SIZE: 4.220" X 4.235" X 4.280"	WEIGHT: 3.28 LB.	REF. DWGS.: 7-1100-3 Sht 2. 7-1100-2 Sht.25.	
LOCATION: On E28 Main Power Panel Duct-Bay aft.bulkhead STA 485.			
FUNCTION: Completes the A-C output circuit between the T.R.U. and the Main A-C 3 phase bus-bars.		REF. M.D.R.: 11-E28	
		RELIABILITY: OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hr.	Function Check (See Maintenance Instructions Report 71/Maint 11/10)	1 X 2	

ACCESSIBILITY

On E28 Panel

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe.				
CHECKED	WO2.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
Nil	Maintenance Stand.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

Disconnect 8 electrical connections

Remove 4 relay securing screws.

Remove and replace — 1 X 12

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS

REF. NO.: 11-E28/12

DISTRIBUTION: STANDARD +
S. Brown
K. Knowlton

A/C TYPE – ARROW 1

EFF. A/C – 25201

COMPONENT: Relay - A-C Shedding

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

AVROCAN SPEC. E.O. NO.

AVRO PART NO.: MS 24144-1

ENVELOPE SIZE 3.735" x 4.03" x 3.69" WEIGHT 2.30 LB.

REF. DWGS.: 7-1100-3 Sht. 2

LOCATION On E-28 Main Power Panel duct bay aft of bulkhead Sta. 485.

FUNCTION Sheds certain non-essential A-C loads on failure of the R. H. alternator system.

REF. M.D.R.: 11-E-28

RELIABILITY

OVERHAUL LIFE 1500 HRS.

WASTAGE

Q.T.R.

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hours	Function Check (See maintenance instructions report 71/Maint 11/10)	1 x 3	

ACCESSIBILITY

On E-28 panel.

ISSUE	1				
DATE	Oct. 28/57				
COMPILED	K.P. Lowe				
CHECKED	WO2 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
Nil	Maintenance Standard.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

Disconnect 8 electrical connections
Remove 4 relay securing screws.

- Remove & replace — 1 x 12

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS

REF. NO. 11-E-28/12 & 46

DISTRIBUTION: STANDARD +
S. Brown
K. Knowlton

A/C TYPE – ARROW 1

EFF. A/C – 25201

COMPONENT: Relay - External Supply L & R

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

AVROCAN SPEC. E.O. NO.

AVRO PART NO. M24168-1

ENVELOPE SIZE 4.220" x 4.235 x 4.280" WEIGHT 3.28 LB.

REF. DWGS. 7-1100-3 Sht. 2

LOCATION On E-28 Main Power Panel duct bay aft of bulkhead Sta. 485.

FUNCTION Complete the A-C 3 phase supply circuit between the external supply connector and the L. & R. main A-C bus-bars.

REF. M.D.R. 11 E-28

RELIABILITY

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

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hour	Function Check, connect external A-C ground supply to the aircraft select the MASTER ELECTRICS Switch to ON and ensure that the A-B and C phases of LH and RH main A-C bus-bars are being supplied with 115 volts A-C.	1 x 12	

ACCESSIBILITY

On E-28 Panel.

ISSUE	1				
DATE	Oct. 28/57				
COMPILED	K.F. Lowe				
CHECKED	WO2 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
A-C Ground Power Unit	Maintenance Stand.

INTERCHANGEABLE		REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 8 electrical connections		
		Remove 4 relay securing screws		
		-Remove and replace	1 x 12	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E-28/33		
DISTRIBUTION: STANDARD + S. Brown, K. Knowlton	A/C TYPE – ARROW 1; EFF. A/C – 25201	COMPONENT: Relay - External Line Shedding	
MANUFACTURER'S PART NO.		AVRO PART NO.: CS-R-122	
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.	REF. DWGS.: 7-1100-3 Sht. 2	
ENVELOPE SIZE 2.60" x 2.50" x 2.125	WEIGHT 0.44 LB.	REF. M.D.R.	
LOCATION: On E-28 main power panel duct bay aft of bulkhead Sta. 485.		RELIABILITY: OVERHAUL LIFE 1500 HRS.; WASTAGE; Q.T.R.	
FUNCTION: Is controlled by operation of the MASTER ELECTRICS switch with A-C ground power supply attached to aircraft, in this condition this relay cuts off d-c to AC line relays.			

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hour	Function Check (See Maintenance Instructions Report 71/ Maint 11/10)	1 x 2	
	ACCESSIBILITY: On E-28 Panel.		

ISSUE	1				
DATE	Oct. 28/57				
COMPILED	K.P. Lowe				
CHECKED	WO2 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
Nil	Maintenance Stand.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

Disconnect 7 electrical connections

Remove 2 relay securing screws

- Remove and replace — 1 x 10

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E28/34		
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton.	A/C TYPE – Arrow 1. EFF. A/C – 25201	COMPONENT: Relay- Transfer Control	
MANUFACTURER'S PART NO.		AVRO PART NO.: CS-R-122	
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.		
ENVELOPE SIZE 2.60" X 2.50" X 2.125"	WEIGHT 0.44. LB.	REF. DWGS.: 7-1100-3 Sht.2	
LOCATION: On E28 Main Power Panel Duct Bay aft. of Bulkhead STA 485			
FUNCTION: Controls the operation of the R & L transfer relays upon fault or failure occuring in the R.H. Alt.System.		REF. M.D.R.: 11-E28	
		RELIABILITY	
		OVERHAUL LIFE 1500 HRS.	
		WASTAGE	
		Q.T.R.	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hr.	Function Check (See Maintenance Instructions Report 71/Maint 11/10.	1 x 3	
	ACCESSIBILITY: On E28 Panel.		

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe				
CHECKED	WO2.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
Nil	Maintenance Stand.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 8 electrical connections.		
		Remove 2 relay securing screws.		
		Remove and replace	1 x 10	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO. 11-E28/40-41		
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton.	A/C TYPE – Arrow 1 EFF. A/C – 25201	COMPONENT Relay- Transfer L & R .	
MANUFACTURER'S PART NO.		AVRO PART NO. M524144-1	
MANUFACTURER'S NAME			
AVROCAN SPEC.	E.O. NO.		
ENVELOPE SIZE 3.735" X 4.03" X 3.69"	WEIGHT 2.30 LB.	REF. DWGS. 7-1100-3 Sht 2.	
LOCATION On E28 Main Power Panel Duct Bay aft. of Bulkhead STA 485.		REF. M.D.R. 11-E28	
FUNCTION Re-distribute the A-C load in the event of a R H alternator failure.		RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hr.	Function Check (See Maintenance Instructions Report 71/Maint 11/10).	1 x 3	

ACCESSIBILITY

On E28 panel.

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe.				
CHECKED	WO2.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
Nil	Maintenance Stand.

INTERCHANGEABLE	X
REPLACEABLE	

REMOVAL INSTRUCTIONS

	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Disconnect 8 electrical connections.		
Remove 4 Relay securing screws.		
Remove and Replace	1 x 12	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM	REF. NO.
ELECTRICS	11-E28/65

DISTRIBUTION: STANDARD +
S.Brown.
K.Knowlton.

A/C TYPE – Arrow 1

EFF. A/C – 25201

COMPONENT
Relay-
D-C Shedding Cut-Out.

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

AVROCAN SPEC. **E.O. NO.**

AVRO PART NO.
CS-R-122

ENVELOPE SIZE 2.60" X 2.50" X 2.125" **WEIGHT** 0 . 44 **LB.**

REF. DWGS.
7-1100-3 Sht 2.

LOCATION On E28 Main power panel duct bay aft of blkhd STA 485.

FUNCTION Its coil is energised by a supply from the L.H T.R.U. and its contacts complete a circuit from the R.H., T.R.U. to the D-C bus.shedding control relay. A failure of either T.R.U. will effect a shedding of the D.C. Shedd bus.

REF. M.D.R.
11-E28

RELIABILITY

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

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hr.	Function Check (See Maintenance Instructions Report 71/Maint 11/10/	1 X 2	

ACCESSIBILITY

On E 6 Panel.

ISSUE	1				
DATE	October 28/57				
COMPILED	K.P.Lowe				
CHECKED	WO2.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
Nil	Maintenance Stand.

INTERCHANGEABLE	X
REPLACEABLE	

REMOVAL INSTRUCTIONS

	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Disconnect 4 electrical connections Remove 2 relay securing screws.		
Remove and replace	1 X 8	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS

REF. NO.: 11-E28/66

DISTRIBUTION: STANDARD +

S. Brown
K. Knowlton

A/C TYPE – ARROW 1

EFF. A/C – 25201

COMPONENT: Relay – D-C Bus Shedding Control

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

AVRO PART NO.: MS24141-1

AVROCAN SPEC. E.C. NO.

ENVELOPE SIZE 3.25" x 3.64" x 2.925" WEIGHT 1.35 LB.

REF. DWGS.: 7-1100-3 Sht. 2

LOCATION: On E28 Main power panel. Duct bay aft of bulkhead Sta. 485.

FUNCTION: Is directly controlled by a supply from the D.C. Shedd. cut out relay. In the event of a failure of either L.H. or R.H. T.R.U. it will open and shed the D.C. Shedd. bus.

REF. M.D.R.: 11-E28

RELIABILITY

OVERHAUL LIFE 1500 HRS.

WASTAGE

Q.T.R.

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hour	Function Check (See Maintenance Instructions Report 71/Maint 11/10)	1 x 2	

ACCESSIBILITY

On E-28 panel.

ISSUE	1				
DATE	Oct. 28/57				
COMPILED	K.P. Lowe				
CHECKED	WO2 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
Nil	Maintenance Standard.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 4 electrical connections. Remove 2 relay securing screws.		
		- Remove and replace:	1 x 8	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E28/83-84		
DISTRIBUTION: STANDARD + S.Brown, K.Knowlton	A/C TYPE – Arrow 1	EFF. A/C – 25201	COMPONENT: Main Failure Detector
MANUFACTURER'S PART NO.			AVRO PART NO.: 7-1156-11
MANUFACTURER'S NAME: Canadian Diaphlex			
AVROCAN SPEC.: E-296	E.O. NO.		
ENVELOPE SIZE: 5.125" x 2.35" x 2.35"	WEIGHT: 1.25 LB.		REF. DWGS.: 7-1156-36, 7-1156-37, 7-1156-38, 7-1100-3 SHT 2
LOCATION: Trays No. 1 & 2 on main power panel E-28			
FUNCTION: To indicate A.C.Power failure or phase reversal by operation of a warning light in pilot's cockpit.			REF. M.D.R.: 11-E28/1, 11-E28/2, 11-E28/3
			RELIABILITY
			OVERHAUL LIFE: 1500 HRS.
			WASTAGE
			Q.T.R.: Pending

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hrs.	Check detectors for security and damage. Function check the detectors. (See maintenance instructions report 71/MAINT.11/10.)	2 x 10	
	ACCESSIBILITY Remove right hand electrical equipment access panel (44 camlocs).		
	Remove and replace	1 x 4½	

ISSUE	1	2	3	4	
DATE	March 18/55	April 11/56	January 3/57	October 25/57	
COMPILED	C.Wright	D.Collingwood	D.Collingwood	K.P.Lowe	
CHECKED	G.Emmerson	G.Emmerson	WO2 Wentworth	WO2 Wentworth	
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
A - C Ground Power Unit	Maintenance Stand.

INTERCHANGEABLE	X
REPLACEABLE	

REMOVAL INSTRUCTIONS

MEN × MINUTES	
EST.	ACTUAL

1. Remove trays 1 & 2 from E28 panel.
2. Disconnect 1 electrical connector from detector.
3. Remove 4 - 8/32 mounting screws.

Remove and replace	1 x 10

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM	REF. NO.
ELECTRICS	11-E47

DISTRIBUTION: STANDARD +

S.Brown
K.Knowlton.

A/C TYPE – Arrow I

EFF. A/C – 25201

COMPONENT
Panel-Emergency
Alternator Limiter.

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME

AVROCAN SPEC. **E.O. NO.**

AVRO PART NO.
7-1156-485

ENVELOPE SIZE **WEIGHT** **LB.**

REF. DWGS. 7-1156-485-Sht.2
7-4619-1
7-1100-3 Sht 2.

LOCATION In Duct Bay L.H.Side
Between STA's 494 and 499

FUNCTION Houses 3 Limiters For The 'A' -'B' and 'C' Phase Circuits of the Emergency Alternators.

REF. M.D.R.
11-E253

RELIABILITY

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

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hrs.	Check Limiters For Continuity and Security	1 x 5	
	ACCESSIBILITY Through Electrical Equipment Access Panel - 74 Camlocs.		
	Remove and Replace	1 x 7½	

ISSUE					
DATE	October 28/57				
COMPILED	K.P.Lowe				
CHECKED	WO2.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
Nil	Maintenance Stand.

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 6 electrical connections Remove 4 panel securing screws.		
		Remove and replace	1 x 12	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM	REF. NO.
ELECTRICS	11-E139/1-2

DISTRIBUTION: STANDARD +
S.Brown
K.Knowlton

A/C TYPE – Arrow I

EFF. A/C – 25201

COMPONENT
Control Unit - Transformer Rectifier

MANUFACTURER'S PART NO. 60900

MANUFACTURER'S NAME Lucas Rotax

AVROCAN SPEC. E-202 E.O. NO.

ENVELOPE SIZE 27.0" X 13. 0" X 9.5" WEIGHT 78.0 LB.

LOCATION Forward of Stn. 538.4 inside duct bay.

FUNCTION Regulates A.C. voltage from the alternator. Transform and rectify 115/200 V.A.C. 3 Ø supply to 28.5 - .5 V.D.C. supply

AVRO PART NO.
7-1156-17

REF. DWGS. 7-1100-2 Sht 26
7-1156-12
7-1156-15
7-1100-3 Sht 2

REF. M.D.R.

RELIABILITY

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

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary	Inspect external connections for security. Inspect air-conditioning connection. Check unit for security of attchment.	1 X 5	
25 hrs	Remove unit from housing and check equipment and wiring for security and damage. Replace unit and carry out a function check.(See maintenance instructions report. 71/MAINT 11/10	1 X 30	

ACCESSIBILITY

Inspection - Remove R.H. Electrical equipment access panel-44 camlocs

Remove and replace 1 X 4½

Removal of Unit - Remove L & R Electrical equipment access panels - 74 camlocs.

Remove and Replace 1 X 7½

ISSUE	1	2	3	4
DATE	April 5/55	April 11/56	January 10/57	October 25/57
COMPILED	C.Wright	D.Collingwood	WO2 Wentworth	J.Ferguson
CHECKED	G.Emmerson	G.Emmerson	D.Collingwood	WO2.Wentworth
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**
A-C Ground Power Unit Electrical Power System Test Unit	Cockpit Access Stand Maintenance Stand

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

1. Remove terminal strip covers.
2. Disconnect external wiring from unit.
3. Remove 6 screws and withdraw unit from case

Remove and Replace	1 X 20	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E164		
DISTRIBUTION: STANDARD + S. Brown, K. Knowlton	A/C TYPE – Arrow 1	EFF. A/C – 25201	COMPONENT: Relay - Ground Fault R.H.
MANUFACTURER'S PART NO. GS-13010-1			AVRO PART NO. CS-R-123
MANUFACTURER'S NAME Lucas Rotax			
AVROCAN SPEC. E360 E.O. NO.			
ENVELOPE SIZE 8.0" x 7.25" x 3.5" WEIGHT 4.0 LB.			REF. DWGS. 7-1156-225, 7-1100-2 sht 26, 7-1100-3 sht 2
LOCATION Duct Bay at stn. 532 - R/H			REF. M.D.R. 11-E163
FUNCTION Transmits a signal to the right T.R.U. in the event of a ground fault occuring and causes a shut down of the right alternator.			RELIABILITY: OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R. Pending

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary	Check relay for security and damage. Check electrical connector for security.	1 x 3	
	ACCESSIBILITY Remove right hand electrical equipment access panel (44 camlocs). Remove and Replace	1 x $4\frac{1}{2}$	

ISSUE	1	2	3		
DATE	Apr. 11/56	Jan. 3/57	26 Sept 57		
COMPILED	D. Collingwood	D.Collingwood	K.P. Lowe		
CHECKED	G. Emmerson	WO2 Wentworth	WO2 Wentworth		
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
A-C Ground Power Unit	Maintenance Stand

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

1. Disconnect 1 electrical connector.
2. Disconnect 3 ground wires from grounding point
3. Disconnect 3 power wires from R/H T.R.U.
4. Withdraw wires from relay.
5. Remove 4 mounting bolts.

Remove and Replace — 1 x 40

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E-191		
DISTRIBUTION: STANDARD + S.Brown, K.Knowlton	A/C TYPE: Arrow 1	EFF. A/C: 25201	COMPONENT: Alternator L & R.
MANUFACTURER'S PART NO.: 60601			AVRO PART NO.: 7-1125-11
MANUFACTURER'S NAME: Lucas Rotax			
AVROCAN SPEC.: E-202	E.O. NO.		REF. DWGS.: 7-1100-2 Sht.27, 7-1100-3 Sht 2
ENVELOPE SIZE: 11.25" X 12.3" Dia.	WEIGHT: 52.38 LB.		REF. M.D.R.: 11-E-139
LOCATION: Engine Nose Bullet			RELIABILITY
FUNCTION: To supply alternating current at 120 volts- phase to ground and 200 volts - phase to phase, to the aircraft power system. Controlled by the A.C. control unit.			OVERHAUL LIFE: Pending HRS. WASTAGE Q.T.R.: Pending

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 hrs. Aero Engine	Check alternator for security and damage	1 X 5	
25 hrs. Electrics	Remove slip-ring end covers, check brushes for wear, slip - ring for both eccentricity and scoring. Check wiring to alternator for security and damage. Check output during engine run. (See maintenance Instructions Report 71/MAINT 11/10).	1 X 20	
	ACCESSIBILITY With engine removed from Aircraft.		

ISSUE	1	2	3	4	
DATE	March 18/56	April 11/56	January 3/57	October 25/57	
COMPILED	C.Wright	D.Collingwood	D.Collingwood	K.P.Lowe	
CHECKED	G.Emmerson	G.Emmerson	WO2 Wentworth	WO2 Wentworth	
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
Engine starting equipment Electrical Power System Test Unit	Engine removal equipment Maintenance Stand

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		1. Remove fairing by releasing 6 clips. 2. Disconnect cables from alternator. 3. Remove nuts from constant speed drive attachment studs. 4. Draw alternator forward from constant speed unit. Remove and replace.	1 x 30	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: HYDRAULICS UTILITY	REF. NO.: 19-61 11E-253		
DISTRIBUTION: STANDARD + D. Royston, S. Brown, K. Knowlton	A/C TYPE - Arrow 1	EFF. A/C - 25201	COMPONENT: Electric Power Unit - Hydraulically Driven
MANUFACTURER'S PART NO.: EA 50209			AVRO PART NO.: 7-1956-567
MANUFACTURER'S NAME: Vickers Inc.			
AVROCAN SPEC.: E-506	E.O. NO.		REF. DWGS.: 7-4619-1 (instn) 7-1100-3 Sht. 2
ENVELOPE SIZE: 10" x 6" x 7"	WEIGHT: 12 LB.		REF. M.D.R.
LOCATION: Duct Bay Sta. 500 approx. L.H. Side			RELIABILITY: OVERHAUL LIFE 100 (running) HRS. WASTAGE Q.T.R. Pending
FUNCTION: To provide limited AC current in case of double engine "flame-out" or failure of normal electrical systems.			

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary:-		1 x 1	
Airframe Electrics	Visual Check wiring for security	1 x 1	
25 hours Airframe Electrics	Check for leaks, damage cracks and security. Carry out functional check as per maintenance report 71/maint 19/2. With pack running check output voltage. (See maintenance Instructions Report 71/Maint 11/10)	1 x 5	
	ACCESSIBILITY Through Electrical Equipment Access Panel 74 camlocs. - Remove and replace	1 x 7½	

ISSUE	1	2			
DATE	May 23/57	Oct. 23/57			
COMPILED	C. Beanland	K.P. Lowe			
CHECKED	Sgt. Foster	C. Beanland			
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
Hydraulic Test Machine Trailer A-C Ground Power Unit.	Nil

INTERCHANGEABLE	x	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

To Remove:

Airframe

1. Relieve pressure from utility system.
2. Disconnect 3 hydraulic lines.
3. Remove 4 mounting bolts.

Remove and Replace — 1 x20

Electrics

Disconnect 1 electrical connector

remove and replace — 1 x 2

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: HYDRAULICS UTILITY

REF. NO.: 19-57 11-E-259

DISTRIBUTION: STANDARD + S. Brown, D. Royston

A/C TYPE – Arrow 1

EFF. A/C – 25201

COMPONENT: Valve; Hydraulic Shut-Off Solenoid Operated

MANUFACTURER'S PART NO. 309642

MANUFACTURER'S NAME Marotta Valve Corp.

AVROCAN SPEC. E-510 E.O. NO.

ENVELOPE SIZE $4\frac{1}{2}$" x 4" x $2\frac{1}{2}$" WEIGHT 1.0 lb. LB.

LOCATION In fuselage sta. 500 approx., left hand side.

FUNCTION To regulate supply of hydraulic fluid to an emergency hydraulic motor.

AVRO PART NO. 7-1956-569

REF. DWGS. 7-4619-1(Instn) 7-1100-3 Sht.2

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE 1500 HRS.

WASTAGE

Q.T.R. Pending

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary - Airframe 25 hours	Visual	1 X $1\frac{1}{2}$	
Airframe	Check for security, leaks, cracks and damage.	1 X 1	
25 hours Electrics	Check electrical connector for security and damage. Function Check. (See Maintenance Instructions Report 71/Maint 11/10)		
	ACCESSIBILITY		
	Through electric equipment panel - 74 camlocs.	1 X $7\frac{1}{2}$	

ISSUE	1	2			
DATE	January 2/57	Oct. 23/57			
COMPILED	C. Beanland	K.P. Lowe			
CHECKED	WO1 Rossell	C. Beanland			
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
Hydraulic Test Machine Trailer A-C Ground Power Unit	NIL

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

The pack on which the valve is mounted must first be removed from the aircraft.

To remove valve:

Airframe - 1. Disconnect 2 hydraulic lines.
2. Remove 2 bolts.

Remove and replace (valve only) 1 X 10

Electrics - Disconnect 1 electrical connector

Remove and replace 1 X 2

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS	REF. NO.: 11-E260		
DISTRIBUTION: STANDARD + S. Brown, K. Knowlton	A/C TYPE – Arrow 1; EFF. A/C – 25201	COMPONENT: Battery (SAFT Voltabloc)	
MANUFACTURER'S PART NO. 20-Vo 15		AVRO PART NO. 7-1152-11	
MANUFACTURER'S NAME Saft Battery Co. (c/o D.M. Fraser & Co.)			
AVROCAN SPEC. E-209 E.O. NO.		REF. DWGS. 7-1100-2 Sht. 12; 7-1100-3 Sht. 2	
ENVELOPE SIZE 8" x 8" x 12" WEIGHT 47 (est) LB.			
LOCATION L.H. side nose-wheel well STA 150		REF. M.D.R.	
FUNCTION To supply current at 24 V.D.C. for certain services.		RELIABILITY: OVERHAUL LIFE 1500 HRS.; WASTAGE; Q.T.R. Pending	

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary	Check security of mounting, air connection for tightness. Ensure exit perforations clear. Check terminals and connections for security and cleanliness. Check terminal voltage.	1 x 5	
	ACCESSIBILITY: Unobstructed		

ISSUE	1	2	3	4	
DATE	Mar. 18/55	April 27/56	May 17/57	Oct. 23/57	
COMPILED	C. Wright	D. Collingwood	WO2 Wentworth	K.P. Lowe	
CHECKED	G. Emmerson	G. Emmerson	D. Collingwood	WO2 Wentworth	
APPROVED			R.F. Reid	R.F. Reid	

LUBRICATION N/A				
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
Sensitive volt meter	Maintenance Platform 4G1596

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

Disconnect battery leads.
Disconnect air connections.
Remove two bolts from angle plate at top of battery.
Remove nut from stud in bottom of rear face of battery.
Remove bolt from angle bracket at bottom fwd. face of battery.
Slide battery forward until stud is clear of structure, then lift clear.
Reverse procedure to install replacement battery.

- Remove and replace — 1 x 20

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS | REF. NO.: 11-E163

DISTRIBUTION: STANDARD +
S. Brown
K. Knowlton

A/C TYPE – Arrow 1

EFF. A/C – 25201

COMPONENT: Relay - Ground Fault L.H.

MANUFACTURER'S PART NO. GS-13010-1

MANUFACTURER'S NAME Lucas-Rotax

AVROCAN SPEC. E360 E.O. NO.

AVRO PART NO. CS-R-123

ENVELOPE SIZE 8.0" x 7.25" x 3.5" WEIGHT 4.0 LB.

LOCATION Duct Bay at Sta: 532 - L.H.

FUNCTION Transmits a signal to the left T.R.U. in the event of a ground fault occuring, and causes a shut down of the L.H. alternator.

REF. DWGS.
7-1100-3 sht 2
7-1156-225
7-1100-2 sht 26

REF. M.D.R. 11-E164

RELIABILITY

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

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary	Check relay for security and damage Check connector for security	1 x 3	
	ACCESSIBILITY With left hand electrical equipment access panel removed (44 camlocs)		
	Remove and Replace	1 x $4\frac{1}{2}$	

ISSUE	1				
DATE	26 Sept 57				
COMPILED	K.P. Lowe				
CHECKED	WO2 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
A-C Ground Power Unit	Maintenance Stand.

INTERCHANGEABLE	XX	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		Disconnect 1 electrical connector Disconnect 3 ground wires from grounding point Disconnect 3 power wires from R.H.T.R.U. Withdraw wires from relay Remove 4 mounting bolts		
		Remove and Replace	1 x 40	

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM: ELECTRICS

REF. NO. 25-12 11-E273

DISTRIBUTION: STANDARD +

S. Brown
K. Knowlton

A/C TYPE – Arrow I

EFF. A/C – 25201

COMPONENT: Constant Speed Drive and Constant Speed Switch

MANUFACTURER'S PART NO. 168D526

MANUFACTURER'S NAME General Electric

AVROCAN SPEC. E230 E.O. NO.

ENVELOPE SIZE 11.0" x 11.0" x 11.0" WEIGHT 62 LB.

LOCATION Mounted on front accessory drive adaptor.

FUNCTION To drive the alternator at a constant output speed of 8,000 R.P.M. with input speed range from 2,250 R.P.M. to 7,500 R.P.M. The constant speed drive switch located in the drive, opens or closes the A-C line relay circuit at predetermined speeds.

AVRO PART NO. 7-2995-5

REF. DWGS. 7-1100-3 sht 2

REF. M.D.R.

RELIABILITY

OVERHAUL LIFE Pending HRS.

WASTAGE

Q.T.R.

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
25 Hrs. Engine	Visual check for security, damage, corrosion and signs of oil leakage from constant speed drive and associated piping.	1 x 5	
25 Hrs. Electrics	Function check (See Maintenance Instructions Report 71/MAINT 11/10	1 x 10	
	ACCESSIBILITY		
	With engine removed, remove nose fairing forward section by releasing 4 coupling screws and 2 shear pins.		
	Remove and replace	1 x 10	

ISSUE	1	2			
DATE	18 Sept. 57	18 Sept 57			
COMPILED	Sgt P.S. Bell	K.P. Lowe			
CHECKED	C. Beanland	Sgt P.A. Bell			
APPROVED	G. Emmerson	R.F. Reid			

LUBRICATION NIL				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS

DETAILS:

This unit uses oil from the accessories drive system as a working medium and requires no other lubrication.

GROUND SUPPORT EQUIPMENT	
SPECIAL TOOLS FOR AIRCRAFT USE	SPECIAL TOOLS FOR BENCH USE
GROUND TESTING EQUIPMENT	GROUND HANDLING EQUIPMENT
Electrical Power System Test Panel Engine Starting Equipment	Engine removal equipment

INTERCHANGEABLE	x	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL

With engine removed from airframe.

1. Remove fwd section of nose fairing 4 coupling screws.
2. Disconnect alternator electrical leads and remove alternator 12 nuts.
3. Disconnect oil and air piping and electrical lead at constant speed drive and blank off.
4. Disconnect and remove the R.H. start complete with piping
5. Remove 12 nuts attaching constant speed drive to engine front accessory drive adaptor and withdraw constant speed drive.

Remove and replace — 1 x 180

MAINTENANCE DATA RECORD

AVRO AIRCRAFT LTD. Engineering Div.

SYSTEM	REF. NO.
ELECTRICS	11-E275

DISTRIBUTION: STANDARD +
S. Brown
K. Knowlton

A/C TYPE – Arrow 1
EFF. A/C – 25201

COMPONENT
External Power Receptacle

MANUFACTURER'S PART NO.

MANUFACTURER'S NAME Powerlite Devices Ltd.

AVRO PART NO.
CS-R-127

AVROCAN SPEC. E-345 E.O. NO.

ENVELOPE SIZE 3.5" x 4.5" x 3.0" WEIGHT 1.5 LB.

LOCATION Underside of duct bay - Stn. 495

FUNCTION To facilitate connection of external alternating current power to the aircraft system.

REF. DWGS.
7-0111-88
7-1100-2 Sht. 26
7-1100-3 Sht. 2

REF. M.D.R.

RELIABILITY

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

INSPECTION PERIOD	OPERATION TO BE PERFORMED	MEN × MINUTES EST.	MEN × MINUTES ACTUAL
Primary 50 hrs.	Check receptacle and wiring for security and damage.	1 x 1	
	Check contacts for burning. Check terminal cover for cracks. Check for cleanliness.	1 x 3	
	ACCESSIBILITY Remove right hand electrical equipment access panel (44 camlocs)		
	– Remove and replace	1 x 4½	

ISSUE	1	2	3	4	
DATE	Dec. 15/55	Mar. 19/56	Jan. 2/57	Oct. 23/57	
COMPILED	C. Wright	D. Collingwood	D. Collingwood	K.P. Lowe	
CHECKED	G. Emmerson	G. Emmerson	WO2 Wentworth	WO2 Wentworth	
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 Stand

INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS	MEN × MINUTES	
REPLACEABLE			EST.	ACTUAL
		1. Remove terminal cover (4 nuts).		
		2. Disconnect 6 wires from receptacle.		
		3. Remove 4 mounting bolts.		
		- Remove and replace	1 x 10	