Corken Compressor Repair
Click photo to make move
Inspection plate with model and serial #s

Gauge Openings

Oil filter and oil pump assembly

Crankcase breather vent

IOM Manual
Oil Pressure Gauge, set 20-25 PSI

Oil filter on newer models, replace with oil changes. Change oil every 2200 hours or 6 months whichever occurs first. High duty cycle compressor should be changed more frequently.

Oil dipstick location
If the dip stick blows out of inspection plate the crankcase vent is plugged.

Oil pressure adjusting screw
In = increases pressure
Out = decreases pressure

Crankcase breather location. If excess leakage is noted here, tighten packing nut

Oil Pressure Gauge, set 20-25 PSI

Oil filter on newer models, replace with oil changes. Change oil every 2200 hours or 6 months whichever occurs first. High duty cycle compressor should be changed more frequently.
Remove serial number nameplate. The model and serial number should be noted for purchasing parts.

If packing leakage is noted use the wrench supplied, tighten adjusting nuts ¼ turn and operate the compressor to confirm an acceptable leakage rate.
Prior to repairs or inspection assure unit has been depressurized. Loosen valve cap.

Remove valve cap and gasket
Loosen or remove holddown screws. Failure to do this can cause cover plate breakage during assembly.

Remove cover plates. Note that model 291 compressors do not utilize cover plates.
Liquid relief (spec 3) suction valve, cage and spacer.
Note: Valve gasket still in head

Discharge valve, cage and spacer.
Note: Valve gasket still in head

IOM Manual
291 “Liquid Relief” Suction Valve Assembly (Non-Adjustable)

691 “Liquid Relief” Suction Valve Assembly (Non-Adjustable)

491 “Liquid Relief” Suction Valve Assembly (Adjustable)
Ball seat area damage indicates the compressor has operated with liquid inside or extremely high differential pressures.

491 Liquid relief suction valves should be adjusted to relieve at around 200-225PSI differential. This setting can typically be obtained by adjusting the screw down to about 1/8 inch, or one turn from the bottom. It is better to be too high than too low. A low setting can cause excess heat as the warm gas is relieved back to suction causing the temperature to increase. 291 and 691 liquid relief suction valves are preset and non-adjustable.

IOM Manual
Remove top center and lower head bolts. Head bolts should be tightened in proper sequence. Consult instruction manual for details.

Note that some older model 490 and 690 compressors may have gaskets between the cylinder and the head. The surfaces should be cleaned prior to assembly.
Piston clearance can be confirmed using a straight edge and a thickness or “feeler” gauge. The piston clearances are listed on the piston page of the parts manuals.

It may also be confirmed by utilizing a depth gauge.
Using an allen (hex) wrench loosen all piston screws. During assembly a removable type of Locktite may be used if desired.

By holding inward on two opposite screws the piston assembly can easily be removed.
A piston assembly includes rings, expanders, piston, platform and all small parts for the piston.
Remove the lower cylinder bolts to allow the cylinder to be removed.

Remove the cylinder noting O-ring locations and sealing areas. These areas should be cleaned prior to reassembly.
Using side cutters, remove the roll pin. It may be driven out if necessary, but it should be squeezed or pressed in to avoid damage to the new packing rings.

Remove the piston nuts
Shims are used to adjust piston clearance. Typically the quantity removed should be installed. Required clearances are shown on the piston parts pages.

The piston nuts, roll pins and platforms are typically reusable. A piston assembly includes all piston parts.

The thrust washer is thicker and must always be installed first.
The special wrench supplied with the compressor should be used to remove the packing box holddown screws.

On newer models the packing box has an O-ring seal on the bottom. Older models the packing box does not use a holddown screw. It can immediately removed and has a gasket that seals the oil from the crankcase, but not gas pressure.
Remove the snap ring and disassemble the packing box assembly. The inside of the packing box should be smooth and polished. Do not “sand blast” the ID as it can cause packing leakage.

The above shows the complete packing box contents. The packing set includes the Teflon packing parts along with the packing spring and washer.
Packing Sets

Packing sets include the “Male”, “Female” and “V” packing rings along with the spring and packing washer.

Standard LPG compressor packing sets include eight (8) “V” rings in the 291 and 491 models, while the 691 only has four (4) rings included. “D” and “T” models use five (5) on the small units and four on the D/T691 compressors.
Packing Styles

Standard LPG Packing

“D” Style Packing

“T” Style Packing

Industrial Compressor IOM Manual
D891 Packing

- Upper “Segmented” packing.
- Packing vent and drain.
- Lower “V” ring packing.
Packing installation cones may be used during assembly to avoid possible damage to the packing.

This tool is more helpful on the smaller model compressors, but is critical on the D891 for packing installation.
Remove crosshead guide to crankcase bolts. These bolts should be tightened in proper sequence during reassembly. See IOM manual for information on torques and sequence.

Crosshead guide can be carefully removed and inspected for scores or wear.
Remove crankcase inspection plate to allow access to the connecting rods and crankshaft.

The inspection plate is sealed with a gasket.
Rotate the crankshaft to access the connecting rod nuts.

Remove the nuts and remember the nuts must be to a proper torque during reassembly.
A piece of wood will assist in removing the connecting rod from the crankshaft. By rotating the crankshaft it creates even pull on the rod cap.

The connecting rod bearings can now be inspected for wear or lubrication problems. If the bearings are worn the crankshaft should be inspected for damage.
It is critical that the locking tabs are aligned during assembly. The bearing has a tab and the rod has notches, these must be aligned.
The connecting rod cap must align to the rod. Most have arrows or notches for assistance.
The crosshead assembly is only sold as a complete assembly to assure alignment. The con-rod assembly includes rod bearings, bushing and nuts. The wrist pin and retainers are sold separately.
The wrist pin should be pressed in starting with the “tapered” end. Care should be taken to assure that the con-rod stays loose during the installation of the wrist pin.

The wrist pin may be pressed out after removing the wrist pin retainer rings.
Each cap must stay with the rod and alignment of notches and arrows is critical. The rod nuts must torque to specification. See service manual pages for specifications.

If bushings are changed they must be machined to dimension and assure oil passage alignment.
Con-rod bearings severely damaged are typically caused by a lubrication breakdown or a total lack of oil/oil pressure. Oil should be changed frequently even if it “looks” good.

IOM Manual
Thank you for your attention!

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