



BERKELEY PUMP COMPANY
OPERATION - MAINTENANCE
MODEL 12J JET DRIVE

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(SEE PAGE 7 FOR LUBRICATION AND SERVICE DRAWING BC396.)

1. Break-in - New or rebuilt Jet-Drives of our 12J series should be broken in gently for their first few hours of service.

The thrust bearing (7), the shaft packing (4), the tail bearing (5) and the tail bearing seal will all generate heat during break-in. Our tests indicate that damage can only occur where local temperatures are allowed to exceed 250 deg. Fahr. so we feel that the Jet-Drive should be in the water and pumping water when it is first run, thereby keeping all the components cool.

We recommend that maximum Jet-Drive rpm be held to:

- 2500 rpm for first half hour
- 3000 rpm for the next half hour
- 3500 rpm for the next half hour
- 4000 rpm for the next half hour

2. Tighten all fasteners - You should make sure that all nuts, capscrews and setscrews are properly tightened before using the Jet-Drive for the first time (leave the packing gland nuts loose). We recommend the following tightening torques for the fasteners on our 12J Jet-Drives:

	ft. lbs.
A. Bowl to suction piece 1/2" capscrews	70-80
B. Nozzle housing to bowl 5/16" nuts	20-25
C. Tiller shaft to nozzle 5/16" half dog set screws	8-11
D. Universal connector to reverse bucket 5/16" capscrews	15-20
E. Rudder latch to mounting block 1/4" capscrew	5-7
F. Suction piece to intake adaptor 1/4" capscrew for 12JA and 12JD	14-17
G. Suction piece to intake adaptor 5/16" capscrew for 12JH	20-25
H. Hand-hole cover to suction piece, 5/16" nuts	25-30
K. Thrust bearing cap to suction piece 5/16" nuts or capscrews	20-25
L. Thrust bearing cap to suction piece 1/4" capscrew older 12JA and 12JD models	8-11
M. Impeller nut (factory installed) 1-1/4" nut	70-80
N. End cap to bowl bearing	40-50
O. Tiller arm to tiller shaft 1/2" cup. setscrew	8-10
P. Reverser bucket to shaft 5/16" socket capscrews	20-25
Q. Flanged drive coupling to flange yoke 3/8" capscrew and nut	30-35
R. Grating bars to intake adaptor 1/4" flathead M.S.	8-11
S. Packing gland nuts - see section 4 for adjustment	
T. Morse cable clamp - machine screws	

3. Grease Jet-Drive shaft spline and flanged drive coupling - When you install the coupling on to the Jet-Drive shaft spline grease both parts by hand. In normal service use multi-purpose grease through the Zerk fitting in the flanged drive coupling every 2 months and every 100 hours of use. If, with the engine idling you hear this spline joint rattle, you should grease again. If, at any time, the driveline should get submerged in the water, grease it as soon as possible in order to drive out any water that entered the slip-joint.
4. Adjust the packing gland nuts - The packing gland can be tightened so no water leaks past it, but if it is set up too tight it will overheat and its useful life will be shortened.

If permitted to leak much at low speed, the Jet-Drive may show poor acceleration and low speed thrust because air leaks into the suction piece. We recommend that you only adjust the gland packing nuts with the boat in the water and with the engine running. Always tighten (or loosen) both nuts equally. Tighten nuts until leakage is very slight at idle or at rest then re-check at full speed and, if necessary, tighten until only a very slight spray can be felt at the slinger ring.

Check periodically, say every 2 months and 100 hours use and tighten more if leakage is too much.

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5. Check the tail bearing oil level every two months or 100 hours use. Get a plastic tube of oil, like outboard lower unit gear oil, remove the fill plug (5A) and vent screw (5B) then squeeze the tube to force oil into the bearing cavity. Replace the vent plug and fill plug when oil overflows.

You may, after a while, find the tail bearing full of water. This is a satisfactory condition, except that this water could cause structural damage if permitted to freeze. For winter lay-up we recommend that you either remove most of the water from the tail bearing or add anti-freeze to this water to prevent frost damage.

We fill these units with Chevron Industrial 45X (like outboard gear oil) to ensure adequate cooling during break-in. After break-in the bearing still needs some cooling at high rpm and both oil and water will do this well. The seal around the shaft at the tail bearing serves to keep oil in during shipment and break-in and it continues to keep in oil or water every time the boat is hauled out of the water. This makes it possible to run the Jet-Drive while out of water without damaging this bearing.

Over a long period of service the tail bearing oil gets diluted or replaced with water because the high pressure water can force past the seal at full throttle.

6. Grease the driveshaft joints. The journal crosses of the Dana Spicer drivelines are greased and ready for service when shipped.

Every two months or 100 hours use you should grease these joints with a multi-purpose grease through the Zerk fittings provided.

If the driveline should ever get submerged in water, grease it as soon as possible to drive out any water that may have entered the bearings.

7. Grease the thrust bearings. The thrust bearing is packed with bearing grease and is ready for use when shipped.

Every two months or 100 hours of use, grease the bearing through the Zerk fitting on the thrust bearing cap until some grease shows at the shaft.

You should expect some grease to ooze out of the bearing cavity immediately after each servicing - ignore this.

If the thrust bearing should ever get submerged in water, get the water out of it as soon as possible.

Remove the thrust bearing cap and remove all the water you can reach then replace the cap and apply grease liberally through the Zerk fitting displacing any remaining water.

Note: Multiservice Automotive Grease may be used for the applications above (6,7). Do not use a fibrous, or graphite grease.

The water itself has little adverse effect on the bearing - it is the rust that forms on the balls and races that ruin the bearing. Water must not be left in the bearing for more than a few hours.

8. Use rustproofing - lubricant spray. We recommend that you spray all bright, metal components of our Jet-Drive and driveline frequently to discourage corrosion and maintain a lubricating protective coating on their surfaces. Some of these preparations are available in aerosol cans and are very convenient to use. Such sprays can, of course, be used to good effect on the boats hardware, engine, controls and trailer, too.
9. Rinse off salt water. After operating in salt water, rinse off the Jet-Drive with fresh water as soon as possible (rinse boat and trailer, too).