Chapter 21

TRANSFORMERS, PLESSEY TYPES

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Introduction

1. Plessey transformers have various applications in aircraft circuitry, e.g. anti-icing systems. Leading Particulars of individual types are given in Appendix 1 to this chapter.

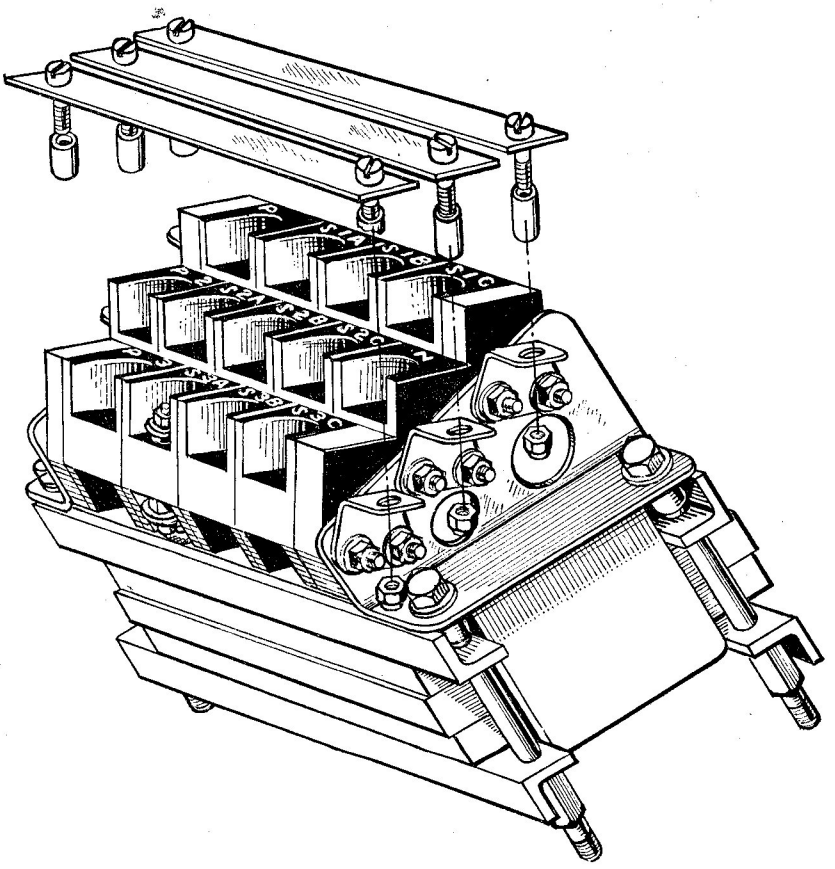


Fig. 1. Typical Plessey transformer (Type 7CZ/146058 shown)

DESCRIPTION

2. The transformer, Type 7CZ/146058, is illustrated in fig. 1 as a typical transformer; one terminal only is shown although this particular transformer has 13 terminals. It consists of windings, connected as detailed in Leading Particulars of Appendix 1 to this chapter, a core assembly, and a terminal board held together by the fixing studs. Appendix 1 to this chapter shows the circuit diagrams of all the transformers listed.

SERVICING

3. Very little servicing is possible apart from a routine check to ensure that the unit is securely mounted, free from mechanical damage and that the terminal connections are tight and reasonably clean.

4. Should the operation of a transformer be suspect it should be removed from the aircraft and tested in accordance with the following paragraphs.

TESTING

No load test

5. With the primary winding connected to a supply of correct voltage and frequency, the secondary output voltage should be within the limits given in Appendix 1, and the no load line current should not exceed the value given in Appendix 1 to this chapter. The no load line current of 3-phase transformers should be measured with the neutral disconnected.

Insulation resistance test

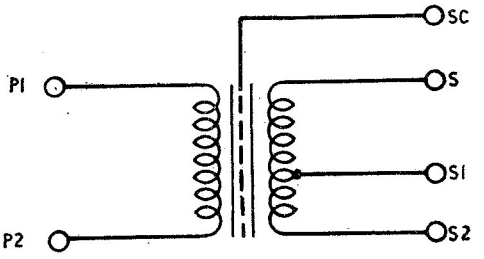
6. Using a 500-volt insulation resistance tester measure the insulation resistance firstly between all terminals connected together and the frame, and secondly for transformers other than auto transformers, between primary and secondary windings. A reading of at least 5 megohms should be obtained for each test.

Appendix 1

LEADING PARTICULARS

Type 7CZ/107403

Ref. No.	5UB/7642
Type of winding	1-phase
Input	25·1V, 400 c/s
Output voltage (volt)	68 (S-S1) 111 (S-S2)
No load line current	1 amp/line
Temperature range	−40 to +70 deg. C
Overall dimensions (in.)	3·563 × 3·5 × 4·455
Weight	4 lb. 10 oz.

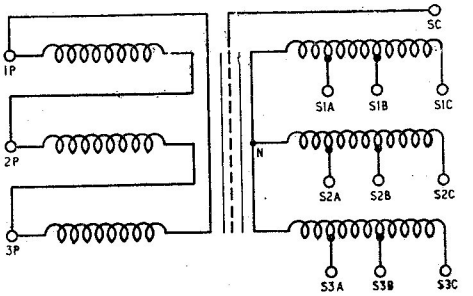


TYPE 7CZ/107403

Fig. 1

Type 7CZ/107534

Ref. No.	5UB/7641
Type of winding	3-phase delta/star
Input	25·1V, 400 c/s
Output voltage (volt)	103 (S1A, S2A, S3A) 118 (S1B, S2B, S3B) 160 (S1C, S2C, S3C)
No load line current	1·2 amp/line
Overall dimensions (in.)	8·105 × 6·405 × 4·054

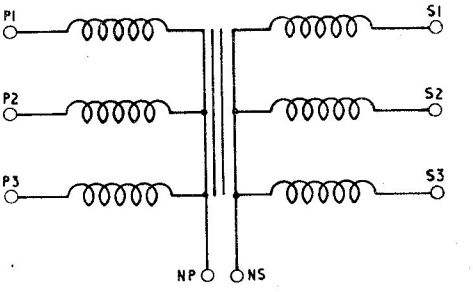


TYPE 7CZ/107534

Fig. 2

Type 7CZ/107786

Ref. No.	5UB/7409
Type of winding	3-phase star/star
Input	200V, 400 c/s
Output voltage	115V ±4%
No load line current	0·18 amp/line
Temperature range	−40 to +70 deg. C.
Overall dimensions (in.)	3·725 × 2·635 × 3·958
Weight	2 lb.

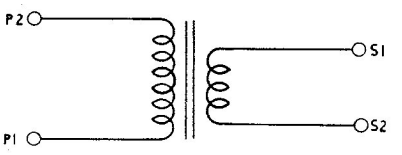


TYPE 7CZ/107786

Fig. 3

Type 7CZ/107913

Ref. No.	5UB/7798
Type of winding	1-phase
Input	115V, 400 c/s
Output voltage	26V ± 3½%
No load line current	0·065 amp/line
Temperature range	−40 to +70 deg. C
Overall dimensions (in.)	2·0×1·75×1·312
Weight	6·5 oz.

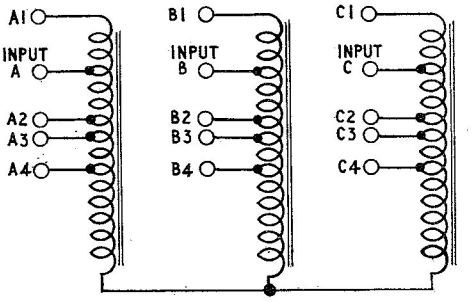


TYPE 7CZ/107913

Fig. 4

Type 7CZ/143030

Ref. No.	5UB/7520
Type of winding	3-phase star auto
Input	115V, 400 c/s
Output voltage (volt)	140 (A1, B1, C1) 94 (A2, B2, C2) 87·5 (A3, B3, C3) 66 (A4, B4, C4) } ±5%
No load line current	0·13 amp/line
Temperature range	−40 to +80 deg. C
Overall dimensions (in.)	6·5×3·255×4·671
Weight	4·5 lb.

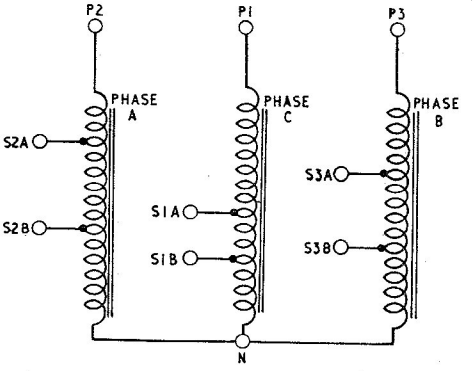


TYPE 7CZ/143030

Fig. 5

Type 7CZ/143263

Ref. No.	5UB/
Type of winding	3-phase star auto
Input	115, 400 c/s
Output voltage (volt)	57·5 (S1A-N) 40·1 (S1B-N) 77·5 (S2A-N) 54·8 (S2B-N) 68·7 (S3A-N) 48·5 (S3B-N) } ±5%
No load line current	0·145 amp/line
Temperature range	−40 to + 55 deg. C
Overall dimensions (in.)	4·325×2·825×3·703
Weight	3 lb. 6 oz.

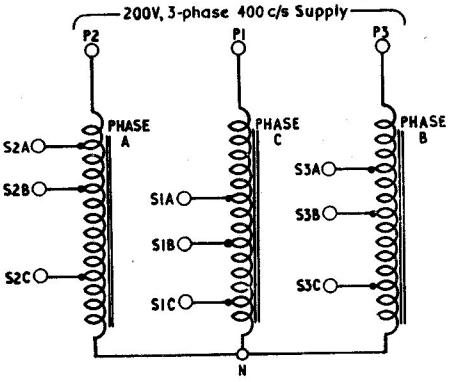


TYPE 7CZ/143263

Fig. 6

Type 7CZ/146058

Ref. No.	5UB/7486
Type of winding	3-phase star auto
Input voltage	200V, 400 c/s a.c.
Phase voltage	115V, 400 c/s a.c.
Output voltage (volt)	Tolerance
	67-71 (S1A-N)
	56-59 (S1B-N)
	39-41 (S1C-N)
	90-95 (S2A-N)
	75·5-79·5 (S2B-N)
	53·5-56·5 (S2C-N)
	80·5-84·5 (S3A-N)
	67-70·5 (S3B-N)
	47-49·5 (S3C-N)
No-load magnetizing current per phase	0·225 amperes
Temperature range	−40 to +70 deg. C.
Weight	3 lb. 4 oz.
Overall dimensions (in.)	4·125 × 2·625 × 4·625



TYPE 7CZ/146058

Fig. 7. Circuit diagram

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