

SPEECH CONSOLE

S. S. MURTY* AND N. RATHNA*

Introduction

Speech and Hearing professionals require many electronic equipments for diagnostic and therapeutic purposes. Any speech therapist practicing in a clinic require at least a few instruments like Speech Trainer, Noise Aversion Apparatus, Shock Aversion Apparatus, Click Aversion Apparatus, Loop Induction System etc. At present as this field is not well developed in our country, the above said instruments are not available in the market. For a newly practicing professional to have all these equipments at a time would be very expensive and sometimes impossible to obtain for various reasons. Alternatively if there is a single instrument available which provides all the above said facilities it will be easier for anybody to procure and use in the profession.

An attempt was made at the Electronics Laboratory of the All India Institute of Speech and Hearing to develop a console which provides all the facilities for a comprehensive use in speech therapy. This paper is about the construction, features and operation of the 'Console' developed at the All India Institute of Speech and Hearing, Mysore-6.

Speech Console: Type—EA 723: Features (Figure 1).

This is a versatile instrument with the following features,

1. A Stereo Speech Trainer.
2. Shock Aversion.
3. Noise Aversion.
4. Click Aversion and
5. Loop Induction System.

Construction

The Instrument works on 230 volts A/C (*Figure 2*). **All the circuits** are detachable separately for servicing, to cut short the time. A mirror is provided inside the top corner for facilitating Speech Reading. The details of construction are as follows.

* All India Institute., of Speech and Hearing, Mysore-6.

1. Stereo Speech Trainer (Figure 3)

Two identical amplifiers are used with a provision for stereo balance. For a broad frequency response a transformerless, complementary and symmetry type of output power stage is provided. Separate treble and bass are provided for both the channels. A V.U. meter is introduced to control the balance of the input signal.

Two identical Japanese make microphones are provided for both the channels.

2. Shock Aversion Apparatus (Figure 4)

The 'Console' provides a shock aversion voltage between 0 and 100 volts with a duration of 0.5 seconds controlled by a pulse circuit. A counter is provided to count and record the number of pulses presented. A visual indicator (light flash) is provided during each presentation of the shock pulse to check whether the pulse is being presented or not. A voltmeter is provided to know the level of the shock potential.

The shock circuit is well insulated and low blow fuse is provided to safeguard the patient from getting severe shock. The pulse circuit provides shock only for a duration of 0.5 seconds. The therapist cannot give more than one pulse at a time even though he continuously presses the switch. For a second shock pulse, one has to release the switch and press again.

3. Noise Aversion Apparatus (Figure 5)

White masking noise is obtained from a noise diode and fed to the above said amplifiers. The intensity can be adjusted separately using the same gain controls of channel I and channel II amplifiers.

4. Clicks Aversion Apparatus (Figure 6)

The click sound of equal intensity of 100 dB is presented through the head set by a D/C pulse of 0.5 seconds duration. The same counter used in the Shock Aversion Apparatus counts the number of clicks automatically, presented to the patient.

5. Loop Induction System (Figure 7)

Provision is made to give therapy for a group of cases using hearing aids through loop induction system. The outputs of the stereo amplifiers are fed to twin loops of 150 feet length wire, of resistance 8 ohms, fixed at a height of above three feet from the ground inside the room. The effective range of induction loop system in an open field is 100 meters. In case of induction loop system the patients would not get the stereo effect.

Applications

This is a very comprehensive and compact instrument having many functions. This 'console' is an asset to all the specialists concerned with the rehabilitation of speech and hearing handicapped in general and to, all those concerned with speech therapy in particular. Specialists concerned with the rehabilitation of deaf and hard of hearing, can utilize the functions of the stereo speech trainer induction loop system and speech reading. This instrument has wide applicability in the treatment of stuttering problems, where the specialists can make use of aversion stimuli. Not only with the above mentioned problems, but also with skill and imagination many of the functions in the 'Console' can be utilized with most of the other speech and hearing problems. Clinical Psychologists and Psychiatrists similarly can utilize the aversive functions in their practice with psychological problems, namely, enuresis (bed wetting), homosexuality, frigidity, alcoholism etc. Hence this 'Console' becomes an interdisciplinary with wide range of applicability where imagination is the only limit of the applicability of the instrument.

Acknowledgement

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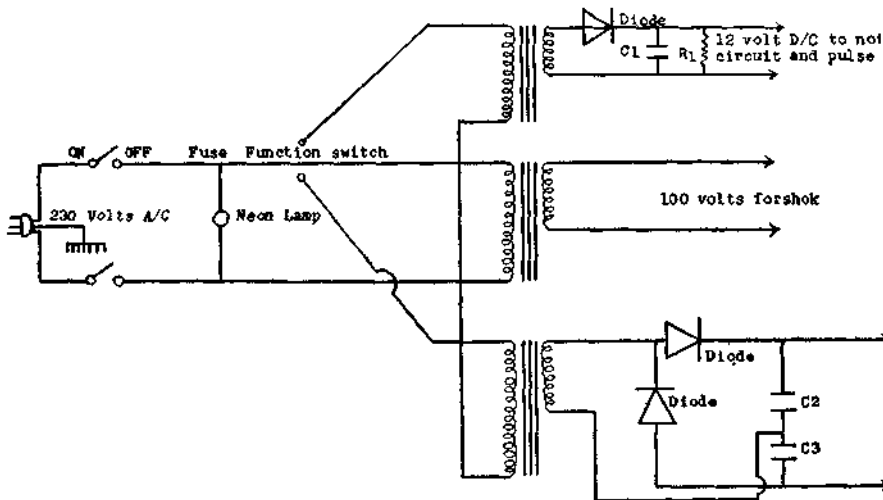


FIG. 2. Circuit Diagram for Power Supply

Fig. 1. Block Diagram

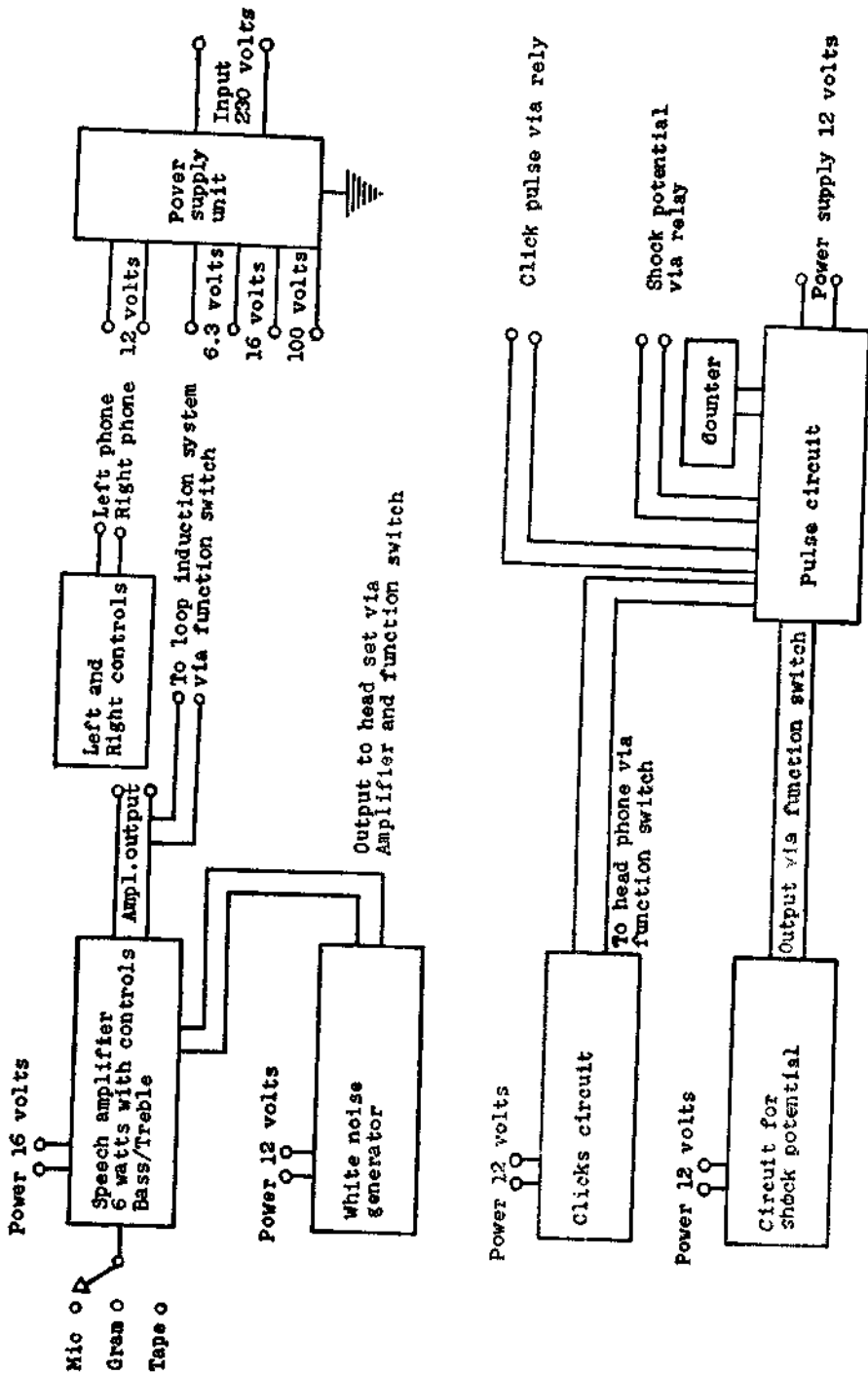
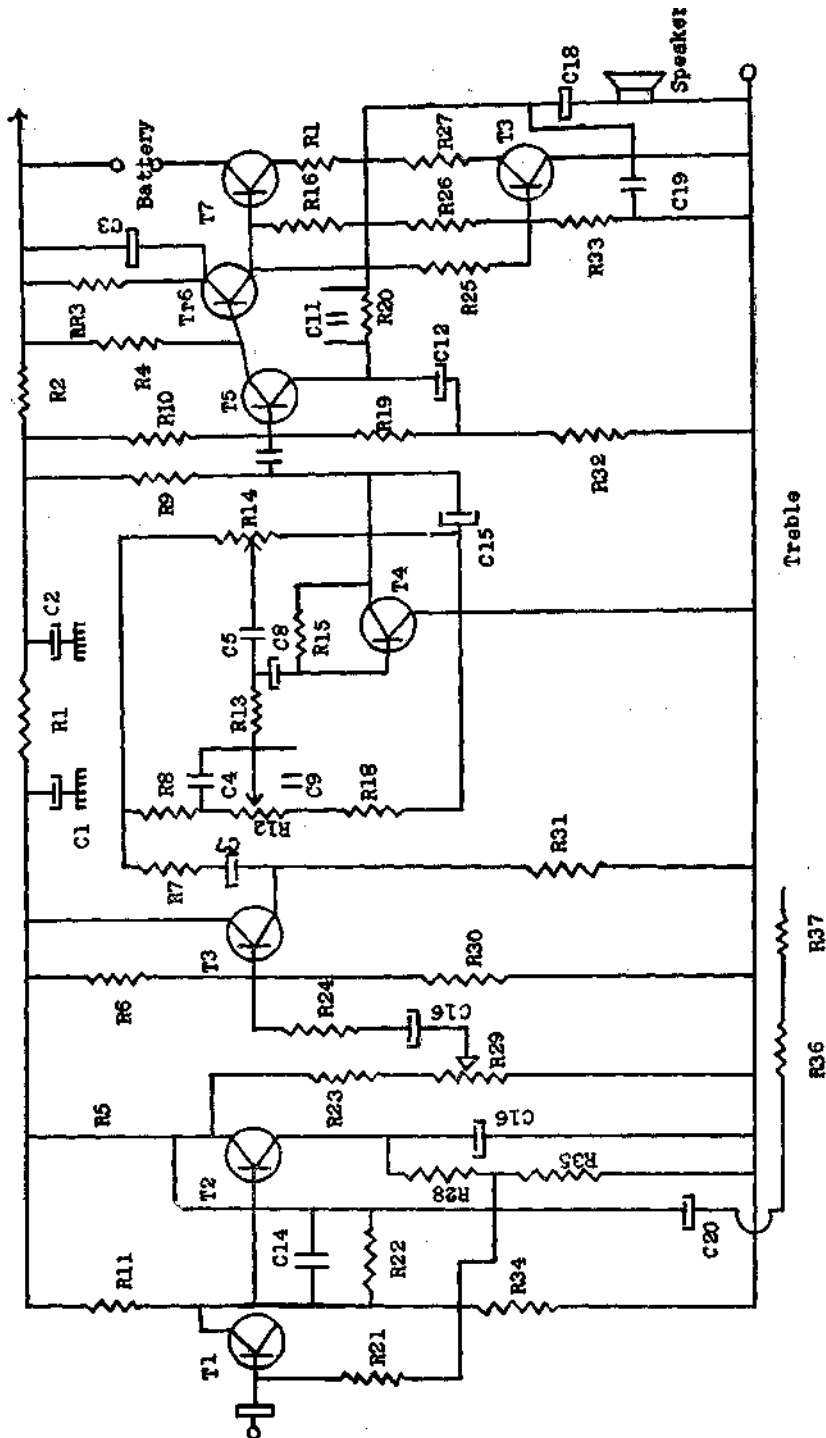


FIG. 3. Circuit for the Stereo Amplifier



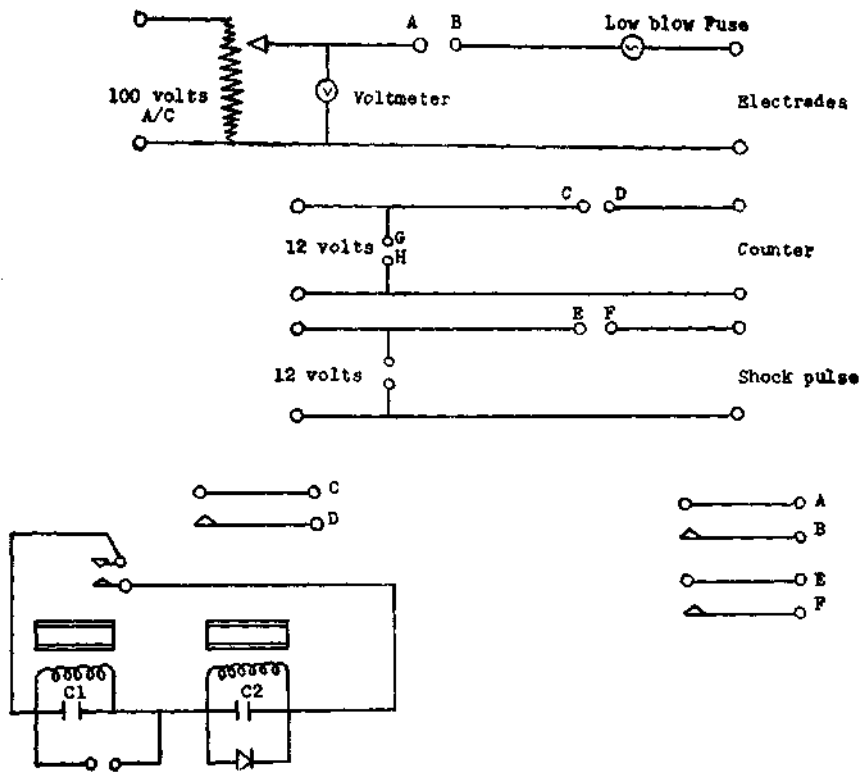


FIG. 4. Circuit Diagram for Shock Apparatus

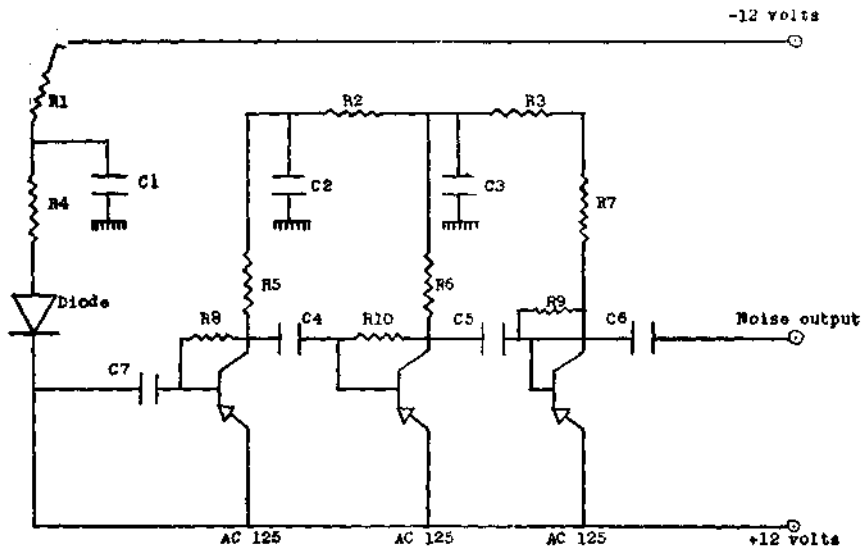


FIG. 5 Circuit Diagram for Noise Generator

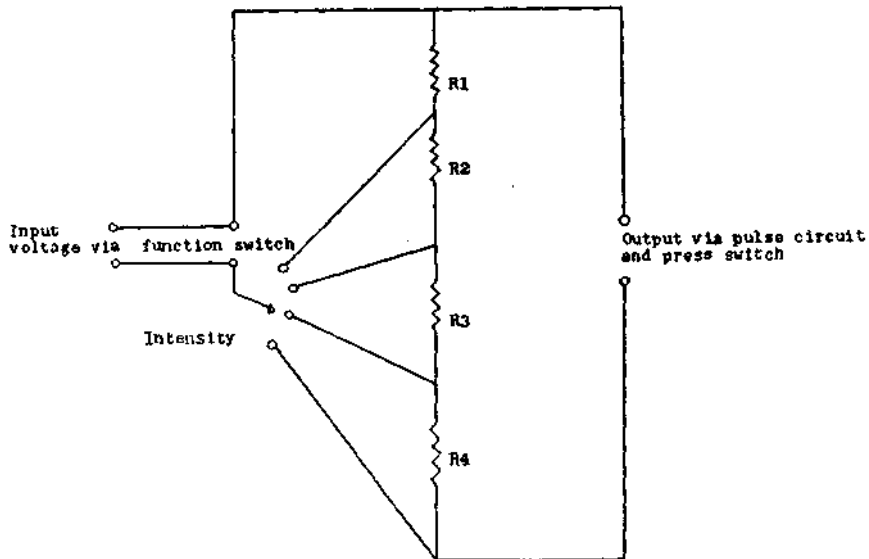


FIG. 6. Circuit for the Clicks

FIGURE 7. Panel Design of Speech Console Type-EA 723

SHOCK VOLTAGE	SHOCK VOLTAGE	COUNTER	CLICK PULSE	V.U. METER
LEFT CHANNEL	BASS TREBLE	PILOT TREBLE	BASS	RIGHT CHANNEL
GAIN				GAIN
STEREO BALANCE	FUNCTION SWITCH	SHOCK	INTENSITY	
PRESS PANEL				ON/OFF
BACK PANEL				
LEFT TO RIGHT				
HEAD PHONE	ELECTRODES	MIC.S	GRAM/TAPE	FUSE