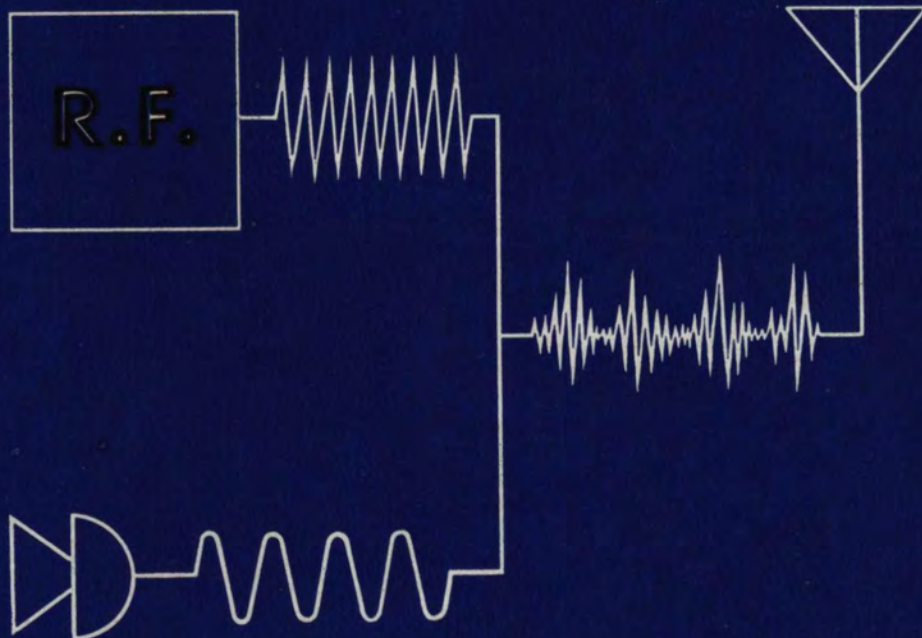


# STANCOR Hamannual

FIFTH EDITION



If You Didn't Get This From My Site,  
Then It Was Stolen From...

[www.SteamPoweredRadio.Com](http://www.SteamPoweredRadio.Com)

NET PRICE • FIFTEEN CENTS

STANDARD TRANSFORMER CORPORATION  
CHICAGO, ILLINOIS

# Foreword



**STANCOR HAMANUALS** enjoy a unique position in the radio field because, even though prepared by a radio parts manufacturer, they are *manuals* in every respect.

All information is presented in a manner appreciated by the beginner as well as the "old timer". It is unbiased in its presentation and all components used were chosen for their availability as well as practicability. This enables the customer to readily purchase component parts.

Each transmitter and amplifier is completely presented on two pages. Technical specifications and a general description of the apparatus are shown, followed by a complete circuit diagram with important voltage and current values indicated. The values of all component parts are listed, also the necessary accessories required to place the equipment in operation. Photographs of the top, bottom and front of each unit show the neat and finished appearance of the complete assembly.

The catalog section appearing in previous **HAMANUALS** has been deleted from this edition, and in its place other useful items such as antenna data, power supply kits, coil data, alternate circuits, etc. are shown. A guarantee is placed on each complete kit in this **HAMANUAL**.

Complete constructional details accompany each **STANCOR** kit or punched chassis. Additional copies may be secured from the factory by sending 5c in postage for each kit circuit desired.

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FOR FULL INFORMATION ON STANCOR TRANSFORMERS ASK FOR CATALOG No. 140

*All Prices in this Hamannual are effective November 1, 1940 and are subject to change without notice*

# STANCOR

## Kit Features



### 1. DESIGN AND CHOICE OF PARTS

Time-tested circuits were chosen for simplicity, efficiency, and usefulness. Only stock parts are used, chosen for reliability, availability and adaptability. Result: A maximum of performance with a minimum number of parts.

### 2. PUNCHED CHASSIS

"Standardized" punched chassis eliminate chassis preparation—the hardest task in constructing radio equipment. They are called "standardized" because they accommodate a variety of equipment through the use of carefully located holes.

### 3. COMPLETE DATA

Complete data is furnished on each **STANCOR** unit. In the **HAMANUAL** are specifications, description, diagram, picture and parts list of each transmitter and amplifier. Constructional details together with a comprehensive plan of assembly, wiring, and operation are supplied with each kit or chassis.

### 4. AVAILABLE IN TWO FORMS

Stancor Kits are available in two forms, as individual items or as factory-packed *complete* units from **STANCOR** jobbers everywhere. They can supply needed or basic parts. Detailed information is given in the **HAMANUAL** to make this possible. If all parts are desired at one time, a factory-packed kit is available.

### 5. VALUE

Stancor Kits have *value*—not in price alone but in the features listed above, plus the guarantee shown below. These facts are supported by a manufacturer whose integrity and fair dealings are noted throughout the industry.

### Stancor Kit Guarantee

*Standard Transformer Corp. guarantees that the complete kits listed in this Hamannual, if purchased as a complete unit in a Stancor sealed carton, and if wired according to instructions contained therein, will work to your reasonable satisfaction.*

*This guarantee is valid for 90 days from date of purchase and it also covers all parts furnished with the complete kit.*

*Merchandise returned pursuant to a validated guarantee should be sent with transportation prepaid, together with detailed description of the complaint. This should be done only after written return authority has been given by the factory. If the claim is valid, Standard Transformer Corp. will repair or replace the unit without charge.*

# Stancor 112-T Transceiver

A COMPACT HIGH POWERED 112 MC TRANSCEIVER

## SPECIFICATIONS

Type of Emission.....A3  
Output Circuit.....Low Impedance—Two-Wire Line  
or Cable  
Power Input to Final.....10 to 15 Watts  
Power Requirements—Total.....300 V. @ 100 MA DC  
6.3 V. @ 3.35 A.  
Frequency Range.....112-116 Megacycles  
Frequency Control.....Ultra-audion Oscillator  
Dimensions.....10 $\frac{3}{4}$ " x 6 $\frac{1}{4}$ " x 6 $\frac{1}{2}$ "  
Weight (with tubes and C bias battery) in Cabinet 10 Lbs.

The awakening interest in the ultra-high frequencies, together with the existing ban on 10 meter mobile, prompted the inclusion of this excellent 112 MC transceiver in the Hamannual.

The 112T is a high-powered transceiver operating on the 112-116 MC band, using the new HY75 tube, which was especially designed for ultra-high frequency work. The HY75 serves as an ultra-audion oscillator, giving excellent performance with good modulation and high sensitivity as a receiver.

When in the Receive position, the plate voltage is reduced, the grid leak resistance increased and the HY75 operates as a self-quenching ultra-audion detector. The output is transformer coupled to a 6J5 which in turn drives the 6V6 audio output tube. These audio tubes do double duty as speech amplifier-modulator on Transmit and as first and second audio on Receive. The 6V6 furnishes adequate audio power for a small permanent magnet speaker mounted behind the panel.

A fixed-variable antenna coupling coil is used to permit maximum performance on Receive. When in this adjustment, the transmitter also will have good output. The adjustment of the antenna is purposely left off the panel to keep the operator from re-adjusting the coupling between contacts. Once set for a given antenna, the coupling may remain fixed over the band.

Separate gain controls for both transmitter and receiver, a regeneration control, the Receive-Transmit switch together with the microphone jack are all brought out on the front panel.

The 112T requires a single button carbon microphone, preferably one of the close-talking hand-type.

Provision is made for a self-contained 1.5 volt dry battery which furnishes microphone current when in the Transmit position and C Bias for the 6J5 on both Transmit and Receive.

The 112T requires 300 volts DC @ 100 MA and 6.3 volts @ 3.35 amperes. This permits operation from a

six volt battery and a vibrator pack. The 112T may also be operated from an inexpensive AC power pack when used on a fixed basis. This and a typical DC power supply are shown on page 43.

On the AC pack, may also be included a variable tone audio oscillator which may be keyed. This unit, when connected into the speech amplifier, will tone-modulate the 112T with excellent results. Long after *voice* signals drop completely below the noise level of a receiver, ICW *may be easily copied*. The variable tone permits the selection of the pitch which will best cut thru the noise at the receiving location.

Of the several antennae which may be used, the  $\frac{3}{4}$  wave fish-pole (approximately 6 feet long), fed by concentric line is probably the most advantageous for use in an automobile or airplane. For semi- or permanently-fixed stations, any of the common UHF antenna systems will be excellent. Of these, the double extended Zepp is probably the easiest to erect.

Due to the highly experimental nature of communications on the 112 MC band, each installation or application must be studied and adjustment to and of the antenna made with care to obtain maximum performance.

It would be difficult to estimate the coverage of the 112T, as the distance is dependent on the height and efficiency of the antenna and likewise of the efficiency (and height of antenna) of the receiving station. In actual tests on the 112T, mobile communication of 12 miles was easily maintained and when operating "fixed", a distance of 15 miles was covered over level ground.

No abnormal microphonics, feed-back or noise is to be found in the 112T due to the careful circuit design and to the complete control of each function of the transmitter and receiver. The 112T is easily constructed, simple to adjust and operate and the convenient controls, plus band spread (approximately 40-50 dial divisions) makes easy resetting to a predetermined spot.

The use of strictly UHF components and good insulation, plus the "open air" type of construction, permits an efficient and stable circuit with resultant high performance on both Transmit and Receive.

The 112T is enclosed in a small attractive steel cabinet and presents a compact, sturdy unit suitable for use in an automobile, airplane, and in the field or home station.

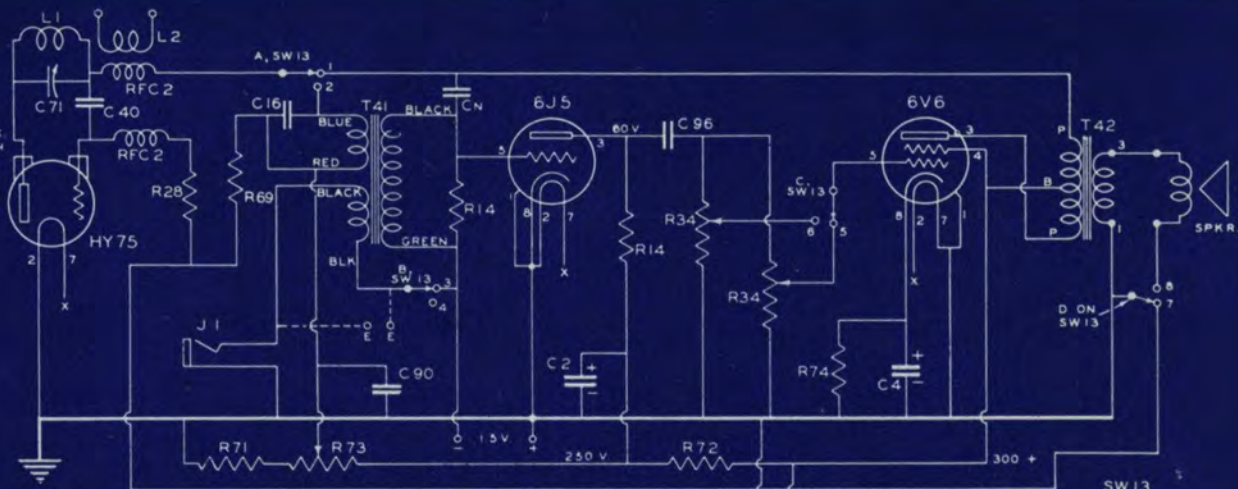
Note: The F.C.C. permits 112MC band mobile operation, under usual Amateur regulations, as of October 1, 1940.

*This transceiver available as a kit from your Stancor Jobber*

L1 4 TURNS  
NO. 14 ENAM.  
1/2" I.D.

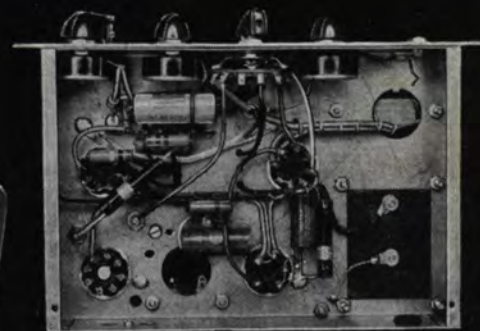
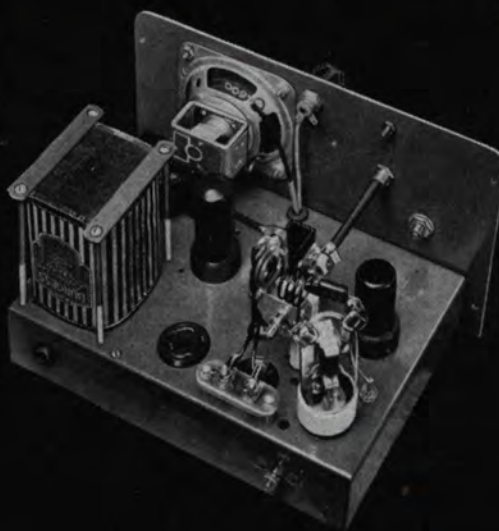
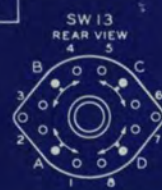
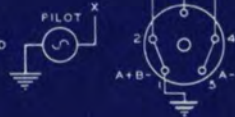
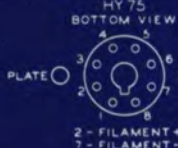
L2 2 TURNS  
NO. 14 ENAM.  
1/2" I.D.

COIL TURNS  
SPACED APPROX.  
ONE EIGHT INCH



TUBE	DC PLATE VOLTS	
	RECEIVE	TRANSMIT
HY 75	130	250
6J 5	60	50
6V 6	300	250

PLATE CURRENT IN TRANSMIT POSITION 40 TO 50 M.A.



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
Cn	1	1 mmfd.		audio neut. "gimmic"
C2	1	4 mfd.	450	tub. electrolytic
C4	1	10 mfd.	25	tub. electrolytic
C16	1	.01 mfd.	400	tubular paper
C40	1	100 mmfd.	500	silvered mica
C71	1	5 mmfd.		var. with bracket
C90	1	.25 mfd.	400	tubular paper
C96	1	.05 mfd.	600	tubular paper

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R14	2	100,000 ohms	1	carbon
R28	1	2,500 ohms	10	wirewound
R34	2	100,000 ohms		potentiometer
R69	1	1 megohm	1	carbon
R71	1	150,000 ohms	1	carbon
R72	1	7,500 ohms	1	carbon
R73	1	50,000 ohms		potentiometer
R74	1	500 ohms	10	wirewound

### STANCOR

No.	Stancor	Description	Net Each
T41	A3833	Transceiver mike transformer.	\$0.99
T42	A3823	Output transformer.	.90
B1		Standardized chassis.	1.20
F5		112-T panel.	**
H1		Standardized cabinet.	1.80

\*\*Not sold separately from 112-T Kit.

### MISCELLANEOUS

No.	Quan.	Description
RFC2	2	U. H. F. choke
SW13	1	4 pole 2 throw rotary switch
J1	1	single circuit jack
SPKR	1	3 1/2" P.M. speaker 4 ohm
	3	8 prong bakelite socket
	1	5 prong bakelite socket
	1	panel light
	1	dial, drive and marker
	1	Pilot bulb (Brown Bead No. 40)
	4	1 1/4" red bar knobs
	1	4" length 1/4" bakelite rod
	1	thru panel bearing

No.	Quan.	Description
	1	ceramic coupler
	1	1 1/2" steatite stand-off
	2	grid clips
	1	Victron terminal strip
	1	Amphenol 912 strip 1/2" x 1/8" x 2'
	2	thru-point bushing
	1	roll hook-up wire
	1	kit hardware (see page 47)

Approximate net price (less accessories). **\$18.25**

### ACCESSORIES

Unit	Description	Net
<b>Tubes</b>	1-HY75; 1-6J5; 1-6V6. set	\$5.06
<b>Dry Battery</b>	1.5 volt-2 3/4" sq. by 4" (Burgess 4FA).....	ea. .35
<b>Microphone</b>	Single button carbon.	various
<b>Antenna</b>	See antenna page....	various
<b>Power Supply**</b>	6 Volt Synchronous Vibrator Power Supply.....	ea. various
<b>Power Supply Choke**</b>	Stancor C1001 ea.	1.11

\*\*See page 43 for circuit of power supply using these units.

# Stancor 30-M Transmitter

A COMPLETE MOBILE HIGH FREQUENCY RADIOPHONE TRANSMITTER

## SPECIFICATIONS

Type of Emission.....	A3
Output Circuit. Low-Impedance With Variable Coupling	
Available Power Output.....	23 Watts Measured With Ohmite D100 Dummy Antenna
Frequency Range.....	28 to 42 MC.
Frequency Control.....	Quartz Plate, Ground for One-fourth of Output Frequency
Frequency Stability.....	$\pm 25$ Cycles at 38 MC. Using 2 Cy./MC/°C. Crystal
Power Source.....	Storage Battery, 35-40 Amperes at 5.5 Volts (Fully Modulated)
Tubes Required.....	3-HY69 (Oscillator-Amplifier- Modulator) 1-6A4 (Speech Amplifier)
Microphone Required.....	Single Button Carbon With Press-to-Talk Relay Switch
Dimensions.....	15½" x 10" x 8" Overall
Weight.....	39 lbs. With Generator Power Supply

Demand for mobile communication equipment by the military, emergency and law enforcement groups has prompted the design of the Stancor 30-M Mobile transmitter.

The Stancor 30-M delivers a crystal-controlled, 100 per cent modulated signal on any frequency between 28 and 42 MC. and operates entirely from a six volt storage battery using either a vibrator or generator power supply which is mounted on the 30-M chassis.

Only four low-drain, quick-heating tubes are used in a simple and efficient circuit. Three of these tubes are the beam type especially designed for mobile communication by Hytron.

The plate circuit of the HY69 tritet oscillator is tuned to twice the crystal frequency. A second HY69, also doubles in its plate circuit and operates efficiently at inputs up to 32 watts from a recommended generator or vibrator power supply.

A 6A4 (triode connected) speech amplifier drives a third HY69 as a Class A1 modulator. Both the screen and plate of the final HY69 are modulated.

A single-button carbon microphone, with a press-to-talk switch, is used with the Stancor 30-M. For convenience, a microphone-receiver handset may be used in conjunction with a dash-board holder, which incorporates a filament switch, thus eliminating a control box.

Inductive coupling to an antenna network, with variable loading, provides a suitable match to any standard an-

tenna system requiring a low impedance feed line, such as a quarter-wave fishpole, co-axial, doublet, etc., used in mobile or fixed station operation. The built-in antenna change-over-relay automatically switches the antenna to the proper position for either transmission or reception.

The 30-M audio components are specifically designed for mobile communication and employ special impregnation and sturdy sealed cast-iron cases. Danger of stray field pickup and service interruptions are greatly minimized through this careful attention to a vital portion of the equipment.

The complete metering required in the simple adjustment of the tuned circuits is supplied by the selective switching of a meter which can be either self-contained in a provided chassis knockout, or plugged into a shock-proof jack.

Final tuning adjustments on the 30-M can be made after installation, without removing the dust cover. Control settings are retained by locknuts and hole plugs exclude dust.

All tuning controls, metering, antenna terminals, high voltage (extractor-type) fuse and control cable-connector are conveniently available from the front of the transmitter. Input battery connections are easily made and readily accessible.

Choice of components was determined by their applicability to mobile service in addition to their efficiency. Material includes rigid, dual-bearing variable condensers, locking-rings on both crystal and tubes, hermetically sealed filter condenser, high Q coils, polystyrene and steatite insulation. Adequate filtering is also included.

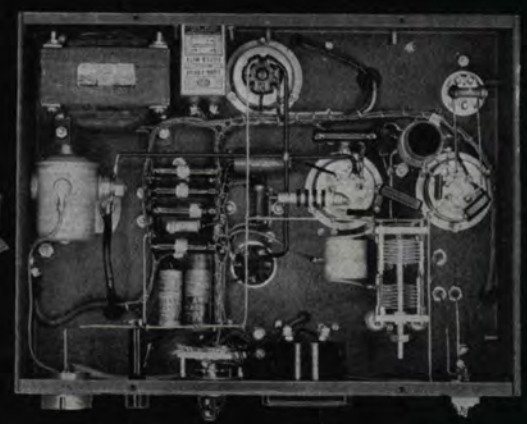
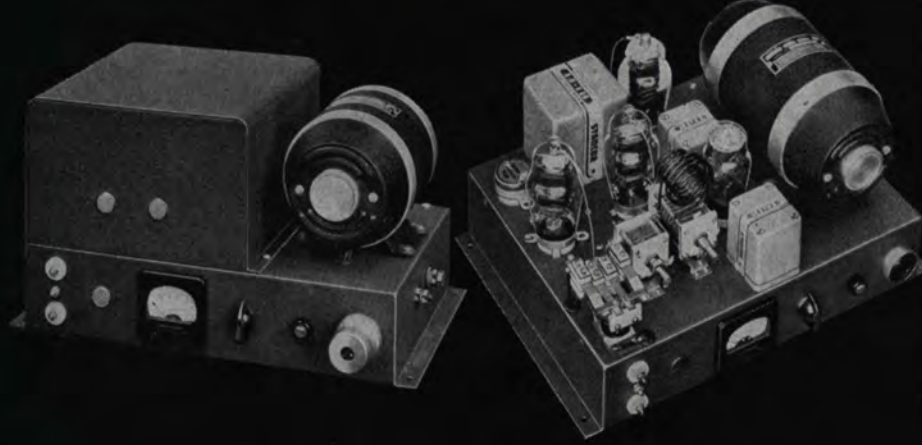
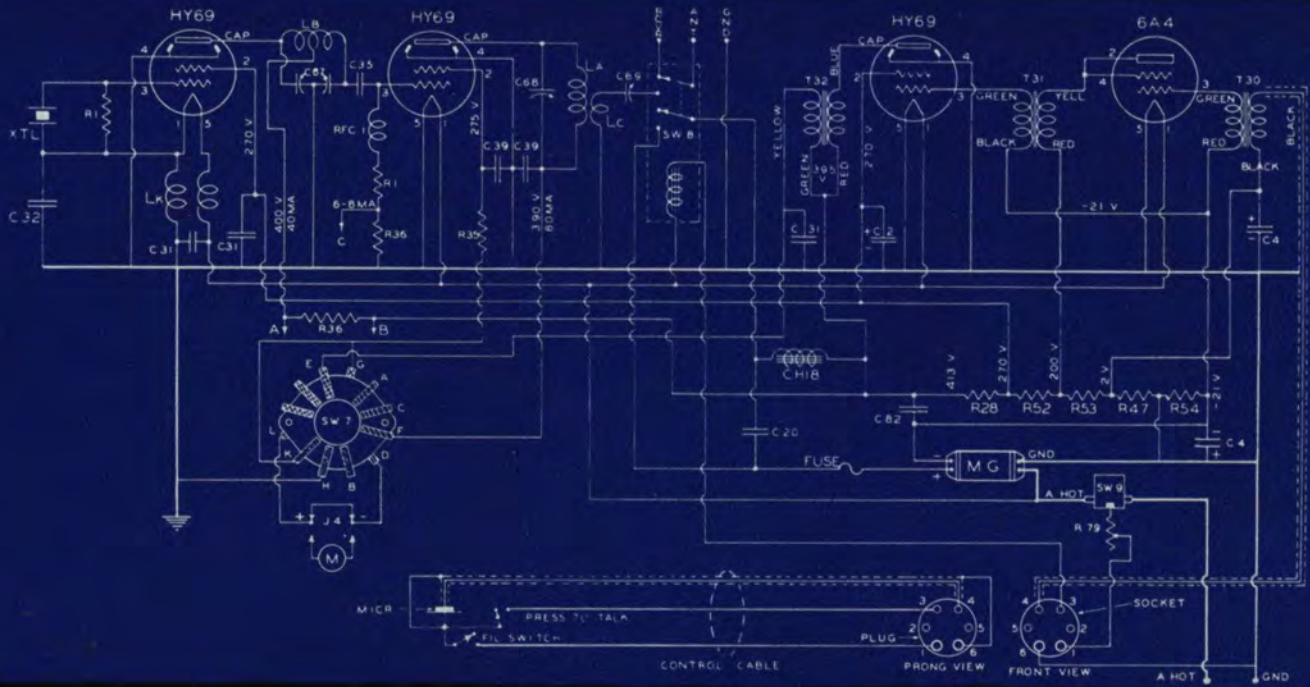
All parts are standard and readily replaced. For example, the heavy duty relay controlling the generator is a stock automotive type, universally and inexpensively available. Accessibility to every part facilitates servicing.

The Stancor 30-M can be quickly and simply assembled and wired using Stancor's "Point-to-Point" instructions and colored leads.

The entire transmitter and power supply are mounted on a sturdy steel chassis. The transmitter is fully protected by a steel bottom plate and a dust cover. The power supply is purposely left uncovered to assure proper ventilation.

The Stancor 30-M is a practical solution to the problems of mobile communication and fulfills the demands of the military, law enforcement or governmental agencies.

*This transmitter available as a kit from your Stancor Jobber*



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 2	1	4 mfd.	450	tub. electrolytic
C 4	2	10 mfd.	25	tub. electrolytic
C 20	1	.1 mfd.	1000	paper
C 31	3	.002 mfd.	500	mica
C 32	1	100 mmfd.	500	mica
C 35	1	50 mmfd.	500	mica
C 39	2	.001 mfd.	1000	mica
C 67	1	50-50 mmfd.		dual var.-special
C 68	1	30 mmfd.		variable-special
C 69	1	75 mmfd.		variable-special
C 82	1	2 mfd.	600	oil processed

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R 1	2	50,000 ohms	1	carbon
R 28	1	2,500 ohms	10	wirewound
R 35	1	10,000 ohms	10	wirewound
R 36	2	75 ohms	1	carbon
R 47	1	250 ohms	1/4	carbon
R 52	1	2,000 ohms	10	wirewound
R 53	1	20,000 ohms	10	wirewound
R 54	1	75 ohms	10	wirewound
R 79	1	1 ohm	25	wirewound

### STANCOR

No.	Stancor	Description	Net Each
T 30	A 6199	S. B. mike transformer...	\$2.58
T 31	A 6198	Interstage transformer...	2.76
T 32	A 6200	Modulation transformer...	3.30
CH 18	C 1703	Filter choke...	2.25
	B 6	Chassis-bot. plate-cover...	4.50
	L 30M	Set coils (L <sub>1</sub> -L <sub>2</sub> -L <sub>3</sub> -L <sub>4</sub> )...	1.50

### MISCELLANEOUS

No.	Quan.	Description	
RFC 1	1	2.5 mh. 125 ma. R.F.C.	
J 4	1	twin tip jacks—circuit closing	
SW 7	1	3 pos. 3 cir. N.S. ceramic switch	
SW 8	1	D.P.D.T. ant. relay (Guardian A-100)	
SW 9	1	starter relay (Ford No. 01A11450)	
	1	5 prong bakelite socket	
	1	5 prong ceramic socket	
	1	5 prong mounted bakelite socket	
	2	5 prong mounted ceramic socket	
	1	6 prg. chassis cable con.—female	
	1	6 prong cable connector—male	
	1	extractor type fuse retainer	
	4	3/8" cone insulators	
	2	ceramic bushings	
	1	1 1/2" black bar knob	
	3	polystyrene thru point bushings	
	1	type 3AG .5 amp. fuse	
	All	necessary wire and sleeving	
	All	hardware (see Page 47)	
		Approx. net price (less accessories)...	\$41.00

## Accessories that may be used with 30-M Transmitter

(Prices approximate only)

Unit	Make	Description	Net
Crystal	Bliley	BC3 7 MC. amateur.....	\$ 3.35
		B5 7 MC. amateur.....	4.80
Generator		M02 7.5-10 MCS. 2 CY./MC. °C	19.50
	Carter	A450V 400 v. D.C. @ .25 Amp.	35.67
	Pioneer	FSF-25 400 v. D.C. @ .25 Amp.	33.52
Vibrator	Electronic	FS-642 400 v. D.C. @ .25 Amp.	29.50
	Shure	16B S.B. carbon with relay switch	13.44
	Elec. Voice	202S S.B. carbon with relay switch	7.35
	Universal	Police Special S.B. carbon with relay switch.....	10.88
Tubes	W. E. Co.	E3B handset with relay switch...	15.00
	Auto. Elec.	AF-10 handset with relay switch.	14.00
	Hytron	3-HY69 @ \$3.50 ea.....	10.50
Antenna	Any	1-6A4.....	.75
	Any	1/4 wave vertical rod.....	\$5.00-8.82
Co-ax Cable	Amphenol	72..... per foot	.36
	Belden	7700 #0 stranded—weather-proof jacket.....	per foot .25
Cable		2 wire SJ cord.....	per foot .025
		1 wire shielded, R. C. per ft.....	.05
Control-Cable		227A 0-150 D.C. milliammeter...	2.94
		127 0-150 D.C. milliammeter....	2.94
Meter	Triplett		
	Simpson		

# Stancor 12-F Transmitter

AN EMERGENCY-PORTABLE PHONE-CW TRANSMITTER

## SPECIFICATIONS

Type of Emission.....A1 — A3  
Output Circuit.. Variable Impedance Matching Network  
Power Input to Final..... 7 to 12 Watts  
Frequency Range.....1.7 - 7.3 Megacycles  
Frequency Control.....Quartz Plate  
Power Consumption....8 Amperes @ 6 Volts DC with  
Vibrator Supply  
Dimensions.....Chassis 7" x 12" x 3"  
Weight—With Dust Cover.....17 Lbs.

The Stancor 12-F emergency transmitter features dependability, flexibility and simplicity of operation. Simple band changing, with radio-phone and radio-telegraph operation are provided in this portable-emergency transmitter. A self-contained antenna tuning system allows adjustments to be made easily and quickly. The 12-F operates from a 6 volt storage battery by using a synchronous vibrator supply or may be connected to an external power source such as batteries or an A.C. power pack.

Quick heating filament type tubes are employed so that during standby periods there is no drain on the 6 volt battery. The oscillator uses a 6A4 pentode tube in an untuned crystal circuit providing sufficient excitation for the R.F. amplifier using a single HY69 or RK66 beam pentode tube. Or, two 6A4 pentodes in parallel may be used in the R.F. amplifier with a few changes, principally that of adding a crystal holder socket to accommodate the crystal, since the normal crystal socket is required for the additional 6A4. Neutralization is not required. The modulator consists of a 1J6G tube in Class B, matched to obtain a high audio output for 100 per cent plate modulation of the R.F. amplifier. The speech amplifier is a 6A4 pentode thus providing plenty of gain from a carbon microphone and sufficient drive for the Class B modulator. For CW operation, a switch turns off filaments of the modulator tubes.

The Stancor 12-F transmitter is placed in operation by the manipulation of a "send-standby" switch and the simple adjustment of two tuning condensers. A jack on the front chassis apron is provided for checking the plate current or keying the transmitter for CW opera-

tion. Another front chassis apron jack accepts a phone plug attached to a single button microphone. The microphone current is supplied within the unit. Only one plug-in coil is required for each band of operation and the quartz crystal should be that of the desired output frequency.

The ability to energize all types of end-fed antennae for fundamental, harmonic operation, or of random lengths, or a two-wire low impedance transmission line, is made possible by the inclusion of a universal antenna tuning circuit. For the single-wire antennae, this is accomplished with a variable pi-network filter. For two-wire antenna feeders, this network is easily transformed into a simple link-coupled tank circuit by the self-shorting of one condenser when rotated completely to one side. In this manner, numerous types of antennae may be connected, thus accommodating any of the unpredictable operating conditions encountered in an emergency.

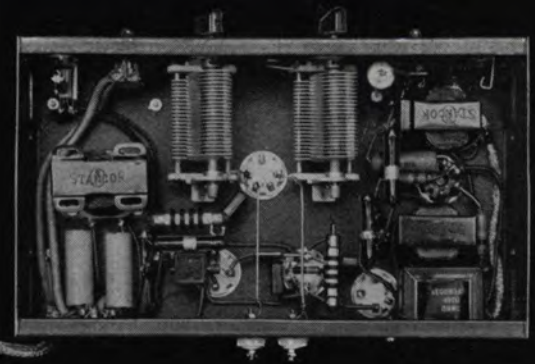
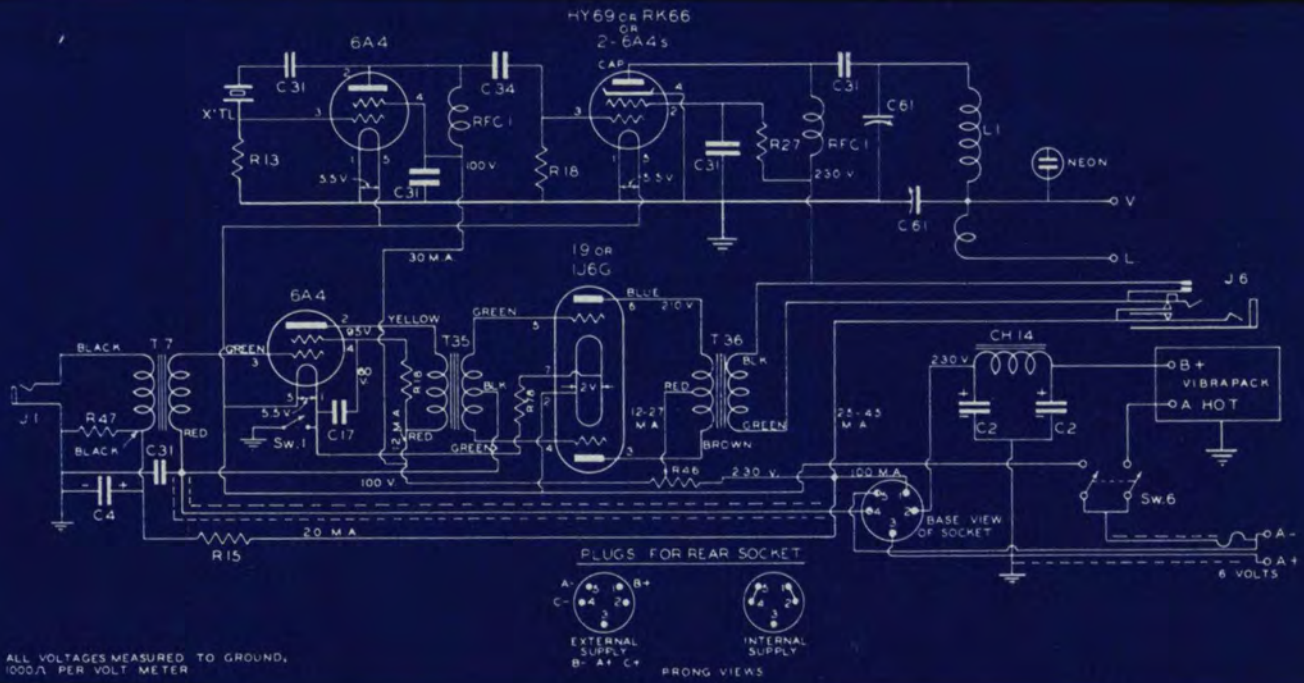
Provision is made for connecting several different types of power supplies to the 12-F transmitter. When an internal synchronous self-rectifying vibrator supply is used, a five-prong plug wired to function as a circuit jumper is inserted into the socket on the rear side of the chassis and the fused heavy-duty battery cable is connected to the 6 volt terminals of a storage battery. If an external high voltage power supply is used, a well filtered D.C. power unit, batteries or a dynamotor may be connected to the plug as shown in the circuit diagram.

The vibrator supply installed on the transmitter chassis may also be utilized as a source of "B" supply for an emergency receiver. A DPDT switch replacing the DPST switch in the transmitter may be wired to transfer the vibrator power supply output to the receiver when the 12-F is switched to the standby position.

The 12-F is well adapted for emergency or portable operation. Excellent communication can be maintained from locations dependent upon storage battery for power, due to the low current drain, high percentage modulation of its radio-phone output plus the versatility of the overall performance.

*This transmitter available as a kit from your Stancor Jobber*





## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 2	2	4 mfd.	450	tub. electrolytic
C 4	1	10 mfd.	25	tub. electrolytic
C 17	1	.1 mfd.	400	tubular paper
C 31	5	.002 mfd.	500	mica
C 34	1	250 mmfd.	500	mica
C 61	2	325 mmfd.	1000	variable midget

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R 13	1	25,000 ohms	1/2	carbon
R 15	1	15,000 ohms	10	wirewound
R 18	2	25,000 ohms	1	carbon
R 27	1	12,500 ohms	10	wirewound
R 46	1	3,000 ohms	10	wirewound— 1 slider
R 47	1	250 ohms	1/2	carbon
R 78	1	15 ohms	1	wirewound

### STANCOR

No.	Stancor	Description	Net Each
T 7	A 4706	S.B. mike to grid transformer	\$0.72
T 35	A 4713	Driver transformer	.84
T 36	A 3812	Modulation transformer	.78
CH 14	C 1355	Filter choke	.72
	B 5	Standard chassis and bottom plate	1.80

### MISCELLANEOUS

No.	Quan.	Description
RFC 1	2	2.5 mh. 125 ma. r.f. choke
J 1	1	open circuit jack
J 6	1	2 circuit filament jack
SW 1	1	S.P.S.T. toggle switch
SW 6	1	D.P.S.T. toggle switch
	4	5 prong steatite socket
	2	5 prong bakelite socket
	1	8 octal bakelite socket
	2	1 1/4" black bar knob
	2	dial plates
	2	steatite bushings
	1	fuse retainer

No.	Quan.	Description
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2	large battery clips
15'	ins. stranded wire equal No. 12
6'	1/2 inch shield braid
1 roll	hook-up wire
1 kit	hardware (see page 47)

Approximate net price (less accessories) **\$17.50**

### ACCESSORIES

(Prices approximate only)

Unit	Description	Net
<b>Tubes</b>	1-HY69 or RK66; 2-6A4, 1-1J6G.....set	\$5.75
<b>Crystal</b>	Popular crystals range from.....	ea. \$1.50- 4.80
<b>Coil-L 1</b>	Small air-wound plug-in coil—end-link.....	ea. .75- 1.05
<b>Neon</b>	1/4 watt neon bulb.....	ea. .36
<b>Fuse</b>	type 3AG 15 ampere fuse.....	ea. .05
<b>Cover</b>	dust cover.....	ea. 1.85
<b>Vibrapak</b>	6 volt synchronous vibrator power supply (Mallory VP552).....	ea. 11.10

# Stancor 40-P Transmitter

A THREE STAGE 40 WATT PHONE-CW TRANSMITTER

## SPECIFICATIONS

Type of Emission.....A1 — A3  
Output Circuit.....Low Impedance Two-Wire Line  
Power Input to Final.....40 Watts  
Frequency Range.....1.7 - 30 Megacycles  
Frequency Control.....Quartz Plate  
Power Consumption..275 V.A. @ 115 Volts 60 Cycles  
Dimensions.....Chassis 17" x 10" x 3"  
Weight—For Relay Rack Mounting.....42 Lbs.

The Stancor 40-P is a high performance radiophone-radio telegraph transmitter of 40 watts input, using inexpensive components, entirely self-contained on a single chassis.

A simple straight-forward circuit is used consisting of a 6J5G crystal oscillator, 6L6G buffer-doubler and a TZ20 Class C amplifier. Three tuned circuits employing one hand-wound coil and two manufactured air wound plug-in coils are used, giving a variety of crystal controlled output frequency combinations. Harmonic operation from amateur crystals is available. Rated input is obtained on all bands from 1.7 to 30 megacycles.

The audio section consists of a high gain 6SJ7 input tube, a 6N7 driver and two 6L6's in Class AB1 as modulators. A low level output microphone, such as a crystal type, may be used. The speech amplifier and modulator has sufficient output to fully modulate (100 per cent) the Class C radio frequency amplifier operating at 40 watts input. The clean, crisp quality of the speech increases the performance of this transmitter.

A heavy-duty power supply using a 5Z3 rectifier furnishes the various voltages required. All metering is done in the negative return of the high voltage using a meter switching system. A separate filament transformer permits pre-heating of all filaments for instantaneous operation of the transmitter when standing by.

Break-in CW operation is available on the 40-P as the crystal cathode circuit may be opened by a key plugged into a jack on the rear apron of the chassis.

Putting the 40-P transmitter on the air is an extremely easy matter as the flexibility of its tuned circuits permits the user, regardless of experience, to tune the transmitter with ease. For example, if 20 meter operation is desired, a 40 meter crystal is plugged into the crystal socket. A 40 meter hand wound coil is plugged into the oscillator plate circuit. A 20 meter center-linked coil is plugged into the next stage as it will now be operating as a doubler. The final amplifier stage will also use a 20 meter coil.

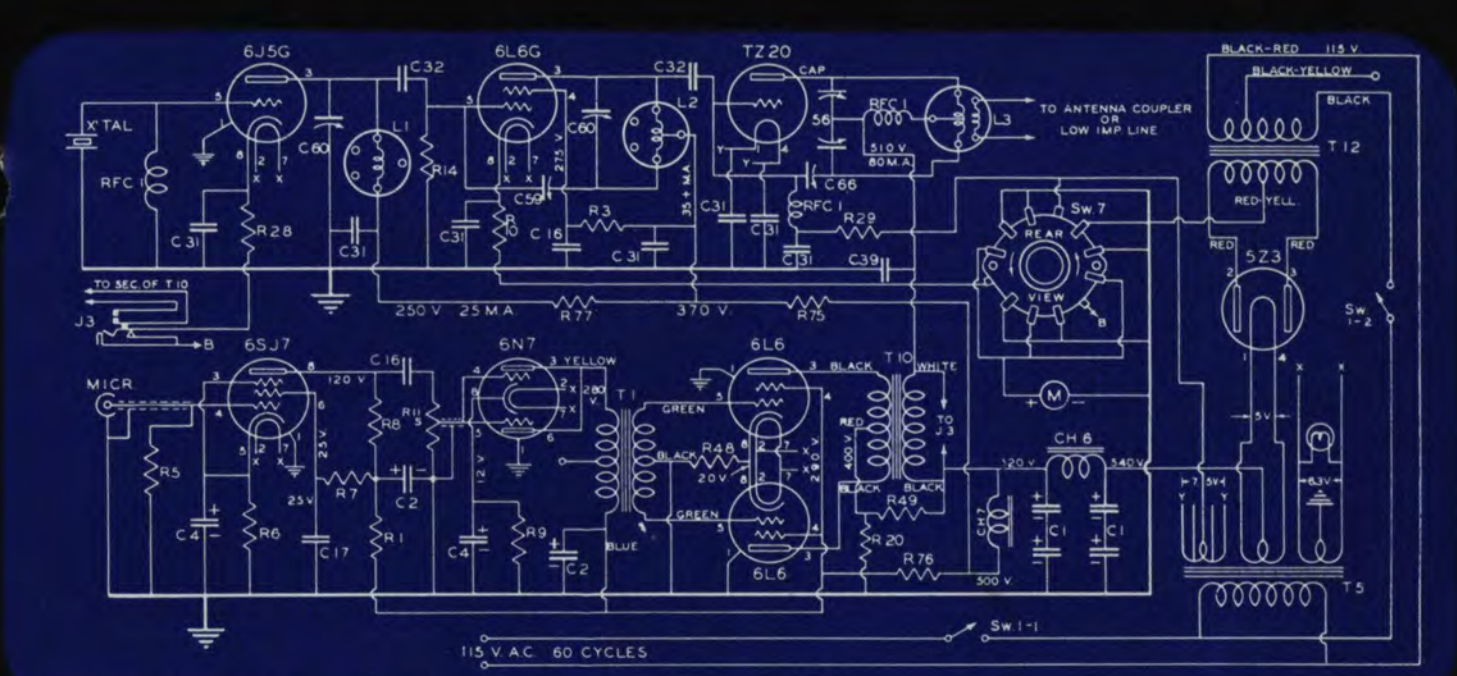
The tuning-up process is conventional. The meter switch is turned to the left position to read crystal current. The oscillator tank condenser is tuned to resonance and indication is noted in the meter as a slight increase in current; this reading being about 25 MA. The meter switch is now turned to the center position and the doubler tank condenser rotated until minimum current is noted in meter. This should be about 35 MA. The right-hand position of meter switch reads final plate current. The final tank condenser is turned to resonance which is indicated by a minimum dip in plate current. It should read about 10 MA. with no load. Under load the final plate current should be 80 MA. This is 40 watts input to the final. "Straight through" crystal operation may also be used. In this instance, the 6L6 tube acts as a straight buffer and must be neutralized in the normal manner. A special baffle shield is required to isolate L1, the crystal stage, from L2 the buffer-doubler stage.

The speech and modulator tube filaments are turned on for phone operation and off for CW operation by means of the switch on the gain control (R11S).

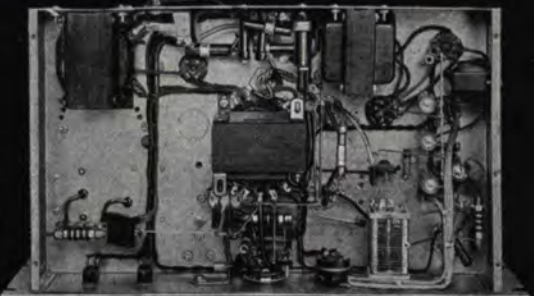
The 40-P will fill many needs of the amateur. It will be useful in congested areas where higher powered transmitters would cause interference to other radio services. It may be installed in place of a high power transmitter to cut construction and operating expense, where high power is not needed to carry on efficient communication.

The complete transmitter is assembled on a 17" x 10" x 3" standard chassis, with a 19" x 8<sup>3</sup>/<sub>4</sub>" standard slate gray panel. This assembly allows for relay rack or single section cabinet mounting.

*This transmitter available as a kit from your Stancor Jobber*



ALL VOLTAGES MEASURED TO GROUND, 1000Ω PER VOLT METER.



## Components

CONDENSERS			
No.	Quan.	Cap.	Voltage Description
C 1	2	8-8 mfd.	450 can electrolytic
C 2	2	4 mfd.	450 tub. electrolytic
C 4	2	10 mfd.	25 tub. electrolytic
C 16	2	.01 mfd.	400 tubular paper
C 17	1	.1 mfd.	400 tubular paper
C 31	7	.002 mfd.	500 mica
C 32	2	.001 mfd.	500 mica
C 39	1	.001 mfd.	1000 mica
C 56	1	100-100 mmfd.	900 dual variable
C 59	1	.5-5 mmfd.	neut. variable
C 60	2	100 mmfd.	1000 midget variable
C 66	1	1.5-8.5 mmfd.	neut. variable

RESISTORS			
No.	Quan.	Resistance	Watts Description
R 1	1	50,000 ohms	1 carbon
R 3	1	25,000 ohms	10 wirewound
R 5	1	5 megohms	1/2 carbon
R 6	1	3,000 ohms	1/2 carbon
R 7	1	2 megohms	1 carbon
R 8	1	250,000 ohms	1 carbon
R 9	1	1,000 ohms	1/2 carbon
R 10	1	200 ohms	10 wirewound
R 11S	1	500,000 ohms	pot. with switch
R 14	1	100,000 ohms	1 carbon

No.	Quan.	Resistance	Watts	Description
R 20	1	40,000 ohms	10	wirewound
R 28	1	2,500 ohms	10	wirewound
R 29	1	3,000 ohms	1	carbon
R 48	1	250 ohms	10	wirewound
R 49	1	1,000 ohms	20	wirewound
R 75	1	2,000 ohms	20	wirewound
R 76	1	15,000 ohms	10	wirewound
R 77	1	5,000 ohms	10	wirewound

STANCOR			
No.	Stancor	Description	Net Each
T 1	A 4712	Driver transformer.....	\$0.84
T 5	P 6333	Multiple filament transformer	2.55
T 10	A 3873	Modulation transformer.....	3.00
T 12	P 4024	Plate transformer.....	5.40
CH 6	C 1702	Swinging choke.....	2.25
CH 7	C 1420	Filter choke.....	1.35
B 2		Standardized chassis.....	1.95
B 10		Baffle Shield.....	0.33
F 2		Standardized panel.....	1.44

MISCELLANEOUS		
No.	Quan.	Description
RFC 1	3	2.5 mh. 125 ma. r.f. choke
J 3	1	two cir. control jack with washers
SW 1	2	s.p.s.t. toggle switch
SW 7	1	3 pos. 3 cir. ceramic switch
	1	crystal socket (midget)
	1	microphone input cable connector
	1	pilot light socket green jewel

No.	Quan.	Description
	3	5 pr. steatite sockets with flange
	1	4 prong steatite socket
	2	octal steatite sockets
	4	octal bakelite sockets
	1	4 prong bakelite socket
	3	1 1/2" black bar knobs
	2	2 3/4" dials with markers
	1	"Buffer" nameplate
	1	"Amplifier" nameplate
	1	6 ft. cord and plug assembly
	2	standoff insulators
	2	thru-point bushings
	1	pilot bulb (Brown Bead No. 40)
	1	roll hook-up wire
	1	kit hardware (see page 47)

Approximate net price (less accessories) **\$42.50**

ACCESSORIES		
(Prices approximate only)		
Unit	Description	Net
Coils L 1	Plug-in 5 prong coil form.....	ea. \$0.24
L 2	5 pr. C.T. plug-in coil ea.....	\$0.75 to 1.05
L 3	5 pr. C.L. plug-in coil ea.....	.75 to 1.05
Meter	0-100 D.C. milliammeter.....	ea. 3.75
Crystal	Popular Crystals.....	\$1.50- 4.80
Cabinet	Deluxe single section rack.....	ea. 7.50
	Standard single section rack.....	ea. 4.80
Tubes	1-6J5G, 1-6L6G, 1-TZ20, 1-6S17, 1-6N7, 2-6L6, 1-5Z3.....	set 7.56

# Stancor 10-P Transmitter

A COMPACT, LOW POWER, PHONE-CW TRANSMITTER COVERING FIVE BAND OPERATION

## SPECIFICATIONS

Type of Emission.....A1 — A3  
Output Circuit.....Low Impedance Two-Wire Line  
Power Input.....12 Watts Phone — 20 Watts CW  
Frequency Range.....1.7 - 14.4 Megacycles\*  
Frequency Control.....Quartz Plate  
Power Consumption... 70 V. A. — 115 Volts 60 Cycles  
Dimensions In Cabinet.....10 $\frac{3}{4}$ " x 6 $\frac{1}{4}$ " x 6 $\frac{1}{2}$ "  
Weight In Cabinet.....14 Lbs.  
\*28-30 MC output with alternate circuit. See page 42.

Both radio and audio frequency channels of the 10-P transmitter are accommodated on a single small chassis, offering an extremely compact, phone-CW unit. Ease of operation and a minimum of controls were the prime considerations in its design. The use of a 6J5 tube in an untuned crystal oscillator circuit and a 6L6 as a radio frequency amplifier involves but one tuned circuit. In shifting frequencies from one amateur band to another it is necessary to change but one plug-in coil. These coils are midget air-wound, inexpensive inductors marketed by several manufacturers. Their adoption eliminates the tedious labor of coil construction by the amateur.

The audio section consists of a single 6L6 tube in Class A1, plate and screen modulating the 6L6 radio frequency amplifier. A carbon microphone is required with the 10-P for radiophone operation. A high level transformer provides grid excitation for the modulator tube, and microphone current is derived internally by tapping the 6L6 modulator cathode bias resistor, obviating the necessity for batteries. The slider on this resistor is adjusted once for optimum operation and need not be touched again. The correct setting is ascertained when the condition of maximum audio output at minimum distortion is reached. The position of the slider will usually be near the mid-point of the resistor with most single button microphones. An audio gain control is provided to permit the selection of a desired speech level.

An expected high percentage of modulation may be obtained with a Class C radio frequency amplifier input of 12 watts. For CW operation, a higher amplifier input up to 20 watts is allowable and break-in procedure is possible by the simultaneous keying of both oscillator

and amplifier. Inserting a key plug into the provided jack opens the keying circuit and, in addition, excludes the modulator from the plate circuit of the R.F. amplifier.

The filament voltage is applied to the heaters of the tubes by closing the AC switch located on the modulator gain control. The first few degrees of rotation of this control operates the switch and the rest of the arc traversed by the potentiometer regulates the audio signal. Plate voltage is not imposed upon the tubes until the stand-by switch is placed in the "send" position.

Two band operation with this transmitter may be enjoyed with each crystal used, with the exception of a 10 meter crystal. The latter is useful when working on the 10 meter band only, and when using the suggested circuit shown on page 42. The proper amplifier tank coil to resonate at the desired output frequency is inserted for each band. Tuning is accomplished by rotation of a single tank condenser and is indicated by the plate current dip as shown on the meter.

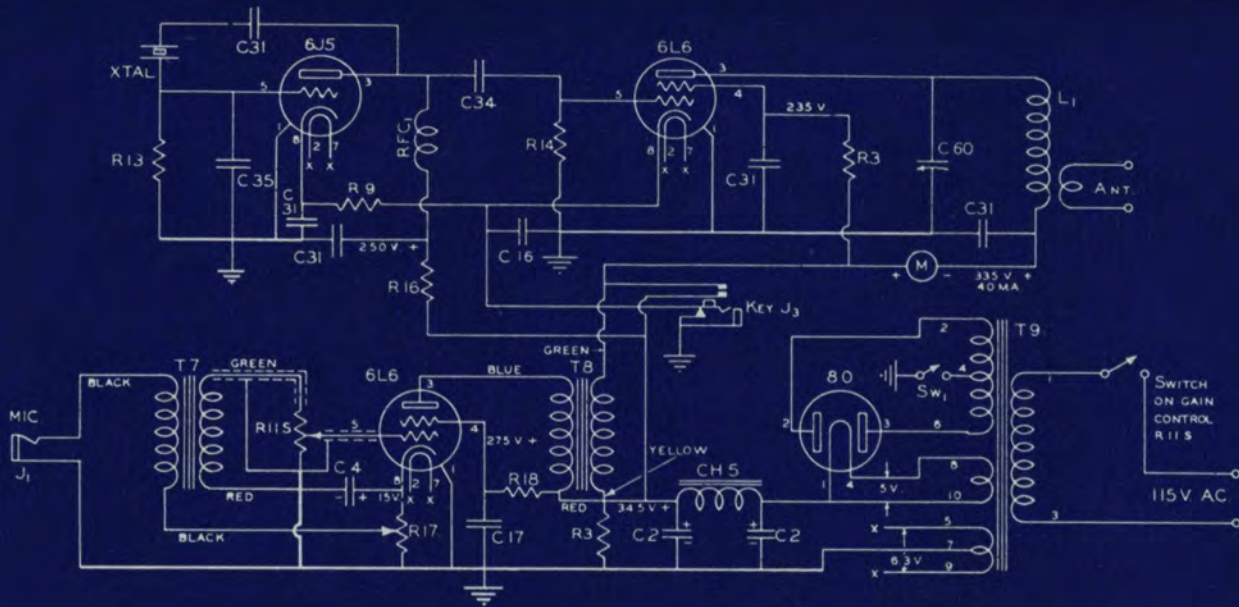
The low impedance output terminates at the feed-thru insulators on the rear of the chassis to which antenna connections are made. This output link will work directly into any radiating system fed by a low impedance line or may be coupled to an external tuning circuit for other types of antennae.

Power capabilities of the 10-P transmitter are rather conservative. Many unsolicited letters have been received telling of 100% contacts consistently made over great distances. Naturally, careful operation plus the proper selection of operating frequency plays its part in duplicating these performances.

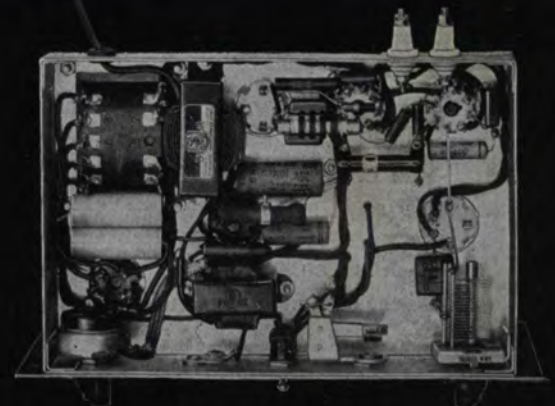
For the new amateur, desiring a small self-contained phone-CW transmitter, the 10-P has much to offer. For the advanced operator already possessing a high power rig, the 10-P will be a welcome addition to the station. In the construction of the 10-P high grade materials are used to assure the maximum of efficiency, long life and economy.

The functional design of the panel and cabinet gives that "commercial" appearance to one of the finest little transmitters on the market.

*This transmitter available as a kit from your Stancor Jobber*



ALL VOLTAGES MEASURED TO GROUND, 1000A PER VOLT METER



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 2	2	4 mfd.	450	tub. electrolytic
C 4	1	10 mfd.	25	tub. electrolytic
C 16	1	.01 mfd.	400	tub. paper
C 17	1	.1 mfd.	400	tub. paper
C 31	5	.002 mfd.	500	mica
C 34	1	250 mmfd.	500	mica
C 35	1	50 mmfd.	500	mica
C 60	1	100 mmfd.		midget variable

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R 3	2	25,000 ohms	10	wirewound
R 9	1	1,000 ohms	1/2	carbon
R 11 S	1	500,000 ohms		pot. with switch
R 13	1	25,000 ohms	1/2	carbon
R 14	1	100,000 ohms	1	carbon
R 16	1	5,000 ohms	1	carbon

No.	Quan.	Resistance	Watts	Description
R 17	1	300 ohms	10	wirewound—1 slider
R 18	1	25,000 ohms	1	carbon

### STANCOR

No.	Stancor No.	Description	Net Each
T 7	A 4706	S. B. mike to grid transformer.	\$0.72
T 8	A 3871	Modulation output transformer	1.65
T 9	P 6335	Power transformer	2.70
CH 5	C 2303	Filter choke	.90
B 1		Standardized chassis	1.20
F 1		Standardized panel	.75
E 1		Standardized escutcheon	.96
H 1		Standardized cabinet	1.80

### MISCELLANEOUS

No.	Quan.	Description
RFC 1	1	2.5 mh. 125 ma. R. F. C.
SW 1	1	S. P. S. T. toggle switch
J 1	1	open circuit jack
J 3	1	two circuit control jack
	2	1 1/4" black bar knobs

No.	Quan.	Description
	2	octal ceramic sockets
	1	octal bakelite socket
	1	4 prong bakelite socket
	2	5 prong ceramic sockets
	2	small feed-thru ins.
	1	6' cord and plug
	1	roll hook-up wire
	1	kit hardware (see page 47)

Approximate net price (less accessories) **\$21.00**

### ACCESSORIES

Unit	Description	Net
Coil—L 1	Small air-wound plug-in coil—end link	ea. \$0.75-1.05
Meter	0-100 DC milliammeter, small square type	ea. 2.70
Tubes	1-6J5, 2-6L6's, 1-80	set 2.88
Crystal	Popular crystals range from approximately	ea. \$1.50-4.80

# Stancor 20-N Transmitter

A COMPLETE LOW PRICED—TWENTY WATT—TRANSMITTER

## SPECIFICATIONS

Type of Emission.....A1 — A3  
Output Circuit.....Low Impedance Two-Wire Line  
Power Input.....20-30 Watts  
Frequency Range.....1.7 - 14.4 Megacycles  
Frequency Control.....Quartz Plate  
Power Consumption..250 V.A. @ 115 Volts 60 Cycles  
Dimensions.....Chassis 17" x 10" x 3"  
Weight—For Relay Rack Mounting.....38½ Lbs.

The 20-N is a revised version of the original 20-P and retains all of the good features of that popular unit plus some additional advantages. For economy, convenience and ease of operation, the radio frequency portion of the 20-P transmitter has been changed and improved.

The 20-N is a complete radio-phone and radio-telegraph transmitter of twenty watts input, operating on any band between 1700 and 14,400 KC. using inexpensive components in a simple, straight-forward circuit.

A 6V6 regenerative oscillator drives a 6L6G operating as a neutralized triode (plate and screen tied together) amplifier. The speech amplifier and modulator is as follows: 6SJ7 input, 6C5 amplifier, 6N7 driver (Class A) and 6N7 (Class B) modulator. Sufficient gain for most crystal microphones or similar high impedance input is provided. A tapped modulation transformer permits the use of various load impedances.

The power supply uses a 5Z3 full wave rectifier tube and delivers 400 volts D.C. Additional filtering in the speech amplifier assures hum-free modulation.

An extractor type fuse retainer located on the rear apron of the chassis accommodates a line fuse, thus offering protection to the unit.

Although twenty watts input to the final does not represent much in the way of power, the proper selection of operating frequency plus the careful adjustment of a good, suitable antenna will permit wide coverage with

the 20-N. An output link on the final amplifier coil may be coupled directly to some types of feeders or may be coupled to a network which in turn is connected to the antenna. See the data on page 45 for information on various popular antenna systems.

Standard manufactured plug-in coils are used in both the oscillator and amplifier plate circuits, thus eliminating the tedious job of hand-winding coils. In order to secure proper L-C ratio in the amplifier, an additional capacity of 75 mmfd. (a midget fixed air condenser) is required for operation on the 1700 to 2000 KC band. This fixed air condenser is not furnished with the kit of parts.

Two-band operation can be obtained from most crystals as the regenerative oscillator provides sufficient harmonic output to excite the 6L6G final amplifier.

Meter switching permits the direct-reading of both oscillator and amplifier plate currents. Meter switching isolates the high voltage from the amplifier until the oscillator is tuned.

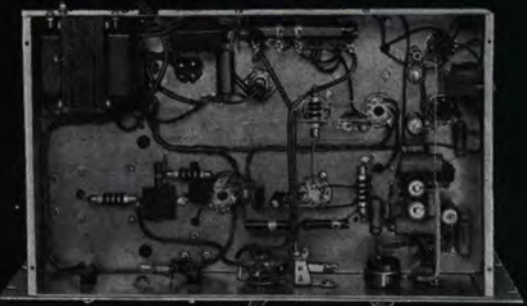
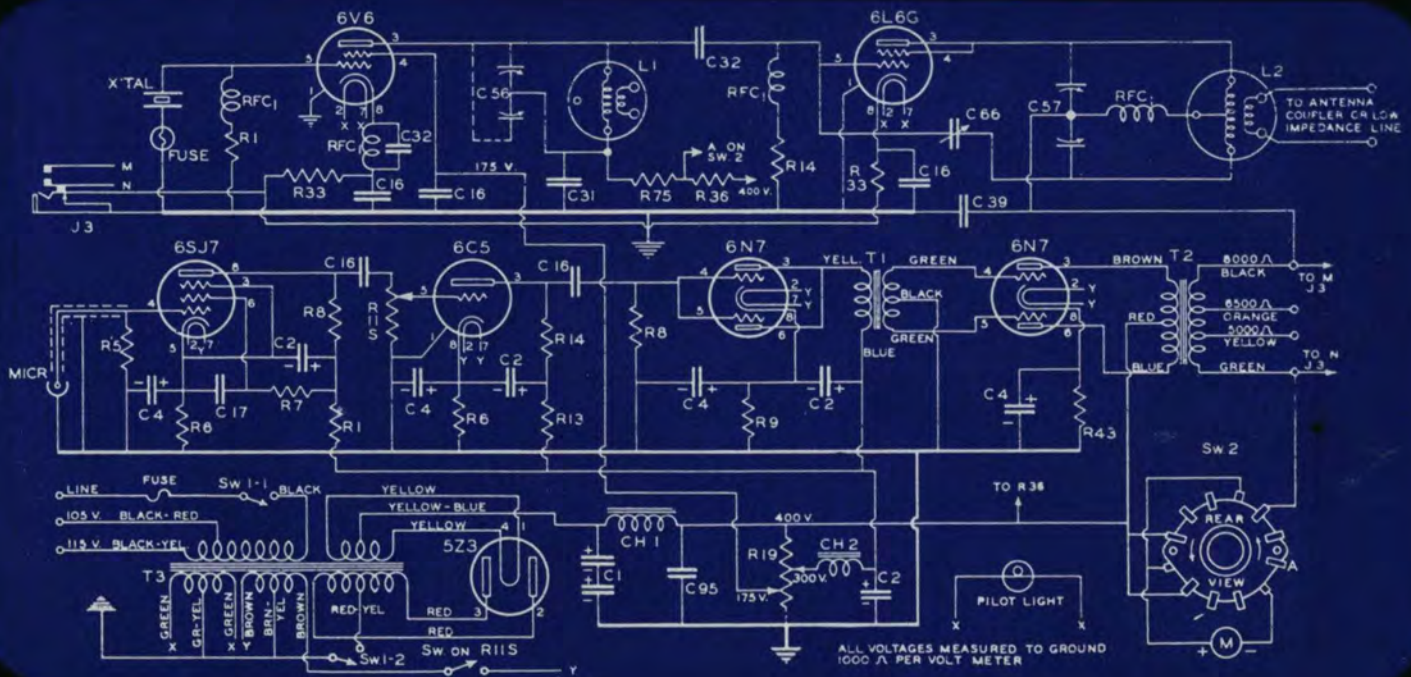
Break-in radio-telegraphy is available with the 20-N as both the oscillator and amplifier cathode circuits are keyed simultaneously. A key jack, conveniently placed on the panel accommodates a common phone plug attached to the key leads.

When radio-telegraph operation is desired, a switch on the gain control permits turning off the audio and modulator filaments.

The 20-N is a versatile transmitter for use in amateur or governmental service where compactness, economy and simplicity are desired. The moderate power output is entirely adequate for excellent communications under the conditions outlined above.

The 20-N is entirely self-contained on a 17" x 10" x 3" chassis and standard 8¾" rack panel and may be enclosed in a standard single deck cabinet or mounted on a relay rack.

*This transmitter available as a kit from your Stancor Jobber*



# Components

## CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 1	1	8-8 mfd.	450	can electrolytic
C 2	4	4 mfd.	450	tub. electrolytic
C 4	4	10 mfd.	25	tub. electrolytic
C 16	5	.01 mfd.	400	tub. paper
C 17	1	.1 mfd.	400	tub. paper
C 31	1	.002 mfd.	500	mica
C 32	2	.0001 mfd.	500	mica
C 39	1	.001 mfd.	1000	mica
C 56	1	100-100 mmfd.	900	dual variable
C 57	1	50-50 mmfd.	1200	dual variable
C 66	1	1.5-8.5 mmfd.		neutralizing
C 95	1	8-8 mfd.	600	can

## RESISTORS

No.	Quan.	Resistance	Watts	Description
R 1	2	50,000 ohms	1	carbon
R 5	1	5 megohms	1/2	carbon
R 6	2	3,000 ohms	1/2	carbon
R 7	1	2 megohms	1	carbon
R 8	2	250,000 ohms	1	carbon
R 9	1	1,000 ohms	1/2	carbon
R 11S	1	500,000 ohms		pot. with switch

No.	Quan.	Resistance	Watts	Description
R 13	1	25,000 ohms	1/2	carbon
R 14	2	100,000 ohms	1	carbon
R 19	1	25,000 ohms	50	wirewound—2 sliders
R 33	2	400 ohms	2	carbon
R 36	1	75 ohms	1	carbon
R 43	1	100 ohms	10	wirewound
R 75	1	2,000 ohms	20	wirewound

## STANCOR

No.	Stancor	Description	Net Each
T 1	A 4712	Driver transformer.....	\$0.84
T 2	A 3845	Modulation transformer.....	1.95
T 3	P 4004	Power transformer.....	5.10
CH 1	C 1412	Filter choke.....	2.64
CH 2	C 1515	Filter choke.....	.60
B 2		Standardized chassis.....	1.95
F 2		Standardized panel.....	1.44

## MISCELLANEOUS

No.	Quan.	Description
RFC 1	4	2.5 mh. 125 ma. R.F.C.
J 3	1	closed circuit fil. control jack
SW 1	2	S.P.S.T. toggle switch
SW 2	1	3 pos. 3 cir. switch
	1	4 prong bakelite socket
	4	octal bakelite sockets
	3	5 prong steatite sockets
	2	octal steatite sockets

No.	Quan.	Description
	2	1 1/4" black bar knobs
	2	2 3/4" dial and marker
	1	"Oscillator" nameplate
	1	"Amplifier" nameplate
	1	pilot light socket
	2	3/8" cone insulators
	1	6 ft. cord and plug assembly
	1	input cable connector
	1	pilot socket and jewel
	2	pilot bulb (Brown Bead. No. 40)
	1	roll hook-up wire
	1	kit hardware (see page 47)

Approximate net price (less accessories) **\$37.00**

## ACCESSORIES

Unit	Description	Net
Meter	0-200 D.C. milliammeter.....	ea. \$3.75
Cabinet	DeLuxe single section rack cabinet.....	ea. 7.50
	Standard single section rack cabinet.....	ea. 4.80
Tubes	1-6V6, 1-6L6G, 1-6SJ7, 1-6C5, 2-6N7's, 1-5Z3.....	set 4.74
Crystal	Popular crystals.....	ea. \$1.50-4.80
Coils	L1 Air wound E.L.....	ea. \$0.75-1.05
	L2 Air wound C.L.....	ea. \$0.75-1.05

# Stancor 2840 Transmitter

A FIXED-BAND HIGH FREQUENCY RADIOPHONE TRANSMITTER

## SPECIFICATIONS

Type of Emission.....	A3
Power Input to Final.....	50-60 Watts
Frequency Range.....	28-42 Megacycles
Frequency Control.....	Quartz Plate
Power Consumption..	350 V.A. @ 115 Volts 60 Cycles
Output Circuit.....	Low Impedance Two Wire Line
Dimensions.....	Chassis 17" x 10" x 3"
Weight—For Relay Rack Mounting.....	42 Lbs.

The demand for an AC powered, fixed station transmitter to be used as a companion to the popular 30-M mobile transmitter and the tremendous interest in the 28-42 megacycle frequency spectrum, has prompted the inclusion of a simple, efficient radiophone transmitter specifically designed to cover that range.

A single 6L6GX "grid-plate" regenerative crystal oscillator using 7 to 10 MC crystals, doubles in the plate circuit and drives another 6L6GX. This tube also doubles in its plate circuit which is link coupled to the HK24 grid circuit. The final tube operates as a modulated amplifier on any frequency between 28 and 42 megacycles. Excellent output with but slightly reduced efficiency may be obtained on the 56 megacycle band by doubling in the HK24 final using a 14 MC. crystal.

The recommended changes for 5 meter operation are in the coils and the use of a 10 meter crystal which will double into the 5 meter band by means of the 6L6GX doubler stage. This allows the HK24 final amplifier to operate straight through.

The speech amplifier and modulator tube lineup is as follows: 6SJ7 high gain input amplifier, 6N7 Class A driver and push-pull 6L6's in Class AB1. This provides adequate power for 100 per cent modulation of the Class C amplifier. The proper speech level may be maintained by the audio gain control on the front panel. Low level microphones are used with the Stancor 2840.

A dual power supply using an RK60 and a 5Z3 tube, amply filtered, provides both low and high voltages.

Meter switching permits the reading of the following important currents: oscillator plate; buffer-doubler plate and amplifier cathode.

Front panel control of all important tuned circuits is available. While the Stancor 2840 may appear to be unconventional in layout, the functional design was carefully thought out for ease and simplicity of operation on a fixed frequency. Tuning is not complicated and is easily completed.

Each class of service will require a specific type of antenna. New developments in antenna arrays, constantly being published in the radio journals, will add to the usefulness of the 2840 transmitter through their ease of construction and high gain performance. Output coupling to any of these high frequency antenna systems is available in the 2840 through the use of a link or low impedance coupling coil.

Hand wound air-spaced coils are used in the 2840. Complete winding data is contained in the kit instruction sheet, it is also shown on page 46 in condensed form.

The use of a low frequency crystal and the double-doubling effectively isolates the oscillator, thus insuring a stable carrier.

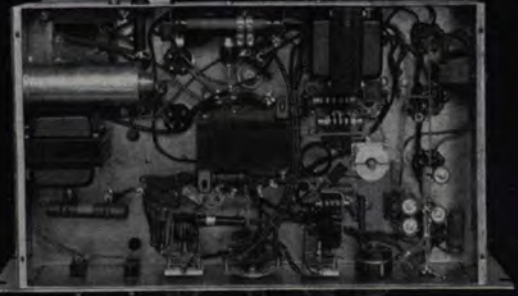
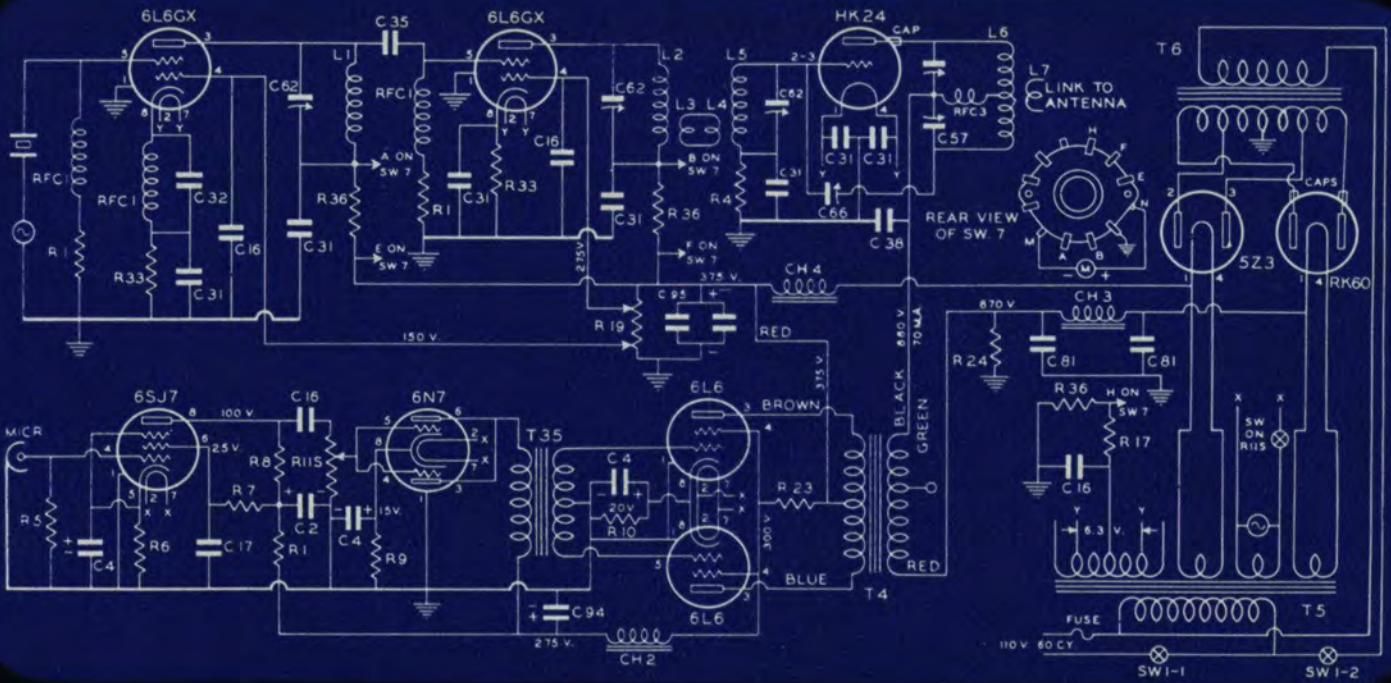
The Stancor 2840 transmitter will find ready acceptance by the amateur as a straight 10 meter transmitter, or as an experimental transmitter on the 5 meter amateur band.

Law enforcement groups will find the 2840 a compact and inexpensive desk or rack type station transmitter for their high frequency circuits. A push-to-talk relay control switch may easily be added to the transmitter on the microphone stand. Thus the high voltage transformer input can be opened by a relay, cutting off all high voltages, but leaving the filaments turned on for instantaneous use.

The complete transmitter, modulator and power supply, is mounted on a standard 17" x 10" x 3" chassis and a 19" x 8 $\frac{3}{4}$ " panel, allowing the entire unit to be placed in a relay rack or enclosed in a single section cabinet.

*This transmitter available as a kit from your Stancor Jobber*





## Components

CONDENSERS				
No.	Quan.	Cap.	Voltage	Description
C 2	1	4 mid.	450	tub. electrolytic
C 4	3	10 mid.	25	tub. electrolytic
C 16	4	.01 mid.	400	tub. paper
C 17	1	.1 mid.	400	tub. paper
C 31	7	.002 mid.	500	mica
C 32	1	100 mmfd.	500	mica
C 35	1	50 mmfd.	500	mica
C 38	1	.001 mid.	2500	mica
C 57	1	50-50 mmfd.	1200	dual variable
C 62	3	25 mmfd.		midget variable
C 66	1	1.5-8.5 mmfd.		neut. variable
C 81	2	2 mid.	1000	oil in can
C 94	1	16 mid.	450	tub. electrolytic
C 95	1	8-8 mid.	600	can

RESISTORS				
No.	Quan.	Resistance	Watts	Description
R 1	3	50,000 ohms	1	carbon
R 4	1	4,000 ohms	10	wirewound
R 5	1	5 megohms	1/2	carbon
R 6	1	3,000 ohms	1/2	carbon
R 7	1	2 megohms	1	carbon
R 8	1	250,000 ohms	1	carbon
R 9	1	1,000 ohms	1/2	carbon

No.	Quan.	Resistance	Watts	Description
R 115	1	500,000 ohms		poten. with switch
R 17	1	300 ohms	10	wirewound—1 slider
R 19	1	25,000 ohms	50	wirewound—2 sliders
R 23	1	6,000 ohms	10	wirewound
R 24	1	100,000 ohms	25	wirewound
R 33	2	400 ohms	2	carbon
R 36	3	75 ohms	1	carbon

STANCOR			
No.	Stancor	Description	Net Each
T 4	A 3868	Modulation output trans.	\$2.85
T 5	P 6333	Multiple filament trans.	2.55
T 6	P 6334	Plate transformer	6.30
T 35	A 4713	Driver transformer	.84
CH 2	C 1515	Filter choke	.60
CH 3	C 1421	Filter choke	1.80
CH 4	C 1410	Filter choke	1.65
B 2		Standardized chassis	1.95
F 2		Standardized panel	1.44

MISCELLANEOUS			
No.	Quan.	Description	
RFC 1	3	2.5 mh. 125 ma. R.F.C.	
RFC 3	1	10 meter R.F.C.	
SW 1	2	S.P.S.T. toggle switches	
SW 7	1	3 pos. 3 cir. ceramic switch	
	2	4 prong bakelite sockets	
	4	8 prong bakelite sockets	

No.	Quan.	Description
	1	4 prong steatite socket
	1	5 prong steatite socket
	2	8 prong steatite sockets
	1	socket flange
	6	1 1/2" black bar knobs
	1	"Amplifier" nameplate
	1	"A.C. Input" nameplate
	1	extractor type fuse retainer
	1	pilot light socket
	1	pilot light bracket and jewel
	1	6 ft. cord and plug assembly
	2	Lucite insulators
	1	1 3/8" condenser clamp
	2	Pilot bulbs (Brown Bead No. 40)
	1	roll hook-up wire
	1	kit hardware (see page 47)

ACCESSORIES		
Unit	Description	Net
Meter	0-200 D.C. milliammeter	\$3.75
Crystal	7 MC. to 10 MC.	various
Cabinet	DeLuxe single section	ea. \$7.50
	Standard single section	ea. 4.80
Tubes	1-HK24, 2-6L6GX, 1-6SJ7, 1-6N7, 2-6L6, 1-5Z3, 1-RK60	set 12.50

Approximate net price (less accessories) **\$44.75**

# Stancor 60-N Transmitter

A SELF-CONTAINED 60-WATT PHONE-CW TRANSMITTER

## SPECIFICATIONS

Type of Emission.....A1 — A3  
Output Circuit.....Low Impedance Two-Wire Line  
Power Input to Final.....60 Watts Phone or CW  
Frequency Range.....1.7 - 14.4 Megacycles\*  
Frequency Control.....Quartz Plate  
Power Consumption..275 V.A. @ 115 Volts 60 Cycles  
Dimensions—Chassis 17" x 10" x 3"  
Weight—For Relay Rack Mounting.....43 Lbs.  
\*28-30 MC output with alternate circuit. See page 42.

The 60-N offers a complete 60 watt phone-CW transmitter of modern design on a standard 17" x 10" x 3" chassis. The circuit employed was chosen to give high efficiency with a minimum number of stages and controls.

A regenerative crystal oscillator circuit is used to provide required excitation on the crystal fundamental and in some cases will furnish sufficient second harmonic energy to drive the HK24. For best operation, however, a crystal is required for each lower frequency band used. For 28 to 30 MC output an auxiliary plug-in 20 or 40 meter crystal oscillator (see page 42 for circuit) is required. A 20 meter crystal will then suffice for both 28 and 14 MC operation as the normal oscillator tube then doubles to 28 MC.

The versatile HK24 tube in the amplifier circuit is easy to drive and provides high efficiency, especially appreciated on the higher frequency bands. The low plate to grid capacity of this tube allows easy neutralization.

Manufactured plug-in coils are used throughout to eliminate the difficulty so often encountered in hand-wound coils.

Because of the limited number of turns of reasonable size wire that can be wound on the small amplifier tank coils and the limited space for a high capacity tuning condenser having sufficient voltage breakdown spacing, 160 meter operation necessitates the placing of an extra capacity across the coil for that band. Preferably this

extra condenser should be of the fixed air-spaced type with a capacity of from 75 to 100 mmfd.

For economy, the use of a single 0-200 milliammeter in conjunction with a switch allows readings to be taken of the oscillator, amplifier grid and cathode currents during tuning procedure.

A high fidelity audio channel employing a 6SJ7 high gain input amplifier allows the use of low level microphones, such as the crystal type. A 6N7 tube in Class A makes a desirable driver for the push-pull 6L6 tubes in Class AB1. The desired speech level is obtained by adjustment of the gain control.

For CW operation, a key is plugged into J3, opening the oscillator cathode circuit to permit break-in procedure. A switch on the gain control permits the breaking of the filament circuit to the audio tubes when using CW.

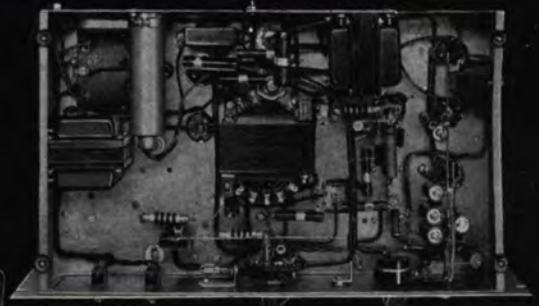
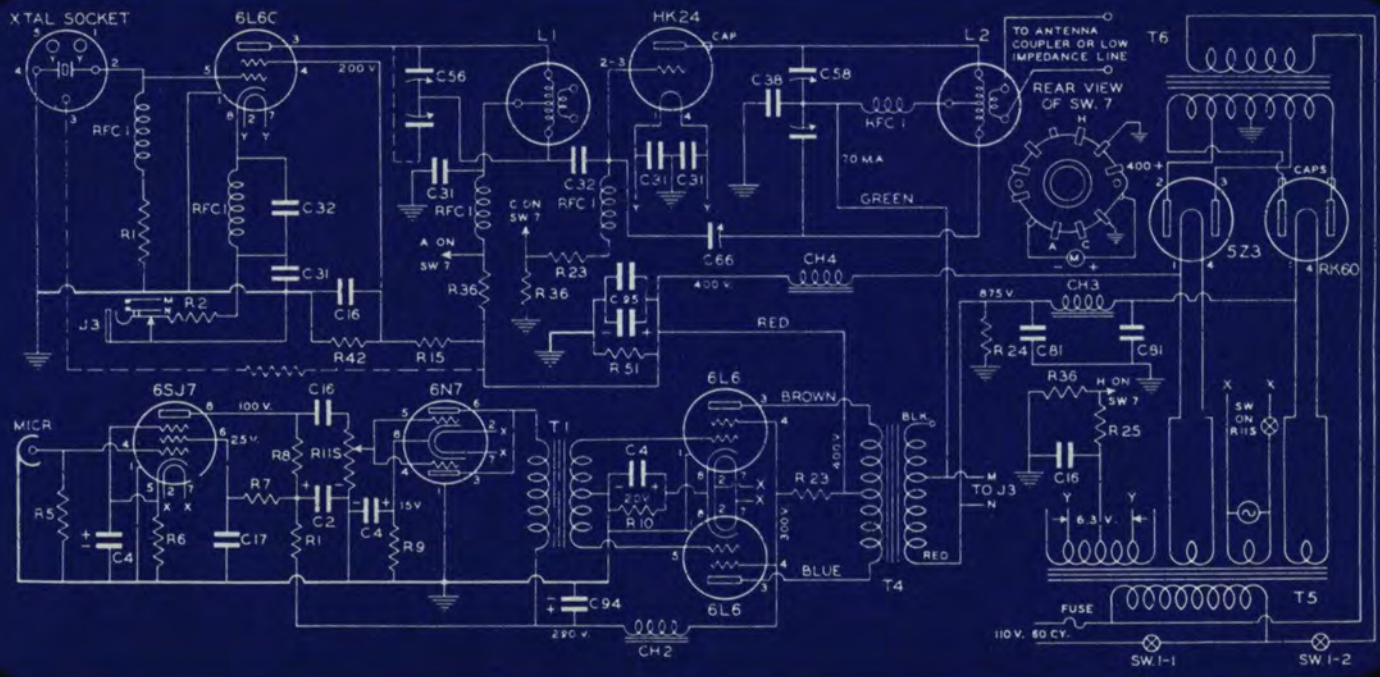
Two switches in the power supply are arranged to permit preheating of all tube filaments before plate voltage is applied. A dual rectification-filtration system efficiently provides the desired DC high voltages with excellent regulation.

The radio frequency output terminates in a low impedance link-coupled line readily adaptable to all antennae types. Those systems having a low impedance transmission feed line may be directly applied to the transmitter output terminals. Antennae having either high impedance or tuned transmission lines may be coupled to an external antenna tuning circuit, link coupled to the output of the Stancor 60-N.

The standard 19" x 8<sup>3</sup>/<sub>4</sub>" panel and 17" x 10" chassis of this transmitter allows the unit to be housed in a standard single unit cabinet, as shown in the photograph, or to be mounted upon a relay rack.

The 60-N is a revised edition of the 60-P which has become one of the most popular transmitters used by the amateur and governmental services.

*This transmitter available as a kit from your Stancor Jobber*



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 2	1	4 mfd.	450	tub. electrolytic
C 4	3	10 mfd.	25	tub. electrolytic
C 16	3	.01 mfd.	400	tub. paper
C 17	1	.1 mfd.	400	tub. paper
C 31	4	.002 mfd.	500	mica
C 32	2	100 mmfd.	500	mica
C 38	1	.001 mfd.	2500	mica
C 56	1	100-100 mmfd.	900	variable
C 58	1	70-70 mmfd.	2000	variable
C 66	1	1.5-8.5 mmfd.		neutralizing
C 81	2	2 mfd.	1000	oil
C 94	1	16 mfd.	450	tub. electrolytic
C 95	1	8-8 mfd.	600	can.

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R 1	2	50,000 ohms	1	carbon
R 2	1	400 ohms	10	wirewound
R 5	1	5 megohms	1/2	carbon
R 6	1	3,000 ohms	1/2	carbon
R 7	1	2 megohms	1	carbon
R 8	1	250,000 ohms	1	carbon
R 9	1	1,000 ohms	1/2	carbon
R 10	1	200 ohms	10	wirewound

No.	Quan.	Resistance	Watts	Description
R 11S	1	500,000 ohms		potentiometer
R 15	1	15,000 ohms	10	wirewound
R 23	2	6,000 ohms	10	wirewound
R 24	1	100,000 ohms	25	wirewound
R 25	1	1,250 ohms	20	wirewound
R 36	3	75 ohms	1	carbon
R 42	1	50,000 ohms	2	carbon
R 51	1	20,000 ohms	20	wirewound

### STANCOR

No.	Stancor	Description	Net Each
T 1	A 4712	Driver transformer.....	\$0.84
T 4	A 3868	Modulation transformer.....	2.85
T 5	P 6333	Filament transformer.....	2.55
T 6	P 6334	Plate transformer.....	6.30
CH 2	C 1515	Filter choke.....	.60
CH 3	C 1421	Filter choke.....	1.80
CH 4	C 1410	Filter choke.....	1.65
B 2		Standardized chassis.....	1.95
F 2		Standardized panel.....	1.44

### MISCELLANEOUS

No.	Quan.	Description
RFC 1	5	2.5 mh. 125 ma. R.F.C.
J 3	1	closed circuit jack fil. control
SW 1	2	S.P.S.T. toggle switch
SW 7	1	3 pos. 3 cir. ceramic switch
	2	4 prong bakelite socket
	4	octal bakelite socket
	1	4 prong steatite socket

No.	Quan.	Description
	3	5 prong steatite socket
	1	octal steatite socket
	2	1 1/4" black bar knob
	2	2 3/8" dial and marker
	1	"Oscillator" nameplate
	1	"Amplifier" nameplate
	1	pilot light and jewel
	1	pilot bulb (Brown Bead No. 40)
	1	microphone input cable connector
	1	6' cord and plug assembly
	2	3/8" cone insulators
	2	steatite bushing
	1	thru-point bushing
	1	roll hook-up wire
	1	kit hardware (see page 47)

Approximate net price (less accessories) **\$44.80**

### ACCESSORIES (Prices approximate only)

Unit	Description	Net
L 1 - L 2	Air wound C.L. plug-in coil.....	ea. \$0.95
Meters	0-200 D.C. milliammeter.....	ea. 3.75
Crystal	Popular Crystals.....	ea. \$1.50- 4.80
Cabinet	DeLux single section.....	ea. 7.50
	Standard single section.....	ea. 4.80
Tubes	1-HK24, 2-6L6, 1-6SJ7, 1-6N7, 1-5Z3, 1-RK60 1-6L6G.....	set 10.96

# Stancor 25-B Transmitter

A SIMPLE CW TRANSMITTER WITH SELF-CONTAINED ANTENNA TUNING

## SPECIFICATIONS

Type of Emission.....	A1
Output Circuit.....	Low or Variable Impedance
Power Input.....	25 Watts
Frequency Range.....	1.7-30 Megacycles
Frequency Control.....	Quartz Plate
Power Consumption..	60 Watts — 115 Volts 60 Cycles
Dimensions.....	Chassis 9½" x 6¼" x 2"
Weight.....	8⅛ Lbs.

A rig designed specifically for the beginner must have simplicity of circuit detail, construction and operation. More particularly, it must possess flexibility to permit the newcomer to obtain first-hand experience on the properties, merits and adjustments of different types of oscillator circuits. Crystal control is deemed a necessary feature to assure the operator that the transmission will be confined within the bands of frequencies allocated for amateur communications. The 25-B possesses these important features and is treated so that not only the material is inexpensive but the accessories are held to a minimum.

One of the most difficult problems confronting the new operator in his initial attempt to "get on the air" is that of transferring transmitter output energy to the antenna system. In studying beginners' kits marketed in the past, it was revealed that practically all ignored means for antenna tuning.

The 25-B transmitter possesses two types of output circuits, although termination is made using but two feed-thru insulators. One available system provides a low impedance link coupled output to match any type of antenna having a low impedance transmission line. The other system comprises a pi network variable impedance tuning arrangement permitting the operator to properly feed all types of fundamental or harmonic end-fed antennae, single wire feeder type antennae, or a random length of wire. Two variable condensers are used in conjunction with the tank coil  $L_1$  for this versatile output circuit. Condenser  $C_{60}$  connecting between the antenna end of the coil and ground has a corner of one of its rotor plates bent slightly. When rotated to full capacity it short circuits itself, leaving a conventional parallel

coil-condenser tank circuit consisting of  $L_1$  and the other condenser,  $C_{60}$ . With the shorted condenser setting, the antenna output terminals present a low impedance output at L and V which may be connected to a low impedance feed line. With the shorting condenser open, both variable condensers are used to form a variable impedance pi network filter terminating at V where an end-fed or single wire feeder type of antenna may be connected.

An expensive meter need not be purchased in order to operate the transmitter as a pilot light located in the center tap of the high voltage power transformer winding serves both as a tuning indicator and fuse. A meter may be introduced into the circuit in order to take accurate power input readings to the oscillator tube by using the key jack,  $J_2$ .

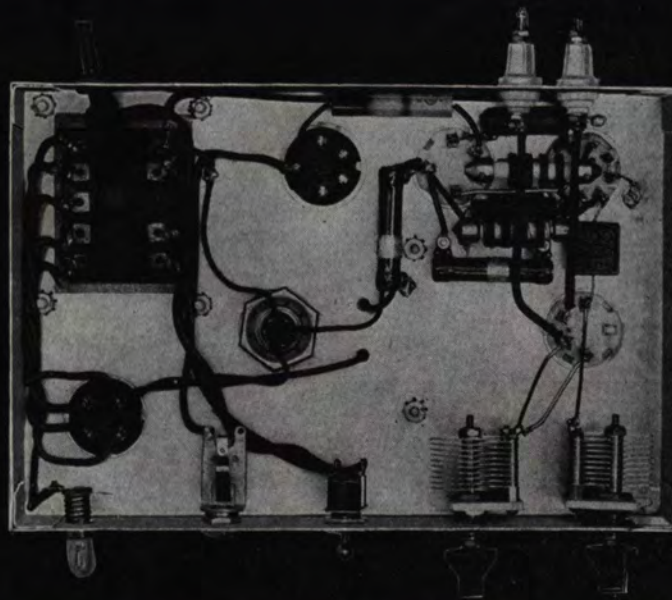
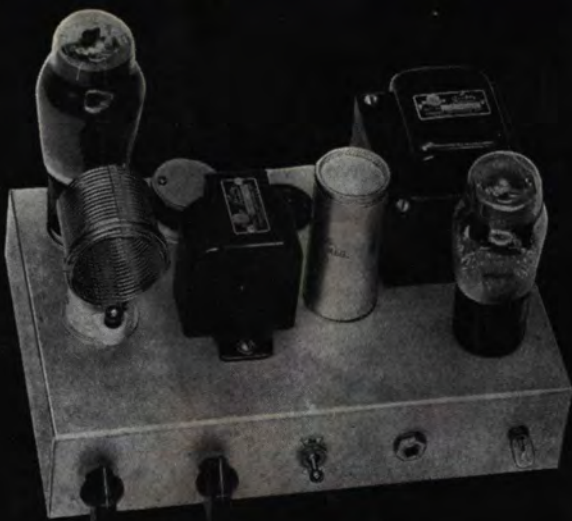
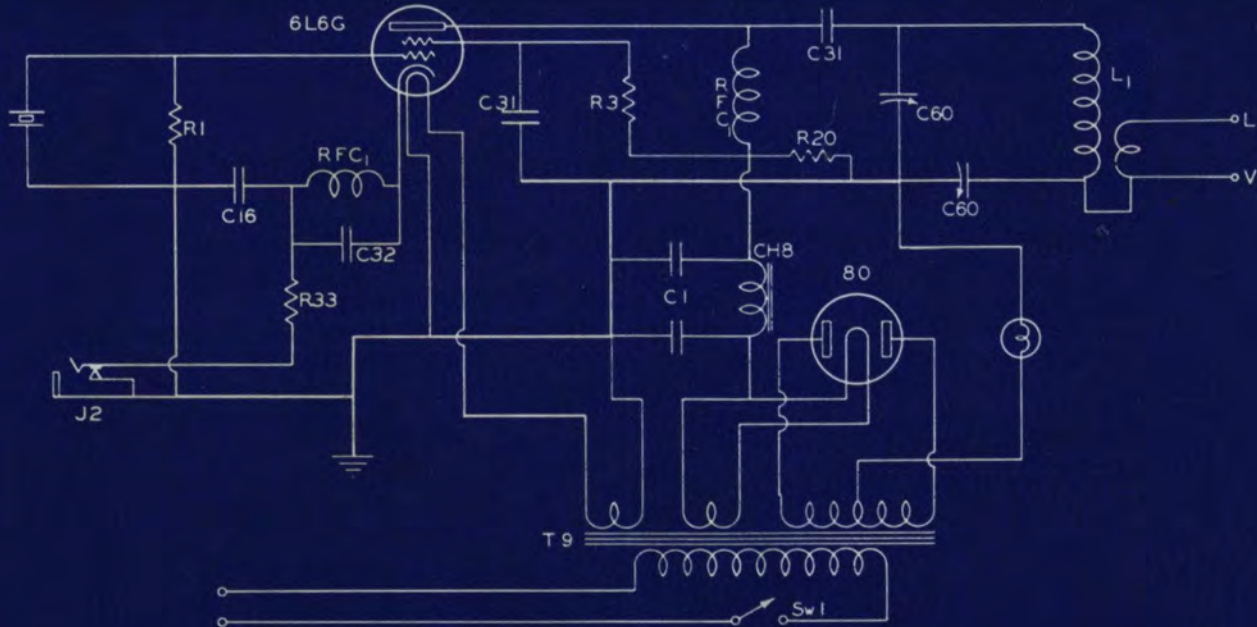
Several types of tubes may be used as oscillators, however, the 6L6G is recommended for giving the highest power output at a conservative plate voltage. The schematic diagram shows a regenerative type circuit using an aperiodic coil in the cathode circuit. This provides harmonic output to minimize the number of crystals required for multi-band operation. But one tank coil is required for each band it is desired to work.

The well filtered power supply has a simple full-wave rectifier circuit using an inexpensive 80 type tube. This power source in conjunction with the oscillator circuit provides a high quality output signal.

Tuning procedure is simple because the controls are few and their adjustments are not critical. A 160 meter crystal will permit operation on 160 or 80 meters when the tank coil for the proper frequency is used. Similarly an 80 meter crystal will provide output on 80 and 40 meters or a 40 meter crystal may be used on 40 and 20 meters. However, a 10 meter crystal is used for that band only. An extra five-prong socket is included on the chassis to permit the use of other oscillator circuits, such as the Tri-tet, where an additional cathode coil must be plugged into the circuit for harmonic operation.

Summing up, the 25-B will give the new licensee, or any operator for that matter, a compact experimental transmitter at a minimum cost, affording a maximum of operating enjoyment.

*This transmitter available as a kit from your Stancor Jobber*



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 1	1	8-8 mfd.	450	can electrolytic
C 16	1	.01 mfd.	400	tub. paper
C 31	2	.002 mfd.	500	mica
C 32	1	100 mmfd.	500	mica
C 60	2	100 mmfd.	500	midget variable

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R 1	1	50,000 ohms	1	carbon
R 3	1	25,000 ohms	10	wirewound
R 20	1	40,000 ohms	10	wirewound
R 33	1	400 ohms	2	carbon

### STANCOR

No.	Stancor No.	Description	Net Each
T 9	P 6335	Power transformer.....	\$2.70
CH 8	C 2305	Filter choke.....	1.08
B 1		Standardized chassis.....	1.20

### MISCELLANEOUS

No.	Quan.	Description
RFC 1	2	2.5 mh. 125 ma. R.F.C.
J 2	1	closed circuit jack
SW 1	1	S. P. S. T. toggle switch
	1	Pilot light socket
	1	4 prong bakelite socket
	1	5 prong bakelite socket
	2	5 prong ceramic sockets
	1	octal ceramic socket

No.	Quan.	Description
2	1 1/4"	black bar knobs
2		small feed thru ins.
1		6' cord and plug
1		roll hook-up wire
1		kit hardware (see page 47)

Approximate net price (less accessories) **\$12.75**

### ACCESSORIES

(Prices approximate only)

Unit	Description	Net
<b>Coils—L 1</b>	Small air-wound plug-in coil—end link.....	ea. \$0.95
<b>Tubes</b>	1-6L6, 1-80.....	set 1.47
<b>Crystal</b>	Popular crystals range approx. from.....	ea. \$1.50-4.80
	Pilot bulb 6.3 V @ 150 ma. ea.	.09

# Stancor 125-CW Transmitter

A 125 WATT "STRAIGHT CW" TRANSMITTER

## SPECIFICATIONS

Type of Emission.....	A1
Output Circuit.....	Low Impedance Two-Wire Line
Power Input To Final.....	100-125 Watts
Power Consumption...390 V.A. @ 115 Volts 60 Cycles (full load)	
Frequency Control.....	Quartz Plate
Frequency Range.....	3.5 to 14.4 Megacycles
Dimensions—Chassis.....	17" x 10" x 3"
Weight—For Relay Rack Mounting.....	39 Lbs.

Stancor presents the new 125CW to meet the increased demand for a "straight CW" transmitter of moderate power, suitable for use in relay nets, contests, Reserve activities or just plain "rag-chewing". The 125CW was designed to furnish a good signal on the commonly used CW bands, with a minimum of parts and a maximum of operating convenience.

A 6J5G crystal oscillator, lightly loaded, drives a neutralized 6L6G buffer which in turn drives a zero-bias tube (HY40Z-TZ40-RCA 811, etc.) at ICAS ratings. Both the oscillator and buffer cathodes are keyed, providing 100% break-in operation. As the buffer will double efficiently, it is entirely possible to secure adequate excitation for the final on the second harmonic of the crystal. For example, 20 meter output is secured by the use of a 7 MC crystal, doubling in the buffer and amplifying in the final tube. Many other crystal output combinations will be obvious to the operator of the 125CW.

Only three tuned circuits are required and tuning is simple and swift. QSY is made easy by the lack of complicated circuits. Crystal switching may be added by the use of one of the multi-crystal holders available on the market.

Entirely separate power supplies are used on the oscillator-buffer stages and the amplifier. An RK60 is used in the high voltage supply. A 5Z3 rectifies the low voltage. Adequate filtering is supplied for both high and low voltage. A separate filament transformer heats all filaments (both rectifier and RF tubes) permitting instantaneous operation by throwing one switch, thus turning on the high voltage.

A meter switching system, using a 0-200 MA D.C. meter, permits the reading of the oscillator plate, the buffer plate and the amplifier cathode currents.

Another novel feature of the 125CW is the two pilot light indicators. When the filaments are turned on and the transmitter is ready to operate, a *Green* jewel is lit. When the high-voltage toggle switch is snapped on, a *Red* jewel is lit up by a 6.3 volt bulb operating on a 5 volt winding (of the low voltage power transformer)—thus reducing the danger of a burnout of the high voltage indicator.

Break-in keying adds enjoyment to operating and will speed up the QSO. The zero-bias tube permits an allowable plate dissipation with no external bias.

Three coils are required for each band. These are manufactured type ceramic or air-wound five prong coils.

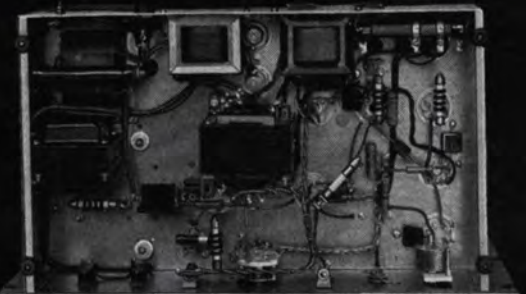
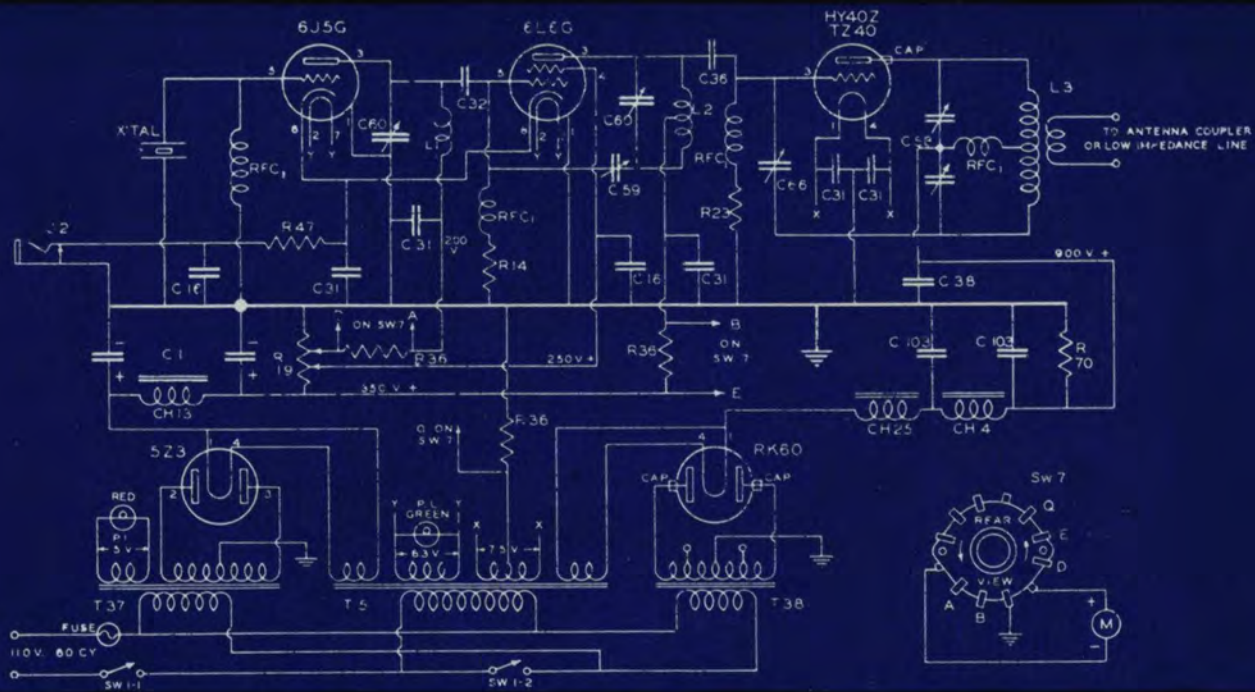
While the 125 watts input to the final amplifier may appear to be an overload on the tank coil, the intermittent use (on CW operation) permits this overload without excessive heating of the coil.

Care should be taken, however, to assure a load on the final amplifier whenever the key is closed. When tuning up, a dummy antenna should be connected to the output link terminals.

The low impedance output permits link coupling to any type of antenna system. By reducing the coupling to the antenna, the input of the 125CW may be reduced to below 100 watts in order to secure the handicap offered in the Sweepstakes and other contests where "100 watts" is the top limit for the added percentage available.

The 125CW is completely mounted on a 17" x 10" x 3" chassis and a standard 8 $\frac{3}{4}$ " x 19" panel, permitting mounting on a relay rack or in a single deck cabinet. The STANCOR 125CW delivers a stable, easily copied signal. The low original cost, economy of operation and overall flexibility of this transmitter makes it particularly suitable for any service requiring a medium power radio-telegraph transmitter.

*This transmitter available as a kit from your Stancor Jobber*



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 1	1	8-8 mfd.	450	can electrolytic
C 16	2	.01 mfd.	400	tubular paper
C 31	5	.002 mfd.	500	mica
C 32	1	100 mmfd.	500	mica
C 36	1	150 mmfd.	500	mica
C 38	1	.001 mfd.	2500	mica
C 58	1	70-70 mmfd.		variable
C 59	1	.5-5 mmfd.		neutralizing
C 60	2	100 mmfd.		variable
C 66	1	1.5-8.5 mmfd.		neutralizing
C 103	2	1 mfd.	1500	oil filled

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R 14	1	100,000 ohms	1	carbon
R 19	1	25,000 ohms	50	wirewound—2 sliders
R 23	1	6,000 ohms	10	wirewound
R 36	3	75 ohms	1	carbon
R 47	1	250 ohms	1/2	carbon
R 70	1	50,000 ohms	50	wirewound

### STANCOR

No.	Stancor	Description	Net Each
T 5	P 6333	Filament transformer	\$2.55
T 37	P 6011	Low voltage power transformer	1.95
T 38	P 6325	High voltage power transformer	6.00
CH 4	C 1410	Smoothing choke	1.65
CH 13	C 1002	Smoothing choke	.93
CH 25	C 2309	Swinging choke	1.05
	B 2	Standardized chassis	1.95
	F 2	Standardized panel	1.44

### MISCELLANEOUS

No.	Quan.	Description
RFC 1	4	2.5 mh. R.F.C.
Y 2	1	closed circuit jack
SW 1	2	S.P.S.T. toggle switch
SW 7	1	3p.-3 pos. cer. switch
	2	4 prong bakelite socket
	2	8 prong seatite socket
	1	4 prong seatite socket
	4	5 prong seatite socket
	2	2 3/4" dials with markers
	1	"Oscillator" nameplate
	1	"Amplifier" nameplate
	1	6 ft. cord and plug assembly

No.	Quan.	Description
	2	1 1/4" black bar knob
	1	extractor type fuse retainer
	1	5 ampere fuse 3AG
	1	pilot light bracket (red jewel)
	1	pilot light bracket (green jewel)
	2	pilot bulb (Brown Bead No. 40)
	3	thru-point bushings
	4	ceramic standoff insulators 5/8"
	1 roll	hook-up wire
	1 kit	hardware (see page 47)

Approximate net price (less accessories) **\$41.75**

### ACCESSORIES

Unit	Description	Net Each
Coils—L 1	5 prong end-link	ea. \$0.75-\$1.05
L 2	5 prong center-link	ea. .75-1.05
L 3	5 prong center-link	ea. .75-1.05
Meter	0-200 DC milliammeter	ea. 3.75
Tubes	1-6J5G, 1-6L6G, 1-TZ40 (or HY40Z, RCA 811), 1-5Z3, 1-RK60	net 8.17
Cabinet	Deluxe single section rack cabinet	ea. 7.50
	Standard single section rack	ea. 4.80
Crystals		\$1.50 to 4.80
Key		various

# Stancor 110-C Transmitter

A SELF-CONTAINED 100-WATT TRANSMITTER FEATURING CATHODE MODULATION

## SPECIFICATIONS

Type of Emission.....A1 and A3  
Output Circuit.....Low Impedance Two-Wire Line  
Power Input—Final Stage.....80 to 100 Watts  
Frequency Range.....1.7 - 14.4 Megacycles\*  
Frequency Control.....Quartz Plate  
Power Consumption....322 VA @ 115 Volts 60 Cycles  
Dimensions—Chassis.....17" x 10" x 3"  
Weight—For Relay Rack Mounting.....42 Lbs.  
\*28-30 MC output with alternate circuit. See page 42.

The application of cathode modulation in the 110-C permits the construction of a complete 100 watt phone-CW transmitter on a standard 17" x 10" x 3" chassis. Because of the small audio power requirements of a cathode modulated transmitter, the savings in audio power and general equipment makes greater R.F. carrier capabilities possible.

Circuits were chosen to give high efficiency with a minimum number of stages and controls. The 6L6G crystal oscillator is of the regenerative type which will give harmonic output. However, for maximum performance output on the fundamental is to be desired rather than the output from the harmonic of the crystal.

The plate dissipation of a tube to be used for cathode modulation is the deciding factor in determining the amount of plate power that may be used. Other desirable characteristics are low excitation requirements and ease of neutralization. The 812 tube was chosen as the modulated R.F. amplifier as it satisfies these conditions and easily handles 100 watts input.

In shifting operating frequencies from one band to another, merely change the plug-in coils and the crystal. It is not necessary for the constructor to fabricate his own coils as the new heavy duty 5 prong plug-in inductances are both satisfactory and economical. The operation chart on page 46 depicts the proper coils and crystals to be used for each band.

It will be noted that for 160 meter operation a padder is paralleled with coil L2. For both 160 and 80 meter operation a jumper is required to parallel both sections of condenser C56.

For output on the 28-30 MC band a plug-in oscillator is required. This oscillator, using either a 7 or 14 MC crystal, is built into a small shield can and plugged into

the normal crystal socket of the 110 C. The circuit for this oscillator is shown on page 42.

With this oscillator the normal crystal tube doubles to the 28-30 MC band. The 812 operates as an amplifier furnishing normal output on 28 to 30 MC.

The audio channel for cathode modulation employs a 6SJ7 high gain input amplifier, permitting the use of low level microphones, such as the crystal type. A 6C5 tube is used as a driver for the push-pull 6V6 tubes in Class AB1. Adjustment of a desired speech level is accomplished with a gain control.

For CW operation, a key is plugged into J2 which opens the oscillator cathode circuit to allow break-in. A switch mounted on the audio gain control breaks the filament circuit of the audio tubes, completely eliminating power consumption by the modulator when CW is used.

Two switches in the power supply are arranged to permit preheating of the filaments of all tubes before plate power is applied. A dual rectification-filtration system efficiently provides the desired DC high voltages with excellent regulation.

For the sake of economy, a single 0-200 DC milliammeter is used in conjunction with a suitable switch to provide three important readings during tuning procedure;—oscillator plate, amplifier grid and amplifier cathode currents.

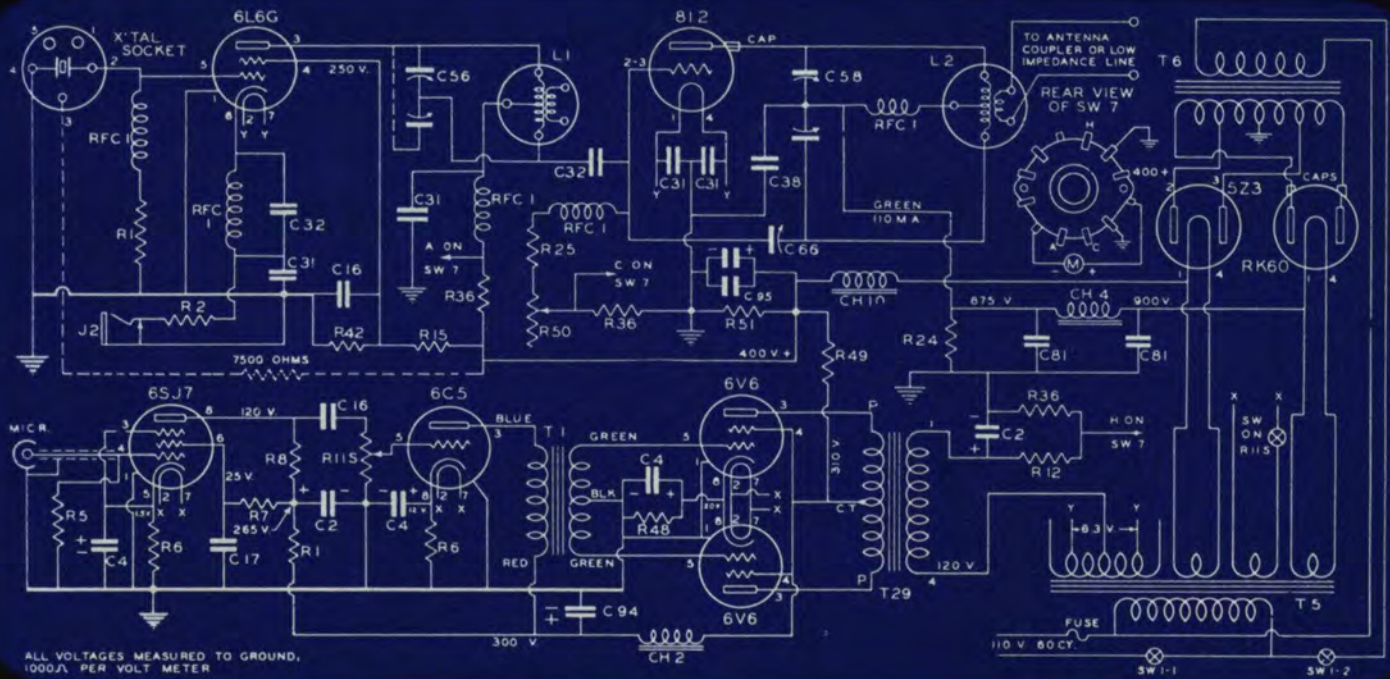
Variable resistor, R50, provides convenient means for front panel control of the grid bias so that accurate adjustment may be made for optimum operating conditions for phone operation. All of the more critical factors which enter into the adjustment of a cathode modulated transmitter are already fixed in the design of the 110-C. The only variable factors remaining are the degree of antenna loading and adjustment of the amplifier grid bias which are simple operations.

The radio frequency output terminates in a low impedance link-coupled line readily adaptable to all antennae. The standard dimensions of the panel and chassis of this transmitter permits the unit to be housed in a rack type cabinet, as shown in the photograph, or to be mounted upon a relay rack.

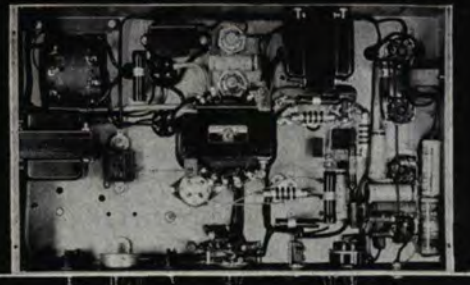
The 110-C enjoys a well-deserved popularity as it makes the most of all the advantages cathode modulation has to offer, the foremost of which are extreme economy and simplicity of operation.

*This transmitter available as a kit from your Stancor Jobber*





ALL VOLTAGES MEASURED TO GROUND,  
1000 $\mu$ A PER VOLT METER



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 2	2	4 mfd.	450	tub. electrolytic
C 4	3	10 mfd.	25	tub. electrolytic
C 16	2	.01 mfd.	400	tub. paper
C 17	1	.1 mfd.	400	tub. paper
C 31	4	.002 mfd.	500	mica
C 32	2	.0001 mfd.	500	mica
C 38	1	.001 mfd.	2500	mica
C 56	1	100-100 mmfd.	900	dual variable
C 58	1	70-70 mmfd.	2000	dual variable
C 66	1	1.5-8.5 mmfd.		neut. variable
C 81	2	2 mfd.	1000	oil cond. in can
C 94	1	16 mfd.	450	tub. elect.
C 95	1	8-8 mfd.	600	can

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R 1	2	50,000 ohms	1	carbon
R 2	1	400 ohms	10	wirewound
R 5	1	5 megohms	1/2	carbon
R 6	2	3,000 ohms	1/2	carbon
R 7	1	2 megohms	1	carbon
R 8	1	250,000 ohms	1	carbon
R 11S	1	500,000 ohms		pot. with switch
R 12	1	1,000 ohms	10	wirewound
R 15	1	15,000 ohms	10	wirewound

No.	Quan.	Resistance	Watts	Description
R 24	1	100,000 ohms	25	wirewound
R 25	1	1,250 ohms	20	wirewound
R 36	3	75 ohms	1	carbon
R 42	1	50,000 ohms	2	carbon
R 48	1	250 ohms	10	wirewound
R 49	1	1,000 ohms	20	wirewound
R 50	1	20,000 ohms		wirewound pot. (Mallory M 20 M P)
R 51	1	20,000 ohms	20	wirewound

### STANCOR

No.	Stancor	Description	Net each
T 1	A 4712	Driver transformer.....	\$0.84
T 5	P 6333	Filament transformer.....	2.55
T 6	P 6334	Plate transformer.....	6.30
T 29	A 3888	Modulation transformer.....	2.55
CH 2	C 1515	Smoothing choke.....	.60
CH 4	C 1410	Swinging choke.....	1.65
CH 10	C 1400	Swinging choke.....	1.80
B 2		Standardized chassis.....	1.95
F 2		Standardized panel.....	1.44

### MISCELLANEOUS

No.	Quan.	Description
RFC 1	5	2.5 mh. 125 ma. R.F.C.
J 2	1	closed circuit jack
SW 1	2	S.P.S.T. toggle switches
SW 7	1	3 pos. 3 cir. ceramic switch
	1	input cable connector

No.	Quan.	Description
	2	4 prong socket, bakelite
	4	8 prong socket, bakelite
	1	4 prong socket, steatite
	3	5 prong socket, steatite
	1	8 prong socket, steatite
	3	1 1/4" black bar knob
	2	2 3/4" dial and marker
	1	"Oscillator" nameplate
	1	"Amplifier" nameplate
	1	6' cord and plug assembly
	2	3/8" cone insulators
	2	steatite bushings
	1	thru point bushing
	2	socket flange
	1	roll hook-up wire
	1	kit hardware (see page 47)

Approximate net price (less accessories) **\$48.75**

### ACCESSORIES

Unit	Description	Net
L 1 - L 2	100 watt C.L. coils.....	ea. \$0.99
M	0-200 D.C. milliammeter.....	ea. 3.75
Xtal	Popular crystals range from.....	ea. \$1.50- 4.80
Cabinet	DeLuxe for 8 3/4" x 19" panel.....	ea. 7.50
	Standard for 8 3/4" x 19" panel.....	ea. 4.80
Tubes	1-812, 1-6L6G, 1-6S7, 1-6C5, 2-6V6, 1-RK60, 1-5Z3.....	set 10.09

# Stancor 100-MB Transmitter

A NOVEL BAND SWITCHING, HIGH ECONOMY TRANSMITTER WITH SAFETY FEATURES

## SPECIFICATIONS

Type of Emission.....A1 - A3 with 440-M Modulator  
Output Circuit.....Low Impedance Two-Wire Line  
Power Input (final plate and screen).....100 Watts  
Frequency Range.....1.7 - 14.4 Megacycles  
Frequency Control.....Quartz Plate  
Power Consumption..215 V. A. @ 115 Volts 60 Cycles  
Dimensions.....Chassis 17" x 14" x 3½"  
Weight—For Relay Rack Mounting.....35 Lbs.

The 100-MB incorporates with surprising economy, ease of band switching, frequency flexibility within each band and simplicity of adjustments. The exciter, the amplifier and the antenna circuits are simultaneously changed with a single rotation of one four gang ceramic switch. Four crystals provide different operating frequencies within each band. Economy is obtained by a circuit and tube complement requiring a minimum of stages and parts, the switching of one milliammeter to give three important readings during adjustments and a high efficiency band switching arrangement. In addition, the power supply provides the greatest source of energy with the most economical components.

A 6L6G oscillator in a Tri-tet circuit was chosen because it would supply the greatest fundamental and harmonic output. A pair of beam power tetrodes operating as an R.F. amplifier have small excitation requirements and do not need neutralization. This arrangement permits the use of a simple tapped coil switching system in the exciter. However, for the amplifier tank coils, where the highest possible efficiency is desirable, a separate linked tank inductance is used for each band. A given complement of plug-in coils will allow operation on a chosen three bands.

Undoubtedly, the most popular coil combination will be for 80, 40 and 20 meter operation. With this combination, four 3.5 megacycle crystals will have different spot frequencies on each of the three bands, thus giving twelve different frequencies of emission. All the possible coil arrangements are shown on page 46. The value of cathode coil inductance  $L_1$  is for operation with 40 meter crystals where harmonic operation is expected, but the lower frequency crystals will oscillate unaffected by the presence of this coil.

Ten meter operation is possible in the 100-MB for convenience and band coverage only. Difficulties usually encountered in multi-band switching, limit the efficiency on ten meters, thereby reducing the effective output in relation to that secured on the other bands.

The switching arrangement automatically connects the amplifier tubes in push-push for the first position and push-pull for the second and third positions. Thus the amplifier becomes a high efficiency natural doubler on the highest frequency band used and a straight push-pull amplifier on the two lower frequency bands.

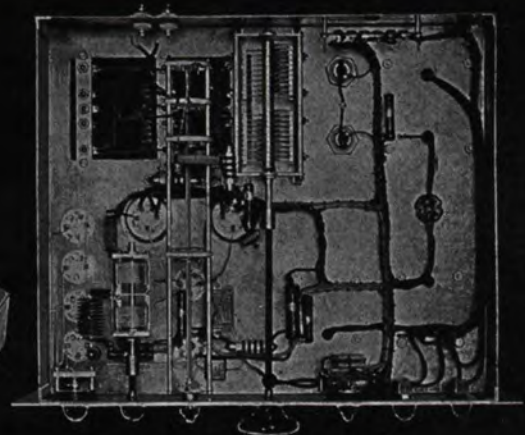
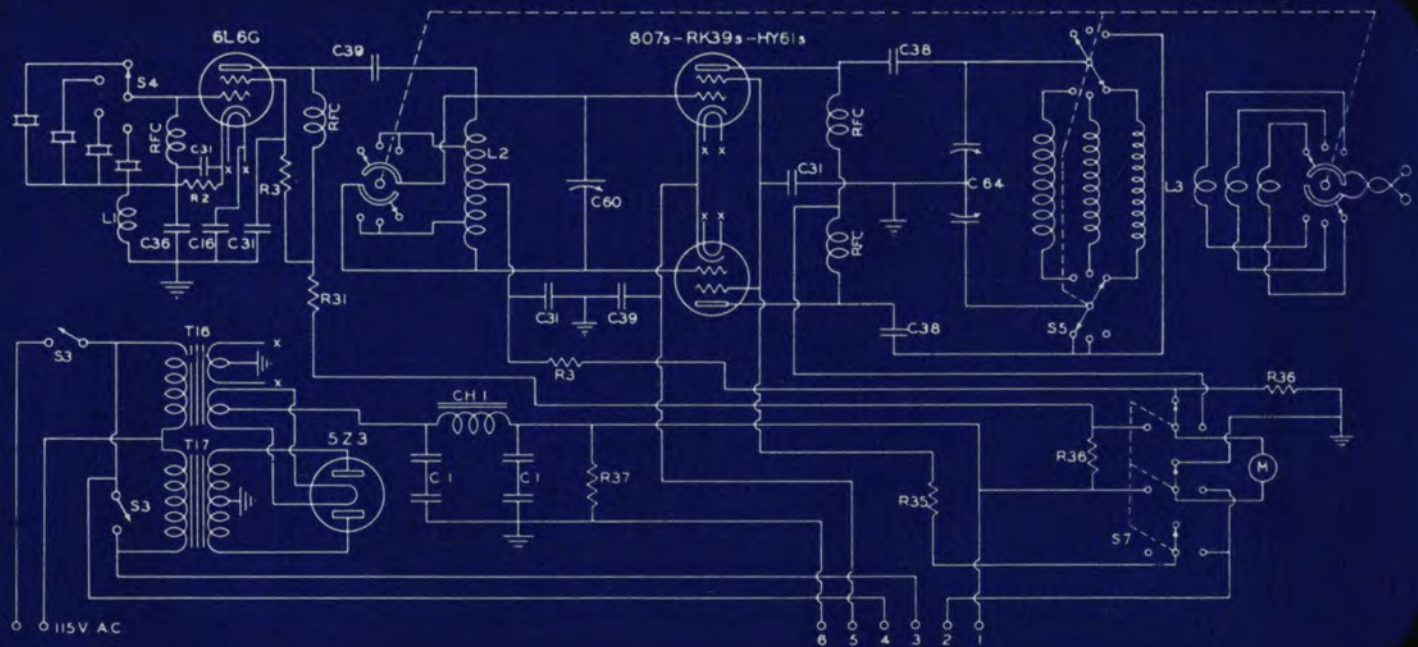
Plate voltages to the R.F. tubes are parallel fed through radio frequency chokes so that no DC potentials are present on the coils. In addition, safety covers on the plate caps of the tubes, polystyrene beads on the plate leads, and insulating the meter terminals with rubber tape make it difficult to obtain a shock. Further, a terminal strip is recessed behind the rear wall of the chassis so that a cable feeding through the nearby grommet hole and connecting to the proper terminals is left in a "difficult to touch" condition. These terminals accommodate the secondary winding of the modulator's output transformer, an extension for remote switching of the plate power of the transmitter and a telegraph key.

The tuning adjustments are made with but two condensers while the meter is successively switched into each circuit. The amplifier tubes are protected from overload while tuning the exciter as plate voltage is not applied to them until the meter is switched into the amplifier plate circuit. Suitable antennae may be applied to the two ceramic output bushings at the rear of the chassis and the amplifier loaded by conventional tuning methods.

The dimensions of the chassis and panel allow the transmitter to be housed in a De Luxe type single unit cabinet that takes an 8¾" x 19" panel or to be mounted upon a standard relay rack.

The 100-MB transmitter is a real band switching unit, economical to build, affording a wide range of operating conditions with a minimum of associated apparatus.

*This transmitter available as a kit from your Stancor Jobber*



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 1	2	8-8 mfd.	450	can electrolytic
C 16	1	.01 mfd.	400	tubular paper
C 31	4	.002 mfd.	500	mica
C 36	1	150 mmfd.	500	mica
C 38	2	.001 mfd.	2500	mica
C 39	2	.001 mfd.	1000	mica
C 60	1	100 mmfd.	1000	variable
C 64	1	100-100 mmfd.	3000	dual variable

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R 2	1	400 ohms	10	wirewound
R 3	2	25,000 ohms	10	wirewound
R 31	1	3,000 ohms	20	wirewound
R 35	1	10,000 ohms	10	wirewound
R 36	2	75 ohms	1	wirewound
R 37	1	50,000 ohms	10	wirewound

### STANCOR

No.	Stancor No.	Description	Net Each
T 16	P 5008	Multiple filament transformer	\$2.58
T 17	P 6337	Plate transformer	4.50
CH 1	C 1412	Filter choke	2.64
	B 3	Standardized chassis	2.70
	F 3	Standardized panel	1.32
	E 3	Standardized escutcheon	1.41
S 5	S 5	4 gang ceramic band switch	2.70

### MISCELLANEOUS

No.	Quan.	Description
S 3	2	S. P. S. T. rotary A.C. switch
S 4	1	single cir. four pos. ceramic switch
S 7	3	three pos. three cir. ceramic switch
RFC 1	4	2.5 mh. 125 ma. R.F. choke
	3	ceramic jack bar receptacles
	1	4-prong bakelite socket
	5	5-prong ceramic sockets
	2	5-prong ceramic sockets shell mtd.
	1	octal ceramic socket
	2	above chassis metal shells
	2	small ceramic bushings
	1	1" cone ins.
	1	ceramic flex. coupling

No.	Quan.	Description
	1	2 1/4" dia. control wheel
	6	1 1/4" black bar knobs
	2	Victron thru-point bushings
	2	insulated plate caps
	10	polystyrene beads
	1	6' cord and plug
	1	roll hook-up wire
	1	kit hardware (see page 47)

Approximate net price (less accessories). **\$42.00**

### ACCESSORIES

Unit	Description	Net
Coils L 2	Small air-wound plug-in coils—center tap	ea. \$0.95
Coils L 3	100 watt air-wound plug-in coils, prices vary with band, avge.	ea. 2.00
Meter	0-200 D.C. milliammeter 3" square type	ea. 3.45
Cabinet	DeLux single section rack cabinet	ea. 7.50
Tubes	1-6L6G, 2-807's, 1-5Z3	set 9.22
Crystals	Popular crystals range from approx.	ea. \$1.50-4.80

# Stancor 440-M Modulator

HIGH FIDELITY COMPANION UNIT TO THE 100-MB TRANSMITTER

## SPECIFICATIONS

Power Output.....40 Watts or + 38.2 db.  
Output Impedance.....2800 and 500 Ohms for both  
Modulation and Line Purposes  
Frequency Response..... $\pm 1\frac{1}{2}$  db. from 60 c.p.s.  
to 12,000 c.p.s.  
Tone Control.....Single control high cut-off type  
Input Circuits....Two: One high impedance low level  
type for Crystal, Velocity or Dynamic  
type microphones and one high impedance high level type for Carbon or  
Magnetic type microphones.  
Power Consumption..160 Watts at 115 Volts 60 Cycles  
Dimensions.....Chassis 17" x 10" x 3½"  
Weight—For Relay Rack Mounting.....40 Lbs.

The 440-M modulator was especially designed to provide radiotelephony in conjunction with the 100-MB band switching transmitter. As a result, the following items were incorporated: Separate high and low gain inputs with independent controls, a tone control to attenuate the higher audio frequencies for a narrow band width transmission, an over-modulation indicator and meter switching. Other desirable features are fixed modulator stage grid bias and separate filament and plate transformers permitting filament preheating before plate voltage is applied to the tubes. The output modulation transformer has a 2800 ohm secondary for modulating purposes, tapped at 500 ohms.

The high gain input terminals will accommodate any type of low output level microphone, such as the crystal and velocity types. Devices having a higher output level, such as a phonograph pickup or a permanent magnet speaker used as a microphone, as well as carbon microphones coupled through suitable transformers, may be connected into the low gain terminals.

The tube complement consists of a 6SJ7 input amplifier, a 6N7 as voltage amplifier and electronic mixer, a 6F6 connected as a triode driver and a pair of 6L6's in Class AB2 as modulators. A type 45 or 2A3 tube is employed in the over-modulation indicator while a 5Z3 rectifies the plate voltage and an 80 tube rectifies the bias voltage. Adequate filtering is provided throughout the entire unit.

Primary connections to the plate transformer are provided on a terminal at the rear of the chassis to allow

interlocking with the 100-MB for external switching of plate voltages in both units simultaneously.

In combining the 440-M with the 100-MB for radio-phone operation, the 2800 ohm output terminals, which are wired to the five-prong socket mounted at the rear of the chassis, are connected to terminals one and two on the transmitter. The start of the winding is connected to terminal one and the 2800 ohm finish of the winding is connected to terminal two. This properly orients the circuit so that the over-modulation indicator will operate. When this transmitter is loaded to the recommended power input, by the antenna system, the over-modulation indicator will just begin to show a reading at 100% modulation. When the needle of the meter rises anywhere above a few milliamperes, over-modulation is present. It was realized that many operators may wish to utilize the space devoted to the over-modulation indicator circuit for one of the popular automatic modulation control circuits. This procedure is entirely permissible and is easily applicable to the 440-M.

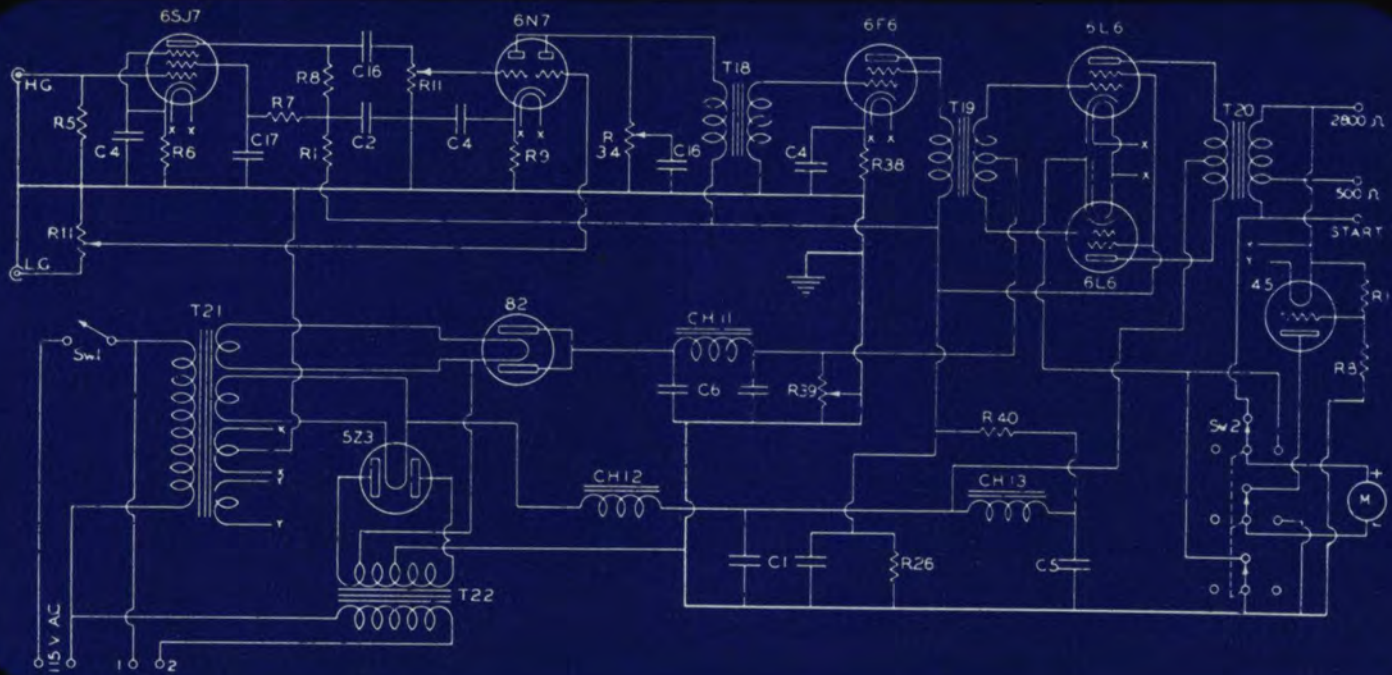
If the 500 ohm winding of the output transformer is used to feed some other device, the 45 tube becomes a signal output rectifier which may be highly useful as a level indicator.

The 440-M may be housed in the same type of cabinet as the 100-MB transmitter or both units may be mounted one above the other in a double unit relay rack type cabinet to form a complete phone-CW transmitter.

Wherever 40 watts of high quality audio is needed to modulate another transmitter or for public address work, or to drive a high powered Class B modulator, the 440-M will give outstanding results. However, another transmitter may require a different secondary impedance than that provided by the output transformer shown or a public address system will require an output transformer to match different types of speakers. In any case the correct Stancor output transformer may be substituted.

The 440-M employs the proven principles of modern electronics and new features singularly its own. When used in conjunction with the 100-MB transmitter, the last word in a radio-phone communication system is made available.

*This modulator available as a kit from your Stancor Jobber*



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 1	1	8-8 mfd.	450	can electrolytic
C 2	1	4 mfd.	450	tub. electrolytic
C 4	3	10 mfd.	25	tub. electrolytic
C 5	1	16 mfd.	450	can electrolytic
C 6	1	8-8 mfd.	250	can electrolytic
C 16	2	.01 mfd.	400	tub. paper
C 17	1	.1 mfd.	400	tub. paper

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R 1	2	50,000 ohms	1	carbon
R 5	1	5 megohms	1/2	carbon
R 6	1	3,000 ohms	1/2	carbon
R 7	1	2 megohms	1	carbon
R 8	2	250,000 ohms	1	carbon
R 9	1	1,000 ohms	1/2	carbon

No.	Quan.	Resistance	Watts	Description
R 11	2	500,000 ohms		potentiometer
R 26	1	35,000 ohms	10	wirewound
R 34	1	100,000 ohms		potentiometer
R 38	1	700 ohms	10	wirewound
R 39	1	1,500 ohms	10	wirewound—1 slider
R 40	1	2,500 ohms	20	wirewound

### STANCOR

No.	Stancor No.	Description	Net Each
T 12	P 4024	Plate transformer.....	\$5.40
T 18	A 4205	Interstage transformer.....	2.55
T 19	A 4702	Driver transformer.....	1.98
T 20	A 3874	Modulation transformer.....	4.05
T 21	P 6338	Multiple filament transformer.....	2.55
CH 11	C 1080	Filter choke.....	.54
CH 12	C 1402	Swinging choke.....	2.64
CH 13	C 1002	Filter choke.....	.93
	E 4	Standardized chassis.....	2.25
	F 3	Standardized panel.....	1.32
	E 4	Standardized escutcheon.....	1.41

### MISCELLANEOUS

No.	Quan.	Description
SW 2	1	three pos. three cir. switch
SW 3	1	S. P. S. T. rotary switch
	2	input cable connectors
	3	4 prong bakelite sockets
	1	5 prong bakelite socket
	5	octal bakelite sockets
	5	1 1/4" black bar knobs
	1	9' cord and plug
	1 roll	hook-up wire
	1 kit	hardware (see page 47)

Approximate net price (less accessories) **\$37.50**

### ACCESSORIES

Unit	Description	Net Each
Meter	0-200 D. C. millimeter 3" square type.....	ea. \$3.45
Tubes	1-6SJ7, 1-6N7, 1-6F6, 2-6L6's, 1-5Z3, 1-82, 1-2A3.....	set 7.04
Cabinet	DeLuxe single section rack cabinet.....	ea. 7.50
	or Standard sgle. sec. rack cabinet ea.	4.80

# Stancor 550 Amplifier

AN ECONOMICAL AMPLIFIER FOR HIGH POWER APPLICATIONS

## SPECIFICATIONS

### Power Output—

Rated: +39.2 DB or 50 Watts (8% Distortion)

+36.7 DB or 28 Watts (No Distortion)

Peak: +40.3 DB or 65 Watts (Max. Distortion)

Frequency Response..... ±2 DB 70 to 15,000 C.P.S.

Dual Tone Control: Bass Attenuation 33 DB at 150 C.P.S.

Treble Attenuation 27 DB at 15,000 C.P.S.

Input Circuits.....All High Impedance

Two Mike Low Level Inputs.....Gain 108.9 DB

One Phono Med. Level Input.....Gain 68.9 DB

(Gain based on 100,000 ohm grid impedance.)

Output Impedances.....4, 8, 250, 500 Ohms

Hum Level.....55 DB Below Rated Output

Power Input.....260 V.A. @ 115 Volts, 60 Cycles

Dimensions—Without Dust Cover.....17" x 10" x 7<sup>3</sup>/<sub>4</sub>"

Weight—Without Dust Cover.....40 Lbs.

*Note: Above characteristics with amplifier using one 6C5. Additional 6C5 increases both inputs 17 db with frequency response approximately unchanged.*

The 550 amplifier provides high audio output with quality sound reproduction. It includes features for adapting the amplifier to fill many requirements, such as a large auditorium installation, factory call system, as an amateur radio-phone modulator and many other similar applications.

The tube lineup is as follows: Two 6SJ7 high gain pre-amplifier channels, 6N7 electronic mixer, 6C5 voltage amplifier (optional in place of one 6SJ7), 6C5 Class A driver, two 6L6G's push pull Class AB2 output amplifier, 80 bias rectifier and 83 high voltage rectifier.

Two standard microphone connectors on the front of chassis are provided for high gain inputs. Two volume controls furnish separate gain adjustment and mixing for each channel. One of these controls is also used for fading in or out a high impedance phonograph pick-up for which terminals are provided on the back of the chassis.

The 6SJ7 pre-amplifier and 6N7 mixer are all resistance-coupled and properly by-passed to provide stable amplification. Ordinarily the next stage is the 6C5 Class A driver by connecting "N" to "M," but should additional gain be required, an intermediate voltage amplifier may be added by removing one 6SJ7 and the wiring-in of a second 6C5 using supplied components, connecting "N" to "N" and "M" to "M" as shown in the circuit. This increases the gain by 17 db. which is very useful for operating microphones of lower output such as the

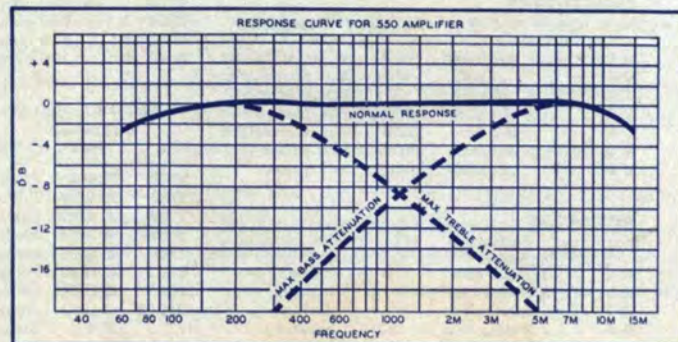
Velocity or Dynamic type. Most Crystal microphones should not require the additional 6C5 unless high microphone sensitivity is required. The driver tube and transformer have been selected to give the maximum usable output from a pair of 6L6G tubes.

The output transformer is tapped at 4 and 8 ohms for voice coil matching, it is also tapped at 250 and 500 ohms for connecting to a line. Two or more speakers capable of handling large outputs are recommended in utilizing the maximum amplifier output. For a call or P. A. system using many speakers, line matching is highly recommended.

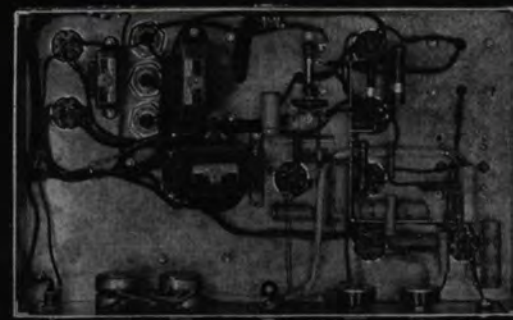
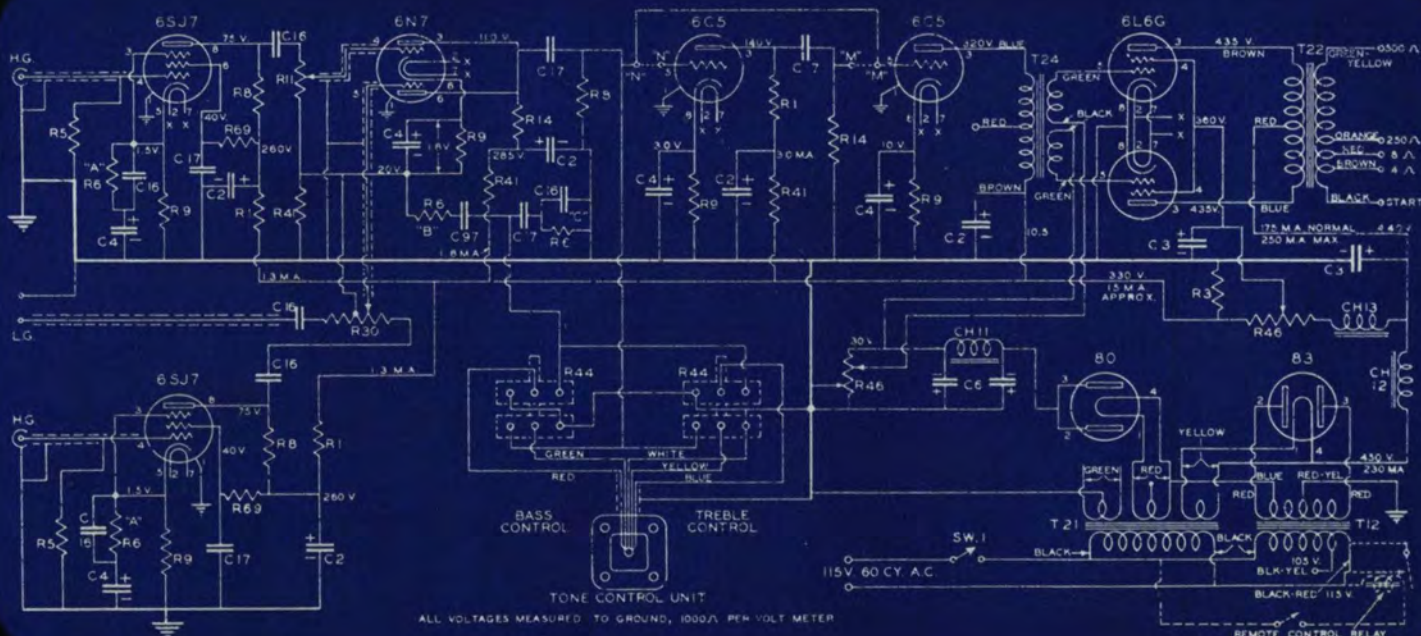
A dual tone control makes it possible to attenuate independently either or both high and low tones. The special Stancor tone control unit is of hum-bucking construction and well shielded to minimize hum pickup. The dual potentiometers must be wired as shown in the diagram. Equalizing circuits "A", "B", and "C" provide the amplifier with a uniformly flat frequency response.

All filament currents are supplied from one transformer thus allowing a heavy duty plate transformer to be used for high voltage. With an 83 rectifier tube, the well-regulated plate voltage will give maximum output for the amplifier, however, a 5Z3 may be substituted with but slightly lower output and an increased tube life. One type 80 is used in a half-wave adjustable well-filtered bias supply. Each grid bias voltage of the 6L6G's may be adjusted separately to balance plate currents for best operation.

Due to the high power output and the use of a separate plate transformer, the 550 is ideal for office or factory call systems using up to 25 loud speakers. An additional switch for high voltage will allow filaments to remain warm and the amplifier can be instantly turned on or off. A remote control relay with SPST contacts may also be used if the amplifier is located at a distance from the microphone.



*This amplifier available as a kit from your Stancor Jobber*



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C2	4	4 mfd.	450	tub. electrolytic
C3	2	8 mfd.	450	can electrolytic
C4	4	10 mfd.	25	tub. electrolytic
C6	1	8-8 mfd.	250	can electrolytic
C16	6	.01 mfd.	400	tubular paper
C17	4	.1 mfd.	400	tubular paper
C97	1	.5 mfd.	400	tubular paper

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R1	2	50,000 ohms	1	carbon
R3	1	25,000 ohms	10	wirewound
R5	2	5 megohm	1/2	carbon
R6	4	3,000 ohms	1/2	carbon
R8	3	250,000 ohms	1	carbon

### No. Quan. Resistance Watts Description

R9	4	1,000 ohms	1/2	carbon
R11	1	500,000 ohms		potentiometer
R14	2	100,000 ohms	1	carbon
R30	1	1 megohm		c.t. potentiometer
R41	3	10,000 ohms	1	1 carbon
R44	2	250,000 ohms		dual potentiometer
R46	2	3,000 ohms	10	wirewound—2 sliders
R69	2	1 megohm	1	carbon

### STANCOR

No.	Stancor	Description	Net Each
T12	P 4024	Plate transformer.....	\$5.40
T21	P 6338	Filament transformer.....	2.55
T22	A 3802	Output transformer.....	3.60
T24	A 4208	Driver transformer.....	2.07
CH11	C 1080	Filter choke.....	.54
CH12	C 1402	Swinging choke.....	2.64
CH13	C 1002	Filter choke.....	.93
TCU	C-2332-1	Tone control unit.....	3.00
B4		Standardized chassis.....	2.25

### MISCELLANEOUS

No.	Quan.	Description
SW1	1	S.P.S.T. toggle switch
	2	input cable connectors
	2	4 prong bakelite sockets
	1	5 prong bakelite socket
	6	octal bakelite sockets
	4	1 1/2" black bar knobs
	2	"Gain" dial plates
	2	"Tone" dial plates
	1	6 ft. cord and plug assembly
	1	roll hook-up wire
	1	kit hardware (see page 47)

Approximate net price (less accessories) **\$39.50**

### ACCESSORIES (Prices approximate only)

Unit	Description	Net
Tubes	2-6SJ7, 1-6N7, 1-6C5, 2-6L6G, 1-83, 1-80.....	set \$5.43
	Dust cover.....	ea. 2.50
	or F3 rack panel.....	ea. 1.32
	Remote control relay—110V-60 cycle—S.P.S.T.....	ea. \$1.31- 2.50

# Stancor 525 Amplifier

A GENERAL PURPOSE MEDIUM POWER AMPLIFIER

## SPECIFICATIONS

Power Output—  
Rated: +36.2 DB or 25 Watts—5% Distortion  
+35 DB or 19 Watts—No Distortion  
Peak: +38 DB or 38 Watts—Max. Distortion  
Frequency Response—  
-3 DB at 60; +1 DB 180 to 15,000 C.P.S.  
Treble Attenuation 22 DB at 10,000 C.P.S.  
Bass Attenuation 20 DB at 200 C.P.S.  
Input Circuits.....All High Impedance  
Two Mike Low Level Inputs—Gain 114.5 DB  
One Phono Med. Level Input—Gain 80.4 DB  
(Gain based on 100,000 ohm grid impedance)  
Output Impedance.....4, 8, 15, 250, 500 Ohms  
Hum Level.....55 DB Below Rated Output  
Power Input.....190 V. A. @ 115 Volts 60 Cycles  
Dimensions—Without Dust Cover.....17" x 10" x 8 3/4"  
Weight—Without Dust Cover.....27 Lbs.

The 525 amplifier combines both high-gain and quality performance at low cost. The 25 watts of undistorted power output assures clear reproduction of speech or music from either a microphone or phonograph pickup.

All tube types and components used have been selected and combined into a tested circuit which will perform excellently as indicated in the specifications.

The tube line-up is as follows: Two 6SJ7 high gain pre-amplifier channels, 6N7 electronic mixer, 6N7 Class A driver, two 6L6's push-pull Class AB1 output amplifier and 5Z3 rectifier.

Two high-gain inputs for crystal microphones are brought out to standard microphone connectors. Other types of microphones such as Dynamic or Velocity may be used providing they have an average output level and high impedance characteristics. Two volume controls provide separate gain adjustment and mixing for each channel. One of these controls is also used for fading a microphone against the phonograph pickup, which may be connected to the medium level input terminals located on the back of chassis.

The 6SJ7 pre-amplifier and 6N7 mixer are all resistance coupled to provide simple circuit design and good frequency response without excessive inductive pickup in the high-gain stages. Circuits are designed with correct bypass condensers and plate isolating circuits to minimize any possibility of interstage coupling. The 6N7 driver with paralleled grids and plates as well as a balanced driver transformer of correct ratio assures maximum gain with minimum distortion. The plate choke and coupling condenser provide a boost in bass response.

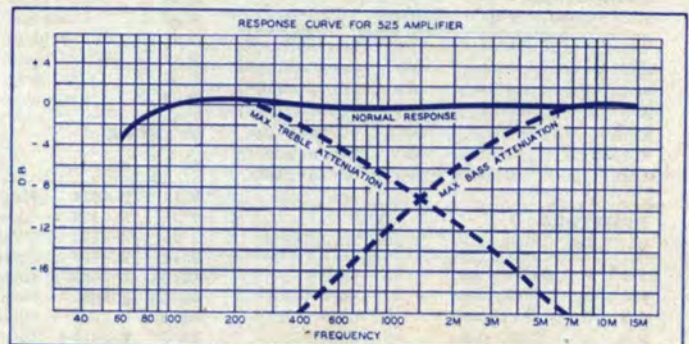
The output transformer was selected for its efficiency, impedance match and overall frequency response.

The regular output transformer as used in the amplifier is tapped at 4, 8, 15 ohms for voice coil matching or 250 and 500 ohms for line matching. This amplifier is ideal as a driver using 500 ohm line output to match a Class B modulator in which the driver transformer should be of the line-to-grid type. The Stancor 525 amplifier may also be used to modulate an amateur transmitter with 65 watts input, by substituting the correct modulation transformer in place of the regular output transformer. A useful feature of this amplifier is the dual tone control circuit. Independent control of high and low tones makes it possible to attenuate either or both. In P.A. systems this permits the adjustment of tone to fit the installation while for the amateur, the cutting of the "highs" and "lows" provides a penetrating radiophone signal. The special Stancor tone control is of hum-bucking construction, well shielded to minimize hum pickup. This unit and two dual potentiometers are clearly shown in the diagram and easily wired. Other equalizing circuits "A", "B" and "C" are introduced to provide a uniformly flat frequency response as shown in the data curve.

The power supply is designed to operate efficiently with a heavy-duty transformer supplying all filament voltages and plate voltage for a well regulated, filtered D.C. supply. The primary of this transformer is tapped for 105 and 115 volts in order to correct for line voltage variations.

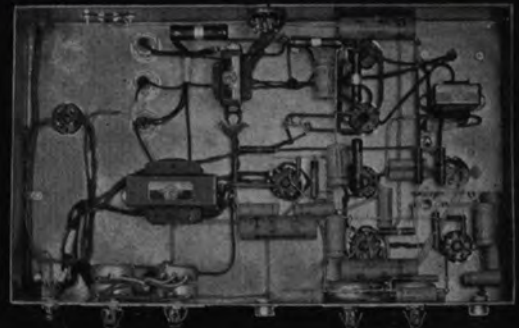
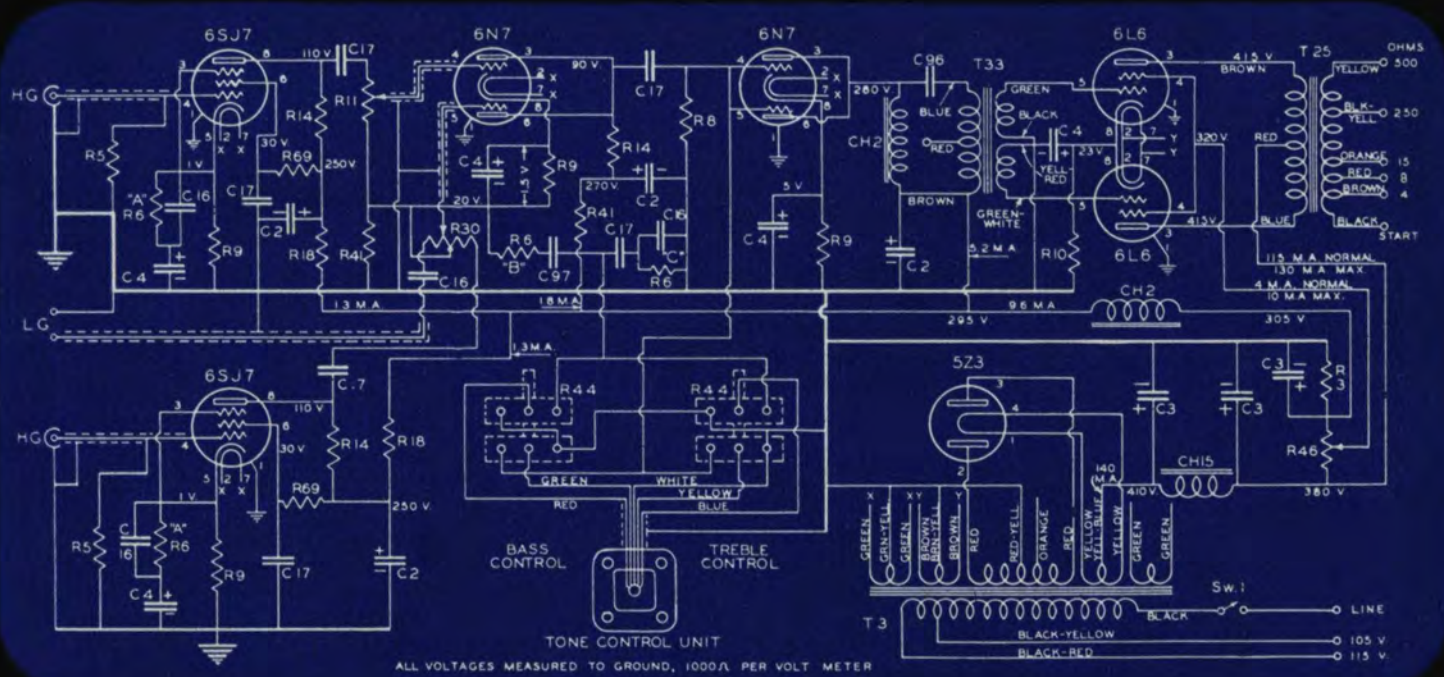
A peak-limiting circuit may be added for use in a modulator as a per-cent modulation control or in some P.A. systems as an automatic volume control of speech only; this alternative is fully explained in the instruction sheet accompanying the chassis or the complete kit.

This amplifier will find many applications in sound system work and its output is so realistic that audiences will be pleased with its sound-reinforcing quality.



*This amplifier available as a kit from your Stancor Jobber*





# Components

## CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 2	4	4 mfd.	450	tub. electrolytic
C 3	3	8 mfd.	450	can electrolytic
C 4	5	10 mfd.	25	tub. electrolytic
C 16	4	.01 mfd.	400	tubular paper
C 17	6	.1 mfd.	400	tubular paper
C 96	1	.05 mfd.	600	tubular paper
C 97	1	.5 mfd.	400	tubular paper

## RESISTORS

No.	Quan.	Resistance	Watts	Description
R 3	1	25,000 ohms	10	wirewound
R 5	2	5 megohm	1/2	carbon
R 6	4	3,000 ohms	1/2	carbon
R 8	1	250,000 ohms	1	carbon
R 9	4	1,000 ohms	1/2	carbon
R 10	1	200 ohms	10	wirewound

No.	Quan.	Resistance	Watts	Description
R 11	1	500,000 ohms		potentiometer
R 14	3	100,000 ohms	1	carbon
R 18	2	25,000 ohms	1	carbon
R 30	1	1 megohm		c.t. potentiometer
R 41	2	10,000 ohms	1	carbon
R 44	2	250,000 ohms		dual poten'ter
R 46	1	3,000 ohms	10	wirewound—2 sliders
R 69	2	1 megohm	1	carbon

## STANCOR

No.	Stancor	Description	Net Each
T 3	P 4004	Power transformer.....	\$5.10
T 25	A 3801	Output transformer.....	2.85
T 33	A 4777	Driver transformer.....	2.10
TCU	C 2332-1	Tone control unit.....	3.00
CH 2	C 1515	Filter choke (2 required) ..	.60
CH 15	C 1710	Filter choke.....	1.20
B 4		Standardized chassis.....	2.25

## MISCELLANEOUS

No.	Quan.	Description
SW 1	1	S.P.S.T. toggle switch
	1	4 prong bakelite socket
	1	5 prong bakelite socket
	6	octal bakelite sockets
	2	input cable connectors
	4	1 1/4" black bar knobs
	2	"Gain" dial plates
	2	"Tone" dial plates
	1	6 ft. cord and plug assembly
	1	roll hook-up wire
	1	kit hardware (see page 47)

Approximate net price (less accessories) **\$33.50**

## ACCESSORIES

(Prices approximate only)

Unit	Description	Net
Tubes	2-6SJ7, 2-6N7, 2-6L6, 1-5Z3.....set	\$5.10
	Dust cover.....ea.	2.50

# Stancor 515 Amplifier

A UNIVERSAL 15 WATT AMPLIFIER FOR MODULATOR, DRIVER OR P. A. WORK

## SPECIFICATIONS

### Power Output—

Rated: 34 DB. or 15 Watts—5% Distortion

32.2 DB. or 10 Watts—No Distortion

Peak: 36 DB. or 24 Watts—Max. Distortion

Frequency Response.....  $\pm 2$  DB. 60 to 12,000 C.P.S.

Dual Tone Control—Bass Attenuation 30 DB. at 200 C.P.S.

Treble Attenuation 24 DB. at 5000 C.P.S.

Input Circuits..... All High Impedance

Two Mike Low Level Inputs—Gain 110 DB.

One Phono Med. Level Input—Gain 75 DB.

(Gain Based on 100,000 Ohm Grid Impedance)

Output Impedances..... 4, 8, 15, 250, 500 Ohms

Hum Level..... 55 DB. Below Rated Output

Power Input..... 110 V. A. @ 115 Volts 60 Cycles

Dimensions—Without Dust Cover..... 17" x 10" x 8 $\frac{3}{4}$ "

Weight—Without Dust Cover..... 27 Lbs.

The performance of the 515 audio amplifier will meet requirements of many amateur radio stations and numerous public address systems. The 15 watt undistorted (5%) output at maximum gain and the uniform, flat frequency response will give ham installations clear, crisp speech and public address systems real life-like tone in reproducing music and speech. The Stancor 515 is excellent as a driver for modulator or P.A. booster.

The tube line-up is as follows: Two 6SJ7 high gain pre-amplifier channels, 6N7 electronic mixer, 6N7 Class A driver, two 2A3's push-pull Class AB output amplifier, 5Z3 plate voltage rectifier and 80 bias rectifier.

Both high gain inputs are brought out to the front of the panel and are suitable for crystal microphones. Other types of microphones, such as dynamic or velocity may be used provided their characteristics have average output level and high impedance. Two volume controls provide separate gain adjustment and mixing of each channel. One of the controls is also used for fading in or out a phonograph pickup which may be connected to the medium level input terminals located on the back of the chassis.

The 6SJ7 pre-amplifier and 6N7 mixer are all resistance coupled to provide simple circuit design and good frequency response without excessive inductive pickup. The 6N7 driver is transformer coupled with proper ratio for maximum gain with minimum distortion. The plate choke and coupling condenser provide a boost in bass response, and the driver transformer is provided

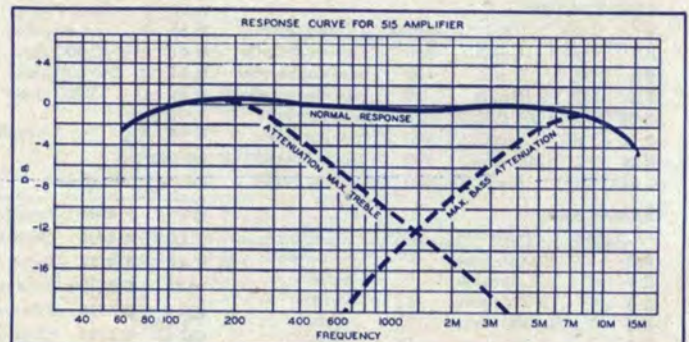
with a balanced and split secondary for equalizing plate currents.

The regular output transformer as used in the amplifier is tapped at 4, 8, and 15 ohms for voice coil matching or 250 and 500 ohms for line matching. However, this may be replaced with a suitable driver transformer to couple 2A3's directly to grids of a Class B modulator stage. If required, a small modulation transformer may be substituted for the regular output transformer, allowing the Stancor 515 to be used as a 15 watt modulator.

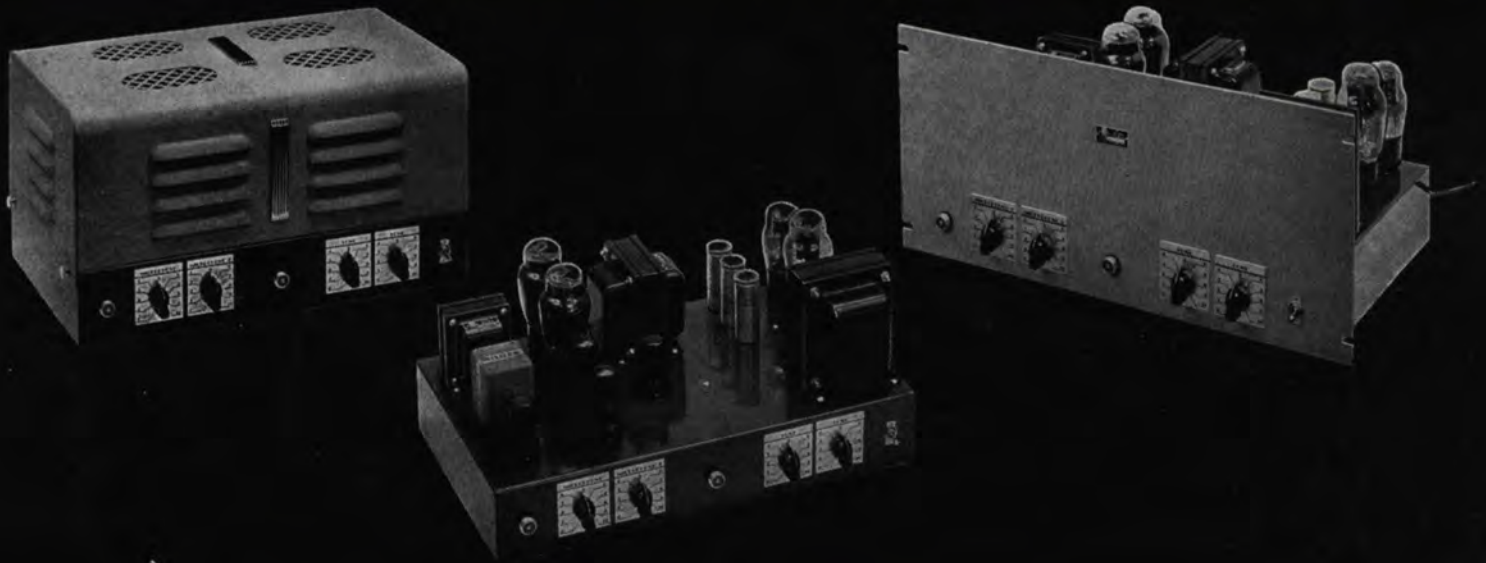
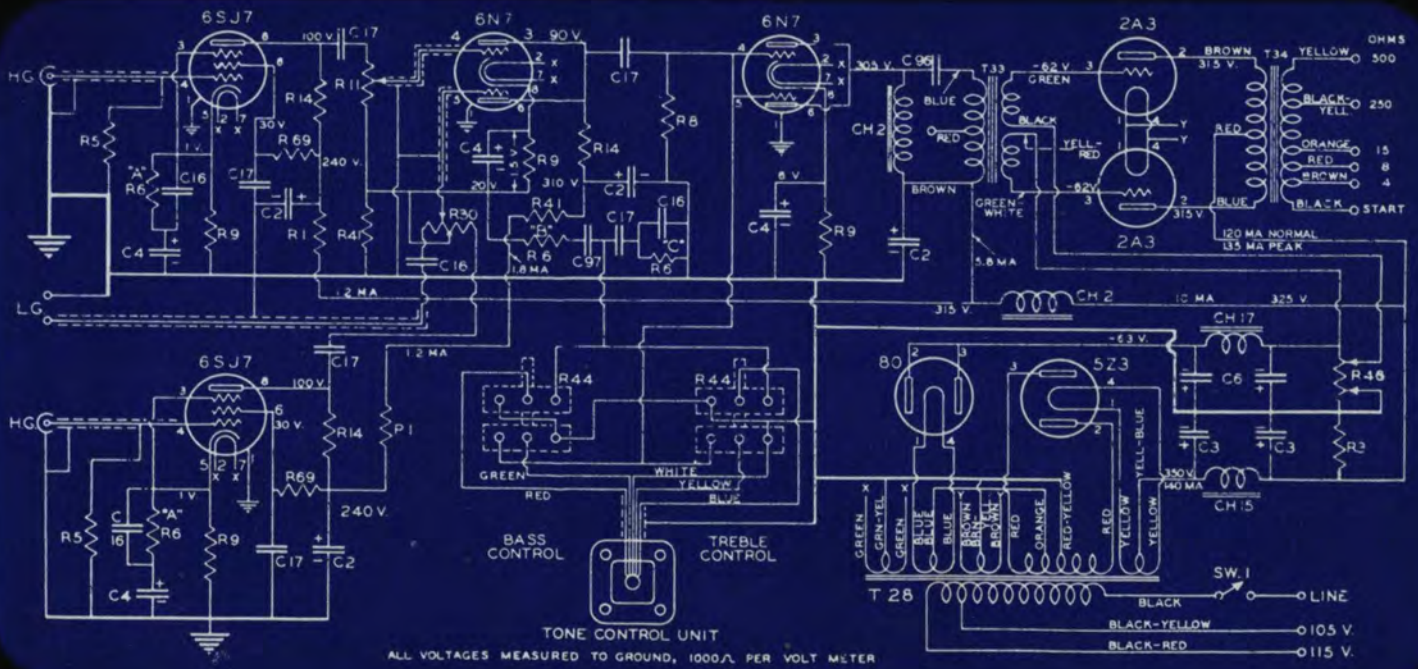
A very useful feature of this amplifier is the dual tone control circuit. Independent control of high and low tones makes it possible to attenuate either or both. In P.A. systems this permits the adjustment of tone to fit different acoustic situations, while for the radio amateur, the cutting of the "high" and "low" gives a peak response at approximately 1500 cycles, thereby providing a penetrating radiophone signal. The special Stancor tone control is of hum bucking construction. Connections for this unit and two dual potentiometers are clearly shown in the diagram.

A rugged power transformer provides all filament and plate power as well as bias voltage for the 2A3 P.P. output stage. Separate rectifiers and a carefully selected filter supply provide well-regulated and hum-free D.C. plate and bias supply.

A peak limiting circuit can be incorporated by removing one high gain stage and using this space for this simple circuit which is extremely useful in a modulator as a per cent modulation control or in some P.A. systems as automatic volume control of speech only. The use of the peak-limiter circuit on the reproduction of music usually results in distortion and is therefore not recommended for this application. This alternative is fully explained in the 515 instruction sheet.



*This amplifier available as a kit from your Stancor Jobber*



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C 2	4	4 mfd.	450	tub. electrolytic
C 3	2	8 mfd.	450	can electrolytic
C 4	4	10 mfd.	25	tub. electrolytic
C 6	1	8-8 mfd.	250	can electrolytic
C 16	4	.01 mfd.	400	tubular paper
C 17	6	.1 mfd.	400	tubular paper
C 96	1	.05 mfd.	600	tubular paper
C 97	1	.5 mfd.	400	tubular paper

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R 1	2	50,000 ohms	1	carbon
R 3	1	25,000 ohms	10	wirewound
R 5	2	5 megohms	½	carbon
R 6	4	3,000 ohms	½	carbon
R 8	1	250,000 ohms	1	carbon
R 9	4	1,000 ohms	½	carbon

No.	Quan.	Resistance	Watts	Description
R 11	1	500,000 ohms		potentiometer
R 14	3	100,000 ohms	1	carbon
R 30	1	1 megohm		center-tapped pot.
R 41	2	10,000 ohms	1	carbon
R 44	2	250,000 ohms		dual potentiometer
R 46	1	3,000 ohms	10	wirewound—2 sliders
R 69	2	1 megohm	1	carbon

### STANCOR

No.	Stancor	Description	Net Each
T 28	P 3005	Power transformer	\$3.39
T 33	A 4777	Driver transformer	2.10
T 34	A 3800	Output transformer	2.61
TCU	C 2332-1	Tone control unit	3.00
CH 2	C 1515	Filter choke—2 required	.60
CH 15	C 1710	Filter choke	1.20
CH 17	C 1001	Filter choke	1.11
B 4		Standardized chassis	2.25

### MISCELLANEOUS

No.	Quan.	Description
SW 1	1	S.P.S.T. toggle switch
	4	4 prong bakelite sockets
	1	5 prong bakelite socket
	4	octal bakelite sockets
	2	input cable connectors
	4	1¼" black bar knobs
	2	"Gain" dial plates
	2	"Tone" dial plates
	1	6 ft. cord and plug assembly
	1	roll hook-up wire
	1	kit hardware (see page 47)

Approximate net price (less accessories) **\$33.50**

### ACCESSORIES

Unit	Description	Net
Tubes	2-6SJ7, 2-6N7, 2-2A3, 1-5Z3, 1-80	set \$6.06
	Dust cover	ea. 2.50
	or 19" x 18¼" rack panel (undrilled)	ea. .84

# Stancor 510 Amplifier

TEN WATTS OF CLASS A AUDIO WITH 6L6'S

## SPECIFICATIONS

### Power Output—

Rated: 32.2 DB or 10 Watts 5% (Distortion)  
30.3 DB or 6.4 Watts (No Distortion)

Peak: 34.7 DB or 18 Watts (Max. Distortion)

Frequency Response (6C5) 2.5 DB 70 to 15,000 C.P.S.  
(6N7) 5 DB 65 to 15,000 C.P.S.  
2.5 DB 75 to 4,000 C.P.S.

Tone Control. Treble Attenuation 15 DB at 7,000 C.P.S.

Input Circuits.....All High Impedance

Mike Low Level: Gain 107.2 DB (6C5) or 110 DB (6N7)

Phono. Med. Level: Gain 62 DB (6C5) or 66.5 DB (6N7)  
(Gain based on 100,000 ohm grid impedance)

Output Impedances.....4, 8, 15 Ohms

Hum Level.....55 DB Below Rated Output

Power Input.....78 V.A. @ 115 Volts, 60 Cycles

Dimensions.....10<sup>3</sup>/<sub>4</sub>" x 6<sup>1</sup>/<sub>4</sub>" x 6<sup>1</sup>/<sub>2</sub>"

Weight—With Cabinet.....13<sup>3</sup>/<sub>4</sub> Lbs.

The Stancor 510 amplifier is an economical unit, physically small with a good 10 watts of undistorted output and excellent frequency response.

As all components operate well within their rating, dependable audio output is assured at all times. The 510 amplifier is ideal as a high quality phonograph reproducer or small P.A. system.

The tube line-up is as follows: One 6SJ7 input voltage amplifier, one 6C5 or 6N7 intermediate amplifier, two 6L6 beam pentodes in push-pull Class A and a type 80 plate voltage rectifier. The option of using either 6C5 or 6N7 allows a choice of performance desired. The 6C5 gives the better frequency response while the 6N7 gives a greater gain by approximately 3 db.

Two high impedance inputs are brought out on the front of the panel to cable connectors. A crystal microphone of high output type should be connected to the 6SJ7 input. Other microphones such as Dynamic or Velocity may be used provided the output is as high as crystal. The high impedance phono-input feeds into the intermediate amplifier. Through this input the frequency response is even better than that shown in the curve. The volume control is unique in that it may be used for fading from phono to microphone input.

Circuit design is such as to provide the most gain for a good frequency response at rated output. The 6SJ7 permits the use of a short, well shielded grid input. The intermediate stage makes use of the plate condenser

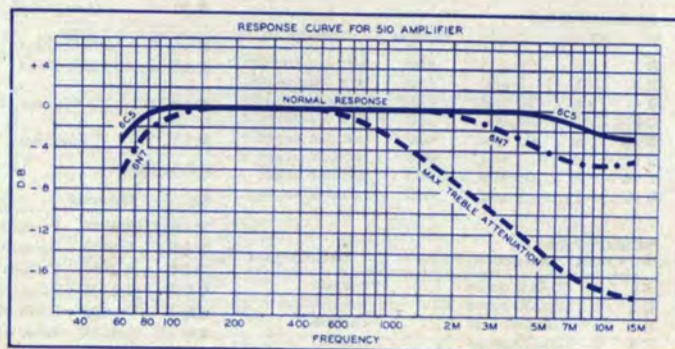
and audio transformer in a resonant circuit to boost the bass response. Besides offering higher gain the transformer provides proper coupling to the push-pull output stage. The 6L6's are operated with cathode bias in Class A to give quality performance. The low-pass tone control makes it possible to reduce high frequencies, thus assuring a desirable response.

The output transformer is tapped at 4, 8 and 15 ohms and terminals are provided in the rear of the chassis so that any two impedances may be easily selected. Speakers may be connected either in series or parallel. For example; two 4 ohm speakers may be series connected and attached to 8 ohm terminals or two 8 ohm speakers can be parallel connected and attached to 4 ohm terminals. For a high-impedance output, connections may be made as shown by dotted lines, one side to ground being approximately 1250 ohms and plate to plate 5000 ohms.

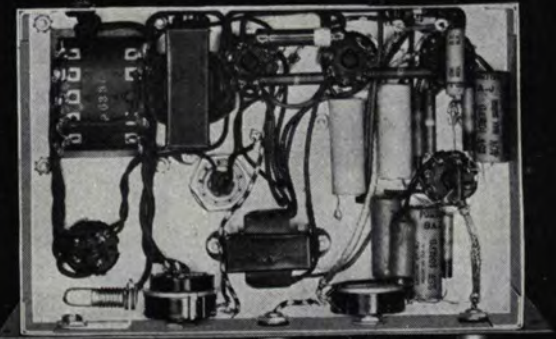
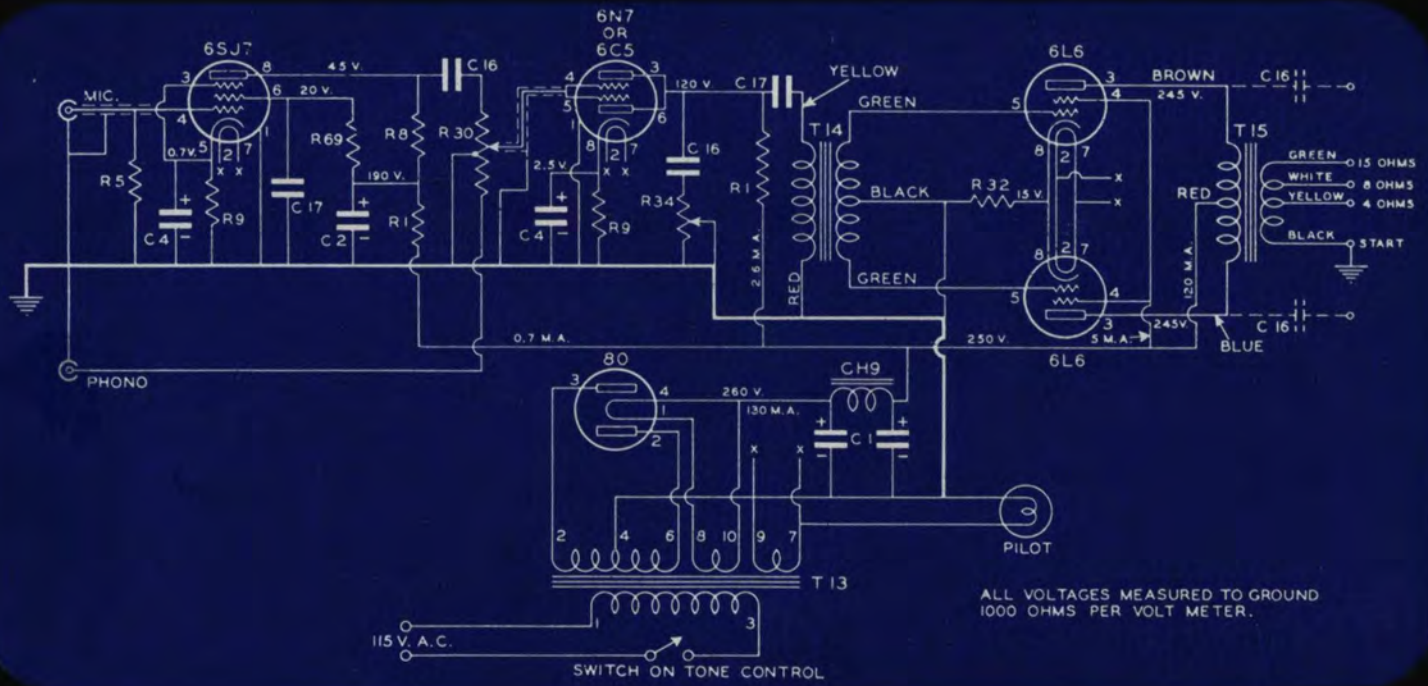
The use of ground bus-bar wiring assures a low hum level, by eliminating the possibility of high-gain circuits amplifying small A.C. circulating currents on the chassis. Care is also taken in the manner of mounting components so that hum-free performance is obtained.

The kit is supplied with a grey wrinkle finished cabinet of modernistic lines. Because the amplifier is light in weight and compact in size, it is convenient to move about or may be easily installed in a small space. A jeweled pilot lamp indicates when unit is turned on. An attractive, etched escutcheon on the panel clearly marks controls and inputs so that anyone can quickly learn to operate the unit as a small sound system or phonograph record reproducer.

The Stancor 510 will prove itself to be versatile, reliable and extremely useful. It may be used in a variety of applications.



*This amplifier available as a kit from your Stancor Jobber*



## Components

### CONDENSERS

No.	Quan.	Cap.	Voltage	Description
C1	1	8-8 mfd.	450	can electrolytic
C2	1	4 mfd.	450	tub. electrolytic
C4	2	10 mfd.	25	tub. electrolytic
C16	2	.01 mfd.	400	tubular paper
C17	2	.1 mfd.	400	tubular paper

### RESISTORS

No.	Quan.	Resistance	Watts	Description
R1	2	50,000 ohms	1	carbon
R5	1	5 megohms	½	carbon
R8	1	250,000 ohms	1	carbon
R9	2	1,000 ohms	½	carbon
R30	1	1 megohm		c.t. potentiometer

No.	Quan.	Resistance	Watts	Description
R32	1	125 ohms	10	wirewound
R34S	1	100,000 ohms		pot. with switch
R69	1	1 megohm	1	carbon

### STANCOR

No.	Stancor	Description	Net Each
T13	P 6336	Power transformer.....	\$2.55
T14	A 4741	Interstage transformer.....	.90
T15	A 3872	Output transformer.....	1.68
CH9	C 2304	Filter choke.....	.78
B1		Standardized chassis.....	1.20
F4		Standardized panel.....	.75
E6		Standardized escutcheon....	.96
H1		Standardized cabinet.....	1.80

### MISCELLANEOUS

Quan.	Description
2	input cable connectors
4	octal bakelite sockets
1	4 prong bakelite socket
1	triple binding post
1	pilot socket and jewel
2	1¼" black bar knobs
1	6 ft. cord and plug assembly
1	pilot bulb (brown bead No. 40)
1	roll hook-up wire
1	kit hardware (see page 47)

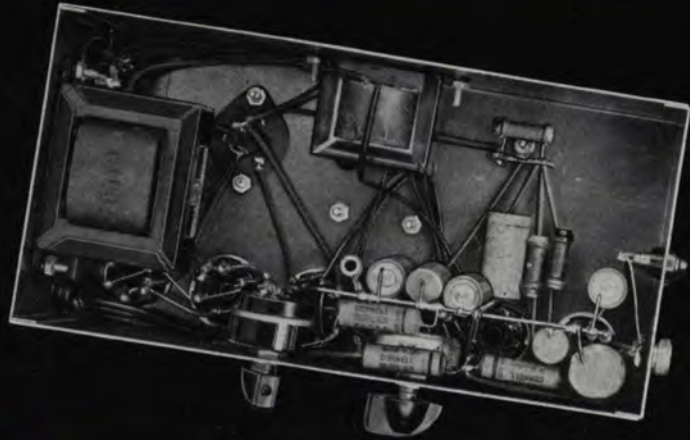
Approximate net price (less accessories) **\$18.00**

### ACCESSORIES (Prices approximate only)

Unit	Description	Net
Tubes	1-6SJ7, 1-6C5, 2-6L6's, 1-80.....	set \$3.48

# Stancor Hi-Fi 11 Amplifier

A PRACTICAL 4 WATT AC-DC AMPLIFIER



## SPECIFICATIONS

Power Input.....4 Watts or + 28.23DB  
 Output Impedances.....4-8-15-500 Ohms  
 Frequency Response..... ± 3 DB 60 to 10,000 C.P.S.  
 Power Consumption .....45 V.A. @ 115 Volts.  
 Inputs.....Two: One High Impedance Low Level Input for Crystal Microphones and One High Impedance High Level Input for Phonograph Pick-ups.  
 Tone Control.....High Cut-off Type, Single Control  
 Dimensions.....10" x 5" x 3"  
 Weight.....12 Lbs.

The Hi-Fi-11 amplifier answers the need for an extremely compact audio system capable of operation on either AC or DC.

The tube line up consists of a 6SJ7 input voltage amplifier, a 6C5 intermediate amplifier and a pair of 25L6 beam tetrodes in a push-pull class A output stage. Current requirements of these tubes fall within the power capability of a single 25Z5 half wave rectifier, however, two of the tubes are used thus eliminating the necessity for a line ballast and if needed, they will provide excitation for dynamic speaker fields requiring a maximum of 130 MA. at 100 V. D. C.

A tapped volume control is connected between the 6SJ7 and the grid of the 6C5, providing automatic tone compensations at low audio levels. The low-pass type adjustable tone control retains circuit simplicity. A condenser C16 in conjunction with the 100,000 ohm potentiometer gives sufficient tonal range to satisfy the average listener. The line switch for turning the amplifier on and off is located on the tone control. The controls are properly labeled on a special escutcheon for easy identification. The high gain input may be used for crystal, velocity or other low level output microphones. The low gain input may be used for a phonograph pick-up or device of similar output level.

The output transformer is tapped for impedances of 4, 8, 15 or 500 ohms which are terminated on a socket on the rear apron of the chassis to permit ease in the selection of a desired output impedance.

The Hi-Fi-11 has many applications, where a small sized, powerful AC-DC amplifier is required.

## Components

### CONDENSERS

No.	Quantity	Capacity	Voltage	Description
C 4	3	10 mfd.	25	tub. electrolytic
C 16	4	.01 mfd.	400	tubular paper
C 17	3	.1 mfd.	400	tubular paper
C 90	1	.25 mfd.	400	tubular paper
C 91	1	15-15 mfd.	300	dual electrolytic

### RESISTORS

No.	Quantity	Resistance	Watts	Description
R 1	1	50,000 ohms	1	carbon
R 5	1	5 megohms	1/2	carbon
R 6	2	3,000 ohms	1/2	carbon
R 7	1	2 megohms	1	carbon
R 8	1	250,000 ohms	1	carbon
R 18	1	25,000 ohms	1	carbon
R 34S	1	100,000 ohms	1	pot. with switch
R 43	1	100 ohms	10	wirewound
R 59	1	500,000 ohms		tapped pot.

### STANCOR

No.	Stancor	Description	Net Each
T 39	A 63C	Interstage transformer.....	\$0.87
T 40	A 5528	Output transformer.....	1.65
CH 13	C 1002	Filter choke.....	.93
	B 7	Standardized chassis.....	.90
	E 5	Escutcheon.....	.60

### MISCELLANEOUS

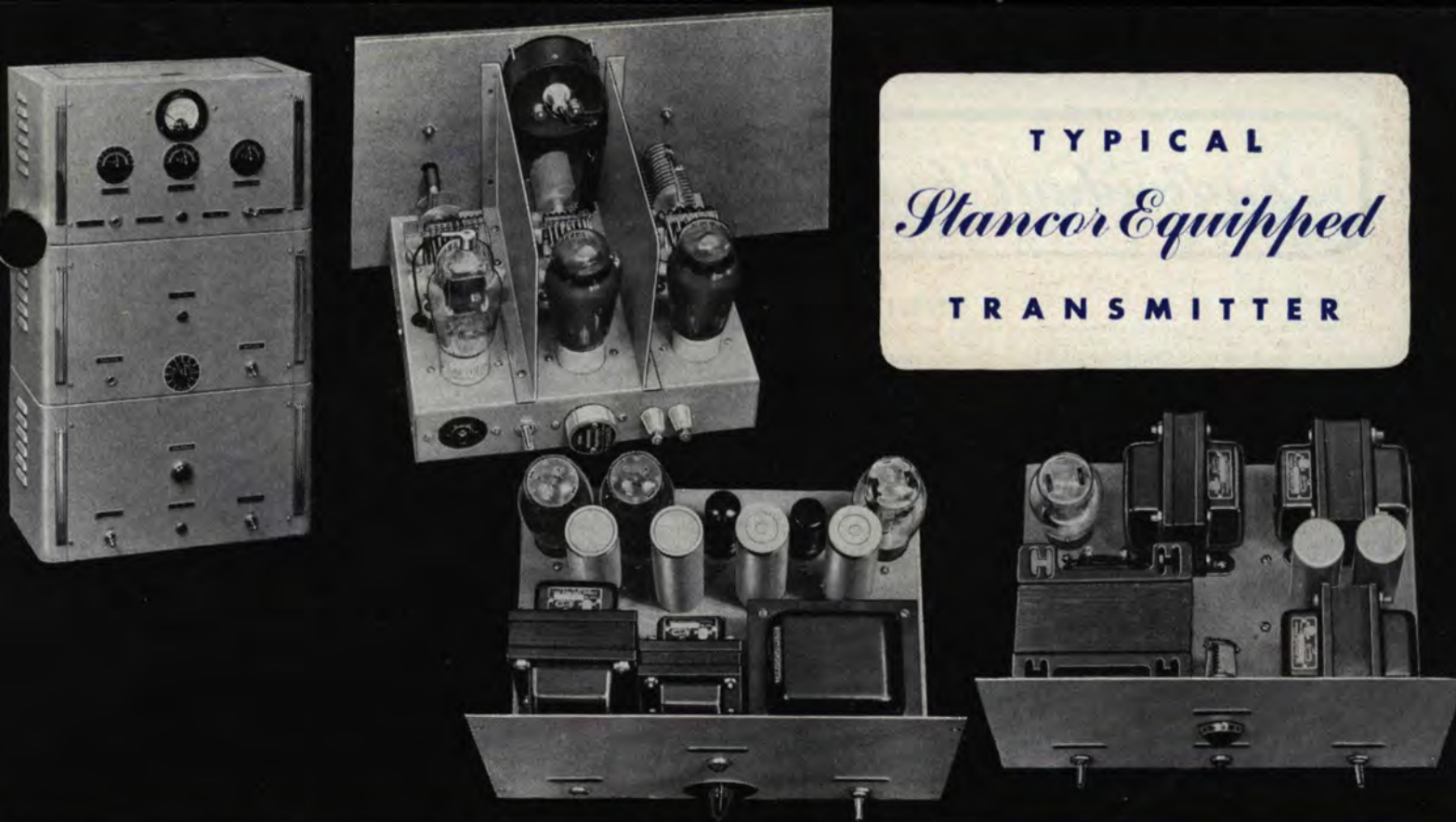
No.	Quantity	Description
J 5	1	phono connector
	1	input cable connector
	4	octal bakelite sockets
	2	six prong bakelite sockets
	1	five prong bakelite socket
	2	1 1/2" black bar knobs
	1	6 ft. cord and plug assembly
	1 roll	hook-up wire
	1 kit	hardware

Approximate net price (less accessories).....\$10.77

### ACCESSORIES

Unit	Description	Net
Tubes	1-6SJ7, 1-6C5, 2-25L6, 2-25Z5.....set	\$3.28

*This amplifier available as a kit from your Stancor Jobber*



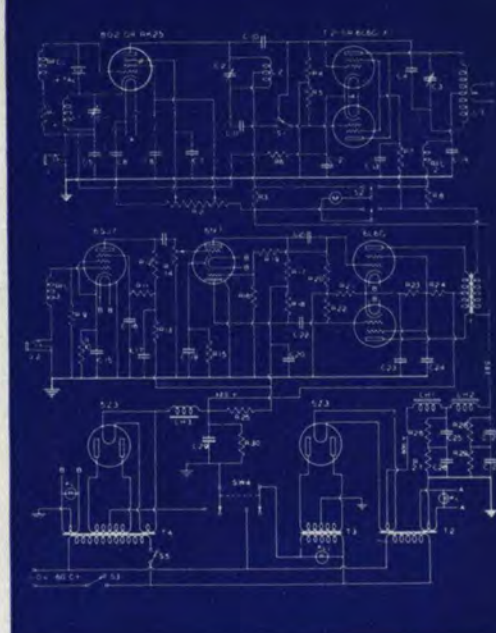
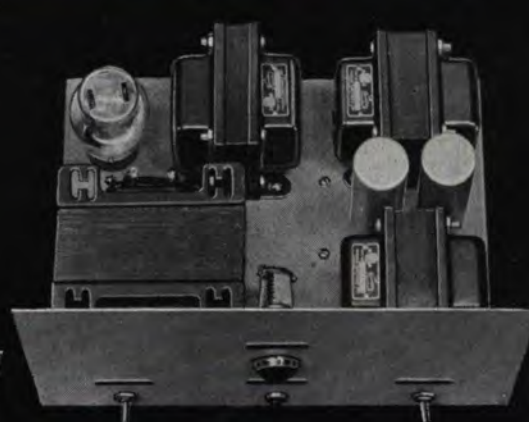
TYPICAL  
*Stancor Equipped*  
TRANSMITTER

## BUD XT-25C TRANSMITTER

In RADIO, January, 1940, Mr. Lewis Van Arsdale, W8QZR, described "A 25-Watt Transmitter 'in full dress'". This transmitter was equipped with Stancor transformers and chokes throughout. Presented here is a brief survey of this transmitter with photographs, circuit diagrams of the complete transmitter, modulator and power supply, as well as the parts list of all three units. This transmitter uses an 802 or RK25 tri-tet oscillator driving a pair of T21's or 6L6GX's which are connected in either push-pull or parallel. A 6SJ7 speech input tube drives a 6N7 which is resistance coupled to a pair of 6L6G's in Class A1. Separate power supplies, with 5Z3 rectifiers, are used on the modulator and r.f. units.

The complete transmitter is a versatile performer, permitting excellent operation on all bands from 10 to 160 meters.

For further information on the transmitter, we suggest you see your radio parts jobber, or write to Bud Radio Inc., Cleveland, Ohio, for the full data on the Bud XT-25C exciter around which this compact and efficient 25 watt radiophone and CW transmitter was built.



## PARTS LIST

Diagram No.	Description
C1	250 mmfd. midget
C2	100 mmfd. midget
C3	75 mmfd. midget
C4	neutralizing condenser
C5, C6, C12	.01 mmfd. 600 volt tubular
C7, C8, C13	.001 mfd. mica
C9	.01 mfd. 1000 volt tubular
C10, C11	.00005 mfd. 600 volt mica
C14	.00025 mfd. mica
C15, C19, C23	25 mfd. 25 volt electrolytic
C16	0.5 mfd. 400 volt tubular
C17	16 mfd. 450 volt tubular
C18, C21, C22	0.1 mfd. 400 volt tubular
C20, C24, C25	8 mfd. 450 volt electrolytic
C26, C27, C28	16 mfd. 450 volt electrolytic
C29	50,000 ohms 2 watts
R1	25,000 ohms 50 watts
R2	100 ohms 2 watts
R3	100,000 ohms 2 watts
R4, R5	150 ohms 10 watts
R6	10,000 ohms 10 watts
R7	100 ohms 2 watts
R8	5 megohms 1/2 watt
R9	

Diagram No.	Description
R10	1500 ohms 1 watt
R11	1 megohm 1 watt
R13	25,000 ohms 1 watt
R14	500,000 ohms potentiometer
R15	1500 ohms 1 watt
R16	25,000 ohms 1 watt
R17, R18	100,000 ohms 1 watt
R19	500,000 ohms 1 watt
R20	200,000 ohms 1 watt
R21	250 ohms 20 watts
R22	200,000 ohms, 1 watt
R23	15,000 ohms 10 watts
R24	7,000 ohms 10 watts
R25	10,000 ohms 10 watts
R12, R26, R27, R28, R29	250,000 ohms 1 watt
R30	25,000 ohms 20 watts
S1	S.P.S.T. toggle switch
S2	D.P.D.T. toggle switch
S3	S.P.S.T. toggle switch
S4	D.P.S.T. toggle switch
S5	S.P.S.T. toggle switch
RFC1	2.5. MH. 125 MA. R.F. choke

Diagram No.	Description	Net Each
RFC2	2.5 MH. 250 MA. R.F. choke	2.88
RFC3	2.5. MH. R.F. choke	2.88
L1, L2, L3	Manufactured coils	
M	0.250 MA.	
<b>STANCOR</b>		
No.	No.	Description
T1	A3892	Modulation transformer.....
T2	P5009	Filament transformer.....
T3	P3699	Power transformer.....
T4	P6165	Power transformer.....
CH1	C1402	Swinging choke.....
CH2	C1412	Smoothing choke.....
CH3	C1718	Swinging choke.....

The component numbers in this parts list do not coincide with the regular Stancor system of part numbers, but are shown exactly as listed in the RADIO article, January 1940. However, the Stancor numbers are given for the transformers and chokes in order that you may obtain them readily from your Stancor jobber.

*This Transmitter is NOT available as a Stancor Kit*

# Individual Components - Power Supplies

## INDIVIDUAL COMPONENTS

†Net kit prices shown include all transformers, chokes, condensers, resistors, punched chassis, hardware, wire and instructions. Less accessories and optional equipment.

Kit No.†	D.C. PLATE		HIGH VOLTAGE COMPONENTS				Rect. Fil. Trans.	Bias Volts Needed	BIAS COMPONENTS			Chassis No.	Misc. Parts Group	Hdwe. Group	Net Cost† Complete Kit Approx.	Rectifier Tubes Required
	Volts	MA.	Power Trans.	Chokes	Bleeder Resistor	Cond.			Trans.	Choke	Cond.					
PS-1B	400	250	P6337	C2307 C2308	R19	2-C81	P6140	90-200*	P6317	C1645	C98	B8	A	1	\$32.55	2-866 JR
PS-2D	750,600 400	300	P6323	C2307 C2308	2-R19	2-C81	P6324				C98	B8	A	1	30.84	2-866 JR 1-5Z3
PS-2B	750,600 400	300	P6323	C2307 C2308	R68	2-C81	P6140	90-200*	P6317	C1645	C98	B8	A	1	35.40	2-866 JR 1-5Z3
PS-3B	750 600	250	P5050	C2307 C2308	R68	2-C81	P6140	90-200*	P6317	C1645	C98	B8	A	1	34.80	2-866 JR 1-5Z3
PS-4D	1,000 400	130 150	P6322	C2307 C2308	2-R19	2-C81	P6324				C98	B8	A	1	29.94	2-866 JR 1-5Z3
PS-4B	1,000 400	280	P6322	C2307 C2308	R68	2-C81	P6140	90-200*	P6317	C1645	C98	B8	A	1	34.50	2-866 JR 1-5Z3
PS-5	1,250 1,000	300	P6152	C1405 C1415	R64	2-C99	P3060					B9	B	3	42.75	2-866
PS-5B	1,250 1,000	300	P6152	C1403 C1413	R64	2-C99	P3060	90-200*	P6317	C1645	C98	B9	B	2	45.15	2-866 1-5Z3
PS-6	1,250 1,000	500	P6153	C1405 C1415	R62	2-C99	P3060					B9	B	3	46.95	2-866
PS-7	1,500 1,250	300	P5053	C1405 C1415	R65	2-C100	P3060					B9	B	3	44.55	2-866
PS-7B	1,500 1,250	300	P5053	C1403 C1413	R65	2-C100	P3060	90-200*	P6317	C1645	C98	B9	B	2	46.95	2-866 1-5Z3
PS-8	1,500 1,250	500	P6157	C1405 C1415	R63	2-C100	P3060					B9	B	3	51.15	2-866
PS-9	1,750 1,500	300	P6156	C1405 C1415	R66	2-C100	P3060					B9	B	3	45.45	2-866
PS-9B	1,750 1,500	300	P6156	C1403 C1413	R66	2-C100	P3060	90-200*	P6317	C1645	C98	B9	B	2	47.85	2-866 1-80
PS-10	2,000	250	P6151	C1405 C1415	R67	2-C101	P3060					B9	B	3	52.95	2-866
PS-10B	2,000	250	P6151	C1403 C1413	R67	2-C101	P3060	90-200*	P6317	C1645	C98	B9	B	3	55.20	2-866 1-5Z3
PS-11	2,000 1,750	300	P6154	C1405 C1415	R67	2-C101	P3060					B9	B	3	54.15	2-866
PS-11B	2,000 1,750	300	P6154	C1403 C1413	R67	2-C101	P3060	90-200*	P6137	C1645	C98	B9	B	2	56.49	2-866 1-5Z3
PS-12	2,500 2,000	300	P6155	C1405 C1415	R67	2-C101	P3060					B9	B	3	58.95	2-866
PS-13	1,750 1,500	500	P6159	C1405 C1415	R64	2-C100	P3060					B9	C	3	55.59	2-866
PS-14	2,000 1,750	500	P6162	C1405 C1415	R64	2-C101	P3060					B9	C	3	66.39	2-866
PS-15	2,500 2,000	500	P6163	C1405 C1415	R65	2-C101	P3060					B9	C	3	70.89	2-866
PS-16	3,000	375	P6150	C1405 C1415	R66	2-C102	P3060					B9	C	3	67.29	2-866

NOTE: Quantity is always one when not shown otherwise above. Net Price of Separate Punched Chassis: B8 \$3.30; B9 \$3.60. Each contains instructions.  
\*When 250 to 450 volts bias is desired, specify bias transformer P6318 in place of P6317 and add \$.60 to total net cost.

## VALUES OF CONDENSERS AND RESISTORS

C 81	2 mfd. 1,000 volt oil filled	C 102	2 mfd. 3,000 volt oil filled	R 64	40,000 ohm 200 watt fixed
C 98	4-8 mfd. 450 volt electrolytic	R 19	25,000 ohm 50 watt adjustable	R 65	50,000 ohm 200 watt fixed
C 99	2 mfd. 1,500 volt oil filled	R 62	25,000 ohm 200 watt fixed	R 66	60,000 ohm 200 watt fixed
C 100	2 mfd. 2,000 volt oil filled	R 63	30,000 ohm 200 watt fixed	R 67	75,000 ohm 200 watt fixed
C 101	2 mfd. 2,500 volt oil filled			R 68	25,000 ohm 100 watt adjustable

## MISCELLANEOUS PARTS AND ACCESSORIES

<b>GROUP A</b>	3 Sockets—Ceramic—4 prong	<b>GROUP B</b>	3 Sockets—(Millen 33004) No Flange	<b>GROUP C</b>	2 Sockets—(Millen 33004) No Flange
	1 Socket—Ceramic—5 prong		1 H. V. Terminal—(Millen 37501)		1 H. V. Terminal—(Millen 37501)
	1 Control Plug—Jones (P-4-AB 3/4")		1 Control Plug—Jones (P-4-AB 3/4")		1 Control Plug—Jones (P-4-AB 3/4")
	1 Control Jack—Jones (S-4-FHE)		1 Control Jack—Jones (S-4-FHE)		1 Control Jack—Jones (S-4-FHE)
	1 No. 61-61 Shell—Amphenol		1 61-61 Shell—Amphenol		1 61-61 Shell—Amphenol
	1 No. 61M Standard Plug—Amphenol		1 61M Standard Plug—Amphenol		1 61M Standard Plug—Amphenol
	1 S.P.S.T. Switch (C. H. No. 8621)		1 S.P.S.T. Switch (C. H. No. 8641)		1 S.P.S.T. Switch (C. H. No. 8641)
	1 Fuse Holder (Littlefuse No. 1075)		1 Fuse Holder (Littlefuse No. 1075)		1 Fuse Holder (Littlefuse No. 1075)
	1 Fuse Type 3AG		1 Fuse Type 3AG		1 Fuse Type 3AG
	<b>ACCESSORIES (Not furnished)</b>		<b>ACCESSORIES (Not furnished)</b>		<b>ACCESSORIES (Not furnished)</b>
	2 866 Jr. Tubes @ \$1.00.....\$2.00		2 866 Tubes @ \$1.50 ea.....\$3.00		2 866 Tubes @ \$1.50 ea.....\$3.00
	1 5Z3 (for bias or dual supplies)......48		1 5Z3 Tube (for bias or dual supplies)......48		2 3/4" Jewel Light Assemblies, 1 Red, 1 Green .72
	<b>OPTIONAL EQUIPMENT (Recommended but not furnished)</b>		<b>OPTIONAL EQUIPMENT (Recommended but not furnished)</b>		<b>OPTIONAL EQUIPMENT (Recommended but not furnished)</b>
	2 3/4" Jewel Assemblies—1 Red, 1 Green.....\$0.72		2 3/4" Jewel Light Assemblies, 1 Red, 1 Green\$0.72		1 Pair 13" Brackets.....\$0.99
	1 Pair 10" Brackets......75		1 Pair 13" Brackets......99		1 Panel (15 3/4" x 19").....1.20
	1 Panel (8 3/4" x 19")......84		1 Panel (12 3/4" x 19").....1.20		1 X-100 Overload Relay (Guardian)..... 6.60
	1 X-100 Overload Relay (Guardian)..... 6.60		1 X-100 Overload Relay (Guardian)..... 6.60		

## MISCELLANEOUS HARDWARE REQUIRED AND

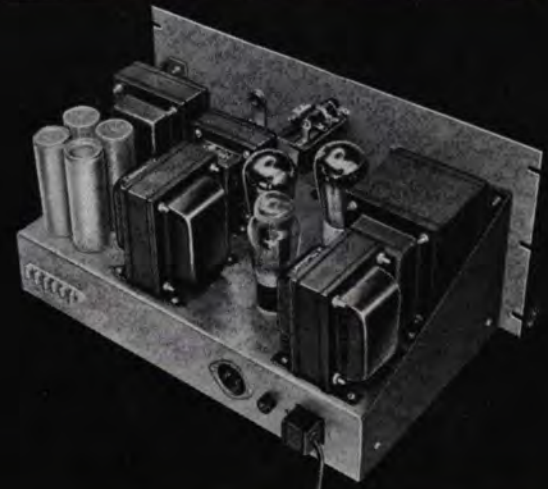
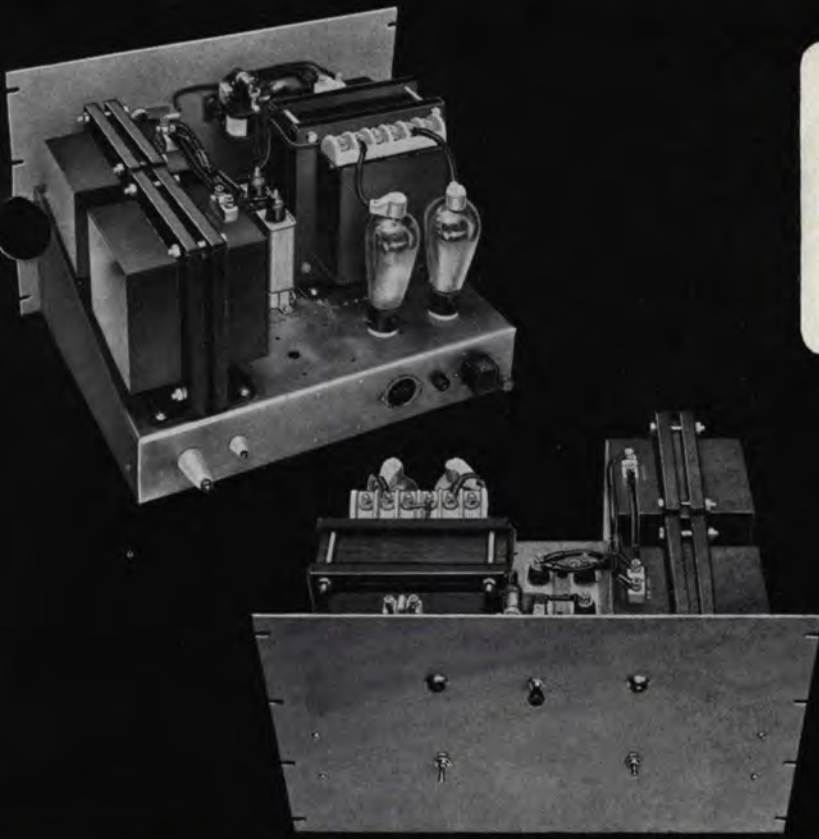
<b>GROUP 1</b>	20 3/32x1/2" R.H. Mach. screws, nuts & l. washers	<b>GROUP 2</b>	4 1/4x20x3/4" R.H. mach. screws and nuts
	12 3/32x3/8" R.H. Mach. screws, nuts & l. washers		4 ea. 1/4" plain plated and lock washers
	3 Solder lugs		24 3/32x1/2" R.H. mach. screws, nuts & l. washers
	1 Heavy ground binding post		9 3/32x1/2" R.H. mach. screws, nuts & l. washers
	3 Rubber grommets for 1/2" hole		4 Rubber grommets for 1/2" hole
	25 ft. No. 8838 Belden wire		10 Heavy solder lugs
	6 ft. Lock stitch cord		2 Large insulated plate caps
			1 Heavy ground binding post
			1 Special clamp for bias condenser
			25 ft. No. 8838 Belden wire
			6 ft. Belden "Nugget" high tension wire
			6 ft. Lock stitch cord

## SUPPLIED WITH KITS

<b>GROUP 1</b>	12 1/4x20x3/4" R.H. machine screws and nuts	<b>GROUP 2</b>	12 ea. 1/4" plain plated and lock washers
	6 3/32x1/2" R.H. mach. screws, nuts & l. washers		9 3/32x1/2" R.H. mach. screws, nuts & l. washers
	3 3/32x1/2" R.H. mach. screws, nuts & l. washers		14 Heavy solder lugs
	25 ft. No. 8838 Belden wire		7 ft. Belden "Nugget" high tension wire
	6 ft. Lock stitch cord		1 Special clamp for bias condenser
	4 Rubber grommets for 1/2" hole		25 ft. No. 8838 Belden wire
	2 Large insulated plate caps		6 ft. Belden "Nugget" high tension wire
	1 Heavy ground binding post		6 ft. Lock stitch cord



# Power Supplies



One of the most important items in the consideration and design of a radio transmitter is the power supply, which must furnish a well-regulated, adequately filtered output that will consistently meet the desired voltage and current requirements.

Stancor presents on these two pages a new series of complete power supplies, thus aiding in transmitter design by furnishing a thoroughly engineered layout applicable to the most varied of requirements. These Stancor supplies will furnish a well-filtered output, ranging from 400 Volts D.C. @ 250 and 300 M.A. up to 3000 Volts D.C. @ 375 MA. Included with some of these high-voltage supplies are bias supplies and dual arrangements permitting almost any combination of desired voltages.

The new Stancor power units are divided into two different chassis groups, each having a variety of combinations. The tabulated data covers different arrangements subdivided into three classes: single voltage output; dual high voltage; and dual or single high voltage with bias supplies, making a total of twenty-three different kits.

In the Stancor lower voltage supplies (PS-1B to PS-4B inclusive) complete safety is available through careful design and use of safety components.

In the high voltage units, many safety features are included such as the use of a protected high-voltage terminal and a safety A.C. line input plug.

All units are equipped with complete fuse protection and provision is made for the use of overload relays on the plate voltages. A control plug is used on all supplies, permitting the inter-connection of the A.C. inputs of various units with remote control features.

Each chassis is completely punched with all necessary holes. A heavy No. 16 gauge steel cadmium plated chassis with firmly welded corners, is used in each unit. The chassis sizes are 17" x 10" x 3" (B8) and 17" x 13" x 3"

(B9) and may be mounted in a standard relay rack on 19" panels. The height of the supplies varies from 8 $\frac{3}{4}$ " to 15 $\frac{3}{4}$ " overall.

For ease in selecting the power supply desired, a coded numbering system has been established that designates the various type numbers. The letter B following the power supply number indicates that a bias supply is included with the high voltage. The letter D signifies a dual power supply.

For example, suppose a 1500 volt 300 MA. supply with 90 to 200 volts C bias is desired. On the opposite page, near the left-hand edge, are found the voltage and current ratings of the Stancor Power Supplies. Kit No. PS-7B will deliver the desired output. Across the page, horizontally, the complete list of components is shown; i.e., P-5053 plate transformer, C-1403 swinging choke, C-1413 filter choke, R65 bleeder (shown below as a 50,000 ohm 200 watt fixed resistor), two C100 (shown below as 2 mfd. 2000 volt oil filled condensers), P-3060 filament transformer (for heating the two 866 rectifier filaments), bias transformer P-6317 (90 to 200 volts), C-1645 choke, C98 (4-8 mfd. electrolytic condenser), chassis B9, measuring 17" x 13" x 3" of No. 16 gauge cadmium plated steel. Miscellaneous parts group B, listed below and Hardware list No. 2 are used with PS-7B. Accessories and optional equipment are also listed under Group B.

The total net price of all the components shown, less accessories and optional equipment, is \$46.95.

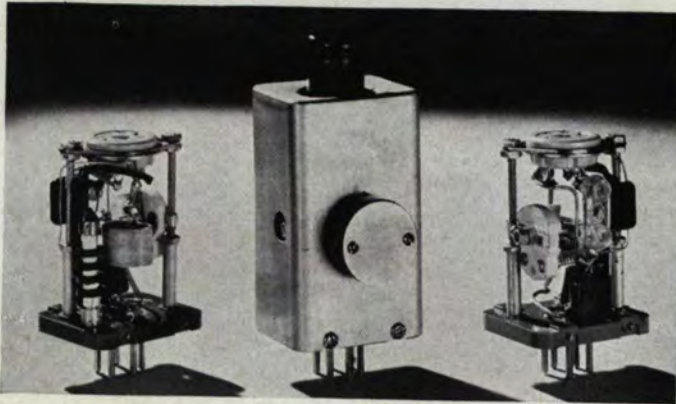
Truly, this is a simple, efficient and economical way of purchasing an engineered, time-tested power supply.

*Net kit prices shown include all transformers, chokes, condensers, resistors, punched chassis, hardware, wire and instructions, as shown in the tabulated data. The net price does not include any accessories or optional equipment.*

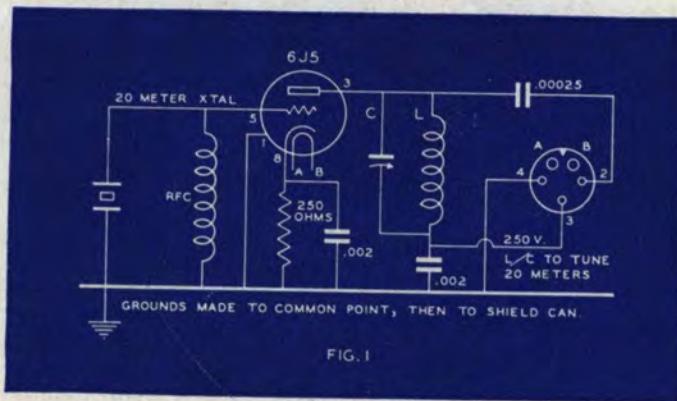
*These power supplies available in kit form from your Stancor Jobber*

# Alternate Circuits

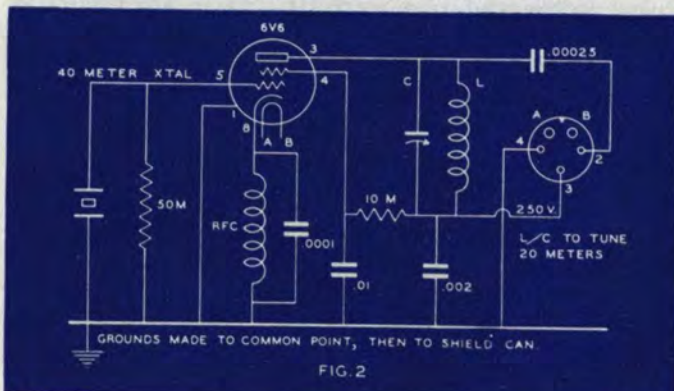
## PLUG-IN OSCILLATOR



For ten meter operation of the 110-C and 60-N transmitters, a plug-in oscillator is required. This oscillator may be built into a coil shield can as shown in the photograph. Two circuits are shown, Fig. 1 and Fig. 2 for use with a 20 and 40 meter crystal respectively. Each was designed for optimum performance with the specified crystal frequencies.



Before the plug-in oscillator can be used on the 110-C or 60-N, a few changes must be made in the crystal socket wiring in the transmitter. A 10 watt resistor of 7500 ohms should be wired to the crystal socket as shown by the dotted lines on the transmitter circuits. This will drop the plate voltage applied to the 6J5 or 6V6 to 250 volts. Terminals No. 1 and No. 5 are connected to



## PLUG-IN OSCILLATOR (CON'D)

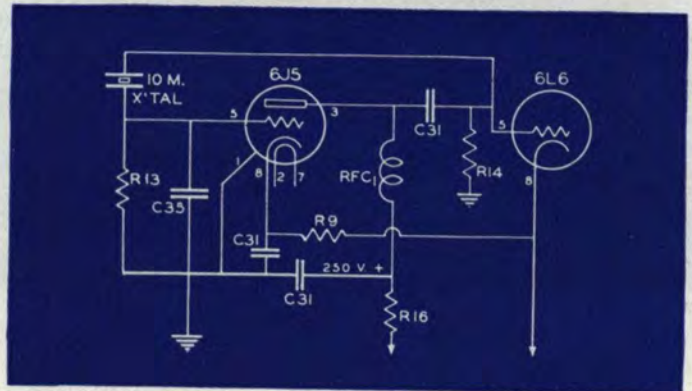
terminals No. 2 and No. 7 of the 6L6G oscillator tube. Thus, when the plug-in oscillator is inserted in the crystal socket, both filament and plate voltages are automatically applied.

For an example—It is desired to operate a 110-C on 10 meters using a 40 meter crystal. The plug-in oscillator would be wired in accordance with the circuit shown in Fig. 2. The 6V6 and 40 meter crystals are plugged into their respective sockets and the entire unit plugged into the crystal socket of the 110-C. 10 meter coils are used in the transmitter.

The plug-in oscillator is tuned to resonance by adjusting the plate circuit condenser. The output will be 20 meters. The original 110-C oscillator tube now serves as a doubler, and the final 812 functions as an amplifier.

This auxiliary plug-in oscillator unit is **NOT** sold as a STANCOR kit or in assembled form nor is it supplied as part of the kits. See your radio parts jobber for the various components.

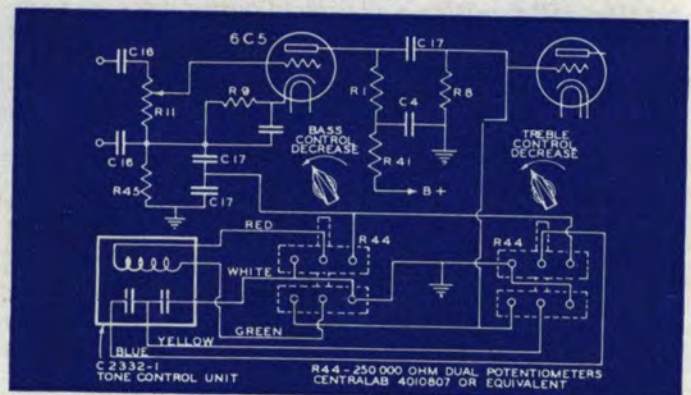
## 10-P 28MC CIRCUIT



This circuit will permit 10 meter operation of the 10-P transmitter.

Note: the so-called 10 meter crystals are usually 30 meter crystals operating on the third harmonic.

## STANCOR TONE CONTROL UNIT



The circuit shown provides compensation of deficiencies found in some microphones, pickups, and loudspeakers. It also facilitates altering the type of sound reproduction to that found most suitable for different auditorium conditions.

The unit is simple and not difficult to apply to most amplifiers, and is identical in circuit detail to the tone control systems used in the STANCOR 515, 525 and 550 amplifiers.

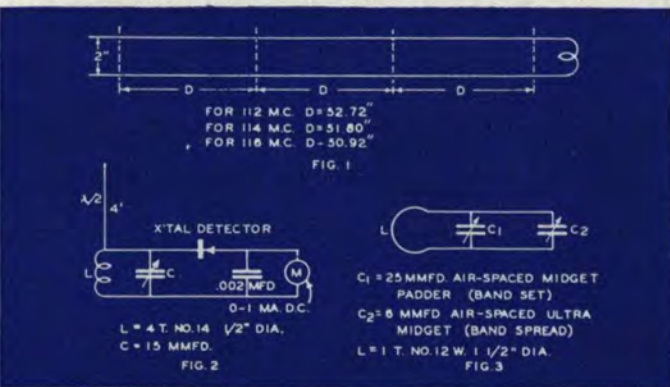
Operation is based on cathode circuit degeneration by the introduction into this circuit of extra resistance, thereby developing an out-of-phase voltage and reduced amplification of the tube. The degeneration is controlled by shunting the added cathode resistor with the proper value of inductance or capacity, depending on whether the low or high frequency response is to be boosted. Attenuation of the lows or highs is accomplished by shunting the grid of the following stage with the same inductance or capacity. The function of the dual controls R-44 is to afford an even control from maximum boost to maximum attenuation, one control being for low and the other for high frequencies.

## 112 MC MEASURING DEVICES

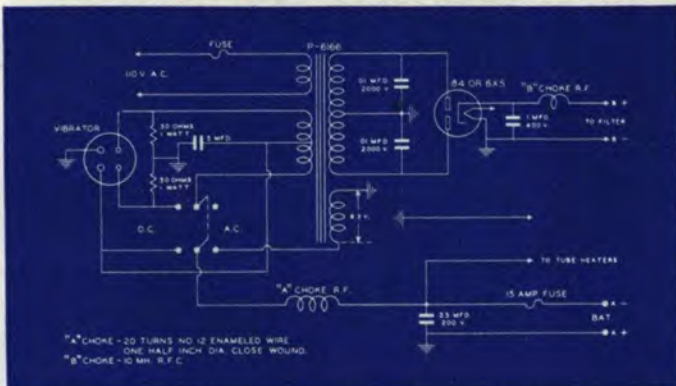
One of the simpler methods of finding the 112 MC band is accomplished by using Lecher wires which consist of two No. 14 bare copper wires stretched parallel and two inches apart for a distance of at least five feet as shown in Figure 1. A length of from ten to fifteen feet is advisable for more accurate results. In use, one end of the Lecher wires is very loosely coupled to a 112 MC transmitter or super-regenerative receiver. Slide a shorting bar along the wires until a jump in transmitter plate current is noted. A receiver will be pulled out of oscillation when the shorting bar hits a resonant point. Indicate this spot on the wire and continue to slide the bar further until a point is reached where another jump is noted. The distance between these points is one half wavelength. For greatest accuracy measure several such distances, average the lengths and the frequency in megacycles will be 5905 divided by the averaged length in inches.

The 112 MC antenna-adjuster (see Figure 2) may be easily built and operated. A half-wave antenna feeds into a tuned circuit and a crystal detector. A 0-1 MA DC meter is used as an indicator. In operation, the antenna-adjuster is set up near a 112 MC transmitter and the crystal detector adjusted until a sensitive spot is found. The tuned circuit must, of course, be adjusted to resonance with the transmitter. When a maximum reading is obtained on the meter, the unit will operate as a field strength meter.

Due to the sensitivity of the unit, it should be located some distance from the transmitting antenna when making adjustments in order that the changes will be clearly indicated by the millimeter.



## 6 V. DC 115 V. AC POWER SUPPLY



A combination power supply that will operate either on a 6 volt DC or 115 volt AC 60 cycle source is a useful and sometimes very desirable piece of equipment, especially in cases of emergency.

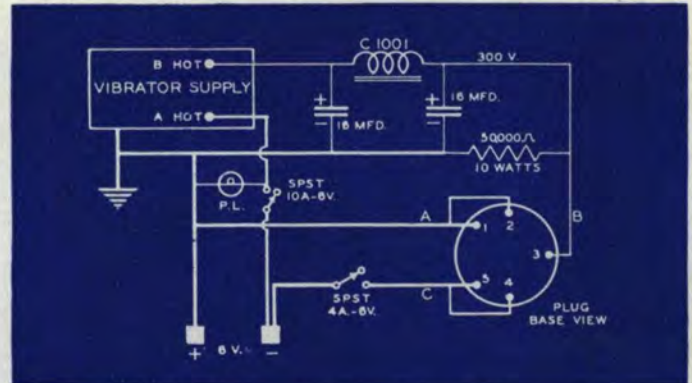
This supply was originally designed to permit portable operation of the popular STANCOR 10-P. It is built around a P-6166 transformer, and a Mallory type 725 vibrator or equivalent is recommended. When operating on 115 volts AC, external filaments are supplied from the transformer winding. When operating from a 6 volt battery, the filaments are supplied directly from the battery. Operation of other devices which require 115 volts AC directly from the 115 volt primary, when the supply is being powered by 6 volts DC is *not recommended* since the AC voltage will not be constant and the vibrator may be overloaded.

The entire unit may be built on a small chassis. Values of resistors and condensers are shown on the circuit diagram.

If You Didn't Get This From My Site,  
Then It Was Stolen From...

# Alternate Circuits

## 6 VOLT DC SUPPLY FOR 112-T



An efficient 6 volt DC power supply using a vibrator pack is shown above for the 112-T transceiver. A few simple precautions should be observed. Heavy *separate* leads from the "A" battery clips should be used to feed both the vibrator supply and the power-plug to the 112-T.

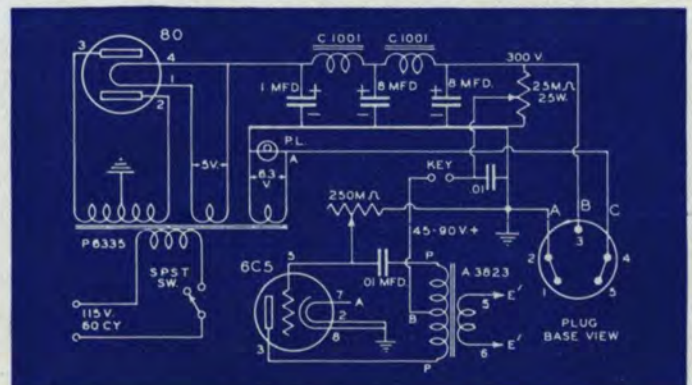
Full wiring details are given by the various vibrator manufacturers, and their recommendations should be followed. The A+ lead of the 6 volt storage battery is shown grounded, as this is the common arrangement. By making suitable changes in the vibrator supply, either side of the battery may be grounded.

## 115 VOLT AC SUPPLY AND AUDIO OSCILLATOR FOR 112-T

A variable audio tone oscillator will permit ICW operation with remarkable efficiency, since the pitch may be varied to suit noise conditions on the band. A suggested AC power supply and audio oscillator for use with the 112-T Transceiver may be easily constructed using STANCOR components and a few parts as shown on the diagram below. This supply may be mounted on a B1 chassis and contained in H1 cabinet with 2-F2 panels.

When ICW operation is contemplated, a single circuit jack, insulated from the chassis, may be installed on the rear apron of the 112-T and connected to points E-E as shown on the 112-T diagram. The output of the audio oscillator designated as E'-E' on the power supply diagram is then connected to a phone plug and plugged into this jack when ICW is used. The transmitter gain control functions normally. It is well, however, to remove the microphone from its jack before using ICW. The audio tone may also be heard when the 112-T is in the Receive position, thus permitting pitch adjustment.

PLATE TRANSFORMER..... STANCOR P-6335  
CHOKES (2)..... STANCOR C-1001  
AUDIO OSCILLATOR TRANSFORMER... STANCOR A-3823



# Everyday Formulae

POPULAR FORMULAE AT YOUR FINGER-TIPS

## OHMS LAW FOR D.C.

E = Voltage  
I = Current - Amperes  
R = Resistance - ohms  
P = Power - watts

$$R = \frac{E}{I} = \frac{E^2}{P} = \frac{P}{I^2}$$

$$I = \frac{E}{R} = \sqrt{\frac{P}{R}} = \frac{P}{E}$$

$$E = I \times R = \sqrt{PR} = \frac{P}{I}$$

## RESISTOR FORMULAS

Resistors in Parallel  
Rt = Total resistance  
R1 = One value of R  
R2 = Another value of R

Resistors in Series - Rt = R1 + R2 + R3, etc.

$$R_t = \frac{R_1 \times R_2}{R_1 + R_2}$$

for two resistors

For two or more resistors

$$R_t = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \frac{1}{R_4}, \text{ etc.}}$$

## SHUNT MULTIPLIER RESISTOR FOR CURRENT METER

Rs = Shunt resistor  
Rm = Resistance of meter  
It = Total current  
Im = Meter current

$$R_s = \frac{R_m}{\frac{I_t}{I_m} - 1}$$

$$I_m = \frac{R_s I_t}{R_m + R_s}$$

$$I_t = I_m \frac{R_m + R_s}{R_s}$$

$$R_m = R_s \frac{I_t - I_m}{I_m}$$

## SERIES MULTIPLIER RESISTOR FOR VOLTMETER

E = New voltage range  
Em = Original voltage range of meter  
Rs = Series resistor  
Rm = Resistance of meter

$$R_s = R_m \left( \frac{E}{E_m} - 1 \right)$$

## OHMS LAW FOR A.C.

E = Voltage  
X = Reactance—ohms  
Xc = Capacitive reactance—ohms  
XL = Inductive reactance—ohms  
Z = Impedance—ohms  
R = Resistance—ohms  
L = Inductance in henries  
C = Capacity in farads  
F = Frequency—cycles per second  
2π = 6.28

$$E = I \sqrt{(XL - Xc)^2 + R^2}$$

$$I = \frac{E}{\sqrt{(XL - Xc)^2 + R^2}}$$

$$E = I \sqrt{X^2 + R^2}$$

$$I = \frac{E}{\sqrt{X^2 + R^2}}$$

$$E = IX$$

$$I = \frac{E}{X}$$

$$E = IZ$$

$$I = \frac{E}{Z}$$

$$Z = \frac{E}{I}$$

$$X = \frac{E}{I}$$

$$X_c = \frac{1}{2\pi FC}$$

$$X_L = 2\pi FL$$

$$Z = \sqrt{R^2 - X^2} \text{ or } Z = \sqrt{R^2 - (XL - Xc)^2}$$

$$\text{Or } Z = \sqrt{R^2 + \left(2\pi FL - \frac{1}{2\pi FC}\right)^2}$$

Impedance of resistor and either capacitive or inductive reactance in parallel.

$$Z = \frac{XR}{\sqrt{R^2 + X^2}}$$

If R and Z are known—

$$X = \frac{ZR}{\sqrt{R^2 - Z^2}}$$

If Z and X are known—

$$R = \frac{XZ}{\sqrt{X^2 - Z^2}}$$

## EQUIVALENT IMPEDANCE OF A PARALLEL CIRCUIT

When an inductance, capacity and resistance are connected in parallel the equivalent impedance

$$Z_o = \sqrt{(RX_L - RX_c)^2 - X_L^2 X_c^2}$$

## CONDENSER FORMULA

Ct = Total Capacity  
For Condensers in parallel  
Ct = C1 + C2 + C3, etc.  
For Condensers in series

Ct for two condensers =  $\frac{C_1 \times C_2}{C_1 + C_2}$

Ct for two or more =  $\frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}, \text{ etc.}}$

## Capacity of Parallel Plates

When conducting plates are parallel, close together, and of large area, the capacity is given by

$$C = 0.0885 \text{ times } \frac{KS}{t}$$

Where C = capacity in micromicrofarads  
K = dielectric constant  
S = area of one plate in square centimeters  
t = distance between plates in centimeters

## RESONANCE FORMULAS

F = Frequency in Kilocycles  
L = Inductance in Microhenries  
C = Capacity in Microfarads  
π = 3.1416

$$F = \frac{10^6}{2\pi \sqrt{LC}}$$

$$L = \frac{25330}{F^2 C}$$

$$C = \frac{25330}{F^2 L}$$

Example: To what frequency will a 0.0005 mf. (500 mmf.) condenser, in parallel with a 180-microhenry coil, tune?

$$6.3 \sqrt{180 \times 0.0005} = 530,000 \text{ cycles} = 530 \text{ kilocycles} = 565 \text{ meters.}$$

## GAIN OF AMPLIFIER STAGE

G = Gain  
Mu = Amplification factor  
rp = Plate load  
Rp = Internal A.C. plate resistance of tube

$$G = \text{Mu} \frac{r_p}{r_p + R_p}$$

When Eg expresses the RMS (Root-Mean-Square) Effective Value of the AC input, the

$$\text{POWER OUTPUT} = \frac{\mu^2 \times E_g^2 \times R_p}{(r_p + R_p)^2}$$

The MAXIMUM POWER OUTPUT is  $\frac{\mu^2 \times E_g^2}{4r_p}$

The MAXIMUM UNDISTORTED POWER OUTPUT is  $\frac{2\mu^2 \times E_g^2}{9r_p}$

When Eg is the Maximum (peak) A.C. Input Value

The MAXIMUM UNDISTORTED POWER OUTPUT is  $\frac{\mu^2 \times E_g^2}{9r_p}$

## THE DECIBEL

The number of decibels corresponding to a given power ratio is 10 times the common logarithm of the ratio.

$$DB = 10 \text{ Log}_{10} \frac{P_2}{P_1}$$

In the case of voltage or current the number of decibels corresponds to 20 times the common logarithm of the ratio.

Example: What gain in decibels will there be if the voltage in an amplifier rises to 7 times the normal level at a certain frequency?

$$DB = 20 \text{ Log}_{20} 7 = 20 \times 0.845 = 17 \text{ decibels.}$$

## DISSIPATION FACTOR Q

The ratio Q of reactance to resistance is generally used as the factor of merit of a coil or condenser and is called the dissipation constant.

For a coil  $Q = \frac{\omega L}{R}$  Where  $\omega = 2\pi F$

For a condenser  $Q = \frac{1}{\omega RC}$

## INDUCTANCE CALCULATION

The lumped inductance of coils for transmitting and receiving is fairly easy to calculate:

$$L = \frac{0.2 A^2 N^2}{3A + 9B + 10C}$$

where L is the inductance in microhenries  
A is the mean diameter of the coil in inches  
B is the length of winding in inches  
C is the radial depth of winding in inches  
N is the number of turns

The quantity C may be neglected if the coil is a single-layer solenoid, as is nearly always the case with coils for high frequencies.

For example, assume a coil having 35 turns of No. 30 d.s.c. wire on a receiving coil form having a diameter of 1.5 inches. Consulting wire table, we find that 35 turns of No. 30 d.s.c. will occupy a length of one-half inch. Therefore,

$$A = 1.5$$

$$B = .5$$

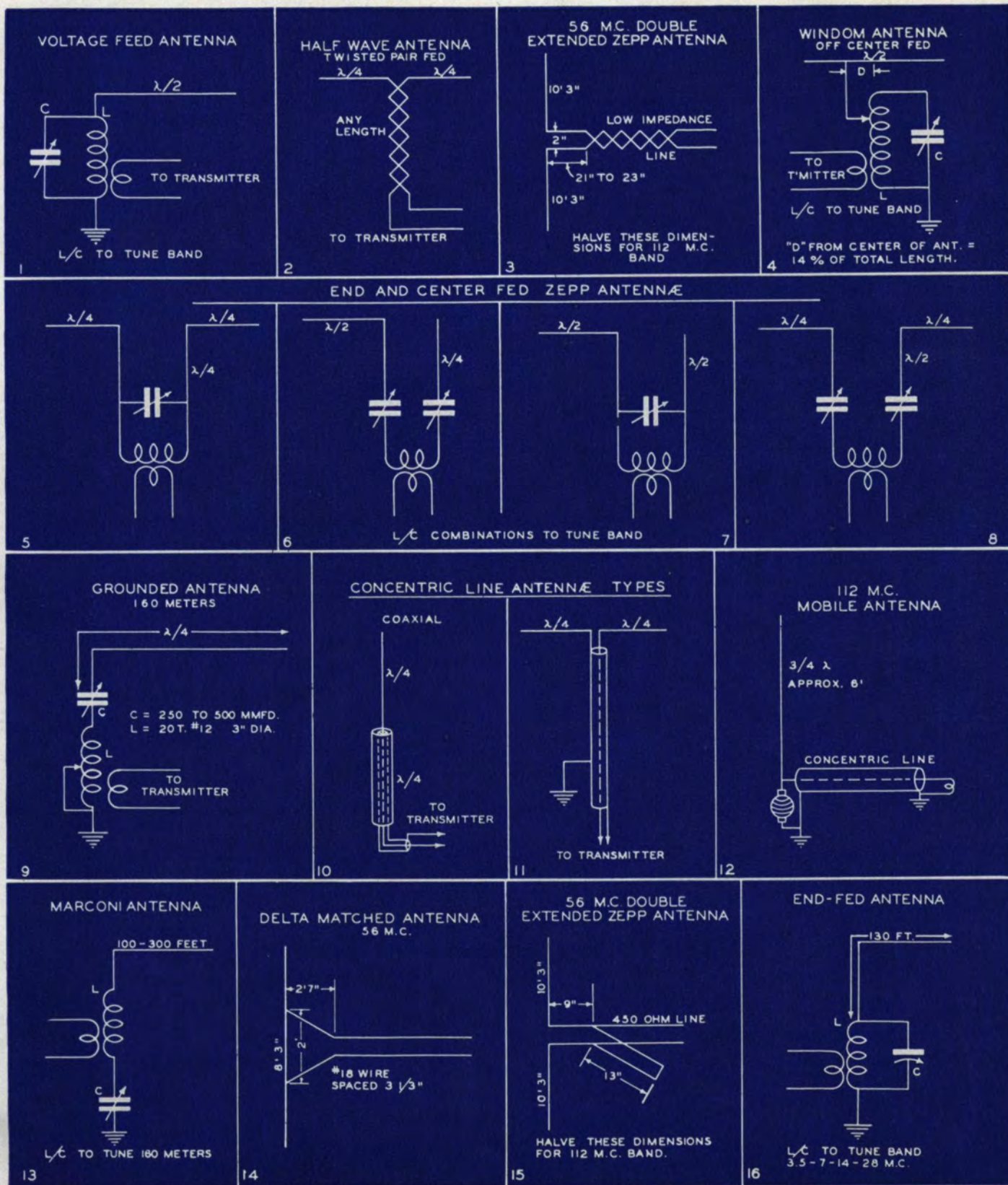
$$N = 35$$

and

$$L = \frac{0.2 \times (1.5)^2 \times (35)^2}{(3 \times 1.5) + (9 \times .5)}$$

or 61.25 microhenries.

# Antennae Data



Antenna types are shown for your convenience. For complete data consult your Handbook.

# Coil Data

Transmitter	160 Meters	80 Meters	40 Meters	20 Meters	10 Meters
10-P	L1—16OEL Group A	L1—8OEL Group A	L1—4OEL Group A	L1—2OEL Group A	L1—1OEL Group A
12-F	L1—16OEL Group A	L1—8OEL Group A	L1—4OEL Group A	Not recommended	Not recommended
25-B	L1—16OEL Group A	L1—8OEL Group A	L1—4OEL Group A	L1—2OEL Group A	L1—1OEL Group A
20-N	L1—16OEL Group AB L2—16OCL* Group AB	L1—8OEL Group AB L2—16OCL Group AB	L1—4OEL Group AB L2—8OCL Group AB	L1—2OEL Group AB L2—2OCL Group AB	Not recommended
60-N	L1—16OCL Group AB L2—16OCL** Group B	L1—8OCL Group AB L2—16OCL Group B	L1—4OCL Group AB L2—4OCL Group B	L1—2OCL Group AB L2—2OCL Group B	L1—1OCL Group AB L2—1OCL Group B
110-C	L1—16OCL Group AB L2—16OCL** Group B	L1—8OCL Group AB L2—16OCL Group B	L1—4OCL Group AB L2—4OCL Group B	L1—2OCL Group AB L2—2OCL Group B	L1—1OCL Group AB L2—1OCL Group B
40-P	L1—Hand Wound on 1½" Form 60T # 26 DCC L2—16OCL Group AB L3—16OCL Group AB	L1—Hand Wound on 1½" Form 30T # 18 E for 80 M Xtal 60T # 26DCC for 160M Xtal L2—8OCL Group AB L3—8OCL Group AB	L1—Hand Wound on 1½" Form 15T # 18 E for 40 M Xtal 30T # 18 E for 80 M Xtal L2—4OCL Group AB L3—4OCL Group AB	L1—Hand Wound on 1½" Form 9T # 18 E for 20 M Xtal 15T # 18 E for 40 M Xtal L2—2OCL Group AB L3—2OCL Group AB	L1—Hand Wound on 1½" Form 9T # 18 E for 20 M Xtal L2—1OCL Group AB L3—1OCL Group AB
100-MB	L1—Hand Wound ¾" Dia. 10T # 14 E L2—Special C.L. Group A L3—160 CL Group C	L1—Hand Wound ¾" Dia. 10T # 14 E L2—Special C.L. Group A L3—80CL Group C	L1—Hand Wound ¾" Dia. 10T # 14 E L2—Special C.L. Group A L3—40CL Group C	L1—Hand Wound ¾" Dia. 10T # 14 E L2—Special C.L. Group A L3—20CL Group C	L1—Hand Wound ¾" Dia. 10T # 14 E L2—Special C.L. Group A L3—10CL Group C
125-CW	Operation on this band not recommended.	L1—8OEL Group AB L2—8OCL Group AB L3—8OCL Group B	L1—4OEL Group AB L2—4OCL Group AB L3—4OCL Group B	L1—2OEL Group AB L2—2OCL Group AB L3—2OCL Group B	Not recommended

**30-M** Works on 28-42 MC. bands only. Use **STANCOR L-30M** Coils designed for **30-M**. Net price, set \$1.50 or  
**30-M Lk**—2 parallel 8½" T. # 16 D.C.C.—**Lb**—15 T. # 16 D.C.C.—C.T.—1" I.D. Close wound—counter clockwise from top of form. I.D. Close wound—clockwise from start. Self supporting. **La**—8 T. # 10 En.—1" I.D. spaced to 2" coil length. Counter-clockwise. Self-supporting. **Lc**—3 T. # 10 En.—1½" I.D. spaced to ¾" coil length. Counter-clockwise. Self-supporting.

<b>2840</b>	10 Meter Band 7.5 Meter Band 5 Meter Band	L1—13 T. # 14 En. 1" I.D. 1' long L1—13 T. # 14 En. 1" I.D. 1' long L1—13 T. # 14 En. 1" I.D. 1' long	L2—9 T. # 14 En. ¾" I.D. 1' long L2—7 T. # 14 En. ¾" I.D. 1' long L2—6 T. # 14 En. ¾" I.D. 1' long	L3—2 T. # 14 En. link L3—2 T. # 14 En. link L3—2 T. # 14 En. link	L4—2 T. # 14 En. link L4—2 T. # 14 En. link L4—2 T. # 14 En. link	L5—9 T. # 14 En. ¾" I.D. 1' long L5—7 T. # 14 En. ¾" I.D. 1' long L5—6 T. # 14 En. ¾" I.D. 1' long	L6—8 T. # 12 En. 1¾" I.D. 2' long L6—6 T. # 12 En. 1¾" I.D. 2' long L6—6 T. # 12 En. C.T. ¾" I.D. 1¾" long	L7—2 T. # 12 En. link L7—2 T. # 12 En. link L7—2 T. # 12 En. link
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NOTE: § 5 meter band experimental only.

**112 BT** Hand Wound from Assembly and Wiring Instructions. Also shown on circuit diagram on Page 5.

NOTE: EL designates end link coil. CL designates center linked coils. NOTE: \*with 75 mmfd. air padder (Cardwell ER75FS or equivalent).  
 NOTE: \*\*with 100 mmfd. variable .07 to .1 inch spacing mounted on CSB. NOTE: †with 50 mmfd. air padder .05 inch spacing, (Cardwell EO-50-FS or equivalent).

## COIL GROUPS

Group	Description	Manufacturer
A	Air-Wound, 5 Prong Plug-In.....	"Bud"—"B & W Juniors"
B	Ceramic, 5 Prong Plug-In or Air-Wound, 5 Prong Plug-In (Heavy Duty).....	"Johnson" or "B & W Junior"
C	Air-Wound Ceramic Mounted.....	"Bud-RCL" "B & W BL"
AB	Any Type Listed In Group A or B.....	

## COIL NUMBERS

Make Type	BUD		B & W		Johnson		B & W	Bud
	Center Link	End Link	Center Link	End Link	Center Link	End Link	"BL"	"RCL"
160	OCL 160	OEL 160	160 JCL	160 JEL	644	654	160 BL	RCL 160
80	OCL 80	OEL 80	80 JCL	80 JEL	643	653	80 BL	RCL 80
40	OCL 40	OEL 40	40 JCL	40 JEL	642	652	40 BL	RCL 40
20	OCL 20	OEL 20	20 JCL	20 JEL	641	651	20 BL	RCL 20
10	OCL 10	OEL 10	10 JCL	10 JEL	640	650	10 BL	RCL 10

## METERS

Triplet	Simpson	Hole Size	USED IN STANCOR KITS
0-100 D.C. MA. No. 227A	0-100 D.C. MA. No. 127	2¾"	10-P
0-150 D.C. MA. No. 227A	0-150 D.C. MA. No. 127	2¾"	30-M
0-100 D.C. MA. No. 327A	0-100 D.C. MA. No. 27	2¾"	40-P
0-200 D.C. MA. No. 327A	0-200 D.C. MA. No. 27	2¾"	20-N, 60-N, 100-MB, 110-C, 2840, 125-CW, 440-M

## CABINETS

Single Section Cabinet for 8¾" x 19" Panels	Bud No.	I.C.A. No.	Par-Metal No.
Standard Type.....	CR-694	3840	SC-128
De Luxe Type.....	CR-1741	3880	DL-128

# MANUFACTURER'S NUMBERS FOR ALL KIT CONDENSERS

## FIXED CONDENSERS


Part No.	Description	Aerovox Cat. No.	Cornell-Dubilier Cat. No.	Mallory Cat. No.	Solar Cat. No.	Sprague Cat. No.	Tobe Cat. No.
C 1	8-8 mfd. 450 v. can — 4 leads.....	2GLS450	KR-588	RM-262	D-820S	PLS-88	CS88
C 2	4 mfd. 450 v. tubular electrolytic.....	PRS450	BR-445	BB-60	M-404	UT-4	ET54
C 3	8 mfd. 450 v. can — 2 leads.....	GLS450	KR-508	RS-213	D-80E	PLS-8	CS18
C 4	10 mfd. 25 v. tubular electrolytic.....	PRS25	BR-102	BB-12	M-010	TA-10	ET3510
C 5	16 mfd. 450 v. can — 2 leads.....	GLS450	KR-516	RS-216	D-813	PLS-16	CS116
C 6	8-8 mfd. 250 v. can — 4 leads.....		KR-288	RM-252			
C 16	.01 mfd. 400 v. tubular.....	484	DT-4S1	TP-421	S-0219	TC-11	M11
C 17	.1 mfd. 400 v. tubular.....	484	DT-4P1	TP-428	S-0238	TC-1	410T
C 18	1 mfd. 400 v. tubular.....	484	DT-4W1	TP-422	S-0267	TC-10	401T
C 20	.1 mfd. 1000 v. square can.....	1084	MD12P1	TP-434	TT-11		
C 31	.002 mfd. 500 v. D.C. mica.....	1467	1W-5D2	MC-848	MW-1233	1FM-22	
C 32	100 mmfd. 500 v. D.C. mica.....	1468	5W-5T1	MC-839	MW-1216	1FM-31	
C 34	250 mmfd. 500 v. D.C. mica.....	1468	5W-5T25	MC-842	MW-1219	1FM-325	
C 35	50 mmfd. 500 v. D.C. mica.....	1468	5W-5Q5	MC-837	MW-1210	1FM-45	
C 36	150 mmfd. 500 v. D.C. mica.....	1468	5W-5Q15	MC-840		1FM-315	
C 38	.001 mfd. 2500 v. D.C. mica.....	1456	4-22010		XM-1221		
C 39	.001 mfd. 1000 v. D.C. mica.....	1450	4-12010		XM-6-21		
C 40	.0001 mfd. 500 v. D.C. silvered mica.....		5RST1		MOS-100	SM-31	
C 81	2 mfd. 1000 v. D.C. oil.....	1010	TLA-10020	TZ-385	XC-12	PC-21	MR102
C 82	2 mfd. 600 v. D.C. oil.....		TF-620			CR-26	FM602
C 90	.25 mfd. 400 v. tubular.....	484	DT-4P25	TP-430	S-0256	TC-2	
C 91	15-15 mfd. 300 v. can.....			FPD-225			
C 94	16 mfd. 450 v. tubular electrolytic.....	PRS450-16	BR-1645	BB-13	M-416	UT-16	
C 95	8-8 mfd. 600 v. can.....	PWC-600	PFB-6808			DR-88	
C 96	.05 mfd. 600 v. tubular.....	684	DT-6S5	TP-415	S-0230	TC-15	
C 97	.5 mfd. 400 v. tubular.....	484	DT-4W1	TP-431	S-0263	TC-5	
C 103	1 mfd. 1500 v. oil.....	1510	TLA-15010		XC-151		

## VARIABLE CONDENSERS

Part No.	Description	Bud Cat. No.	Cardwell Cat. No.	Hammarlund	Johnson Cat. No.	Millen Cat. No.	National Cat. No.
C 56	100-100 mmfd. split-stator.....		EU-100-AD				
C 57	50-50 mmfd. split-stator.....		ER-50-AD				
C 58	70-70 mmfd. split-stator.....	1552					
C 59	.5-5 mmfd. neutralizing.....						NC-600
C 60	100 mmfd. midget.....	LC-1646	ZU-100-AS	HF-100	100H15	21100	ST-100
C 61	325 mmfd. midget.....	MC-910		MC-325-M			STH-335
C 62	25 mmfd. midget.....	LC-1650	ZR-25-AS	HF-35	25H15		ST-35
C 64	100-100 mmfd. split-stator.....		MT-100-GD				
C 66	1.5-8.5 mmfd. neutralizing.....	NC-1930				15003	
C 67	50-50 mmfd. split-stator.....		ER-50-ADP				
C 68	30 mmfd. midget.....		ET-30-ASP				
C 69	75 mmfd. midget.....		EU-75-ASP				
C 71	5 mmfd. ultra-midget.....		ZV-S-TS				

## HARDWARE KITS

Description	10-P	20-N	25-B	40-P	60-N	110-C	12-F	100-MB	125-CW	2840	112-T	510	515	525	440-M	550
Plate Caps—Medium.....					2	2			2	2						
Rubber Mtg. Feet Self-Threading Screws.....	4										4	4				
1/4" Shielding Braid.....	6"	8"		30"	8"	8"	18"		8"		6"	10"	24"	24"	12"	24"
1/2" Shielding Braid.....							6"						18"	18"		18"
Rubber Grommets for 3/8" Hole.....		4		1					1							
Rubber Grommets for 1/2" Hole.....	2	2	1	2	3	4		3	3	2		1	2	2	2	2
Rubber Grommets for 1/2" Hole.....		1			2	2	1		1	1						
4-36 x 3/8" R. H. M. S.—Cad.....				4	4	8		6		6	2					
4-36 x 1/2" R. H. M. S.—Cad.....		10							4	6	1					
6-32 x 3/8" Binder Head M. S.—N. P.....											8	4				
6-32 x 3/8" R. H. M. S.—Cad.....	6	16	2	12	20	10	8	8	7	11	10	7	12	12	2	2
6-32 x 1/2" R. H. M. S.—Cad.....								2		3						
8-32 x 1/2" R. H. M. S.—Cad.....		4		16	4	14		12	10	12	1		12	18	27	30
4-36 Hex. Nuts.....		2		12		4		6			4					
6-32 Hex. Nuts.....	6	16	2	12	20	11	14	10		15	15	7	12	12	2	2
8-32 Hex. Nuts.....		4		6	16	8		17		12	6		12	18	35	36
6-32 Lockwashers.....	6	16	2	24	15	8	12	10		12	16	7	12	12	2	2
8-32 Lockwashers.....		4		18	4	14		12		12	4		12	18	27	30
3/8" x 1/2" Metal Spacing Bushings.....				2				2								
Mounting Brackets.....								1								
3/8" x 1" Metal Spacing Bushings.....		10			6	8			4	6						
1/2" Metal Panel Bushings for 3/8" Hole.....				10				2	1	6						
Solder Lugs.....		6			6	6	6				6		12	12	4	6
1/4" Shaft Couplers.....		2		1	2	2		1	2	1						
1/4" Bakelite Shafting.....		2-1 1/4"		1-1 1/4"	2-1 1/4"	2-1 1/4"			2	1-1 1/4"	1-4"					
1/4" Metal Shafting.....								10 1/2"	2-1 1/4"							
2 Terminal Connector Strip.....																
2 Lug Terminal Strip.....		2		1	1	4	2	2	1	3	2	2	6	7	3	1
5 Lug Terminal Strip.....		4		3	2			2	2	1	1					6
6 Terminal Connector Strip.....								1								
8-32 x 2 3/8" R. H. M. S.—Cad.....					2											
8-32 x 4 1/2" R. H. M. S.—Cad.....																
Fibre Washers 3/8" Dia.—3/8" Hole.....				4	4				1	2	4					
Large Plate Caps.....				1		1			2							
Socket Flange.....		2		3	2	2			2	1						
Lock Stitch Cord.....		4'		6'	6'	6'	6'	6'	6'	6'	3'	4'	6'	6'	6'	6'
Cond. Clamp 1 3/4".....					1	1			1	1						
10-32 Hex. Nuts.....									1							
Spade Bolts (1/2" threaded) 6-32.....									1							
Steel Straps 3 1/2" x 1/2".....									2							
8-32 Wing Nut.....											2					
1/4" Threaded 4-36 Metal Spacer.....											2					
Solder Lugs, Small.....											1					
6-32 x 1" R. H. M. S.....											4					
8-32 x 3/8" R. H. M. S.....											2					
Plated Washers for 8-32 Screw.....											4					
Net Price Hardware Kit.....	.24	.84	.06	.75	.66	.66	.48	1.20	.60	.66	.51	.28	.66	.66	.60	.66



## In the quiet of the Night

Many times you and I have had to burn the midnight oil to accomplish that which seemed impossible during the day. Whenever we attempted to start and settle down to do our particular job, the telephone would ring, some one would open the door and walk in; we would finally drop our work in disgust and say, "I'll have to do that tonight". After a pleasant unhurried dinner and a period of relaxation; the end of a business day seems to be the best time for you or me to sit down and plan our individual activities.

Stancor has such conferences at the close of a business day wherein the executives, engineers, costmen, designers, etc., sit down on a man to man basis and plan future activities from their combined accumulation of ideas. The sales-heads present the needs, trends, problems, relative merits and things deemed best for Stancor's many customers. The engineers discuss the best ways and means of doing these things; the cost department and production heads determine the best procedure insofar as making the items practically and economically.


From such meetings of the minds of Stancor's men, you see the STANCOR line as it is today—the industry's only complete line of transformers and packs, condensed into a minimum number of units and competitively priced.

These same men determine the best type of catalog for you to use in presenting these products. THIS catalog is one of them. The others are shown at the right of this page. If you desire any of them, see your nearest STANCOR jobber.

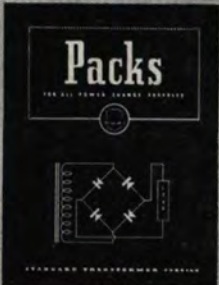
After reading STANCOR'S presentation in this catalog and comparing the products, you can readily understand why STANCOR is the leader in its field. Much of it can be traced to those many uninterrupted, unhurried conferences IN THE QUIET OF THE NIGHT.

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