COLLINS

30 SERIES TRANSMITTERS

★

Instruction Book

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MANUFACTURED BY

COLLINS RADIO COMPANY

CEDAR RAPIDS IOWA U. S. A.

PRICE TEN DOLLARS

INSTRUCTIONS

COLLINS Type 30J

MODEL 15

RADIO TRANSMITTER

Output 250 Watts Radiotelegraph

Output 250 Watts Radiotelephone

Frequencies

Manufactured For

By

COLLINS RADIO COMPANY

CEDAR RAPIDS, IOWA U. S. A.

42-1

W A R N I N G

OPERATION OF THIS EQUIPMENT INVOLVES THE USE OF HIGH VOLTAGES WHICH ARE DANGEROUS TO LIFE. OPERATING PERSONNEL SHOULD AT ALL TIMES OBSERVE ALL THE SAFETY RULES LISTED BELOW. DO NOT CHANGE TUBES OR MAKE ADJUSTMENTS INSIDE EQUIPMENT WITH HIGH VOLTAGE SUPPLY ON. DO NOT DEPEND UPON DOOR SWITCHES FOR PROTECTION BUT ALWAYS SHUT DOWN POWER EQUIPMENT AND OPEN MAIN SWITCH IN POWER SUPPLY CIRCUIT. ALWAYS DISCHARGE AND GROUND CIRCUITS PRIOR TO TOUCHING THEM.

Since the use of high voltages which are dangerous to human life is necessary to the successful operation of the radio transmitting equipment covered by these instructions, certain precautionary measures must be carefully observed by the operating personnel during the adjustment and operation of the equipment.

The major portions of the equipment are within metal cabinet enclosures, provided with access doors which are generally fitted with safety interlock switches which remove dangerous voltages within the cabinets when access doors are open.

Interlocks are also provided on certain removable panels within the cabinets. Other panels, if removed, will not cause interlocks to function and will thereby allow access to circuits carrying voltages dangerous to human life.

KEEP AWAY FROM LIVE CIRCUITS: Under no circumstances should any person reach within a cabinet with interlocked gates while power supply line switches to the equipment are closed; or handle any portion of exposed equipment which is supplied with power; or to connect any apparatus external to the cabinets to circuits within the cabinets; or to apply high voltages to the equipment even for testing purposes while any non-interlocked portion of the cabinet is removed. Whenever feasible in testing circuits, make continuity and resistance checks rather than directly checking voltage at various points when any high voltage is applied to the transmitter circuits.

DON'T SERVICE OR ADJUST ALONE: Under no circumstances should any person reach within a cabinet for the purpose of servicing or adjusting the equipment without the presence or assistance of another person capable of rendering aid.

DON'T TAMPER WITH INTERLOCKS: Door or safety interlock switches should not be removed or short circuited, nor should reliance be placed upon the interlock switches for removing voltages from the equipment.

GUARANTEE

This equipment is guaranteed against defects in material, workmanship or manufacture, for a period of one year from the date of delivery. Our obligation under this guarantee is limited to repairing or replacing any item which shall prove, by our examination, to be thus defective, provided the item is returned to the factory for inspection with all transportation charges paid. Before returning any item believed to be of defective material, workmanship or manufacture, a detailed report must be submitted to the company giving exact information as to the nature of the defect. The information shall include, in as much detail as possible, all subject material listed under instructions for replacement of parts. Upon receipt of the report by the company, a returned equipment tag will be forwarded to the shipper without delay. The returned equipment tag must accompany all shipments of defective parts. No action will be taken on any equipment returned to the company unless the shipment includes the return tag.

THE COLLINS RADIO COMPANY

REPLACEMENT OF PARTS

In case a replacement under the guarantee is desired, a full report must be submitted to the company. This report shall cover all details of the failure and must include the following information:

(A) Date of delivery of equipment.
(B) Date placed in service.
(C) Number of hours in service.
(D) Part number of item.
(E) Item number (obtain from Parts List of Schematic Diagram).
(F) Type number of unit from which part is removed.
(G) Serial number of unit.
(H) Serial number of the complete equipment.
(I) Nature of failure.
(J) Cause of failure.
(K) Remarks.

When requisitioning replacement parts, the following information must be furnished:

(A) Quantity required.
(B) Part number of item.
(C) Item number (obtain from Parts List or Schematic Diagram).
(D) Type number of unit
(E) Serial number of unit.
(F) Serial number of equipment.

NOTE: Blank Service Report forms will be found in the appendix of this instruction book.

COLLINS TYPE 30J TRANSMITTER

I DESCRIPTION

GENERAL

The Collins Type 30J Transmitter is designed for general purpose applications. The radio frequency range is 15 to 60 megacycles with a rated carrier output, both telephone and telegraph, of 250 watts at frequencies less than 30 megacycles and an output of 200 watts at the ultra-high frequencies.

The output stage of the 30J is operated Class "C", permitting the full output to be obtained at a maximum efficiency, and high level Class "B" plate modulation with zero bias tubes employed to obtain a minimum of power consumption. The transmitter is capable of being modulated 100 per cent with the audio harmonic distortion less than 10 per cent. The audio frequency response is uniform within 1.5 db from 50 to 5000 c.p.s. The carrier noise is more than 40 db below 100 per cent modulation.

A full complement of meters is provided so that a complete check is obtained of all important circuit functions. A switch is used in the excitation stages to successively apply power and at the same time to switch the grid and plate meters.

The transmitter is completely self-contained except for the microphone and key. It is built in a sturdy cabinet with modern artistic styling. The cabinet is 60 inches tall and occupies a floor space of 20 by 14 inches. Special features of the cabinet include a hinged rear door, coil access window, and a meter panel mounting behind glass.

OSCILLATOR

The 30J employs a pentode oscillator which is controlled by a low temperature coefficient quartz crystal, providing an oscillator having high frequency stability. The oscillator is designed so that power output can be obtained on the harmonics as well as on the fundamental frequency of the crystal. A plug-in tank coil is used.

DESCRIPTION

FIRST AMPLIFIER

This stage employs a beam power tube with a plug-in tank coil and is operated as a frequency doubler when required. The grid circuit is capacitively coupled to the oscillator and uses a combination of fixed and grid leak bias. When the transmitter is operating on crystal frequency, the tube in this stage is not used. By changing the plate lead to the oscillator tube the tank circuit becomes the oscillator tank circuit.

SECOND AMPLIFIER

This stage employs two beam power tubes with a plug-in plate tank coil in combination with the final amplifier grid tank coil to which it is inductively coupled. At frequencies less than 20 megacycles, this stage is always operated as a straight push-pull amplifier. At higher frequencies the stage operates as either a push-push doubler or as a push-pull tripler depending on the frequency. The grid circuit is capacitively coupled to the preceding stages and uses a combination of fixed and grid leak bias. The tubes are capacitively neutralized.

FINAL AMPLIFIER

The final radio frequency amplifier uses two type 813 tubes operating in push-pull. These tubes are operated as plate modulated Class "C" amplifiers. A combination of fixed and grid leak bias is employed in the grid circuit which is inductively coupled to the output of the preceding stage. The stage is capacitively neutralized. The final amplifier employs a balanced pi-tank output network.

RADIO FREQUENCY OUTPUT CIRCUIT

The output circuit used in the 30J Transmitter consists of a "pi" section plate tank circuit. It is principally designed to work into a balanced transmission line with high harmonic attenuation. The network is arranged, however, so that a variety of output circuit configurations may be obtained. As a matter of fact, the entire output network may readily be replaced by a special unit when special circuit configurations are desired.

DESCRIPTION

FREQUENCY CHANGING SYSTEM

Plug-in coils are used throughout in the 30J Transmitter. Over the intermediate frequency range the buffer coils and power amplifier grid coils only are changed, the power amplifier output coils being of a tapped variety which permits of adjustment over a wide frequency range.

AUDIO AMPLIFIER AND MODULATOR

A single speech amplifier-modulator unit is employed in the 30J Transmitter. The input consists of a 6J7 tube and is designed for use with a diaphragm type crystal microphone. An intermediate, transformer coupled, 6J7 voltage amplifier stage comes next and is followed by two 6F6 tubes operating Class "A" push pull, which serve to drive the modulator stage. The class "B" modulator stage consists of a pair of type C-120 zero bias tubes. These tubes are capable of supplying 250 watts of audio power with negligible amount of audio frequency distortion. The modulation transformer is arranged with two secondary windings in order that the screen grid circuit of the power amplifier tube can be modulated to the same degree and in phase with the plate circuit. For 100% modulation, a pure tone input to the modulator of approximately -30 db across 500 ohms is required (using 6 mw. as as zero level).

POWER SUPPLIES

The 30J Transmitter uses three separate d-c power circuits. These consist of a bias supply, a low voltage supply for the low power buffer stages and a high voltage supply for the power amplifier and modulator stages.

The bias supply consists of one 5Z3 rectifier tube in a single phase, full wave rectifier circuit. The bias supply plate transformer has 110 volt, 50-60 c.p.s. primary. The d-c output of this system is approximately 375 volts, and provides fixed bias for the final radio frequency amplifier and plate power for the speech amplifier.

DESCRIPTION

The low voltage plate supply consists of two type 866A mercury vapor tubes in a single phase, full wave rectifier circuit. This supply is operated from 110 volts, 50-60 c.p.s. source, and furnishes plate and screen power to the low level r-f stages. This power unit also furnishes screen power to the 813 power amplifier tubes.

The high voltage plate supply consists of two type 866A mercury vapor tubes in a single phase, full wave rectifier circuit. It is operated from 110 volts 50-60 c.p.s. source and furnishes plate power to the radio frequency power amplifier and the modulator stages.

CONTROL CIRCUIT

A simplified power control circuit is employed in the 30J Transmitter. The three toggle switches labeled "FILAMENT POWER", "PLATE POWER" and "SEND-RECEIVE", control the filament power, the 1250 volt plate power, and the 500 volt plate power and bias power, respectively. The "SEND-RECEIVE" switch is connected in such a manner that if it is operated alone, it disconnects both the 1250 and 500 volt plate supplies. The "TELEPHONE-TELEGRAPH" switch disconnects the modulator filaments and opens the keying circuit when it is placed in the telegraph position. This switch also operates a relay in the modulator unit which shorts the modulation transformer and part of the 1250 volt filter when the telegraph position is used. Two door interlock switches are employed in the 30J Transmitter. One switch is placed on the access door in the front of the unit. This switch cuts off only the 1250 volt supply when the access door is open. In this way the buffer stages may be tuned through the door. The other door interlocking switch is placed upon the rear cabinet door and cuts off both the 1250 and 500 volt rectifiers.

NOTE: Neither of these door interlocking switches should be shorted out under any circumstances.

DESCRIPTION

KEYING SYSTEM

This transmitter uses grid-block keying of the exciter amplifiers. A half-wave rectifier is connected across half of the L.V. plate transformer so as to apply a negative bias of approximately 190 volts to the grids of the first and second r-f amplifiers and to the oscillator suppressor so as to effectively block excitation to the final amplifier.

ASSOCIATED APPARATUS

The transmitter is completely self-contained as described except for microphone, telegraph key and antenna. It is recommended that a diaphragm type crystal microphone be used with this transmitter.

II INSTALLATION

CABINET

The 30J Transmitter is shipped with the units removed from the cabinet and packed separately. The cabinet should be located for convenience of operation, but at the same time consideration should be given to power outlet, antenna and ground connections. Sufficient clearance should also be provided so as to allow for the rear door to swing back full out of the way. Before placing any of the units in the cabinet, mount the style strips, the meter panel glass, the meter panel and the front access door in the order named. The antenna blocking condenser and the resistors that mount on the under side of the cabinet roof should next be put in place and the connections made to them and the meters.

UNITS

The first of the units to be installed are the two high voltage filter chokes which mount on the bottom of the cabinet. Make the connections to the chokes. Next put the plate transformer in place and connect it to the cable.

The chassis type units should now be put in place above the iron core units. First is the transformer-rectifier tube chassis, next the modulation chassis, then the r-f unit, and last the r-f output network. Each of the cable connections is tagged for convenience in reassembling the transmitter.

EXTERNAL CONNECTIONS

External connections are as follows: 110 volt a-c power, telegraph key, microphone, antenna and ground. The 110 volt line is connected directly to the fuse block at the bottom of the cabinet. The key and ground connections are made to the nine terminal bakelite strip at the bottom of the cabinet. These terminals are engraved with the proper designations. The microphone plug is passed through an opening in the right side of the cabinet and inserted in the receptacle on the rear of the modulator unit. Antenna connections are made to the two insulated terminals on the top of the transmitter cabinet.

INSTALLATION

Place all power switches in the OFF position before attempting to make any external connections.

Remote power switches may be installed by making proper connections to the terminal strip at the bottom of the cabinet. These terminals were arranged to be used with the Type 14NA Control Unit; however, individual switches may be installed if desired.

III ADJUSTMENT OF APPARATUS

PRELIMINARY INSPECTION

Inspect cables and wiring and make certain all terminal connections are tight. Inspect each unit for loose screws or bolts. Any loose connections, screws or bolts, should be made tight.

INSERTION OF TUBES

Each of the units requires tubes in accordance with the lists shown below:

R-F UNIT	MODULATOR	RECTIFIERS
1 - 802 Oscillator	1 - 6J7 Input	1 - 5Z3 Bias Supply
1 - 807 1st Amp.	1 - 6J7 Voltage Amp.	1 - 45 Keying
2 - 807 2nd Amp.	2 - 6F6 Audio Drivers	2 - 866A L.V. Supply
2 - 813 Power Amp.	2 - C-120 Modulators	2 - 866A H.V. Supply

The locations of the tubes in the R-F Unit are indicated directly on the chassis. When placing the plate leads on the tubes use care so as to avoid putting any mechanical strain on the glass envelope.

In the Modulator Unit the input and first amplifier tubes (6J7) should be placed in the first two sockets at the rear of the chassis and the two driver tubes (6F6) placed directly in front of them. The two modulator tubes (C-120) should be placed in the two large sockets.

The rectifier tubes are all located on the Power Unit. The sockets for the 5Z3 and 45 tubes are marked. The four remaining sockets are for the 866A tubes.

COILS

The plug-in coil units for the oscillator and first amplifier stages are wound on ceramic forms fitted with prongs to fit medium seven-prong sockets. Each coil is shielded with a

2 x 2 x 4 inch aluminum can. This type of coil is designated as the 7000B series. The name plate on each coil further indicates the type of coil as related to pin connections and frequency.

When the transmitter is being operated upon the crystal frequency, the first amplifier tube is not used and the yellow plate lead is placed on the 802 oscillator tube. It should be noted at this time that whereas only one actual tuning unit is required when operating on the fundamental frequency of the crystal, it is necessary to place a type 7000B-8 coil unit in the oscillator coil socket in order that proper screen voltage may be supplied to the 802 oscillator tube. The type 7000B-8 unit consists of a plug-in base and shield the same as the other 7000B units; however, this unit contains no coil but a jumper connection which performs the function of connecting the proper d-c voltage to the screen circuit of the oscillator tube. When operating on other frequencies than crystal frequency, both the 802 and 807 tubes are employed. In this case the green plate lead is placed upon the 802 oscillator tube and the yellow plate lead is placed upon the 807 tube. The coil identification numbers for the amateur bands and the proper coil arrangement are shown in Table I. As indicated, each coil unit is stamped with the kc identification of the band to which that particular coil will tune. Also the proper crystal frequency is indicated. As shown by the table, a number of different coil and crystal combinations may be employed. In this way it can be seen that a minimum number of coils is required.

The r-f coil units for the remainder of the stages are as follows:

Combination 2nd Amp. Plate Tank - and P.A. Grid Tank - Type 131C.

Pi-Tank Output Network - Type 130B.

The 131C Unit plugs in the jack base on the R.F. Unit, and the 130B Coils plug in the jack on the R.F. Output Network.

TABLE I

TABLE FOR USE OF COILS IN 30J TRANSMITTER

OPERATING FREQUENCY KC.	CRYSTAL FREQUENCY KC.	POSITION #1 OSCILLATOR COIL SOCKET	POSITION #2 BUFFER COIL SOCKET	POSITION OF GREEN PLATE LEAD	POSITION OF YELLOW PLATE LEAD	GRID TANK UNIT	OUTPUT COIL UNIT
1715 to 2000	1715 to 2000	7000B-8	7000B-7 1700 KC.	On Insulated Post	On 802 Osc. Tube	131C-11 1700 KC.	130BA-3
3500 to 4000	1750 to 2000	7000B-7 1700 KC.	7000B-4 3500 KC.	On 802 Osc. Tube	On 807 Buff. Tube	131C-11 3500 KC.	130BA-2
3500 to 4000	3500 to 4000	7000B-8	7000B-7 3500 KC.	On Insulated Post	On 802 Osc. Tube	131C-11 3500 KC.	130BA-2
7000 to 7300	3500 to 3650	7000B-7 3500 KC.	7000B-4 7000 KC.	On 802 Osc. Tube	On 807 Buff. Tube	131C-12 7000 KC.	130BA-1
14000 to 14400	3500 to 3600	7000B-7 7000 KC.	7000B-4 14000 KC.	On 802 Osc. Tube	On 807 Buff. Tube	131C-12 14000 KC.	130BA-1
28000 to 30000	3500 to 3750	7000B-4 7000 KC.	7000B-4 14,000 KC.	On 802 Osc. Tube	On 807 Buff. Tube	131C-9 28000 KC.	130BC-2
56000 to 60000	4667 to 5000	7000B-4 10,000 KC.	7000B-4 20,000 KC.	On 802 Osc. Tube	On 807 Buff. Tube	131C-14 56,000 KC.	130BC-1

ADJUSTMENT OF APPARATUS

CRYSTALS

A five-prong socket is provided in the R.F. Unit for a plug-in mounted crystal. Crystals furnished in the Collins Type 2C fixed airgap holders provide a frequency accuracy of .04 per cent. If greater accuracy is required, a crystal mounted in an adjustable airgap holder such as Collins Type 294 is recommended. The mounting will give an accuracy of .01 per cent.

PRELIMINARY ADJUSTMENT

Make certain that the coils, tubes and crystal are in their proper positions as previously described. The preliminary adjustment should then be made as noted below.

1. Place the SEND-RECEIVE and the PLATE switches in the OFF position. Place the TELEPHONE-TELEGRAPH switch in the TELEGRAPH position. Close the key or place a short on the KEY terminals.

2. Turn the FILAMENT POWER switch ON. Note whether the glass tubes are lighted to normal brilliancy. The modulator tubes will light only if the Telephone-Telegraph switch is in the Telephone position. Adjust the filament rheostat so that the filament voltmeter reads 10 volts.

NOTE: Permit the equipment to operate in this manner, with filament power only turned on, for a period of 15 minutes. This will permit the 866A rectifier tubes to attain proper operating conditions. Such procedure is necessary only when new rectifier tubes are placed in service.

TUNING PROCEDURE

The tuning controls and switches in the exciter section are engraved with a letter on each dial. The oscillator tuning condenser is engraved with the letter "A". The first amplifier tuning condenser is engraved with the letter "B". The excita-

tion plate and grid switch carries the designation "C". The second amplifier plate tuning condenser is engraved "D", while the final amplifier grid tuning condenser is engraved "E".

When the switches are all in the off position, including the switch C on the r-f chassis, the filament power is turned on. The switch C is then placed in the number 1 position, the oscillator tuning control A is then tuned for a maximum reading on the grid current meter. A grid current reading of 1½ to 2 ma. should be obtained. Switch C is then placed in the number 2 position. The first amplifier tuning condenser B is then adjusted for a maximum grid current reading. A reading of 2 to 3 ma. should now be obtained. The switch C is then turned to the number 3 position. The tuning control D is adjusted for minimum plate current to the excitation plate meter and tuning control E is adjusted for maximum grid current to the final amplifier. The tuning controls A, B, D and E may then be readjusted for maximum grid current to the final amplifier after which the plate power may be turned on and the power amplifier adjusted for proper loading. The pi tank circuit controls are on the front of the transmitter just below the meter panel. The control on the left should be adjusted for resonance, while the one on the right is adjusted for proper plate current loading.

When operation is desired on the crystal frequency and the coils are placed in the unit as shown on the coil table, and the plate leads have been adjusted to the proper position, the oscillator tuning control A is not employed. In this case the switch C is immediately placed to the number 2 position, after which the first amplifier tuning control B becomes the oscillator control and is adjusted for a maximum grid current reading and a minimum excitation plate current reading. The tuning procedure then follows as directed above.

Before connecting the transmitter to the antenna, it is good practice to use a dummy load in checking the operation. This dummy load may be a 300-watt light bulb or two 150 watt bulbs in series. These should be connected directly across the antenna terminals.

In adjusting the loading on the final amplifier, tune the left-hand condenser for resonance and the right-hand con-

denser for proper plate current loading. Each time the setting of the antenna loading condenser is changed, the plate condenser must be tuned to resonance. If proper conditions for operation cannot be obtained, change the position of the tap on the output network coils and repeat. The tap must be in the same place on each coil or the output circuit will be unbalanced.

The output network may be arranged for either a balanced or an unbalanced load. The circuit connections are shown on the 122C Schematic Diagram drawing number 5067. The balanced circuit employed is a conventional pi section network designed for operation into a balanced load. Unbalanced operation is accomplished with the use of a 130E phasing coil, L_1. As shown in the diagram, this coil is placed directly across the output condenser of the network. Placing the jumper in the "B" position (see diagram), one antenna terminal is connected to the rotor plates of the output condenser. This terminal should be connected to the ground of the antenna circuit. The other terminal remains connected the same as for balanced output. This terminal should be connected to the antenna.

Tuning adjustments for unbalanced operation of the network, on the higher frequency bands, are identical to the adjustments for balanced output. When the unbalanced circuit is used on the low-frequencies, special pads are required and specific instructions are in order.

FIVE METER OPERATION

The tuning adjustments for 5 meter operation are identical to the adjustments for the lower frequency bands. When making adjustments at the ultra-high frequencies, it should be remembered that the tuning will appear to be more critical than at lower frequencies because a small change in capacity will tune over a greater frequency range. It should also be noted that the "minimum" dips in plate current are not as noticeable on the ultra-high frequencies as they are on the lower frequency bands.

ADJUSTMENT OF APPARATUS

NEUTRALIZATION

The screen grid tubes such as the type 813 used in the power amplifier of this transmitter normally do not require neutralization; however, when these tubes are employed on the ultra-high frequency bands, circuit characteristics are such that a slight amount of neutralization is required. For this reason very small neutralizing capacities have been installed in this transmitter. These have been adjusted for proper operation on a frequency of 60 mc. These condensers have been fixed and can not be adjusted. No attempt should be made to alter this neutralizing circuit.

VI OPERATION AND MAINTENANCE

GENERAL

For best results, the 30J Transmitter must be kept free from dust and dirt. High pressure air and suction vacuum cleaner with hose attachments is recommended for this purpose.

All nuts, bolts and screws should be examined occasionally and loose ones tightened. All electrical connections should be examined and tightened if loose contacts are found.

Filament voltage should be checked at regular intervals and maintained at its proper value. If filaments are operated at low voltage, the life is shortened due to loss of emission; on the other hand excessive voltage will result in shorter life due to local heating of the filament, causing it to burn out.

In handling coils and tubes, great care must be exercised to prevent damage to them by knocking against the side of the cabinet or other equipment. Particular care must be taken to prevent bending of prongs on plug-in coils and tubes.

TELEGRAPH OPERATION

The transmitter may be keyed whenever the "TELEPHONE-TELEGRAPH" switch is in the "TELEGRAPH" position. The transmitter should never be keyed with this switch in the "TELEPHONE" position.

TELEPHONE OPERATION

The "TELEPHONE-TELEGRAPH" switch should never be changed from one position to the other without first turning OFF the plate power switch. It is important that the modulators be operated only when the power amplifier is adjusted for the rated plate current of 300 ma. Tuning adjustments for telephone operation are exactly the same as those for telegraph operation. 100% modulation is obtained by adjusting the gain control until the Amp.-Mod. Plate meter swings up to approximately 500 ma. during voice modulation. The gain control is located on the rear of the modulator chassis. The plate current for 100% mod-

ulation from a pure tone source, such as a sine wave audio oscillator, is 575 ma., but this value is not reached for 100% voice modulation because of the wave form error of the plate current instrument. It is extremely bad practice to allow the plate current to greatly exceed 500 ma. under voice modulated operating conditions, since this will result in over modulation causing serious distortion and interference on adjacent channels. It is possible to speak quite closely to the D-104 crystal microphone, and it is suggested that this practice be followed and that the gain control be adjusted for proper modulation when the operator is speaking in a normal tone of voice. The advantage gained by adjusting the level for close talking is that the variation in level due to movement of the operator is likely to be much less than if the gain control setting is increased so that the operator has to stay a certain distance from the microphone to maintain the desired level.

TABLE II

TYPICAL METER READINGS FOR 30J

	1.5 to 40 Megacycles				40 Megacycles & Over			
	Switch Position				Switch Position			
	Plate Off			Pl.On	Plate Off			Pl.On
	1	2	3	3	1	2	3	3
Filament (Volts a.c.)								
Excitation Plate (ma.)								
Amplifier Grid (ma.)								
Amplifier Plate (ma.)								

Note: Antenna current varies widely due to different antenna circumstances. Typical antenna currents can not, therefore, be given.

TABLE III

VOLTAGES OCCURRING IN THE 30J

Line Voltage 110-115 Volts 50/60 c.p.s.		VOLTS						
		AC	DC					
		Fil.	Grid		Plate		Screen	
			L.F.	H.F.	L.F.	H.F.	L.F.	H.F. *
Oscillator	802	6.3	-22.	-32.	400	470	180	250
1st R-F Amp.	807	6.3	-190.	-128.	470	420	280	300
2nd R-F Amp.	807	6.3	-300.	-190.	470	430	200	260
Final R-F Amp.	813	10.0	-100.	- 90	1250	1250	400	400
Input Sp. Amp.	6J7	6.3	8.		215		-	
2nd Sp. Amp.	6J7	6.3	13.		330		-	
Audio Drivers	6F6	6.3	42.		420		-	
Modulators	C-120	10.0	0		1250		-	
Bias Rectifier	5Z3	5.0	-		420		-	
Keying Rectifier	45	2.5	-		190		-	
L. V. Supply	866A	2.5	-		560		-	
H. V. Supply	866A	2.5	-		1250		-	

*L.F. - Frequencies below 20 meters.
H.F. - 20 meters or above.

NOTE: The above d-c voltages were measured with a 1000 ohm-per-volt meter. For more specific information concerning an individual transmitter, consult the Engineering Test Data sheets which accompany the transmitter.

OPERATION AND MAINTENANCE

PRECAUTIONARY MEASURES

Operation of this equipment involves the use of voltages which are dangerous to life. An interlock is provided on each cabinet door such that the 1250 volt plate power is turned off immediately when a door is opened.

CAUTION: NO ADJUSTMENTS WHATEVER SHOULD BE ATTEMPTED WITHIN THE CABINET WITHOUT TURNING OFF THE HIGH VOLTAGE PLATE POWER CIRCUIT.

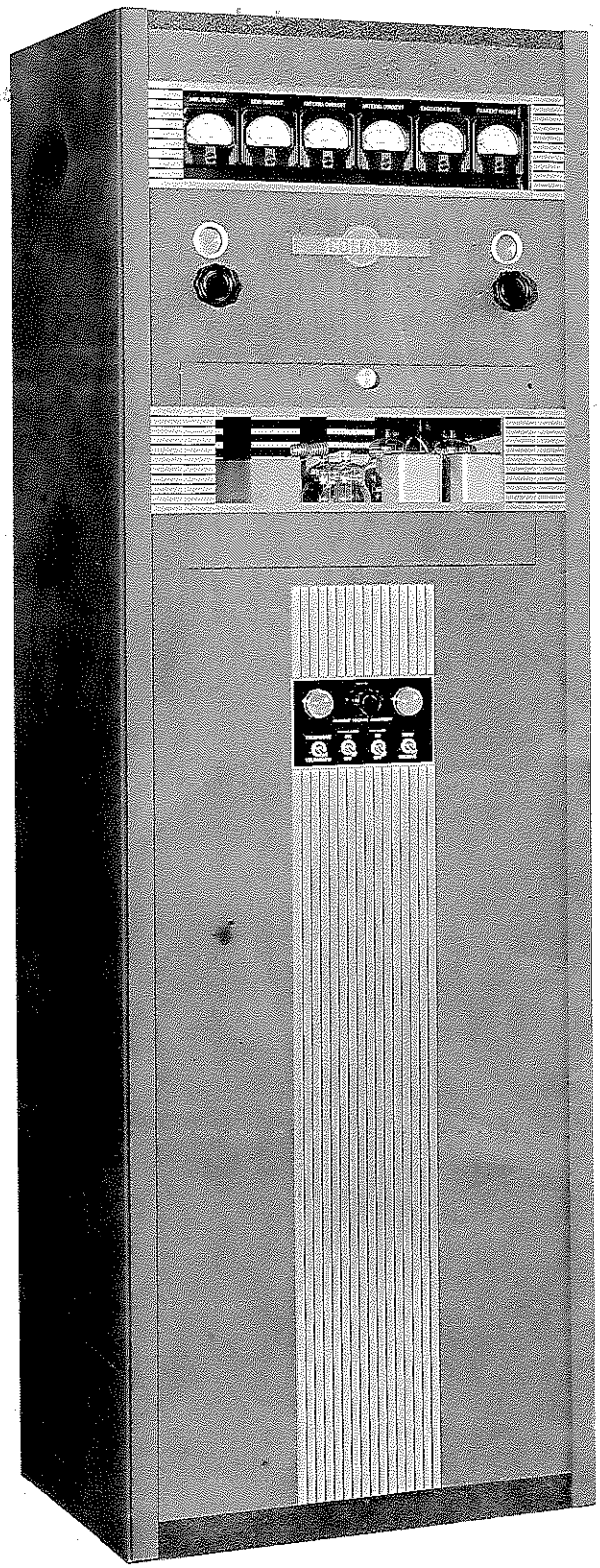
PROPER PLATE CURRENT LOADING

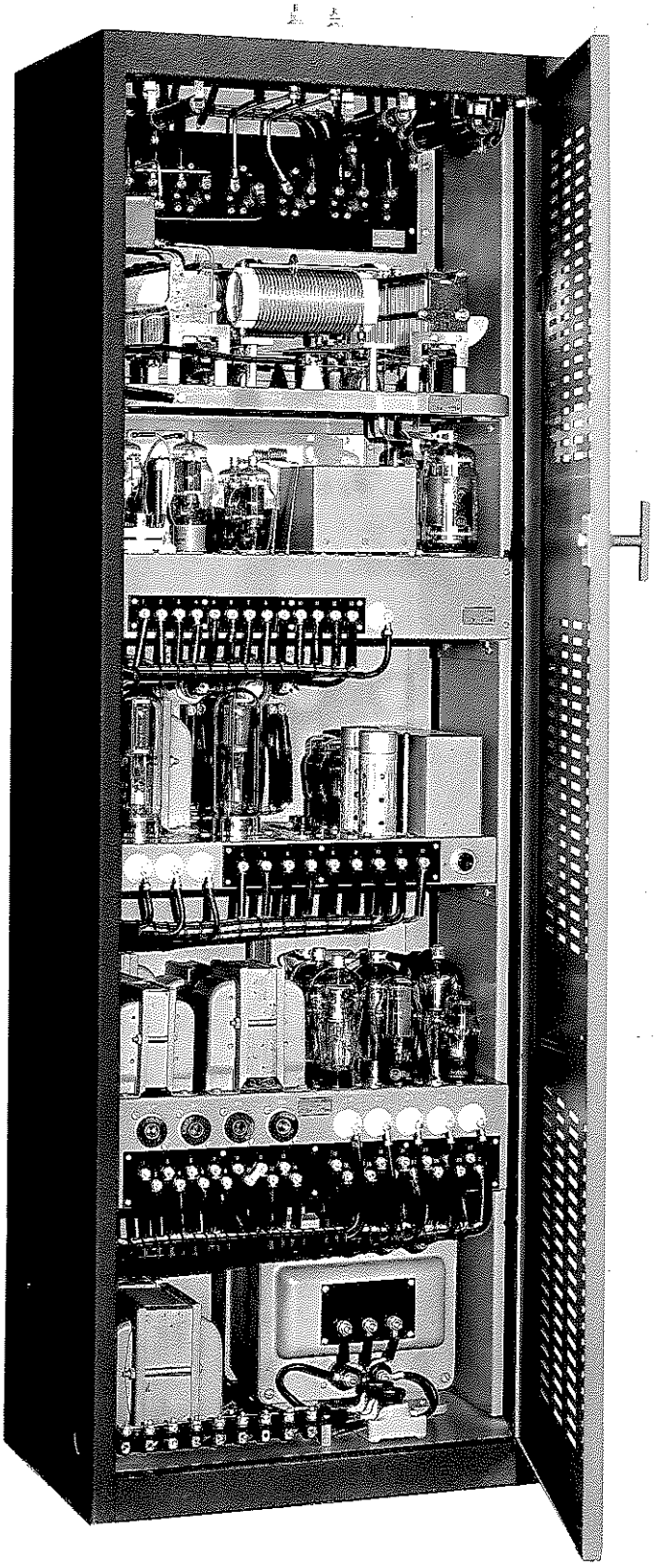
The proper final amplifier plate current loading is 300 ma., however it should be observed that the MOD.-AMP. PLATE meter is located in the cathode circuit of the tubes and reads screen current as well as plate current to the final. Therefore, the proper plate current for Telegraph operation is 345 ma. and for Telephone operation it is 435 ma.

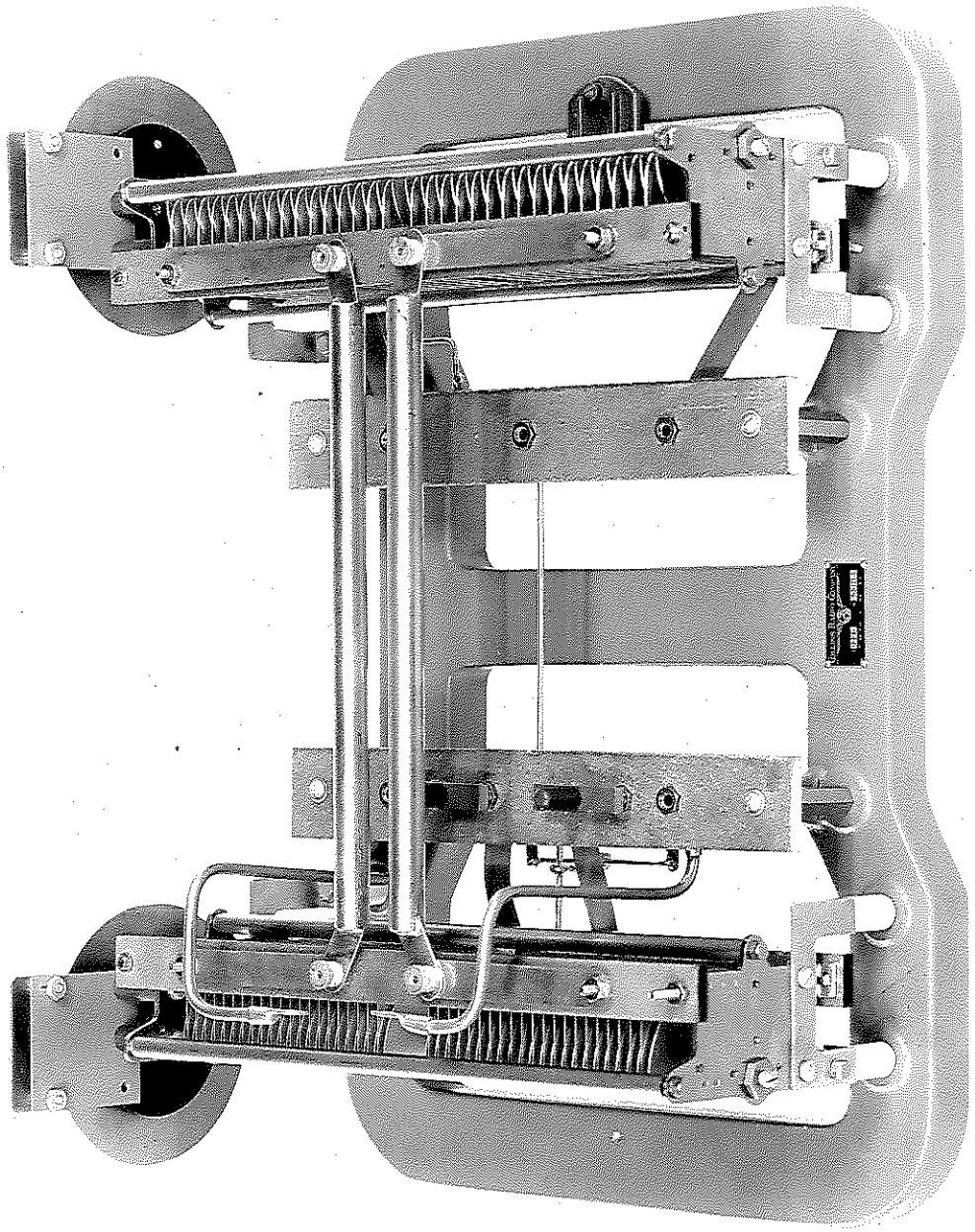
VI SUPPLEMENTARY DATA

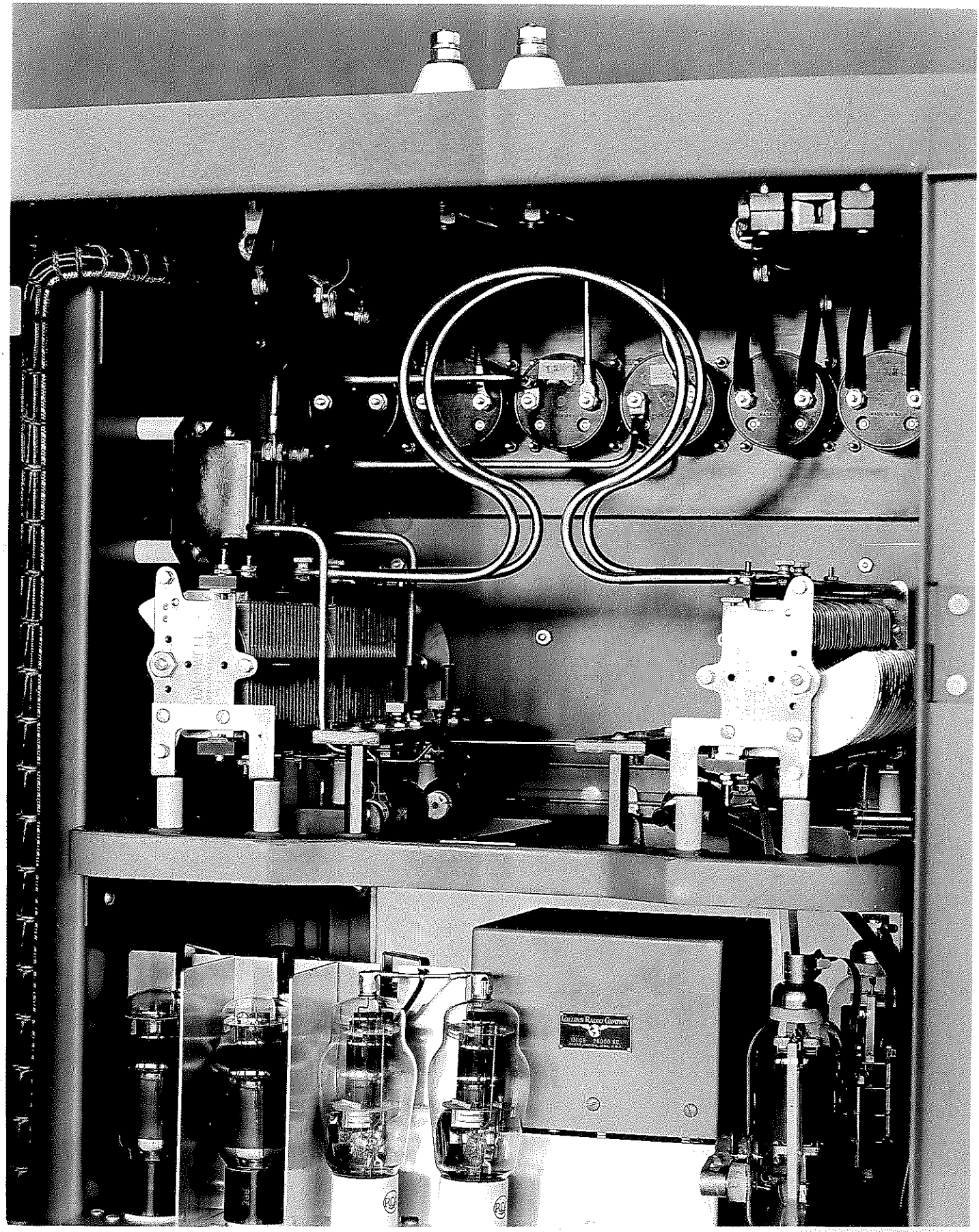
PHOTOGRAPHS

5 Meter Network Inductors
10 Meter Network Inductors
30J Front View
30J Rear View





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PARTS LIST
29H-5 CABINET ASSEMBLY

UNIT A BLEEDER SECTION

Item	Function	Specification	Part No.
1	Bias Voltage Divider	500 ohm 100 w. ±10%	710NE500
2	Bias Voltage Divider	2000 ohm 100 w. ±10%	710NE2M
3	H. V. Bleeder Resistor	50,000 ohm 160 w. ±10%	710NF50M
4			
5	Ant. Blocking Cond.	.002 mfd. 6000 v. ±5%	906N220H
6	Ant. Blocking Cond.	.002 mfd. 6000 v. ±5%	906N220H
7A	Male Section Rear Door Sw.		260N404
7B	Female Section Rear Door Sw.		260N405

UNIT D SWITCH PANEL

8	Filament Rheostat	16 ohm 50 w.	736N16
9A	Fil. Pwr. Pilot Socket		262N136
9B	Fil. Pilot Green Filter		262N237
9C	Pilot Lamp Bulb	125 v. 3 W.	262N331
10A	Plate Pwr. Pilot Socket		262N136
10B	Plate Pilot Red Filter		262N236
10C	Pilot Lamp Bulb		262N331
11A	Male Section Access Door Sw.		260N404
11B	Female Section Access Door Sw.		260N405
12	Filament Power Sw.	DPST Hvy Duty	260N101
13	Send-Receive Switch	DPST Hvy Duty	260N101
14	Plate Pwr. Switch	DPST Hvy Duty	260N101
15	Telephone Telegraph Sw.	DPST Hvy Duty	260N101

UNIT G POWER COMPONENTS

16	Plate Power Trans.		662S448
17	H.V. Filter Choke		668S456A
18	H.V. Filter Choke		668S456A
19	A.C. Line Fuse	20 amp. Plug Type	264N120
20	A.C. Line Fuse	20 amp. Plug Type	264N120

PARTS LIST
80Z-4 METER PANEL

UNIT B

Item	Function	Specification	Part No.
1	Grid Current Meter	0-50 ma. d.c.	450NJ50
2	Excitation Plate Meter	0-500 ma. d.c.	450NJ500
3	Amp.-Mod. Plate Meter	0-600 ma. d.c.	450NJ600
4	Antenna Current Meter	0-3 amp. R.F.	451NJ3
5	Antenna Current Meter	0-3 amp. R.F.	451NJ3
6	Filament Voltmeter	0-15 v. A.C.	452NJ15

122C-7 OUTPUT NETWORK

UNIT H

Item	Function	Specification	Part No.
1	H.V. Bypass Condenser	.001 mfd. 5000 v.	950N210A
2	Antenna Loading Cond.	440 mfd. Dual, Variable	920N35
3	Plate Tank Condenser	240 mfd. Dual, Variable	920N37
4	Isolation Choke	2.5 mh., 0.5 amp.	240N25
5	Plate Choke	2.5 mh., 0.5 amp.	240N25
6	Plate Choke	2.5 mh., 0.5 amp.	240N25

PARTS LIST
10Y-12 R.F. UNIT

UNIT C

Item	Function	Specification	Part No.
1	Osc. Grid Resistor	100,000 ohm, 1 w.	704N100M
2	Osc. Cathode Resistor	1,000 ohm, 10 w.	710NA1M
3	Osc. Screen Resistor	15,000 ohm, 10 w.	710NA15M
4	Osc. Plate Resistor	2,500 ohm 10 w.	710NA2500
5	First Buffer Grid Resistor	100,000 ohm, 2 w.	706N100M
6	First Buffer Parasitic Res.	27 ohm, 1 w.	703N27
7	First Buffer Screen Res.	25,000 ohm, 10 w.	710NA25M
8	First Buffer Plate Res.	1,000 ohm 10 w.	710NA1M
9	Second Buff. Grid. Res.	100,000 ohm, 2 w.	706N100M
10	Second Buff. ParasiticRes.	10 ohm, 1 w.	703N10
11	Second Buff. ParasiticRes.	10 ohm, 1 w.	703N10
12	Second Buff.Screen Res.	20,000 ohm, 10 w.	710NA20M
13	Second Buff. Screen Res.	20,000 ohm, 10 w.	710NA20M
14	Amplifier Grid. Res.	5,000 ohm,10 w.	710NA5M
15	Amplifier Screen Resistor	3,000 ohm 50 w.	710ND3M
16			
17			
18	Osc. Grid Condenser	.000025 mfd. 900 v.	909N425D
19	Osc. Cathode Cond.	.001 mfd. 900 v.	909N310C
20	Osc. Screen Cond.	.006 mfd. 1000 v.	910N260A
21	Osc. Suppressor Cond.	.006 mfd. 1000 v.	910N260A
22	Osc. Plate Cond.	.0005 mfd. 1000 v.	910N350A
23	Osc. Plate Tuning Cond.	100 mmfd. Var.	922N2
24	First Buff. Grid. Cond.	.0001 mfd. 900 v.	909N310C
25	First Buff. Cathode Cond.	.006 mfd. 1000 v.	910N260A
26	First Buff.Screen Cond.	.006 mfd. 1000 v.	910N260A
27	First Buff Plate Cond.	.0005 mfd. 1000 v.	910N350A
28	First Buff.Pl.Res.Bypass	.006 mfd. 1000 v.	910N260E
29	First Buff. Tank Cond.	140 mmfd. Dual	922N6
30	First Buff. EqualizingCond.	30 mmfd. Var.	918N1
31	Second Buff.Cathode Cond.	.006 mfd. 1000 v.	910N260A
32	Second Buff Screen Cond.	.004 mfd. 900 v.	909N240C
33	Second Buff.Screen Cond.	.006 mfd. 1000 v.	910N260A
34	Second Buff.Screen Cond.	.004 mfd. 900 v.	909N240C
35	Second Buff.Screen Cond.	.006 mfd. 1000 v.	910N260A
36	Second Buff. H.V. Bypass	.0005 mfd. 1000 v.	910N350A
37	Second Buff.PlateTankCond.	140 mmfd. Dual	922N6
38	Amp. Grid Tank Cond.	140 mmfd. Dual	922N6
39	Amp. Grid Bias Cond.	.006 mfd. 1000 v.	910N260A
40	Amp. Screen Condenser	.002 mfd. 5000 v.	950N220A

PARTS LIST
10Y-12 R.F. UNIT

Item	Function	Specification	Part No.
41	Amp. Screen Condenser	.002 mfd. 5000 v.	950N220A
42	Amp. Fil.Bypass Cond.	.006 mfd. 1000 v.	910N260A
43	Amp. Fil.Bypass Cond.	.006 mfd. 1000 v.	910N260A
44			
45			
46	Osc. Grid Choke	2.5 mh. 125 ma.	240N2
47	Osc. Cathode Choke	2.5 mh. 125 ma.	240N2
48	Osc. Plate Choke	2.5 mh. 125 ma.	240N2
49	First Buffer Grid.Choke	2.5 mh. 125 ma.	240N2
50	First Buffer PlateChoke	2.5 mh. 125 ma.	240N2
51	Second BufferCathodeChoke	2.5 mh. 125 ma.	240N2
52			
53	Tuning-Stage Selector Sw.	4 pos. 2 Section	259N100

PARTS LIST
9RD-6 MODULATOR UNIT

UNIT E

Item	Function	Specification	Part No.
1	Input Grid Resistor	5 megohm 1/2 w.	702N5meg.
2	First 6J7 Cathode Res.	2000 ohm 1 w.	704N2M
3	Audio Decoupl. Res.	50,000 ohm 2 w.	706N50M
4	Speech Amp. Gain Control	200,000 ohm Pot.	376N102
5	Second 6J7 Cathode Res.	2000 ohm 1 w.	704N2M
6	Audio Decoupl. Res.	10,000 ohm 2 w.	706N10M
7	Equalizing Res.	50,000 ohm 1/2 w.	702N50M
8	6F6 Cathode Resistor	750 ohm 10 w.	710NA750
9	First 6J7R.F.Filter Cond.	.002 mfd. 1000 v.	910N220E
10	First 6J7R.F.FilterCond.	.002mfd. 1000v.	910N220E
11	First 6J7 Cathode Cond.	20 mfd. 100 v.	183N5
12	Audio Decoupl. Cond.	6 mfd. 300 v.	931N28
13	Second 6J7 Cathode Cond.	20 mfd. 100 v.	183N5
14	Audio Decoupl. Cond.	2 mfd. 300 v.	931N11
15	Audio Coupl. Cond.	01 mfd. 600 v.	931N12
16	6F6 Cathode Cond.	20 mfd. 100 v.	183N5
17	Audio Equalizing Cond.	0.00025 mfd. 1000 v.	910N325E
18	Mod. Phasing Cond.	.006 mfd. 5000 v.	950N260A
19	Input R.F. Choke	5.4 μh 0.85 ohm	240N34
20	6J7 Filament Choke	5.4 μh. 0.85 ohm	240N34
21	6J7 Filament Choke	5.4 μh. 0.85 ohm	240N34
22	Audio Interstage Trans.		667S228E
23	Audio Coupling Unit		667S460A
24	Class"B" Driver Trans.		667S138C
25	Modulation Transformer		667S606A
26	Telephone-Telegraph Relay	SPST N.C. Contacts	407N25

PARTS LIST
401N-4 POWER SUPPLY

UNIT F

Item	Function	Specification	Part No.
1	Keying Rectifier Load	25,000 ohm 2 w.	706N25M
2	Keying Resistor	25,000 ohm 2 w.	706N25M
3	Keying Resistor	50,000 ohm 2 w.	706N50M
4	L.V. Bleeder Resistor	25,000 ohm 50 w.	710ND25M
5	Bias Supply Filter Cond.	4 mfd. 600 v.	930N8
6	Bias Output Filter Cond.	6 mfd. 600 v.	930N9
7	L.V. Supply Filter Cond.	8 mfd. 800 v.	930N18
8	L.V. Output Filter Cond.	8 mfd. 800 v.	930N18
9	H.V. Filter Condenser	4 mfd. 2000 v.	930N40
10	H.V. Filter Condenser	4 mfd. 2000 v.	930N40
11	Bias Voltage Bypass Cond.	2 mfd. 600 v.	930N61
12	Keying Voltage Filter Cond.	0.25 mfd. 600 v.	931N10
13	Bias Power Transformer		662S458A
14	L.V. Power Transformer		662S573A
15	5Z3 Fil. Transformer	5 v. 3 a. C.T.	662S509C
16	866A Fil. Transformer	2 Sec. 2.5 v. 10A	662S539
17	Filament Transformer	2.5 v. 5A. 6.3 v. 4A. 6.3 v. 2A. 10 v. 14A	662S638
18	Bias Input Filter Choke	4 hy. 0.4 A	668S75B
19	Bias Output Filter Choke	4 hy. 0.4 A	668S75B
20	L.V. Input Filter Choke	6 hy. 0.3 A	668S467
21	L.V. Output Filter Choke	6 hy. 0.3 A	668S467
22	866 Fil. Pri. Fuse	3 A. Plug Type	264N103
23	Fil. Pri. Fuse	6A Plug Type	264N106
24	L.V. Pri. Fuse	6 A. Plug Type	264N106
25	H. V. Pri. Fuse	15 A. Plug Type	264N115

RECOMMENDED SPARE PARTS FOR COLLINS 30J-15 TRANSMITTER

RESISTORS

Quantity	Part No.	Description
1	376N102	200,000 ohm Potentiometer
1	702N50M	50,000 ohm 1/2 w. Resistor
1	702N5meg	5 megohm 1/2 w. Resistor
2	703N10	10 ohm 1 w. Resistor
1	703N27	27 ohm 1 w. Resistor
1	704N2M	2000 ohm 1 w. Resistor
1	704N100M	100,000 ohm 1 w. Resistor
1	706N10M	10,000 ohm 2 w. Resistor
1	706N25M	25,000 ohm 2 w. Resistor
1	706N50M	50,000 ohm 2 w. Resistor
1	706N100M	100,000 ohm 2 w. Resistor
1	710NA750	750 ohm 10 w. Resistor
1	710NA1M	1000 ohm 10 w. Resistor
1	710NA2500	2500 ohm 10 w. Resistor
1	710NA3M	3000 ohm 10 w. Resistor
1	710NA5M	5000 ohm 10 w. Resistor
1	710NA15M	15,000 ohm 10 w. Resistor
1	710NA20M	20,000 ohm 10 w. Resistor
1	710NA25M	25,000 ohm 10 w. Resistor
1	710ND25M	25,000 ohm 50 w. Resistor
1	710NE500	500 ohm 100 w. Resistor
1	710NE2M	2,000 ohm 100 w. Resistor
1	710NF50M	50,000 ohm 160 w. Resistor

CAPACITORS

3	183N5	20 mfd. 100 v. Condenser
1	906N220H	.002 mfd. 6000 v. Condenser
2	909N240C	.004 mfd. 900 v. Condenser
1	909N310C	.0001 mfd. 900 v. Condenser
1	909N425D	.000025 mfd. 900 v. Condenser
1	910N220E	.002 mfd. 1000 v. Condenser
5	910N260A	.006 mfd. 1000 v. Condenser
1	910N260E	.006 mfd. 1000 v. Condenser
1	910N325E	.00025 mfd. 1000 v. Condenser
2	910N350A	.0005 mfd. 1000 v. Condenser
1	918N1	30 mmfd. Adjustable Condenser
1	922N2	100 mmfd. midget Var. Condenser
1	922N6	140 mmfd. Dual Midg. Var. Condenser
1	930N8	4 mfd. 600 v. Condenser
1	930N9	6 mfd. 600 v. Condenser

Recommended Spare Parts for Collins 30J-15 Transmitter

Quantity	Part No.	Description
1	930N18	8 mfd. 800 v. Condenser
1	930N40	4 mfd. 2000 v. Condenser
1	930N61	2 mfd. 600 v. Condenser
1	931N10	0.25 mfd. 600 v. Condenser
1	931N11	2.0 mfd. 300 v. Condenser
1	931N12	0.1 mfd. 600 v. Condenser
1	931N28	6 mfd. 300 v. Condenser
1	950N210A	.001 mfd. 5000 v. Condenser
1	950N220A	.002 mfd. 5000 v. Condenser
1	950N260A	.006 mfd. 5000 v. Condenser
	TRANSFORMERS AND CHOKES	
1	662S458A	500/500 v. 0.212 amp.110 v. Pri.
1	662S573A	700/700 v. 0.283 amp. 110 to 125 v. Pri.
1	662S509C	6.3 v. C.T. 3 amp. 100 to 120 v. Pri.
1	662S539	2.5 v. C.T. 10A. 2.5 v. C.T. 10A. 100 to 120 v. Pri.
1	662S638	6.3 v. C.T. 4.0 amp. 6.3 v. C.T. 2.0 amp. 2.5 v. C.T. 1.5 amp. 10 v. C.T. 14 amp. 100 to 120 v. Pri.
1	667S138C	5140 ohm pri. to 2000 ohm Sec.
1	667S228E	20,000 ohm pri. to 80,000 ohm push pull Sec.
1	667S460A	20,000 ohm pri. to 80,000 Sec. Trans. 600 hy choke.
1	668S75B	4.0 hy at 0.4 amps. 41 ohm d.c. Res.
1	668S467	6.0 hy at 0.3 amps. 70 ohm d.c.Res.
	MISCELLANEOUS PARTS	
3	240N2	2.5 mh. 0.125 amp. R.F. Choke
2	240N25	2.5 mh. 0.5 amp. R.F. Choke
2	240N34	5.4 μh. 1.0 amp. R.F. Choke
2	260N101	15 amp. 125 v. DPST Hvy Duty Toggle Switch
10	262N331	125 v. 3 w. Candelabra Base Light Bulb
10	264N103	3 amp. 125 v. Plug Fuse
10	264N106	6 amp 125 v. Plug Fuse
10	264N115	15 amp. 125 v. Plug Fuse
10	264N120	20 amp. 125 v. Plug Fuse
1	407N25	60 cycle A.C. 2.4 ohm Coil; 1 N.O. Contact
1	451NJ3	0-3 amp. 2" R.F. Ammeter

SERVICE REPORT
REPLACEABLE COMPONENTS

Please fill out this form and submit it by mail to the COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA, USA, when reporting failure of component parts. A properly completed report must be submitted for each part before any accounts will be adjusted. An accurate report will assure the correct replacement part.

IDENTIFICATION OF COMPONENT

Owner _____

Equipment Type No. _____ Serial No. _____

Unit Type No. _____ Serial No. _____

Component Item No. _____ Stock No. _____

Description of Component _____

SERVICE DATA

Date Equipment Received _____ Date in Service _____

Date of Failure _____ Hours of Service _____

NATURE OF FAILURE _____

OPERATING DATA AND CONDITIONS (At time of Failure)

Line Voltage _____ Abnormal Meter Readings _____

Ambient Temperature _____ °F. Electrical Storm? _____

Associated Fuse Failure _____

Additional Comments _____

PRESENT STATUS OF EQUIPMENT

Out of Service _____ Component Replaced _____

Temporary Repair (state nature) _____

Date of Report _____ Signed _____

-o-

THESE ENTRYS TO BE MADE BY THE COLLINS RADIO COMPANY

Received _____ R.T. No. _____ Replacement Order No. _____

Results of Factory Test: _____

Disposition _____

Form CDF-7

SERVICE REPORT
REPLACEABLE COMPONENTS

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Additional Comments _____

PRESENT STATUS OF EQUIPMENT

Out of Service _____ Component Replaced _____

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-o-

THESE ENTRYS TO BE MADE BY THE COLLINS RADIO COMPANY

Received _____ R.T. No. _____ Replacement Order No. _____

Results of Factory Test: _____

Disposition _____

Form CDF-7

LE I

IN 30J TRANSMITTER

½ L	POSITION OF GREEN PLATE LEAD	POSITION OF YELLOW PLATE LEAD	GRID TANK UNIT	OUTPUT COIL UNIT
	On Insulated Post	On 802 Osc. Tube	131C-13 1700 KC.	130BA-3
	On 802 Osc. Tube	On 807 Buff. Tube	131C-11 3500 KC.	130BA-2
	On Insulated Post	On 802 Osc. Tube	131C-11 3500 KC.	130BA-2
	On 802 Osc. Tube	On 807 Buff. Tube	131C-12 7000 KC.	130BA-1
	On 802 Osc. Tube	On 807 Buff. Tube	131C-12 14000 KC.	130BA-1
	On 802 Osc. Tube	On 807 Buff. Tube	131C-9 28000 KC.	130BC-2
	On 802 Osc. Tube	On 807 Buff. Tube	131C-14 56,000 KC.	130BC-1

...LE I

...S IN 301 TRANSMITTER

...#2 ...OIL	POSITION OF GREEN PLATE LEAD	POSITION OF YELLOW PLATE LEAD	GRID TANK UNIT	OUTPUT COIL UNIT
...	On Insulated Post	On 802 Osc. Tube	1316-11 1700 KC.	1305A-3
...	On 802 Osc. Tube	On 807 Buff. Tube	1316-11 3500 KC.	1305A-2
...	On Insulated Post	On 802 Osc. Tube	1316-11 3500 KC.	1305A-2
...	On 802 Osc. Tube	On 807 Buff. Tube	1316-12 7000 KC.	1305A-1
...C.	On 802 Osc. Tube	On 807 Buff. Tube	1316-12 14000 KC.	1305A-1
...C.	On 802 Osc. Tube	On 807 Buff. Tube	1316-9 28000 KC.	1305C-2
...C.	On 802 Osc. Tube	On 807 Buff. Tube	1316-14 56,000 KC.	1305C-1

BANDS IN Kilo Cycles	XTAL USED Kilo Cycles	TYPE COIL POSITION #1 FREQ. IN K.C.	TYPE COIL POSITION #2 FREQ. IN K.C.	813 INPUT ASSEMBLY FREQUENCY IN K.C.	BALANCED NETWORK 2 COILS REQUIRED	UNBALANCED NETWORK PHASING COILS REQUIRED
1500 / 2100	1500 / 2100	7000 B-8 190 NC P-4	7000 B-7 1500 - 2100 K.C. 93T TBW 24 DS C.T. 190 NC P3	131C-11 PLT. 98T. DBW GRID 80T. DBW 24DS CT 3T LINK 10,000 W 190NC02	130BA-3 54T #14BB SLW 190NC04	192B-12 54T 14BB SLW 190NC04 USE PLUG IN CONDENSERS.
2100 / 3000	2100 / 3000	7000 B-8 190NCP4	7000 B-7 2100 - 3000 K.C. 66T DBW 24DS CT 190NCP3	131C-11 PLT 53T. DBW. GRID 47T. DBW. 24DS. CT. 2T. LINK 10000 W 190NC02	130BA3	
3000 / 4200	3000 / 4200	7000 B-8 190NCP4	7000 B-7 3000 - 4200 KC 38T D.B.W. 24DS C.T. 190NCP3	131C-11 PLT. 43T. S.L.W. GRID 40T. S.L.W. 24DS. CT. 2T. LINK 10000 W 190NC02	130BA-2 29T #10 BB SLW 190NC03	
4200 / 5700	2100 / 2850	7000 B-10 2100 - 2850 K.C. 47T - D.B.W. 24 DS C.T. 190 NC P3	7000 B-7 4200 - 5700 KC 34T SLW. 24 DS C.T. 190 NC P3	131C-11 PLT 25T. SLW. GRID 23T. SLW. 24DS CT. 2T. LINK. 15000 W. 190NC02	130BA-2	
5700 / 8000	2850 / 4000	7000 B-10 2850 - 4000 KC 32T D.B.W. 24 DS C.T. 190 NC P3	7000 B-7 5700 - 8000 KC 20T SLW 24DS C.T. 190NCP3	131C-12 PLT 23T SLW GRID 21T SLW #16E CT 2T. LINK 15000 W 190NC01	130BA-2	
8000 / 11000	2000 / 2750	7000 B-10 4000 - 5500 KC. 30T S.L.W. 24 DS C.T. 190NCP3	7000 B-4 8000 - 11000 K.C. 12T S.L.W. 24DS C.T. 190NCP3	131C-12 PLT 13T SLW GRID 13T SLW #16E CT 1T. LINK 15000 W 190NC01	130BA-1 15T #10 BB SSW. 190NC03	
11000 / 14500	2750 / 3625	7000 B-10 5500 - 7250 K.C. 17T S.L.W. 24 DS C.T.	7000 B-4 11000 - 14500 K.C. 11T S.S. 18BB C.T. 190NCP3	131C-12 PLT. 8T. SLW GRID. 8T. SLW #16E CT 1T. LINK 15000 W 190NC01	130BA-1	
14500 / 20000	3625 / 3300	7000 B-10 7250 - 10000 KC 14T S.L.W. 24 DS. C.T. 190 NC P3	7000 B-4 10000 - 20000 KC 7T 18BB - END TURNS ARE D.S. REST - S.S. C.T. 190NCP3	131C-12 PLT & GRID: 6T EACH #16E - C.T. ~~S.W.~~ - END TURNS DSW - REST S.S.W. 20,000 W 190NC01	130BA-1	

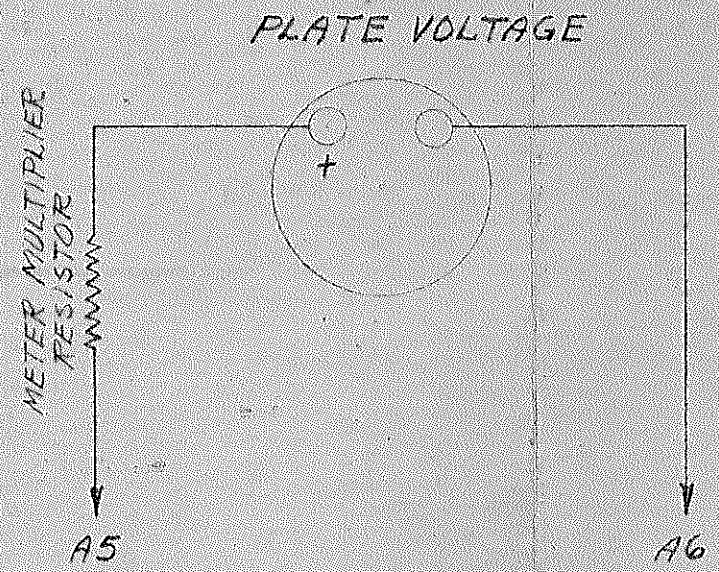
130E PHASEING COILS

01 = 12T SS
03 = 16T SS
04 = 9T SS
09 = 25T CLSE
10 = 12T CLSE
12 = 34T CLSE
13 = 15T CLSE
18 = 6T SS

192B-12 PADS
2 OF EACH REQUIRED

.001 MMF.D.
.0015 "
.002 "
.005 "
} TYPE 906

MAT.:	GRADE:	DRAWN BY: M.S.S. DATE: 8-3-39 TRACED BY: M.S.S. DATE: 8-4-39 CHECKED BY: M.H. DATE: 10-20-39	COLLINS RADIO COMPANY CEDAR RAPIDS, IOWA
FINISH:			
UNIT: 30J SERIES PLATE VOLTAGE METER CONNECTIONS		SCALE	DRAWING NO. 916A-1



CONNECTIONS ARE MADE TO TERMINALS NO. 5 & 6 ON UNIT "A" SEE 30J SCHEMATIC

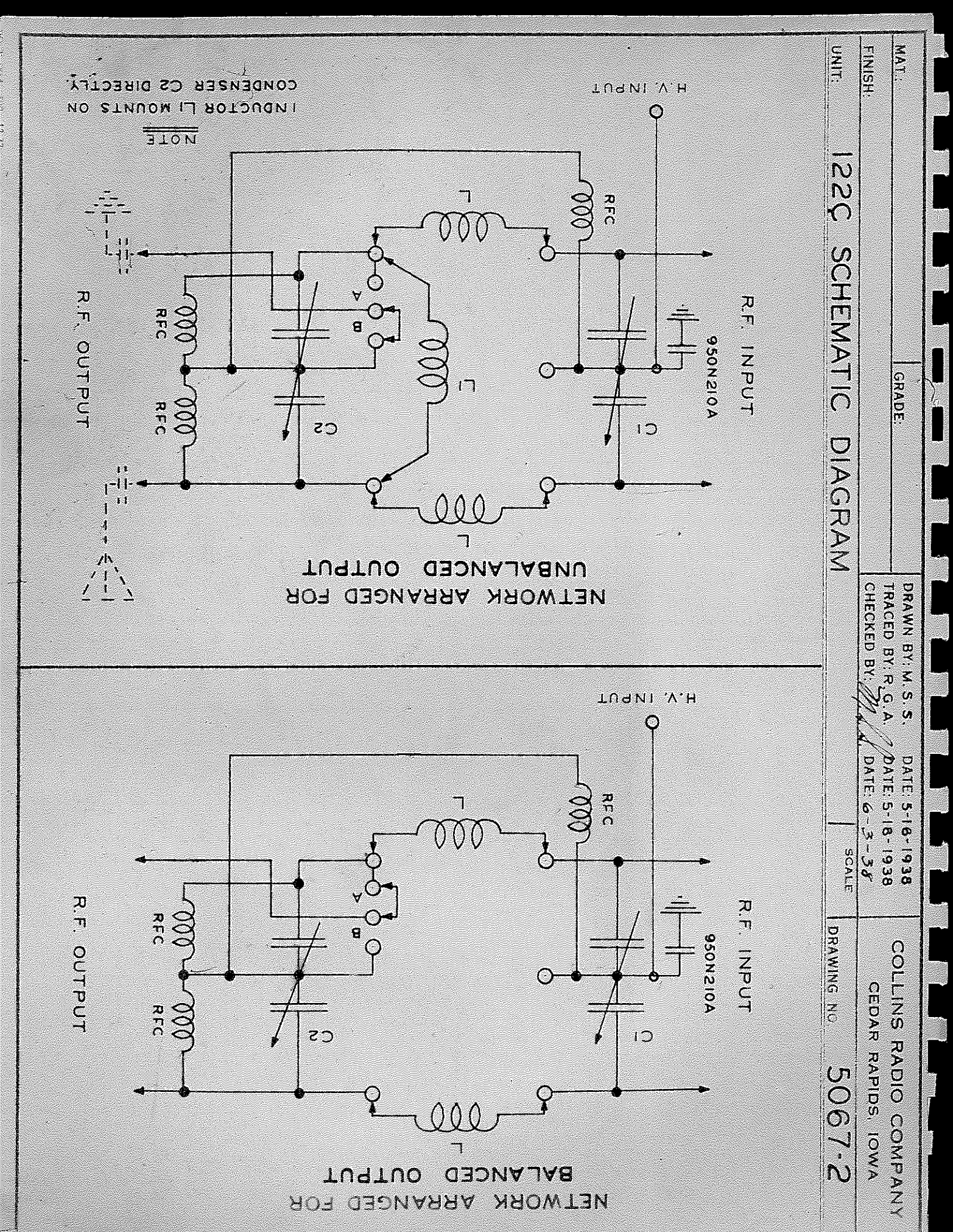
MAT.: | GRADE:

FINISH:

UNIT: 122C SCHEMATIC DIAGRAM

DRAWN BY: M. S. S.	DATE: 5-16-1938	COLLINS RADIO COMPANY
TRACED BY: R. G. A.	DATE: 5-18-1938	CEDAR RAPIDS, IOWA
CHECKED BY:	DATE: 6-3-38	SCALE

DRAWING NO. 5067-2



Collins Radio Company
DETAILED CASE PACKING LIST

To W. C. K. Y.
Erlanger
Kentucky

Order # 8684B
Date 5-24-40
Exp Collect.

Case	Qty	Description	
Case 1	1	7000 B-7 2190 K.C.	Gross 14
	1	7200 B-8 Coil Unit	Net
	1	1316-11 2190 K.C.	Dim.
	2	C-120 Tubes Serial # 2506-2661	
	1	802 R.C.A.	
	3	807 R.C.A	
	2	813 R.C.A	
	4	C-866A	
	2	6J7G. R.C.A	
Case	1	523 R.C.A	Gross
		Packing Slip	Net
			Dim.
Case 2	2	130BA-3 Output Coils Serial # 2091 #2092	Gross 14
	1	130E-2 Phase Inverter Coil #2093	Net
	1	2190.0 K.C. Type 1C Serial # 3776H	Dim.
	1	45 R.C.A	
	2	6F6G R.C.A	
	1	Pkg Hdwe.	
Case			Gross
			Net
			Dim.

Collins Radio Company
DETAILED CASE PACKING LIST

To W. C. K. Y
Erlanger
Kentucky

Order # 8684D
Date 5-24-40
Exp Collect

Case 3	1	1220-1 Serial # 6700-10	Gross 56# Net Dim.
Case 4	1	105-12 Serial # 6701-10	Gross 58# Net Dim.
	1	302-6 Meter Panel Serial # 7757-1	
	1	Meter Panel Glass	
	1	Glass with holders.	
Case 5	1	9RT-6 Serial # 6702-9	Gross 94# Net Dim.
Case 56	1	305-19 7786-1	Gross 255# Net Dim.

Collins Radio Company
DETAILED CASE PACKING LIST

To W. C. K. Y
Ex Changes
Kentucky

Order # 56348
Date 5-24-48
Exhibit 7

Case 9	1	401 N-4 Serial # 6703-3	Gross 445 Net Dim.
Case 8	1	5448 Trans.	Gross 244 Net Dim.
Case 9	2	5456A Trans.	Gross 38# Net Dim.
Case			Gross Net Dim.

Form No. 36-1

GENERAL TRANSMITTER TEST RECORD

Date Started ______ Date completed 5-23-40 Engineer [illegible]
Type 305-1A Serial No. 1 Prod. Order No. 7786 Date ______
Customer L. B. Wilson Incorporated Inv. No. 86840 Date Shipped ______
Desc. of Spec. Equip. WCKY

POWER CONSUMPTION

Freq. Cry. ____ Op. ____	Watts (PH)	V-A	P.F.	Watts (CW)	V-A	P.F.	Watts	V-A	P.F.
Filaments and Exciter	510			450					
Full Carrier	1060			680				KEY OPEN	
100% Modulation	1400			960				KEY CLOSED	

FREQUENCY RESPONSE - Taken at const. input level at 85 % modulation at 1000 cy.

Frequency	DB	Mod. Current	Frequency	DB	Mod. Current	Frequency	DB	Mod. Current
1000			500	0	570	8000	-3.8	330
30	-17	420	1000	0	570	10000	-7	160
60	-14	590	2000	-.3	570	12000		
120	-.7	580	3000	-1.1	560	15000		
200	-.3	580	5000	-3.5	460	18000		
300	-.1	570	6000	-6	370	1000		

FREQUENCY RESPONSE - Taken at const. input level at ___ % modulation at 1000 cy.

Frequency	DB	Mod. Current	Frequency	DB	Mod. Current	Frequency	DB	Mod. Current
1000			500			8000		
30			1000			10000		
60			2000			12000		
120			3000			15000		
200			5000			18000		
300			6000			1000		

Audio Level for 100% modulation -37
Distortion at 95 % modulation RMS 4.7 % ARITH ______ %
Noise Level on carrier: -57 Decibels below 100% modulation
Carrier shift at 100% modulation -2 %

CRYSTALS

Furnished By	Collins									
Frequency	[illegible]									
Type Holder	[illegible]									
Crystal Heat	NO									

UNIT RECORD

TYPE UNIT	SERIAL NO.	Date Pro. Test	Remarks	Test Engin'r.
8026	7787-1			
122C-7	6900-10			
10-1A	6901-10			
460-6	6902-7			
401M-4	6903-3			
1928-2				

TRANSMITTER METER READING RECORD

	PH	CW			
requency/Power	2190KC				
scillator					
il. Voltage					
late Voltage					
late Current					
Oscillator ~~st Doubler~~/Amp.	802	802			
il. Voltage	6.1	6.1			
ias Voltage	-90	-90	[illegible]		
creen Voltage	200	200	[illegible]		
late Voltage	340	340	[illegible]		
rid Current	.75	.75	[illegible]		
~~late~~ Current Cathode	16	16			
nd Doubler/Amp.					
il. Voltage					
ias Voltage					
creen Voltage					
late Voltage					
rid Current					
late Current					
rd Doubler/Amp.					
il. Voltage					
ias Voltage					
creen Voltage					
late Voltage					
rid Current					
late Current					
th Int/Amp.	2-807	2-807			
il. Voltage	6.3	6.3			
ias Voltage	-140	-150			
creen Voltage	120	120			
late Voltage	570	570			
rid Current	.7	.7			
~~late~~ Current Cathode	30	30			
inal Amplifier	2-813	2-813			
il. Voltage	10.0	10.0			
late Voltage	1200	1280			
W Bias Voltage		-155			
h. Bias Voltage	-150				
~~.P.~~ Grid Voltage Screen	360	360			
.W. Grid Current		16			
h. Grid Current	16				
.W. Plate Current		300			
h. Plate Current Total	385				
nt. or Line Current	2.4	2.5			
ead	300w Lamp				
ower Output					
.W.					

TRANSMITTER TUNING DATA

REQUENCY/POWER	2170KC	2190 KC			
Oscillator	802	802			
ondenser		—			
oil		E-8			
ial Reading					
ial Reading A		—			
1st Doubler/Amp.					
ondenser					
oil					
ial Reading					
ial Reading					
2nd Doubler/Amp.					
ondenser					
oil					
ial Reading					
ial Reading					
3rd Doubler/Amp.					
ondenser					
oil					
ial Reading					
ial Reading					
4th/Int. Amplifier	2-807	2-807			
ondenser		140-140			
oil GRID		E7			
ial Reading B		31			
ial Reading D		75			
Final Amplifier	2-813	2-813			
ondenser GRID		140-140			
oil GRID		13E-11			
ial Reading E		49			
ial Reading					
Antenna Network	Balanced	Unbalanced			
oil TURNS		37-37			
adding Cond. Pos.	ANT	ANT			
Value		.001-.001			
oad		300 W Load			
ial Reading Plate		56			
Condenser ANT		72	.005 Blocking condensers		
nductor or ~~Cond.~~ Phasing		15 TURNS			