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ELECTRICS - POWER SUPPLIES  
MAINTENANCE INSTRUCTIONS

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ELECTRICS - POWER SUPPLIES

71/MAINT 11/10

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M.D.R.	E28/65	Relay - D-C Shedding Cut-Out
M.D.R.	E28/66	Relay - D-C Bus Shedding Control
M.D.R.	E28/83 & 84	Unit - Power Failure Detector L and R
M.D.R.	E47	Panel - Emergency Alternators Limiter
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M.D.R.	E273	Switch - Constant Speed Drive L and R
M.D.R.	E275	Receptacle - External Power
M.D.R.	E163	Relay - Ground Fault



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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  $400 \pm 4$  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.





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- 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)



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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.





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- 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.



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- 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 contacts. 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.





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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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- (j) Front and rear cockpit emergency light





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- (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



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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-rectifier 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 1 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.





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2.1.2.2 From the power system test unit, select the cable loom and the wires which are identified 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.



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- 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  $28.5 \pm .5$  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





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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 identified EMERG. ALT. 2 from the electrical systems power test unit.

2.2.3 Connect to the emergency alternator the connector from the test unit identified 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.



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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.



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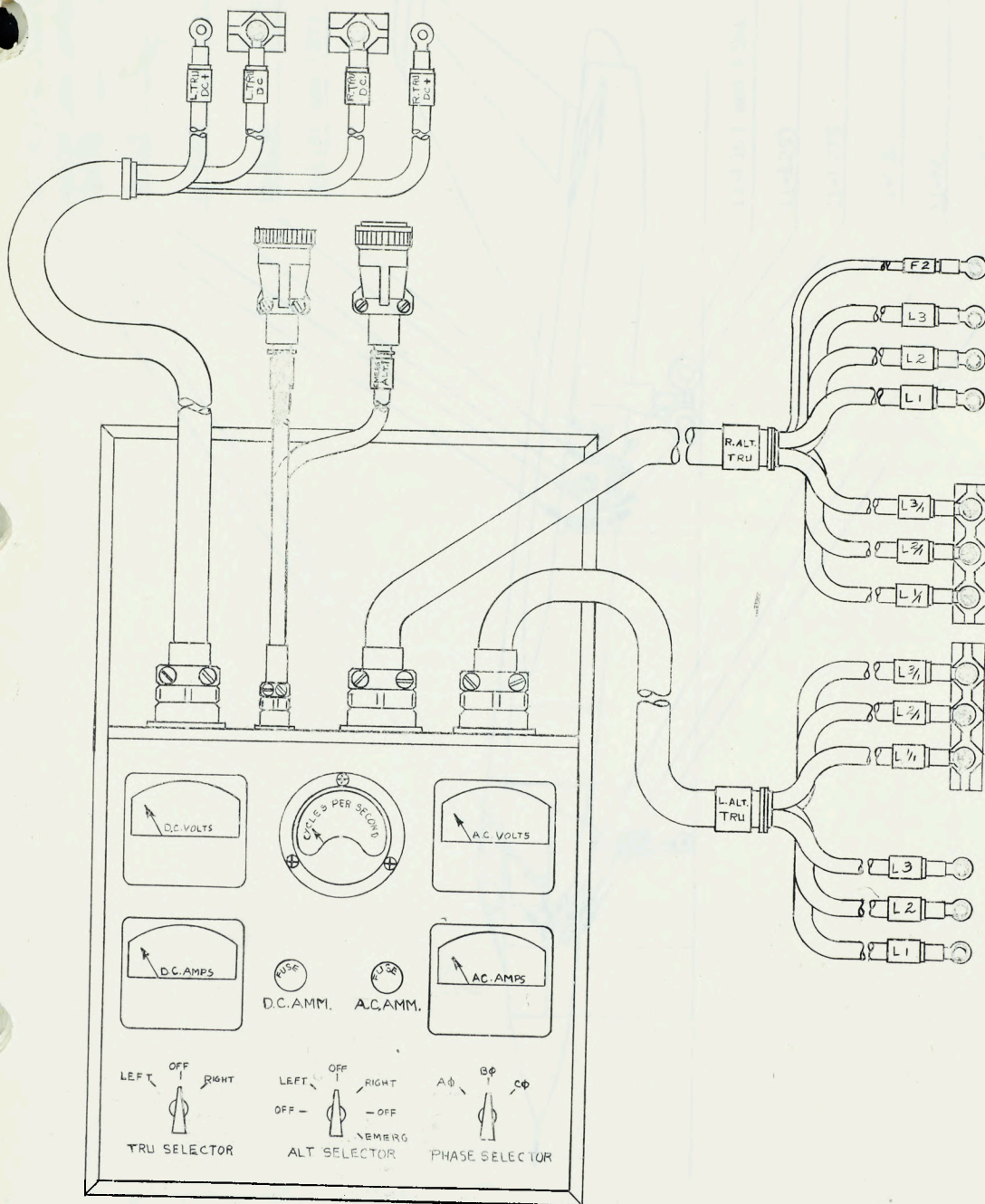


FIGURE 1 : ELECTRICAL SYSTEMS POWER TEST UNIT





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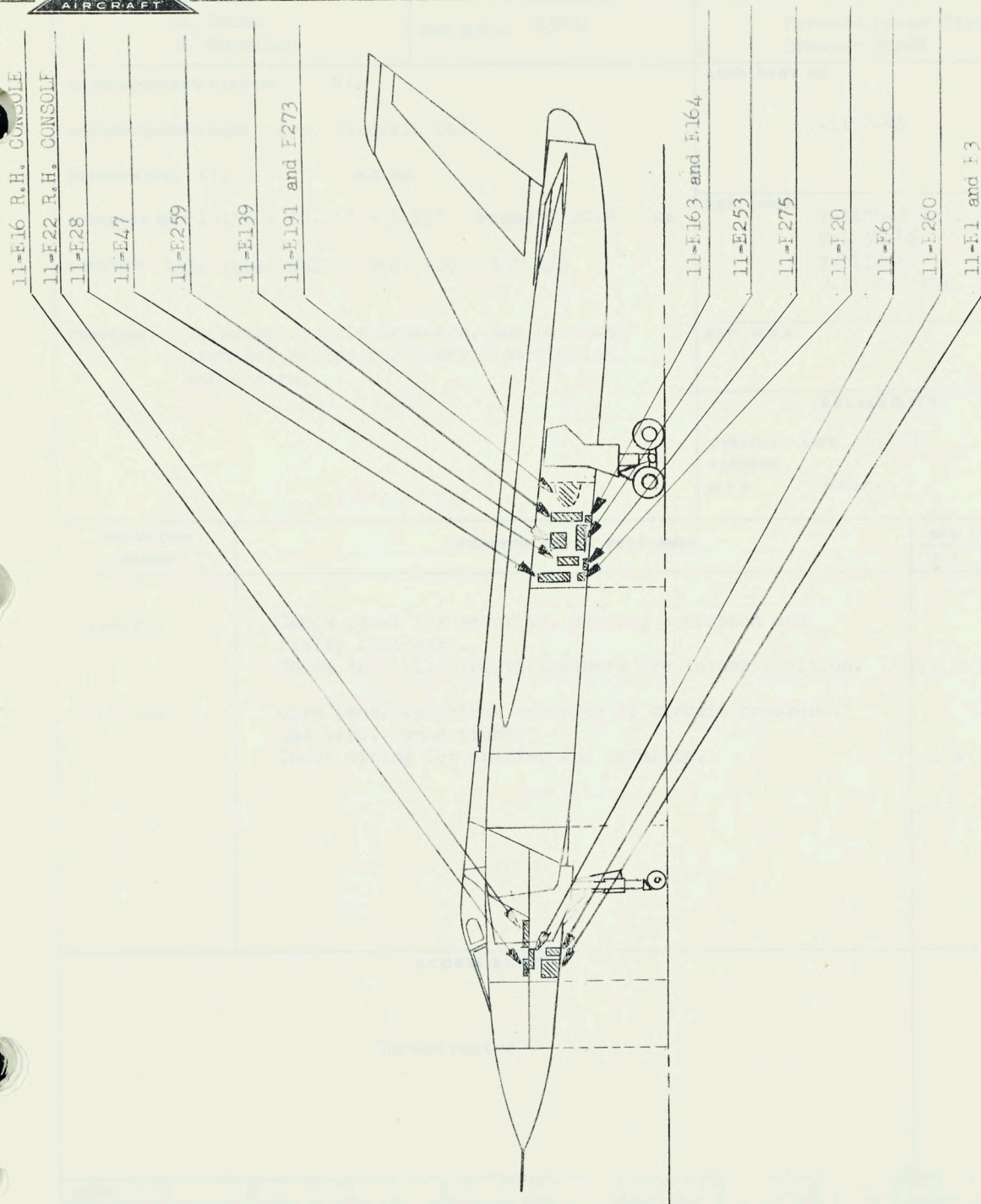


FIGURE 2 COMPONENT LOCATION DIAGRAM

MAINTENANCE DATA RECORD				SYSTEM ELECTRICS	REF. NO. 11-E1
AVRO AIRCRAFT LTD.		Engineering Div.			
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.	
MANUFACTURER'S NAME Avro Aircraft Ltd.				7-1152-45	
AVROCAN SPEC. Nil E.O. NO.					
ENVELOPE SIZE 19.5" x 18.25" x 5.75" WEIGHT 30.0 LB.				REF. DWGS.	
LOCATION Nose wheel well - Sta. 129 - 140 L/H				7-1100-2 Sht. 9 7-1152-46 7-1152-47 7-1100-3 Sht. 2	
FUNCTION To house circuit breakers, bus bars and terminal strips for power distribution and control.				REF. M.D.R.	
				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, 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 X 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	

FILE  
ACTUAL



MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME				MS 25024-1	
AVROCAN SPEC. E.O. NO.					
ENVELOPE SIZE 2.625" X 2.687" X 3.312" 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.	
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.				11-E3	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	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	W.O.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 X MINUTES	
REPLACEABLE				EST.	ACTUAL
		Disconnect eleven electrical connections Remove four relay securing screws.  Remove and Replace		1 X 15	



MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		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				AVRO PART NO. 7-1152-78	
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.				REF. DWGS. 7-1100-2 Sht 10 7-1100-3 Sht 2	
LOCATION Roof of Nose Wheel Well Sta. 129-149					
FUNCTION To house relays.				REF. M.D.R.	
				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	
25 hrs.		Remove panel, check relays and wiring for security and damage.		1 X 25	
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 X 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				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME				CS- R - 122	
AVROCAN SPEC. E.O. NO.				REF. DWGS.	
ENVELOPE SIZE 2.60" X 2.50" x 2.125 WEIGHT 0.44 LB.				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.	
FUNCTION In the open or un-energised position it completes the BATT USE warning light circuit, when energised it breaks this circuit.				11 - E6	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	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	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		
Nil			Maintenance Platform 4G/1596.		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS			MEN X MINUTES
REPLACEABLE					EST.
Disconnect 4 electrical Connections					
Remove 2 relay securing screws.					
Remove and replace			1 x 8		



MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME				MS 25024-1	
AVROCAN SPEC.		E.O. NO.		REF. DWGS.	
ENVELOPE SIZE 2.625" X 2.687" X 3.312"		WEIGHT 0.8 LB.		7-1100-3 Shts. 15-6-10 & 2 7-1100 - 3 sht 5. 7-1152-78	
LOCATION E6 panel Nose Wheel Well STA 129 - 147				REF. M.D.R.	
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				11-E6	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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	W02. Wentworth.				
APPROVED	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		
Nil		Maintenance Platform 4G/1596		
INTERCHANGEABLE	REPLACEABLE	REMOVAL INSTRUCTIONS		MEN X MINUTES
				EST. ACTUAL
		Disconnect 10 electrical connections Remove 2 Relay Securing Screws.		
		Remove & Replace		1 x 10

MAINTENANCE DATA RECORD				SYSTEM ELECTRICS		REF. NO. 11-E6/16 & 17	
AVRO AIRCRAFT LTD. Engineering Div.							
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.				AVRO PART NO.			
MANUFACTURER'S NAME				CS-R-122			
AVROCAN SPEC. E.O. NO.				REF. DWGS.			
ENVELOPE SIZE 2.60" x 2.50" x 2.125 WEIGHT 0.44 LB.				7-1100-3 Sht. 2 7-1152-78			
LOCATION E6 panel nose wheel well Sta. 129-147				REF. M.D.R.			
FUNCTION When energised they complete the circuit for the reverse current relay. De-energised they complete the DC FAIL warning light circuit.				RELIABILITY			
				OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.			
INSPECTION PERIOD		OPERATION TO BE PERFORMED			MEN X MINUTES		
					EST.		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	W02 Wentworth						
APPROVED	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			
NIL		Maintenance platform 4G/1596.			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES	
REPLACEABLE				EST.	ACTUAL
		Disconnect 8 electrical connections Remove 2 relay securing screws  -Remove and replace		1 x 10	

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME				CS-R-135	
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				REF. M.D.R. 11-E6	
FUNCTION In the circuit between Main D-C bus & batt. and batt bus. Opens during a reverse current or D-C fail condition.				RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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	W.O. Wentworth.				
APPROVED	R.F. Reid.				

LUBRICATION					
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS	
Nil					
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.	ACTUAL
		Disconnect 6 electrical connections Remove 4 relay securing screws.  Remove and replace		1 x 12	

TOTAL



MAINTENANCE DATA RECORD				SYSTEM ELECTRICS	REF. NO. 11-E6/19
AVRO AIRCRAFT LTD.		Engineering Div.			
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.			
ENVELOPE SIZE 2.70" x 2.835" x 3.748" 1.0 LB.				REF. DWGS. 7-1100-3 Sht. 2 7-1152-78	
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.				REF. M.D.R. 11-E6	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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	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			
NIL			Maintenance Platform 4G/1596			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS			MEN X MINUTES	
REPLACEABLE					EST.	ACTUAL
Disconnect 6 electrical connections  Remove 2 relay securing screws  - Remove and replace					1 x 10	

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.				ELECTRICS	11-E6/20
Engineering Div.					
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.	
MANUFACTURER'S NAME				CS-R-128	
AVROCAN SPEC. E.O. NO.				REF. DWGS.	
ENVELOPE SIZE 4.12" x 4.12" x 4.0" WEIGHT 1.94 LB.				7-1100-3 Sht. 2 7-1152-78	
LOCATION On E6 panel nose wheel well Sta. 129-147				REF. M.D.R.	
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.				11-E6	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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	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			
NIL			Maintenance Platform 4G/1596			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS			MEN X MINUTES	
REPLACEABLE					EST.	ACTUAL
Disconnect 4 electrical connections Remove 4 relay securing screws  -Remove and replace					1 x 10	

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME				CS-R-122	
AVROCAN SPEC.		E.O. NO.		REF. DWGS.	
ENVELOPE SIZE 2.60" X 2.50" X 2.125"		WEIGHT 0.44 LB.		7-1100-3 sht 2 7-1152-78	
LOCATION E6 panel nose wheel well STA. 129-147				REF. M.D.R. 11-E6	
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.				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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	W02. Wentworth				
APPROVED	R.F. Reid.				

LUBRICATION				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
			Nil	
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	REPLACEABLE	REMOVAL INSTRUCTIONS		MEN X MINUTES
	X			EST. ACTUAL
		Disconnect 4 electrical connections. Remove 2 relay securing screws.  Remove and Replace		1 X 10

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MAINTENANCE DATA RECORD				SYSTEM INSTRUMENTS	REF. NO. 12-29 11-E16
AVRO AIRCRAFT LTD.		Engineering Div.			
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				AVRO PART NO.	
MANUFACTURER'S NAME Avro Aircraft Limited				7-1252-64	
AVROCAN SPEC. Nil E.O. NO.					
ENVELOPE SIZE 5.8" x 2.25" x 3.1" WEIGHT test. 1.92 LB.				REF. DWGS. 7-1100-3 Sht. 2 7-1252-65 7-1252-66 7-1252-67	
LOCATION Pilot's cockpit - R/H console					
FUNCTION Houses - Master electric switch. - Engine start switches.				REF. M.D.R.	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	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	W02 Wentworth	K.P. Lowe		
CHECKED	W02 Wentworth	D. Collingwood	W02 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 X MINUTES	
REPLACEABLE				EST.	ACTUAL
1. Unfasten 4 quick fasteners. 2. Disconnect electrical wiring.  - Remove and replace		1 x 25			

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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 X MINUTES	
				EST.	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	W02.Wentworth	K.P.Lowe			
CHECKED	J.Ferguson.	W02.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 X MINUTES
REPLACEABLE				EST.
Disconnect 8 electrical connections. Remove switch securing nut and locking washers.  Remove and replace		1 X 8		

ACTUAL

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.					
ENVELOPE SIZE 10.0" X 14.5" X 2.5" WEIGHT 7.5 LB.				REF. DWGS. 7-1100-3 Sht 2 7-1100-2 Sht.28	
LOCATION Forward of R/H speed brake STA 485-495					
FUNCTION Houses circuit limiters				REF. M.D.R.	
				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,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 X MINUTES

EST. ACTUAL

1. Disconnect 2 AN connectors.
2. Release 11 camloc fasteners.

Remove and replace

1 X 15



MAINTENANCE DATA RECORD				SYSTEM INSTRUMENTS	REF. NO. 12-33 11E22
AVRO AIRCRAFT LTD.		Engineering Div.			
DISTRIBUTION: STANDARD + S. Brown K. Knowlton		A/C TYPE - ARROW 1 EFF. A/C - 25201		COMPONENT Panel - Oxygen	
MANUFACTURER'S PART NO. N/A				AVRO PART NO. 7-1252-86	
MANUFACTURER'S NAME Avro Aircraft Ltd.					
AVROCAN SPEC. Nil E.O. NO.					
ENVELOPE SIZE 14.0" x 3.5" x 4.5" WEIGHT 2.36 LB.				REF. DWGS. 7-1252-12 7-1252-87 7-1252-92 7-1252-162 7-1100-3 Sht. 2	
LOCATION Pilot's cockpit - R/H console					
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 X MINUTES	
				EST.	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 X MINUTES
REPLACEABLE				EST.
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				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME				CS-S-154	
AVROCAN SPEC.		E.O. NO.		REF. DWGS.	
ENVELOPE SIZE 2.281" X 1.3125" X 0.75" WEIGHT 0.10 LB.				7-1100-3 Sht 2.	
LOCATION On E22 Oxygen panel Pilots cockpit - R.H. Console.				REF. M.D.R.	
FUNCTION Controls the D-C supply between emergency bus and the T.R.U. in the ON-OFF and Reset positions.				11-E22	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	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	W.O2.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 X MINUTES
REPLACEABLE				EST.
Disconnect 4 electrical connections.  Remove switch securing nut and lockwashers.   Remove and replace		1 x 8		

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME				MS25089-4D	
AVROCAN SPEC.		E.O. NO.		REF. DWGS.	
ENVELOPE SIZE .688" X 1.344"		WEIGHT .015 LB.		7-1100-3 Sht 2.	
LOCATION On E22 oxygen panel Pilots cockpit R.H. console.				REF. M.D.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				11-E22	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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	W02. Wentworth				
APPROVED	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		
Nil		Cockpit access stand.		
INTERCHANGEABLE	REPLACEABLE	REMOVAL INSTRUCTIONS		MEN X MINUTES
X				EST. ACTUAL
		Disconnect 3 electrical connectors Remove switch securing nut and Lockwashers.  Remove and replace		1 X 8



MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME Avro Aircraft Ltd.				7-1156-36	
AVROCAN SPEC. Nil E.O. NO.					
ENVELOPE SIZE 22.0" x 16.5" x 9.5" WEIGHT 67.5 LB.				REF. DWGS.	
LOCATION Duct bay - aft. of bulkhead sta. 485				7-1100-2 Sht. 25 7-1100-3 Sht. 2	
FUNCTION Distribution of power from the transformer rectifier - control units.				REF. M.D.R.	
				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 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					
<u>Inspection</u> Remove right hand electrical equipment access panel (44 camlocs)					
- Estimated - Remove and replace				1 x 4½	
<u>Removal of Panel</u> 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 DATA				
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 X 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

ACT

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME				MS24168 - 1	
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 X MINUTES	
				EST.	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				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
			Nil	
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	<input checked="" type="checkbox"/>	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
Disconnect 8 electrical connections				
Remove 4 relay securing screws.				
Remove and replace		1 X 12		

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD. Engineering Div.				ELECTRICS	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.				AVRO PART NO.	
MANUFACTURER'S NAME				MS 24144-1	
AVROCAN SPEC. E.O. NO.					
ENVELOPE SIZE 3.735" x 4.03" x 3.69" WEIGHT 2.30 LB.				REF. DWGS.	
LOCATION On E-28 Main Power Panel duct bay aft of bulkhead Sta. 485.				7-1100-3 Sht. 2	
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 X MINUTES	
				EST.	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	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			
Nil			Maintenance Standard.			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES		
REPLACEABLE				EST.	ACTUAL	
Disconnect 8 electrical connections Remove 4 relay securing screws.  - Remove & replace				1 x 12		

ACTUAL



MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	11-E-28/13 & 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.				AVRO PART NO.	
MANUFACTURER'S NAME				M24168-1	
AVROCAN SPEC.		E.O. NO.		REF. DWGS.	
ENVELOPE SIZE 4.220" x 4.235 x 4.280" WEIGHT 3.28 LB.				7-1100-3 Sht. 2	
LOCATION On E-28 Main Power Panel duct bay aft of bulkhead Sta. 485.				REF. M.D.R.	
FUNCTION Complete the A-C 3 phase supply circuit between the external supply connector and the L. & R. main A-C bus-bars.				11 E-28	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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.P. Lowe				
CHECKED	WO2 Wentworth				
APPROVED	R.F. Reid				

LUBRICATION DATA					
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 X MINUTES	
REPLACEABLE				EST.	ACTUAL
Disconnect 8 electrical connections		-Remove and replace		1 x 12	
Remove 4 relay securing screws					

MAINTENANCE DATA RECORD				SYSTEM		REF. NO.	
AVRO AIRCRAFT LTD.				ELECTRICS		11-E-28/33	
Engineering Div.							
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.			
MANUFACTURER'S NAME				CS-R-122			
AVROCAN SPEC.		E.O. NO.		REF. DWGS.			
ENVELOPE SIZE 2.60" x 2.50" x 2.125		WEIGHT 0.44 LB.		7-1100-3 Sht. 2			
LOCATION On E-28 main power panel duct bay aft of bulkhead Sta. 485.				REF. M.D.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.				RELIABILITY			
				OVERHAUL LIFE 1500 HRS.			
				WASTAGE			
				Q.T.R.			
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES			
				EST.		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	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			
Nil		Maintenance Stand.			
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES	
REPLACEABLE				EST.	ACTUAL
		Disconnect 7 electrical connections Remove 2 relay securing screws  - Remove and replace		1 x 10	

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME				CS-R-122	
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 occurring 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 X MINUTES	
				EST.      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	W. O. 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 X MINUTES
REPLACEABLE				EST.
Disconnect 8 electrical connections. Remove 2 relay securing screws.  Remove and replace		1 x 10		

ACTUAL



MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME				M524144-1	
AVROCAN SPEC. E.O. NO.				REF. DWGS.	
ENVELOPE SIZE 3.735" X 4.03" X 3.69" WEIGHT 2.30 LB.				7-1100-3 Sht 2.	
LOCATION On E28 Main Power Panel Duct Bay aft. of Bulkhead STA 485.				REF. M.D.R.	
FUNCTION Re-distribute the A-C load in the event of a R H alternator failure.				11-E28	
				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	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	W.O. Wentworth.				
APPROVED	R.F. Reid.				

LUBRICATION					ACCESS	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY			
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 X MINUTES	
REPLACEABLE					EST.	ACTUAL
Disconnect 8 electrical connections.  Remove 4 Relay securing screws.          Remove and Replace					1 x 12	

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.				ELECTRICS	11-E28/65
Engineering Div.					
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.				AVRO PART NO.	
MANUFACTURER'S NAME				CS-R-122	
AVROCAN SPEC. E.O. NO.				REF. DWGS.	
ENVELOPE SIZE 2.60" X 2.50" X 2.125" WEIGHT 0.44 LB.				7-1100-3 Sht 2.	
LOCATION On E28 Main power panel duct bay aft of blkhd STA 485.				REF. M.D.R.	
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.				11-E28	
				RELIABILITY	
				OVERHAUL LIFE HRS.	
				WASTAGE	
				Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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 DATA				
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
			Nil	
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	REPLACEABLE	REMOVAL INSTRUCTIONS		MEN X MINUTES
	X			EST. ACTUAL
		Disconnect 4 electrical connections Remove 2 relay securing screws.  Remove and replace		1 X 8

MAINTENANCE DATA RECORD				SYSTEM ELECTRICS	REF. NO. 11-E28/66
AVRO AIRCRAFT LTD.		Engineering Div.			
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.				AVRO PART NO.	
MANUFACTURER'S NAME				MS24141-1	
AVROCAN SPEC.		E.O. 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.				REF. M.D.R. 11-E28	
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.				RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN x MINUTES	
				EST. 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 X MINUTES
REPLACEABLE				EST.
Disconnect 4 electrical connections. Remove 2 relay securing screws.  - Remove and replace:		1 x 8		



MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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.	
MANUFACTURER'S NAME Canadian Diaphlex				7-1156-11	
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 X MINUTES
					EST. 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	W02 Wentworth	W02 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	REPLACEABLE	REMOVAL INSTRUCTIONS		MEN X 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

ACTUAL

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		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.				AVRO PART NO.	
MANUFACTURER'S NAME				7-1156-485	
AVROCAN SPEC.		E.O. NO.			
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				REF. M.D.R. 11-E253	
FUNCTION Houses 3 Limiters For The 'A' - 'B' and 'C' Phase Circuits of the Emergency Alternators.				RELIABILITY OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R.	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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 7 $\frac{1}{2}$	
ISSUE					
DATE	October 28/57				
COMPILED	K.P. Lowe				
CHECKED	W.O. 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 X MINUTES
REPLACEABLE				EST.      ACTUAL
		Disconnect 6 electrical connections  Remove 4 panel securing screws.   Remove and replace		1 x 12

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		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.				AVRO PART NO. 7-1156-17	
ENVELOPE SIZE 27.0" X 13.0" X 9.5" WEIGHT 78.0 LB.				REF. DWGS. 7-1100-2 Sht 26 7-1156-12 7-1156-15 7-1100-3 Sht 2	
LOCATION Forward of Stn. 538.4 inside duct bay.				REF. M.D.R.	
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				RELIABILITY  OVERHAUL LIFE 1500 HRS. WASTAGE Q.T.R. Pending	
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES	
				EST.	ACTUAL
Primary		Inspect external connections for security. Inspect air-conditioning connection. Check unit for security of attachment.		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					
<u>Inspection</u> - Remove R.H. Electrical equipment access panel-44 camlocs  Remove and replace				1 X 4½	
<u>Removal of Unit</u> - 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	W02 Wentworth	J.Ferguson	
CHECKED	G.Emmerson	G.Emmerson	D.Collingwood	W02.Wentworth	
APPROVED			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		
A-C Ground Power Unit Electrical Power System Test Unit		Cockpit Access Stand Maintenance Stand		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
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				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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 occurring 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 X MINUTES	
				EST.	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 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	W02 Wentworth	W02 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 X MINUTES
REPLACEABLE					EST.
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				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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  MANUFACTURER'S NAME Lucas Rotax  AVROCAN SPEC. E-202 E.O. NO.  ENVELOPE SIZE 11.25" X 12.3" Dia. WEIGHT 52.38 LB.  LOCATION Engine Nose Bullet  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.				AVRO PART NO. 7-1125-11	
				REF. DWGS. 7-1100-2 Sht.27 7-1100-3 Sht 2	
				REF. M.D.R. 11-E-139	
				RELIABILITY  OVERHAUL LIFE Pending HRS. WASTAGE Q.T.R. Pending	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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	W02 Wentworth	W02 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 X MINUTES
REPLACEABLE					EST.
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				SYSTEM		REF. NO.	
AVRO AIRCRAFT LTD.				HYDRAULICS		19-61	
Engineering Div.				UTILITY		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.							
ENVELOPE SIZE 10" x 6" x 7"		WEIGHT 12 LB.		REF. DWGS. 7-4619-1 (instn) 7-1100-3 Sht. 2			
LOCATION Duct Bay Sta. 500 approx. L.H. Side							
FUNCTION To provide limited AC current in case of double engine "flame-out" or failure of normal electrical systems.				REF. M.D.R.			
				RELIABILITY OVERHAUL LIFE 100 (running)HRS. WASTAGE Q.T.R. Pending			
INSPECTION PERIOD		OPERATION TO BE PERFORMED			MEN X MINUTES		
					EST.	ACTUAL	
Primary:-					1 x 1		
Airframe		Visual					
Electrics		Check wiring for security			1 x 1		
25 hours		Check for leaks, damage cracks and security.					
Airframe		Carry out functional check as per maintenance report 71/maint 19/2. With pack running check output voltage.			1 x 5		
Electrics		(See maintenance Instructions Report 71/Maint 11/10 )					
ACCESSIBILITY							
Through Electrical Equipment Access Panel 74 camlocs.							
- Remove and replace					1 x 7 $\frac{1}{2}$		
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			Nil		
A-C Ground Power Unit.					
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES	
REPLACEABLE				EST.	ACTUAL
<p>To Remove:</p> <p><u>Airframe</u></p> <ol style="list-style-type: none"> <li>1. Relieve pressure from utility system.</li> <li>2. Disconnect 3 hydraulic lines.</li> <li>3. Remove 4 mounting bolts.</li> </ol> <p style="text-align: center;">Remove and Replace</p> <p><u>Electrics</u></p> <p>Disconnect 1 electrical connector</p> <p style="text-align: center;">remove and replace</p>				1 x 20	
				1 x 2	



MAINTENANCE DATA RECORD				SYSTEM HYDRAULICS UTILITY		REF. NO. 19-57 11-E-259	
AVRO AIRCRAFT LTD.		Engineering Div.					
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				AVRO PART NO. 7-1956-569			
MANUFACTURER'S NAME Marotta Valve Corp.							
AVROCAN SPEC. E-510 E.O. NO.							
ENVELOPE SIZE 4½" x 4" x 2½" WEIGHT 1.0 lb. LB.				REF. DWGS. 7-4619-1(Instn) 7-1100-3 Sht.2			
LOCATION In fuselage sta. 500 approx., left hand side.							
FUNCTION To regulate supply of hydraulic fluid to an emergency hydraulic motor.				REF. M.D.R.			
				RELIABILITY			
				OVERHAUL LIFE 1500 HRS.			
				WASTAGE			
				Q.T.R. Pending			
INSPECTION PERIOD		OPERATION TO BE PERFORMED				MEN X MINUTES	
						EST. ACTUAL	
Primary - Airframe		Visual				1 X 1½	
25 hours 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 7½	
ISSUE	1	2					
DATE	January 2/57	Oct. 23/57					
COMPILED	C. Beanland	K.P. Lowe					
CHECKED	Wol Rossell	C. Beanland					
APPROVED	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		
Hydraulic Test Machine Trailer A-C Ground Power Unit		NIL		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
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				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		ELECTRICS	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 MANUFACTURER'S NAME Saft Battery Co. (c/o D.M. Fraser & Co.) AVROCAN SPEC. E-209 E.O. NO. ENVELOPE SIZE 8" x 8" x 12" WEIGHT 47 (est) LB. LOCATION L.H. side nose-wheel well STA 150 FUNCTION To supply current at 24 V.D.C. for certain services.				AVRO PART NO. 7-1152-11	
				REF. DWGS. 7-1100-2 Sht. 12 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 X MINUTES	
				EST.	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	W02 Wentworth	K.P. Lowe	
CHECKED	G. Emmerson	G. Emmerson	D. Collingwood	W02 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 X MINUTES
REPLACEABLE				EST.
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.		1 x 20		
- Remove and replace				

MAINTENANCE DATA RECORD				SYSTEM ELECTRICS		REF. NO. 11-E163	
AVRO AIRCRAFT LTD. Engineering Div.							
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.				REF. DWGS. 7-1100-3 sht 2 7-1156-225 7-1100-2 sht 26			
FUNCTION Transmits a signal to the left T.R.U. in the event of a ground fault occurring, and causes a shut down of the L.H. alternator.				REF. M.D.R. 11-E164			
				RELIABILITY  OVERHAUL LIFE 1500      HRS. WASTAGE Q.T.R.			
INSPECTION PERIOD		OPERATION TO BE PERFORMED		MEN X MINUTES			
				EST.		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 4½			
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 X 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				SYSTEM ELECTRICS		REF. NO. 25-12 11-E273	
AVRO AIRCRAFT LTD. Engineering Div.							
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 X MINUTES EST. 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
<b>DETAILS:</b>  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	<input checked="" type="checkbox"/>	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
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.  <div style="text-align: right;">Remove and replace</div>		1 x 180		

MAINTENANCE DATA RECORD				SYSTEM	REF. NO.
AVRO AIRCRAFT LTD.		Engineering Div.		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.				AVRO PART NO.	
MANUFACTURER'S NAME Powerlite Devices Ltd.				CS-R-127	
AVROCAN SPEC. E-345 E.O. NO.				REF. DWGS.	
ENVELOPE SIZE 3.5" x 4.5" x 3.0" WEIGHT 1.5 LB.				7-0111-88 7-1100-2 Sht. 26 7-1100-3 Sht. 2	
LOCATION Underside of duct bay - Stn. 495				REF. M.D.R.	
FUNCTION To facilitate connection of external alternating current power to the aircraft system.				RELIABILITY	
				OVERHAUL LIFE 1500 HRS.	
				WASTAGE	
				Q.T.R. Pending	
INSPECTION PERIOD	OPERATION TO BE PERFORMED			MEN X MINUTES	
				EST.	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	W02 Wentworth	W02 Wentworth	
APPROVED			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		
Nil		Maintenance Stand		
INTERCHANGEABLE	X	REMOVAL INSTRUCTIONS		MEN X MINUTES
REPLACEABLE				EST.
1. Remove terminal cover (4 nuts). 2. Disconnect 6 wires from receptacle. 3. Remove 4 mounting bolts.  - Remove and replace		1 x 10		

