

householder pressing the "override" button on the main-unit, the logic sends an "audio enable" command to the a.g.c. circuit. This takes the form of approximately +11V (or logic "high") applied to the base of Tr8 via R53 and VR3; Tr8 then turns on to a degree determined by the setting of VR3, pulling down the potential on pin 2 of IC9 and enabling it to pass the audio signal to the input of IC10. It is, then, this conduction through Tr8 that determines the gain of IC9 and therefore VR3 is the master gain control of the system. The voltage across C19, which depends on the signal voltage rectified by D12, progressively turns Tr9 on, reducing the voltage at the junction of R53 and VR3 and turning Tr8 off, consequently lowering the overall gain. The degree of volume compression (or the percentage change in the system gain brought about by a given rise or fall in the audio level at the output of IC10) is set by VR4 ("Set a.g.c.").

Of course, it is not simply the degree of a.g.c. that is important, but the manner in which it is applied. Obviously, it is necessary for the a.g.c. to react quickly to a sudden increase in volume (i.e. have a fast attack) and to decay at a slower rate; this is so that each syllable is not attacked individually. This produces a most unnatural effect! C18 has been chosen, together with C19, to produce the required a.g.c. characteristic.

## Power Supplies

Before passing on to the logic itself, it might be best to briefly consider the power supply arrangements as these are fairly standard and uncomplicated, using a Zener-stabilised emitter-follower as a series regulator. The circuit is shown in Fig. 3.

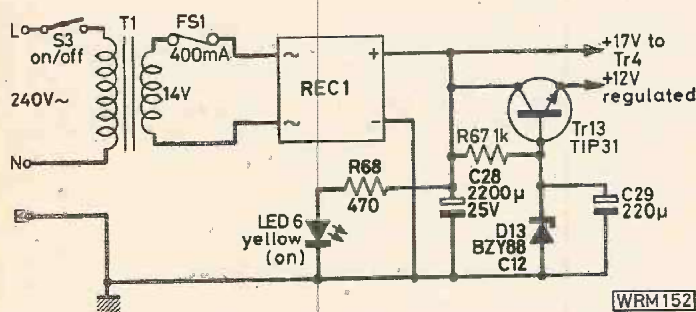


Fig. 3: Power supply

Approximately 14V a.c. from the mains transformer T1 is rectified by REC1 to produce a +17V supply, smoothed by C28. This 17V directly feeds the coil of RLA, the collector of Tr13 and also supplies the current feed to the Zener D13 via R67. It is the stabilised voltage across D13 further smoothed by C29 that is applied to the base of Tr13—the stabilised +12V is then obtained from the emitter of Tr13.

It is also worth noting the rail filtering network (Fig. 1) (R61, C27, R60, C26) which supplies the early stages of audio amplification. It is required in order to prevent feedback snags and "glitches" from the logic which would produce clicking in the audio output.

## Next Instalment

The project is concluded in Part 2, in which we shall describe the operation of the logic side of the system. The second instalment will also include the constructional drawings and details of how to set up the intercom on completion.

*Practical Wireless, August 1979*

# Follow-up to THE **Pw** VMOS TRANSMITTER

Readers who are building the Top-Band VMOS Transmitter featured in our July issue may be interested in the arrangements made on the prototype for push-to-talk operation, via the 4-pole microphone input.

The best way of incorporating this facility would be to use a miniature changeover relay of the Siemens type and to switch the 0V to ground via the push-to-talk switch embodied in the microphone case. Where the microphone lead is supplied with separate insulated conductors for this purpose—i.e. where there is no common connection to the audio circuit—it is possible to switch the 12V supply directly. However, having regard to the possibility of a fault condition causing heavy current to flow, the best approach would still be to employ a relay for this function.

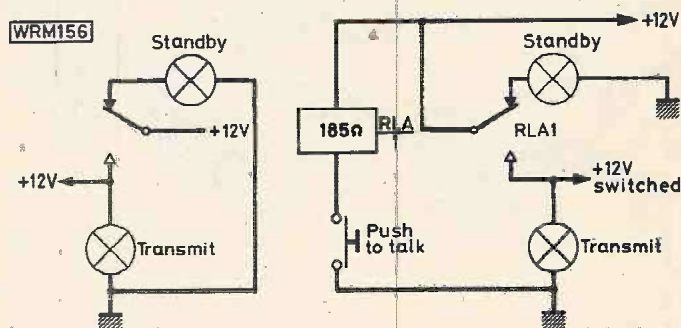


Fig. 1: (Left) Simple toggle switch wiring. Fig. 2: (Right) Wiring for p.t.t. facility using a relay

In the drawings, Fig. 1 shows the simple wiring of a toggle switch which is used to key the transmitter. If p.t.t. is required, Fig. 2 should be used as a working basis. The 4-pole socket can be any suitable type, such as a Tuchel or similar Japanese equivalent, often fitted to Trio or Yaesu transceivers and readily available as a "service spare."

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