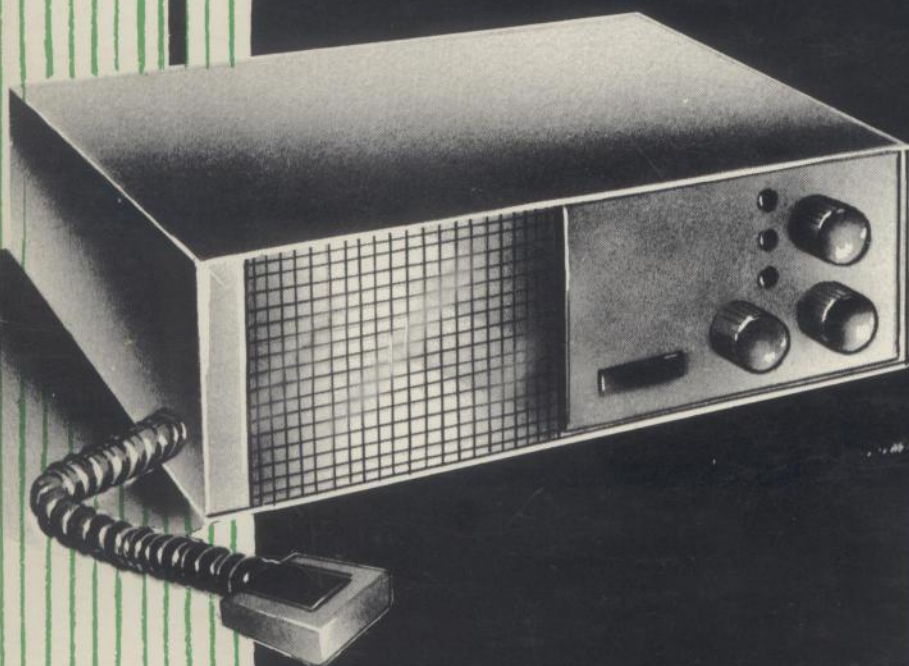


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CITIZENS BAND RADIO MANUAL

VOLUME 2

by

The Howard W. Sams Engineering Staff

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PREFACE

Citizens-band radio is a rapidly growing field, not only in sales but also from the servicing standpoint. Close to 250,000 CB licenses have been issued by the FCC. Many of these licensees are buying not just one or two pieces of equipment, but enough to equip an entire fleet of cars or trucks. It doesn't take much imagination to understand why additional servicing facilities for this type of equipment are in demand and the potential opportunity awaiting the enterprising service technician.

Before the technician can service CB radio, however, he must thoroughly understand the type of equipment he will be called on to service. Further, there are certain conditions of installation and repair which must satisfy not only the customer, but the FCC as well.

The purpose of this book, the second of a series, is to provide the needed service information for several of the most popular CB units. A text section at the beginning introduces the technician to Citizens-band radio equipment. It discusses the classes of equipment used, receiver and transmitter circuits, transceivers (including transistorized types), kits, as well as other equipment such as converters, transverters, and the tone-coded squelch system. Complete PHOTOFACT schematics covering widely used CB transceivers are included to make your servicing of CB equipment faster, easier, and more profitable.

April, 1962

Lawrence W. Sams

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CB (citizens band) radio is a rapidly growing field, not only in sales but also from the servicing standpoint. Close to 250,000 CB licenses have been issued by the FCC. Many of these licenses are being not just one or two pieces of equipment, but enough to equip an entire fleet of cars or trucks. It doesn't take much imagination to understand why additional servicing facilities for this type of equipment are in demand and the potential opportunity awaiting the enterprising service technician.

Before the technician can service CB radio, however, he must thoroughly understand the type of equipment he will be called on to service. Furthermore, there are certain conditions of installation and repair which must satisfy not only the customer but the FCC as well.

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April, 1963

Author's Name

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CB TWO-WAY RADIO EQUIPMENT

Although the Citizens Radio Service was established back in 1949, it was not until the Class-D service was introduced in 1958 that it really got off the ground. Prior to this time all CB operation was confined to the ultrahigh frequencies, and what little UHF equipment was available then was rather expensive. Since the initiation of the Class-D service, however, an ever-increasing number of manufacturers are producing CB radio equipment to fill the demand imposed by the widespread popularity of this new service. At present, Class-D equipment is available in a variety of makes and models and for every conceivable operation. Moreover, to fall in line with the current "do-it-yourself" trend, much of this radio equipment is available in kit form. Because no technical knowledge is required of an applicant for a Citizens-band license, a great deal of these construction projects are performed by inexperienced persons, and quite often a kit that has been improperly assembled will find its way into the hands of the service technician, who is called on to make the necessary corrections.

CLASSES OF EQUIPMENT

Two-way radio equipment is constructed in several ways. One method is to house the transmitter and receiver in separate units. In another arrangement, both units are contained in the same housing but still operate independently. A third method of construction involves combining the transmitter and receiver. The latter design, and the one used almost entirely for Class-D Citizens-band equipment, is known as a transceiver. Here, the transmitter and receiver are on the same chassis and have some circuits other than the power supply in common. For example, the two final stages of the receiver—namely the audio amplifier and audio output—may also serve as a speech amplifier and modulator, respectively, in the transmitting mode.

Fig. 1 is a block diagram of a transceiver using this arrangement. Relay M1 is provided to route

the signal along the proper paths. When this relay is in a resting or de-energized condition, its contacts provide a signal path from the antenna to the receiver input stage as shown. After passing through the RF and IF stages the signal is fed to the detector, where the audio component is recovered from the carrier. From the detector output, the audio signal flows through the contacts of M1B to the first audio amplifier, then to the audio power amplifier, and finally through M1C to the speaker. When the microphone is keyed to transmit, relay M1 is energized and its contacts are switched to position T. Now the antenna is no longer connected to the receiver input, but instead to the transmitter output. M1B disconnects the detector output and in turn connects the microphone to the input of the first audio stage, as shown in Fig. 2. This stage serves as a speech amplifier, and the audio output now acts as a modulator. The RF power amplifier (V3) obtains its B+ from the plate circuit of the modulator, thereby causing the audio component to be superimposed on the transmitted carrier signal. The contacts of M1A provide a signal path from the output of V3 to the antenna. When the transceiver is operating in the transmit mode, the secondary of output transformer T1 is opened by M1C, thereby killing the speaker.

RECEIVERS

The receivers employed in CB equipment must be quite sensitive and also very selective. First of all, the radio signals which they must handle are relatively weak, compared with the radio signals in some of the other services. Moreover, these receivers must be selective enough to prevent adjacent-channel interference, which can be quite troublesome.

Two types of receiver circuits are employed in CB transceivers, the regenerative and the superheterodyne. There are, of course, variations within these designs.

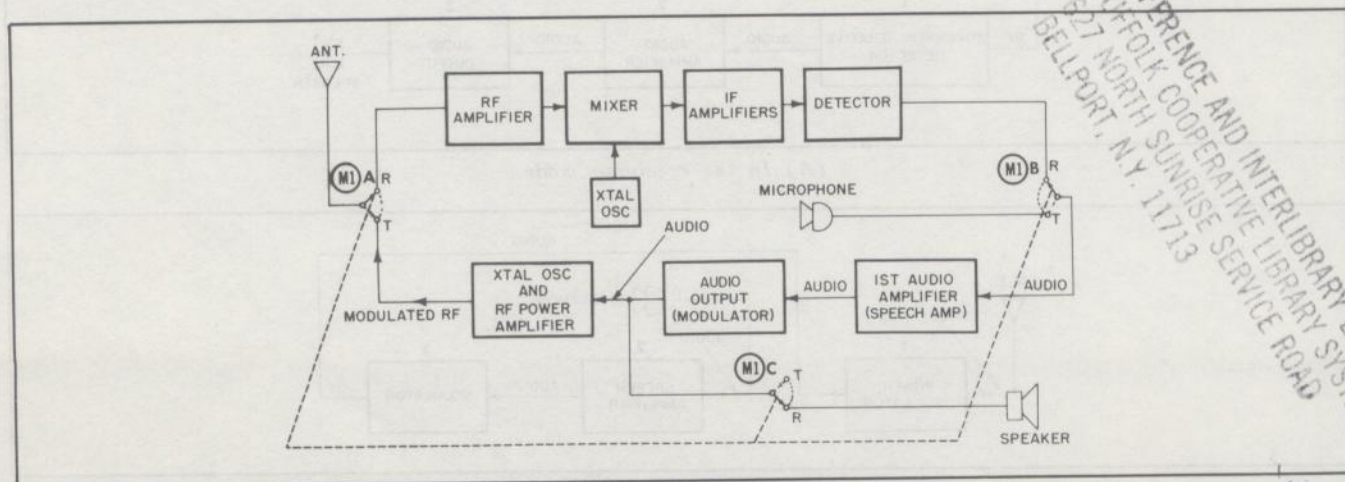


Fig. 1. Block diagram of a typical CB Class-D transceiver.

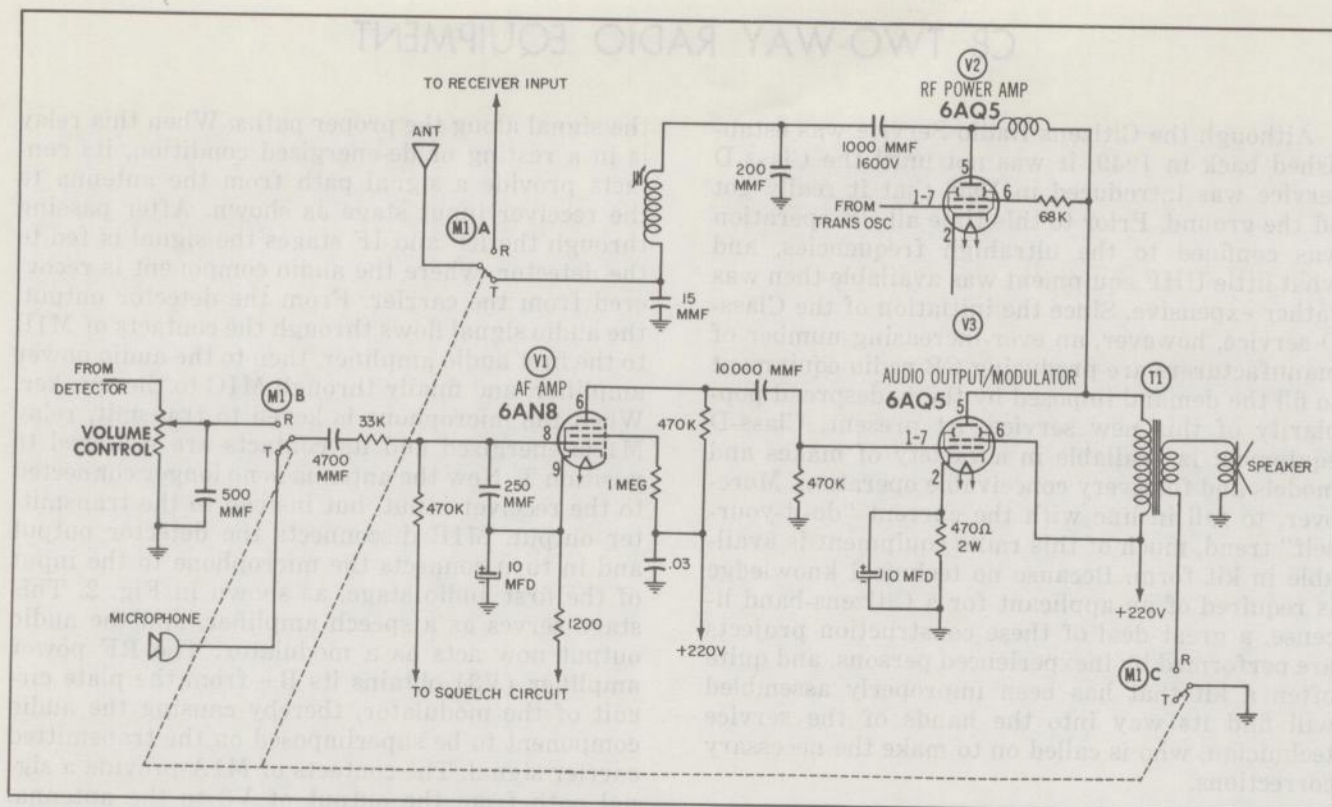


Fig. 2. A superregenerative three-stage UHF transceiver.

Regenerative

The regenerative receiver is by far the simpler of the two. It may consist of only two or three stages, as opposed to perhaps nine or ten in the superheterodyne arrangement. The heart of the regenerative receiver is the regenerative detector. In this stage a certain amount of RF energy is fed back to the control-grid circuit with the proper phase to cause regeneration and thereby greatly increase the amplification of the signal. If the feedback process is carried too far, however, the entire detector stage will go into oscillation. A regen-

eration control regulates the amount of feedback and hence the sensitivity of the receiver. Of those transceivers with regenerative circuits, most use a more stabilized version known as the superregenerative detector. In this circuit, a quenching frequency is generated at regular intervals to prevent the stage from going into oscillation. This permits more feedback to be used and thus improves the sensitivity over that of a receiver with a straight regenerative detector. A separate quenching stage can be used, but in CB equipment the self-quenching detector is almost universal. An RF amplifier may or may not be used ahead of this stage, but

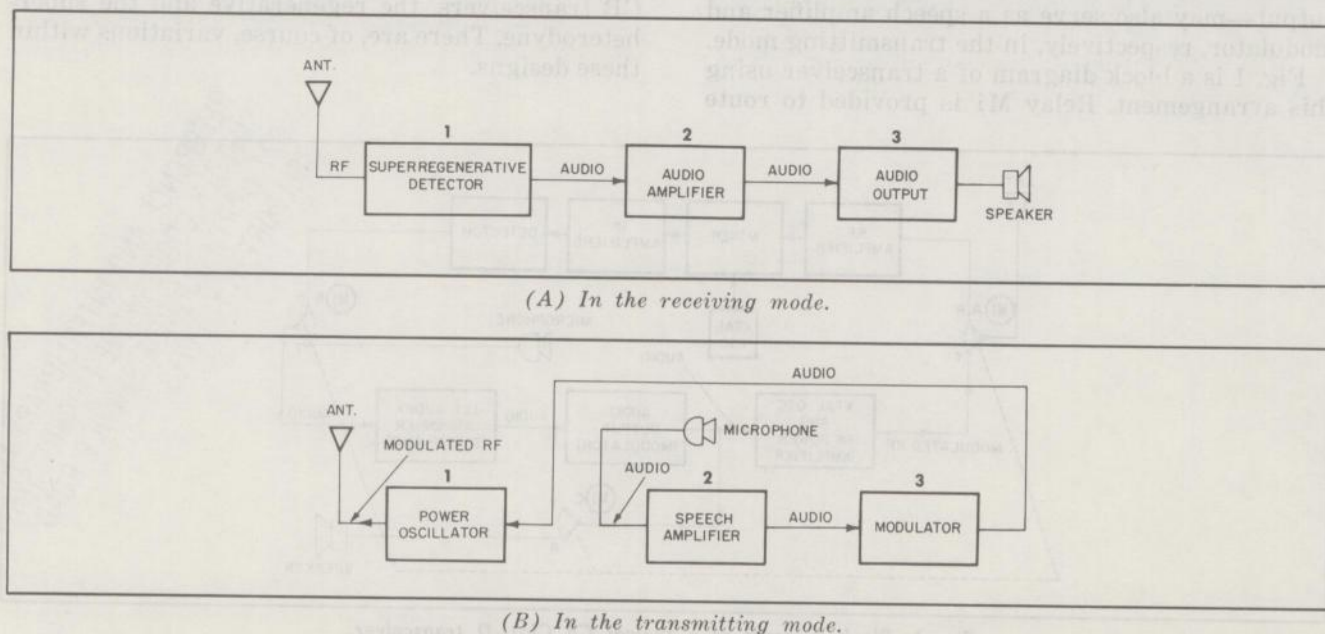


Fig. 3. Function of the stages in the transceiver of Fig. 2.

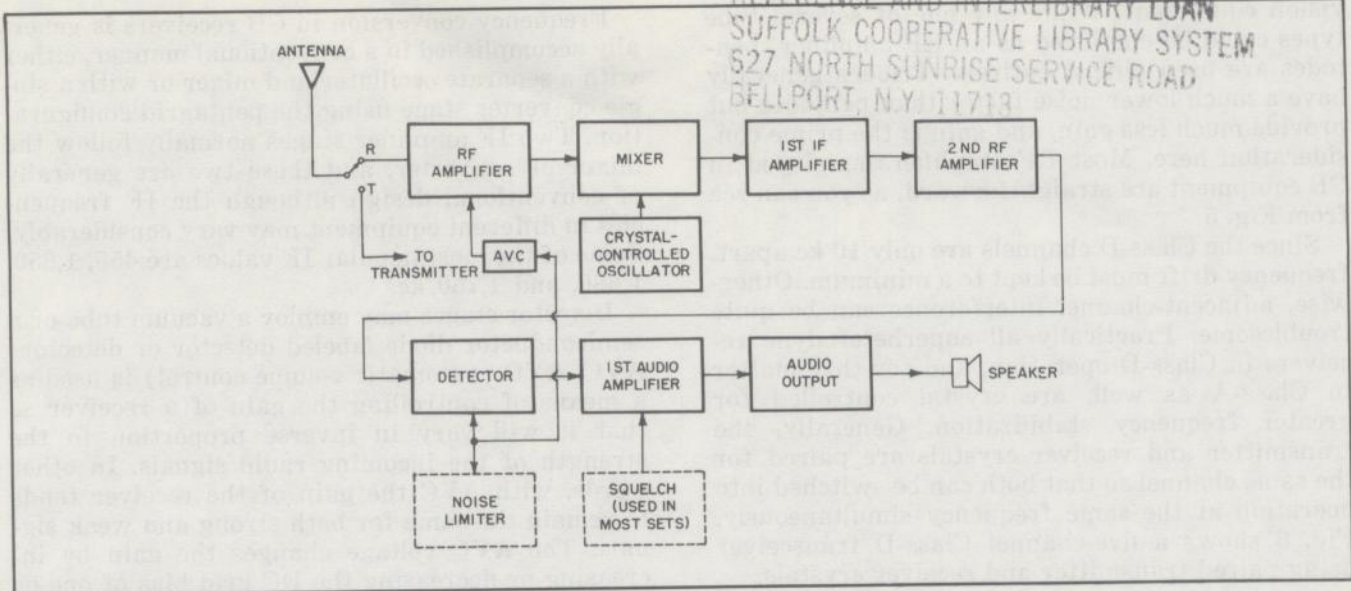


Fig. 4. Block diagram of a superheterodyne receiver.

practically all such receivers employ two audio amplifiers beyond it. One of the inherent characteristics of the superregenerative circuit is its ability to "hang on" to radio signals. This makes the stage appear as though it employed AFC.

In some Class-B equipment, both the transmitting and receiving functions are accomplished with only three vacuum-tube stages. Fig. 3 is a block diagram showing the functions of these stages during each mode of operation. When receiving (Fig. 3A), stage 1 operates as a superregenerative detector. The audio signal at the output of this stage is fed to stages 2 and 3, which are conventional audio voltage and power amplifiers respectively. In the transmitting mode (Fig. 3B), stages 2 and 3 now serve as a speech amplifier and modulator, and stage 1 becomes a power oscillator which feeds the modulated RF directly to the antenna.

Regenerative receivers provide fair sensitivity and selectivity with a minimum of components. Hence, the cost of such equipment can be kept rather low. Because of this and the simplicity of the circuitry, regenerative receivers are employed in a great many transceiver kits.

Superheterodyne

Superheterodyne receivers are much more complex than regenerative receivers, but provide greater sensitivity and selectivity. A block diagram of a typical superheterodyne receiver is shown in Fig. 4. In addition to the eight basic stages shown here, two or three more are generally included for squelch, noise limiting, etc. The dual-conversion superheterodyne (to be discussed shortly) has even more stages.

Practically all superhet receivers employ an RF amplifier for two reasons. First of all, mixer stages generate a considerable amount of circuit noise while performing their frequency-conversion function. By using an RF amplifier ahead of this stage the incoming signal can be made strong enough to overcome most of this noise and hence provide a better signal-to-noise ratio. Secondly, an RF amplifier stage acts as a buffer, isolating the oscillator and mixer stages from the antenna and thereby preventing the local-oscillator signal from feeding through to the antenna and being radiated. Such radiation would serve no useful purpose; in fact, it would only interfere with radio and tele-

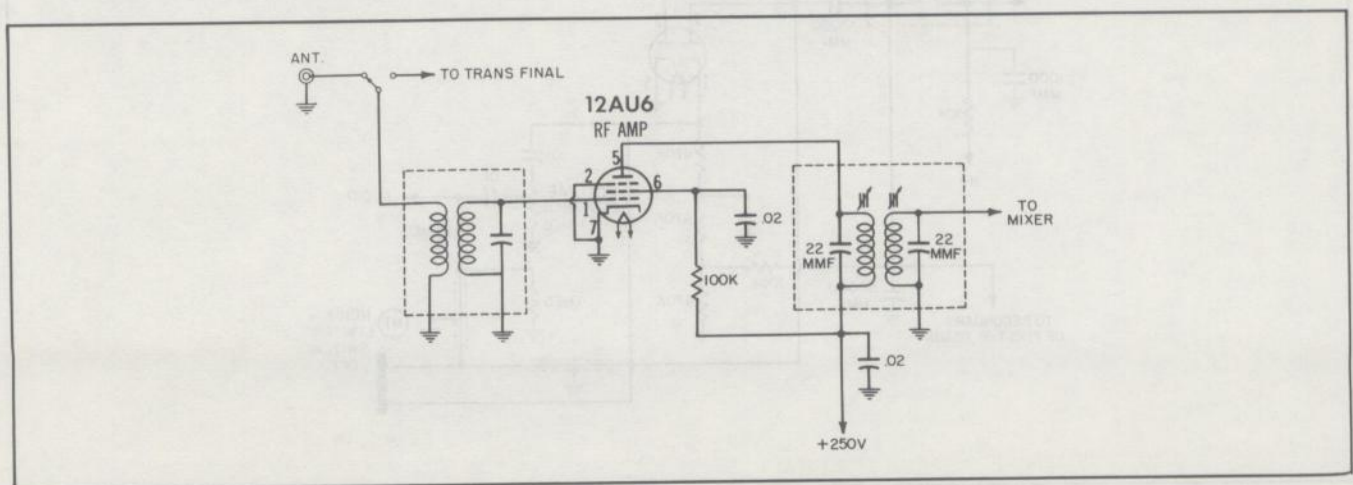
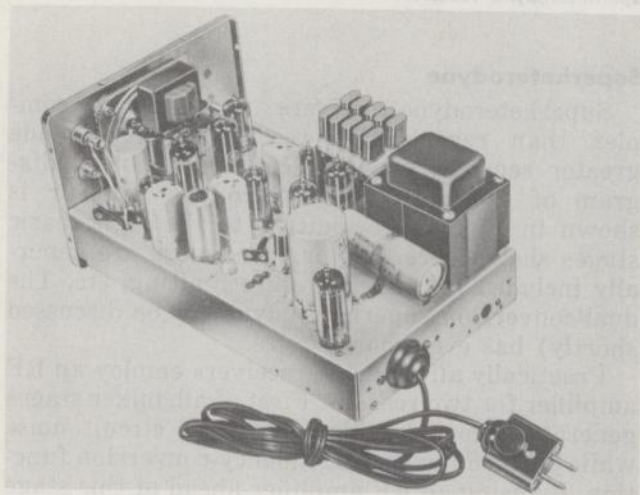


Fig. 5. Typical RF amplifier stage.

vision equipment. While any one of several tube types could be employed as an RF amplifier, pentodes are used almost entirely. Triodes generally have a much lower noise factor than pentodes but provide much less gain, and gain is the prime consideration here. Most RF amplifiers employed in CB equipment are straightforward, as you can see from Fig. 5.

Since the Class-D channels are only 10 kc apart, frequency drift must be kept to a minimum. Otherwise, adjacent-channel interference can be quite troublesome. Practically all superheterodyne receivers in Class-D operation, and for that matter in Class-A as well, are crystal controlled for greater frequency stabilization. Generally, the transmitter and receiver crystals are paired for the same channel so that both can be switched into operation at the same frequency simultaneously. Fig. 6 shows a five-channel Class-D transceiver using paired transmitter and receiver crystals.



Courtesy E. F. Johnson Co.

Fig. 6. A 5-channel Class-D transceiver with paired transmitter and receiver crystals.

Frequency conversion in CB receivers is generally accomplished in a conventional manner, either with a separate oscillator and mixer or with a single converter stage using the pentagrid configuration. Two IF amplifier stages normally follow the mixer or converter, and these two are generally of conventional design although the IF frequencies in different equipment may vary considerably. Some of the most popular IF values are 455, 1,650, 1,680, and 1,750 kc.

Detector stages may employ a vacuum tube or a semiconductor diode labeled detector or detector/AVC. AVC (automatic volume control) is used as a means of controlling the gain of a receiver so that it will vary in inverse proportion to the strength of the incoming radio signals. In other words, with AVC the gain of the receiver tends to remain the same for both strong and weak signals. The AVC voltage changes the gain by increasing or decreasing the DC grid bias of one or more stages. It is desirable that at least two stages of the receiver be controlled, usually the RF amplifier and one or more IF stages. The more stages under control, the more efficient the AVC action. Quite often delayed AVC is used, whereby the control action does not occur until the signal strength reaches a predetermined value. This permits maximum gain to be achieved on the weaker audio signals. When delayed AVC is used, a separate AVC diode is necessary. The audio detector, if employed, would prevent demodulation of the weaker signals and distort the audio signal.

Noise-limiter circuits are also used in most CB receivers. Ignition noise and other pulse-type interference is especially troublesome around the Class-D frequencies. The purpose of the noise-limiter circuit is to eliminate or at least minimize noise peaks which accompany the signal through the receiver. A number of different circuits have been developed for this purpose. Some, of course, are much more efficient than others; however, we

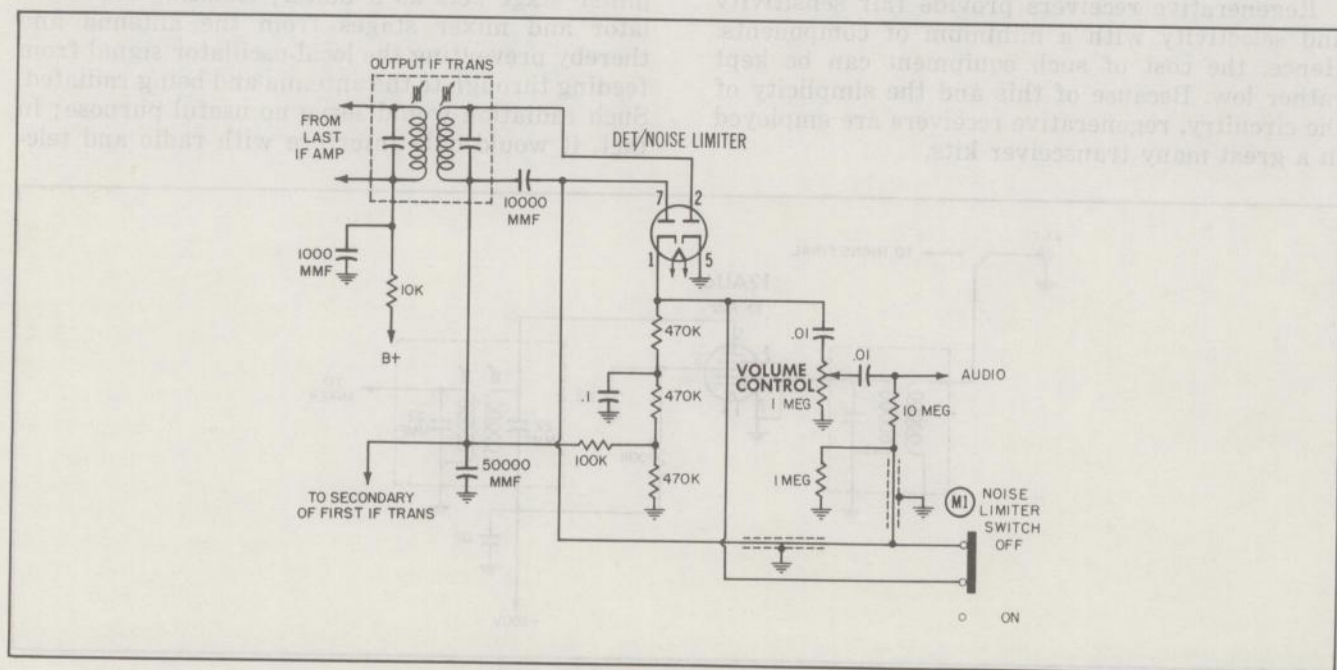


Fig. 7. A typical noise-limiter circuit.

will not go into their pros and cons during this discussion. The noise-limiter diode may be separate or within the same envelope as the detector/AVC diode, as shown in Fig. 7. Notice that this noise-limiter circuit can be switched into or out of the circuit. This arrangement is used in quite a few transceivers.

Some noise-limiting circuits are simpler than others—for example, the peak-limiting circuit in Fig. 8. Here, the series combination of neon bulb M1 and resistor R1 are shunted across the primary of the last IF transformer. The normal voltage developed across the primary of T1 is not sufficient to ionize the neon bulb. However, a high noise peak will "fire" this bulb and effectively short the primary of T1 for the duration of the noise pulse. Naturally no signals at all are fed to the following stages at that instant—noise or otherwise. This leaves the output signal with a series of random "holes" where noise ordinarily would have been. The length of time the signal is killed, however, is so instantaneous that it cannot be detected by the human ear.

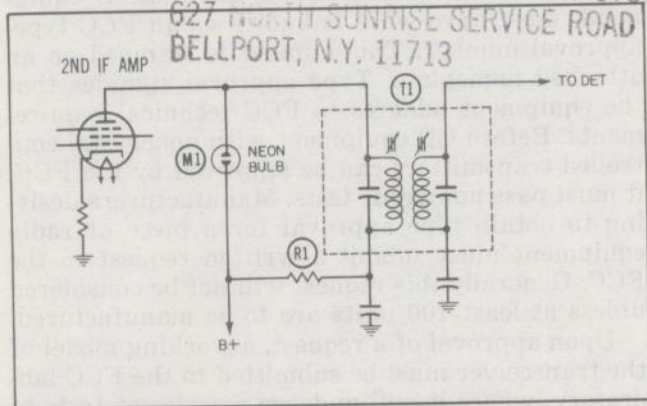


Fig. 8. A simple noise-clipping circuit using a neon bulb.

Following the signal on through the block diagram in Fig. 4, we see that the detector output feeds the audio amplifier and in turn the output stage and speaker. The latter two stages are straightforward and require no discussion, other than to mention that a squelch circuit comprising a separate vacuum-tube stage is usually employed to disable the first audio stage while no signal is being received. This eliminates the background noise normally heard during a no-signal condition. Such noise would be quite annoying to someone—a dispatcher, for example—who had to listen to it all day. By means of a squelch circuit, the first audio stage is disabled when no signal is present, and before this stage can be unblocked, the strength of the incoming signal must be above a certain level determined by the setting of the Squelch control. The two basic systems are known as signal-operated and noise-operated squelch. In the former, the carrier must be of sufficient strength before the control action is terminated. In the latter system (noise-operated squelch), however, it is the reduction or disappearance of background noise while a signal is present that unblocks the audio stage. Signal-operated squelch

is more commonly used in Class-D Citizens-band receivers.

Dual-Conversion Superheterodyne

The dual-conversion, or double superheterodyne, resembles the superheterodyne just discussed, except that it has an additional conversion stage following the first. Generally, only the oscillator in the first conversion stage is crystal controlled. The signal at the output of this circuit is called the "high" IF, and the output of the converter stage that follows is the "low" IF. The dual-conversion circuit provides somewhat better selectivity and image rejection than the single-conversion configuration.

Single- and Multichannel Transceivers

Some CB transceivers have provision for only one crystal; hence, only one channel can be used at a time. This does not mean, however, that this is the only channel on which it can operate. Actually this equipment can be made to operate on any one of the 22 or 23 Class-D channels by merely changing crystals and possibly retuning slightly. The term "single-channel" simply means that only one channel is readily available for operation. In equipment designed for multichannel operation there are normally anywhere from two to six channels that can be switched into operation immediately. Generally, two crystals are employed for each channel—one each for the receiver and transmitter oscillators. Most transceivers are designed so that turning the selector knob to the desired channel automatically selects the proper transmitter and receiver crystals for that channel. Another type of multichannel CB transceiver has provision for switching the transmitter and receiver channels separately. This arrangement makes cross-channel operation possible, whereby a transceiver can transmit on one channel and receive on another. Incidentally, cross-band operation often is practiced in CB radio. Here, for example, the operator of a Class-D station can communicate with a Class-A station, provided the Class-A station is equipped with a Class-D receiver, and the Class-D station with one capable of tuning in the Class-A station. Naturally, the Class-A station must also be operating on AM.

Fixed-Tuned and Tunable

In addition to the fixed-tuned single- and multichannel receivers discussed so far, there are those which are continuously tunable, and some which are a combination of the fixed-tuned and tunable. Transceivers of the tunable variety may cover twenty two of the Class-D channels or may also include the twenty third, which was added after the original twenty two. The combination fixed-tuned/tunable transceivers employ one or more crystal-controlled channels and also have provision for continuously tuning the receiver oscillator. The transmitter oscillator, however, remains crystal controlled. Fig. 9 shows the typical oscillator circuit employed for such an arrangement. The channel selector has five positions, four of

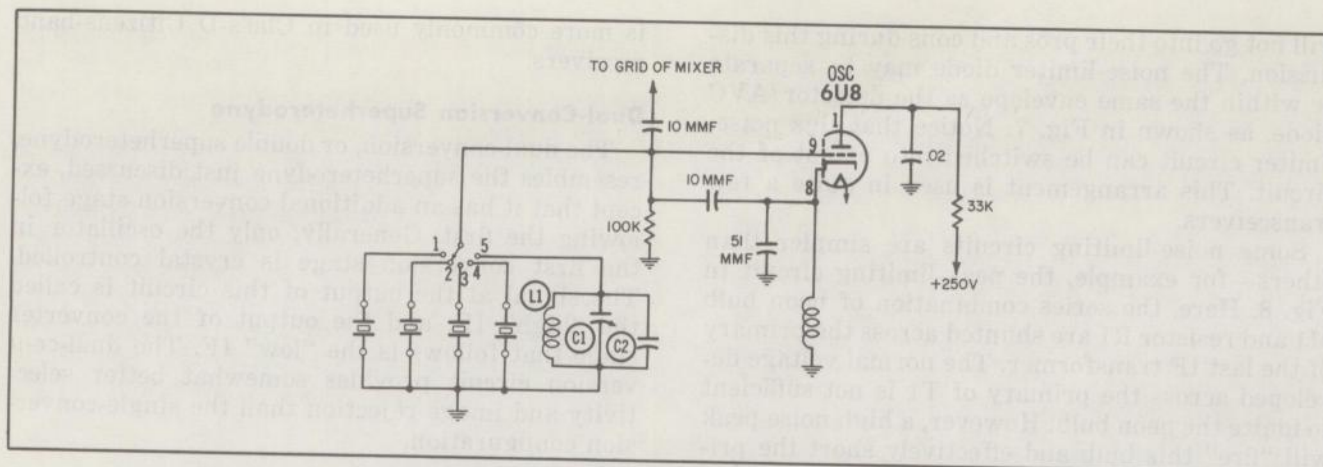


Fig. 9. A combination fixed-tuned/tunable oscillator circuit.

which provide crystal-controlled operation on any four of the Class-D channels. In the fifth position, the oscillator becomes tunable over the entire range of Class-D frequencies by means of the circuit combination L1, C1, and C2. C1 is the tuning capacitor.

TRANSMITTERS

As mentioned previously, some CB transmitters use an RF power amplifier after the oscillator while others merely employ a power oscillator. Hence, transmitter circuitry is generally much simpler than that of receivers. In addition to the two-stage audio amplifier used in practically all applications, an oscillator of some type must be employed in order to generate the RF carrier. If this is the only RF stage, the audio will be superimposed on its signal. More often than not, however, an RF power amplifier is employed following the oscillator. Fig. 10 shows a single pentode stage which serves as both transmitter oscillator and RF power amplifier. Some transmitters in the Class-D citizens-band equipment not only have a separate oscillator and power amplifier, but also employ a buffer or frequency-doubler stage between them.

FCC Type Approval of Noncrystal-Controlled Equipment

Practically all Citizens-band transmitters are crystal controlled in order to insure frequency stability and thus legal operation. Any that are not, and this is true for much of the Class-B equipment, must have what is known as an FCC type-approval number. This number is stamped on an attached nameplate. Type approval signifies that the equipment adheres to FCC technical requirements. Before CB equipment with noncrystal-controlled transmitters can be approved by the FCC, it must pass numerous tests. Manufacturers desiring to obtain type approval for a piece of radio equipment must submit a written request to the FCC. Generally this request will not be considered unless at least 100 units are to be manufactured.

Upon approval of a request, a working model of the transceiver must be submitted to the FCC laboratory, where it will undergo a series of tests to determine its performance under various conditions, such as prolonged exposure to humidities ranging from 20% to 95% and temperatures from 0° to 125°F. Other tests include the effect on operation when the position of the equipment itself and surrounding objects is changed, and also the

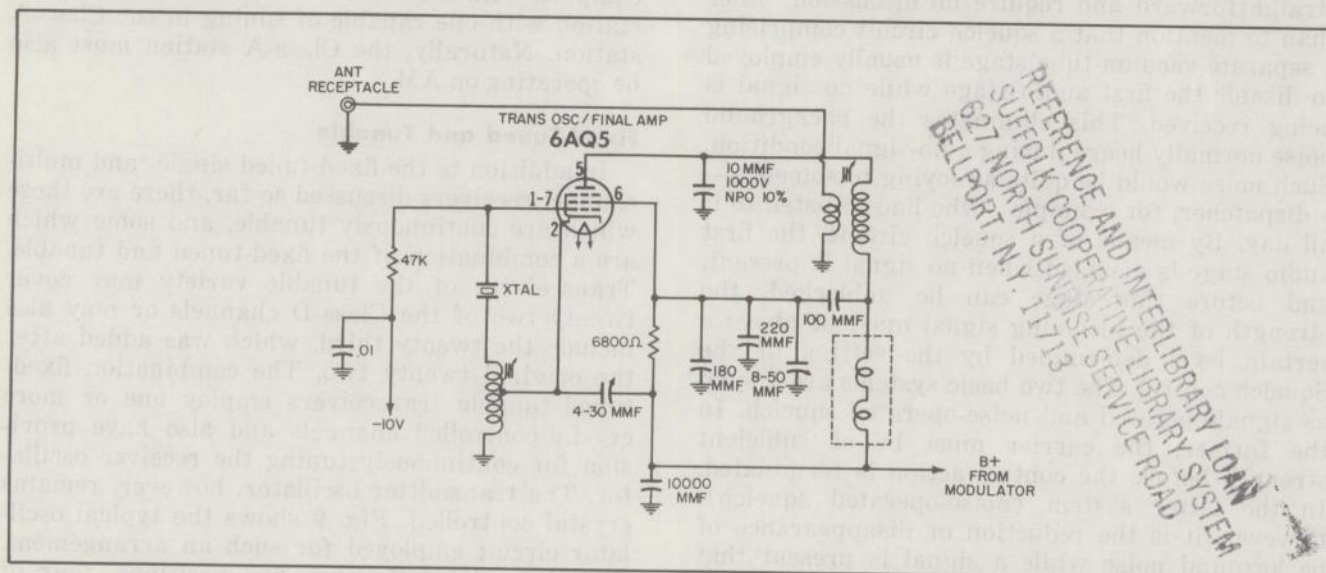


Fig. 10. A combination transmitter-oscillator/final-amplifier stage.

effect of voltage variations encountered in normal usage. These tests are not always performed by the Commission itself, but by a cooperating governmental organization. Before any piece of equipment is accepted or rejected for type approval, the test results are forwarded to the FCC, which notifies the manufacturer of the results. If this unit is acceptable, all production models must duplicate it as closely as possible, and the design must not be changed without approval from the Commission. For his own satisfaction, a manufacturer may request type approval even for crystal-controlled CB equipment.

Transmitter Efficiency

One of the major factors that limit the communicating range of CB equipment is the low plate power input of the transmitter. The maximum power limits for the various classes of CB operation are set forth in the FCC regulations and cannot legally be exceeded. CB equipment which meets Class-A specifications can operate with up to 60 watts' plate power input (product of the plate voltage and current in the final RF stage of the transmitter). The technical requirements of Class-A equipment are quite rigid, however. A large percentage of this equipment operates with less than maximum power input because (1) range is not proportional to transmitter power, and (2) the savings in the cost of producing lower-powered equipment can be passed on to the purchaser. All other classes of equipment (B, C, and D) are limited to a maximum power input of 5 watts, except Class-C operation on 27.255 mc, where a power input of 30 watts is permitted. This frequency is shared with the Class-D service, where the legal power limit is 5 watts.

The amount of output power obtained from a transmitter with any given amount of input is dependent on the efficiency of the final RF stage. Generally, 50% efficiency is considered average; some transmitters approach 70%. Much of course depends on circuit design and the engineering of the equipment. A CB transmitter using the full 5-watt input power is generally capable of producing about 3 watts' RF output.

We are speaking here only of transmitter output. The amount of power actually radiated from the antenna is an entirely different matter. Here the efficiency of the antenna system must also be considered. (The system comprises the antenna itself and the transmission line, plus any coupling, matching, or loading devices connected to either end.) The inability of any one of these components to fulfill its intended function will degrade the performance of the entire two-way system. More often than not, a good antenna can compensate for losses incurred in either system.

Frequency Tolerance

The frequency tolerance for transmitter operation depends not only on the class of station, but also on the type of operation (i.e., mobile, fixed, or base) and on the plate input power of transmitter. For example, the frequency tolerance of a Class-A

fixed or base station is .001%, whereas a mobile station in the same class is allowed as much as .005% frequency tolerance, provided the plate power input does not exceed 3 watts. If it does, the legal tolerance is .001%, the same as for base and fixed stations. Class-B equipment is authorized for mobile operation only (although it can be located at fixed points), and must conform to a frequency tolerance of 0.5% if the transmitter input power is 3 watts or less, and 0.3% over 3 watts. With Class-D equipment, however, the frequency tolerance remains the same (.005%), regardless of the type of operation or the plate power input of the transmitter.

TRANSISTORIZED TRANSCEIVERS

Since initiation of the Class-D service, many transistorized CB units have been produced. Some employ transistors only in the power supply; others use them throughout. Most all-transistorized CB transceivers are of the small portable variety (Fig. 11).

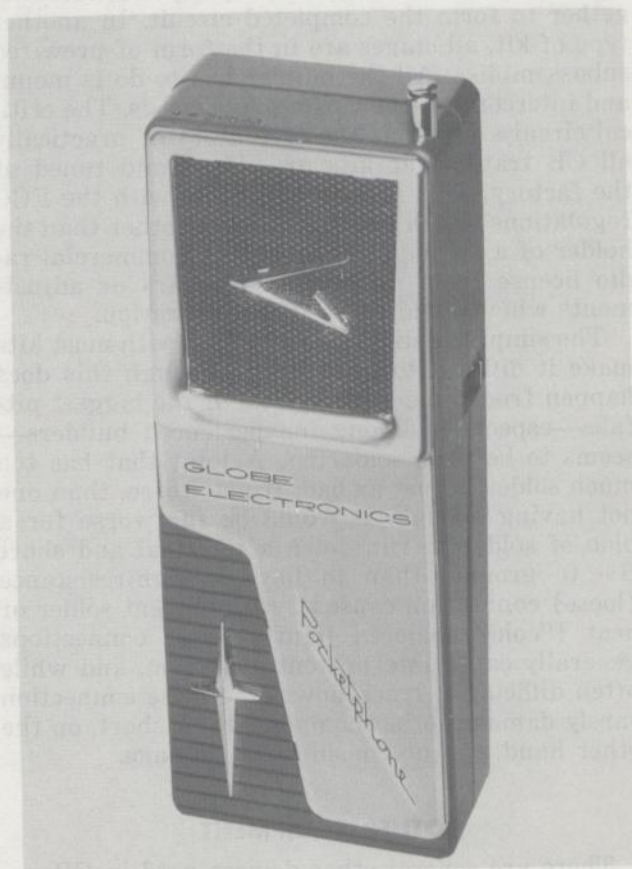


Fig. 11. Example of an all-transistor Class-D transceiver.

These units operate from self-contained batteries and generally operate with an input power of approximately 2 watts or less. In fact, many operate with less than 100 milliwatts. When the power input of a transceiver is kept at or below this figure, no FCC license is required, provided such equipment is used only for communications with similar unlicensed units. Most portable Class-D transceivers employ a built-in telescopic whip an-

tenna and are designed for close-range communications.

The self-contained power supply generally consists of several batteries to provide the necessary operating power (generally 9.6 volts). These batteries may or may not be chargeable. Two major advantages of transistorized equipment are their compactness and low power consumption. Practically all transistorized equipment employs a superheterodyne receiver, and its operation is principally the same as that of its vacuum-tube counterpart. There are, of course, the normal variations in component and voltage values that can be expected with transistors. Also, only a few of the pocket-size transceivers employ a squelch circuit.

KITS

Many CB two-way radios are available as kits, and some may be purchased either as a kit or factory wired. Most transceiver kits can be easily assembled by persons with little or no previous experience. One type of kit comprises individual components which must be properly connected together to form the completed circuit. In another type of kit, all stages are in the form of prewired subassemblies. All the builder has to do is mount and interconnect the various subchassis. The critical circuits (such as the oscillator) of practically all CB transceiver kits are wired and tuned at the factory. This is done to comply with the FCC regulations which prohibits anyone other than the holder of a second-class or higher commercial radio license from making any repairs or adjustments which could cause illegal operation.

The simplified diagrams supplied with most kits make it difficult to go wrong, although this does happen from time to time. One of the biggest pitfalls—especially among inexperienced builders—seems to be poor soldering. A joint that has too much solder is just as bad, if not worse, than one not having enough. It would be far worse for a blob of solder to run down a terminal and short B+ to ground, than to have a high-resistance (loose) connection caused by insufficient solder or heat ("cold" soldered joint). Loose connections generally cause intermittent operation, and while often difficult to track down, the loose connection rarely damages other components. A short, on the other hand, can do considerable damage.

OTHER EQUIPMENT

There are several other devices used in CB radio which are not nearly as common as the transceiver, but are still worthy of mention. One is the converter; it is primarily a "front-end," or RF tuner, capable of converting radio signals at one frequency into signals of a different frequency

which can be accepted by another type of radio equipment. Generally a converter must be used in conjunction with a standard broadcast receiver before its signals can be heard. Converters are available in a number of makes and models and are designed to cover just about any band of frequencies, including CB. Some are designed for mobile operation and are used with the regular AM car radio. Other types operate from the household power outlet and are used with, say, a table-model radio. The converter is a handy item when an extra receiver is needed or when you desire to monitor transmissions in another CB band. Also, a converter may be employed where a transmitter but no receiver is available.

Another interesting device is the transverter, which is simply a combination transmitter and converter. Here again, a standard AM broadcast receiver also is employed to make the radio signals audible. The transmitter section is generally complete in itself; only the receiver requires the support of additional stages.

Some Class-A CB equipment used in systems where a number of units are operating is provided with a coded calling system known as tone squelch. This system is designed to reject all transmissions other than those within the controlled network. Each station within this network transmits a coded tone in addition to the voice signal. This tone may be present for a few seconds (just after the mike button is depressed) or a continuous tone (made inaudible by filters) present during the entire transmission. Each receiver is equipped with a decoder circuit, and only when the correct tone is received will the transmitted message be heard. Hence, the coded tone of the master station will permit communication with all satellite units, but transmissions from other radio equipment outside the network will not be heard. Furthermore, most systems are designed so that by means of the proper coded tone, any one or all of the satellite stations within this network can be alerted. In addition, a transmission from any satellite station will unblock the entire system and permit all other stations to hear the message.

SCHEMATICS

A schematic diagram presents, at a glance, a clear picture of the transceiver and its circuits. Moreover, before you can effectively service any type of two-way radio, especially an unfamiliar one, such a diagram is essential. The following section contains schematics of current Citizens-band equipment, together with complete service data, including parts lists, tube and component layout and identification, and alignment instructions.

REFERENCE AND INTERLIBRARY LOAN
SUNY COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713



REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
DELLPORT, N.Y. 11713



MODEL SQ-9W

ARKAY MODELS
SQ-9, SQ-9W

TRADE NAME	Arkay Models SQ-9, SQ-9W		
MANUFACTURER	Arkay International, Inc., 88 - 06 Van Wyck Expressway, Jamaica 18, N. Y.		
TYPE SET	AC-Battery Operated Crystal Controlled 8 Tube Citizens Band Transmitter-Receiver		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	58 Watts, .58 Amp. @117 Volts AC
FREQ. RANGE	Any 3 of Citizens Band Channels		4 Amp. @12.6 Volts DC
	1 thru 22		

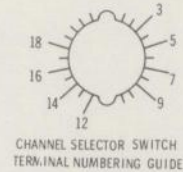
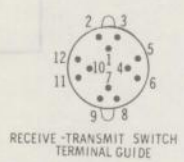
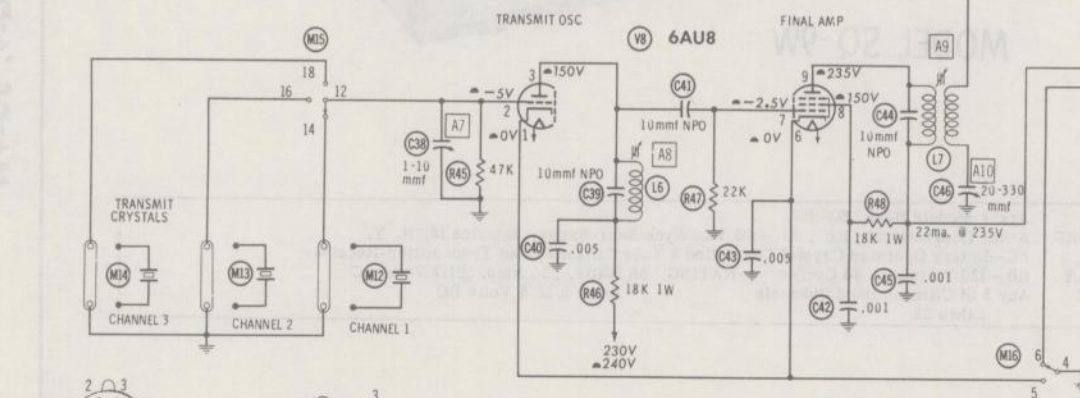
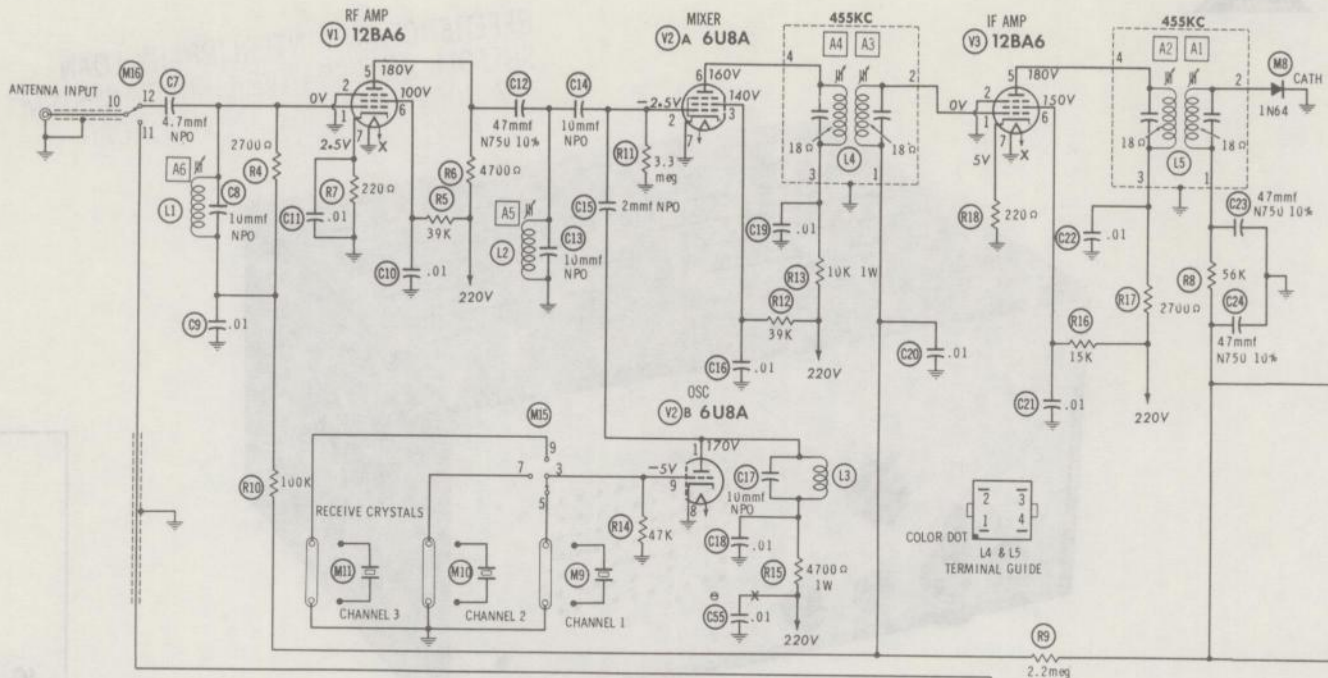
ONLY THOSE PERSONS PROPERLY LICENSED ARE
PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS
WHICH MAY RESULT IN ILLEGAL OPERATION.
(REFER TO FCC RULES & REGULATIONS PART 19,
SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ983

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1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

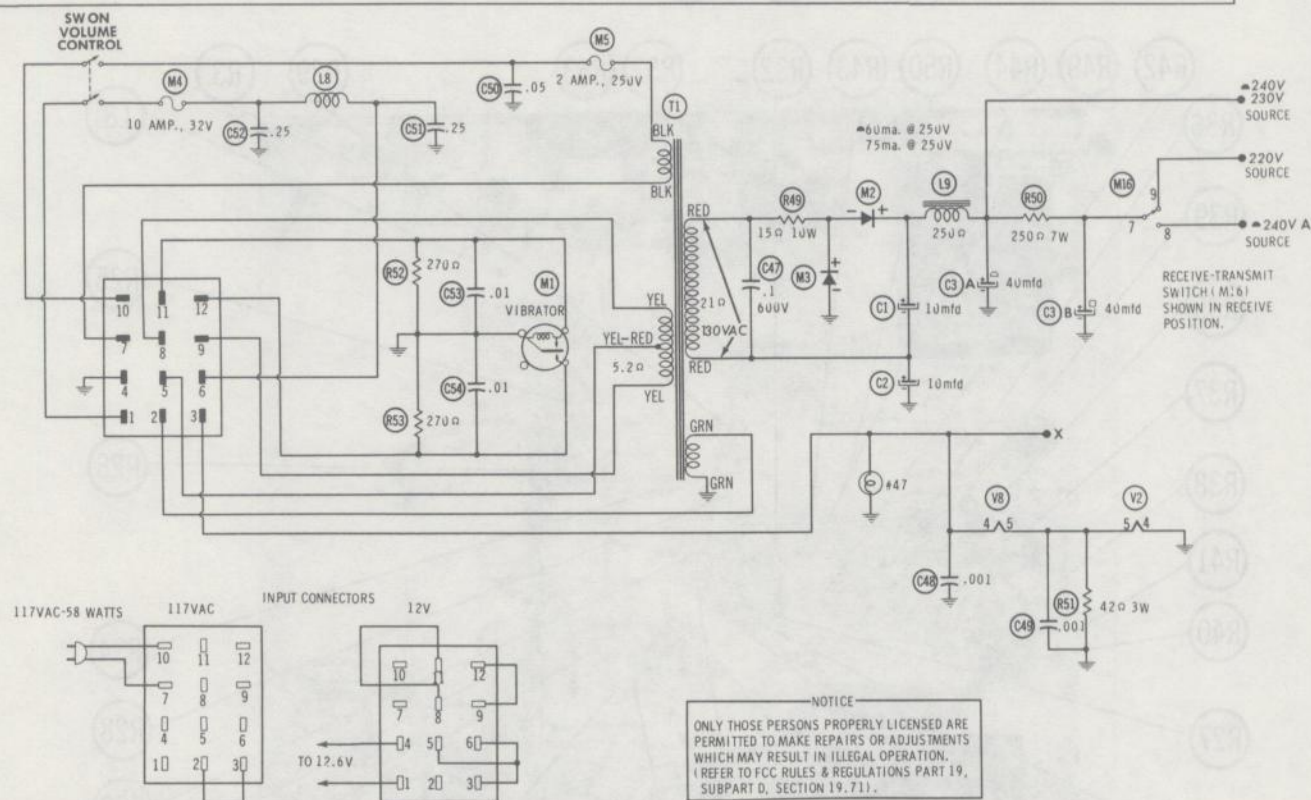
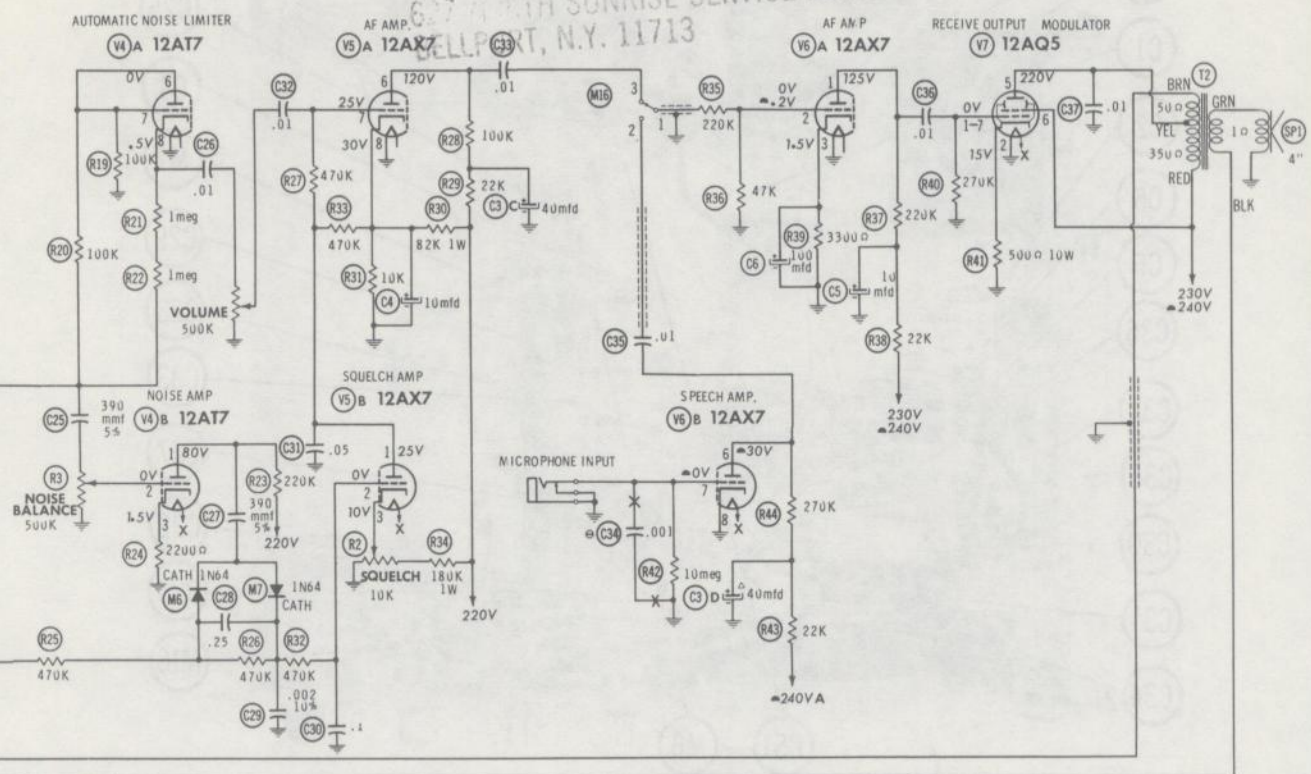
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	2.4meg	0 0	FIL	FIL	$\pm 5200 \Omega$	$\pm 39K$	220 Ω		
V2	6U8A	$\pm 5200 \Omega$	3.3meg	$\pm 39K$	FIL	FIL	$\pm 10K$	0 0	0 0	47K
V3	12BA6	2.3meg	0 0	FIL	FIL	$\pm 3200 \Omega$	$\pm 15K$	220 Ω		
V4	12A17	$\pm 220K$	400K	2200 Ω	FIL	FIL	80K	80K	2.1meg	NC
V5	12AX7	480K	1.1meg	7000 Ω	FIL	FIL	$\pm 122K$	950K	10K	NC
V6	12AX7	$\pm 242K$	47K	3300 Ω	FIL	FIL	$\pm 292K$	0 0	0 0	NC
V7	12AQ5	NC	500 Ω	FIL	FIL	$\pm 600 \Omega$	$\pm 250 \Omega$	270K		
V8	6AU8	0 0	47K	$\pm 18K$	FIL	FIL	0 0	22K	$\pm 18K$	$\pm 650 \Omega$

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
 * MEASURED IN "TRANSMIT" POSITION.
 † MEASURED FROM OUTPUT OF M2.

NC NO CONNECTION

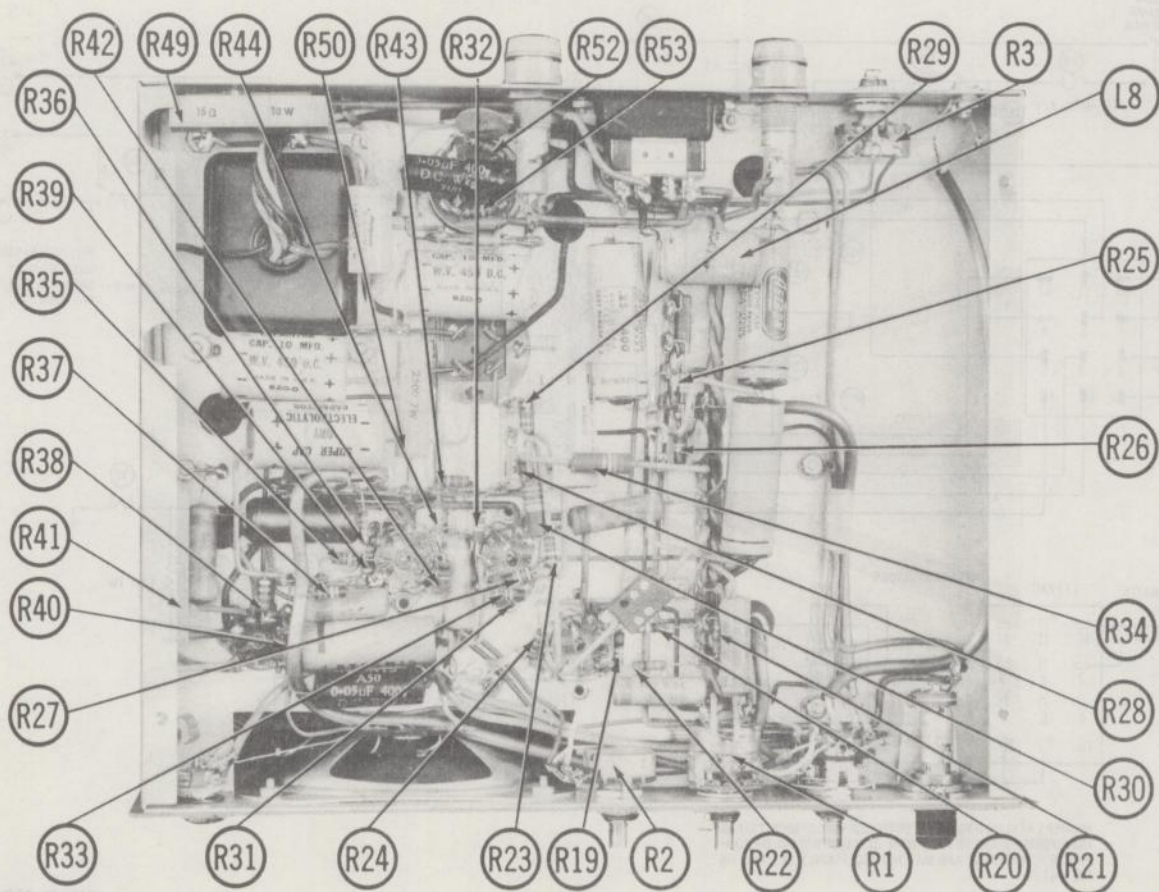
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
 DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
 © Howard W. Sams & Co., Inc. 1962



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

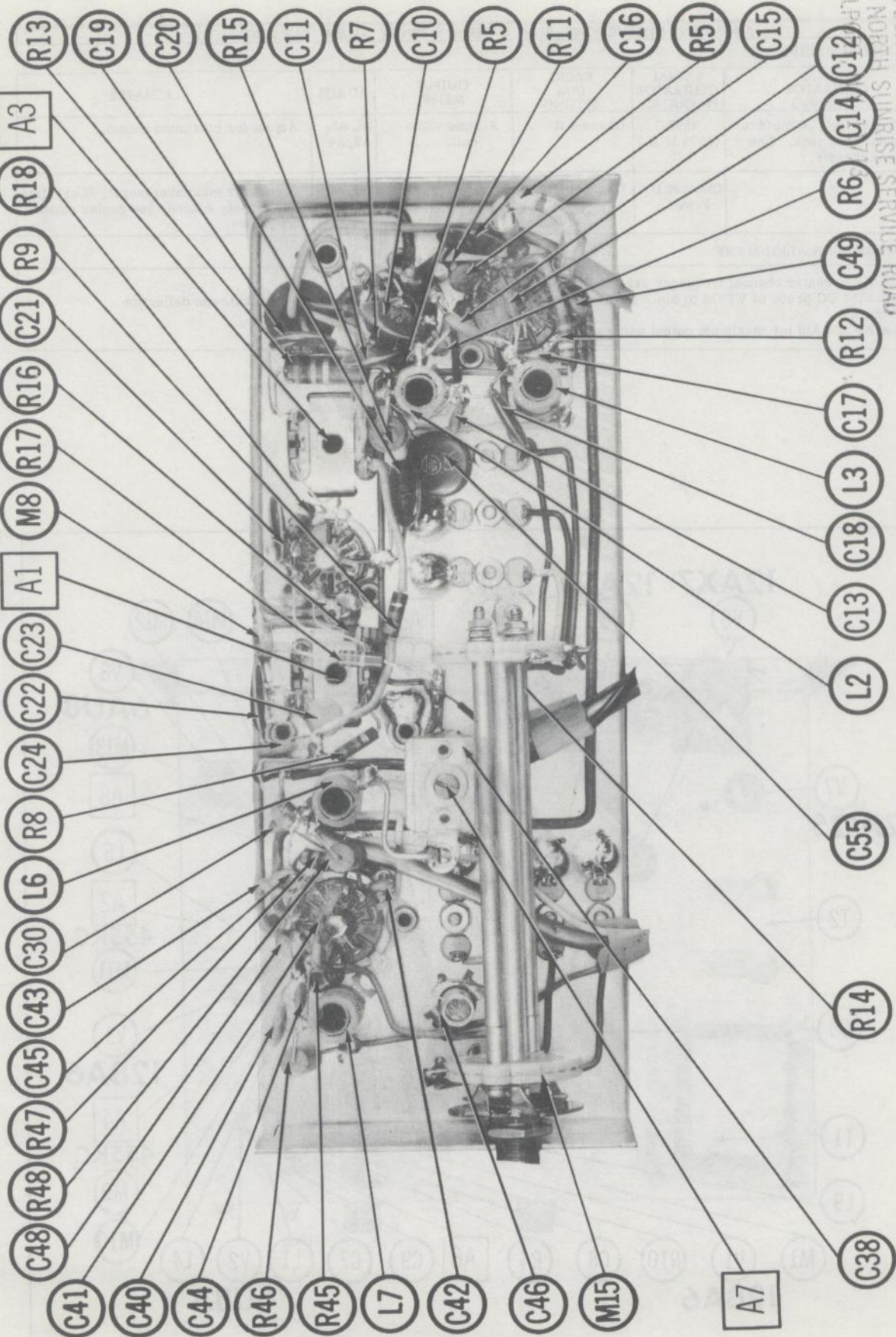
ARKAY MODELS
SQ-9, SQ-9W



20

455KC

455KC



RF-IF SUBCHASSIS-BOTTOM VIEW

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLINGHAM, WA 98226-1777

ALIGNMENT INSTRUCTIONS

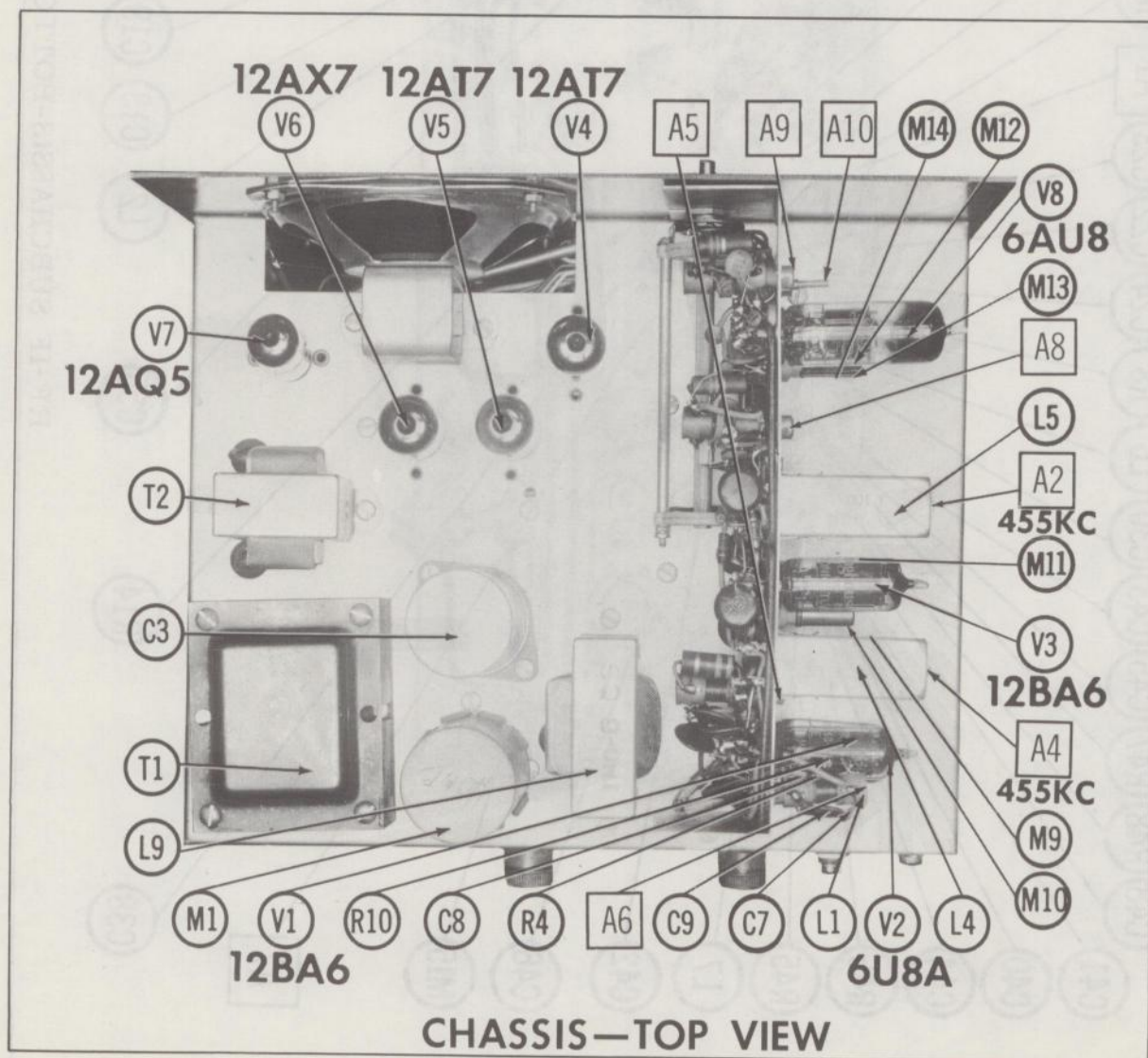
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

RECEIVER ALIGNMENT

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
High side thru .001mfd to antenna input jack. Low side to chassis.	455KC (400% Mod.)	Channel 11	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
"	Channel 11 Freq.	Channel 11	"	A5, A6	Adjust for maximum output. If crystals are closely spaced, use center channel frequency.

TRANSMITTER ALIGNMENT

Adjust A7 to center channel frequency using a Frequency meter.
Connect the DC probe of VTVM to pin 7 (grid) of Final. Common to Chassis. Adjust A8 for maximum deflection.
Recheck A7.
Adjust A9 and A10 for maximum output using a Field Strength meter.



PARTS LIST AND DESCRIPTIONS

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMOCO PART No.	MALLORY PART No.
C51	25 4.0V		P488N-25	DD-103	CUBAP25	4DP-5-254	GEM-4025
C52	25 400V		P488N-25	DD-103	CUBAP25	4DP-5-254	GEM-4025
C53	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110
C54	.01		BPD-01	DD-103	BYA1081	CCD-103	B-110
C55	.01	Note 1	BPD-01	DD-103	BYA1081	CCD-103	B-110

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			RESIST-ANCE	WATTS	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.
R1A	500K	500K	500K	1/2	CM25966	A47-500K-2	Q13-133
R2A	10K	10K	10K	1/2	CM25966	A47-10K-2	Q13-116
R3A	500K	500K	500K	1/2	CM25966	A47-500K-2	Q13-133
R4	500K	500K	500K	1/2	CM25966	A47-500K-2	Q13-133

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			RESIST-ANCE	WATTS	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.
R5	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R6	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R7	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R8	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R9	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R10	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R11	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R12	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R13	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R14	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R15	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R16	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R17	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R18	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R19	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R20	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R21	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R22	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R23	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R24	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R25	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R26	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R27	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133
R28	2700K		2700K	1/2	CM25966	A47-500K-2	Q13-133

COILS (RF-IF)

ITEM No.	USE	REMARKS	REPLACEMENT DATA				
			ARKAY PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.
L1	Ant.						
L2	RF						
L3	Osc. Plate						
L4	Input IF						
L5	Osc. Plate						
L6	Osc. Plate						
L7	Final Plate						
L8	Hash Choke						

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BA6	V5	Squelch Amp. - AF Amp.	12AX7
V2	Mixer-Osc.	6UR6	V6	AF Amp. - Speech Amp.	12AX7
V3	IF Amplifier	12BA6	V7	Rec. Output-Modulator	12AQ5
V4	Ant.-Noise Amplifier	12AT7	V8	Trans. Osc. - Final Amp.	6AU6

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	CAP.	VOLT.	REMARKS	REPLACEMENT DATA				
					AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	10	450	450		PRSI720	BRI045	QTI-6	TD-10-450	TVA-1705
C2	10	450	450		PRSI720	BRI045	QTI-6	TD-10-450	TVA-1705
C3	10	450	450		PRSI720	BRI045	QTI-6	TD-10-450	TVA-1705
C4	10	450	450		PRSI720	BRI045	QTI-6	TD-10-450	TVA-1705
C5	10	450	450		PRSI720	BRI045	QTI-6	TD-10-450	TVA-1705
C6	100	25	25		PRSI720	BRI045	QTI-6	TD-10-450	TVA-1705

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELMOCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	4.7 NPO		NPO-DI 4.7	DTZ-47	CCTO-47	CNO-547	10TCC-Q10
C8	10 NPO		NPO-DI 10	DTZ-10	CCTO-100	CNO-410	10TCC-Q10
C9	.01		BPD-01	DD-103	CCD-103	B-110	5HK-S10
C10	.01		BPD-01	DD-103	CCD-103	B-110	5HK-S10
C11	.01		BPD-01	DD-103	CCD-103	B-110	5HK-S10
C12	.01		BPD-01	DD-103	CCD-103	B-110	5HK-S10
C13	10 NPO		NPO-DI 10	DTZ-10	CCTO-100	CNO-410	10TCC-Q10
C14	10 NPO		NPO-DI 10	DTZ-10	CCTO-100	CNO-410	10TCC-Q10
C15	2 NPO		NPO-DI 2.0	DTZ-2	CCTO-252	CNO-522	10TCC-Q10
C16	.01		BPD-01	DD-103	CCD-103	B-110	5HK-S10
C17	10 NPO		NPO-DI 10	DTZ-10	CCTO-100	CNO-410	10TCC-Q10
C18	.01		BPD-01	DD-103	CCD-103	B-110	5HK-S10
C19	.01		BPD-01	DD-103	CCD-103	B-110	5HK-S10
C20	.01		BPD-01	DD-103	CCD-103	B-110	5HK-S10
C21	.01		BPD-01	DD-103	CCD-103	B-110	5HK-S10
C22	.01		BPD-01	DD-103	CCD-103	B-110	5HK-S10
C23	47 N750 10%		N750-DI 47	DTN-47	CCTN-470	CN7-447	10TCC-Q10
C24	47 N750 10%		N750-DI 47	DTN-47	CCTN-470	CN7-447	10TCC-Q10
C25	390 5%		1469-00039	DTN-47	CCTN-470	CN7-447	10TCC-Q10
C26	.01 400V		P488N-01	D6-103	CCD-103	B-110	5HK-S10
C27	390 5%		1469-00039	D6-103	CCD-103	B-110	5HK-S10
C28	25 400V		P488N-25	D6-103	CCD-103	B-110	5HK-S10
C29	.002 10%		DI-2000	D6-103	CCD-103	B-110	5HK-S10
C30	1.400V		P488N-1	D6-103	CCD-103	B-110	5HK-S10
C31	.05 400V		P488N-05	D6-103	CCD-103	B-110	5HK-S10
C32	.01 400V		P488N-01	D6-103	CCD-103	B-110	5HK-S10
C33	.01 400V		P488N-01	D6-103	CCD-103	B-110	5HK-S10
C34	.01 400V		P488N-01	D6-103	CCD-103	B-110	5HK-S10
C35	.01 400V		P488N-01	D6-103	CCD-103	B-110	5HK-S10
C36	.01 400V		P488N-01	D6-103	CCD-103	B-110	5HK-S10
C37	.01 400V		P488N-01	D6-103	CCD-103	B-110	5HK-S10
C38	1-10		NPO-DI 10	DTZ-10	CCTO-100	CNO-410	10TCC-Q10
C39	.005		BPD-005	DD-502	CCD-502	B-250	5HK-D50
C40	10 NPO		NPO-DI 10	DTZ-10	CCTO-100	CNO-410	10TCC-Q10
C41	.001		BPD-001	DD-502	CCD-502	B-250	5HK-D50
C42	.001		BPD-001	DD-502	CCD-502	B-250	5HK-D50
C43	.001		BPD-001	DD-502	CCD-502	B-250	5HK-D50
C44	10 NPO		NPO-DI 10	DTN-10	CCTO-100	CNO-410	10TCC-Q10
C45	.001		BPD-001	DD-502	CCD-502	B-250	5HK-D50
C46	20-330		P488N-1	DF-104	CCD-104	GEM-601	6TM-P10
C47	1.600V		P488N-1	DF-104	CCD-104	GEM-601	6TM-P10
C48	.001		BPD-001	DD-502	CCD-502	B-250	5HK-D50
C49	.001		BPD-001	DD-502	CCD-502	B-250	5HK-D50
C50	.05 400V		P488N-05	DD-503	CCD-503	GEM-415	4TM-P10

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (10 CURRENT 1000 C ₀)	ARKAY PART No.	Stancor PART No.	Triad PART No.	
L9	.075A	250Ω	9.5 HY		C-1709	C-7X	

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI.	SEC.	ARKAY PART No.	Meritt PART No.	Stancor PART No.	
T1	117V @ 1.8A 12.6VCT @ 2.2A DC	12.6V @ 1.8A AC (AC Only)				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	ARKAY PART No.	Meritt PART No.	Stancor PART No.	
T2	T5000 Tap @ 12.5%	3-4Ω				

SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA		NOTES
	SIZE	FIELD	ARKAY PART No.	QUAM PART No.	
SPI	4"	PM		4A15	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS/FREQUENCY	REPLACEMENT DATA			NOTES
			ARKAY PART No.	CORNEILL DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	12 115%		6301	G1801	6301

POWER RECTIFIERS

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	CURRENT (Measured)		ARKAY PART No.	RCA PART No.	SARKES TAREZIAN PART No.	
M2	075A			1N1783	F8	
M3	075A			1N1783	F8	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			ARKAY PART No.	FUSE	HOLDER	BUSS PART No.
M4	3AG	10A		311010 (3AG 10A 32V)	155020	AGC 10
M5	3AG	2A		312002 (3AG 2A 250V)	342001	AGC 2

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ARKAY PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M6	1N84			1N84	Squelch Rect. Squelch Rect. Detector
M7	1N84			1N84	
M8	1N84			1N84	

MISCELLANEOUS

ITEM No.	PART NAME	ARKAY PART No.	NOTES
M9	Crystal		Receive
M10	Crystal		Receive
M11	Crystal		Receive
M12	Crystal		Transmit
M13	Crystal		Transmit
M14	Crystal		Transmit
M15	Switch		Channel Selector (Rotary Type)
M16	Switch		Transmit - Receive (Rotary Type)

WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



MODEL CB-12

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

TRADE NAME	Bendix Models CB-6, CB-12
MANUFACTURER	Bendix Marine, 8211 Lankershim Blvd., North Hollywood, California
TYPE SET	AC or Battery Operated Crystal Controlled 8 Tube Citizens Band Transmitter-Receiver
POWER SUPPLY	CB-6: 110-120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery CB-12: 110-120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	50 Watts, .5 Amp. @117 Volts AC (or) 7.6 Amp. @6.3 Volts DC (or) 3.8 Amp. @12.6 Volts DC
FREQUENCY RANGE	Any 4 of Citizens Band Channels 1 thru 22

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

A1 thru A7, A9...	GENERAL CEMENT #9296, 9297 WALSCO #2546, 2547
A8, A10.....	GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089 WALSCO #2512, 2525, 2528
All.....	GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291 WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .001mfd to pin 2 (grid) of Mixer. Low side to chassis.	1650KC	Not Used.	DC probe to point A. Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection on first peak as slug enters coil.
2.	Adjust A7 for maximum background noise.					

TRANSMITTER ADJUSTMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
1.	Connect a 52Ω dummy load to antenna jack.	Frequency meter.	A8	Adjust to frequency indicated on crystal (within 100%).
2.		Connect VTVM between point B (pin 7, V8) and chassis.	A9	Adjust for maximum deflection.
3.	Set A10 for maximum capacity.	Indicator Lamp.	A10, All	Adjust alternately for maximum lamp brightness, ending with All.

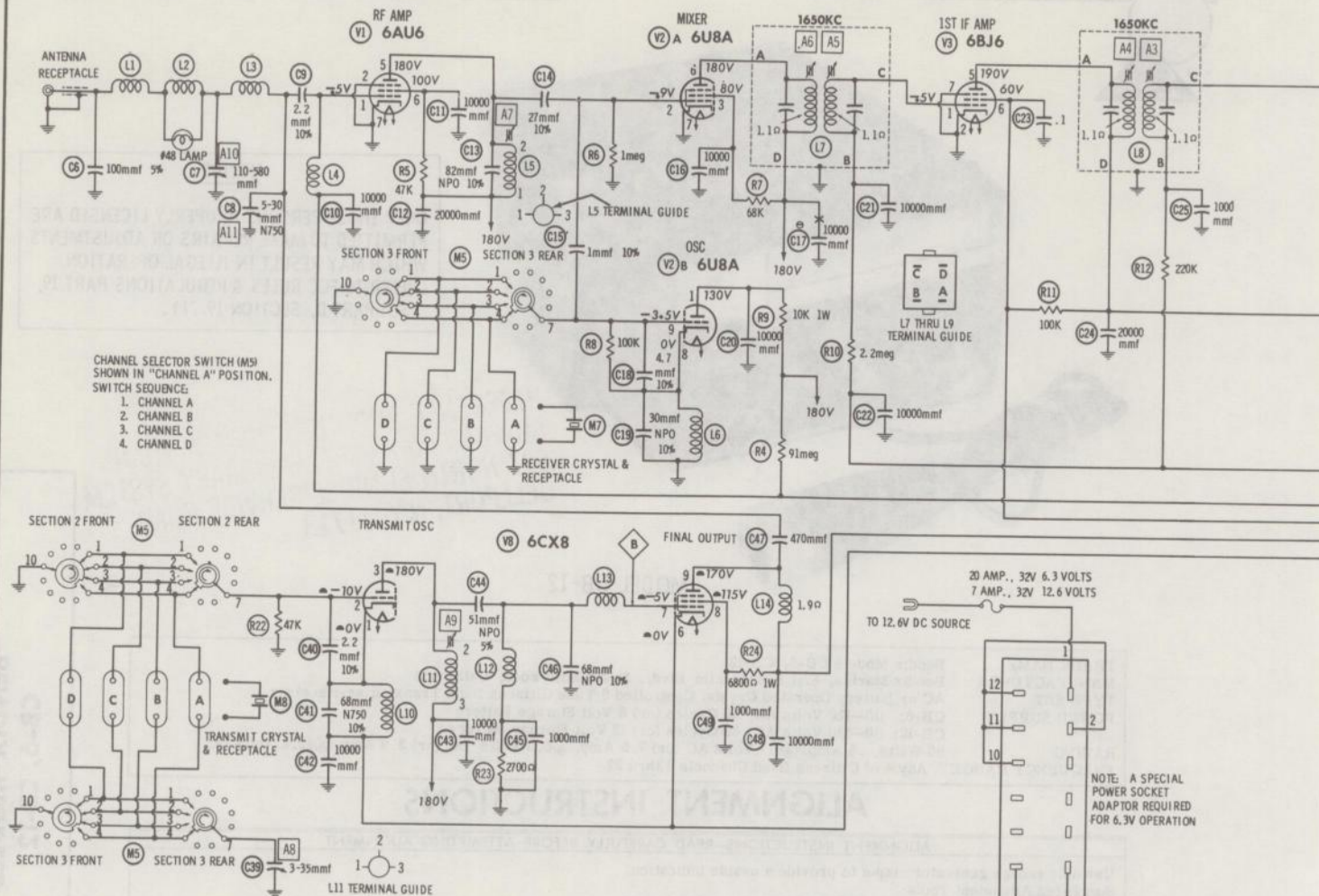
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ429R

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

BENDIX MODELS
CB-6, CB-12





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AU6	3.6meg	0Ω	.2Ω	0Ω	†900Ω	†48K	0Ω		
V2	6U8A	†11K	1meg	†68K	.5Ω	.2Ω	†900Ω	0Ω	0Ω	100K
V3	6BJ6	3.6meg	0Ω	.2Ω	.5Ω	†430Ω	†100K	0Ω		
V4	6BA6	1.6meg	0Ω	.2Ω	.5Ω	†10K	†10K	0Ω		
V5	6AL5	2.4meg	†1.1meg	3Ω	.2Ω	1.1meg	0Ω	220K		
V6	6AV6	2.2meg	0Ω	0Ω	.2Ω	440K	3.6meg	†270K		
V7	6BQ5	NC	760K	150Ω	.5Ω	.2Ω	NC	†580Ω	NC	†2600Ω
V8	6CX8	†.5Ω	47K	†900Ω	0Ω	.2Ω	†0Ω	2700Ω	†7300Ω	†600Ω

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.

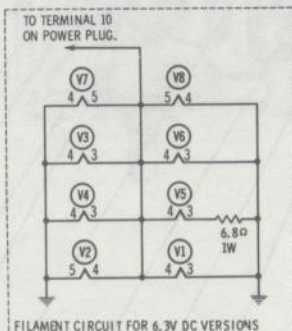
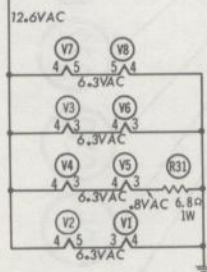
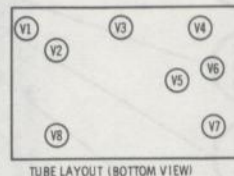
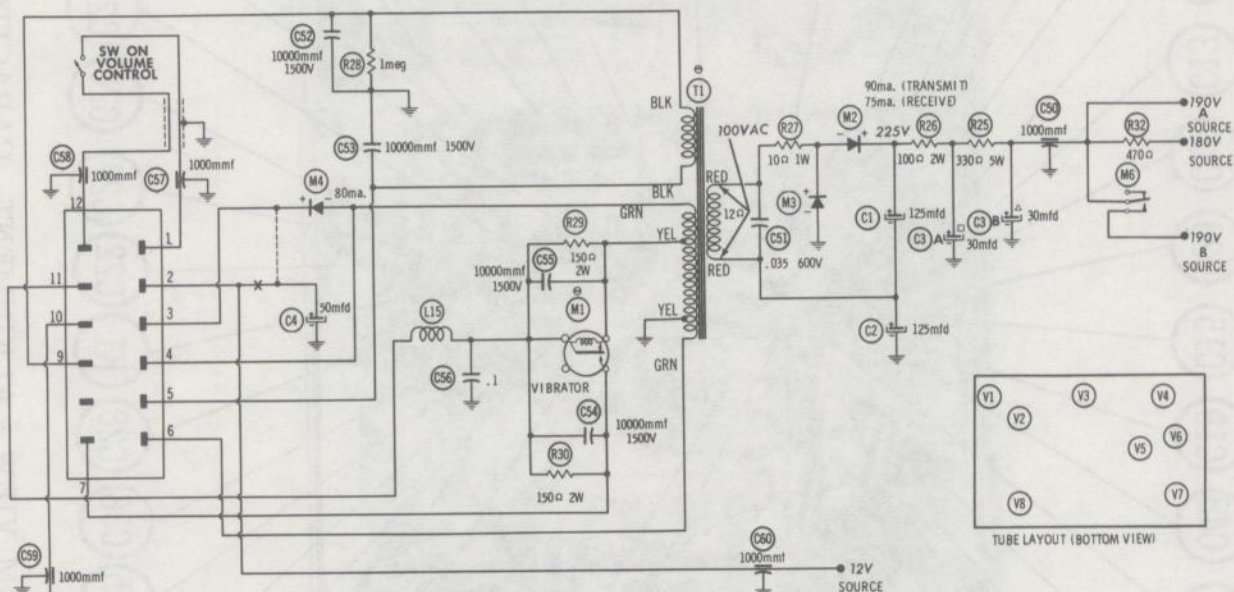
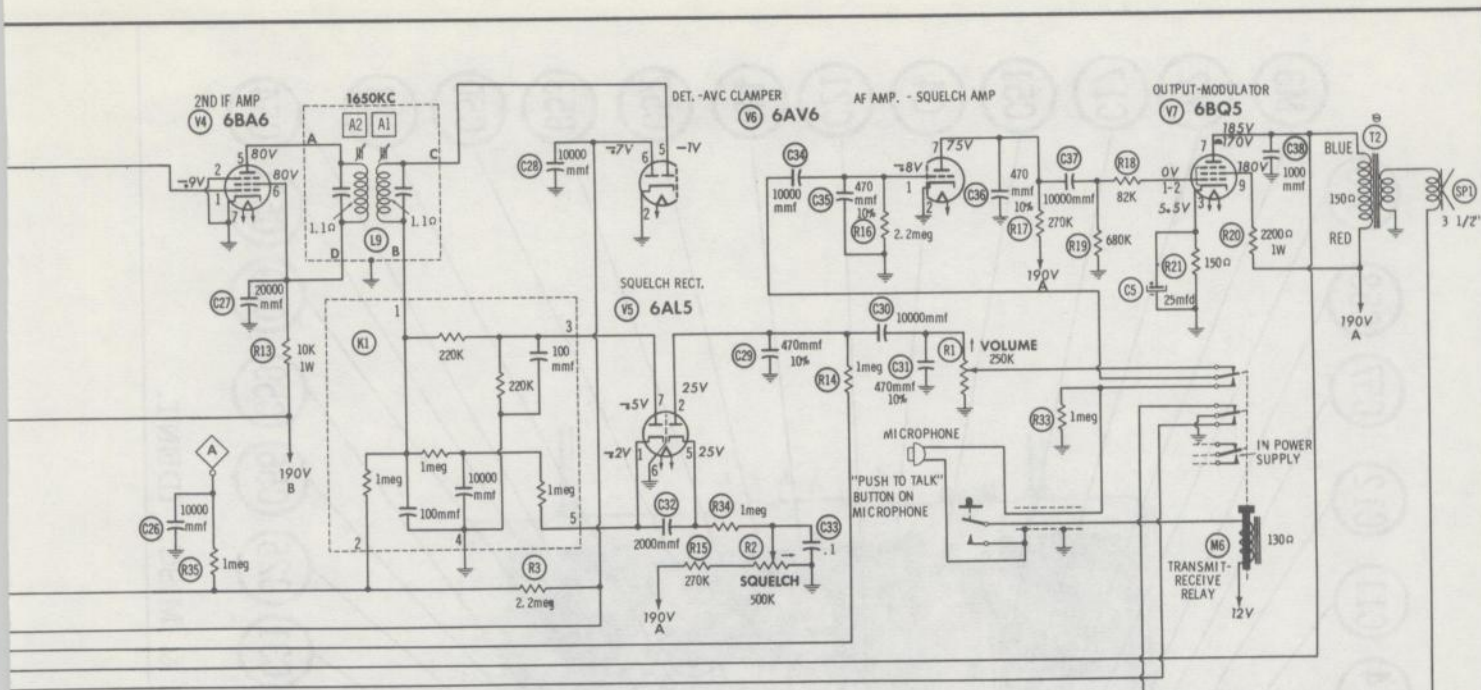
† MEASURED IN "TRANSMIT" POSITION.

‡ MEASURED FROM OUTPUT OF M1.

NC NO CONNECTION

A PHOTOFACIT STANDARD NOTATION SCHEMATIC

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SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

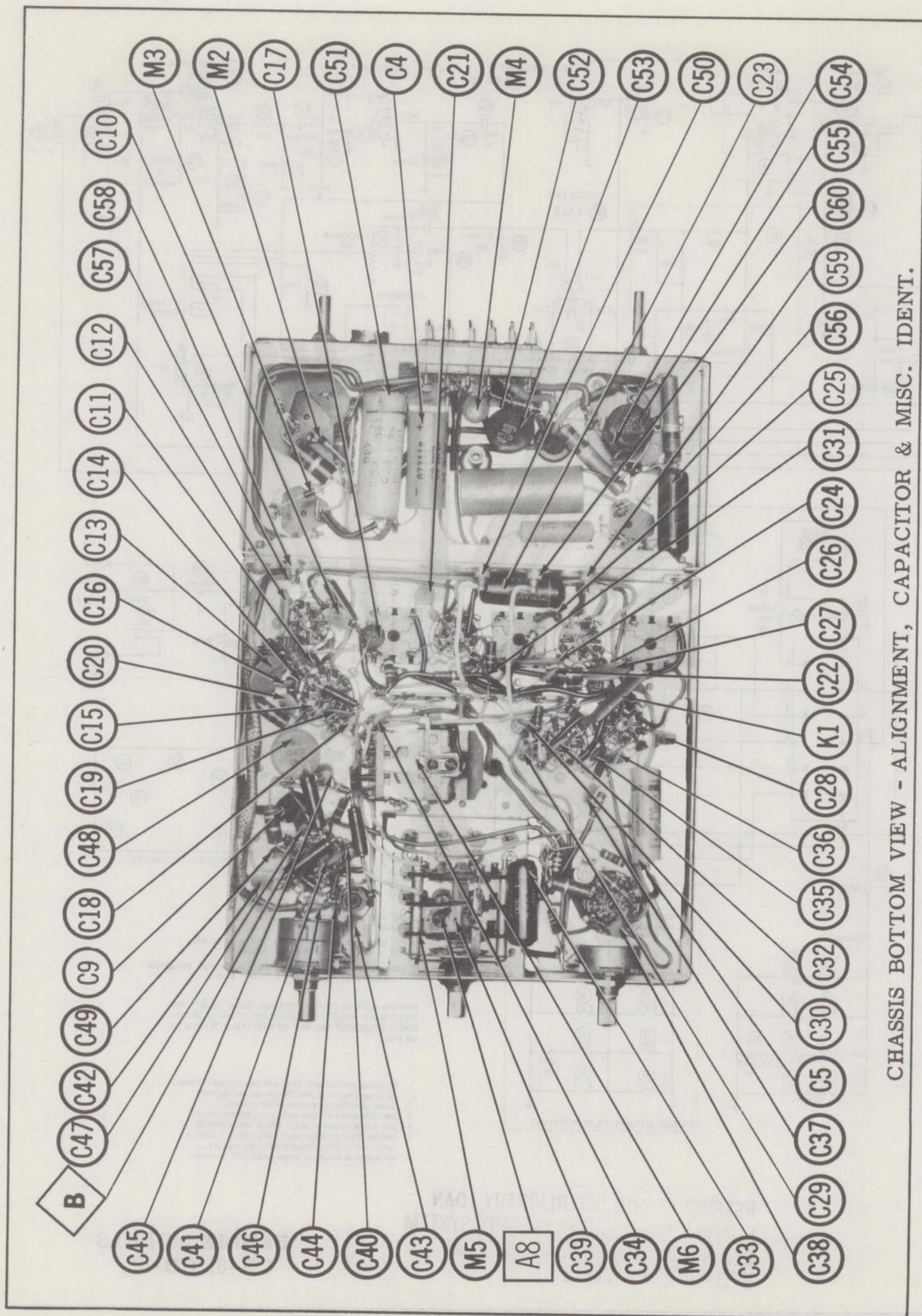
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

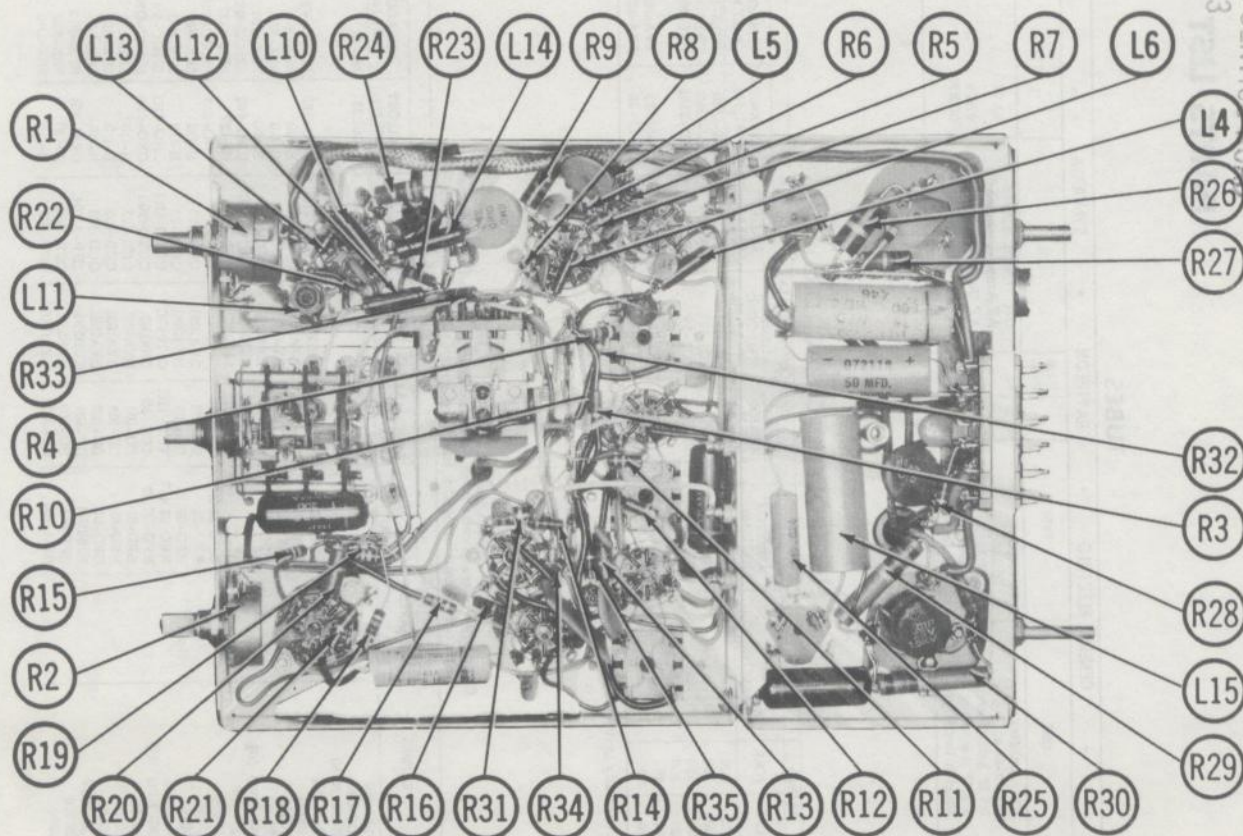
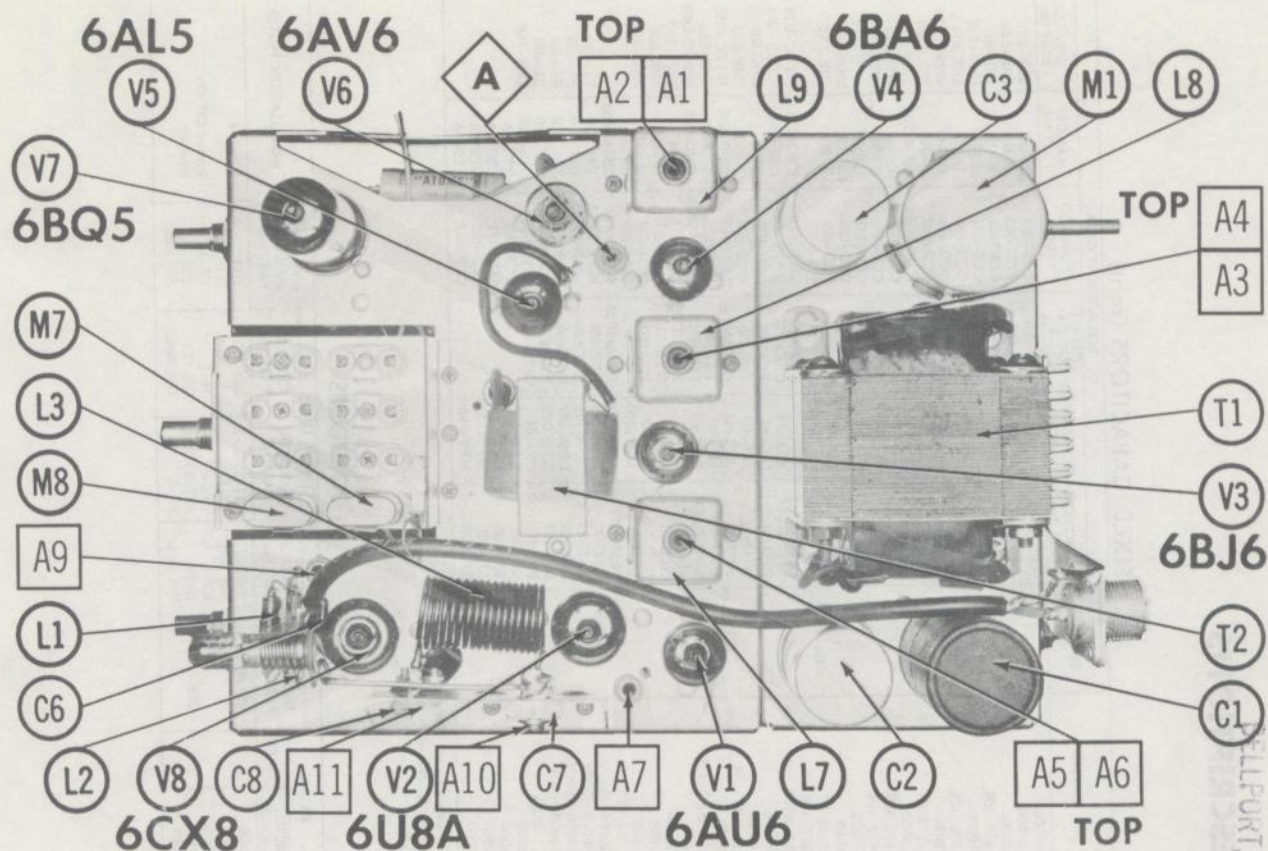
REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

BENDIX MODELS
CB-6, CB-12



CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.

REFERENCE AND INTERLIBRARY LOAN
 SUNSHINE COOPERATIVE LIBRARY SYSTEM
 627 NORTH SUNRISE SERVICE ROAD
 BELLSPORT, N.Y. 11713



PARTS LIST AND DESCRIPTIONS

TUBES

GENERAL ELECTRIC				RAYTHEON				SYLVANIA			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	6AU6	V6	Det.-A VC Clamper-AF Amp.-Speech Amp.	6AV6						
V2	Mixer-Osc.	6UBA	V7	AF Output-Modulator	6BQ5						
V3	1st IF Amplifier	6BJ6	V8	Trans. Osc. -Final Amp.	6CX8						
V4	2nd IF Amplifier	6BA6									
V5	Squelch Rectifier	6AL5									

ELECTROLYTIC CAPACITORS

REPLACEMENT DATA			
ITEM No.	RATING	CORNELL-DUBILIER PART No.	SPRAGUE PART No.
C1	125	AFHSI-22	AFHSI-22
C2	125	AFHSI-22	AFHSI-22
C3	30	AFHSI-22	AFHSI-22
C4	50	AFHSI-22	AFHSI-22
C5	25	AFHSI-22	AFHSI-22
C6	25	AFHSI-22	AFHSI-22
C7	25	AFHSI-22	AFHSI-22
C8	25	AFHSI-22	AFHSI-22
C9	25	AFHSI-22	AFHSI-22
C10	25	AFHSI-22	AFHSI-22
C11	25	AFHSI-22	AFHSI-22
C12	25	AFHSI-22	AFHSI-22
C13	25	AFHSI-22	AFHSI-22
C14	25	AFHSI-22	AFHSI-22
C15	25	AFHSI-22	AFHSI-22
C16	25	AFHSI-22	AFHSI-22
C17	25	AFHSI-22	AFHSI-22
C18	25	AFHSI-22	AFHSI-22
C19	25	AFHSI-22	AFHSI-22
C20	25	AFHSI-22	AFHSI-22
C21	25	AFHSI-22	AFHSI-22
C22	25	AFHSI-22	AFHSI-22
C23	25	AFHSI-22	AFHSI-22
C24	25	AFHSI-22	AFHSI-22
C25	25	AFHSI-22	AFHSI-22

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

REPLACEMENT DATA			
ITEM No.	RATING	CORNELL-DUBILIER PART No.	SPRAGUE PART No.
C6	100 5%	1469-0001	MS-31
C7	110-580		
C8	2-2 10%		
C9	10000		
C10	10000		
C11	10000		
C12	20000		
C13	82 NPO 10%		
C14	27 10%		
C15	1 10%		
C16	10000		
C17	10000		
C18	4.7 10%		
C19	30 NPO 10%		
C20	10000		
C21	10000		
C22	10000		
C23	1 200V		
C24	20000		
C25	1000		

FIXED CAPACITORS (cont)

REPLACEMENT DATA			
ITEM No.	RATING	CORNELL-DUBILIER PART No.	SPRAGUE PART No.
C26	10000		
C27	20000		
C28	10000		
C29	470 10%		
C30	10000		
C31	470 10%		
C32	2000		
C33	1 200V		
C34	10000		
C35	470 10%		
C36	470 10%		
C37	10000		
C38	1000		
C39	3-35		
C40	2-2 10%		
C41	68 N750 10%		
C42	10000		
C43	10000		
C44	51 NPO 5%		
C45	1000		
C46	68 NPO 10%		
C47	470		
C48	10000		
C49	1000		
C50	1000		
C51	35 800V		
C52	10000 1500V		
C53	10000 1500V		
C54	10000 1500V		
C55	10000 1500V		
C56	1 200V		
C57	1000		
C58	1000		
C59	1000		
C60	1000		

Bendix Part Number

Note 1. Not used in some versions.

CONTROLS

REPLACEMENT DATA			
ITEM No.	RATING	CORNELL-DUBILIER PART No.	SPRAGUE PART No.
RIA	250K		
B	Shaft		
C	Switch		
RZA	500K		
B	Shaft		

REPLACEMENT DATA			
ITEM No.	RATING	CORNELL-DUBILIER PART No.	SPRAGUE PART No.
RIA	250K		
B	Shaft		
C	Switch		
RZA	500K		
B	Shaft		

REPLACEMENT DATA			
ITEM No.	RATING	CORNELL-DUBILIER PART No.	SPRAGUE PART No.
RIA	250K		
B	Shaft		
C	Switch		
RZA	500K		
B	Shaft		

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.			IRC PART No.	WORKMAN TV PART No.	
R3	2.2meg			R20	22000 1W			
R4	91meg			R21	1500			
R5	47K			R22	47K			
R6	1meg			R23	27000 1W			
R7	68K			R24	68000 1W			
R8	100K			R25	33001 2W	PW5-330	5W-SQ-330	
R9	10K 1W			R26	1000 2W			
R10	10K 1W			R27	100 1W			
R11	100K			R28	1meg			
R12	2.2meg			R29	1500 2W			
R13	10K 1W			R30	1500 2W			
R14	1meg			R31	6.8K 1W			
R15	270K			R32	4700			
R16	2.2meg			R33	1meg			
R17	270K			R34	1meg			
R18	82K			R35	1meg			
R19	680K							

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	BENDIX PART No.	REPLACEMENT DATA
K1	Noise Clipper Network	(2) 100mmf, 100000mmf, (2) 220K (3) 1 meg	089-003	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA		NOTES
		BENDIX PART No.	Miller PART No.	
L1	RF Choke(5.6uh)	027-077	4588	Stancor
L2	Output Indicator	011-118		RTC-8513
L3	RF Choke	027-028		RTC-8519
L4	RF Choke(5.6uh)	012-414	4609	RTC-8609
L5	RF Choke(5.4uh)	027-004	4609	RTC-8519
L6	1st IF	014-030		
L7	2nd IF	014-030		
L8	3rd IF	027-028	4609	RTC-8519
L9	RF Choke(5.6uh)	012-415	6171-A	RTC-8609
L10	Osc. Plate	027-028	4609	RTC-8519
L11	RF Choke(5.6uh)	027-073	4588	RTC-8513
L12	RF Choke(5.4uh)	027-032	4624	RTC-8524
L13	RF Choke(5uh)	027-032	5219	RTC-8524
L14	RF Choke(5uh)	027-032		RTC-9181
L15	Hash Choke(4uh)	027-010		

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA		NOTES
		BENDIX PART No.	Miller PART No.	
T1	117V @ 100V @ 12.6V @ .5A (AC 300A Only)	271-068 ①		① Part #271-071 used in 6-volt DC versions. * AC operation filament supply. Part of primary when used for DC operation.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA		NOTES
		BENDIX PART No.	Miller PART No.	
T2	27000 3-40	272-004 ①		① Alternate Part #272-034.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		BENDIX PART No.	QUAM PART No.	
SP1	3 1/2" PM 3-40	152-016	3A070T	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS/FREQUENCY	REPLACEMENT DATA		NOTES
			BENDIX PART No.	MALLORY PART No.	
M1	Interrupter	12V 115	117-003	6301	12 Volt Versions
	Interrupter	6V 115	117-008	5301	6 Volt Versions

POWER RECTIFIERS

ITEM No.	BATING CURRENT (Measured)	BENDIX PART No.	REPLACEMENT DATA		NOTES
			SARKES TAZIAN PART No.	SYLVANIA PART No.	
M2	.090A	474-012	40H *	SR500 *	* Silicon Type
M3	.090A	474-012	40H *	SR500 *	
M4	.070A	474-004	40H *	SR500 *	

MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
M5	Switch	171-096	Channel Selector (Rotary Wafer Type)
M6	Relay	111-019	
	Relay	111-082	
M7	Microphone	113-015	AC-12VDC Versions
M8	Crystal		AC-6VDC Versions
	Crystal		Receive
	Crystal		Transmit

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA		BUSS PART No.
			BENDIX PART No.	LITTELFUSE PART No.	
	3AG	1A ①			
		250V			
	3AG	1A ①			
		250V			
		307007			
		32V ②			
		20A			
		32V ③			
		32V			

① 117 VAC Operation. ② 12VDC Operation. ③ 6VDC Operation.

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	3000798	Channel Selector
Knob	3000799	Volume, Squelch
Cabinet	465-066	

WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid), Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord Use BELDEN No. 1785-B (6 Ft. Length)
1725-K (7 1/2 Ft. Length)

PHOTOFACT® Folder



DEWALD MODELS TR-6, TR-12, TR-910

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713



MODEL TR-12

MODEL TR-910

MODEL TR-6

TRADE NAME	DeWald Models TR-6, TR-12, TR-910
MANUFACTURER	DeWald, A Div. of United Scientific Laboratories Inc., 35-15 Thirty Seventh Ave., Long Island City 1, N. Y.
TYPE SET	AC (or) DC Operated 6 Tube Citizen Band Transmitter-Receiver
POWER SUPPLY	110 - 120 Volts AC, 50-60 Cycles (Optional Power Supply Model TR-6 or TR-12 is Available for 6 or 12VDC Operation)
RATING	45 Watts, .45 Amp. @117 Volts AC 6.6 Amp. @6.3 Volts DC 3.4 Amp. @12.6 Volts DC
TUNING RANGE	TRANSMITTER: Any 5 of Citizens Band Channels 1 thru 22 RECEIVER: Continuous Tuning thru all Citizen Band Channels 1 thru 22

NOTICE

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PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS
WHICH MAY RESULT IN ILLEGAL OPERATION.
(REFER TO FCC RULES & REGULATIONS PART 19,
SUBPART D, SECTION 19.71).

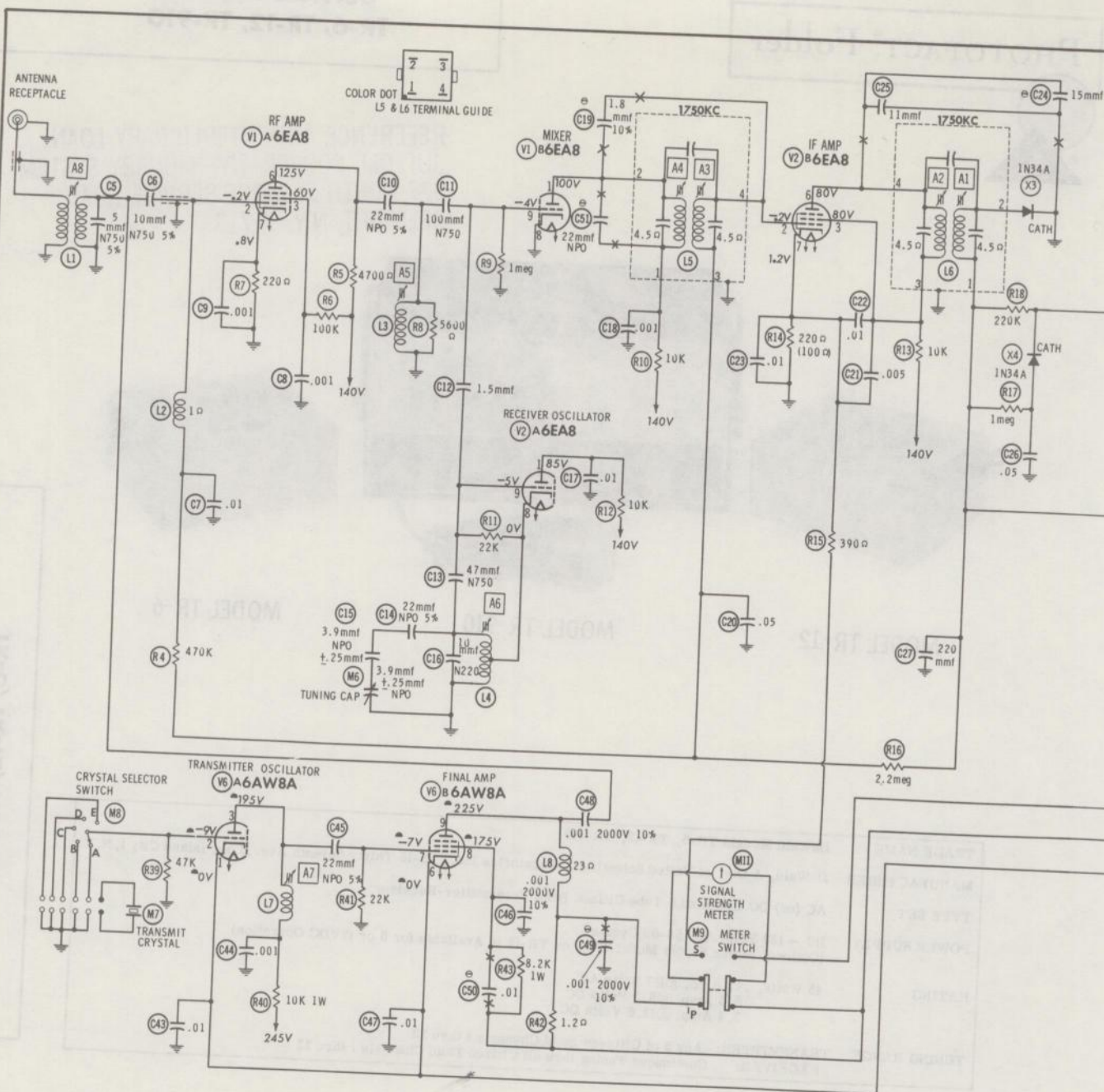
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



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the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

DEWALD MODELS
TR-6, TR-12, TR-910



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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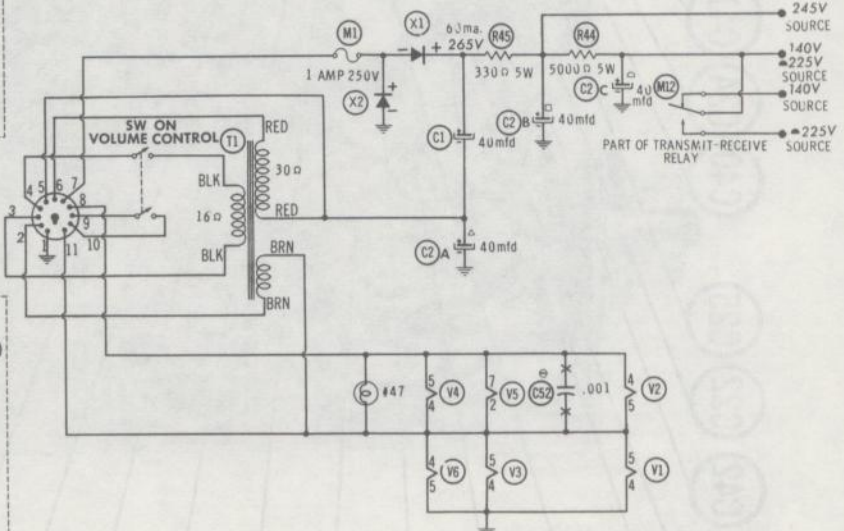
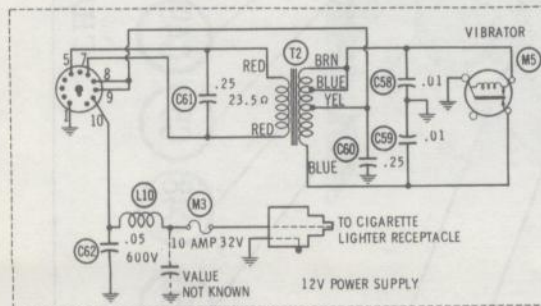
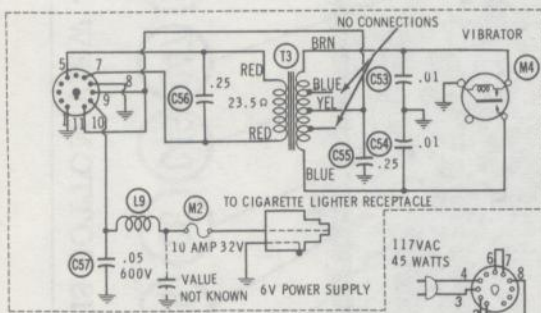
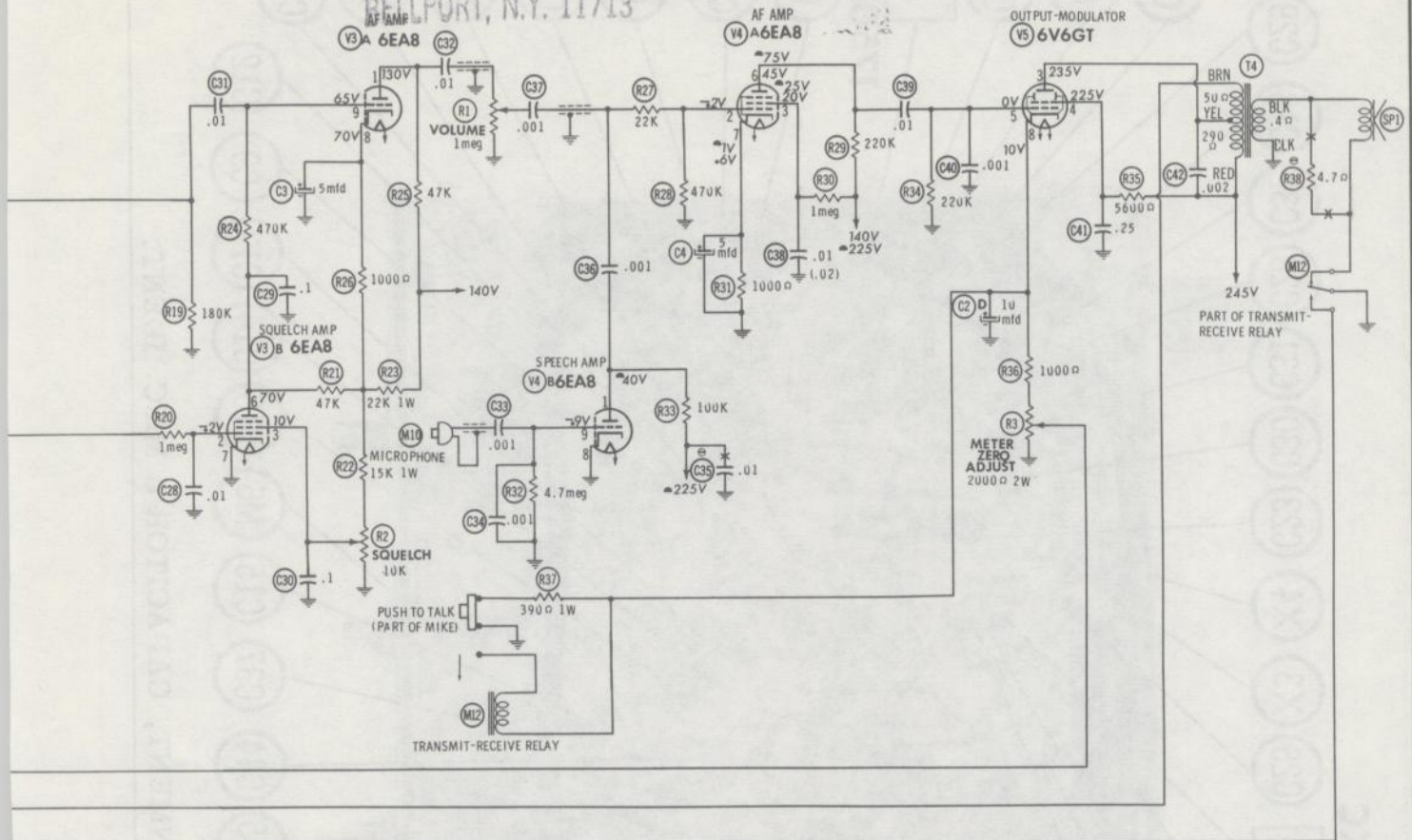
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6EA8	$\pm 15K$	2.9meg	$\pm 105K$	FIL	FIL	$\pm 10K$	220 Ω	0 Ω	1meg
V2	6EA8	$\pm 15K$	2.4meg	$\pm 15K$	FIL	FIL	$\pm 51K$	200 Ω	$\approx 160 \Omega$	.1 Ω
V3	6EA8	$\pm 52K$	1.2meg	$\approx 19K$	FIL	FIL	$\approx 48K$	0 Ω	20K	500K
V4	6EA8	$\approx \pm 105K$	470K	$\pm 1.5meg$	FIL	FIL	$\pm 225K$	1000 Ω	0 Ω	4.7meg
V5	6V6GT	TP	FIL	$\pm 620 \Omega$	$\pm 5900 \Omega$	220K	TP	FIL	280 Ω	$\approx 390 \Omega$
V6	6AW8A	0 Ω	47K	$\pm 10K$	FIL	FIL	0 Ω	22K	$\pm 9000 \Omega$	$\pm 350 \Omega$

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.
MEASURED IN TRANSMIT POSITION.

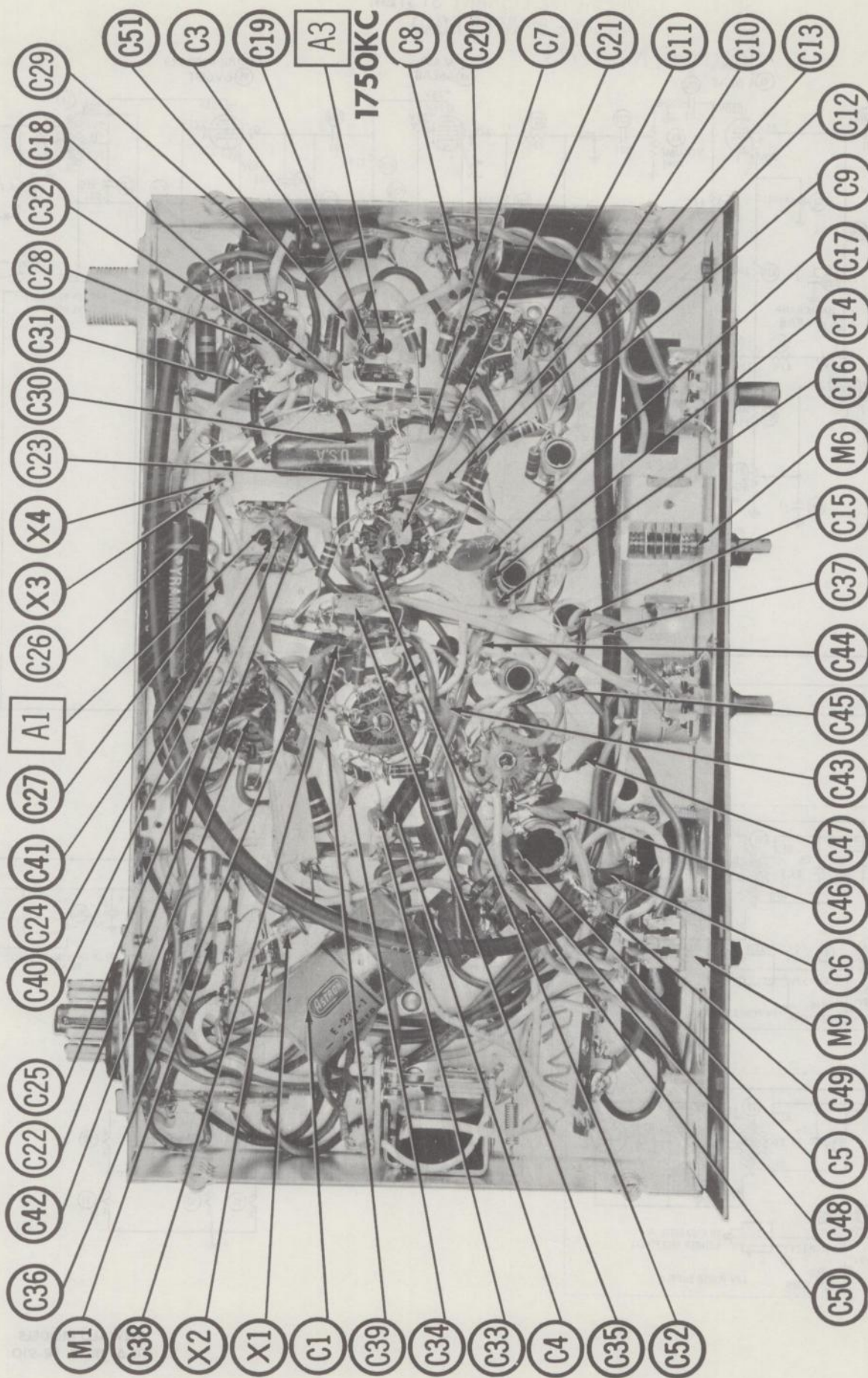
MEASURED FROM OUTPUT OF X1.
TP TIE POINT

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

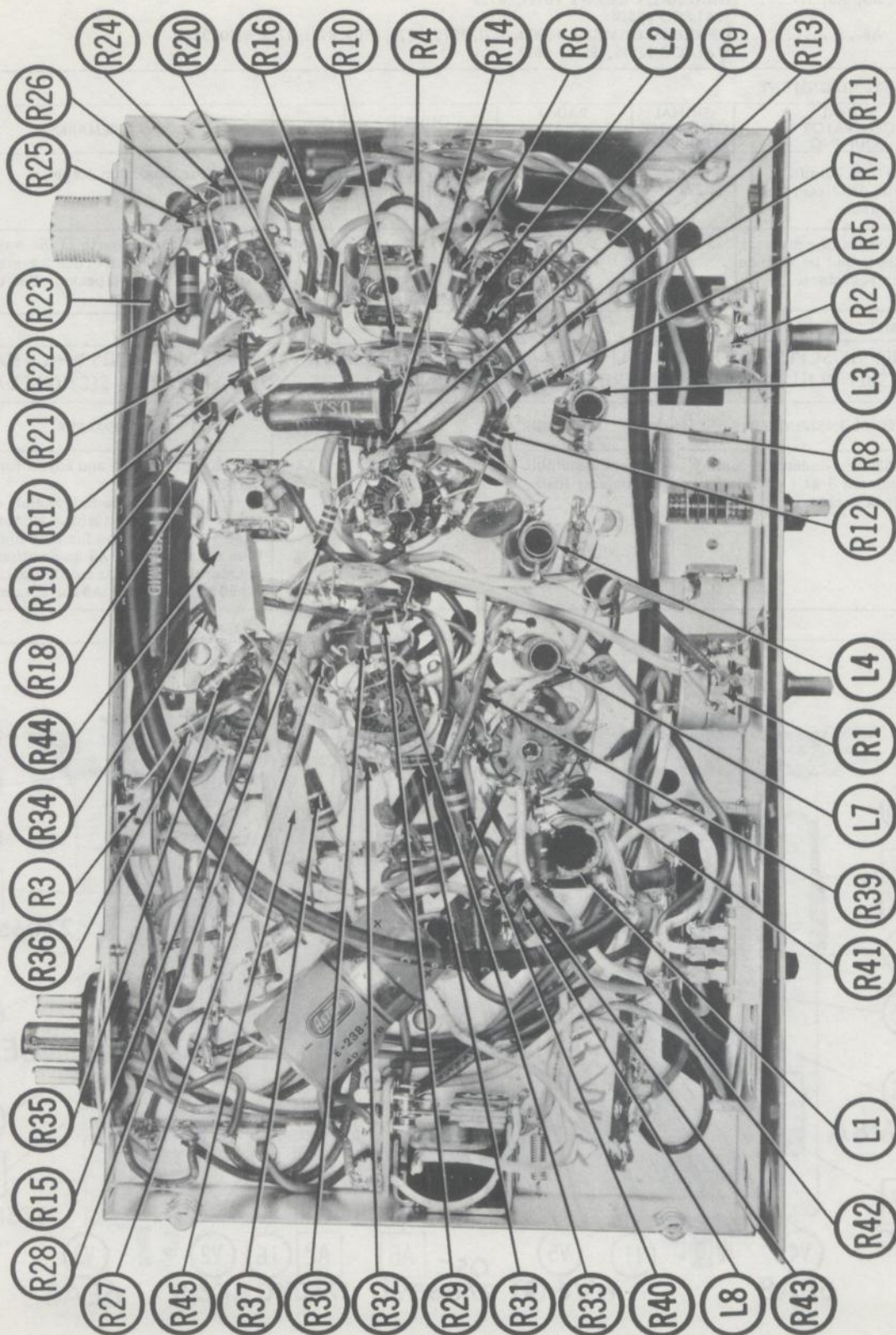


DEWALD MODELS
TR-6, TR-12, TR-910

1750KC



CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

Al thru A4.....GENERAL CEMENT #5097, 8727

WALSCO #2515

A5, A6, A7.....GENERAL CEMENT #8721, 8722

WALSCO #2519

A8.....GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298

WALSCO #2516, 2518, 2519

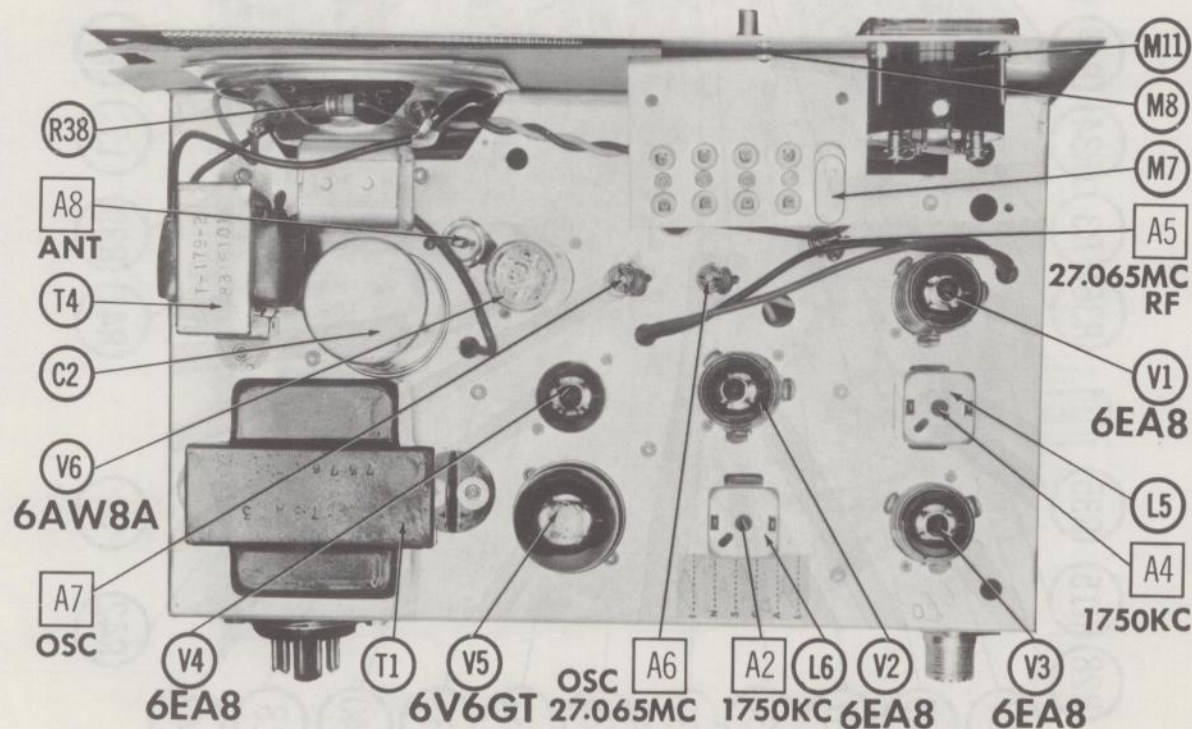
RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 9 (grid) of Mixer. Low side to chassis.	1750KC (400% Mod)		Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Connect output of generator having 52Ω output impedance to antenna receptacle.	27.065MC		"	A5, A6	Preset A6 three-fourth of the way out. Adjust A5 and A6 in order for maximum output. A6 has two peaks. Use the higher peak.

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY
RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
Insert a 52Ω non-inductive dummy load (minimum 3 watt dissipation) into antenna socket.	Connect a suitable RF meter across the dummy load.	A7, A8	Switch to Transmit and adjust for maximum output. Switch from receive to transmit several times while slowly turning A7 counterclockwise $\frac{1}{2}$ turn at a time for maximum output, then carefully turn A7 an additional $1\frac{1}{2}$ turn counterclockwise for maximum oscillator stability. Readjust A8 for maximum output.



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	GENERAL ELECTRIC		RAYTHEON		SYLVANIA		TYPE
		ITEM No.	USE	ITEM No.	USE	ITEM No.	USE	
V1	R.F. Amp. - Mixer	6EA8		V4	A.F. Amp. - Speech Amp.	6EA8		6EA8
V2	Rec. Osc. - I.F. Amp.	6EA8		V5	Output-Modulator	6V6GT		6V6GT
V3	Squelch-A.F. Amp.	6EA8		V6	Trans. Osc. - Final Amp.	6AW8A		6AW8A

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		NOTES
			SARKES RCA PART No.	RAYTHEON PART No.	
X1	.060A		IN1783		
X2	.060A		IN1783		
X3	IN34A			IN34A	Detector AGC
X4	IN34A			IN34A	

ELECTROLYTIC CAPACITORS

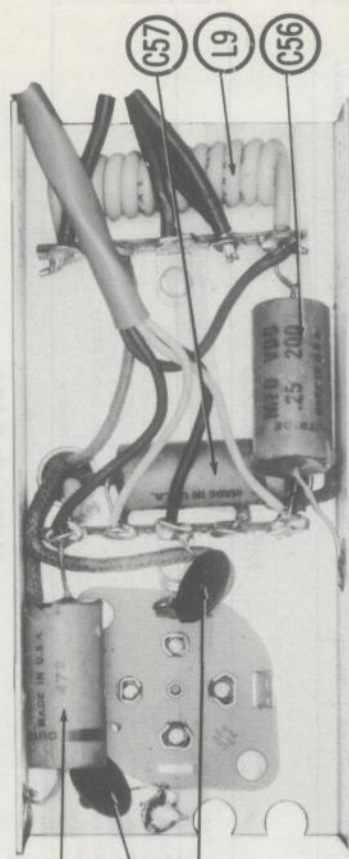
ITEM No.	RATING CAP. VOLT.	REPLACEMENT DATA			
		AEROVOX PART No.	CORNELL DUBIER PART No.	GENERAL ELECTRIC PART No.	SPRAGUE PART No.
C1	40	PR5180	BR4025	Q71-14	TD-40-250
C2	40	AF3-43	C0340	XC4-65	TVA-16U
C3	40	PR51670	BR4035		TVL-3785
C4	10				TVA-16U
C5	15	SRE150V5	NLW5-150	MTL-4	TE-1504
C6	12	PTT51	NLW5-15	MTL-3	TE-127

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			AEROVOX PART No.	CORNELL DUBIER PART No.	ELMENCOR PART No.	SPRAGUE PART No.
C5	5 N750 5%		N750-SI 5.0	TCN-5	CCCTN-050	10TCC-Q10
C6	10 N750 5%		N750-SI 10	TCN-10	CCCTN-100	10TCC-Q10
C7	.01		BPD-01	DD-103	CCD-103	5HK-S10
C8	.001		BPD-001	DD-103	CCD-103	5HK-S10
C9	.001		BPD-001	DD-103	CCD-103	5HK-S10
C10	22 NPO 5%		N750-DI 100	DTN-100	CCCTN-101	10TCC-Q22
C11	100 N750		NPO-SI 1.5	DTN-47	CCCTN-470	10TCC-Q47
C12	47 N750		N750-DI 47	DTN-47	CCCTN-470	10TCC-Q47
C13	1.5			DTN-47	CCCTN-470	10TCC-Q47
C14	22 NPO 5%			DTN-47	CCCTN-470	10TCC-Q47
C15	3.9 NPO			DTN-47	CCCTN-470	10TCC-Q47
C16	10 N220			DTN-47	CCCTN-470	10TCC-Q47
C17	.01			DTN-47	CCCTN-470	10TCC-Q47
C18	.001			DTN-47	CCCTN-470	10TCC-Q47
C19	1.8 10%			DTN-47	CCCTN-470	10TCC-Q47
C20	.05 400V			DTN-47	CCCTN-470	10TCC-Q47
C21	.005			DTN-47	CCCTN-470	10TCC-Q47
C22	.01			DTN-47	CCCTN-470	10TCC-Q47
C23	.01			DTN-47	CCCTN-470	10TCC-Q47
C24	15			DTN-47	CCCTN-470	10TCC-Q47
C25	15			DTN-47	CCCTN-470	10TCC-Q47
C26	.05 400V			DTN-47	CCCTN-470	10TCC-Q47
C27	220			DTN-47	CCCTN-470	10TCC-Q47
C28	.01 200V			DTN-47	CCCTN-470	10TCC-Q47
C29	.1 200V			DTN-47	CCCTN-470	10TCC-Q47
C30	.1 200V			DTN-47	CCCTN-470	10TCC-Q47
C31	.01			DTN-47	CCCTN-470	10TCC-Q47
C32	.001			DTN-47	CCCTN-470	10TCC-Q47
C33	.001			DTN-47	CCCTN-470	10TCC-Q47
C34	.001			DTN-47	CCCTN-470	10TCC-Q47
C35	.001			DTN-47	CCCTN-470	10TCC-Q47
C36	.001			DTN-47	CCCTN-470	10TCC-Q47
C37	.001			DTN-47	CCCTN-470	10TCC-Q47
C38	.01			DTN-47	CCCTN-470	10TCC-Q47
C39	.01			DTN-47	CCCTN-470	10TCC-Q47
C40	.01			DTN-47	CCCTN-470	10TCC-Q47

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POWER CHASSIS—BOTTOM VIEW



FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			AEROVOX PART No.	CORNELL DUBIER PART No.	ELMENCOR PART No.	SPRAGUE PART No.
C41	.25 400V		4488N-25	DD-202	4DP-5-254	4TM-P25
C42	.002		BPD-002	DD-103	CCD-103	5HK-S10
C43	.01		BPD-01	DD-103	CCD-103	5HK-S10
C44	.001		BPD-001	DD-103	CCD-103	5HK-S10
C45	22 NPO 5%			DD-103	CCD-103	5HK-S10
C46	.001 2000V 10%			DD-103	CCD-103	5HK-S10
C47	.001 2000V 10%			DD-103	CCD-103	5HK-S10
C48	.001 2000V 10%			DD-103	CCD-103	5HK-S10
C49	.001 2000V 10%			DD-103	CCD-103	5HK-S10
C50	.001	Note 1		DD-103	CCD-103	5HK-S10
C51	22 NPO	Note 1		DD-103	CCD-103	5HK-S10
C52	.001	Note 1		DD-103	CCD-103	5HK-S10
C53	.01			DD-103	CCD-103	5HK-S10
C54	.01			DD-103	CCD-103	5HK-S10
C55	.25 200V			DD-103	CCD-103	5HK-S10
C56	.25 200V			DD-103	CCD-103	5HK-S10
C57	.05 600V			DD-103	CCD-103	5HK-S10
C58	.01			DD-103	CCD-103	5HK-S10
C59	.01			DD-103	CCD-103	5HK-S10
C60	.25 200V			DD-103	CCD-103	5HK-S10
C61	.25 200V			DD-103	CCD-103	5HK-S10
C62	.05 600V			DD-103	CCD-103	5HK-S10

Note 1. Not used in some versions.
* Not normally in distributor's stock.
† Alternate Value.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA			
			DEWALD PART No.	CORNELL DUBIER PART No.	ELMENCOR PART No.	SPRAGUE PART No.
R1	Volume & Switch	Image	V-329-3	DD-103	4DP-5-254	4TM-P25
R2	Squelch	10K	V-330-4	DD-103	CCD-103	5HK-S10
R3	Meter Zero Adjust.	2000 2W		DD-103	CCD-103	5HK-S10

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		IRC PART No.	WORKMAN TV PART No.			IRC PART No.	WORKMAN TV PART No.
R4	470K			R25	47K		
R5	4700Ω			R26	1000Ω		
R6	100K			R27	22K		
R7	220Ω			R28	470K		
R8	5600Ω			R29	220K		
R9	1Meg			R30	1Meg		
R10	10K			R31	1000Ω		
R11	22K			R32	4.7Meg		
R12	10K			R33	100K		
R13	10K			R34	220K		
R14	220Ω			R35	5600Ω		
R15	390Ω			R36	1000Ω		
R16	2.2Meg			R37	390Ω 1W		
R17	1Meg			R38	4.7Ω		
R18	220K			R39	47K		
R19	180K			R40	10K 1W		
R20	1Meg			R41	22K		
R21	47K			R42	1.2Ω		
R22	15K 1W			R43	8200Ω 1W		
R23	22K 1W			R44	5000Ω 5W	PW5-5000	5W-SQ-5000
R24	470K			R45	330Ω 5W	PW5-330	5W-SQ-330

* Alternate Value.
Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			NOTES
		DeWald PART No.	Miller PART No.	Stancor PART No.	
L1	Ant.				
L2	RF Choke(5.6uh)				
L3	RF	SW-609	4609	RTC-8519	T820
L4	Osc.	SW-631	6248	RTC-9248	T216
L5	1st IF	SW-608			
L6	2nd IF				
L7	Osc. Plate	SW-608	6248	RTC-9248	T216
L8	RF Choke(500uh)	TV-204	6174	RTC-8592	T324
L9	Hash Choke				
L10	Hash Choke				

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		DeWald PART No.	Merit PART No.	Stancor PART No.	Thorderson PART No.	
T1	117V @ 100V @ .45A SEC. 1 SEC. 2 8.3V @ 3A	PT-178A3				
T2	12 V DC OPERATION SEC. 1 12.6V @ 100V @ 1.9A SEC. 2 24A DC	VT-181A-2				
T3	6V DC OPERATION SEC. 1 6.3VCT 100V @ 3.6A DC	VT-181A-2				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA				NOTES
		PRI.	SEC.	DeWald PART No.	Stancor PART No.	Thorderson PART No.
T4	3800Ω Tap @ 17%		3-4Ω	T-179-2		

SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA		NOTES
	SIZE	FIELD	DEWALD PART No.	QUAM PART No.	
SP1	3 1/2"	PM		3A07	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA		
			DeWald PART No.	FUSE HOLDER	BUSS PART No.
M1	3AG	1A ① 250V P/T			
M2	SFE	10A ② 32V			
M3	SFE	10A ③ 32V			

① AC Operation.
② 6V DC Operation.
③ 12V DC Operation.

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS/FREQUENCY	REPLACEMENT DATA			NOTES
			DeWald PART No.	CORNEILL DUBILIER PART No.	MALLORY PART No.	
M4	Interrupter	6, 3		5301	1801	
M5	Interrupter	12, 6		6301	G1601	

MISCELLANEOUS

ITEM No.	PART NAME	DeWald PART No.	NOTES
M6	Tuning Cap.		
M7	Crystal		
M8	Switch		
M9	Crystal Selector		
M10	Microphone		
M11	Relay		
M12	Relay		

WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in 12 Colors
Power Cord Use BELDEN No. 8524 (Stranded) Available in 12 Colors
Power Cord (Interlock Type) Use BELDEN No. 17108 (Plastic) or 17128 (Rubber) - 8 Ft.
Power Cord (Interlock Type) Use BELDEN No. 17108 (Plastic) or 17128 (Rubber) - 9 Ft.
Power Cord (Interlock Type) Use BELDEN No. 8674 (Rubber) or 8695 (Plastic)



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NOTICE
ONLY THOSE PERSONS PROPERLY LICENSED ARE
PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS
WHICH MAY RESULT IN ILLEGAL OPERATION.
(REFER TO FCC RULES & REGULATIONS PART 19,
SUBPART D, SECTION 19.71).

TRADE NAME	Duo Com Models 100, 100S		
MANUFACTURER	Osborne Electronic Sales Corp., 13105 S. Crenshaw Blvd., Hawthorne, California		
TYPE SET	Battery Operated 11 Transistor Single Channel Portable Citizens Band Transmitter-Receiver		
POWER SUPPLY	12 Volts DC	RATING	23 MA @ 12 Volts DC (Receive) 12 MA @ 12 Volts DC (Transmit)
TUNING RANGE	Any One of Citizens Band Channels 1 thru 23		

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

When adjusting A4 and A6, best results are obtained with the unit connected to the antenna normally used, and the chassis as nearly in the cabinet as possible.

Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

RECEIVER ALIGNMENT

Connect DC VTVM across Volume control.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	Tune to 455KC. Connect high side to base of Mixer, low side to ground.		A1	Remove receiver oscillator crystal. Adjust for maximum deflection. Reinsert crystal.
2.	Tune to 4680KC. Connect high side to base of Mixer, low side to ground.		A2	Adjust for maximum deflection.
3.	Tune to crystal frequency. High side to base of Mixer, low side to ground.	Highest Channel Used.	A3	Adjust for maximum deflection while rocking. Note rate of drop-off and set just below peak on side of gradual dropoff.
4.	"	"	A4	Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

Output frequency should be checked by an accurately calibrated secondary frequency standard to be sure that frequency is within .005%.

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
5.	Connect suitable load to antenna receptacle. Connect RF Wattmeter across load.	DC VTVM between point A and ground.	A5	Adjust for maximum deflection while rocking. Note rate of dropoff and set just below peak on side of gradual drop-off.
6.	"		A6	Adjust for maximum output as indicated on Wattmeter (or field strength meter).

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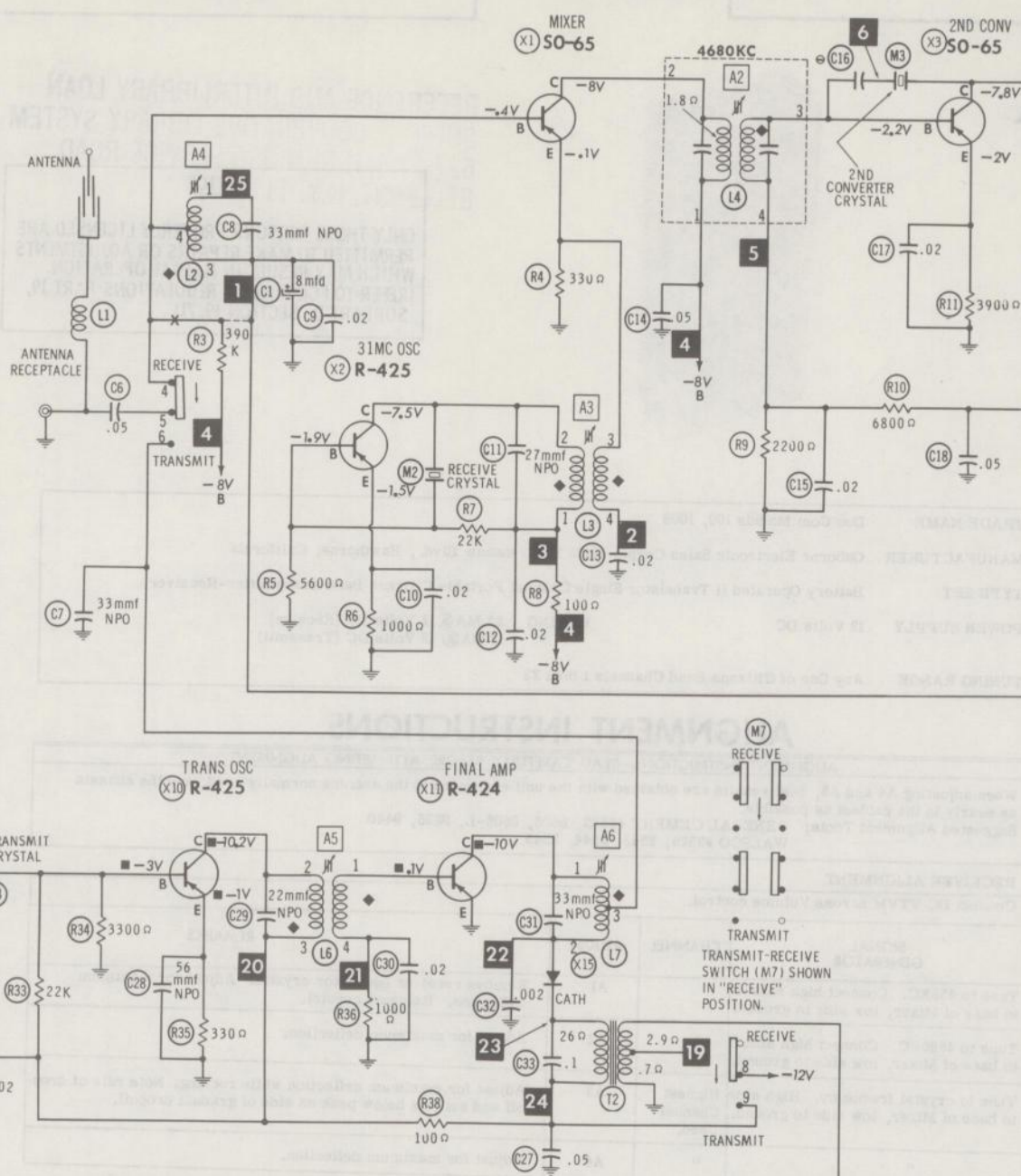
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of LY299

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

DUO COM
MODEL 100



MODEL 100



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊗ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

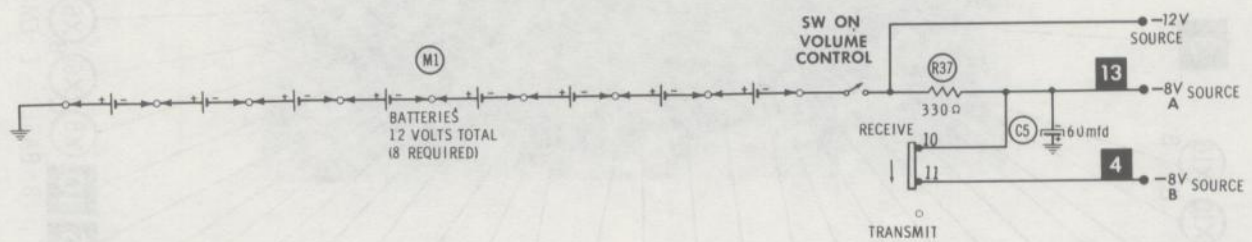
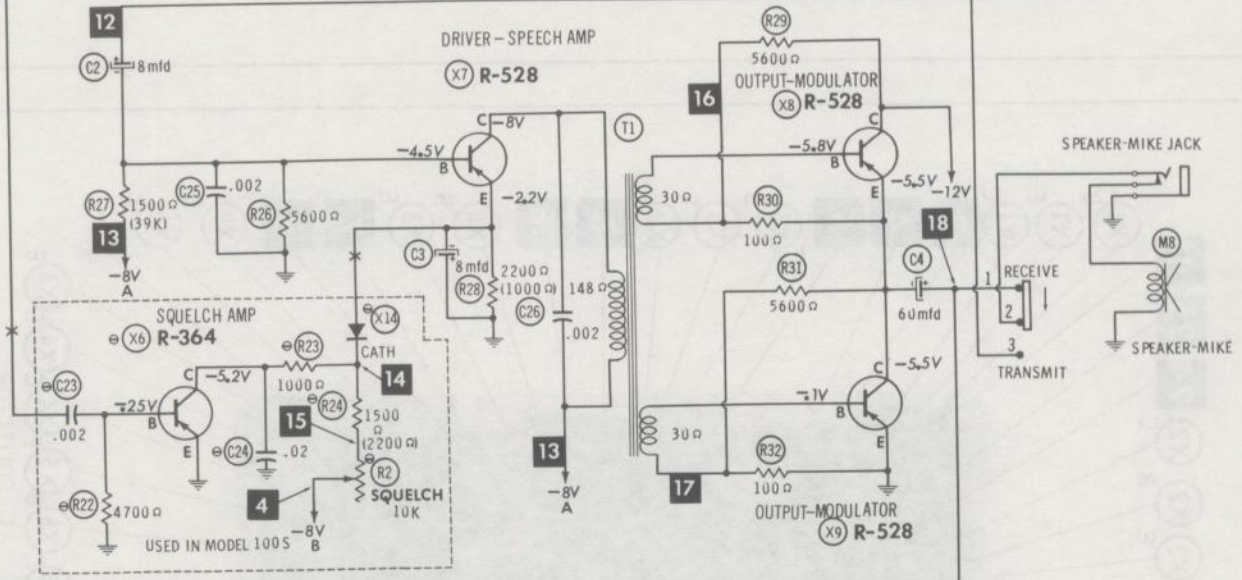
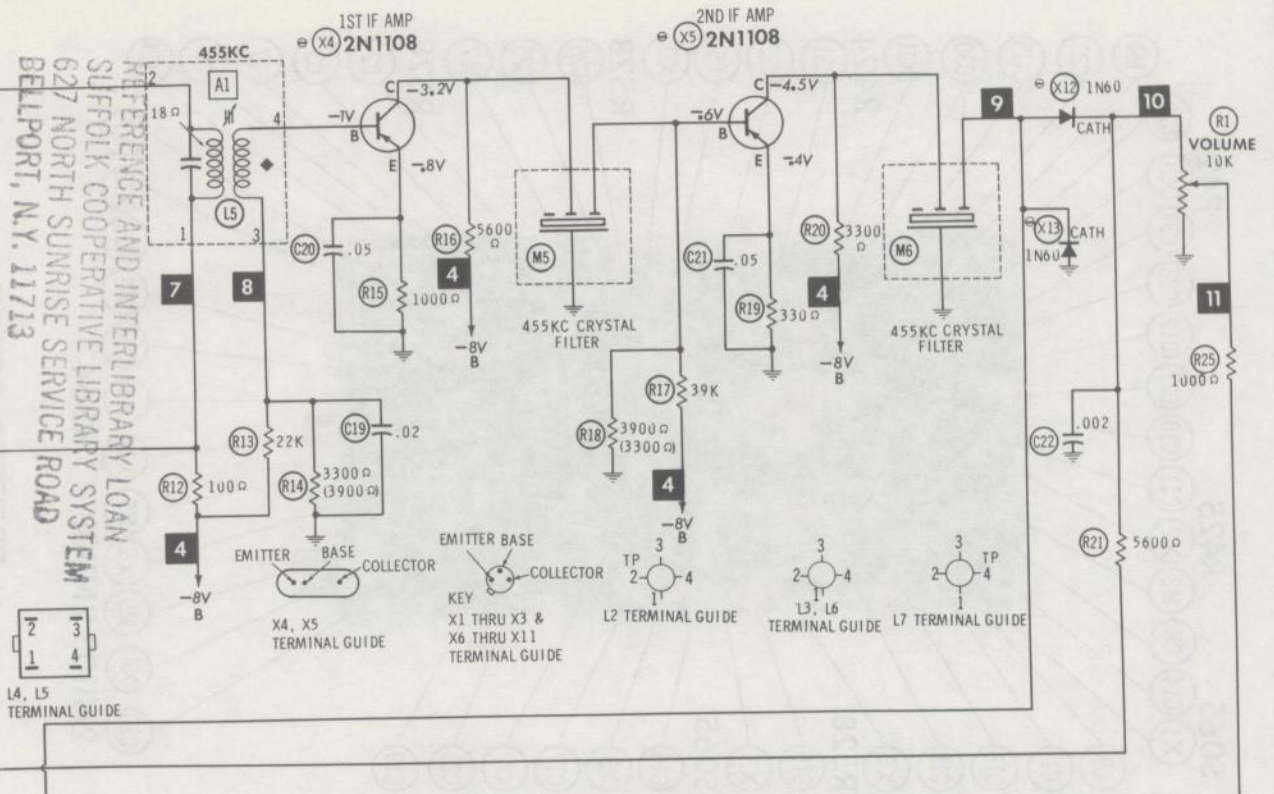
◆ DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
5. Volume control at maximum; no signal applied for voltage measurements.

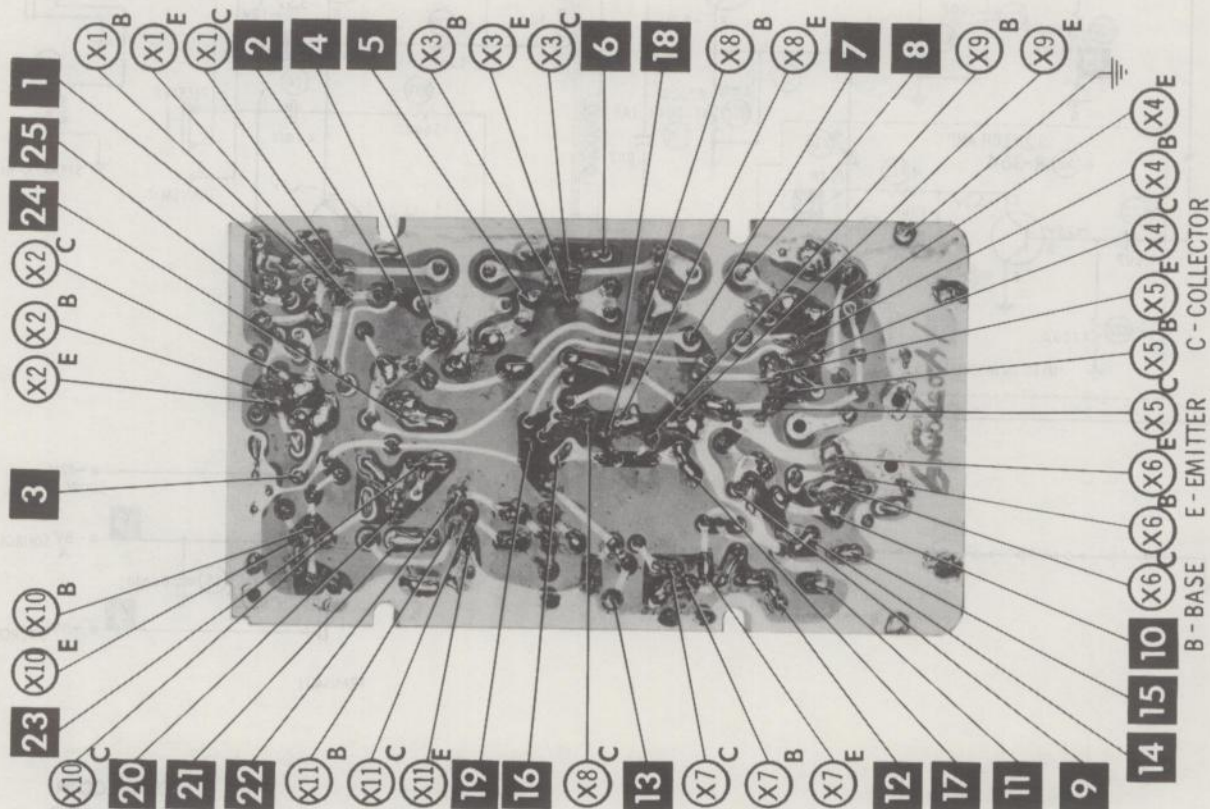
A PHOTOFACT STANDARD NOTATION SCHEMATIC with **CircuitTrace**

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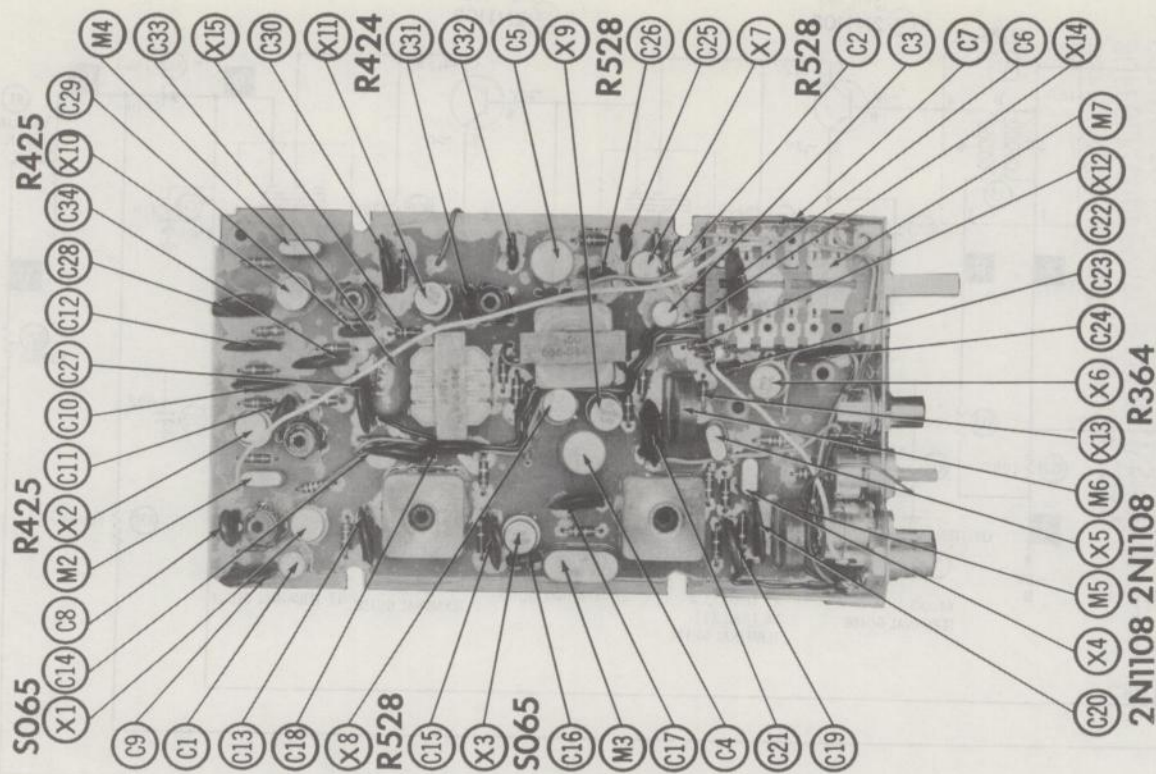
DUO COM
MODEL 100



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PRINTED BOARD



PRINTED BOARD

CAPACITOR, MISC. & TRANSISTOR IDENT.

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BELLPORT, N.Y. 11713

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire			Use BELDEN No.	8530 (Solid 22AWG)	Available in 12 Colors
			8524 (Stranded 22AWG)		
			8570 (Stranded 26AWG)		

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	SO-65	Mixer	2N1179	PNP	
X2	R-425	31MC Osc.	2N1178	PNP	
X3	SO-65	Converter (455KC)	2N1178	PNP	
X4	2N1108	1st IF Amplifier	2N1525	PNP	
X5	2N1107*	2nd IF Amplifier	2N1525	PNP	
X6	R-364	Squelch Amp.	2N406	PNP (Note 1)	
X7	R-528	Driver-Speech Amp.	2N362	PNP	
X8	R-528	Output-Modulator	2N632	PNP	
X9	R-528	Output-Modulator	2N408	PNP	
X10	R-425	Trans. Osc.	2N1178	PNP	
X11	R-424	Final Amp.	2N1177	PNP	

Note 1. Not used in Model 100 * Alternate.

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		NOTES
			RCA PART No.	RAYTHEON PART No.	
X12		1N60*		1N60	
X13		1N60*		1N60	
X14		S-249			Detector Limiter Squelch Rectifier ①
X15		STC249			Mixer

① Model 100S Only.
* Alternate Type 1N64 (Part #8305)

ELECTROLYTIC CAPACITORS

ITEM No.	BATING CAP.	VOLT.	REPLACEMENT DATA				
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	8	10	BCD12008	ECB9407	MT1-5	PET1340	VL-1126
C2	8	10	BCD12008	ECB9407	MT1-5	PET1340	VL-1126
C3	8	10	BCD12008	ECB9407	MT1-5	PET1340	VL-1126
C4	60	12	BCD12075	ECB9418	MT1-19	TT15X50	VL-1137
C5	60	12	BCD12075	ECB9418	MT1-19	TT15X50	VL-1137

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.
C6	.05		BPD-05	DA-503	H-0585	CCTO-330	TA-150
C7	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CNO-433	10TCC-Q33
C8	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CNO-433	10TCC-Q33
C9	.02		BPD-02	DA-203	H-0582	CCD-203	TG-520
C10	.02		BPD-02	DA-203	H-0582	CCD-203	TG-520
C11	27 NPO		NPO-DI 25	DTZ-27	C10Q27C	CNO-427	10TCC-Q27
C12	.02		BPD-02	DA-203	H-0582	CCD-203	TG-520
C13	.02		BPD-02	DA-203	H-0582	CCD-203	TG-520
C14	.05		BPD-05	DA-503	H-0585	CCD-203	TG-520
C15	.02		BPD-02	DA-203	H-0582	CCD-203	TG-520
C16	.02	Note 1	BPD-02	DA-203	H-0582	CCD-203	TG-520
C17	.05		BPD-05	DA-503	H-0585	CCD-203	TG-520
C18	.02		BPD-02	DA-203	H-0582	CCD-203	TG-520
C19	.02		BPD-02	DA-203	H-0582	CCD-203	TG-520
C20	.05		BPD-05	DA-503	H-0585	CCD-203	TG-520
C21	.02		BPD-02	DA-203	H-0582	CCD-203	TG-520
C22	.002		BPD-002	DM-202	BYA1002	CCD-202	B-220
C23	.002		BPD-002	DM-202	BYA1002	CCD-202	B-220
C24	.002	Note 2	BPD-002	DM-202	H-0585	CCD-202	B-220
C25	.002	Note 2	BPD-002	DM-202	BYA1002	CCD-202	B-220
C26	.002		BPD-002	DM-202	BYA1002	CCD-202	B-220
C27	.05		BPD-05	DA-503	H-0585	CCD-202	B-220
C28	56 NPO		NPO-DI 22	TCZ-56	C10Q56C	CCTO-560	TA-150
C29	22 NPO		BPD-02	DTZ-22	C10Q22C	CNO-422	10TCC-Q22
C30	.02		BPD-02	DA-203	H-0582	CCD-203	TG-520
C31	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CNO-433	10TCC-Q33
C32	.002		BPD-002	DM-202	BYA1002	CCD-202	B-220
C33	.1 100V		V84C2P1	DM-202	DPM52P1	IDP-2-104	2TM-P10
C34	.02		BPD-02	DA-203	H-0582	CCD-203	TG-520

Note 1. Value Varies (10mmf - 100mmf) depending on Crystal Series Resistance.

Note 2. Replace with Original Value.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	DUO COM PART No.	REPLACEMENT DATA		
				CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.
R1	Volume & Switch	10K	8408			
R2	Squelch	10K	①	JF2-103		

① Model 100S Only.

All wattages 1/2 watt; or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R3	390K				R22	4700Q			
R4	330Q				R23	100Q			①
R5	5600Q				R24	1500Q			①
R6	1000Q				R25	100Q			(2200Q)† ①
R7	22K				R26	5600Q			
R8	100Q				R27	1500Q			
R9	2200Q				R28	2200Q			(39K)*
R10	6800Q				R29	5600Q			(1000Q)*
R11	3900Q				R30	100Q			
R12	100Q				R31	5600Q			
R13	22K				R32	100Q			
R14	3300Q				R33	22K			
R15	1000Q				R34	3300Q			
R16	5600Q				R35	330Q			
R17	39K				R36	1000Q			
R18	3900Q				R37	330Q			
R19	330Q				R38	100Q			
R20	3300Q								
R21	5600Q								

† Alternate Value.

* Value Used in Model 100.

Model 100S Only.

COILS (RF-IF)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		DUO COM PART No.	Merit PART No.	Stencor PART No.	Workman PART No.	
L1	Ant. Loading (2.6uh)	8483				
L2	Antenna	8406				
L3	Receive Osc.	8404				
L4	4MC IF	8410				
L5	455KC IF	8409				
L6	Transmit Osc.	8405				
L7	Final	8407				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DUO COM PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triod PART No.		
TI	2.5	1	8400						

TRANSFORMER (AUDIO OUTPUT)

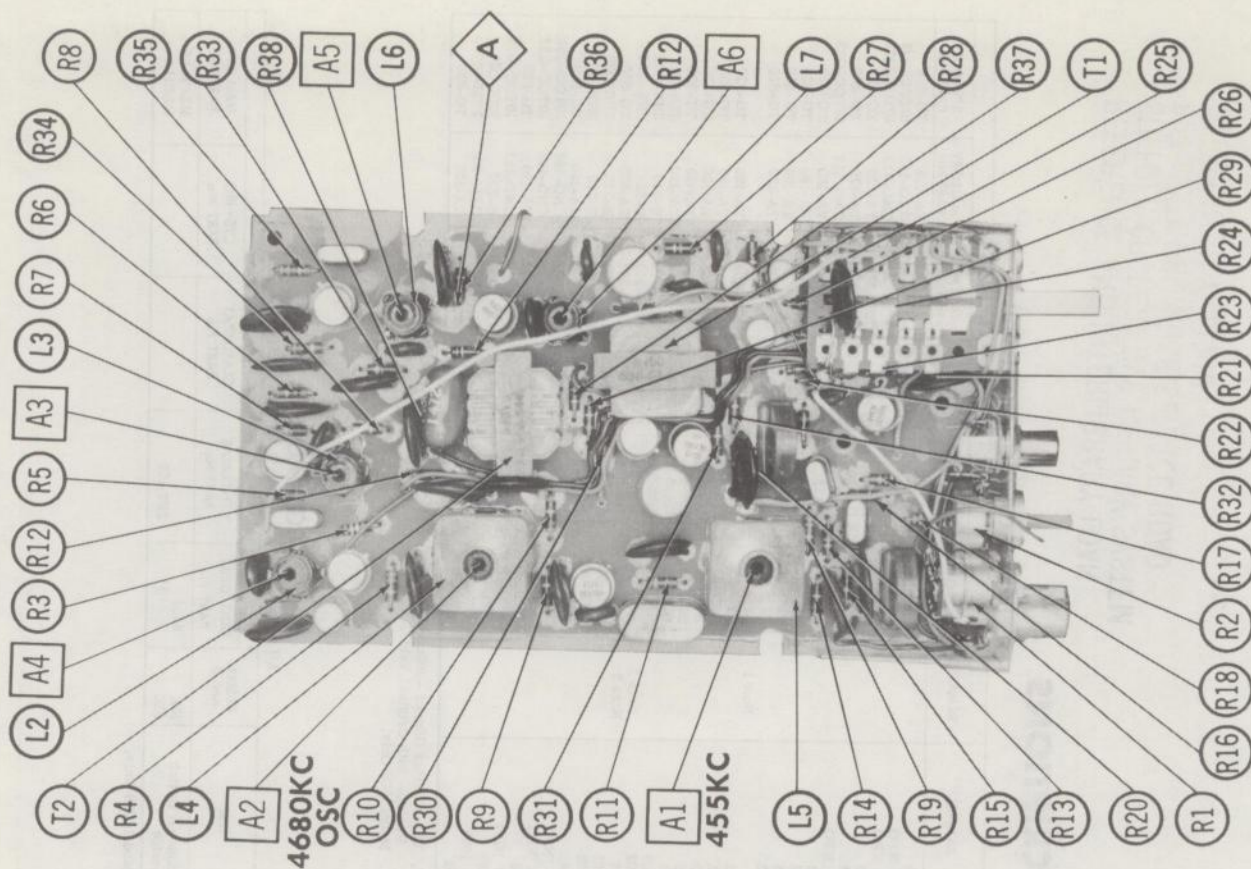
ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES	
			DUO COM PART No.	Merit PART No.	Stancor PART No.	Thoradson PART No.	Triad PART No.		
	PRI.	SEC.							
T2			8401						

BATTERIES

ITEM No.	VOLTAGE	DUO COM PART No.	REPLACEMENT DATA						NOTES
			BURGUSS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1½V			930		1015		M-15R	8 Required

MISCELLANEOUS

ITEM No.	PART NAME	DUO COM PART No.	NOTES
M2	Crystal	8452	Receive Oscillator Crystal (Channel 10)
M3	Crystal	8450	Converter Crystal (4.68MC, Channel 10)
M4	Crystal	8451	Transmit Oscillator Crystal (Channel 10)
M5	Crystal Filter	8403	First 455KC Filter
M6	Crystal Filter	8403	Second 455KC Filter
M7	Switch	8480	Transmit-Receive (4PDT Spring Loaded)
M8	Speaker - Mike	9411	





REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).



MODEL 762W

TRADE NAME	Eico Models 760, 760W, 761, 761W, 762, 762W
MANUFACTURER	Electronics Instrument Co., Inc., 3300 Northern Blvd., Long Island City 1, N. Y.
TYPE SET	AC-Battery Operated Single Channel Citizens Band Transmitter-Receiver
POWER SUPPLY	Model 760: 110-120 Volts AC, 60 Cycles Model 761: 110-120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery Model 762: 110-120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	46 Watts, .45 Amp. @ 117 Volts AC (or) 8.4 Amp. @ 6.3 Volts DC (or) 4.2 Amp @ 12.6 Volts DC
TUNING RANGE	TRANSMITTER: Any one of Citizens Band Channels 1 thru 23 RECEIVER: Variable Tuning of Citizens Bands 1 thru 23

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Temporarily connect a 100K resistor from point A to point B to provide voltage to transmitter oscillator. This signal will be used to align the receiver oscillator. Turn unit on and allow to warm up for 10 minutes.

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	OUTPUT METER	ADJUST	REMARKS
1.	Not Used		Set to channel of crystal being used in transmitter.	Across voice coil.	A1	Adjust Volume control to point where the 120% hum is heard clearly. Adjust A1 for maximum output of this hum. Remove the 100K resistor.
2.	High side thru .001mfd to pin 2 (grid) of Mixer (V2). Low side to chassis.	1750KC (400% 30% AM)		"	A2, A3, A4, A5, A6, A7	Adjust for maximum output.
3.	High side thru 100Ω to either antenna receptacle. Low side to chassis.	27MC	9	"	A8, A9	"

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
Connect Antenna	0-100MA DC Meter to Meter Jack	A10, All	Adjust A10 for minimum (20-30MA). Transmit lamp on front panel should increase in brightness. Adjust All so that meter indicates 27MA. Repeat Adjustments until minimum indication obtained by adjusting A10 approaches but does not exceed 27MA.

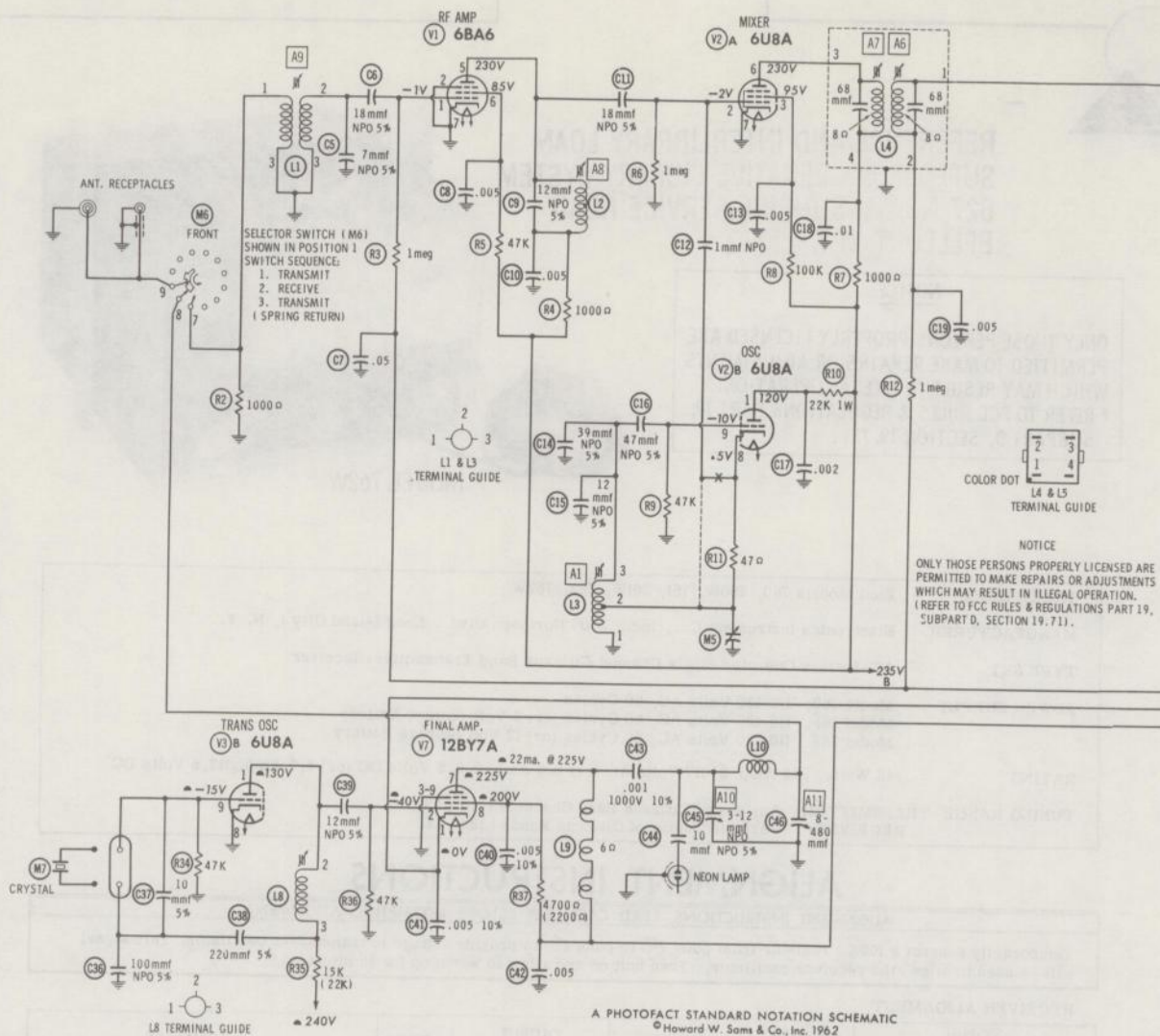
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



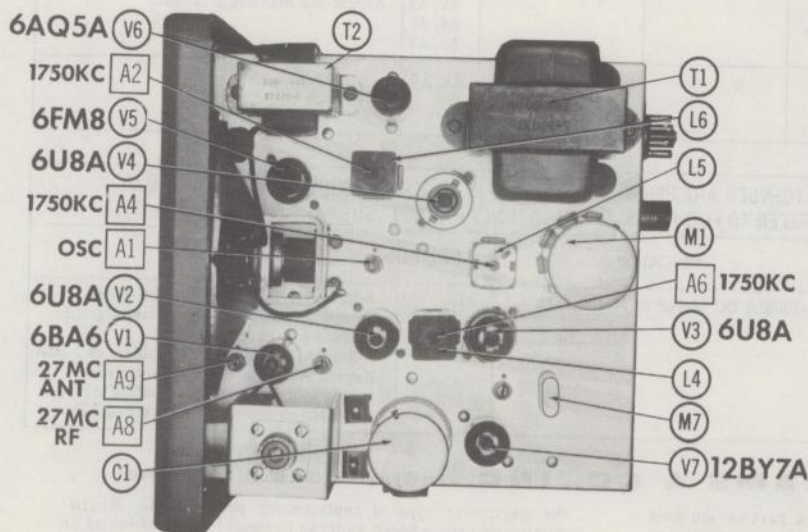
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ989

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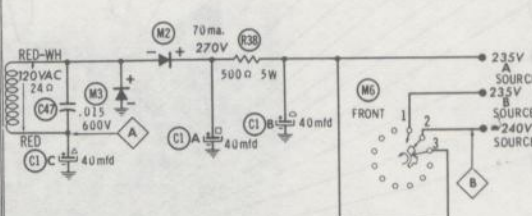
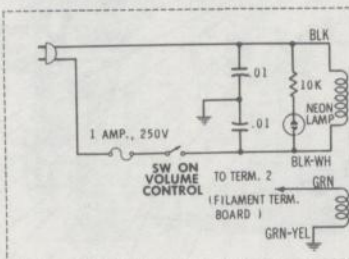
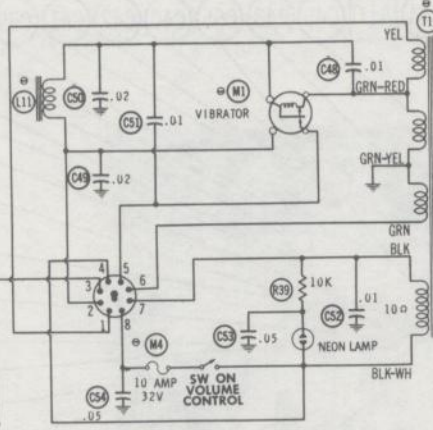
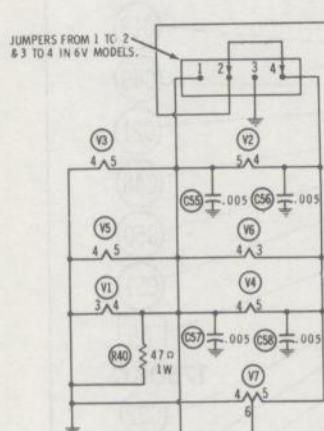
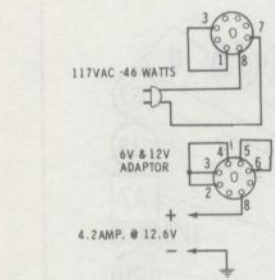
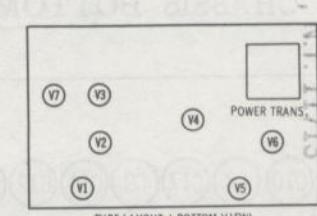
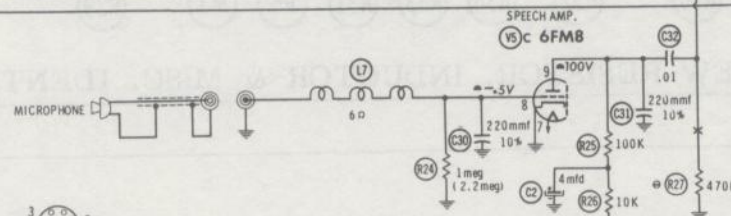
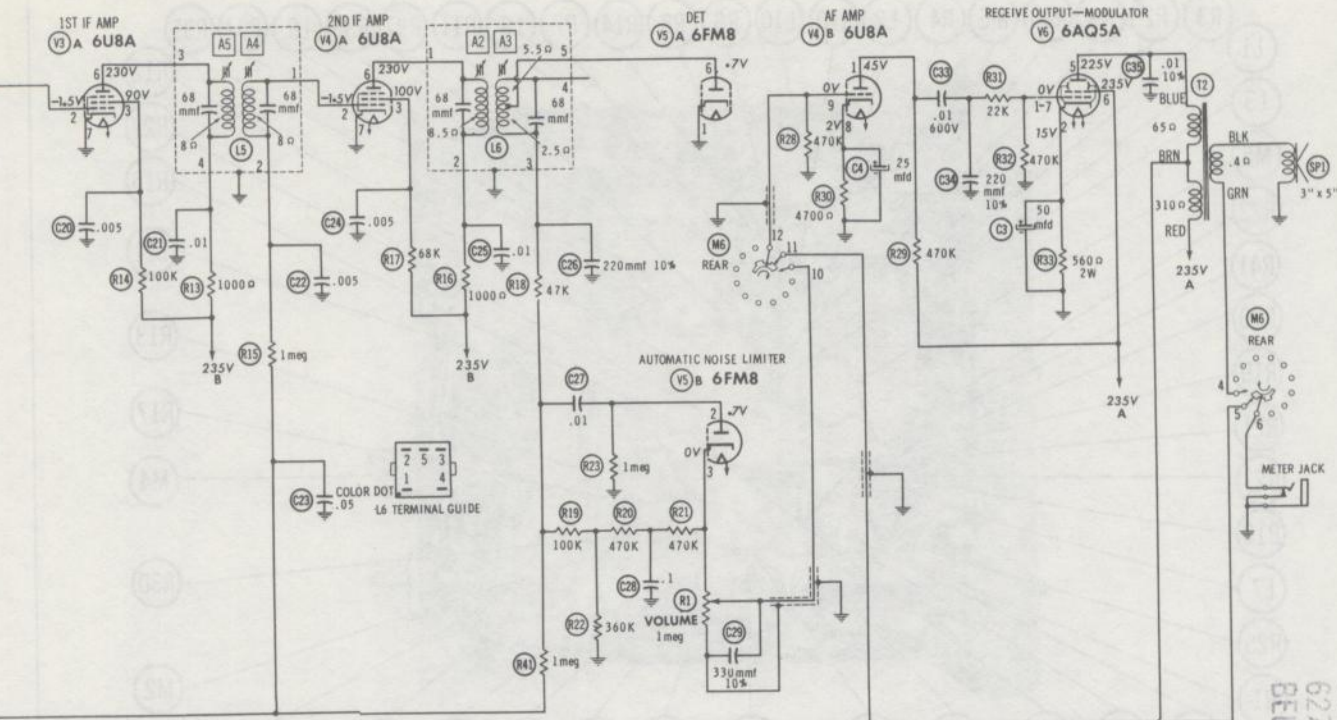
EICO MODELS 760, 760W, 761, 761W, 762, 762W



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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CHASSIS-TOP VIEW



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

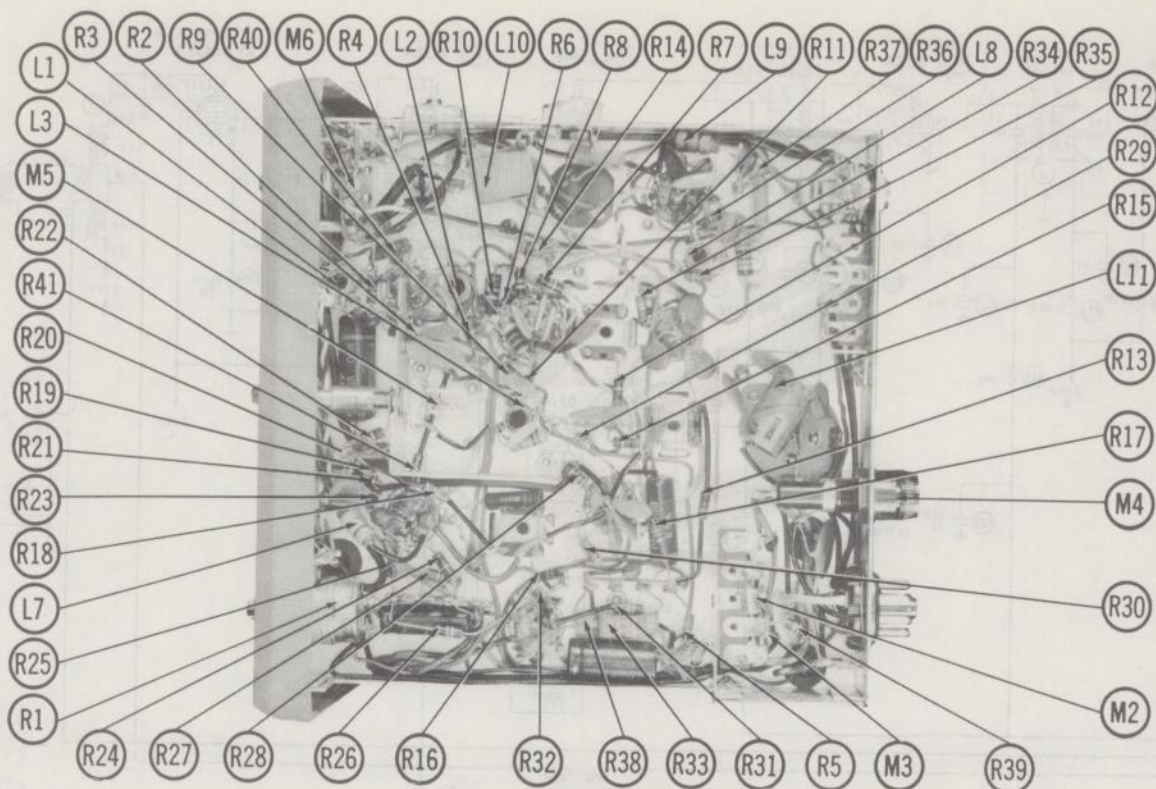
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BA6	2.4 meg	0 $\square$	FIL	FIL	$\pm 1500 \square$	$\pm 147K$	0 $\square$		
V2	6U8A	$\pm 22K$	1 meg	$\pm 100K$	FIL	FIL	$\pm 1500 \square$	0 $\square$	47 $\square$	47K
V3	6U8A	$\pm 115K$	2.4 meg	$\pm 100K$	FIL	FIL	$\pm 1500 \square$	0 $\square$	0 $\square$	47K
V4	6U8A	$\pm 470K$	2.4 meg	$\pm 68K$	FIL	FIL	$\pm 1500 \square$	0 $\square$	4700 $\square$	0 $\square$
V5	6FM8	0 $\square$	1 meg	500K	FIL	FIL	450K	0 $\square$	1 meg	$\pm 110K$
V6	6AQ5A	470K	560 $\square$	FIL	FIL	$\pm 875 \square$	$\pm 1500 \square$	NC		
V7	12BY7A	0 $\square$	47K	0 $\square$	FIL	FIL	FIL	$\pm 1810 \square$	$\pm 15500 \square$	0 $\square$

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.
 $\pm$ MEASURED IN TRANSMIT POSITION. NC NO CONNECTION
 $\dagger$ MEASURED FROM OUTPUT OF M2.

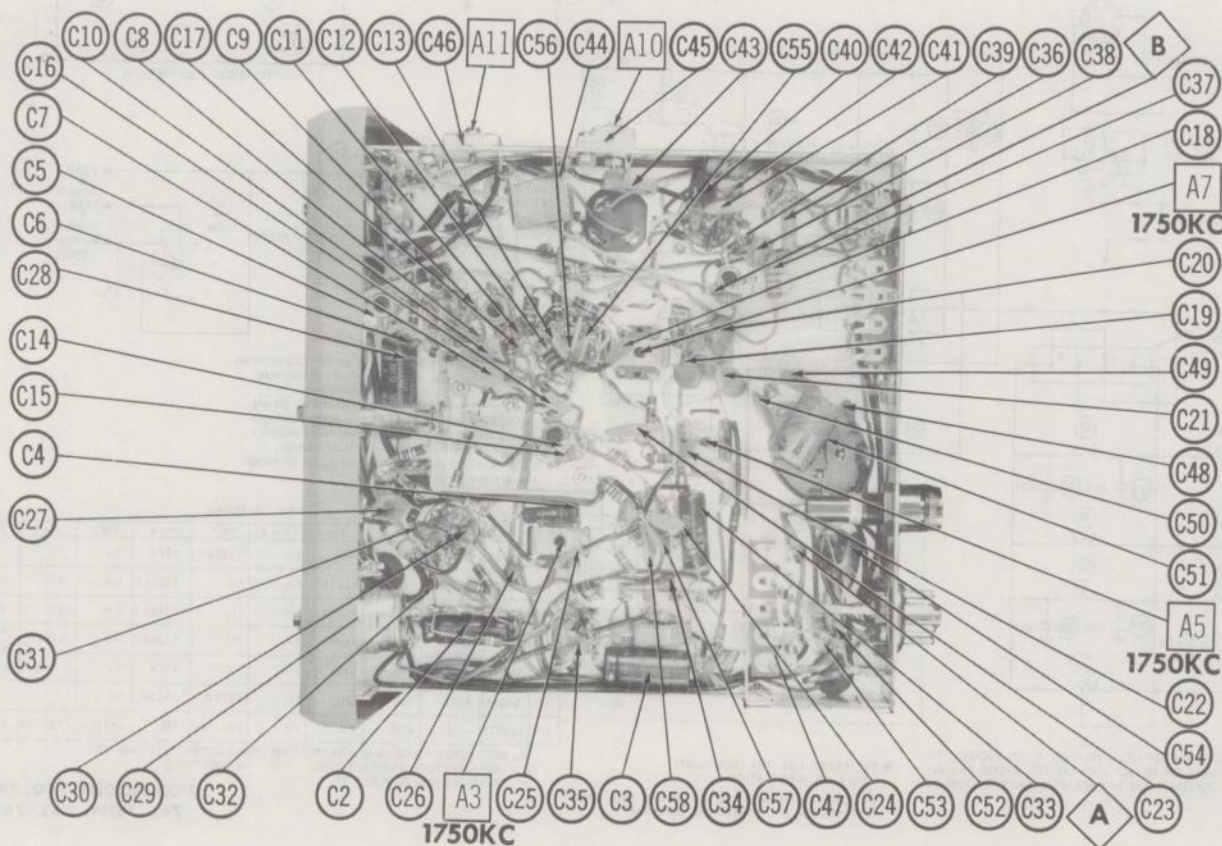
EICO MODELS 760, 760W,
761, 761W, 762, 762W

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
 DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM



CHASSIS BOTTOM VIEW-RESISTOR, INDUCTOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-ALIGNMENT & CAPACITOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

* GENERAL ELECTRIC * RAYTHEON * SYLVANIA *			
ITEM No.	USE	TYPE	TYPE
V1	RF Amplifier	6BA6	6U8A
V2	Rec. Mixer - Osc.	6U8A	6FM8
V3	1st IF Amplifier - Trans. Osc.	6U8A	6AQ5A 12BY7A

ELECTROLYTIC CAPACITORS

REPLACEMENT DATA			
ITEM No.	RATING	AEROVOX PART No.	SPRAGUE PART No.
C1A	40 350	AFH3-44	TYL-3787
C1B	40 350	AFH3-44	TYL-3787
C1C	40 250	PRH550	TYL-3787
C2	4 250	PTT98	TYL-3787
C3	50 50	PTT28	TYL-3787
C4	25 6	PTT28	TYL-3787

FIXED CAPACITORS

REPLACEMENT DATA			
ITEM No.	RATING	AEROVOX PART No.	SPRAGUE PART No.
C5	7 NPO 5%	NPO-SI 6.8	10TCC-V68
C6	18 NPO 5%	BPD-05	10TCC-V10
C7	.05	BPD-05	10TCC-V10
C8	.05	BPD-05	10TCC-V10
C9	12 NPO 5%	BPD-05	10TCC-V10
C10	.05	BPD-05	10TCC-V10
C11	18 NPO 5%	BPD-05	10TCC-V10
C12	1 NPO	NPO-SI 1.0	10TCC-V10
C13	.05	BPD-05	10TCC-V10
C14	39 NPO 5%	BPD-05	10TCC-V10
C15	12 N750 5%	BPD-05	10TCC-V10
C16	47 NPO 5%	BPD-05	10TCC-V10
C17	.02	BPD-05	10TCC-V10
C18	.01	BPD-05	10TCC-V10
C19	.005	BPD-05	10TCC-V10
C20	.005	BPD-05	10TCC-V10
C21	.01	BPD-05	10TCC-V10
C22	.005	BPD-05	10TCC-V10
C23	.05	BPD-05	10TCC-V10

FIXED CAPACITORS (cont)

REPLACEMENT DATA			
ITEM No.	RATING	AEROVOX PART No.	SPRAGUE PART No.
C24	.005	BPD-05	10TCC-V10
C25	.01	BPD-05	10TCC-V10
C26	220 10%	BPD-05	10TCC-V10
C27	.01	BPD-05	10TCC-V10
C28	.1 400V	BPD-05	10TCC-V10
C29	330 10%	BPD-05	10TCC-V10
C30	220 10%	BPD-05	10TCC-V10
C31	220 10%	BPD-05	10TCC-V10
C32	.01	BPD-05	10TCC-V10
C33	.01 600V	BPD-05	10TCC-V10
C34	220 10%	BPD-05	10TCC-V10
C35	.01 10%	BPD-05	10TCC-V10
C36	100 NPO 5%	BPD-05	10TCC-V10
C37	10 5%	BPD-05	10TCC-V10
C38	220 5%	BPD-05	10TCC-V10
C39	12 NPO 5%	BPD-05	10TCC-V10
C40	.005 10%	BPD-05	10TCC-V10
C41	.005 10%	BPD-05	10TCC-V10
C42	.005	BPD-05	10TCC-V10
C43	100 1000V 10%	BPD-05	10TCC-V10
C44	10 NPO 5%	BPD-05	10TCC-V10
C45	3-12 NPO	BPD-05	10TCC-V10
C46	8-480	BPD-05	10TCC-V10
C47	.015 600V	BPD-05	10TCC-V10
C48	.01	BPD-05	10TCC-V10
C49	.02	BPD-05	10TCC-V10
C50	.02	BPD-05	10TCC-V10
C51	.01	BPD-05	10TCC-V10
C52	.01	BPD-05	10TCC-V10
C53	.05	BPD-05	10TCC-V10
C54	.05	BPD-05	10TCC-V10
C55	.005	BPD-05	10TCC-V10
C56	.005	BPD-05	10TCC-V10
C57	.005	BPD-05	10TCC-V10
C58	.005	BPD-05	10TCC-V10

* Elco Part Number.
Note 1. Not used in some versions.

CONTROLS

REPLACEMENT DATA			
ITEM No.	RATING	AEROVOX PART No.	SPRAGUE PART No.
RIA	Imag Shaft Switch	B-70-S Not Req.	Volume
B	Imag Shaft Switch	B-70-S Not Req.	Power Off-On
C	Imag Shaft Switch	B-70-S Not Req.	Power Off-On

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		IRC PART No.	WORKMAN TV PART No.			IRC PART No.	WORKMAN TV PART No.
R2	1000Ω			R22	360K		
R3	1Meg			R23	1Meg		
R4	1000Ω			R24	100K		
R5	47K			R25	100K		
R6	1Meg			R26	10K		
R7	1000Ω			R27	470K		
R8	100K			R28	470K		
R9	47K			R29	470K		
R10	22K 1W			R30	4700Ω		
R11	47Ω			R31	22K		
R12	1Meg			R32	470K		
R13	1000Ω			R33	500Ω 2W		
R14	100K			R34	47K		
R15	100Ω			R35	15K		
R16	1000Ω			R36	47K		
R17	68K			R37	4700Ω		
R18	47K			R38	500Ω 5W		
R19	100K			R39	10K		
R20	470K			R40	47Ω 1W		
R21	470K			R41	1Meg		

* Alternate Value.

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		EICO PART No.	Merit PART No.			Stancor PART No.	Workman TV PART No.
L1	Ant.	36017					
L2	RF	36018					
L3	Osc.	36019					
L4	1st IF	34615					
L5	2nd IF	34616					
L6	3rd IF	34617					
L7	RF Choke (100Ω)	35052	6112			RTC-8574	T305
L8	Osc. Plate	36020					
L9	RF Choke (100Ω)	35052	6112			RTC-8574	T305
L10	Ant. Loading (1.8μ)	35051					
L11	Hash Choke	35053					

① Not used in Model 760

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		EICO PART No.	Merit PART No.			Stancor PART No.	Triad PART No.
T1	117V @ 120V @ 1.45A or 1.8A AC ② 2.4A (AC only)	30037 ①					

① Part #50036 used in Model 761.
Part #50035 used in Model 760.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		EICO PART No.	Merit PART No.			Stancor PART No.	Triad PART No.
T2	8600Ω Tap @ 6000Ω	35023					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		EICO PART No.	QUAM PART No.			Stancor PART No.	Triad PART No.
SP1	3"x 5" PM	55014	35A05				

NOTES

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS/FREQUENCY	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
			EICO PART No.	CORNELL-DUBILIER PART No.			SAKES PART No.	FAZIAN PART No.
M1	Interrupter	12.6V 115%	39501	6301				
	Interrupter	6.3V 115%	39500	5301				

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		EICO PART No.	SAKES PART No.			EICO PART No.	SAKES PART No.
M2	.070A	93007	INI763				
M3	.070A	93007	INI763				

FUSES

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		EICO PART No.	SAKES PART No.			EICO PART No.	SAKES PART No.
M4	3AG 10A 32V	91010 ①	97800				
	6A 32V	91009 ②	97800				
	32V	91006 ③	97800				
	1A 250V S/B						

① Models 761, 6VDC Operation.

② Models 762, 12VDC Operation.

③ 117VAC Operation.

MISCELLANEOUS

ITEM No.	PART NAME	EICO PART No.	NOTES
M5	Variable Cap. Switch	29016	
M6	Receiver Tuning Function Selector (Rotary Type)	80077	
M7	Crystal		

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	53033	Lever
Knob	53034	Tuning, Volume
Front Panel	80073	Model 761, 762
Handle	81232	Model 761, 762
Cabinet	88066	Model 761, 762
Cabinet	88070	Model 760

WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in Ten Colors
 Power Cord Use BELDEN No. 1765-B (6 Ft. Length)
 1725-K (7½ Ft. Length)



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REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

TRADE NAME	Globe Model CB-200
MANUFACTURER	Globe Electronics, A Div. of Textron Electronics, Inc., Council Bluffs, Iowa
TYPE SET	AC-Battery Operated 10 Tube Crystal Controlled Citizens Band Transmitter-Receiver
POWER SUPPLY	110 -120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery 110 -120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery
RATING	63 Watts, .7 Amp. @117 Volts AC (Transmit) 58 Watts, .65 Amp. @117 Volts AC (Receiver) 4.6 Amp. @12.6 Volts DC 9.2 Amp. @6.3 Volts DC
TUNING RANGE	TRANSMITTER--Any 5 of Citizen Band Channels 1 thru 22 RECEIVER -- Crystal controlled for any 4 Bands. "T" position of Band Switch permits continuous tuning over entire Citizens Band range.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Suggested Alignment Tools: A1 thru A6.... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A7 thru A11.... GENERAL CEMENT #8721, 8722
WALSCO #2519
A13, A14..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

RECEIVER

1. Connect the high side of signal generator (tuned to 1680KC unmod.) thru .001mfd to pin 2 (grid) of Mixer, low side to chassis. Connect DC probe of VTVM to point (A) (AVC), common to chassis. Adjust A1, A2, A3, A4, A5 and A6 for maximum deflection. Remove test equipment.
2. Connect DC probe of VTVM to pin 9 (grid) of receiver oscillator, common to chassis. Adjust A7 from maximum inductance toward minimum inductance until oscillator operates. Disconnect VTVM and tune in the oscillator signal on an accurate receiver. The signal will appear 1680KC above the frequency of the channel in use. If not, readjust A7. If several channels are to be used, an average adjustment of A7 may be necessary to keep within operating frequency limits (+1KC).
3. Connect DC probe of VTVM to point (A), common to chassis. Adjust the signal generator to channel 11 (27.085MC) and couple the signal to the antenna input. A direct connection may not be necessary unless the generator output is very low. Adjust A8 and A9 for maximum output.
4. Adjust signal generator to channel 11 (27.085MC) and couple the signal to the antenna input. A direct connection may not be necessary unless the generator output is very low. Set the channel selector to the fifth position (T). The tuning window lamp will come on. Set logging dial to one mark past 4. Adjust A10 for maximum output.

TRANSMITTER

1. Connect DC probe of VTVM thru an RF choke to pin 7 (grid) of Buffer, common to chassis. Set A11 for minimum inductance. Press mic button and adjust A11 until oscillations begin. Continue adjusting for a meter reading of approximately -40V. Press and release button several times, making certain that the oscillator operates each time. If erratic operation is encountered, increase inductance of A11, maintaining a meter reading of -35 to -40V. Check transmitter frequency.
2. Connect DC probe of VTVM to pin 1 (grid) of Final Amp. Adjust A12 for maximum deflection. The VTVM should indicate no less than 8 volts.
3. Set A13 near maximum capacity. Using an output indicator, alternately adjust A13 and A14 for maximum output.
4. Install unit in cabinet and readjust A13 and A14 for maximum output. A13 is reached thru the front hole on the left side of the cabinet, -- A14 thru the rear hole.

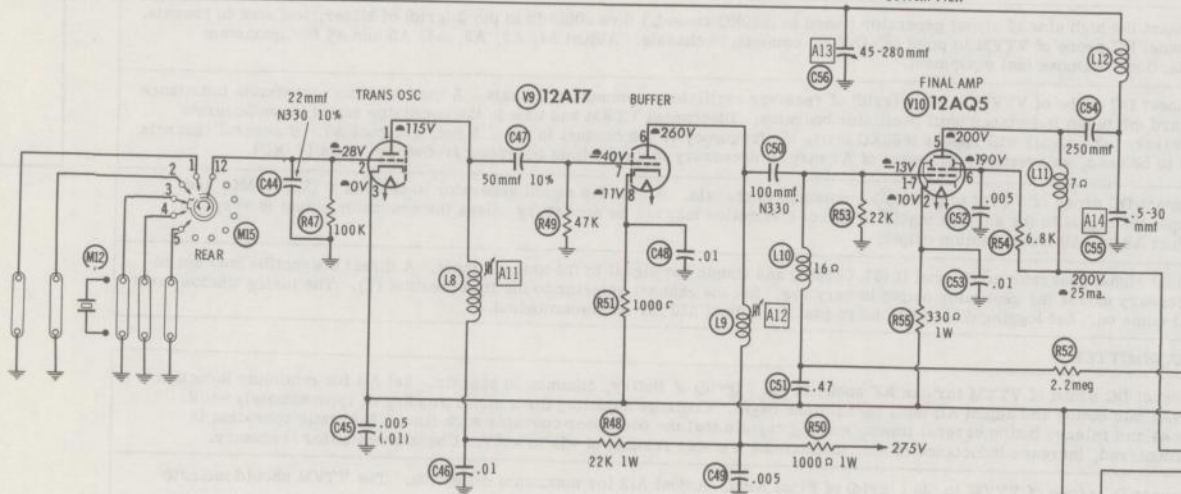
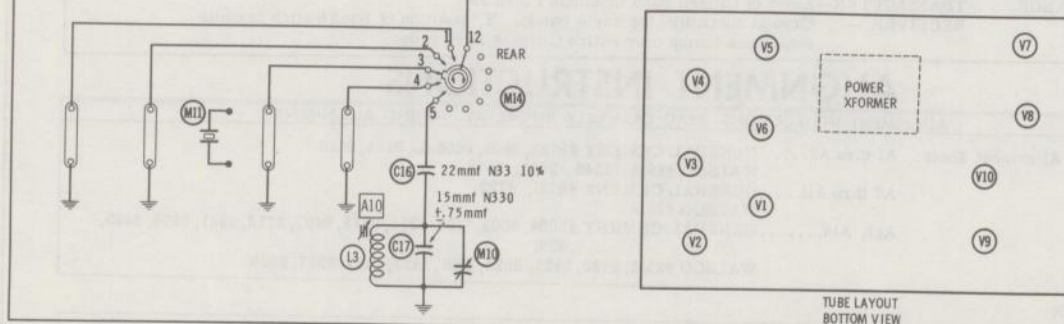
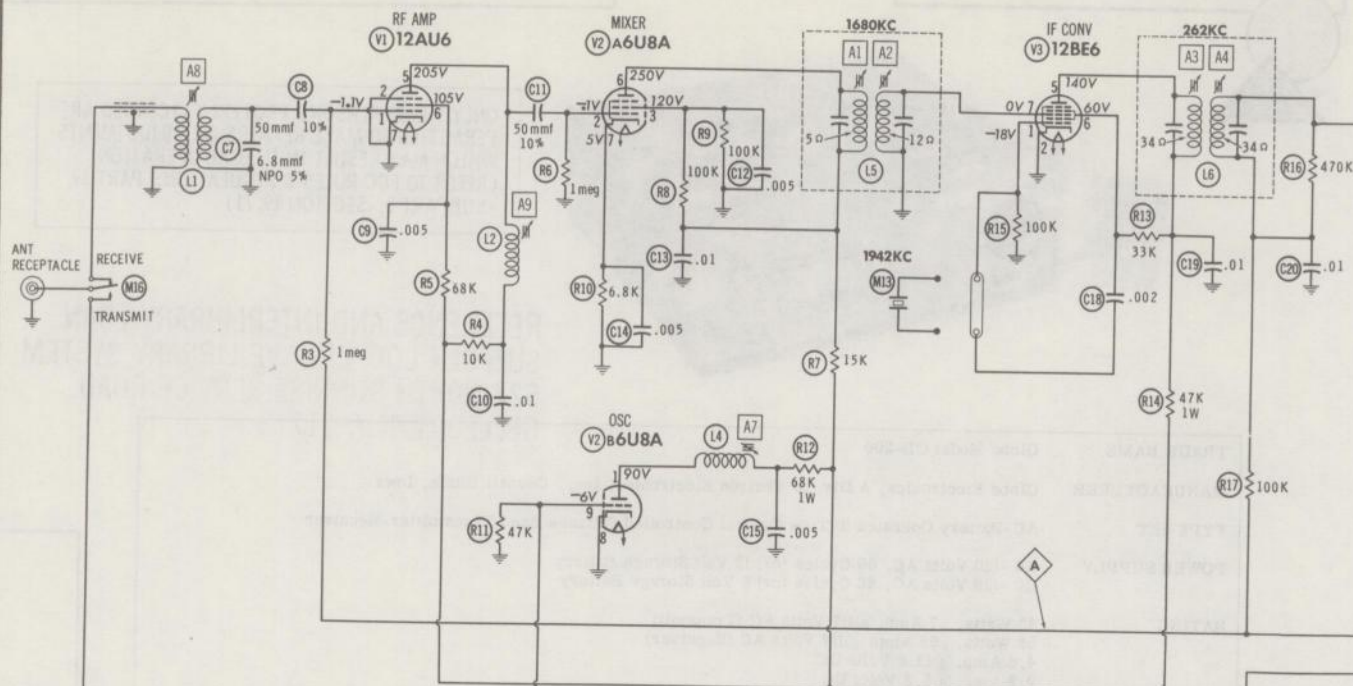
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ667

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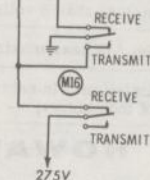
GLOBE MODEL
CB-200

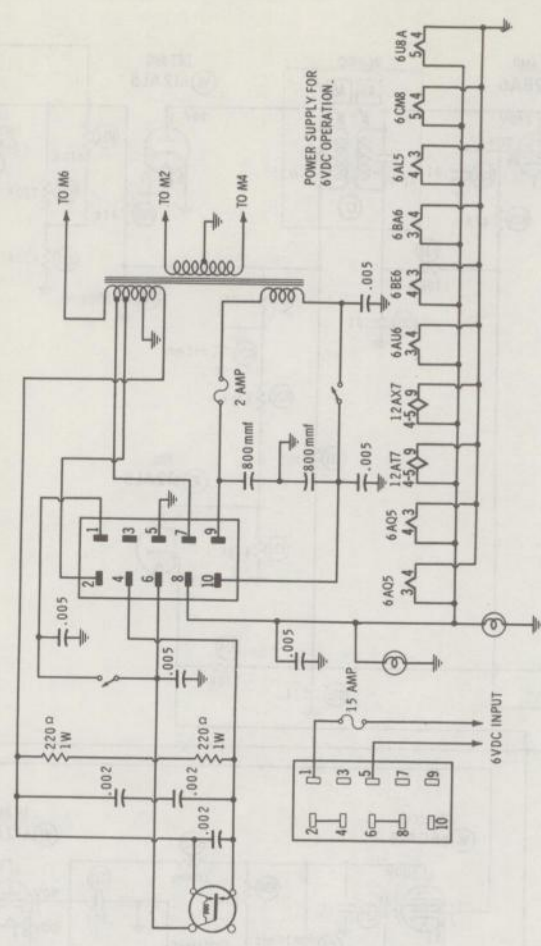


1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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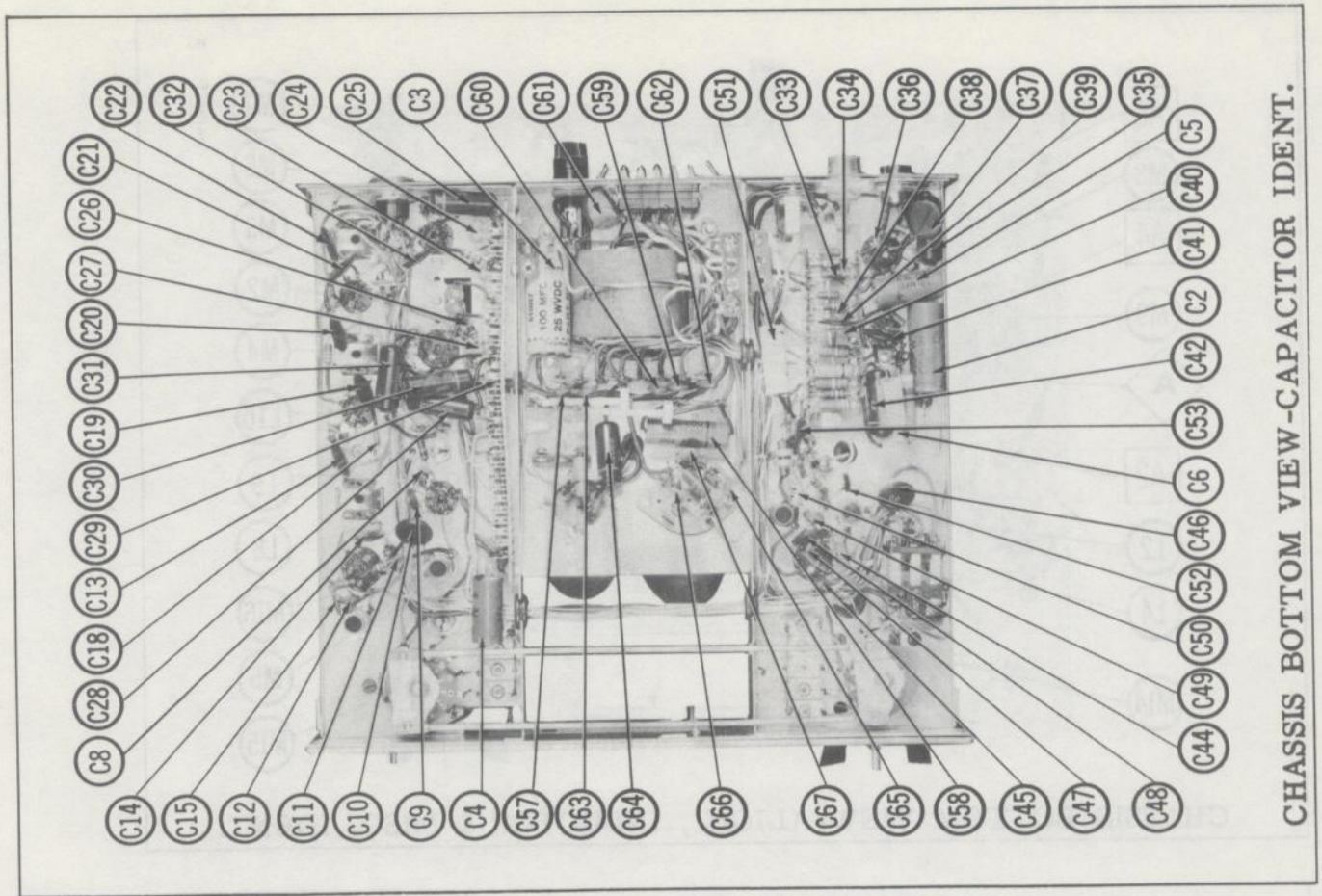
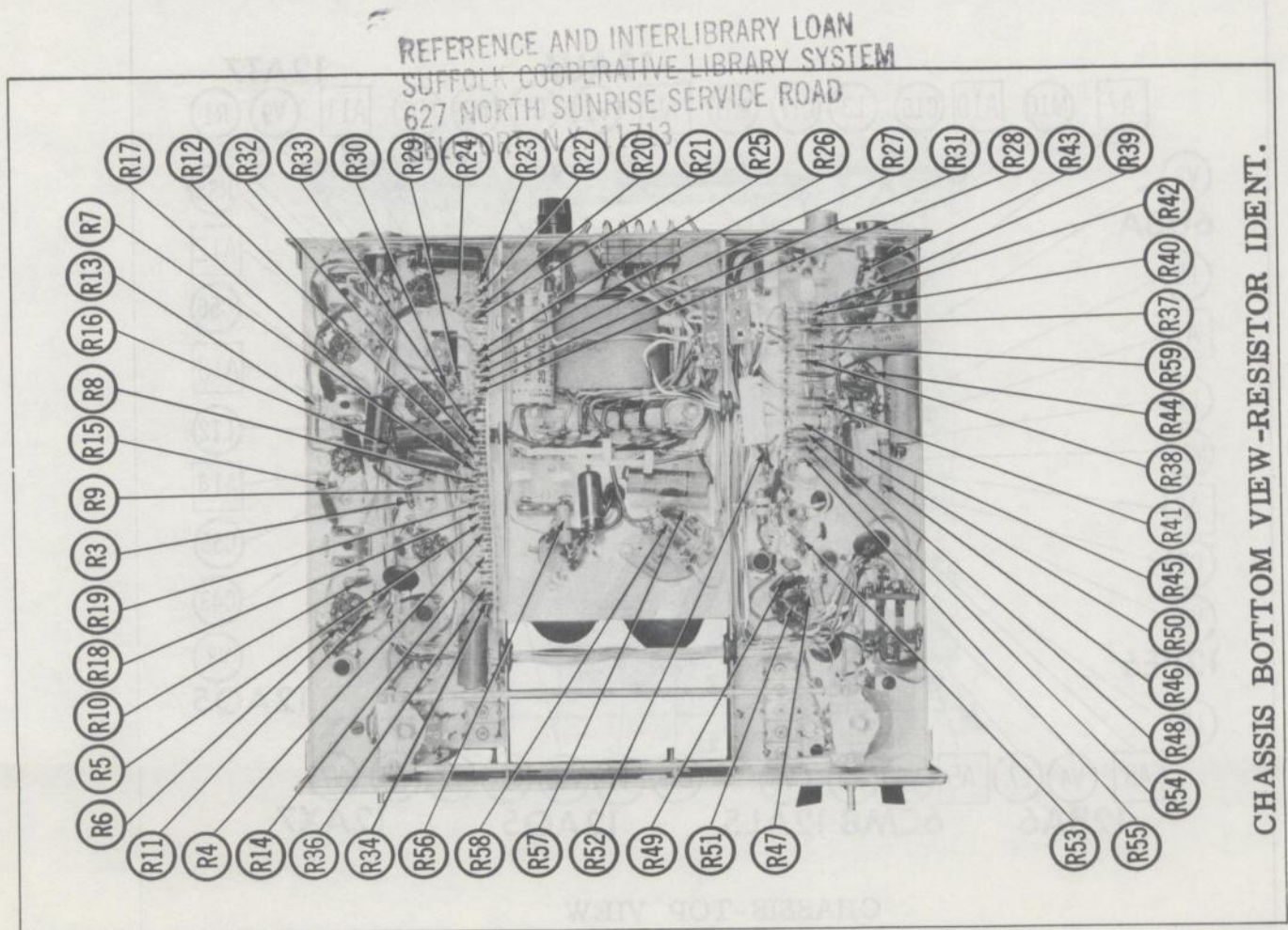
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

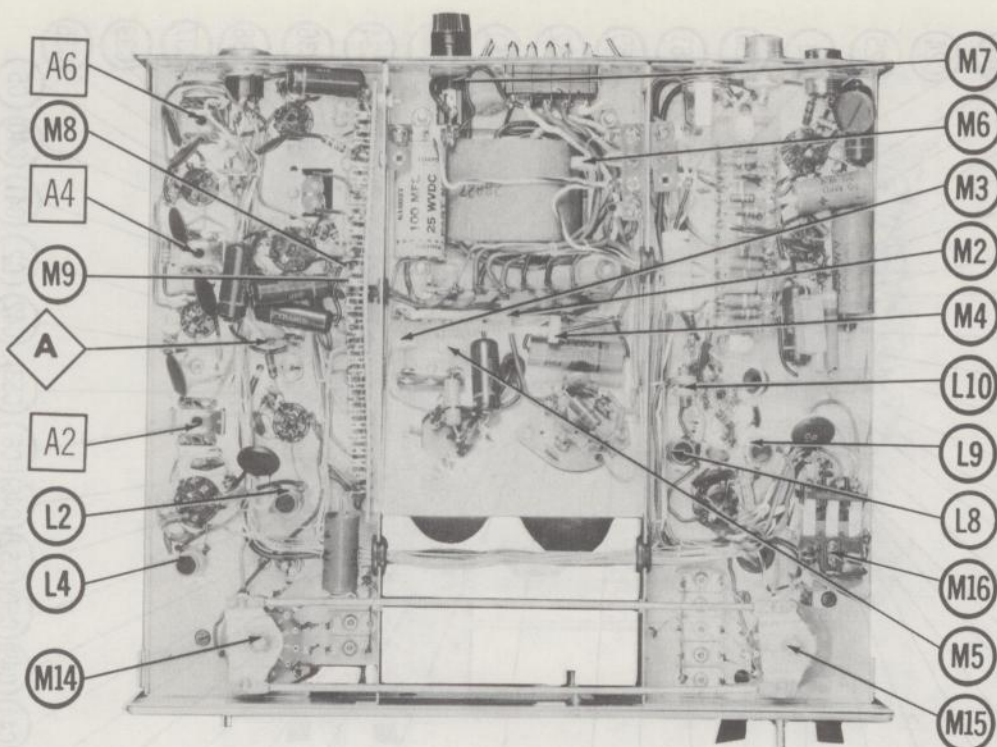




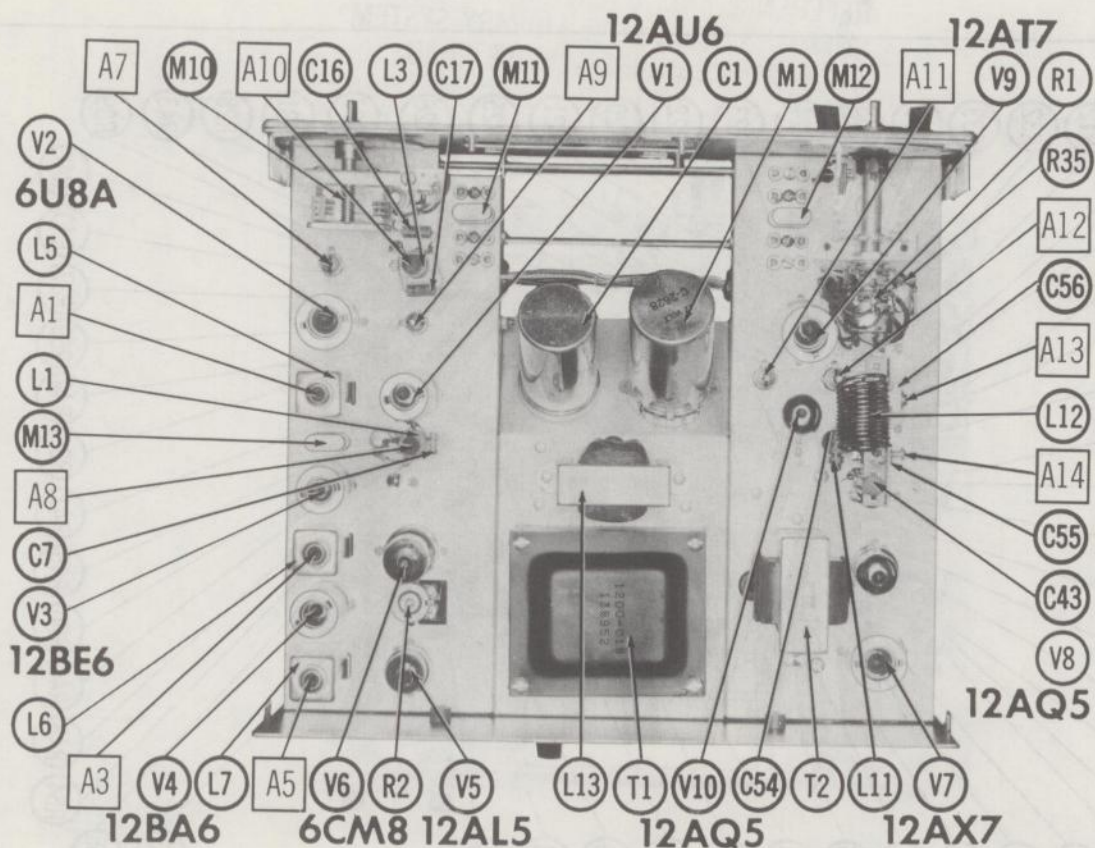
ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
 * MEASURED IN "TRANSMIT" POSITION.
 † MEASURED FROM OUTPUT OF M3 AND M5. NC NO CONNECTION

NC NO CONNECTION





CHASSIS BOTTOM VIEW-ALIGN., INDUCTOR & MISC. IDENT.



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.
C48	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110
C49	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250
C50	100 N330		P288N-47	DD-502	CUB2P47	IDP-4-474	GEM-2047
C51	.47 100V		BPD-005	DD-502	BYA10D5	CCD-502	B-250
C52	.005		BPD-01	DD-103	BYA10S1	CCD-103	B-110
C53	.01		SI 250	DD-251	LIOT25	CCD-251	B-250
C54	250						
C55	5-30	#1111-005					
C56	45-280	#1111-004					
C57	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250
C58	.007 1600V		P1684CM-007	DD16-007	CUB16D7	IDP-3-702	GEM-1627
C59	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250
C60	.005		BPD-0008	DD-801	LIOT8	CCD-821	B-382
C61A	900		BPD-0008	DD-801	LIOT8	CCD-821	B-382
C62	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250
C63	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250
C64	.1 200V	(.005) †	P288N-1	DD-104	CUB2P1	2DP-3-104	GEM-201
C65	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220
C66	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220
C67	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

† Alternate Value.

‡ Globe Part Number.

CONTROLS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.
R1A	25K		F1-27	DD-103	BYA10S1	CCD-103	B-110
R2	500K		R2-41	DD-103	BYA10S1	CCD-103	B-110
	Switch		KR-2	DD-103	BYA10S1	CCD-103	B-110
	1meg			DD-103	BYA10S1	CCD-103	B-110

† "CONCENTRIKIT" Equivalent: K-6 Kit with Base Elements and Shafts:
BU-120, P13-214 (Panel)
BU-133, RI-223 (Rear)
76-2 (Switch)

* "STA-LOC" Equivalent: FA253L, RU55A, OS2437, IS2812, US42.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.
R3	1meg						
R4	10K						
R5	68K						
R6	15K						
R7	100K						
R8	100K						
R9	100K						
R10	6800Ω						
R11	47K						
R12	47K 1W						
R13	33K						
R14	47K 1W						
R15	100K						
R16	470K						
R17	100K						
R18	6800Ω						
R19	47K						
R20	100K						
R21	Imeg						
R22	470K						

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.			IRC PART No.	WORKMAN TV PART No.	
R43	1meg			R52	2.2meg			
R44	1meg			R53	22K			
R45	2200Ω 4W			R54	6800Ω			
R46	4700Ω 2W			R55	330Ω 1W			
R47	100K			R56	22Ω 1W			
R48	22K 1W			R57	220Ω 1W			
R49	47K			R58	220Ω 1W			
R50	1000Ω 1W			R59	2200Ω			
R51	1000Ω							

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		GLOBE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Ant.	1400-128	TV-116	6250	RTC-8568	T232A
L2	RF	1400-105	TV-112	6171-A	RTC-8609	T216
L3	Osc. Plate	1400-116	TV-112	6171-A	RTC-8609	T216
L4	Osc. Plate	1400-103	TV-112	6171-A	RTC-8609	T216
L5	1650KC IF	1205-001A				
L6	1st 262KC IF	1205-006	BC-350	12-H1	RTC-8638	T604
L7	2nd 262KC IF	1205-007	BC-351	12-H2	RTC-8639	T605
L8	Osc. Plate	1400-117				
L9	Buffer Plate	1400-119	TV-112	6171-A	RTC-8609	T216
L10	RF Choke (750uh)	1301-006	TV-206	6148	RTC-8583	T327
L11	RF Choke (120uh)	1301-025	TV-195	6153	RTC-8585	T307
L12	Final Plate	1400-129				

FILTER CHOKE

ITEM No.	RATINGS	REPLACEMENT DATA				NOTES
		GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
L13	DC CURR. (Measured) 1000 mA 210Ω 3.5HY	1300-017				

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T1	AC OPERATION PRI. SEC. 1 SEC. 2 117V ② 500VCT 12.6V ④ 7A ③ .075A 1.6A DC OPERATION 12.6VCT 500VCT ④ 3A ③ .075A	1200018 ④				① Part #1200-019 used for 6V DC Operation.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA				NOTES
		GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T2	5000Ω	1203-014			S-5Z	

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA				NOTES
		GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
SP1	3"x5" PM	4002-006			35A05	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS/FREQUENCY	REPLACEMENT DATA				NOTES
			GLOBE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6 115%	4001-001	6301	G1601	6301	12V Versions
	Interrupter	6.3 115%	4001-002	5301	1601	5301	6V Versions

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA				NOTES
		GLOBE PART No.	RCA PART No.	SARKIS TARKISIAN PART No.	SYLVANIA PART No.	
M2	.075A	3700-061	1N1763	F4	SR500	
M3	.075A	3700-061	1N1763	F4	SR500	
M4	.075A	3700-061	1N1763	F4	SR500	
M5	.075A	3700-061	1N1763	F4	SR500	
M6	.100A	3700-014	1N1763	2F4	SR200	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			GLOBE PART No.		LITTELFUSE PART No.		BUSS PART No.	
M7	3AG	2A 250V 10A 15A	FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
			1500-011		312002	342001	AGC 2	HKP
			1500-009 ① 1500-012 ②	(3AG 2A 250V)				

① Part of 12.6V Input Cable, ② Part of 6.3V Input Cable.

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		GLOBE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M8	1N34A	3700-002		1N34A	1N34A	Squelch Rectifier
M9	1N34A	3700-002		1N34A	1N34A	Squelch Rectifier

MISCELLANEOUS

ITEM No.	PART NAME	GLOBE PART No.	NOTES	
			REPLACEMENT DATA	
M10	Variable Cap.	1105-031	1 Gang, Receiver Tuning	
M11	Crystal	Specify Channel	Receiver	
M12	Crystal	Specify Channel	Transmit	
M13	Crystal	1942 KC		
M14	Switch	2100-034	Receiver Channel	
M15	Relay	2100-034	Transmit Channel	
M16	Relay	3500-015	Transmit-Receive	
M17	Microphone	4000-008		

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART No.	DESCRIPTION	
		REPLACEMENT DATA	
Knob	2600-021	Tuning	
Knob	2600-024	Channel Selector	
Knob	2600-022	Volume	
Knob	2600-023	Squelch	
Cabinet	1700-034		

WIRING DATA

ITEM No.	TYPE	REPLACEMENT DATA				NOTES
		GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
SP1	3"x5" PM	4002-006			35A05	

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in Ten Colors
 Power Cord Use BELDEN No. 1765-B (6 Ft. Length)
 Use BELDEN No. 1725-K (7 1/2 Ft. Length)

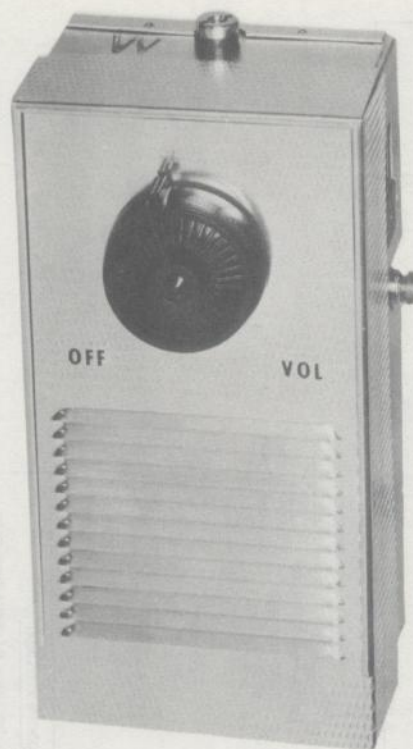
PHOTOFACT® Folder

with CIRCUITTRACE®

HEATH
MODEL GWW-30



REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713



HEATH
MODEL GWW-30

TRADE NAME	Heath Model GWW-30		
MANUFACTURER	Heath Co., A Subsidiary of Daystrom, Inc., Benton Harbor, Michigan		
TYPE SET	Battery Operated Transistorized Portable Citizens Band Transmitter-Receiver		
POWER SUPPLY	9 Volts DC	RATING	12MA @ 9 Volts DC (Receive) 25MA @ 9 Volts DC (Transmit)
TUNING RANGE	Any One of Citizens Band Channels 1 thru 23		

NOTICE

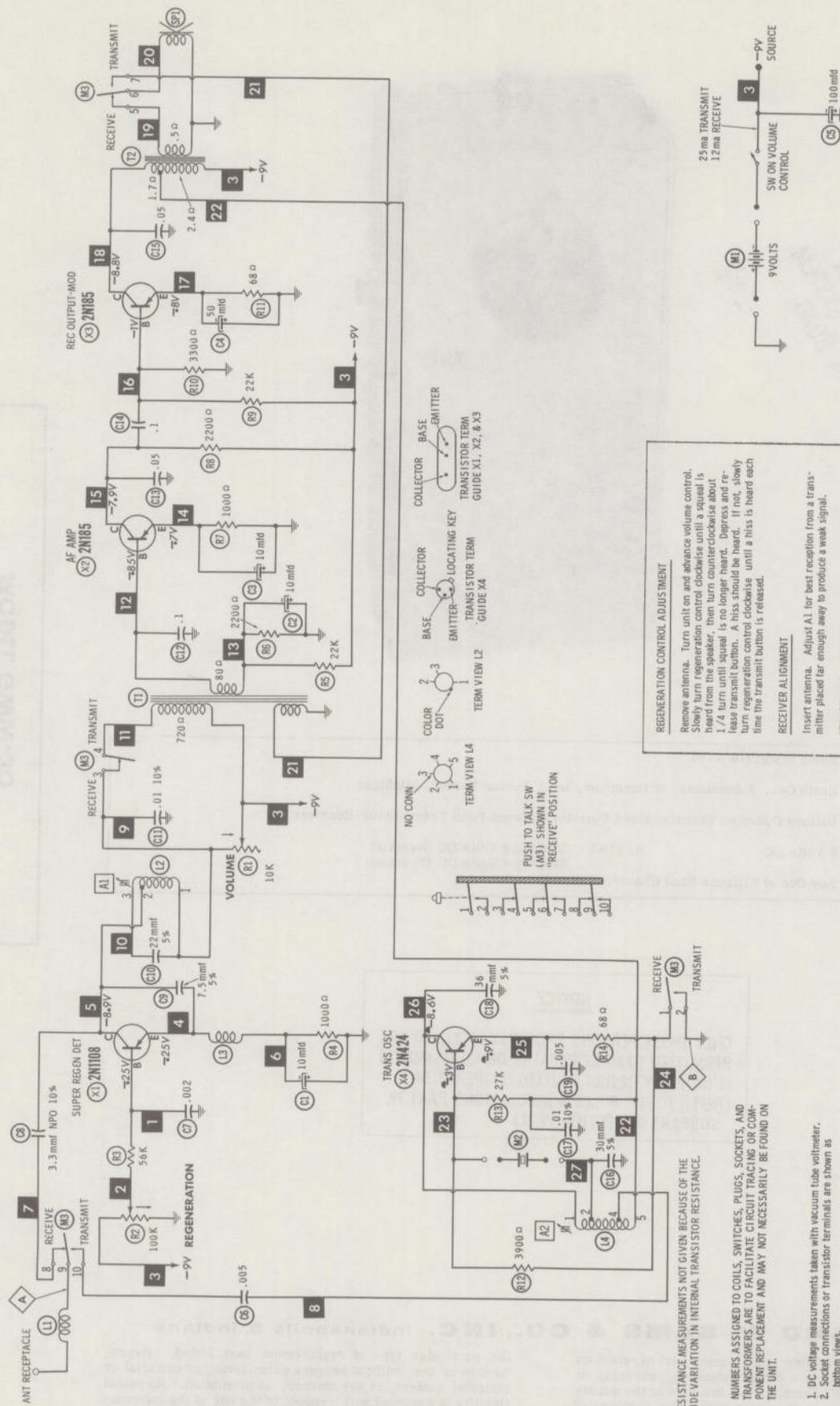
ONLY THOSE PERSONS PROPERLY LICENSED ARE
PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS
WHICH MAY RESULT IN ILLEGAL OPERATION.
(REFER TO FCC RULES & REGULATIONS PART 19,
SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



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HEATH
MODEL GWW-30

PRINTED BOARD

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA	
			RCA PART No.	RAYTHEON PART No.
X1	2N108	Superregen. Det.	2N412	
X2	2N185	AF Amplifier	2N633	
X3	2N185	Rec. Output-Mod.	2N633	
X4	2N424	Trans. Osc.		

A Howard W. Sams CIRCUITRACE[®] Photo

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
200 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOIT.	HEATH PART No.	REPLACEMENT DATA			
				AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	SPRAGUE PART No.
C1	10	10	25-54	PTT39	NLW10-15	MTI-5	MLV10-10
C2	10	10	25-54	PTT39	NLW10-15	MTI-5	MLV10-10
C3	10	10	25-54	PTT39	NLW10-15	MTI-5	MLV10-10
C4	50	10	25-55	PTT45	NLW50-10	MTI-16	MLV50-10
C5	100	10	25-56	PTT46	NLW100-12	MTI-19	MLV100-10

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	SPRAGUE PART No.
C6	.005		DI-5000	DM-502	H-0585	TG-D50
C7	.002		DI-2000	DD-202	BYA10D2	5HK-D20
C8	3.3 NPO 10%		NPO-D1 3.3	DTZ-3R3	C10V33C	10TCC-V33
C9	7.5 5%		1469-000022	TCZ-22	23R5Q22	MS-422
C10	22 5%		DI-10000	DA-104	H-05P1	10TS-S10
C11	.01 10%		C80V104AM	DD-503	H-0585	TG-S50
C12	.1		BPD-05	DA-104	H-05P1	TG-P10
C13	.05		C80V104AM	DD-503	H-0585	TG-S50
C14	.1		BPD-05	DA-104	H-05P1	TG-P10
C15	.05		1469-000003	TCZ-50	22R5Q3	MS-43
C16	30 5%		DI-10000	TCZ-36	22R5Q36	10TS-S10
C17	.01 10%		1469-000036	DM-502	H-05D5	MS-436
C18	36 5%		BPD-005			TG-D50
C19	.005					

CONTROLS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA		INSTALLATION NOTES
			HEATH PART No.	CLAROSTAT PART No.	
R1	10K	1/4	19-54	44S-10K-W	Volume & Switch Regeneration
R2	100K	1/4	10-109		

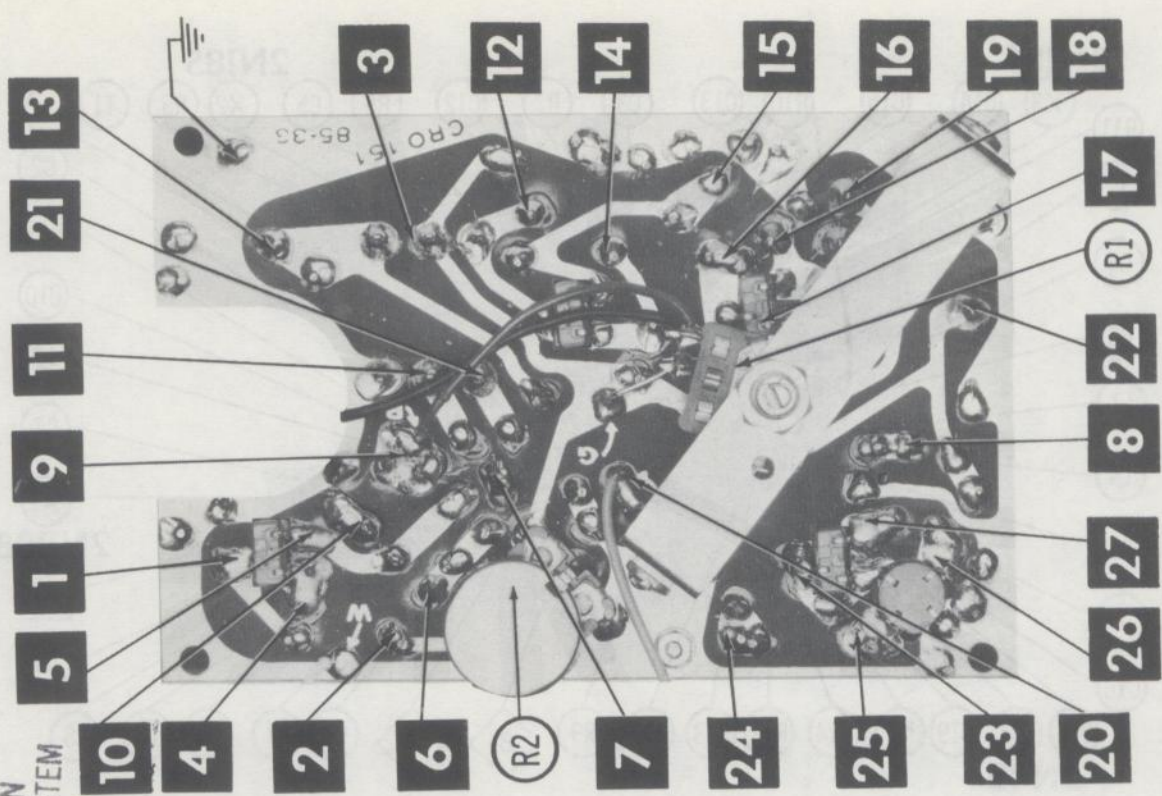
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA		REMARKS
			HEATH PART No.	CLAROSTAT PART No.	
R3	56K				
R4	1000K				
R5	22K				
R6	2200K				
R7	1000K				
R8	2200K				

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			NOTES
		HEATH PART No.	Miller PART No.	Stancor PART No.	
L1	Ant. Loading(2.2uh)	40-319	4606	RTC-8517	
L2	Rec. Osc.	40-317	BC-563	RTC-8517	
L3	RF Choke(15uh)	45-51	BC-566	RTC-8524	
L4	Transmitt Osc.	40-318			



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	REPLACEMENT DATA				NOTES
	HEATH PART No.	Merit PART No.	Stancor PART No.	Thoradson PART No.	
T1	SEC. 1 3.5 : 1				
	SEC. 2 : 1				
	40				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	REPLACEMENT DATA				NOTES
	HEATH PART No.	Merit PART No.	Stancor PART No.	Thoradson PART No.	
T2	6500 Tap 3-4Ω				
	③ 600Ω				

SPEAKER

ITEM No.	REPLACEMENT DATA			NOTES
	HEATH PART No.	QUAM PART No.	Triad PART No.	
SP1	3" PM 3-4Ω	401-37		

BATTERIES

ITEM No.	REPLACEMENT DATA				NOTES
	HEATH PART No.	BURGESS "A"	EVEREADY "B"	MALLORY "B"	
M1	9V		246	M-1602	

MISCELLANEOUS

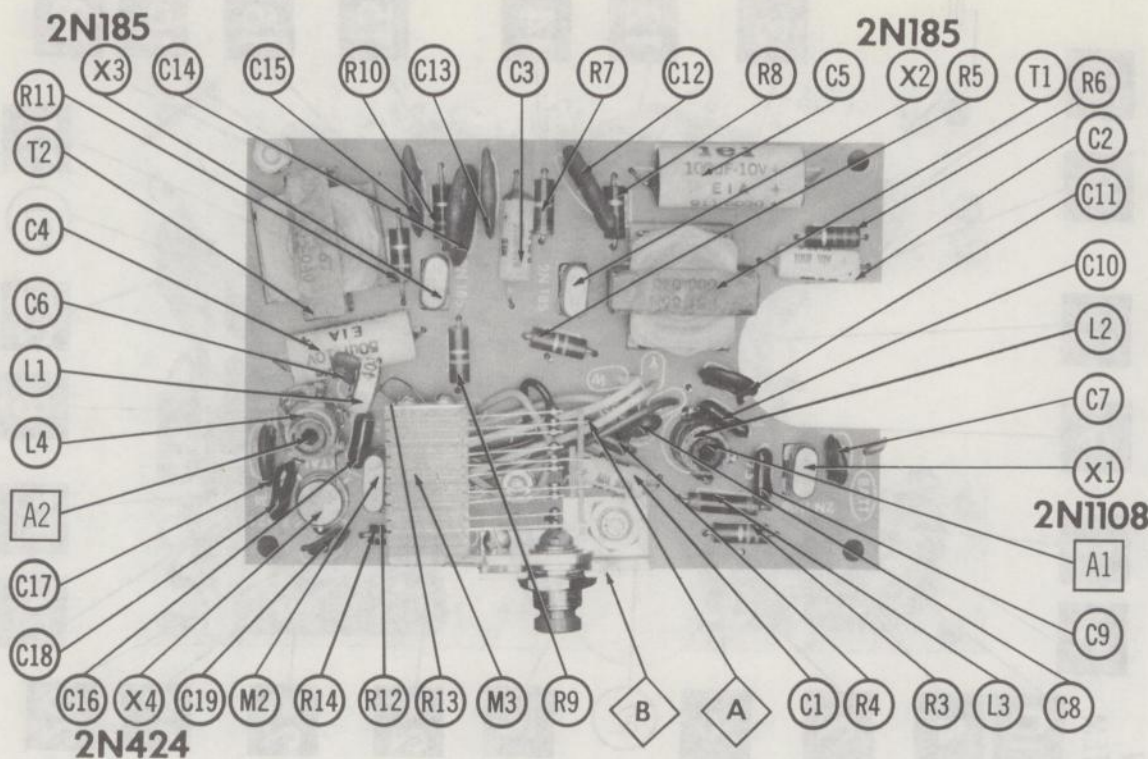
ITEM No.	PART NAME	HEATH PART No.	NOTES
M2	Crystal, Transmit	404-67	26.965MC Channel 1
		404-68	26.975MC Channel 2
		404-69	26.985MC Channel 3
		404-70	27.005MC Channel 4
		404-71	27.015MC Channel 5
		404-72	27.025MC Channel 6
		404-73	27.035MC Channel 7
		404-74	27.055MC Channel 8
		404-75	27.065MC Channel 9
		404-76	27.075MC Channel 10
		404-77	27.085MC Channel 11
		404-78	27.105MC Channel 12
		404-79	27.115MC Channel 13
		404-80	27.125MC Channel 14
		404-81	27.135MC Channel 15
		404-82	27.155MC Channel 16
		404-83	27.165MC Channel 17
		404-84	27.175MC Channel 18
		404-85	27.185MC Channel 19
		404-86	27.205MC Channel 20
		404-87	27.215MC Channel 21
		404-88	27.225MC Channel 22
		404-89	27.255MC Channel 23
M3	Switch	64-10	Push to talk (4 Section Pushbutton Type)
M4	Antenna Printed Board	142-35	40" Whip, Collapsible to 7 1/2"

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

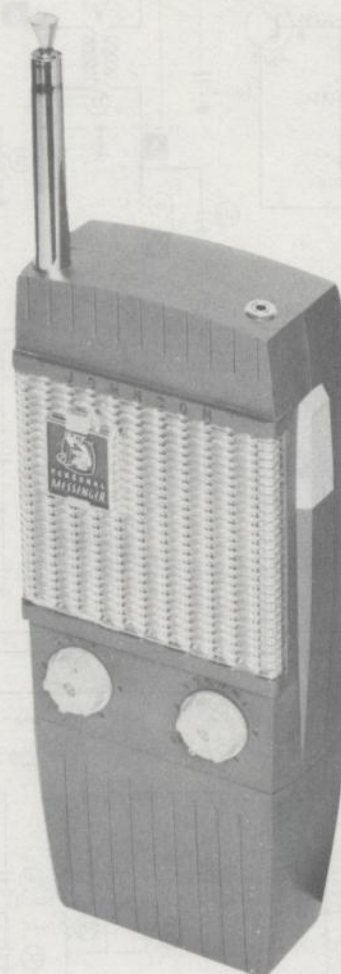
NAME	PART NO.	DESCRIPTION
Knob, Leather Case	462-109 95-4	Includes Strap

CHASSIS—TOP VIEW



WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors



REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

JOHNSON VIKING MODEL
PERSONAL MESSENGER (242-101-1)

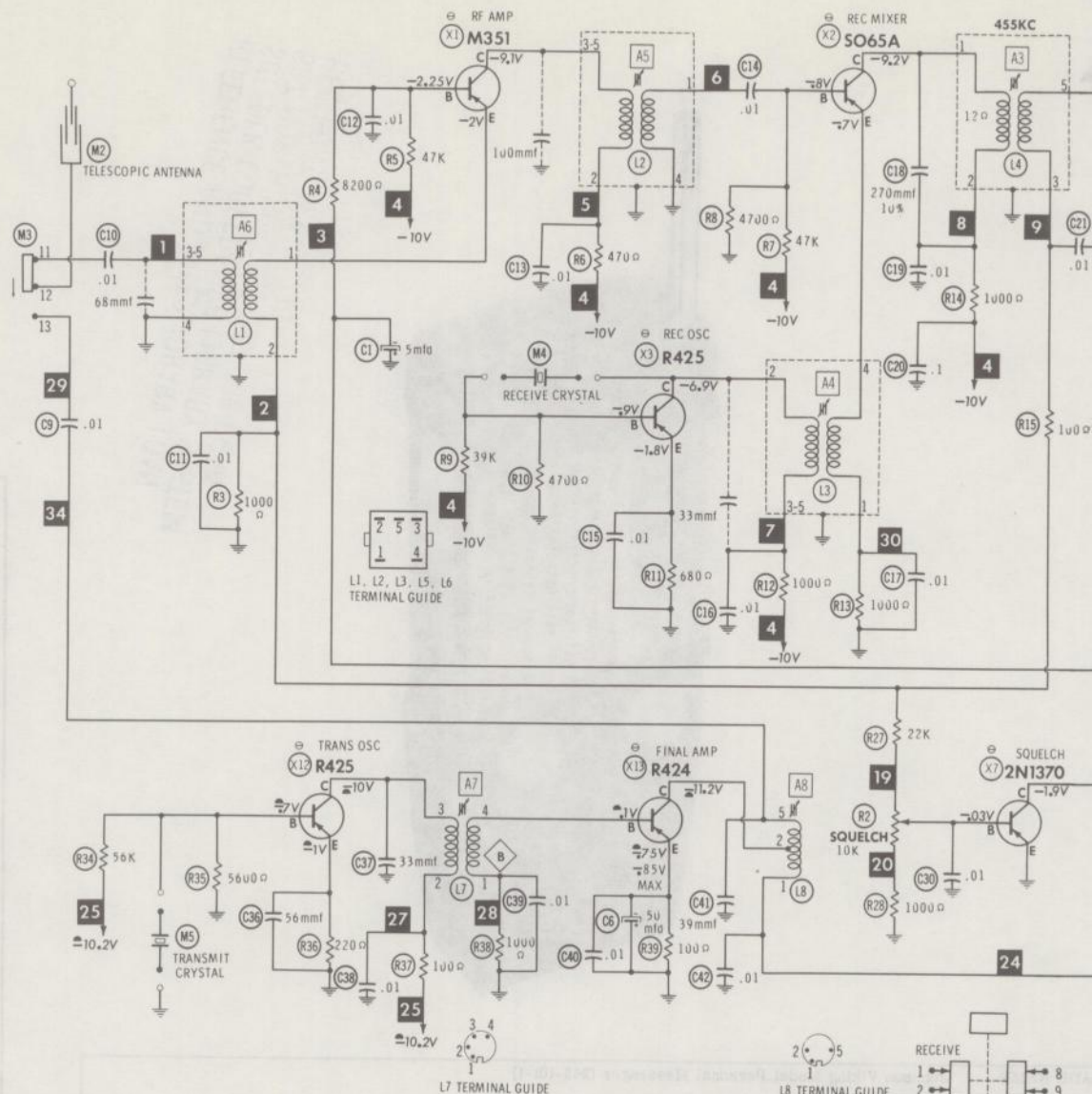
TRADE NAME	Johnson Viking Model Personal Messenger (242-101-1)		
MANUFACTURER	E. F. Johnson Co., Waseca, Minnesota		
TYPE SET	Battery Operated Single Channel Transistorized Portable Citizens Band Transmitter-Receiver		
POWER SUPPLY	12 Volts DC	RATING	Receive: 15MA @ 12 Volts DC (No Signal, Min. Volume) 20MA @ 12 Volts DC (Signal, Normal Volume) Transmit: 21MA @ 12 Volts DC (Unmodulated)
TUNING RANGE	Any one of Citizens Band Channels 1 thru 23		

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



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▲ TAKEN WITH RECEIVE-TRANSMIT SWITCH IN "TRANSMIT" POSITION.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

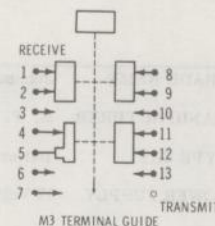
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

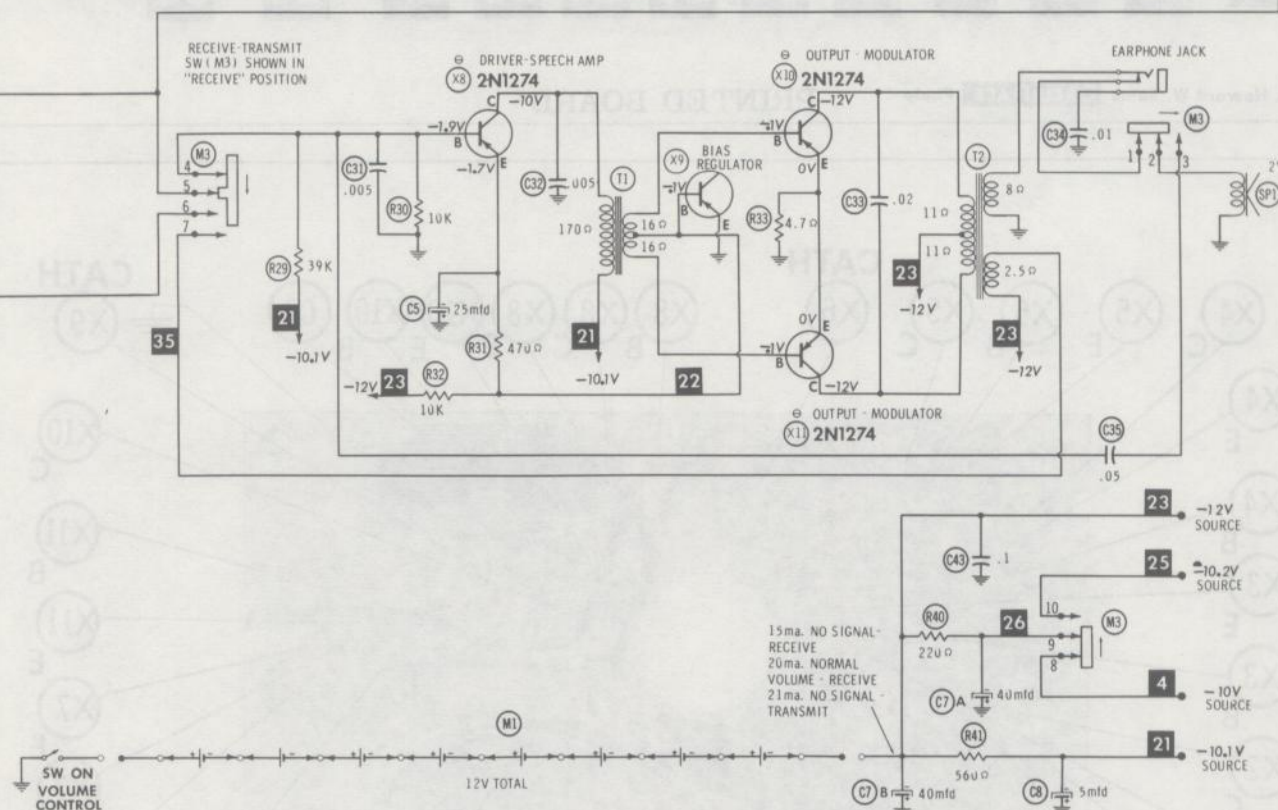
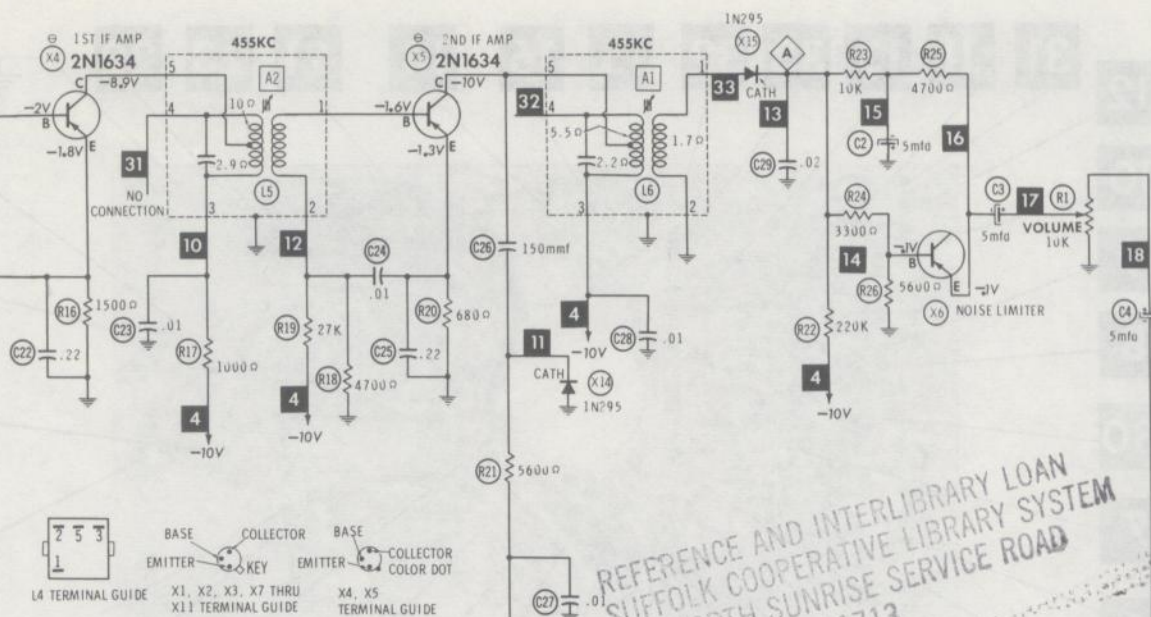
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

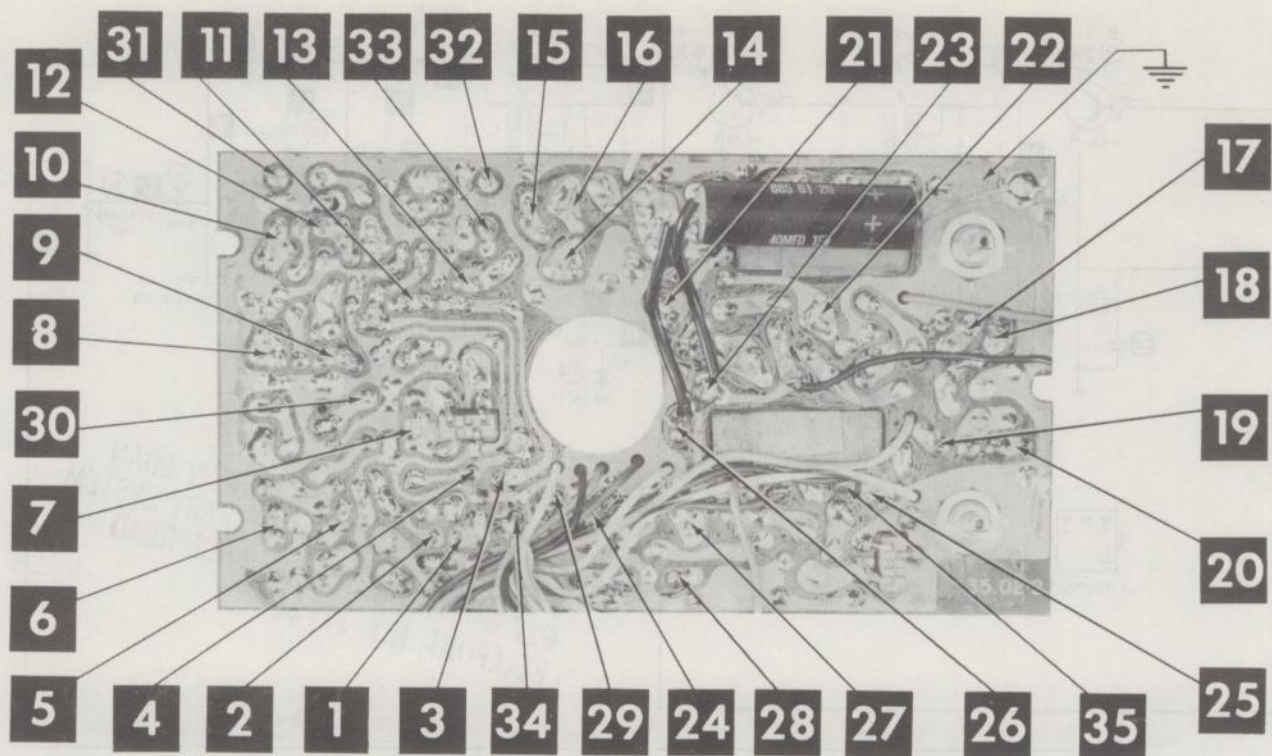
A PHOTOFACET STANDARD NOTATION SCHEMATIC with **Circuitrace**

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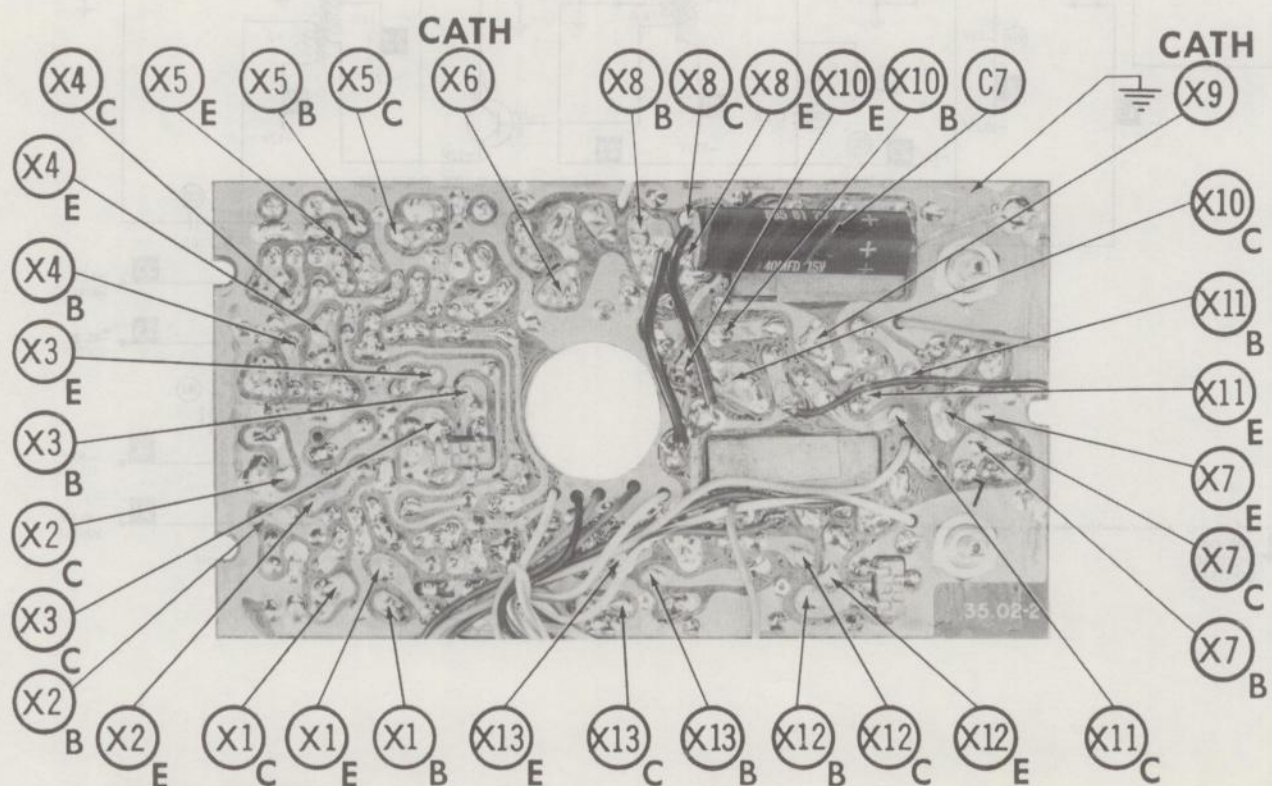


**JOHNSON VIKING MODEL
PERSONAL MESSENGER (242-101-1)**

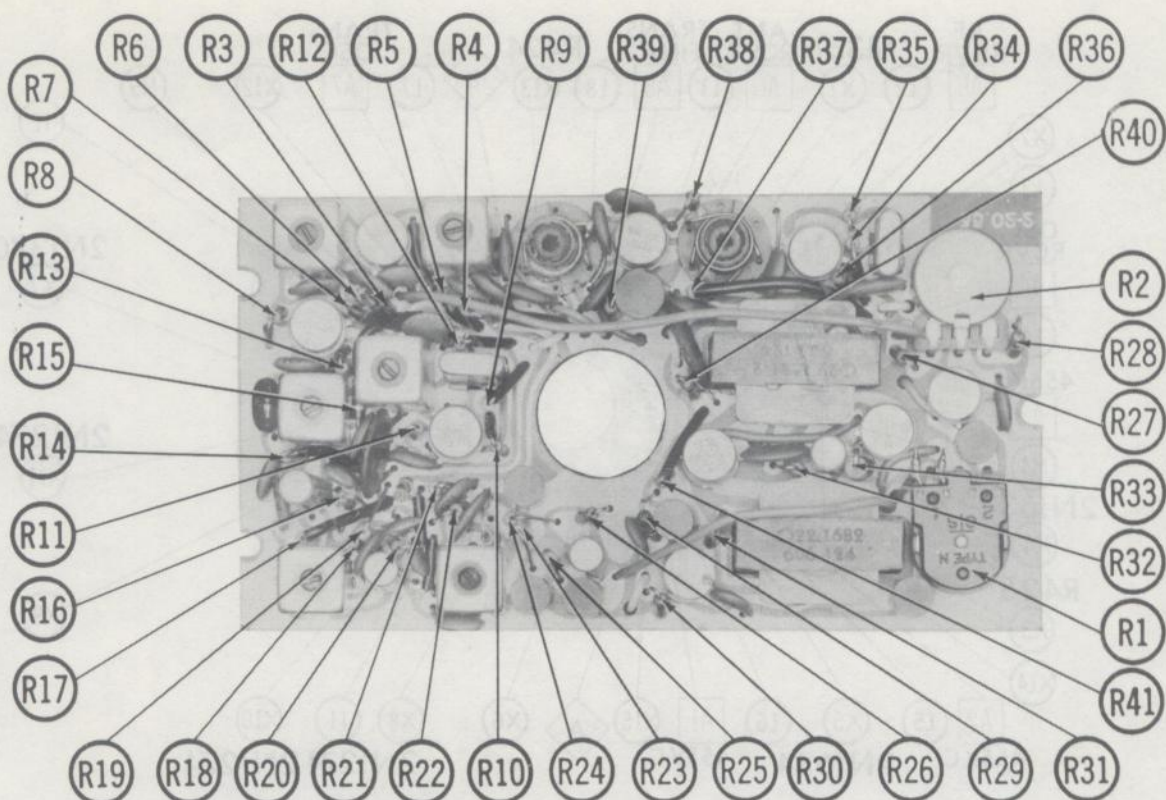


A Howard W. Sams **CIRCUITRACE®** Photo

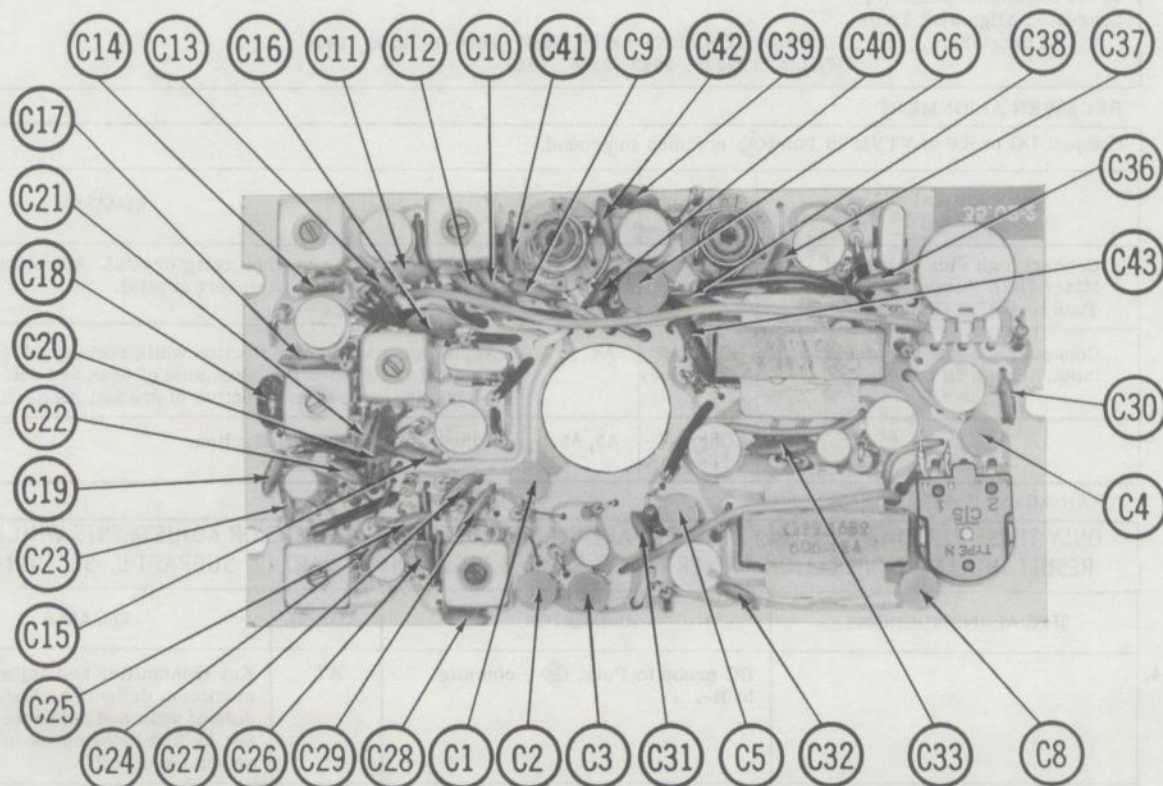
PRINTED BOARD



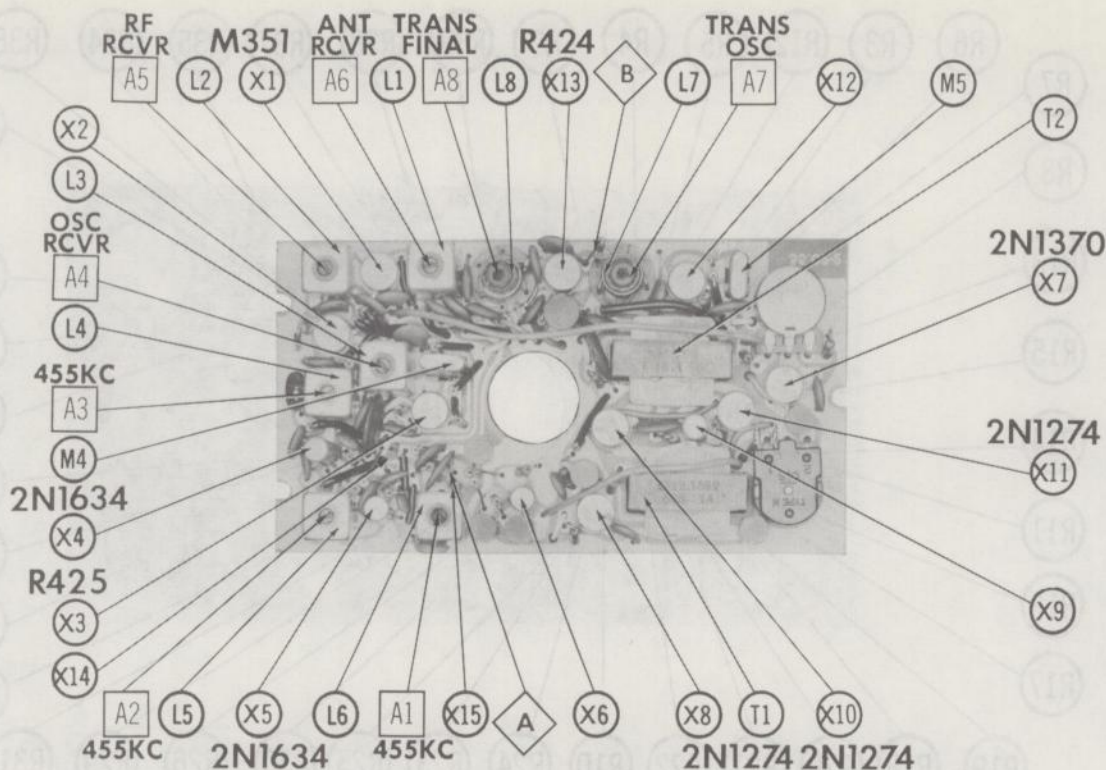
PRINTED BOARD — TRANSISTOR TERMINAL CONNECTIONS



CHASSIS TOP VIEW — RESISTOR IDENT.



CHASSIS TOP VIEW — CAPACITOR IDENT.



CHASSIS—TOP VIEW ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Best results will be achieved when adjusting A6 and A8 if the antenna normally used is connected, and the unit is as nearly in the cabinet as possible.

Suggested Alignment Tools:

A1 thru A8.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

RECEIVER ALIGNMENT

Connect DC probe of VTVM to Point **A**, common to ground.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	Connect high side to base of Mixer (X2), common to B-. Tune to 455KC (Unmod.).	Unused Channel	A1, A2, A3	Disable oscillator by unplugging crystal. Adjust for maximum deflection. Reinsert crystal.
2.	Connect high side to antenna input. Common to B-.	Channel Frequency	A4	Adjust for maximum deflection while rocking A4. Note rate of drop-off on each side of peak and set A4 just below peak in direction of gradual drop-off.
3.	"	Channel Frequency	A5, A6	Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
4.		DC probe to Point B , common to B-.	A7	Key transmitter and adjust. A7 for maximum deflection. Rock A7 to each side of peak and note rate of drop-off. Set A7 just before peak in direction of gradual drop-off.
5.	Connect dummy load and RF Wattmeter or antenna. Tune to center channel.	RF Wattmeter or Field Strength meter.	A9	Key transmitter and adjust for maximum indication.

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid 22AWG) 8524 (Stranded 22AWG) 8570 (Stranded 26AWG)	Available in 12 Colors
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TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	M351	RF Amplifier	2N1171		PNP
X2	TA2112*	RF Amplifier	2N1179		PNP
X3	SO65A	Rec. Mixer			PNP
X4	TA2113*	Rec. Mixer			PNP
X5	R425	Rec. Osc.	2N1178		PNP
X6	TA2114*	Rec. Osc.			PNP
X7	2N1634	1st IF Amp.	2N1634		PNP
X8	2N1638*	1st IF Amp.			PNP
X9	2N1634	2nd IF Amp.	2N1634		PNP
X10	2N1638*	2nd IF Amp.			PNP
X11	22.3903 #	Noise Limiter	1N2326		PNP
X12	2N1370	Squelch	2N406	2N362	PNP
X13	2N406*	Squelch			PNP
X14	2N1274	Driver-Speech Amp.	2N591	2N360	PNP
X15	2N591*	Driver-Speech Amp.			PNP
X16	22.3902 #	Bias Regulator	1N2326		PNP
X17	2N1274	Output-Modulator	2N217	2N360	PNP
X18	2N217*	Output-Modulator			PNP
X19	2N1274	Output-Modulator	2N217	2N360	PNP
X20	2N217*	Output-Modulator			PNP
X21	R425	Trans. Osc.	2N1178		PNP
X22	TA2115*	Trans. Osc.			PNP
X23	R424	Final Amp.	2N1177		PNP
X24	TA2116*	Final Amp.			PNP

* Alternate

Johnson Viking Part No.

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES	NOTES
			RCA PART No.	SARKES TARZIAN PART No.		
X14		22.3901			1N295	AVC (1N295)
X15		22.3901			1N295	Detector (1N295)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	Johnson Viking PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	5	15	22.1734-1	BCD15005	ECPB405	MTI-3	PET1535	MLV5-15
C2	5	15	22.1734-1	BCD15005	ECPB405	MTI-3	PET1535	MLV5-15
C3	5	15	22.1734-1	BCD15005	ECPB405	MTI-3	PET1535	MLV5-15
C4	5	15	22.1734-1	BCD15005	ECPB405	MTI-3	PET1535	MLV5-15
C5	25	3	22.1734-4	BCD3025	ECPB411	MTI-13	TT3X25	MLV25-3
C6	50	3	22.1734-7	BCD3050	ECPB15		TT3X50	MLV50-3
C7A	40	15	22.1734-6	PTT71	ECPAP12	MTI-16	TT15X40	MLV50-15
C7B	40	15		PTT71		MTI-16	TT15X40	MLV50-15
C8	5	15	22.1734-1			MTI-3		MLV5-15

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.
C9	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C10	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C11	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C12	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C13	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C14	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C15	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C16	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C17	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C18	270 10%			TCZ-270	5R5T27	CCD-271	CNO-327	MS-327
C19	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C20	.1		C80V104AM	DA-104	H-05P1		TA-010	TG-P10
C21	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C22	.22 3V			UK-224	HCC3224P			HY-125
C23	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C24	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C25	.22 3V			UK-224	HCC3224P			HY-125
C26	150		DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C27	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C28	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C29	.02		C80V203AM	DDM-203	H-05S2	CCD-203	TA-120	TG-S20
C30	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C31	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C32	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C33	.02		C80V203AM	DDM-203	H-05S2	CCD-203	TA-120	TG-S20
C34	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C35	.05		C80V503AM	DDA-503	H-05S5		TA-150	TG-S50
C36	56		DI-56	DD-560	L10Q56	CCD-560	GP456	10TS-Q56
C37	33		DI-33	DD-330	L10Q33	CCD-330	GP433	10TS-Q33
C38	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C39	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C40	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C41	39		DI-39	DD-390	L10Q39	CCD-390	GP439	10TS-Q39
C42	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C43	.1		C80V104AM	DA-104	H-05P1		TA-010	TG-P10

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			Johnson Viking PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	10K	22.1761				
R2	Squelch	10K	22.1762				

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R3	1000Ω				R23	10K			
R4	8200Ω				R24	3300Ω			
R5	47K				R25	4700Ω			
R6	470Ω				R26	5600Ω			
R7	47K				R27	22K			
R8	4700Ω				R28	1000Ω			
R9	39K				R29	39K			
R10	4700Ω				R30	10K			
R11	680Ω				R31	470Ω			
R12	1000Ω				R32	10K			
R13	1000Ω				R33	4.7Ω			
R14	1000Ω				R34	56K			
R15	100Ω				R35	5600Ω			
R16	1500Ω				R36	220Ω			
R17	1000Ω				R37	100Ω			
R18	4700Ω				R38	1000Ω			
R19	27K				R39	100Ω			
R20	680Ω				R40	220Ω			
R21	5600Ω				R41	560Ω			
R22	220K								

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		Johnson Viking PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.		
L1	Antenna	22.1732-11						
L2	RF Receiver	22.1732-12						
L3	Osc. Receiver	22.1732-13						
L4	1st IF	22.1791-4						
L5	2nd IF	22.1791-5						
L6	3rd IF	22.1791-6						
L7	Osc. Transmitter	22.1749-2						
L8	Final	22.1749-1						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
			Johnson Viking PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	PRI.	SEC.	22,1682					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
			Johnson Viking PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	900Ω	90-100Ω	22,1681-2					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
				Johnson Viking PART No.	QUAM PART No.	
SP1	2"	PM	90-100Ω	22.1764		

BATTERIES

ITEM No.	VOLTAGE	Johnson Viking PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1½V		930		1015		M-15R	8 Required	

MISCELLANEOUS

ITEM No.	PART NAME	Johnson Viking PART No.	NOTES
M2	Antenna	22.1793	Collapsible Whip Transmit-Receive (Spring Loaded Momentary Contact Slide Type) * Catalog Number, includes one receive and one transmit crystal for Channel 1. For other channels, replace last two digits with channel number. For Using Power from Cigarette Lighter on 12V Automobile
M3	Switch	22.1792	
M4	Crystal, Receive	250-1001 *	
M5	Crystal, Transmit	250-803	
	Earphone Adaptor	250-807	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	32.127-2	Includes Speaker Cover and Plastic Moisture Barrier
Button	32.126	
Cabinet Front	23.1522	
Cabinet Rear	23.1521	
Case, Carrying	250-806	



REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713



**LAFAYETTE MODELS HE-20AWX
(Series 3, 4, 5), HE-20WX (Series 3)**

TRADE NAME	Lafayette Models HE-20 AWX Series 3, 4, 5; HE-20 WX Series 3
SUPPLIER	Lafayette Radio, 165-08 Liberty Ave., Jamaica 33, N. Y.
TYPE SET	AC-Battery Operated 7 Tube Citizens Band Transmitter-Receiver
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	51 Watts, .5 Amp. @117 Volts AC (or) 4.3 Amp. @12.6 Volts DC
TUNING RANGE	Any 4 of Citizens Band Channels 1 thru 23 (Receiver may be crystal controlled or manually tuned)

NOTICE

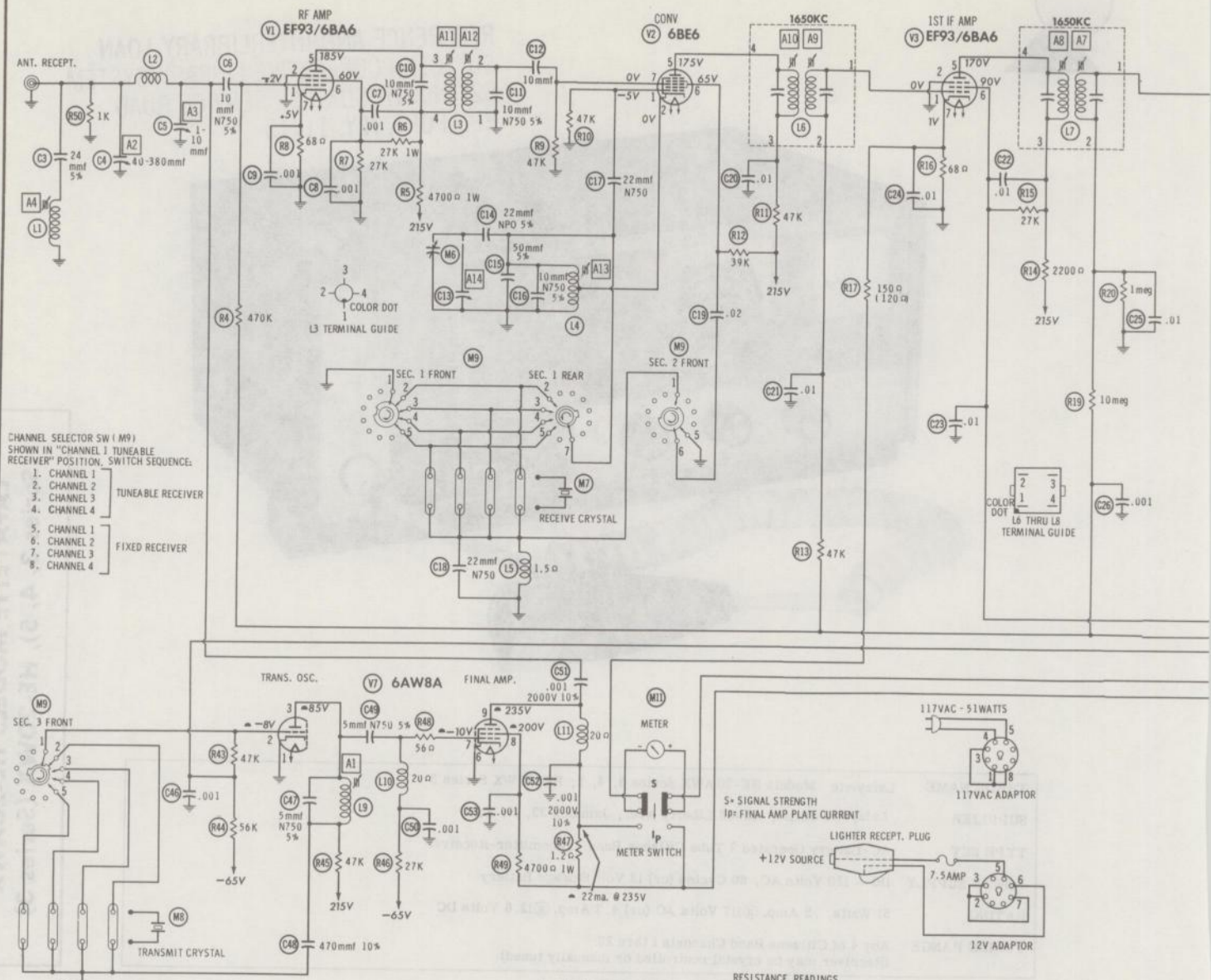
ONLY THOSE PERSONS PROPERLY LICENSED ARE
PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS
WHICH MAY RESULT IN ILLEGAL OPERATION.
(REFER TO FCC RULES & REGULATIONS PART 19,
SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ984

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CHANNEL SELECTOR SW (M9)
SHOWN IN "CHANNEL 1 TUNEABLE
RECEIVER" POSITION, SWITCH SEQUENCE:

POSITION	SWITCH SEQUENCE
1. CHANNEL 1	TUNEABLE RECEIVER
2. CHANNEL 2	TUNEABLE RECEIVER
3. CHANNEL 3	TUNEABLE RECEIVER
4. CHANNEL 4	TUNEABLE RECEIVER
5. CHANNEL 1	FIXED RECEIVER
6. CHANNEL 2	FIXED RECEIVER
7. CHANNEL 3	FIXED RECEIVER
8. CHANNEL 4	FIXED RECEIVER

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.711).

- DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common ground.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACIT STANDARD NOTATION SCHEMATIC

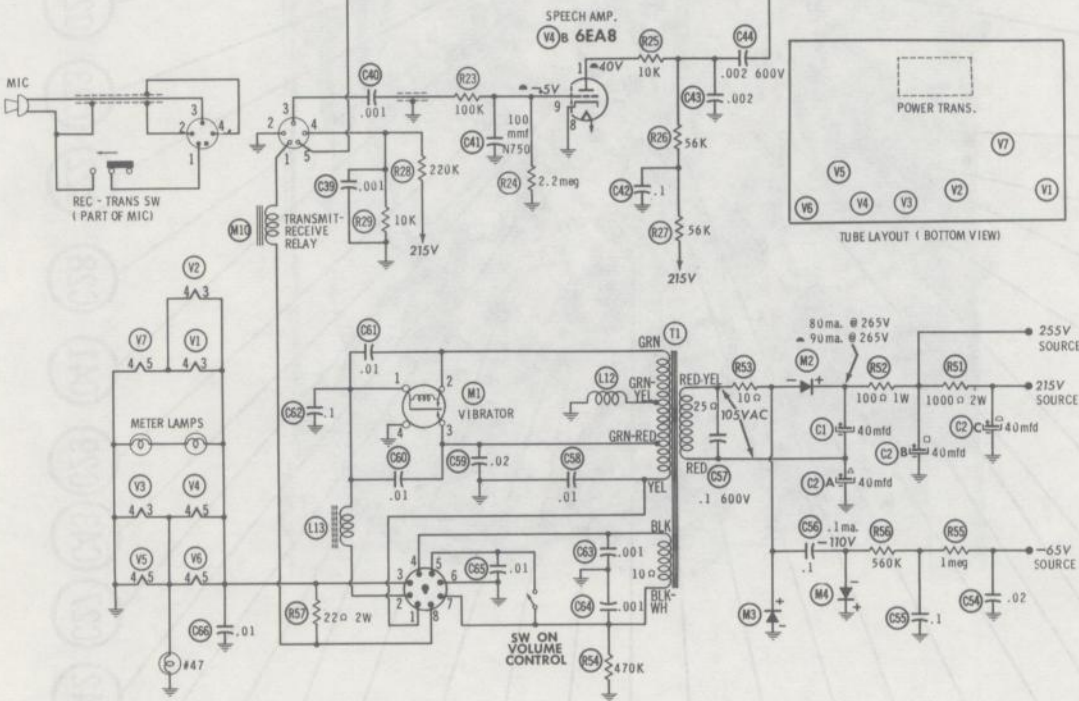
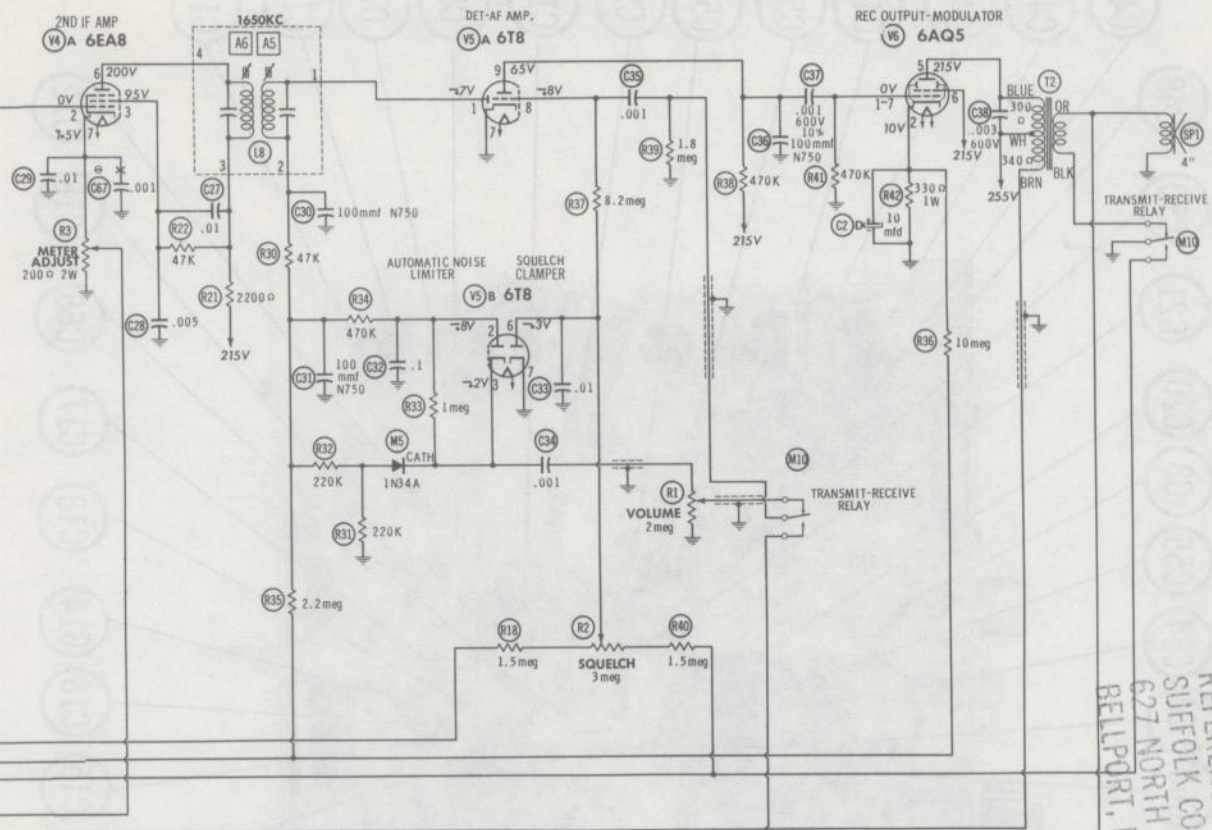
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RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BA6	2.3meg	0.0	FIL	FIL	15800.0	130K	68.0		
V2	6BE6	47K	.2.0	FIL	FIL	148K	140K	47K		
V3	EF93 6BA6	1.9meg	0.0	FIL	FIL	13300.0	130K	68.0		
V4	6EA8	1123K	1meg	150K	FIL	FIL	13300.0	200.0	0.0	2.2meg
V5	6T8	400K	600K	240K	FIL	FIL	2meg	0.0	10meg	1470K
V6	6AQ5	NC	330.0	FIL	FIL	1400.0	11100.0	470K		
V7	6AW8A	0.0	47K	148K	FIL	FIL	0.0	82K	15100.0	1440.0

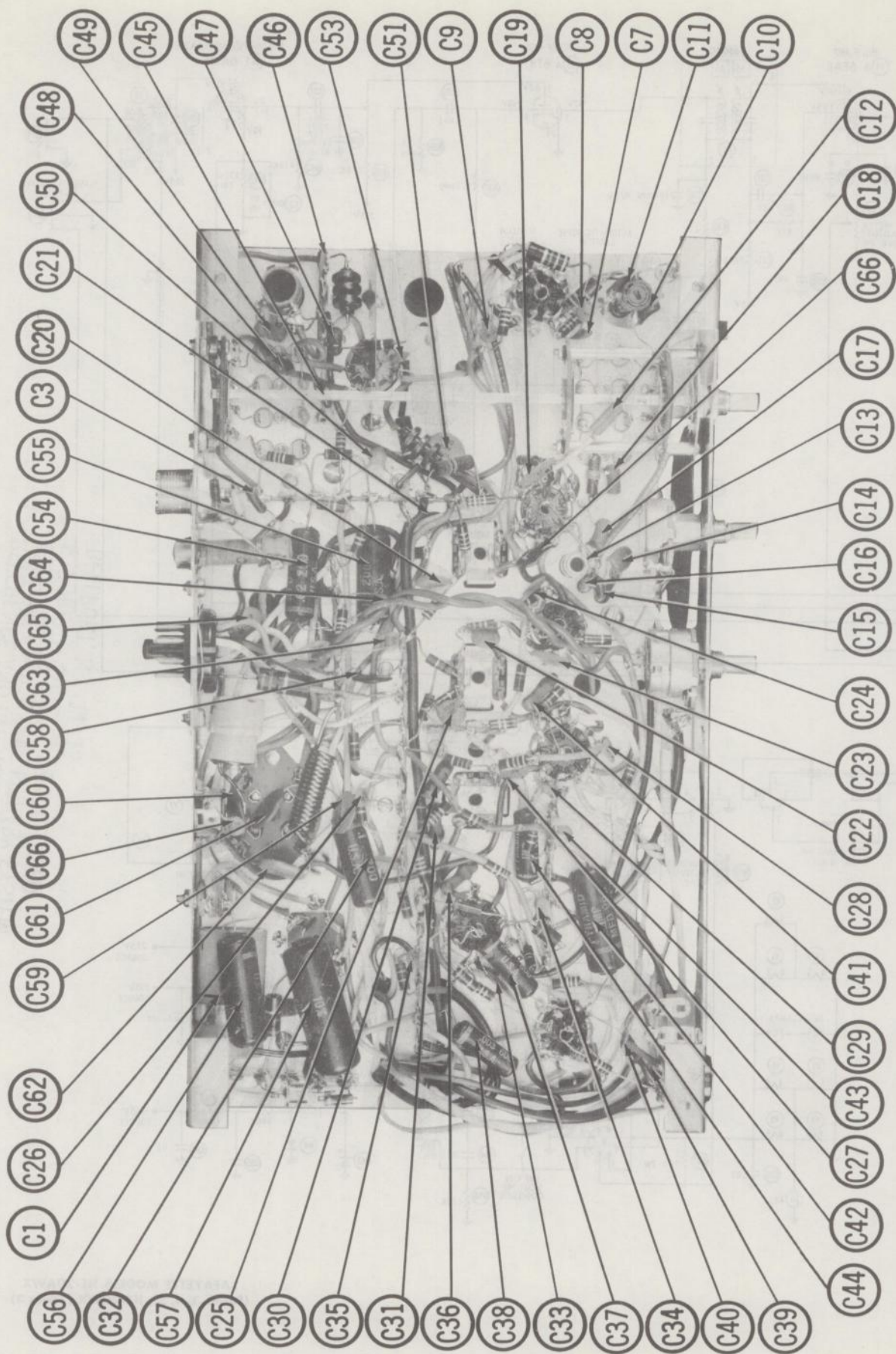
ALL MEASUREMENTS MADE IN "RECEIVE" POSITION WITH METER DISCONNECTED UNLESS OTHERWISE DESIGNATED.
 * MEASURED IN "TRANSMIT" POSITION WITH MICROPHONE DISCONNECTED.
 † MEASURED FROM OUTPUT OF M2.

NC NO CONNECTED

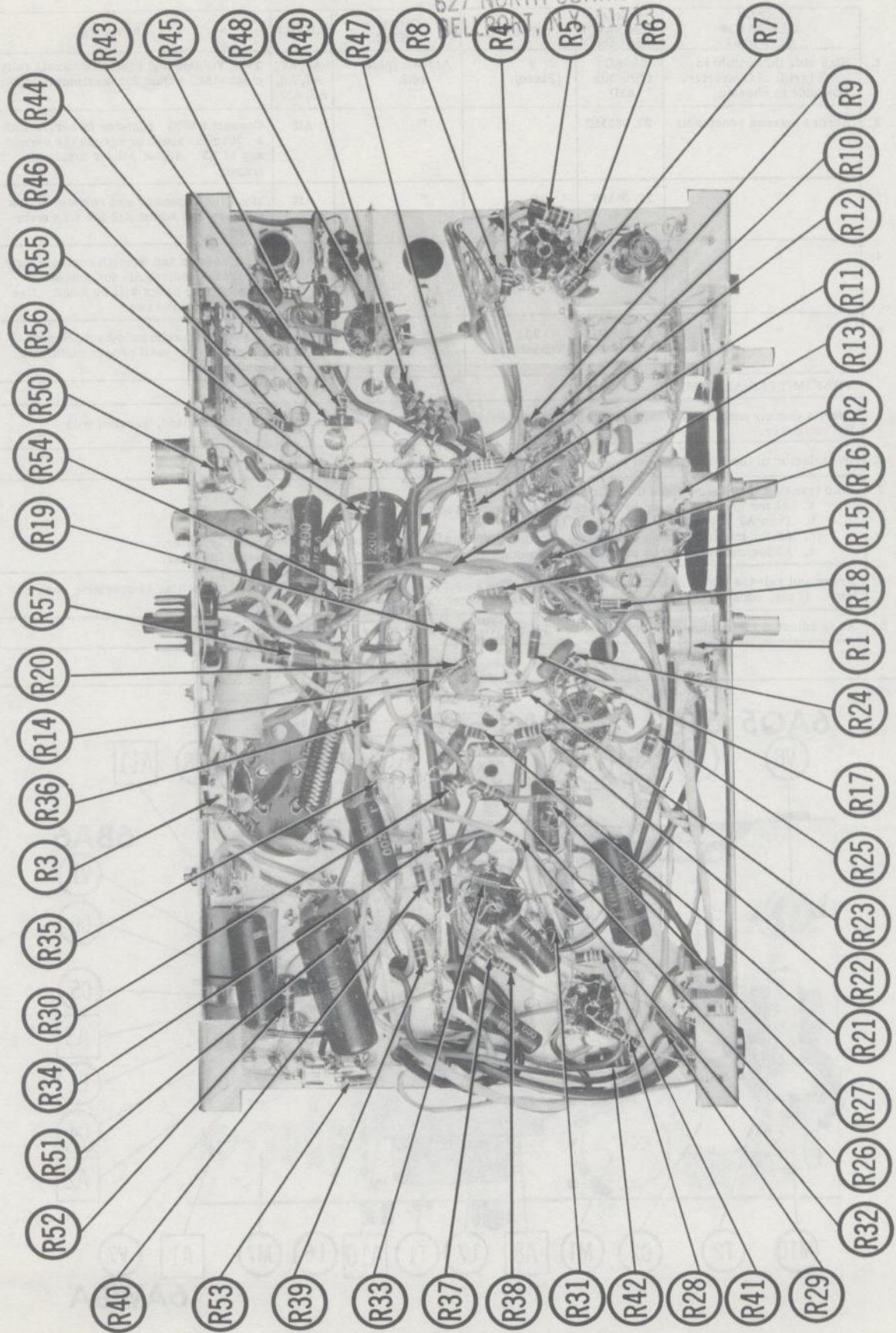


LAFAYETTE MODELS HE-20AWX
(Series 3, 4, 5), HE-20WX (Series 3)

REFERENCE AND INTERLIBRARY LOAN
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BELLPORT, N.Y. 11713



CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.

ALIGNMENT INSTRUCTIONS

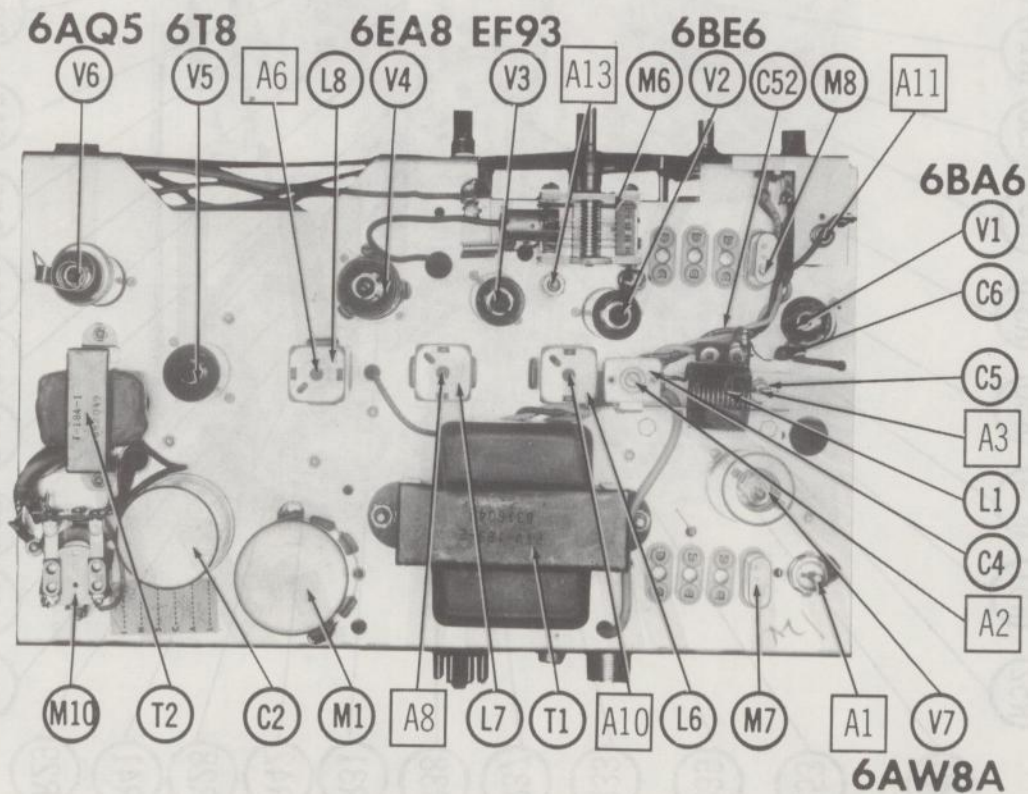
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	1650KC (400% 30% AM)	9 (Fixed)	Across voice coil.	A5, A6, A7, A8, A9, A10	Turn Volume and Squelch controls fully clockwise. Adjust for maximum output.
2.	Across antenna receptacle.	27.065MC	"	"	A11	Connect a 100Ω resistor in series with a .005mfd capacitor across the secondary of L3. Adjust A11 for maximum output.
3.	"	27.065MC	9	"	A12	Move the capacitor and resistor to the primary and adjust A12 for maximum output.
4.	"	26.965MC	1 (Tuneable)	"	A13	With Volume and Squelch controls fully clockwise, adjust A13 for maximum output. Two peaks will be found. Use the higher of the two.
5.	"	27.255MC	23 (Tuneable)	"	A14	Adjust for maximum output. Repeat Steps 4 and 5 until proper calibration is obtained.

TRANSMITTER ALIGNMENT

1. Insert a dummy antenna (47 lamp or 52Ω 5W non-inductive load) into antenna receptacle. If load is used, parallel with RF voltmeter.
2. Set selector to the Fixed Channel position having Channel 9 crystal.
3. Hold transmit button and make the following adjustments:
 - a. A1 for maximum lamp brilliance or maximum voltage.
 - b. Turn A2 fully tight, then back off 1/2 turn.
 - c. A3 for maximum lamp brilliance, maximum voltage, or minimum dip on front panel Ip meter.
 - d. A2 for maximum lamp brilliance, maximum voltage, or minimum dip on front panel Ip meter.
4. Press and release transmit button several times. The output indicator should show that the transmitter is operating each time. If not, back out A1 1/4 turn at a time until transmitter operates each time the button is pressed.
5. A4 is adjusted for minimum interference to TV receivers on the 3 lower TV channels of the area.



CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	EF93/6BA6	V5	Det., -ANL-Squelch Clamper - AF Amplifier	6T8
V2	Converter	6EF9	V6	Rec. Output-Modulator	6AQ5
V3	1st IF Amplifier	EF93/6BA6	V7	Trans., Osc., -Final Amp.	6AW8A
V4	2nd IF Amp. -Speech Amp.	6EA6 (8UEA)*			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					SPRAGUE PART No.
	CAP.	VOLT.	LAFAYETTE PART No.	AEROVOX PART No.	CORNELL-DUBILLET PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	
C1	40	200		PRSI580	BR4025	Q71-14	TC58	TVA-1511
C2A	40	200		AFH3-43	C0340	XC4-22	FP420, 36	TVA-1785
B	40	350		PRSI580	BR4035			TVA-1811
C	40	350						
D	10	50						

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	GORRIE L DUBILIER PART No.	ELMENC PART No.	MALLYORY PART No.	SPRAGUE PART No.
C3	24 5%		1469-000094	TC7-24	22R5Q24	CM-19B-2401	CNO-425	MS-424
C4	40-380			899-10	C10QUU	CCTN-100	CN7-410	10TCU-Q10
C5	1-10			TCN-10	BYA10DI	CCD-102	B-210	5HK-D10
C6	10 N750 5%		N750-SI 10	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C7	.001		BPD-.001	DD-102	BYA10DI	CCD-102	CN7-410	10TCU-Q10
C8	.001		BPD-.001	TCN-10	C10QUU	CCTN-100	CN7-410	10TCU-Q10
C9	10 N750 5%		N750-SI 10	TCN-10	C10QUU	CCTN-100	CN7-410	10TCU-Q10
C10	10 N750 5%		N750-SI 10	TCN-10	C10QUU	CCTN-100	CN7-410	10TCU-Q10
C11	10 N750 5%		N750-SI 10	TCN-10	C10QUU	CCTN-100	CN7-410	10TCU-Q10
C12	10		1469-000001	TC7-10	22R5Q1	CM-19B-100M	MS-41	
C13	22 NPO 5%			DTZ-22	C10Q25C	CNO-422	10TC-Q22	
C14	50 5%		1469-000005	TCN-50	22R5Q25	CM-19B-500J	MS-45	
C15	10 N750 5%		N750-SI 10	TCN-10	C10QUU	CCTN-100	CN7-410	10TCU-Q10
C16	22 N750 5%		N750-SI 22	TCN-22	C10Q22U	CCTN-22	CN7-422	10TCU-Q22
C17	22 N750		N750-SI 22	TCN-22	C10Q22U	CCTN-22	CN7-422	10TCU-Q22
C18	22 N750		N750-SI 22	TCN-22	C10Q22U	CCTN-22	CN7-422	10TCU-Q22
C19	.02		BPD-.02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C20	.01		BPD-.01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C21	.01		BPD-.01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C22	.01		BPD-.01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C23	.01		BPD-.01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C24	.01		BPD-.01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C25	.01		BPD-.01	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C26	.001		BPD-.001	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C27	.01		BPD-.01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C28	.005		BPD-.005	DD-502	BYA10DS	CCD-502	B-250	5HK-D50
C29	.01		BPD-.01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C30	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C31	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C32	.1 200V		P288N-1	DF-104	CUB2PI	2DF-3-104	GEM-201	27M-P10
C33	.001		BPD-.001	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C34	.001		BPD-.001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C35	.001		BPD-.001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C36	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C37	.001 600V 10%		P468DN-10%	D6-302	CUB6D3	6DP-1-102	GEM-1621	61M-D10
C38	.003 600V		P688N-003	DD-102	BYA10DI	CCD-102	GEM-423	61M-D30
C39	.001		BPD-.001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C40	.001		BPD-.001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C41	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C42	.1 400V		P468N-1	DF-104	CUB4PI	4DP-3-104	GEM-401	41M-P10
C43	.002		BPD-.002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C44	.002 600V		P688N-002	D6-202	CUB6D2	6DP-1-202	GEM-622	61M-D20
C45	180 10%		1469-00002	TCZ-200	22R3T2	CM-19B-201K	MS-32	
C46	.001		BPD-.001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C47	5 N750 5%		N750-SI 5	TCN-5	C10V3U	CCTN-050	CN7-550	10TCU-Y50
C48	470 10%		1469-000047	5RS147	CCTN-050	CM-19B-471K	MS-347	
C49	5 N750 5%		N750-SI 5	TCN-5	C10V3U	CCTN-050	CN7-550	10TCU-Y50
C50	.001 2000V 10%		BPD-.001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C51								

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					SPRAGUE PART No.
			AEROVOX PART No.	CENTRALAB PART No.	CONTECH PART No.	ELMENCOR PART No.	MALLOY PART No.	
C52	.001 2000V 10%		BPD-.001	DD-.102	BYA10DI	CCD-102	B-210	5HK-D10
C53	.001 200V		P288N-.02	DD-.103	CUBS2	4DP-2-203	GEM-412	2TM-S20
C54	.001 200V		P288N-.1	DF-.104	CUB3P1	2DP-3-104	GEM-201	4TM-P10
C55	.1 400V		P488N-.1	DF-.104	CUB4P1	4DP-3-104	GEM-401	6TM-P10
C57	.1 800V		P488N-.1	DF-.104	CUB4P1	6DP-4-104	GEM-501	5HK-S10
C58	.001		BPD-.01	DD-.103	BYA10S1	CCD-103	B-110	5HK-S20
C59	.02		BPD-.02	DD-.203	BYBMS2	CCD-203	B-120	5HK-S30
C60	.01		BPD-.01	DD-.103	BYA10S1	CCD-103	B-110	5HK-S40
C61	.01		BPD-.01	DD-.103	BYA10S1	CCD-103	B-110	5HK-S50
C62	.1 50V		BPD-.01	DDA-.104	H-05P1	4DP-2-204	T-A-100	5HK-S10
C63	.001		BPD-.001	DD-.102	BYA10DI	CCD-102	B-210	5HK-D10
C64	.001		BPD-.001	DD-.103	BYA10DI	CCD-102	B-210	5HK-S10
C65	.01		BPD-.01	DD-.103	BYA10S1	CCD-103	B-110	5HK-S10
C66	.01		BPD-.01	DD-.103	BYA10S1	CCD-103	B-110	5HK-S10
C67	.001	Note 1	BPD-.001	DD-.102	BYA10DI	CCD-102	B-210	5HK-D10

CONTROLS

Note 1. Not used in some versions.

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	LAFAYETTE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
RIA	2meg		V-332A-2	B-76	A47-lmg-Z	Q13-139	US5	Volume power Off-On
B	Shunt			Not Reg.	FS-3	Not Reg.	US-26	
B	Shunt			KR-1	SW-12	76-1		

TRANSFORMER (AUDIO OUTPUT)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	470K				R31	220K			
R5	47000 1W				R32	220K			
R6	27K 1W				R33	1meg			
R7	27K				R34	470K			
R8	68K				R35	2.2meg			
R9	47K				R36	10meg			
R10	47K				R37	8.2meg			
R11	47K				R38	470K			
R12	39K				R39	1.8meg			
R13	47K				R40	1.5meg			
R14	22000				R41	470K			
R15	27K				R42	3300 1W			
R16	68K				R43	47K			
R17	150K				R44	56K			
R18	1.5meg				R45	47K			
R19	10meg				R46	27K			
R20	1meg				R47	1.2K			
R21	22000				R48	56K			
R22	47K				R49	47000 1W			
R23	100K				R50	1000K			
R24	2.2meg				R51	10000 2W			
R25	10K				R52	1000 1W			
R26	56K				R53	10K			
R27	56K				R54	470K			
R28	220K				R55	1meg			
R29	10K				R56	560K			
R30	47K				R57	22K 2W			

* Alternate Value.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	SEC. 2	LAFAYETTE PART No.	Meritt PART No.	Stancor PART No.	Thordarson PART No.	
T1	117V @ -5A or 12.6VCT @ 2.5A	105V @ -3A AC	12.6V @ 1.8A (AC Only)	PTV-183-2				

SPEAKER

VIBRATOR

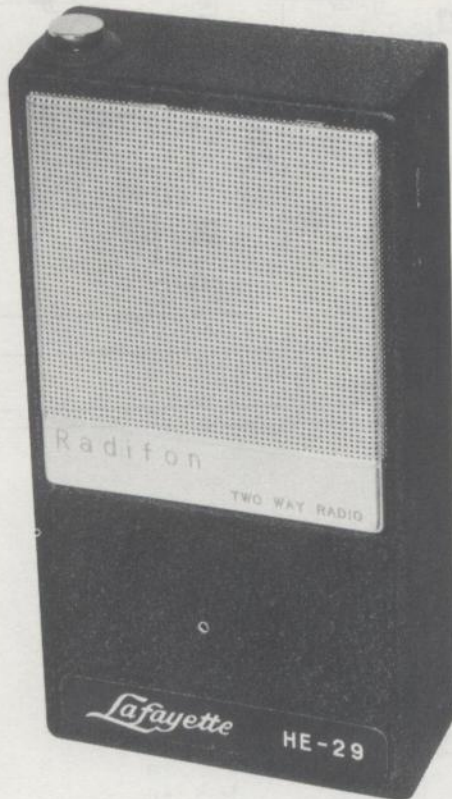
POWER RECTIFIERS

SIGNAL DIODES

MISCELLANEOUS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors
Power Cord	8524 Stranded Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 1769-B (6 Ft. Length)
Bonding Strap	1725-K (7½ Ft. Length)
Use BELDEN No. 8885	
Use BELDEN No. 8661	



NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19 SUBPART D, SECTION 19.71).

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

LAFAYETTE
MODEL HE-29

TRADE NAME	Lafayette Model HE-29		
SUPPLIER	Lafayette Radio, 165-08 Liberty Ave., Jamaica 33, N. Y.		
TYPE SET	Battery Operated Transistorized Portable Citizens Band Transmitter-Receiver		
POWER SUPPLY	12 Volts DC	RATING	10MA @ 12 Volts DC (Receive, No Signal)
TUNING RANGE	Citizens Band Channel 10		15MA @ 12 Volts DC (Transmit, No Signal)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, thru A8.. GENERAL CEMENT #9440

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455KC (400% Mod.)		Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	"	Transmitter Crystal Freq.		"	A4, A5	Adjust A4 for proper oscillation. Adjust A5 for maximum output.

TRANSMITTER ALIGNMENT

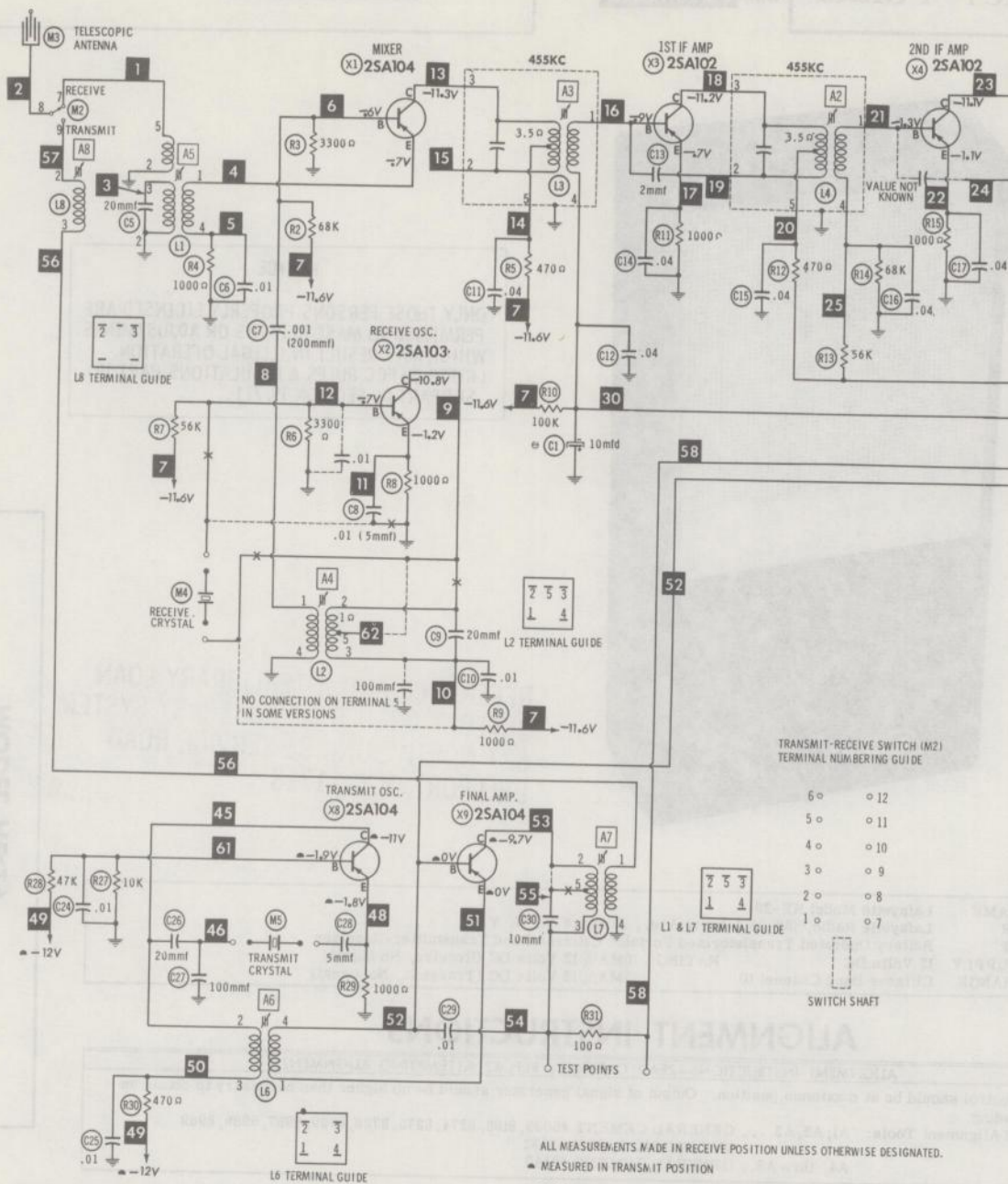
- Adjust A6 for Transmitter Crystal Freq. as checked with a frequency meter.
- Adjust A7 and A8 for maximum transmitted output as measured with a field strength meter or similar device.
- Recheck frequency.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of L2052

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



TRANSMIT-RECEIVE SWITCH (M2)
TERMINAL NUMBERING GUIDE

6	12
5	11
4	10
3	9
2	8
1	7

SWITCH SHAFT

L1 & L7 TERMINAL GUIDE

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.

▲ MEASURED IN TRANSMIT POSITION

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

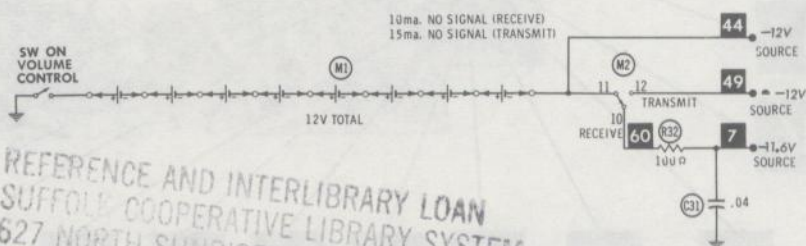
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of $\pm 1\%$ in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

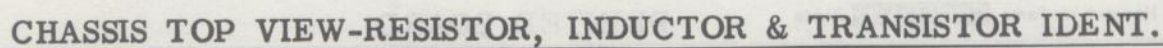
A PHOTOFAC STANDARD NOTATION SCHEMATIC
with **CircuitTrace**

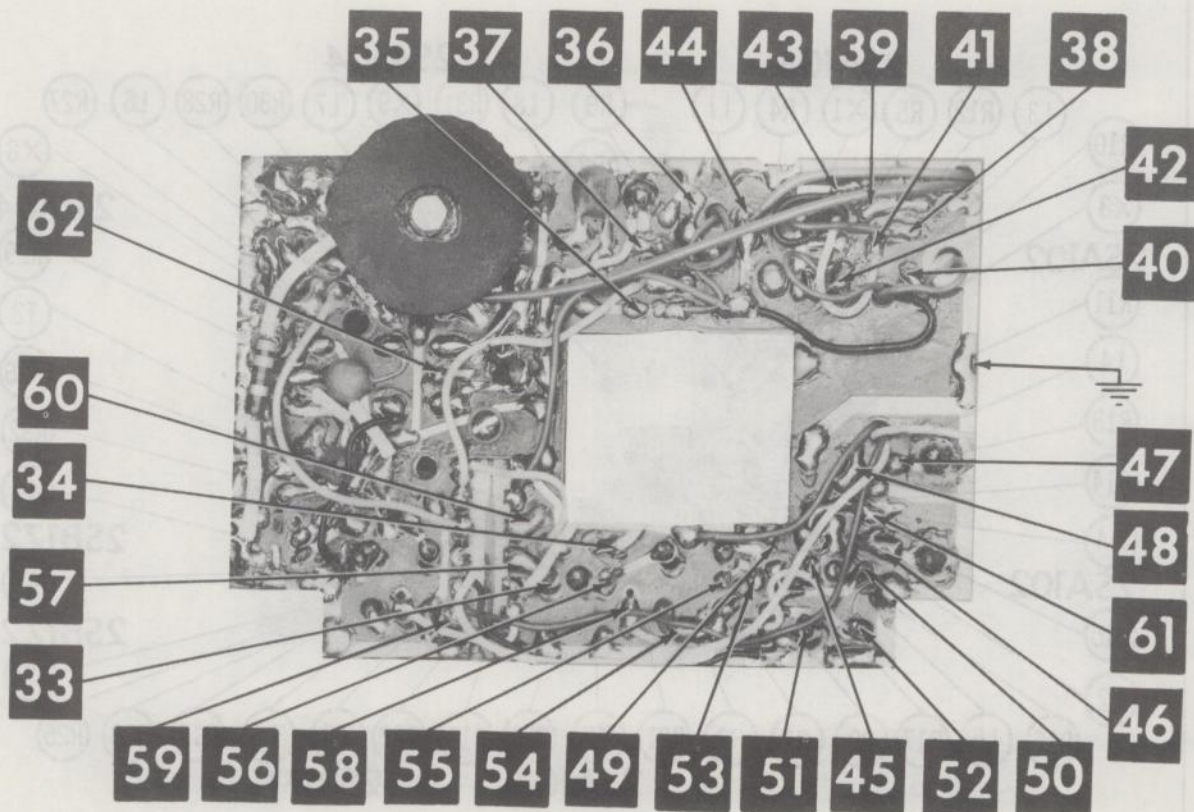
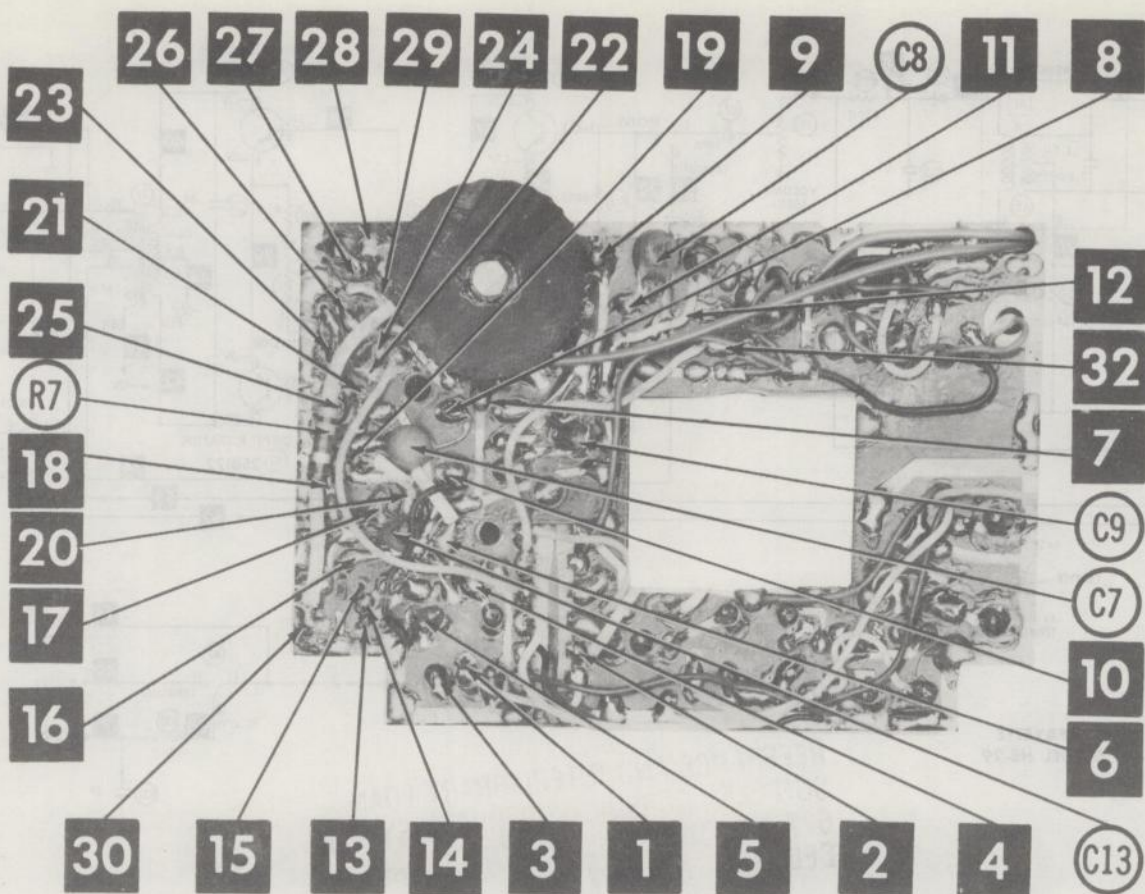
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**LAFAYETTE
MODEL HE-29**

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713





PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		RCA PART No.	RAYTHEON PART No.	
X1	2SA104	2N1179	PNP	
X2	2SA103	2N1178	PNP	
X3	2SA102	2N1525	PNP	
X4	2SA102	2N1525	PNP	
X5	2SB171	2N406	PNP	
X6	2SB171	2N406	PNP	
X7	2SB172	2N408	PNP	
X8	2SA104	2N1178	PNP	
X9	2SA104	2N1177	PNP	

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		NOTES
			RCA PART No.	SARKES TARZIAN PART No.	
X10		29-505			Detector

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA			
			LAFAYETTE PART No.	AEROVOX PART No.	CORNELL-DUBIER PART No.	GENERAL ELECTRIC PART No.
C1	10	3	29-523	PTT6	NLW10-6	MTI-5
C2	3	3		PTT3	NLW3-25	MTI-3
C3	30	3		PTT10	NLW30-6	MTI-13
C4	10	15		PTT66	NLW10-15	MTI-5

① Some versions may use 10mfd@10V in this application (Part #29-525).
 ② Some versions may use 30mfd@10V in this application (Part #29-526).
 ③ Some versions may use 30mfd@12V in this application (Part #29-527).

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			AEROVOX PART No.	CORNELL-DUBIER PART No.	CORNELL-DUBIER PART No.	ELMENDO PART No.
C5	20		NPO-DI 20	DTZ-20	C10Q90C	CCTO-200
C6	.01		C80V103AM	DM-103	H-05SI	CCTO-200
C7	.001		C80V102AM	DM-102	H-05DI	CCD-102
C8	.01		C80V103AM	DM-103	H-05SI	CCTO-200
C9	20		NPO-DI 20	DTZ-20	C10Q90C	CCTO-200
C10	.01		C80V103AM	DM-103	H-05SI	CCTO-200
C11	.04					
C12	.04					
C13	2					

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			AEROVOX PART No.	CORNELL-DUBIER PART No.	ELMENDO PART No.	MALLORY PART No.
C14	.04	#29-522				
C15	.04	#29-522				
C16	.04	#29-522				
C17	.04	#29-522				
C18	.04	#29-522				
C19	.01		C80V103AM	DM-103	H-05SI	TA-110
C20	.01		C80V104AM	DM-104	H-05SI	TA-110
C21	.1		C80V102AM	DM-102	H-05DI	TA-250
C22	.005	(.01) ↑				
C23	.04	#29-522				
C24	.01		C80V103AM	DM-103	H-05SI	TA-110
C25	.01		C80V103AM	DM-103	H-05SI	TA-110
C26	20		NPO-DI 20	C10Q2C	CCTO-200	CNO-422
C27	100		DX-100	LI071	CCTO-101	GP310
C28	5		NPO-DI 5, 0	LI075C	CCTO-050	CNO-550
C29	.01		C80V103AM	DM-103	H-05SI	TA-110
C30	.10		NPO-DI 10	C10Q1C	CCTO-100	CNO-410
C31	.04	#29-522				

↑ Lafayette Part Number.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA			
			LAFAYETTE PART No.	CORNELL-DUBIER PART No.	CLAIOSTAT PART No.	CTS-IRC PART No.
R1	Volume & Switch	5000Ω	29-512			

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			IRC PART No.	WORKMAN PART No.	ITEM No.	BATING
R2	68K				R14	68K
R3	3300Ω				R15	1000Ω
R4	1000Ω				R16	4700Ω
R5	4700Ω				R17	4700Ω
R6	3300Ω				R18	5800Ω
R7	56K				R19	6800Ω
R8	1000Ω				R20	56K
R9	1000Ω				R21	1000Ω
R10	100K				R22	6800Ω
R11	1000Ω				R23	220Ω
R12	4700Ω				R24	Thermistor
R13	56K				R25	47Ω

REFERENCE AND INTERLIBRARY LOAN
 SUFFOLK COOPERATIVE LIBRARY SYSTEM
 627 NORTH SUNRISE SERVICE ROAD
 BELLPORT, N.Y. 11713

PARTS LIST AND DESCRIPTIONS (Continued) RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		IRC PART No.	WORKMAN PART No.			IRC PART No.	WORKMAN PART No.
R26	100Ω			R30	470Ω		
R27	10K			R31	100Ω		
R28	47K			R32	100Ω		
R29	100Ω						

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			NOTES
		LAFAYETTE PART No.	Merit PART No.	Stancor PART No.	
L1	Ant.	29-537			
L2	Osc.	29-533			
L3	1st IF	29-532			
L4	2nd IF	29-532			
L5	3rd IF	29-532			
L6	Osc.	29-538			
L7	Output	29-536			
L8	Ant. Load				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO	REPLACEMENT DATA			NOTES
		LAFAYETTE PART No.	Merit PART No.	Stancor PART No.	
T1	1.5 1	29-534			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA			NOTES
		LAFAYETTE PART No.	Merit PART No.	Stancor PART No.	
T2	800Ω CT	29-535			
	SEC. 1				
	SEC. 2				
	250Ω				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		LAFAYETTE PART No.	QUAM PART No.	
SP1	2 1/4" PM 6-8Ω	29-539	22A0628	

BATTERIES

ITEM No.	VOLTAGE	LAFAYETTE PART No.	REPLACEMENT DATA			NOTES
			BURGESS	EVEREADY	MALLORY	
M1	1 1/2V	BA-155	"A" 930	"B" 1015	"B" M-15R	8 Required

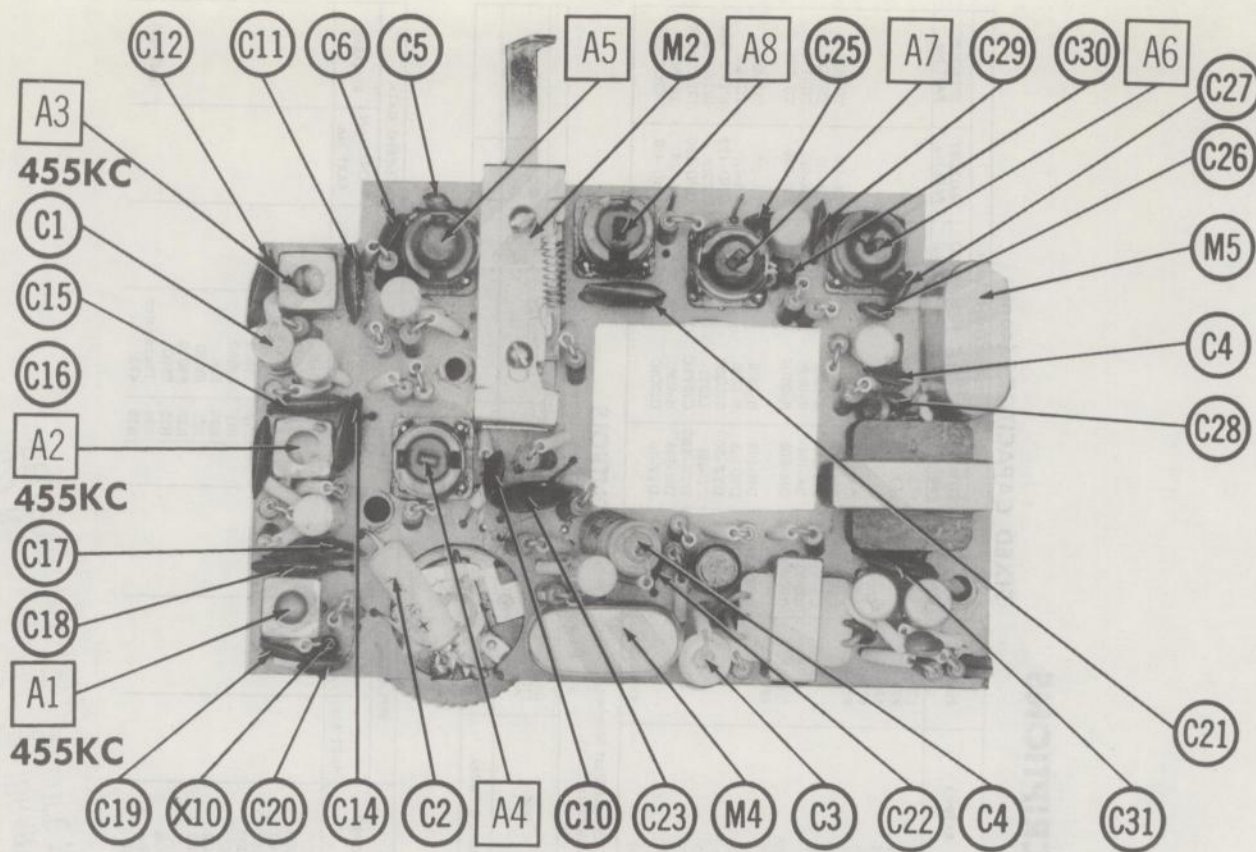
MISCELLANEOUS

ITEM No.	PART NAME	LAFAYETTE PART No.	NOTES
M2	Switch	29-540	Push-to-talk (Spring Loaded, Slide Type) Receive Transmit
M3	Antenna	29-543	
M4	Crystal		
M5	Crystal		

WIRING DATA

General-use Unshielded Hook-up Wire			
Use BELDEN No. 8530 (Solid 22AWG)		Available in 12 Colors	
8524 (Stranded 22AWG)			
8570 (Stranded 26AWG)			

CHASSIS—TOP VIEW



PHOTOFACT® Folder

with CIRCUITRACE®

MORROW MODEL
VP-100-4A



REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

MORROW MODEL
VP-100-4A

TRADE NAME	Morrow Model VP-100-4A		
MANUFACTURER	Morrow Radio Mfg. Co., 2794 Market Street, N. E., Salem, Oregon		
TYPE SET	Battery Operated Transistorized Portable Citizens Band Transmitter-Receiver		
POWER SUPPLY	9 Volts DC	RATING	10 MA @ 9 Volts DC (Receive) 40 MA @ 9 Volts DC (Transmit)
TUNING RANGE	Any one of Citizens Band Channels 1 thru 22		

NOTICE

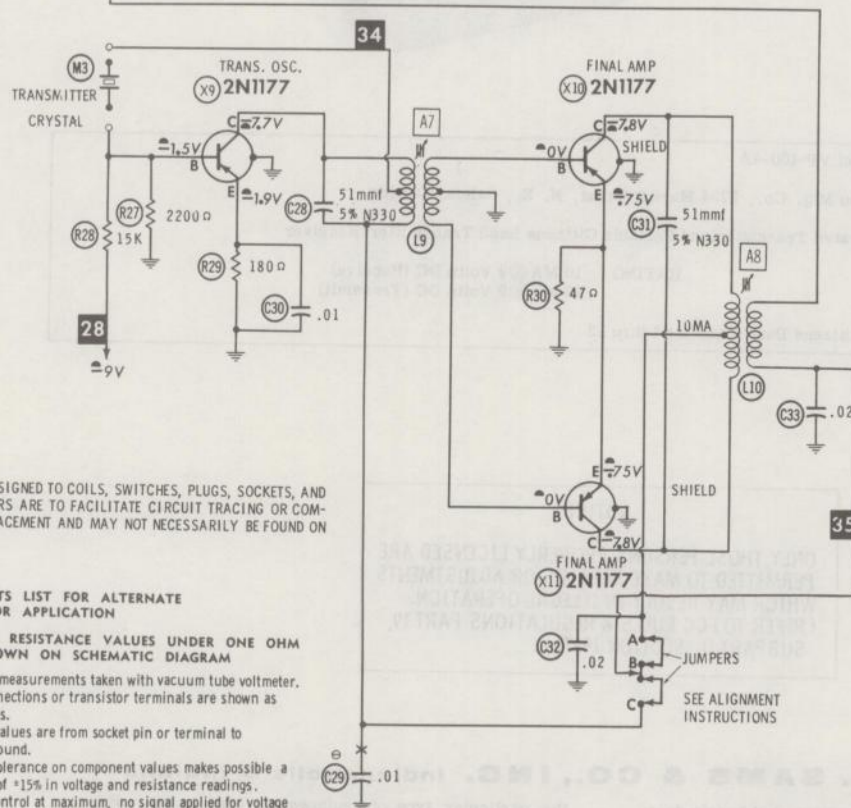
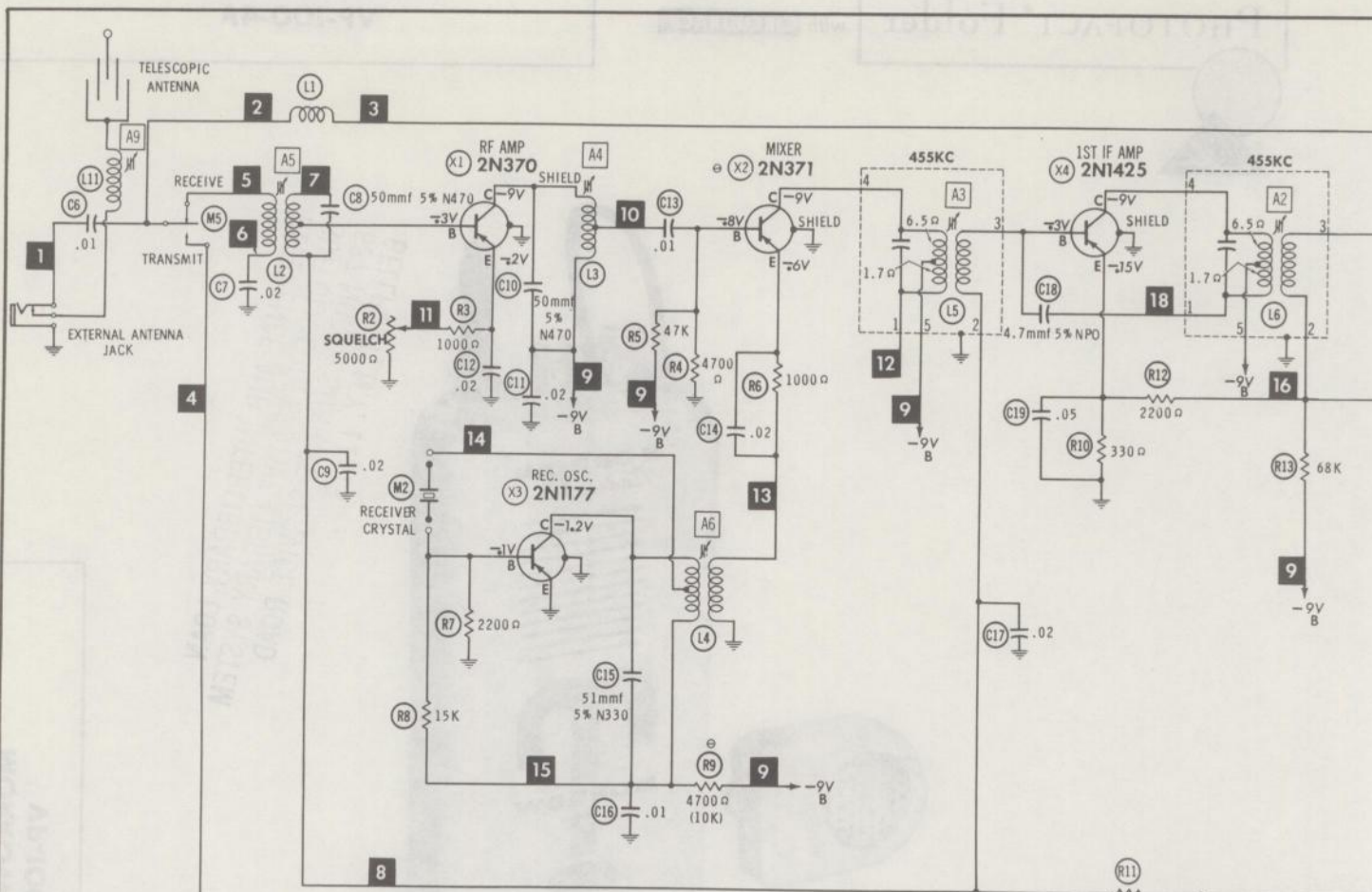
ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of LY176

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

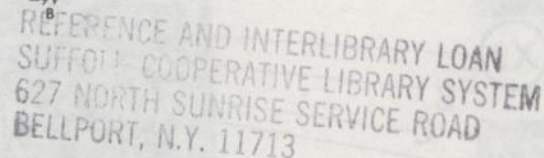
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

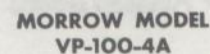
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

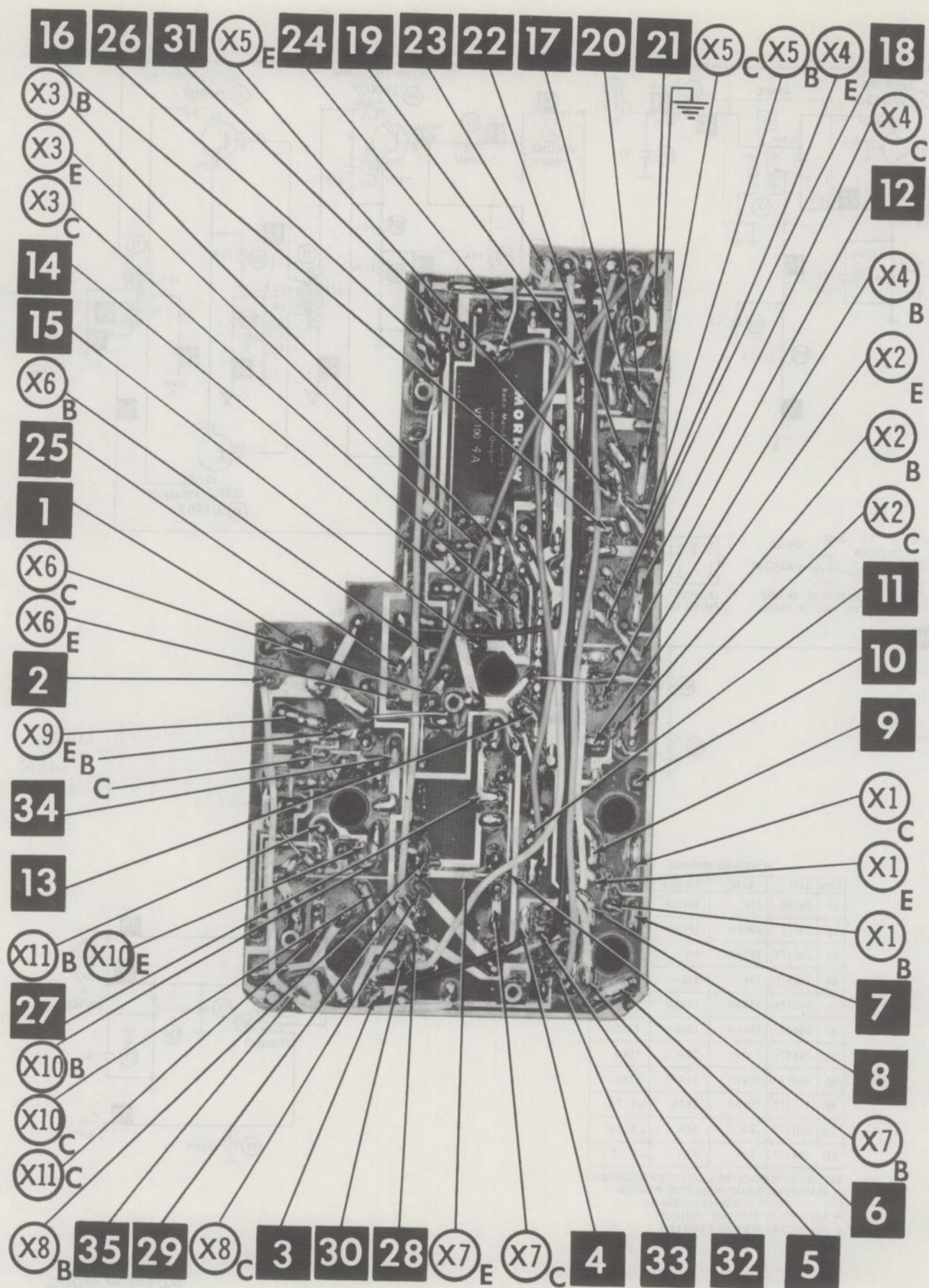
A PHOTOFAC STANDARD NOTATION SCHEMATIC with **CIRCUITRACE**

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TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS.
ALL MEASUREMENTS MADE IN "RECEIVE" POSITION
UNLESS OTHERWISE DESIGNATED.
• MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM 9 MINUS 9 VOLT LINE.





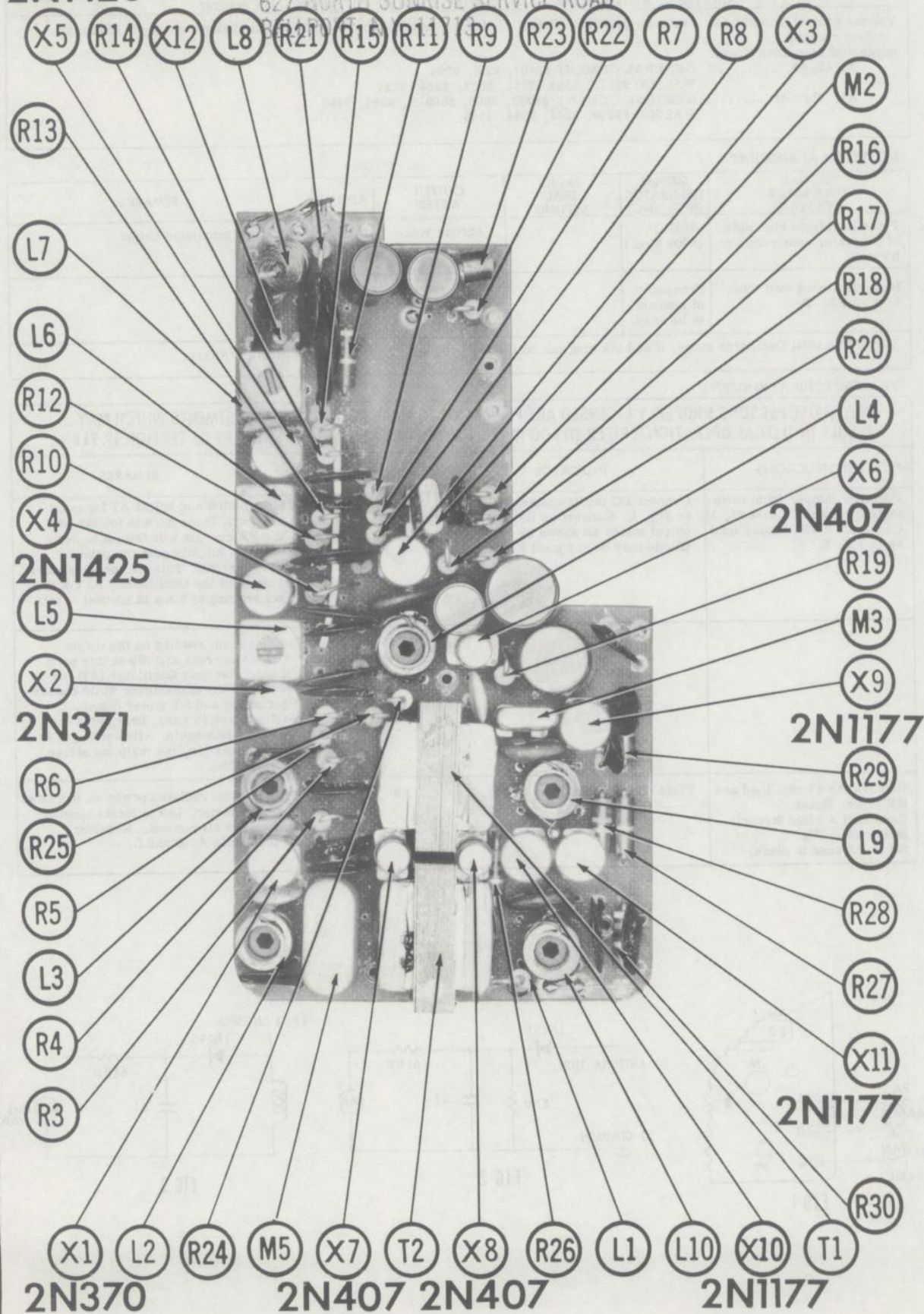
A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

E-EMITTER B-BASE
C-COLLECTOR

2N1425

2N1177



CHASSIS TOP VIEW - RESISTOR, INDUCTOR & TRANSISTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1, A2, A3.....GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537
A4, Thru A8.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Place lead from high side of generator near receiver RF coil.	455KC (400% Mod.)		Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	High side to antenna tube. Low side to B-.	Frequency of channel to be used.		"	A4, A5	"
3.	Turn A6 in until Oscillator stops, then back slug out until Oscillator starts. Turn an additional 1/4 turn.					

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
4.	Unsolder jumper from terminals A, B and C. (See Fig. 1). Construct a 47Ω dummy load as in Fig. 2.	Connect DC milliammeters as shown in Fig. 1. Connect an RF power output meter as shown in Fig. 2. (Diode may be any good RF type.)	A7	Depress Mike button and adjust A7 for maximum PA current. If the core is too far into the coil, the PA current will fall off to zero. Back the core out slightly past the point of maximum PA current. This will provide more reliable starting of the Oscillator. An Oscillator current reading of 6 ma is normal at this setting.
5.	"	"	A8	Adjust for maximum reading on the output meter. The PA current will dip at this point to about 11 ma. Recheck Oscillator (A7) for tuning. Modulate the transmitter while observing the PA current and RF power output. If meter readings drop to zero, back out A7 slightly and modulate again. Attempt to get as much output as possible, but maintain stable Oscillator operation.
6.	Remove the 47 ohm load and RF Power Meter. Construct a Field Strength Meter as in Fig. 3. Screw antenna in place.	Field Strength Meter as in Fig. 3.	A9	Adjust for maximum radiated power as indicated on field strength meter. (A9 is located inside antenna.) Remove all meters. Resolder jumper on terminals A, B and C.

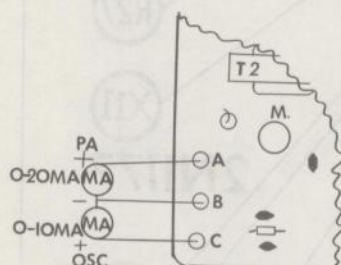


FIG 1

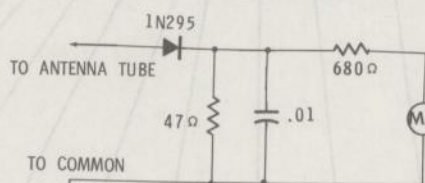


FIG 2

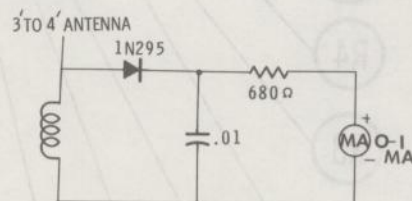


FIG 3

PARTS LIST AND DESCRIPTIONS TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2N370	RF Amplifier	2N370		PNP
X2	2N371	Mixer	2N371		PNP
X3	2N372*	Rec. Oscillator			PNP
X4	2N1177	1st IF Amplifier			PNP
X5	2N1425	2nd IF Amplifier			PNP
X6	2N407	Driver-Speech Amp.	2N217	2N831	PNP
X7	2N407	Output-Modulator	2N217	2N831	PNP
X8	2N407	Trans. Osc.	2N217	2N831	PNP
X9	2N1177	Final Amp.			PNP
X10	2N1177	Final Amp.			PNP
X11	2N1177	Final Amp.			PNP

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		NOTES
			RCA PART No.	SARKES TARZIAN PART No.	
X12		1N295			Detector

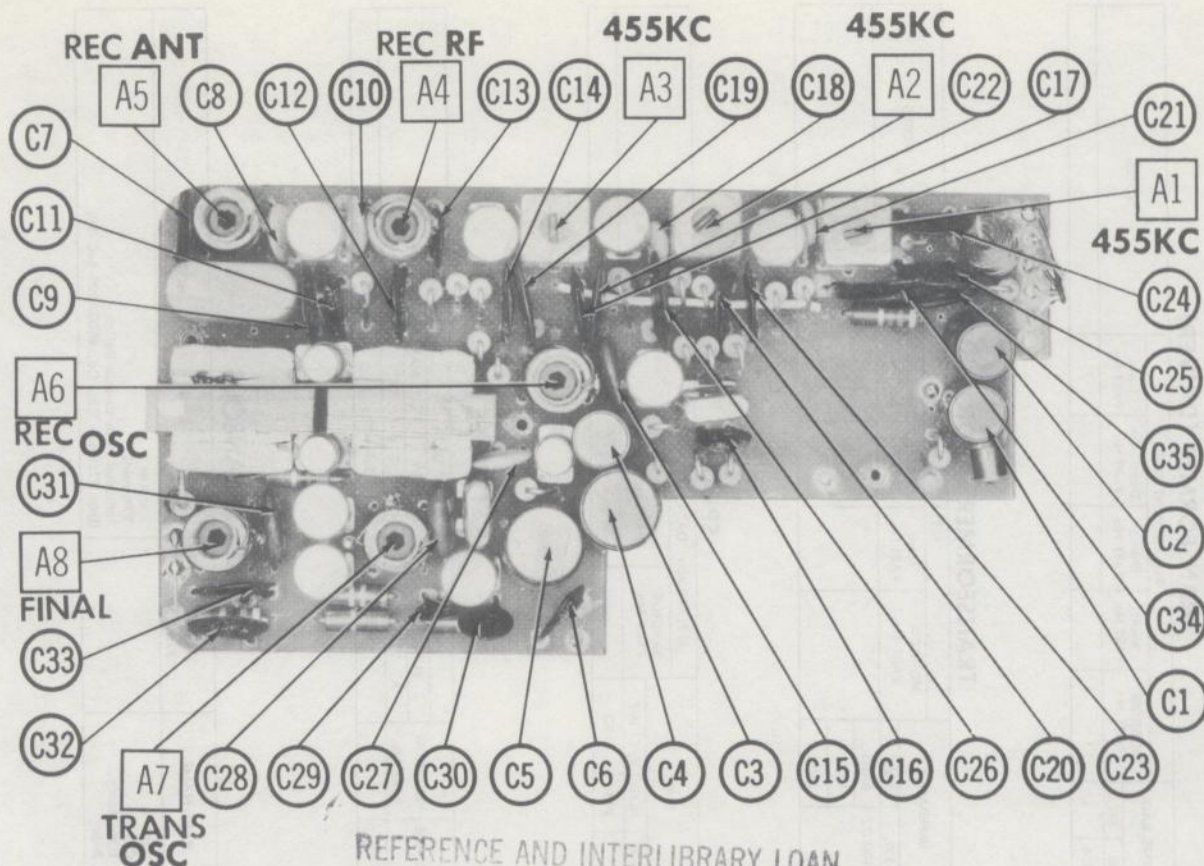
ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	MORROW PART No.	REPLACEMENT DATA			
				AEROVOX PART No.	CORNEILL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	SPRAGUE PART No.
C1	30	15		BCD15025	ECFBA12	MTI-14	MLV35-15
C2	10	15		BCD15010	ECFBA08	MTI-5	MLV10-15
C3	30	15		BCD15025	ECFBA12	MTI-14	MLV35-15
C4	100	15		BCD15100	ECFBA17	MTI-19	MLV100-15
C5	100	15		BCD15100	ECFBA17	MTI-19	MLV100-15

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNEILL-DUBILIER PART No.	ELMENCOR PART No.	SPRAGUE PART No.
C6	.01		C80V103AM	DM-103	H-05S1		TG-S10
C7	.02		C80V203AM	DA-203	H-05S2		TG-S20
C8	50 N470 5%		C80V203AM	DA-203	H-05S2		TG-S20
C9	.02		C80V203AM	DA-203	H-05S2		TG-S20
C10	50 N470 5%		C80V203AM	DA-203	H-05S2		TG-S20
C11	.02	(.05) †	C80V203AM	DA-203	H-05S2		TG-S20
C12	.02		C80V203AM	DA-203	H-05S2		TG-S20
C13	.01		C80V103AM	DM-103	H-05S1		TG-S10
C14	.02		C80V203AM	DA-203	H-05S2		TG-S20
C15	51 N330 5%		C80V103AM	DM-103	H-05S1		TG-S10
C16	.01		C80V203AM	DA-203	H-05S2		TG-S20
C17	.02		C80V203AM	DA-203	H-05S2		TG-S20
C18	4.7 NPO 5%		C80V203AM	DA-203	H-05S2		TG-S20
C19	.05		C80V503AM	DA-503	H-05S5		TG-S50
C20	.02		C80V203AM	DA-203	H-05S2		TG-S20
C21	.02		C80V203AM	DA-203	H-05S2		TG-S20
C22	.05		C80V503AM	DA-503	H-05S5		TG-S50
C23	.02	(.05) †	C80V203AM	DA-203	H-05S2		TG-S20
C24	.02		C80V203AM	DA-203	H-05S2		TG-S20
C25	.02		C80V203AM	DA-203	H-05S2		TG-S20
C26	.05	Note 1	C80V503AM	DA-503	H-05S5		TG-S50
C27	.005	Note 1	C80V502AM	DM-502	H-05D5		TG-D50
C28	51 N330 5%	Note 1	C80V103AM	DM-103	H-05S1		TG-S10
C29	.01		C80V103AM	DM-103	H-05S1		TG-S10

CHASSIS—TOP VIEW



REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			ABROVOX PART No.	CORNEILL-DUBILIER PART No.	ELMOCO PART No.	MALLORY PART No.
C30	.01		C80V103AM	DM-103	H-0551	TG-S10
C31	51 N330 5%				*	
C32	.02		C80V203AM	DA-203	H-0552	TG-S20
C33	.02		C80V203AM	DA-203	H-0552	TG-S20
C34	.05	Note 1	C80V503AM	DA-503	H-0555	TG-S50
C35	.05	Note 1	C80V503AM	DA-503	H-0555	TG-S50

† Alternate Value.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

Note 1. Not used in some versions.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA			
			MORROW PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.
R1	Volume & Switch	5000Ω	311-008		44S-5K-W	
R2	Squench	5000Ω	311-009		44-5K-W	MLC53A-S

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			IRC PART No.	WORKMAN PART No.	ITEM No.	RATING
R3	1000Ω				R17	39K
R4	4700Ω				R18	10K
R5	47K				R19	10Ω
R6	1000Ω				R20	1000Ω
R7	2200Ω				R21	10K
R8	15K				R22	82K
R9	4700Ω				R23	Thermistor
R10	330Ω				R24	68Ω
R11	470Ω				R25	4700Ω
R12	2200Ω				R26	10Ω
R13	68K				R27	2200Ω
R14	1000Ω				R28	15K
R15	1000Ω				R29	180Ω
R16	10K				R30	47Ω

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		MORROW PART No.	Merit PART No.	Stancor PART No.	Workman PART No.
L1	RF Choke				
L2	Ant.				
L3	RF				
L4	Osc.				
L5	1st IF				
L6	2nd IF				
L7	3rd IF				
L8	RF Choke				
L9	Osc.				
L10	Final				
L11	Ant. Loading				

TRANSFORMER (DRIVER)

ITEM No.	TURNS	RATIO	REPLACEMENT DATA			
			MORROW PART No.	Merit PART No.	Stancor PART No.	Triad PART No.
T1	2.8	1				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA			
		MORROW PART No.	Merit PART No.	Stancor PART No.	Triad PART No.
T2	140Ω CT				
	PRL SEC. 1				
	8-8Ω				
	SEC. 2				
	140Ω				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA	
		MORROW PART No.	QUAM PART No.
SP1	2 1/2" PM 6-8Ω		

BATTERIES

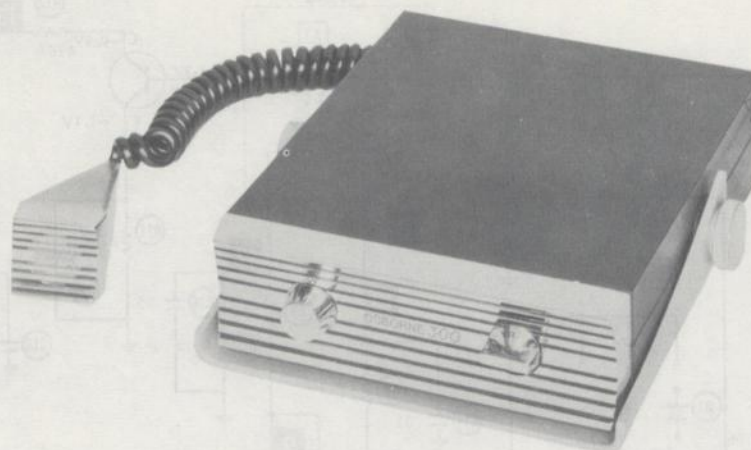
ITEM No.	VOLTAGE	MORROW PART No.	REPLACEMENT DATA			
			BURCESS "A"	EVEREADY "A"	MALLORY "A"	NOTES
M1	9V		2U8	216	M-1604	

MISCELLANEOUS

ITEM No.	PART NAME	MORROW PART No.	NOTES
M2	Crystal		
M3	Crystal		
M4	Micro As's'y.		
M5	Relay		

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid 22AWG)	Available in 12 Colors
	8524 (Stranded 22AWG)	
	8570 (Stranded 26AWG)	



REFERENCE AND INTERLIBRARY LONN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNDRISE SERVICE ROAD
SHELTON, N.Y. 11719

TRADE NAME	Osborne Model 300		
MANUFACTURER	Osborne Electronics Corp., 13105 S. Crenshaw Blvd., Hawthorne, California		
TYPE SET	AC Operated 9 Transistor, 4 Channel Citizens Band Transmitter-Receiver (Converters Available for 6-12-24-32 Volt DC Operation)		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	4 Watts, .05 Amp. @117 Volts AC
TUNING RANGE	Any 4 of Citizens Band Channels 1 thru 23		

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Best results will be obtained when A5 and A7 are adjusted with unit connected to the antenna normally used and as nearly in the cabinet as possible.

Suggested Alignment Tools:

A1 thru A6.....	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A7.....	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520

RECEIVER ALIGNMENT

Connect DC VTVM between Point A and ground.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	Tune to 455KC (Unmod.). Connect high side to antenna input, common to ground.	Not Used	A1, A2, A3	Remove Receive Crystal. Adjust A1, A2, and A3 for maximum deflection. Reinsert Crystal.
2.	Tune to channel frequency. Connect high side to antenna input, common to ground.	Highest Channel Used	A4	Adjust for maximum deflection while rocking A4. Note rate of drop-off on each side of peak and set to point just below peak on side of gradual drop-off.
3.	"	Center Channel Used	A5	Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

Output frequency should be checked by an accurately calibrated secondary frequency standard to be sure frequency is within .005%.

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	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
4.	Connect dummy load, RF watt meter or antenna to antenna input.	DC probe of VTVM to Point B.	A6	Adjust for maximum deflection while rocking. Note rate of drop-off on each side of peak and set to Point just below peak on side of gradual drop-off.
5.	"	Not Used.	A7	Adjust for maximum output.

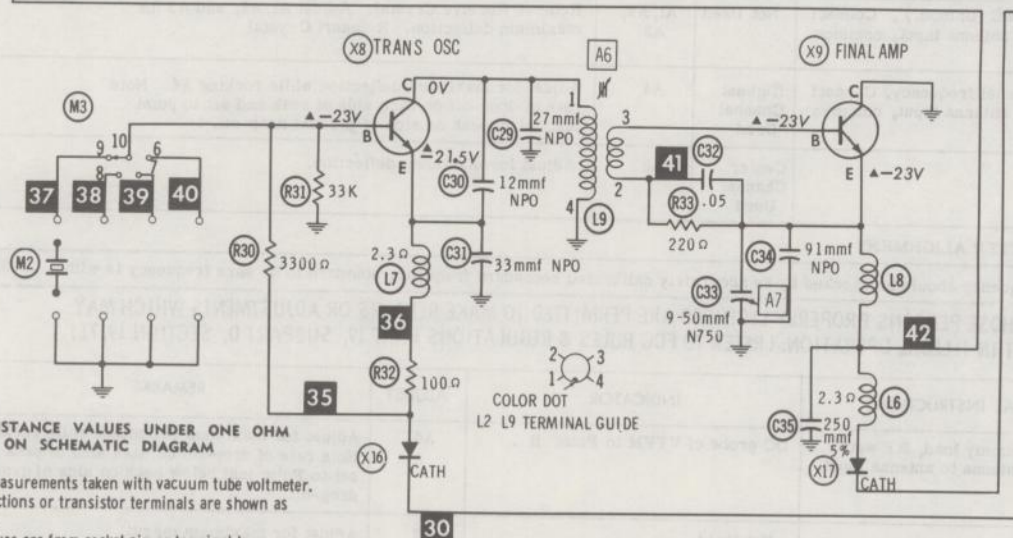
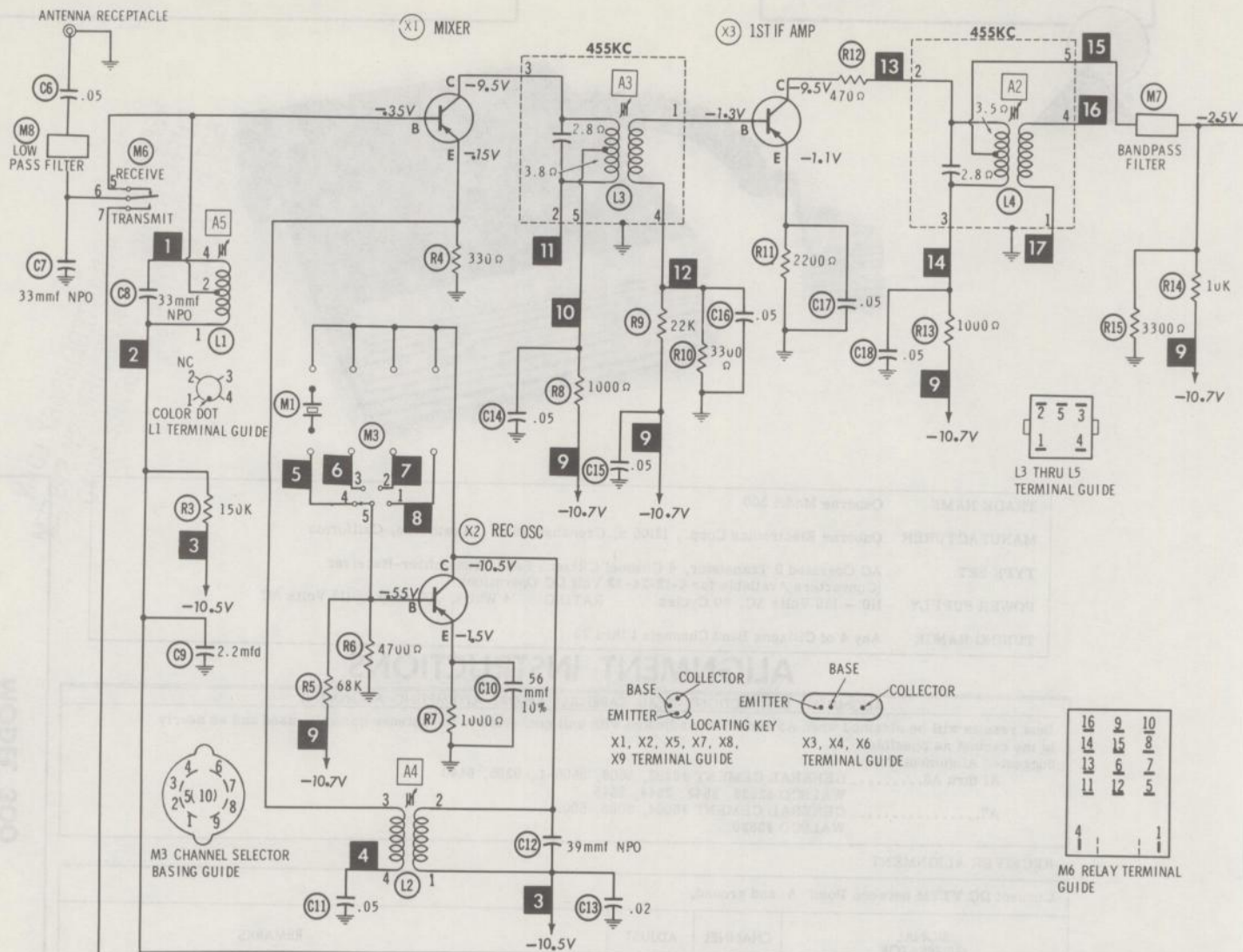
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OSBORNE
MODEL 300

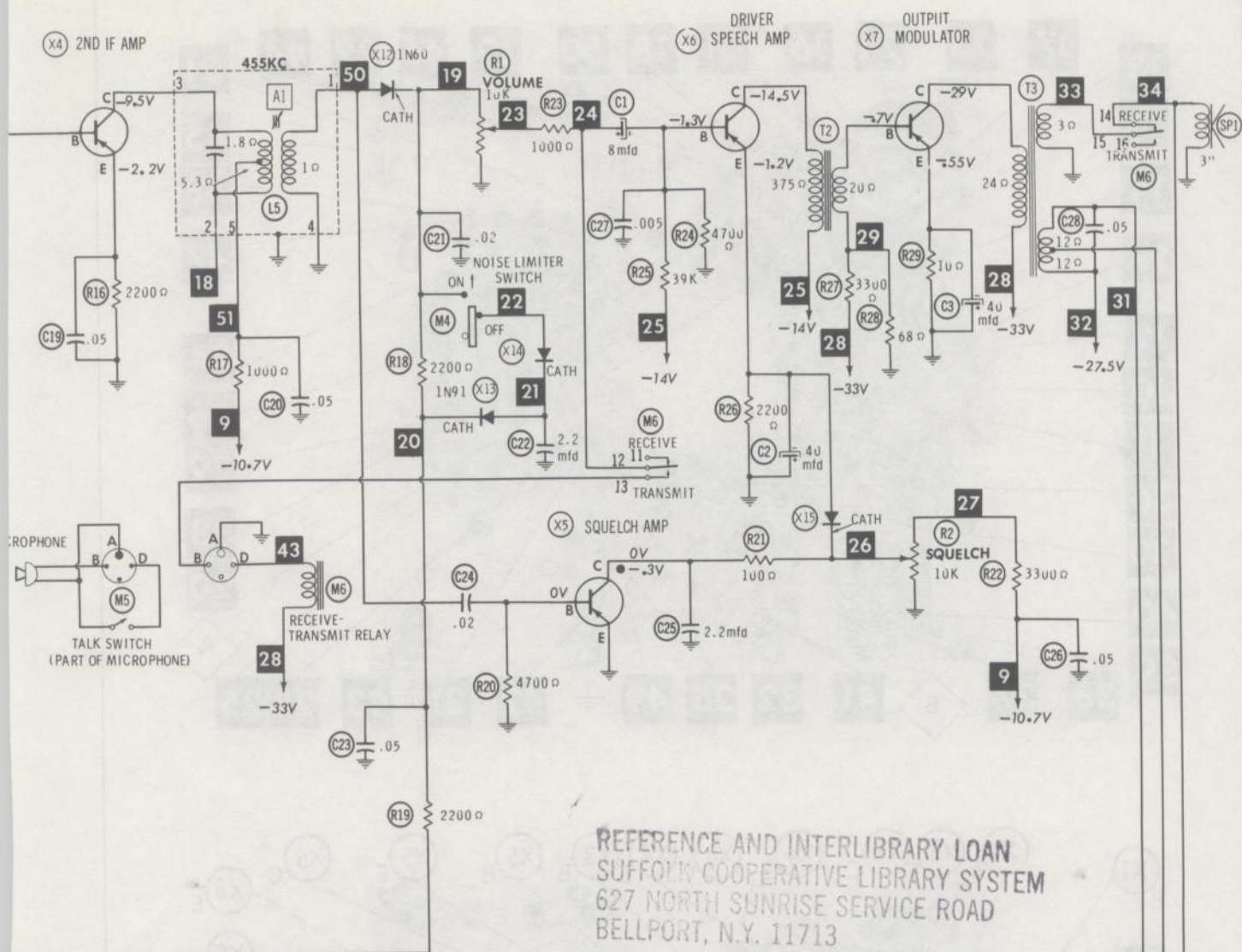


DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

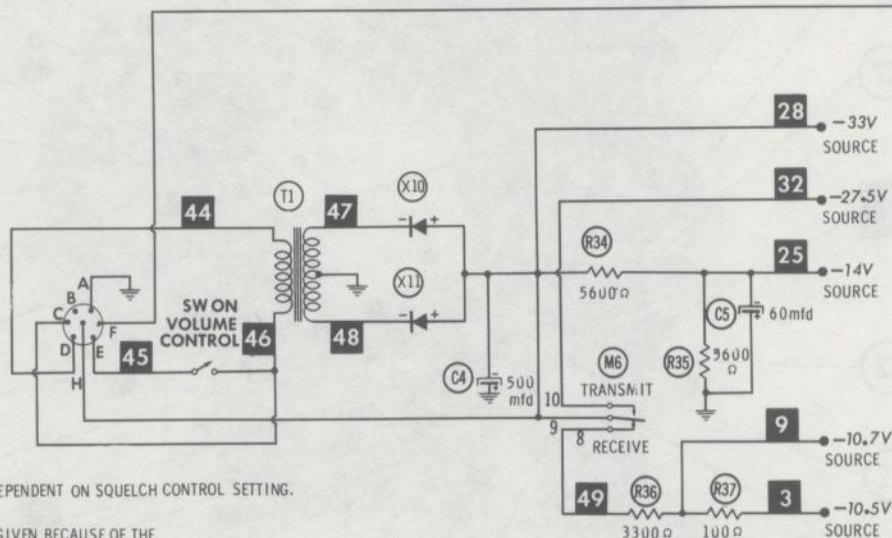
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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117VAC 4 WATTS

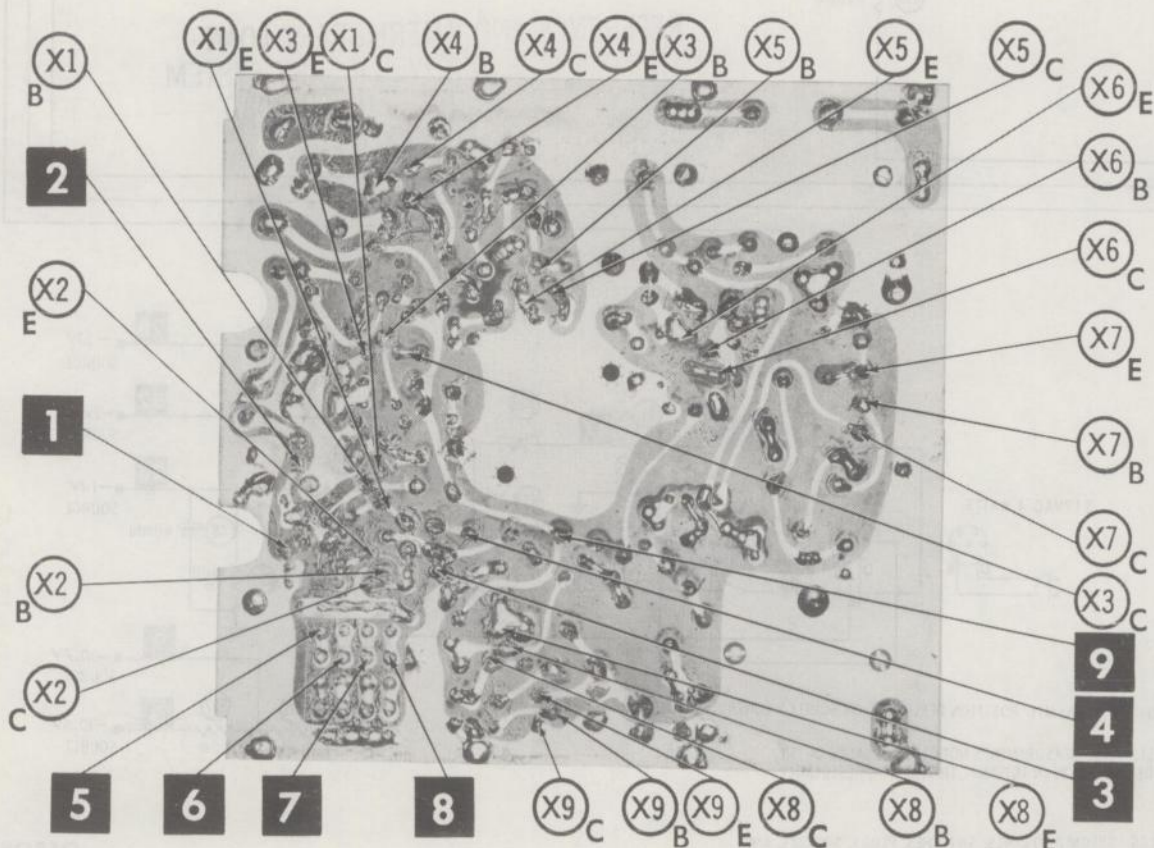


• TAKEN IN "TRANSMIT" POSITION DEPENDENT ON SQUELCH CONTROL SETTING.

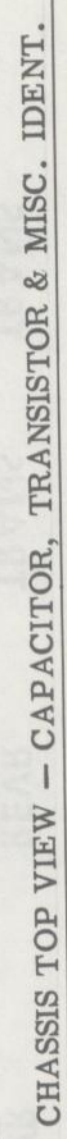
RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

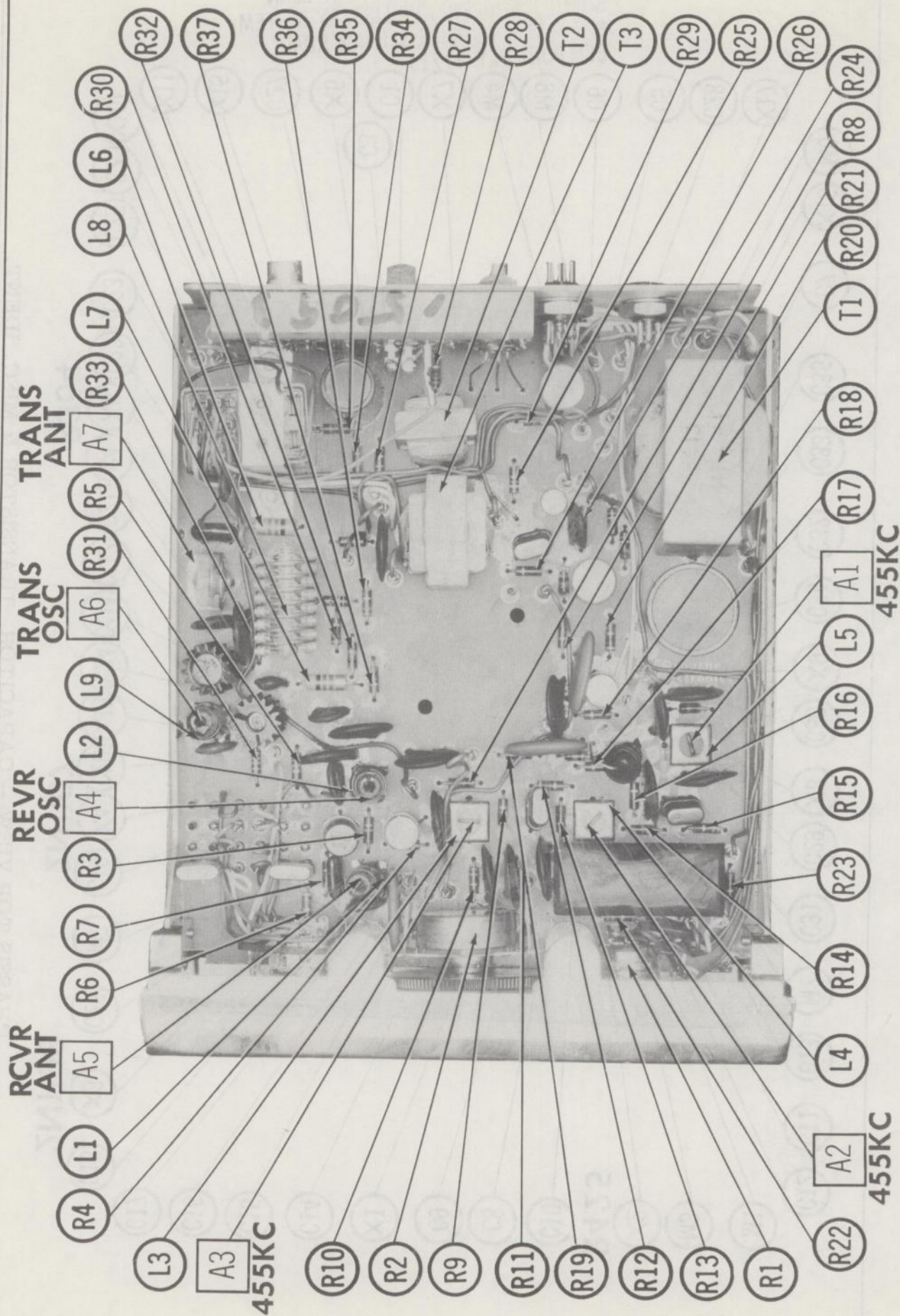
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OSBORNE
MODEL 300



CHANGS LOS ANGELES - VIRGINIA - BOSTON - NEW YORK
4027C





CHASSIS TOP VIEW - ALIGNMENT, INDUCTOR & RESISTOR IDENT.

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
	8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No. 8214 Lowest Loss (RG-8/U Type)
	8237 Low Loss (RG-8/U)
	8240 (Solid) Miniature (RG-58/U)
	8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No. 8497 3 Conductor- 1 Shielded for Press-to-Talk (Neoprene)
	8496 3 Conductor- 1 Shielded for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

TRANSISTORS

ITEM No.	MFR. PART No.	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	8314	Mixer	2N1179		PNP
X2	8308	Rec. Osc. (R425)	2N1178		PNP
X3	8301	1st IF Amp. (2N1108)	2N1180		PNP
X4	8300	2nd IF Amp. (2N1107)	2N1180		PNP
X5	8309	Squelch Amp. (R364)	2N406	2N465	PNP
X6	8312	Driver-Speech Amp.	2N406	2N465	PNP
X7	8310	Output-Modulator (S-499)	2N408		PNP
X8	8313	Trans. Osc.			PNP
X9	8316	Final Amp.			PNP

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES	NOTES
			RCA PART No.	SARKES TARZIAN PART No.	RAYTHEON PART No.	
X10	.015A	8306	1N1763	F2		Power Rectifier
X11	.015A	8306	1N1763	F2		Power Rectifier
X12		8305			1N60	Detector
X13		8318				Noise Limiter (1N91)
X14		8305			1N60	Noise Limiter
X15		8305			1N60	Squelch Diode
X16		8306	1N1763			Transmit Limiter
X17		8306	1N1763			Transmit Limiter

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	OSBORNE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.
C1	8	10	8220	BCD12008	ECPB407	MT1-5	PET1340	MLV10-10
C2	40	6	8223	BCD6050	ECPB115	MT1-15	TT6X40	MLV40-6
C3	40	6	8223	BCD6050	ECPB115	MT1-15	TT6X40	MLV40-6
C4	500	30	8224					
C5	60	40	8222	PTT98	ECPB816	MT1-17	PET1980	MLV50-50

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C7	33 NPO		NPO-D1 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C8	33 NPO		NPO-D1 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C9	2.2mfd 3V	#8216		UK-225				HY-150
C10	56 10%		1469-000056	TCZ-56	22R5Q56	CM-19B-560	CNO-456	MS-456
C11	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C12	39 NPO		NPO-D1 39	DTZ-39	C10Q39C	CCTO-390	CNO-439	10TCC-Q39
C13	.02		BPD-02	DD-203	H-0582	CCD-203	TA-120	TG-820
C14	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C15	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C16	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C17	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C18	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C19	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C20	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C21	.02		BPD-02	DD-203	H-0582	CCD-203	TA-120	TG-820
C22	2.2mfd 3V	#8216		UK-225				HY-150
C23	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C24	.02		BPD-02	DD-203	H-0582	CCD-203	TA-120	TG-820
C25	2.2mfd 3V	#8216		UK-225				HY-150
C26	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C27	.005		BPD-005	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C28	.05		BPD-05	DDA-503	H-0585		TA-150	TG-850
C29	27 NPO		NPO-D1 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C30	12 NPO			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C31	33 NPO		NPO-D1 33	DTZ-33	C10Q33C	CCTO-33	CNO-433	10TCC-Q33
C32	.05		BPD-05	DDM-503	H-0585		TA-150	TG-850
C33	9-50 N750	#8250		822-AN		404		
C34	91 NPO		NPO-D1 100	TCZ-91	C10Q91C	CCTO-101	CNO-310	10TCC-Q91
C35	250 5%		1469-00025	TCZ-240	22R5T25	CM-19B-251J	MCE240	MS-325

Osborne Part Number.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA			
			OSBORNE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.
R1	Volume & Switch	10K	8424	JP2-103	44-10K-W	
R2	Squelch	10K	8425			

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R3	150K				R21	100Ω			
R4	330Ω				R22	3300Ω			
R5	68K				R23	1000Ω			
R6	4700Ω				R24	4700Ω			
R7	1000Ω				R25	39K			
R8	1000Ω				R26	2200Ω			
R9	22K				R27	3300Ω			
R10	3300Ω				R28	68Ω			
R11	2200Ω				R29	10Ω			
R12	470Ω				R30	3300Ω			
R13	1000Ω				R31	33K			
R14	10K				R32	100Ω			
R15	3300Ω				R33	220Ω			
R16	2200Ω				R34	5600Ω			
R17	1000Ω				R35	5600Ω			
R18	2200Ω				R36	3300Ω			
R19	2200Ω				R37	100Ω			
R20	4700Ω								

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		OSBORNE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	Receiver Ant. Coil	8416					
L2	Receiver Osc.	8415					
L3	1st IF	8421					
L4	2nd IF	8421					
L5	3rd IF	8422					
L6	RF (22uh)	8420	TV-192	9310-44	RTC-8525	T863	
L7	RF (22uh)	8420	TV-192	9310-44	RTC-8525	T863	
L8	Trans. Output	8418					
L9	Trans. Osc.	8417					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	OSBORNE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117VAC @ .05A	47VAC @ .070A		8413					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OSBORNE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6	1	8427					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OSBORNE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	300Ω	3-4Ω	8426					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OSBORNE PART No.	QUAM PART No.	
SP1	3"	PM	3-4Ω	8429		

MISCELLANEOUS

ITEM No.	PART NAME	OSBORNE PART No.	NOTES
M1	Crystal	8453	Receive (When Ordering, Mention Model, Part Number and Channel or Freq.)
M2	Crystal	8451	Transmit (When Ordering, Mention Model, Part Number and Channel or Freq.)
M3	Switch	8523	Channel Selector
M4	Switch	8529	Noise Limiter SPST
M5	Switch	8530	Talk (Mounted on Mic) Spring Loaded SPST Normally Open
M6	Relay	8419	Receive - Transmit
M7	Filter	8423	Band Pass
M8	Filter	8918	Low Pass
M9	Microphone	8428	



REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713



**POLY COM MODELS
PC-2-6, PC-2-12**

TRADE NAME	Poly Com Models PC-2-6, PC-2-12
MANUFACTURER	Polytronics Laboratories, Inc., 253 Crooks Ave., Clifton, N. J.
TYPE SET	AC-Battery Operated 11 Tube Crystal Controlled, Double Conversion Citizens Band Transmitter-Receiver
POWER SUPPLY	Model PC-2-6: 110-120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery Model PC-2-12: 110-120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	51 Watts, .5 Amp. @ 117 Volts AC (Receive); 70 Watts, .7 Amp. @ 117 Volts AC (Transmit) 6 Amp. @ 12.6 Volts DC (or) 12 Amp. @ 6.3 Volts DC
TUNING RANGE	Any 4 of Citizens Band Channels 1 thru 22

NOTICE

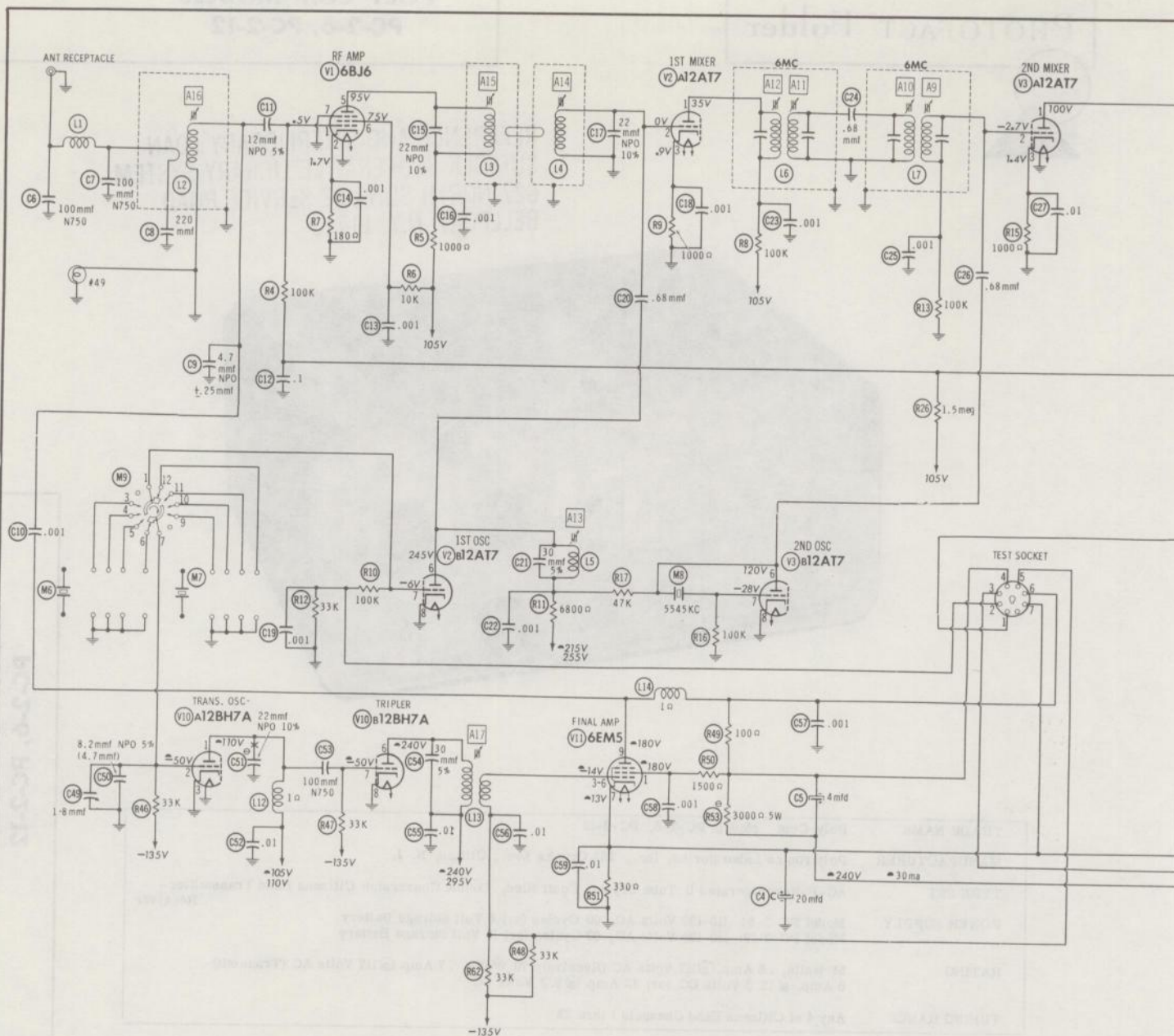
ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ766

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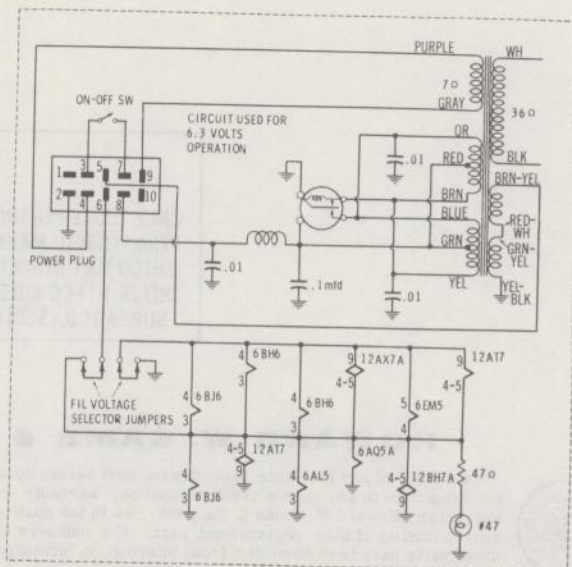


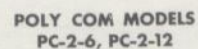
RESISTANCE READINGS

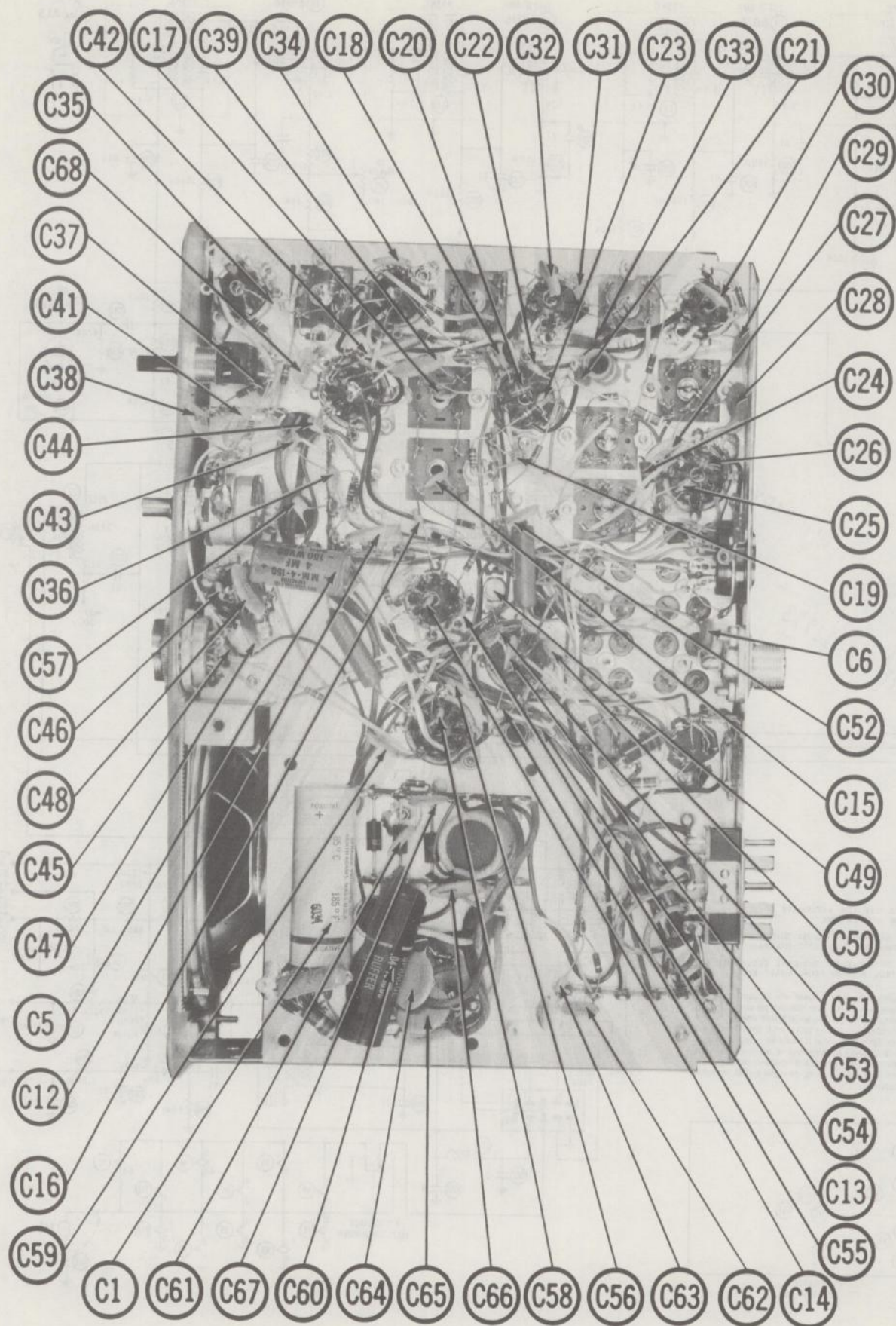
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	300K	180Ω	FIL	FIL	+2500Ω	+11K	0Ω		
V2	12A7	+100K	1Ω	1000Ω	FIL	FIL	+12K	130K	0Ω	FIL
V3	12A7	+2500Ω	100K	1000Ω	FIL	FIL	+55K	100K	0Ω	FIL
V4	6BJ6	300K	180Ω	FIL	FIL	+2500Ω	+2500Ω	0Ω		
V5	6BH6	300K	180Ω	FIL	FIL	+2500Ω	+2500Ω	0Ω		
V6	6BH6	5.5Ω	900Ω	FIL	FIL	+2500Ω	+2500Ω	0Ω		
V7	6AL5	1.8meg	120K	FIL	FIL	0Ω	0Ω	470K		
V8	12AX7A	1500K	700K	60K	FIL	FIL	390K	160K	15K	FIL
V9	6AQ5A	NC	330Ω	FIL	FIL	+340Ω	+680Ω	470K		
V10	12BH7A	+1500Ω	33K	0Ω	FIL	FIL	+680Ω	33K	0Ω	FIL
V11	6EM5	+6800Ω	NC	16K	FIL	FIL	NC	330Ω	NC	+5400Ω

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION WITH ANL ON WITH MICROPHONE UNLESS OTHERWISE DESIGNATED.
 * MEASURED IN "TRANSMIT" POSITION.
 † MEASURED FROM OUTPUT OF M2.
 ‡ MEASURED FROM JUNCTION OF C2A AND R58.

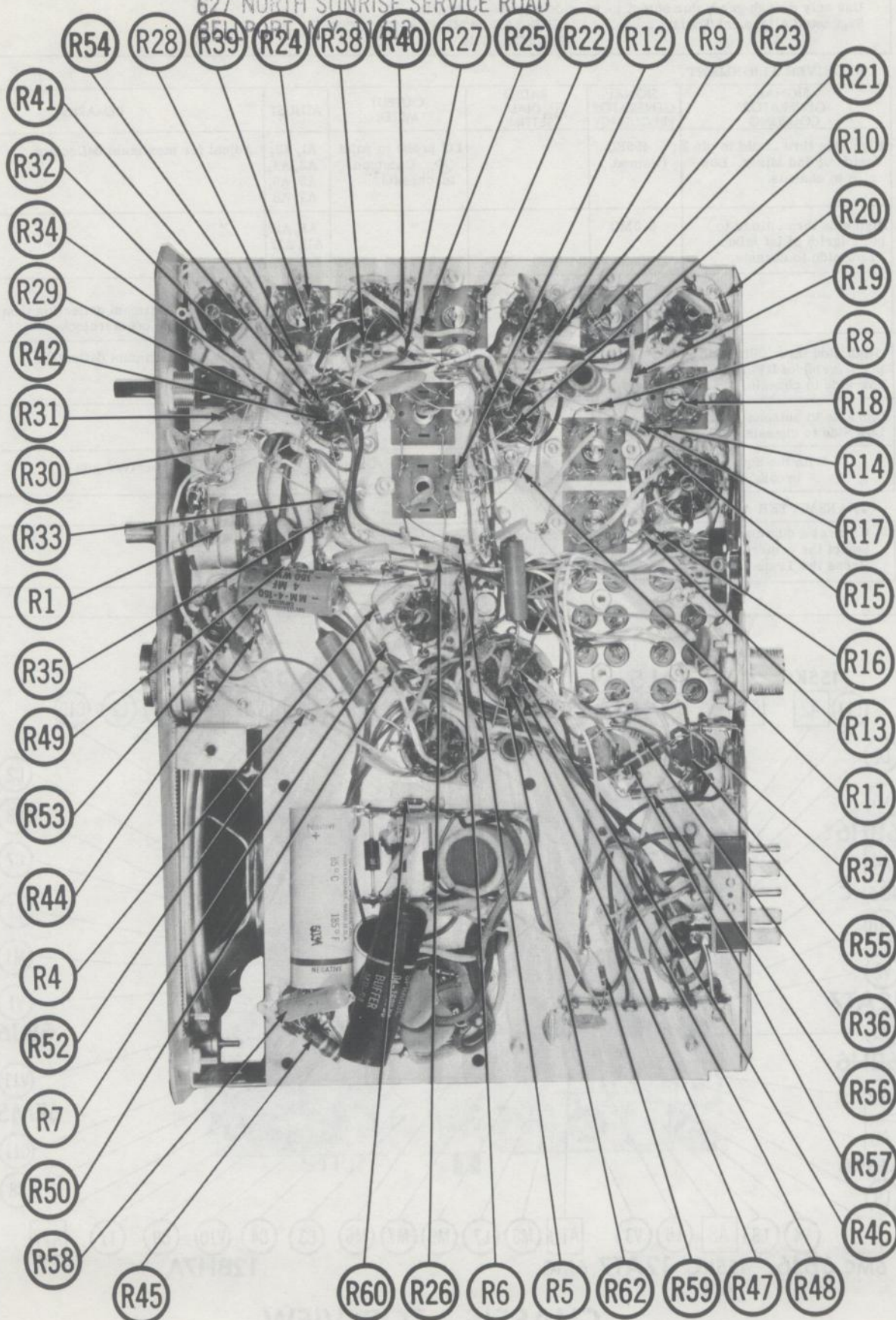
NC NO CONNECTION







CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools: GENERAL CEMENT #8721, 8722
WALSCO #2519

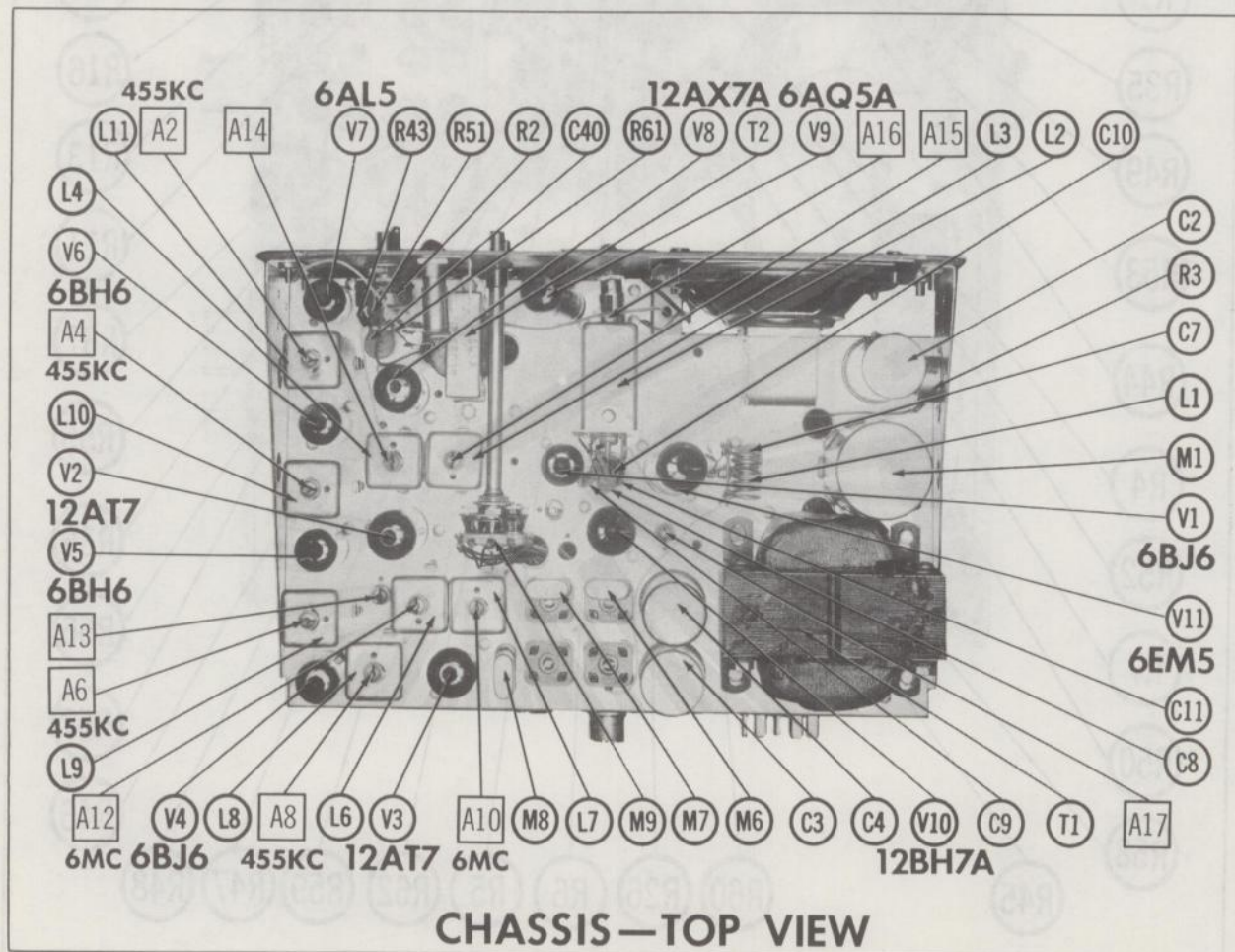
RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 2 (grid) of 2nd Mixer. Low side to chassis.	455KC (Unmod.)		DC probe to point Δ . Common to chassis.	A1, A2, A3, A4, A5, A6, A7, A8	Adjust for maximum deflection.
2.	High side thru .01mfd to pin 2 (grid) of 1st Mixer. Low side to chassis.	6.0MC		"	A9, A10, A11, A12	"
3.	"	Freq. of highest channel.		"	A13	Adjust for maximum deflection then detune 2 turns counterclockwise.
4.	High side thru .001mfd to pin 1 (grid) of RF Amp. Low side to chassis.	"		"	A14, A15	Adjust for maximum deflection.
5.	High side to antenna jack. Low side to chassis.	"		"	A16	"
6.	With the Squelch control fully counterclockwise, adjust the IF Gain control (R3) so that the receiver just breaks squelch with 5 microvolts signal applied to antenna jack.					

TRANSMITTER ALIGNMENT

Connect a dummy load, antenna or RF wattmeter to the antenna jack.
Select the center-most channel to be used.

Press the Transmitt button and adjust A17 for maximum output indication. Recheck A16 for peak.



CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS **TUBES**

GENERAL ELECTRIC • RAYTHEON • SYLVANIA NORTH SUNRISE SERVICE ROAD
 BELLPORT, N.Y. 11713

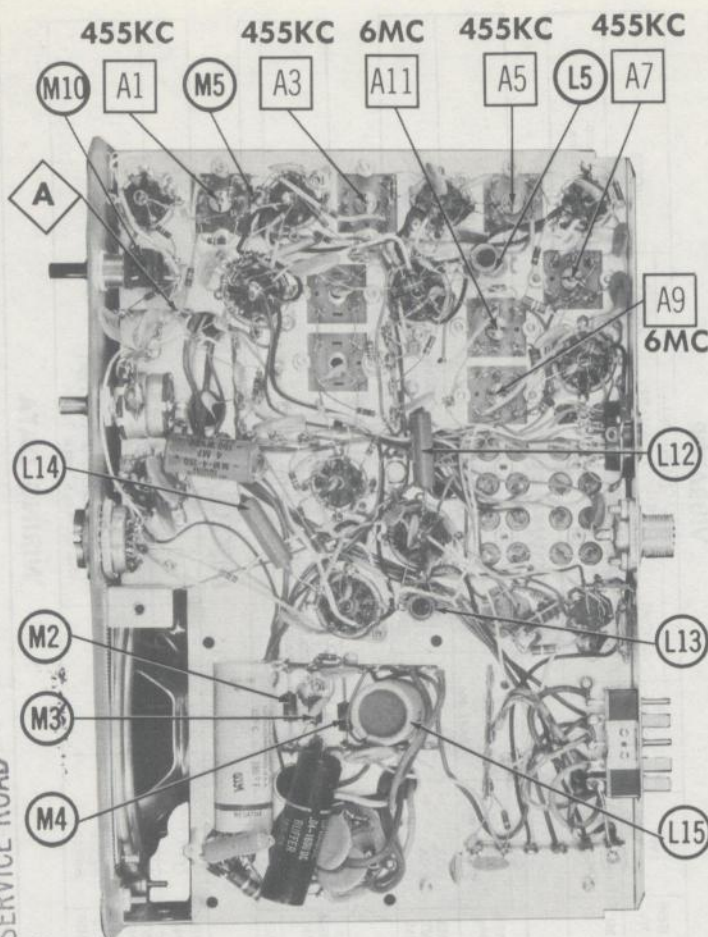
ITEM No.	USE	TYPE	ITEM No.	USE
V1	RF Amplifier	6B36	V7	Def.-AVC-ANL
V2	1st Mixer-Osc.	12AT7	V8	AF Amp.-Squeech Amp.
V3	2nd Mixer-Osc.	12AT7	V9	Output-Modulator
V4	1st IF Amplifier	6B36	V10	Trans. Osc.-Tripler
V5	2nd IF Amplifier	6B36	V11	Final Amplifier
V6	3rd IF Amplifier	6B36		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	Poly-Com PART No.	CORNELL-DUBIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	40 CAP. 250 VOLT.		BR4025	Q71-14	TC58	TD-40-250	TVA-1511
C2A	30 350		C0830	XC3-25	FP330	TMT-3361	TVL-3636
C2B	20 25						
C3A	30 350						
C3B	20 25						
C4A	30 350						
C4B	20 25						
C5	40 150						

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CORNELL-DUBIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	100 N750		DTN-100	DTN-100	CCD-103	CNT-310	10TCC-T10
C7	220 N750		DTN-220	DTN-220	CCD-103	CNT-310	10TCC-T10
C8	4.7 NPO 5%		DTN-4.7	DTN-4.7	CCD-103	CNT-310	10TCC-T10
C9	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C10	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C11	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C12	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C13	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C14	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C15	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C16	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C17	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C18	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C19	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C20	12 NPO 5%		DTN-12	DTN-12	CCD-103	CNT-310	10TCC-T10
C21	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C22	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C23	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C24	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C25	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C26	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C27	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C28	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C29	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C30	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C31	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C32	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C33	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C34	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C35	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C36	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C37	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C38	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C39	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C40	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C41	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C42	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C43	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C44	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C45	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C46	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10
C47	30 5%		DTN-30	DTN-30	CCD-103	CNT-310	10TCC-T10



FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CORNELL-DUBIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.
C48	1-8		NPO-DI 8.2	C10V82C	CCD-103	B-110	10TCC-V82
C49	8.2 NPO 5%		NPO-DI 22	C10Q22C	CCD-103	B-110	10TCC-Q22
C50	22 NPO 10%		BPD-01	C10Q22C	CCD-103	B-110	10TCC-Q22
C51	100 N750		N750-DI 100	C10T10	CCD-103	B-110	10TCC-T10
C52	30 5%		1469-00003	2285Q3	CCD-103	B-110	10TCC-T10
C53	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C54	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C55	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C56	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C57	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C58	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C59	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C60	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C61	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C62	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C63	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C64	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C65	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C66	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C67	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10
C68	30 5%		BPD-01	BYA10S1	CCD-103	B-110	10TCC-T10

† Alternate Value.
 Note 1. Not used in some versions.
 Note 2. Not used in Models using 13MC Series Crystals.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		Poly-Com PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	
R1A	250K		B-31	A47-250K-Z	Q13-130	Volume
R1B	Start		Not Req.	RS-2	Not Req.	Power Off-On
R2A	10K		KR-1	SWE-12	US-26	Squelch
R2B	Start		B-15	A47-10K-Z	Q13-116	
R3	1000Ω		Not Req.	RS-2	Not Req.	IF Gain
				39-1000	FL-1K	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.			IRC PART No.	WORKMAN TV PART No.	
R4	100K			R34	220K			
R5	1000Ω			R35	470K			
R6	10K			R36	33K			
R7	180Ω			R37	2200Ω			
R8	100K			R38	150K			
R9	1000Ω			R39	100K			
R10	100K			R40	68K			
R11	6800Ω			R41	330K			
R12	33K			R42	100K			
R13	100K			R43	10K			
R14	1000Ω			R44	470K			
R15	1000Ω			R45	330Ω	1W		
R16	100K			R46	33K			
R17	47K			R47	33K			
R18	100K			R48	33K			
R19	1000Ω			R49	100Ω			
R20	180Ω			R50	1500Ω			
R21	100K			R51	330Ω			
R22	1000Ω			R52	330Ω			
R23	180Ω			R53	3000Ω	5W		Note 1
R24	220K			R54	1meg			
R25	1000Ω			R55	100K			
R26	1.5meg			R56	4700Ω	1W		
R27	180Ω			R57	6800Ω			
R28	100K			R58	1500Ω	5W		
R29	100K			R59	1.5meg			
R30	1meg			R60	1meg			
R31	470K			R61	47Ω			
R32	470K			R62	33K			
R33	330K							

Note 1. Value may vary. Selected for 4.9W input power to final amp.

* Alternate Value

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Poly-Com PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Ant. Loading (5uh)				Workman TV PART No.	
L2	Ant. Attn.					
L3	RF					
L4	Mixer Grid					
L5	Osc. Plate					
L6	1st 6MC IF					
L7	2nd 6MC IF					
L8	1st 455KC IF					
L9	2nd 455KC IF					
L10	3rd 455KC IF					
L11	4th 455KC IF					
L12	RF Choke (10uh)					
L13	Tripler Plate					
L14	RF Choke (10uh)					
L15	Hash Choke (12uh)					

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		Poly-Com PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T1	117V @ 110V @ 237V @ 5.8A SEC. 1 6.3V @ 4.8A SEC. 2 420A AC	P128C				
	SEC. 3 6.3V @ 4.8A SEC. 4 SEC. 5					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA				NOTES
		Poly-Com PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T2	14K	T15W1A				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		Poly-Com PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω	P4-WA *	4A10T *	*Weather-proof Speaker

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS/FREQUENCY	REPLACEMENT DATA		NOTES
			Poly-Com PART No.	MALLOY PART No.	
M1	Interrupter	12.6V 115% 6.3V 115%		1609	12 Volt Versions 6 Volt Versions

POWER RECTIFIERS

ITEM No.	BATING CURRENT (Measured)	REPLACEMENT DATA		NOTES
		Poly-Com PART No.	SARKES TAZJIAN PART No.	
M2	.100A	F6 *	IN1763	* Some versions may use 60E5
M3	.100A	F6 *	IN1763	* Some versions may use 40E5
M4	.001A	K200 *	IN1763	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		Poly-Com PART No.	GENERAL ELECTRIC PART No.	
M5	HD6226		RAYTHEON PART No.	

MISCELLANEOUS

ITEM No.	PART NAME	Poly-Com PART No.	NOTES
M6	Crystal		
M7	Crystal		
M8	Crystal		
M9	Switch		
M10	Switch		

WIRING DATA

ITEM No.	WIRING DATA	NOTES
	General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors
	Power Cord	8524 (Stranded) Available in Ten Colors
		1765-B (6 Ft. Length)
		1725-K (7 1/2 Ft. Length)



NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED BY FCC ARE PERMITTED TO MAKE CRYSTAL SUBSTITUTION OR EFFECT REPAIRS ON THE TRANSMITTER PORTION OF THIS UNIT.

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

RCA MODEL
CRM-P2A-5 (MI-555518)

TRADE NAME	RCA Model CRM-P2A-5, -MI-555518) Radiomarine
MANUFACTURER	Radio Corp. of America, Communication Products Dept., Radiomarine Marketing, Camden, N. J.
TYPE SET	AC-Battery Operated 5 Tube Crystal Controlled Citizens Band Transmitter-Receiver
POWER SUPPLY	110 - 120 Volts AC (or) 6 Volt Storage Battery (or) 12 Volt Storage Battery
RATING	30 Watts, .30 Amp. @117 Volts AC (Receiver); 37 Watts, .37 Amp. @117 Volts AC (Transmit) or 3.8 Amp. @6.3 Volts DC (Receive); 4.3 Amp. @6.3 Volts DC (Transmit) or 7.6 Amp. @12.6 Volts DC (Receive); 9.6 Amp. @12.6 Volts DC (Transmit)
TUNING RANGE	Any one of Citizens Band Channels 1 thru 22

ALIGNMENT INSTRUCTIONS

RECEIVER

Grid circuit tuning of the RF amplifier is automatically accomplished by the normal alignment for the transmitter. The receiver is tuned for the best signal-to-noise ratio on a weak modulated signal on the proper operating frequency by adjusting A6. This adjustment may be made without removing the unit from the case.

The lead length of screen bypass capacitor C8 is critical as it determines the neutralization of V1, and thus the amount of signal coupled from the superregenerative detector to the antenna circuit. If this capacitor is replaced, another of the same value and type should be used, with the same lead lengths.

In addition to the increased radiation that occurs when this tube is not neutralized, the receiver will oscillate. Oscillation will also occur if the relay does not short the crystal in the receiver position.

When squelch control is incorporated in receiver, turn to

maximum clockwise position.

TRANSMITTER

Connect DC probe of VTVM through 100K resistor to point A, low side to chassis. With the antenna disconnected, adjust A1 for maximum deflection.

Adjust A2 for minimum plate current.

Adjust A3 for maximum plate current, with antenna in place.

Adjust A4 to approximately 3/4 of maximum capacity.

The voltage variation at point A should be noted when A2 is tuned through resonance. Adjust A5 for minimum variation in grid voltage with the tuning of A2. When properly neutralized, this variation should not cause the grid voltage to be less than -5 volts.

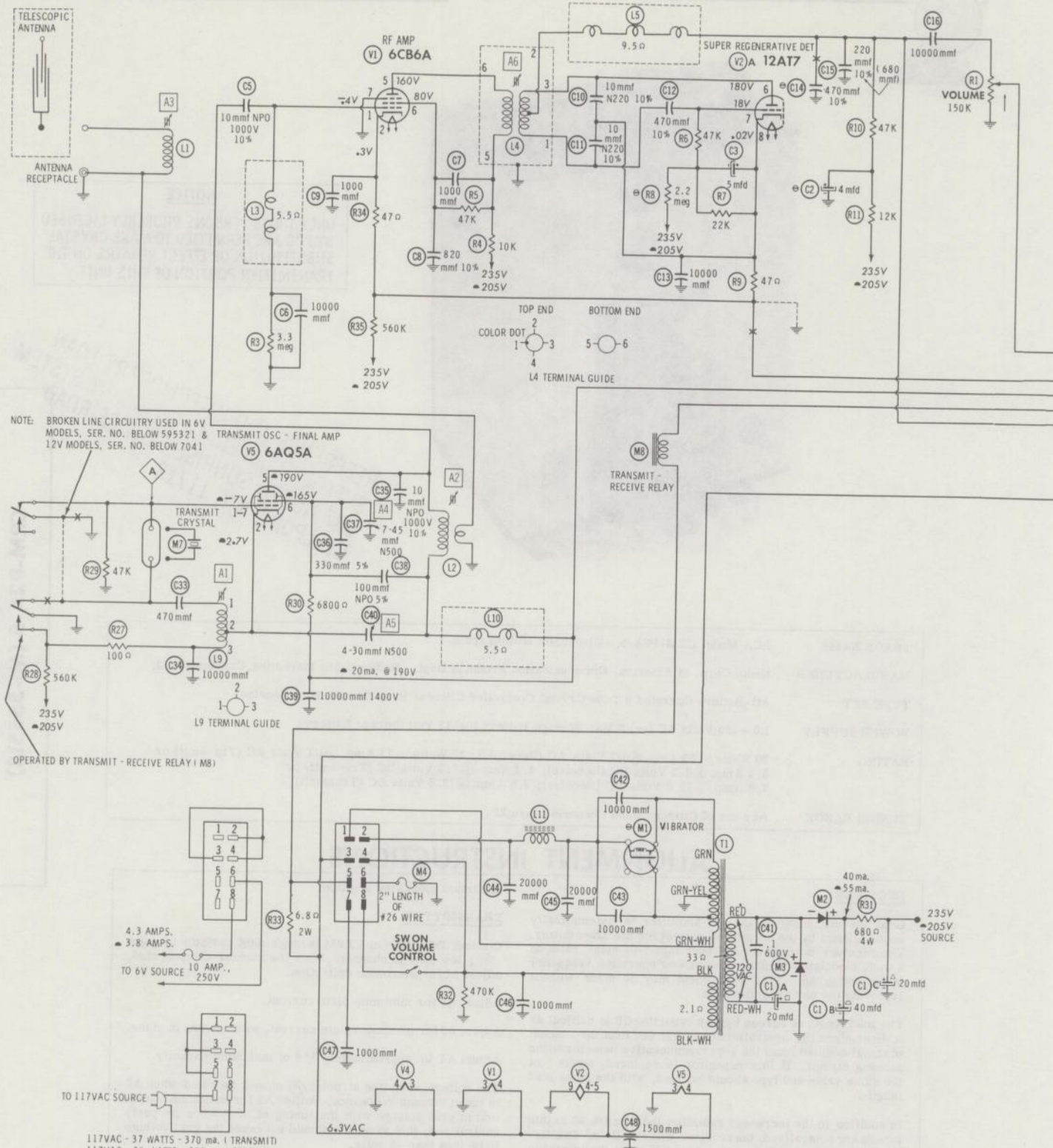
Do not readjust A2 with the antenna in place or an external antenna connected.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ547

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



RESISTANCE READINGS

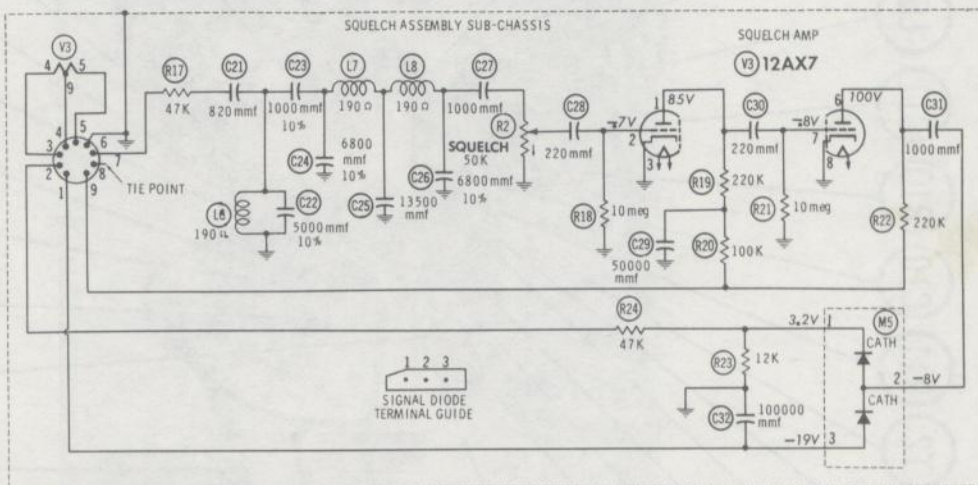
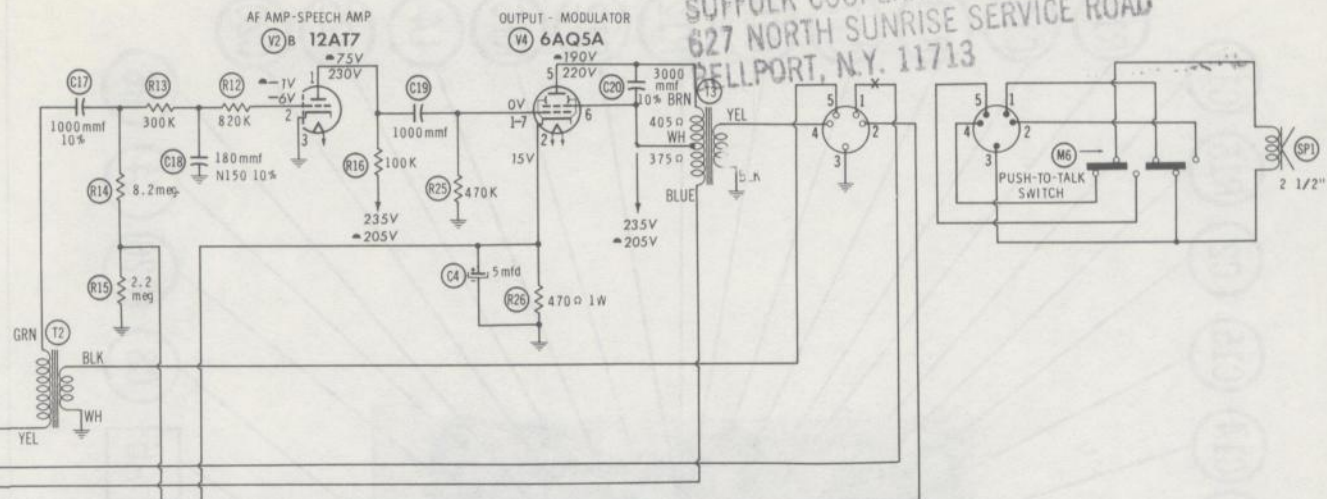
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6A	3.3meg	47Ω	0Ω	.1Ω	+10K	+57K	0Ω		
V2	12A17	+100K	11.5meg	0Ω	.1Ω	.1Ω	+60K	70K	47Ω	0Ω
V3	12AX7	+320K	10meg	0Ω	0Ω	0Ω	+220K	10meg	0Ω	.1Ω
V4	6AQ5A	470K	470Ω	.1Ω	0Ω	+1000Ω	+680Ω	470K		
V5	6AQ5A	.47K	+100Ω	0Ω	.1Ω	+1055Ω	+7100Ω	.47K		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.

▲ MEASURED IN "TRANSMIT" POSITION.

† MEASURED FROM OUTPUT OF M2.

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DELLPORT, N.Y. 11713



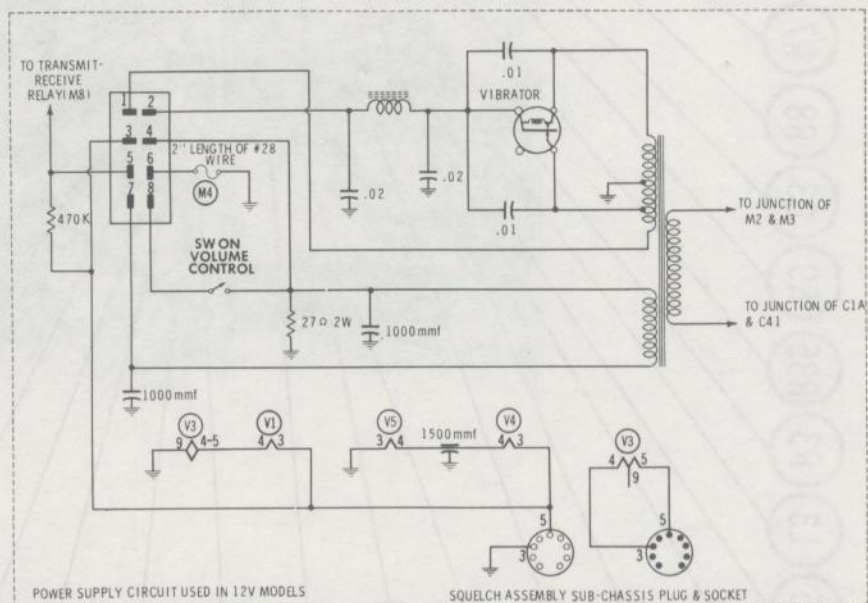
SEE PARTS LIST FOR ALTERNATE
VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM
NOT SHOWN ON SCHEMATIC DIAGRAM

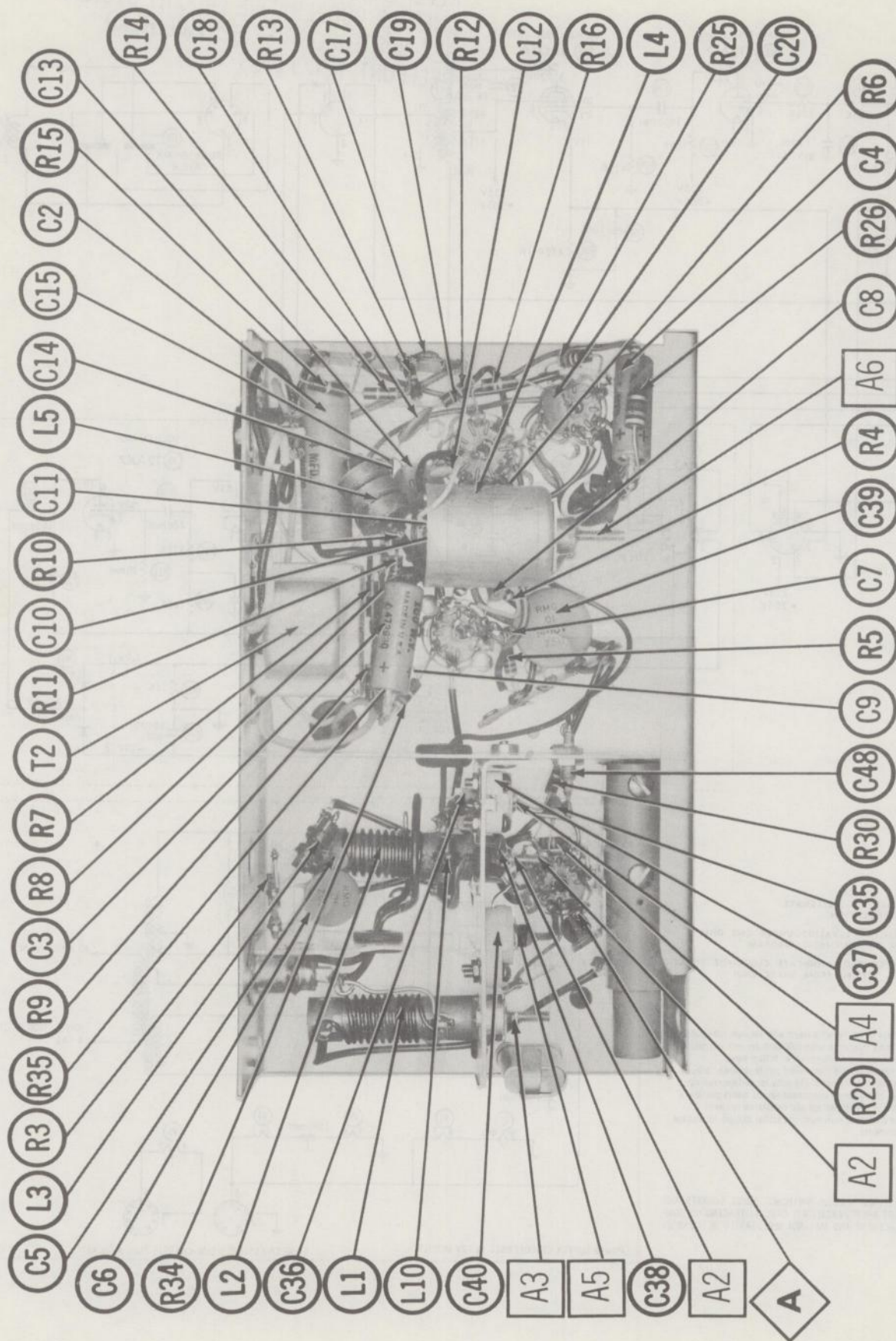
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION
(CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter;
AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a
variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage
measurements.

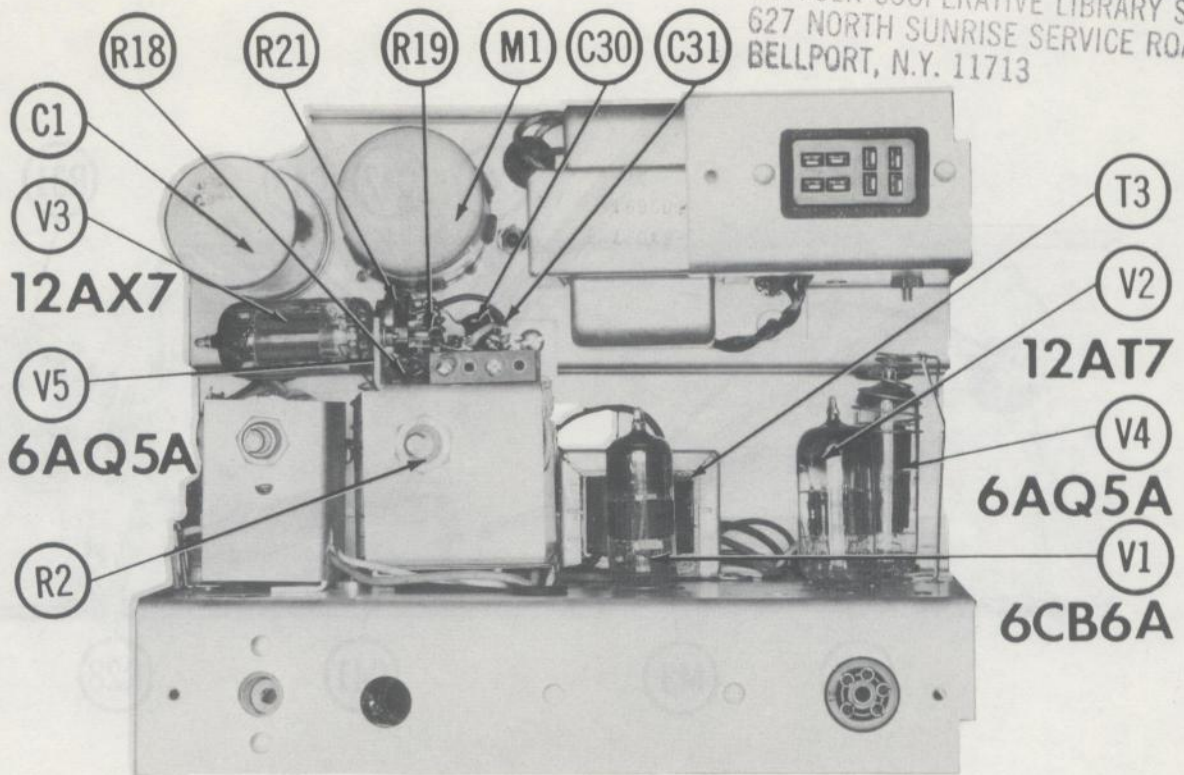
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND
TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COM-
PONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON
THE UNIT.



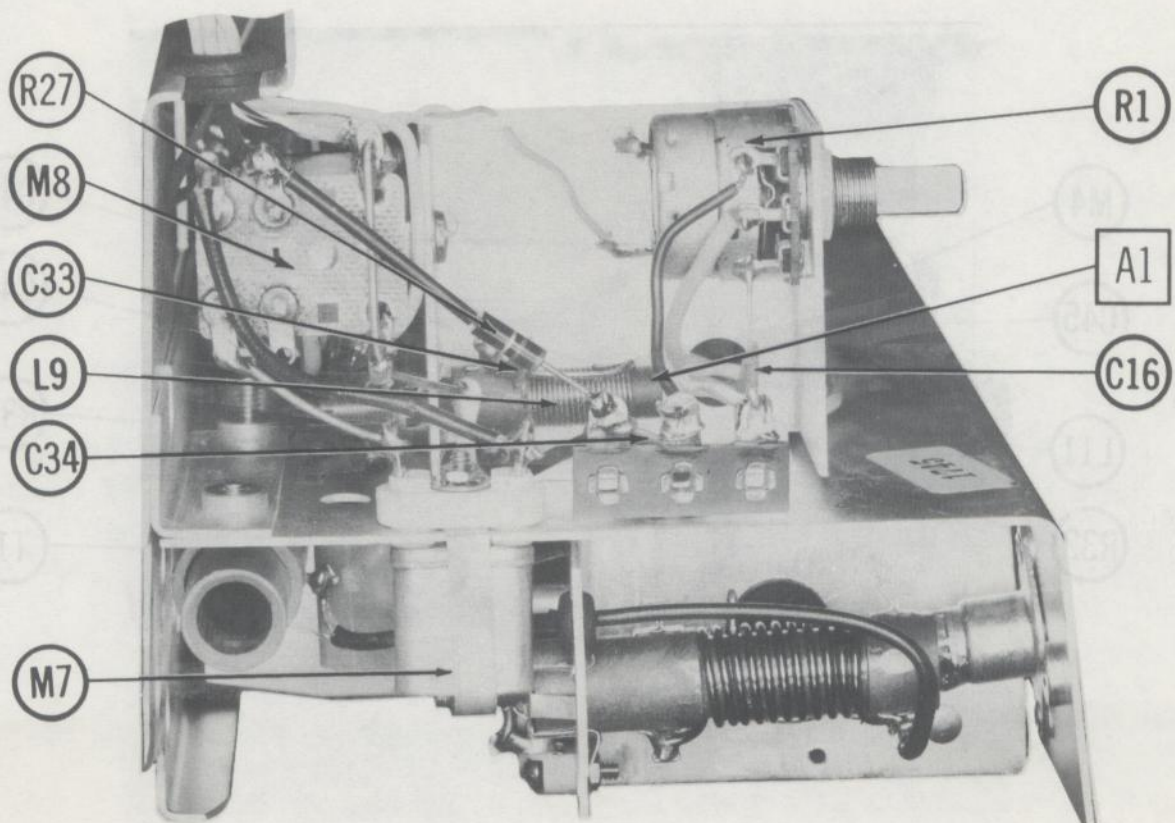
RCA MODEL
CRM-P2A-5 (MI-555518)



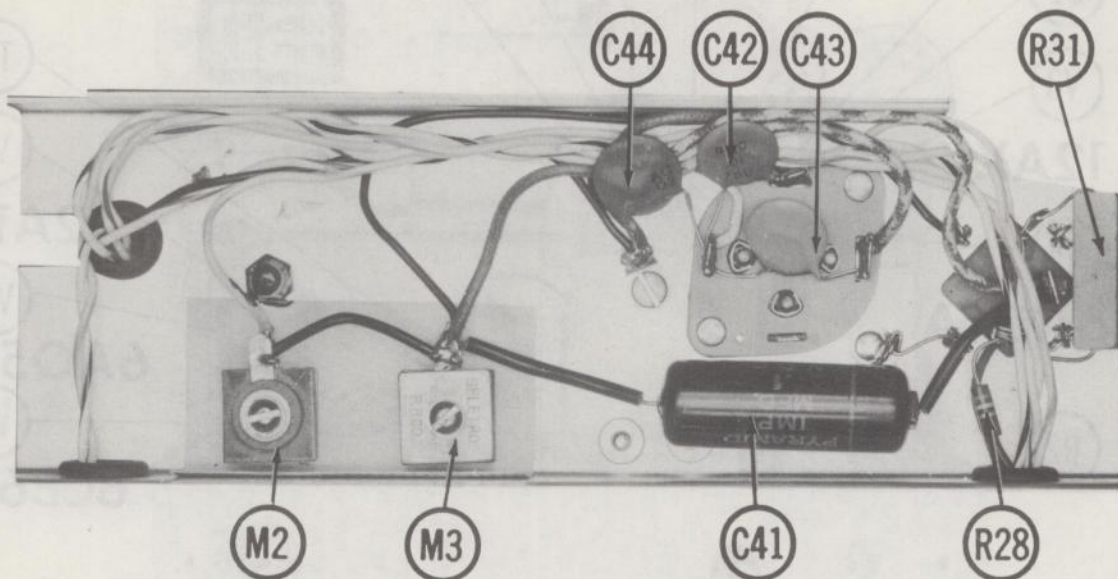
CHASSIS - BOTTOM VIEW



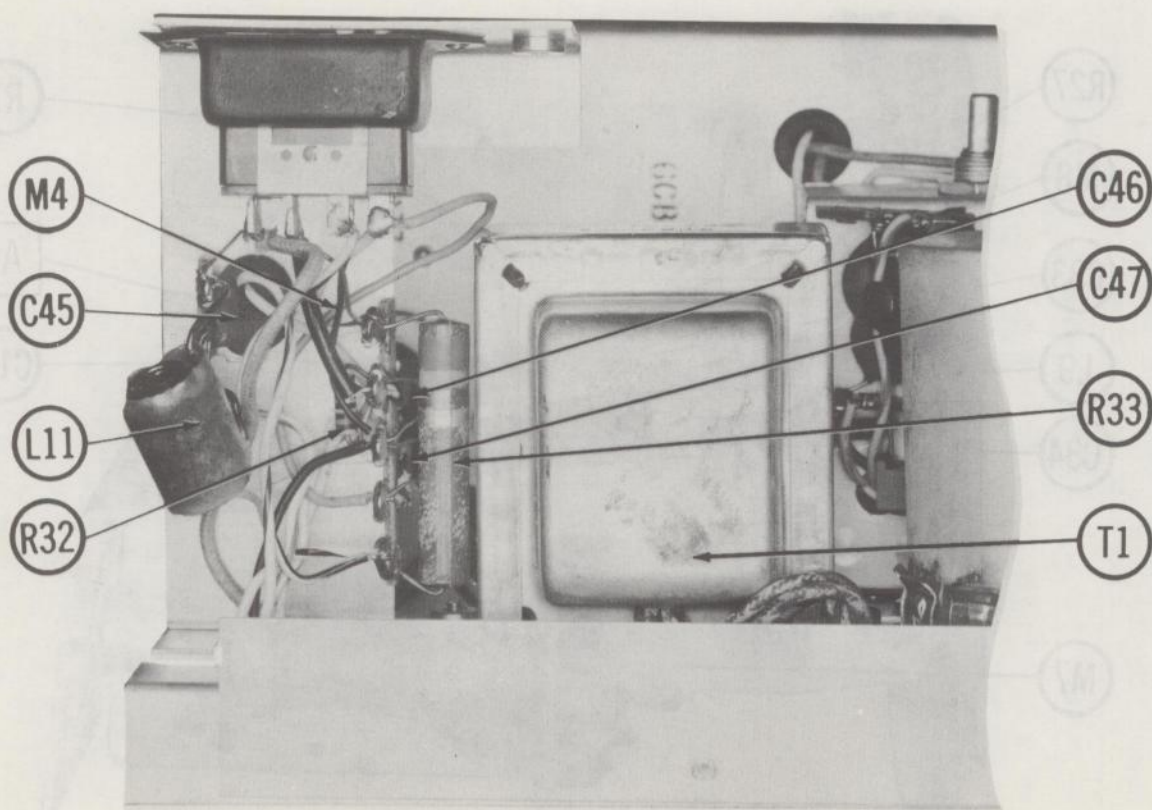
CHASSIS-TOP VIEW



TRANSMITTER SECTION



VIBRATOR CHASSIS-BOTTOM VIEW



POWER SECTION

SQUELCH UNIT

PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	6CB6A	V3	Squelch Amp.	12AX7
V2	Superregen. Det.-AF Amp.-Speech Amp.	12AT7	V4	Output-Modulator	6AQ5A
			V5	Trans. Osc.-Final Amp.	6AQ5A

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	RCA PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	20 350		AFR4-04	C0150	FP420-35	TMD-2640	
C1B	40 350					TD-40-350	
C2	4 350		PRS1600	BR435	TC697	TD-4-450	
C3	5 100		SRE150V5	BR4-150	TC40	TD-4-150	
C4	5 25		PRS1310	BRG-50	TC30	TD-5-25	

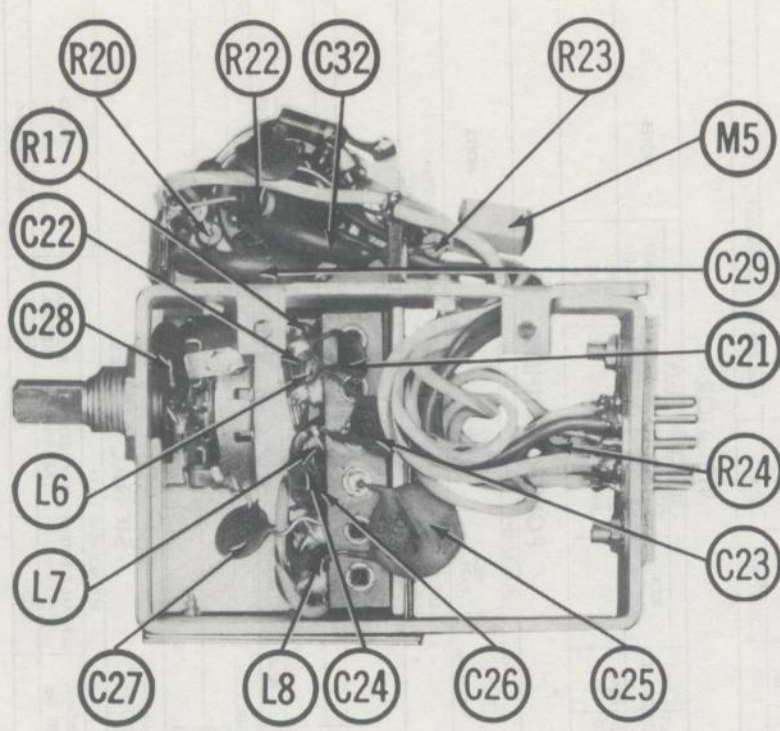
① Some versions may use 5mfd in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNEILL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	10 1000V NPO 10%		BFD-01	DD-103	C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C6	10000		BFD-001	DD-102	BYA10S1	CCD-103	B-110	SHK-S10
C7	1000		DI-820	DD-821	BYA10D1	CCD-102	B-120	SHK-D10
C8	820 10%		BFD-001	DD-102	5RST82	CCD-821	GP362	10TS-T82
C9	1000				BYA10D1	CCD-102	B-210	SHK-D10
C10	10 N220 10%		DI-470	DD-471	5RST47	CCD-221	GP347	10TCR-Q10
C11	10 N220 10%		BFD-01	DD-103	BYA10S1	CCD-103	B-110	10TS-T87
C12	470 10%		DI-470	DD-471	5RST47	CCD-471	GP347	SHK-S10
C13	10000		DI-220	DD-221	LI0T22	CCD-221	GP322	10TS-T87
C14	470 10%	Note 1	DI-220	DD-221	BYA10S1	CCD-103	B-110	10TS-T82
C15	220 10%	(680) †	BFD-01	DD-103	BYA10S1	CCD-103	GP210	SHK-S10
C16	10000		DI-1000	DD-102	5RSD1	CCD-102		10TS-D10
C17	1000 10%							
C18	180 N150 10%		BFD-001	DD-102	BYA10D1	CCD-102	B-210	SHK-D10
C19	1000		DI-3000	DD-3000	PM6D3	CCD-302	JL-233	10TS-D30
C20	3000 10%		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82
C21	820		DI-5000	DD-5000	IR5D5	CCD-502	JL-250	10TS-D50
C22	5000 10%		DI-1000	DD-1000	5RSD1	CCD-102	GP210	10TS-D10
C23	1000 10%		DI-6800	DD-6800	IDRSD68	CCD-682		10TS-D68
C24	6800 10%		DI-10000	DD-10000	IDRSD68	CCD-682		10TS-S10
C25	13500 25%		BFD-001	DD-1000	BYA10D1	CCD-102	B-210	SHK-D10
C26	6800 10%		DI-220	DD-221	LI0T22	CCD-221	GP322	10TS-T82
C27	1000		BFD-001	DD-103	BYA10S1	CCD-103	B-110	SHK-S10
C28	220		DI-220	DD-221	LI0T22	CCD-221	GP322	10TS-T82
C29	50000		BFD-05	DD-503	H-05S5	CCD-503	GP150	SHK-S5
C30	220		DI-220	DD-221	LI0T22	CCD-221	B-322	10TS-T22
C31	1000		BFD-001	DD-102	BYA10D1	CCD-102	B-210	SHK-D10
C32	100000 75V		BFD-00047	DDA-104	H-05P1	CCD-471	B-347	10TS-T47
C33	470		BFD-01	DD-103	BYA10S1	CCD-103	B-110	SHK-S10
C34	10000				C10Q1C	CCCTO-100	CNO-410	10TCC-Q10
C35	10 1000V NPO 10%		1469-00033	DTZ-100	C10T1C	CCCTO-101	CNO-310	10TCC-T10
C36	330 5%		NPO-DI 100	DD16-103	HVE18S1	16DP-3-103	UAC-110	BL-S10
C37	7-45 N500		DAC-27				5554-N	
C38	100 NPO 5%						GEM-411	SHK-M19
C39	10000 1400V						B-110	SHK-S10
C40	4-30 N500						B-120	SHK-S20
C41	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	B-120	SHK-S20
C42	10000		BFD-01	DD-103	BYA10S1	CCD-103	B-210	SHK-D10
C43	10000		BFD-01	DD-103	BYA10S1	CCD-103	B-210	SHK-D10
C44	20000		BFD-02	DD-203	BY66S2	CCD-203	B-210	SHK-D10
C45	20000		BFD-02	DD-203	BY66S2	CCD-203	B-210	SHK-D10
C46	1000		BFD-001	DD-102	BYA10D1	CCD-102	B-210	SHK-D10
C47	1000		BFD-001	DD-102	BYA10D1	CCD-102	B-210	SHK-D10
C48	1500		EF-0015	DD-102	BYA10D1	CCF-152	FC5215	

† Alternate Value.
Note 1. Not used in some versions.



REFERENCE AND INTERLIBRARY LOAN
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BELLPORT, N.Y. 11713

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	150K	1/2	B-44	A47-150K-S	Q13-128	U42	Volume
R1B	50K	1/2	Not Req.	FS-3	Not Req.	Not Req.	Power Off-On
R2A	50K	1/2	B-31	SWR-12	76-1	U35	Squelch
R2B	50K	1/2	Not Req.	A47-50K-S	Q11-123	Not Req.	
R3	50K	1/2	Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.			IRC PART No.	WORKMAN TV PART No.	
R3	3.3meg			R20	100K			
R4	10K			R21	10meg			
R5	47K			R22	220K			
R6	47K			R23	12K			
R7	22K			R24	47K			
R8	2.2meg			R25	470K			
R9	47K			R26	470K 1W			
R10	47K			R27	100K			
R11	12K			R28	560K			
R12	820K			R29	47K			
R13	300K			R30	680K			
R14	8.2meg			R31	680K 4W			
R15	2.2meg			R32	470K			
R16	100K			R33	6.8K 2W			
R17	47K			R34	47K			
R18	10meg			R35	560K			
R19	220K							

Note 1. 12 volt versions below serial #7041 and 6 volt versions below serial #595321 use 1meg.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		RCA PART No.	Merit PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant. Loading					
L2	Ant.					
L3	RF Choke (100uh)	TV-194	6112	RTC-8574	T305	
L4	Detector					
L5	RF Choke (10MH)	BC-513	4652	RTC-8532	T873	
L6	RF Choke (60MH)	BC-511	693		T948	
L7	RF Choke (60MH)	BC-511	693		T948	
L8	RF Choke (60MH)	BC-511	693		T948	
L9	Oscillator					
L10	RF Choke (100uh)	TV-194	6112	RTC-8574	T305	
L11	Hash Choke (27uh)	BC-537	5220	RTC-9182	T980	

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	SEC. 2	RCA PART No.	Merit PART No.	Stancor PART No.	
T1	117V @ .37A (AC only)	120V @ .190A (AC only)	6.3V @ 1.8A (AC only)	C-8702756			

TRANSFORMER (MIC.)

ITEM No.	TURNS RATIO		REPLACEMENT DATA				NOTES
	PRI.	SEC.	RCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T2	1	25	C-8702753	A-4748			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRI.	SEC.	RCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T3	15K CT	3-4K	C-8702754	A-2800	A-3856	24504	S-61X

SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA				NOTES
	SIZE	FIELD	V. C. IMP.	RCA PART No.	QUAM PART No.		
SP1	2 1/2"	PM	3-4K	8702750-1	25A07		Used For Mic. and Speaker

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				RCA PART No.	CORNELL-CORNER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	6.3	115K		5301	1801	5301	
	Interrupter	12.6	115K		6301	6101	6301	

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	RCA PART No.	REPLACEMENT DATA				NOTES
			SARKES PART No.	TARZIAN PART No.	Sylvania PART No.		
M2	.040A						
M3	.040A		1N1783 *	85A *	SR200 *		* Selenium Type
			1N1783 *	85A *	SR200 *		* Silicon Type

FUSES

ITEM No.	TYPE	RATING	RCA PART No.		REPLACEMENT DATA		BUSS PART No.
			FUSE	HOLDER	FUSE	HOLDER	
M4	2" Length #28 Wire						
	3AG 10A ①				313010		
	250V				(3AG 10A 250V)		AGC 10
	3AG 5A ②				313006		
	250V				(3AG 5A 250V)		AGC 5

① Used in 6 Volt versions.
② Used in 12 Volt versions.

SIGNAL DIODES

ITEM No.	ORIG. TYPE	RCA PART No.		REPLACEMENT DATA		NOTES
		GENERAL ELECTRIC PART No.	RAYTHEON PART No.	Sylvania PART No.		
M5			6GD1			Dual Selenium

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
M6	Switch		
M7	Crystal		
M8	Relay		

Push-to-talk (DPDT Slide Type)
Order By Desired Frequency
Specify 6 or 12 Volt Unit

WIRING DATA

General-use Unshielded Hook-up Wire		Use BELDEN No. 8530 (Solid) Available in Ten Colors	
Power Cord		8524 (Stranded) Available in Ten Colors	
		1705-B (6 Ft. Length)	
		1725-K (7 1/2 Ft. Length)	



REFERENCE
SUFFOLK
627
BELLPORT, N.Y. 11713

INTERLIBRARY LOAN
LIBRARY SYSTEM
HOUSE SERVICE ROAD



SONAR
MODEL E

TRADE NAME	Sonar Model E
MANUFACTURER	Sonar Radio Corp., 3050 W. 21st Street, Brooklyn 24, N. Y.
TYPE SET	AC-Battery Operated 9 Tube Citizens' Band Transmitter-Receiver
POWER SUPPLY	110-120 Volts AC (or) 6 Volt Storage Battery (or) 12 Volt Storage Battery
RATING	50 Watts, .48 Amp. @117 Volts AC (or) 4 Amp. @12.6 Volts DC (or) 8 Amp. @6.3 Volts DC
TUNING RANGE	Any 8 of Citizens' Band Channels 1 Thru 22 (Receiver May be Continuously Tuned Thru Band)

NOTICE

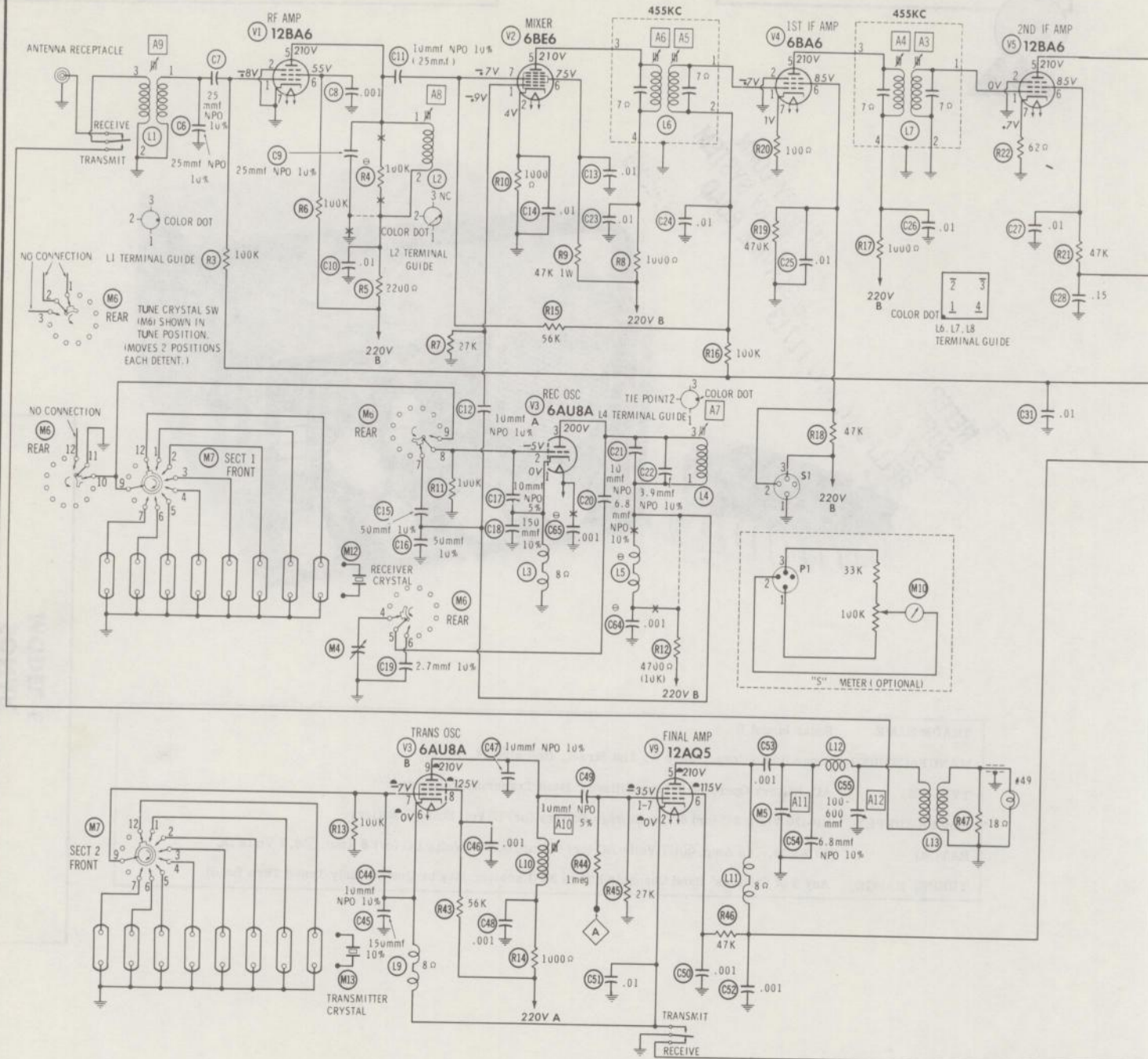
ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



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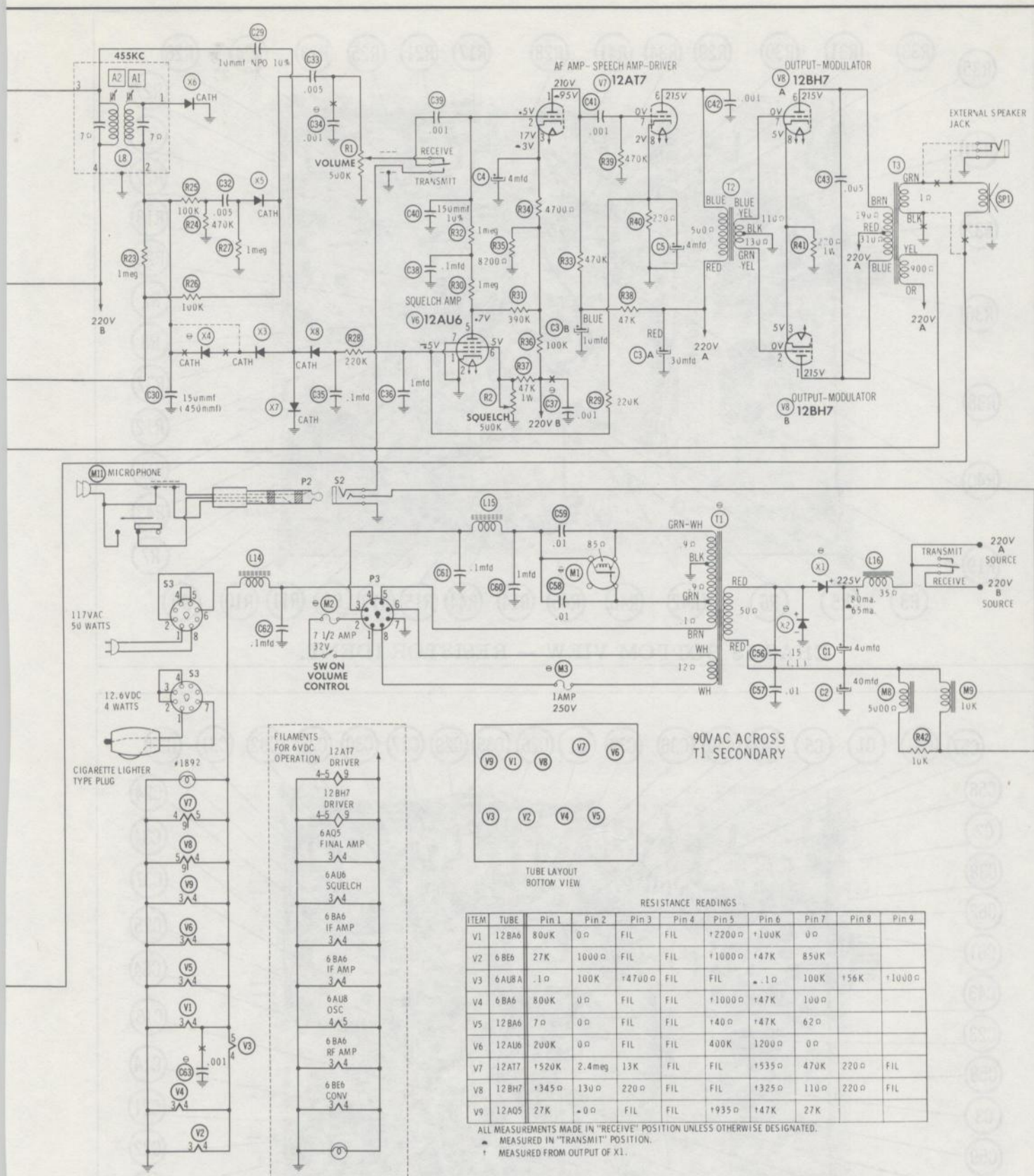
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

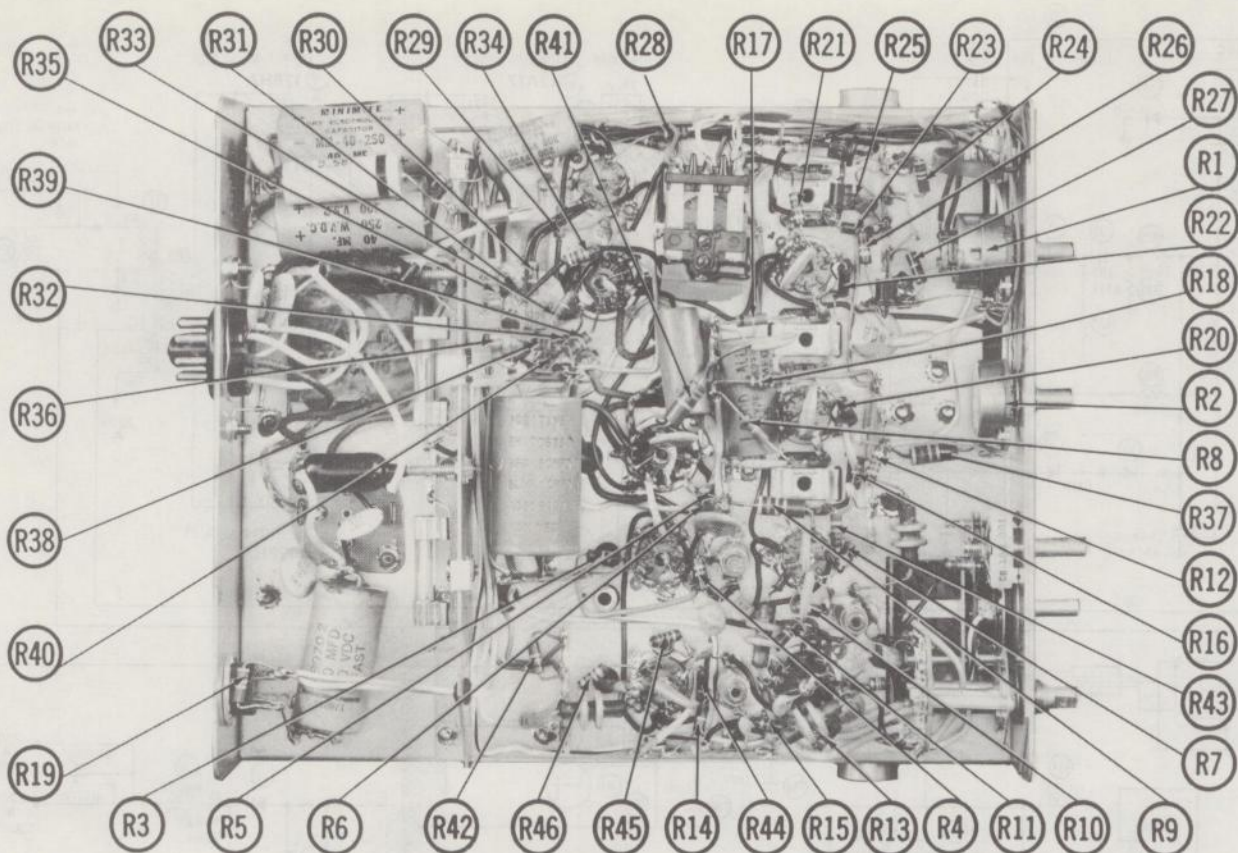
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of -15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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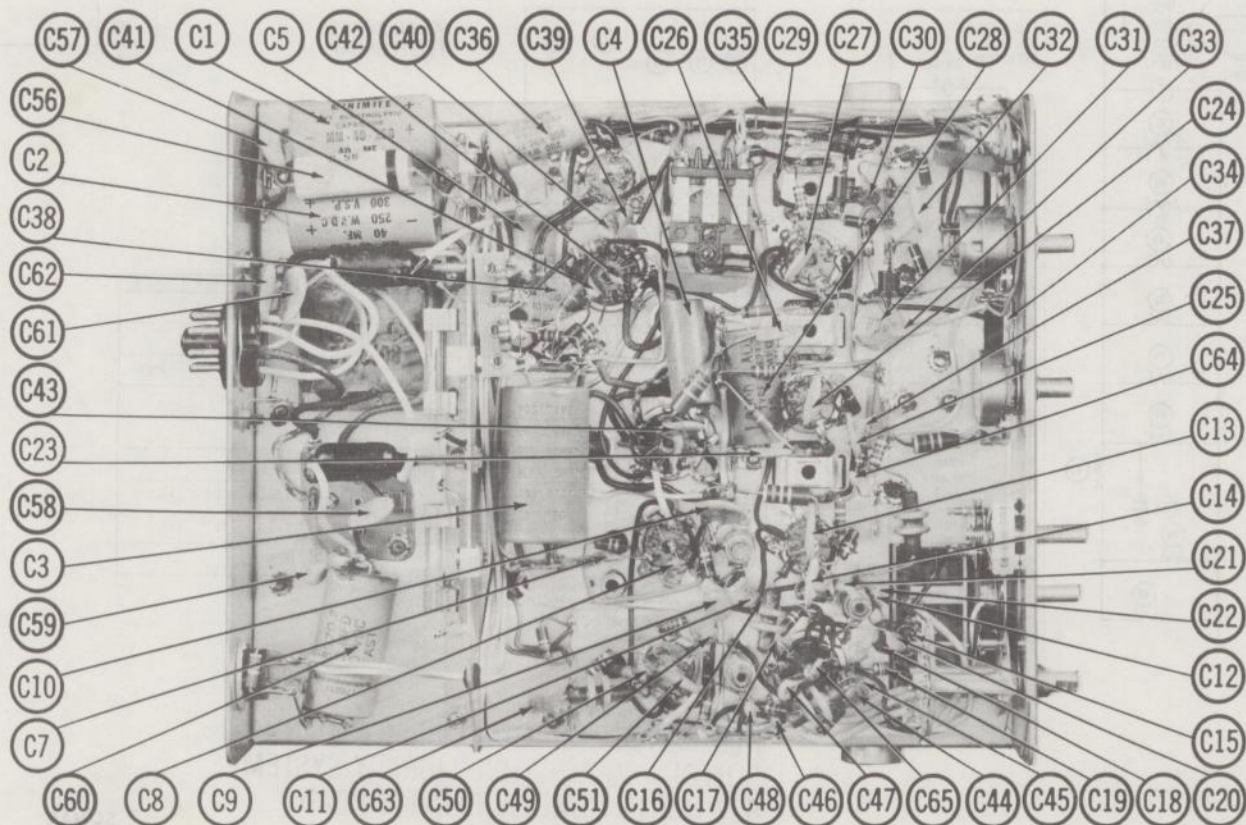


REFERENCE AND INTERLIBRARY LOAN
 SUFFOLK COOPERATIVE LIBRARY SYSTEM
 627 NORTH SUNRISE SERVICE ROAD
 BELLPORT, N.Y. 11713

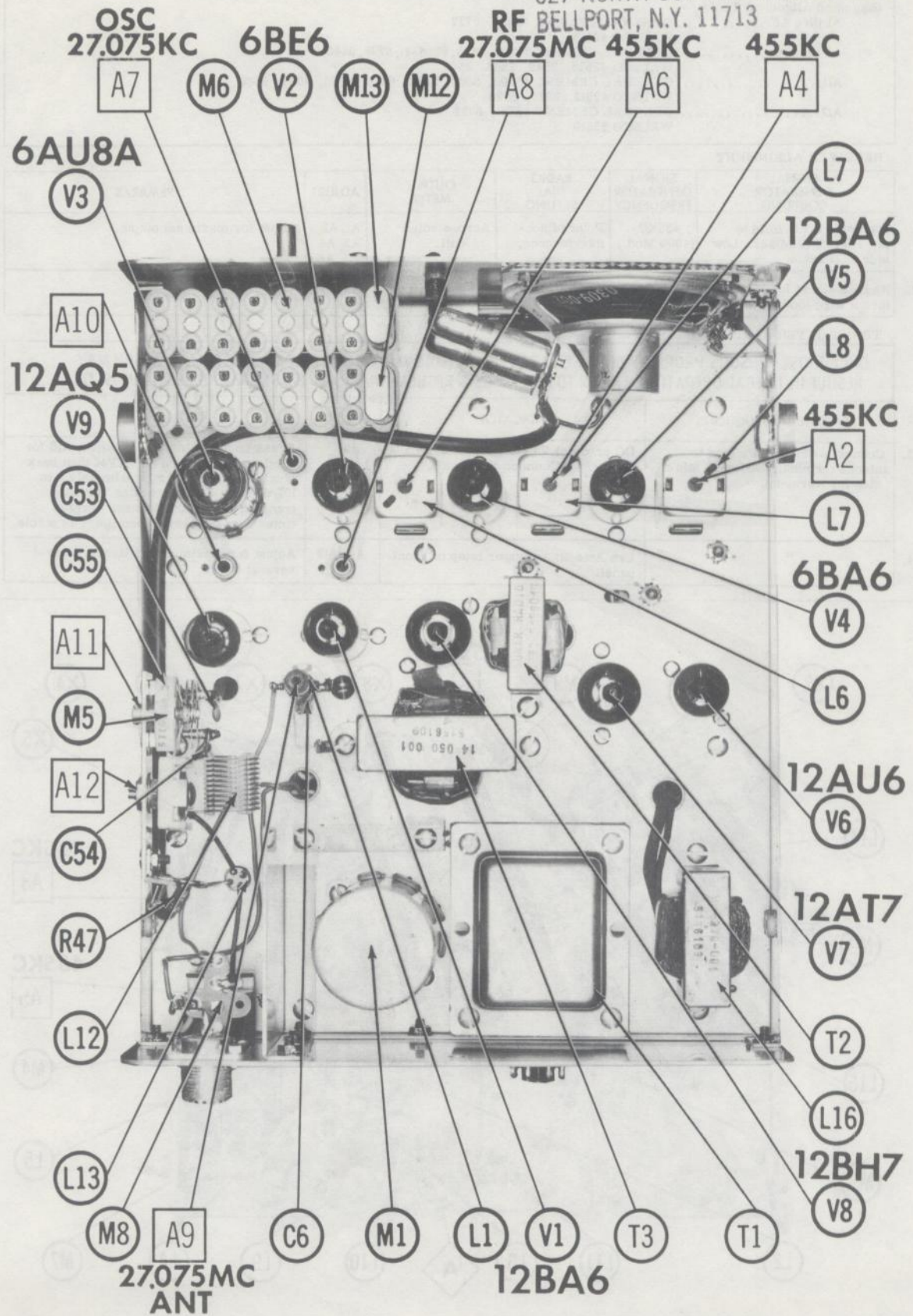
SONAR
 MODEL E



CHASSIS BOTTOM VIEW — RESISTOR IDENT.



CHASSIS BOTTOM VIEW — CAPACITOR IDENT.



CHASSIS — TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

- A1 thru A6..... GENERAL CEMENT #5097, 8727
WALSCO #2515
- A7 thru A10..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
- A11..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
- A12..... GENERAL CEMENT #8721, 8722
WALSCO #2519

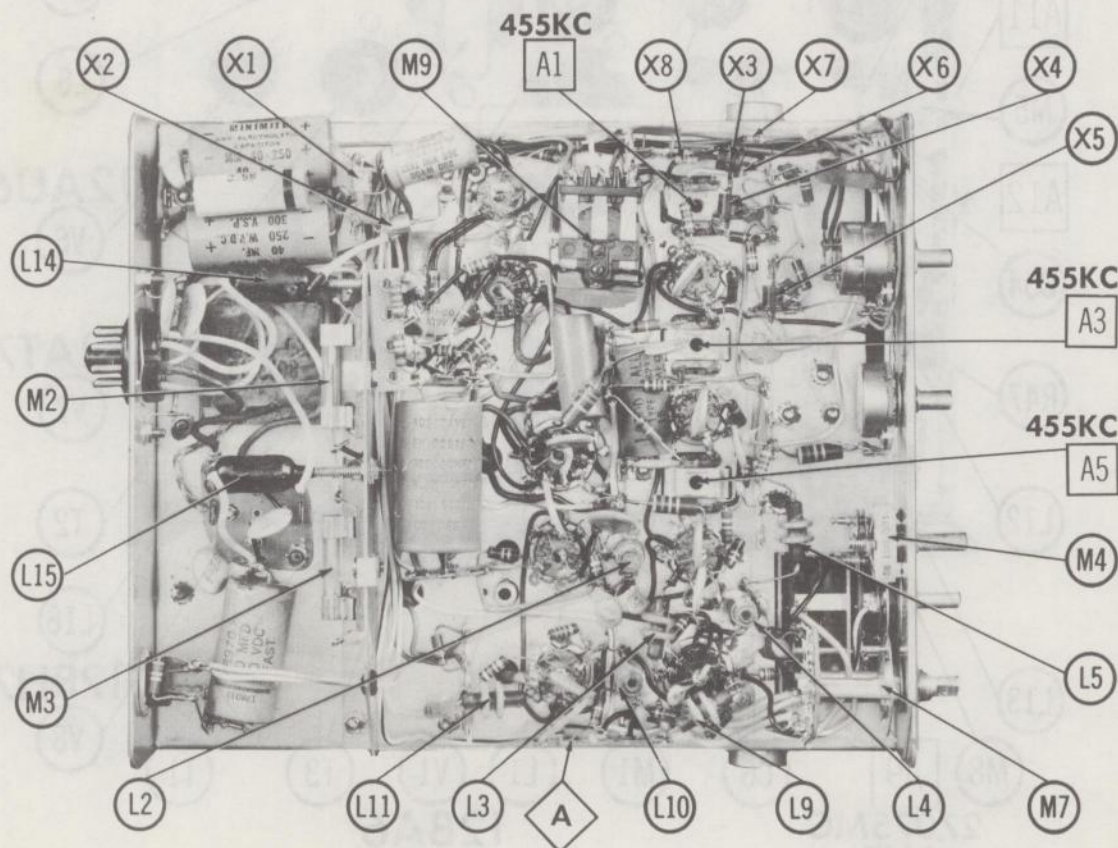
RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Mixer. Low side to chassis.	455KC (400v Mod.)	Point of non-interference.	Across voice coil.	A1, A2, A3, A4 A5, A6	Adjust for maximum output.
2.	Radiate signal into antenna thru a wire loop.	27.075MC	(Tune) Channel 10	"	A7, A8, A9	"

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
3.	Connect a 75Ω dummy load to antenna terminal. Allow 10 minutes for warm-up.	DC probe of VTVM connected to point Δ . Common to chassis.	A10	Press transmit button and adjust A10 for maximum deflection on VTVM then back slug out of coil for approximately 5 to 10% drop in Voltage reading. Release transmit button and depress several times to make certain oscillator is stable.
4.	"	Use Antenna indicator lamp on front panel.	A11, A12	Adjust for maximum brilliance. Repeat several times.



CHASSIS BOTTOM VIEW-ALIGN., INDUCTOR & MISC IDENT

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No. 8524 (Stranded) Available in 12 Colors
8237 Low Loss (RG-8/U) Type	
8240 (Solid) Miniature (RG-58/U)	
8259 (Stranded) Miniature (RG-58/U)	
8497 3 Conductor-1 Shielded for Press-to-Talk (Neoprene)	
8496 3 Conductor-1 Shielded for Press-to-Talk (Vinyl)	
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8861 (3/8 In.)

TUBES

GENERAL ELECTRIC				RAYTHEON				SYLVANIA			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BA6	V6	Squelch Amp.	12AU6	V7	AF Amp.-Speech Amp.-Driver	12AT7	V8	Output-Modulator	12BH7
V2	Mixer	6BE6	V9	Final Amplifier	12AQ5						
V3	Rec. Osc.-Trans. Osc.	6AU6									
V4	1st IF Amplifier	6BA6									
V5	2nd IF Amplifier	12BA6									

POWER RECTIFIERS & SIGNAL DIODES

RECTIFIERS				DIODES			
ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RCA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES	
X1	.080A	19-040-002	1N763	40H		* Not used in some versions.	
X2	.080A	19-040-002	1N763	40H			
X3		19-040-001	1N763	2F4			
X4		19-040-001*	1N763	2F4			
X5		19-040-001	1N763	2F4			
X6		19-050-001	1N763				
X7		19-050-001					
X8		19-050-001					

ELECTROLYTIC CAPACITORS

REPLACEMENT DATA				REPLACEMENT DATA			
ITEM No.	BATING	VOIT.	AEROVOX PART No.	CORNEILL DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	40	250	PR5180	BR4025	QTI-14	TC58	TVA-1511
C2	40	250	PR5180	BR4025	QTI-14	TC58	TVA-1511
C3A	30	350	PR5240	BR5240	QTI-14	TC58	TVA-1511
C4	4	10	PR51400	BR51400	QTI-2	TT50X4	TE-1123
C5	4	10	PR51400	BR51400	QTI-2	TT50X4	TE-1123

FIXED CAPACITORS

REPLACEMENT DATA				REPLACEMENT DATA			
ITEM No.	BATING	REMARKS	AEROVOX PART No.	CORNEILL DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CNO-425	10TCC-Q25
C7	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CNO-425	10TCC-Q25
C8	.001		BPD-001	DD-102	C10Q25C	CNO-425	10TCC-Q25
C9	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CNO-425	10TCC-Q25
C10	.01		BPD-01	DD-103	C10Q25C	CNO-425	10TCC-Q25
C11	10 NPO 10%	(25) †	NPO-DI 10	DTZ-10	C10Q25C	CNO-410	10TCC-Q10
C12	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q25C	CNO-410	10TCC-Q10
C13	.01		BPD-01	DD-103	C10Q25C	CNO-410	10TCC-Q10

FIXED CAPACITORS (cont)

REPLACEMENT DATA				REPLACEMENT DATA			
ITEM No.	RATING	REMARKS	AEROVOX PART No.	CORNEILL DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C14	.01		BPD-01	DD-103	C10Q25C	CNO-410	10TCC-Q10
C15	50 10%		1469-00005	TCZ-50	C10Q25C	CNO-410	10TCC-Q10
C16	50 10%		1469-00005	TCZ-50	C10Q25C	CNO-410	10TCC-Q10
C17	10 NPO 5%		NPO-DI 10	DTZ-10	C10Q25C	CNO-410	10TCC-Q10
C18	150 10%		DI-150	DD-151	C10Q25C	CNO-410	10TCC-Q10
C19	2.7 10%		NPO-SI 3.0	DTZ-6R8	C10Q25C	CNO-410	10TCC-Q10
C20	6.8 NPO 10%		NPO-DI 6.8	DTZ-10	C10Q25C	CNO-410	10TCC-Q10
C21	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q25C	CNO-410	10TCC-Q10
C22	3.9 NPO 10%		NPO-DI 10	DTZ-10	C10Q25C	CNO-410	10TCC-Q10
C23	.01		BPD-01	DD-103	C10Q25C	CNO-410	10TCC-Q10
C24	.01		BPD-01	DD-103	C10Q25C	CNO-410	10TCC-Q10
C25	.01		BPD-01	DD-103	C10Q25C	CNO-410	10TCC-Q10
C26	.01		BPD-01	DD-103	C10Q25C	CNO-410	10TCC-Q10
C27	.01		BPD-01	DD-103	C10Q25C	CNO-410	10TCC-Q10
C28	.15 200V		P288N-15	DD-103	C10Q25C	CNO-410	10TCC-Q10
C29	10 NPO 10%	(450) †	NPO-DI 10	DTZ-10	C10Q25C	CNO-410	10TCC-Q10
C30	150 10%		DI-150	DD-151	C10Q25C	CNO-410	10TCC-Q10
C31	.01		BPD-01	DD-103	C10Q25C	CNO-410	10TCC-Q10
C32	.005		BPD-005	DD-102	C10Q25C	CNO-410	10TCC-Q10
C33	.005		BPD-005	DD-102	C10Q25C	CNO-410	10TCC-Q10
C34	.001	Note 1	BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C35	1mfd 100V		P288N-1.0	DD-102	C10Q25C	CNO-410	10TCC-Q10
C36	1mfd 200V	Note 1	BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C37	1mfd 100V		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C38	1mfd 100V		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C39	1mfd 100V		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C40	150 10%		DI-150	DD-151	C10Q25C	CNO-410	10TCC-Q10
C41	.001		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C42	.001		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C43	.005		BPD-005	DD-102	C10Q25C	CNO-410	10TCC-Q10
C44	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q25C	CNO-410	10TCC-Q10
C45	150 10%		DI-150	DD-151	C10Q25C	CNO-410	10TCC-Q10
C46	.001		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C47	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q25C	CNO-410	10TCC-Q10
C48	.001		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C49	10 NPO 5%		NPO-DI 10	DTZ-10	C10Q25C	CNO-410	10TCC-Q10
C50	.001		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C51	.001		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C52	.001		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C53	.001		BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C54	6.8 NPO 10%		NPO-DI 6.8	DTZ-6R8	C10Q25C	CNO-410	10TCC-Q10
C55	100-600	#09-210-001					
C56	.15 400V	(.1) †	P488N-15	DD-103	C10Q25C	CNO-410	10TCC-Q10
C57	.01		BPD-01	DD-103	C10Q25C	CNO-410	10TCC-Q10
C58	.01		BPD-01	DD-103	C10Q25C	CNO-410	10TCC-Q10
C59	.01		P288N-1.0	DD-103	C10Q25C	CNO-410	10TCC-Q10
C60	1mfd 50V						
C61	1mfd 100V						
C62	.001	Note 1	BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C63	.001	Note 1	BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C64	.001	Note 1	BPD-001	DD-102	C10Q25C	CNO-410	10TCC-Q10
C65	.001						

† Alternate Value.
‡ Sonar Part Number.
Note 1. Not used in some versions.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

REPLACEMENT DATA				REPLACEMENT DATA			
ITEM No.	USE	RESISTANCE	SONAR PART No.	CORNEILL DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
R1	Volume & Switch	500K	03-504-001	B-40-S, or (AB-40, AK-21, KR-2)	A47-500K-Z/RS-2, SWE-20	Q13-133, 76-2, or (BU1, CF25, SSI, VFT)	U48, US-27, or (UA55A, SF1000, US42)
R2	Squelch	500K	03-504-003	B-40, or (AB-40, AK-21)	A47-500K-Z/RS-2	Q13-133, or (BU1, CF25, SSI, DC1)	U48 or (UA55A, SF1000)

REFERENCE AND INTERLIBRARY LOAN
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627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713
ATLANTIC, N.Y.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		IRC PART No.	WORKMAN PART No.			IRC PART No.	WORKMAN PART No.
R3	100K			R26	100K		
R4	100K			R27	1Meg		
R5	2200Ω			R28	220K		
R6	100K			R29	220K		
R7	27K			R30	1Meg		
R8	1000Ω			R31	390K		
R9	47K 1W			R32	1Meg		
R10	1000Ω			R33	470K		
R11	100K			R34	4700Ω		
R12	4700Ω			R35	8200Ω		
R13	100K			R36	100K		
R14	1000Ω			R37	47K 1W		
R15	56K			R38	47K		
R16	100K			R39	470K		
R17	1000Ω			R40	220Ω 1W		
R18	47K			R41	220Ω 1W		
R19	470K			R42	10K		
R20	100Ω			R43	56K		
R21	47K			R44	1Meg		
R22	62Ω			R45	27K		
R23	1Meg			R46	47K		
R24	470K			R47	18Ω		
R25	100K						

Note 1. Not used in some versions.

* Alternate Value

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SONAR PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.
L1	Ant.	22-030-001	SW-409	6250	RTC-8568	T232A
L2	RF	22-050-001	SW-408	6171-A	RTC-8609	T219
L3	RF Choke (250uh)	22-060-001	TV-185	6181	RTC-8598	T315
L4	Osc. Plate	22-040-001	SW-408	6171-A	RTC-8609	T216
L5	RF Choke (250uh)	22-060-001	TV-185	6181	RTC-8598	T315
L6	1st IF	22-010-002	BC-352	12-C1	RTC-8832	T807
L7	2nd IF	22-010-002	BC-353	12-C2	RTC-8833	T808
L8	3rd IF	22-010-002	BC-353	12-C2	RTC-8833	T808
L9	RF Choke (250uh)	22-060-001	TV-185	6181	RTC-8598	T315
L10	Osc. Plate	22-040-002	SW-408	6171-A	RTC-8609	T216
L11	RF Choke (250uh)	22-060-001	TV-185	6181	RTC-8598	T315
L12	Final	22-070-001				
L13	Ant. Loading	22-110-001				
L14	FIL. Choke (10uh)	22-100-003	BC-537	5220	RTC-9182	T963
L15	Hash Choke (10uh)	22-100-003	BC-537	5220	RTC-9182	T963

Note 1. Not used in some versions.

* Alternate Value

FILTER CHOKE

ITEM No.	CURRENT (Measured)	RATINGS		REPLACEMENT DATA				NOTES
		DC RES.	INDUCTANCE (0 CURRENT 1000 Ω)	SONAR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
L16	.080A	35Ω	1 HY	14-070-001				

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA				NOTES	
	PRI.	SEC. 1	SEC. 2	SONAR PART No.	Merit PART No.	Stancor PART No.		Thordarson PART No.
T1	12VCT ⓐ -180A 117V ⓑ -48A	90V ⓐ -180A AC		14-010-002 ①				① For 12VDC & 117VAC Part #14-010-001 used ? 6VDC & 117VAC

① For 12VDC & 117VAC Part #14-010-001 used for 6VDC & 117VAC

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO	REPLACEMENT DATA				NOTES
		PRI.	SEC.	SONAR PART No.	Merit PART No.	Stancor PART No.
T2	1-1			14-020-001		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE			REPLACEMENT DATA				NOTES
	PRL	SEC. 1	SEC. 2	SONAR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T3	16 K CT	14-16Ω	SEC. 2	14-050-001				
			16 K					

SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA		NOTES
			SONAR PART No.	QUAM PART No.	
	SIZE	FIELD	V. C. IMP.		
SP1	3"	PM	14-16Ω	38-043-001	

VIBRATOR

ITEM No.	TYPE	INPUT FRE. VOLTS/SEQUENCY	REPLACEMENT DATA			NOTES
			SONAR PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	12.6 VDC	29-030-001	6301	G1801	12 Volt Versions
	Interrupter	6.3 VDC	29-030-002	5301	I801	6 Volt Versions

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA						
			SONAR PART No.		LITTELFUSE PART No.		BUSS PART No.		
M2	3AG	7A 32V	42-010-008 (6VDC Oper- ation)	FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
	3AG	10A 32V		31107.5 (3AG 7A 32V)	357001	AGC 7 1/2	4405		
				311010 (3AG 10A 32V)	357001	AGC 10	4405		
	3AG	6A 32V	42-010-009 (12VDC Oper- ation)	311006 (3AG 6A 32V)	357001	AGC 6	4405		
M3	3AG	1A 250V	42-010-006 (AC Operation)	312001 (3AG 1A 250V)	357001	AGC 1	4405		
	3AG	2A 250V		312002 (3AG 2A 250V)	357001	AGC 2	4405		

MISCELLANEOUS

ITEM No.	PART NAME	SONAR PART No.	NOTES
M4	Variable Cap.	08-100-002	Receiver Oscillator
M5	Switch	08-150-003	Transmitter Output
M6	Switch	10-030-001	Tune-Crystal (Manual-Crystal Tuning, Rotary Type)
M7	Switch	10-030-002	Channel Selector (Rotary Wafer, 6 Position)
M8	Relay	18-030-001	Antenna (SPDT)
M9	Relay	18-010-001	Change-over (SPDT)
M10	"S" Meter	32-010-002	Includes Plug
M11	Microphone	43-010-001	Receive (Order by Channel & Freq. Desired)
M12	Crystal		Transmit (Order by Channel & Freq. Desired)

PHOTOFACT® Folder



SONARCOM MODEL CBP



NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
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SONARCOM
MODEL CBP

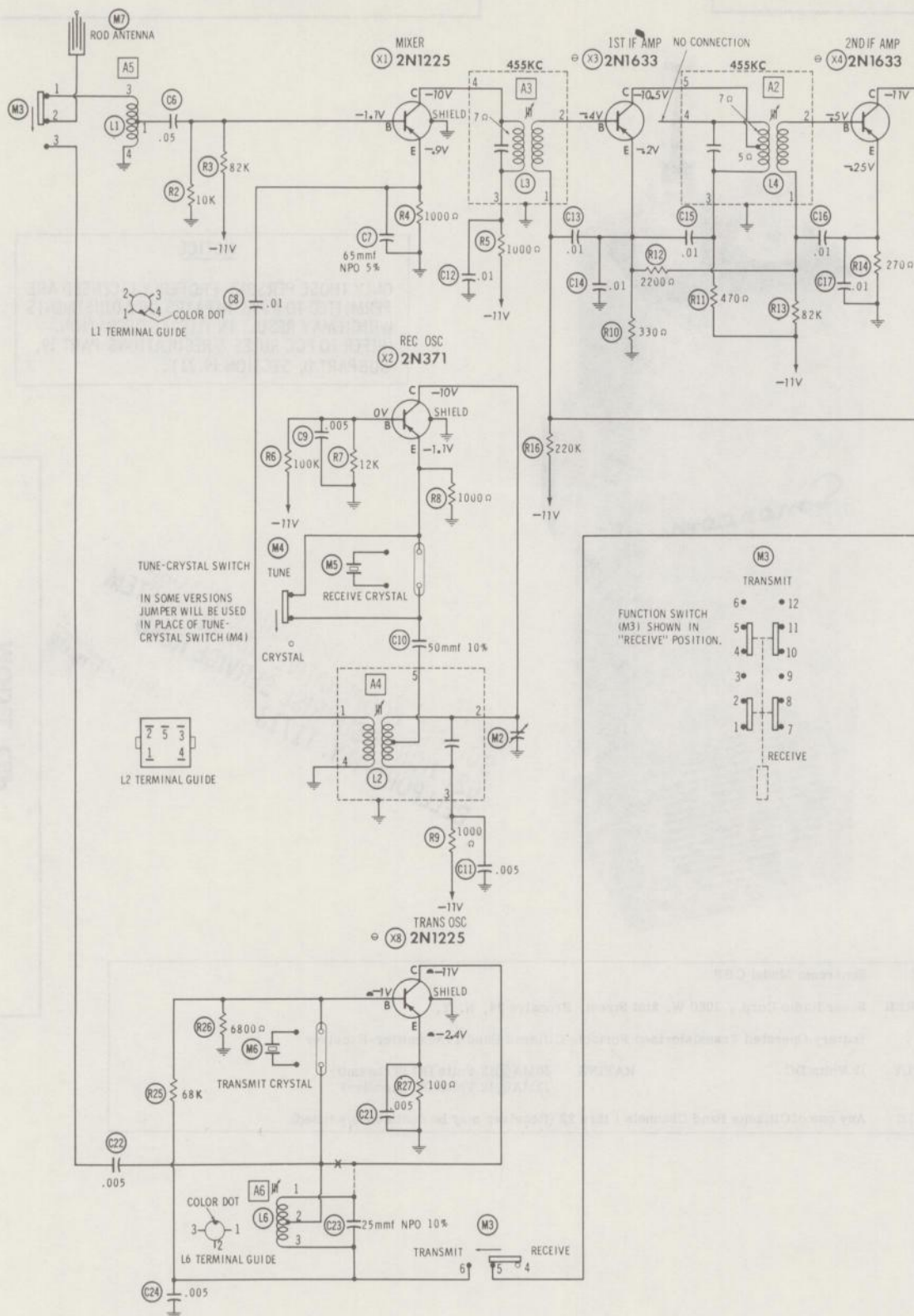
TRADE NAME	Sonarcom Model CBP		
MANUFACTURER	Sonar Radio Corp., 3050 W. 21st Street, Brooklyn 24, N. Y.		
TYPE SET	Battery Operated Transistorized Portable Citizens Band Transmitter-Receiver		
POWER SUPPLY	12 Volts DC	RATING	30MA @ 12 Volts DC (Transmit) 12MA @ 12 Volts DC (Receive)
TUNING RANGE	Any one of Citizens Band Channels 1 thru 22 (Receiver may be continuously tuned)		

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of LY259

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:

A1, A2, A3.....GENERAL CEMENT #5097, 8727

WALSCO #2515

A4, A5, A6.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440

WALSCO #2526, 2543, 2544, 2545

RECEIVER ALIGNMENT

Connect DC VTVM across Volume Control.

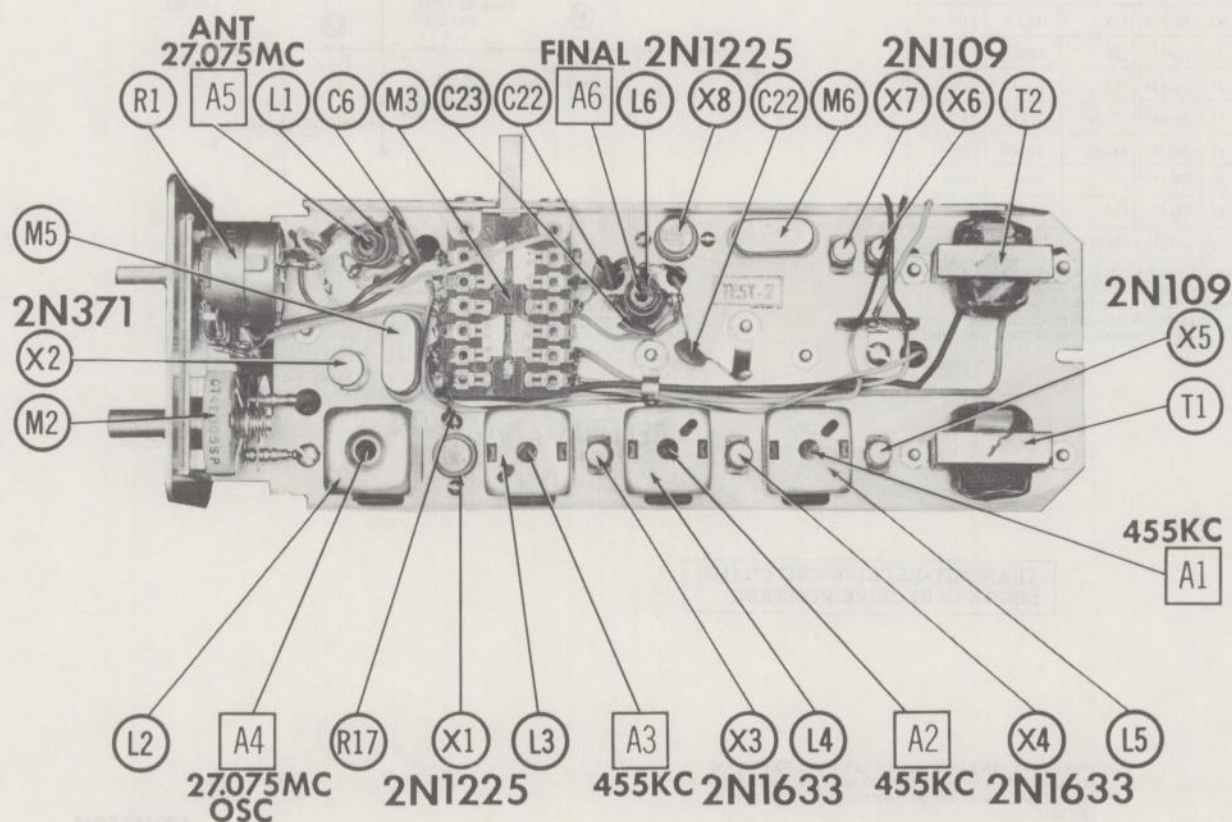
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Tune to 455KC. High side thru .01mfd to base of mixer, low side to chassis.	10	A1, A2, A3	Adjust for maximum deflection.
Tune to channel freq. and radiate signal in antenna.	10	A4, A5	Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

Output frequency should be checked by an accurately calibrated standard to be sure frequency is within .005%.

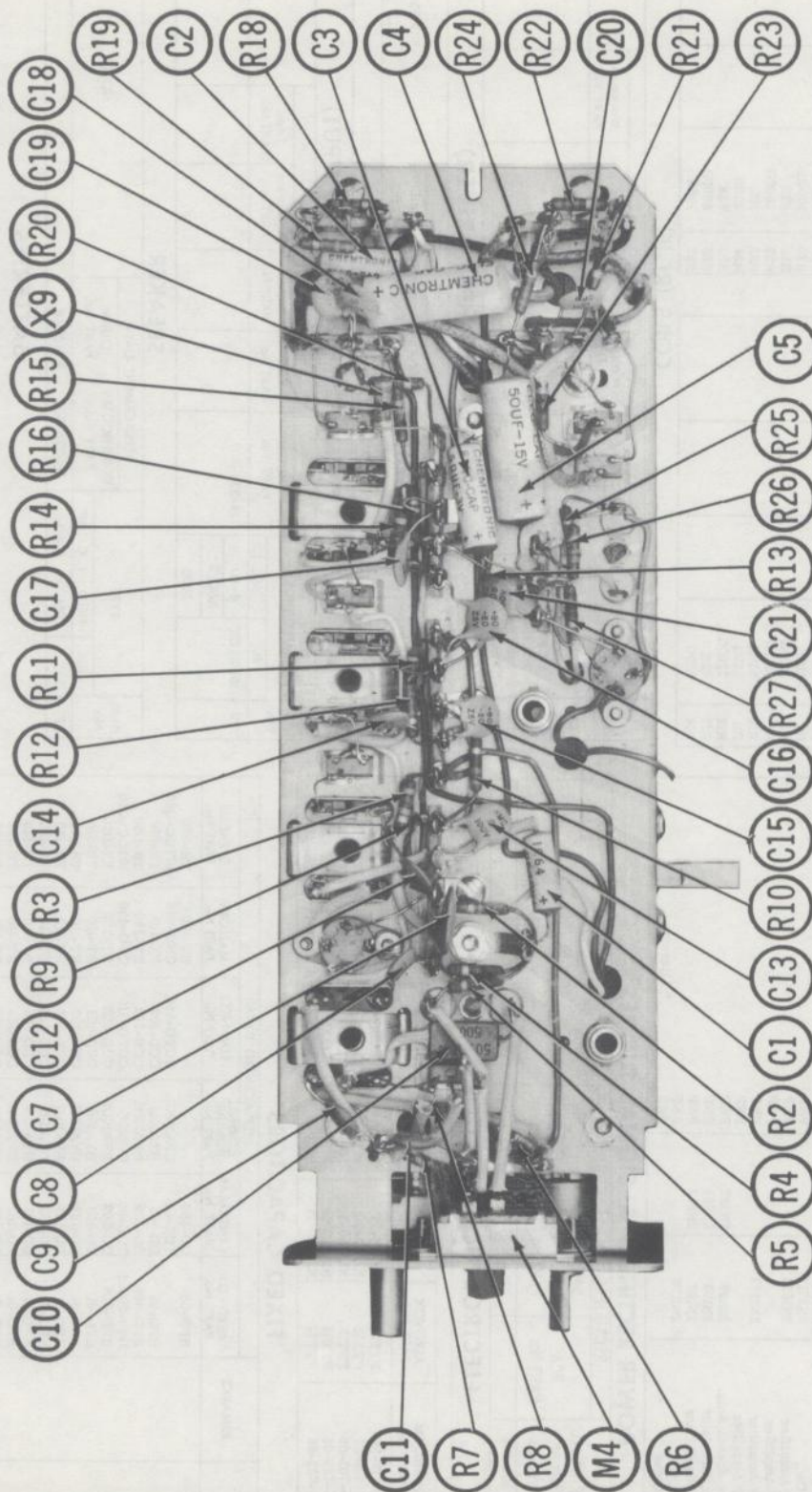
ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
Extend whip antenna fully.	Field strength meter.	A6	Adjust for maximum output.



CHASSIS — TOP VIEW

REFERENCE AND INTERMEDIATE LOAN
SUFFICIENT FOR THE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713



CHASSIS - BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid 22AWG) 8534 (Stranded 22AWG) 8570 (Stranded 26AWG)	Available in 12 Colors
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TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2N1225	Mixer	2N1179	PNP	
X2	2N371	Rec. Osc.	2N371	PNP	
X3	2N1633	1st IF Amplifier	2N1633	PNP	
X4	2N373*	1st IF Amplifier	2N1633	PNP	
X5	2N1633	2nd IF Amplifier	2N1633	PNP	
X6	2N373*	2nd IF Amplifier	2N1633	PNP	
X7	2N109	Driver-Speech Amp.	2N362	PNP	
X8	2N109	Output-Modulator	2N362	PNP	
	2N1225	Trans. Osc.	2N1178	PNP	
	2N1397*	Trans. Osc.	2N1178	PNP	

* Alternate

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		NOTES
			RCA PART No.	SARKES TARZIAN PART No.	
X9		42-302-295		1N295	Detector

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOIT.	REPLACEMENT DATA				
			SONARCOM PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	SPRAGUE PART No.
C1	4	10	06-712-39	PTT37	NLW4-15	MTI-3	MLV5-12
C2	2	10	06-712-32	PTT35	NLW2-50	MTI-1	MLV5-12
C3	50	5	06-702-66	PTT12	NLW50-3	MTI-15	MLV50-3
C4	50	15	06-722-66	PTT72	NLW50-15	MTI-16	MLV50-15
C5	50	15	06-722-66	PTT72	NLW50-15	MTI-16	MLV50-15

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMOCO PART No.	SPRAGUE PART No.
C6	.05		BPD-05	DD-503	DD-503	CCTO-480	TH-850
C7	65 NPO 5%		BPD-01	DD-503	DD-503	CCD-103	TH-850
C8	.01		BPD-005	DD-502	DD-502	CCD-103	TH-850
C9	.005		1469-00005	DD-502	DD-502	CCD-103	TH-850
C10	50 10%			DD-502	DD-502	CCD-103	TH-850
C11	.005		BPD-01	DD-502	DD-502	CCD-103	TH-850
C12	.01		BPD-01	DD-502	DD-502	CCD-103	TH-850
C13	.01		BPD-01	DD-502	DD-502	CCD-103	TH-850
C14	.01		BPD-01	DD-502	DD-502	CCD-103	TH-850
C15	.01		BPD-01	DD-502	DD-502	CCD-103	TH-850
C16	.01		BPD-01	DD-502	DD-502	CCD-103	TH-850
C17	.01		BPD-01	DD-502	DD-502	CCD-103	TH-850
C18	.01		BPD-01	DD-502	DD-502	CCD-103	TH-850
C19	.005		BPD-005	DD-502	DD-502	CCD-103	TH-850
C20	.01		BPD-01	DD-502	DD-502	CCD-103	TH-850
C21	.005		BPD-005	DD-502	DD-502	CCD-103	TH-850
C22	.005		BPD-005	DD-502	DD-502	CCD-103	TH-850
C23	25 NPO 10%		NPD-DI 25	DD-502	DD-502	CCD-103	TH-850
C24	.005		BPD-005	DD-502	DD-502	CCD-103	TH-850

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA			
			SONARCOM PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.
R1	Volume & Switch	5000Ω	03-001-113	B-11, KR-1, or (AB-11, AK-7, KR-1)	A47-5000-S/ KSS-3, SW12	UI12, US-26

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		IRC PART No.	WORKMAN PART No.			IRC PART No.	WORKMAN PART No.
R2	10K			R15	10K		
R3	82K			R16	220K		
R4	1000Ω			R17	10Ω		
R5	1000Ω			R18	33K		
R6	100K			R19	6800Ω		
R7	12K			R20	1000Ω		
R8	1000Ω			R21	82Ω		
R9	1000Ω			R22	5600Ω		
R10	330Ω			R23	10Ω		
R11	470Ω			R24	220Ω		
R12	2200Ω			R25	68K		
R13	82K			R26	6800Ω		
R14	270Ω			R27	100Ω		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			NOTES
		SONARCOM PART No.	Merit PART No.	Stancor PART No.	
L1	Ant.	22-196-501			
L2	Osc.	22-390-502			
L3	1st IF	14-211-004			
L4	2nd IF	14-221-005			
L5	3rd IF	14-231-006			
L6	Final	22-492-500			

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO	REPLACEMENT DATA			NOTES
		SONARCOM PART No.	Merit PART No.	Stancor PART No.	
T1	2 1	14-325-008			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA			NOTES
		SONARCOM PART No.	Merit PART No.	Stancor PART No.	
T2	1500Ω CT	14-335-007			
	8-8Ω SEC. 2				
	500Ω				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		SONARCOM PART No.	QUAM PART No.	
SPI	2 1/2" PM 6-8Ω	36-220-503	25A0728	

BATTERIES

ITEM No.	VOLTAGE	REPLACEMENT DATA			NOTES
		SONARCOM PART No.	BURGESS PART No.	EVEREADY PART No.	
M1	6V	*	"A"	"B"	* 2 Required

MISCELLANEOUS

ITEM No.	PART NAME	REPLACEMENT DATA		NOTES
		SONARCOM PART No.	MALLORY PART No.	
M2	Variable Cap.	08-210-250		
M3	Switch	09-324-508		
M4	Switch			
M5	Crystal			
M6	Crystal			
M7	Antenna	21-116-507		

Receiver Tuning (0-5mmf)
Function Selector (Pushbutton Type)
Tune-Crystal (SPDT Slide Type)
Receive (Order by Channel & Freq. Desired)
Transmit (Order by Channel & Freq. Desired)

PHOTOFACT® Folder

with CIRCUITRACE™



SPOKESMAN MODEL 700



REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE
PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS
WHICH MAY RESULT IN ILLEGAL OPERATION.
(REFER TO FCC RULES & REGULATIONS PART 19,
SUBPART D, SECTION 19.71).

SPOKESMAN
MODEL 700

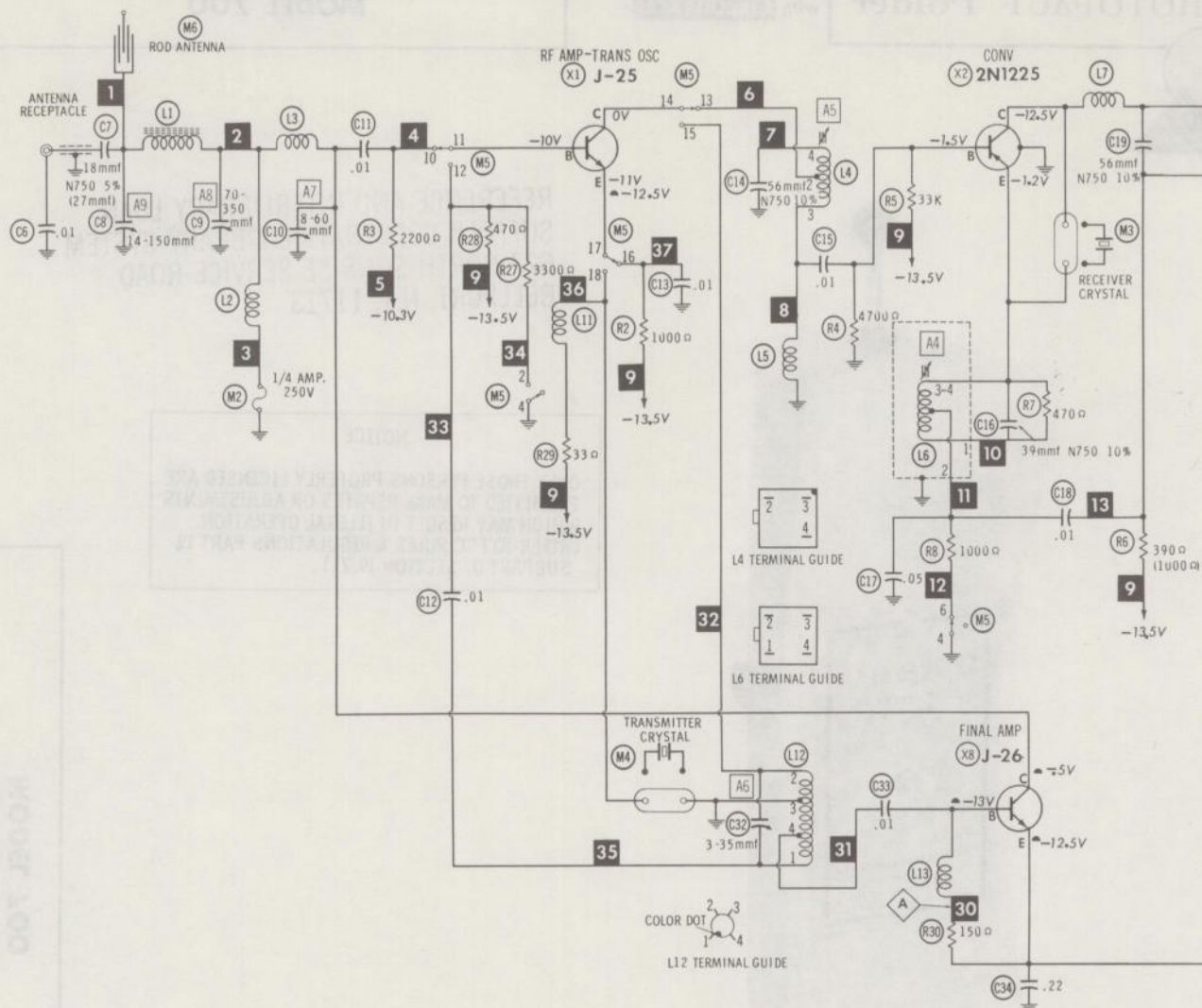
TRADE NAME	Spokesman Model 700
MANUFACTURER	Ray Jefferson Inc., Subsidiary of Jetronic Industries Inc., Main & Cotton St., Philadelphia 27, Pa.
TYPE SET	8 Transistor Single Band Portable Citizens Band Transmitter-Receiver
POWER SUPPLY	13.5 Volts DC, Self Contained 12 Volts DC, Accessory Adapter Model 750 110 Volts DC, Accessory Adapter Model 760
RATING	10 MA@12 Volts DC (Receive), 180 MA@12 Volts DC (Transmit)
TUNING RANGE	Any One of Citizens Band Channels 1 thru 23

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of LY279

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
 ▲ MEASURED IN "TRANSMIT" POSITION.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

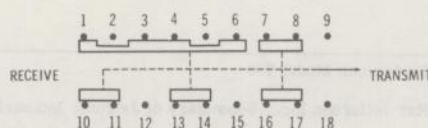
⊗ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACIT STANDARD NOTATION SCHEMATIC with **CIRCUITRACE**

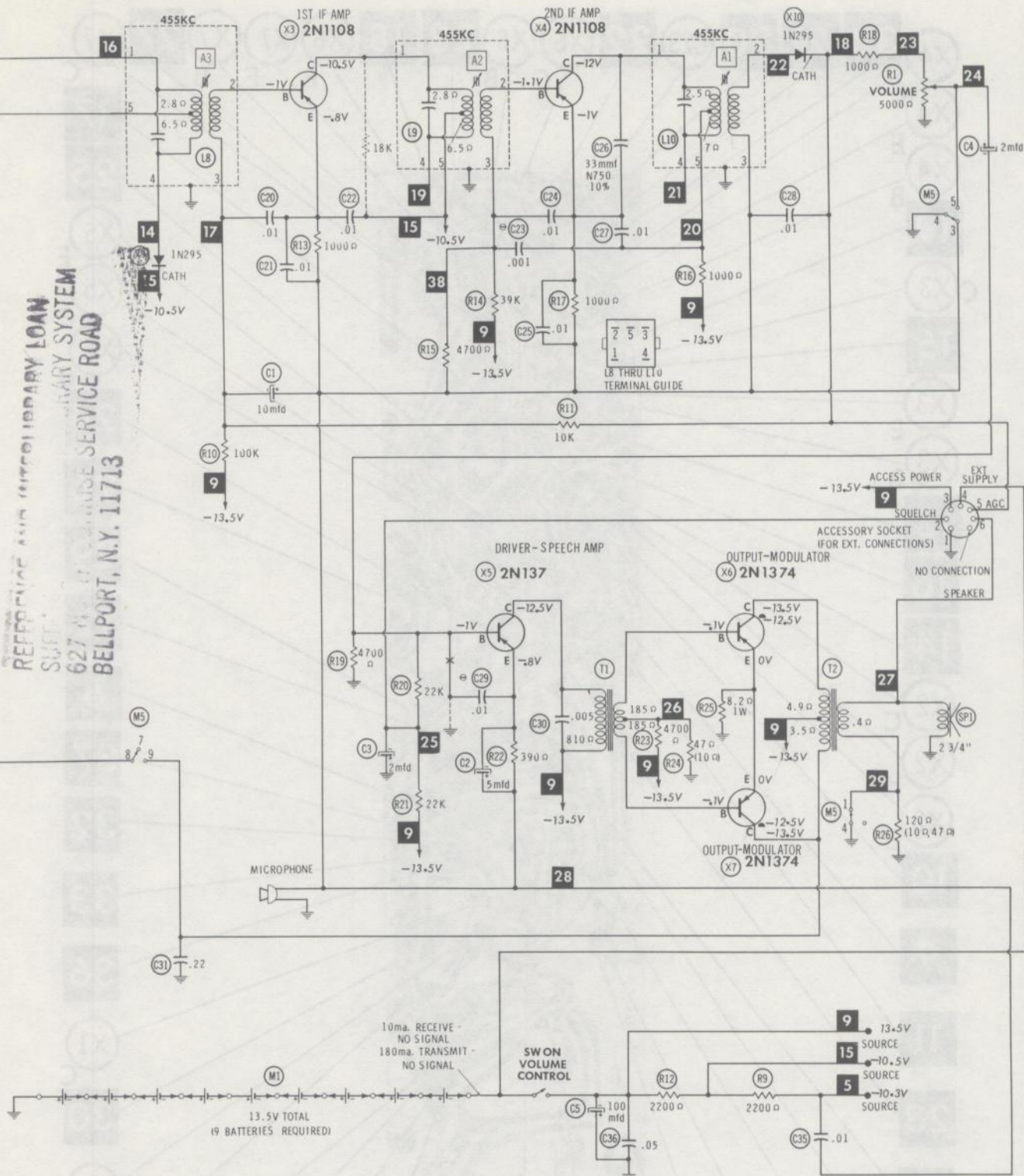
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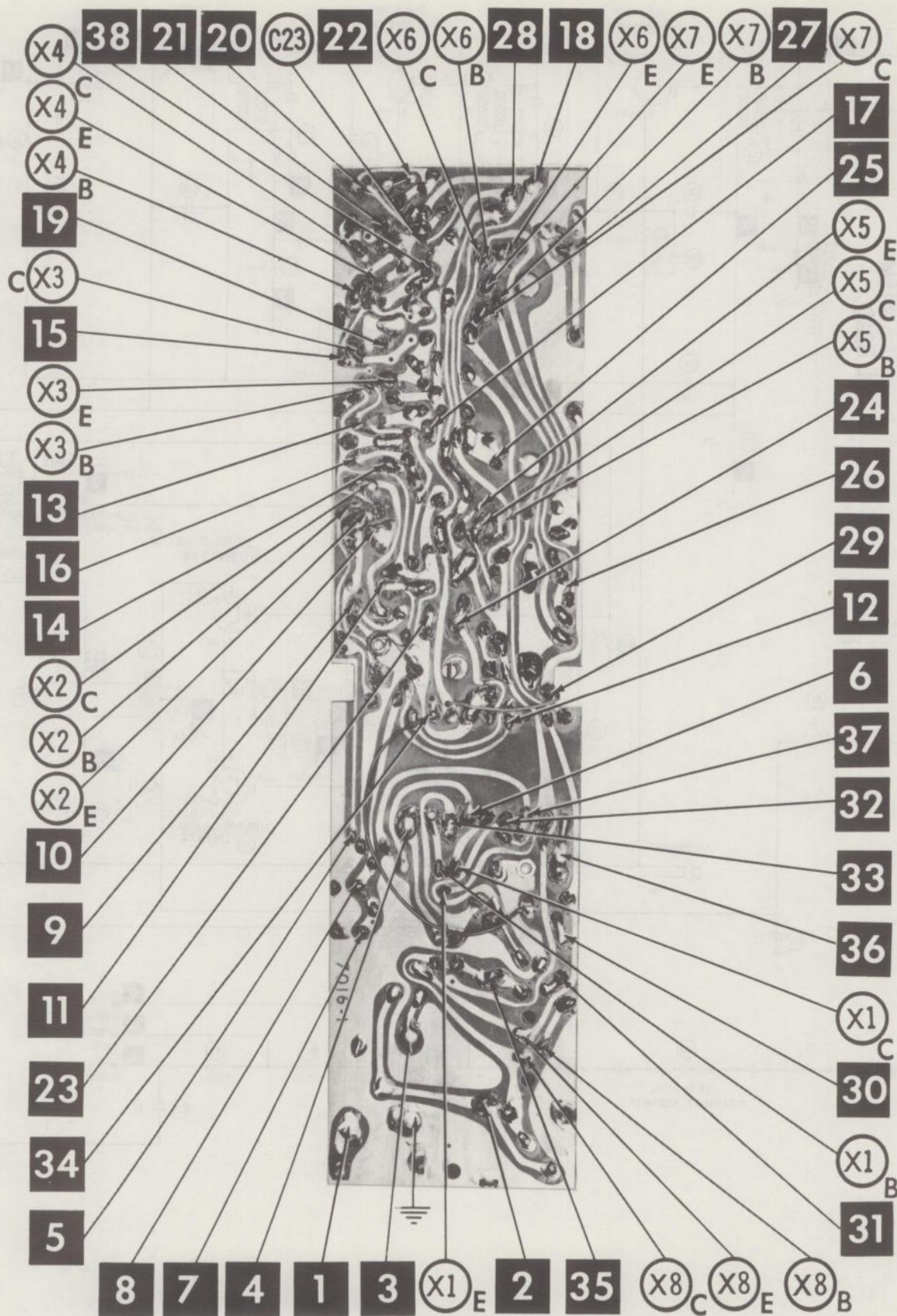
"TRANSMIT - RECEIVE" PUSHBUTTON M5 SHOWN IN "RECEIVE" POSITION.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

REPRODUCTION BY THE UNIVERSITY OF
SOUTHERN CALIFORNIA
627 UNIVERSITY SERVICE ROAD
BELLPORT, N.Y. 11713



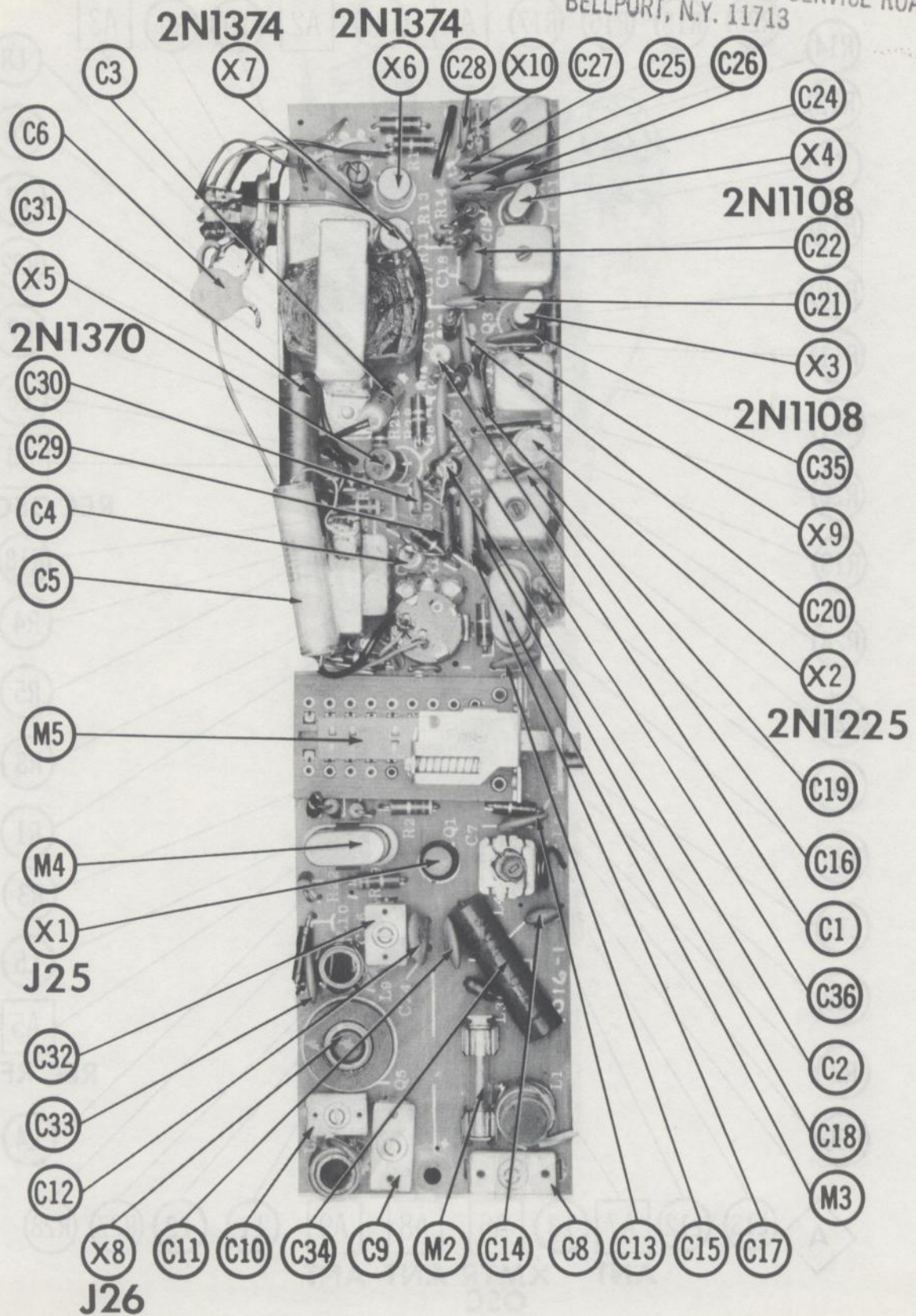
SPOKESMAN
MODEL 700



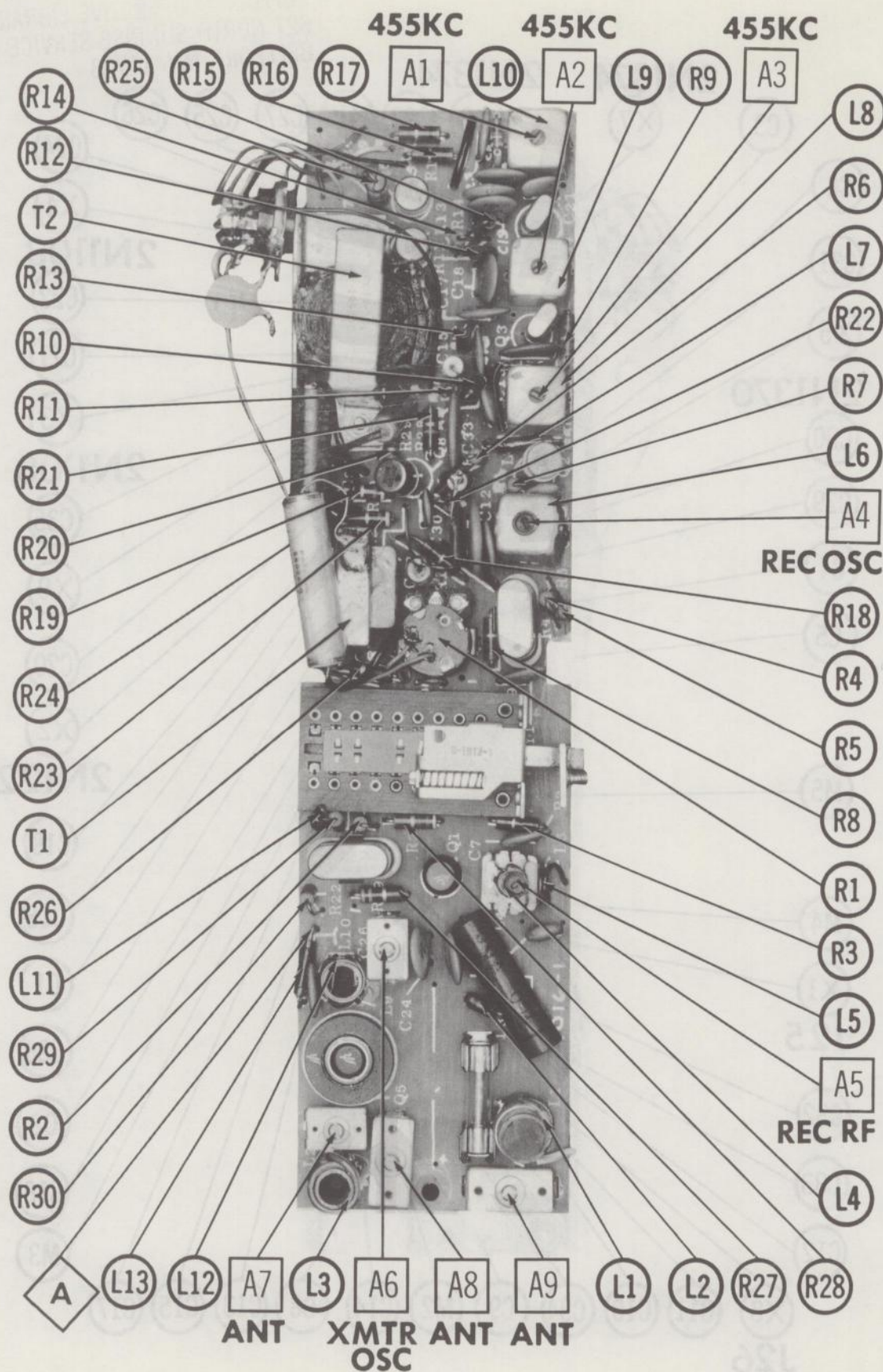
A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

E-EMITTER B-BASE
C-COLLECTOR



PRINTED BOARD — CAPACITOR, TRANSISTOR & MISC. IDENT.



PRINTED BOARD — ALIGNMENT, INDUCTOR & RESISTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
Suggested Alignment Tools: A1 thru A9.... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989 WALSCO #2515, 2531, 2532	

RECEIVER ALIGNMENT

Connect VTVM across volume control.

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1. Tune to 455KC (Unmod.) High side to base of X2, common to ground.		A1, A2, A3	Remove Receiver crystal. Adjust for maximum deflection. Reinsert crystal.
2. Tune to crystal freq. High side to antenna receptacle, low side to ground.	Highest Channel Used.	A4	Adjust for maximum deflection by rocking A4. Note rate of dropoff and set just below peak on side of gradual dropoff.
3. "	"	A5	Adjust for maximum deflection. Repeat steps 2 & 3.

TRANSMITTER ALIGNMENT

Best results are obtained when the antenna to be used is connected to the unit, and the chassis is as nearly in the cabinet as possible.
Output frequency should be checked by an accurately calibrated secondary frequency standard to be sure frequency is within .005%.

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
4. Connect suitable load to antenna receptacle.	DC VTVM between point A and ground.	A6	Adjust for maximum deflection while rocking A6. Note rate of dropoff. Set just below peak on side of gradual dropoff.
5. "	RF wattmeter or field strength meter.	A7, A8, A9	Adjust for maximum deflection. Repeat adjustments.

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	J-25	RF Amp.-Trans., Osc.			NPN
X2	2N1225	Converter	2N1525		PNP
X3	2N1108	1st IF Amplifier	2N1525		PNP
X4	2N1108	2nd IF Amplifier	2N591		PNP
X5	2N1370	Driver-Speech Amp.	2N362		PNP
X6	2N1374	Output-Modulator	2N832		PNP
X7	2N1374	Output-Modulator	2N832		PNP
X8	J-26	Final Amp.			NPN

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		NOTES
			SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.	
X9		IN295			
X10		IN295			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP. VOLT.	SPOKESMAN PART No.	REPLACEMENT DATA			
			AEROVOX PART No.	CORNELL-DUBIER PART No.	GENERAL ELECTRIC PART No.	SPRAGUE PART No.
C1	10		PTT21	NLW10-6	MTI-5	TE-1087
C2	5		PTT21	NLW5-15	MTI-3	TE-1084
C3	2		PTT82	NLW2-60	MTI-1	TE-1149
C4	2		PTT82	NLW2-60	MTI-1	TE-1149
C5	100		PTT86	NLW100-25	MTI-20	TE-1211

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBIER PART No.	ELMENCOR PART No.	SPRAGUE PART No.
C6	.01	(27) †	BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C7	18 N750 5%			TCN-18	C10Q18U	424	107CU-Q18
C8	14-150					404	
C9	70-350						
C10	8-60						
C11	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C12	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C13	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C14	56 N750 10%		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C15	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C16	39 N750 10%		BPD-05	DD-503	CUB255	IDP-2-503	5HK-S50
C17	.05		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C18	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C19	56 N750 10%		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C20	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C21	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C22	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C23	.001	Note 1	BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C24	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C25	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C26	33 N750 10%		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C27	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C28	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C29	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C30	.005		BPD-005	DD-502	CUB255	IDP-3-224	5HK-S50
C31	.22 100V		P288N-22			403	5HK-S50
C32	3-35						5HK-S50
C33	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C34	.22 100V		P288N-22			IDP-3-224	5HK-S50
C35	.01		BPD-01	DD-103	BYA1081	CCD-103	5HK-S10
C36	.05		BPD-05	DD-503	CUB255	IDP-2-503	5HK-S50

Note 1. Not used in some versions.
† Alternate Value.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			SPOKESMAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLOY PART No.
R1	Volume & Switch	5000Ω	B-1924				

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN PART No.			IRC PART No.	WORKMAN PART No.	
R2	1000Ω			R17	1000Ω			
R3	2200Ω			R18	1000Ω			
R4	4700Ω			R19	4700Ω			
R5	33K			R20	22K			
R6	390Ω			R21	22K			
R7	470Ω			R22	390Ω			
R8	1000Ω			R23	4700Ω			
R9	2200Ω			R24	47Ω			
R10	100K			R25	8.2Ω 1W			
R11	10K			R26	120Ω			
R12	2200Ω			R27	3300Ω			
R13	1000Ω			R28	470Ω			
R14	39K			R29	33Ω			
R15	4700Ω			R30	150Ω			
R16	1000Ω							

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SPOKESMAN PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.
L1	Ant.	B-1940				
L2	RF Choke (2.2uh)	B-1995	BC-563	4606	RTC-8517	T857
L3	Ant. Matching	B-1936				
L4	RF Choke	B-1932				
L5	RF Choke	B-1998				
L6	Osc.	B-1933				
L7	RF Choke (2.2uh)	B-1995	BC-563	4606	RTC-8517	T857
L8	1st IF	B-1937-1				
L9	2nd IF	B-1937-1				
L10	3rd IF	B-1937-2				
L11	RF Choke (2.2uh)	B-1995	BC-563	4606	RTC-8517	T857
L12	Osc.	B-1935				
L13	RF Choke (2.2uh)	B-1995	BC-563	4606	RTC-8517	T857

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO	REPLACEMENT DATA				NOTES
		SPOKESMAN PART No.	Merit PART No.	Thordarson PART No.	Triad PART No.	
T1	1.5 1	C-2502-1				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA				NOTES
		SPOKESMAN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T2	7500Ω CT 3-4Ω	C-2561-1				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		SIZE	FIELD V. C. IMP.	
SP1	2 3/4" PM	3-4Ω	C2565	27A06

BATTERIES

ITEM No.	VOLTAGE	SPOKESMAN PART No.	REPLACEMENT DATA			NOTES
			BURGESS "A"	"B"	MALLOY "B"	
M1	13.5V		1	635	M-14P or Mn-1400	9 Used

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			SPOKESMAN PART No.	FUSE	HOLDER	BUSS PART No.
M2	8AG	1/4 Amp 250V		362.250 (8AG 1/4A 250V)	101001	AGX 1/4 4503

MISCELLANEOUS

ITEM No.	PART NAME	SPOKESMAN PART No.	NOTES
M3	Crystal	C-2594	Receiver
M4	Crystal	C-2563	Transmitter
M5	Switch	B-1913	Pushbutton (Transmit-Receiver)
M6	Antenna Rod	B-7020	
	Printed Board	D-6004	
	Microphone	C-2564	
	Battery Holder Assy	D-4098	Complete

CABINETS & CABINET PARTS

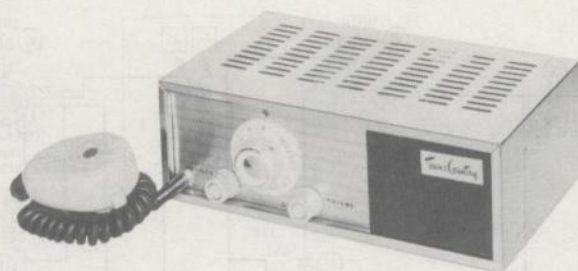
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART No.	DESCRIPTION
Knob	B-1926	Push
Knob	B-1924	Rotary
Case, Front	D-4087	
Case, Rear	D-4086	
Case, Assy.	C-2591	Front
Case, Assy.	C-2592	Rear
Handle	B-7001	

WIRING DATA

General-use Unshielded Hook-up Wire Use Belden No. 8530 (Solid 22AWG) Available in 12 Colors
 8524 (Stranded 22AWG)
 8570 (Stranded 26AWG)

PHOTOFACT® Folder



UTICA MODEL MC-27

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

TRADE NAME	Utica Model MC-27
MANUFACTURER	Utica Communications Corp., 5055 N. Kedzie Ave., Chicago 25, Illinois
TYPE SET	AC-Battery Operated 9 Tube 6 Channel Citizens Band Transmitter-Receiver
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery (or) 12 Volt Storage Battery
RATING	55 Watts, .5 Amp. @ 117 Volts AC (Receiver); 70 Watts, .68 Amp. @ 117 Volts AC (Transmit) 10 Amp. @ 6 Volts DC (or) 4.5 Amp. @ 12.6 Volts DC
TUNING RANGE	Any 6 of Citizens Band Channels 1 thru 23

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Best results will be obtained when adjusting A9, A10 and A12 if the unit is connected to the antenna normally used and the unit is as nearly in the cabinet as possible.

Suggested Alignment Tools:

A1 thru A6, A9...	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A7, A8, A10....	GENERAL CEMENT #8721, 8722 WALSCO #2519
All.....	GENERAL CEMENT #9091, 9091-L WALSCO #2542

RECEIVER ALIGNMENT

Connect DC probe of VTVM to Point A, common to ground.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	Tune to 266KC. Connect high side to pin 7 (grid) of Converter, low side to ground.	Unused Channel	A1, A2, A3, A4	Adjust for maximum deflection. Repeat.
2.	Tune to 1680KC. Connect high side to pin 2 (grid) of Mixer, low side to ground.	"	A5, A6	"
3.	Tune to channel frequency. High side to pin 1 (grid) of RF Amp, low side to ground.	Center Channel Used	A7	Adjust for maximum deflection while rocking. Note rate of drop-off on each side of peak and set to point just below peak in direction of gradual drop-off.
4.	"	"	A8	Adjust for maximum deflection.
5.	Tune to 1680KC. Connect high side to antenna input, low side to ground.	"	A9, A10	Adjust for maximum deflection. Repeat.

TRANSMITTER ALIGNMENT

Output frequency should be checked by an accurately calibrated secondary frequency standard to be sure frequency is within .005%.

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
6.	Tune transmitter to highest channel used.	Connect DC probe of VTVM to point B, common to ground.	A11	Adjust for maximum deflection while rocking A11. Note rate of drop-off on each side of peak and set just below peak on side of gradual drop-off.
7.	Connect dummy load or antenna to antenna input. Tune transmitter to center frequency.	RF wattmeter or field strength meter.	A12	Adjust for maximum output.

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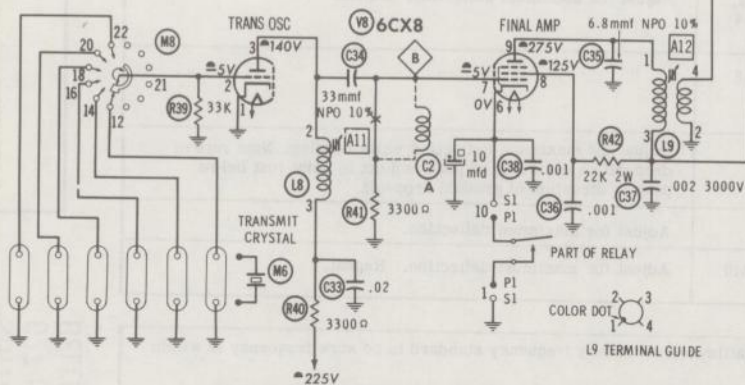
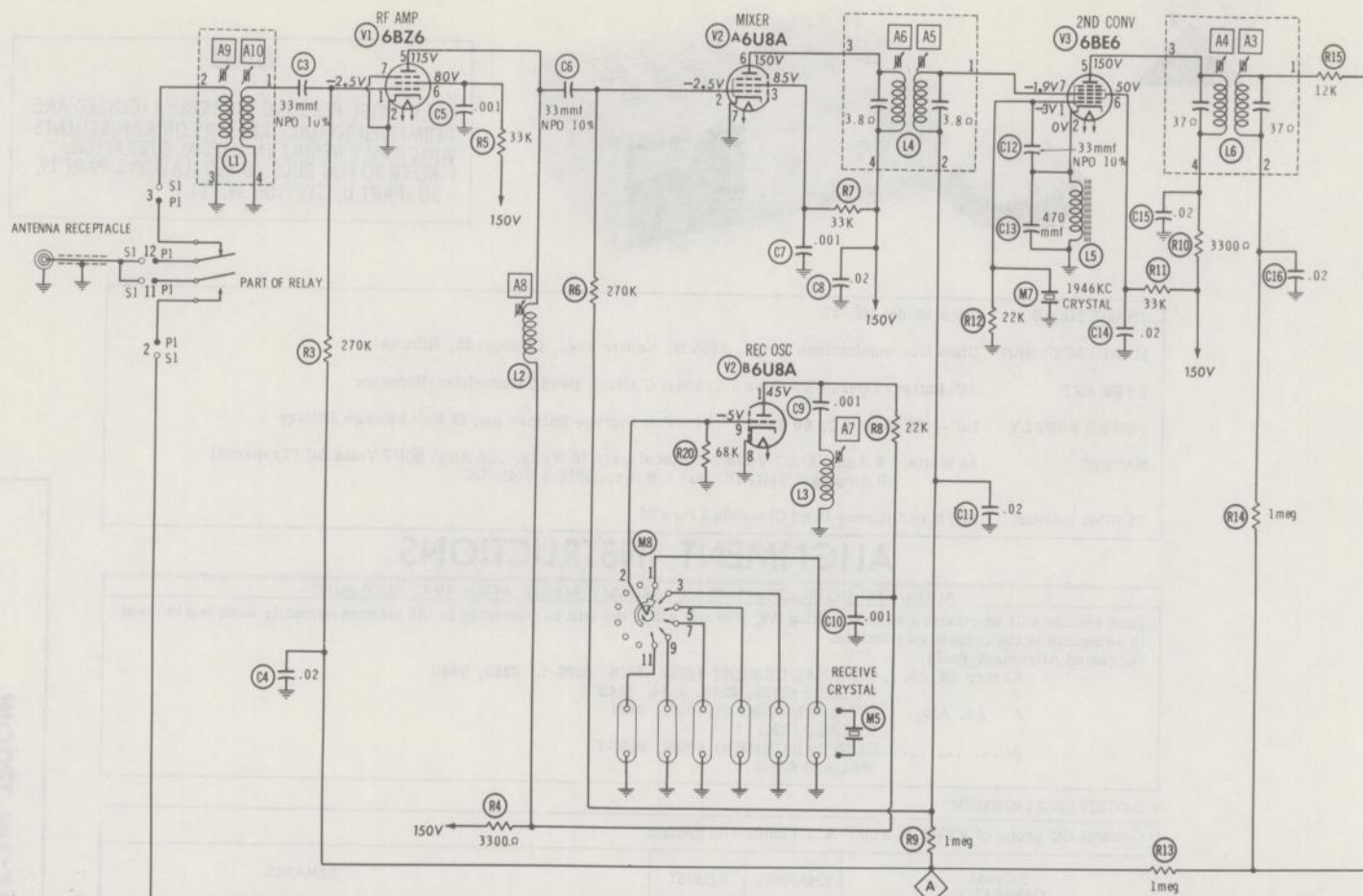
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of LY264

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UTICA
MODEL MC-27

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BELLPORT, N.Y. 11713





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1.5meg	0Ω	FIL	FIL	† 11.3K	† 41K	0Ω		
V2	6AU8A	† 33K	2.5meg	† 41K	FIL	FIL	† 8000Ω	0Ω	0Ω	68K
V3	6BE6	22K	1Ω	FIL	FIL	† 11K	† 41K	2.2meg		
V4	6BJ6	1.2meg	180Ω	FIL	FIL	† 8000Ω	† 76K	0Ω		
V5	12BR7	† 11.3K	† 2meg	100K	FIL	FIL	1meg	1meg	2.1meg	FIL
V6	7687	270K	270K	† 1meg	FIL	FIL	† 270K	3400Ω	3300Ω	68K
V7	6AQ5	470K	1000Ω	FIL	FIL	† 225Ω	† 1500Ω	470K		
V8	6CX8	0Ω	33K	11K	FIL	FIL	0Ω	3300Ω	† 22K	† 225Ω
V9	6BW4	355Ω	NC	NC	FIL	FIL	NC	335Ω	NC	200K

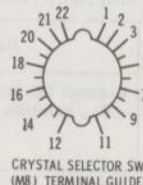
† TAKEN IN TRANSMIT POSITION
 † MEASURED FROM PIN 9 OF V9
 THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
 NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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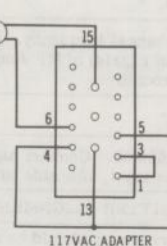
117VAC
 55 WATTS-RECEIVE
 70 WATTS-TRANSMIT



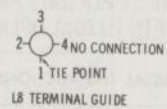
RELAY PLUG & SOCKET
 P1-S1 TERMINAL
 GUIDE



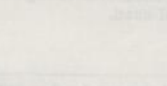
CRYSTAL SELECTOR SW
 (M8) TERMINAL
 GUIDE



117VAC ADAPTER



12V BATTERY

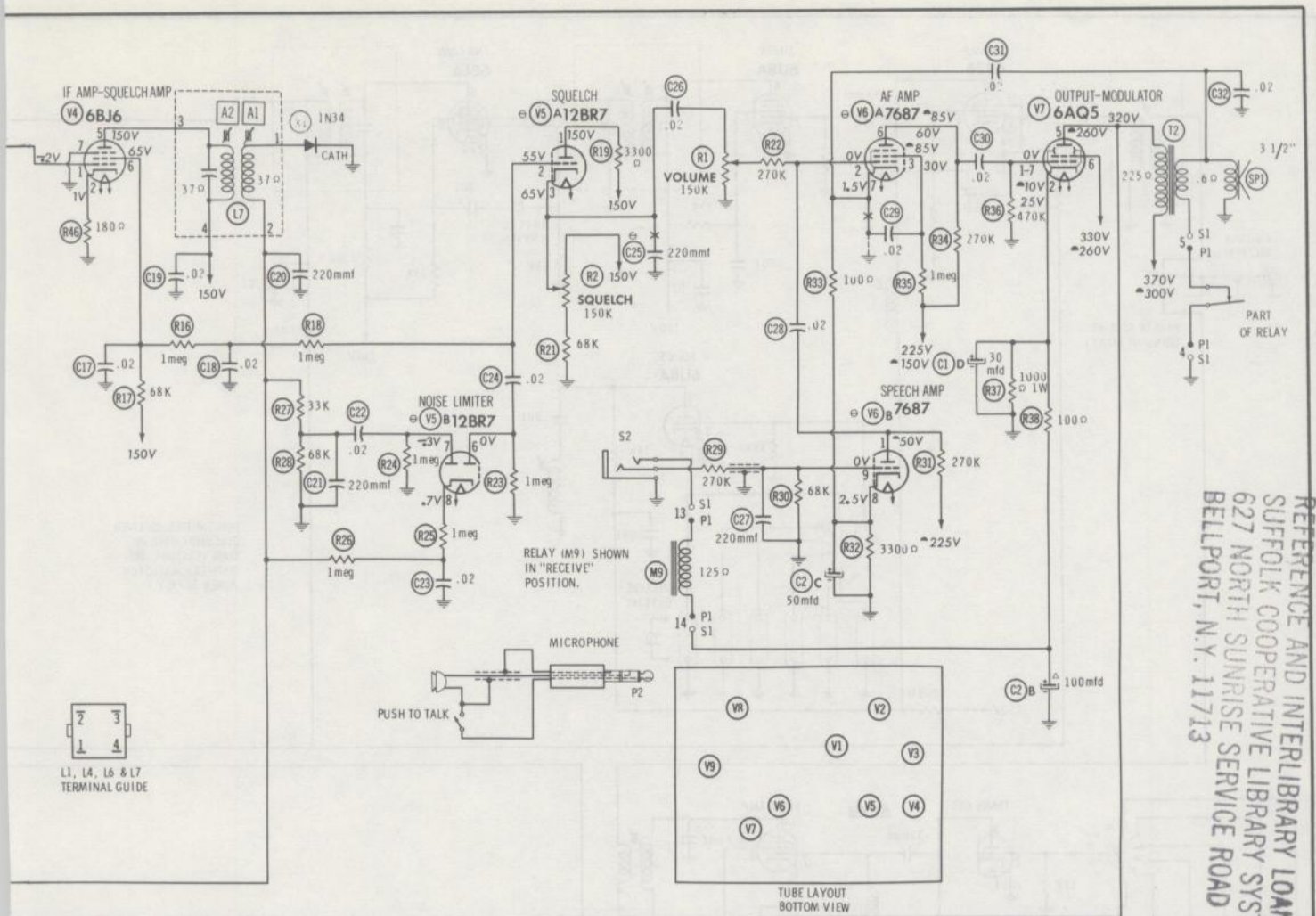


6V BATTERY

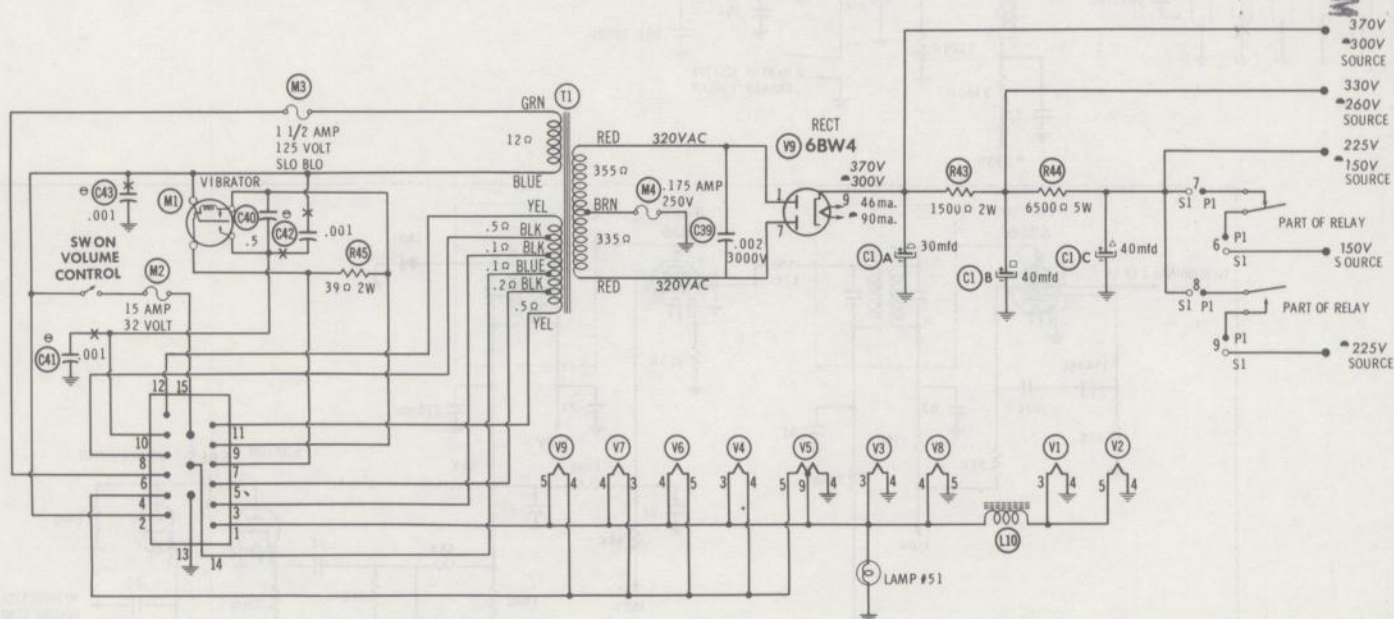
SEE PARTS LIST FOR ALTERNATE
 VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM
 NOT SHOWN ON SCHEMATIC DIAGRAM

- DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common ground.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.



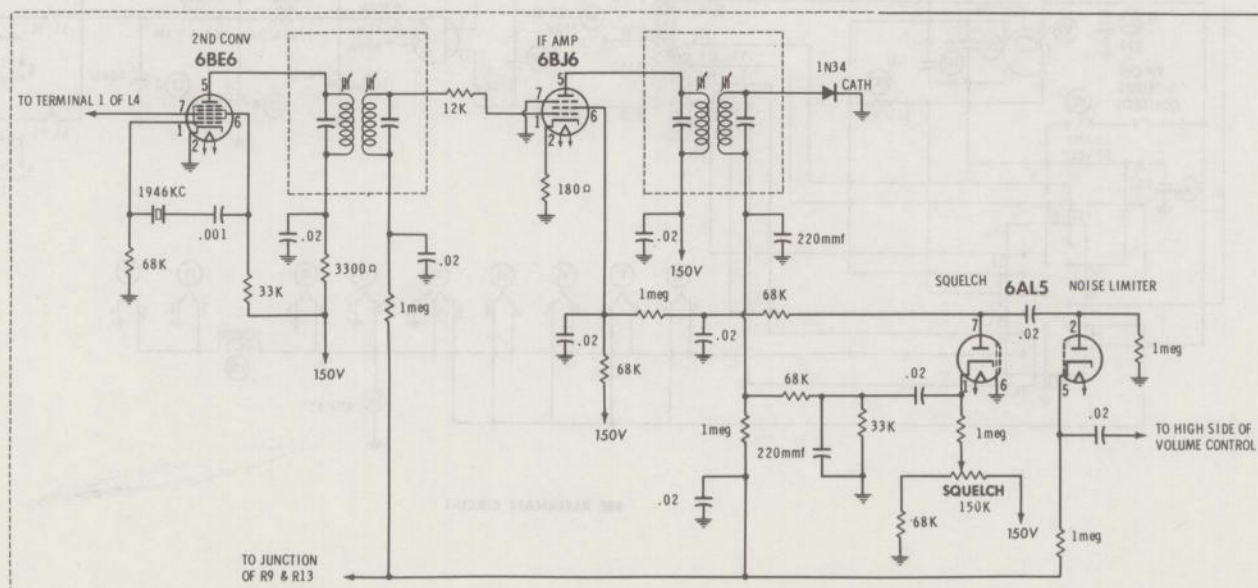
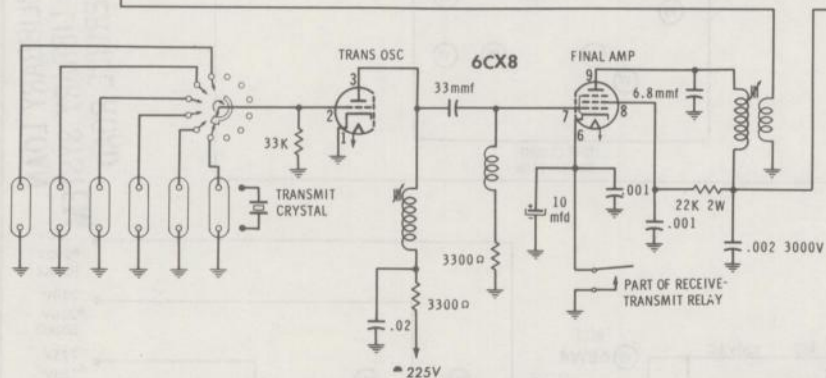
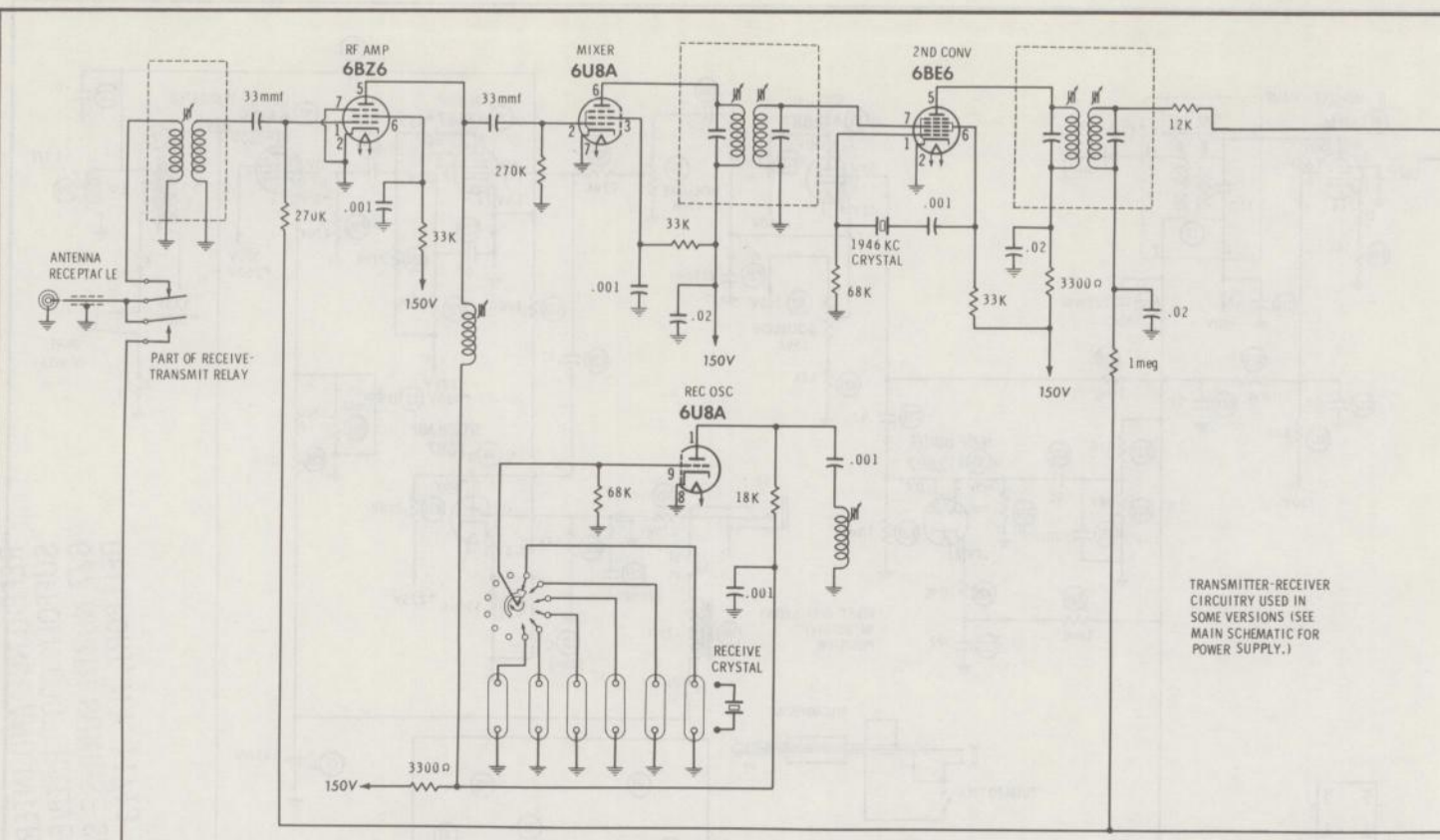
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BELLPORT, N.Y. 11713



SEE ALTERNATE CIRCUIT

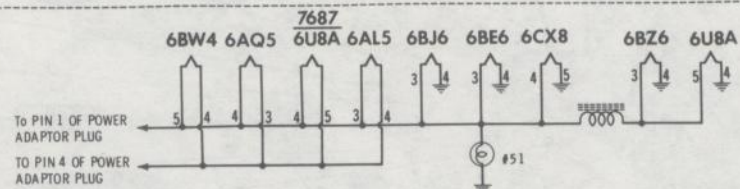
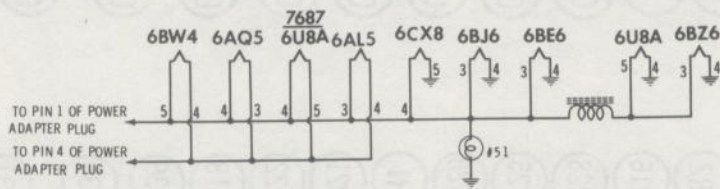
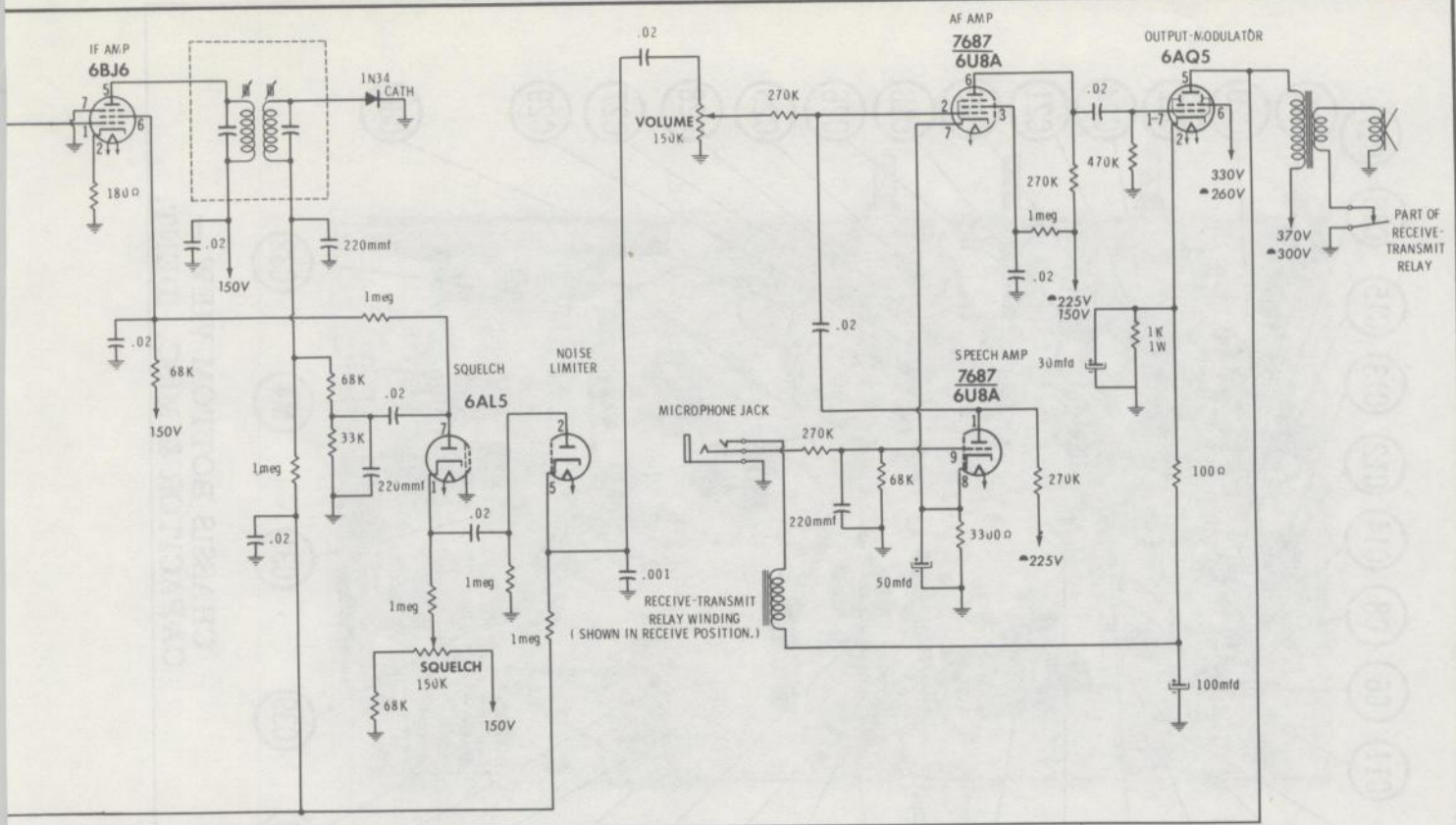
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

UTICA
MODEL MC-27



ALTERNATE CIRCUIT

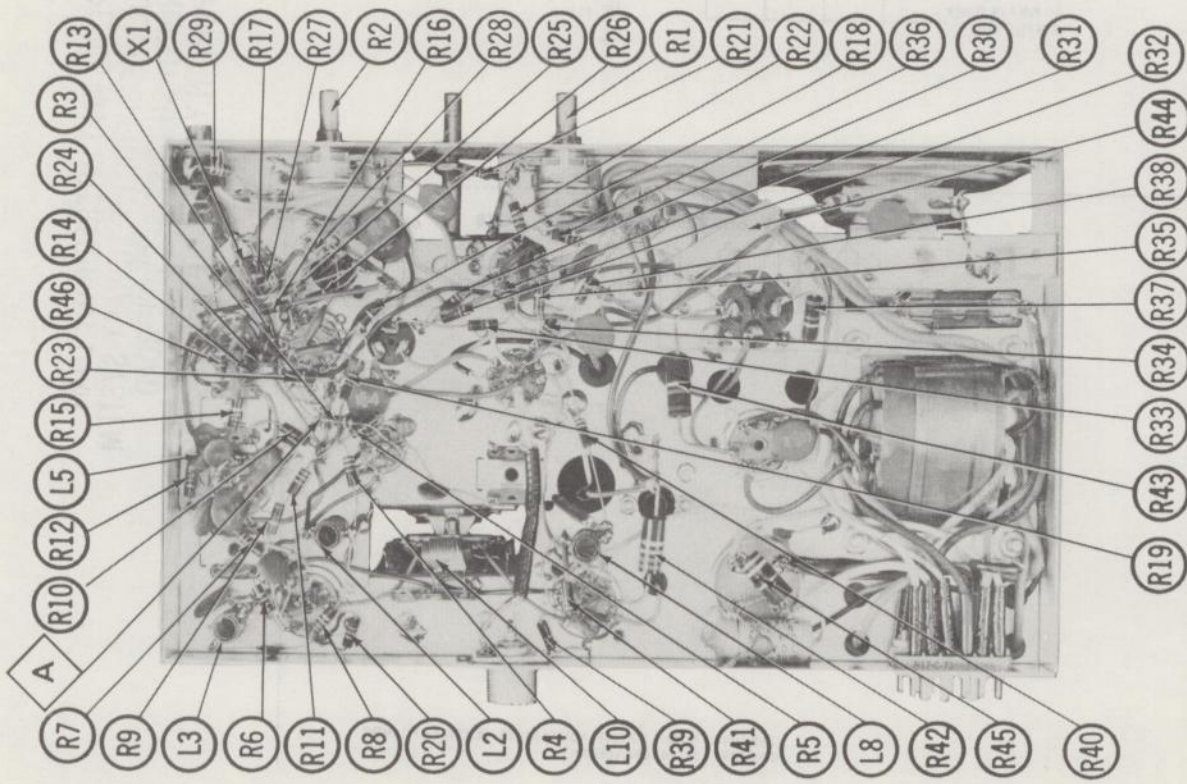
A PHOTOFAC[®] STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1962



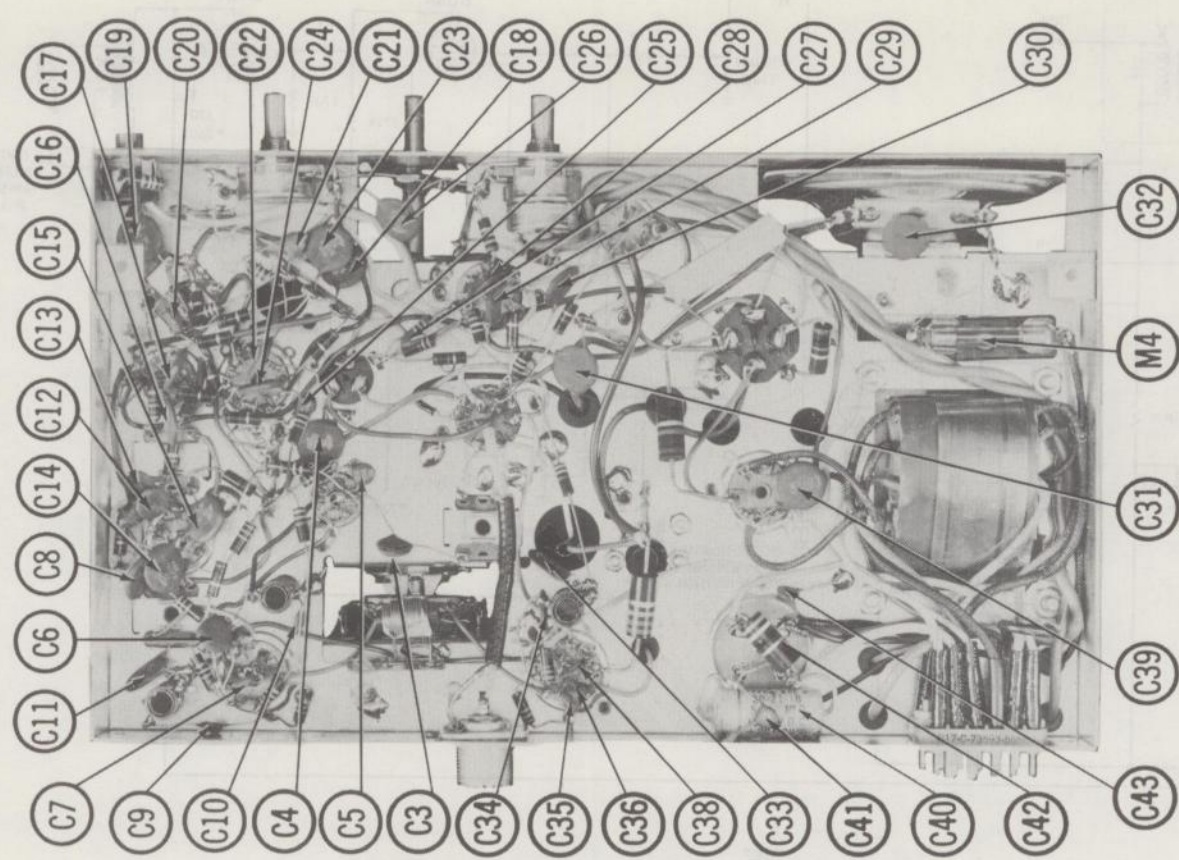
2ND CONV., IF AMP, SQUELCH, NOISE LIMITER, DETECTOR & FILAMENT CIRCUITRY USED IN SOME VERSIONS.

REFERENCE AND INTERLIBRARY LOAN
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UTICA
MODEL MC-27



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



CHASSIS BOTTOM VIEW -
CAPACITOR & MISC. IDENT.

REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM

CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS

7 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713

TUBES

AMPEREX		GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
ITEM No.	USE	ITEM No.	TYPE	ITEM No.	USE	ITEM No.	TYPE
V1	RF Amplifier	6BZ6		V6	Speech Amp. -AF Amp.	7887 (6B8A)*	
V2	Mixer-Rec. Osc.	6U8A		V7	Output-Modulator	6AQ5	
V3	Converter	6BE6		V8	Trans. Osc. -Final Amp.	6CX8	
V4	IF Amp. -Squelch Amp.	6BJ6		V9	Rectifier	6BW4	
V5	Squelch - Noise Lim.	12BR7	Note 1				

Note 1. Early version uses 6AL5 in this application.
* Alternate.

POWER RECTIFIERS & SIGNAL DIODES

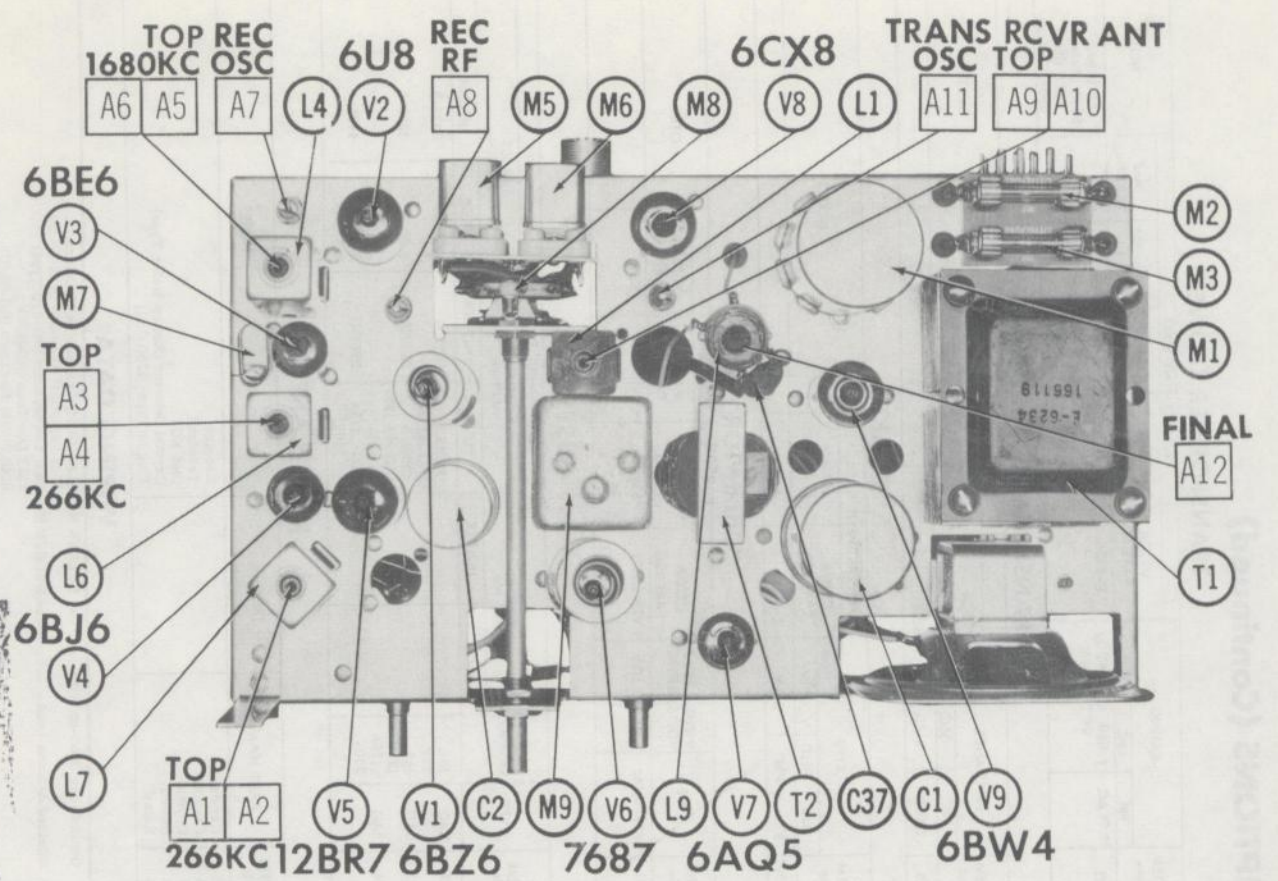
ITEM No.	CURRENT RATING (Measured)	RECTIFIERS		DIODES	NOTES
		ORIGINAL Part or Type No.	SARKES RCA PART No.		
X1		IN34		RAYTHEON PART No.	
				IN34A	Detector

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA			
			UTICA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.
C1A	30	450		AFH3-140-50	C0870	XC3-39
C1B	40	350		PR81480	BR3045	QT1-12
C1C	40	350				
C1D	30	25				
C1E	30	100		AFH2-05	B0070	XC2-32
C1F	100	25		PR81410	BBR10-150	QT1-5
C1G	50	6				

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENC0 PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	33 NPO 10%		NPO-D1 33	DTZ-33	C10033C	CCTO-330	CNO-433	10TCC-Q33
C4	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C5	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	33 NPO 10%		NPO-D1 33	DTZ-33	C10033C	CCTO-330	CNO-433	10TCC-Q33
C7	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C9	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C10	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C11	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C12	33 NPO 10%		NPO-D1 33	DTZ-33	C10033C	CCTO-330	CNO-433	10TCC-Q33
C13	.470		DI-470	DD-471	LI0747	CCD-471	B-347	10TSC-T47
C14	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C15	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C16	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C17	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C18	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C19	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C20	220		DI-220	DD-221	LI0722	CCD-221	B-322	10TSC-T22
C21	220		DI-220	DD-221	LI0722	CCD-221	B-322	10TSC-T22
C22	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C23	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C24	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C25	220		DI-220	DD-221	LI0722	CCD-221	B-322	10TSC-T22
C26	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C27	220		DI-220	DD-221	LI0722	CCD-221	B-322	10TSC-T22
C28	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C29	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C30	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C31	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C32	.02		BPD-02	DD-203	BYB652	CCD-203	B-120	5HK-S20
C33	33 NPO 10%		NPO-D1 33	DTZ-33	C10033C	CCTO-330	CNO-433	10TCC-Q33
C34	6.8 NPO 10%		NPO-D1 6.8	DTZ-6R8	C10768C	CCTO-6R8	CNO-568	10TCC-V68
C35	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C36	.002		BPD-002	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C37	.002		BPD-002	DD-102	BYA10D1	CCD-102	B-210	5HK-D10



PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELEMCO PART No.	MALLORY PART No.
C38	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210
C39	.002 3000V		HVD-30-22000	DD30-202	HVC30D2	3CCD-202	30GA-D20
C40	.5 100V		P888N-5		CUB2P5	IDP-4-504	2TM-P50
C41	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210
C42	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10
C43	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	5HK-D10

Note 1. Not used in some versions.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			UTICA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	150K		B-44, KR-1, or (AB-44, AK-11, KR-1)	A47-150K-S/ RS-2, SWE-12	BL3-328, SK3, 76-1	U42, US-26
R2	Squelch	150K		B-43, or (AB-43, AK-11)	A47-150K-S/ RS-2	BL1-328, SK3	U43

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R3	270K				R26	1meg			
R4	3300Ω				R27	33K			
R5	33K				R28	68K			
R6	270K				R29	270K			
R7	33K				R30	68K			
R8	22K				R31	270K			
R9	1meg				R32	3300Ω			
R10	3300Ω				R33	100Ω			
R11	33K				R34	270K			
R12	22K				R35	1meg			
R13	1meg				R36	470K			
R14	1meg				R37	1000Ω 1W			
R15	12K				R38	100Ω			
R16	1meg				R39	33K			
R17	68K				R40	3300Ω			
R18	1meg				R41	3300Ω			
R19	3300Ω				R42	22K 2W			
R20	68K				R43	1500Ω 2W			
R21	68K				R44	6500Ω 5W			
R22	270K				R45	39Ω 2W			
R23	1meg				R46	180Ω			
R24	1meg				R47	68K			
R25	1meg								

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		UTICA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Ant.					
L2	RF		TV-140		RTC-9809	T234
L3	Osc. Plate		SW-408	6171-A	RTC-9809	T216
L4	1800KC IF		SW-408	6171-A	RTC-9809	T216
L5	RF Choke (50uh)		TV-193	4629	RTC-9868	T982
L6	1st 266KC IF		EC-350	12-HI	RTC-9838	T804
L7	2nd 266KC IF		EC-351	12-HI	RTC-9839	T805
L8	Osc. Plate		SW-408	6171-A	RTC-9809	T216
L9	Final					
L10	FL. Choke (50uh)					

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA					NOTES
		PRI.	SEC. 1	SEC. 2	Merit PART No.	Stancor PART No.	
T1	117VAC † 640 VCT 4A			6.4V @ 4A	E-8234		* .5A (Rec) .680A (Trans) † .046A (Rec) .080A (Trans)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
		PRI.	SEC.	UTICA PART No.	Merit PART No.	Stancor PART No.	
T2	7300Ω	3-4Ω		E-8256			

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA			NOTES
		SIZE	FIELD	UTICA PART No.	
SP1	3 1/2" PM	3-4Ω		X-0315	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS/FREQUENCY	REPLACEMENT DATA			NOTES
			UTICA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter	6V 115%	V1B (1610)	5372	1610	5372

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			BUSS PART No.
			UTICA PART No.	FUSE HOLDER	UTTELFUSE PART No.	
M2	3AG	15A			311015	
		32V			(3AG 15A 32V	
M3	3AG	1 1/2A			31301.5	
		125V			(3AG 1 1/2A 125V	
M4	3AG	.175A			312.175	
		250V			(3AG .175A 250V)	
					357001	4405
					357002	3823-2
					357002	3823-2
					AGC 15	3823-2
					AGC 1 1/2	3823-2
					AGC 175/1000	4405

MISCELLANEOUS

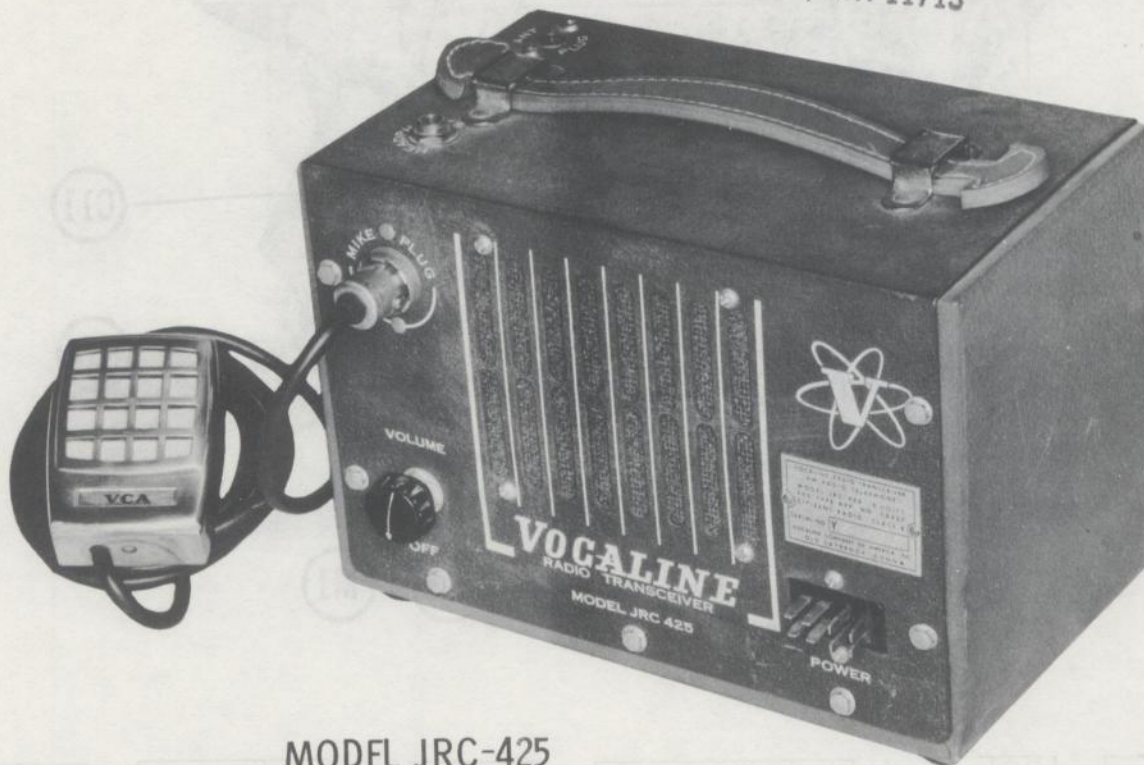
ITEM No.	PART NAME	UTICA PART No.	NOTES
M5	Crystal		
M6	Crystal		Receive
M7	Crystal		Transmit
M8	Switch		1946 KC
M9	Relay		Crystal Selector (Rotary Wafer Type) Plug in Type (125u Coil)

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No. 8524 (Stranded) Available in 12 Colors
	8214 Lowest Loss (RG-8/U Type)
	8237 Low Loss (RG-8/U)
	8240 (Solid) Miniature (RG-58/U)
	8259 (Stranded) Miniature (RG-58/U)
Coiled Microphone Cable	Use BELDEN No. 8497 3 Conductor-1 Shielded for Press-to-Talk (Neoprene)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)



REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713



MODEL JRC-425

TRADE NAME	Vocaline Models JRC-400, JRC-425
MANUFACTURER	Vocaline Company of America, Inc., Old Saybrook, Connecticut
TYPE SET	AC-Battery Operated Single Channel 3 Tube Citizens Band Transmitter-Receiver
POWER SUPPLY	110-120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery
RATING	16 Watts, .2 Amp. @117 Volts AC (Receive), 20 Watts, .34 Amp. @117 Volts AC (Transmitt) 3.3 Amp. @6.3 Volts DC
TUNING RANGE	465 MC

VOCALINE MODELS
JRC-400, JRC-425

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



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PARTS LIST AND DESCRIPTIONS **TUBES**

* GENERAL ELECTRIC		* RAYTHEON		* SYLVANIA	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Superregenerative Det - Trans. Osc.	6AF4A	V2	AF Amp. -Speech Amp. Output-Modulator	6AV6
			V3		6AS5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	REPLACEMENT DATA		NOTES
		VOCALINE PART No.	SPRAGUE PART No.	
C1A	40 150	AEROVOX PART No. AFH3-10	PYRAMID PART No. TMT-3127	
C1B	40 150			
C1C	40 150			

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			AEROVOX PART No.	CORNELL-DUBIER PART No.	ELMENDO PART No.	SPRAGUE PART No.
C2	5-3		1469-0001	829-3	CV-1	MS-31
C3	100 5%		1469-0001S	TCZ-100	CM-19B-101J	MS-315
C4	150 5%		EF-001	MFT-1000	CCF-102	MC E235
C5	1000		BFD-002	DD-202	CCD-220	CT280A
C6	2000		BFD-01	DD-103	CCD-103	B-220
C7	10000		BFD-002	DD-202	CCD-220	B-110
C8	2000		BFD-002	DD-103	CCD-103	B-220
C9	2000		BFD-002	DD-202	CCD-220	B-220
C10	10000		BFD-01	DD-103	CCD-103	B-110
C11	.05 1000V		P1088N-05	DD-103	CCD-103	GEM-1015
C12	10000		BFD-01	DD-103	CCD-103	B-110

CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA			INSTALLATION NOTES
			VOCALINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	
R1A	500K	1	PE013-WT	B-59	Q11-133	Volume
R1B	500K	1		Not Req.	FS-3	Not Req.
R1C	500K	1		Not Req.	SWE-12	Power Off-On

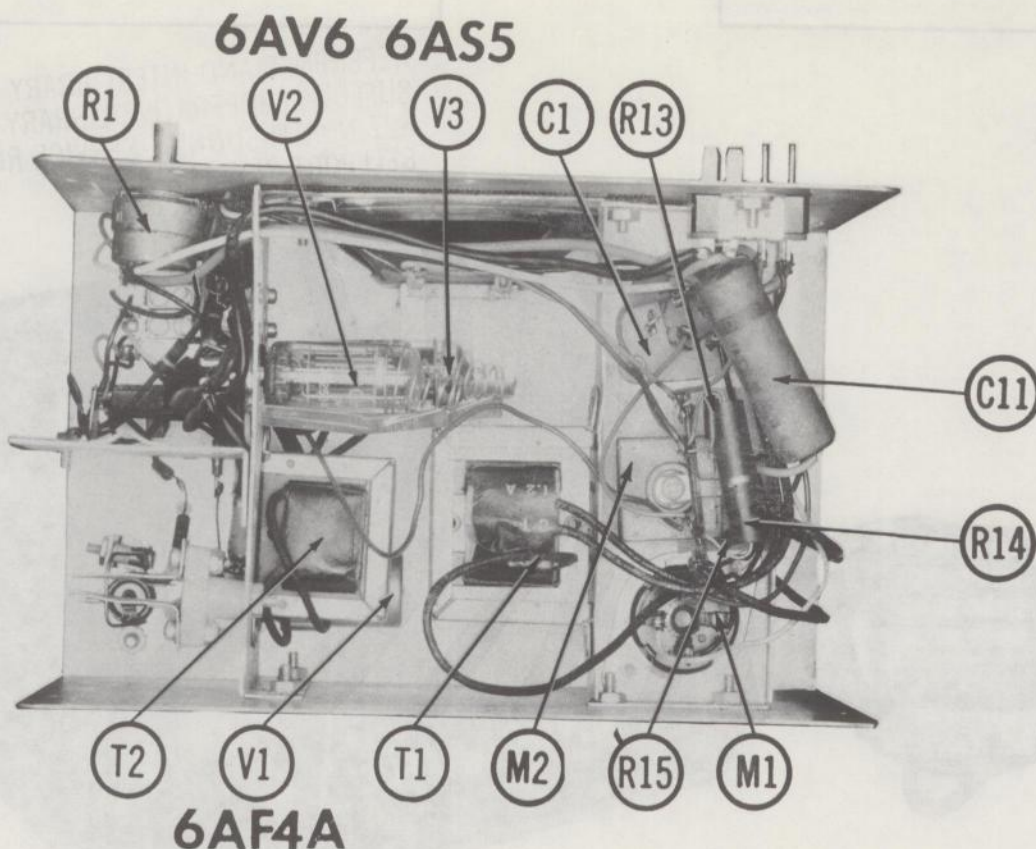
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.			IRC PART No.	WORKMAN TV PART No.	
R2	10K							
R3	470K							
R4	270K							
R5	150K							
R6	22K							
R7	470K							
R8	150K							

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	VOCALINE PART No.	REPLACEMENT DATA
K1	Audio Coupling	220mmf, 250mmf, 2000mmf, 5000mmf, 470K, 470K, 6.8meg		FA-113-1
			Aerovox Centralab Sprague	FC-150 DT-1



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		VOCALINE PART No.	Meritt PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.
L1	Ant.	①		4588	RTC-8513	T958
L2	RF Choke (.47uh)	①		4588	RTC-8513	T958
L3	Osc.	①		4588	RTC-8513	T958
L4	IFL Choke (.47uh)	①		4588	RTC-8513	T958
L5	IFL Choke (.47uh)	①		4588	RTC-8513	T958

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		VOCALINE PART No.	Meritt PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	6.3VCT* 120V@* ③ / 2A .065A 117V@† 6.3V@† .8A 1.3A	504K1				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA				NOTES
		VOCALINE PART No.	Meritt PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	2000Ω 3-4Ω	PE 023		A-3878		

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		VOCALINE PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω	V4B33	4A07	

VIBRATOR

ITEM No.	TYPE	INPUT FRE. VOITS/QUENCY	REPLACEMENT DATA			NOTES
			VOCALINE PART No.	CORNELL-DUBILIER PART No.	MALLOY PART No.	RADIART PART No.
M1	Interrupter	6V 115%		5301	1601	5301

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	VOCALINE PART No.	REPLACEMENT DATA			NOTES
			RCA PART No.	SARKES TAZIAN PART No.	SYLVANIA PART No.	
M2	.065A	*	UN1763 *	100A *	SR500 *	* Selenium * Silicon (Use Surge Limiter)

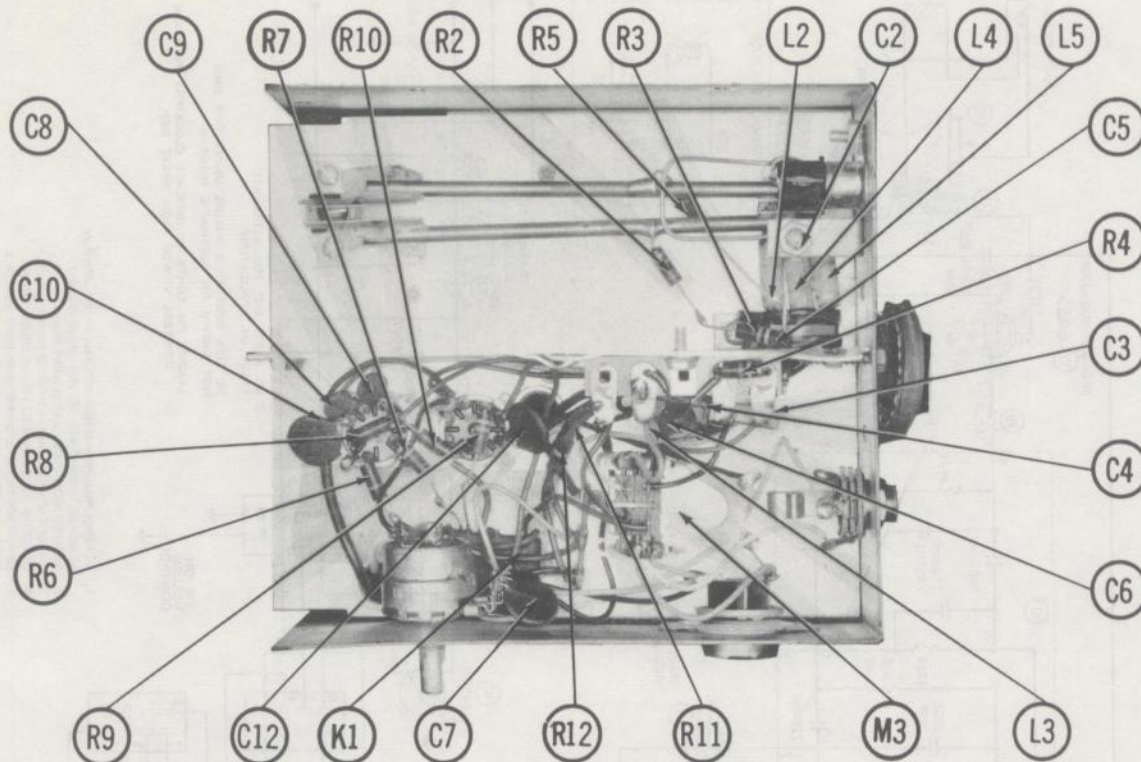
MISCELLANEOUS

ITEM No.	PART NAME	VOCALINE PART No.	NOTES
M3	Relay		Switching

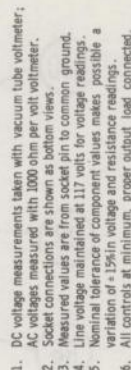
WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in Ten Colors
Power Cord Use BELDEN No. 8524 (Stranded) Available in Ten Colors
1725-K (7 1/2 Ft. Length)

CHASSIS—BOTTOM VIEW



REFERENCE AND INTERLIBRARY LOAN
SUFFOLK COOPERATIVE LIBRARY SYSTEM
627 NORTH SUNRISE SERVICE ROAD
BELLPORT, N.Y. 11713



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

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VOCALINE MODELS
JRC-400, JRC-425



REFERENCE AND INTERLIBRARY LOAN
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BELLPORT, N.Y. 11713

WEBSTER MODEL
FOUR-ELEVEN

TRADE NAME	Webster Model FOUR-ELEVEN
TYPE SET	AC-Battery Operated 8 Tube Crystal Controlled Citizens Band Transmitter — Receiver
POWER SUPPLY	110-120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	65 Watts, .6 Amp. @117 Volts AC (or) 5 Amp. @12.6 Volts DC
TUNING RANGE	Any 4 of Citizens Band Channels 1 thru 23

NOTICE

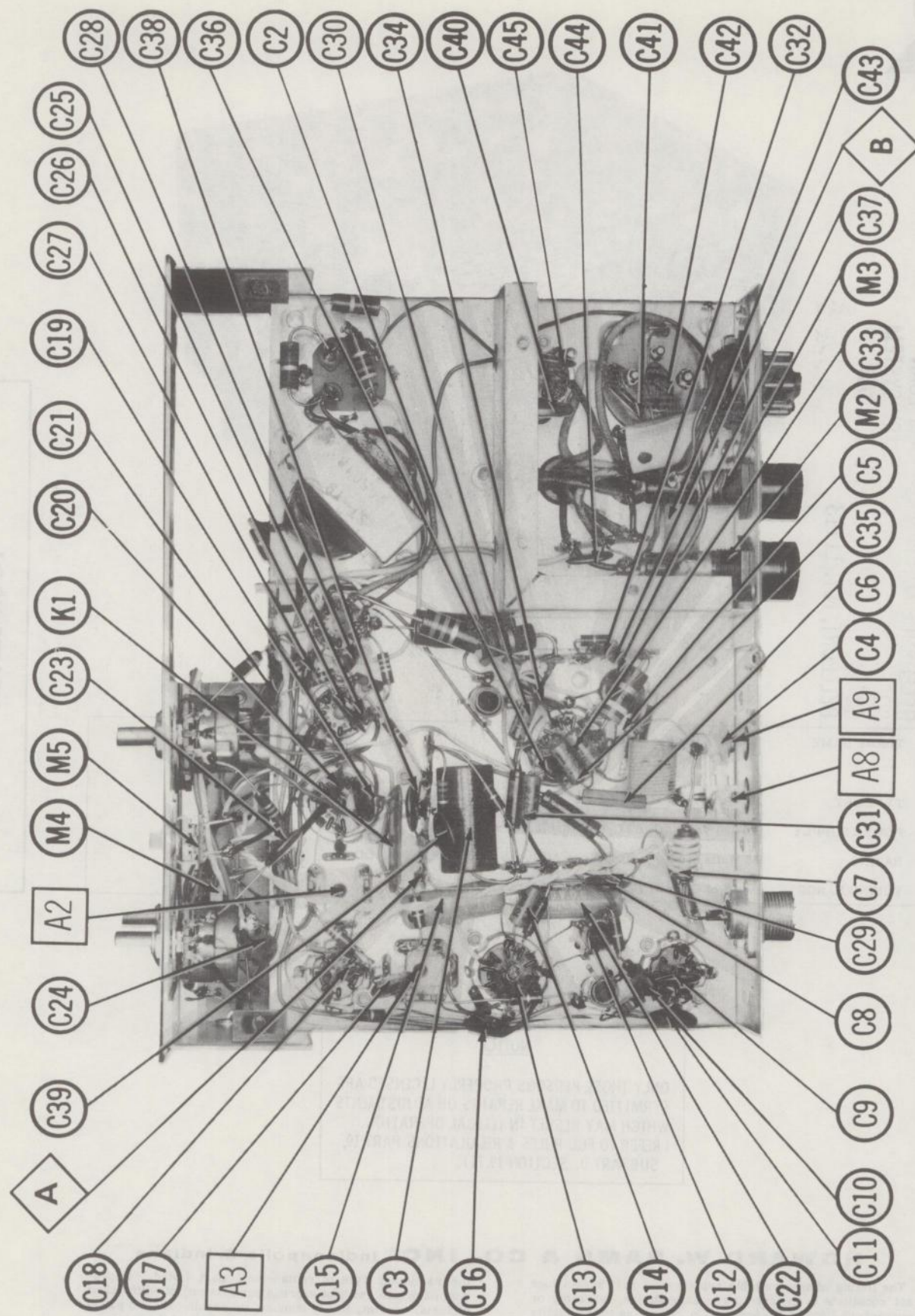
ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

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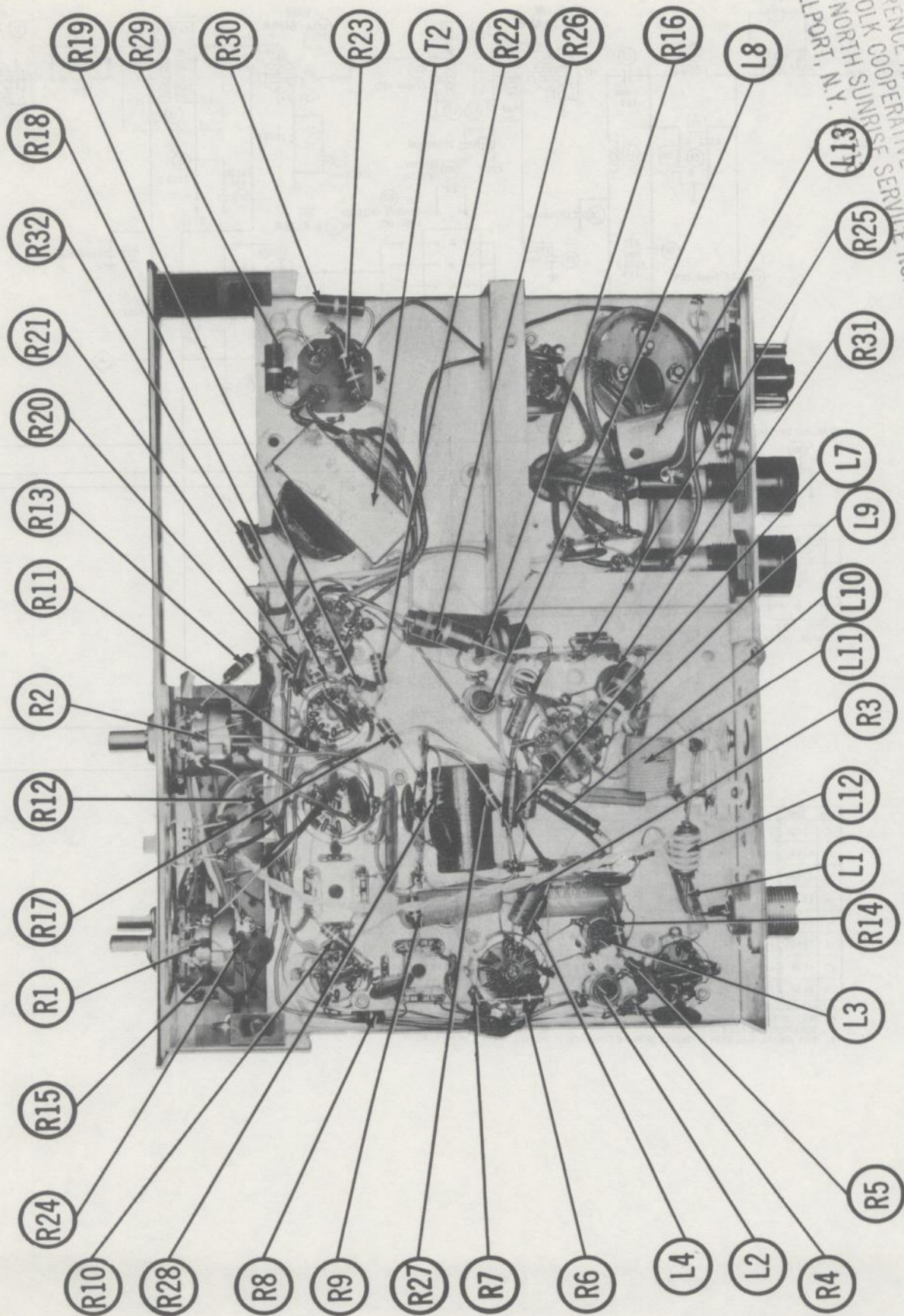


The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ485

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

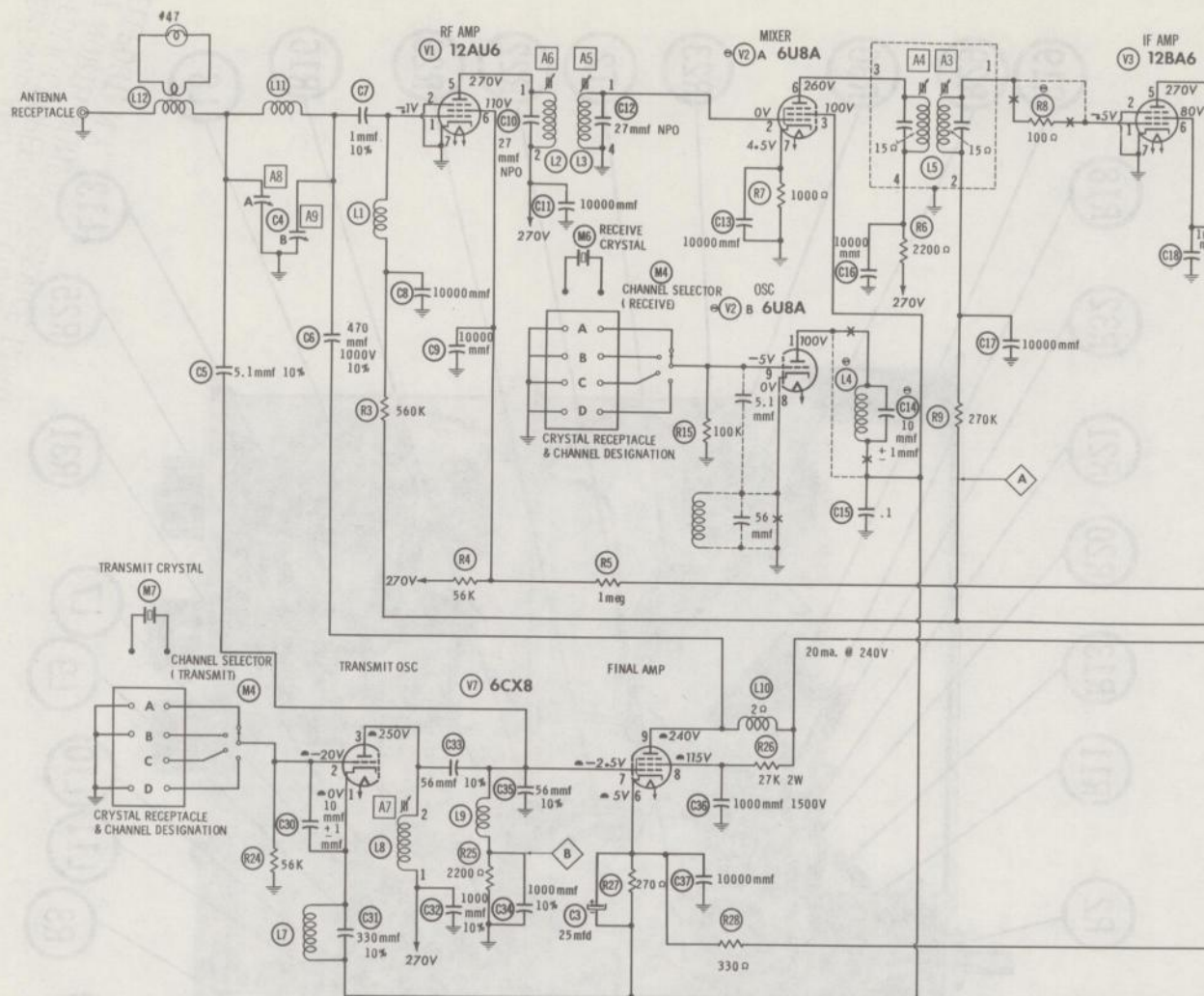


CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.

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BELLPORT, N.Y.



RESISTANCE READINGS

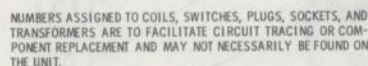
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU6	2.1 meg	0 Ω	0 Ω	.1 Ω	1200 Ω	156K	0 Ω		
V2	6U8A	127K	.1 Ω	127K	.1 Ω	.1 Ω	12400 Ω	1000 Ω	0 Ω	100K
V3	12BA6	1.5 meg	0 Ω	0 Ω	.1 Ω	1200 Ω	156K	0 Ω		
V4	6BJ7	0 Ω	550K	0 Ω	.1 Ω	0 Ω	12 meg	11.1 meg	270K	2.6 meg
V5	12CR6	0 Ω	NC	0 Ω	.1 Ω	1270K	1 meg	2.2 meg		
V6	12AQ5	560K	470 Ω	0 Ω	.1 Ω	1460 Ω	1200 Ω	560K		
V7	6CX8	0 Ω	56K	1200 Ω	.1 Ω	.1 Ω	270 Ω	2200 Ω	127K	1460 Ω
V8	12X4	225 Ω	NC	.1 Ω	0 Ω	NC	210 Ω	1		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.

MEASURED IN "TRANSMIT" POSITION.

MEASURED FROM PIN 7 OF V8.

THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.



- ⊕ SEE PARTS LIST FOR ALTERNATE
VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM
NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION
(CONTROL VIEWED FROM SHAFT END)

**WEBSTER MODEL
FOUR-ELEVEN**

ALIGNMENT INSTRUCTIONS

RECEIVER

1. Connect DC probe of VTVM to point $\diamond A$, common to chassis.

Turn squelch control to off position, (maximum counter clockwise).

Connect high side of Signal Generator (455KC, 400 μ mod.), thru .1mfd to pin 2 of V2A, Low side to chassis. Adjust A1, A2, A3, and A4 for maximum deflection.

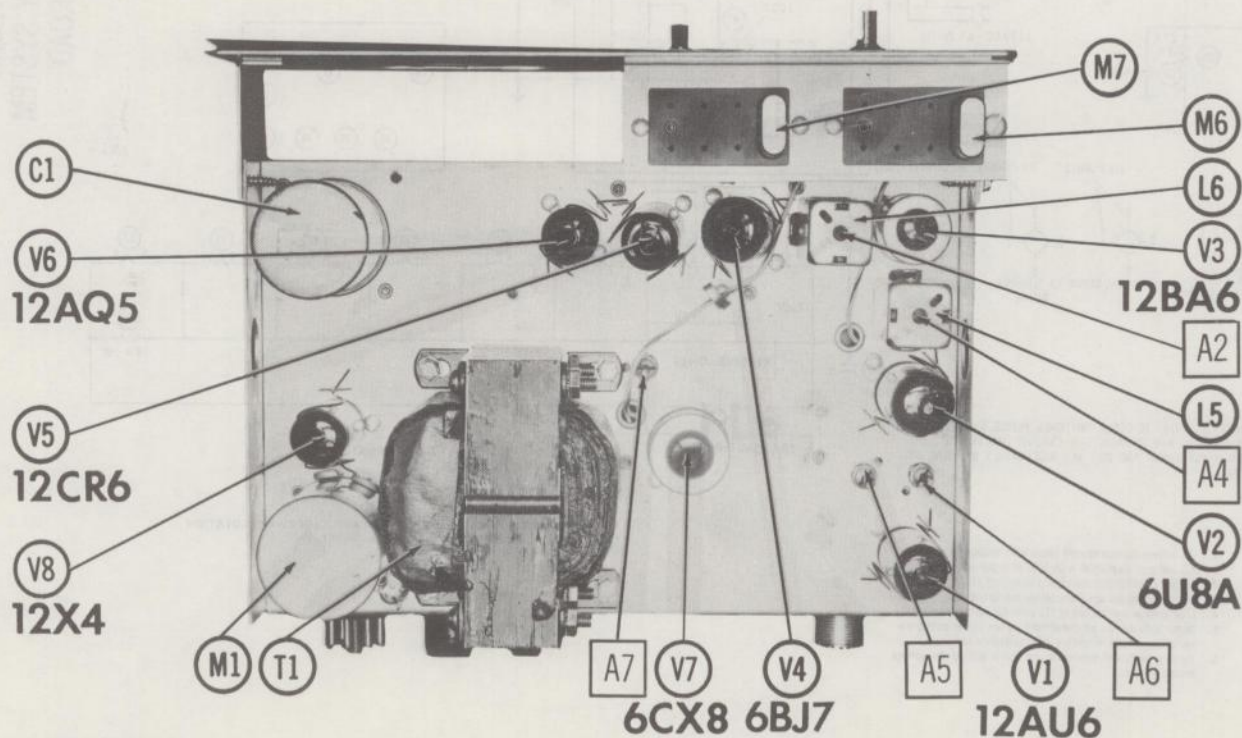
2. Connect high side of Signal Generator, set at proper channel frequency (400 μ mod.) to antenna socket. Adjust A5 and A6 for maximum deflection on VTVM.

TRANSMITTER (REFER TO NOTICE ON FRONT PAGE)

1. Connect 50 ohm dummy load to antenna socket.

Connect DC probe of VTVM to point $\diamond B$, common to chassis.
Adjust A7 for maximum deflection.

Adjust A8 and A9 for maximum brilliance of indicator lamp.



CHASSIS TOP VIEW

REPAIRING AND INTERDIARY LOAN
SUNSHINE SERVICE ROAD
BELLPORT, N.Y. 11713

PARTS LIST AND DESCRIPTIONS

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNEILL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C42	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C43	.1 200V		P288N-1	DD-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C44	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C45	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10

Webster Part Number
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			WEBSTER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	Imeg	B-70-S	G-45	B-70-S	A47-Imeg-S	Q13-137	U53	Volume
R1B	Shaft	Not Req.		Not Req.	F8-3	Not Req.	US-26	Power Off-On
R1C	Switch	SWE-12		Not Req.	SWE-12	Q11-133	U50	Squelch
R2A	500K	B-59	VF-45	B-59	A47-500K-S	Not Req.	US-27	ANL Off-On
R2B	500K	Not Req.		Not Req.	F8-3	Not Req.		
R2C	Switch	KR-2			SWE-20	76-2		

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				REPLACEMENT DATA	
			IRC PART No.	WORKMAN TV PART No.	ITEM No.	RATING	IRC PART No.	WORKMAN TV PART No.
R3	560K				R18	100K		
R4	56K				R19	2.2meg		
R5	Imeg				R20	270K		
R6	22000				R21	Imeg		
R7	10000				R22	560K		
R8	10000				R23	4700 1W		
R9	270K				R24	56K		
R10	56K				R25	22000		
R11	Imeg				R26	27K 2W		
R12	56K				R27	2700		
R13	56K				R28	3300		
R14	Imeg				R29	1000 1W		
R15	100K				R30	1000 1W		
R16	27K 2W				R31	390 2W		
R17	100K				R32	220		

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REMARKS	REPLACEMENT DATA				REPLACEMENT DATA	
			WEBSTER PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	RF Choke (5.6uh)		TL-70	SW-631	4609	RTC-8519	T959	
L2	RF Pri		TL-91	TV-118	6171-A	RTC-8609	T216	
L3	RF Sec		TL-91	TV-118	6171-A	RTC-8609	T216	
L4	RF Choke (1.5uh)		TL-91	EC-352	4604	RTC-8516	T856	
L5	Input IF		TL-34	EC-352	12-C1	RTC-8632	T807	
L6	Output IF		TL-35	EC-353	12-C2	RTC-8633	T808	
L7	RF Choke (5.6uh)		TL-70	SW-631	4609	RTC-8519	T216	
L8	Osc. Plate		TL-91	TV-118	6171-A	RTC-8609	T216	
L9	RF Choke (5.6uh)		TL-70	SW-631	4609	RTC-8519	T216	
L10	Final Plate		TL-69	SW-631	4624	RTC-8524	T862	
L11	Ant. Loading		TL-92					
L12	Hash Choke (46uh)		TL-72					
L13	Hash Choke (46uh)							

TUBES

ITEM No.	GENERAL ELECTRIC	RAYTHEON	SYLVANIA	USE	TYPE
V1	RF Amplifier			AF Amp.-Speech Amp.	12AU6
V2	Mixer - Osc.			Receiver Output-Modulator	12AX6
V3	IF Amplifier			Trans. Osc.-Final Amp.	6CX8
V4	Det.-ANL-Squelch Rect.			Rectifier	12X4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	VOLT.	REMARKS	REPLACEMENT DATA					
				AEROVOX PART No.	CORNEILL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	20	300		AFR4-46	D0380	XC4-72	FP419-7	TMQ-4140	TVL-4631
C1B	40	300							
C1C	50	300							
C1D	50	25							
C2	4	150		PRS1400	BBR4-150	QT1-2	TT150X4	TD-4-150	TVA-1402
C3	25	50		PRS1340	BBR25-50	QT1-11	TT36	TD-25-50	TVA-1306

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNEILL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4A	5.1 10%	#461-466		TCZ-4R7	C10V8C	CCCTO-050		10TCC-V50
C5	470 1000V 10%	#VCM20B471MNP0-SI 5.0				VCN-20-471M		
C6	1 10%		NPO-SI 1.0	TCZ-1	BYA1081	CCD-103	CNO-510	10TCC-V10
C7	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C8	10000			TCZ-27	C10Q7C	CCCTO-270	CNO-427	10TCC-Q27
C9	27 NPO		NPO-D1 25	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C10	10000		BPD-01	TCZ-27	C10Q7C	CCCTO-270	CNO-427	10TCC-Q27
C11	10000		NPO-D1 25	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C12	27 NPO		BPD-01	TCZ-10	C10Q7C	CCCTO-100	GEM-201	2TM-P10
C13	10000		NPO-SI 10	DF-104	CUB2P1	2DP-3-104		
C14	10 + 1mmf		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C15	.1 200V		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C16	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C17	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C18	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C19	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C20	1000 10%		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C21	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C22	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C23	.05 200V		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C24	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C25	330		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C26	20000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C27	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C28	1000 10%		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C29	1000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C30	10 + 1mmf		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C31	330 10%		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C32	1000 10%		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C33	96 10%		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C34	1000 10%		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C35	56 10%		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C36	1000 1500V		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C37	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C38	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C39	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C40	4700 3000V		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10
C41	10000		BPD-01	DD-103	BYA1081	CCD-103	B-110	SHK-S10

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI	SEC	WEBSTER PART No.	Meritt PART No.	Thordarson PART No.	
T1	117V(Δ) 6A(ΔC) 12.6VCT (Δ 3A(ΔC))	12.6VCT 1.6A DC (AC)	ST-102			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI	SEC.	WEBSTER PART No.	Meritt PART No.	Thordarson PART No.	
T2	6200Ω	3-4Ω	ST-19		24S05	S-63X

SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA		NOTES
	SIZE	FIELD	WEBSTER PART No.	QUAM. PART No.	
SPI	4"	PM	3-4Ω	P4VA-NW	4A1

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	WEBSTER PART No.	REPLACEMENT DATA
K1	ANL-Squelch Network	(2) 100mmf, 10000mmf, (2) 270K, (2) 1meg	59-4719	

VIBRATOR

ITEM No.	TYPE	INPUT FRE. VOLTS/QUENCY	REPLACEMENT DATA				NOTES
			WEBSTER PART No.	CORNELL-DUBILER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6 115%	G-1601	6301	GI601	6301	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			WEBSTER PART No.	FUSE HOLDER	LITTELFUSE PART No.	BUSS PART No.
M2	3AG	7.5A 250V		AGC 7½	342001	AGC 7½
M3	3AG	2A 250V		AGC 2	342001	AGC 2

MISCELLANEOUS

ITEM No.	PART NAME	WEBSTER PART No.	NOTES
M4	Switch	F-49	Channel Selector (Rotary Wifer) Receive-Transmit (DPDT Slide Type) Receive Transmit
M5	Switch	SW-726	
M6	Crystal		
M7	Crystal		

CABINETS & CABINET PARTS

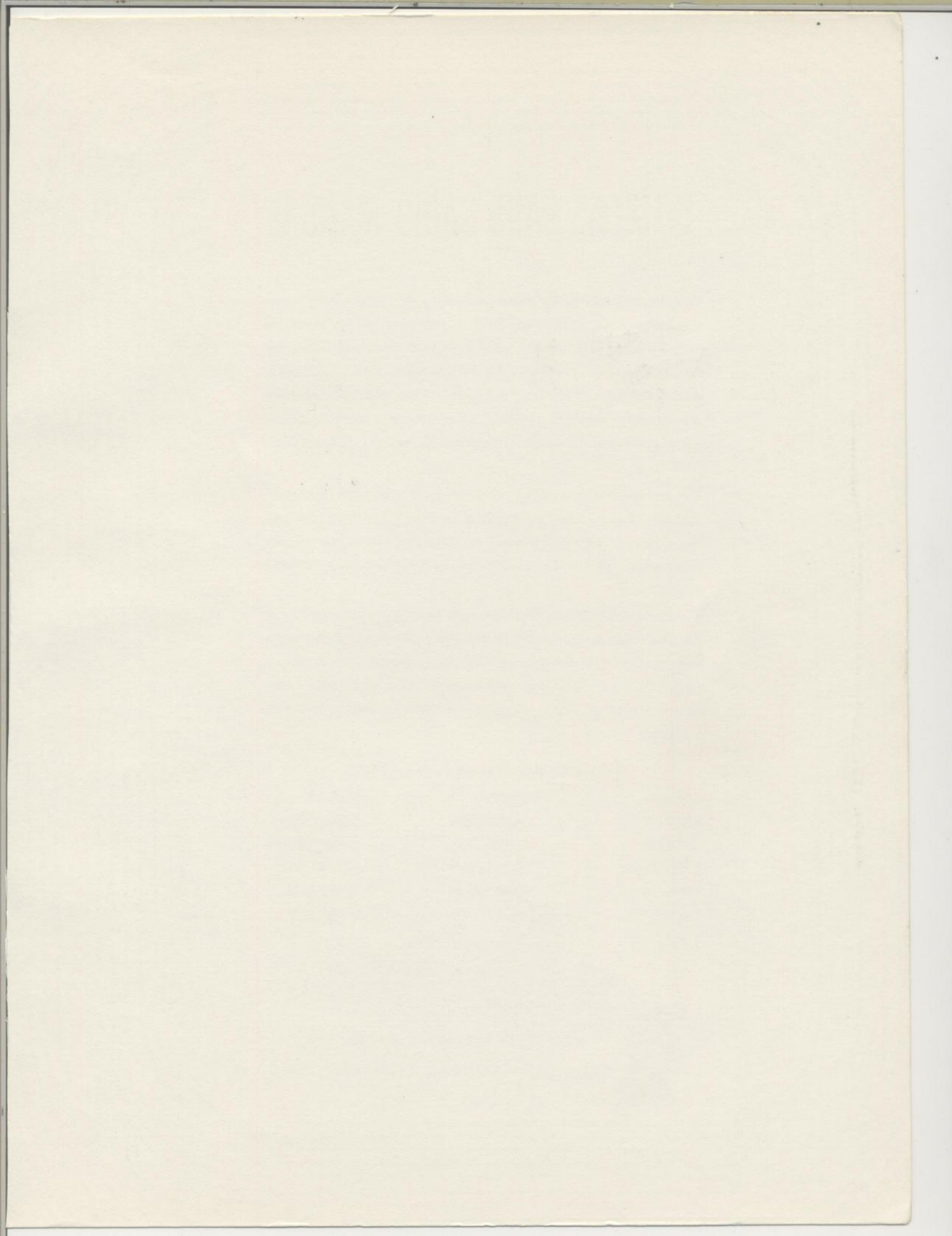
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Lens Knob	147-10	Clear Lucite
Knob	101TE270	Channel Selector
Knob	105P-T3270	Volume, Squelch

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1785-B (6 Ft. Length) 1725-K (7½ Ft. Length)

REFERENCE AND INTERLIBRARY LOAN
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CITIZENS BAND RADIO MANUAL

The growing and widespread popularity of Citizens-band radio has opened an entire new field in communications. Since the introduction of the Class-D service several years ago, there has been an increasing demand for additional servicing facilities to handle this type of two-way equipment. Thus, there are excellent opportunities awaiting qualified technicians who want to build a more profitable business by expanding into the Citizens-band field.

The primary purpose of this manual is to provide data needed by the user or technician. An editorial section at the front discusses the classes of equipment used, receiver and transmitter circuits, transceivers, converters, transverters, and the tone-coded squelch system.

Complete PHOTOFACT® service data have been included for 30 popular models. The coverage includes schematics, photos showing component layout and identification, alignment instructions, complete parts lists and replacement data, and other valuable information which will make CB servicing easier and more profitable.

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