

## Troubleshooting ZipTENSIONER Subsea Flange Puller

| Problem  | Possible Causes   | Possible Solutions  |
|--|---|---|
| Cylinder does not hold pressure                                  | <ol> <li>Cylinder seal leaking</li> <li>Leaking connection</li> <li>Pump malfunction</li> </ol>   | <ul><li>1. Change cylinder</li><li>2. Tighten connections</li><li>3. Change pump</li></ul>                                      |
| Cylinder does not<br>advance or advances<br>slowly               | <ol> <li>Pump release valve open</li> <li>Not enough oil in pump</li> <li>Air in system</li> <li>Couplers not tightened</li> <li>Pump reservoir too small</li> <li>Strainer on pump is clogged</li> </ol> | 1. Close valve 2. Add oil 3. Bleed air 4. Fully tighten couplers 5. Change pump (use one w/ larger reservoir) 6. Clean Strainer |
| Cylinder<br>advances slowly                                      | 1. Leaking connection 2. Restricted hydraulic hose or fitting 3. Loose coupler 4. Pump flow rate too slow   | 1. Tighten connections 2. Change hoses or fittings 3. Tighten couplers 4. Change pump (use one w/ faster flow rate)             |
| Cylinder does not retract, retracts slowly or retracts partially | 2 Counter not fully closed  | 1. Open valve<br>2. Close coupler<br>3. Replace hoses<br>4. Remove excess oil   |