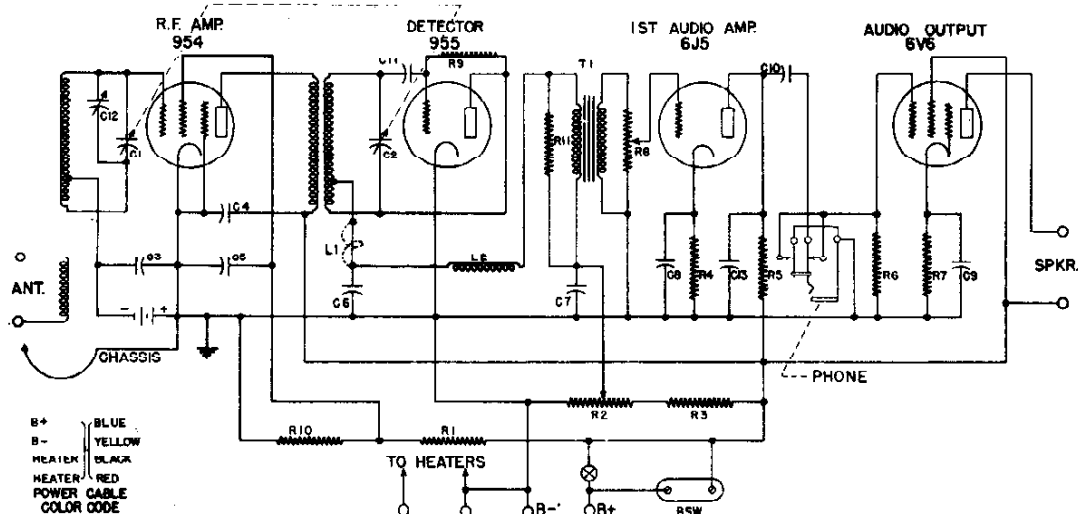


NATIONAL CO. INC.



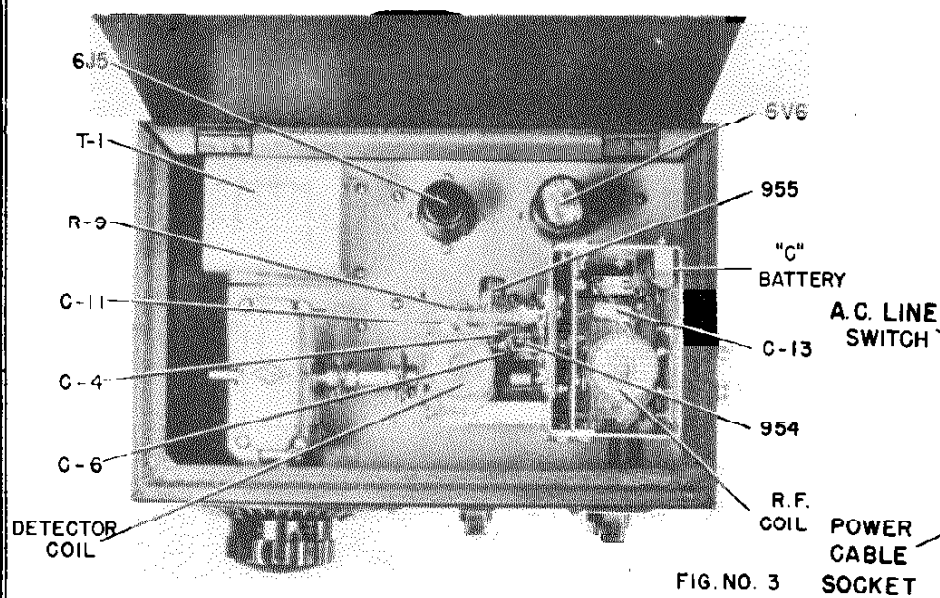
DWG. NO. 1 SCHEMATIC DIAGRAM-TYPE 1-10A RECEIVER

PARTS LIST

SYMBOL	FUNCTION	TYPE	RATING
C1	R.F. Tuning Capacitor.....	Air	15 mmf., max.
C2	Detector Tuning Capacitor.....	Air	15 mmf., max.
C3	R.F. Grid Return By-pass.....	Mica	0.003 mfd., 500 vdcw.
C4	R.F. Plate Return By-pass.....	Mica	0.003 mfd., 500 vdcw.
C5	Screen By-pass.....	Copper Plate	0.0005 mfd.
C6	Quench Frequency By-pass.....	Mica	0.003 mfd., 500 vdcw.
C7	Detector B+ By-pass.....	Elec.	8 mfd., 200 vdcw.
C8	1st Audio Cathode By-pass.....	Elec.	10 mfd., 50 vdcw.
C9	2nd Audio Cathode By-pass.....	Elec.	10 mfd., 50 vdcw.
C10	Audio Coupling Capacitor.....	Paper	0.1 mfd., 400 vdcw.
C11	Detector Grid Capacitor.....	Ceramic	50 mmf., 500 vdcw.
C12	R.F. Trimmer Capacitor.....	Air	5 mmf., max.
C13	Plate By-pass Capacitor.....	Mica	0.002 mfd., 500 vdcw.
R1	Screen Dropping Resistor.....	Fixed	33,000 ohms, 1/2 w.
R2	Regeneration Control.....	Variable	50,000 ohms
R3	Detector Plate Dropping.....	Fixed	22,000 ohms, 1 w.
R4	1st Audio Bias Resistor.....	Fixed	4,700 ohms, 1/2 w.
R5	1st Audio Plate Resistor.....	Fixed	0.1 megohm, 1/2 w.
R6	2nd Audio Grid Leak.....	Fixed	0.47 megohm, 1/2 w.
R7	2nd Audio Bias Resistor.....	Fixed	470 ohms, 1 w.
R8	Audio Gain Control.....	Comp. Var.	0.5 megohm
R9	Detector Grid Leak.....	Fixed	18 megohms, 1/2 w.
R10	Screen Bleeder.....	Fixed	47,000 ohms, 1/2 w.
R11	T1 Pri. Loading Resistor.....	Fixed	47,000 ohms, 1/2 w.
L1	Ultra-audion Choke.....	See Note #1	
I2	Quench Frequency Choke.....	Potted	250 millihenries
T1	Audio Transformer.....	Potted	4:1 ratio

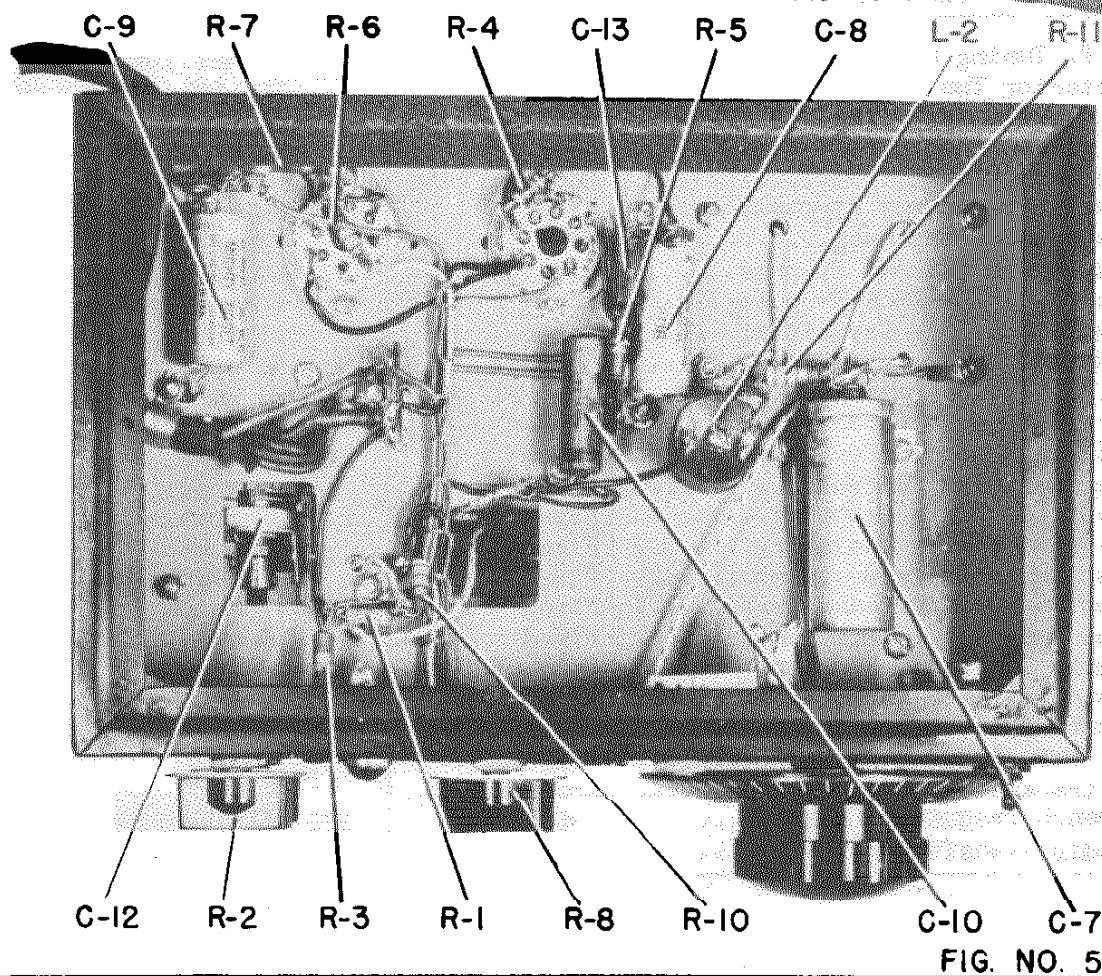
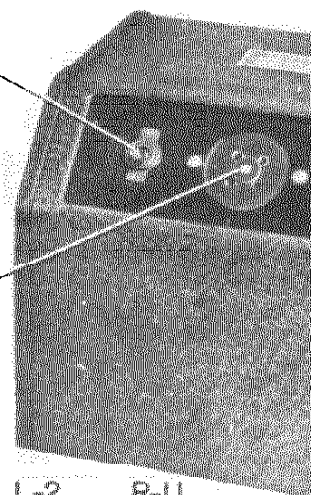
Note #1: Used only on A, B and C Bands.

NATIONAL CO. INC.



5886 POWER UNIT

FIG. NO. 4



NATIONAL CO. INC.

BATTERY OPERATION

The 1-10A Receiver may be operated in portable or emergency service by connecting batteries to the pins of the 4 prong power plug. A 6 volt battery should be used to supply the heater circuits, (the two large prongs on the power plug), and the plate and screen circuit requirements from B batteries. In effect battery economy, the 6V6 may be removed from its socket and headphone operation used. Voltages in excess of 180 are not recommended and receiver performance will be unsatisfactory on the "A" range at voltages below 167. If lower voltages must be used, as in portable operation, resistors R1 and R3 may both be shorted out. This will allow the receiver to function normally with a maximum voltage of 90, but with reduced audio output.

In battery operation aging A and E batteries with a resultant decreasing voltage supply may render the receiver inoperative. This effect will first be noticed at the extreme ends of the "A" band.

The B supply 'On/Off' Switch functions to break the positive B supply lead and in the "Off" position is useful for temporary rendering the receiver inoperative during periods of transmission, or when charging coils, while permitting the heater circuits to remain closed. When using B battery plate supply, the switch should be thrown to the "Off" position at all times when the receiver is not in use, in order to avoid parasitic drain.

The Regeneration control functions to adjust the level at which the detector circuits go into superregeneration. This condition is indicated by a loud rushing or hissing noise. The hiss will drop down to a very low level or disappear entirely when a signal is tuned in, the reduction depending somewhat upon signal strength. Sensitivity will depend upon the adjustment of the Regeneration control, the maximum occurring just beyond the point where the hiss starts. The setting of the Regeneration control at which the detector goes into superregeneration will vary with different sets of coils and with the condition of the 6S5 detector tube. On the "A" range it may be necessary to advance the control to the full "On" position as the detector tube begins to wear out.

A RSW terminal panel is mounted at the rear of the receiver chassis. These terminals are connected in parallel with the B supply switch. If external (remote) standby control is desired, it can be accomplished by connecting a switch or relay to the terminals provided on the RSW terminal panel.

TUNING SYSTEM

The tuning capacitors C1 and C2 plus 6 pairs of plug-in type coils are used to tune the frequency range of the receiver in six tuning bands. The frequency coverage and calibration curve of each band is shown in Fig. 2.

The various coils are stamped "A-1", "A-2", "B-1", "B-2", etc., definitely identifying each coil. These coils are used in pairs, the letter designating the band and the number indicating the circuit position. The coil sockets of the R.F. and detector stages are marked "1" and "2", respectively, to correspond with the coil designations. The location of these coils make them readily accessible for band changing. It should be borne in mind, however, that the high frequency coils, (particularly the "A-1"), must be pushed down in the socket as far as they will go. If they are not, the inductance of the primary and secondary circuits will be increased and the calibration of the circuit will be altered.

POWER SUPPLY

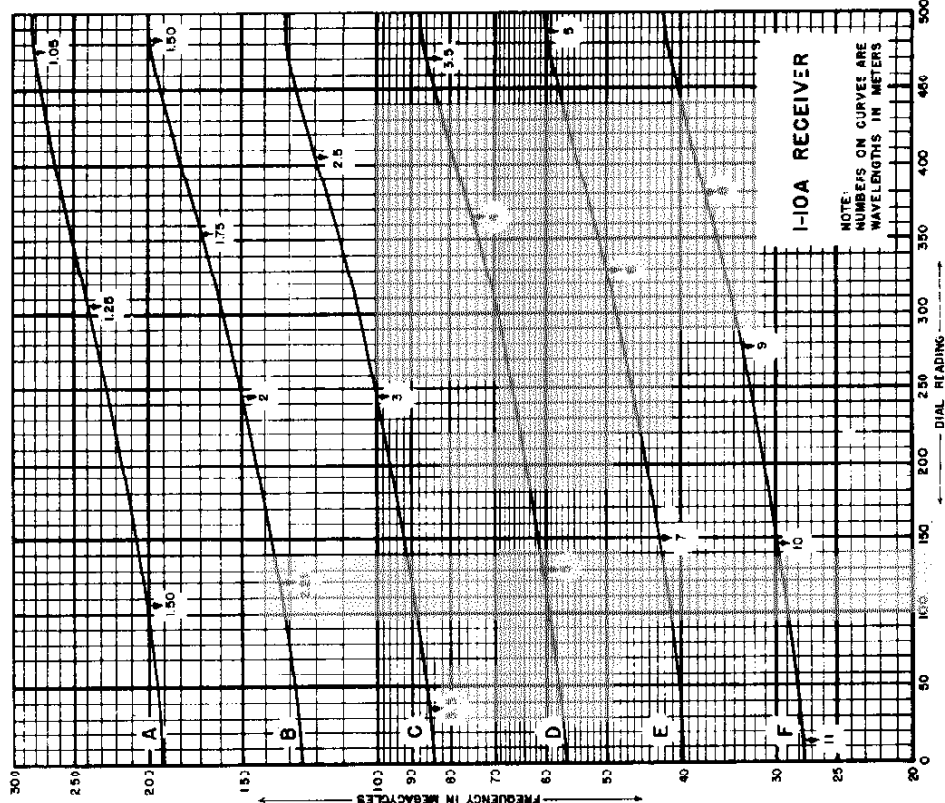
The 1-10A Receiver is designed for operation from National type 5886 power unit, all voltage dividers, etc., being built in so that but one B voltage lead is necessary. The 5886 power unit is designed for operation from a 105-120 volt, 50-60 cps A.C. supply source. This power supply furnishes six volts at 1.6 amperes to the heater circuit and 180 volts at 35 milliamperes to the plate and screen circuits. A 3 volt C battery is used to supply bias to the R.F. tube. This battery is mounted in the rear right-hand corner of the R.F. compartment, being held in place by a spring clip. Two Eveready type 915 cells, or equivalent, are needed. They are mounted in a bakelite tube and the positive (center) terminal of the upper cell is grounded at the top by a retaining bracket.

The 1-10A Receiver may be operated from batteries permitting portable or emergency operation. The operator is cautioned that either the loud-speaker connection or a jumper across the output terminals be maintained at all times. Failure to do this breaks the B supply to the plate of the 6V6 tube and places excessive voltage on the screen of the tube. This may result in serious damage to the tube.

If remote stand-by control is desired make a connection from the terminal on the RSW terminal panel to an external switch or relay.

CIRCUIT

A complete National 1-10A communications equipment consists of the 1-10A Receiver, a self-quenching superregenerative R.F., a 5886 Power Supply, and a MCS 8" PM dynamic loud-speaker with matching transformer in matching cabinets for table mounting installation.



DWG. NO. 2 CALIBRATION CURVES