QCX AUTO CF105 71 Maint 11-9

Classification cancelled Changed to UNCASSIBLE By authority of AVASSIBLE TRANSPORTATIONS

Date MAINTENANCE INSTRUCTIONS
Signature LECTRICS - ENGINE SERVICE BES

Unit / Rank / Appointment 91/MAI NT 11/9 AVBS



SECURITY CLASSIFICATION - CONFIDENTIAL

ARROW 1

Classification cancelled / Changed to UNCLASS

By authority of AVRS

MAINTENANCE INSTRUCTIONS Date

305 pt 56

Signatu

Unit / Rank / Appointment AVESS

ELECTRICS - ENGINE SERVICES

71/MAINT 11/9

12 Nov. 57

(This instruction supercedes Maint 105-25-2)

Prepared:

For Maintenance and Reliability

Section

Approved:

For Technical Design Department

Approved:

r Equipment Design Department

Authorized:

Project Dosimor

ENGINEERING DIVISION, AVRO AIRCRAFT LIMITED, MALTON, ONTARIO



TABLE OF CONTENTS

Chapter	Para.	<u>Subject</u>	Page
1		DESCRIPTION	1
	1.1 1.2 1.3 1.4	General Engine Starting and Ignition Engine Re-Lighting Low Pressure Compressor Over-Speed	1 1 2
₹.	1.5 1.6	Indicator Zone 1 Ejector Control Afterburner and Heat Exchanger	2
	1.7 1.8 1.9 1.10	Operation Engine Inlet Fuel Pressure Warning Engine Oil Pressure Warning Engine Emergency Fuel Control Engine Anti-Icing	3 3 4 4
2		GROUND HANDLING EQUIPMENT	4
	2.1 2.2	A-C Ground Power Unit Truck-Engine Starter	4
3		PREPARATION FOR TESTING	5
4		ENGINE SERVICES - ACTUATION AND INDICATION FUNCTION TESTS	5
	4.1 4.2 4.3	Ignition Test Starting System Test Low Pressure Compressor Over-Speed	5
	4.4 4.5 4.6	Indicator Zone 1 Ejector Control Afterburner and Heat Exchanger Valve Engine Inlet Fuel Pressure Warning	6 7 7 8
•	4.7 4.8 4.9	Engine Oil Pressure Warning Engine Emergency Fuel Control Engine Anti-Icing	8 9 9
		ILLUSTRATIONS	
	FIGURE 1	Component Location	10
		COMPONENT DATA	
	M.D.R. 11-E5/11 M.D.R. 11-E5/18 M.D.R. 11-E5/20 M.D.R. 11-E5/23	Relay - Zone l Ejector Relay - Ignition Relay - Engine Starting Relay - Engine Reset	



Table of Contents (continued)

M.D.R.	11-E5/50	Relay - Afterburner
		The state of the s
M.D.R.	11-E14/8	Switch - Fuel Control
M.D.R.	11-E16/3	Switch - Engine Starting
M.D.R.	11-E173	Valve - Engine Heat Exchanger
M.D.R.	11-E193	Switch - Engine Oil Pressure
M.D.R.	11-E195	Switch - Engine Fuel Pressure Warning
M.D.R.	11-E197	Switch - Engine Start
M.D.R.	11-E199	Engine Junction Box
M.D.R.	11-E203	Switch - Zone 1 Ejector Pressure
M.D.R.	11-E205	Valve - Zone 1 Ejector
M.D.R.	11-E1500/4	Switch - Afterburner



1. DESCRIPTION

1.1 General

The electrical circuits of the engine services include instrument circuits, warning circuits, engine starting control, ignition and re-light circuits. Electrically identical circuits are provided for each engine. Refer to Avro wiring diagrams 7-1100-3 sht 3, Starting and Ignition and 7-1100-3 sht 4 Engine Control and Warning.

1.2 Engine Starting and Ignition

- 1.2.1 The engines are started by compressed air supplied from an engine starting truck.
- 1.2.2 The starting cycle is initiated and controlled by electrical circuits which are actuated by switches located in the front cockpit.
- 1.2.3 Inter-connection between the engine starting truck and the aircraft is by a cable which plugs into a starting receptacle located on the nose landing gear. The starter plug incorporates a lanyard type quick-release to prevent unnecessary delay in take-off after the engines have been started.
- The starter cable consists of the starting control circuit 1.2.4 wiring for two compressed air control valves, an interphone line and two D-C supply circuits. The interphone line permits inter-communication between the aircrew and the ground crew and the reception of telescramble communications from the operations control centre. The D-C supply circuit is used to supply power to the battery bus in lieu of the aircraft battery. When the starting cable plug is connected to the starting receptacle and D-C power is supplied from the engine starting truck, the aircraft starting power relay is energized. This action isolates the aircraft battery and transfers the battery bus load onto the external D-C supply. The two starting control circuits provide a means of control to actuate the external air control valves.
- 1.2.5 The starting circuits permit the engines to be started singly or simultaneously and facilitate a means of interrupting the starting cycle.
- 1.2.6 The starting cycle is initiated by selecting the engine starting switch to the START position. This completes a supply circuit from the emergency D-C bus to the starting relay.

 The ground return for the starting relay is completed through a centrifugal switch (starting cut-off) fitted on the engine starter. The starting relay, when energized, completes the following three circuits:



- 1.2.6.1 A self-holding circuit which is operative until the engines are started or the starting cycle is interrupted.
- 1.2.6.2 A supply circuit which opens the compressed air control valve on the starter cart.
- 1.2.6.3 A supply circuit to a centrifugal switch (ignition control) fitted on the engine starter.
- 1.2.7 When the engine starter switch is released, the supply circuit for the engine starting relay is maintained through the normally closed contacts of a reset relay.
- 1.2.8 The ignition control centrifugal switch closes when the starter attains a speed of 700 rpm. This action completes the supply circuit from the starting relay to an ignition relay which closes, completing circuits to the igniters.
- 1.2.9 The starting cut-off centrifugal switch opens when the starter attains a speed of 3020 rpm. This action renders the starting circuits inoperative by interrupting the self-holding ground return circuit of the starting relay which interrupts the supply to ignition control centrifugal switch and to the compressed air control valve.
- 1.2.10 If the engine fails to start, the starting cycle can be interrupted by selecting the RESET position on the engine starting switch. This selection energizes the reset relay which interrupts the power supply to the starting relay. For ground motoring of the engine, select the starter switch to the RESET position and hold. (maximum 30 seconds)

1.3 Engine Re-Lighting

1.3.1 A push-button re-light switch is fitted on each power lever.
When either switch is pressed, a relay is energized and circuits are completed from the emergency D-C bus to the relevant LH or RH engine spark igniters.

1.4 Low Pressure Compressor Over-Speed Indicator

1.4.1 A low pressure compressor over-speed indicator is mounted on the master warning system indicator panel. The low pressure compressor is governed to 7200 ± 25 rpm.

Illumination of a warning light denotes that the low pressure rotor has attained a speed between 7260 and 7330 rpm. The power supply for the right and left low pressure compressor overspeed indicators is derived from the main D-C bus. Refer to Maintenance Instructions Report 71/MAINT 11/3 - Electrics Master Warning System.



1.5 Zone 1 Ejector Control

- 1.5.1 The zone 1 ejector is fitted to assist in engine cooling and to exhaust combustable vapors from zone 1 to atmosphere at low airspeeds and when ground running.
- 1.5.2 The system eonsists of a differential pressure switch which controls an ejector valve actuator. When the pressure in the duct is less than the ambient pressure, the zone 1 ejector pressure switch closes, completing a supply circuit to the ejector valve relay, which in turn completes a supply circuit to energize the ejector valve to the open position. When the pressure in the duct is equal to or greater than the ambient pressure, the zone 1 ejector pressure switch should not be actuated, a supply circuit through normally closed contacts in the ejector relay should energize the zone 1 ejector valve to the closed position.

1.6 Afterburner and Heat Exchanger Operation

- 1.6.1 With the enginc running, the afterburner is brought into operation by advancing the power lever to the afterburner range and then pressing the lever. This action energizes the afterburner relay which completes circuits to initiate the operation of the afterburner hydro-mechanical unit and open the fuel/oil heat exchanger valve.
- 1.6.2 The hydro-mechanical unit provides fuel to the afterburner igniters and fuel nozzlcs and opens the afterburner discharge nozzle. The fuel/oil heat exchanger valve, when open, permits engine oil to pass through the eore of the heat exchanger. A power supply for both circuits is derived from the main D-C bus.

1.7 Engine Inlet Fuel Pressure Warning

1.7.1 An ENG. FUEL PRESS. warning light for each engine is fitted on the master warning system indicator panel. The lights illuminate if the relevant LH or RH engine inlet fucl pressure drops below 18 psia. Each warning light is controlled by a pressure switch tapped into the corresponding engine fuel inlet line at station 589 of the fuselage, which is downstream from the low pressure coek. Both circuits derive their power supply from the main D-C bus, via the master warning control unit. Refer to Maintenance Instructions Report 71/MAINT 11/3 - Electrics - Master Warning System.

1.8 Engine Oil Pressure Warning

1.8.1 An OIL PRESS. warning light for each engine is fitted on the master warning system indicator panel. The lights illuminate if the relevant LH or RH engine oil pressure drops below 25 psi. Each warning light is controlled by a pressure switch



1.8.1 (continued)

mounted on the LH side of the corresponding engine gear box. Both circuits derive their power supply from the main D-C bus via the master warning control unit. Refer to Maintenance Instructions Report 71/MAINT 11/3 - Electrics - Master Warning System.

1.9 Engine Emergency Fuel Control

- 1.9.1 The emergency fuel control is provided to enable an alternative selection of the fuel control valve to be made.
- 1.9.2 The control solenoids are electrically actuated but, in addition, the selector valve is hydraulically locked in either position as an additional "fail safe" feature.
- 1.9.3 Selecting the fuel control switch to the RESET position energizes the normal operation solehoid valve open, causing fuel pressure to equalize across the fuel selector valve.
- 1.9.4 Selecting the fuel control switch to the EMERG. position opens the emcrgency solenoid valve and bleeds off the fuel behind the selector valve. A pressure difference across the face of the selector valve will overcome the spring force and shuttle the selector valve to the emergency position. At the extreme end of its travel the selector valve completes the emergency indicator light circuit and the ENG. EMERG. FUEL warning light should illuminate.
- 1.9.5 Selecting the fuel control switch to the RESET position energizes the normal solenoid and fuel pressure will again equalize across the face of the selector valve. The spring force will shuttle the valve to the normal position. With the valve in this position, the emergency fuel warning light circuit is open. Refer to Maintenance Instructions Report 71/MAINT 11/3 Electrics Master Warning System.

1.10 Engine Anti-Icing

1.10.1 Refer to Maintenance Instructions Report 71/MAINT 11/8 - Electrics Duct De-Icing.

2. GROUND HANDLING EQUIPMENT

- 2.1 A-C Ground Power Unit
- 2.2 Truck-Engine Starter



3. PREPARATION FOR TESTING

- 3.1 This test is to ensure that the electrical components of the engine services are functioning correctly. (Refer to Avro Drawings 7-1100-3 sht 3 and 4).
- 3.2 For all tests the MASTER ELECTRICS switch should be selected to the ON position.

4. ENGINE SERVICES - ACTUATION AND INDICATION FUNCTION TESTS

WARNING

Ignition voltage is deadly. Do not touch the igniter plugs if the ignition is on. Do not test the ignition system when personnel are in contact with the igniter plugs. Do not test the ignition system near inflammables.

4.1 Ignition Test

- 4.1.1 A satisfactory electrical test of the engine igniters may be accomplished by listening to the audible sparking of the igniters. To ensure that both igniters function, each should be checked separately.
- 4.1.2 Ensure that the circuit breakers IEFT RELIGHT and L. START, located on panel El, are in the closed position and the current limiter IGNITION #2, located on panel E20, is serviceable.
- 4.1.3 Connect the engine starting truck to the aircraft. Ensure that the engine starter is functioning correctly.
- 4.1.4 Remove the current limiter IGNITION #2, located on panel E20.
- 4.1.5 Press the left RELIGHT push switch, located on the left power lever, to the closed position. An audible sparking noise should be heard from No. 1 igniter. Release the left RELIGHT push switch and the audible sparking noise from the No. 1 igniter should stop.
- 4.1.6 Replace the current limiter IGNITION #2 on panel E20.
- 4.1.7 Select the circuit breaker L. START, located on panel El, to the open position.
- 4.1.8 Press the left RELIGHT push switch, located on the left power lever, to the closed position. An audible sparking noise should be heard from No. 2 igniter. Release the left RELIGHT push switch and the audible sparking noise from the No. 2 igniter should stop.



- 4.1.9 Select the circuit breaker L. START, located on panel El, to the closed position.
- 4.1.10 Repeat Paras. 4.1.4 to 4.1.9 for the right engine, substituting the word "right" for "left".

4.2 Starting System Test

- 4.2.1 A satisfactory engine start should constitute an adequate electrical function test of the starting system.
- 4.2.2 Connect the engine starting truck to the aircraft. Ensure that the engine starter is functioning correctly.
- 4.2.3 Ensure that the appropriate circuit breaker START, locatedbh, panel El, is in the closed position.
- 4.2.4 Select the MASTER ELECTRIC. switch to the ON position.
- 4.2.5 Select the L. ENGINE STARTING SW., located on panel E16, to the START position momentarily.
- 4.2.6 The external air control valve, located on the engine starting truck should be energized to the open position.
- 4.2.7 When the engine attains a speed of 700 rpm, a centrifugal switch in the starter assembly should close, energizing the engine ignition. When the engine attains a speed of 3020 rpm, a centrifugal switch in the starter assembly should be actuated to an open selection. The engine starting electrics should be open circuited, the external air control valve should be de-energized to the closed position and the engine ignition should be de-energized.
- 4.2.8 The engine start sequence may be interrupted at any time by selecting the L. ENGINE STARTING SWITCH to the RESET position.
- 4.2.9 To motor the engine without ignition, select and hold the L. ENGINE STARTING SWITCH to the RESET position. The external air control valve should be energized to the open position and the engine should then motor without ignition.
- 4.2.10 Select the MASTER ELECTRIC switch to the OFF position.
- 4.2.11 To function test the right engine electrics of the starting system, proceed as outlined in Paras. 4.2.2 to 4.2.10, substituting the word "right" for "left".

4.3 Low Pressure Compressor Over-Speed (Left and Right)

4.3.1 The rotor over-speed test should be carried out with the engine running. Refer to Maintenance Instructions Report 71/MAINT 25/3 - J.75 Engine Running.



- 4.3.2 Ensure that the current limiter L. ENG. WARN., located on panel E20, is serviceable.
- 4.3.3 Select the MASTER ELECTRIC switch to the ON position.
- 4.3.4 With the left engine running, move the power lever to the afterburner position. The amber MASTER WARNING and the left ROTOR O'SPEED warning lights may be illuminated momentarily, then go out.
- 4.3.5 If the ROTOR O'SPEED warning light does not come on, correct functioning of the system may be assumed, but should the warning light come on and remain on for more than 2 seconds, a malfunction is indicated.
- 4.3.6 For a right rotor-over-speed function check repeat Paras. 4.3.1 to 4.3.5, substituting the "right" for "left".

4.4 Zone 1 Ejector Control (Left and Right)

- 4.4.1 Ensure that the current limiter L. ZONE #1 EJECT., located on panel E20, is serviceable.
- 4.4.2 Without the engine running, the left Zone #1 ejector control system may be actuated by applying a 1 psi air pressure to the atmospheric (skin) opening of the differential pressure switch located at the under side of the intake duct at Sta. 550.
- 4.4.3 The left ejector control valve indicator should move from a normal open indication to a closed indication.
- 4.4.4 Remove the air pressure to the differential pressure switch.
- 4.4.5 The ejector control valve indicator should move from the closed. indication to the open indication.
- 4.4.6 With the engine running, the left Zone #1 ejector control system should be evident with the engine idling. Refer to Maintenance Instructions Report 71/MAINT 25/3 J.75 Engine Running.
- 4.4.7 To function test the right engine Zone #1 ejector control, repeat Paras. 4.4.1 to 4.4.6, substituting the "right" for "left".

4.5 Afterburner and Heat Exchanger Valve (Left and Right)

4.5.1 The afterburner and heat exchanger valves should be actuated simultaneously when the power lever is selected to the after-burner position.



- 4.5.2 Ensure that the circuit breaker L. A/B FUEL CONTROL, located on panel El, is in the closed position.
- 4.5.3 Check that the left heat exchanger valve indicator, located on the base of the fuel/oil heat exchanger, is in the by-pass position.
- 4.5.4 Select the left power lever to the AFTERBURNER position.
- 4.5.5 Ensure that the left heat exchanger valve indicator moves to the core position.
- 4.5.6 Select the left power lever to the OFF position. The left heat exchanger valve indicator should move to the by-pass position.
- 4.5.7 A function test of the afterburner valve located on the engine should be carried out with the engine running. Refer to Maintenance Instructions Report 71/MAINT 25/3 J.75 Engine Running.
- 4.5.8 For the right afterburner and heat exchanger valves, repeat Paras. 4.5.1 to 4.5.7 substituting the "right" for "left".

4.6 Engine Inlet Fuel Pressure Warning (Left and Right)

- 4.6.1 This test should be earried out during engine start up.

 Refer to Maintenance Instructions Report 71/MAINT 25/3 J.75 Engine Running.
- 4.6.2 Ensure that the current limiter, L. ENG. WARN., located on panel E20, is serviceable.
- 4.6.3 Select the MASTER ELECTRIC switch to the ON position.
- 4.6.4 With the left engine not running, the ENG. FUEL PRESS. and amber MASTER WARNING lights should be illuminated.
- 4.6.5 Pulse the master RESET switch, located on the master warning panel. The amber MASTER WARNING light should go out.
- 4.6.6 With the left engine running at idle speed, the warning light ENG. FUEL PRESS. (left) should go out.
- 4.6.7 Select the MASTER ELECTRICS switch to the OFF position.
- 4.6.8 For a right engine fuel pressure function test, repeat Paras.
 4.6.1 to 4.6.7 substituting the "right" for "left".

4.7 Engine Oil Pressure Warning (Left and Right)

4.7.1 This test should be carried out during engine start up.



- 4.7.1 (continued)
 - Refer to Maintenance Instructions Report 71/MAINT 25/3 J.75 Engine Running.
- 4.7.2 Ensure that the current limiter L. ENG. WARN., located on panel E20, is serviceable.
- 4.7.3 Select the MASTER ELECTRICS switch to the ON position.
- 4.7.4 With the left engine not running, the warning lights OIL PRESS. (left) and amber MASTER WARNING should be illuminated.
- 4.7.5 Pulse the master RESET switch located on the master warning panel. The amber MASTER WARNING light should go out.
- 4.7.6 With the left engine running at idle speed, the warning light OIL PRESS. (left) should go out.
- 4.7.7 Select the MASTER ELECTRICS switch to the OFF position.
- 4.7.8 For a right engine oil pressure function test, repeat Paras. 4.7.1 to 4.7.5 substituting the "right" for "left".

4.8 Engine Emergency Fuel Control (Left and Right)

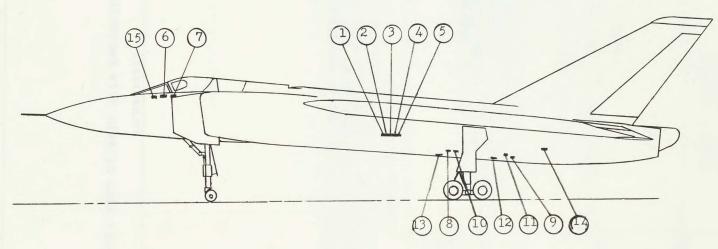
- 4.8.1 This test should be carried out with the left engine running.
- 4.8.2 Ensure that the circuit breakers L. ENG. and R. ENG. FUEL CONTROL, located on panel El, are closed.
- 4.8.3 Select the left FUEL CONTROL switch, located on the pilot's left hand console, to the EMERGENCY position. Leave the switch in this position for 3 seconds. The warning light ENG. EMERG. FUEL should illuminate.
- 4.8.4 Select the left FUEL CONTROL switch to the RESET position and hold 3 seconds.
- 4.8.5 The warning light ENG. EMERG. FUEL should go out.
- 4.8.6 For a right engine function chec, repeat Paras. 4.8.1 to 4.8.5 substituting the "right" for "left".

4.9 Engine Anti-Icing (Left and Right)

4.9.1 Refer to Maintenance Instructions Report 71/MAINT 11/9 - Electrics - Duct De-Icing.



- 1. Relay Zone 1 Ejector
- Relay Ignition
- 3. Relay Engine Starting
- 4. Relay Engine Reset
- 5. Relay Afterburner
 6. Switch Fuel Control
- 7. Switch Engine Starting
- 8. Valve Engine Heat Exchanger
- 9. Switch Engine Oil Pressure
 10. Switch Engine Fuel Pressure
 11. Switch Engine Start
- 12. Engine Junction Box.



- 13. Switch Zone 1 Ejector Pressure
- 14. Valve Zone 1 Ejector
- 15. Switch Afterburner

FIGURE 1

COMPONENT LOCATION

OH

AVRO AIRCRAF		Engineering Div.	ELECTRICS		-E5/1 -E5/1
DISTRIBUTION: STAND	ARD +	A/C TYPE - Arrow 1	COMPONENT		
	S. Brown K. Knowlton EFF. A/C - 25201			e 1	
MANUFACTURER'S PAR	RT NO.		AVRO PART NO.		****
MANUFACTURER'S NAM	ME E.O.	NO	CS-R-122		
		2.34" weight 0.44 гв.	REF. DWGS.		
ENVELOPE SIZE Z . I	2) X 2.0 X	2.34 WEIGHT 0.44 LB.			
	ed on panel le bay.	E5, located in	7-1100-2 St 7-1100-3 St		
a D-C supply	to energize	losed contacts allows e the zone, ejector ion. When energized	REF. M.D.R.		
		essure switch allows	RELIABIL	IT Y	
a D-C supply valve to the	to energize closed pos	e the zone; ejector ition.	OVERHAUL LIFE 1500 WASTAGE Q.T.R.)	HRS.
D.O.D. G.				LUEN	MINUTES
INSPECTION PERIOD		OPERATION TO BE PERFORME	D	EST.	ACTUA
25 Hours	electrica:	ay for security of mour l connections for secur tenance Instructions Re	city.	2 x 10	
Z) Hours	electrical (See Main	l connections for secur tenance Instructions Re	city.	2 x 10	
Z) Hours	electrical (See Maintal 11/9).	l connections for secur tenance Instructions Re	rity. eport 71/Maint.	2 x 10	
Z) Hours	electrical (See Maintal 11/9).	l connections for secur tenance Instructions Re	rity. eport 71/Maint.	2 x 10	
Z) Hours	electrical (See Maintal 11/9).	l connections for secur tenance Instructions Re	rity. eport 71/Maint.	2 x 10	
ISSUE	electrical (See Maintal) (See	l connections for secur tenance Instructions Re	rity. eport 71/Maint.	2 x 10	
issue Tour Nov.	electrical (See Maint 11/9). Unobstruct 5/57	l connections for secur tenance Instructions Re	rity. eport 71/Maint.	2 x 10	
ISSUE TO THE NOV. COMPILED WO2 W	electrical (See Maintal) (See	l connections for secur tenance Instructions Re	rity. eport 71/Maint.	2 x 10	

		LUBRICATIO	N			
PPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	AC	CCESS	/ 1.
	Relay - Zong	ESSOS	- 219 (443			
DETAILS:				JON 770	4 Budger	DANURAN
		GROUND SUPPORT	EQUIPMENT	ALC. X TEST	. G sam a	SAMELER
SPECIA	L TOOLS FOR AIRCRAFT	USE	SPECIAL TO	OOLS FOR BENCH	USE	
	Nil	ENOTING THE		Nil		
		bestyres				
GRO	OUND TESTING EQUIPMEN	Т	GROUND H	ANDLING EQUIPM	ENT	
A-C G	round Power Uni			Nil		
	BLE X	REMOVAL INS	TRUCTIONS	or alreado	MEN × M	
	Disconnect 5 e	lectrical conn	cal connection	Check re	MEN × M	MINUTES
(1)	Spents 3p	lectrical conn	cal connection	Replace	EST.	
(1)	Disconnect 5 e Remove 2 moun	lectrical conn	ections Remove and		EST.	
(1)	Disconnect 5 e Remove 2 moun	lectrical conn	ections Remove and		EST.	
(1)	Disconnect 5 e Remove 2 moun	lectrical conn	ections Remove and		EST.	
(1)	Disconnect 5 e Remove 2 moun	lectrical conn	ections Remove and		EST.	ACTUAL
(1)	Disconnect 5 e Remove 2 moun	lectrical conn	ections Remove and		EST.	

MAINTE	NANCE D	ATA RECORD	SYSTEM	REF.	NO. E5/18
AVRO AIRCRA	FT LTD.	Engineering Div.	ELECTRICS	11-1	E5/32
STRIBUTION: STAND	ARD +	A/C TYPE - Arrow 1	COMPONENT		
S. Brow K. Know		Relay - Ignition			
MANUFACTURER'S PA	RT NO. 645-	22	AVRO PART NO.		
		ctric Co. Diaphlex Ltd) CS-R-122		
	7" 7 7 7" 2	O" WEIGHT LB.	REF. DWGS.		
ENVELOPE SIZE 3.	x 2.1 x 3.	O WEIGHT LB.	7-1100-2	Sht	10
Mounte missi]	ed on panel le bay.	E5, located in the	7-1100-3	Sht.	
engine	start or r	y a selection of the elight switch, complet he ignition.	REF. M.D.R.		
			RELIABII	LITY	
			OVERHAUL LIFE 150	0	HRS.
			Q.T.R. 3695		
INSPECTION				MEN X	MINUTES
PRPICE		OPERATION TO BE PERFORME	CD .	EST.	ACTUA
25 hours	Check ele for secur Maintenan	ctrical connection for ity of mounting, Functice Instructions Report	security check on check. (See 71/Maint. 11/9)	1 x 2	ACTUA
21	for secur Maintenan	ity of mounting, Functice Instructions Report	security check on check. (See 71/Maint. 11/9)	1 x 2 2 x 5	ACTUA
21	for secur Maintenan	ity of mounting, Functice Instructions Report	on check. (See 71/Maint. 11/9)	1 x 2 2 x 5	ACTUA
	for secur Maintenan	ity of mounting, Functice Instructions Report	on check. (See 71/Maint. 11/9)	1 x 2 2 x 5	ACTUA
	for secur Maintenan	ity of mounting, Functice Instructions Report	on check. (See 71/Maint. 11/9)	1 x 2 2 x 5	ACTUA
	for secur Maintenan	ACCESSIBILITY Unobstructed with miss:	on check. (See 71/Maint. 11/9)	1 x 2 2 x 5	ACTUA
21	for secur Maintenan	ACCESSIBILITY Unobstructed with miss:	on check. (See 71/Maint. 11/9)	1 x 2 2 x 5	ACTUA
25 hours	for secur Maintenan	ACCESSIBILITY Unobstructed with miss:	on check. (See 71/Maint. 11/9)	1 x 2 2 x 5	ACTUA
25 hours	for secur. Maintenan	ACCESSIBILITY Unobstructed with miss:	on check. (See 71/Maint. 11/9)	1 x 2 2 x 5	ACTUA
25 hours ISSUE NOV.	for secur Maintenand	ACCESSIBILITY Unobstructed with miss:	on check. (See 71/Maint. 11/9)	1 x 2 2 x 5	ACTUA
25 hours ISSUE NOV. COMPILED WO2	for secur. Maintenan	ACCESSIBILITY Unobstructed with miss:	on check. (See 71/Maint. 11/9)	1 x 2 2 x 5	

GROUND SUPPORT EQUIPMENT SPECIAL TOOLS FOR AIRCRAFT USE Nil Nil GROUND TESTING EQUIPMENT A-C Ground Power Unit Maintenance Platform NTERCHANGEABLE X REMOVAL INSTRUCTIONS			LUBRICATI	ИОИ	MAINTENANCE
GROUND SUPPORT EQUIPMENT SPECIAL TOOLS FOR AIRCRAFT USE N11 N11 GROUND TESTING EQUIPMENT A-C Ground Power Unit Maintenance Platform NETRICHANGEABLE X REMOVALINSTRUCTIONS MEN X MINUTES EPPLACEABLE 1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30	PPLICATION		SPECIFICATION	FREQUENCY	
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 NTERCHANGEABLE X REMOVAL INSTRUCTIONS MEN X MINUTES EST. ACTUAL 1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30		Helsy Imi	10000		era , S. Brown at
SPECIAL TOOLS FOR AIRCRAFT USE SPECIAL TOOLS FOR BENCH USE N11 Nil GROUND TESTING EQUIPMENT GROUND HANDLING EQUIPMENT A-C Ground Power Unit Maintenance Platform NIERCHANGEABLE X REMOVAL INSTRUCTIONS MEN X MINUTES EEPLACEABLE 1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30	DETAILS:	00 TEAS OR	FA.	99-	DATE OF THE PARTY DATE OF
SPECIAL TOOLS FOR AIRCRAFT USE N11 N11 GROUND TESTING EQUIPMENT A-C Ground Power Unit Maintenance Platform NTERCHANGEABLE X REMOVALINSTRUCTIONS MEN × MINUTES EST. ACTUAL 1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30					
Nil GROUND TESTING EQUIPMENT A-C Ground Power Unit Maintenance Platform NTERCHANGEABLE X REMOVALINSTRUCTIONS MEN × MINUTES EST. ACTUAL 1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30			GROUND SUPPORT	EQUIPMENT	
A-C Ground Power Unit Maintenance Platform NTERCHANGEABLE X REMOVALINSTRUCTIONS MEN X MINUTES EST. ACTUAL 1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30	SPECIAL	. TOOLS FOR AIRCRAFT	USE	SPECIAL	TOOLS FOR BENCH USE
A-C Ground Power Unit Maintenance Platform NTERCHANGEABLE X REMOVALINSTRUCTIONS MEN X MINUTES EST. ACTUAL 1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30					
A-C Ground Power Unit Maintenance Platform NTERCHANGEABLE X REMOVALINSTRUCTIONS MEN X MINUTES EST. ACTUAL 1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30				NIA	
A-C Ground Power Unit Maintenance Platform MEN × MINUTES EST. ACTUAL		NII	ave inmo	NI	TO STATE ORIGINA
A-C Ground Power Unit Maintenance Platform MEN × MINUTES EST. ACTUAL					
A-C Ground Power Unit Maintenance Platform MEN X MINUTES EST. ACTUAL				GROUND	HANDLING EQUIPMENT
REMOVAL INSTRUCTIONS MEN X MINUTES EST. ACTUAL 1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30			W.	Maintenanc	e Platform
REPLACEABLE 1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30			CHARLES HE ST. D.		900 NAVES 1.1
1. Disconnect 9 electrical connection 2. Remove 4 mounting bolts. Remove and Replace 1 x 30	NTERCHANGEABI	LE X	REMOVAL INS	TRUCTIONS	MEN X MINUTES
2. Remove 4 mounting bolts. Remove and Replace 1 x 30	REPLACEABLE				
inoughrached with missile pack	S = 1	loeds valous ses) Josefs	me not notion		EST. ACTUAL
			ating bolts.	Remove and	
		Remove 4 moun	ating bolts.	Remove and	
		Remove 4 moun	ating bolts.	Remove and	
		Remove 4 moun	ating bolts.	Remove and	

. 15.15 .

MAINTE	NANCE I	DATA RECORD	SYSTEM	REF. NO. 11-E5/20
AVRO AIRCRAF	T LTD.	Engineering Div.	ELECTRICS	11-E5/19
DISTRIBUTION: STANDA		A/C TYPE - Arrow 1	COMPONENT	
S. Brown		EFF. A/C - 25201	Dolos Francis C	£ a
K. Knowlton		Relay Engine S	tarting	
MANUFACTURER'S PAR	T NO.	AVRO PART NO.	0.34180	
			NGk	
MANUFACTURER'S NAM	E		MS25024-1	
AVROCAN SPEC.	E.O	. NO.		
PAVELODE SIZE 2 . 62	25"x 2.68"x	3.3" WEIGHT 0.8 LB.	REF. DWGS.	
ENVELOPE SIZE = 0 02	. J 31 E,00 K	J. J. WERRIT C. C. L.B.	7 1100 0	C1- 4 3 0
LOCATION Mounte	ed on panel	E5 - located in the		Sht. 19 Sht. 3
missil	e bay.	2) Todated In the	1-1100-3	5110. 5
FUNCTION Libos	nonatrod -	ompletes a d-c supply	REF. M.D.R.	
to act	uate the s	tarter air control		
valves	and to the	e N.O., 700 rpm switch		
on the	starter		RELIABILI	TY
			OVERHAUL LIFE 1500) HRS.
			WASTAGE	
			Q.T.R.	
INSPECTION	AND AND ADDRESS OF A STATE OF A S	OPERATION TO BE PERFORME	D	MEN × MINUTES
PEDIOD		OFERRION TO BE FERFORME	"	EST. ACTUA
Engine Start	engine s	on check will be carrie tart, refer to Maintena 1/Maint. 25/3.	d out on an nce Instruction	1 x 2
Engine	engine s	tart, refer to Maintena	nce Instruction	2.0047 0.1170
Engine	engine s Report 7	tart, refer to Maintena l/Maint. 25/3.	nce Instruction	2.0047 0.1170
Engine Start	engine s Report 7	tart, refer to Maintena l/Maint. 25/3.	nce Instruction	2.0047 A.1929
Engine Start	engine s Report 7	tart, refer to Maintena l/Maint. 25/3.	nce Instruction	2.0047 A.1929
Engine Start	engine s Report 7	ACCESSIBILITY Unobstructed with miss	nce Instruction	2.0047 0.1170
Engine Start	engine sa Report 7	ACCESSIBILITY Unobstructed with miss	nce Instruction	2.0047 A.1929

APPROVED

REMOVAL INSTRUCTIONS			LUBRICAT	ION	
GROUND SUPPORT EQUIPMENT SPECIAL TOOLS FOR AIRCRAFT USE N11 N11 GROUND TESTING EQUIPMENT A-C Ground Power Unit Maintenance Platform 4G/1596 REMOVAL INSTRUCTIONS MEN X MINUTES EST. ACTUAL 1. Remove - 11 electrical connections. 2. Remove - 4 mounting bolts Remove and Replace 1 x 25	PLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
GROUND SUPPORT EQUIPMENT SPECIAL TOOLS FOR AIRCRAFT USE N11 N11 GROUND TESTING EQUIPMENT A-C Ground Power Unit Maintenance Platform 4G/1596 REMOVAL INSTRUCTIONS MEN X MINUTES EST. ACTUAL 1. Remove - 11 electrical connections. 2. Remove - 4 mounting bolts Remove and Replace 1 x 25	antinus				
N11 GROUND TESTING EQUIPMENT A-C Ground Power Unit REMOVAL INSTRUCTIONS REMOVE - 11 electrical connections. 2. Remove - 4 mounting bolts Remove and Replace Remove and Replace Remove and Replace 1 x 25	TAILS:	Colonia con			AND THAT PARTY NO.
N11 GROUND TESTING EQUIPMENT A-C Ground Power Unit REMOVAL INSTRUCTIONS REMOVE - 11 electrical connections. 2. Remove - 4 mounting bolts Remove and Replace Remove and Replace Remove and Replace 1 x 25				er 41	
N11 GROUND TESTING EQUIPMENT A-C Ground Power Unit Maintenance Platform 4G/1596 REMOVAL INSTRUCTIONS MEN × MINUTES EST. ACTUAL 1. Remove - 11 electrical connections. 2. Remove - 4 mounting bolts Remove and Replace 1 x 25	COPCIAL	TOTAL AMERICAN			TOD DENGLI HER
A-C Ground Power Unit Maintenance Platform 4G/1596 MEN X MINUTES	VE WALL		USE		
NTERCHANGEABLE REMOVAL INSTRUCTIONS MEN × MINUTES	GROUN	D TESTING EQUIPMEN	т	GROUND HA	ANDLING EQUIPMENT
1. Remove - 11 electrical connections. 2. Remove - 4 mounting bolts Remove and Replace 1 x 25	Tues k disc		nit	Maintenance 4G/1596	
1. Remove - 11 electrical connections. 2. Remove - 4 mounting bolts Remove and Replace 1 x 25		1	REMOVAL IN	STRUCTIONS	
ACCESSION ALLEGA WITH WARRENCE OF THE PROPERTY					
Mong pizzer dit barovasad at			I	Remove and Repl	lace 1 x 25
			1	Remove and Repl	lace 1 x 25
					lace 1 x 25
					lace 1 x 25
					lace 1 x 25

	INTENANCE AIRCRAFT LTD.	DATA RECORD Engineering Div.	ELECTRICS	11-E5/23 11-E5/23
DISTRIBUTIO	N: STANDARD +	A/C TYPE - Arrow 1	COMPONENT	
	Brown Knowlton	EFF. A/C - 25201	Relay - Engi	ne Reset
MANUFACTU	RER'S PART NO.	V-0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	AVRO PART NO.	
MANUFACTUI	RER'S NAME		CS-R-12	2
AVROCAN SP	EC. E.C	. NO.		
ENVELOPE S	IZE	WEIGHT LB.		61.4.30
LOCATION	Mounted on panel missile bay.	E5, located in the	7-1100-2 7-1100-3	Sht. 19 Sht. 3
	engine starting	open circuits the relay holding supply. upply to the starter	REF. M.D.R.	
	air control valv		RELIAB	ILITY
			OVERHAUL LIFE 150 WASTAGE Q.T.R.	O HRS.
INSPECT	TON	OPERATION TO BE PERFORME	CD.	MEN × MINUTES
PERIO	OD C	TO DE LANGORIES		EST. ACTUA
Reset				
		144		
		ACCESSIBILITY		
		Unobstructed, with mi removed.	ssile pack	
ISSUE	1			
ISSUE DATE	1 Nov. 5/57			
DATE	Nov. 5/57			

		LUBRICATIO	N	BONNALLMINN
PPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
	Albert Freist	3050		Bud Lucini 3
DETAILS:	201-A-60			DE TODO DE SERVICIO DE SERVICI
		GROUND SUPPORT	EQUIPMENT	
SPECIAL	TOOLS FOR AIRCRAFT	USE	SPECIAL T	COOLS FOR BENCH USE
	Nil			Nil
GROU	JND TESTING EQUIPMENT		GROUND H	HANDLING EQUIPMENT
A-C Groun	nd Power Unit.		Maintenance 4G/1	Platform 596.
NTERCHANGEABI	LE X	REMOVAL INS	TRUCTIONS	MEN × MINUTES
EPLACEABLE				EST. ACTUAL
	1. Disconnect 2. Remove 2 m	ounting bolts.	Remo v e a nd Re	eplace 1 x 20

AVDO	AIRCRAFT LTD.	DATA RECORD Engineering Div.	ELECTRICS		55/50 55/51
	STANDARD +	A/C TYPE - Arrow 1	COMPONENT	11-0	1/.//
	Brown Knowlton	EFF. A/C - 25201	Relay - Afterbu		
MANUFACTUR	RER'S PART NO.		AVRO PART NO.		
MANUFACTUR	RER'S NAME				
			CS-R-122		
AVROCAN SPI	EC.	E.O. NO.	- L		
ENVELOPE SI	ze 2.125"x 2.6"	x 2.34" WEIGHT 0.44 LB.			
OGA TYON	Manustad on man	of EC leasted to the	7-1100-2	Sht.	
	mounted on pan missile bay.	el E5, located in the	7-1100-3	Snt.	4
suppl	y to the Heat	zed, completes a D-C exchanger actuator and	REF. M.D.R.		
the a	fterburner val	ve, moving both to the hen energized, completes	RELIABIL	ITY	
a D-C	supply to ene	rgize the Heat exchanger			
actua	tor and afterb	urner valve to the open	overhaul life 150	00	HRS.
PODIO			Q.T.R.		
INSPECT		OPERATION TO BE PERFORME	ED CE	MEN X I	ACTUA
25 ho		on check. (See Maintena	· · · · · · · · · · · · · · · · · · ·		
run	ngine Report	71/Maint. 11/9).		1 x 5	_
	ngine Report	71/Maint. 11/9).		1 x 5	
		71/Maint. 11/9). ACCESSIBILITY		1 x 5	
		71/Maint. 11/9).		1 x 5	
run		ACCESSIBILITY Unobstructed with missile		1 x 5	
		ACCESSIBILITY Unobstructed with missile		1 x 5	
run	1 Nov. 5/57	ACCESSIBILITY Unobstructed with missile		1 x 5	
run	1	ACCESSIBILITY Unobstructed with missile		1 x 5	

R. R. Jary H. L.		LUBRICATI	ИО		
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS	
dkowale	yna - yates	1000	- 14 66		
DETAILS:	921-17-80			Carried Na	
		GROUND SUPPORT	EQUIPMENT		
SPECIAL	TOOLS FOR AIRCRAFT	USE	SPECIAL TO	OLS FOR BENCH USE	- SOTA
	Nil		Nil		
GROUN	D TESTING EQUIPMENT	r	GROUND HA	NDLING EQUIPMENT	
INTERCHANGEABLE		REMOVAL INS	4G/1590		X MINUTES
REPLACEABLE	I dell'amende d'			EST	. ACTUA
1.		7 electrical ounting bolts.	connections Remove and I	Replace 1 x	20

CUAL

AVRO A	AIRCRAFT LTD.	DATA RECORD Engineering Div.	SYSTEM ELECTRICS	REF. 11-E	14/8
ISTRIBUTION:	STANDARD +	A/C TYPE - Arrow 1	COMPONENT		
S. Brown			Switch - Fuel Co	ontrol	
K. Knowlto	on	EFF. A/C - 25201	PATCON - FUEL CO	PILOTOT	
MANUFACTURE	er's part no. 8809K13		AVRO PART NO.		
MANUFACTURE	er's NAME Cuttler H	ammer	8809K13		
AVROCAN SPEC	C. E.O	. NO.		2	
ENVELOPE SIZ	E 1 3/64 x 1 1/8"	x 5/8" WEIGHT .08 LB.	REF. DWGS.		
LOCATION MON	unted on panel E14 ckpit.	, located in the front	7-1100-2 s 7-1100-3 s		
function or normal	•	ing for emergency fuel	REF. M.D.R.		
	9		RELIAI	BILITY	
			OVERHAUL LIFE] WASTAGE Q.T.R.	L500	HRS.
INSPECTIO	N.			MEN X I	MINUTES
PERIOD		OPERATION TO BE PERFORME	D	EST.	ACTUA
		ACCESSIBILITY			
		ACCESSIBILITY			
	Unobstruct				
	1				
DATE 1	1 .3 Nov. 57				
COMPILED W	1 .3 Nov. 57 702 Wentworth				
DATE 1	1 .3 Nov. 57 702 Wentworth				

		LUBRICAT	LION NIT	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:				
		GROUND SUPPOR	T EQUIPMENT	
SPECIAL	TOOLS FOR AIRCRAF	T USE	SPECIAL TOO	LS FOR BENCH USE
Ì	VIL	100	NIL	
GROUN	D TESTING EQUIPME	NT	GROUND HAM	NDLING EQUIPMENT
N		acaround is	Cockpit access s	tand.
REPLACEABLE	X	REMOVALIN	ISTRUCTIONS	EST. ACTU
	Disconnect 3 e Remove 1 mount	lectrical connecting nut.	tions. Remove and replace	1 x 5

.'UAL

M A	INTENANCE	DATA RECORD	SYSTEM	REF.	16/3
	AIRCRAFT LTD.	Engineering Div.	ELECTRICS	11-E	
STRIBUTIO	N: STANDARD +	A/C TYPE - Arrow 1	COMPONENT	d	
35500 27	Brown	EFF. A/C -	Switch - Engin	e Starting	
К.	Knowlton	25201			
MANUFACTU	rer's part no. 8812K1	3	AVRO PART NO.		
MANUFACTU	RER'S NAME Cuttler Ha	ammer,			
AVROCAN SP		0. NO.			
ENVELOPE S	IZE 1 3/64" x 1 1/8	1 x 5/8" WEIGHT 0.08 LB.	REF. DWGS. 7-]	100-2 sht	6
	Mounted on panel Expit.	16, located in the front	in the same of the		
	795	no start resition			
ene sta	rting and ignition	ch supplies D.C. for engine . When selected to the	REF. M.D.R.		
res	set position, suppl:	ies D-C for the engine e starter control valves.	RELIA	BILITY	
1 65	of Total and Ongain	1	OVERHAUL LIFE I WASTAGE Q.T.R.	500	HRS.
INSPECT	TON	OPERATION TO BE PERFORME	ID.	MEN X I	MINUTES
PERIO	D			EST.	ACTU
		ARCHTOURYSHE ALYCORE			
) d	Oh a ala gara	tch for security.		1 x 2	
rimary	Check SW1	ocii ioi pecarito", "		~	
Engine	Function,	(See Maintenance Instruction	ns Report		
Start	71/MAINT	11/9		1 x 2	
	, , ,				
		ACCESSIBILITY			
		1 - 2			
	Unobstruc	ctea.			
			90		
ISSUE	1				
DATE	Nov. 5/57				
COMPILED	WO2 Wentworth				
OVER OVER D	K.P. Lowe				
CHECKED	11.01 0 11040				

A DDT TO A MTOST	MATERIAL	LUBRICATI	Nil FREQUENCY	ACCESS
APPLICATION	MATERIAL	SPECIFICATION	TABQUARCT	Noods
DETAILS:				196 on the paragraphic
		GROUND SUPPORT	EQUIPMENT	Color Property
SPECIAL	TOOLS FOR AIRCRAF	T USE	SPECIAL TOO	LS FOR BENCH USE
	Nil		Nil	Company of the second
GROUI	ND TESTING EQUIPME	NT	GROUND HAN	IDLING EQUIPMENT
INTERCHANGEABL	A-C ground plat	form unit		access stand.
REPLACEABLE				EST. ACTUA
	1. Remove 3 e.		rs e and Replace	1 X 15
				decod

)

, rua.

MAINTENANCE	DATA RECORD	SYSTEM ELECTRICS	REF. NO. 11-E173
AVRO AIRCRAFT LTD.	Engineering Div.	ELECITICS	11-E174
DISTRIBUTION: STANDARD + S.Brown. K.Knowlton.	A/C TYPE - Arrow 1. EFF. A/C - 25201	Value- Engine H Exchanger	leat
MANUFACTURER'S PART NO. MANUFACTURER'S NAME	, Claritania (Claritania)	AVRO PART NO. 7-3256-5-6	assisten
AVROCAN SPEC.	E.O. NO.		
ENVELOPE SIZE	WEIGHT LB.	REF. DWGS.	
LOCATION on base of fuel /	oil heat exchanger L & R	7-1100-2 sh 7-1100-3 sh	
FUNCTION normally in the cactuated on an afterburn indicated position.		REF. M.D.R.	A
		RELIAB	ILITY
		OVERHAUL LIFE 1500 WASTAGE Q.T.R.) HRS.
INSPECTION	OPERATION TO BE PERFORMED		MEN × MINUTE
PERIOD			EST. ACTU

INSPECTI	OPERATION TO BE PERFORMED	MEN X	MINUTES
PERIO		EST.	ACTUAL
SAWES A	THE SHOP OF THE PROPERTY OF TH	9.20.60	Limite
25 hours	Function check. (See maintenance instruction report 71/Maint 11/9)	2 x 2	
	a digest has excess		
	unobstructed.		
ISSUE	1.		
DATE	November 5/57		
	WO2.Wentworth		
	K.P.Lowe R.F.Reid.		

		LUBRICA	TION Nil	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
	of the land one of		- 37 Mg	
DETAILS:	OK TIM O	VA		and training and desired to another
		GROUND SUPPOR	OT EQUIPMENT	
SPECIAL	TOOLS FOR AIRCRAFT		1	DOLS FOR BENCH USE
	NI* 7			
	Nil		Nil	
GROU	ND TESTING EQUIPMEN	NT T	GROUND HA	ANDLING EQUIPMENT
V08	DISC BELL DISERS	wa /		
		Y.0		
A-C Gr	ound Power Unit		Maintenand	ce Platform
		Clarker dates do		
INTERCHANGEABL	E X	DEHOVAL	NETRUCTIONS	MEN × MINUTE
INTERCHANGEABL REPLACEABLE	е Х	REMOVAL	INSTRUCTIONS	MEN × MINUTE EST. ACTU
	E X	REMOVAL	INSTRUCTIONS	
REPLACEABLE	Remove 1 elect:	torical and	minute ma, and	
REPLACEABLE	Urana o	torical and	minute ma, and	
REPLACEABLE	Urana o	torical and	minute ma, and	
REPLACEABLE	Urana o	torical and	minute ma, and	EST. ACTU
REPLACEABLE	Urana o	torical and		EST. ACTU
REPLACEABLE	Urana o	torical and		EST. ACTU
REPLACEABLE	Urana o	turicus units	Remove and replace	EST. ACTU
REPLACEABLE	Urana o	turicus units	Remove and replace	e l x 5
REPLACEABLE	Urana o	turicus units	Remove and replace	e l x 5
REPLACEABLE	Urana o	turicus units	Remove and replace	e l x 5
REPLACEABLE	Urana o	turicus units	Remove and replace	e l x 5

STUA

MAINTE	NANCE.	DATA RECORD	SYSTEM ELCETRICS.	REF.	NO. E193
OISTRIBUTION: STAN S.Brown. K.Knowlton.		A/C TYPE - Arrow.1. EFF. A/C - 25201	COMPONENT Switch engine oi warning.		
manufacturer's namufacturer's namufa	ME Century	Electronics (C/O Garrett)	AVRO PART NO. 7-1195-13		
LOCATION Mounte		2.22" WEIGHT 1.5 LB. ear box-adjacent to oil ve. L & R	REF. DWGS. 7-1100-2 7-1100-3		•
transmit a w	arning to the	engine oil pressure, and pilot. a differential oil pressure	REF. M.D.R.		
of 25 psi ±	2 psi.		RELIABIL	ITY	
			overhaul Life 1500 wastage Q.T.R. Pending		HRS.
INSPECTION		OPERATION TO BE PERFORME	D	MEN X	MINUTES
PERIOD				EST.	ACTUA
Engine Run	Operation	f the switch will be indicat	ed by a warning	2 00	

INSPECTIO	ON	OPERATIO	N TO BE PERFORMED		MEN X	MINUTES
PERIOD					EST.	ACTUAL
Engine Rur		on of the switch w	will be indicated on starting and s			
25 hrs. Aero Engir		itch for security	y, leakage, corros	sion or damage	1 x 3	
25 hrs. Electrics.		ectrical connecto	or for security an	nd damage	lxl	
		ACCESSIBILI	ITY			
	Accessible th	rough front engir	ne access door.			
	(7 latches and	30 camlocs)				
		Esti	imated- Remove and	l replace	1 x 4	
ISSUE	1	2	3			
DATE	June 25/56	January 8/57	November 5/57			
COMPILED	D.Collingwood	D.Collingwood	WO2.Wentworth.			
	WO2.Wentworth	WO2.Wentworth	K.P.Lowe.			

APPLICATION MATERIAL SPECIFICATION PREQUENCY 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 REPLACEABLE	
GROUND SUPPORT EQUIPMENT SPECIAL TOOLS FOR AIRCRAFT USE SPECIAL TOOLS FOR BENCH USE Nil GROUND TESTING EQUIPMENT GROUND HANDLING EQUIPMENT A-C Ground Power Unit. Cockpit Access Stand.	
GROUND SUPPORT EQUIPMENT SPECIAL TOOLS FOR AIRCRAFT USE Nil Removal Instructions SPECIAL TOOLS FOR BENCH USE SPECIAL TOOLS FOR	
GROUND SUPPORT EQUIPMENT SPECIAL TOOLS FOR AIRCRAFT USE SPECIAL TOOLS FOR BENCH USE Nil GROUND TESTING EQUIPMENT GROUND HANDLING EQUIPMENT A-C Ground Power Unit. Cockpit Access Stand.	ACCURATE TO THE PARTY OF T
Nil GROUND TESTING EQUIPMENT A-C Ground Power Unit. Cockpit Access Stand. NETERCHANGEABLE X REMOVAL INSTRUCTIONS	accisto
Nil GROUND TESTING EQUIPMENT A-C Ground Power Unit. Cockpit Access Stand. NETERCHANGEABLE X REMOVAL INSTRUCTIONS	acción de la constante de la c
Nil GROUND TESTING EQUIPMENT A-C Ground Power Unit. Cockpit Access Stand. NETERCHANGEABLE X REMOVAL INSTRUCTIONS	
Nil GROUND TESTING EQUIPMENT A-C Ground Power Unit. Cockpit Access Stand. NETERCHANGEABLE X REMOVAL INSTRUCTIONS	
Nil GROUND TESTING EQUIPMENT GROUND HANDLING EQUIPMENT A-C Ground Power Unit. Cockpit Access Stand. INTERCHANGEABLE X REMOVAL INSTRUCTIONS	
GROUND TESTING EQUIPMENT A-C Ground Power Unit. Cockpit Access Stand. INTERCHANGEABLE X REMOVAL INSTRUCTIONS	
GROUND TESTING EQUIPMENT A-C Ground Power Unit. Cockpit Access Stand. INTERCHANGEABLE X REMOVAL INSTRUCTIONS	
GROUND TESTING EQUIPMENT A-C Ground Power Unit. Cockpit Access Stand. INTERCHANGEABLE X REMOVAL INSTRUCTIONS	
A-C Ground Power Unit. Cockpit Access Stand. INTERCHANGEABLE X REMOVAL INSTRUCTIONS	
INTERCHANGEABLE X REMOVAL INSTRUCTIONS MEN X	
INTERCHANGEABLE X REMOVAL INSTRUCTIONS MEN X	
INTERCHANGEABLE X REMOVAL INSTRUCTIONS MEN X	
REMOVAL INSTRUCTIONS	
	MINUTE
	ACTUA
To study study has puttingly no displace a doubt in family	
-ordinate	
Aero-Engine.	
l. Disconnect 1 oil line.	
2. Loosen locknut and unscrew switch from engine adapter.	
Estimated - Remove and Replace 1 x 18	
Electrics.	
Disconnect 1 electrical connector.	
MITTARKETOOK	1
Remove and replace 1 x 2	
The contract of the contract o	
and the state of t	

CTUAL

MAINTENANCE D	BATA RECORD	SYSTEM FUEL SYSTEM	REF. NO. 16-24 11-E195
F. Bradshaw A. Cornish S. Brown	A/C TYPE - Arrow 1 EFF. A/C - 26201	COMPONENT SWitch, Fuel - Pressure Warni	Low
MANUFACTURER'S PART NO. 2000	ra-Electric	AVRO PART NO. 7-1656-51	
envelope size 3.80"x 3.54" x Location Duct Bay - Sta. 5 exchanger base L &	50 mounted on heat	7-1656-205 7-1100-2 Sht 7-1100-3 Sht	
cockpit which indicate		REF. M.D.R. RELIABILIT OVERHAUL LIFE 500 WASTAGE Q.T.R. Pending	Y HRS.
INSPECTION	ODERATION TO BE DEPENDMEN		MEN × MINUTES

INSPECT	LION	OPERATION	TO BE PERFORMED		ME	N×N	MINUTES
PERIC)D			*	ES	T.	ACTUAL
Primar	Funct	for security ion check refe t 71/Maint. 11	r to maintenar	nce Instruction	1 2	1	
25 hour Engine	r Check leaka		damage, corro	sion and	1 %	r 2	
Electri	ics Check damage		nnector for se	ecurity and	1 *	2	
	I × E		sengo lestas				
	Through h		ss panel - 52		lx	건물	
TISSTUD	Through h	ydraulics acce	ss panel - 52	ove and Replace	lx	5월	
	1	ydraulics acce Es	ss panel - 52 timated - Remo	ove and Replace			5,57
DATE	1 February 14/56	ydraulics acce Es October 25/56	ss panel - 52 timated - Remo	eve and Replace 4 May 10/57	No	v.	5/57
ISSUE DATE COMPILED CHECKED	1	ydraulics acce Es	ss panel - 52 timated - Remo	ove and Replace	No WO	v. 2 W	5/57 entwor

		LUBRICATIO	N	227372171
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
	Switch, swel	rosi	- 24 413	
DETAILS:	Te-Mile-Si	va l	always Sireh By	S T LOW YEAR WATER TYPE AND IN THE SECOND SE
		GROUND SUPPORT	EQUIPMENT	REPORT OF THE PROPERTY OF
SPECIAL	TOOLS FOR AIRCRAFT	USE	SPECIAL TOO	OLS FOR BENCH USE
	Nîl	a tability desired	Nil	
GROU	ND TESTING EQUIPMEN	r	GROUND HAI	NDLING EQUIPMENT
Starte	and Power Unit r Vehicle	OMESTICAL SECTION	Cockpit A Work Stand	
REPLACEABLE	X	REMOVAL INST	TRUCTIONS	MEN × MINUTE
2. I	Close L.P. cocl Disconnect pres Remove 3 attack	ssure sensing]	line #7-1600-4	7. 1 x 18
1. I		ctrical connect	cor.	1 x 2
Ensur press	re that trapped sure sensing li	d air is remove ine.	ed when reconne	ecting
		Estimated -	Remove and Re	eplace 1 x20

CTUAL

	DATA RECORD	SYSTEM ELECTRICS	REF. NO.
AVRO AIRCRAFT LTD.	Engineering Div.	ELECTITOS	11-12 197
S.Brown. K.Knowlton.	A/C TYPE - Arrow 1 EFF. A/C - 25201	Switch box - En	gine
MANUFACTURER'S PART NO.		AVRO PART NO.	NEW STREET
MANUFACTURER'S NAME		7-2995-6	
AVROCAN SPEC. E378 E.O.	NO.		
ENVELOPE SIZE	WEIGHT LB.		2 Sht 27
LOCATION Mounted on engine sta	arter	/=1100-	3 sht. 3
FUNCTION S.l. switch closes a speed S.2. switch opens at		REF. M.D.R.	IU .
engine speed.		RELIAB	ILITY
		OVERHAUL LIFE WASTAGE Q.T.R.	HRS.
INSPECTION	OPERATION TO BE PERFORMED		MEN × MINUTE

INSPEC	OPERATION TO BE PERFORM	MEN X	MINUTES
PERI	IOD	EST.	ACTUAL
140738	ZHOTTOURTEHL JAYOMSH	3,000	AJ488
Engine start			
	Unobstructed with engine removed.		
ISSUE			
DATE	November 4/57		
COMPILED	WO2.Wentworth		
CHECKED	K.P.Lowe.		

			LUBRICATI	on Nil		
APPLICATION	MA	TERIAL	SPECIFICATION	FREQUENCY	ACCESS	
				76.660		
DETAILS:					SELECTION PRODUCTS	DAY O
			GROUND SUPPORT	EQUIPMENT		
SPECIAL '	rools fo	OR AIRCRAFT	USE	SPECIAL TO	OOLS FOR BENCH USE	
Ni	1			I	Nil	
GROUN	D TESTIN	G EQUIPMEN	r	GROUND H	ANDLING EQUIPMENT	
A-0	C Grour	nd Power U	Init	1	Nil	
INTERCHANGEABLE	Х		REMOVALINS	TRUCTIONS	MEN X M	INUTE
REPLACEABLE			REMOTALING	INDETIONS	EST.	ACTU
		Pending	ç.			

JUA.

M M I II I	NANCE	DATA RECORD	SYSTEM	REF.	NO.
AVRO AIRCRA	FT LTD.	Engineering Div.	ELECTRICS	11-1	E-199
S. Brown. K. Knowlton.	DARD +	A/C TYPE - Arrow 1. EFF. A/C - 25201	COMPONENT Engine-Juncti	Lon Box.	
MANUFACTURER'S PA	RT NO.		AVRO PART NO.		Chaire
MANUFACTURER'S NA	ME				
AVROCAN SPEC.	E.	O. NO.			
ENVELOPE SIZE		WEIGHT LB.	REF. DWGS.	Sh+ 27	
LOCATION Mounted	d on engine L	, & R.	7-1100-3	3 Sht.4	
Provide	es a junction	box and disconnects for,			
emergency i		verspeed, afterburner,	REF. M.D.R.		
710.00	muga malasia		RELIABI	LITY	
			overhaul life 1500 wastage		HRS.
			Q.1.R.		
INSPECTION		OPERATION TO BE PERFORME		MEN X	_
INSPECTION PERIOD	U	OPERATION TO BE PERFORME		MEN X	
PERIOD	Check elec	REHOVAL INSTRUCTIONS	D	EST.	ACTU
Primary		ctrical connectors for securi	D	1 x 2	ACTU
PERIOD		REHOVAL INSTRUCTIONS	D	EST.	ACTU
Primary		ctrical connectors for securi	D	1 x 2	ACTU
Primary		etrical connectors for securi	ity	1 x 2	ACTU
Primary		ctrical connectors for securi	ity	1 x 2	_
Primary		etrical connectors for securi	ity	1 x 2	ACTU
Primary		etrical connectors for securi	ity	1 x 2	ACTU
Primary		etrical connectors for securi	ity	1 x 2	ACTU
Primary		etrical connectors for securi	ity	1 x 2	ACTU

ISSUE	7	
DATE	November 5/57	
	WO2.Wentworth	
CHECKED	K.P.Lowe.	
	R.F.Reid.	

		LUBRICATIO	N Nil	
PPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
, 100 to 100	275mb-8sInd		- 90,303	
CTAILS:			.00.00.3	DATES OF THE PART NO.
		GROUND SUPPORT	EQUIPMENT	Tell (contract)
SPECIAL	TOOLS FOR AIRCRAFT	USE	SPECIAL TOOL	S FOR BENCH USE
GROU	Nil		Nil	DLING EQUIPMENT
1800 × ASM	Nil	1.12 1.12 1.12	Nil	
TERCHANGEABLE	E	REMOVAL INS	TRUCTIONS	MEN × MINUTES EST. ACTUAL
				and the same of the same
		Pending.		

MAINTENANCE	DATA RECORD	SYSTEM	REF. NO. 18-9
AVRO AIRCRAFT LTD.	Engineering Div.	L/P PNEUMATICS	11-E203
S.Brown. K.Knowlton.	A/C TYPE - Arrow 1. EFF. A/C - 25201	Switch - Diffe Pressure (Air	
MANUFACTURER'S PART NO. MANUFACTURER'S NAME Paramatic E AVROCAN SPEC. E_391 E.0	Engineering	AVRO PART NO. 7-1856-1.	1
convelope size 3.94" X 3.56" X4	100000	REF. DWGS. 7-1100-3 7-1856-1 7-1856-1 7-1100-2	3 left 4 right
AND TO SENSE THE DIFFERENCE AND THE PRESSURE IN THE ENGLISH OPERATION OF THE ZONE #1 e.		REF. M.D.R. 18-8 11-E204	ITV
		OVERHAUL LIFE 1500	HRS.
comments (glassymans)	Fosa	Q.T.R. Pending.	

	NSPECTION OPERATION TO BE PERFORMED		MEN × MINU			
PERIO	DO				EST.	ACTUAL
		4.00171.001	Clair Jarraman			
25 hrs Airfra	Check Check	switch for securi	ity and damage. Ech for security ar	nd damage.	l X 8	
25 hrs Electr	rics Funct:		ctor for security ntenance instructi		2 X 5	
	15 = 1					
		A C C E SS I B I L I '	гү	P 4 4000		
		nove hydraulic equ nove Access panel		Replace	1 x 5	17.
SSUE			(52 camlocs)	Replace	1 x 5	
	Ren	nove Access panel	(52 camlocs) Remove and	Replace	1 x 5	
DATE			(52 camlocs)	Replace	1 x 5	
ISSUE DATE COMPILED CHECKED	Ren 1 July 25/56	nove Access panel 2 January 16/57	Remove and November 5/57	Replace	1 x 5	

		LUBRICAT	Nil No.	BOWANSTHIA	
PPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS	
A & A L	THE SHEET HER		A S. K. Yes		
ETAILS:	7-18%		Transmissions of	Jay 3 min	DATTERNA DATA TORRA MASCOVA
	-CULL-	GROUND SUPPORT		SELEN PROCESS	
	TOOLS FOR AIRCRAFT		NII	ILS FOR BENCH USE	
GROUN	D TESTING EQUIPMENT		GROUND HAM	NDLING EQUIPMENT	
A-0	C Ground Power U	nit.	Maintena	nce Platform.	
NTERCHANGEABLE	X s	REMOVAL IN	STRUCTIONS	MEN × M	ACTUAL
	2. Remove 4	ct 1 pipe line. mounting bolts.	Remove and replace	l x 18	
		F	Remove and replace	1 x 2	

MAINTENANCE AVRO AIRCRAFT LTD.	DATA RECORD Engineering Div.	SYSTEM L/P PNEUMATICS	REF. NO 18-8 11-E2	
DISTRIBUTION: STANDARD + S. Brown G. Shaw K. Knowlton	A/C TYPE - Arrow 1 EFF.A/C - 25201	COMPONENT Valve - Ejecto	r Contro	1
MANUFACTURER'S PART NO. MANUFACTURER'S NAME Barber AVROCAN SPEC. E~390		AVRO PART NO. 7-1895	~ 41	
	x 3.44" WEIGHT 2.0 LB.		-1 -2 sht 2' -3 sht 4	
FUNCTION To assist in engine coo combustable vapors from	zone, to atmosphere	REF. M.D.R. ,		
at low airspeeds and wh	en ground running.	RELIABIL	ITY	
		overhaul life 50 wastage o.t.r. Pending		HRS.
INSPECTION	OPERATION TO BE PERFORME	D	MEN × MI	NUTE
PERIOD	OI DANTION TO DE PERFORME		EST.	ACTU

		TO BE PERFORMED		MEN × MINUTES		
PERIO	ac	of Barrion	TO BE TENTENIES		EST.	ACTUAL
25 Hrs. Airfram	ne Check el	ectrical connector Chec. (See Mair	damage and corrosion. or for security and damage ntenance Instruction Repor		1 x 5	
		A C C E S S I B I L I T	TY .	5		
	Unobstru		removed from aircraft.			
ISSUE	Unobstru		removed from aircraft.			
-	1	cted with engine	removed from aircraft.			
DATE	1 August 30/56	cted with engine 2 January 15/57	removed from aircraft. 3 November 4/57	•		
ISSUE DATE COMPILED CHECKED	1	cted with engine	removed from aircraft.			

		LUBRICATIO	Nil Nil	3 3 9 4 4 3		
PLICATION	MATERIAL	SPECIFICATION	FREQUENCY	A	CCESS	
	January III	2000	7 - 254,400			
ETAILS:	AT 1911 51	YA .		log Tal		DETURBU
			latingto. (2/o fion)	Control on	L age	PATRICK PA
		GROUND SUPPORT				
SPECIAL	TOOLS FOR AIRCRAFT	USE	SPECIAL TO	OOLS FOR BENCI	H USE	
anav	Nil		Ni.	l Andling equipm	ENT	ACCEPTAGE TO ACCEPTAGE TO ACCEPTAGE
GROU	ND TESTING EQUIPMEN		GROOM II	INDERVO DE CE		
*		to L		2 2		
	A-C Ground Pov	wer Unit	Engine	Removal Stan	a	
TERROUANCE A DI	E V	SERVICE SERVICE	ART AT A STATE OF THE STATE OF		MEN X	MINUTES
	J.E. X	REMOVAL INS	TRUCTIONS		MEN X	MINUTES
2. R	rame isconnect 2 duct	clamps. 2 hold down studs	of the second se	ace		
Airf 1. D 2. R	rame isconnect 2 duct emove nuts from trics	clamps. 2 hold down studs			EST.	
Airf 1. D 2. R	rame isconnect 2 duct emove nuts from trics	clamps. 2 hold down studs	. Remove and repl		1 x 18	
Airf 1. D 2. R	rame isconnect 2 duct emove nuts from trics	clamps. 2 hold down studs	. Remove and repl		1 x 18	
Airf 1. D 2. R	rame isconnect 2 duct emove nuts from trics	clamps. 2 hold down studs	. Remove and repl		1 x 18	
Airf 1. D 2. R	rame isconnect 2 duct emove nuts from trics	clamps. 2 hold down studs	. Remove and repl		1 x 18	
Airf 1. D 2. R	rame isconnect 2 duct emove nuts from trics	clamps. 2 hold down studs	. Remove and repl		1 x 18	
Airf 1. D 2. R	rame isconnect 2 duct emove nuts from trics	clamps. 2 hold down studs	. Remove and repl		1 x 18	

	INTENANCE	DATA RECORD	SYSTEM	REF.	no. E1500/
AVRO	O AIRCRAFT LTD.	Engineering Div.	ELECTRICS	11-1	E1500/
	ON: STANDARD +	A/C TYPE - Arrow.1.	COMPONENT		
S.Bro		•	Switch-afterbur	rner	
K.Knc	owlton.	EFF. A/C - 25201	D.1.1 001. 01.00	1101	
MANUFACTI	URER'S PART NO.		AVRO PART NO.		
			CS- S- 152		
MANUFACTU	JRER'S NAME		00- 0- 1).		
AVROCAN SE	PEC. E.C	, NO.			
ENVELOPE S	SIZE .937" x 180" x	.356" WEIGHT 0.30 LB.	7-1100-2 7-1100-3		
LOCATION	Mounted in the power	r lever assembly.		2110074	
FUNCTION	When actuated, a D	-C supply should energize	REF. M.D.R.		
	the afterburner rela				
			RELIABILI	ITY	
			OVERHAUL LIFE 1500 WASTAGE Q.T.R.		HRS.
INSPECT	TION		MEN × MINUTES		
PERIO		OPERATION TO BE PERFORMED		EST.	ACTUA
engine					
run.					
-		A C C E S S I B I L I T Y			
-					
		ACCESSIBILITY The throttle box removed			
run.	Accessible wit				
run.	Accessible wit				
run.	Accessible with				
run.	Accessible wit				

		LUBRICA	TION Nil	
APPLICATION	MATERIAL	SPECIFICATION	FREQUENCY	ACCESS
DETAILS:	-			Project Visite in the
		GROUND SUPPOR	T EQUIPMENT	
SPECIAL T	TOOLS FOR AIRCRAF	T USE	SPECIAL TOOLS	FOR BENCH USE
	Nil		Nil	
GROUNI	D TESTING EQUIPME	NT	GROUND HANDLE	NG EQUIPMENT
A-C Gro	und Power Unit	۵	Cockpit access	stand.
INTERCHANGEABLE	X	REMOVAL	NSTRUCTIONS	MEN × MINUTES
REPLACEABLE				EST. ACTUAL
		ct 2 electrical mounting bolts.		1 x 15

