

RS-100A Belt-pack Station

**INSTRUCTION
and
SERVICE MANUAL**



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CLEAR-COM MODEL RS-100A REMOTE BELT-PACK STATION
OPERATING AND SERVICE INFORMATION

I. INTRODUCTION TO THE BELT-PACK STATION

The Clear-Com RS-100A is a portable remote intercom station, housed in a 16-gauge, stainless-steel case that provides strength and durability. The unit attaches to your belt with a sturdy stainless-steel clip.

The RS-100A contains a headset amplifier that provides sufficient output to drive one Clear-Com headset to a level greater than 110 dB SPL with no distortion. It can drive two headsets if connected with a suitable "Y"-cord.

Because of the Station's low current draw and high bridging im-

pedance, as many as 100 units may be connected in one system, over distances of up to one mile.

A Visual Call Signal is standard on Clear-Com equipment, and allows the user to visually attract the attention of operators who have removed their headsets.

The RS-100A also provides a unique sidetone adjustment, which allows the user to vary the level of his/her voice as heard in his/her headset. This control need only be set once, even if other Stations subsequently join or leave the intercom network.

II. INSTALLATION OF THE BELT-PACK

Interconnect Cable

Use standard 2-conductor microphone cable to interconnect Stations. Unshielded cable may be used where AC interference is not a problem. We recommend rubber-insulated and jacketed cable, such as:

Belden 8413 or equivalent (24 ga., stranded conductors) for lines running up to 500 feet in length;

Belden 8412 or equivalent (20 ga., stranded conductors) for lines running 500-5000 feet in length;

Belden 8428 or equivalent (18 ga., low-capacity) for lines greater than 5000 feet in length.

Headsets

Headset connectors in Clear-Com equipment are XLR-type, 4-pin male connectors.

To insure proper level and performance, the headset (or

handset) should have the following characteristics--

Microphone type:	dynamic
Impedance:	150-250 ohms
Output Level:	-55 dB
Headphone Type:	dynamic
Output Impedance:	300-2000 ohms

The headset connector pin-out is:

Pin 1:	mic common
Pin 2:	mic hot
Pin 3:	headphone common
Pin 4:	headphone hot

NOTE: Do NOT connect headphone ground and mic ground together at any point.

Connections

Bring mic cable from the Main Station or Power Supply and plug into D3F connector labelled "input" on belt-pack. The pin-out is:

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

The D3M connector labelled "extension" provides an internal loop-through, allowing you to daisy-chain additional Stations along one stretch of cable.

NOTE: To prevent shock hazard, ground loops, and noises, NEVER connect Pin 1 (common) directly to the station chassis. In addition, never connect Pin 1 to the shell of the mic cable.

III. OPERATING CONTROLS

The switch labelled Off/Mic/Call turns the headset mic ON and OFF, and activates the Call signal for all Stations on the same channel. Momentarily press this switch to the "Call" position to signal other stations. Their Call lights will stay on for as long as the switch is depressed. When the switch is released, it automatically returns to the mic-on position.

The Call Light lights up to attract your attention when another Station (connected to the same channel) activates the Call signal.

The Headset Volume knob adjusts the audio level in your earphone(s).

The Sidetone adjustment is located

In locations where sending DC power is not convenient, the RS-100A can be operated at 12 volts using a portable battery pack and terminating network, such as Clear-Com's Model BP-10 Battery Pack.

After completing all connections, plug in the headset and turn up the volume. The Station is now ready to operate.

on the side of the belt-pack, and is used to vary the amount of your voice as heard in the headset. It does not affect the level of incoming or outgoing signals, and is set at the factory to be approximately 6 dB lower than incoming signals. To re-set it, locate the unmarked hole (which contains a trimpot). Plug in your headset, insert a small-bladed screwdriver through the hole, and engage the slot on the trimpot. Turn up the headset volume all the way, and start talking to yourself while slowly turning the screwdriver. A null point will be found where you can barely hear yourself; the proper setting is anywhere to the left of the null.

IV. SERVICE

If the RS-100A 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 knob and nut.
- 3) Remove nut from Off/Mic/Call switch
- 4) Remove the two flat-head screws holding the PC board to the

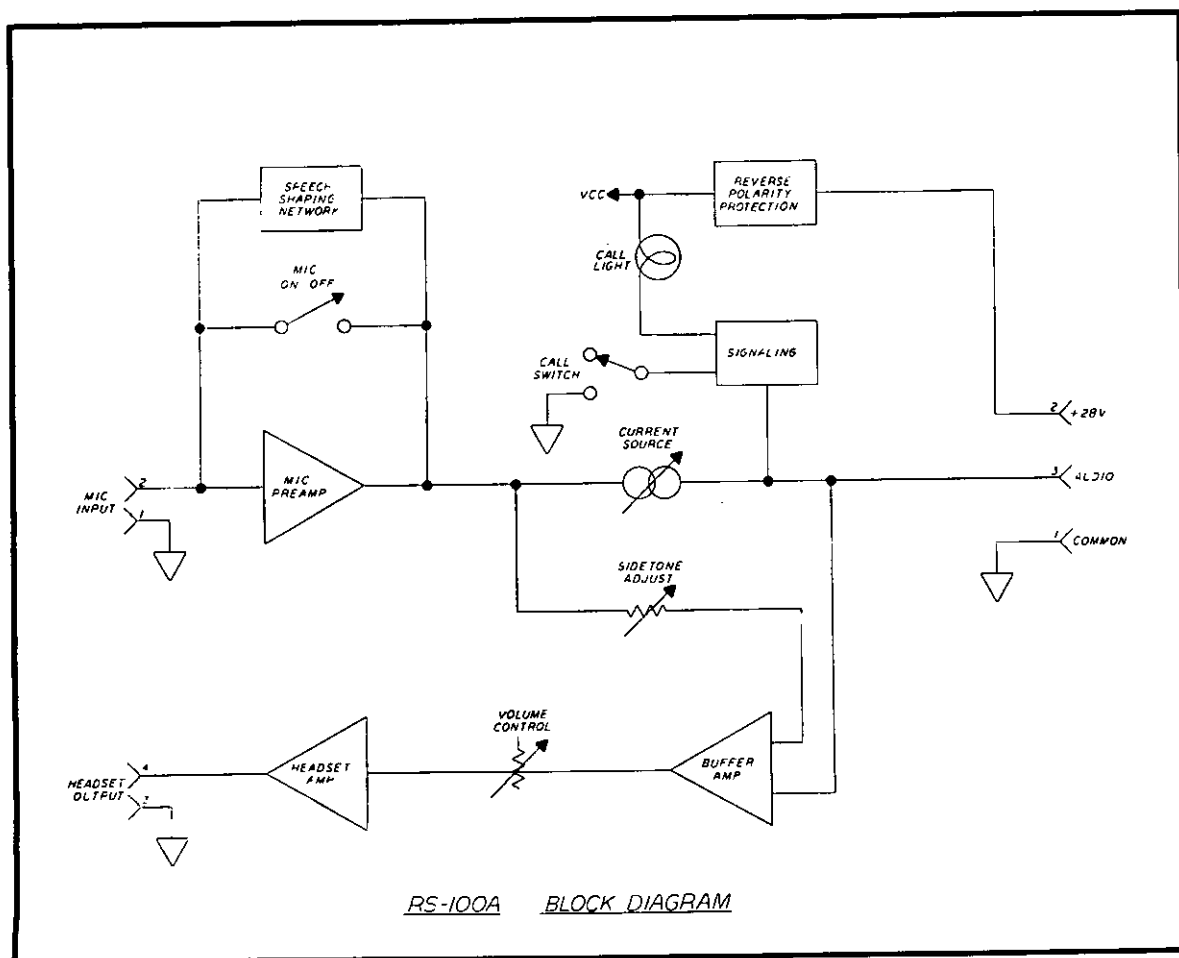
chassis.

- 5) Unplug connector from PC board. Gently remove PC board 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.

V. PARTS LISTING

<u>Part #</u>	<u>Description</u>	<u>Reference Designator</u>
710052	Remote Station PC Module	---
210013	Headset Connector, D4M	J-3
210002	Input Connector, D3F	J-1
210003	Extension Connector, D3M	J-2
510020	Switch, toggle, 3-position	S-1
390000	Lamp Assembly	I-1
390001	Lamp, 28v, #327	---
240015	Knob, black, 1/2"	P-2
250041	Belt-clip, stainless-steel	---



RS-100A SPECIFICATIONS

AMPLIFIER DESIGN: Solid-state, integrated circuit amplifiers. Current-limited and short-circuit-protected, with reverse polarity protection.

MICROPHONE PRE-AMPLIFIER

Mic Input: 200 ohms, dynamic
Mic Pre-amp Gain: 30 dB, adjustable
Max Input Before Clipping: -26 dB
Freq. Response: 250-12k Hz, ± 5 dB

HEADPHONE AMPLIFIER

Load Impedance Range: 300-2k ohms
Output Level: +20 dBm
(before clipping)
Headset Level: >110 dB SPL
(with standard Clear-Com headset)
Distortion: <0.1% THD @ 1 kHz
Amplifier Gain: 40 dB
Frequency Response: 150-18k Hz, ± 2 dB

CONNECTORS

Headset: (1) 4-pin male, D4M
Line: (1) 3-pin male, (1) 3-pin female
D3M/D3F

GENERAL

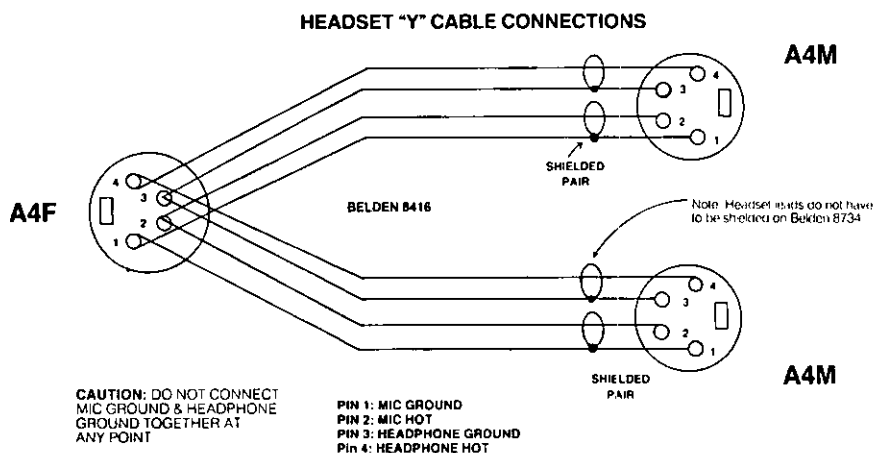
Station Bridging
Impedance: >20k ohms (200-10k Hz)
Line Level: -1 dB max.
Side Tone Adjust: 35 dB null-full on
Signal Voltage: 11v DC on audio line
Call Light
Sensitivity: 4 volts
Signal-to-Noise: 75 dB
Equiv. Input Noise: -121 dB
Power
Requirements: 10 ma quiescent, 12 ma
avg. talk, 45 ma signaling
DC Voltage Range: 12-32v, 28v nominal

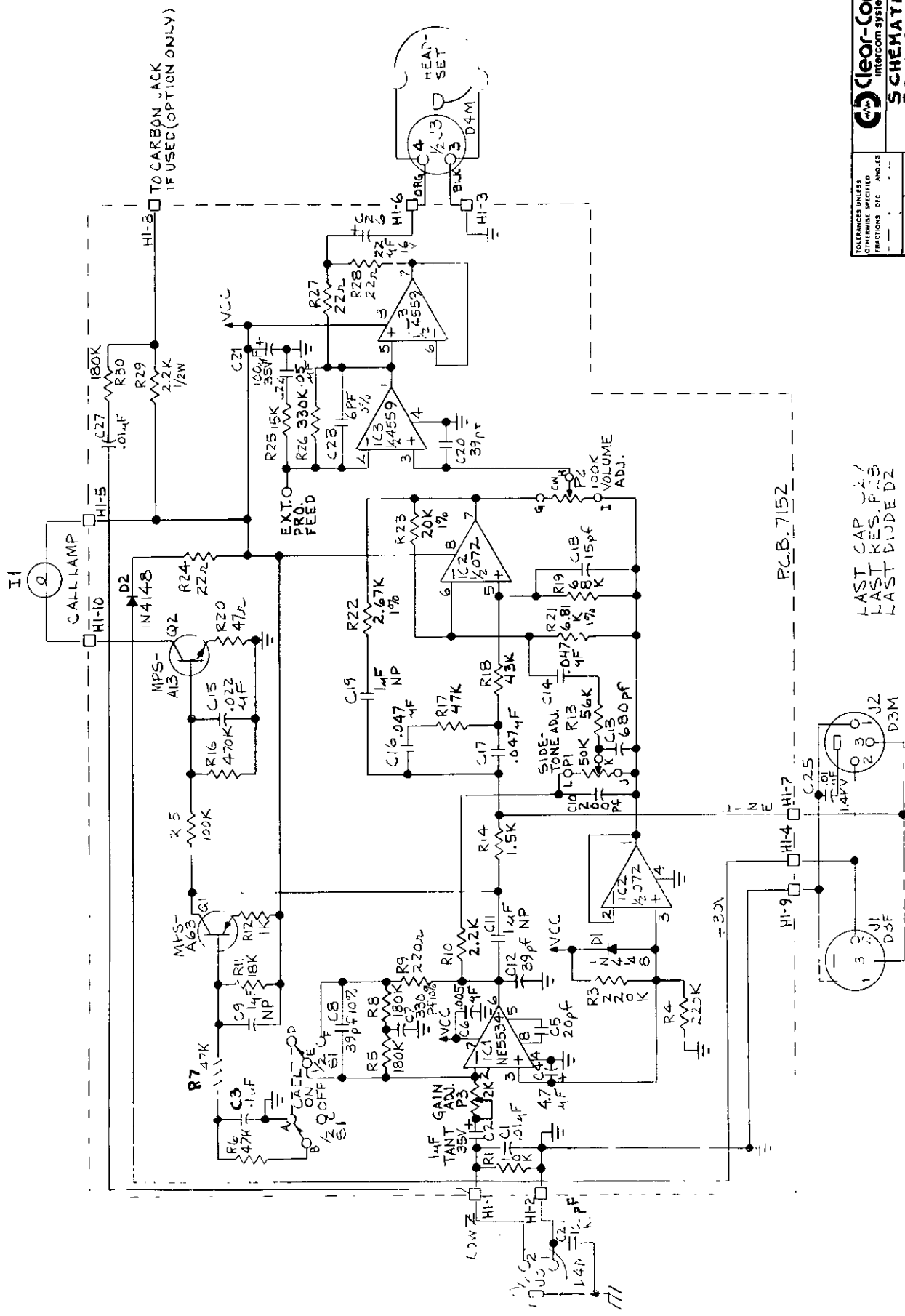
PHYSICAL CHARACTERISTICS

Dimensions: 2.75" x 4.9" x 1.6"
Weight: 1 pound
Ambient Operating
Temperature: 0-60° C (32-140° F)
Humidity: 0-90% relative humidity

HEADSET "Y"-CORD

Clear-Com can provide you with Model YC-100, a device that allows you to plug two headsets into one beltpack. Alternatively, you may also construct your own Y-cord; we recommend you use Belden 8416 or equivalent, or Belden 8734 or equivalent. Refer to the diagram below for proper connections. Please note that when using two headsets, the output level will be decreased by 3 dB.





clear-Com.		SCHEMATIC		RS-100A	
INTERCOM SYSTEMS		DATE		DRAWING NO	
APPROVALS		CHECKED		SCALE	
TOLERANCES UNLESS SPECIFIED		FRACTIONS DEC		SIZE	
DO NOT SCALE DRAWING		SHEET		RS-100A-551-C	