

Chapter 13

TRANSFORMER-RECTIFIER UNIT

(English Electric, Type AE5704)

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LEADING PARTICULARS

Transformer-rectifier Type AE5704	<i>Ref. No. 5UB/6500</i>
<i>Regulated input</i>	200V, 3-phase, 400 c/s
<i>Output</i>	112V at 4.5 amp. or 13.4 amp.
<i>Rating</i> Continuous
<i>Overall dimensions</i>	16 $\frac{1}{8}$ in. \times 9 $\frac{5}{8}$ in. \times 6 $\frac{11}{32}$ in.
<i>Weight</i>	23 $\frac{1}{2}$ lb.

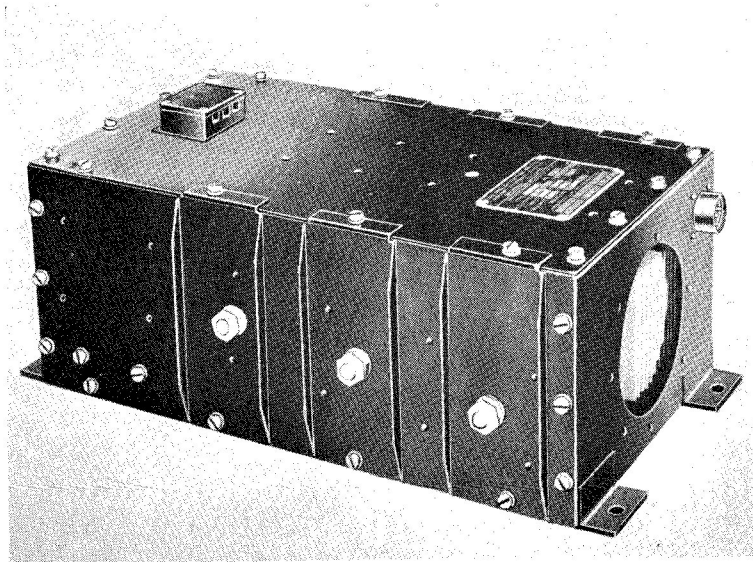


Fig. 1. Transformer-rectifier unit, Type AE5704

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Introduction

1. This unit is designed to provide a nominal 112V d.c. unregulated output from the closely regulated 200V, 3-phase, 400 c/s main supply of the aircraft.

2. The transformer supplying the 3-phase full-wave rectifier bank has two tappings on the secondary. A d.c. output voltage of 112V is obtained at a load of either 4.5A or 13.4A by connecting the appropriate tappings. Cooling is by blast air and provision is made for ducting to be bolted to the unit for the air supply. The transformer tapping normally connected is for the 0.5 kW load.

DESCRIPTION

3. The components of the unit consists of a transformer, three rectifiers, a terminal block and a breeze plug. The transformer and rectifiers are housed in a rectangular aluminium case (*fig. 1*), the top, bottom and sides being stiffened internally with channel sections, additional channel sections are located on the outside, at the rectifier mounting points and the sides are detachable to allow installation of the rectifiers. Access to the unit is gained by removal of the top panel, which is attached by 2 B.A. ch. hd. screws, secured by anchor nuts. The input terminal block is attached to the outside of this panel by two 6 B.A. ch. hd. screws, locked with shakeproof washers.

4. Circular apertures at each end of the case are provided for blast air cooling, the inlet duct is attached to the larger aperture by eight 2 B.A. screws and the outlet by six 4 B.A. screws. Two mounting brackets are welded at each end of the case and mate with straps which run the length of the case and are riveted to it. The d.c. output is taken from a two pin breeze plug on the air inlet face.

5. The 3-phase, 400 c/s transformer is secured to a base plate by four 2 B.A. hx. hd. bolts and stiffnuts. The base plate is mounted at the air outlet end of the case and is secured to the sides by four 2 B.A. ch. hd. screws and anchor nuts, additional support near the centre is provided by two steel blocks, secured to the box assembly and base plate by eight 6 B.A. csk. screws. The input leads are taken from the terminal box on the top cover and led via a 'P' clip, to the lower terminals on the transformer.

6. The remaining space is taken up by three full wave 122V 1.5 kW metal rectifiers (*fig. 2*). The ends of the rectifier spindles extend through the detachable side panels and are secured by nuts and spring washers.

7. A diagram of connections is shown in *fig. 3*. Terminals A, B and C in the terminal block are for the 3-phase input, whilst terminals Nos. 1 and 2, in the breeze plug are for the d.c., output, No. 1 being positive. The 3-phase input is first stepped down in the transformer and then rectified to give the required d.c. output.

INSTALLATION

8. The unit may be mounted at any angle and in any position convenient for cable runs and attachment of the necessary ducting.

SERVICING

General

9. Servicing is confined to ensuring that the unit is clean and free from damage. All screws, nuts, and rivets should be checked for tightness. The insulation of the connecting leads should be examined for signs of fraying or deterioration, and all connections

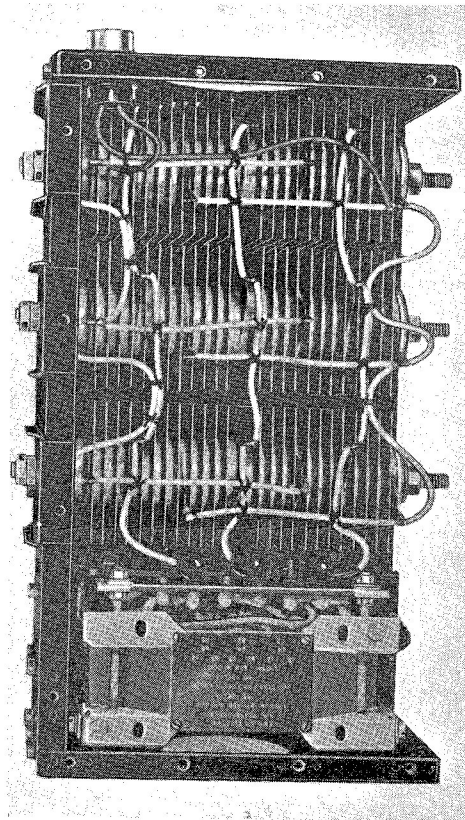


Fig. 2. View with cover removed

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should be checked to ensure that they are secure.

Insulation resistance test

10. Using a standard 500V insulation

resistance tester, the insulation resistance should be measured between input terminals and frame, output pins and frame, and input terminals and output pins. In all cases this should be greater than 5 megohms.

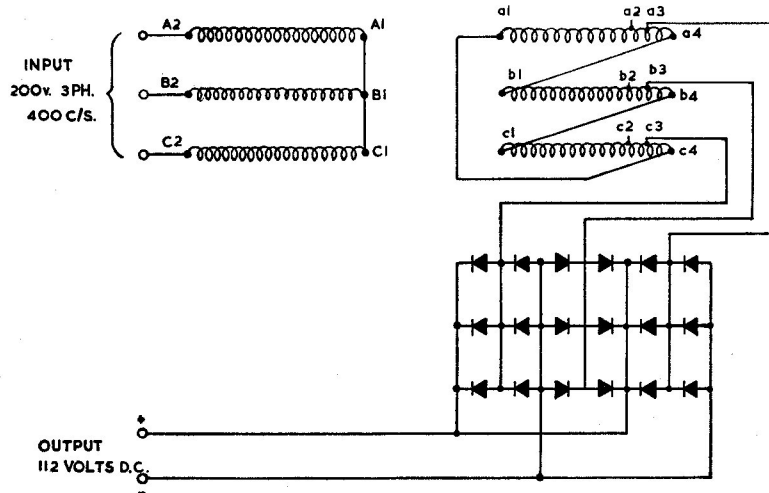


Fig. 3. Diagram of connections

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