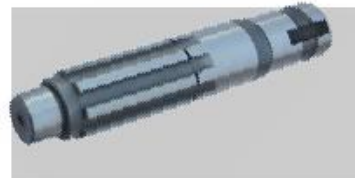
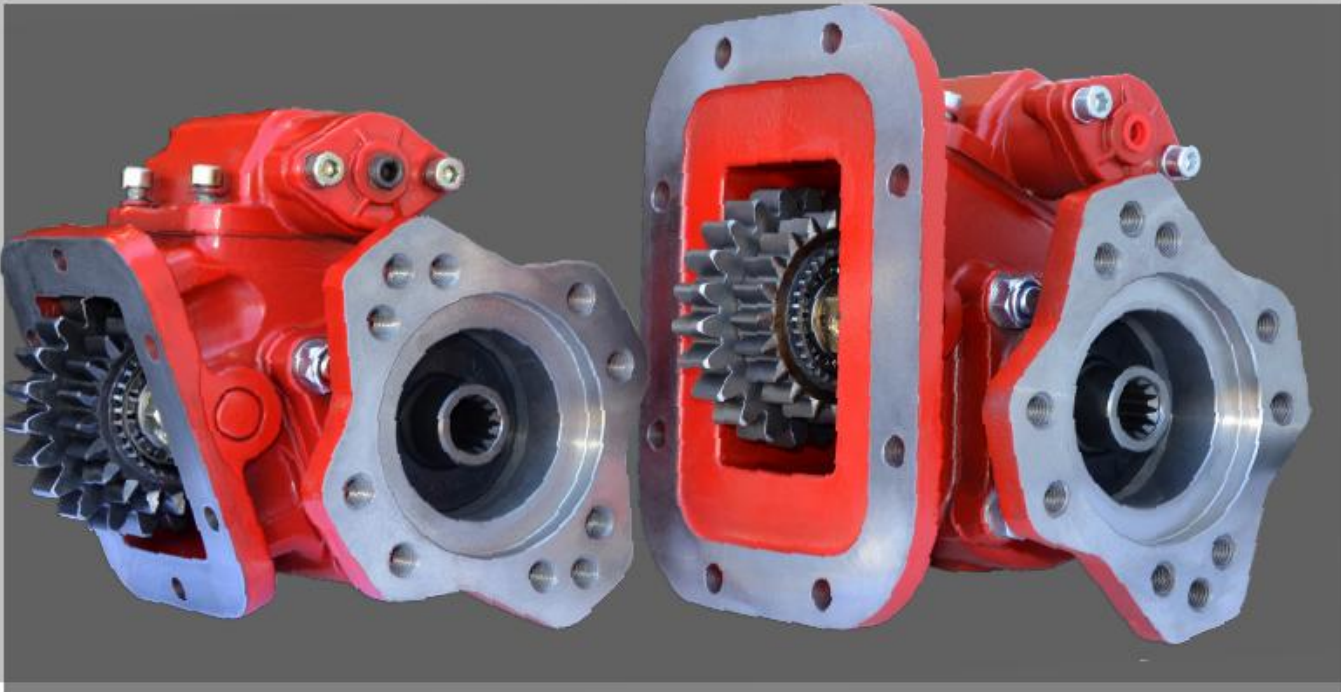


Power Take-offs



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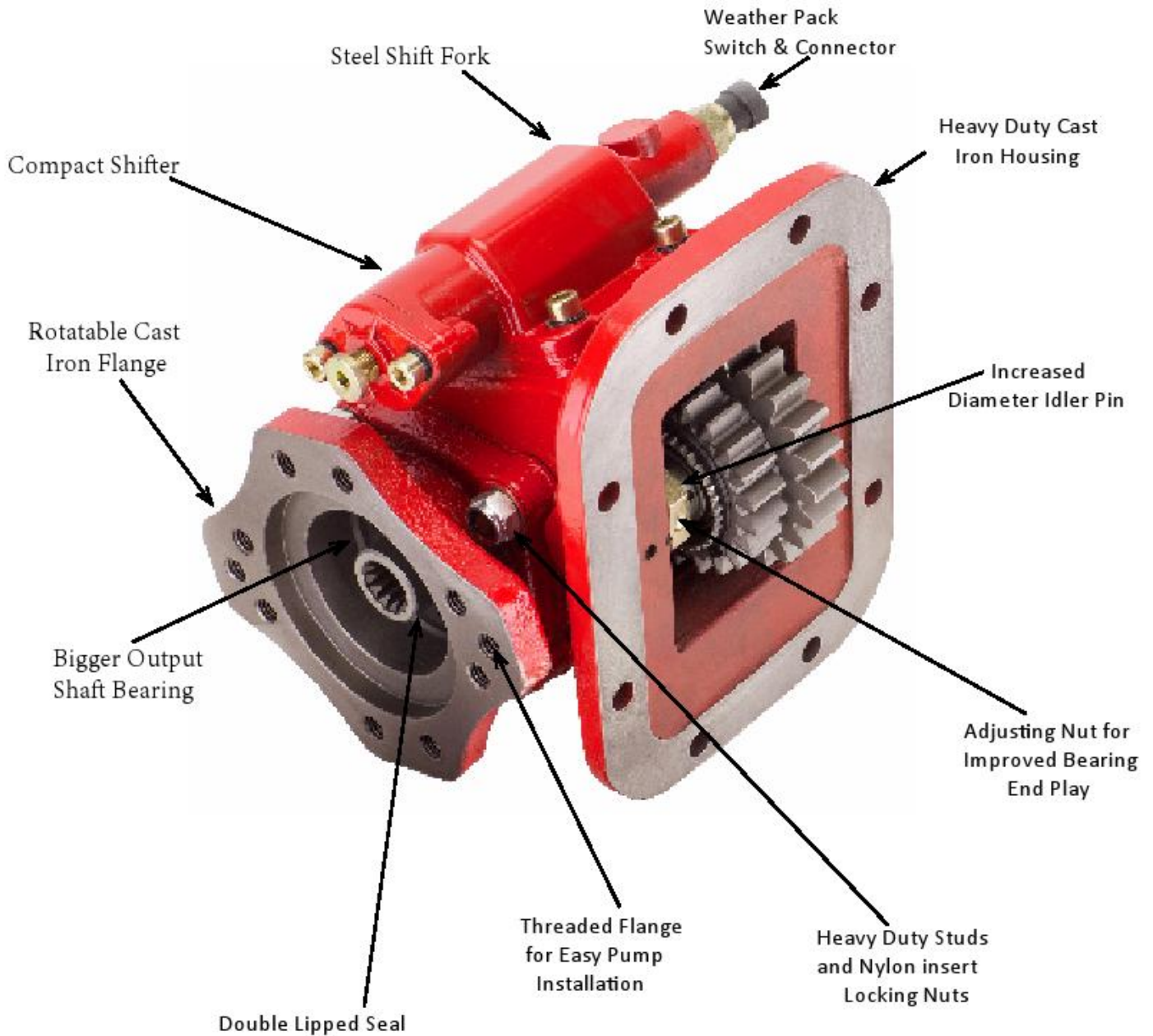
Tel: 0086-574-85360418

Email: info@dynacohydraulic.com

Website: www.dynacohydraulic.com



FEATURES



SPECIFICATIONS

Ratio	A	B	C	E	J	O	R	S	T
Torque Intermittent Service (Lb. ft)	250	250	250	225	225	200	200	190	175
Torque Intermittent Service (N.m)	339	339	339	305	305	271	264	251	238
Power @ 500 RPM (HP)	24	24	24	22	22	19	19	18	17
Power @ 1,000 RPM (HP)	49	49	49	44	44	39	39	37	34
Power @ 500 RPM (KW)	18	18	18	16	16	14	14	14	12
Power @ 1,000 RPM (KW)	36	36	36	32	32	28	28	28	25

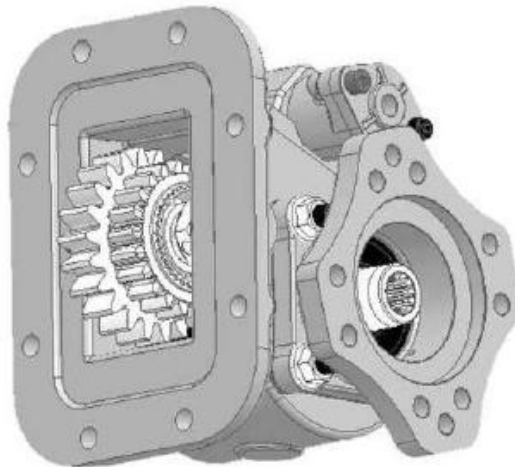


PRODUCING AND MANUFACTURING PTO

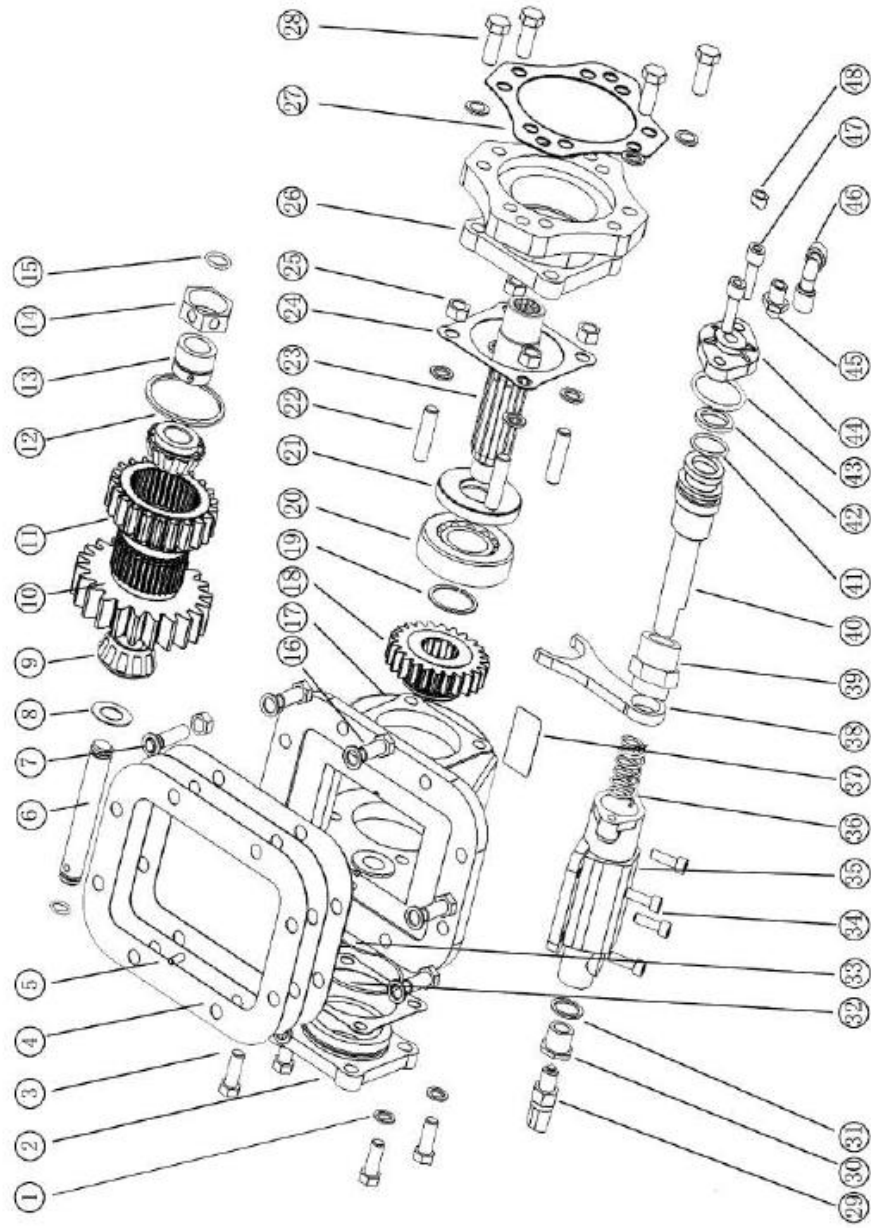
PTO

PTO OWNER'S INSTALLATION MANUAL

DYNACO PTO 2000 SERIES



Please read the owner's manual carefully before
installing and using the PTO.

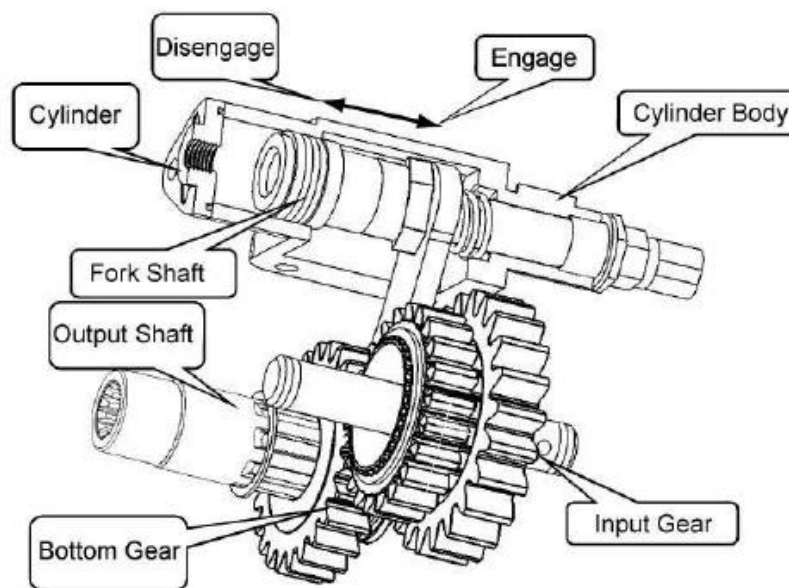


PTO 2000 SERIES

ITEM	PART NAME	PART DRAWING No.	QT	REMARK
1	Washer ϕ 13		20	
2	Cover,closed end	QG/2000-03	1	
3	Hex bolt M12 \times 30		4	
4	Gasket	QD/2000-08、09、10	1 per kind	Adjustable
5	Elastic cylindrical pin 6 \times 18		1	
6	Input shaft	QZ/2000-01	1	
7	Threaded stud M12-7/16 \times 45		2	
8	Adjusting washer	QD/2000-01	1	
9	Conical bearing 32304		2	
10	Input gear	QC/2000-01	1	
11	Upper gear	QC/2000-02	1	
12	Snap ring WRE 55		1	
13	Adjusting bush	QT/2000-01	1	
14	Adjusting nut	QM/2000-01	1	
15	O ring ϕ 15 \times 2.5		2	
16	Hex bolt 7/16 \times 30		6	
17	Housing	QK/2000-01	1	
18	Bottom gear	QC/2000-03	1	
19	Snap ring WRE 35		1	
20	Conical bearing 30307		1	
21	Oil seal BASL ϕ 72 \times ϕ 35 \times 10		1	
22	Threaded stud M12 \times 45		4	
23	Output shaft, mount pump	QZ/2000-03	1	
24	Gasket	QD/2000-03	2	
25	Hex nut,self locking M12			
26	Housing flange,open end	QG/2000-01	1	
27	Gasket	QD/2000-02	1	
28	Screw 1/2 \times 35		4	
29	Electrical switch	QF/2000-02	1	
30	Switch plug	QD/2000-06	1	
31	Bonded washer 22		1	
32	O ring ϕ 75 \times 2.5		1	
33	Conical bearing 30305		1	
34	Bolt M8 \times 25, allen head		4	
35	Cylinder body	QK/2000-02	1	
36	Spring piston	QH/2000-02	1	
37	Label	QD/2000-11	1	
38	Fork	QB/2000-01	1	
39	Fork spacer	QT/2000-02	1	
40	Fork shaft	QZ/2000-02	1	

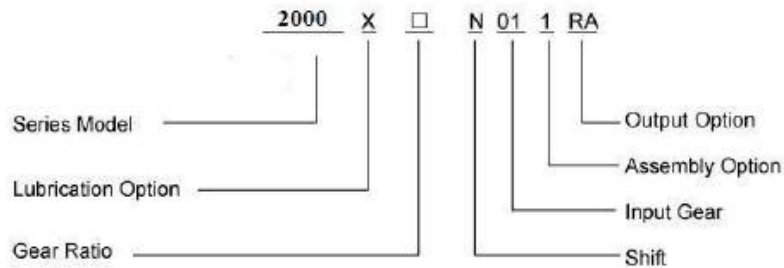
41	O ring $\phi 29 \times 3$		1	
42	Rubber collar $\phi 25 \times \phi 35 \times 6.5$		1	
43	O ring $\phi 36 \times 3$		1	
44	Cylinder cover	QG/2000-02	1	
45	Straight connector		1	Alternative
46	Elbow connector		1	
47	Bolt M8 \times 20, allen head		2	
48	Plug-screw		1	

The Illustration Diagram of the Transmission Principle of PTO2000 Series



In order to operate the fork shaft in the PTO, you must have 65.26 PSI. The air pressure pushes the fork shaft forward towards the end cap, driving the bottom gear to slide forward along the output shaft, and mesh with the upper gear; at the same time, causing the output shaft to rotate and transmit the power coming from the transmission to the working mechanism ---hydraulic pump in use. To disengage, cut off the air supply to the PTO, and the internal spring will push back the fork shaft allowing the fork drive to disconnect the bottom gear from the output gear. The output shaft stops rotating and the hydraulic pump stops running.

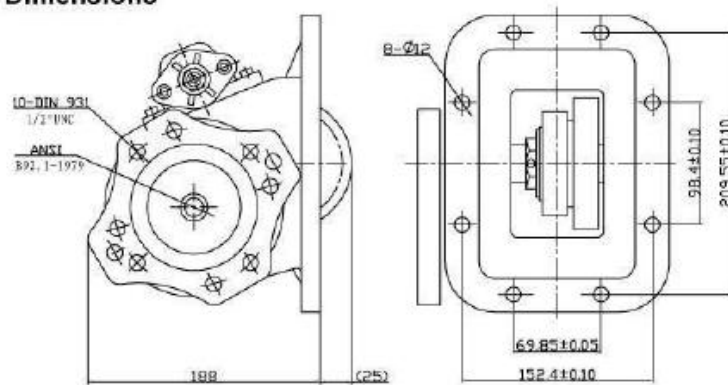
PTO2000 Assembly Options



PTO2000 Series Gear Ratios

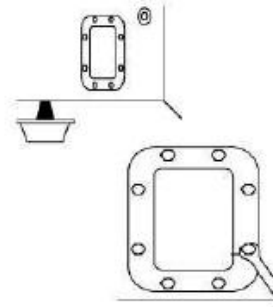
Code	A	B	C	E	J	O	R	S	T
Ratio	50%	55%	73%	80%	95%	125%	137%	150%	165%

PTO Dimensions



Mount the PTO onto the transmission

1. Drain the oil from the transmission into a clean container.
 2. Use a proper wrench to remove the PTO aperture ; cover from the transmission
- Note:* Make sure the bolts and/or the thread surface of the transmission is in good condition for the next use.



3. Remove the gasket between the cover and the transmission; use a wire brush to slightly remove any grease and/or dirt from the surface.

Caution: In order to prevent oil, grease, and/or dirt from entering the transmission while you are cleaning the surface, please seal the opening of the PTO cover temporarily (you may use a clean rag, shirt, towel etc, to seal the opening).

4. Rock the PTO driver gear inside the transmission and the PTO driver gear by using your hand, rocking the gears provides two important factors.

- a. This will help the install to establish the proper backlash when installing the PTO;

- b. It shows you the amount of backlash that has been designed into the PTO and the transmission.

5. Use a stud driver to install the suitable number of studs into the tapped holes of the transmission. Make sure the studs do not interfere with the gears of the transmission.

6. Carefully tighten the studs, and torque to 19-21 lbs.ft (263-290kg.m)

Note: over tightening the studs may damage studs and/or the threads in the transmission housing or could interfere with the transmission gears.

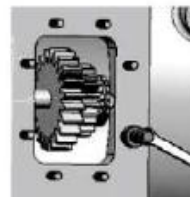
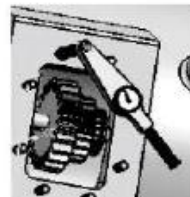
7. When placing the gaskets over the studs, make sure to use the correct number of gaskets. To obtain proper backlash, we do not recommend the use of "permatex" at this point. This will enable you to add or subtract gaskets during this process.

- a) When installing a PTO, use gaskets between all the mating surfaces;

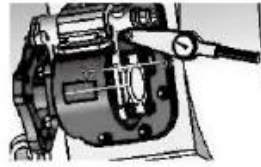
- b) Do not stack more than 3 gaskets together for use;

- c) Usually one gasket with thickness of 0.020" (0.5mm) is needed;

- d) Because the lubricant in the transmission also lubricates the PTO, at least one gasket is always needed between either the fill blocks, adapter assembly, or adapter plates. While requiring suitable backlash, more gaskets may be required.

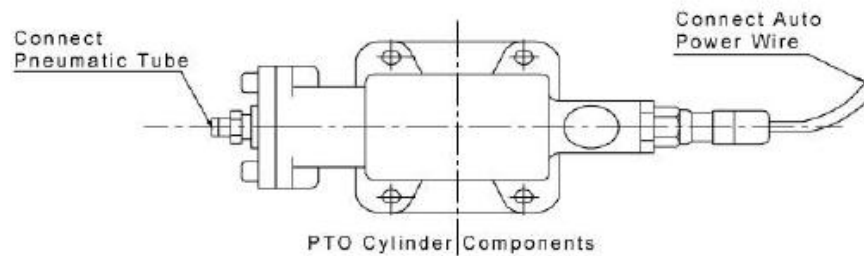


8. Fasten the PTO onto the transmission: assemble the PTO onto the bolts on the transmission, and slightly screw the self-lock nuts matched with the PTO.



Note: Ensure the assembling direction of the PTO is correct.

9. Tighten the self-lock nuts, and torque to 55-60lbs.ft;
10. Connect power wire;
11. Connect pneumatic tube;
12. Check the assembly conditions of the PTO, readjust if needed.



Checking Backlash.

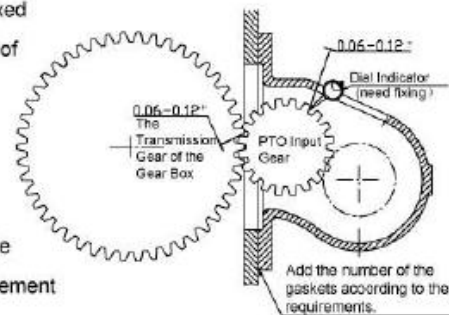
1. Remove the shift housing plate and/or inspection plate from the PTO.

Note:

- a. The gaskets cling to the mounting surface, moving is not required.
 - b. While placing the components of the cylinder, the fork is required upwards, and any parts of it can't make contact with other components.
2. Mount the backlash dial indicator in a fixed place so that it registers the movement of the input gear of the PTO.

Note: While checking the backlash, the PTO driver gear in the transmission must not move.

3. With your hand, rock the input gear of the PTO back and forth. Note the total movement of the backlash dial indicator.



4. The suitable backlash for the PTO is 0.006"-0.012"(0.15-0.30mm).If you find the backlash beyond this point, you can adjust by adding or subtracting gaskets until it meets with the requirements.
5. Assemble the shift housing plate and/or inspection plate according to its original state, and tighten the bolts to the required torque(16-20lbs.ft).

Note: 1. Tighten the bolts in opposite angels,not in sequence.

2. Use a drop of "Loctite290" on all (4)four bolts before reinstalling.

Assembly of PTO and Pump

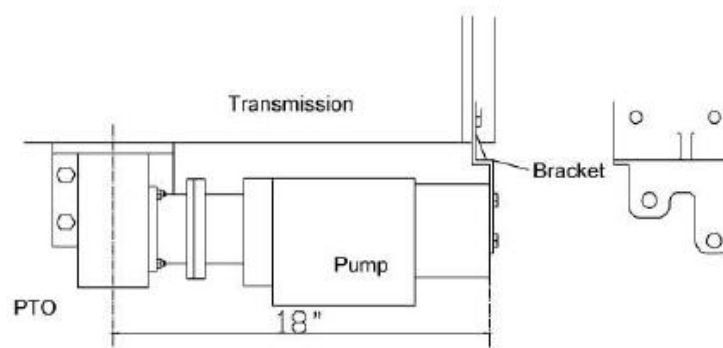
1. Unpack the pump, and check for anything abnormal;
2. Remove the plastic cover on the output shaft top end of the PTO and fully grease the surface of the inner spline of the output shaft.
3. Insert the equipped bolts into the pump flange.
4. Place the equipped gaskets on the mounting surface of the pump flange.
5. Assemble the pump onto the PTO:rock the spline shaft of the pump,and after making the outer spline and inner spline match, insert the pump unit, ensuring the contact of the flange opening is good. Then rotate the angle of the pump so that the pump flange and the flange of the PTO match up according to the holes for the bolts.
6. Screw on the bolts,and tighten all the bolts.

Note: Tighten the bolts in opposite angels, not in sequence.

7. Check the whole assembly condition of the pump and the PTO readjust if needed.

Caution: In order to ensure the PTO warranty remains valid, please be sure to use a bracket in the following conditions:

- a. the combined weight of the pump, fittings and hose exceeds 40 pounds.
- b. The combined length of the PTO and the pump is 18 inches or longer from the PTO centerline to the end of the pump. The picture below shows how the support bracket is constructed.The bracket needs to be attached at (2) or more transmission bolts and (2) or more bolts to the pump.



Safety Information:

The PTO must be properly matched with the vehicles transmission or it could cause severe damage to the equipment, and/or may cause serious personal injury to the operator or others nearby.

1. Exposed rotating driving shafts must have some form of guard to ensure safety.
2. Do not go under the vehicle when the engine is running, and do not work on or near an exposed shaft when the engine is running.
3. Follow the proper procedure, and use suitable tools and safety equipment. The operator should have received proper training regarding the PTO and any situation that may occur during working conditions.
4. The PTO does not set an overload protection. If overloaded and damage is found in use, you should stop the vehicle immediately or disengage to avoid damaging to the transmission. The storing period of the PTO may not exceed 1 year as to prevent oil seal, O-ring and such rubber parts burning in and running out to lead leaks and such bad situations.

PTO Scheduled Maintenance

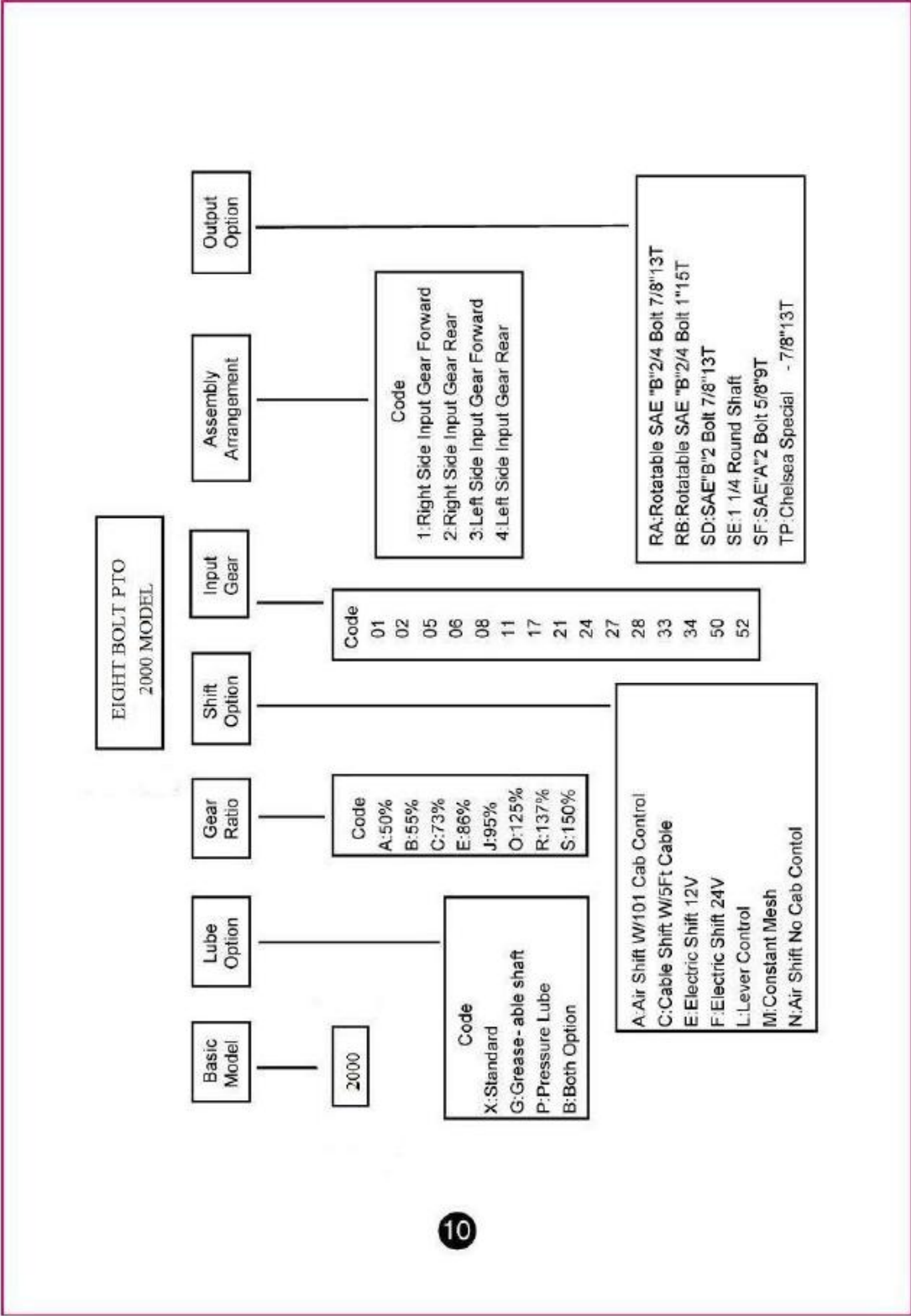
Due to the normal and sometimes severe torsion vibrations that may occur during the working time of the PTO, all experienced operators should follow a maintenance schedule for inspections.

1. *Daily:* Check all air, hydraulic and working mechanisms before operating the PTO. Scheduled maintenance is required.
2. *Monthly:* If necessary, inspect for possible leaks and tighten all air, hydraulic and mounting hardware regularly. Tighten all bolts, nuts, etc, according to their torque. Ensure that the splines and gears are properly lubricated.

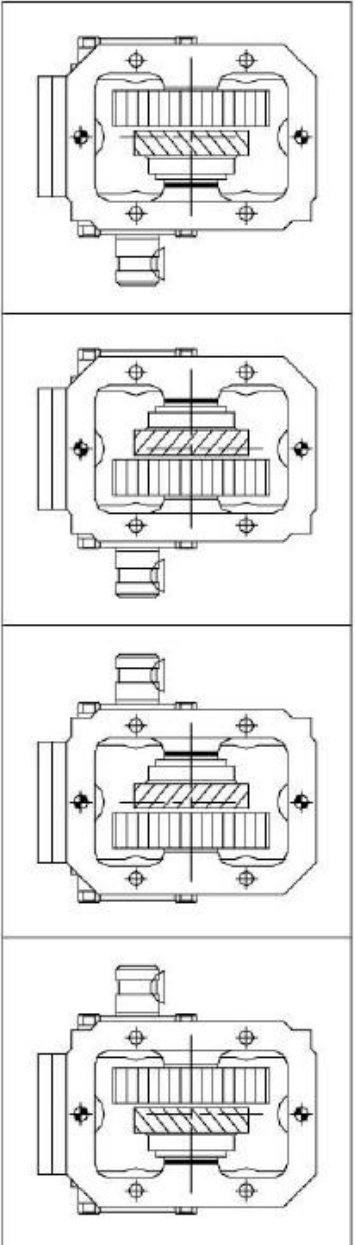
3. With regard to the pump assembly on the PTO, we require the application of a specially formulated anti-fretting, high pressure proof, high temperature proof grease, Adding the grease. has been proven to reduce the effects of the torsion vibration, which results in fretting corrosion on the PTO internal splines as well as the pump external splines, Fretting corrosion appears as a "rusting and wearing" of the pump shaft splines Therefore, you need to do periodic performance checks for the constant-driving and heavy duty vehicles.

Trouble Shooting for PTO & Solution.

Problem	Reason	Solution
The mounting surface of the PTO leaks oil	The mounting surface is dirty or damaged	Disassemble the PTO,check for damage, clean the mounting surface and replace the gaskets as needed for proper backlash
The shaft end of the PTO leaks	The oil seal is damaged or the shaft is damaged	Disassemble the PTO,check the oil seal and the output shaft.Replace if damage has occurred
The gear makes abnormal noise	The bearing is abrasive or the gear is damaged.	Disassemble the PTO and replace the gear and/or the bearing.
Engaging isn't in place	The cylinder leaks air, and the O-ring is damaged or the inlet pressure isn't enough.	Disassemble the PTO,replace the cylinder or the O-ring and check the inlet tube and the pressure.
The output shaft breaks down.	User is overloading, and the shaft is damaged.	Disassemble the PTO and replace the output shaft.
The housing breaks down.	Casting is defective.	Disassemble the PTO and replace the housing.
The connecting flange breaks down.	Casting is defective.	Disassemble the PTO and replace the connecting flange.
Can't disengage	The spring loses effectiveness.	Disassemble the PTO and replace the spring.
The oil level of the transmission goes down	The cylinder leaks air and the inner pressure is increased.	Disassemble the PTO and alter the cylinder or the O-ring.



PTO Assembly Arrangements



Rules of Arrangement:

1. Gears must be facing you.
2. Shifter cover must be on top of PTO.
3. What side is the input on?
4. What side is the output shaft on?
5. Match to picture above.