

Chapter 1

DATUM SELECTOR RESISTOR UNITS

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Introduction

1. Datum selector resistors (fig. 1) are plug-in units designed to fit to Ultra jet-pipe temperature control amplifiers. When fitted to an amplifier the unit specifies the datum temperatures at which the amplifier controls. Up to three datum temperatures may be provided for, the selection of datums usually being made by means of remotely controlled relays. An amplifier may have several datum selector units with which it can be used, thus enabling the control range of the amplifier to be extended to suit a particular engine installation.

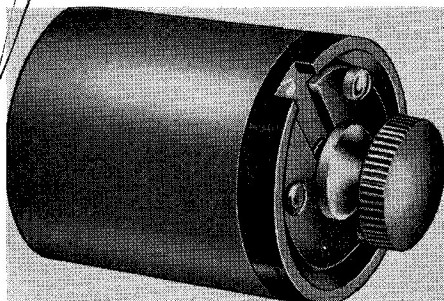


Fig. 1. Datum selector resistor unit

DESCRIPTION

2. The unit comprises three resistors wound on bobbins and designated R71, R72 and

R73, (although in some units the resistors are designated R74, R75 and R76). The resistors are wound from manganin wire and the ends terminated in four sockets at the base. The unit is attached to the amplifier by a plug and socket arrangement, with four outside sockets which carry the electrical connections (fig. 3), and central pin and bush for correctly locating and securing the unit to the amplifier. The central pin on the amplifier is threaded at the end and mates with a threaded socket inside the bobbin. To fit a datum selector to an amplifier, correctly locate the flat on the amplifier pin with the flat of bush in the datum selector, and push the selector home, finally securing the unit by screwing down the knurled-knob.

3. The engine datum temperatures are determined by the values of R71, R72 and R73. When fewer than three datums are required, one or more of the resistors is replaced by a shorting link. A list of datum selector units and their associated amplifiers is given in Appendices 1 and 2.

4. Datum selector units Type ZR86 are basically similar to the ZR76 units, but of improved design and will eventually supersede the Type ZR76 units. The Type ZR86 units are designed to work at a higher ambient temperature and the resistors bobbins are

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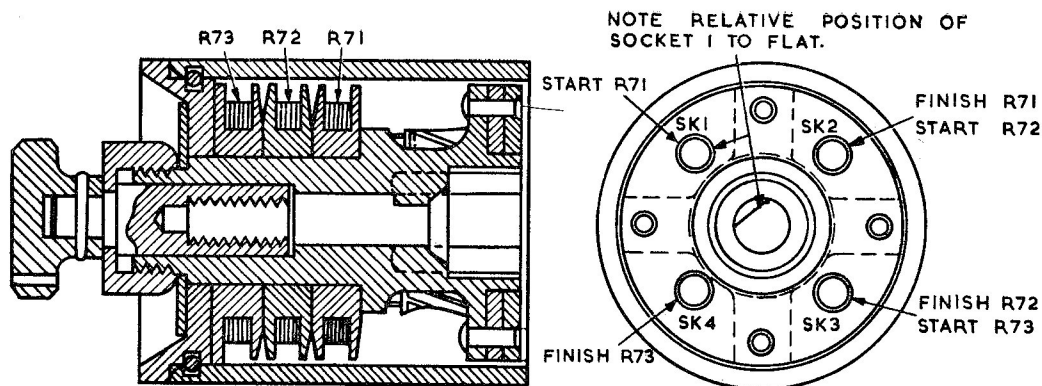


Fig. 2. Section view of Type ZR86 resistor unit

removable and thus may be repaired by re-winding.

SERVICING

5. As a first check of a unit's serviceability, the resistance should be measured between poles 1 and 4, using a resistance bridge. The resistance should be of the order of $R71 + R72 + R73$ (App. 1 and 2). Continuity should then be checked between poles 1 and 2 and between poles 1 and 3. To test that the resistors are within the manufactured tolerances given in Appendices 1 and 2, a d.c. potentiometer and a circuit arrangement as shown in fig. 3 is required. The procedure for doing this is as follows.

6. (1) Set S1 to position 4 and S2 to position 5, Set R1 and R2 to approximately mid-travel and close S3.

(2) Adjust the two rheostats to give a

current of 1mA, i.e. 10mV measured by the potentiometer.

(3) To measure the resistance of R71 set S1 to position 3 and S2 to position 4; the millivolt reading on the potentiometer should correspond with the value of resistance in ohms.

(4) Check current is still 1mA and test R72 and R73 in a similar manner to that described above, i.e. by switching the potentiometer across each resistor in turn.

(5) When checking units with resistors designated R74, R75 and R76, the settings of S1 and S2 will differ from those given above and are as follows:—

- (a) R74 — S1 to posn. 1; S2 to posn. 3
- (b) R75 — S1 to posn. 3; S2 to posn. 2
- (c) R76 — S1 to posn. 2; S2 to posn. 4

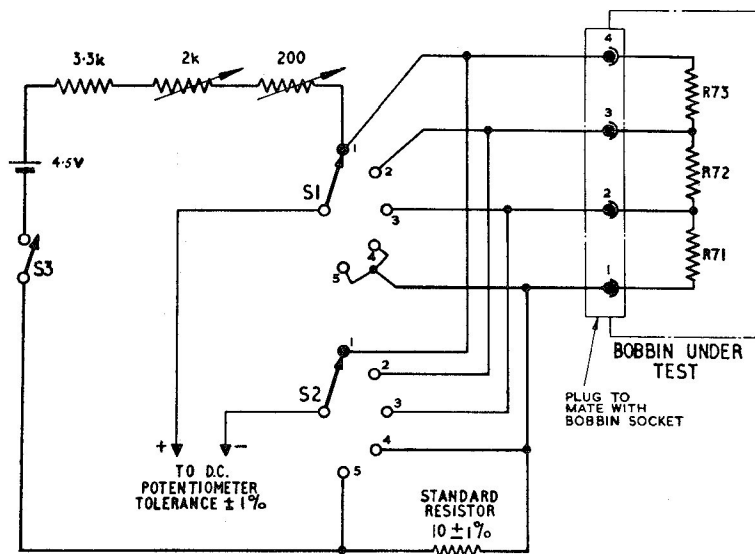


Fig. 3. Test circuit

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APPENDIX 1

Datum selector resistors Type ZR76

Type No. ZR76/	Datum Temperatures °C				Resistance Ohms			Amplifier Type	Ref. No. 5CZ/
	Start	Take off	Climb	Cruise	R71 ±0.10	R72 ±0.04	R73 ±0.04		
R	655	655	—	595	10.36	2.54		A430/1	6006
S		655	620	595	9.9	1.55	1.14	A495	5880
T		660			12.7			A495	5881
U		649			12.3			A495	5882
AB		685	625		11.28	2.53		A490	6009
AC		710	650		12.34	2.53		A490	6010
AD	665	665		570	9.29	4.03		A206	6007
AE		655	625	595	17.53	0.65	0.77	A601	6011
AG	660	660		653	12.06	1.05		A430/1	6160
AK		740	655		12.8	3.23		A490	6161
AL		640			12.0			A495	6162
AM		800	655		12.8	5.8		A490	6163
AN		710	635		11.65	3.23		A490	6164
AP		675	645	615	17.95	0.65	0.77	A601	6165
AR		660	615	600	17.63	0.32	1.18	A601	6166
AV	650	650		625	11.64	1.05		{A430/1 A431 A432}	7275

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APPENDIX 2

Datum selector resistor Type ZR86

Type No. ZR86/	Datum Temperatures °C				Resistance Ohms			Amplifier Type	Ref. No. 5CZ/
	Start	Take off	Climb	Cruise	R71 ±0.10	R72 ±0.04	R73 ±0.04		
Z		665			12.9			A495	6757
AS	650	650		635	12.06	0.63		A431	7308
BG		800	630		11.45	7.15		A497	6651
BH		640		610	11.0	1.27		A431	7200
BL		670	635	610	17.84	0.53	0.88	A601	6855
BP		625		560	8.91	2.77		A206	7155
BR		665		605	10.825	2.545		A206	6653
BC	730	730		730	16.1			A209	7196
					±0.08	±0.02	±0.02		
BV		690	665	630	18.27	0.74	0.61	A601/1	7391
BW		620		565	9.12	2.34		A206	7480
					Resistance Ohms				
					R74 ±0.10	R75 ±0.04	R76		
V	565	595		565	9.08	1.28	—	A2021	6805

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