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72.113-57/01 CONFIDENTIAL

CF-105 SERVICE DATA

AIR CONDITIONING AND PRESSURIZATION

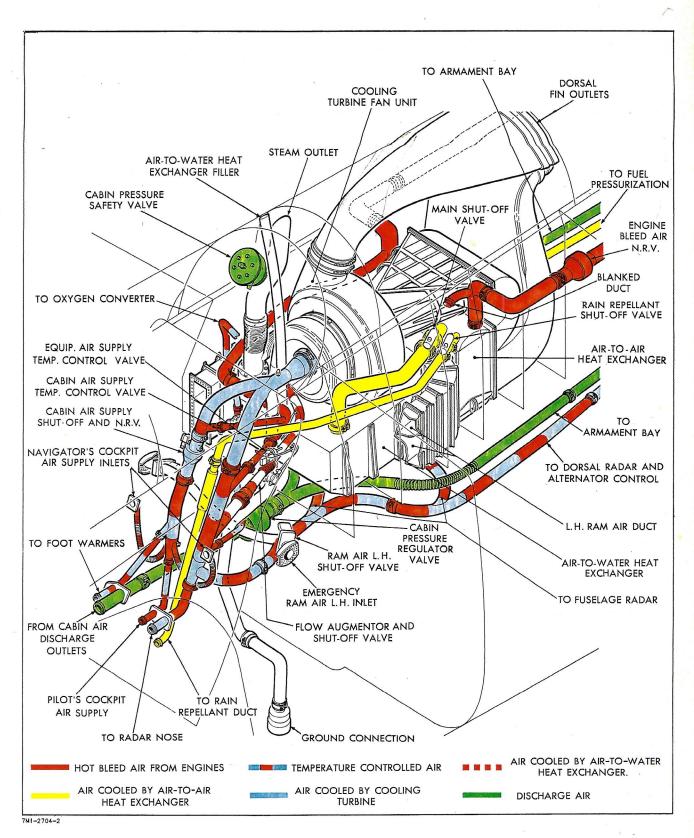
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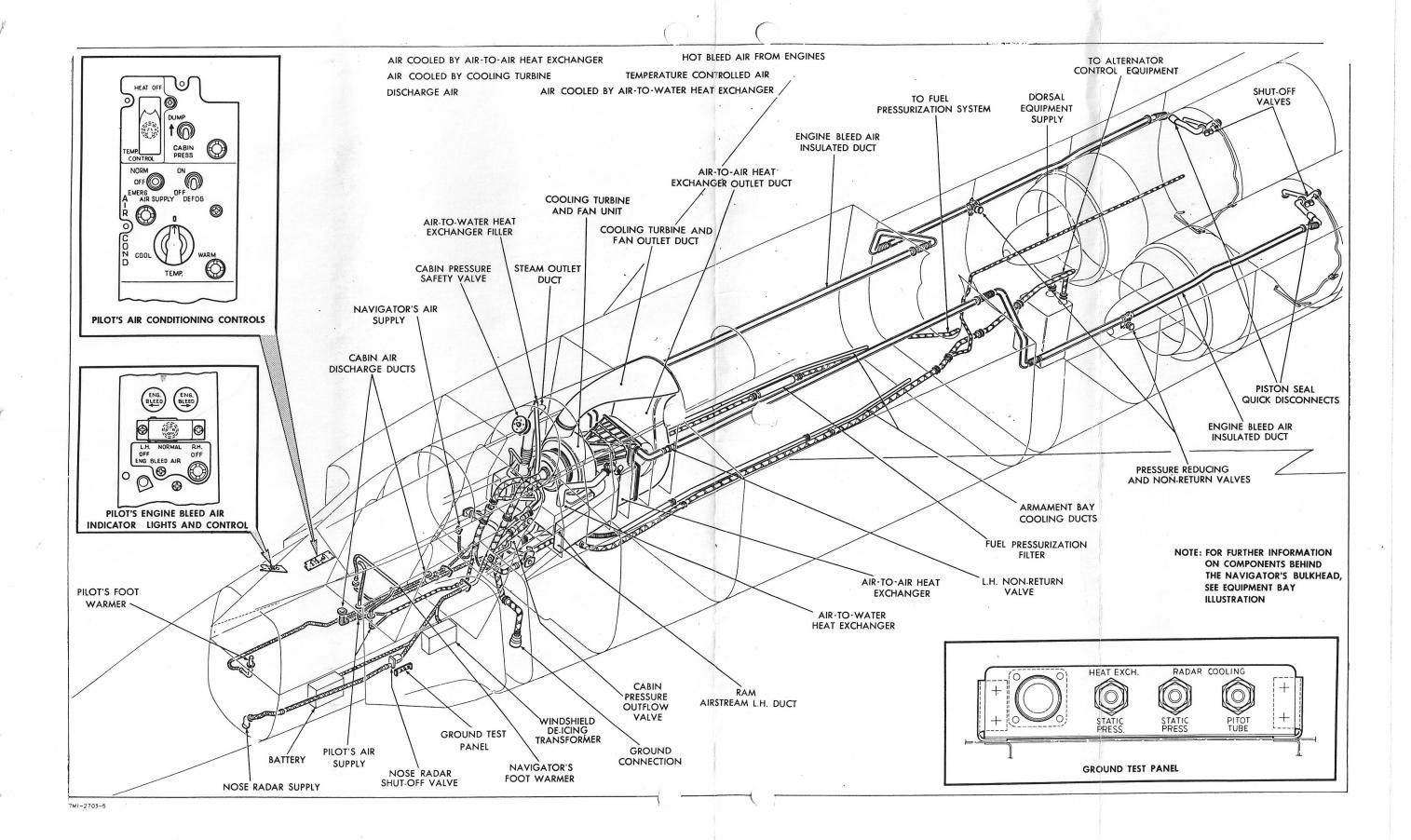
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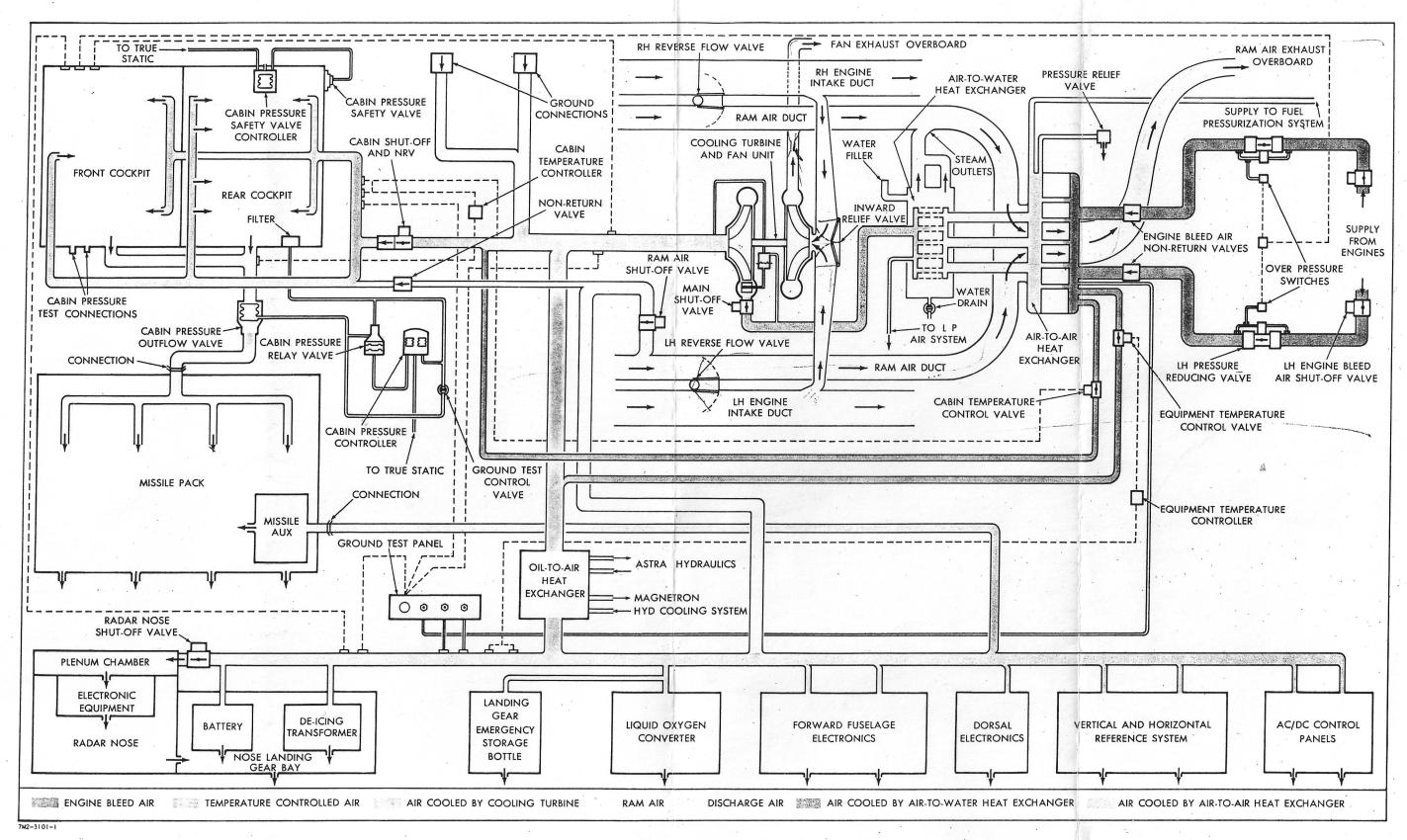
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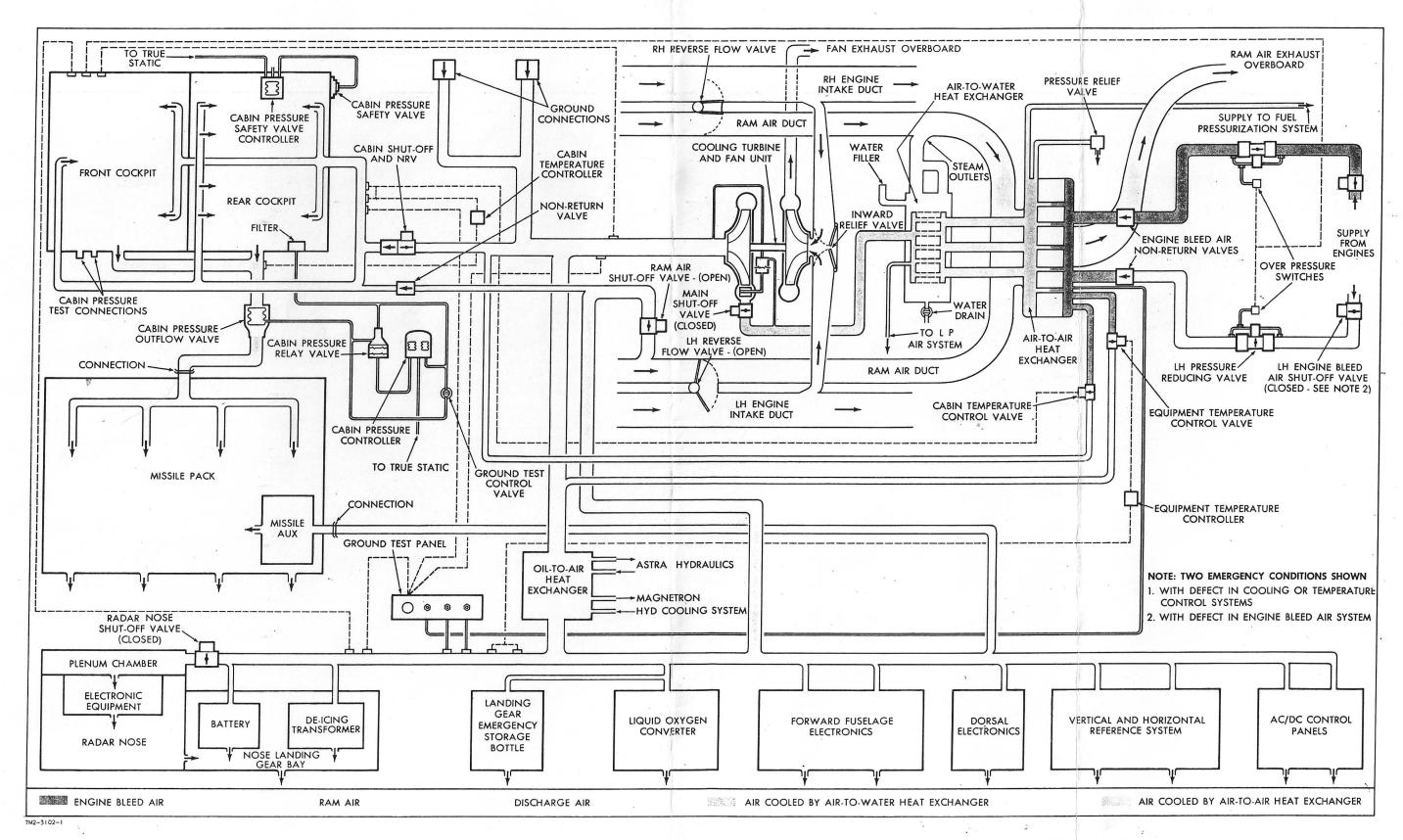
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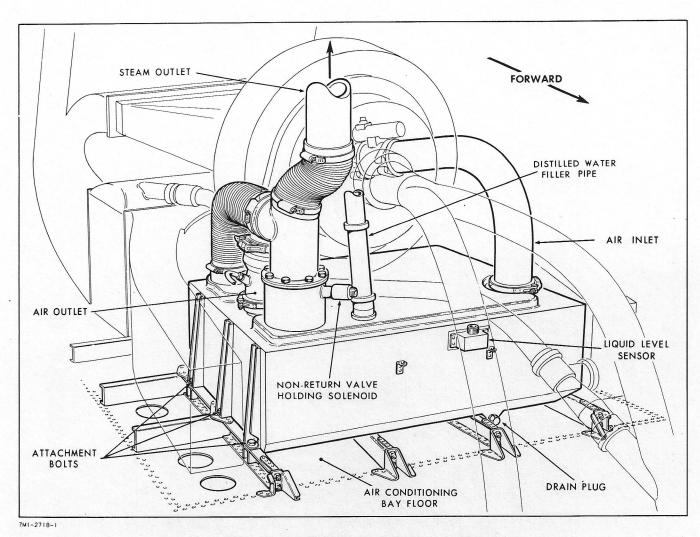
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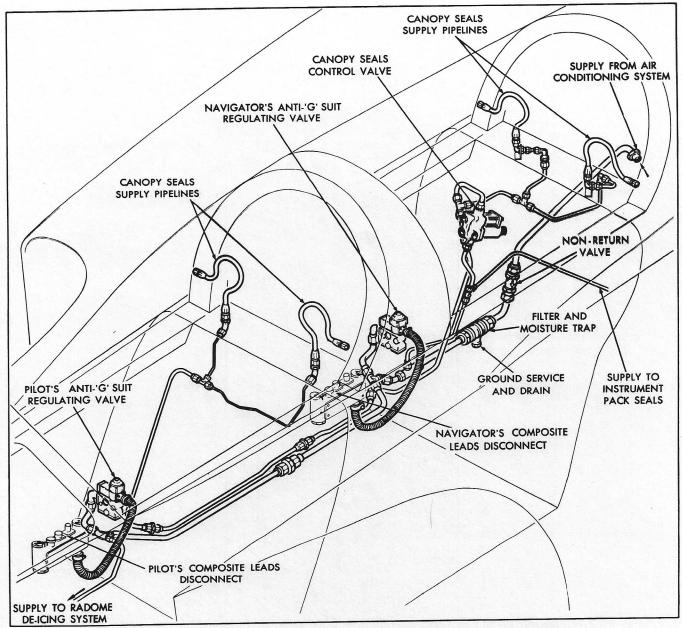




AIR CONDITIONING SYSTEM EMERGENCY OPERATION - SCHEMATIC

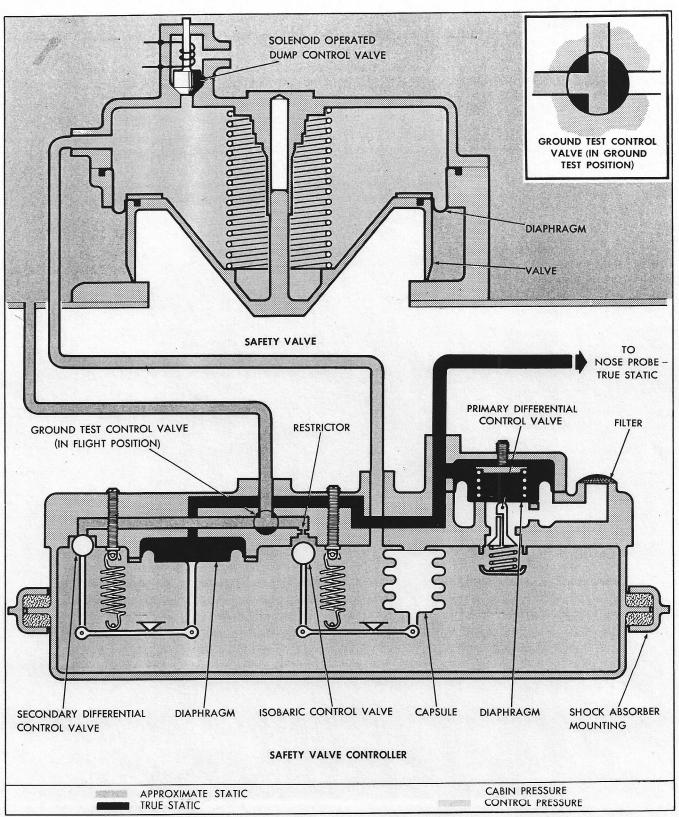


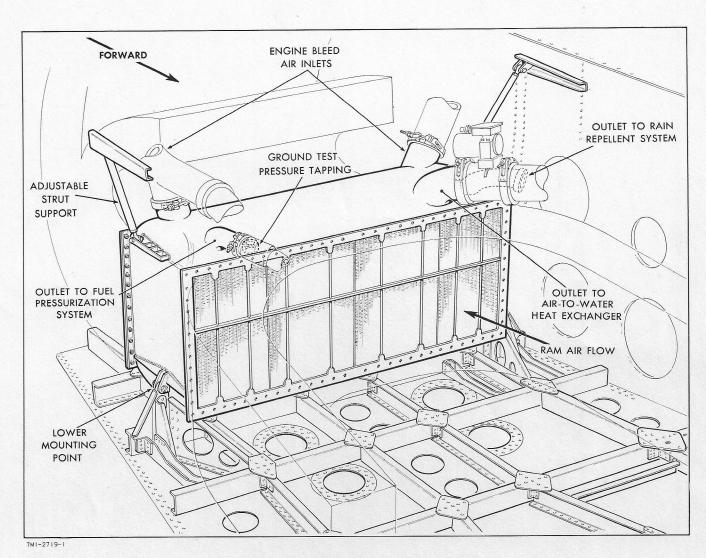
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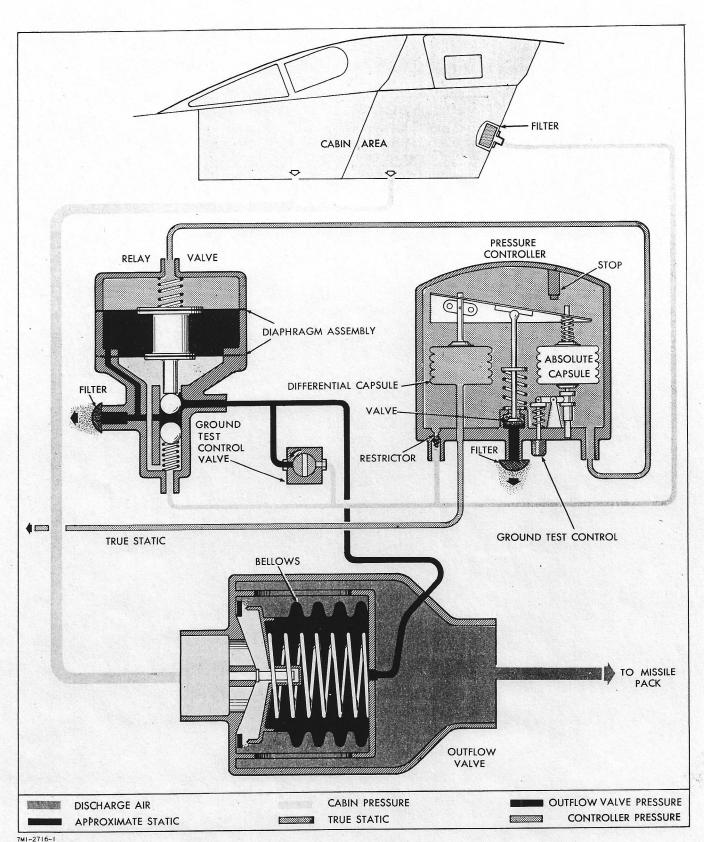
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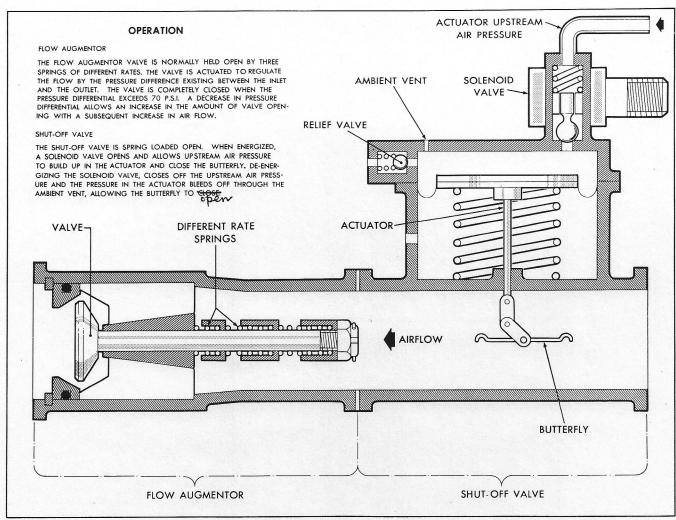




AIR-TO-AIR HEAT EXCHANGER



CABIN PRESSURIZATION CONTROLS - SCHEMATIC



7MI-2710-1

FLOW AUGMENTOR AND SHUT-OFF VALVE SCHEMATIC

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SYSTEM	SUB-SYSTEM	AIRCRAFT EFF'TY	REF. NO.
AIR CONDITIONING AND PRESSURIZATION		25201	91

DESCRIPTION AND OPERATION

General

- 1. The air conditioning system uses air bled from the second compressor unit of each engine. The system provides conditioned air for the cabin, fuel tank pressurization, low pressure pneumatic system, liquid oxygen system, and the rain repellent windshield ducting. The cabin is pressurized to a maximum differential of 4.5-5 psi and the temperature is controlled to $60^\circ-80^\circ\mathrm{F}$. Conditioned air is also provided for maintaining the pressurized and non-pressurized electrical and electronic equipment at a constant temperature of $80^\circ\mathrm{F}-90^\circ\mathrm{F}$. An emergency system is provided to maintain a supply of cooling air to the essential electrical equipment under emergency conditions. Air discharged from the cabin is used to cool and ventilate the missile bay.
- 2. The air conditioning system has three major components, an air-to-air heat exchanger which uses the ram airstream to cool the air bled from the engine, an air-to-water heat exchanger which further cools the air by heat transfer to distilled water, and a cooling turbine and fan unit. Incorporated in the system are various types of air valves and controllers served by thermostats and sensors, which maintain the selected conditions at varying aircraft airspeeds and altitudes. The system cannot be operated normally while the aircraft is on the ground, as the cooling efficiency of the air-to-air heat exchanger and the cooling turbine and fan unit is dependent on the forward motion of the aircraft supplying ram air.
- 3. For ground testing and to maintain the electronic equipment in an operational condition at a safe temperature while the aircraft is on the ground, provision is made for a supply of cool air at low pressure through an external ground connection which is attached to the aircraft by a lanyard type quickdisconnect.
- Manual controls are fitted in the front cockpit for the pilot to select the rain repellant system ON or OFF, cabin air supply to NORM-OFF-EMERGENCY, cabin air dump valve ON or OFF and to disperse cabin fog by operating the DEFOG switch from OFF to ON. A temperature control rheostat is also provided to enable the pilot to adjust the cabin temperature from COOL to WARM.

Engine Bleed Air

5. The bleeds from the LH and RH engines to the air-to-air heat exchanger are identical in operation and commence at the engine bleed air take-off manifold which takes air from two positions at the compressor casing. The temperature of the air delivered to the manifold varies from 140°F to 920°F and pressure varies from 30 psi to 300 psi, according to flight conditions.

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- 6. Engine bleed air from a quick-disconnect is ducted through an electrically actuated shut-off valve to a pressure reducing and non-return valve. A pressure switch in the duct down stream of the pressure reducing and non-return valve closes the shut-off valve if the pressure rises above 85 psi. The system is wired to prevent both shut-off valves being closed at the same time. An annunciator box in the nose wheel well indicates to the ground crew if a shut-off valve has been closed.
- 7. The pressure-reducing and non-return valve is pneumatically sensitive to upstream and downstream pressures and maintains the system pressure at 85 psi. From the pressure reducing and non-return valve the bleed air is passed through an additional non-return valve to the air-to-air heat exchanger for cooling. A duct from the RH engine is led off from this point to control the temperature of the cabin and equipment air. The ducting from the engine bleed air connection to the air-to-air heat exchanger is of stainless steel construction and is insulated to prevent damage to the aircraft structure and surrounding equipment. The insulation consists of four layers of Fibreglas 0.5 inch thick, each layer being separated by aluminum foil and the whole covered by a steel foil covering. The ducting is attached to the aircraft by individual tracks and rollers, allowing movement of the ducting to compensate for heat expansion.

Air-to-air Heat Exchanger

- 8. The air-to-air heat exchanger which is cooled by ram air consists of a series of communicating wide area hollow fins forming a sealed heat transfer unit through which the engine bleed air passes. The fins are enclosed within a casing which forms the ducting for the cooling airstreams. The engine bleed air from each engine enters the hollow fins through separate inlets and is discharged from the heat exchanger through three outlet ducts. One of the outlets supplies cooled air to the fuel pressurization system, (See Fuel System), the second outlet supplies the rain repellent ducts and the third delivers air to the air-to-water heat exchanger for further cooling.
- 9. The rain repellent air is selected by a switch in the front cockpit which opens the rain repellent shut-off valve. A sensor is fitted to prevent damage to the windshield by preventing the cockpit switch from opening the valve if the temperature of the air supplied is above 250°F. If the air becomes too hot while the valve is open, the sensor will cause the valve to close irrespective of the position of the switch.

Air-to-water Heat Exchanger

10. An electrically actuated shut-off valve is fitted between the air-to-air heat exchanger and the air-to-water heat exchanger. This valve is the air conditioning system main shut-off valve and is selected by a switch in the cockpit marked NORM-OFF-EMERGENCY. When the switch is selected to NORM the valve opens and allows air to pass to the air-to-water heat exchanger. The valve is also controlled by a controller and ductstats which limit the valve opening and regulate the mass air flow to the system, see para 13. Air from the system main shut-off valve is ducted to the air-to-water heat exchanger where it is further cooled by heat transfer to distilled water.

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- 11. The air-to-water heat exchanger consists of a sealed aluminum water tank, having a total capacity of 120 pounds of distilled water, in which is immersed a series of stainless steel hollow fins mounted around an air inlet and an air outlet pipe. Steam is allowed to escape from the tank to atmosphere by vents positioned at the front and rear upper surface. When the aircraft assumes an acute angle of climb, loss of water is prevented by a disc type non-return valve fitted to the front vent and the rear vent has a tube insert to prevent water losses during inverted flying. Each vent is led to an inter-connecting duct and steam is directed to the dorsal fin outlet. Hot distilled water is used during cold weather to ensure that the non-return valve is not frozen and that the correct water level is reached. To enable the water level to be checked after each flight, a dipstick is fitted in the water replenishing pipe.
- 12. The air-to-water heat exchanger outlet is ducted to a three way transition duct and delivers cooled air to a low pressure pneumatic system, a flow augmentor and to a cooling turbine and fan unit for further cooling.

Cooling Turbine and Fan

- 13. The cooling turbine and fan, each of which has a separate housing, are mounted on a common shaft to form a single unit. Conditioned air is forced through the turbine, driving the turbine and fan at a high speed. The fan assists the cooling airstream through the heat exchanger, and the energy in the form of heat expended by this operation further lowers the temperature of the cooled air. Maximum output conditions from the engine air bleed will increase the mass air flow to the turbine and fan unit, increasing the speed of the unit, with subsequent increase in cooling efficiency. To prevent the temperature dropping below -30°F under extreme conditions, a sensor fitted in the turbine outlet positions the main shut-off valve to modulate the air delivery from the air-to-air heat exchanger.
- 14. To maintain an air supply at a specific and constant temperature to the cabin and to the electrical and electronic gear an insulated air duct takes air from the RH engine bleed before it reaches the air-to-air heat exchanger. This uncooled air is led to a cabin temperature control valve which meters the air into the cabin cold air supply from the cooling turbine. Uncooled air from the same source is also led to an equipment temperature control valve which meters the air into the electrical equipment cold air supply from the cooling turbine. The temperature control valves are controlled automatically by electrical temperature control units, which are operated by ductstats to maintain the cabin air supply at a nominal temperature of 60°F and the equipment air at approximately 80°F.

Cabin Air Supply

15. The electrical temperature control units can be adjusted by means of a temperature control rheostat fitted in the front cockpit to give a temperature range of COOL (40°F) to WARM (80°F). A DEFOG switch is also fitted in the front

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cockpit and when this is selected ON the controller is overridden and the temperature control valve opens, allowing the cabin temperature to rise to approximately 90°F and disperse cabin fog.

- 16. As a safety precaution, a sensor is fitted in the cabin air supply. Should the temperature of cabin air supply exceed 120°F, the sensor causes the temperature control valve to close by operating a relay and switching off the power supply to the controller. When the temperature drops, the system returns to normal.
- 17. Conditioned air is led from the mixing duct to a shut-off and non-return valve. The shut-off and non-return valve is controlled by the main landing gear scissors micro-switch. When the landing gear is lowered the micro-switch is operated and the valve is closed.

NOTE

When selected to OFF or EMERGENCY the cockpit air supply switch closes the main shut-off valve between the air-to-air and the air-to-water heat exchangers. The conditions of flight are severely restricted with the switch selected to these positions. Further information is given under the heading of Ramp and Ram Cooling Air Supply.

Equipment Air Supply

- 18. The supply of air to the equipment area is ducted from the hot and cold air 'mixing' duct to a 'Y'-duct to which a flow augmentor valve is fitted. The flow augmentor valve is electrically actuated and supplements the air flow to the equipment areas should the system pressure fall below 70 psi due to operation at high altitude or low engine RPM. The supplementary air is taken from the air-to-water heat exchanger outlet. While the aircraft is taxying, air from the air-to-water heat exchanger is too hot and a micro-switch fitted on the main landing gear up-lock operates an electrical actuator and closes the flow augmentor valve.
- 19. Conditioned air is ducted to the radar nose during normal operation of the air conditioning system. When the cabin air supply switch is selected to OFF or EMERGENCY a gate valve fitted in the radar nose supply duct is closed.

Conditioned air is also supplied from the same duct to:

- (a) Liquid oxygen converter, discharging to the equipment section.
- (b) Battery, discharging to the nose wheel well.
- (c) Windscreen de-icing transformer, discharging to the nose wheel well.

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- (d) Forward fuselage radar discharging to the equipment section.
- (e) Dorsal radar discharging to atmosphere.
- (f) Alternator control discharging to the rear fuselage.

Cabin Pressurization and Discharge Air

- 20. The cabin is unpressurized up to 10,000 ft. Pressure increases linearly with altitude from 10,000 ft. until a differential of cabin to atmospheric pressure of 4.5 5 psi is reached at 60,000 ft. giving a cabin altitude of 23,500 ft.
- 21. The cabin pressurization is regulated by a cabin pressure regulator valve, a pneumatically actuated cabin pressure regulation controller and a cabin pressure relay valve, with true ambient static pressure taken from a nose probe.
- 22. The cabin pressurization system can be tested on the ground by selecting a cock on the cabin pressure regulator controller to GROUND TEST.
- 23. A cabin pressure safety valve and controller is mounted on the rear cockpit bulkhead to protect the occupants of the cabin from excessive cabin pressures. The valve has two operations:
- (a) Relieves cabin pressure over 5.25 5.75 psi.
- (b) Operates as a cabin air pressure dump valve which opens when the front cockpit dump control switch is selected from CABIN PRESSURE to DUMP.
- 24. The normal pressure relieving function of the safety valve is actuated by the cabin pressure safety valve controller which is sensitive to cabin pressure and ambient true static pressure. The cabin pressure safety valve controller has a preset switch provided which can be selected OFF during ground testing of the cabin pressure and leak rate.
- 25. An inward relief valve is fitted to relieve negative cabin pressure.

Ramp and Ram Cooling Air Supply

- 26. The forward motion of the aircraft provides ram air and ramp air cooling airstreams for the air-to-air heat exchanger.
- 27. The ram air is taken from a duct formed by the front fuselage outer skin and the aerodynamic boundary layer ramps at each side of the aircraft adjacent to the engine intake ducts. The ram airstream provides approximately two thirds of the air-to-air heat exchanger cooling air. After passing through the heat exchanger the ram air is ducted overboard at the dorsal fin outlet.
- 28. The ramp air is taken from the aerodynamic boundary layer ramp bleed holes at the engine air intake and ducted to the heat exchanger. After passing through the

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heat exchanger the ramp airstream is ducted to the fan of the cooling turbine and fan unit. The fan, driven by the turbine, assists the airstream through the air-to-air heat exchanger, and passes the airstream overboard at the dorsal fin outlet.

- 29. When the landing gear is lowered, it operates a micro-switch which closes a circuit to an actuator mounted in each ram air duct. Hinged flaps then open to allow ram air to supplement the ramp airstream. This is a precaution to prevent fluctuations in the speed of the cooling turbine/fan unit due to the reduced airflow at approach and landing speeds.
- 30. Selection of the cabin air supply switch in the front cockpit to EMERGENCY opens two gate valves which allow ram air to pass through ducting to provide cooling air for the equipment areas. As the radar nose cooling and pressurizing requirements are in excess of the ram air supply, the EMERGENCY selection of the cabin air supply switch also shuts off the radar nose equipment electrical supply. High airspeeds have the effect of heating the air to temperatures too high for equipment cooling, subsequently airspeed must be lowered prior to selecting the cabin air supply switch to EMERGENCY.
- 31. A light in the front cockpit gives the pilot warning of overheating in the equipment areas.

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the valve allowing cabin pressure air to overboard at the dorsal fin. IANDING LOWERED Ram air duct hinged flaps opened allowing air to supplement ramp air. Cabin air supply non-return and shut-off	the valve allowing cabin pressure air to overboard at the dorsal fin. IANDING LOWERED Ram air duct hinged flaps opened allowing air to supplement ramp air. Cabin air supply non-return and shut-off valve closed.		ON	the windship	eld ducting.	Overheat dev	rice wi
GEAR air to supplement ramp air. Cabin air supply non-return and shut-off	GEAR air to supplement ramp air. Cabin air supply non-return and shut-off valve closed.		ON	the valve a	llowing cabin	pressure air	operate to spi
			LOWERED	air to suppl Cabin air su valve closed	ement ramp ai pply non-retu	r. rn and shut-	

DATE

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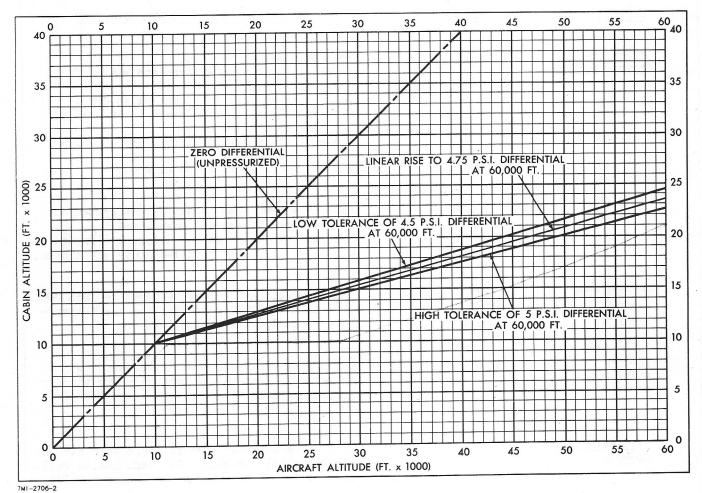


FIG. 3 PRESSURIZATION GRAPH

SYSTEM	SUB-SYST	EM	COMPONE	NT	REF. NO.
AIR CONDITIONING AN PRESSURIZATION	ND		Flow Augmentor a	and Shut-	22-2
AVRO PART NO.	MANUFACTURER	MAN'F'	R'S PART NO.	AIRCRAFT E	FFECTIVIT
7-2254-3	Airesearch (c/o Garrett Mfg. Co.		-106482	2520	01
OVERHAUL LIFE:	KNOMN-	EST	TIMATED- 1500 h	ours	
	To allow air from the air- to by-pass the turbine who drops below 70 psi.				
LOCATION R	lear of navigators bulkhes	ad at Sta. 2	224-255.		
ACCESS				MEI	N X MINUTES
r t	emove 76 - 3/16 inch screensitioned on the undersurable rear of the navigators the antenna attached to the access panel.	face of the bulkhead. The panel and	fuselage to Disconnect	44 - 124 - 131 - W	Populari H
REPLACEMENT PROC	EDURE			MEN	X MINUTES
₽ h C	onnect one pipe line. lace augmentor in positio olding clamps to augmento onnect one electrical con eplace cabin air discharg	r. nector.	ct two		
					373

	NC					MEN X	MINUTES
			security, da	mage and cor	cosion.		
						9 - 12 CO	
						7 9 30	HRPYC
						67.5	or Setua
FUNCTION	IAL CHECKS				NELES ATOM	MEN X	MINUTES
							ta 6.
					io salmidiani		
		Electrical	EQUIPMENT ground power	unit.			
			ground power	unit.			
		Electrical	ground power	unit.			
SPECIAL T	OOLS TO REMOVE	Electrical B4 access s	ground power	unit.			
SPECIAL T		Electrical B4 access s	ground power	unit.		т тидка	
SPECIAL T		Electrical B4 access s	ground power	unit.	and the second s	23 <u>3 80 80</u>	
		Electrical B4 access s	ground power	unit.		<u> </u>	
		Electrical B4 access s	ground power	unit.		51 3 M 3 M 3	- A.
		Electrical B4 access s	ground power	unit.			
		Electrical B4 access s OR SERVICE	ground power tand.	unit.			
		Electrical B4 access s OR SERVICE	ground power	unit.			
		Electrical B4 access s OR SERVICE	ground power tand.	unit.			
		Electrical B4 access s OR SERVICE	ground power tand.	unit.			
		Electrical B4 access s OR SERVICE	ground power tand.	unit.			
SPECIAL TO		Electrical B4 access s OR SERVICE	ground power tand.	unit.			

SYSTEM AIR CONDITION PRESSURIZA	ING AND	SUB-SYSTEM		COMPON Main Shut-on (Turbine Pressu	ff Valve	REF. NO. 22 -3
AVRO PART N 7-2252-2	١٥.	MANUFACTURER Barber-Colman		R'S PART NO.	AIRCRAFT E	
OVERHAUL LIFE:	KNO	WN-	ES	TIMATED- 500	hours	
FUNCTION	and tem	conjunction with temper perature controller to e. Used as a shut-off v	control	turbine inlet		
LOCATION		ducting between air-to positioned to the reard.			nd	
ACCESS					ME	N X MINUTES
REPLACEMENT F	Remove the air panel.	asing six latches. Ren 57 - 3/16 inch screws in conditioning bay roof	rom an a and remo	ccess panel in ve the access	GMA 2182 3G/A	N X MINUTES
	Connect	n the valve. two holding clamps. one electrical connect	ion.		STANCT RES	103 SARO 15
						1000000000
						3 75 0 6 6 4

INSPECTION		MEN X MINUTES
	Check operation of the valve by operating cockpit switch from OFF to EMERG and listening. Check for security, damage and corrosion. Function with ground test equipment.	
		Tendel News
FUNCTIONAL CHECKS		MEN X MINUTES
	property of the contract of th	
GROUND HANDLING AND GRO	OUND TEST EQUIPMENT	
GROUND HANDLING AND GRO	Electrical ground power unit. Temperature control ground test equipment.	
GROUND HANDLING AND GRO	Electrical ground power unit.	
GROUND HANDLING AND GRO	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
ESTORIA SAN	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
ESTORIA SAN	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
ESTORIA SAN	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
ESTORIA SAN	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
SPECIAL TOOLS TO REMOVE C	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
SPECIAL TOOLS TO REMOVE C	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
SPECIAL TOOLS TO REMOVE C	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
SPECIAL TOOLS TO REMOVE C	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
SPECIAL TOOLS TO REMOVE C	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
SPECIAL TOOLS TO REMOVE C	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	
SPECIAL TOOLS TO REMOVE C	Electrical ground power unit. Temperature control ground test equipment. Cockpit access stand.	

SYSTE AIR CONDITION PRESSURIZA	NING AND			COMPC Shut-off Va Repel	lve - Rain	REF. NO. 22=4
		MANUFACTURER Barber-Colman				EFFECTIVITY 5201
OVERHAUL LIFE	: KNO	WN-	ESTIN	MATED- 150	0 hours	
FUNCTION	repellation the pile	rol the flow of air for nt. Valve is controlle ots cockpit. Temperatu f air temperature rises	ed manually are sensor	by a switch closes the		UNIOTIONAL
LOCATION	In the a	air conditioning equipm changer outlet.	ent bay at	the air-to-a	ir	
ACCESS					ME	EN X MINUTES
ACCESS	by relea	dorsal fairing rear of masing six latches.	navigators	cockpit		
REPLACEMENT	by release Remove in Remove in Position the acce	asing six latches. fan outlet duct. 57 - 3/16 inch screws fined in the equipment bayess panel.	rom the acc	cess panel remove	END ON TON	
	by release Remove in Remove in Procedure Proce	asing six latches. fan outlet duct. 57 - 3/16 inch screws fined in the equipment bayess panel.	rom the acc y roof and	cess panel remove	ERGE DA JON	N X MINUTES
	by release Remove in Remove in Procedure Proce	asing six latches. fan outlet duct. 57 - 3/16 inch screws fined in the equipment bayess panel. EE alve in position. two holding clamps.	rom the acc y roof and	cess panel remove	ERGE DA JON	

INSPECTION		MEN X	MINUTES
	Check for security, damage and corrosion.		
		a bas	
		1700 360	L Tays
			or curren
FUNCTIONAL CHECKS		MEN X	MINUTES
GROUND HANDLING AND	GROUND TEST EQUIPMENT Blectrical ground power unit.	}	
GROUND HANDLING AND	GROUND TEST EQUIPMENT		
ariemaia x erav	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.	7	A see
arte(mains x army	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.	P	A - 191
arte(mains x army	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.	A TIPE	A - 1879
SALMININ X IN DAY	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.	7 314 26	
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.		A 1979
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Blectrical ground power unit. Cockpit access stand.		

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SYSTAIR CONDIT	ION ING AND	SUB-SYSTEM		COMPO Regulator Val Press	ve - Cabin	REF. NO. 22=5
AVRO PAR 7-2252-		MANUFACTURER Normalair Canada Ltd.		'R'S PART NO.	AIRCRAFT E	
OVERHAUL LIF	FE: KN	OWN-	ES.	TIMATED- 500	hours	
FUNCTION	maints	ls the cabin air discha in the cabin pressure t lled by a controller un	o a given	rate to schedule.	6743710 U	1 d 20 1 - 1999
LOCATION	condit	in the cabin air dischaining equipment bay on ad at station 255.	arge duct the forw	in the air ard face of		
ACCESS	unders rear o	76 screws from the accourface of the fuselage per formal navigators cockpit. access panel.	cositioned	at the d to the		N X MINUTES
REPLACEMENT	PROCEDU	RE .			ME	N X MINUTES
	Fit six Connect regulat Replace between valve,	regulator in position. k attachment bolts. t duct to the outlet sid tor valve. the cabin air discharg the navigators bulkhea and connect duct to the the regulator valve.	e duct d and			T mloare

	and supporting the property of the second contract of the second con	Art. of Land
	Check for security, damage and corrosion.	
FUNCTIONAL CHECKS		MEN X MINUTES
	Stop watch, pressure and temperature gauges. Electrical ground power unit.	
SPECIAL TOOLS TO REMOV	'E OR SERVICE	
REMARKS		
ISSUE 1		

SYSTEM SUB-SYSTE AIR CONDITIONING AND PRESSURIZATION		Air-to-wate:	PONENT r Heat Exchanger and Water Tank	
AVRO PART NO. 7=2254=12	MANUFACTURER Surface Combustion Corp.	MAN'F'R'S PART NO. AIRCE		FECTIVIT
OVERHAUL LIFE: KN	IOWN-	ESTIMATED- 150	00 hours	
redu	ates, as a part of the re ces the temperature of en radar equipment cooling.			
LOCATION	conditioning equipment ba	y at station 268.		
ACCESS			MEI	N X MINUTE
roof	and remove the access pa	nel.	MEN	N X MINUTE:
Fit : Conn Plac Conn unit Posi into Conn Replac duct	tion the duct from the he position and connect up. ect the turbine outlet du ace and connect the air-t	e heat exchanger and r to the heat exchanger position. d bracket to the turb at exchanger to the turb ct. o-water heat exchanger	ine/fan urbine inlet	TE JANUARI

INSPECTION		MEN X MINUTES
	Fill air-to-water heat exchanger with distilled water using the dipstick for checking the correct level. (For filling in cold weather use hot distilled water). Check for security, damage and corrosion.	
		(4 - 36-07)
FUNCTIONAL CHECKS		MEN X MINUTES
	A street garden street and a street street and a street st	
GROUND HANDLING AND GRO	OUND TEST EQUIPMENT	
	Distilled water and container.	
	Distilled water and container. Electrical ground power unit.	
	Distilled water and container. Electrical ground power unit.	
SPECIAL TOOLS TO REMOVE (Electrical ground power unit.	
SPECIAL TOOLS TO REMOVE (Electrical ground power unit.	
SPECIAL TOOLS TO REMOVE (Electrical ground power unit.	
SPECIAL TOOLS TO REMOVE O	Electrical ground power unit.	
SPECIAL TOOLS TO REMOVE O	Electrical ground power unit.	
	Electrical ground power unit.	
REMARKS	Electrical ground power unit.	
REMARKS	Electrical ground power unit.	
REMARKS	Electrical ground power unit.	
REMARKS	Electrical ground power unit.	
REMARKS	Electrical ground power unit.	
REMARKS	Electrical ground power unit.	
REMARKS	Electrical ground power unit.	

SYSTEM		SUB-SYSTEM		COMPON	NENT	REF. NO
AIR CONDITIONING AND PRESSURIZATION				Shut-off Valve - Radar Nose		22-7
		MANUFACTURER ransco Products Inc.		'R'S PART NO. 20-23		EFFECTIVIT 5201
OVERHAUL LIFE:	KNOW	N-	ES.	TIMATED- 1500	hours	
FUNCTION	nose, i	off the flow of cool n order to conserve a nt when the pilot ope ply switch to emerger	ir for merates th	ore vital	2000	gwelcherel
LOCATION	In the	nose wheel well at st	ation 19	3 LH side.		
ACCESS					М	EN X MINUTE
	In nose	wheel well at static	n 193 LH	side.		
REPLACEMENT PRO	OCEDURE	. Fire res		e Test Centicale ; indistruit ind diplace		EN X MINUTE
	Fit fou	alve in position. r bolts to the valve an electrical connec		ting.	OMBIT CT E.R	DOY BARDE
					-	ANAM

INSPECTION		MEN X MINUTES
	Check valve for security, damage and corrosion. Check the electrical connector for security.	
		a series and a series and
		-
		<u> </u>
FUNCTIONAL CHECKS		MEN X MINUTES
	Cockpit and B4 access stands.	
gátaka elem		
SPECIAL TOOLS TO REMO	VE OR SERVICE	
REMARKS		
<u> </u>		
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DATE 16 Jan 57		

SYSTEM AIR CONDITIONING A	SUB-SYSTE	Pressure Reduc	ing and	REF. NO. 22-8	
PRESSURIZATION		Non-return	Valve		
AVRO PART NO. 7-2256-5	MANUFACTURER Airesearch (c/o Garrett Mfg. Co.)	MAN'F'R'S PART NO. 108298	AIRCRAFT EFFECTIVIT		
OVERHAUL LIFE:	KNOWN-	ESTIMATED- 500	hours		
8	To reduce pressure of engi and to act as a non-return against an engine failure.		g		
三进工户目标 X 2000年				PROTIONS	
LOCATION	n each engine, outboard a	at station 524.			
ACCESS	water to the same		ME	N X MINUTE	
r	demove 36 - 3/16 inch screensitioned on the outer skremove the access panel.		SINA SIMI RUKA	H Stugn	
REPLACEMENT PROC	EDURE		ME	N X MINUTE	
C	lace valve in position. onnect two holding clamps eposition two small pipe	lines and connect up.			
				ARREST	

INSPECTION	MEN X MINUTES
Check for security and damage.	Service Service
ing the structure of a person of the contract	
FUNCTIONAL CHECKS	MEN X MINUTES
escorpe viens	
Pressure gauge. External power supply. B4 access stand.	
SPECIAL TOOLS TO REMOVE OR SERVICE	
REMARKS	
	~
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SYSTEM AIR CONDITIONING AND PRESSURIZATION	SUB-SYSTEM	Non-retur	MPONENT m Valve - ine Bleed	REF. NO. 22 - 9	
AVRO PART NO. 7=2254-579	MANUFACTURER Normalair Canada Ltd.	MAN'F'R'S PART NO		AIRCRAFT EFFECTIVIT	
OVERHAUL LIFE: KI	NOWN-	ESTIMATED-	1500 hours		
FUNCTION To	prevent return flow of en	gine bleed air.			
Particular Consultation				L. Propriet	
LOCATION Rig	ht and left hand of fusel	age at station 489.			
ACCESS			M	EN X MINUTE	
				the state of the s	
		and these distances	CAS CAS BUILDING		
REPLACEMENT PROCED	URE		M	EN X MINUTE	
Pla Con	ce the valve in position. nect two holding clamps.				
			1		

INSPECT	ои	MEN X	MINUTES
	Check valve for security, damage and corrosion.		
FUNCTIO	NAL CHECKS	MEN X MINUTES	
		9. 20.	
		-	
GROUND	HANDLING AND GROUND TEST EQUIPMENT		
	Cockpit access stand.		
SPECIAL	TOOLS TO REMOVE OR SERVICE		
REMARKS			
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SYSTEM		SUB-SYSTE	M .	СОМРС	NENT		REF. NO
AIR CONDITIONIE PRESSURIZATI				Ram Air Va	alve	\$ 100	22-11
AVRO PART NO.		MANUFACTURER	MAN'F	'R'S PART NO.	AIRCRA	FT EFF	ECTIVIT
7=2252=3		Transco	3	3020-6	2	5201	
OVERHAUL LIFE:	KNOWN	I -	ES.	TIMATED- 150	0 hours		
t	he esser	pooling air from the ntial equipment when	the valv	e is opened by		10 3041	NOTTO ME
		ir conditioning equi		at each side o	f		
ACCESS						MEN >	K MINUTE
tı	he rear	ed on the undersurfa of the navigator's	bulkhead,			u vi	N. J. Selection Chief.
tı	he rear ntenna a	of the navigator's and remove the acces	bulkhead, s panel.		3225 - 1990.	MEN X	MINUTE
t) a)	he rear ntenna a	of the navigator's and remove the acces	bulkhead, s panel.	disconnect the		MEN X	MINUTES
ti al REPLACEMENT PROC P F:	he rear ntenna a EDURE	of the navigator's and remove the acces	bulkhead, s panel.	disconnect the	TRA FOR	MEN X	MINUTE
ti al REPLACEMENT PROC P F:	he rear ntenna a EDURE	of the navigator's and remove the access and remove the access are valve in position.	bulkhead, s panel.	disconnect the	TRA TOM	MEN X	MINUTE
ti al REPLACEMENT PROC P F:	he rear ntenna a EDURE	of the navigator's and remove the access and remove the access are valve in position.	bulkhead, s panel.	disconnect the	CHANN TO	MEN X	MINUTE
ti al REPLACEMENT PROC P F:	he rear ntenna a EDURE	of the navigator's and remove the access and remove the access are valve in position.	bulkhead, s panel.	disconnect the	CHATTER TO	MEN X	MINUTE
ti al REPLACEMENT PROC P F:	he rear ntenna a EDURE	of the navigator's and remove the access and remove the access are valve in position.	bulkhead, s panel.	disconnect the	TRA PORT	MEN X	MINUTE

INSPECTION	MEN	X MINUTES
Check for a	security, damage and corrosion.	
kares ones Cattalu		HAGAC
FUNCTIONAL CHECKS	· MEN	K MINUTES
		dir koʻs
PERLIMIN TANK		
Electrical Cockpit and	ground power unit. 1 B4 access stands.	
SPECIAL TOOLS TO REMOVE OR SERVICE	AUDITORE TREBA	See Sign
REMARKS		-
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SYSTEM		SUB-SYSTEM		COMPC	NENT	The second second	REF. NO.
AIR CONDITIONING PRESSURIZATION		ilikoropo bok etakaliky		Cooling Turbi	ne/Fan Un:	it	22-13
AVRO PART NO. 7-2254-1	(c/	MANUFACTURER Airesearch o Garrett Mfg. Inc.)		R'S PART NO. 201970	AIRCRA	2520	FECTIVITY
OVERHAUL LIFE:	KNOWN	j-	EST	IMATED- 500	hours		
FUNCTION	To reduc	e system air temperat	ture.		. Viet		
LOCATION	Upper co bay at s	mpartment of air conditation 274.	litioning	g equipment			
ACCESS					·	MEN	X MINUTE
	Remove 5 position and remo	he fan outlet duct. 7 - 3/16 inch screws ed on the air conditi ve the access panel.			of	37 D	N SHEET
REPLACEMENT PROC	CEDURE					MEN	X MINUTES
	Connect Connect Connect exchanger Place the	e turbine/fan unit in the two holding strut the outlet duct to th the duct from the air r to the turbine. e fan inlet duct into to the fan and to th r using 24 3/16 inch	e turbing to-wate position a air-to	e. r heat n and connect -air heat			
							160

INSPECTION		MEN X	MINUTES
	Check for security, damage and corrosion. Listen when running for smooth operation. Remove to oil at specific periods and replace. Remove for overhaul.		
			ohe sys
FUNCTIONAL CH	ECKS	MEN X	MINUTES
			1
GROUND HANDLI	ING AND GROUND TEST EQUIPMENT		
GROUND HANDLI	ING AND GROUND TEST EQUIPMENT Air conditioning ground power unit. Cockpit access stand.		
GROUND HANDLI	Air conditioning ground power unit.		
	Air conditioning ground power unit.		
	Air conditioning ground power unit. Cockpit access stand.		
SPECIAL TOOLS	Air conditioning ground power unit. Cockpit access stand.		
SPECIAL TOOLS	Air conditioning ground power unit. Cockpit access stand.		
SPECIAL TOOLS	Air conditioning ground power unit. Cockpit access stand.		
SPECIAL TOOLS	Air conditioning ground power unit. Cockpit access stand.		
	Air conditioning ground power unit. Cockpit access stand.		

SYSTEM AIR CONDITIONING PRESSURIZATION		SUB-SYSTEM		COMPON Non-return and Shut-off Valve	Electric	REF. NO 22 -17
AVRO PART NO. 7-2254-4		MANUFACTURER Airesearch Garrett Mfg. Inc.)		Supply S'S PART NO. 4588	AIRCRAFT E	
OVERHAUL LIFE:	KNOWN-	•	ESTI	MATED- 1500	hours	
FUNCTION	the event	nt an immediate loss t of a system failure air flow to the cabin down.	e at high	altitude.	2.800.040	
LOCATION	Rear of t	the navigators bulkhe	ead at sta	ation 240.		
ACCESS	positione	6 - 3/16 inch screws ed on the undersurfac of the navigators bu	ce of the	fuselage to	ME	N X MINUTE
REPLACEMENT PRO					ME	N X MINUTE
	Connect t	valve in position. wo holding clamps to n electrical connect he cabin discharge a	ion to th			

INSPECTION		MEN X	MINUTES
	Check for security, damage and corrosion.		
FUNCTIONAL CHECKS		:MEN X	MINUTES
GROUND HANDLING AND	GROUND TEST EQUIPMENT		
GROUND HANDLING AND			
GROUND HANDLING AND	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. Cockpit and B4 access stand.		
	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. Cockpit and B4 access stand.		3 P. 18
	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. Cockpit and B4 access stand.		5 Philipped
	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. Cockpit and B4 access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. Cockpit and B4 access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. Cockpit and B4 access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. Cockpit and B4 access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. Cockpit and B4 access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. Cockpit and B4 access stand.		
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. Cockpit and B4 access stand.		

SYSTEM		SUB-SYSTEM	СОМ	IPONENT	REF. NO
AIR CONDITIO PRESSURIZ			Safety Val Press		22-18
AVRO PART NO 7-2252-328	1.000	MANUFACTURER Airesearch O Garrett Mfg. Inc.)	MAN'F'R'S PART NO. 102058=1		EFFECTIVITY
OVERHAUL LIFE:	KNOWI	N	ESTIMATED- 150	00 hours	
LOCATION	5.75 psi Can be u	the cabin from a pressure sed as a cabin pressure face of the navigator	re dump valve by oper		
ACCESS		he dorsal fairing to t		N	IEN X MINUTE
		r's cockpit by releasi	ing six latches.	BO CHA EA EN	
REPLACEMENT PR	navigato	r's cockpit by releasi			EN X MINUTES
REPLACEMENT PR	Place value of the six wirelock Connect of the six of t	r's cockpit by releasi lve in position. 3/16 inch bolts to the	e valve and mounting.	M AND AND AND	EN X MINUTES
REPLACEMENT PR	Place value of the six wirelock Connect of the six of t	lve in position. 3/16 inch bolts to the bolts. one electrical connect	e valve and mounting.	M AND AND AND	EN X MINUTES

INSPECTION		MEN X	MINUTES
	Check valve and electrical connector for damage, security and corrosion.) PATH (
Cap		HELL MI	everyo.
			moram
FUNCTIONAL CHECKS		MEN X	MINUTES
		11	a, rapal
efficiency, in sin			
GROUND HANDLING AND	GROUND TEST EQUIPMENT Cabin pressurization unit.		
GROUND HANDLING AND	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, temperature and pressure gauges. Electrical ground power unit.	en TROM	315 A. 5 fr Sp
BOTHWAN I O'TH	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, temperature and pressure gauges. Electrical ground power unit. Cockpit access stand.	eren YMSM	3134.36-39
BETUKIN A UTAN	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, temperature and pressure gauges. Electrical ground power unit. Cockpit access stand.	STEEN THE SE	313A 3 ° 32
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, temperature and pressure gauges. Electrical ground power unit. Cockpit access stand.	eren TPASE	3334 34 39
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, temperature and pressure gauges. Electrical ground power unit. Cockpit access stand.	TASK	
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, temperature and pressure gauges. Electrical ground power unit. Cockpit access stand.	TP-SKI	313.4.3.5.3.5
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, temperature and pressure gauges. Electrical ground power unit. Cockpit access stand.	eren TPSM	
	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, temperature and pressure gauges. Electrical ground power unit. Cockpit access stand.	TPC-SEC	
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, temperature and pressure gauges. Electrical ground power unit. Cockpit access stand.	THE RE	
SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT Cabin pressurization unit. Stop watch, temperature and pressure gauges. Electrical ground power unit. Cockpit access stand.		

SYSTEM AIR CONDITIONING AND PRESSURIZATION	SUB-SYSTEM	Contr	OMPONENT oller - Cabin ressure	REF. NO 22-19
AVRO PART NO. 7-2252-24	MANUFACTURER Normalair Canada Ltd.	MAN'F'R'S PART N 511720		T EFFECTIVIT 5201
OVERHAUL LIFE: KN	OWN-	ESTIMATED-	1000 hours	-
the revalve	s cabin pressure and state elay valve to control the so that the cabin pressur schedule.	cabin pressure re	gulator	AMON MARIA
LOCATION Rear 1	lower face of navigators b	ulkhead.		
ACCESS		Marchael Control		MEN X MINUTE
positi	o 76 - 3/16 inch screws from the noned to the rear of the number the antenna and removed the antenna and remove the antenna and antenna and antenna and antenna anten	avigators bulkhead	1.	EH CHIĞIR
REPLACEMENT PROCEDU	IRE			MEN X MINUTE
Fit th	controller in position. ree 6/32 inch screws to t ntroller. t three hose lines.	he mounting		- E 307/10/21
3-2-5				1 31 A

INSPECTION		MEN X MINUT
	Check for security, damage and corrosion. Carry out a cockpit pressurization check.	
FUNCTIONAL CHECKS		MEN X MINUTE
		1 5 5 2 5 4
GROUND HANDLING AND	GROUND TEST EQUIPMENT	
	Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. B4 and cockpit access stands.	
	Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. B4 and cockpit access stands.	
PECIAL TOOLS TO REMOV	Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. B4 and cockpit access stands.	
PECIAL TOOLS TO REMOV	Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. B4 and cockpit access stands.	
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PECIAL TOOLS TO REMOV	Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. B4 and cockpit access stands.	
GROUND HANDLING AND SPECIAL TOOLS TO REMOVE EMARKS	Cabin pressurization unit. Stop watch, pressure and temperature gauges. Electrical ground power unit. B4 and cockpit access stands.	

SYSTE	:M	SUB-SYSTEM	COMF	PONENT	F	EF. NO
AIR CONDITION PRESSURIZA			Fi.	lter	2	2-20
AVRO PART	NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT	r EFFE	CTIVIT
7-2252-310	6	Normalair Canada Ltd.	511831	2	25201	
OVERHAUL LIFE	: KNO	WN-	ESTIMATED- 20	00 hours		
FUNCTION		ude foreign material fr the relay valve and co		5 A. Shi		
LOCATION	Front f	ace of the navigators b	ulkhead.			
ACCESS					MEN X	MINUTE
			LOW THE SCOOSS DANG!			
	position		navigators bulkhead.	O DIAN DALIC		
REPLACEMENT	position	ned to the rear of the : ect the antenna and rem	navigators bulkhead. ove the access panel.		MEN X	MINUTE
REPLACEMENT	PROCEDUR Place the sealing navigator Fit two	ned to the rear of the : ect the antenna and rem	mavigators bulkhead. ove the access panel. omplete with side of the		MEN X	MINUTE

INSPECTION	775. I	MEN X MINUTES
	Remove and replace with a clean filter.	7 - 5255 C
2444.00		171. J. 1447 (VD)
		Se se statific
FUNCTIONAL CHECKS		MEN X MINUTES
		NI PTAGO
		220cA
	La descripción de la capación de la La descripción de la capación de la Recurso de la capación del capación de la capación de	
	Cockpit and B4 access stands.	
SPECIAL TOOLS TO REMOVE O		
	der ter er geligter med kanne så med Live elde av el end skommerke skolftere så med med et finde skolfte en geligter	
REMARKS		
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741-3413-2-6

SYSTEM	SUB-SYSTEM	C	OMPONENT	REF. NO
AIR CONDITIONING AND PRESSURIZATION	D	Air-to-ai	r Heat Exchanger	22-21
AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART	O. AIRCRAFT	EFFECTIVIT
7-2254-6	Airesearch (c/o Garrett Mfg. Co.)	83940	252	201
OVERHAUL LIFE: KI	NOWN-	ESTIMATED-	1500 hours	
To	reduce temperature of eng	ine bleed air.		
LOCATION Air	conditioning equipment b	eay at station 292.		
ACCESS			м	EN X MINUTE
in	nove 57 - 3/16 inch screws the equipment bay roof an	d remove the access	s panel.	Residence of the second
REPLACEMENT PROCED	URE		ME	EN X MINUTE
a h Att: Com exc: Com and exc! Com Rep: att:	ce the air-to-air heat excoist. ach the holding struts. nect the ram and ramp inlehanger. nect the rain repellant, air-to-water heat exchange hanger. nect the engine bleed duct lace the duct to the fan a ach with 24 - 3/16 inch bollace and connect up the rat exchanger and dorsal out	et ducts to the hear fuel pressurization ger inlet duct to t ting. and heat exchanger olts, a hinge pin, amp air outlet duct	ducts he heat and and clamp.	

INSPECTION	MEN X	MINUTES
Check for security, cracks and corrosion.		
	,216	
FUNCTIONAL CHECKS	MEN X	MINUTES
GROUND HANDLING AND GROUND TEST EQUIPMENT		
Sling and hoist for lifting heat exchanger from the aircraft. Wing mats. Cockpit access stand.		
SPECIAL TOOLS TO REMOVE OR SERVICE		
SPECIAL TOOLS TO REMOVE OR SERVICE		
SPECIAL TOOLS TO REMOVE OR SERVICE		
REMARKS		
REMARKS		

SYSTEM AIR CONDITIO		SUB-SYSTEM		COMPON Ground Connect	· -		REF. NO
PRESSURIZA				Low Pressu			22=2.
AVRO PART N	0.	MANUFACTURER	MAN'F	R'S PART NO.	AIRCRAI	FT EFF	FECTIVIT
7=2252=18		Normalair Canada Limited				2520	L
OVERHAUL LIFE:	KNOW	N -	EST	TIMATED- 1500	hours		
FUNCTION		itate connection of lo			air		
LOCATION							
	On the unstation 2	ndersurface of the lef 242.	it hand e	engine air intak	e at		
ACCESS	The group	ed test west somestic	n is on	the undersumface	a of	MEN	X MINUTE
	The groun						
	the LH er	nd test unit connection ngine air intake at st					
	unit remo	ngine air intake at st ove 76 3/16 inch screw	tation 24 s from t	2. To dismantle the access panel	e the		
	unit remo	ngine air intake at st ove 76 3/16 inch screw od on the undersurface	eation 24 s from to of the	2. To dismantle the access panel fuselage, to the	e the		
	unit remo	ngine air intake at st ove 76 3/16 inch screw	eation 24 s from to of the	2. To dismantle the access panel fuselage, to the	e the		
	unit remo	ngine air intake at st ove 76 3/16 inch screw od on the undersurface ovigator's bulkhead.	eation 24 s from to of the	2. To dismantle the access panel fuselage, to the	e the		
	unit remo	ngine air intake at st ove 76 3/16 inch screw od on the undersurface ovigator's bulkhead.	eation 24 s from to of the	2. To dismantle the access panel fuselage, to the	e the		esa io
REPLACEMENT PR	unit remo positions of the na remove th	ngine air intake at st ove 76 3/16 inch screw od on the undersurface ovigator's bulkhead.	eation 24 s from to of the	2. To dismantle the access panel fuselage, to the	e the	MEN >	(MINUTE
REPLACEMENT PR	unit remo positions of the na remove the	ngine air intake at st ove 76 3/16 inch screwed on the undersurface avigator's bulkhead. ne access panel.	tation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the attenna a	e the	MEN)	MINUTE
REPLACEMENT PR	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN)	(MINUTE
REPLACEMENT PF	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface ovigator's bulkhead. ne access panel.	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN)	MINUTE
REPLACEMENT PR	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN)	(MINUTE
REPLACEMENT PF	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN >	(MINUTE
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REPLACEMENT PF	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN >	MINUTE
REPLACEMENT PE	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN)	(MINUTE
REPLACEMENT PF	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN >	MINUTE
REPLACEMENT P	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN)	(MINUTE
REPLACEMENT P	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN >	(MINUTE
REPLACEMENT P	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN)	(MINUTE
REPLACEMENT PR	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN >	MINUTE
REPLACEMENT PE	unit remo positions of the na remove the ROCEDURE Place the Fit six 3	ngine air intake at st ove 76 3/16 inch screw ed on the undersurface avigator's bulkhead. he access panel. e unit into position co b/16 inch bolts to the	cation 24 s from to of the Disconne	2. To dismantle the access panel fuselage, to the ext the antenna and the act the antenna and the act the asset.	e the	MEN)	CMINUTE

INSPECTION		MEN X	MINUTES
		A second	
Ch	eck for security, damage and corrosion.		
		1	
		MEN X	MINUTES
UNCTIONAL CHECKS		1	
			OF RESOR
			es o.
GROUND HANDLING AND	GROUND TEST EQUIPMENT		
GROUND HANDLING AND			
GROUND HANDLING AND	GROUND TEST EQUIPMENT		
GROUND HANDLING AND	GROUND TEST EQUIPMENT 4 access stand.		
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GROUND HANDLING AND BA	GROUND TEST EQUIPMENT 4 access stand.		
GROUND HANDLING AND BA	GROUND TEST EQUIPMENT 4 access stand.		
GROUND HANDLING AND BA SPECIAL TOOLS TO REMO	GROUND TEST EQUIPMENT 4 access stand.		
GROUND HANDLING AND	GROUND TEST EQUIPMENT 4 access stand.		

7HI-3413-2-6

SYSTI AIR CONDITIO PRESSURIZ	N ING AND	SUB-SYST	rem .	COMPON Temperature Con Cabin Temperatu	trol Valve -	REF. NO 22-28
AVRO PART 7 -2252-]	467.5	MANUFACTURER Hamilton Standard (Canadian Fratt & Wh	i de la companya de l La companya de la companya de	"R'S PART NO. IS. 506337	AIRCRAFT EI	
OVERHAUL LIFE	: KN	OWN-	ES	TIMATED- 500 h	ours	
FUNCTION	signal the va engine	roportional solenoid of from the controller alve. The position of bleed air to be mixed air supply.	to a pneumant the valve	tic signal which controls the amo	positions unt of ring the	
LOCATION	In the	e cabin air supply duo ment bay at station 21	et assembly,	air conditionin		
ACCESS					MEN	N X MINUTE
	positi	e 76 - 3/16 inch screw loned on the undersurf unect the antenna and	ace of the remove the	fuselage, access panel.	Oha Overlaine	
REPLACEMENT	positi discon	oned on the undersurf mect the antenna and	ace of the remove the	fuselage, access panel.		X MINUTE:
REPLACEMENT	PROCEDU Place Connec Connec Connec	oned on the undersurf mect the antenna and	to the valvine.	fuselage, access panel.		X MINUTE
REPLACEMENT	PROCEDU Place Connec Connec Connec	the valve in position t two holding clamps t the 1/4 inch pipe 1 t the electrical conn	to the valvine.	fuselage, access panel.		X MINUTE

INSPECTION		MEN X	MINUTES
Y 1987 S - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	Check the valve and electrical connection for damage, security and corrosion. Check system with temperature control test equipment.		
			NEWS CO.
		Legel	e Skille
FUNCTIONAL CHECKS		MEN X	MINUTES
	gundenthines ale fores o rous Torre de libes est el	2-1-	NTADOJ.
ESTABLE X N.S.S.			80,800
	Lotting make on 11th or 12th o		
	Temperature control test equipment. Electrical ground test equipment. Cockpit and B4 access stands.		1.22
		THEN	The store
SPECIAL TOOLS TO RE	EMOVE OR SERVICE		
REMARKS	ng digar makan sa ing pakan bang diberahan Sa Ang ang sa kanalah bang mbangsa bang diberahan sa ing pakan bang diberahan sa ing pakan bang diberahan sa i Sa Ang ang sa sa ing pakan bang diberahan bang mbangsa bang diberahan sa ing pakan bang diberahan sa ing pakan		
ISSUE _		T	
DATE 16 Jan 57			

SYSTI	EM	SUB-SYSTEM	СОМРО	NENT	REF. NO
AIR CONDITION PRESSURIZE			Temperature Co Radar Tempera		22-30
AVRO PART 7-2252-1	L	MANUFACTURER Hamilton Standard Canadian Pratt & Whitney	MAN'F'R'S PART NO. HS. 506337	AIRCRAFT E 252	
OVERHAUL LIFE	E: KNC	NWN-	ESTIMATED- 500	hours	
FUNCTION	signal the va engine	oportional solenoid of the from the controller to a live. The position of the bleed air to be mixed with equipment air supply.	a pneumatic signal whice valve controls the an	ch positions mount of	ABOITOR
LOCATION		air conditioning equipme equipment air supply duct		vhe	
ACCESS	positio	76 - 3/16 inch screws froned on the fuselage undenect the antenna and remo	ersurface.	ME	N X MINUTE
REPLACEMENT	PROCEDU		The Super Lett Cathons Sinto White Sinte On San Landwick LE Lineau Santo M		N X MINUTE
	Connect Connect Connect	the valve in position. two holding clamps to to a 1/4 inch diameter pips the electrical connector and connect the cabin a	e line. r.		EMITAN.

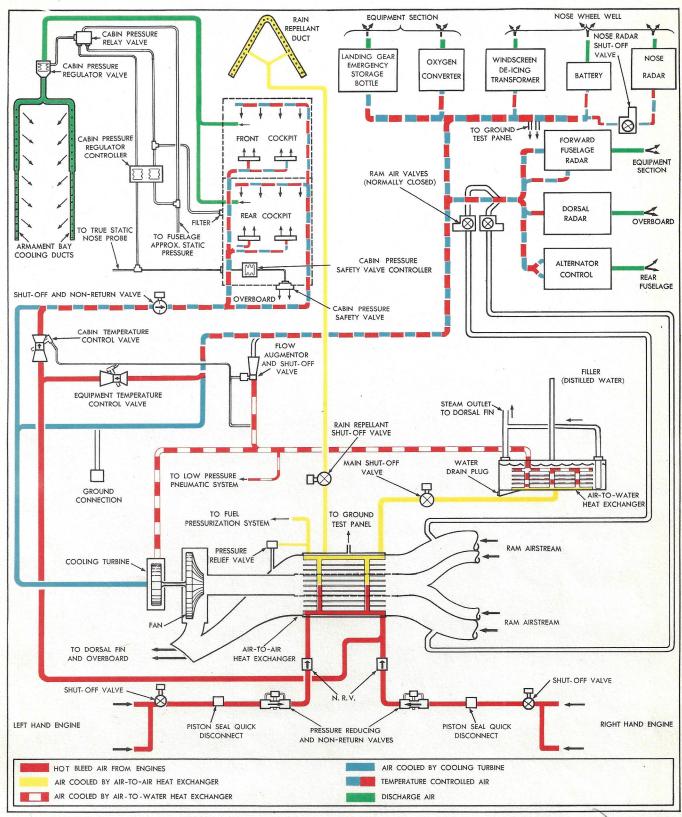
INSPECTION		MEN X MINUTES
	Check for damage, security and corrosion. Check system with test equipment.	
	At any word about 10 to the edit Tombitograp will be been been and the contract to the contrac	
FUNCTIONAL CHECKS		MEN X MINUTES
9211100 F 2420	To the state of th	2 EE CA
GROUND HANDLING AND GI	ROUND TEST EQUIPMENT	
	Temperature control test equipment. Electrical ground power unit. B4 access stand.	
		THE COLUMN
SPECIAL TOOLS TO REMOVE	OR SERVICE	
REMARKS	toni samatonih nim nitura mik imayara inti muni-	
ISSUE 1		
DATE 16 Jan 57		

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SYSTEM AIR CONDITIONING A PRESSURIZATION	AND	SUB-SYSTEM		COMPON Shut-off Valve Engine Air Ble		REF. NO 22=31
AVRO PART NO. 7-2295-57 RH 7-2295-55 LH		MANUFACTURER Airesearch (c/o rrett Mfg. Inc)	Report Book	'R'S PART NO.	AIRCRAFT	
OVERHAUL LIFE:	KNOWN	1-	ES.	TIMATED- 500 h	ours	
FUNCTION	pressur	-off engine bleed ai e or over temperatur bleed air line.	r to the e conditi	system when an o ion is sensed in	ver the	
LOCATION	Engine stage.	bleed air manifold a	t the eng	gine second compr	essor	
ACCESS					M	EN X MINUTE
	4000001	ble when the engine :				
REPLACEMENT PRO	CEDURE			AND CONTROL OF	ME	EN X MINUTE
	Fit eigh	alve in position. ht mounting bolts. the electrical conno	ector.	er graff Verta 177 Verta 178		

SYSTEM	SUB-SYSTEM	СОМРО	NENT	REF. NO
AIR CONDITIONING AND PRESSURIZATION		Pressure Re	elay Valve	22-33
AVRO PART NO. 7-2252-728	MANUFACTURER Normalair Canada Ltd.	MAN'F'R'S PART NO. 512610	AIRCRAFT	EFFECTIVIT
OVERHAUL LIFE: KI	NOWN-	ESTIMATED- 1500	hours	
to the	rs cabin pressure condition cabin pressure regulator of cabin pressure.	ns from the controller r valve. Corrects any		
8.179.619 X = 154				
LOCATION Mount navig	ed on the cabin pressure ator's seat bulkhead.	controller bracket on t	he	
ACCESS			МІ	EN X MINUTE
In th	e navigator's cockpit.			
	est test bancag angles established design			
REPLACEMENT PROCED	URE		ME	N X MINUTE
Fit the Connection	the valve in position. The screws to the valve and three pipe lines. (Pipe lentified by coloured sleet	e lines	Modern College	
13-2-7				(a) 12 (a)

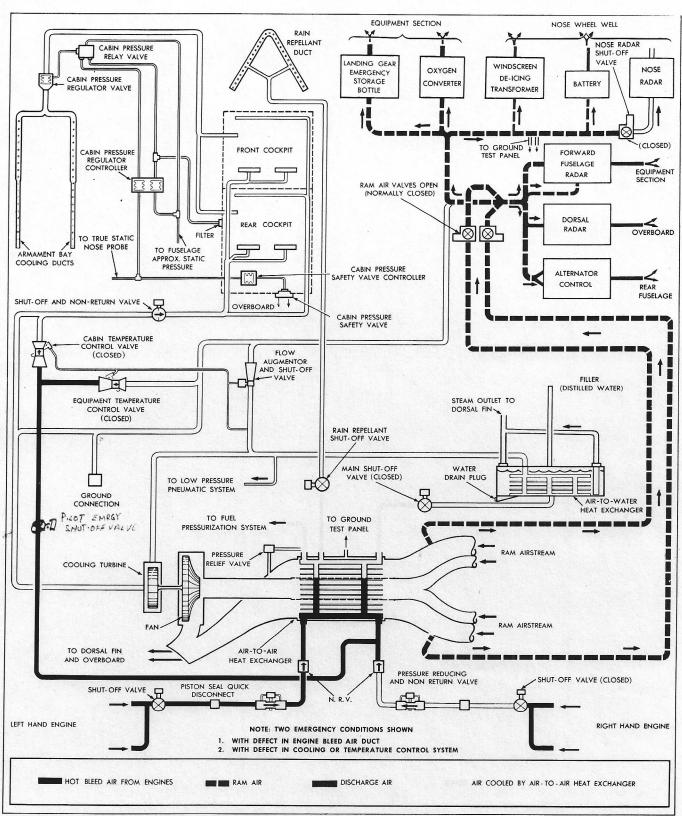
INSPECTION		MEN X MINUTES
	Check valve for security, damage and corrosion.	
	ranger of a rational form.	
	- 보통하는 경기 등에는 경기 : 그는 경기 기계를 보고 있다는 것이 되어 있다는 것이 되었다. 	
FUNCTIONAL CHECKS		MEN X MINUTES
		•
	i i propio de la Sucreta, e la Calenda de Campiona de la compaño de la compaño de la Campiona de la Campiona d La campiona de la compaño de la campiona de la cam	
GROUND HANDLING AND	GROUND TEST EQUIPMENT Cabin pressurization ground test rig. Stop watch, pressure and temperature gauges.	
	Cabin pressurization ground test rig.	
GROUND HANDLING AND	Cabin pressurization ground test rig. Stop watch, pressure and temperature gauges. Electrical ground Power unit.	
manufacture and the second	Cabin pressurization ground test rig. Stop watch, pressure and temperature gauges. Electrical ground Power unit. B4 and cockpit access stands.	
manufacture and the second	Cabin pressurization ground test rig. Stop watch, pressure and temperature gauges. Electrical ground Power unit. B4 and cockpit access stands.	
menting specific to the second specific second specific second se	Cabin pressurization ground test rig. Stop watch, pressure and temperature gauges. Electrical ground Power unit. B4 and cockpit access stands.	
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No.	Cabin pressurization ground test rig. Stop watch, pressure and temperature gauges. Electrical ground Power unit. B4 and cockpit access stands.	
SPECIAL TOOLS TO REMOV	Cabin pressurization ground test rig. Stop watch, pressure and temperature gauges. Electrical ground Power unit. B4 and cockpit access stands.	
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SPECIAL TOOLS TO REMOVE	Cabin pressurization ground test rig. Stop watch, pressure and temperature gauges. Electrical ground Power unit. B4 and cockpit access stands.	
	Cabin pressurization ground test rig. Stop watch, pressure and temperature gauges. Electrical ground Power unit. B4 and cockpit access stands.	

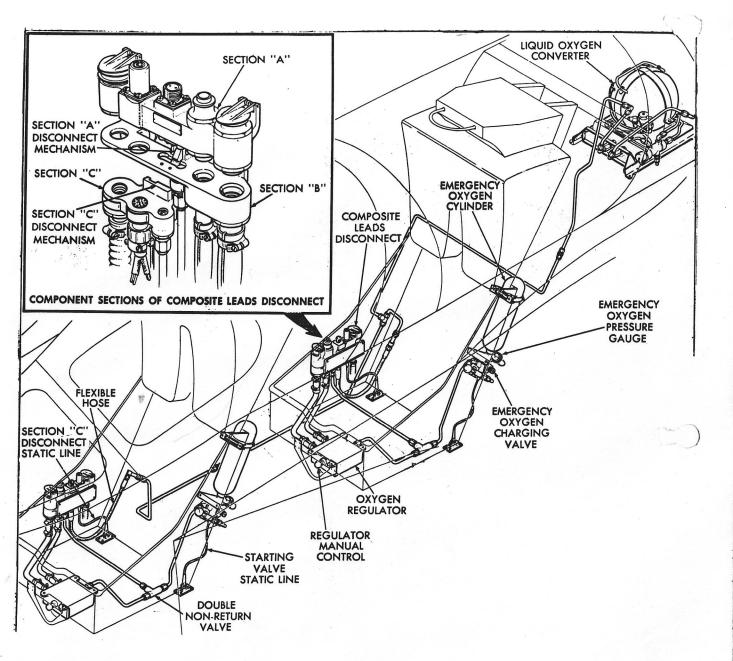


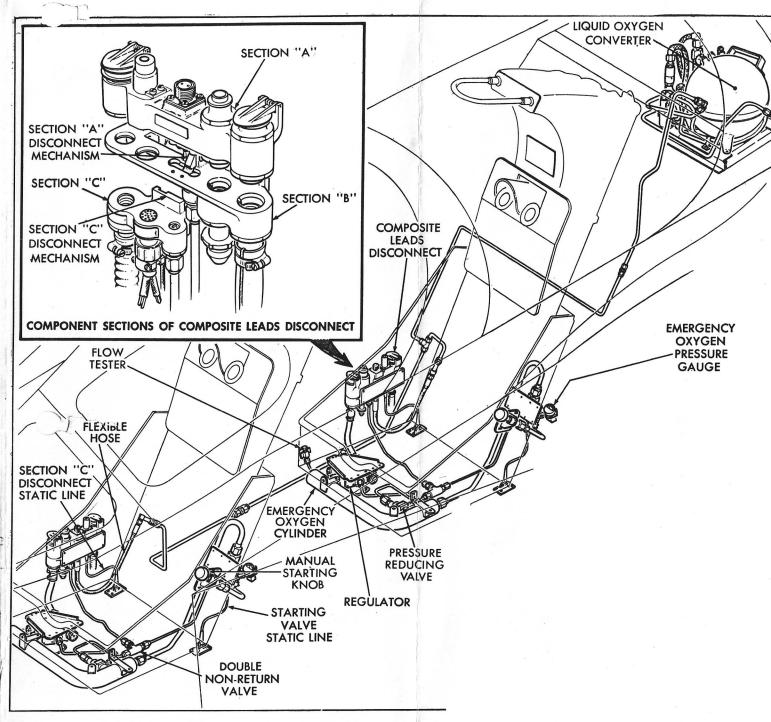
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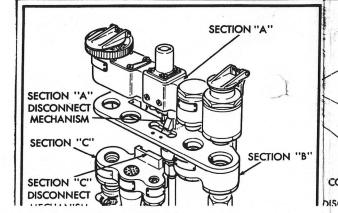
AIR CONDITIONING - NORMAL OPERATION

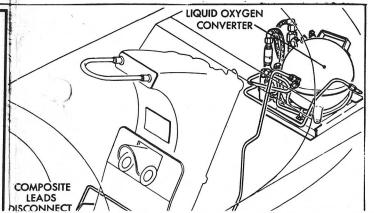
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VALVE

