As seen in Figures A and B, a molded metallic packing, impregnated with graphite and lubricant may be used in the stuffing box. Every three or four months, or when the packing appears dry, a few drops of castor oil should be applied to this packing to replenish the lubricant. To apply the oil, remove the plug or disconnect the aluminum tubing and insert the castor oil in the by-pass port. The packing is a special split-ring design furnished only by The Spencer Turbine Company. In the event replacement becomes necessary, be sure to use only the Spencer designed packing installed in accordance with the instructions under the paragraph titled, “How to Repack Packing Box”. Heat fans, installed on the shaft between the enclosing head and the motor bearing (or bearing housing) will keep the bearing cool. (See Figure A.)

Gas Boosters are sometimes equipped with liquid cooled seals. Such seals or packing boxes should not be run dry. Dry mechanical seals are sometimes used on the smaller gas boosters in place of the packing box. You will be furnished with separate maintenance instruction sheets dependent on whether your machine has liquid cooled or dry, mechanical seals.

Trouble Shooting
Refer to accompanying instruction manual. (Form AA)
Start-Up Procedure
Spencer Gas Booster Packings are seated (run-in) at the factory. It is possible, however, for the proper seating of the packing to be altered during shipping or while at the job site awaiting installation. For this reason, Gas Boosters should not be simply started and left unattended. To be sure that the packing is ready for continuous operation, the machine should be brought up to speed and shut down two or three times. The machine should then be run for one or two minutes and shut down to allow the packing to cool. After two or three short runs of this type, the machine should be immediately shut down until the packing cools. Afterwards, several short runs of progressively longer duration may be required to run-in the packing. Caution: Failure to follow this procedure may result in shaft damage which, under these circumstances, cannot be covered by warranty.

High Pressure Shaft Seal Type
How to Repack Packing Box

When it is necessary to repack the packing box, follow these instructions (see Figures A & B). Spencer generally utilizes one of two different types of packing boxes depending on shaft diameter. The packing box used with the smaller shafts is illustrated in Figure A below. Figure B shows the packing box used with larger size shafts. Instructions that differ are clearly marked in the text as referring to Figure A or B.

1. Loosen the cooling fan (noting its position on shaft), Slide the cooling fan back on the shaft or remove it to allow for working room.

Caution: Each nut, washer and bolt must be reinstalled into same hole they were removed from in order to maintain factory balanced conditions. Be sure to note and, if necessary, tag or mark each piece as it is removed to be sure it is reassembled into its proper location.

2. Loosen the packing cap and slide it back on the shaft.

3. Remove the packing follower (Figure B - Cap and follower are one item), the packing, and lantern ring from the inside of the packing box.

4. Be certain the shaft is completely clean in the packing box area. Also check to see that the shaft is not scored. A heavily scored shaft must be refinished or replaced.

Caution: In order for the equipment to operate without vibration, the packing box must align perfectly with the shaft. Since the box is of the floating type, it may become necessary to realign it when new packings are installed in order to assure perfect performance. To do this, loosen nuts “A” (Figures A and B) and rap box gently to be sure it is free. (Since the unit is painted after assembly, the dried paint could prevent the box from floating until it is jarred loose.) Rotate the shaft by hand and position the box to eliminate metal to metal contact.

5. Install the new packing. Note that the packings have a slit or opening. It is important that these openings not be installed in line. Instead, install the first packing with opening at 12 o'clock position; second packing with opening at 3 o'clock position, and so on until all are installed. Be sure that each ring of the packing is seated squarely in the box. Note each ring is especially molded to fit packing box. Replace the lantern ring follower, and packing cap in the same order as removed. Be sure, when installed, that the lantern spool is in-line with the lubrication port.

6. Tighten the cap on the packing box.

Figure A — As tight as possible with your Hand only. (Do not use a wrench.)
Figure B — Tighten hex nuts with hand and turn an additional 1/6 turn (one flat) with a wrench.

7. When the above has been completed, start and run the machine for a minute or two. Then shut the machine down. Repeat this procedure two or three times. Tighten down the packing box cap again.

Figure A — With your hand only.
Figure B — An additional 1/6 turn (one flat) of the hex nuts. Let the machine run until the packing seats itself.

Caution: The packing box must leak a minimum of air or gas for the packing lubricant to be distributed between the shaft and the packing. Do not attempt to stop all leakage or the shaft will be scored.

8. When performing the above (Step 7), the packing box may get quite hot. This is of no concern unless vibration sets in or the packing box continues to get hot and smokes. In either event, stop the machine and allow the packing box to cool and repeat Step 7 without tightening the cap (Figure A) or the hex nuts (Figure B) until the machine runs without excess heat and/or vibrations.

9. Replace the cooling fan and guard.

Caution: Replace in same orientation to maintain their original position to ensure machine balance.

Note: Normal maintenance will include periodic tightening of the packing box when leakage becomes excessive. Follow steps 1, 6, 7, 8, and 9.

When ordering replacement parts be sure to specify machine serial number.