KS-5286 TONE ALTERNATOR
REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

1.01 This section covers the KS-5286 tone alternator.

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 Reference shall be made to Section 020-010-711 covering General Requirements and Definitions for additional information necessary for the proper application of the requirements listed herein.

1.04 Requirements and associated procedures marked with a number sign (#) need not be checked by the installer unless it is thought that the requirement is not being met or performance indicates that such a check is advisable.

1.05 Requirements and associated procedures marked with an asterisk (*) need not be checked during maintenance unless the apparatus or part is made accessible for other reasons, or performance indicates that such a check is advisable.

1.06 Normal operation may be defined as the condition in which the alternator is carrying any load from no load to full load with the output voltage within the limits stamped on the nameplate.

2. REQUIREMENTS

2.01 Freedom of Rotation: The rotor shall turn freely when the alternator is mounted on the ringing generator. Gauge by feel.

2.02 The end play shall be Maximum 1/32". Gauge by eye.

*#2.03 The noise and vibration of the tone alternator under normal operation shall not be excessive. Gauge by sound and feel.

2.04 The minimum air-gap between rotor and stator shall not be less than one-half of the maximum air-gap. Use thickness gauge.

*#2.05 Voltage: With the speed within the limits of 1100-1200 rpm, under all operating conditions of machine temperature and load, and with requirements 2.02 and 2.04 met, the output voltage shall be:

Channels	Volts Min.	Volts Max.
Low Tone	0.9	2.35
High Tone	1.0	2.35
Audible Ringing	0.6	1.00

Use Weston Model 622 - AC-DC Voltmeter.

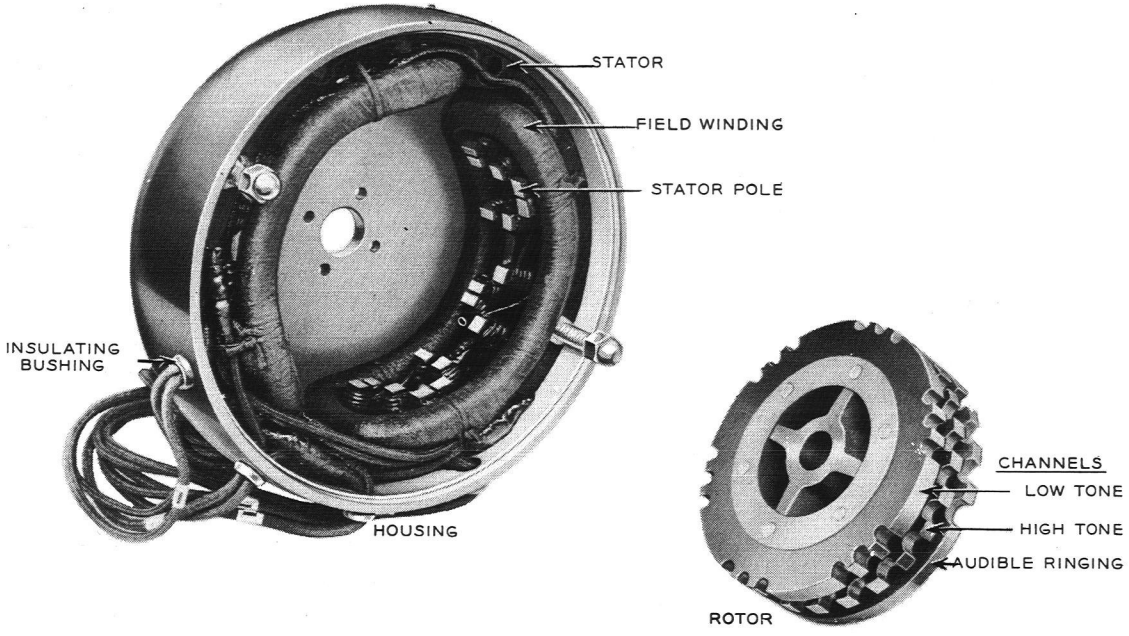

Fig. 1, Tone Alternator, Battery Excitation

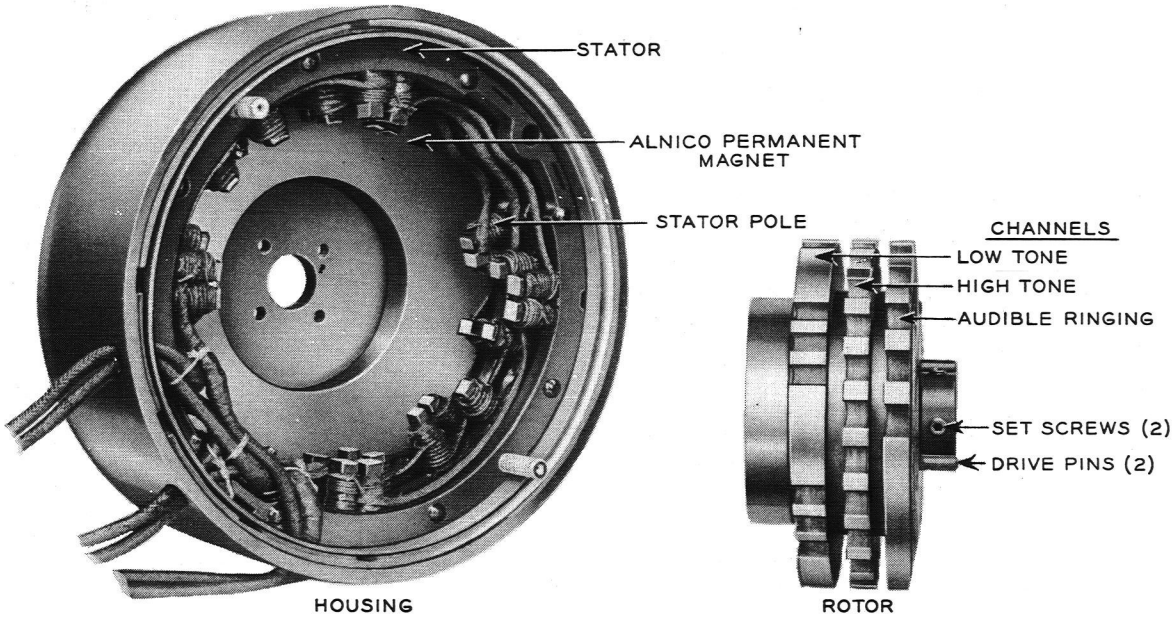

Fig. 2, Tone Alternator, Permanent Magnet Excitation

2.06 The drive link, which connects the pins in the rotor with those in the coupling half associated with the interrupter gear case, shall be in good condition. Gauge by eye.

*#2.07 The temperature shall not exceed:

	Max.
Windings and Frame	90 C (194 F)

If the temperature is thought to be excessive, measure by thermometer.

3. ADJUSTING PROCEDURES

3.001 List of Tools, Gauges, and Materials
(Equivalents may be substituted)

Cloth, abrasive, 100 grade
Gauge-nest, thickness, KS-6938
Indicator, speed, Jones 5B or Hasler Style A
Pad, Felt
Screwdriver, 3-1/2", KS-6854
Screwdriver, 4" regular
Tape, friction
Thermometer, R-1032, Detail 1
Voltmeter, AC-DC, Weston Model 622, ranges 300-150-30-3
Voltmeter, D-C Weston Model 931, ranges 300-150-75-30

3.01 Freedom of Rotation (Rq. 2.01)

(1) Look for, and remove, any foreign objects which would prevent the alternator from turning freely. Check to see that the mounting screws are firm. This may involve the removal of the rotor, which should be done in accordance with Section 155-307-801.

3.02 End Play (Rq. 2.02)

(1) If the end play is excessive, it will be necessary to make the correction in the associated ringing generator. See Section 155-410-701 for Commercial Type Ringing and Coin Control Generators or Section 155-405-701 for P-Type Ringing and Coin Control Generators, and when it becomes necessary to remove the tone alternator, Section 155-307-801.

*#3.03 Noise and Vibration (Rq. 2.03)

(1) See that the nuts holding the cover are tight and that the alternator itself is firmly attached to its mounting on the ringing generator. If the noise and vibration continue to be excessive check the adjacent bearing of the ringing machine for wear.

3.04 Air-Gap (Rq. 2.04)

(1) Measure the air-gap between rotor and stator with the thickness gauge. Particular care should be taken in measuring the gap at the lowest and highest points around the stator frame, as bearing wear will be most noticeable at these points. Rotate the rotor approximately a quarter of a turn and repeat for a total of four positions of the rotor.

(2) If the requirement is not met, a new bearing liner should be installed in the ringing generator bearing adjacent to the tone alternator, in accordance with the section covering that equipment. A ball bearing in the ringing generator will usually be replaced because of excessive noise before it has worn sufficiently to affect the tone alternator air-gap.

*#3.05 Voltage (Rq. 2.05)

(1) Checks for minimum voltage should be made at the time of maximum load on the office, and for maximum voltage at the time of minimum load. Use should be made of a Weston Model 622, thermocouple type voltmeter which has a sensitivity of 500 ohms per volt, or of an instrument having similar characteristics. The ordinary a-c voltmeter is unsuitable.

(2) Measure the voltage of each channel by connecting the voltmeter across terminals 1 and 2 of a repeating coil connected directly to it. Refer to the power ringing circuit of the particular office.

(3) If the voltage is not within the specified limits, check the speed, and the excitation voltage of the alternator, if of the battery excited type. Measure the voltage across the alternator field and field resistor combined, by connecting the voltmeter to the ground side of the resistor and to the battery side of the field. The resistor terminals are readily accessible. To obtain access to the field terminals, remove the porcelain cover from the conduit fitting above the machine table and untape the leads, or examine the wiring to locate the splices which connect the machine leads to the external circuit. Retape the leads and replace the cover before leaving.

(4) If the excitation voltage is within the limits stamped on the alternator nameplate, examine the resistor for damage and repair or replace, as necessary. If the resistor is found to be in good condition and the alternator voltage remains outside the limits, remove the rotor and examine the field windings for damage. If the difficulty persists, refer the matter to the supervisor, as the alternator should be replaced.

(5) If the alternator is equipped with permanent magnet excitation, output voltage outside the specified limits will necessitate its replacement. Refer to the supervisor.

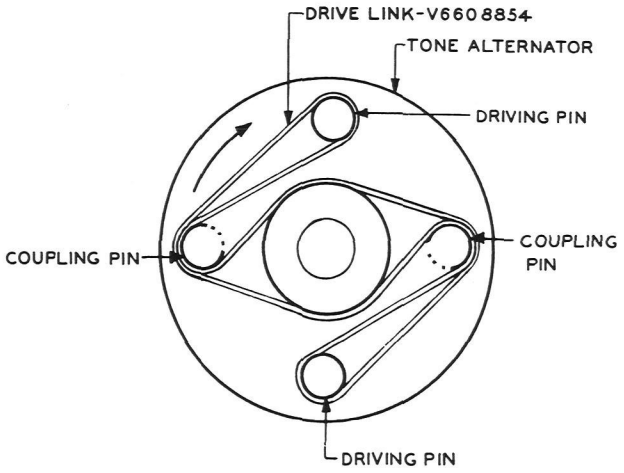

Fig. 3, Arrangement of Drive Link

3.06 Drive Link (Rq. 2.06)

(1) To replace a drive link which is badly worn or broken, loosen the coupling set screw, and slide the coupling along the shaft toward the interrupter. Then remove the old link. Loop the new link over the upper driving pin. Bring the two sides of the link together and lace over the coupling pin on the left-hand side. Separate the link and pass it on both sides of the rotor hub. Bring the two sides of the link together again and lace over the other coupling pin. Pass the remaining loop over the remaining driving pin. Slide the coupling half back in its original position and tighten the set screw firmly. See Fig. 3.

(2) If desired, a leather coupling disc per drawing ED-81769-01 may be substituted for the belt-type drive link. To make this substitution, loosen the setscrews of the interrupter coupling and slide the interrupter coupling along the shaft toward the interrupter. Then remove the belt. Install the leather disc on the tone alternator rotor, fitting two of the small holes in the disc to the drive pins on the tone alternator rotor. Slide the interrupter coupling back to its original position, inserting the interrupter coupling pins into the other pair of holes in the leather disc. Firmly tighten the setscrews of the interrupter coupling. See Fig. 4.

Note: Before replacing a drive link or installing a leather coupling disc, make certain that the shafts of the rotor and the interrupter mounting are properly aligned. Improper shaft alignment will result in noise, vibration, and wear, whether the belt or the leather disc is used. In addition, see that the drive pins on the tone alternator and the interrupter coupling pins are free from burrs and roughness. If necessary, use a 100 grade abrasive cloth to smooth the pins.

*#3.07 Temperature (Rq. 2.07)

(1) Hold the bulb of the thermometer against the hottest spot on the frame or windings, covering that part of the bulb which is not in contact with the part being measured with a piece of felt or the equivalent and observe the highest temperature indicated.

(2) If the temperature exceeds the requirement see that 2.01 and 2.05 are met. If the temperature continues excessive refer the alternator to the supervisor for replacement.

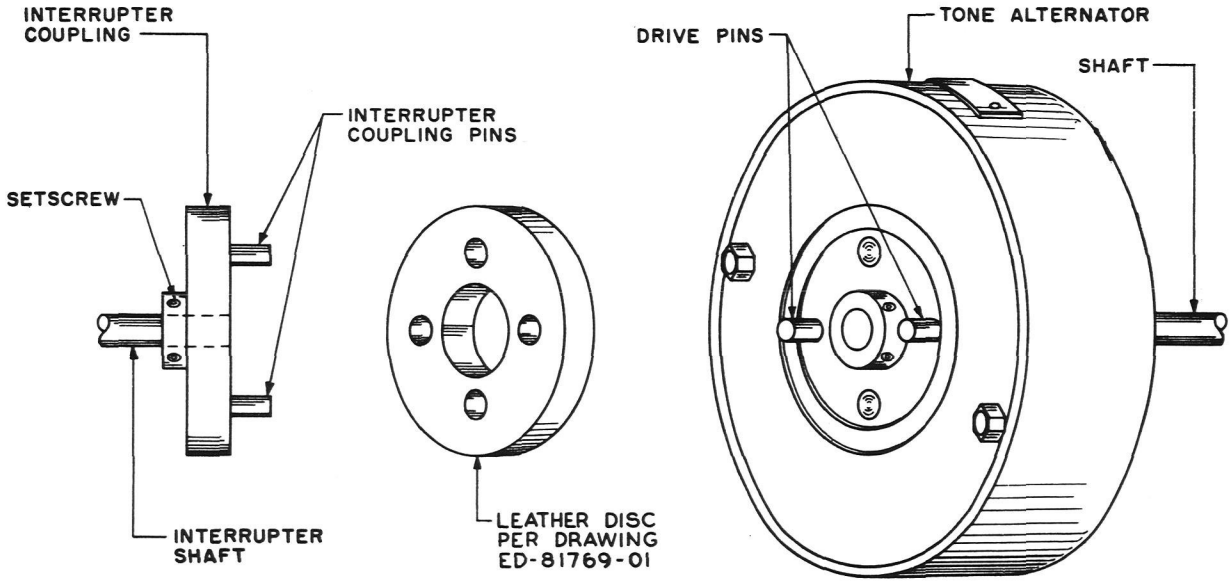

Fig. 4 - Leather Disc Coupling Arrangement