

# COLLINS SIGNAL

Published by  
COLLINS RADIO COMPANY

Designers and Manufacturers of  
Transmitters, Transformers and Speech Equipment

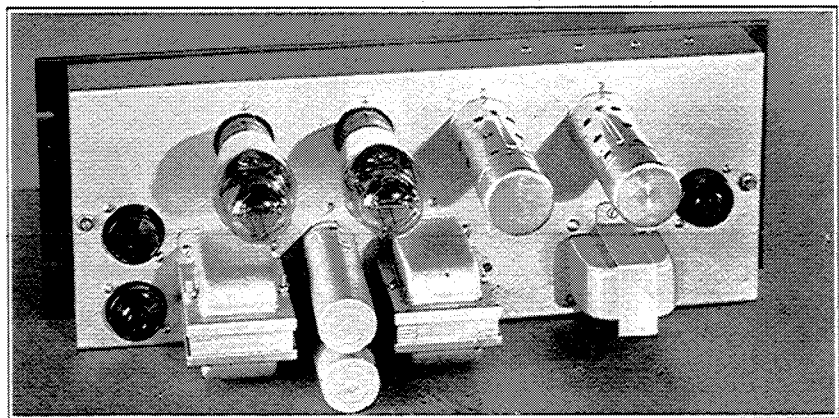
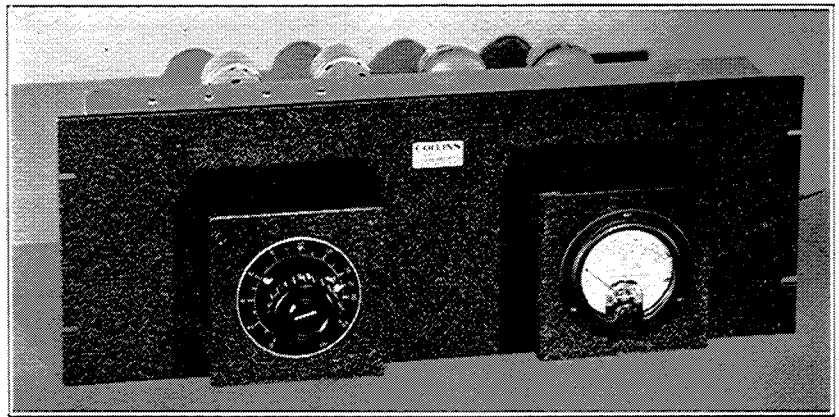
CEDAR RAPIDS IOWA, U. S. A.

APRIL—AUGUST, 1933

## Announcing the New Collins 7B Program Amplifier Which Sets New Standards in Audio Transmission

Up to the present time most of the conventional types of speech amplifiers which have been used in broadcast stations have had one or more serious drawbacks. Among these handicaps which the station engineers have had to face have been the necessity for DC operation of filaments, the use of a bulky and expensive plate voltage rectifier, insufficient power output necessitating the use of an additional speech amplifier stage in the transmitter preceding even a low-power modulator, limited frequency response and difficulty in maintenance. As a matter of fact the ordinary speech amplifier commonly used with a radio transmitter is more or less a hangover from telephone repeater design and is not primarily suited for radio use. Throughout the past few years there has been no particular effort to depart from the conventional design of speech amplifiers and to develop a new amplifier using all of the improvements made possible by new tubes and modern circuits.

In answer to an insistent demand for a radically different type of amplifier, the Collins Radio Company set about to develop a piece of equipment which would really be adequate in every respect. It was thought desirable to build an amplifier which would be suited not only for use in existing installations where class A modulation is used, but also to have the amplifier properly designed for use with a modern class B modulation system. The 7B amplifier has proved itself to be extremely satisfactory in every respect during actual use in broadcast service and measurements in the laboratory show that its performance is more



The 7B Amplifier Front and Rear View

nearly perfect than had been hoped for originally.

### Circuit

The 7B amplifier used in connection with its associated 300A power supply is entirely AC operated. Two stages of amplification, employing type 56 tubes, are followed by an output stage

using pushpull 2A3's. The input and pushpull circuits are transformer coupled and resistance-capacity coupling is used between the first and second stages. Special attention has been given to the volume control circuit. A moulded carbon volume control was found which introduces less noise than step by step volume controls and also

preserves the uniform frequency response at all gain settings. A rectifier type output level indicator is furnished when desired, calibrated both in decibels and in volts.

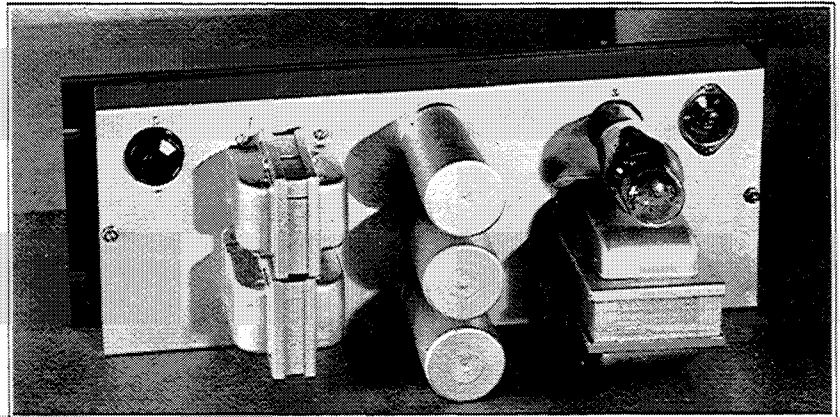
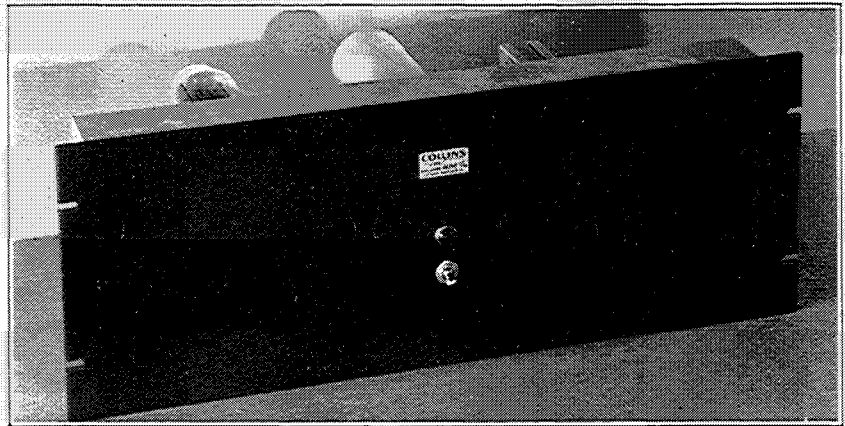
### Mechanical Construction

The 7B amplifier is mounted on a standard size 19" rack panel occupying a vertical space of 7". The panel is of aluminum with a black crackle finish. The volume control and volume indicator are placed in instrument mountings on the front of the panel. The amplifier itself is constructed on a special type of steel chassis secured to the back of the panel. The chassis is heavily copper plated and finished with aluminum bronze. Individual tube shields are provided and transformers are neatly encased so that the amplifier is effectively shielded even when a dust cover is not used. Input, output and cable connections are made to standard plugs and receptacles so that the amplifier can be instantly connected and it is impossible to reverse any of the connections. Wiring beneath the chassis is carefully done, and, whenever it is permissible to do so, the leads are grouped and neatly cabled. This general method of construction has been specially worked out for the amplifier and is a departure from the usual method of construction where several unrelated assemblies are used behind the panel and all wiring is exposed whenever the dust cover is removed.

The power supply for the amplifier is also mounted on a relay rack panel occupying a vertical space of 7" and its general appearance and construction is harmonious with that of the amplifier. The power transformer is provided with a static shield which prevents line interference from entering the amplifier circuits and an unusually elaborate filter system reduces the hum in the amplifier to an extremely low value. The filaments of the amplifier are operated from AC taken from the 300A power supply. It is entirely possible to use DC on the amplifier filaments if desired but careful measurement has shown that there is no advantage in doing so, since special measures have been taken to see that no AC voltage from the heater circuits is induced into the output of the amplifier. The only measurable hum which can occur is caused by induction between the power

transformer in the 300A power supply and the input transformer in the 7B amplifier when the power supply is placed adjacent to the amplifier itself. All interference of this nature can be eliminated by mounting the power supply 30 inches or more away from the amplifier. This would not be possible if the amplifier and power supply were embodied in the same unit.

tubes in the output stage provide an output of 10 watts with a distortion of less than 2%. A special grid filtering network is used in the output stage which maintains a fixed bias voltage desirable with the 2A3 tubes. Any desired value of input or output impedance can be furnished. A 200-ohm input and 500-ohm output are standard and will be furnished unless other val-



The 300B Power Supply for 7B Amplifier

### Electrical Performance

The wide frequency range of the 7B amplifier would have been considered impossible of attainment a few years ago. The amplifier is flat overall within  $\pm 1$  decibels from 30 to 12,000 cycles. This excellent response is accomplished without the use of equalizer or padding devices and is the result of straightforward design employing very high-grade transformers, accurate values of capacity and resistance and careful decoupling between the various stages. Phase distortion is negligible at both ends of the frequency range.

The gain of the 7B amplifier is approximately 70 DB. The new 2A3

ues are specified. When the 7B amplifier is used for driving two 203A class B modulators, a special output transformer is used which has the proper output impedance to couple directly to the grids of the class B tubes through a shielded line.

The 7B amplifier is ideally adapted for many uses other than as a program amplifier. It can be used as a bridging or a monitoring amplifier or as a separate speech amplifier for audition work in broadcast studios. The 10 watts of undistorted output available from the 7B amplifier makes it excellently suited as a public address amplifier and it is capable of handling

(Continued on Page 7)

# .. COLLINS TRANSFORMERS ..

## COMPLETE LIST

### BROADCAST SERIES

No.	Frequency Range 35 to 12,000 C. P. S. Description	Price
<b>LINE TO GRID TRANSFORMERS</b>		
605	200 ohm to single or pushpull grids	\$ 4.00
610	500 ohm to single or pushpull grids	4.00
<b>TUBE TO LINE TRANSFORMERS</b>		
516	10,000 ohm plate to 200/50 ohms	4.00
517	10,000 ohm plate to 500 ohms	4.00
<b>INTERSTAGE TRANSFORMERS</b>		
307	10,000 ohm plate to single or pushpull grids	4.00
309	Pushpull 10,000 ohm plates to pushpull grids	4.00
<b>CLASS A OUTPUT TRANSFORMERS</b>		
450	Pushpull 45's to 500 ohms	4.00
451	Pushpull 45's to 3-5, 5-8, 8-15 ohms	4.00
460	Pushpull 2A3's to 500 ohms	4.00
461	Pushpull 2A3's to 3-5, 5-8, 8-15 ohms	4.00
<b>MIXING TRANSFORMERS</b>		
220	50/200-ohms to 50/200 ohms	4.00
221	50/200 ohms to 500 ohms	4.00
225	500 ohms to 500 ohms	4.00
<b>CLASS B INPUT TRANSFORMERS</b>		
714	Single 46 or 59 to Class B 46's or 59's 3.1 to 1	4.00
715	Pushpull 45's to Class B grids (general purpose) 3.2 to 1	4.00
716	Pushpull 45's to Class B 46's (for 25 watts out- put) 6 to 1	4.00
717	Pushpull 845's to Class B 204A's or 849's	12.00
718	Pushpull 2A3's to Class B 203A's—3.2 to 1	8.00
719	Pushpull 45's or 2A3's to Class B 210's— 2.2 to 1	4.00
720B	Single 2A3 Class A to 2 46's Class B	4.00
<b>RIBBON MICROPHONE TRANSFORMER</b>		
515	Ribbon to 50/200 ohms	4.00
<b>CLASS B OUTPUT TRANSFORMERS</b>		
761	Class B 46's to 5000-6000 ohms—100 Ma. D. C. in secondary	5.00
762	Class B 46's to 3400-4000 ohms—125 Ma. D. C. in secondary	5.00
765	Class B 46's or 59's to 500 ohm line	5.00
770	Class B 59's to 5000 ohms—120 Ma. D. C. in secondary	6.75
780	Class B 210's to 5000-6000 ohms—150 Ma. D. C. in secondary (60-70 watts output)	9.50
790A	203A's or 211's Class B to 5000 ohms—200 Ma. D. C. in secondary (Bass response to 70 cycles)	27.00
791A	203A's to 2500 or 10,000 ohms—400 or 200 Ma. D. C. in secondary (Bass response to 70 cycles)	27.00
794A	203A's or 211's Class B to 5000 ohms—200 Ma. D. C. in secondary (Bass response to 35 cycles)	50.00
793A	203A's or 211's Class B to 2500 ohms—400 Ma. D. C. in secondary (Bass response to 35 cycles)	50.00
792	204A's or 849's to 5000 ohms—500 ma. D. C. in secondary (Bass response to 35 cycles), includ- ing oil tank	92.00

### TINYTRANS

No.	Frequency Range 80 to 10,000 C. P. S. Description	Price
<b>PRICE ALL TYPES — \$2.00 EACH.</b>		
220z	Mixing transformer 50/200 to 50/200 ohms.	
221z	Mixing transformer 50/200 to 500 ohms.	
307z	Interstage to single or pushpull grids.	
450z	Pushpull 45's to 500 ohms.	
451z	Pushpull 45's to 3-8-15 ohms.	
471z	Pushpull pentodes to 3-8-15 ohms.	
516z	Tube to 200 or 50 ohms.	
517z	Tube to 500 ohms.	
714z	Single 46 or 59 to 46's or 59's Class B 3.1 to 1.	
740z	Class B to 5000-7000 ohms. (see chart).	
741z	Class B to 2500-3000 ohms. (see chart).	
742z	Class B to 3-8-12 ohms. (see chart).	
750x	30 Class A to 30's or 19 Class B.	
751z	30's Class B to 5000 ohms.	
752x	31 or 49 Class A to 19 or 49's Class B.	
753x	56 or 37 Class A to 79.	
754x	56 Class A to 53 Class B.	
756x	500 ohms to grid.	
757x	200 ohms to grid for single or double button micro- phone.	
1699	2.5 v 4A filament transformer. (Other stock models available.)	
<b>PLATE-FILAMENT TRANSFORMERS</b>		
911	325-325v 5v 2.5v 2.5v 60 Ma. 2A 4.5A CT 1.75A CT	\$ 2.50
910	350-350v 5v 2.5v 2.5v 100 Ma. 2A 12.5A CT 3.5A CT	4.00
904	500-500v 2.5v 2.5v 2.5v 150 Ma. 4A CT 4A CT 4A CT	5.85
905	500-500v 5v 2.5v 2.5v 175 Ma. 3A 4A CT 4A CT	8.00
918	650-650v 7.5v 2.5v 150 Ma. 2.5A CT 10A CT	9.85
916	600-600v 7.5v 2.5v 2.5v 2.5v 175 Ma. 2.5A CT 10A CT 3A CT 3A CT	9.85
919	750-750v 7.5v 7.5v 2.5v 150 Ma. 2.5A CT 2.5A CT 10A CT	9.85
920	900-900v 10v 2.5v 200 Ma. 4A CT 10A CT	16.00
<b>LARGE PLATE TRANSFORMERS</b>		
930A	1350-1350v 400 Ma.	\$22.50
937A	1500-1500v 600 Ma.	36.00
<b>(Other stock models available.)</b>		
<b>FILAMENT TRANSFORMERS</b>		
1020C	7.5v CT 7.5v CT 2.5v CT 2A 2A 10A	\$ 5.50
1022C	2.5v CT 10A	3.60
1031C	10v 12A CT 2.5v 10A CT	7.00
1035A	10v CT 2.5v CT 2.5v CT 2.5v CT 15A 10A 10A 10A	15.00
1040B	10v CT 8A	6.50
1050B	11v CT 10A	8.00
1051B	11v CT 20A	14.00
1052A	5v CT 25A	15.00
<b>FILTER CHOKES</b>		
807C	20-5 hy 150 Ma. D. C.	\$ 4.00
811C	20-5 hy 400 Ma. D. C.	9.75
840C	20 hy 100 Ma. D. C.	2.50
841C	10 hy 150 Ma. D. C.	4.00
842C	8 hy 500 Ma. C. C.	9.75

# ... COLLINS RADIO COMPANY ...

CEDAR RAPIDS, IOWA

This Chart Will Help You Select the Proper Class B Transformers at a Glance

Fig	Audio Power Watts	V1 Class A	V2 Class B	T2 Input	T3 Output	B1 Volts	B2 Volts	R1 Ohms	R2 Ohms	R3 Ohms	C1	C Bias	
A	1	25	45's	46's	716	761 762 765	270	400	200,000	none	750	none	0
B	1	28	45's	59's	716	770 765	270	400	200,000	none	750	none	0
C	1	60-70	45's	10's	719	780	270	650-750	200,000	20,000	750	none	60-90v
D	1	100-240	2A3's	203A's	718	790 791 793 794	360	1000 1250	200,000	10,000	700	20mfd (100v)	30-45v
E	1	500	845's	204A's 849's	717	792	1250	2500	200,000	10,000	600	none	100-180v
F	2	1	30	30's	750X	751Z	180	180	757X trans	50,000	-13.5v bias	bat. bias	22.5v
G	2	1.6 to 2.1	31 or 19 (elements in parallel)	19 (elements in pp)	752X	74CZ 741Z 742Z	135	135	0.5 to 1.0 meg	none	-22.5v bias	bat. bias	0
H	2	3.5	49	49's	752X	"	135	135-180	"	none	-20v bias	bat. bias	0
I	2	8	37 or 85 (triode sec)	79 (elements in pp)	753X	"	250	250	"	"	2500	"	0
J	2	10	56 or 53 (elements in parallel)	53 (elements in pp)	754X	"	300	250-300	"	"	2500	25mfd (25v)	0
K	2	20	46	46's	714Z	761 762 765	250	400	"	"	1500	20mfd (50v)	0
L	2	25	2A3	46's	720B	"	300	400	"	"	700	20mfd (100v)	0

T1-605, 610, 307, 309, 756X or 307Z

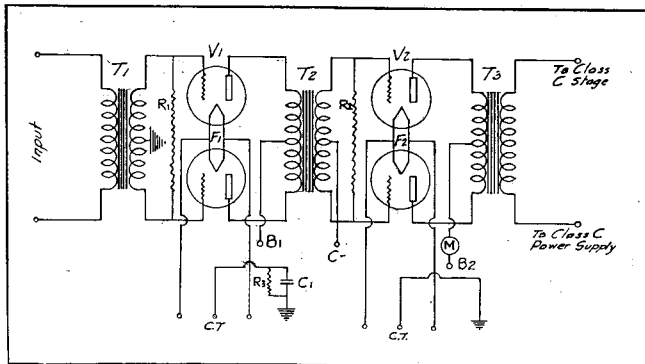


FIG. 1

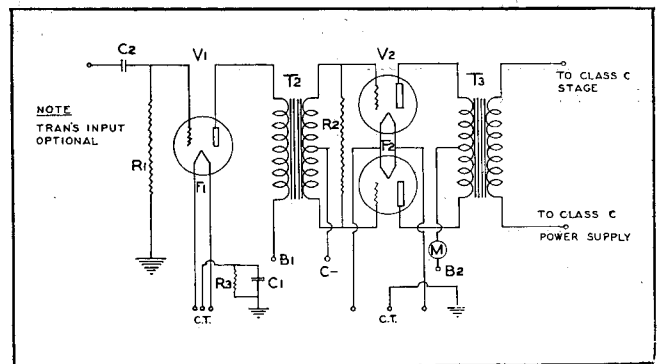


FIG. 2

Class B Equipment for Broadcast Stations

Class B modulation is finding increased favor among the broadcast stations, especially those within the power range of 1,000 watts or less. When class B modulation was first given publicity, it was looked upon somewhat askance by broadcast engineers who were under the impression that quality might be sacrificed in the effort to obtain large audio power from small tubes. The work that the Collins Radio Company has done in connection with class B modulation has accomplished much to disprove this opinion and since the publication of an article giving specific design data on Class B modulation\*, we have had a very large number of inquiries from broadcasters all over

the country for quotations on suitable class B equipment. This has led to the development of a complete set of apparatus including a special speech amplifier (the 7B), a class B modulation unit and a suitable power supply. A number of broadcasting stations in the United States and Canada have installed this new equipment and they have found it possible in many cases to improve the quality of their transmission materially at the same time that they reduced their tube and power cost. It seems likely that this system of modulation will continue to find wider acceptance.

Recommendations and quotations will be gladly supplied to broadcast engineers on request.

\* "Getting Quality Performance with Class B Modulation." Collins. May, 1933, QST.

# THE 300B TRANSMITTER

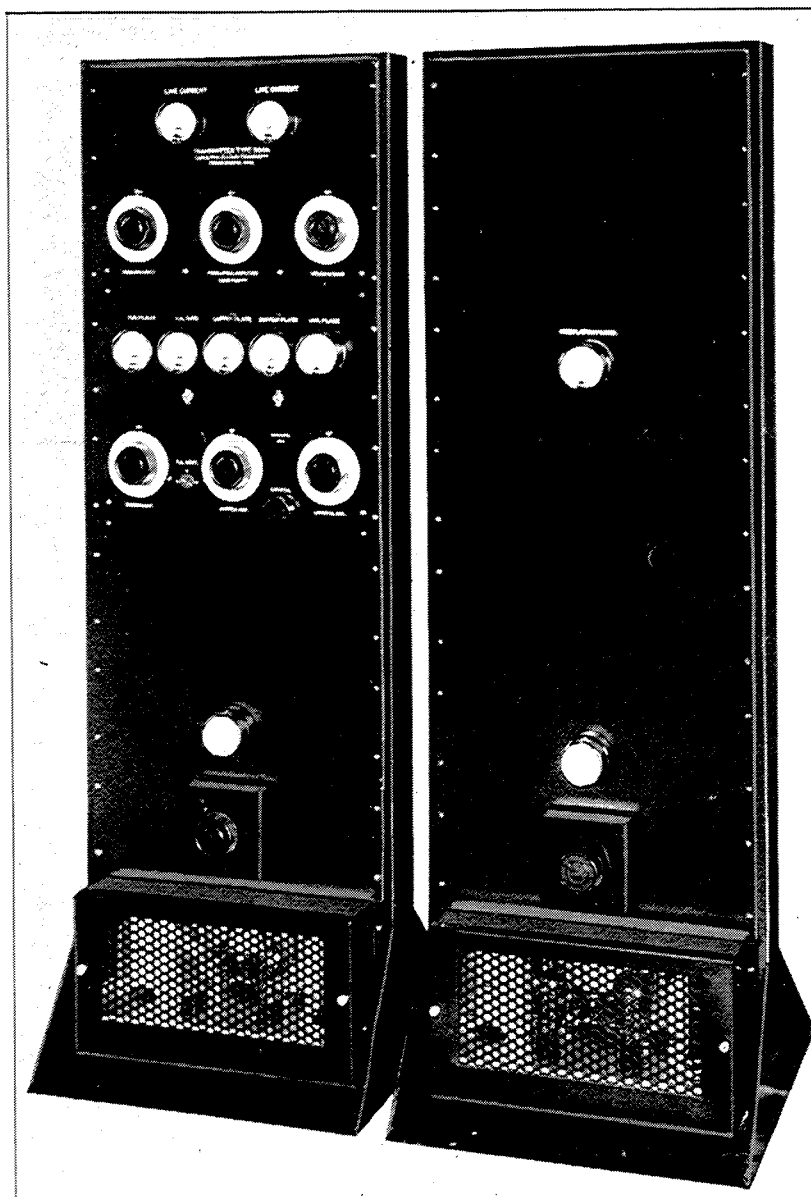
A transmitter which has been available for some time but which has never been described in these pages, is the COLLINS 300B. The 300B follows the same basic design as the 150B except that push-pull 203A's are used in the final class C amplifier to give an output in excess of 200 watts. The complete tube line-up is as follows: 47 crystal oscillator, 46 first buffer, 203A second buffer, 2-203A's final, modulated by 2-203A's class B. A 402A power supply using a 5Z3 handles the oscillator and first buffer. Two 1200B power supplies using 866 rectifiers are used; one for the 203A's in the RF section and the other for the 203A modulators.

Several ingenious circuit arrangements are employed. The 203A second buffer works lighted loaded and furnishes strong excitation to the final so that very high efficiency is obtained in the latter. Provision is made for balancing the excitation to the push-pull amplifier so that identical excitation can be obtained to each of the push-pull tubes. Standard output connection is to a 600 ohm two-wire transmission line for use with a matched impedance Hertz antenna or with an external antenna tuning unit. This arrangement permits most efficient transfer of energy from the final amplifier to the antenna.

Audio excitation to the modulators is obtained direct from a 7B amplifier. The audio system is designed for 30 to 10,000 cycle response with very low amplitude distortion. Complete filtering in the transmitter reduces the hum to a level suitable for broadcast work.

Additional space in the modulator rack can be utilized for mounting a precision frequency control unit and a frequency monitor when the 300B is used in services requiring close frequency tolerances.

If telegraphic transmission alone is required, the radio frequency rack alone can be furnished. This is designated as the 300C transmitter. Of course, the modulation section can be added at any later date.



The 300B Transmitter

A very important feature of the 300B transmitter, as well as all other COLLINS models, is the fact that it is designed for **continuous** operation at full load. The power transformers are unusually large and every element which must dissipate heat or withstand high voltage is designed with a very large margin of safety. This feature makes the 300B especially suitable for broadcast service.

Another point of interest is that all of the ferrous metal parts on COLLINS transmitters are now heavily copper plated before being finished with Duco. Likewise cables are treated with a special Bakelite varnish to prevent the absorption of moisture. These precautions are of particular value in tropical installations.

## A HIGH-POWER SEMI-PORTABLE TRANSMITTER



Rear View of the 42B 75 Watt Transmitter

The ability of type 10 tubes to deliver upwards of 60 watts of audio power, when operated at relatively high plate voltages, led us to the design of a transmitter using these tubes as modulators in order to obtain moderately high output with low power consumption and light weight. The 42B uses a 47 crystal oscillator, parallel 46's as a buffer, and a 203A with 750 volts on plate as the final amplifier. The 210 modulators are also operated with a plate voltage of 750 derived from the same power supply and inputs up to 120 watts can be fully modulated. Inasmuch as this transmitter will normally be used for voice, the average input to the 10 tubes remains within a safe value and no noticeable heating occurs. Tests seem to indicate that normal life can be expected of 10's when operated under these conditions. The 203A is heavily excited so that good efficiency is obtained and outputs in the neighborhood of 70 watts can be obtained on all frequencies. 14 mc. operation is accomplished by using a 7 mc. crystal doubling in the buffer stage and operating the 203A as a straight amplifier. The 42B can be operated from a 500-watt 110 volt 60 cycle engine generator and its dimensions are such that it can be easily transported in a car or it can be installed aboard small pleasure craft. The illustration shows the 42B mounted without a rear enclosure. The exact type of mounting can be modified to suit the user's requirements. A 203A is used in the final amplifier in preference to smaller tubes in parallel or push-pull. The tube cost with the 203A is only slightly greater and the efficiency, reliability and ease of adjustment are increased.

If radiophone is not required, the 42A transmitter can be supplied which is identical to the 42B except that the modulation unit is omitted. This furnishes a very compact semi-portable radio telegraph transmitter with a power output of 70 to 80 watts. If external antenna tuning apparatus can be used, the 42A can be mounted in the same size frame as the 30W transmitter (12" x 19" x 16") or it can be supplied mounted on a rack.

## THE 4A TRANSMITTER

The 4A transmitter marks the entry of the COLLINS line in the extremely low-priced field. The 4A uses a 47 crystal oscillator and parallel 46's in the power amplifier permitting an output of 18 to 20 watts on 1.7, 3.5 or 7 mc. The power amplifier is operated on the crystal frequency in each case. Despite its low cost, the 4A embodies the mechanical and electrical refinements found in the larger COLLINS transmitters. A separate power supply is used for the oscillator to reduce frequency "chirp." Standard COLLINS plug-in coils are employed. A single Weston meter is provided with a switching arrangement to read plate and grid currents. The 4A is ideal for an amateur who wants to start out with a minimum investment and yet have a transmitter which will deliver a high quality C. W. signal. The 4A can also serve as a stand-by transmitter in a high-powered station to be used when full power is not required. Really surprising results can be obtained and amateurs who are accustomed to think in terms of kilowatts can get a great deal of service and amusement from one of these little transmitters.



The 4A 20 Watt Transmitter

## Notes on the 30W

A few people have gained the impression that the 30W transmitter was discontinued with the announcement of the 32A and 32B transmitters. This is most decidedly not the case. There are more 30W transmitters in operation than any other COLLINS type and sales of the 30W are continuing to keep pace with the sales of the 32A and the 32B. The 30W has slightly greater output than the 32A and it is ideal for the amateur who is primarily interested in C. W. work or who plans to convert his 30W to a 150A or 150B at a later date.

### Improvements on the 32A and 32B

Since the publication of the March SIGNAL, several modifications and improvements have been accomplished in the 32A and the 32B transmitters. First of all, both of these popular models can now be operated with full output on 14 mc. This is accomplished exactly as it is done in the 30W by using a 7 mc. crystal, doubling the frequency in the buffer stage and operating the final as a straight amplifier. Slight circuit modifications permit efficient operation of the 46's on this high frequency.

Of equal importance is the new self-contained high gain speech amplifier which permits the operation of the 32B direct from a double button or condenser microphone. This eliminates all external speech equipment except the microphone itself and type 1A input unit which embodies a gain control and an input transformer. A type 57 tube is used in the transmitter to provide adequate gain. A great deal of very careful work has been done in the development of the audio system in the 32B so that the new transmitters have a response guaranteed flat within plus or minus  $1\frac{1}{2}$  DB between 70 and 10,000 cycles and a maximum amplitude distortion of 5%. This places the fidelity of the 32B in the broadcast station class.

## RE-BROADCASTS

We are very glad to be able to reproduce in this issue of the SIGNAL photographs of three prominent amateur stations using COLLINS equipment.

W4ABS is the familiar call of the Infantry School, Ft. Benning, Georgia. The station is very active in traffic and DX work, chiefly on the 7 mc. band. The COLLINS 200A transmitter was installed May, 1932, and at first difficulty was experienced when a conventional Zeppelin antenna was used. The transmitter settled down to its routine job of handling a kilowatt input as soon as a two-wire matched impedance antenna system was installed. This latter type of antenna seems to prove the most satisfactory system for use with push-pull amplifiers.

The photograph from YV2AM is of particular interest. Your columnist has not had an opportunity to operate his own station within recent months but, during a visit to W2TP, Leonia, New Jersey, this spring, he had the good fortune to connect with YV2AM for a short chat on 14 mc. phone. Mr. Vegas speaks perfect English but with a noticeable accent. Since that time, YV2AM has kept a very consistent signal on the 14 and 7 mc. bands. The strength of his phone signals seems to indicate that very few of the foreign stations are using phone or else their phone transmitters have relatively low power output. It certainly will make things very interesting on 14 mc. when a larger number of foreign stations install efficient phone transmitters. The American amateur is, as a rule, a very poor linguist and he usually relies on the chap at the over-seas end of the circuit to speak his language. If enough foreign phone stations get on the air, it may induce some of us to brush up on our *español*.

Mr. Edward L. Thompson, W3CQS, Salisbury, Maryland, is another very prominent user of COLLINS equipment. In December, 1932, he purchased a 30W transmitter, mounted in a 34" relay rack and he has since added a 9C modulator to permit phone operation. Mr. Thompson's many Eastern amateur friends know him as the publisher of Ham News, (previously Ham-Skeds) and as the energetic gentleman who looks after the forwarding of all of the QSL cards in his section. The 30W has been in constant use since its installation and seems to be giving very good results. Recently W3CQS has been reported in England on 3.5 mc. Among Mr. Thompson's many duties are



W3CQS, Salisbury, Maryland

IN REPLY REFER TO:

THE INFANTRY SCHOOL  
OFFICE OF THE ASSISTANT COMMANDANT  
SECOND SECTION

FORT BENNING, GA.

April 3, 1933

The Collins Radio Company,  
Cedar Rapids, Iowa.

Gentlemen:

Just a line to let you know what we think of the transmitter, type 200-A, which you built for W4ABS and which we installed last summer. You rated the job at 300 watts output, which was very conservative to say the least, for we consistently get nearly 1 KW with a good clean signal that wraps itself around the world every time we hit the key. Our reports from all districts and foreigners are uniformly FB, and traffic totals have more than doubled since the installation, due, no doubt, to the pleasure and satisfaction the ops here have of working a rig that really gets out.

We enjoy looking over the copies of "Collins Signals" that have come our way, and wish you continued success in the building of efficient transmitters.

Enclosed is a photo of the ether agitators at W4ABS, the Amateur Radio Station of The Infantry School, with your 200-A in front.

73,

*J. B. Raymond*  
J. B. Raymond  
1st Lt., Infantry,  
Officer in Charge Radio.

those connected with being president of the DelMarVa Amateur Radio Club which has as one of its members Miss Jean Hudson, W3BAK, who is an efficient operator at the age of 8 years.

Mr. M. R. Cooper, W7FO, reports that the first three stations worked with his new 30W were W9FJQ, VK5HG and ZL3CC in the order named. Australia and New Zealand reported QSA5R5.

Mr. R. B. Murphy, Technical Sergeant State Staff Corps, State Arsenal, Military Dept., St. Augustine, Florida, reports as follows: "Blueprints and instruction sheets on the 32B just received, thanks very much. Wish to say they are very clear and easy to understand. You will be interested to know the fone is one grand hit with all fone men in the State. Reports are 'best modulation in creation'—'sure is clear' and all very fine reports. I am more than pleased. I looked into several transmitters before recommending the purchase of the 32B and was even hesitant about that and must admit I am very much ashamed of myself now for being so. The 32B will be taken to Camp Foster for our summer encampment and I am going to do all the boosting I can for you; there are several fellows interested in it and I know they will be more than pleased with its appearance. W4NF."

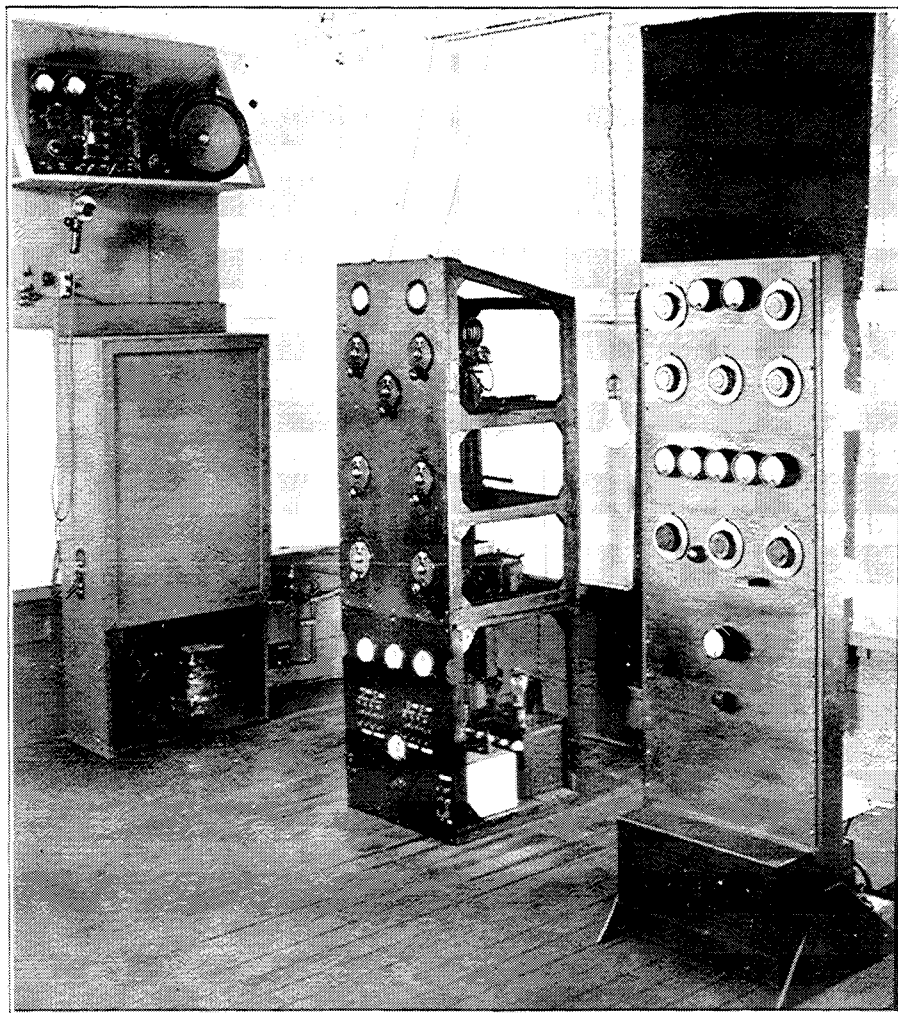
W9BHT (using COLLINS 20B) writes: "I had a confirmation the other day of QSO on phone with J5CC and he gave me a QSA5 R 8 to 9. I either hit him hard or else he got his figures mixed. Hi."

Mr. Benton White, W4PL, reports that he is working K6's regularly on both 40 and 80 meters with his 30W and that he is beginning to make contacts with VK stations.

K6AJA is putting consistent signals into the "States" with his 30W.

Dr. Roberto Levi, HC2RL, Guayaquil, Ecuador, is operating his 150B on the following frequencies: 1888 - 3965 - 6668 - 4280 - 7089 - 14,178. He is working the U. S. stations regularly on phone and CW.

CT1AA, long familiar to U. S. amateurs, will shortly be on the air with a 300B.



The Collins 200A Transmitter (right) at W4ABS, Fort Benning, Ga.



Dirección Telegráfica  
"Telemar"  
Maracaibo

Compañía Anónima Nacional  
**Teléfonos de Venezuela**  
Maracaibo

Maracaibo, May 24, 1933

Mr. Arthur A. Collins,  
Collins Radio Co.,  
Cedar Rapids, U.S.A.

Dear Mr. Collins:

It is now three months since I have received your 150B Transmitter, and during that time I have made numerous tests with the object of finding out the merits of the transmitter and the work it is best suited for.

I have come to the conclusion that my choice of the Collins 150B Transmitter has amply repaid the six months I spent studying catalogs and diagrams of various transmitters before I decided to order the Collins Outfit.

It therefore, given me great pleasure and satisfaction to say that I am entirely satisfied with the performance of your 150B Transmitter; and believe me, Mr. Collins, I think even you will be surprised of the wonderful results I get here.

I am not a ready giver of praise, but, think the excellence of performance of your transmitter warrants my frank approval of same, as also manifested by the hundreds of letters and QSL cards with surprising reports of my phone - not only from the U.S.A. and South America but also from Europe. These reports are at your disposal should you care to see them (to be returned to me).

I enclose picture of my rig, YV2AM, as presently arranged, for your wall.

With best regards, I remain,

Yours very  
*Mr. Vegas*

## PRICES ON REQUEST

Printing of prices in catalog sheets has been discontinued (except in the case of transformers) and price lists will be issued from time to time. Outstanding quotations and printed prices will be effective until August 1, 1933. This step is taken because of the likelihood of a changing price level and fluctuating material cost. Every effort is being made to prevent an undue rise in selling price and COLLINS transmitters will continue to offer outstanding value at low cost. However, it will be a good plan for those contemplating the purchase of a transmitter within the near future to take advantage of present prices. All of the new models and new features are now available.

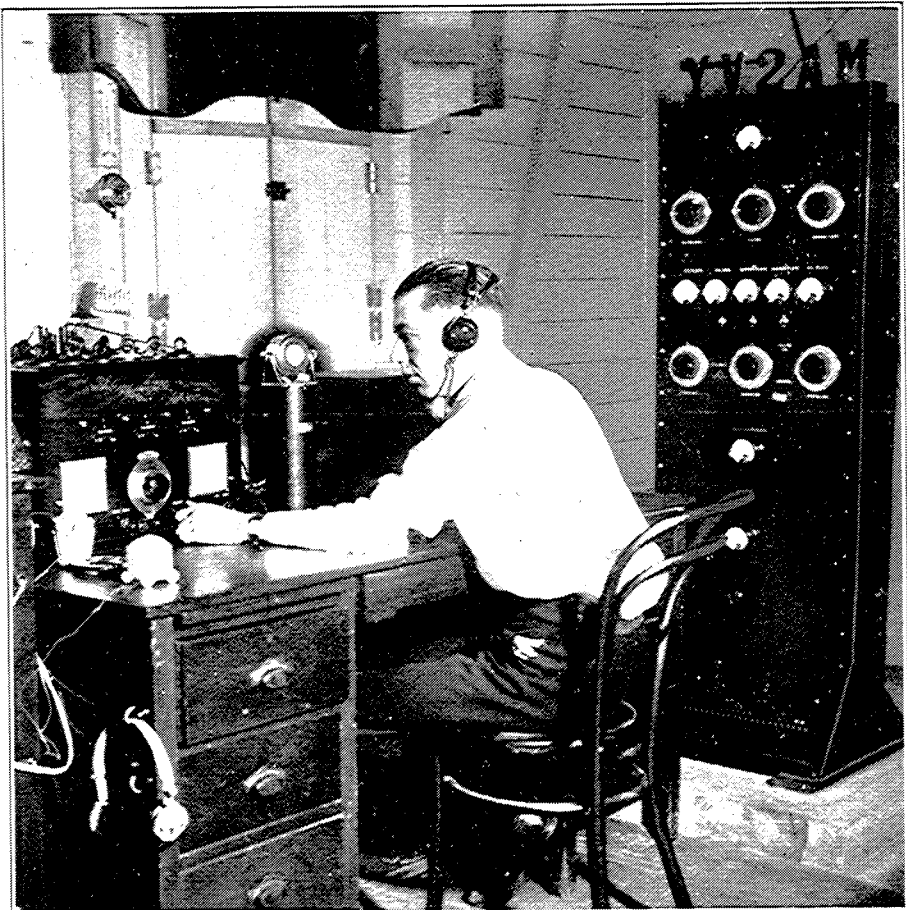
### 7B AMPLIFIER

(Continued from Page 2)

four large dynamic speakers. The excellent quality of this amplifier makes its performance markedly superior to that of public address amplifiers in common use. This amplifier can also be used very successfully for driving a phonograph recorder for recording on either wax or aluminum. The low plate impedance of the 2A3 tubes is a very desirable feature for obtaining good fidelity in recording. Many other applications of the 7B amplifier will, no doubt, suggest themselves.

Note: When slightly higher gain is desired, the 7A amplifier can be supplied which is identical to the 7B in every respect except that a type 57 tube is used in the first stage in place of a 56, raising the gain to slightly over 100 decibels. Ordinarily the gain of the 7B amplifier will be found sufficient for most uses including operation from condenser and double button microphones.

(Prices on request).

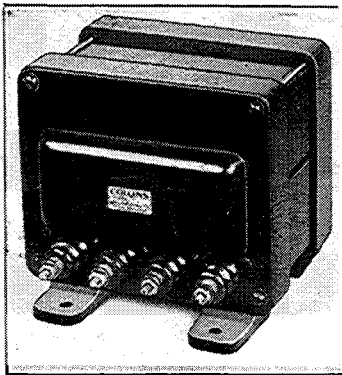


Mr. Vegas at the Controls of YV2AM, Maracaibo, Venezuela

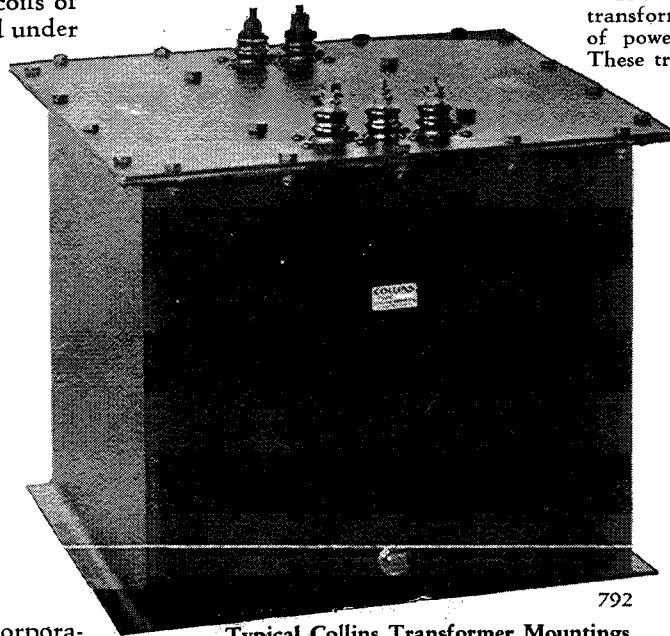
## Collins Transformers

For some time, the Collins Radio Company has made a practice of selling separately the various transformers which are used in the construction of COLLINS transmitters and speech equipment. These transformers have been widely used by broadcasting stations, sound equipment engineers and others. Rapid developments in tubes and circuits within the last few months have made it desirable to add many new items to the list of standard COLLINS transformers and this complete list has been prepared showing all of the new items. A few comments on the different classes of transformers are of interest.

Collins transformers are manufactured in the plant of the Chicago Transformer Corporation. Special patented winding machinery is used in making coils with extremely small mechanical and electrical tolerance to assure absolute uniformity. The coils of all transformers are impregnated under a high vacuum.



791A



Typical Collins Transformer Mountings



450B



Tinytrans

The Chicago Transformer Corporation makes transformers only to manufacturer's specifications and offers this complete line of audio and power transformers under the COLLINS name and built to Collins' specifications. Unequaled engineering and production facilities make it possible to offer a superior product at a fair price.

### Broadcast Series of Audio Transformers

The Broadcast series of transformers has been designed to accomplish the most faithful reproduction which mod-

ern transformer construction can provide.

Skillful use of interspaced windings in certain models is used to increase the flux linkage, lower the distributed capacity and increase efficiency. Great care has been taken to preserve perfect electrical balance on all pushpull class B transformers. An astonishingly wide frequency range is obtained by the use of high primary inductance, low distributed capacity and elimination of resonant peaks within the transmitted range. Special attention has been directed toward faithful transmission of the very high frequencies which are now recognized as playing a very important part in achieving naturalness. Another feature which is given careful consideration in design is the working of the cores at low flux density in order to avoid amplitude distortion. A special silicon alloy core having the highest permeability consistent with permanence of character-

cost is made in a large degree by using an inexpensive, yet serviceable, mounting rather than by reducing the quality of the core or winding. The frequency range of all models of Tinytrans is approximately 80 to 10,000 CPS and their fidelity is equal or superior to that of many higher priced transformers on the market. Tinytrans are ideal for use in 5-meter equipment, receivers, public address amplifiers, loud speakers and amateur transmitters.

Tinytrans have been available, although not advertised, for several months and a surprisingly large number of them have been sold. New models are constantly being brought out for use with new tubes and for special purposes. It seems likely that this group of transformers will continue to have a very wide acceptance.

### Power Transformers and Filter Chokes

The accompanying list of COLLINS transformers also shows a very wide variety of power transformers and filter chokes. These transformers are all types which have

istics is used in preference to other high permeability alloys which are subject to damage by temporary overloads.

### Collins Tinytrans

A special group of COLLINS transformers, classified as Tinytrans, are offered for certain uses. It is found that for many purposes, the extreme fidelity of the Broadcast series of transformers is not required and accordingly a line of smaller transformers with a slightly restricted frequency range was developed. The saving in

been developed specially for COLLINS transmitters. The primary consideration in design has been to make transformers which will have good regulation and efficiency and which will stand up under the severe variations in temperature and humidity which COLLINS transmitters encounter in tropical countries. The prices on COLLINS power transformers in some instances are slightly higher than the prices of competitive transformers bearing the same rating. It should be borne in mind, however, that there is not a complete agreement among transformer manufacturers as to the method of rating transformers. The slight additional cost of COLLINS power transformers is amply justified by increased performance and reliability.