# CLEAR-COM RS-100A REMOTE STATION

## PARTS LIST

| Reference Des. | Clear-Com Part # | Description |
|---|---|---|
| C25 | #1529 | .01mf/1.4KV Capacitor |
|  | #1546 | 100mf KV RF Capacitor |
| P2 | #4720 | 100K Volume Control Pot |
|  | #2415 | Knob |
| J3 | #2113 | Headset Connector D4M |
|  | #7135 | Amplifier Module |
| S1 | #5120 | 3-Position Toggle Switch |
| I1 | #3900 | Amber Lamp Assembly |
|  | #3901 | Lamp #327 - 28v |
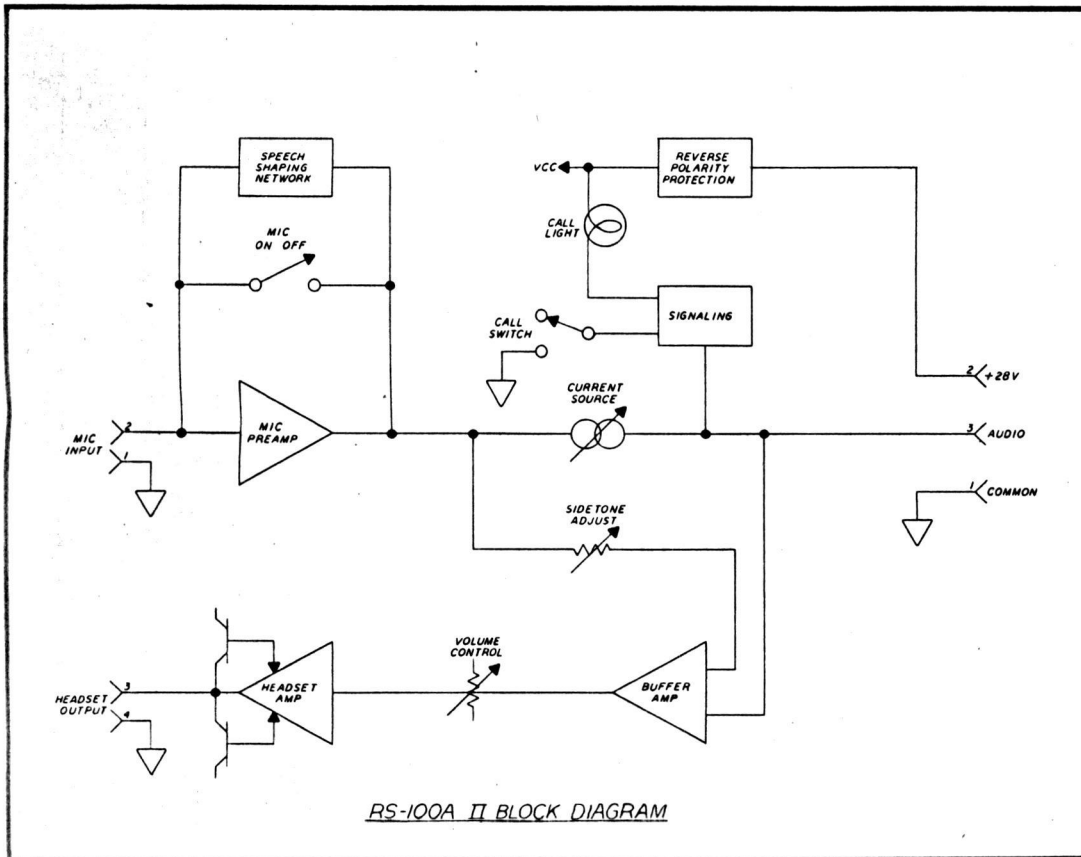


RS-100A II BLOCK DIAGRAM

I1
CALL LAMP
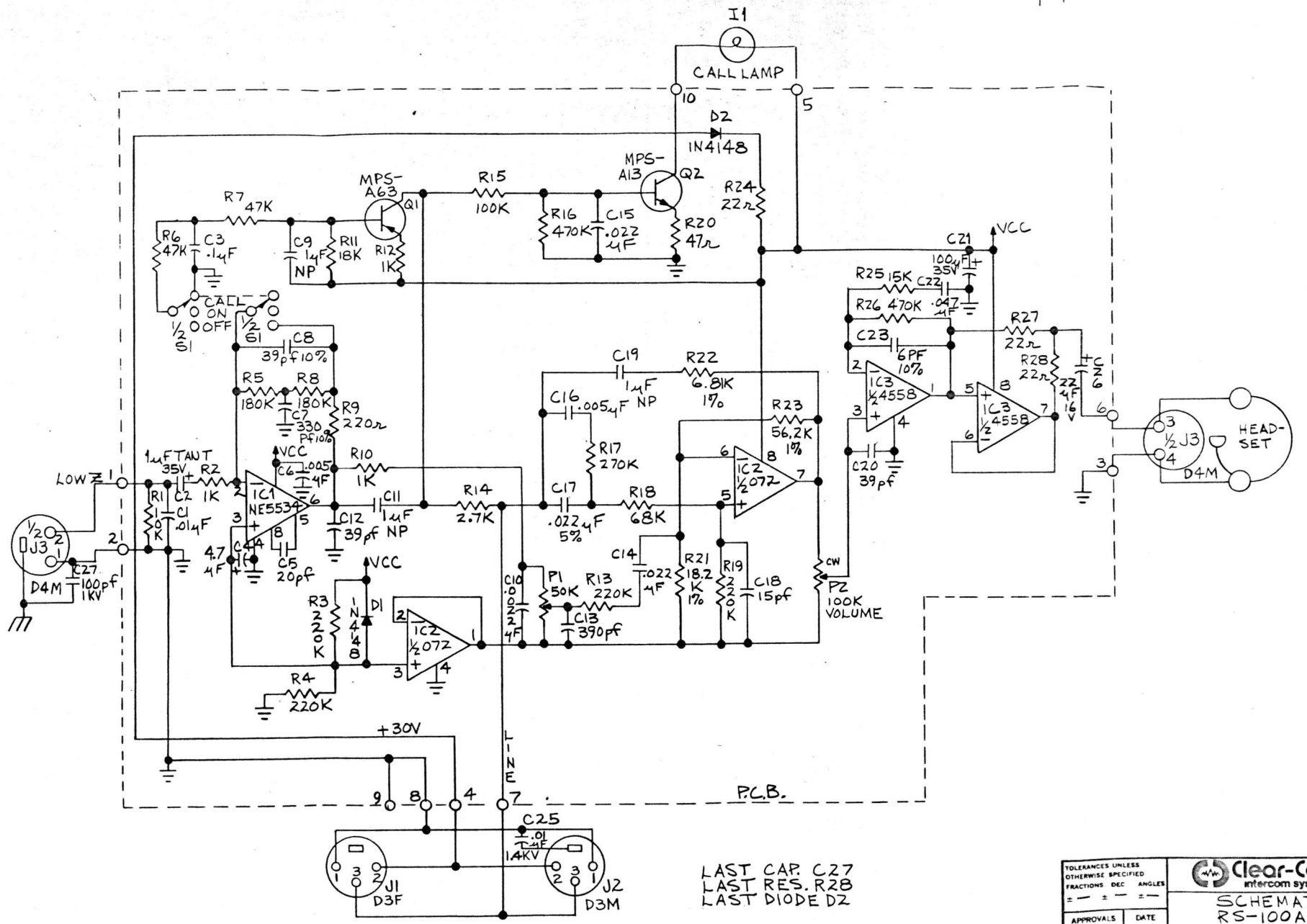
LAST CAP. C27
LAST RES. R28
LAST DIODE D2

P.C.B.

**Clear-Com.**
intercom systems

SCHEMATIC
RS-100A SYS. II
BELT PACK

TOLERANCES UNLESS
OTHERWISE SPECIFIED
FRACTIONS   DEC   ANGLES

APPROVALS   DATE
DRAWN  7/22/80
CHECKED

SCALE NONE   SIZE C   DRAWING NO. SCD-C-402

DO NOT SCALE DRAWING   SHEET 1 OF 1

# RS-100A and RS-100ANS Remote Stations SYSTEM II

## DESCRIPTION

The RS-100A SYSTEM II is a portable REMOTE STATION housed in a light-weight, 16 gauge, brushed stainless steel case for strength & durability. It attaches to the user's belt with a sturdy, stainless steel clip. Output power is sufficient to drive one or two Clear-Com headsets (using a suitable Y-cord) to a level of 110dB SPL with no distortion. With the stations low current draw and high impedance, (typically 20 kohms) over 100 stations can be connected to five miles of the proper cable. The station can be operated down to 12 volts allowing operation from 12 volt battery pack for ENG and EFP use. Automatic headset detection is provided which shuts off the mic preamp when the headset is disconnected. Unique side tone cancellation suppresses feedback and need only be set once no matter how many stations are added to the line. The new improved electronics module is no longer potted, and is field serviceable and replaceable. Call signaling is standard on the RS-100A.

## OPTIONS

Your remote station may have been ordered with one or more options. Information on your options are enclosed on a separate addendum sheet.

## A WORD ABOUT MIC CABLES

The proper selection of microphone cables used to interconnect the remote stations is very important. Too much dc resistance in the cable will reduce the voltage at the remote station limiting its output and too great a capacitance in the cable will roll off the high end frequency response. To meet the published specs of the system, the total dc resistance of the wire should be kept to under 200 ohms (including the shield resistance) and the capacity of the cable should not total more than .15mfd. Rubber insulated and jacketed cable should be used due to its superior strength and durability. We recommend the follow types:

Belden 8413 miniature cable or equivalent (24 ga. stranded conductors) good for 500 feet or less

Belden 8412 cable or equivalent (20 ga. stranded conductors) good for 5,000 feet or less.

For cable runs greater than 5,000 ft. use 18 ga. low capacity cable.

# RS-100A SYSTEM II SPECIFICATINS:

**AMPLIFIER DESIGN:**  Solid-state integrated circuit amplifiers which include a mic preamp, headset power amp and signaling circuitry. Current limited & short circuit proof with reverse polarity protection.

## MICROPHONE PRE-AMP:

| | |
|---|---|
| Microphone Input: | 200 ohms dynamic |
| Mic Pre-amp Gain: | 30 dB |
| Maximum Input Before Clipping: | -30 dB |
| Mic-Pre-Amp Frequency Response: | 250Hz - 12kHz with a contoured response to enhance voice intelligibility |

## HEADPHONE AMPLIFIER:

| | |
|---|---|
| Load Impedance Range: | 300 - 2,000 ohms |
| Output Level: | +20 dBm before clipping |
| Headset Level: | 110 dB SPL with standard Clear-Com headsets |
| Distortion: | < 0.1% THD @ 1 kHz |
| Amplifier Gain: | 40 dB |
| Frequency Response: | 150 - 18kHz($\pm$ 2 dB) |

## CONNECTORS:

| | |
|---|---|
| Headset: | D4M 4 pin male, Switchcraft type |
| Line: | 1-D3M, 1-D3F 3 pin, Switchcraft type |

## ENVIRONMENTAL:

| | |
|---|---|
| Ambient Operating Temperature: | 0 to 60 degrees C<br>32 to 140 degrees F |
| Storage: | -55 to 125 degrees C<br>-62 to 257 degrees F |
| Humidity: | 0 to 90% relative humidity |

## GENERAL:

| | |
|---|---|
| Station Bridging Impedance: | > 20k ohms (200 - 10kHz) |
| Line Level: | -1 dB max |
| Side Tone Adjustment: | 35 dB null to full on |
| Signaling Voltage: | 11 volts DC on audio line |
| Call Light Sensitivity: | 4 volts |
| Signal to Noise: | 75 dB |
| Equivalent Input Noise: | -121 dB |

| | |
|---|---|
| Power Requirements: | 10 quiescent<br>12ma average talk<br>45 ma signaling |

| | |
|---|---|
| DC Voltage Range: | 12-32 Volts (28 volts nominal) |
| Dimensions: | 2.75" x 4.9" x 1.6" (2.9 . 12.4 x 4.1 cm) |
| Weight: | 1 lb. (0.45 kg) |

## CONNECTING THE BELT PACK

Bring microphone cable from main station or power supply and plug into connector marked input on belt pack. The pin connections are as follows:

Pin 1)   Common
Pin 2)   +28 volts
Pin 3)   Audio

One male and one female XLR connector provides loop-through convenience allowing daisy-chaining additional remote stations. Plug in the headset, turn up the volume. The station should now be working.

Note: To prevent shock hazard, ground loops and noises, the common terminal (Pin 1) should never be directly connected to the remote station chassis. Also Pin 1 and the shell of the microphone cable should never be connected together.

## OPERATING THE STATION

### Controls:

CALL LIGHT attracts the attention of operators who have removed their headsets, not available on RS-100ANS.

OFF-MIC-CALL SWITCH turns the headset mic ON and OFF or activates the call lights of all intercoms connected to the same channel. Signaling other stations is accomplished by momentarily pressing the switch to the call position. The call lights will stay on as long as the switch is depressed. When the switch is released it will automatically return to the mic on position. This function is not on RS-100 ANS.

HEADSET VOLUME CONTROL adjusts the level in the headset earphone.

### Adjustments and Service:

Side Tone Adjustment: On the side of the remote station is an unmarked hole. In the hole is a screw drive adjustment to set the side tone. The side tone is the amount of your own voice that you will hear in your headset. It does not affect the level of the signal coming in or going out of the station and is set at the factory to approximately 6dB lower than the incoming signals. To change this adjustment, plug a headset into the headset jack, insert a screwdriver through the hole and engage the trim pot slot on the PC board. Turn the volume all the way up, and start talking to yourself while turning the screwdriver slowly. A null point will be found where you can barely hear yourself. The proper setting is anywhere to the left of the null.

If the remote station needs to be serviced, the PC board may be removed as follows:
1. Remove the two screws on the cover of the belt pack.
2. Remove volume control knob and nut.
3. Remove nut from mic on/off switch.
4. Remove the two flathead screws holding the PC board to the chassis.
5. Unplug connector from PC board. Gently remove PC board electronics from chassis.

When re-installing the PC board reverse the above procedure. Make sure the two rubber bumpers are installed on the PC board as they provide proper shock mounting.