

SPRING WOUND MOTOR DATA

REPLACING SPRINGS IN SPRING WOUND MOTORS

There are two types of motors used in RCA Victor Portable Phonographs and Record Players, viz.; The "Angle" wind motor and the "Side" wind motor.

REPLACING MAINSPRING IN ANGLE WIND MOTORS

- (1) Take out 4 screws from top of motor to remove plate.
- (2) To remove the spring barrel, pull the barrel up carefully from the barrel cap, and lift about 3 inches to allow enough space to disconnect the main spring from arbor.
- (3) To remove spring, take a firm hold on the barrel, lift out the centre of the spring and uncoil until the spring is completely out of the barrel.
- (4) To reassemble new spring, first remove the retaining band from the spring by placing it in a vice and cutting the band. Care should be taken when removing loose spring from the vice.
- (5) Engage slot in end of spring on the barrel hook and wind spring in place, always keeping a firm hold on the barrel and spring.

CAUTION:- Make sure new spring is wound in same direction as the old one you removed.

- (6) The center of the new spring should be crimped to the size of the arbor so that it will hook to the arbor when placed in the spring barrel.

NOTE:- About a teaspoon of graphite should be placed in barrel before closing.

- (7) Reassemble as you disassembled in (1) and (2).

REPLACING MAINSPRING IN SIDE WIND MOTORS

- (1) Remove 2 screws in bottom plate, and left hand screw on top casting, and remove spring barrel from frame.
- (2) Remove the barrel cap by tapping the edge of the cap with a block and hammer, and disconnect the main spring from the arbor.

Proceed as in steps (3), (4), (5), (6) and (7).

SPRING WOUND MOTOR ADJUSTMENTS

Speed variations or WOWS may be experienced with instruments due to a variety of causes. Some of the troubles and corrections are listed below:

1. A regular WOW occurring on every revolution of the turntable, or every few revolutions.

- (a) A frequent cause of this difficulty is faulty adjustment of the governor springs. If the governor weights seem to oscillate in and out when the motor is in operation, the spring tension of the three weights may not be evenly balanced. Loosen the three spring clamping screws and position the springs so that all three weights are held with the same tension.
- (b) Another possible cause of this trouble is faulty adjustment of the governor bearings. To adjust these bearings:

First: Set the speed regulator lever so that the face of the felt friction pad is accurately parallel to the governor friction plate.

Second: Loosen both governor bearing set screws and position the governor so that the motor revolves at rated speed (78.4 rpm).

Third: Adjust the mesh of the worm and the drive gear by turning the eccentric bearings. These should be set so that the worm meshes properly with the gear without binding.

Fourth: Adjust the distance between bearings so that the governor turns freely with a minimum of end-play.

- (c) A take-up spring is mounted on the governor friction plate shaft to ensure against lost motion and erratic operation of this plate. It is essential that this spring be in place and adjusted to provide adequate tension.
- (d) Marred or broken teeth on either gear on the turntable shaft or on the intermediate gear shaft may cause this trouble. If inspection shows this to be the case, the defective gear should be replaced.

2. The turntable loses speed or WOWS on the louder parts of a record.

- (a) This may be caused by failure of the governor to respond accurately to speed changes, due to excessive or irregular friction between the sliding friction plate and the governor shaft. When this occurs it may be corrected by removing the weights and working the plate back and forth until it frees up. If the governor shaft does not have a smooth surface it may be necessary to smooth it down slightly using "Crocus Cloth" or to replace the governor.
- (b) This condition may also be caused by excessive friction in any part of the motor. Be sure that the governor bearings are properly adjusted as described in section 1 (b). Lubricate all bearings in the motor using a high grade light oil. The governor shaft, friction plate, and felt friction pad should also be lubricated with this oil. Lubricate the worm with a light grease such as RCA Stock No. 10975 Electric Motor Grease. Remove the main spring and pack it with a graphite lubricant.

3. The turntable speed changes erratically over long periods of time.

- (a) This may be caused by binding of the main spring due to improper lubrication. To correct this pack the spring with graphite grease as described in section 2 (b).
- (b) Make sure that the top of the main spring housing does not rub on the end of the winding shaft.
- (c) Inspect the gear teeth on the main spring gear. If these are marred or broken, it may be necessary to replace the spring assembly.

IDENTIFICATION OF GOVERNORS IN PHONO MOTORS

The following governors are similar with exception of the weight and spring assemblies. The rings referred to are two grooves cut in the fly-ball for identification purposes.

Stock No.	Identification
11703	Weight has two rings and uses spring .156 in. wide x .0076 in. thick. Balls measure 9/32 in. x 5/8 in. diameter.
31623	Weight has two rings and uses spring .156 in. wide x .0066 inches thick. Balls measure 9/32 in. x 5/8 in. diameter.
31624	Weight is plain and uses spring .156 inches wide x .0066 inches thick. Balls measure 5/16 in. x 5/8 in. diameter.
32034	Weight is plain and uses spring .187 in. wide x .0082 in. thick. Balls measure 5/16 in. x 5/8 in. diameter.