

QCX  
Avro  
CF105  
72 GEQ  
11 Amendment

GROUND SUPPORT EQUIPMENT ANALYZED  
EVALUATION CONFERENCE  
September, 1958  
*W. F. Cook*

NRC - CISTI  
J. H. PARKIN  
BRANCH  
JUN 8 1995  
ANNEXE  
J. H. PARKIN  
CNRC - ICIST

ANALYZED

CONFERENCE NOTE

September 23rd

The official welcome will take place in the reserved area of hangar D1 at 9 A.M.

The RCAF briefing will be from 9.10 to 9.30 A.M., after which the proceedings will be in accordance with the attached timetable.

Coffee will be served in D1 at 10.30 A.M. and 3 P.M.

Lunch will be served in the cafeteria at 1 P.M.

Badges must be returned at the end of the conference, or whenever a member terminates his visit.

Transportation requests must be made by 3 P.M. each day.

15-89207



~~CONFIDENTIAL~~

PROGRAMME

ARROW GROUND EQUIPMENT DEMONSTRATION

23rd - 26th Sept. 1958.

AMENDMENT TO AVRO REPORT 72/GEQ/11

Classification cancelled / Changed to UNCLASS  
 By authority of ANRS  
 Date 30 Sept 58  
 Signature [Signature]  
 Unit / Rank / Appointment ANRS

ENGINEERING DIVISION

AVRO AIRCRAFT LIMITED, MALTON, ONTARIO.



PROGRAMME SUMMARY - ARROW GROUND EQUIPMENT DEMONSTRATION

1st DAY 23rd Sept. 1958

09.00 - 09.10	Official welcome	Hangar D1
09.10 - 09.30	RCAF Staff briefing	Hangar D1
09.30 - 13.00	a) External aircraft inspection	09.30 - 11.15
	b) Replacement of liquid oxygen	11.15 - 11.35
	c) Recharging emergency oxygen	11.35 - 12.00
	d) Jacking-single wheel	12.00 - 12.30
	e) Weapon pack hoisting	12.30 - 13.00
14.00 - 17.00	a) Weapon pack towing	14.00 - 14.30
	b) Missile handling	14.30 - 16.00
	c) Cockpit pressurization test	16.00 - 16.30

2nd DAY 24th Sept. 1958

09.00 - 13.00	a) Towing	09.00 - 10.00
	b) Engine start & brief run )	11.30 - 11.45
	c) Air condition system test )	
	d) Refuel	11.45 - 12.30
	e) Re-oil	12.30 - 13.00
14.00 - 17.00	a) Fuel quantity test	14.00 - 14.20
	b) Jacking-complete aircraft	14.20 - 14.40
	c) Nitrogen charging of accumulators	14.40 - 15.00
	d) Operation of hydraulic test rig	15.00 - 16.15
	e) Top up hydraulic system	16.15 - 16.30

3rd DAY 25th Sept. 1958

09.00 - 13.00	a) Pitot static system test )	09.00 - 12.00
	b) Damper system test )	
	c) Panel de-icing test	
	d) Panel, fire extinguisher test )	12.00 - 13.00
	e) Panel, canopy & W/S de-icing test)	
14.00 - 17.00	a) Recharge liquid oxygen convertors	14.00 - 14.45
	b) Repeat of demonstrations - if any	14.45 - 15.30
	c) Static displays	15.30 - 16.30

4th DAY 26th Sept. 1958

A.M. & P.M.	General meeting - Plant Cafeteria
09.00 - 17.00	



METHOD & EXTENT OF DEMONSTRATION

A.M. 1st DAY

External Aircraft Inspection

09.30 - 11.15

Inspection of access ladders; maintenance platforms; control and undercarriage locks; engine inlet and outlet covers etc. The demonstrator will point out each item; invite any observer to remove and replace it.

11.15 - 11.35

Replacement of Liquid Oxygen Convertor

A demonstrator will collect the spare liquid oxygen convertors; carry it to upper fuselage via cockpit access platform, and install it in the aircraft. Six observers only are invited to participate at a time.

11.35 - 12.00

Recharging Emergency Oxygen

The demonstrator will show the installation of the emergency oxygen bottle in each seat; exhibit the adaptor & ground trolley; make connection and refill. 6 observers only are invited at a time; 2 on each of two cockpit access stands, 2 on upper fuselage.

12.00 - 12.30

Jacking - Single Wheel

Nose and main wheel jacking for wheel changing.

12.30 - 13.00

Weapon Pack Hoisting

The weapon pack hoist trolley will be positioned under the fuselage; it will be described by the demonstrator and then used for a weapon pack removal. Observers will be invited to make inspection. The weapon pack will then be replaced on the aircraft.

P.M. 1st DAY

Weapon Pack Towing

14.00 - 14.30

The weapon pack on the hoist trolley will be towed around the tarmac to demonstrate manoeuvrability.

14.30 - 16.00

Missile Handling Equipment

Brief description of equipment for assembling and handling missiles by Canadair.



METHOD & EXTENT OF DEMONSTRATION (Cont'd)

16.00 - 16.30

Cockpit Pressurization Test

The GFE cabin pressure rig 4G/2374 will be introduced; connected to the aircraft and a cockpit pressure test carried out.

16.30 - 17.00

Discussion and Screening of Change Requests

A.M. 2nd DAY

Towing

09.00 - 10.00

A tractor, "Unitow" Type D8, modified to carry intercom. and steering warning signals, will be connected with tow bridle standing outside D1 hangar. A short tow will be made (100 feet); the bridle removed and tow bar connected. The intercom. and steering warning device will be described and demonstrated. The aircraft will then be towed about  $\frac{1}{2}$  mile to the engine run site.

10.00 - 11.30

Move A/C to Run-Up Site; describe air condition/AC Generator; air condition system test set & starter

The interim air conditioner unit and 400 cycle AC generator will be introduced at the engine run site. This is a modified MA-2 USAF Truck for Arrow 1 use. A trailer mounted version of improved performance will be used for Arrow 2. A brief description of the vehicle will be given; the vehicle connected and operated. This will be followed by a description of air condition system test set, for troubleshooting during engine run.

The Jeep mounted gas turbine driven compressor to be used is the interim model. The compressor for RCAF use will be packaged for mounting on castors or standard RCAF truck. This interim unit will be described; connected and engine started. The air conditioner/AC generator will be connected to simulate normal procedure although this is not essential for engine starting if ASTRA is switched off. DC power and single phase 115 volts is supplied from the starter via the nose leg receptacle for this purpose but only in Arrow 2 aircraft.

11.30 - 11.45

Engine Start & Run



METHOD & EXTENT OF DEMONSTRATION (Cont'd)

11.45 - 12.30

Refuel

The aircraft fuel system will be outlined and the truck refueling described. This is a type D38-C55 for interim use. The refueling sequence will be described; the master control, panel and selector panel pointed out; refueling truck connected and aircraft refueled in two stage to illustrate partial refuel and full refuel.

Hoses will be disconnected; refuel panels closed and refueling tender removed.

12.30 - 13.00

Re-oil

The oil replenishment rig will be described; oil system outlined; access panel opened; rig connected and replenishment made of engine and gear boxes.

During lunch the aircraft will be repositioned in Hangar D1.

P.M. 2nd DAY

Fuel Quantity Test Set & Fuel Quantity Indicator Test Set

14.00 - 14.20

The fuel quantity test set is used to measure the amount of fuel in individual fuel tanks. The fuel quantity indicator test set is used to test and calibrate the aircraft fuel quantity indicators. Both units will be shown, described and used.

14.20 - 14.40

Jacking Complete Aircraft

This operation will be self evident. The application of GFE 20 ton jacks for Arrow use will be shown.

14.40 - 15.00

Nitrogen, Charging Accumulators

The compressor will be described; connected and operated for charging the hydraulic system accumulators and emergency undercarriage bottle with nitrogen.

The alternative mode for supplying compressed air will also be demonstrated.



METHOD & EXTENT OF DEMONSTRATION (Cont'd)

15.00 - 16.15

Operation of Hydraulic Test Rig

The various operating modes of the test rig will be described. Coloured line diagrams will be available. The various modes are summarized:

Mode 1. Prime aircraft utility system.

Mode 2. Operate utility system.

- (a) Undercarriage retraction.
- (b) Air brake operation.
- (c) Fill aircraft utility compensator.

Mode 3. Prime flying control system.

Mode 4. Operate flying control systems.

- (a) Operate ailerons, elevators and rudder.
- (b) Operate nose wheel steering.
- (c) Fill aircraft flying control system compensators.

16.15 - 16.30

Topping Up the Hydraulic System

This will be demonstrated using the GFE filler and bleeder unit.

16.30 - 17.00

Discussion & Screening of Change Requests

A.M. 3rd DAY

Pitot static system test & damper test

09.00 - 12.00

The pitot static system tester will be introduced and demonstrated.

This will be followed by a description of the damper test equipment and a demonstration covering the 1st line pre-flight tests to determine serviceability and localize defective components.

Damper First Line Test Equipment

General

The Damper Test Equipment consists of the D-UG6004A Damper Test Set which is 17 x 18 x 10, and weighs approximately 40 lbs., and D-UG6005A Damper Auxilliary Test Set, of approximately same size and weight. The Damper Test Set



METHOD & EXTENT OF DEMONSTRATION (Cont'd)

09.00 - 12.00

General (Cont'd)

provides means of checking the Damper and presents the serviceability of the Damper as a series of "good" or "bad" readings on a go-no-go meter as a pair of selector switches are rotated in sequence. Where a "no-go" reading is obtained the Damper Auxilliary Test set will be used to isolate the fault.

In order to check the Damper, the inputs from the Sensors to the Amplifier Calibrator are removed and the Damper Test Set connected to the inputs to the Amplifier Calibrator.

Operation of D-UG6004A

The D-UG6004A Damper Test Set consists of a source of step and pulsed 400 cycle voltage, an Amplifier Calibrator input selector, and a bridge circuit for measuring control surface deflection. By merely rotating an input selector, a signal of the proper amplitude is applied to the position of the Damper bridge selected, simultaneously applied to the qc scheduler equivalent to a desired qc value. This will cause the control surface to deflect to some predetermined angle which will be measured by the bridge circuit. One arm of the bridge circuit is a surface position pick-off potentiometer whose wiper is mechanically connected to the control surface and whose output voltage is therefore proportional to the surface deflection. The other arm of the bridge is a voltage divider whose output is a voltage corresponding to the desired surface deflection. The voltage from the two arms of the bridge are applied to the go-no-go meter which indicates the difference between these voltages. The green area at the centre of the meter marked "good" always represents the allowable limits of system performance. Testing time will be approximately 30 minutes.

Operation of D-UG6005A

Where a "no-go" reading is obtained, the D-UG6005A will be used. It must be used with the D-UG6004A Damper Test Set from which it obtains power, and will allow the measurement of sensor null voltages and servo control currents. It also provides facilities for injecting manually controlled signal and qc voltages into the Damper.



METHOD & EXTENT OF DEMONSTRATION (Cont'd)

09.00 - 12.00

Operation of D-UG6005A (Cont'd)

The judicious use of the two test sets will allow fault detection and isolation to various parts of the Damper such as the Amplifier calibrator, the Hydraulic system or to sensors that can be made to give an output. There is no easy method at present of checking sensors (such as accelerometers whose outputs are near zero) while mounted in the aircraft. The best thing that can be done is to measure null voltages.

12.00 - 13.00

Panel, de-icing Test item 244, will be introduced but not demonstrated as the aircraft system will be inoperative. Panel, canopy & W/S de-icing plus panel fire extinguisher test will be introduced, described and demonstrated.

P.M. 3rd DAY

Recharge liquid oxygen convertors; repeat demonstrations and static display

14.00 - 14.45

Demonstration of trailer, liquid oxygen

Filling of convertor and operation of vacuum pump for exhausting vacuum insulation of storage tank.

14.45 - 15.30

Repeat demonstrations - if any

15.30 - 16.30

Static Display

The items listed in Appendix "B" will be identified, leading particulars and functions described.

16.30 - 17.00

Discussion & Screening of Change Requests

EQUIPMENT FOR EACH PERIOD

The equipment will be identified by a card attached to each item.

A.M. 1st DAY

a) External Aircraft Inspection

156 Cover canopy and elevator, Use suspended.

b) 158A Cover & Sling Radome Arrow 1

157A Cover Probe operation of liquid oxygen convertor, spare liquid oxygen convertor, fully charged.



EQUIPMENT FOR EACH PERIOD (Cont'd)

a) External Aircraft Inspection (Cont'd)

- 152A Cover Engine Intake
- 154A Cover air condition inlet
- 149 Mat duct walkway (air intakes)
- 153A Cover engine exhaust
- 107 (a) Staircase 4G/2985
- 107 (c) Maintenance platform GFE modified
- 107 (a) Ladder 4G/3254
- 150 Mat. wing, walkway, one set rubber, one set wood
- 155A Cover air condition outlet
- \* 175A Cover, pitot head
- 146 Maintenance platform 4G/1956 (3-7 feet)
- 147 Maintenance platform 4G/2614 (7-12 feet)
- 148 Maintenance platform 4G/1230 (13-20 feet)
- 187 Maintenance platform fuselage
- 145A Lock, aircraft nose leg
- 145B Lock, aircraft main leg
- 144 Chocks
- 185 Discharger, electro-static
- 195 Support, aileron and elevator. Use suspended.

b) Replacement of Liquid Oxygen Converter

- 122 Trailer, transportation of liquid oxygen converter, spare liquid oxygen converter, fully charged.



EQUIPMENT FOR EACH PERIOD (Cont'd)

c) Recharging Emergency Oxygen

Both aircraft seats in position.

176 Adaptor, emergency oxygen charging.

169 Trailer, gaseous oxygen, breathing, with 30 ft. oxygen hose.

d) Jacking-Single Wheel

129A Jack, flat base, main gear

129B Jack, flat base, nose gear

132 Adaptor jacking, nose

130 Strap, retaining, main landing bogey

e) Weapon Pack Hoisting

109 Tractor (or similar-max height 60")

112 Hoist, weapon pack

P.M. 1st DAY

a) Weapon Pack Towing

b) Missile Handling

Canadair equipment to be added.

c) Cockpit Pressurization Test

229 Pressure Tester, aircraft cabin 4G/2374

233 Tool, Canopy locking (two types)

NOTE:

A.M. 2nd DAY

a) Towing

109 Tractor

110 Tow bar

111 Bridle



EQUIPMENT FOR EACH PERIOD (Cont'd)

b) Engine Start and Run

- 101A Starter engine air turbine
- 102A Air conditioner/AC Generator
- 107B Ladder cockpit access
- 144 Chocks
- 173 Tie down bar, engine run up
- 172 Cushion set, ear, anti-noise

c) Air condition system test

- 102A Air conditioner/AC Generator
- 232 Panel, air condition test

d) Refuel

- 187 Access stands or similar
- 108 Truck, tank refuel
- 102A Air conditioner/AC power generator

e) Re-oil

- 143 dispensing pump, oil

P.M. 2nd DAY

a) Fuel Quantity Test

- 160 Fuel quantity indication set
- 260 H.T. 109 Fuel capacitance test set
- 261 Leads, connecting for HT 109 and  
proposed replacement for 260

b) Jacking-complete aircraft

- 128 Jack Tripod-20 ton - 3 off
- 131A Adaptor, jacking nose
- 131B Adaptor, jacking wing



EQUIPMENT FOR EACH PERIOD (Cont'd)

- c) Nitrogen, charging accumulators  
103A, compressor, air/nitrogen
- d) Topping up hydraulic system  
105 Filler and bleeder hydraulic system  
184A Gauge, utility compensator Arrow 1
- e) Operation of Hydraulic Test Stand  
168 Stand, test hydraulic system  
174 Gauge, air H.P. 0-3000 (nose U/C)  
401 Pump hand for U/C struts

A.M. 3rd DAY

- a) Pitot static system test  
235 Test equipment, pitot static
  - b) Damper system test  
102 Air conditioner/AC generator  
168 Stand test hydraulic system  
181 Development test equipment  
(including: Damper test set  
Damper aux. test set  
Pitot-static tester  
G-limiter test
  - c) 244 Panel, de-icing test
  - d) 247 Panel, fire extinguisher test
  - e) 256 Panel, canopy and windshield de-icing test
- See Appendix "B". Static display.

P.M. 3rd DAY



APPENDIX "B"

LIST OF STATIC DISPLAY ITEMS

REF.	DRAWING NO. OR BROCHURE	ITEM	SIZE	QTY.	REMARKS
113		Trailer, Lift Sparrow Missile	14x3x3	1	
121		Sling, Missile Pack			
123	G.F.E.	Trailer, Liquid Oxygen Storage	6x4x4	1)	Remains in liquid oxygen facility D3.
124	G.F.E.	Rotary Vacuum Pump for above Trailer		1)	
127	7-2700-6	* Sling, Complete Aircraft		1	
158A	7-2700-55	Cover and Sling, Radome Arrow 1		1	
178	4C/2407	Air, Medium Pressure Gauging Device (0-400 psi)		1	Schrader #4581
211		Sling A/C Maintenance			
		* a) Outer mainplane			
		* b) Inner mainplane			
		* c) Fin Arrow			
		d) Station 255 (nose lift - Arrow)		1	
		* e) Centre Fuselage			
		* f) Front Fuselage			
		* g) Engine Bay			
		* h) Duct Bay			
		* i) Radar Pack			
		* j) Rudder		1	
		* k) Rudder Control Box		1	
		* l) Elevator		1	
		* = Not available			



REF.	DRAWING NO. OR BROCHURE	ITEM	SIZE	QTY.	REMARKS
		* m) Elevator Control		1	
		* n) Aileron		1	
		* o) Aileron Control Box		1	
		* p) Air Condition Pack		1	
		* q) Tail Cone		1	
212		* Trailer, Main Gear Lift		1	
213		* Trailer, Nose Gear Lift		1	
223	551636	Sling, Elevator Jack		1	
224	7-2700-41	Handles, Shroud Removal and Installation		1	
225	Deleted	Electrical Sealant Gun		1	See Item 405
226		* Portable Curing Tool			
227		Thermolug Installation Tools		1	See Item 441
228	7-2700-49	Cage, Protection, A/C Tire Inflation		1	
230	551611	Strap, Retaining Main L/C Door		1	
231	7-2700-53	Strap, Retaining Main L/G Leg		1	
236	Brochure	Rate Table, Damping System 4x4x5		1	
238	Brochure	Developmental Second Line Test Equipment, Damper Consisting of:			
	Brochure	a) Test Stand UG6003A-1			
	Brochure	b) Aircraft damper system Electronic Components			



REF.	DRAWING NO. OR BROCHURE	ITEM	SIZE	QTY.	REMARKS
	Brochure	c) Damper Test Set UG6004A-1			
	Brochure	d) Damper Auxiliary Test Set			
	Brochure	* e) "G" Limiter Test Set UG6006A-1			
	Brochure	f) Pitot Static Test Set Model 382			
	Brochure	g) Rate Table 4G6002A-1			
248	353670	Mat, Protection, Engine Bay			
249	255614	Mat, Protection, Fuselage Fuel Cell			
444		Clothing, protective liquid oxygen handling			
		a) Face Shield			
		b) Elbow length gloves			
		c) Apron			
		d) Chemical shoes			
134	600854	Stand, Maintenance Engine- change			Prototype
138	600851	* Trailer, Engine Maintenance, Iroquois			
142	7-2700-34	Sling, Aircraft Maintenance, Engine Iroquois			
190	600850	* Crane, gantry type for Iroquois			
Nil		Engine change equipment, Air Logistics			



REF.	DRAWING NO. OR BROCHURE	ITEM	SIZE	QTY.	REMARKS
173	7-2700-46	Tie Down, Bar, Engine Run Up			
174	4G/2346	Air, High Pressure Gauge 0-3000 (for nose undercarriage strut)			Schrader #2756
438A	Pyles No. 250-6	Gun, disposable cartridge, electrical, sealant			For posting electrical connectors
438B	Pyles No. 250-12	Gun disposable cartridge, type fuel tank sealant			For curing type sealants
442		Accessories for item 438			
405	Grover Smith #227 Model	Gun, Sealant, Fuel Tank			
406		Accessories for item 405			
441		Tools, electrical cable assy			For use with item 227.

ARROW GROUND SUPPORT EQUIPMENT EVALUATION CONFERENCE

ROYAL CANADIAN AIR FORCE PERSONNEL

BOARD MEMBERS

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W/C B. D. MacArthur		ADC/HQ
W/C P. de L. Markham		AFHQ/DM Eng.
W/C G. D. Waterman		TSD/AVRO
S/L G. H. Cooper		AMC/SACO
S/L L. C. Gibson		AFHQ/DVME
S/L C. T. Reiser		AFHQ/D Arm E.
S/L D. E. Whyte		AFHQ/DIE Eng
F/O G. O. Poulsen	Secretary	AFHQ/AAWS

TECHNICAL ADVISERS

W/C W. G. Lindsay	AFHQ
Major J. M. Ambrecht (USAF)	ADC/HQ
S/L D. L. Campbell	AFHQ/AAWS
S/L W. E. Chandler	TCHQ
S/L J. O. H. Neff	TSD/MAT
S/L J. R. Romano	AMC/AAWS
S/L T. Futer	AFHQ
F/L B. D. Darling	AMC/SEGO
F/L J. B. Murray	AFHQ/AAWS
F/L K. Thomasson	AFHQ/AAWS
F/L W. Ross	TSD/MAT
F/L J. D. Young	TSD/AVRO
F/L T. E. Scanlon	ADC/HQ
F/L G. S. Clark	#6 RD
F/L J. L. Andrews	Camp Borden
F/O L. F. Bateman	AMC/SACO
F/O W. G. Gooding	AMC/SACO
F/O A. J. Guerin	AMC/SACO
F/O A. W. Joy	AMC/SPMO
WO1 J. Dick	AMC/SEGO
WO1 E. H. Rossell	TSD/MAT
WO2 L. Waite	AMC/SPMO
WO2 J. Degear	AMC/S Arm O
WO2 G. Steele	TSD/MAT
F/Sgt. C. J. Fordy	TSD/MAT
F/Sgt. R. Kitchen	TSD/MAT
Sgt. H.A. Foster	TSD/MAT
Sgt. J. McEgan	TSD/MAT

DEPARTMENT OF DEFENCE PRODUCTION REPRESENTATIVES

C. A. Hore  
J. L. Bush  
D. L. James  
T. W. Carter

ARROW GROUND SUPPORT EQUIPMENT EVALUATION CONFERENCE

AVRO AIRCRAFT PERSONNEL

ENGINEERING

C. Lindow	Engineering Project Manager ARROW 2
A. Baley	Project Designer ARROW 2
D. Moore	Project Engineer ARROW 2
R. Littleboy	Section Chief Ground Equipment
F. Halpen	Engineer Ground Equipment
P. Germaine	Engineer Ground Equipment
T. David	Engineer Ground Equipment
G. Emmerson	Section Chief Maintenance Reliability
R. Reid	Engineer Maintenance Reliability
C. Beanland	Engineer Maintenance Reliability
J. Brunfit	Engineer Maintenance Reliability
K. Lowe	Engineer Maintenance Reliability
D. Cranch	Engineer Maintenance Reliability
D. Collingwood	Engineer Maintenance Reliability

SALES AND SERVICE

F. C. Plumb	Service Manager
D. Reynolds	Ass't Service Manager
P. Gallimore	Chief Service Engineer
F. Wilson	Spare Requirements Supervisor
I. Liss	Ass't ARROW Weapon System Co-ordinator - Support
K. Knowlton	Supporting Systems Engineer
E. Burn	Service Co-ordinator
A. Currie	Service Analyst

TEST PILOTS

J. Zurakowski	Chief Experimental Test Pilot
W. J. Potocki	Experimental Test Pilot

ARROW GROUND SUPPORT EQUIPMENT EVALUATION CONFERENCE

ASSOCIATE CONTRACTORS' PERSONNEL

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J. Allard  
I. Kushner  
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G. Wilson  
G. D. Hunter

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D. E. Shumaker  
J. Vickroy  
J. Letwin  
J. Williams  
T. Taylor

ARROW GROUND SUPPORT EQUIPMENT EVALUATION CONFERENCE

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P. Suddick  
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L. Fonzo  
D. Wright  
K. Wefald  
G. Asselstine  
W. Zatychee

AIR CONDITIONING GROUND TESTS

Sequence of tests to check the operation of:-

- (a) Engine Bleed Air Switch
- (b) Temperature Control Switch
- (c) Turbine Temperature Controller
- (d) Shut Off Valves

(1) L.H. and R.H. Engines idling.

(2) Cockpit selections: -- AIR SUPPLY SW. to "NORMAL"  
TEMP: CONTROL SW. to "NORMAL"  
ENG: BLEED AIR SW. to "NORMAL"  
C/P TEMP: CONTROL to "COOL"

(3) L.H. Engine at IDLE, R.H. Engine at 75%  
(a) Check pressure at 82 P.S.I. (Pressure gauge)  
(b) Check C/P inlet temperature at 40° (Position #1)  
(c) Select ENG: BLEED AIR sw. to "R.H. OFF".  
(d) Check pressure at 8-20 P.S.I. (Pressure gauge)  
(e) Select ENG. BLEED AIR sw. to "NORMAL"  
Return R.H. Engine to "IDLE"

(4) L.H. Engine at 75%, R.H. engine at "IDLE"  
(a) Check pressure at 82 P.S.I. (Pressure gauge)  
(b) Select ENG: BLEED AIR sw. to "L.H. OFF".  
(c) Check pressure at 8-20 P.S.I. (Pressure gauge)  
(d) Select ENG: BLEED AIR sw. to "NORMAL"  
(e) Select TEMP. CONTROL sw. to "HEAT OFF"  
(f) Check C/P inlet temperature at 10° F. (Position #1)  
(g) Select TEMP: CONTROL sw. to "NORMAL"  
(h) Check turbine outlet temperature at 10° F. (Position #3)  
Return L.H. Engine to "IDLE".