Chapter 3

ROTARY INVERTER, TYPE 153 (ROTAX S3102/1)

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LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Inverter, Type 153	*Ref. No. 5UB/5506*
Input	*100 to 116 V d.c.*
Output ...	*115 V, 3-phase, a.c., 750 watt, 4·7 amp., at 0·9 leading to 0·8 lagging power factor, frequency 400 cycles per second*
Rating	*continuous*
Speed	*8,000 r.p.m.*
Rotation (viewed from commutator end)	*clockwise*
Maximum operational altitude ...	*50,000 ft. (fan and blast cooling)*
Operative temperature range	*—55 to +50 deg. C.*
Electrical connections	
Input	*2 split terminals*
Output (3-pole miniature Mk. 4 plug)	*Ref. No. 10H/9560060*
Control panel interconnection	
(12-pole miniature Mk. 4 plug)	*Ref. No. 10H/9560150*
Brush grade	
d.c. input	*F2C (Ref. No. 5UB/6729)*
a.c. output	*KC. CM6 (Ref. No. 5UB/6486)*
Brush spring pressure	
d.c. input	*15·5 to 17 oz.*
a.c. output	*4 to 5 oz.*
Minimum brush length	
d.c. input	*0·375 in.*
a.c. output	*0·375 in.*
Weight	*30 lb.*

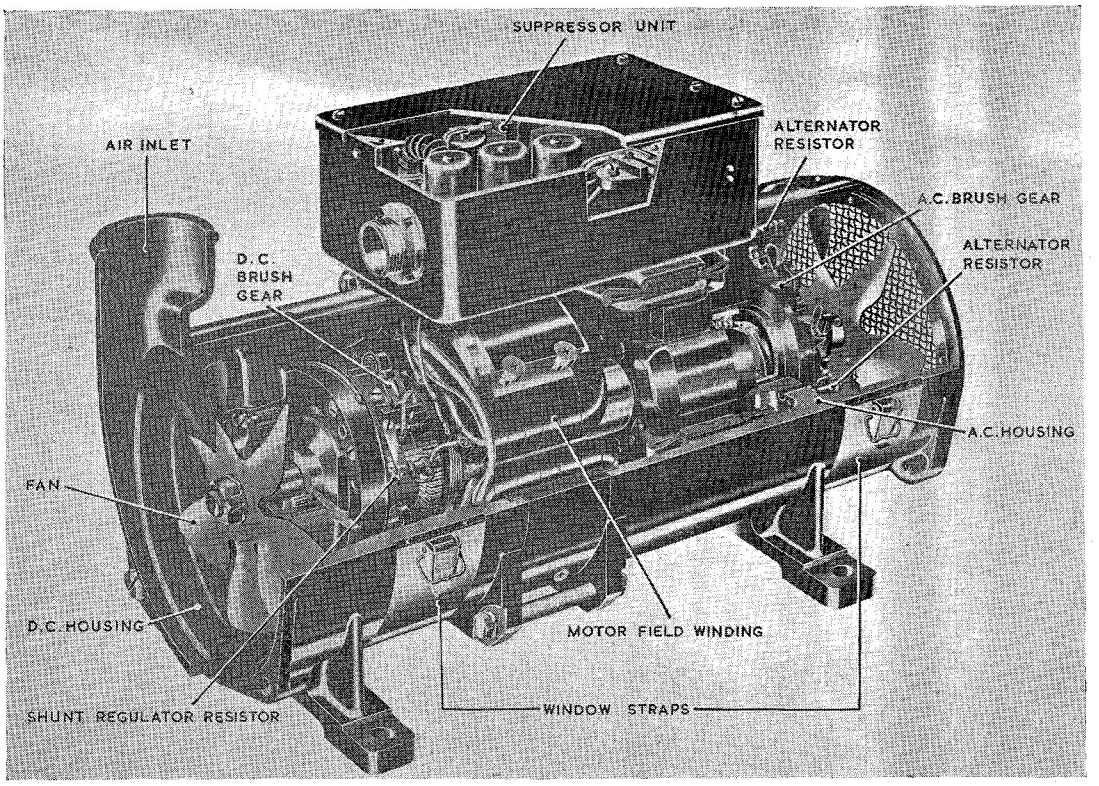

Fig. 1. Part sectioned Type 153 inverter

Introduction

1. The Type 153 inverter is used in conjunction with the control panel, Type 19, or with panels Type 19 and 25, to provide certain aircraft instruments and equipment with an a.c. supply at controlled voltage and frequency. With 100 to 116 volts applied to the d.c. end of the machine, the rotor speed is maintained at 8,000 r.p.m. $\pm$ 2 per cent and the a.c. output maintained at 400 c/s $\pm$ 2 per cent.

2. The machine is continuously rated, giving a 3-phase, 115-volt, 750-watt, output at 0·9 leading to 0·8 lagging power factor when supplied with a d.c. input of 100 to 116 volts. The design of the machine is, however, such as to meet a 1 kilowatt pulsating load requirement for radar equipment.

DESCRIPTION

3. A general description of inverters in the S3100 series will be found in A.P.4343, Vol. 1, Sect. 8, Chap. 2, App. 1. The Type 153 inverter (*fig.* 1) follows the same general construction but has two shunt field ballast resistors mounted on the brush-gear and four rotor circuit resistors mounted in the a.c. housing. Electrical connections are made via two split terminal lugs having cable holes 0·25 in. diameter for the d.c. input, and a three-pole plug for the a.c. output. Inter-connection between the inverter and its associated control panel(s) is made via a 12-pole plug and its associated mating socket. All the above-mentioned connections, applying to the inverter, are located on the suppressor unit mounted on the top of the inverter.

SERVICING

4. Servicing of this unit will normally be in accordance with A.P.4343, Vol. 1, Sect. 8, Chap. 2, App. 1. Details of brush spring pressure and minimum brush lengths are given under Leading Particulars.

P29819 448725/3828 1/60 1875 C & P Gp 375

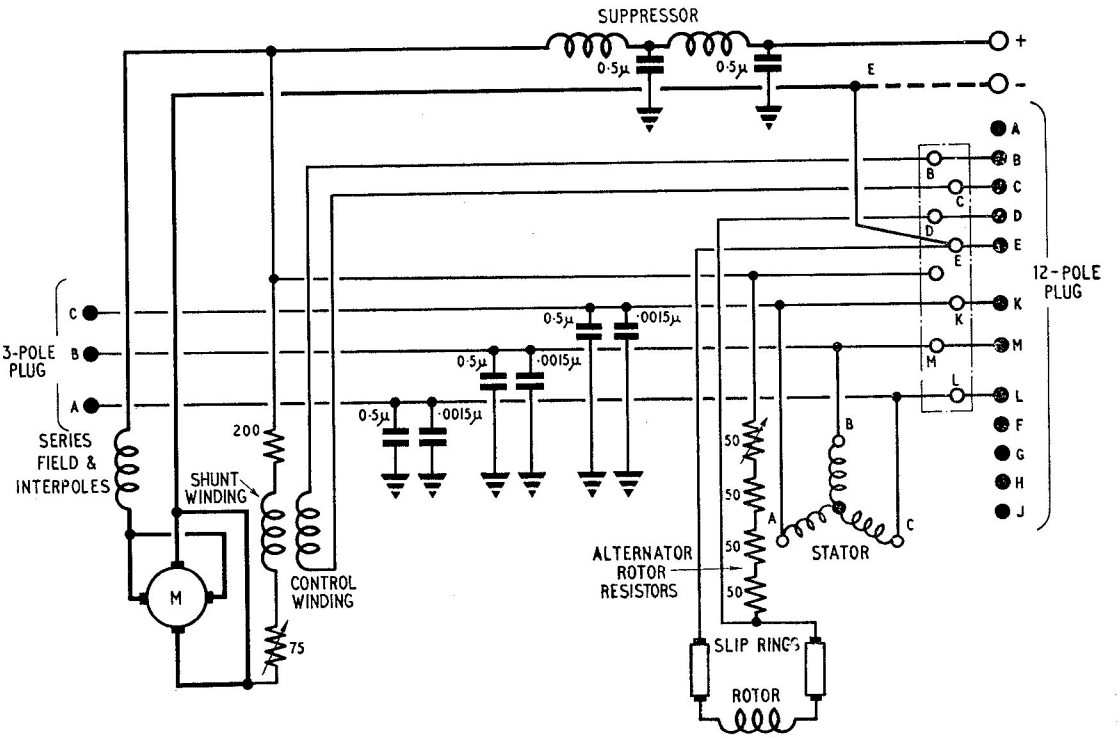

Fig. 2. Diagram of internal connections

P28150 252834/4021 2/58 1500 C & P Gp. 1