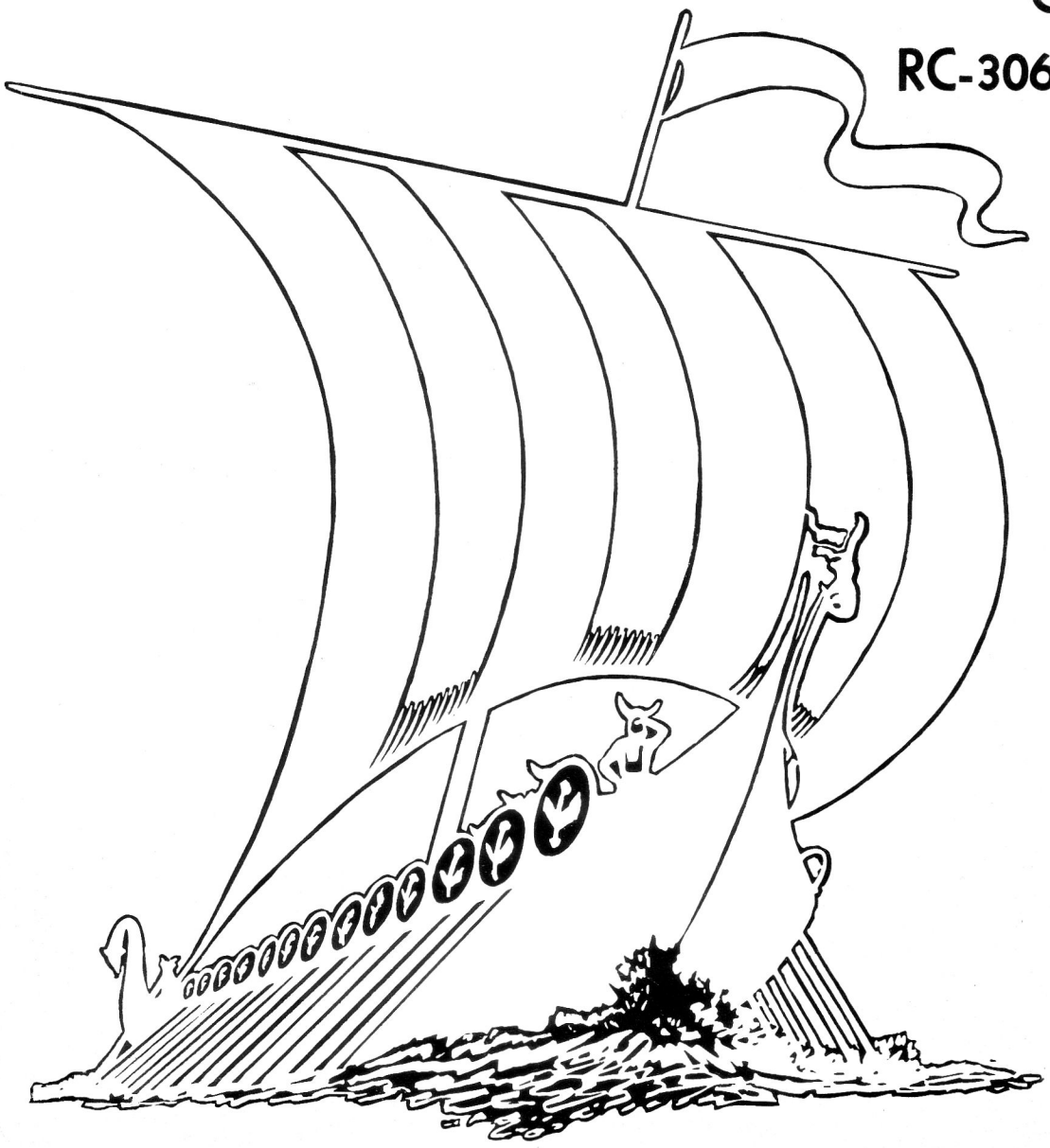
Operating Instructions

for your

VIKING

"Hi-Fi" Model PC-305
ELECTRIC PHONOGRAPH, and
RADIO-PHONOGRAPH
COMBINATIONS
RC-306, RC-307, RC-312

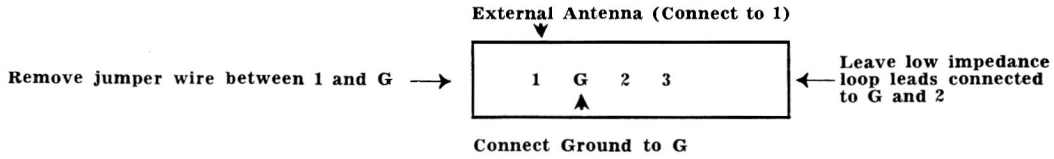


EATON'S OF CANADA

AM TUNER OPERATION (535 to 1605 KC.)

MODELS EQUIPPED WITH TUNER

1. Connect external antenna and ground if desired.



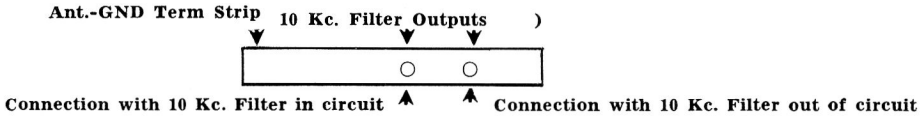
2. Turn the **"Selector"** switch to tuner as indicated on the Amplifier Control Panel.
3. Turn the **Amplifier ON:** Turn the Off-On-Contour control clockwise until a click is heard.
4. Turn the **Tuner ON:** Turn the Off-On-Volume control of the tuner clockwise until a click is heard.
5. Tune in station and adjust volume. (Tuning range 535 Kc. to 1605 Kc.)

   Note: The volume control and off-on switch in the tuner permits the tuner to be turned on and off and the volume to be adjusted independent of the controls on the amplifier. When using the AM tuner it will be found that the lows are much more pronounced than the highs. Set the amplifier level control almost fully clockwise and use the volume control on the tuner to control output level.

6. Adjust contour and tone controls as shown under phonograph operation.

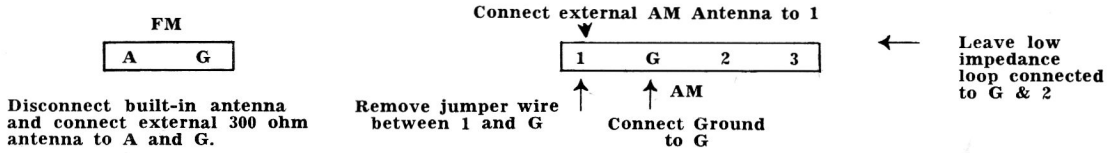
   10 Kc. Filter — this tuner has been designed to provide reception either with or without a 10 Kc. Filter. The connection through the 10 Kc. Filter is strongly recommended in areas where strong signals from stations on adjacent channels interfere and cause annoying Heterodyne whistles. It will also help to eliminate some of the interference caused by adjacent TV receivers.

   When the unit leaves the factory it is connected for reception with the 10 Kc. filter out of the circuit. This may be changed by removing the tuner connecting cable plug from the jack on the rear skirt of the tuner and placing it into the adjacent jack.



AM-FM TUNER OPERATION (AM - 535 to 1605 Kc., FM 88 to 108 Mc.)

1. Connect external antenna and ground if desired.



2. Turn the **"Selector"** switch to Tuner as indicated on the Amplifier Control Panel.
3. **Turn the Amplifier ON:** Turn the Off-On-Contour control clockwise until a click is heard.
4. **Select Tuner Operation** and Turn Tuner ON.
   Turn the tuner selector switch to one of the following positions as follows. This also turns the tuner ON.
   AM FFR — For broadcast reception with 10 kc. filter out of circuit. This setting is used to take advantage of the full frequency range capabilities of the receiver. This should be used on clear channel stations and in other areas where interference from adjacent stations is no problem.
   AM — For broadcast Band reception with a 10 Kc. filter in the circuit. This setting is strongly recommended where strong signals from stations on adjacent channels interfere and cause annoying heterodyne whistles. It will also help to eliminate some of the interference caused by adjacent TV receivers.
   Try the receiver in both positions to ascertain which is the better setting for your particular location.
   FM - AFC — In this position it will be found that the station will automatically lock in and remain correctly tuned when the dial pointer is moved to the vicinity of the desired channel. Under ordinary conditions this model may be used in the FM - AFC position.
   FM — Set in this position for the most accurate tuning on FM stations.
5. Tune in station and adjust level, contour, treble and tone controls as shown under phonograph operation. The flywheel tuning mechanism assists you to select stations with extreme simplicity of tuning knob operation.
6. Turn Tuner **OFF:** Turn the tuner selector switch to OFF position as indicated on the tuner control panel. The tuner may be turned off independent of amplifier.

AUXILIARY FEATURES

TAPE: (Available on all models.)

An input jack and a position on the amplifier Selector Switch have been provided so that a tape playback unit may be played through your unit's high fidelity amplifier and speaker system. Connect your playback unit to the tape input jack at rear of cabinet, turn the selector switch to Tape position, turn amplifier "ON" and operate the level, contour, treble tone and bass tone controls to suit your listening pleasure.

TUNER: (Available only on straight phonograph models.)

The tuner input jack on chassis and position on the amplifier Selector Switch may be used for connecting a TV set, radio tuner, crystal cartridge, home entertainment microphone, etc., to make use of the high fidelity reproducing system of the unit.

Connect your tuner or other accessory to the tuner input jack at rear of cabinet, turn the selector switch to Tuner position, turn amplifier "ON" and operate the level, contour, treble tone and bass tone controls to suit your listening pleasure.

AUXILIARY AC OUTLET (Available only on straight phonograph models)

This outlet is provided for connecting auxiliary equipment such as a tuner, tape deck, etc. It is switched "ON" and "OFF" by the Off-On switch on the Amplifier.

CARE OF RECORDS

Records should be protected as much as possible from dust and lint. Dust will not only interfere with perfect reproduction, but may collect in the delicate parts of the pickup cartridge. If dust is allowed to collect on the record surface, it should be gently removed with a soft, slightly damp, lint free cloth. Water should not be allowed to stand on the labels, particularly around the centre hole where it might roughen the label edge. Do not use oils or solvents on your records since these will only increase their tendency to accumulate dirt. Reasonable care should be exercised in handling to prevent scuffs and scratches which may damage the fine music grooves and thereby produce poor reproduction or affect the functioning of the mechanism. Keep your records in a cool, dry, clean place where they are not likely to be damaged. When not in use records should be stored in envelopes either flat or vertically, never propped at an angle which will allow them to warp. They should never be exposed to high temperatures such as might be encountered near a radiator or above a hot air register. Always remove records from the record player and place in file after playing.

SPECIFICATIONS — AMPLIFIER (PC-305, RC-306, RC-307)

Frequency Response — 1 Watt Level ± 1 db. 30 to 15000 cps.
Harmonic Distortion — Less than 1% at normal operation levels.
Intermodulation Distortion — Less than 1% at normal operating levels. (60 and 3000 cps. 4:1)
Hum and Noise — —80 db. below rated output.
Undistorted Power Output at 400 cps. — 10 watts.
Maximum Power Output at 400 cps. — 15 watts.
All measurements nominal taken at tuner input with tone controls in flat position, level and contour controls fully clockwise and at 117 V line.

SPECIFICATIONS — AM TUNER (RC-306)

Tuning Range — 535 to 1605 Kc.
I.F. Frequency — 455 Kc.
Sensitivity — 3 uv. for .3V AC at cathode follower output.
Selectivity — 12 Kc. Bandwidth at 10 X down.
Cathode follower output 2V at less than 1% distortion.
Response — ± 3 db. from 30 to 20,000 cps.

SPECIFICATIONS — AM-FM TUNER (RC-307, RC-312)

A.M. Tuning Band — 535 to 1605 Kc.
F.M. Tuning Band — 88 to 108 Mc.
A.M. I.F. Frequency — 455 Kc.
F.M. I.F. Frequency — 10.7 Mc.
Sensitivity — AM 5 uv. for 100 mv. at output jack
FM 5 uv. for 20 db. quieting
Selectivity — AM 12 Kc. Bandwidth at 10X down
FM 200 Kc. Bandwidth at 10X down

Preamplifier — Selector and Slave Amplifier (RC-312)

Preamplifier — Selector

Frequency Response — 30 to 15000 cps.
Intermodulation Distortion — Less than .5% at 2 volts output.
Hum and Noise — 70 db. below 2 volts rated output.
Voltage gain — 5.
All measurements nominal taken at tuner input with tone controls in flat position, level and contour controls fully clockwise.

Slave Amplifier (Ultralinear)

Frequency Response — 20 to 40,000 cps.
Intermodulation Distortion — 2% at 1 db. below rated output.
Hum and Noise — 80 db. below rated output — Input shorted.
Voltage Input Required for Rated Output — 1.0 V. A.C. Nominal.
Power Output — Nominal undistorted at 1000 cps. 20 W. ± 1 db.
Maximum at 1000 cps. 30 W. ± 1 db.
Feedback — 14 db. in output stage. 17 db. in input stage.

PREPARE UNIT FOR OPERATION

(A) Locate and remove all packing.

(B) Release changer to floating position (see caution card on record changer)

(C) Release pickup on changer from hold down clamp. Rotate clamp away from turntable.

(D) **Antenna and Ground Connections** (models equipped with tuners)

ANTENNA

The models equipped with tuners have been provided with a built-in antenna to provide reception of local stations and in other areas of high signal strength. Should greater signal pickup be desired, consult your dealer or serviceman for best type of installation.

Ground — These receivers will operate without a ground connection. The use of a good ground connection, however, is recommended in all cases. This may be obtained by connecting a ground wire to a cold water pipe or to a metal rod driven well into the ground.

See paragraphs on AM and AM-FM tuner operation for connections.

(E) Plug line cord into 110-120 volt AC wall outlet only. **CAUTION: Make sure that the frequency (cycle) shown on license label and unit is the same as supplied by your local power company.**

PHONOGRAPH OPERATION

1. Turn the **"Selector"** Switch to FLAT, RIAA or 78 as indicated on the amplifier control panel to provide record compensation for the type of records to be played. (See table for Record Compensator Switch Settings)
2. **TURN AMPLIFIER ON:** Turn the **Off-On-Contour** control clockwise (↗) until a click is heard.
3. Load and Operate Changer as per instructions shown on disc supplied with record changer.
4. Adjust level and contour controls: Typical operations are as follows:

   (A) With the tone controls set in their flat ("O") positions, set level control fully clockwise (↗) and adjust contour control to control loudness.

   (B) With the tone controls set in their flat ("O") positions, set contour control fully clockwise (↗) and adjust level control as a conventional volume control.

   (C) A method using these controls in conjunction with each other. Turn the contour control to its extreme clockwise (↗) position — set the level control for maximum anticipated loudness on crescendo passages — adjust bass and treble tone controls (see tone control operation) and reset the contour control for desired listening level. When the setting is found which suits your individual preference, tonal balance can be obtained without varying tone controls as the listening level is varied.

   CAUTION: Do not adjust the contour or tone controls to give excessive bass or treble boost at high volume levels. Excessive bass boost will overdrive the amplifier resulting in severely distorted reproduction, excessive treble boost gives thin reproduction.

   The boost provided by the contour control is separate and in addition to that provided by the tone controls. The contour control boost compensates for the human ear's insensitivity to extremes of treble and bass frequencies at low listening levels. This is done by progressively boosting the treble and bass response as the contour control is turned down to maintain satisfactory balance.

   Treble loudness compensation is necessary as well as compensation for bass tones if a booming effect is to be avoided at low listening levels.

5. **ADJUST TONE CONTROLS:** Tonal balance depends to a large extent on:

   (A) Acoustical characteristics of the room in which the unit is being played.

   (B) The types of recording or broadcast program to which you wish to listen.

   (C) Your own personal preference.

   Separate treble and bass tone controls are provided to permit you to make adjustments of frequency response to suit your individual requirements.

PHONOGRAPH OPERATION — (Continued)

Treble Control: Turn the knob clockwise (↷) past the flat ("O") position towards the + 5 position to bring out the brilliance of the cymbals and for overtones of all instruments.
If the treble frequencies are too accentuated turn the knob counterclockwise (↶) towards the —5 position.

Bass Control: Turn the knob clockwise (↷) past the flat ("O") position towards the + 5 position to bring out the full richness of the bass instruments. If the bass frequencies are too accentuated as is sometimes the case turn the knob counterclockwise (↶) towards the —5 position.

CAUTION: Do not adjust tone controls to give excessive bass or treble boost at high volume levels. Excessive bass boost will over-drive the amplifier resulting in severely distorted reproduction and excessive treble boost gives thin reproduction.

6. **SET SPEAKER HI FREQUENCY CONTROL:** This control is located at the rear of the cabinet and once set should not require any further setting. Adjust it to set the level of the high notes which sound best in the room in which the unit is installed. Set with the treble tone control in the flat ("O") position.

7. **SET RECORD "COMPENSATOR" SWITCH** (for phonograph operation) — All settings are made with treble and bass tone controls in flat ("O") position.

   A WORD ABOUT RECORD COMPENSATION — In the manufacture of records, the Treble range is pre-emphasized (boosted) to mask surface noise and the Bass range de-emphasized to conserve groove space and reduce distortion. When the records are played, therefore, the reproducing equipment must be able to reduce the treble and increase the bass to restore the original balance. Unfortunately, however, all manufacturers do not record with the same amount of treble pre-emphasis and bass de-emphasis and therefore a series of settings for varying degrees of compensation are required.

   Set the switch in the proper position for the type of recording to be played. Suggested settings are shown, but in all cases the proper settings are those that sound best.

SUGGESTED RECORD COMPENSATOR SWITCH SETTINGS

FOR VARIOUS MAKES OF RECORDS

USE R.I.A.A. SETTING				USE FLAT SETTING	
Audio Engineering Society (A.E.S.)	Orthophonic (ORTHO)	N.A.R.T.B. (NAB) R.I.A.A.	Early 78	Full Frequency Range Records (F.F.R.R.)	Flat
Blue Note Jazz	American Recording Soc.	Angel	Older Records having high surface noise	London ffrr	Cetra-Soria 78
Canyon	Capitol F.D.S.	Artist		Decca ffrr	English Columbia
Capitol (early releases)	Capitol	Atlantic			H.M.V. 78
Capitol-Cetra	Columbia	Bach Guild			Most European 78
Colosseum	Decca	Bartok			
Concert Hall	H.M.V. 33⅓	Boston			This setting provides flat treble response
Contemporary	London	Caedmon			
E.M.S.	M G M	Cetra-Soria			
Good Time Jazz	Mercury	Columbia			
Mercury	R.C.A. Victor	Cook Laboratories			
Philharmonic	Tempo	Decca			
R.C.A. (early releases)		Elektra			
Urania		Epic			
		Esoteric			
		Folkways			
		Haydn Society			
		Lyrichord			
		M G M			
		Oceanic			
		Polymusic			
		Remington			
		Urania			
		Vanguard			
		Vox			
		Westminster			

7. It may be that suggested settings of compensation do not give you a pleasing tone balance of the relative loudness of Bass and Treble notes. If such is the case, adjust the bass and treble tone controls to provide the greatest listening pleasure.

8. **TURN SET OFF:** Turn the Off-On-Contour Control fully counterclockwise (↶) until a click is heard.

9. Always remove records from changer after playing and store for future use. (See "Care of Records".)

HIGH FIDELITY

. . . the New Sound in music re-creation

Lounge back, close your eyes and flip the switch—a great symphony orchestra is giving a private concert in your living room! Every note is clear—the tone of every instrument true and sharp—**this is sound in full dimension, called High Fidelity.** This is a relatively new concept in the reproduction of recorded music—only a few years ago an expensive hobby of those who could afford custom-built units. Now with the growing interest in "hi-fi" some of the most renowned names in the electronic field have carefully produced phonographs and combinations that bring this startling new approach in recorded music to you at prices to fit the more moderate budget.

VIKING has kept pace with and has often lead in the development of "High Fidelity" Radio, Radio-Phonograph Combinations and Television receivers.—In Viking you will find a wide assortment of these new and highly desirable instruments.

Ask for a demonstration—have your favourite record played for you on a truly "High Fidelity" phonograph, the next time you are in an EATON Store.

EATON'S OF CANADA