

4.7. RECOMMENDATIONS FOR SEAL MAINTENANCE AND PARTS REPLACEMENT

WARNING

- **Telescopic cylinders are not design to be used as a structural member or to be side loads or used under abnormal usage.**
- **Driving with a raised dump body or trailer can cause cylinder malfunction, injury or death and/or damage to equipment.**
- **Operating a damaged cylinder and cover components can cause severe injury or death and/or damage to equipment**

Replace seals at the earliest of either:

- Every 4 years;
- According to usage at every 10,000 cycles.

Stages, cover and its connecting flange pin and stover nut are highly stressed components due to environment, application and usage. Unappropriated use may cause cylinder malfunction or failure.

Lateral oscillation of the dump body during a cycle must be avoid. Lateral oscillation of dump body of trailer may occur when lowering dump body with truck in movement, or other irregular situation, and may cause leakage, excessive wear and fatigue of component and connecting members.

In the case of leakage cylinder due to damaged stage, parts must be inspected and replace as necessary.

In the case of excessive wear, unexpected cylinder looseness or broken external of internal component, cylinder must no be used and immediately repair with appropriate parts and methods.

4.8. SUGGESTIONS FOR CYLINDER REPLACEMENT

As a good practice and in a preventive effort to maintain the adequate operational maintenance and security performance, it is suggested to replace the cylinder after 10 years of normal use. It is also suggested to replace the cylinder if a more intense use reaches an estimated 25,000 cycles.



4.9. STORAGE OF CYLINDER

If the cylinder must be stored, it should be protected from bad weather, direct sunlight and extreme temperature variations. Oil ports must be sealed with adapted plugs to avoid dust, water, humidity or any other contaminant to enter into the cylinder. Depending on the length of time spent in storage, some supplemental precautions should be taken. These precautions are showed below;

- A- For a 6 months storage or less, no special precautions others then those stated above.
- B- For a storage period between 6 months and less than 12 months, cylinders should be stored vertically.
- C- If storage period is more the 12 months and less than 24 months, a pressure test must be done to ensure the good state of seals prior to utilisation.
- D- After a storage period of more than 24 months, all seals must be replaced.

If storage facilities are open or non-existent, the cylinder should at least be stored vertically and filled with oil.

TROUBLESHOOTING

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
Cylinder does not extend	<ul style="list-style-type: none"> • Safety or control valves are stuck or broken • PTO or pump not engaged or broken • Cylinder too small • Air trapped in cylinder or system or Not enough oil • Oil tank too small 	<ul style="list-style-type: none"> ☞ Clean or replace the valves ☞ Engage PTO or Change broken parts ☞ Consult body/trailer manufacturer. Select cylinder adequately. ☞ Check for infiltration and correct. ☞ Check oil level and correct. ☞ Cycle cylinder to full extension 7 to 10 times. ☞ Consult body/trailer manufacturer. ☞ Oil tank may be increase according to cylinder capacity.
Cylinder extend too slow	<ul style="list-style-type: none"> • Oil viscosity is too high or oil too cold • Air trapped in cylinder or system or Not enough oil • Pump or valve worn-out • Pump is running too slow. • Pump is too small or PTO speed is too slow 	<ul style="list-style-type: none"> ☞ Warm up oil ☞ Use oil according to cylinder and system specification ☞ Check for infiltration and correct. ☞ Check oil level and correct. ☞ Cycle cylinder to full extension 7 to 10 times. ☞ Change worn-out parts ☞ Increase engine speed ☞ Check cylinder, pump, PTO specification. Change pump or PTO accordingly.
Cylinder extend too fast	<ul style="list-style-type: none"> • Pump is running too high. • Pump is too large or PTO speed is too high 	<ul style="list-style-type: none"> ☞ Reduce engine speed ☞ Check cylinder, pump, PTO specification. Change pump or PTO accordingly.
Cylinder is bouncing or jerks during operation	<ul style="list-style-type: none"> • Air trapped in cylinder or hydraulic system. 	<ul style="list-style-type: none"> ☞ Cycle cylinder to full stroke 7 to 10 times.
Cylinder opens or closes without a smooth operation	<ul style="list-style-type: none"> • Internal parts of the cylinder are too worn-out • One of the stage or gland is swelling or not sliding smoothly. 	<ul style="list-style-type: none"> ☞ Service or replace cylinder. ☞ Verify and replace worn-out parts.

TROUBLESHOOTING

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
Cylinder does not retract. One or more stages of the cylinder stays open.	<ul style="list-style-type: none"> • Cylinder stages are bend or bulged due to side load, misalignment, or over pressurisation. • Cylinder is too fast. As a result, plungers and gland are jamming. • Dumping angle to high 	<ul style="list-style-type: none"> ☞ Check for any misalignment of the cylinder with frame or back hinge, and correct. ☞ Check safety valve setting. ☞ Service or replace cylinder ☞ See “Troubleshooting / cylinder extend too fast”. ☞ Consult body/trailer manufacturer. Stroke may need to be decrease. ☞ Install a limiting device
Cylinder retract too slow	<ul style="list-style-type: none"> • Valve or hoses too small • Oil viscosity is too high or oil too cold 	<ul style="list-style-type: none"> ☞ Consult body/trailer manufacturer. Valve and return line may need to be increase. ☞ Warm up oil ☞ Use oil according to cylinder and system specification
Cylinder retract too fast	<ul style="list-style-type: none"> • Material stuck in bed – dumping angle too low. • Cylinder too small, body/trailer too heavy, Valve or hoses too large. 	<ul style="list-style-type: none"> ☞ Consult body/trailer manufacturer. stroke may need to be increase. ☞ Consult body/trailer manufacturer. Select parts adequately.
Cylinder is leaking oil	<ul style="list-style-type: none"> • Seals are worn due to high cylinder speed. • Seals are worn or stages are score due to oil contamination. • Seals are worn or stages are scored due to sideload or miss-alignment of the cylinder. • Grease drop on stages. 	<ul style="list-style-type: none"> ☞ “Troubleshooting / cylinder extend too fast or cylinder retract too slow”. ☞ Check oil cleanliness, replace as necessary. ☞ Verify and correct alignment. ☞ Change worn-out parts. ☞ Oil leakage may be mistaken. Rag stage and excessive grease.
Cover guide in contact with moving stages during operation	<ul style="list-style-type: none"> • Cylinder is side loaded due to misalignment or incorrect use. • Loosen or damaged cylinder, flange pin, lock nut or cover parts. 	<ul style="list-style-type: none"> ☞ Check for any misalignment of the cylinder with frame or back hinge, and correct. ☞ Fully read and understand this user guide for cylinder usage. ☞ Service or replace cylinder
Noisy cylinder or cover	<ul style="list-style-type: none"> • Bent or bulged moving stage. • Loosen or damaged cylinder, 	<ul style="list-style-type: none"> ☞ Check for any misalignment of the cylinder with frame or back hinge, and correct. ☞ Service or replace cylinder