Appendix 2

STANDARD SERVICEABILITY TEST (R.N.)

for

POWER SUPPLY UNITS, TYPES B AND C

(Modification ADS/160 included)

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Introduction

1. This appendix describes the serviceability tests to be applied to the power supply unit, Type B, Ref. No. 6A/6822 and Type C, Ref. No. 6A/8548 prior to installation in an aircraft and at any time when the serviceability is suspect. The tolerances specified are not to be exceeded.

Test equipment

2. Test set, Type 9B (Ref. No. 6C/2868) is required, consisting of the following units:—

Air data test panel (Ref. No. 6C/3649)

Power supply test panel (Ref. No. 6C/4322)

Distribution panel (Ref. No. 6C/3650)

Power control unit (Ref. No. 6C/2017)

Interconnecting cables (Ref. No. 6C/3651, 6C/3688 and 6C/4321).

Power supplies

3. The following power supplies are required:—

(1) 115 ± 2V, 3-phase, 400 ± 5 c/s, phase rotation ABC. B phase earthed.

(2) A d.c. supply of between 26·5V and 28V.

Servicing methods

4. (1) All operations are to be carried out in the sequence listed. The operation is to be read through completely before it is carried out.

(2) The 3-phase supply is to be maintained at 115 ± 2V and 400 ± 5 c/s throughout the test unless otherwise detailed.

(3) Unless otherwise stated, all tests of the power supply unit are to be carried out with the base of the unit level and in the horizontal plane.

(4) When power for the test set, type 9B is derived from the power control unit, the auxiliary power input plug on the power supply test panel is live (fig. 1) and the protection cap provided must be fitted at all times.

(5) The test set, Type 9B distribution panel electrical connections and cable harness associated with the power supply unit are identified with red markings, except PS3 which is identified with a green marking.

(6) Table 1 gives the abbreviations for panels, meters, switches, potentiometers and other components contained on the test equipment used in these tests.

TABLE 1

Test equipment components—abbreviations

Component	Abbreviation
Power control unit	PCU
Power supply test panel	PSTP
Main ON/OFF switch	S1
Power supply unit selector switch	S2
SOCKET SELECT switch	S8
VOLTAGE SELECT switch	S9
TORQUE SWITCH TEST switches	S10, S11, S12
INT/EXT METERS switch	S13
M3 FUNCTION switches	S14, S15
Balance 20V (X and Y)	RV9
A.C. voltmeter	M1
D.C. voltmeter	M2
Millivoltmeter	M3
PHASE ROTATION INDICATOR	X1

Preliminary examination

5. Examine the power supply unit for damage and clean externally using a dry rag (Ref. No. 32B/242).

TEST PROCEDURE

Preparation

Test set, Type 9B

6. Connect the power supply cable to the INPUT plug on the PCU as shown in fig. 1. The pin connections are as follows:—

A—115V A phase
B—115V B phase
C—115V C phase
D—28V d.c. +ve
E—0V d.c.

7. (1) Set PCU MAINS switch to ON.

(2) Ensure that the neon lamp is lit and is indicating the correct phase rotation.

(3) Check that the frequency is 400 ± 5 c/s.

(4) Adjust the AC-INCREASE control until the a.c. voltmeter reads 115V± 2V at all three positions of the VOLTAGE SELECTOR switch.

(5) Set VOLTAGE SELECTOR switch to A-B.

(6) Adjust the DC-INCREASE control until the d.c. voltmeter reads 28V.

8. (1) Ensure that all four lamps of X1 (PSTP) are evenly lit.

(2) Set PCU MAINS switch to OFF.

Power supply unit

9. Connect the power supply unit to the test set, Type 9B distribution panel, as shown in fig. 1, using cable assemblies CA12 to CA18.

Power failure torque switch test

10. Set the test set, Type 9B switches as follows:—

PCU MAINS switch to ON
S1 to ON
S2 to 1
S8 to PS6
S9 to 25V REF

11. (1) Ensure that M1 indicates approximately 25V.

(2) Operate S10, S11 and S12 in turn and check that as each switch is operated M1 indication falls to zero and when the switch is released M1 indication returns to approximately 25V.

(3) Slowly decrease the 3-phase supply voltage by means of the PCU AC-INCREASE control until M1 indication falls to zero. Check that the reading of the a.c. voltmeter is 85 ± 5V.

(4) Slowly increase the 3-phase supply voltage by means of the PCU AC-INCREASE control until M1 indicates approximately 25V. Check the reading of the a.c. voltmeter. It is to be 100 ± 5V.

(5) Adjust PCU AC-INCREASE control until the a.c. voltmeter reads 115 ± 2V.

(6) Set S8 to INT PSU and S9 to OFF.

Note . . .

If the requirements of para. 11 *are not met, then reference should be made to the appropriate sections of App.* 3 *and App.* 4.

Voltage checks

12. Set S8 and S9 switches to the positions shown in Table 2. Readings are to be within the tolerance shown.

Voltage balance tests

20V balance

13. (1) Set S9 to OFF, S8 to PS6 and S14 to 20V BAL.

TABLE 2

Voltage outputs PS1, PS2, PS5, PS6, PS7 and PS8

Voltage select (S9)	Voltmeter	Socket select switch (S8)						Tolerance (plus or minus)
		PS1	PS2	PS5	PS6	PS7	PS8	
25V REF	M1	25V	25V	25V	25V	25V	25V	3V
170V	M1	170V	170V	170V	170V	170V	170V	10V
–30V	M2	30V	30V	30V	30V	30V	30V	2·5V
–6V a	M2	6V	6V	6V	6V	6V		1V
+9V	M2	9V	9V	9V	9V	9V		1V
–6V b	M2				6V			1V
8V	M1	8V	8V	8V	8V	8V	8V	1V
50V	M1	50V	50V	50V	50V	50V	50V	2V
115V A Ø	M1				115V			2V
115V B Ø	M1				115V			2V
115V C Ø	M1				115V			2V
20V (X)	M1			20V	20V		20V	1·5V
20V (Y)	M1			20V	20V		20V	1·5V
9·5V (X)	M1				9·5V			0·5V
9·5V (Y)	M1				9·5V			0·5V
6V AC	M1				6V			1V
6V (PS8)	M1						6V	1V

(2) Set S15 to X100 and then to successively lower ranges. The final M3 reading is not to exceed 10mV.

(3) Set S14 to OFF.

Note . . .

If a suitable balance cannot be obtained, then the 20V supply from the power supply unit must be adjusted as described in App. 4.

9·5V balance

14. (1) Set S14 to 9·5V BAL.

(2) Set S15 to X100 and then to successively lower ranges. The final M3 reading is not to exceed 10mV.

(3) Set S15 to OFF.

Note . . .

If a suitable balance cannot be obtained, then the 9·5V supply from the power supply unit must be adjusted as described in App. 4.

Phase relationship test

15. (1) Set S15 to Ø REL and S8 to PS6.

(2) Set S9 to each position in turn from 25V REF to 6V AC and note that for all a.c. outputs M3 needle remains in the green sector.

(3) Set S8 to INT PSU and S9 and S15 to OFF.

Switching off and disconnecting equipment

16. (1) Set all the switches and simulators on the test set, Type 9B to off, normal or zero positions.

(2) Disconnect the power supply unit from the test set, Type 9B.

(3) Lightly smear plug and socket threads of the power supply unit with silicone compound, MS4.

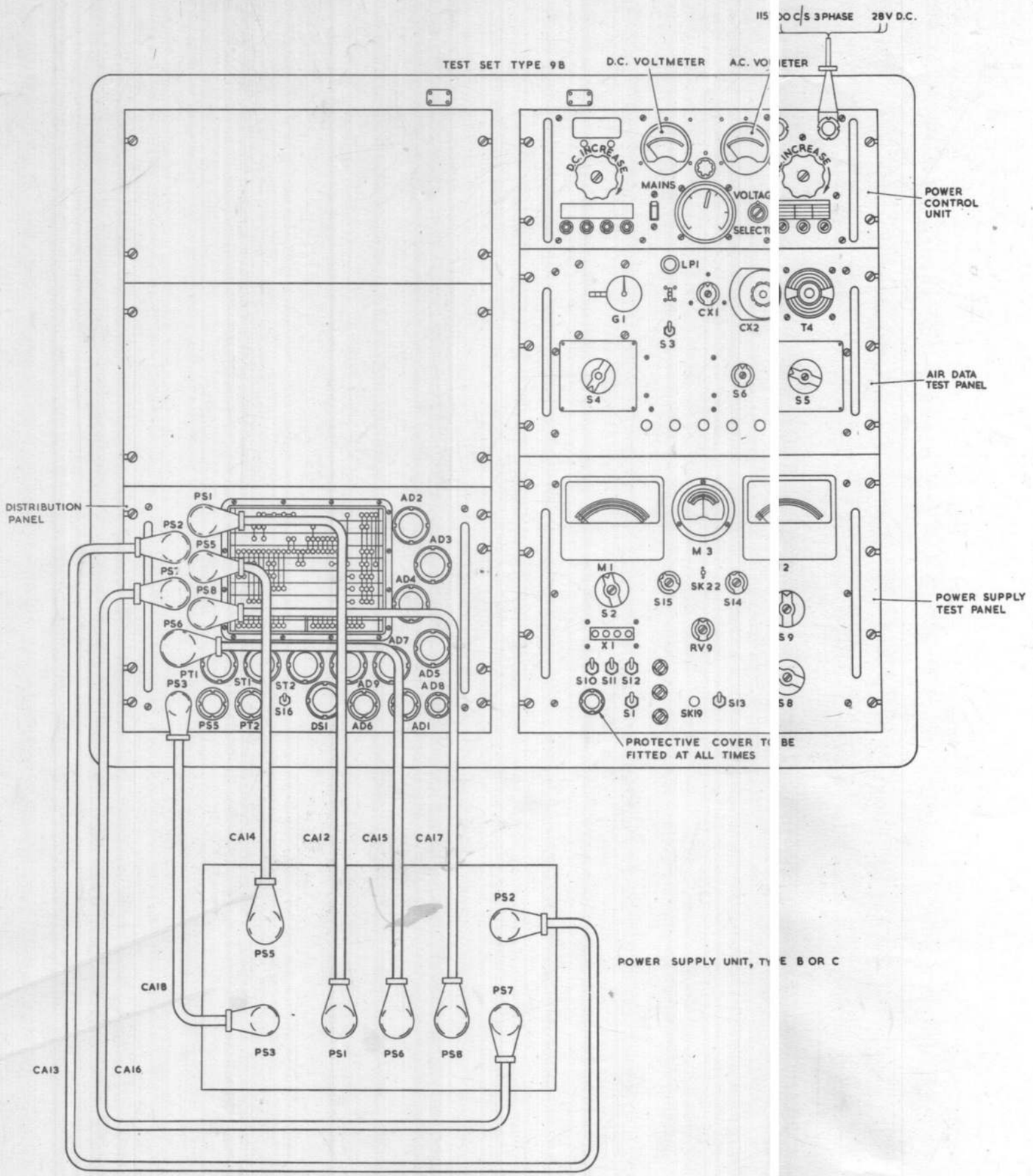

Fig.1 Power supply unit, Type B or C, connected to test equipment Fig.1

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