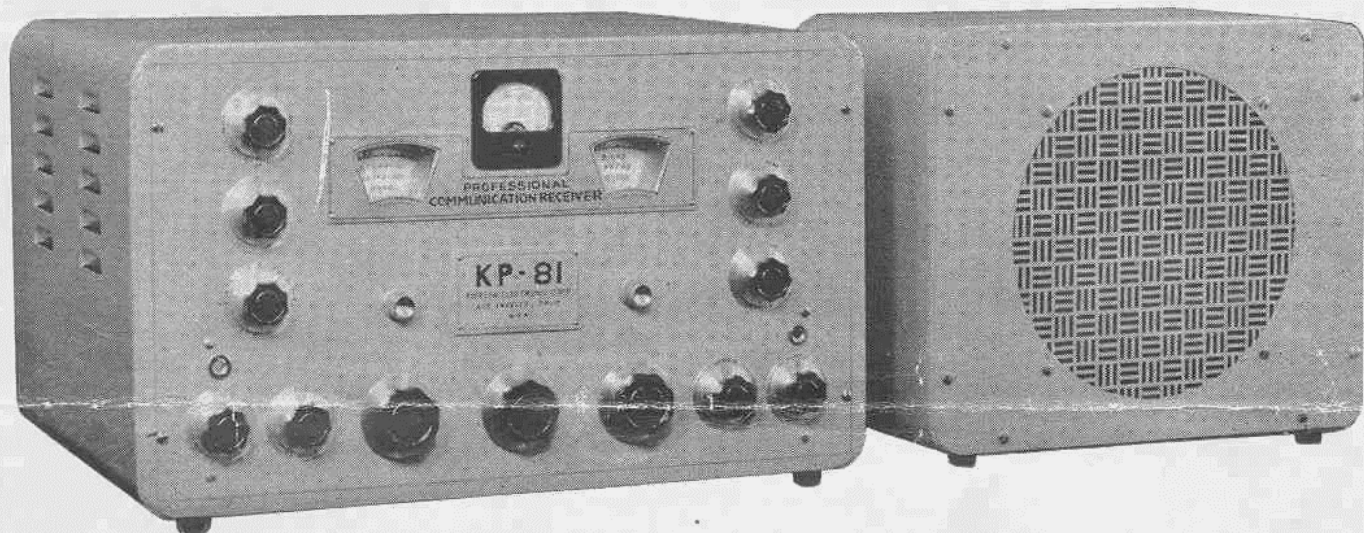


N7420  
Mitsunaga, J.C.

# New KP-81 RECEIVER



A COMMUNICATION RECEIVER ENGINEERED  
TO FILL THE COMPOSITE REQUIREMENTS  
OF THE DISCERNING AMATEUR AND  
THE ASTUTE PROFESSIONAL OPERATOR.

**PIERSON ELECTRONIC CORPORATION**  
LOS ANGELES, CALIFORNIA

# ONLY THE KP-81 HAS ALL THESE FEATURES

**THE KP-81** is offered today as the Receiver of tomorrow, having been designed and developed by Karl E. Pierson who formerly designed the famous PR series of Receivers. Engineered to meet present day conditions and to anticipate future requirements.

**RF OR PRE-SELECTOR STAGES**—Two tuned RF or Pre-Selector stages are in continuous operation at all times on all bands, with highest efficiency of design. This combination gives an unusually high image ratio on all bands. Image ratio table for each band appears below:

AVERAGE IMAGE RATIO	
BAND—1.....	ABOVE 7000 to 1
BAND—2.....	ABOVE 4000 to 1
BAND—3.....	ABOVE 3000 to 1
BAND—4.....	ABOVE 1500 to 1
BAND—5.....	ABOVE 1000 to 1

**BAND SPREAD**—Electrical band spread utilizes a separate tuning condenser, employed with its separate dial and is so arranged as to eliminate parallax. A shutter system is employed with this dial which makes visible a 0 to 100 band spread scale as well as an accurately calibrated frequency scale for the particular ham band in use at the particular time. Other provisions in the Receiver make possible accurate frequency setting for this dial. (See Calibrated Switch Par.) Circuit and dials are so arranged as to spread each ham band over literally the entire band-spread dial.

**MAIN TUNING DIAL**—The main tuning dial is clearly and accurately calibrated in kilocycles on the broadcast or No. 1 band and in megacycles on the other four bands. Band number and coverage both in kilocycles or megacycles and meters is plainly indicated for each individual band by information appearing on a dial shutter which leaves visible only the band in use.

**DIAL DRIVE**—The dial drives for both band spread and main dial are ball bearing of the high inertia type, extremely simple and fool proof, thus affording smooth operation.

**TUNING CONDENSER**—The main tuning condenser is a 4 gang type, rigidly constructed and mounted, non-microphonic. The same design is also used in the band spread condenser.

**BAND CHANGE**—Band changing is accomplished by the use of a slide coil drawer, an adaptation of the well known turret system. Contacts are heavy silvered knife switch type. This drawer operates on ball bearing typewriter carriage principle and is of heavy mechanical construction assuring smooth performance and permanent alignment.

**FIVE BANDS**—7 1/2 to 550 meters (550 KC to 40 MC).

**BAND INDICATOR**—Band and frequency indicators consist of printed information on the dial shutters themselves indicating all information pertinent to the particular band in use. Coverages for each band shown in table below:

BAND—1.....	550.0 KC to 1700.0 KC
BAND—2.....	1.7 MC to 5.5 MC
BAND—3.....	5.5 MC to 12.0 MC
BAND—4.....	12.0 MC to 20.0 MC
BAND—5.....	20.0 MC to 40.0 MC

**CRYSTAL FILTER—BAND PASS AND SERIES—PARALLEL TYPE COMBINED**—The crystal filter and component parts are separately shielded, utilizing precision-one-peak-crystal, and air tuning, isolantite insulated, phasing condenser with insulated shaft, assuring maximum efficiency of operation.

**C. W. TUNING**—Single Signal with or without crystal.

**INTERMEDIATE TRANSFORMERS**—Are of new and unusual design which together with their circuits give a type of selectivity and interference elimination heretofore unknown in communication receivers.

**HIGH FREQUENCY OR HETERODYNE OSCILLATOR**—The oscillator circuit is of the electron coupled type of unusually high stability. Changes of oscillator plate voltage as high as 50% have a negligible effect on the oscillator frequency, even when operating on the highest frequency band. The setting or changing positions of any of the controls has absolutely no effect whatsoever on the oscillator frequency.

**BEAT OSCILLATOR**—is an extremely stable electron oscillator, carefully shielded with calibrated pitch control on front panel. The method of coupling and detector circuit makes possible, for the first time, CW reception in a super-heterodyne circuit which is far superior to the old type "TRF" Receivers, performance being uniform on either strong or weak signals.

**SIGNAL TO NOISE RATIO**—Due to a large number of features too lengthy for discussion here having to do with the RF circuit design and silencer circuits, the signal to noise ratio is of such high order as to be negligible on all signals above one micro-volt strength.

**INTER-CHANNEL NOISE SUPPRESSION**—(Squelch, or silent-between-stations) may be switched in or out of any band at will, it may be adjusted to open on a signal of any R strength down to and even below the noise level of any given location. It will be found of extraordinary benefit in stand-by aviation, or police work, where the carrier of the station being received, is turned off between transmissions. It does not affect the sensitivity or performance of the receiver.

**MANUAL CONTROL**—Operates the "AVC-off" switch. This control is normally intended for CW operations and as such controls both RF and IF gain permitting an ideal condition for cutting through heavy local interference on both phone and CW reception.

**CONDENSERS AND RESISTORS**—of close tolerance requirements, are encased in heavily moulded bakelite, thus assuring permanence under any climatic condition. The main voltage divider is heavy, wire-wound and of ample capacity and protected by a heavy vitreous coating.

**SENSITIVITY CONTROL**—is a fixed setting control mounted on back of chassis and may be used to set the sensitivity for any given location. However, this control is set at the factory for maximum signal to noise ratio, in the average location consistent with accurate R meter calibration and in the majority of cases need never be changed. Fractional microvolt sensitivity is attainable on all bands.

**METER CIRCUIT**—The meter circuit is an integral part of the second intermediate amplifier circuit. It is of the balanced bridge type of high stability. Further, the meter may be removed from the circuit, shorted out or grounded without damage to the meter or affecting the performance of the receiver. The meter terminals are only three volts above ground, eliminating all possibility of shock from high voltage meter terminals as is the usual case. Large changes in line voltage have absolutely no effect whatsoever on the zero setting of the meter circuit due to its balanced bridge design.

# DESIGN! ENGINEERING! CONTINUED ADVANCEMENT!

**AUDIO TRANSFORMERS**—are hermetically sealed and baked export type.

**POWER OUTPUT STAGE**—is of the push-pull AB-1 type capable of an undistorted output of better than 12 watts.

**TONE CONTROLS**—are in actuality variable sharp cut-off Hi-pass and Low-pass filters making possible the adjustment of the audio curve to fit the particular noise or such conditions of any situation normally encountered in communication work. Great benefits are derived both on CW and phone by proper use of these controls. In full "on" position the audio curve becomes a sharp peak at 1,000 cycles, an ideal situation for code reception particularly through heavy noise.

**INDUCTANCES**—All coils and inductances are of a most efficient design and are doubly impregnated and double-baked by a special process. This process increases efficiency or Q of the coils over any other known method. The coils, after treating, are actually more efficient than a perfectly dry coil. Further, when finished, they are covered with a heavy coating, which is of the texture of glass, and so hard as to make damage to windings practically impossible.

**UNIFORM GAIN**—over entire range.

**SOCKETS**—All sockets used in high frequency stages and oscillator are of heavy construction HI-Q material.

**HEAD PHONE JACK**—on front panel completely kills speaker leakage when in use.

**COMMUNICATION CALIBRATE SWITCH**—is of the usual type with filaments "on", supply "off" in the send position. External connections are brought out from this switch for the purpose of transmitter relay operation if desired.

**CALIBRATE SWITCH**—is an integral part of the band spread mechanism. Switch being actuated automatically when the band spread dial is returned to zero. Calibration is accomplished by the shorting of the antenna circuit and turning on an accurate crystal controlled 500 KC oscillator, thus placing a marker signal at every 500 KC multiple throughout the spectrum. Locks are provided on both main and band spread dials to assure permanence of calibration over long periods of time. Additional provisions are made for leaving antenna active for calibrations against Bureau of Standards (W.W.V.) Crystal Frequency Adjustment is provided for this purpose.

**POWER SUPPLY**—arranged for either 110 volt or 220 volt 50-60 cycle operation. Other voltages and frequencies can be supplied on special order.

**SPEAKER**—Heavy duty, 10" Dynamic. P.M.

**MEASUREMENTS**—Receiver 20" wide, 16½" deep, 12" high. Speaker Unit 14" wide, 11" deep, 12" high.

**WEIGHT**—Shipping weight approximately 110 pounds.

**NOTE**—We regret that existing production problems make it impractical to list names and types of components and materials used in the manufacture of this receiver and we necessarily must reserve the privilege of variation from time to time until conditions become stable and fixed.

**TERMINALS**—Antenna and doublet terminals are located on rear panel of chassis as well as Phonograph in-put terminals, Sensitivity, Meter Set and Silent Tuning adjustments.

**CHASSIS**—The chassis is constructed of furniture steel of extra heavy gauge and it is so ribbed and fitted as to stand a weight of over 3000 pounds without collapse, thus assuring durability and permanent alignment.

**METAL CABINETS**—The cabinets are of the same rigid construction of furniture steel as chassis and are finished in baked crackled finish of fine velvety texture and extreme hardness.

**REMOVING CHASSIS**—The chassis and front panel are assembled as one unit, and are removable from the cabinet by removing screws at each side of front panel and at rear bottom of chassis.

**TILTER**—places dials in direct line of sight.

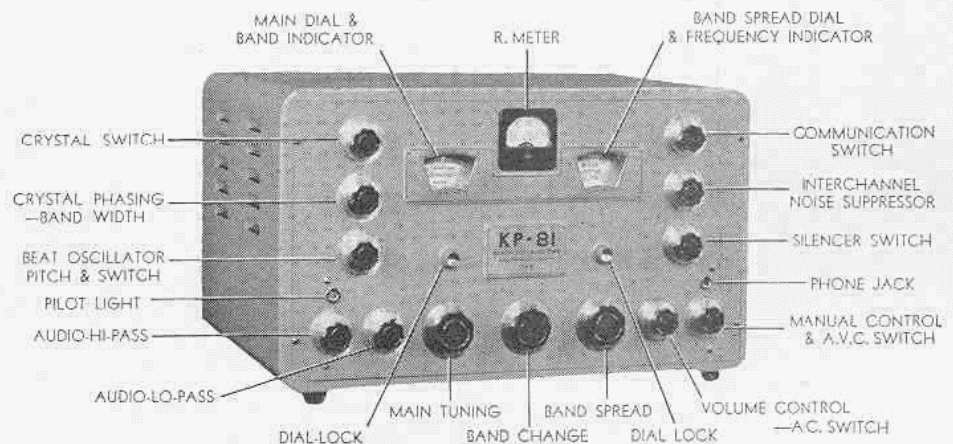
**SHOCK-PROOF**—Chassis, mounted on resilient rubber feet.

**LICENSED**—R. C. A.

**CIRCUIT LINE-UP—18 TUBES**—consisting of 2 stages of RF pre-selection, local oscillator, modulator or mixer, 3 IF stages, noise amplifier and rectifier, automatic threshold control, second detector, first audio, push-pull output, beat oscillator, squelch, calibrator and rectifiers.

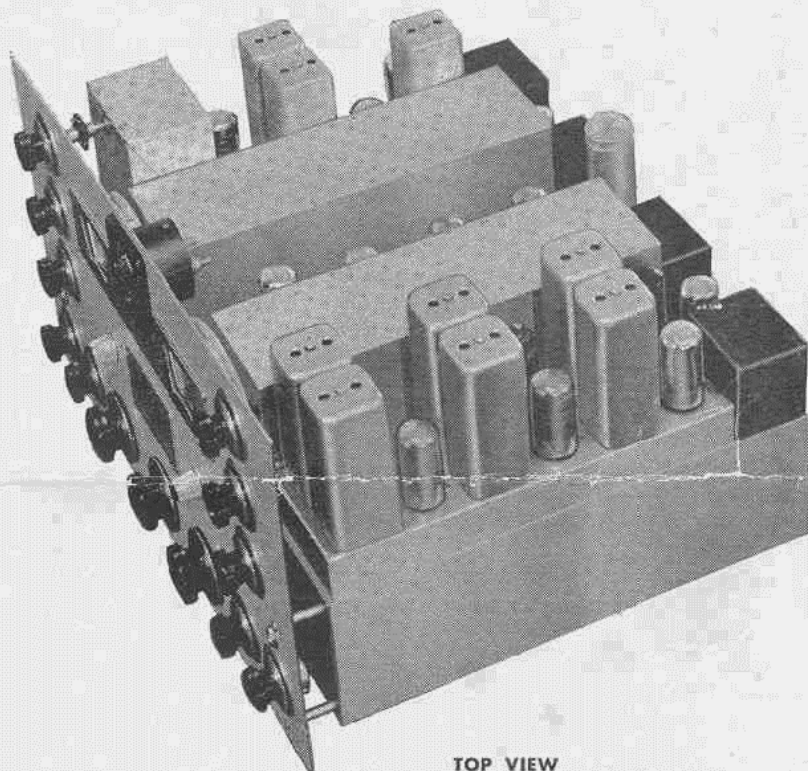
**NEW IMPROVED SILENCER CIRCUIT**—Completely automatic and far more effective than any silencer heretofore developed. Under actual operating conditions it has made possible the perfect reception of signals of only 5 microvolts in strength through a noise level in excess of 100 microvolts, in other words noise 20 times stronger than signal. It is controlled by a 3 position switch on the front panel, 1 position "off", 2 position "CW", 3 position "phone". Must be heard in action to be appreciated.

**RECEIVER PANEL**—is standard relay rack size 19"x10½". Speaker and power chassis can also be furnished for relay rack mounting if desired.

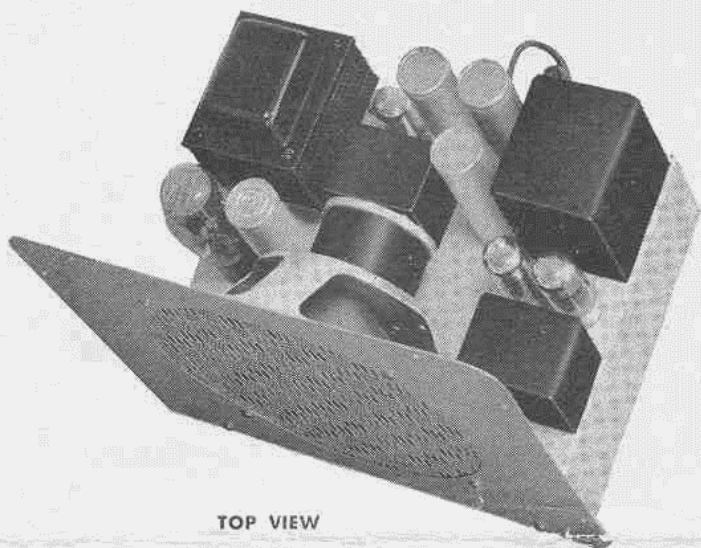


# ENGINEERING • QUALITY • PERFORMANCE

- ★ NEW AUTOMATIC NOISE SILENCER
- ★ TWO PRE-SELECTOR STAGES  
(Built in all bands)
- ★ TURRET BAND CHANGE  
(Silver knife contact)
- ★ HI-Q SOCKETS  
(In all high frequency circuits)
- ★ FOUR GANG TUNING AND BAND SPREAD  
CONDENSERS
- ★ SERIES PARALLEL CRYSTAL FILTER
- ★ CALIBRATED BEAT OSC. PITCH CONTROL



TOP VIEW



TOP VIEW

- ★ CALIBRATED BAND SPREAD
- ★ NEW I.F. AMPLIFIER DESIGN
- ★ NEW PRINCIPLE TUNING SYSTEM
- ★ BUILT IN CRYSTAL CALIBRATOR
- ★ SINGLE SIGNAL AT ALL TIMES
- ★ VARIABLE HI AND LO PASS AUDIO FILTERS
- ★ CABINET TILTER
- ★ 550 KILOCYCLES TO 40 MEGACYCLES
- ★ ANTENNA COIL PROTECTOR

## PIERSON ELECTRONIC CORPORATION

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