

INVERTERS

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1. GENERAL1.1 Scope

1.11 This section covers adjusting procedures and requirements for installation of the dc/ac inverters or motor alternators listed below:

KS-5485	KS-15511
KS-5717	KS-15991
KS-5726	KS-19203

1.12 Coordinate information in this section with plant test in Handbook 21.

1.2 Precautions

1.21 These machines are usually arranged for automatic start in case of power failure. Before working on a machine disconnect it from station battery by opening switches and blocking them open, removing fuses and marking fuse position, by blocking relays or by disconnecting leads.

1.3 Inspection

1.31 Inspect each machine for damage, missing parts, defects of finish, corrosion of parts, and freedom of moving parts. Check that name plate data agrees with job specification. If defects are found originate a J.I.M. in accordance with the established routines. Be sure to indicate supplier's name.

1.4 Description

1.41 These machines are an emergency ac power source and operate from station battery to supply 60-cycle ac power, when commercial power fails.

1.42 The associated plant starts the machine when commercial power fails and then shuts it down when commercial power returns.

2. INSTALLING EQUIPMENT2.1 Tools

<u>Code</u>	<u>Description</u>
R-2443	Screwdriver, Cab., 3"
66D	Gauge, Feeler, .003"-.045"
ITE-4824	Tachometer, Hasler
ITE-1000	Voltmeter, AC
R-3429	Trichoroethane

3. LUBRICATION

3.1 The equipment has been lubricated, and inspected at the factory and normally requires no lubrication at the time of installation.

4. FREEDOM OF ROTATING PARTS

4.1 Shafts shall rotate freely in their bearings. Gauge by feel.

4.2 The noise and vibration of the machine, under all conditions of normal operation shall not be excessive. Gauge by sound and feel.

5. BRUSHES

5.1 Brushes shall be clean, free in their holders and shall be fitted so as to insure successful commutation.

5.2 Brush pressure need not be checked specifically, however, the pressure shall be sufficient to keep the brush in good contact with the commutator or slip ring and prevent excessive sparking. Adjust pressure, if necessary, when an adjustment is available. Constant pressure brush holders are furnished on KS-19203 units.

NOTE: The presence of some visible sparking on a commutator is not necessarily evidence of unsuccessful commutation but there should not be any visible sparking on slip rings.

TABLE A

TABLE A

SUMMARY OF MACHINE CHARACTERISTICS						
KS No.	List	Speed Range		Output Voltage	Input Voltage	Approx. Weight Pounds
		R.P.M.	Adjustment			
5485	12	3230-3600	Par. 6.21	109-130	20-25	26
5485	31	3555-3645	Par. 6.23	108-140	20-23	27
5485	32				31-35	
5485	33				44-50	
5485	34				3570-3630	
5717	1	3000-4200	Par. 6.21	54-78	130-147	70
5717	2				125-135	47
5717	3				130-147	
5726	1				3540-3600	Par. 6.24
19203	1	1740-1800	Par. 6.25	105-129 (L)	44-52	315
19203	2					Per Phase

(L) - 20% FL to F.L.

(H) - Measurements are for machines running hot.

5.3 Brush shunts shall not ground on the machine frame.

5.31 When an uninsulated pigtail shunt on a brush is so long that it can touch the machine frame, loop it and give it a half twist in such a manner as to leave it long enough to be flexible, but short enough to prevent grounding.

5.4 On KS-5717 machines to assure freedom of the brush in the brush holder, the brush pigtail shunt may be brought out of the slot in the side of the brush. The brush spring must rest in the slot in the end of the brush.

6. SPEED AND SPEED REGULATION

6.1 Measuring Speed

6.11 The speed of these machines shall be within the limits shown in Table A for normal operating conditions (i.e., 20% load to full load), when the machine is hot and the input voltage is within the limits in shown Table A.

6.12 To measure the speed of a KS-5485 or 5717 machine, remove the end plate or a bearing cap from one of the bearings to obtain access to the end of the shaft. Avoid interference with the speed regulator. To measure the speed of a KS-5726 machine use the hole in the end of the speed regulator housing. To measure the speed of a KS-5726 machine remove the speed regulator cover to obtain access to the shaft.

6.2 Speed Regulation

6.21 The speed and frequency of (KS-5485, L12 and KS-5717, L1 & L3) machines not equipped with speed regulators, depend upon the input voltage and load and are not adjustable.

6.22 If the speed or frequency is not within the ranges specified in Table A, check that:

6.221 The input voltage is within the limits given in Table A.

6.222 The machine is not overloaded.

6.223 The Shaft rotates freely.

6.224 Condition of the brushes and the commutation is satisfactory.

6.225 The brush holder yoke is in the correct position, as indicated by the marks on the yoke and the bearing housing.

6.226 The regulator is adjusted.

6.23 Speed Regulation: KS-5485, L31-L34 Machines (See Fig. 1)

6.231 The separation between contact surfaces of regulator shall be min. .029" and max. .034". Use 66D feeler gauge.

6.232 To increase the speed of a KS-5485, L31-34 machine controlled by a speed regulator, back off the set screw associated with the outer contact arm and follow up with the set screw associated with the inner contact arm. Maintain the required contact separation. To decrease the speed, proceed in the reverse order. Any adjustment of the speed should be made after the machine has been carrying its normal load for at least one hour.

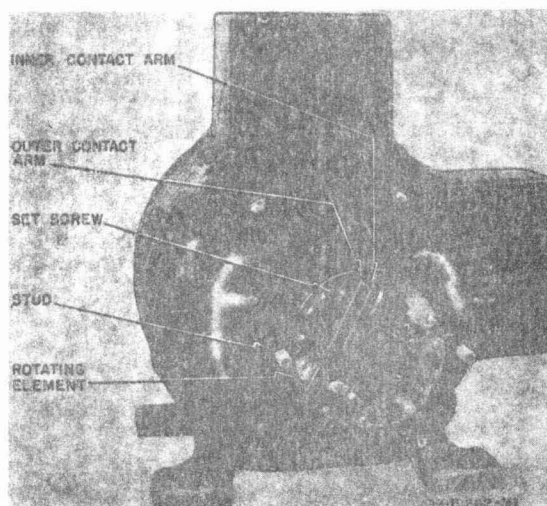


FIG.1 KS-5485 INVERTER WITH SPEED REGULATOR COVER REMOVED

6.24 Speed Regulation KS-5726, L1 Machines

6.241 To adjust the speed of a KS-5726, L1 machine, short-circuit the collector rings C and B at the brush holders, which are designated and adjust contact A until the machine runs as nearly as practicable to 3555 rpm (59.25 hertz) no load. Transfer the short circuit to brush holders C and A and adjust contact B until the machine runs approximately 15 rpm faster (.25 cycle) or as nearly as practicable to 3570 rpm (59.50 hertz), no load. The contact clamping screw D should be loosened with an R-2443 screwdriver before adjusting the associated contact and tightened after each adjustment has been made.

6.25 Speed Regulation KS-15991 And KS-19203 Machines

6.251 These regulators are factory set for the correct speed and should not be changed unless wear necessitates adjustment.

6.252 The proper alternator speed is achieved by adjusting the air gaps of contact points A and B.

Arrowed lines not shown due to extensive changes.

Vertical line at side of paragraph indicates requirements.

7. VOLTAGE

7.1 In normal operation, the machines shall meet the voltage requirements on job drawings.

7.2 The output voltage of KS-5485, KS-5717, and KS-5726 machines depends on input voltage and load and is not adjustable.

7.3 On KS-19203 machines the output voltage is adjustable by means of the field resistor. When an adjustment is made verify that the speed is still within the limits in Table A.

7.4 If the output voltage of any machine does not meet the requirements on job drawings, check that the input voltage is within the range shown in Table A. Also check the load, freedom of rotation, commutator, collector rings, brushes and look for loose connections.

Manager, Product Engineering

Reasons for Reissue:

- (1) To make extensive changes throughout the section.