

Spencer®

Hermetic Gas Boosters

General Instructions

Caution: Do not operate machine in "Surge" or in unstable flow range for extended periods.

Spencer Service

Spencer service begins upon receipt of your request for equipment purchase. Our engineers welcome the opportunity to discuss your installation problems and will assist in determining specification requirements if so desired. To serve you promptly, we maintain an inventory of electric motors and machine parts for the various types of equipment. Also, by combining under one roof, the constantly supervised manufacturing, assembly, and test procedures, Spencer can assure you of a unit capable of optimum performance under the most severe service conditions. All Spencer gas boosters are factory tested for load capacities and noise and vibrational characteristics. This guarantees long, trouble-free operation.

Limited Warranty

Spencer warrants that new equipment which are complete units and are sold and/or manufactured by The Spencer Turbine Company will be free from defects in material and workmanship for a period of 18 months from date of shipment or 12 months from date of start-up, whichever comes first. Spencer warrants that replacement parts sold hereunder will be free from defects in material and workmanship for a period of 120 days after the date of shipment. Spencer machines that have been completely re-built at the factory will carry a 180 day warranty from date of shipment. All field repairs by authorized Spencer service personnel are covered by a 120 day parts only warranty.

Unless expressly stated otherwise, guarantees in the nature of performance specifications furnished in addition to the foregoing material and workmanship warranties on a product manufactured by Spencer, if any, are subject to certified factory tests corrected for field performance. Due to the inaccuracies of field testing, if a conflict arises between the results of field testing conducted by or for the user, and certified factory tests corrected for field performance, the latter shall control. No equipment shall be furnished for acceptance based on results of field testing.

The Spencer Turbine Company will not assume any responsibility under the terms of this limited warranty on equipment which has not been paid for in full.

This warranty does not apply to any equipment that has been disassembled, repaired, or otherwise altered by any person without the written authorization of Spencer's service department, nor does it apply to any product that has been subject to failure due to corrosive or abrasive attack, misused, damaged, or improperly installed, nor does it apply to motors, controls, and components not manufactured by Spencer. Motors, controls, and other subvendor's components thereof are warranted only to the extent of the manufacturer's warranty. All warranty work on such products must be authorized by Spencer and must be performed in an authorized shop as designated by the manufacturer.

Spencer's sole liability and buyer's sole exclusive remedy hereunder is the repair or replacement, at Spencer's option, of products not complying with this warranty. Such repair or replacement shall be at Spencer's option, F.O.B. Spencer's factory, or Spencer off site repair facility, and Spencer reserves the right to invoice all expenses incurred when repairs are made in the field at the request of the customer.

Except as specifically set forth herein, Spencer makes no warranty, express or implied, with respect to the products and/or services supplied hereunder. This warranty is in lieu of and excludes all other warranties, including without limitation, any warranty of merchantability, fitness for a particular purpose, or conformance to purchaser's specifications.

Handling

This machine has been carefully balanced and tested at our factory. It is essential, therefore, that it be handled with care during installation in order that you may be assured satisfactory performance.

If the machine is to be stored for some time before being permanently installed, it must be carefully protected from dampness and dirt.

Location

Install the machine in a cool, dry place free from dirt and dust. After placing the machine in its operating position, be sure that the blower and motor are readily accessible for servicing by allowing several feet of clear space around the machine. Inaccessibility can prove costly in both time and labor.

Caution: Do not locate unit in excessively hot area (above 100°F).

Foundation

No special foundation is necessary for the equipment. A level concrete floor or block is recommended, although any other substantial floor will prove satisfactory. The machine and its base should be placed on the insulation pads normally furnished with it.

Caution: Gas Boosters should not be bolted down or anchored in any way.

Piping

All piping should be of ample size to minimize frictional loss. It is absolutely essential that all joints be gastight and that there be no leaks in the system. Leaky gas pipes consume a surprising amount of power and impair the operating efficiency of the machine. Piping should be properly supported without producing any stress and strain on the machine casing. It is further recommended that a suitable flexible connection be used to connect it to the piping.

Caution: If the piping system is to be leak-tested using high pressure air, be sure to either bypass or disconnect the gas booster. High pressure air will seriously damage the gas booster.

Electrical

Be sure that the motor furnished with this machine is wound for the same type of current available at the installation. Follow the wiring instructions furnished. Wire and fuses should comply with NEC and/or local codes.

It is important that proper equipment be used. All A.C. machines should be equipped with a magnetic contactor or a manual or automatic compensator depending on the machine size and the installation regulations of the local power company. The starters should have thermal overload protection as well as true low-voltage protection.

Ball Bearings

The motor ball bearings in this machine have been designed specifically for the function they must perform. Impeller loads, both radial and thrust, are carried by one of the bearings. Again, it is essential that replacement bearing be of the same type as the original bearings. In many machines, the front (opposite shaft extension) motor bearing normally has been designed to take thrust.

Lubrication

The motor bearings are factory lubricated for life. The machine must be disassembled if both front and back motor bearings are to be replaced. Consult factory for repair procedure.

Rotation

Caution: It is very important that the direction of rotation of the gas booster be the same as that indicated by the arrow plate. Correction rotation will result in rated discharge pressure. Incorrect rotation will result in less than rated discharge pressure.

Warning: Be sure all electrical power is disconnected prior to performing machine maintenance.

Instructions for Disassembly and Reassembly

Remember during disassembly that parts will be reassembled in exactly the same relative positions. Therefore, it is recommended that each part be tagged as it is removed from the machine to facilitate later reassembly. It is especially important that the location of each impeller, as well as its position on the shaft, be marked.

Disassembly

To disassemble the blower begin at the discharge end and remove in turn, the end head, the end head spacer, the discharge division head, the impeller, spacer, rope packing, deflector, impeller, spacer, and so on until all impellers are removed. The intake division head can be removed.

To remove the motor, remove intake end head and the bolts holding motor to the base.

Assembly

Bolt the motor down tightly in its original position with the shaft in the exact center of the blower casing. Run the motor to make sure that the shaft turns absolutely free. Place the first impeller on the shaft, but do not tighten it. Place deflector head back tightly against the stops, and with a suitable tool, caulk the packing firmly back into the grooves. Set the impeller midway in its chamber in such a position that the marks on the hub and shaft coincide. Tighten impeller bolts firmly. Tighten the screws securely, but evenly, taking only a few turns on each screw in succession. Place the second impeller on the shaft, but do not tighten. Place spacer into deflector head and put both together into position in the casing.

Recommended spare parts:

1. Impellers
2. Rope Packing
3. End Head Gaskets

Instructions for Balancing

When machines leave our plant there is no perceptible vibration in them. Rough handling during transportation sometimes upsets a good machine balance. When a machine is being disassembled for repairs, mark the parts as they are removed. If this is done, no trouble should be expected from vibration when they are reassembled in the same order.

However, if there is any vibration due to an unbalanced condition after assembly, contact Spencer's Service Department.

Caution: Customers should not attempt to balance a hermetic gas booster.

Trouble Shooting

If gas booster is not delivering rated pressure, but motor is not overloaded, check the following:

1. Correct and reversed rotation will produce two different delivery pressures, the higher pressure indicating correct rotation.
2. Interior parts clogged with dirt.
3. Piping too small and causing high frictional loss (only applies where pressure is checked at end of piping).
4. Lower specific gravity of gas than shown on nameplate.
5. High inlet gas temperature.

If gas booster is not delivering rated pressure and/or motor is overloaded, check the following:

1. Wrong voltage connections.
2. Unit handling more than rated volume because of:
 - a. Leaks in piping.
 - b. Orifices too large.
 - c. Too many orifices.
3. Higher specific gravity than on nameplate.
4. Intake gas temperature too low.

When ordering service be sure to mention serial number as shown on machine nameplate.

When ordering replacement impellers and deflector heads be sure to specify by letter also.

