SERVICING PROCEDURE
F53

BAC F53 & T55 (SA)
5A3A Section 1
2nd Edition

Cabin Pressure Controller - Replacement

AFSC
43151 32851
32551 43250
32850 43171
42251 32571
42152 32870

TIME EST

Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

SPECIAL TOOLS AND EQUIPMENT

MRG Simulator.
Mk 5 Pitot and static test set.
Test set QA 8B.
Head set complete with mic/tel adapter.
PEC (6D/2073).
Gauge small 0.15 lbs (4G/5809).
Gauge large 0.15 lbs (4G/11978).
Pressurizing test trolley (4F/1041044).
Adapter connector (25DK/95437).
Adapter connector (4F/1042289).
Sleeve (AGS 2111/B).
Cone plug (AGS 1140/B) (28F/9439950).
Inflation pump (4G/1743).

ASSOCIATED PROCEDURES
SP105(AF)
SP113(AF)
SP114(AF)
SP116(AF)
SP127(P)
SP103(AC)
SP105(AC)
SP107(AC)
SP104(RAD

43151

1. PREPARATION

1.1 Control column.
(i) Slacken jubilee clip and unzip gaiter.
(ii) Disconnect brake cable at clevis pin attachment
(iii) Unscrew the knurled nut at the base of the control column.

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2. TEST

2.1 Standby static system. Leak check.

3. PREPARATION

3.1 Crate instruments. Remove.

3.2 Instrument crate. Remove.

32850

4. PREPARATION

4.1 Radio centre console.
(i) Release attachment.
(ii) Move sufficiently to allow access.

Continued Overleaf

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5. REMOVAL

5.1 Cabin pressure controller. (i) Electrically disconnect.
(ii) Test DC C/P warning circuit.

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6. REMOVAL

6.1 Cabin pressure controller. (i) Remove.
(ii) Fit blanks.

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7. FITTING

7.1 Cabin pressure controller. (i) Transfer associated pipes.
(ii) Check for leaks.
(iii) Remove blanks.
(iv) Fit.
(v) Lock with wire (22 SWG).

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8. FITTING

8.1 Cabin pressure controller. Electrically connect.

42271/43171 (INSPECTOR)

9. INSPECTION

9.1 Cabin pressure controller. Inspect (assembly and locking).

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PITOT STATIC SENSE AND LEAK TEST (STANDBY)

10. PREPARATION

10.1 Leak tester complete with pitot adapter. Couple between pitot connector and pressure head on the AI 23S bullet strut.

10.2 Standby altimeter pointer. Set to ZERO.

11. SENSE CHECK

11.1 Leak tester. (i) Set to PRESSURE TO PITOT.
(ii) Apply pressure to 130 kt.

Continued

Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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11.	SENSE CHECK (Contd)	
11.2	Standby ASI.	Ensure positive indication.
11.2	Standby altimeter.	Ensure indicates ZERO.
12.	LEAK TEST	
12.1	Leak tester.	(i) Apply pressure to 130 kt. (ii) Cease pumping and ensure indication on leak tester ASI does not fall below 125 kt in less than 3 minutes. (iii) Set to RELEASE.
12.2	Pitot adapter.	(i) Disconnect. (ii) Remove.
12.3	Static vent adapter.	Connect to left static vent wedge plate and to static connexion.
12.4	Right static vent.	Blank off.
12.5	Leak tester.	(i) Set to "section to static". (ii) Apply suction to 130 kt. (iii) Cease pumping and ensure the leak tester ASI does not fall below 125 kt in less than 3 minutes. (iv) Set to RELEASE.
13.	GENERAL	
13.1	Leak tester complete with static vent adapter.	(i) Disconnect. (ii) Remove.
13.2	Right static vent blank.	Remove.

32571 (INSPECTOR)

14.	INSPECTION STAGE	
14.1	Independent check.	Carry out sense and leak check of standby pitot and static system.

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15.	FITTING	
15.1	Instrument crate.	Fit.
15.2	Crate instruments.	Fit.

Continued Overleaf

Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

32571 (INSPECTOR)

16. INSPECTION STAGE

16.1 Instrument crate and crate instruments. Inspect for correct installation and security.

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17. FITTING

17.1 Radio centre console.
(i) Refit.
(ii) Function test, SP 103 (AC) SP 105 (AC), SP 107 (AC).

32870 (INSPECTOR)

18. INSPECTION

18.1 Radio centre console. Carry out inspection check on completion of Item 17.

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19. FITTING

19.1 Control column.
(i) Locate upper portion of the control column to the lower portion.
(ii) Secure using knurled nut.
(iii) Reconnect the brake cable at the clevis pin attachment.

43171 (INSPECTOR)

20. INSPECTION

20.1 Control column. Inspect for correct assembly and locking on completion of Item 19.

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21. FITTING

21.1 Control column. Close gaiter zip and secure using jubilee clip.

Continued

Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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22.	TEST	
22.1	Press to transmit switch (control column).	Functionally test.

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23.	TEST	
23.1	Weapons trigger.	Functionally operate high energy ignitor units by operating trigger.
23.2	Camera button.	Functionally test.
23.3	Trim switches.	Check, SP 112A (EL) F53.
23.4	Gunsight cage button.	Functionally test.

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24.	TEST	
24.1	Aileron control.	Function test SP 113 (AF).
24.2	Tailplane control.	Function test SP 114 (AF).
24.3	Wheel brake.	Function test SP 105 (AF).
25.	INSPECTION STAGE	
25.1	Flying controls (Aileron and tailplane).	Check of aileron and tailplane controls for: (i) Freedom of movement throughout full range. (ii) Ensure no tightness at gaiter on extreme column deflection. (iii) Check for correct sense and function.
25.2	Wheel brake.	Check for correct operation throughout control column range of movement.

Continued Overleaf

Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

32571 (INSPECTOR)

26. INSPECTION STAGE

26.1 Instrument system — An inspector must monitor Items 32 to 34 inclusive.

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27. PREPARATION

27.1 Pitot/Static test set.

(i) Ensure ON/OFF switch OFF.
(ii) Balance control valve OPEN.
(iii) Pitot control valve CLOSE.
(iv) Static control valve CLOSE.
(v) Vent to atmosphere valve CLOSE.
(vi) Pitot select static valve set to STATIC.
(vii) Connect static outlet to the static adapter and fit to the main pressure head covering the static slots and tighten.
(viii) Connect pitot outlet to the pitot adapter and fit to the main pressure head and tighten.
(ix) Connect power lead between power outlet socket 28v DC and T/S input connector.
(x) Altimeter adjust to read 1013.25 mb.

28. PREPARATION

28.1 MRG. — Disconnect outlet 1 and 2 cables.

28.2 MRG simulator.

(i) Connect extension cables to the disconnected cables Sub Item 28.1.
(ii) Ensure all output dials are set to zero degrees.

29. PREPARATION

29.1 External power supplies AC and DC

(i) Connect to aircraft.
(ii) Switch on.

Continued

Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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30. PREPARATION

30.1	SWP cancel button.	Depress and ensure attention-getter extinguishes.
30.2	Inverter changeover switch.	Ensure set to NORMAL.
30.3	Instrument master.	Set to ON. Ensure all displays stabilize and ADS power failure flags energise black.
30.4	HT and ROC display.	Set baroscale to 1013.25 mb.

31. ILLUMINATION TEST.

31.1	All displays.	Ensure all lamps are illuminated when 4 volt lighting dimmer is set fully ON.

NOTE: This may require an improvised light shield, all displays should be approximately the same light intensity.

31.2	Lighting dimmer 4 volt.	Set to OFF.

32. TESTING ATTITUDE INDICATOR.

32.1	MRG ON/OFF switch.	Set to ON.
32.2	MRG simulator.	Press F relay button.
32.3	Attitude indicator.	(i) Ensure power flag energises black. (ii) Ensure indicating zero bank PLUS or MINUS 1 degree. (iii) Ensure indicating zero elevation PLUS or MINUS 1 degree. (iv) FD bead in parked position,
32.4	MRG simulator.	Rotate bank control through 360 degrees.
32.5	Attitude indicator.	Ensure a smooth response to the input throughout 360 degrees.
32.6	MRG simulator.	Rotate elevation control knob nose up 60 degrees.

Continued Overleaf

Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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32. TESTING ATTITUDE INDICATOR (Contd)

32.7	Attitude indicator.	Ensure a smooth response horizon line moving down display going white, check indication 60 PLUS or MINUS 2 degrees.
32.8	MRG simulator.	Elevation control return through zero to nose down 60 degrees.
32.9	Attitude indicator.	Ensure a smooth response check indication 60 degrees nose down PLUS or MINUS 2 degrees.

33. FUNCTIONAL TEST OF NAV DISPLAY

33.1	MPG simulator.	(i) Return elevation control to zero degrees. (ii) Rotate azimuth control through 360 degrees.
33.2	Nav display.	Ensure compass card rotates smoothly throughout 360 degrees.
33.3	MRG ON/OFF switch.	Select OFF.
33.4	Instrument master.	Select OFF.
33.5	MRG simulator.	Disconnect.
33.6	MRG Mk.1.	Reconnect outlet 1 and 2 cables.

34. FUNCTIONAL TESTING NAV DISPLAY AND FLIGHT DIRECTION INDICATION

34.1	Instrument master.	Select ON.
34.2	MRG ON/OFF switch.	Select ON. Ensure attitude indicator finally erects to aircraft attitude with power flag energised between 17 to 30 seconds.
34.3	Pilot's control unit.	(i) Master ON. Ensure power dolls-eye black. (ii) Stab switch ON. (iii) Select HT & HDG mode.

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Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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34. FUNCTIONAL TESTING NAV DISPLAY AND FLIGHT DIRECTION INDICATION (Contd)

34.4	Nav Display.	(i) Ensure at compass mode. (ii) Synchronise, check heading approximates to that of stand-by compass. (iii) Check operation of ratchet in both directions. (iv) Check precession in both directions approximately 2 degrees per min. (v) Synchronise and align set heading pointer with datum.
34.5	FD/AP switch.	(i) Set to FD. (ii) Ensure FD bead centre PLUS or MINUS 1.5 mm. (iii) Set to AP. (iv) Ensure FD bead centre PLUS or MINUS 1.5 mm.
34.6	Nav display set heading pointer (SHP).	Increase heading by 15 degrees.
34.7	Attitude indicator.	Ensure director bead shows FLY RIGHT.
34.8	Nav Display (SHP)	Decrease heading by 30 degrees.
34.9	Attitude indicator.	Ensure director bead shows FLY LEFT.
34.10	Nav Display (SHP)	Return to datum.
34.11	Attitude indicator.	Ensure at centre PLUS or MINUS 1.5 mm
34.12	Pilot's control unit little stick.	(i) Ensure to detent. (ii) Rotate fully Nose Up.
34.13	Attitude indicator FD head.	Ensure FLY UP.
34.14	Pilot's control unit little stick.	Rotate through detent to fully Nose Down.
34.15	Attitude indicator FD bead.	Ensure FLY DOWN indication.
34.16	Pilot's control unit little stick.	Return to detent.

Continued Overleaf

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34. FUNCTIONAL TESTING NAV DISPLAY AND FLIGHT DIRECTION INDICATION (Contd)

34.17 FD/AP Switch. — Set to OFF.

34.18 Pilot's control unit. — (i) Stab switch OFF.
(ii) Master OFF.

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35. ILS INSTALLATION

35.1 ILS system. — Function test SP 103 (RAD).

32571 (INSPECTOR)

36. INSPECTION STAGE

36.1 Instrument systems. — An Inspector must monitor Items 37 to 39 inclusive.

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37. NAV DISPLAY TACAN MODE

37.1 Nav display. — Select TAC mode.

37.2 Control Unit 9273. — (i) ON/OFF switch to ON.
(ii) Function switch to DIST/BRG.
(iii) Channel selector to 104.

37.3 Nav display. — (i) Ensure TACAN display present.
(ii) Ensure locked on distance and bearing ie range counters unmasked and bearing line steady.
Note indications.

NOTE: If no lock ON, proceed with SP 122 INSTRUMENT deleting the remainder of Item 37 and all of Item 38. If this action is necessary external power & instrument master will need to be left on before proceeding with Item 39.

37.4 TACAN off set computer. — (i) Select range 20 nm.
(ii) Change bearing in both directions.

37.5 Nav display. — Note response to sub-item 37.4.

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Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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37.	NAV DISPLAY TACAN MODE (Contd)	
37.6	Off set computer.	Range and bearing set to 000.
38.	NAV DISPLAY DIRECT TACAN	
38.1	Nav display.	(i) Note indication. (ii) Switch to DT mode, ensure no change to indication.
38.2	Off set computer.	Ensure by moving range and bearing controls no change to indication of Nav display.
38.3	Control unit Type 9273.	(i) Function switch to BRG. (ii) ON/OFF switch to OFF.
38.4	Nav display.	(i) Ensure display reverts to compass and range counters masked. (ii) Select compass mode.
38.5	MRG ON/OFF switch.	Select OFF.
39.	FUNCTIONAL TEST ADS DISPLAYS	
39.1	Pitot static test set.	(i) Press to atmosphere valve, depress and release. (ii) ON/OFF switch to ON. (iii) Slowly open the static ontrol valve. (iv) Ensure altimeter ascending ROC shows climb, ASI at lower limit.
39.2	HT of ROC display.	Ensure height increasing, ROC shows climb.
39.3	Pitot static test set.	(i) Close static control valve at 4000 feet. (ii) Ensure no leaks as indicated on ROC indicator.
39.4	Pitot static test set.	Open static control valve and maintain 4000 feet/min.
39.5	HT and ROC display.	Ensure reading 4000 feet/min climb and mach tape moves right to left slowly.

Continued Overleaf

Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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39. FUNCTIONAL TEST ADS DISPLAYS (Contd)

39.6	Pitot static test set.	(i) Close static control valve at 25000 feet. (ii) ON/OFF switch OFF.
39.7	Height and ROC display.	Ensure reading corresponds to that of the test set altimeter.
39.8	Pitot static test set.	(i) Close balance control valve. (ii) Carefully open VENT to Atmosphere control valve to increase differential pitot to static, noting ASI increasing in reading.
39.9	Strip speed display.	Ensure common pointer increases and remains in step with T/S ASI.
39.10	Pitot static test set.	(i) Close vent to atmosphere control valve at 450 kt. (ii) Open balance control valve to maintain 4000 feet/min (dive) until zero differential pressure.
39.11	Strip speed display.	Ensure common pointer decreases and remains in step with T/C ASI.
39.12	Pitot static test set.	(i) Open balance valve fully. (ii) Open vent atmosphere control valve to maintain 4000 feet/min.
39.13	HT & ROC display.	(i) Ensure ROC indicator dive 4000 feet/min approximately. (ii) Ensure during descent T/S altimeter approximates to height display.
39.14	Pitot static test set.	(i) When pressure reaches ambient, indicated by ROC reading ZERO, ensure altimeter reads QNE with vent to atmosphere control valve fully open. (ii) Remove pitot and static adapters from pressure head.

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Safety and Servicing Notes are to be complied with throughout the work detailed on this card.

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39. FUNCTIONAL TEST ADS DISPLAYS (Contd)

39.15	ADS display.	(i) Note white leader dot common pointer tape between datum marks ROC zero, PLUS or MINUS 120 feet/min. (ii) Height display reading QNE.
40.	COMPLETION	
40.1	Instrument master.	OFF.
40.2	External power supplies.	(i) Switch OFF. (ii) Disconnect and stow cables.
40.3	Pitot static test set.	(i) Remove pipes fit blanking caps. (ii) Close vent to atmosphere and balance control valves. (iii) Remove power supply cable and stow.
40.4	Access panel to MRG (21P).	Refit.
40.5	Main pressure head.	Remove pitot and static adapter fit pressure head cover.

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41.	CABIN PRESSURISATION	
41.1	Cabin pressurisation test.	Test (SP 116 (AF)).

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42.	EXAMINE	
42.1	Hydraulic ground test connexions.	Check for leaks during engine ground runs.

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43.	TEST	
43.1	Engine ground run.	Carry out engine ground run (SP 127 (P)).