

1000-CYCLE MACHINES
KS-5472 AND KS-5472-01
REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

1.01 This section covers the following 1000-cycle machines, formerly covered in Section 155-608-701.

KS-5472 with ac motor drive and waste-packed sleeve bearings. The motor has an internal centrifugal starting switch which closes the circuit to the starting winding while starting.

KS-5472-01 is the same as the KS-5472, except that a capacitor motor is used with no centrifugal starting switch; and it has a small fan mounted internally. The capacitor is mounted externally.

1.02 This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

1.03 The machines are intended primarily as a source of 1000-cycle supply for testing purposes, usually on intermittent service.

1.04 *Phi* (ϕ): Requirements are marked with a phi when they are not required to be checked before turnover.

1.05 *Asterisk* (*): Requirements are marked with an asterisk when to check for them would necessitate dismantling or dismounting of apparatus, or would affect the adjustment involved, or other adjustments. No check need be

made for these requirements unless the apparatus or part is made accessible for other reasons, or its performance indicates that such a check is advisable.

1.06 Reference shall be made to Section 020-010-711 for additional information necessary for the proper application of the requirements listed herein.

2. REQUIREMENTS

2.01 Lubrication

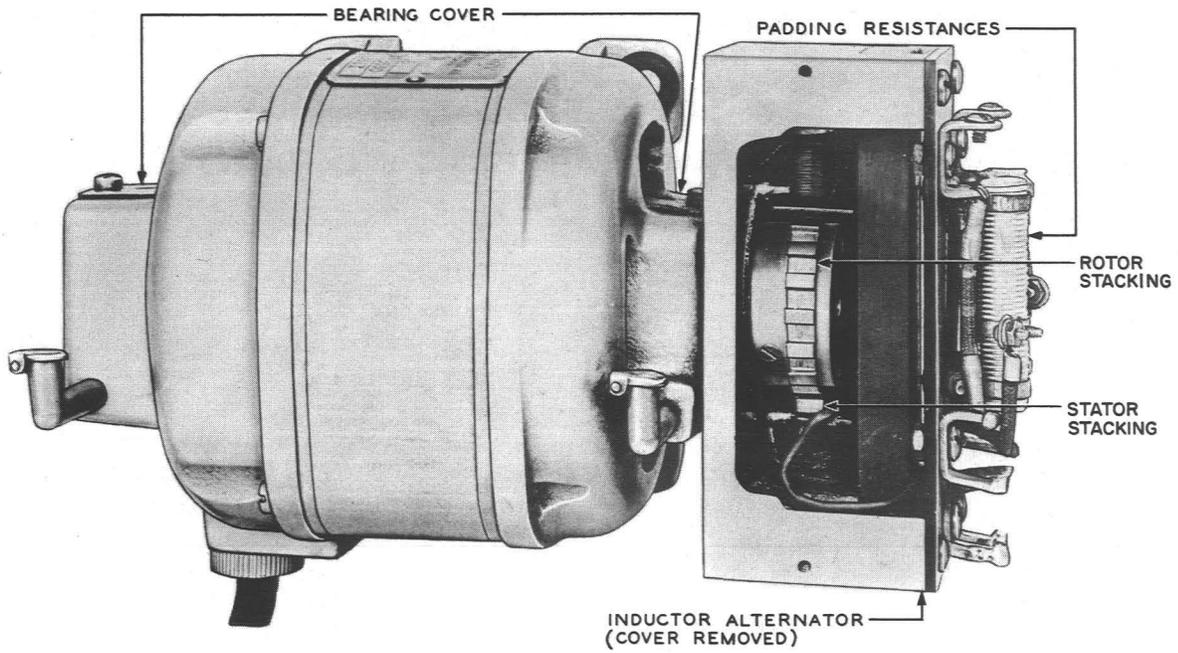
Waste-Packed Bearings

(a) To each waste-packed bearing, add 1 teaspoonful (about 60 drops) of 220-260 S100 oil at the time of installation.

ϕ (b) Every 6 months inspect the packing. If the packing is wet, add no oil. If dry, or nearly so, add 1/2 to 3/4 teaspoonful (30 to 45 drops) of oil.

2.02 *Operation*: These machines shall start and run satisfactorily.

2.03 *Bearings*: The condition of the bearings shall be such as to allow the machine to operate satisfactorily under all conditions of normal load. If requirements 2.04 to 2.07, inclusive, are met, the bearings shall be considered to be in a satisfactory condition.



NOTE: THE KS-5472-01 MACHINE HAS A CAPACITOR WHICH IS MOUNTED SEPARATELY.

Fig. 1 - KS-5472 and KS-5472-01 Machine

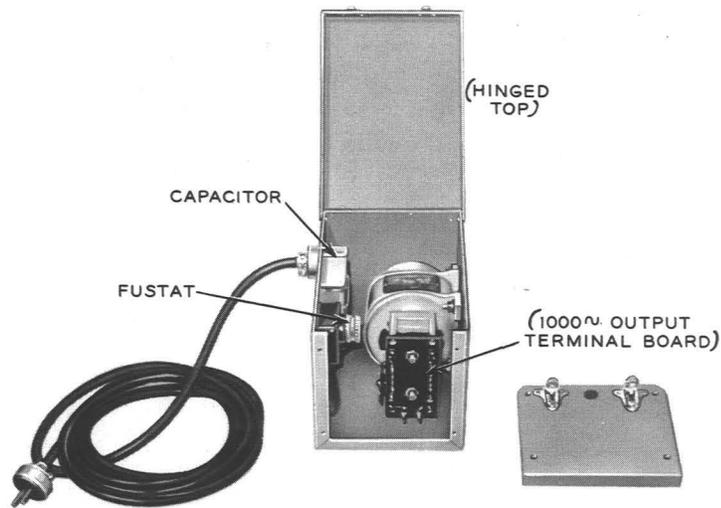


Fig. 2 - KS-5472-01 Portable AC Machine in Carrying Case

2.04 Freedom of Rotation: The shaft shall turn freely in the bearings.

Gauge by feel.

φ**2.05 End Play:** On the KS-5472 and KS-5472-01 machines, end play shall be so limited that the rotor stacking extends beyond the stator stacking on both sides in any position that the shaft may take.

2.06 Noise and Vibration: The noise and vibration of the motor under any normal operating condition shall not be excessive.

Gauge by sound and feel.

***2.07 Temperature:** The temperature of any machine shall not exceed

	MAXIMUM
Bearing	80 C (176 F)
Machine Frame	90 C (194 F)

Note: To avoid excessive temperature, the KS-5472-01 portable ac machine shall be operated with its carrying case open.

Use thermometer.

Caution: Under trouble conditions the unit temperature may exceed that shown above. Do not use fingers to estimate temperature.

If the temperature is thought to be excessive, measure by thermometer. To check the temperature, proceed as follows. Hold the bulb of the thermometer against the frame or part under consideration. Cover the part of the bulb which is not in contact with the part with a piece of felt or the equivalent. Observe the temperature indicated after it has stabilized.

3. ADJUSTING PROCEDURES

3.001 List of Tools, Gauges, and Materials

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
KS-6320	Orange Stick
KS-6854	3-1/2-inch Screwdriver
R-1005	Jeweler's Screwdriver
—	Long-nose Pliers
—	4-inch E Screwdriver

CODE OR SPEC NO.	DESCRIPTION
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GAUGES

R-1032	Thermometer -5 C to +150 C
Detail 1	

MATERIALS

KS-7860	Petroleum Spirits
KS-14666	Cleaning Cloth
—	Oil, 220-260 S100
—	Felt Pad

3.002 Before making any tests or adjustments not requiring power, be sure to open the circuit so that the set cannot be started and cause personal injury while it is being worked on.

3.003 When using petroleum spirits for cleaning purposes in a power room, provide as much ventilation as practicable. After using the petroleum spirits, the commutators of all dc machines in the power room should be burnished in accordance with approved procedures for the machines involved, since the fumes from the petroleum spirits may soften commutator film and thus adversely affect commutation.

3.01 Lubrication (Reqt 2.01)

Waste-Packed Bearings

(1) At the time of installation, add the specified amount of oil through the top of the bearing after first having removed the bearing cover by taking out its retaining screw. Reinstall the bearing cover and tighten its retaining screw. Wipe away any excess oil which may emerge from the oiler or appear at the overflow hole at the bottom of the bearing. Some of the earlier ac machines are equipped with oilers in the overflow holes at the bottom of the bearings while those of later design are not so equipped. This excess oil, if any, may not appear immediately and, in an attended office, the machine should be observed for several days so that the oil may be wiped away as it appears. In an unattended office the machine should be observed carefully on the next visit.

(2) To inspect the packing, remove the bearing cover by taking out its retaining screw. Press down on the packing with the

finger, or an orange stick if the hole for oiling is small, to see whether it is wet enough to squeeze out free oil on the finger or stick. If observation is possible, see if this pressing action makes a small pool of oil in the top of the packing. Should either of these conditions exist, no oil need be added. In all cases if the packing is not definitely wet, add only the specified amount of oil, which will be absorbed by the packing, or stored in the bearing chamber. Reinstall the bearing cover and tighten its retaining screw. No oil should come from the overflow hole, or oiler, except probably a trace which may appear a few days after oiling and should be wiped away.

3.02 Operation (Reqt 2.02)

(1) The opening and closing of the switch on the KS-5472 set will usually be indicated by a snapping sound as the motor comes up to speed or slows down. If the motor starts satisfactorily and this sound is heard, it may be assumed that the switch is operating satisfactorily. If the fuse blows it is probable that the switch is defective. Since the KS-5472-01 set has a capacitor-type motor and no switch, starting trouble should be a minimum. If the motor of either the KS-5472 or KS-5472-01 set does not start, no attempt should be made to adjust or repair these sets other than to replace any blown fuses and to check the line voltage. There have been cases where the KS-5472 set was started and stopped so frequently that the protective fusetrone could not cool enough between starts and failed. This can be corrected by increasing the intervals between starts, say to a minimum of 30 seconds. If the fuse blows repeatedly, or there is other evidence of trouble on these sets, it is recommended that the matter be referred to the supervisor with a view toward repair or replacement.

3.03 Bearings (Reqt 2.03)

(1) If the shaft becomes too loose, it is recommended that the set be returned for repair.

3.04 Freedom of Rotation (Reqt 2.04)

(1) If binding is present, examine the machine and remove any foreign matter. Also, check to see that all bolts and screws are firm. Tighten if necessary.

3.05 End Play (Reqt 2.05)

(1) On a machine not mounted in a box for portable use, remove the nameplate and check visually or with a feeler that the rotor stacking extends beyond the stator stacking on both sides with the end play taken up in both directions. Although it is desirable that both edges of the rotor project beyond the stator pole pieces on both sides, at all times, slight misalignment of the top stator pole piece relative to the bottom pole piece will not adversely affect the electrical characteristics of the machine. In addition to misalignment, the laminations of the stator pole pieces may be slightly separated. A set in a carrying case for portable use should be checked while the machine is running by tipping it so that the shaft is 30 degrees from the horizontal in each direction. If the output does not vary, the requirement may be considered to be met. If the output varies, the rotor should be relocated and, if the end play is excessive, end play washers should be added as described in Section 155-609-801. If this does not remedy the trouble, the matter should be referred to the supervisor with a view toward the return of the machine for repair.

3.06 Noise and Vibration (Reqt 2.06)

(1) See that all bolts, nuts, and screws are firm. If excessive noise and vibration continues, the trouble is probably due to worn bearings which should be replaced, or the matter referred to the supervisor.

3.07 Temperature (Reqt 2.07)

(1) If the temperature exceeds the specified limits, refer the matter to the supervisor.