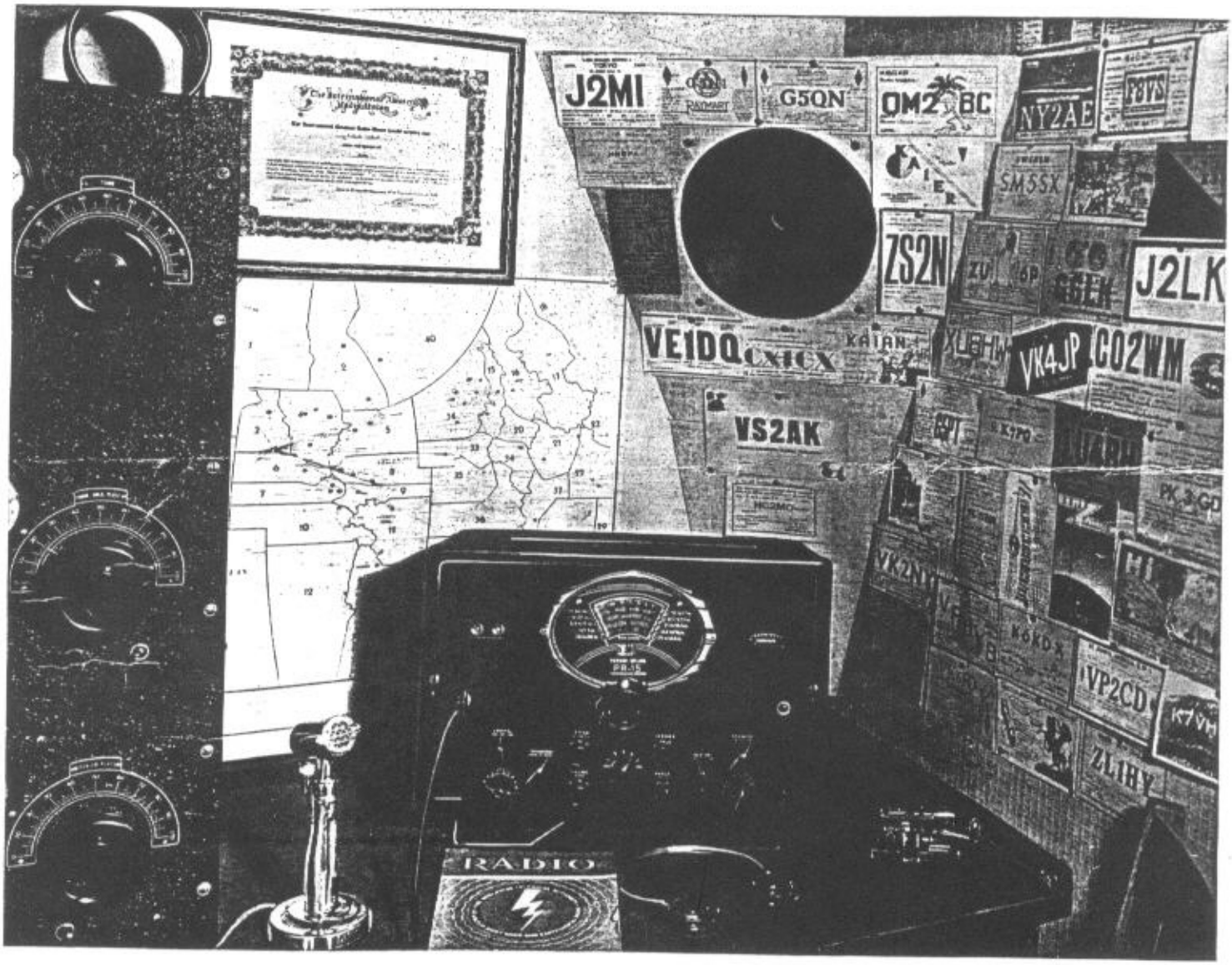
PR-15

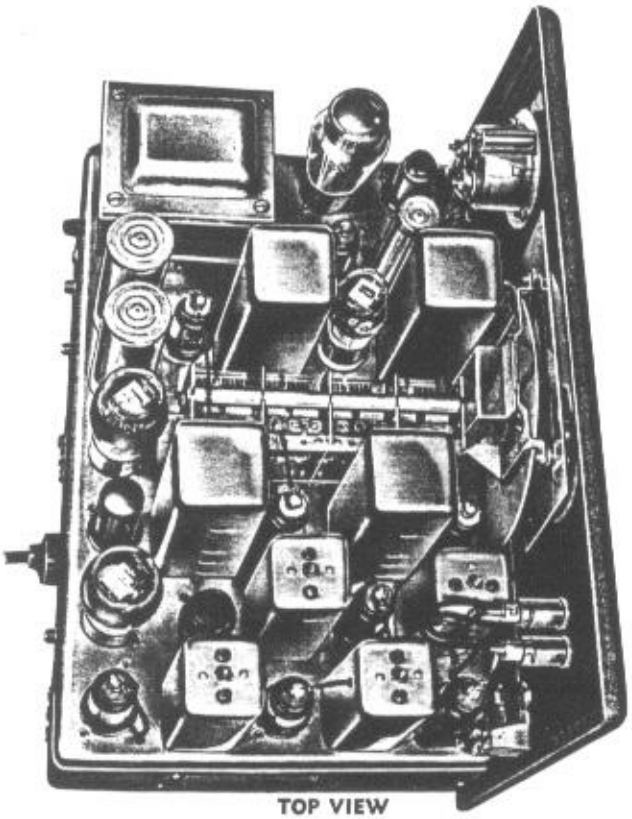
THE STANDARD OF EFFICIENCY!



The PR-15 is custom built and not mass production on a moving belt. Each set is individually built and tested. When you receive it you are truly getting a "custom-built radio" which has been given special attention right from the start. Everything you want is in it; and if you want the finest communications receiver on the market today, the PR-15 is your radio.

The only Communications Receiver engineered to fill the composite requirements of the amateur, professional operator, and D-X'er

ENGINEERING PLUS!



TOP VIEW

★ AUTOMATIC NOISE SILENCER

★ TWO PRE-SELECTOR STAGES
(Built In, All Bands)

★ ISOLANTITE BAND SWITCH
(Silver Knife Contact)

★ ISOLANTITE SOCKETS
(In All High Frequency Circuits)

★ FOUR GANG TUNING CONDENSER

★ CONTINUOUS MAGNAVISION BAND SPREAD

★ SERIES PARALLEL CRYSTAL FILTER
(Band Pass Type)

★ CALIBRATED BEAT OSC. PITCH CONTROL

QUALITY PLUS!

★ IRON CORE I. F. TRANSFORMERS

★ CALIBRATED "R" METER

★ 400-1 VERNIER

★ INTER-CHANNEL NOISE SUPPRESSION

★ PUSH TO TALK JACK

★ SINGLE SIGNAL

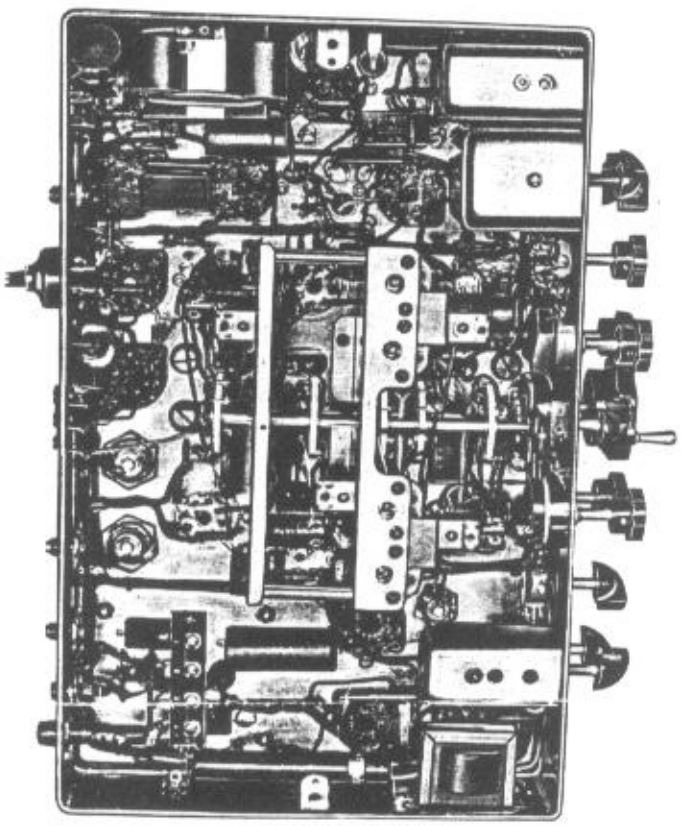
★ HIGH FIDELITY AUDIO

★ CABINET TILTER

★ INDICATOR PILOT LIGHTS

★ FIVE BANDS

★ 550 KILOCYCLES TO 40 MEGACYCLES



BOTTOM VIEW

PERFORMANCE PLUS!

PR-15

ENGINEERED RIGHT!
BUILT RIGHT!
WORKS RIGHT!
PRICED RIGHT!

★ LIST PRICE COMPLETE ★

All Models Crystal-Equipped, with Unmounted 12" Jensen Electro-Dynamic Speaker

MODEL	DESCRIPTION	SIZE H.	SIZE W.	SIZE D.	SHIP WT. LBS.	LIST PRICE
PR-15-M	Metal Table Cabinet	11"	17"	11"	72	**$222.50**
PR-15-R	Rack Mounting	11"	19"	11"	74	**222.50**
PR-15-X	Chassis, Tubes, Speaker	9"	16½"	10"	62	**222.50**
PR-15-C	DeLuxe Console	44¼"	30½"	16"	160	**335.00**
PR-15-UH	Special Police Set	11"	17"	11"	70	**Ask for Price**

MODEL PR-15-X—Supplied with Satin Silver Finish Metal Panel for Console installation. Size 11½"x14".

MODEL PR-15-C—Is a DeLuxe Console. This model has a switching arrangement which cuts out all I. F. stages, giving a Two Stage Tuned Radio Frequency Tuner plus a High Fidelity Audio System for the utmost in TONE QUALITY on local stations. The speaker system used is a Jensen High Fidelity, Peri-Dynamic Bass Reflexed Unit (Special Bass Reflex A-12 Concert Jensen) in a specially designed cabinet. The PR-15 DeLuxe Console Model gives you the ultimate in short-wave reception as well as tone.

The chassis and speaker used in this Console are not available without the cabinet, since much of the tone quality is obtained by the use of a correctly engineered console and speaker compartment with its scientifically designed high frequency diffusing vanes.

MODEL PR-15-UH—Has only one band, 28 to 46 Megacycles. No Crystal Filter, no Beat Frequency Oscillator, Full Automatic Noise Silencer, I. F. Band Width set according to order (up to 50 KC.). This receiver available in M, X or R Models.

Add $9.00 to list for any voltage or cycle, other than standard 110 Volt, 50-60 cycle. F.O.B. Los Angeles, California.

Jensen "A-12" High Fidelity Concert Speaker available in place of regular speaker, at additional cost.

All prices include Federal Excise Tax and RCA, Hazeltine and Latour License Fees.

PIERSON-DoLANE, Inc.

MANUFACTURERS

PR-15 Communications Receiver

2345-47 W. Washington Boulevard, Los Angeles, California

Form No. 108A Printed in Los Angeles, U. S. A.

ONLY THE PR-15 HAS ALL THESE FEATURES

RF OR PRE-SELECTOR STAGES—Two tuned RF or Pre-Selector stages are in continuous operation at all times on all bands, which with highest efficiency of coil design, impregnation, and ample isolantite insulation, of component amplifier parts, insure high stability, high gain and quiet performance. This combination gives an unusually high image ratio on all bands, thus assuring complete elimination of any difficulties on this point. Image ratio table for each band appears below:

AVERAGE IMAGE RATIO

BAND — 1.....Above 6000 to 1
BAND — 2.....Above 3000 to 1
BAND — 3.....Above 2000 to 1
BAND — 4.....Above 1000 to 1
BAND — 5.....Above 600 to 1

MAGNAVISION BAND SPREAD—The band spread offers the combined advantages of mechanical and optical principles, an entirely new and exclusive design. The reduction gears are of the scissor-action type, which eliminate all play or back-lash and automatically take up any wear. This system further utilizes a specially ground lens, which gives the optical equivalent of a band spread dial of over 10 inches in diameter and is so focused as to give straight line tuning to the band spread dial instead of the usual curved line of figures, thus affording the greatest possible ease of logging or reading. The indicator itself is a black hair line engraved on back of the lens. Table showing degree of band spread for each band shown below:

AVERAGE KC'S PER BAND SPREAD DEGREE

BAND — 1..... 0.3 KC
BAND — 2..... 2.5 KC
BAND — 3..... 5.0 KC
BAND — 4.....10.0 KC
BAND — 5.....20.0 KC

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 on dial mask. The band spread dial is located directly in main dial face, making it possible to read both the main tuning dial and the band spread dial at practically the same time.

DIAL AND VERNIER DRIVE—The dial and vernier drives utilize the same scissor-action gears and are an integral part of the band spread mechanism, giving the gear ratio of 25 to 1 on the main tuning knob. The main tuning knob is equipped with a crank arrangement which permits skipping from band to band with utmost speed (equivalent of approximately 10 to 1 ratio). The vernier drive is a separate control and has a ratio of 400 to 1, utilizing the wedge grip in conjunction with a finely balanced fly-wheel of extremely accurate construction, thus affording an ease and accuracy of tuning never before experienced in a receiver of this type. It is possible to actually spin either the main tuning control or the vernier drive with the finger tips, while the stability is such that even when tuning on the highest frequency band (No. 5) the controls may be pushed or pulled in any direction, without the slightest detuning effect.

TUNING CONDENSER—The main tuning condenser is a 4 gang eight section type (split stator) rigidly constructed and mounted on special heavy gum rubber supports.

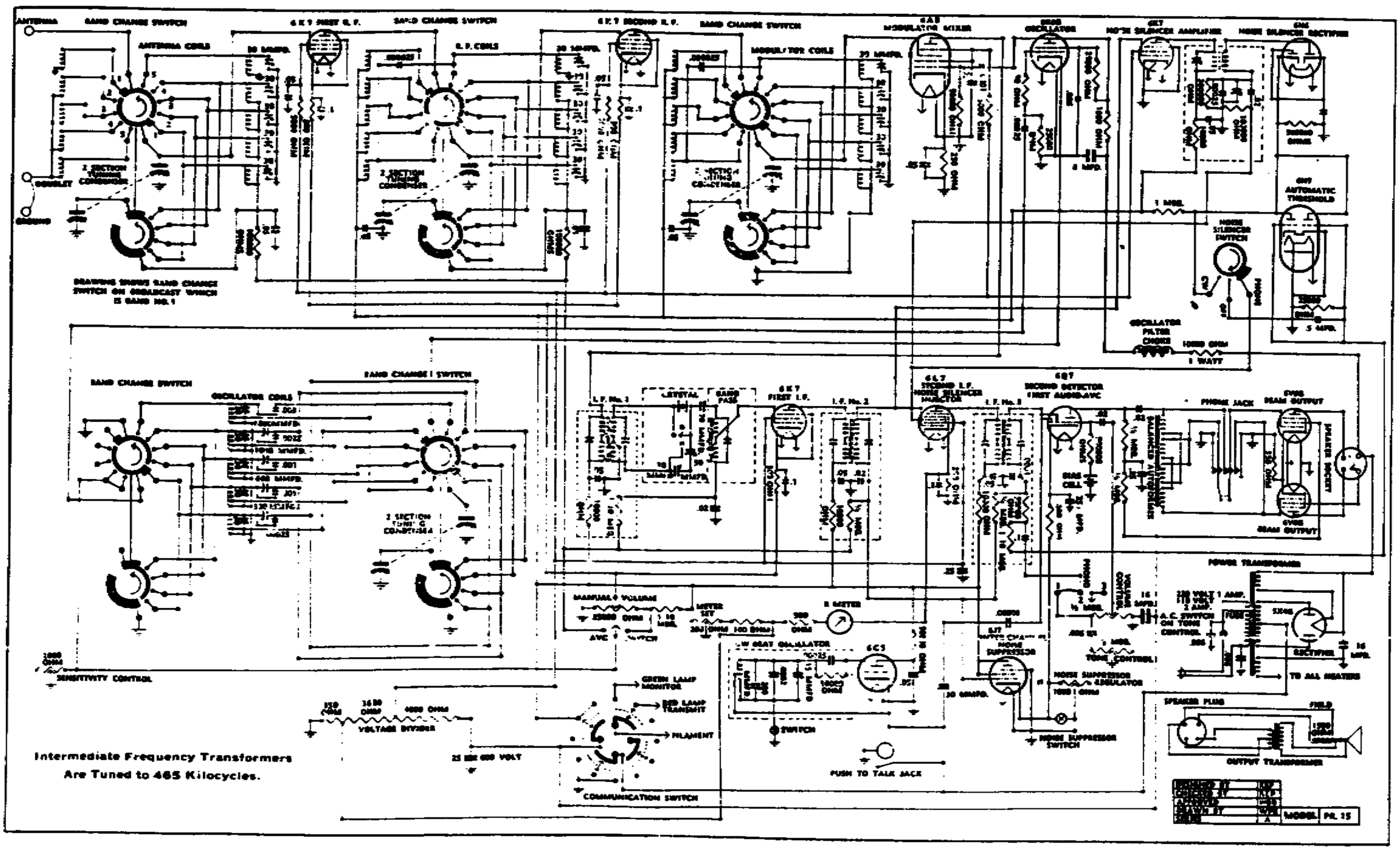
BAND CHANGE SWITCH—The band change switch is constructed of solid isolantite, with heavily silvered knife contacts, insuring permanent contact and long life. This switch has unusually low loss at high frequencies.

FIVE BANDS—7½ to 550 Meters (550 KC to 40 MC).

BAND INDICATOR—The band indicator is of the pointer and scale type and is so mechanically arranged that it is impossible to reset or change the pointer to any but the correct position. Band coverages 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..... 11.0 MC to 22.0 MC
BAND — 5..... 18.0 MC to 40.0 MC

DESIGN! ENGINEERING! CONTINUED ADVANCEMENT!



Intermediate Frequency Transformers Are Tuned to 465 Kilocycles.

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.

INTERMEDIATE TRANSFORMERS—are of iron core, pie-wound Litz design, doubly impregnated and twice baked, assuring permanence of adjustment and long life. The circuit uses two stages of this design, operating at 465 kilocycles.

HIGH FREQUENCY OR HETERODYNE OSCILLATOR—The oscillator circuit is of the electron coupled type of unusually high stability, using a 6K6 G tube. Changes of oscillator plate voltage as high as 100% 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—May be varied from the front panel and is calibrated, 5,000 cycles either side of zero beat. The beat oscillator component parts are separately shielded, utilizing an air-tuning, isolantite insulated pitch control condenser.

SIGNAL TO NOISE RATIO—is of such a high order as to be practically immeasurable on all bands. This condition is made possible first by the type of impregnation used on all coils throughout, which not only drives out all traces of moisture but keeps all moisture out. Numerous tests have proven that the smallest amount of moisture contributes largely to high background noise. Highest grade insulation is used throughout all radio frequency circuits plus the use of moulded impregnated bakelite condensers and resistors of the noiseless type. All high frequency condensers are non-inductive. Extreme care has been used in the isolation of all radio frequency and automatic volume control circuits, with proper value being carefully selected. There is no trace of regeneration at any frequency on any band. All tubes in the radio frequency circuits are kept at the lowest possible drain consistent with highest amplification to keep shot noise or thermal agitation of the tubes themselves at minimum. Thorough and efficient shielding is used throughout. The coils themselves being separately shielded aside from the fact that the bottom of the chassis is also shielded plus the over-all metal cabinet shield. One of the highest contributors to low background noise is the type of **conversion** used in the **modulator oscillator circuit,** particularly on the highest frequency bands. The system used has proved itself to be many times more efficient than any other known method. All these precautions have resulted in extremely high gain with an unusually low background noise. The receiver is practically dead silent on all bands with the antenna removed.

INTER-CHANNEL NOISE SUPPRESSION — (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, and while the AVC normally is of unusually fast operation, it can even further be speeded up by use of this switch and control, as a limited range ultra high speed AVC action is still obtained with this control in use, making an ideal combination for fluttering or ultra high speed fading such as often occurs on extreme distance reception. The manual control further controls both the RF and IF gain permitting an ideal condition of 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.

AUDIO TRANSFORMER—is of our balanced hum-free design, with double baked impregnation as protection against climatic changes.

HIGH FIDELITY OUTPUT TUBES—6V6 G Beam Type Tubes are operated in a push-pull high plate low screen voltage circuit, giving a power output of 12 watts with clarity and free from Harmonic Distortion of over 2%.

TONE CONTROL—The Tone Control, in addition to raising or lowering the pitch of the sound to suit the individual taste may be used to advantage in reducing noise while listening to weak stations.

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 circuit are isolantite of unusually heavy construction with spring-supporting mountings.

HEAD PHONE JACK—on front panel disconnects speaker.

COMMUNICATION-MONITOR-SWITCH—The use of this switch will be found of most value to amateur and commercial stations. It permits the operator to "kill" the receiver while transmitting, without allowing the filaments to cool or altering the setting of the receiver. Further, a third position is provided which permits the operator to monitor his own signals through the receiver. This switch may also be used to automatically turn transmitter on and off in opposite relation to the receiver by utilizing push-to-talk jack on rear panel and proper relay.

PUSH TO TALK SYSTEM—A jack is installed in the rear of the chassis for use in a break-in system for Police, Airplane, Amateur, and other Communication stations.

POWER SUPPLY—Heavy Duty, self contained.

SPEAKER—Heavy duty 12" Jensen Electro-Dynamic.

TERMINALS—Antenna and doublet terminals are located on rear panel of chassis as well as the line fuse which may be removed or replaced without removing chassis from cabinet. Phonograph in-put terminals, Sensitivity, Meter Set and Silent Tuning adjustment are also located on rear of chassis.

SHIELDING—100% shielded.

VENTILATION—is assured by specially designed louvers.

CHASSIS—The chassis is constructed of drawn 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 CABINET—The cabinet is of the same rigid construction of drawn furniture steel as the chassis and is finished in baked kodak finish of fine velvety texture and extreme hardness. It is truly steamlined, all sharp corners and edges being eliminated; even the cooling louvers are inverted, giving perfect ventilation plus a maximum amount of dust protection, and an over-all smooth finished appearance.

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

TILTER—places dial in direct line of sight.

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

LICENSED—R. C. A. Hazeltine and Latour Patents.

TUBE LINE-UP—starting from antenna or input stage, is as follows:

No. 1—6K7 tube, first RF stage.
No. 2—6K7 tube, second RF stage.
No. 3—6A8 tube, modulator or mixer tube.
No. 4—6K6G tube, electron heterodyne oscillator.
No. 5—6K7 tube, 1st IF stage.
No. 6—6L7 tube, 2nd IF stage and noise silencer injector tube.
No. 7—6Q7 tube, 2nd detector, AVC and 1st audio stage.
No. 8—6K7 tube, noise silencer amplifier.
No. 9—6H6 tube, noise silencer rectifier.
No. 10—6N7 tube, automatic threshhold tube.
No. 11—6V6G tube, output tube (push-pull).
No. 12—6V6G tube, output tube (push-pull).
No. 13—6J7 tube, inter-channel noise suppression or relay tube
No. 14—6C5 tube, CW beat oscillator tube.
No 15—5X4G tube, rectifier tube.

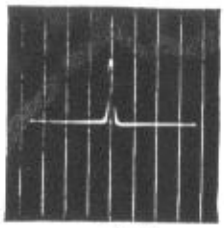


Fig 1

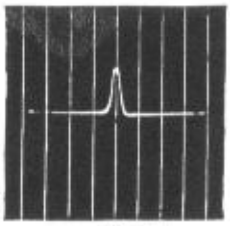


Fig. 2

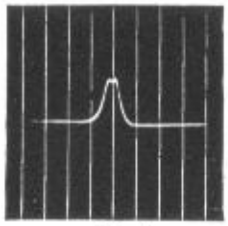


Fig 3

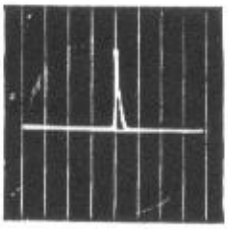


Fig. 4

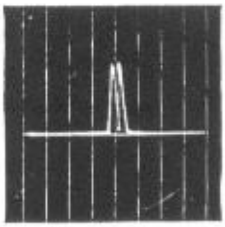


Fig. 5

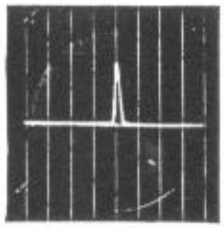
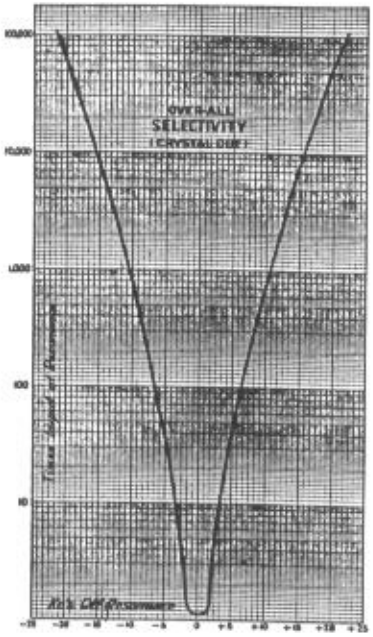


Fig. 6

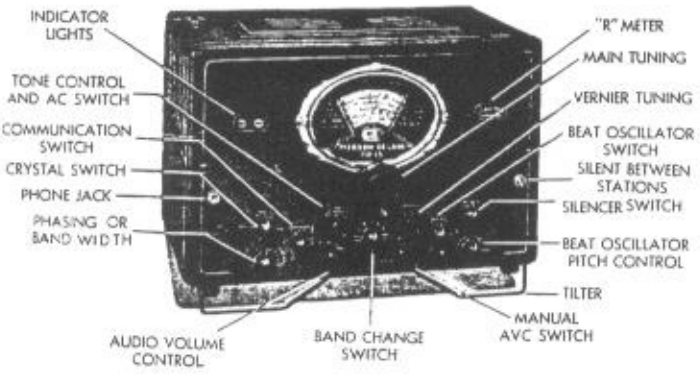
CRYSTAL FILTER—Two distinctly different types of crystal filters are built into the PR-15—one the **band pass type** intended primarily for use in phone work; the other the usual **series parallel** filter, which gives ideal performance for code work, but may also be used for phone reception.

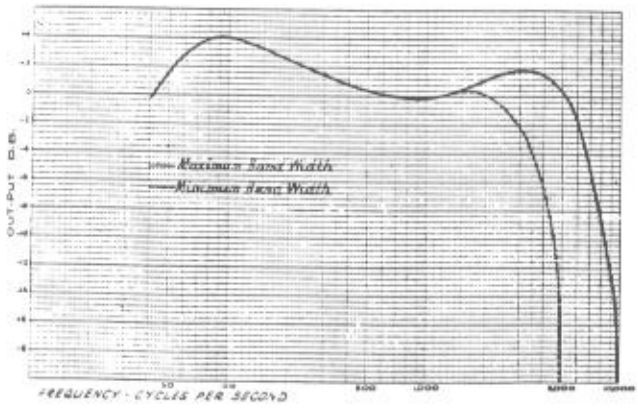
BAND PASS FILTER—The band pass feature is equipped with variable selectivity control, which permits continuously variable band width from approximately 10 KC to 2 KC Un-retouched oscillograms are shown above. Fig. 1 shows the minimum band width, while Figures 2 and 3 both show maximum band widths, but with different width screen sweep. The variable selectivity control permits setting of band width at any spot between these two points or widths; also the band pass feature has a rejection position, the oscillogram of which, is shown in Fig. 5. The vertical lines drawn over charts, except Fig. 3, indicate 10 KC per line. (On Fig. 3 the lines indicate 5 KC each to show flat top more plainly.) We highly recommend this filter to the phone man who must operate in the crowded amateur bands, and also to those DX'ers who require a high degree of selectivity plus high-fidelity. This type of filter also gives excellent single signal response for code work.



SERIES PARALLEL FILTER—The series parallel filter is of the usual type with a high degree of efficiency. Fig. 4 shows the series position set at maximum selectivity. The selectivity shown may be decreased considerably by use of the phasing control. The Series Filter gives the ideal condition of noise reduction and selectivity for code reception. Fig. 5 and Fig. 6 show the selectivity when crystal is not in use.

AUTOMATIC SILENCER CIRCUIT PERFECTED—The new Silencer incorporates three tubes and should not be confused with the usual silencer circuits in general use. While the basic principles are the same, many improvements have been made in performance. The usual silencer circuit feeds back not only the noise for cancellation but also rectified carrier if the threshold control is advanced too far. In the Silencer only the noise is fed back, whereas it is impossible for the rectified carrier to be returned to the AVC circuit with the usual resultant blocking. It is impossible to make this silencer block or motorboat under any conditions. In the case of the usual silencer circuit it is necessary, when receiving a phone station, to keep the threshold set just above the modulation peak level. This becomes an impossibility on a fading station, as a threshold control has to be constantly varied in order to follow the fade. In the case of the usual silencer again, blocking occurs if the signal rises in strength, and noise rushes in if the station fades. In the Silencer the threshold control is automatic, holding the threshold just above the level of modulation regardless of signal strength fading or when switching from station to station. The silencer automatically goes on full when tuning between stations and while searching for weak stations, and rises just above modulation peak level when the carrier is tuned in, and remains thus without any adjustment whatsoever. This is controlled by a three-position switch on the front panel. Left position is for CW reception, which cuts out the automatic threshold control and leaves silencer on full at all times. This removes practically all noises of intermittent nature as well as modulation on a modulated carrier, but it does not in any way affect the strength of the CW signal or carrier, or the sensitivity of the receiver, due to the fact that the rectified carrier or RF carrier is never fed back. It is a condition heretofore impossible to obtain. The center position of switch is **off** while the right hand position is automatic for phone or voice. When in this position the silencer does not in any way affect the performance of the receiver as to sensitivity or signal strength, but does very effectively eliminate all noises of an intermittent nature, as well as many noises which are of an almost continuous nature. In many extremely noisy locations it is possible to receive signals of R3 to R5 strength with silencer in operation, and 100% understandability that would otherwise be totally unreadable. The circuit is so arranged as to feed the noise through at a slightly different frequency than the IF frequency, thus permitting a much higher degree of noise rejection without demodulation of the carrier.





OVER ALL AUDIO RESPONSE

Audio curves meet all R. M. A. standards for High-Fidelity reception. The curve shows actual output response with a modulated RF carrier antenna input. Curves shown indicate both maximum and minimum band width response.

6Q7 SECOND DETECTOR FIRST AUDIO AVC

6V6G BEAM OUTPUT

6N7 AUTOMATIC THRESHOLD

6V6G BEAM OUTPUT

16 MFD. FILTER

16 MFD. FILTER

POWER TRANSFORMER

I. F. No. 3

6H6 NOISE SILENCER RECTIFIER

ANTENNA COILS

6K7 FIRST R. F.

6L7 SECOND I. F. NOISE SILENCER

INJECTOR

NOISE SILENCER TRANSFORMER

6K7 SECOND R. F.

R. F. COILS

5X4G RECTIFIER

I. F. No. 2

6K7 NOISE SILENCER AMPLIFIER

OSCILLATOR COILS

6K8G ELECTRON HETERODYNE OSCILLATOR

6J7 INTER CHANNEL NOISE SUPPRESSOR RELAT

BEAT OSCILLATOR VOLUME REGULATOR

6C5 CW BEAT OSCILLATOR

6K7 FIRST I. F.

I. F. No. 1

6A8 MODULATOR MIXER

MODULATOR COILS

8 MFD. FILTER

#2

C1

C2

CRYSTAL BAND PASS COIL

CRYSTAL FILTER

C3

BAND CHANGE SWITCH

XP

3 BAND OSCILLATOR COIL

T3

D5

S1

S2

S3

S4

5 BAND MODULATOR COIL

T4

C4

C5

BEAT OSCILLATOR

low end of dial

D3

DP D4

S5

S6

DP D2

AP D1

T2

5 BAND R. F. COIL

S7

S8

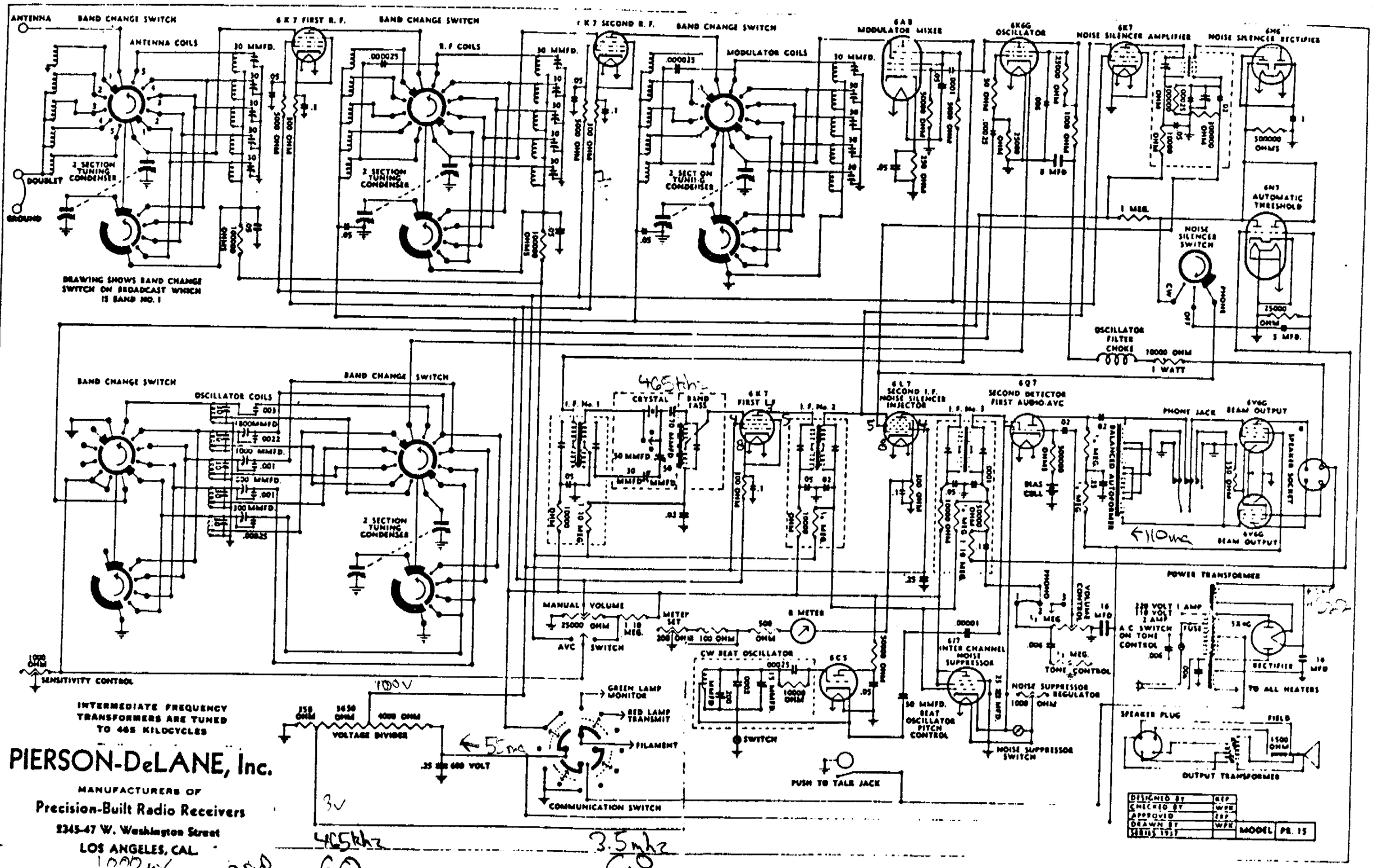
T1

S9

S10

5 BAND ANTENNA COIL

#1



3.6	6.0	grid	6.0	mix	-34 dbm
2.1	7.0	IF1	-30 dbm	2nd rf	-41 dbm
1.4	7.5	IF2	0 dbm	1st rf	-25 dbm
2.1	8.5	det	-24 dbm MDS		
2.3	8.0	mix	-21 dbm		

Monitor:

In placing the monitor in operation it should be borne in mind that it is no different than the usual monitor with which every amateur is familiar, consisting primarily of the usual signal rectifier and in the case of the PR-15 the addition of the audio amplifier. In handling diod rectifier for this purpose it is necessary to obtain the right amount of RF voltage input; too little produces no signal while too much may result in blocking of the rectifier. The amount of RF which may be fed into the receiver may vary greatly with different transmitter installations.

While the circuit will ordinarily handle a wide variation in input voltage in many cases, the voltage may either be too small or far in excess of the necessary amount, consequently failure of the monitor can be caused only by one of two things, either too much RF or not enough RF. If the case is too much RF it can usually be readily determined by the R meter. If the quality is bad or no signal is heard at all the R meter may show a reading of anywhere from R1 to R9 plus plus when the transmitter is turned on. Inasmuch as the R meter reading is produced purely by rectified RF it is a direct indication.

If such is the case the operator should first look to his line filtering. It may be that a large quantity of RF is coming in on the AC line or that it is being directly picked up by the receiving antenna. A short direct ground wire should first be connected to chassis ground on receiver; if this fails to bring the R meter down it may then be necessary to disconnect or ground the receiving antenna while monitoring. If both of the above fail to bring the R meter down and produce good monitoring it may then be necessary to install a good line filter well grounded in the AC line to the receiver.

If no R meter reading is obtained when transmitter is turned on and no signal is heard it is probable that the case is too little RF. This will apply particularly to low powered transmitters. If such is the case it probably will be necessary to connect one end of a 25 or 30 micromicrofared condenser to either terminal numbers one or two of phono terminals on back chassis panel. The other end of the condenser should be connected to a small antenna. This may be only three or four feet long and should be just long enough to give good monitoring. In the case of a very low powered transmitter it may be necessary to run this lead close to the transmitting antenna lead-in or final plate tank to get sufficient pick-up.

NOISE SILENCER ADJUSTMENT: PR 15 Communications Receiver.

Attached find block diagram of the PR 15 chassis. You will note three tubes are indicated with red arrow. Any one of these three tubes may be defective, which would cause poor silencer operation, or it may be that the adjustment screw in the top of the noise silencer transformer has been knocked out in shipping.

The following is instruction for its proper adjustment: On the top of this can are two screw heads. However, if you will note carefully, one of the screw heads is soldered over so that a screw driver cannot be inserted. This screw should be disregarded. The one in which the screw driver may be placed is the actual adjustment screw. In making adjustments on this screw be sure to use a solid bakelite screw driver, preferably one without even a metal point. To adjust, place band switch on broadcast band, turn manual control to extreme counter-clockwise position to point which snaps to AVC. Next tune in a station whose strength does not exceed R6 on the meter, preferably one which registers around R5. The difficulties encountered in finding such a signal can be arrived at by using a very short antenna to control input. Next screw the adjustment screw mentioned above all the way down clock-wise (do not force.) Next set the silencer switch to CW position, then very slowly unscrew the silencer adjustment screw (using bakelite screwdriver) until a point is reached where the quality of reception becomes very bad. Then throw silencer switch to phone position and continue to unscrew the silencer adjustment, a fraction of a turn at a time, to the point where quality becomes bad, then set screw back in just far enough to clear up quality. Next, watching the R meter, throw the silencer switch rapidly back and forth from off to phone position. The meter should show about one-fourth of an R drop when the silencer is thrown to phone position. This will complete the silencer adjustment.

Failure to get results as indicated above, will undoubtedly indicate a faulty tube. In that case change the tubes indicated with red arrow, as in drawing, one by one, rechecking adjustments after each tube has been changed.

We feel sure that the above will clear up any difficulty you are having.

The silencer amplifier, for proper operation, must be set at approximately 5 KC lower frequency than the IF channel frequency. Care should be exercised not to get the noise amplifier crossed over to the other side of the IF frequency as this would produce erratic operation.

In making all future adjustments be sure to screw the adjustment screw all the way down when starting, then back up slowly while adjusting to avoid the possibility of cross-over.

I.F. ALIGNMENT:

Place receiver in normal operation on broadcast band as described in literature. Tune in a signal of about R6 strength with crystal filter placed in series position, preferably main dial set near 12 or 1300 KC. Set phasing control at 1, then tune station, using vernier drive to exact resonance, as indicated on R meter. Then carefully go over trimmers on IF transformers #1, 2 and 3, adjusting for highest reading on R meter. Go over them several times carefully checking to see that main tuning dial remains on exact resonance. Next adjust trimmer C1 as indicated in block diagram #1 for exact resonance, carefully rechecking trimmers on IF #1 (block diagram #2). C-1 is actually selectivity control for the crystal filter.

With careful adjustment practically any degree of selectivity may be obtained without loss of gain.

The injector control is included in the receiver, as indicated in marked circle. The tuning of this adjustment in clockwise direction will increase beat oscillator strength and vice versa.

Low reading of your R meter is caused by misalignment or poor alignment of your IF's.

Do not attempt to adjust the noise silencer until after the IF alignment has been checked.

INTER-CHANNEL NOISE SUPPRESSION:

To properly adjust inter-channel noise suppression for your particular antenna and location the following procedure should be followed carefully:

First: Place all controls in position for normal broadcast reception band switch on band 1, described in our operating instructions. Place silencer switch in tone position, being sure the manual control is in the extreme counter-clockwise position. Next tune slowly across the broadcast band, noting particularly the spot at which the R meter reads the highest between stations.

When this spot has been located, set the main tuning dial in this series at this point and leave in this position during the remainder of the adjustment.

Next place inter-channel noise switch to "on" position - down.

Next set sensitivity control adjustment to point of highest R meter reading (maximum); then adjust inter-channel suppression adjustment to point where noise of speaker ceases, with volume control about three fourths open (clockwise). If it is found the adjustment of this control does not seem effective; or does not quite remove all noise when adjusted to the extreme end, it will then be necessary to reduce sensitivity adjustment to the point where noise ceases. This should be necessary only in locations where the noise level is extremely high. Next turn off noise silencer. A small amount of noise should be heard with the noise silencer in off position.

The receiver is now in proper adjustment for inter-channel noise suppression. It may be operated without noise silencer if desired. The receiver will now play any station which is above the normal noise level. However, the noise level varies from hour to hour and from day to day in some locations. It may be necessary to check over a period of them to determine the best adjustment, or if desired a few preliminary checks as indicated by R meter readings between stations may be made, noting the time and position on dial at which the noise level is highest, then making the original adjustment for this location. Any change of antenna or location will very probably necessitate rechecking all adjustments.

Inter-Channel noise suppression is intended for use only on the broadcast band or for air craft or police stand-by work. It will be found unsatisfactory for use in short wave broadcast reception due to the great amount of fading encountered in practically all short wave stations. (Do not attempt to use inter-channel noise suppression with the manual control beyond the "off" counter-clockwise position.) Failure to get results as indicated above may be caused either by a faulty 6Q7 or 6J7 tube. The attached cut indicates the position of these tubes in chassis as well as the adjustments mentioned above.

PARALLEL FILTER INSTRUCTIONS:

The parallel filter position may be somewhat deceptive in that when it is first placed in operation there is no immediate apparent change.

It does not in any way affect the over-all selectivity nor does the phasing control have any apparent effect. However, for best operation it should be left at 1.

The crystal filter is intended for the separation or elimination of heterodyne where two carriers are involved. If more than two carriers are involved the series position should be used.

When two carriers are quite close together, producing a bad heterodyne, making either or both signals unreadable, it is quite possible to eliminate the heterodyne as well as either interfering station by placing the crystal switch to parallel position and tuning very, very slowly across the interfering frequencies.

Too much care cannot be used when tuning. As this is done two spots will be found in which one or the other of the interfering stations disappears almost completely; one spot for either station. However, a small amount of modulation hash may be still present from the average station.

P I E R S O N - D E L A N E , I N C .

Manufacturers of the
PR-15 COMMUNICATIONS RECEIVER

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Los Angeles, California.