

PHILCO SERVICEMAN



RADIO • MANUFACTURERS • SERVICE • NEWS



MARCH, 1941

EDITORIAL

R.M.S. and the Frequency Changes

On Saturday, March 29th, at 3 a.m. E.S.T. most of the Broadcasting Stations in Canada and the United States will change frequencies, in a major reallocation that has been expected for some time.

This means that every one of the millions of push-button radios in use in Canada today must have the push buttons reset for the favorite local stations in the territory. Most of this work will be done by the qualified servicemen who have anticipated this work and prepared to handle it. There will be hundreds of jobs for each qualified serviceman.

Service Industry's Great Opportunity

When a serviceman is called into the home to make this shift in push-button frequency settings, it is certainly logical to expect that the customer would want to have his tubes tested and to have the radio checked for general performance. There are thousands of radio sets in operation today which would be serviced if the customer had some real reason to call in the serviceman. This is the type of business which is going to come your way during March and April.

Promotional Efforts

Every radio serviceman, if he is on his toes, will be after this additional service business. He will start now with his advertising promotional campaign among his customers, and he will make sure that they understand what has to be done to their radios, why it has to be done, and that he is the man to do it.

Broadcast Stations Change Frequency

by G. J. Irwin

Chief Engineer, Philco Products Limited

On page 3 of this issue of the Philco Serviceman, you will find a complete list of the frequency assignments for Canadian stations under the Havana agreement. You will notice that the vast majority of Canadian stations will have to change frequency. This, of course, means a changeover of all Canadian push button receivers. Broadcasting stations in the United States, Mexico, Cuba, Haiti, and the Dominican Republic will also change at the same hour.

Let us try to examine how this changeover will affect the Canadian radio listener. Under the agreement, there will be practically no cleared channels as we know them at the present time. The nearest approach to a cleared channel will be one where a Canadian station is protected from undue interference within the borders of Canada. The reverse is also true, in that U.S. high powered stations will be protected from interference only within the borders of the United States. Stations classed as local stations will not be protected except in a very local area. This means that high powered Canadian stations will give good service within their usual territory in Canada, and local stations will give good service in their own city or town and the small area surrounding that city or town.

Distant reception on the broadcast band will be marred by considerable interference in a great many cases. The day of the DX fan on the broadcast band is almost at an end. A considerable number of U.S. stations will probably continue to give broad-

cast service in areas in Canada close to the border. Listeners at a considerable distance from the border will have to be content with their local stations and the high powered Canadian stations. This will hasten the trend that has been going on for a number of years in the listening habits of the public—that is, of listening to three or four local stations well over 90% of the time. This trend was accelerated by the introduction of push button tuning on a great many receivers. This trend will be further accelerated by the fact that after March 29, local reception will be better than it was, and distant reception (as a general rule) will be worse.

A number of years ago, Philco adopted the intermediate frequency of 460 K.C. The wisdom of this choice is now becoming apparent with this change in broadcast stations. A local station on the second harmonic of the intermediate frequency always causes an annoying whistle when the receiver is tuned to that station. No Canadian station has been assigned to 920 K.C. We are also informed that no high powered U.S. station near the border will use 920 K.C.

Another type of interference which may be even more troublesome is two nearby stations whose frequencies differ by exactly the intermediate frequency. We have checked over the new list of Canadian stations and have failed to find any community which will have two stations with a frequency difference of 460 K.C.

CHARACTERISTICS OF PHILCO TYPE 7C5E TUBE

Philco Type 7C5E is a power amplifier providing high power output, power sensitivity, and efficiency with a low percentage of 3rd and higher harmonics. Electrical characteristics are similar to Philco types 6V6E and 6V6EG. It has the Loktal base.

Characteristics

Heater Voltage (nom.) AC or DC 7.0 volts
 Heater Current (nominal)..... 0.48 ampere
 Base—Loktal 8 pin 6AA



6AA

Class A1 Amplifier (Single Tube)

Plate Voltage	180	250 volts max.
Screen Voltage	180	250 volts max.
Plate and Screen dissipation	—	12.5 watts max.
Grid Voltage	8.5	-12.5 volts
Amplification Factor	210	218
Mutual Conductance	3500	4100 micromhos
Peak Input Signal	8.5	12.5 volts (approx.)
Plate Current (zero signal)	29	45 M.A.
Plate Current (max. signal)	30	47 M.A.
Screen Current (zero signal)	3	4.5 M.A.
Screen Current (max. signal)	4	6.5 M.A.
Load resistance	5500	5000 ohms
Power output	2.0	4.25 watts

Class AB1 Amplifier (Two Tubes Push-Pull)

Plate Voltage	250 volts max.
Screen Voltage	250 volts max.
Grid bias	-15 volts
Peak Input Signal (grid to grid)	21.2 volts
Plate Current (zero signal)	70 M.A.
Plate Current (max. signal)	79 M.A.
Screen Current (zero signal)	5 M.A.
Screen Current (max. signal)	12 M.A.
Load Resistance (plate to plate)	10,000 ohms
Power output	8.5 watts

PERSONAL MONOGRAM MAKES COMPACT SALES EASIER

A simple idea which helps to sell compacts more readily is available in the PHILCO Personal Monogram package.

This package contains 300 monogrammed letters arranged in suitable quantities of each letter of the alphabet so that a personal monogram of two or three letters can be placed quickly and easily on the front of a radio set. The method of installing the monogram is simplicity in itself. The desired letters are simply torn from a large perforated sheet similar to the station tab sheets, dropped in water for a few seconds and are then slid off the paper backing and placed in position with the finger. It is an easy matter to align the gold-and-black letters, after they are placed on the cabinet surface, merely by sliding them into their final position. Complete instructions for placing the letters on the cabinet are given with each monogram package.

A Plus Sales Item

Since the monograms are inexpensive (less than 1 cent per letter), many dealers are using this idea as an extra in the sale of compact sets. The monogram is also being used by servicemen as a form of permanent advertising. Every time the customer turns on his radio he sees his monogram and thinks of the serviceman who obligingly put it on the front of the set.

Use on Automobiles

The monograms can be placed on any type of surface, such as wood, bakelite, airplane cloth, metal, leather, glass, etc. They are equally desirable for use on automobile doors or on personal luggage as they are for use on radio cabinets and other furniture.

Your PHILCO distributor has the PHILCO Monogram Package in stock and will be glad to give you a demonstration.

PHILCO NOTES

New Tube Prices—New and attractive tube prices have just been announced by Philco. Be sure to see your Philco distributor about these, and take advantage of this splendid opportunity to stock up on Philco tubes.

New Service Volume—A new Philco Service Volume is now ready for distribution. This is known as the Philco 1941 Year Book, and includes circuit diagrams, parts lists, aligning information, etc. on all Philco home radios, car radios, and custom car radios announced during the calendar year 1940.

Philco 1941 Year Book—

\$1.50 net with 2 ring binder, or
 \$1.00 net without binder.

Obtainable from your Philco Distributor

Special Bargains—Philco distributors now have special bargains in genuine Philco speakers and Philco mica condensers. These offers are for a limited time only—see your Philco distributor about them now.

R.M.S. Appreciation

Once again this month our mails have been flooded with letters from R.M.S. members who are anxious to tell us how much they appreciate the information which is sent out by Philco and Philco Distributors each month. It is most gratifying to us to get these letters direct from the R.M.S. members, and we want to sincerely thank all those who have written in. The following are just a few of their comments:

Mr. R. C. O'Hara, of Burns Lake, B.C. says—"Just a few lines of appreciation for the excellent service given by the R.M.S. I have found your service bulletins very helpful, also the R.M.S. radio course. More and more Philco receivers are being used in this district, so I hope you will continue to keep me posted on the latest models."

Mr. J. W. McCloskey, of 988 Bridge Avenue, Windsor, Ontario — "Many thanks for the R.M.S. mailing I just received, dated January 2, 1941. I would like to say at this time that I do appreciate the time, trouble and money the Philco people have spent in furnishing servicemen with such helpful and interesting information."

Mr. W. J. Rowles, of 162 Pretoria Avenue, Ottawa, Ontario—"I want to show my appreciation of the many R.M.S. helps from which I have benefited."

Mr. Leonce Pelletier, Danville, P.Q. — "I take this opportunity as an R.M.S. member to extend my most sincere thanks to you for the swell help given to us R.M.S. members, through your monthly mailings."

Mr. Ambrose Hubenig, of Melville, Sask.—"The work that you carry on for the R.M.S. must be really complimented—it's swell! Thanks to you."

CANADIAN BROADCASTING STATION ASSIGNMENTS

To be made effective at 3 A.M. E.S.T. on March 29th, 1941

ABBREVIATIONS

w	watts
kw	kilowatts
kc	kilocycles
D	daytime
N	nighttime
DA	directional antenna

Call Letter	Location	Power	Call Letter	Location	Power
CBK	Watrous, Sask.	540 kc 50 kw	CJGJ	Calgary, Alta.	1230 kc 100 w
CFNB	Fredericton, N.B.	550 kc 1 kw	CFCH	North Bay, Ont.	1230 kc 100 w
CJKL	Kirkland Lake, Ont.	560 kc 1 kw	CKNX	Wingham, Ontario	1230 kc 100 w
CKUA	Edmonton, Alberta	580 kc 500 w	CKTB	St. Catharines, Ont.	1230 kc 100 w
CKPR	Port Arthur, Ont.	580 kc 1 kw	CHGB	Ste. Anne de la Pocatière, P.Q.	1230 kc 100 w
CKCL	Toronto, Ontario	580 kc 1 kw DA	CKVD	Val d'Or, Quebec	1230 kc 100 w
CJOR	Vancouver, B.C.	600 kc 1 kw	CFPR	Prince Rupert, B.C.	1240 kc 50 w
CFQC	Saskatoon, Sask.	600 kc 1 kw	CBJ	Chicoutimi, Quebec	1240 kc 100 w
CFCF	Montreal, P.Q.	600 kc 500 w	CKMC	Cobalt, Ontario	1240 kc 50 w
CJAT	Trail, B.C.	610 kc 1 kw	CJCS	Stratford, Ontario	1240 kc 50 w
CHNC	New Carlisle, Que.	610 kc 1 kw	CKCH	Hull, Quebec	1240 kc 100 w
CKCK	Regina, Sask.	620 kc 1 kw	CHLT	Sherbrooke, Que.	1240 kc 100 w
CFCY	Charlottetown, P.E.I.	630 kc 1 kw	CKNB	Campbellton, N.B.	1240 kc 100 w
CFCO	Chatham, Ontario	630 kc 100 w	CFRN	Edmonton, Alberta	1260 kc 1 kw
CKOV	Kelowna, B.C.	630 kc 1 kw	CJCB	Sydney, N.S.	1270 kc 1 kw
CJRC	Winnipeg, Manitoba	630 kc 1 kw	CKCO	Ottawa, Ontario	1340 kc 100 w
CBF	Montreal, Quebec	690 kc 50 kw	CKCV	Quebec, Que.	1340 kc 100 w
CKAC	Montreal, Quebec	730 kc 5 kw	CHCK	Charlottetown, P.E.I.	1340 kc 50 w
CBL	Toronto, Ontario	740 kc 50 kw	CJLS	Yarmouth, N.S.	1340 kc 100 w
CKSO	Sudbury, Ontario	790 kc 1 kw	CFGP	Grande Prairie, Alta.	1340 kc 250 w
CKLW	Windsor, Ontario	800 kc 5 kw	CHWK	Chilliwack, B.C.	1340 kc 100 w
CFRB	Toronto, Ontario	860 kc 10 kw	CKPC	Brantford, Ontario	1380 kc 100 w
CJBR	Rimouski, Quebec	900 kc 1 kw	CJOC	Lethbridge, Alta.	1400 kc 100 w
CHML	Hamilton, Ontario	900 kc 1 kw DA	CFAR	Flin Flon, Manitoba	1400 kc 100 w
CKBI	Prince Albert, Sask.	900 kc 1 kw	CKRN	Rouyn, Quebec	1400 kc 250 w
CBO	Ottawa, Ontario	910 kc 1 kw	CHRC	Quebec, Que.	1400 kc 100 w
CFJC	Kamloops, B.C.	910 kc 1 kw	CKCW	Moneton, N.B.	1400 kc 100 w
CJCA	Edmonton, Alta.	930 kc 1 kw	CFOS	Owen Sound, Ont.	1400 kc 100 w
CBM	Montreal, Quebec	940 kc 5 kw	CKMO	Vancouver, B.C.	1410 kc 100 w
CFAC	Calgary, Alberta	960 kc 1 kw	CKLN	Nelson, B.C.	1450 kc 100 w
CHNS	Halifax, N.S.	960 kc 1 kw	CKCA	Kenora, Ontario	1450 kc 100 w N 250 w D
CJRM	Regina, Sask.	980 kc 1 kw	CHLN	Three Rivers, Que.	1450 kc 100 w
CBV	Quebec, Que.	980 kc 1 kw	CFLC	Prescott, Ontario	1450 kc 100 w
CKWX	Vancouver, B.C.	980 kc 1 kw <i>5 kw</i>	CJGX	Yorkton, Sask.	1460 kc 1 kw
CKY	Winnipeg, Manitoba	990 kc 15 kw	CKGB	Timmins, Ontario	1470 kc 1 kw
CFCN	Calgary, Alta.	1010 kc 10 kw	CFCT	Victoria, B.C.	1480 kc 500 w
CBY	Toronto, Ontario	1010 kc 1 kw DA	CHGS	Summerside, P.E.I.	1480 kc 100 w
CBA	Sackville, N.B.	1070 kc 50 kw	CKCR	Waterloo, Ontario	1490 kc 100 w
CBR	Vancouver, B.C.	1130 kc 5 kw	CFRC	Kingston, Ontario	1490 kc 100 w
CKX	Brandon, Manitoba	1150 kc 1 kw	CHLP	Montreal, Quebec	1490 kc 100 w
CKOC	Hamilton, Ontario	1150 kc 500 W.N. 1 kw D	CJIC	Sault Ste. Marie, Ont.	1490 kc 100 w
CHSJ	St. John, N.B.	1150 kc 1 kw	CFPL	London, Ontario	1570 kc 1 kw DA
CHAB	Moose Jaw, Sask.	1220 kc 1 kw			

Questions and Answers

1 Q. How is it possible to reduce the very high frequencies of some phonograph records when played on Philco Models 702P and 703P.

A. These phonograph combination models have unusual capacity for faithfully reproducing high frequency notes when present in records. If it should be desired to reduce the high frequency range of these models, it is merely necessary to add a .0015 mfd. condenser (Philco part 30-4555) across the terminals of the pick-up leads.

2 Q. How can excessive motor noise interference be eliminated on the 1941 Studebaker radios after the usual precautions have been taken and the interference persists?

A. A new antenna choke, part No. 77-0836 has been designed to remove practically all of the motor interference picked up by the antenna. This choke is simply plugged into the antenna socket on the receiver and the antenna lead-in is then connected to the choke, thus putting the choke in series with the antenna.

3 Q. What is a probable cause of Philco Model 207T being weak, and at the same time the second I.F. transformer secondary padder is very broad?

A. This is probably caused by reversed wires on the "A" plug. Make certain that the red and black wires on the "A" plug are not reversed.

4 Q. When installing the 1941 Ford Philco car radio in the new Ford cars, is there any special precaution that should be taken to assure freedom from ignition interference?

A. If ignition interference is picked up by the aerial, it is probably due to a poor ground or complete lack of grounding on the windshield divider strip inside the car. In some cases it will be necessary to bond this strip to the instrument board at one end, and to the roof at the other end. Also on generator relays which have three terminals on one side and one on the other, it is necessary to ground the single terminal to the relay mounting slug.

Philco Dial Drive Cable

Philco now has available a 25-foot spool of black dial drive cable. This cable is light weight, and comes with a supply of small size clips for forming loops

Philco Part No. 45-1420
List Price \$2.65

Philco Ballast Tubes

Philco Ballast Tubes are used mainly in battery operated receivers to maintain substantially constant current over a considerable range of battery voltage variation.

For two volt tubes operated on a 3 volt battery source, the supply voltage will vary from about 3.4 volts to 2.2 volts during the life of the batteries. For this range of supply voltage the types listed below will maintain the socket terminal voltage between 1.8 and 2.2 volts. During the major part of battery life the socket voltage remains very close to the rated value of 2.0 volts.

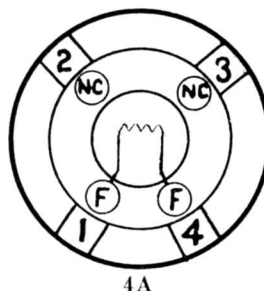
All Philco Ballast Tubes listed below will replace any Ballast Tubes having the same type numbers, and will also replace any Ballast Tubes for similar service, regardless of type number, providing the filament current load is identical and the basing arrangement the same.

In determining the filament current load in series with the ballast tubes, it is necessary to include the total filament current drain of the receiver tubes plus the current drain of the dial light, if one is used.

Characteristics		M.S. Load	Aver. Voltage Drop
Type	Use	Current	
1A1	Battery	500	1.0
1C1	"	745	1.0
1D1	"	240	1.0
1F1	"	720	1.0
1J1	"	620	1.0
1Y1	"	540	1.0
1Z1	"	900	1.0
9	D.C. or A.C.-D.C.	300	50.0

The voltage drop shown is for average operation and may vary according to the supply voltage.

Base Layout



4A

Philco Loktal Tubes

Philco Loktal Tubes are the outstanding development in radio tubes today. The following points of superiority readily show why Philco Loktal Tubes are increasing in popularity so rapidly.

1. Space Saving—the reduced overall height, and compact dimensions save considerable space.

2. No top grid cap connection—eliminates messy grid leads and wires.

3. The central locating lug is of metal and acts as a shield between the contact prongs.

4. All internal connections are welded, not soldered. This gives longer life and greater freedom from internal noises.

5. The number of internal welded joints is less, thus making for greater efficiency and lower loss.

6. All glass base—gives better spacing of lead wires and lower loss.

7. Rigid internal construction means greater durability and ability to withstand rougher usage.

Peak Performance from 1941 Home Radios

Remote locations and shielded buildings, to be found in practically every territory, have presented no radio reception problem since the introduction of the Philco 1941 Accessory (Outdoor) Aerial.

The special plug-in coupler which is a part of this aerial, scientifically matches the aerial to the built-in Domestic and Overseas Aerial system of the 1941 Philco radio. The coupler, which is available separately for use with existing installations of Philco Safety Aerials, should never be used with any other aerial such as the old-style horizontal wire types. Because of their entirely different electrical characteristics, such aerials impair the performance of new Philco radios, causing broad tuning, interference, whistles and birdies.

The Philco Accessory aerial is Philco part 45-2817 and lists at \$5.50

The special plug-in coupler is Philco part 76-1134 and lists at \$2.50

Both these items are available at Philco Distributors.

PHILCO PRODUCTS LIMITED

PARTS AND SERVICE DIVISION
TORONTO

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