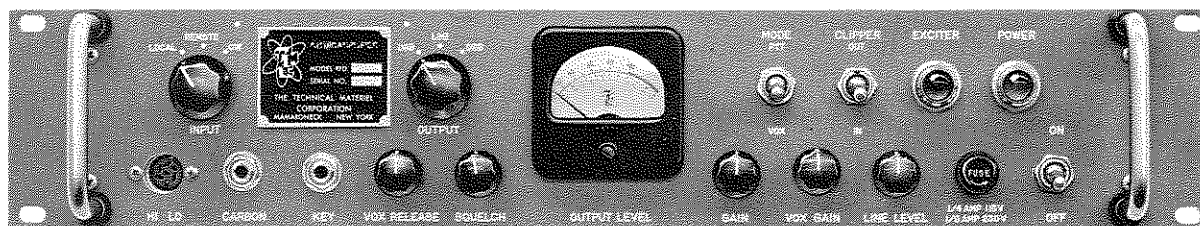


## TECHNICAL BULLETIN NUMBER 2026A

Speech Processing Unit  
TMC Model SPU-2



TMC's Speech Processing Unit, Model SPU-2, is a particularly useful device that will improve voice quality of radio circuits proportionately as radio transmission circuits degrade. Speech clipping and pre-emphasis may be switched in to provide uniform power density in the transmitted intelligence, thereby improving articulation as much as 60% under adverse signal to noise conditions.

In addition, Model SPU-2 may be used as a constant level audio amplifier for transmission or reception, with a 40 db dynamic range, to prevent overloading transmitters or "singing" through voice hybrids.

Front panel facilities allow complete flexibility for voice operated relay control, push-to-talk control and CW control of transmitters. The unit accepts a wide variety of audio inputs, including carbon microphone.

## Speech Processing Unit

### TECHNICAL SPECIFICATIONS

#### INPUTS:

Audio line — 0 db, 600 ohm balanced and center tapped.

Carbon microphone at —25 db. Carbon mike input to either Western Electric type 309 Ring-Tip sleeve plug (or equivalent) or 6 connector microphone jack. The unit provides the excitation voltage. (Rear apron connections also provided.)

High and low impedance microphones at —55 db. 6 connector input jack. (Rear apron connections also provided.)

Anti-Vox input.

Push-to-talk keying input. (Rear apron connections also provided.)

CW key input. Western Electric, No. 309, or equivalent, jack with normally closed contacts. (Rear apron output connections provided.)

#### PRE-EMPHASIS:

Provides a 6 db per octave slope peaked at 2500 cps.

#### AUDIO OUTPUT:

Upper sideband — 0 db, 600 ohm balanced and center tapped.

Lower sideband — 0 db, 600 ohm balanced and center tapped (same intelligence as above selectable by front panel switch).

#### DISTORTION:

Nominal 5%.

#### KEYING CONTROL: (DRY CONTACT)

From voice-operated relay.

From Push-to-Talk input.

From CW key inputs.

#### KEYING RELAY: (ACCESSORY CONTACTS)

The keying relay provides either normally-open or normally-closed contacts that may be used to mute a receiver when the transmitter is keyed.

#### DYNAMIC RANGE:

The unit incorporates automatic audio level control circuitry to maintain the output within  $\pm 2$  db with input variations of 40 db. The speed of response for increasing audio levels is at a syllabic rate (approx. 7 cps). The speed of decay is adjustable.