



Instruction Manual

3-in-1 Self Contained Hydraulic Pullers
Model – PS-1208D



Maximum Operating Pressure – 700 bar



This is a safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid injury or death

1.0 Product Information

DURAPAC – Hydraulic Pullers are engineered to meet Industrial Standards for Performance and Safety. The PS-1208D three in one self-contained puller is a double acting unit designed for pushing, outer pulling and inner pulling.

- Self-contained hand pump rotates 360°
- Double acting cylinder allows for pushing/outer pulling and inner pulling
- 3 jaw structure provides even force
- Internal puller allows removal of oil seals, bushings and bearings
- Variable height extension legs
- Steel carry case included

Special skill, knowledge and training may be required for a specific task and the product may not be suitable for all jobs. The user must ultimately make the decision regarding suitability of the product for any given task and assume the responsibility of safety for all in the work area. Contact a Durapac representative if you are unsure of your puller's suitability for a particular application.

2.0 Receiving Instructions

It is recommended prior to use that an inspection be done by qualified personnel and that any missing or damaged parts, decals, warning/safety labels or signs are replaced with Durapac authorised replacement parts only. Any puller that appears to be damaged in any way, is worn, leaking or operates abnormally should be removed from service immediately until such time as repairs can be made. Any puller that has been or suspected to have been subject to a shock load should be removed from service immediately until inspected by a Durapac authorised service centre. Owners and operators of this equipment should be aware that the use and subsequent repair of this equipment may require specialised training and knowledge.

3.0 Safety

Save these instructions. For your safety, read and understand the information contained within. The owner and operator should have an understanding of this product and safe operating procedures before attempting to use this product. Instructions and safety information should be conveyed in the operator's native language before use of this product is authorised. Make certain that the operator thoroughly understands the inherent dangers associated with the use and misuse of the product. If any doubt exists as to the safe and proper use of this product as outlined in this factory authorised manual, remove from service immediately.



DANGER:

- To avoid personal injury keep hands and feet away from work area during operation
- **Do NOT** handle pressurised hoses. Escaping oil under pressure can penetrate the skin causing serious injury. If oil is injected under the skin, see a doctor immediately

**WARNING:**

- The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Install pressure gauges in the system to monitor operating pressure. It is your window to what is happening in the system
- Always wear appropriate personal protective equipment (PPE) when operating hydraulic equipment. The operator must take precaution against injury due to failure of the tool or work piece(s)
- **Do NOT** hold or stand directly in line with any hydraulic connections while pressurising
- **Do NOT** attempt to disconnect hydraulic connections under pressure. Release all line pressure before disconnecting hoses

**IMPORTANT:**

- If at any stage, the safety related decals become hard to read, these must be replaced
- Minimum age of the operator must be 18 years. The operator must have read and understood all instructions, safety issues, cautions and warnings before starting to operate the equipment. The operator is responsible for this activity towards other persons
- **Do NOT** lift hydraulic equipment by the hoses or couplers. Use the carrying handle or other means of safe transport
- Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the Durapac authorised service centre in your area. To protect your warranty, use only high quality hydraulic oil

**CAUTION:**

- **KEEP HYDRAULIC EQUIPMENT AWAY FROM FLAMES AND HEAT.** Hydraulic fluid can ignite and burn. Excessive heat will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings. For optimum performance do not expose equipment to temperatures of 65°C (150°F) or higher. Protect all equipment from weld spatter
- No alteration should be made to this device

3.1 Hydraulic Pullers

- Align the puller on the same centreline as the part being removed. Failure to align the parts correctly can result in a dangerous operating situation because of the high hydraulic pressure used
- Before applying pressure, wrap the work in a safety blanket/ sheath to protect from injury caused by flying parts should a part ever break
- **Do NOT** heat the part to be removed. When the puller comes in contact with the part, heating can result in damage to components of the puller
- Apply force gradually
- Ensure that the puller jaws are fully engaged with the workpiece being pulled

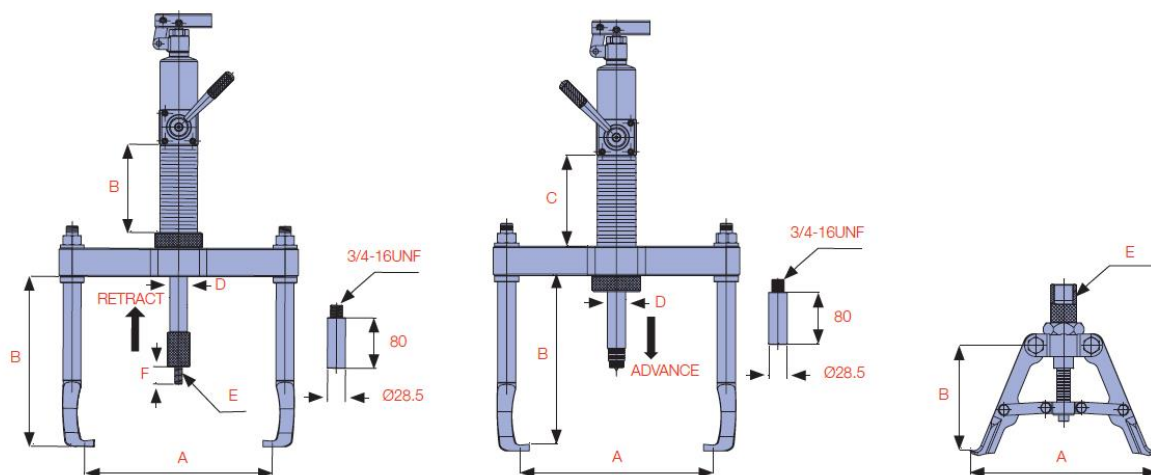
- **Do NOT** overload equipment. Overloading can cause equipment failure and possible personal injury
- **Do NOT** over extend the puller
- Only operate within the limits of the pullers' rated stroke
- Use only Durapac approved accessories and components

FAILURE TO HEED THESE WARNINGS MAY RESULT IN PERSONAL INJURY AS WELL AS PROPERTY DAMAGE.

4.0 Installation

Familiarise yourself with the specifications and illustrations in this owner's manual. Know your puller, its limitations and how it operates before attempting to use. Refer to the specification chart below or if in doubt, contact a Durapac representative.

Model No	Puller Type	Capacity (ton)	A (mm)	B (mm)	C (mm)	D (mm)	E	F (mm)	Weight (kg)
PS-1208D	Installing	8	44-280	270 + 80	140	28	M12 x 1.75	30	19.5
	Outer Pulling	12	85-300	260 + 80	140	28	-	-	
	Inner Pulling	8	110-210	130-150	-	-	1"-12UNF	-	



5.0 Operation

5.1 Outer Pulling

- 5.1.1 Screw the handle into the handle socket.

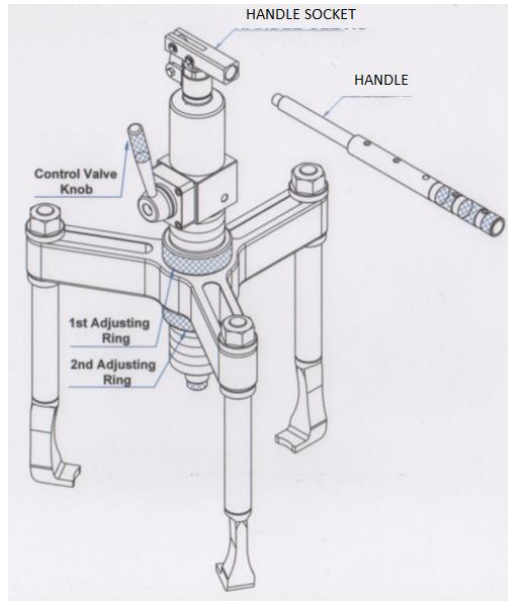


Figure 1 – Outer Pulling

- 5.1.2 Align the puller horizontally to the same centreline as the object to be pulled.

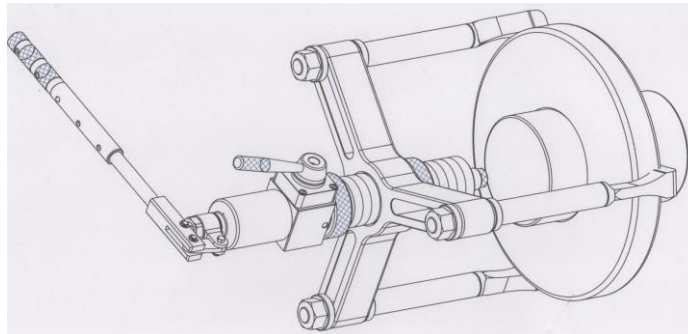


Figure 2 – Centreline Alignment

- 5.1.3 Ensure the 1st adjusting ring (Figure 1) is wound up and as far away from the crosshead as possible and the 2nd adjusting ring (Figure 1) is wound up and firm against the crosshead.

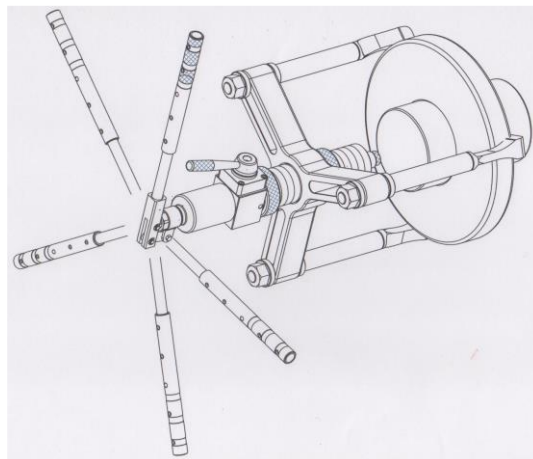


Figure 3 – Locking the Crosshead

- 5.1.4 Wrap the object that is to be pulled in a protective blanket.
- 5.1.5 Once puller is aligned, switch the control valve knob to the “Advance” position. Pump the handle to extend the puller rod to touch the shaft centre. Ensure the puller jaws are fully and tightly engaged.

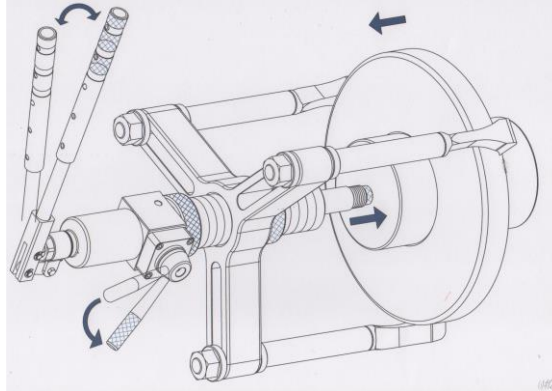


Figure 4 – Advancing the Puller

- 5.1.6 Pump the handle until the object is pulled out.
- 5.1.7 After pulling is complete, switch the control valve knob to the “Retract” position. Retract the puller rod completely.

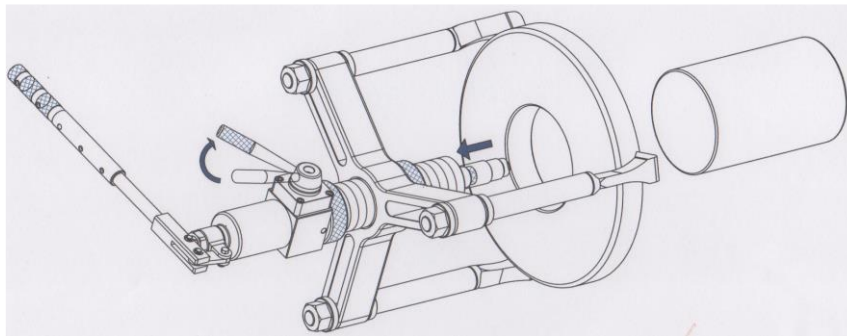


Figure 5 – Retracting the Puller

5.2 Outer/Inner Installing

- 5.2.1 Modify the original centre hole on the shaft to be a threaded hole.

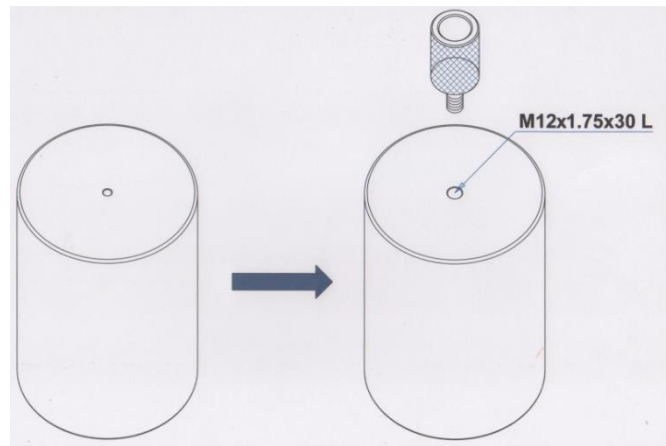


Figure 6 – Threaded Centre Hole

- 5.2.2 Screw the connector into the modified centre hole of the shaft.

- 5.2.3 Switch the control valve knob to the “Advance” position. Pump the handle with full strokes to extend the pushing rod.

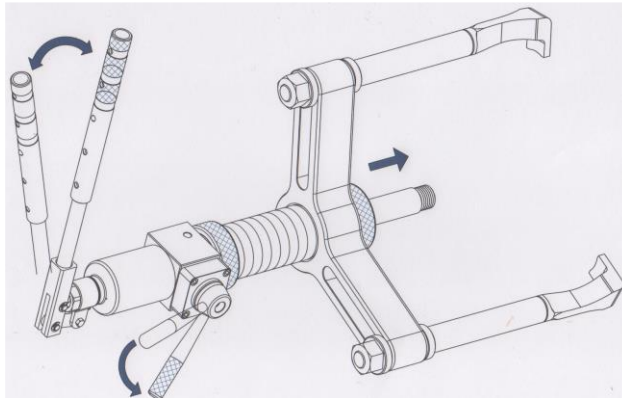


Figure 7 – Advancing the Puller

- 5.2.4 Connect the pushing rod tightly with the connector. Move the three arms so that they correctly touch the inner edge of the object.
- 5.2.5 Ensure the 1st adjusting ring (Figure 1) is wound down and firm against the crosshead and the 2nd adjusting ring (Figure 1) is wound down and as far away from the crosshead as possible.

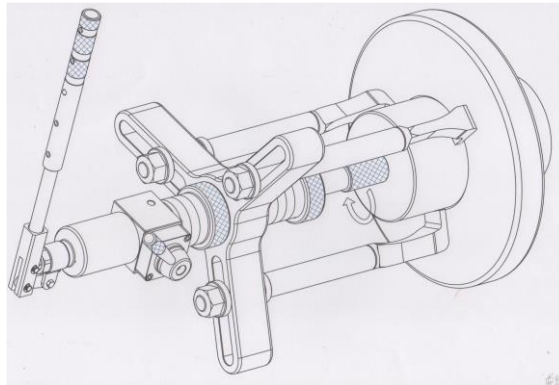


Figure 8 – Locking the Crosshead

- 5.2.6 Wrap the object that is to be pulled in a protective blanket.
- 5.2.7 Once puller is aligned, switch the control valve knob to the “Retract” position. Ensure the puller jaws are fully and tightly engaged.
- 5.2.8 Pump the handle to retract the pushing rod until the object being pushed is in the preferred position.

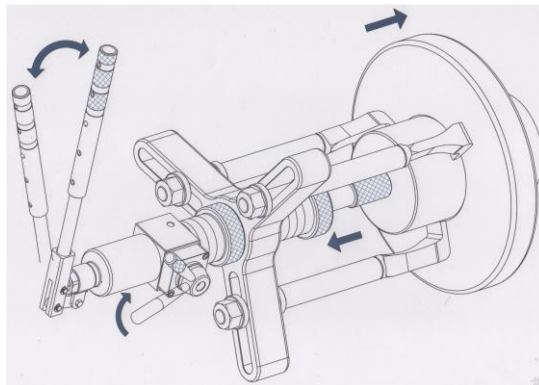


Figure 9 – Retracting the Pushing Rod

5.3 Inner Pulling

5.3.1 Screw the handle into the handle socket.

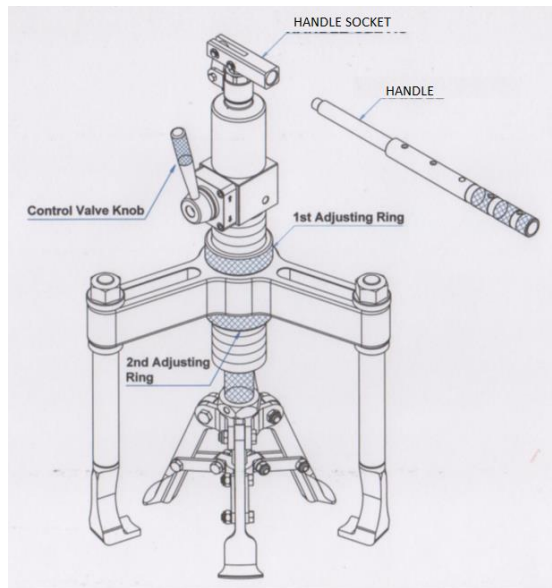


Figure 10 – Inner Pulling

5.3.2 Put the inner puller through the object.

5.3.3 Turn the hex nut in a clockwise direction to spread out the arms and tightly grip the inner edge of the object.

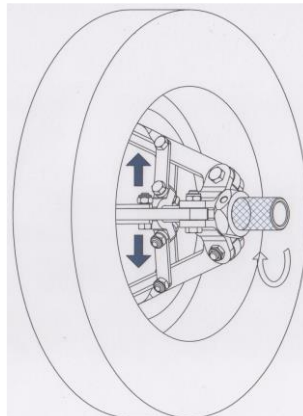


Figure 11 – Obtaining Grip

5.3.4 Switch the control valve knob to the “Advance” position. Pump the handle with full strokes to extend the pushing rod.

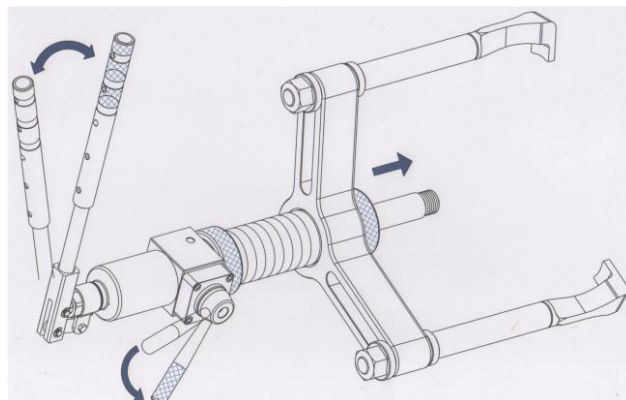


Figure 12 – Advance the Pushing Rod

- 5.3.5 Connect the pushing rod tightly with the connector. Move the three arms so that they correctly touch the inner edge of the object.
- 5.3.6 Ensure the 1st adjusting ring (Figure 10) is wound down and firm against the crosshead and the 2nd adjusting ring (Figure 10) is wound down and as far away from the crosshead as possible.
- 5.3.7 Wrap the object that is to be pulled in a protective blanket.
- 5.3.8 Once puller is aligned, switch the control valve knob to the “Retract” position. Ensure the puller jaws are fully and tightly engaged.
- 5.3.9 Pump the handle to retract the pushing rod until the object has been pulled out.

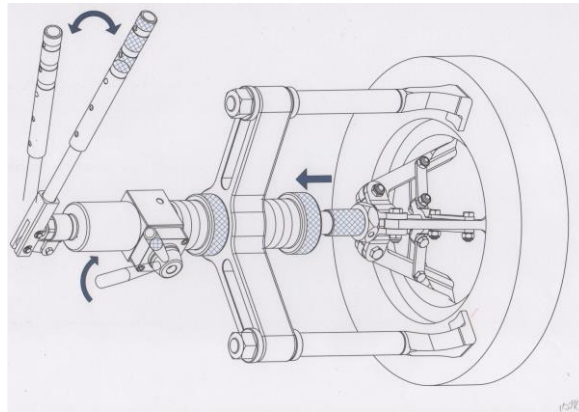


Figure 13 – Retract the Pushing Rod

6.0 Maintenance



IMPORTANT:

- Use only good quality hydraulic fluid. **Do NOT** use brake fluid, transmission fluid, turbine oil, motor oil, alcohol, glycerine etc. Use of anything other than good quality hydraulic oil will void warranty and damage the pump, hose, and application. We recommend Durapac Hydraulic Oil or equivalent
- Equipment must only be serviced by a qualified hydraulic technician. For repair service, contact your local Durapac authorised service centre

Maintenance is required when wear or leakage is noticed. Periodically inspect all components to detect any problem that may require service and maintenance.

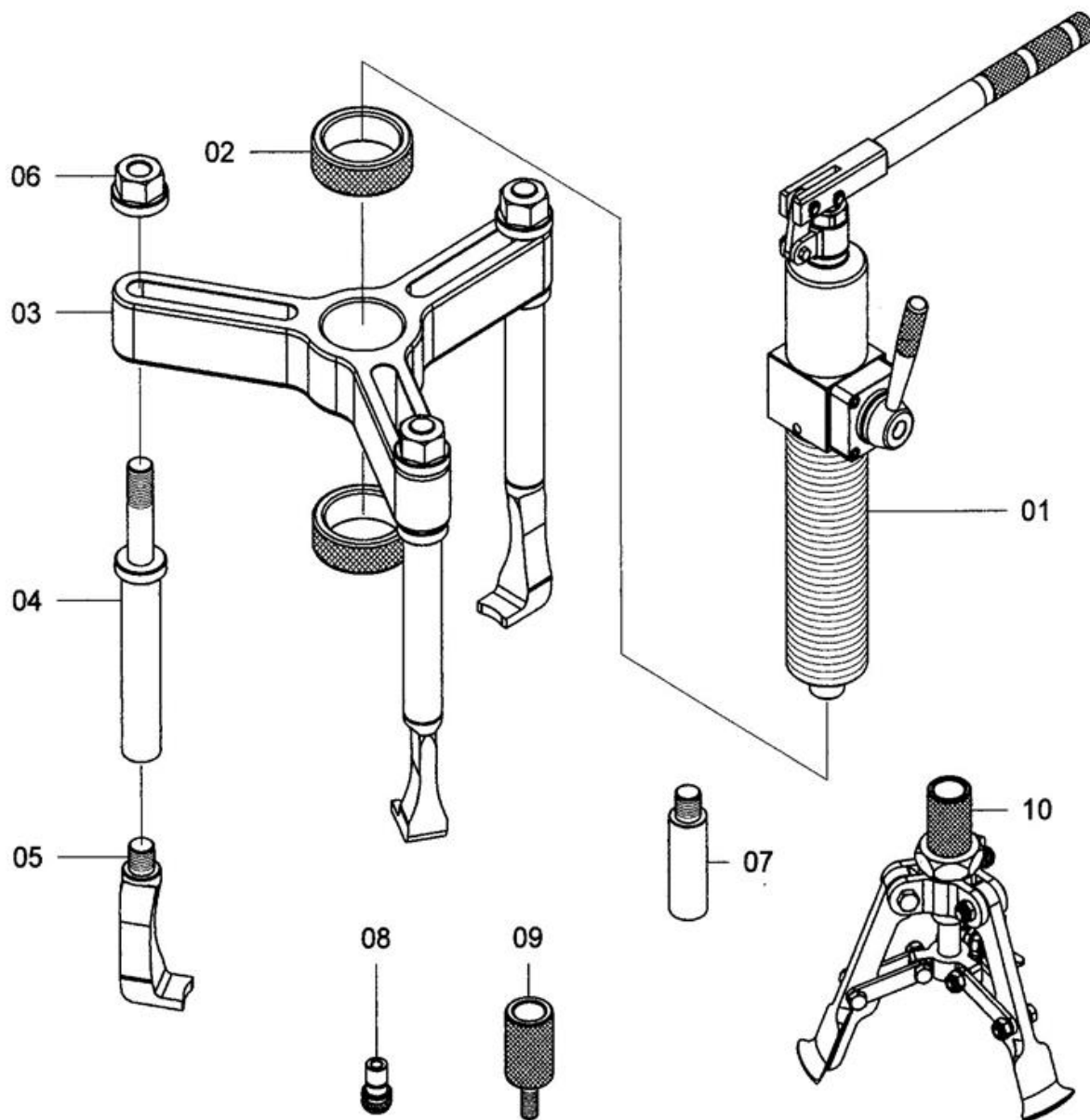
- 6.1 Check for loose connections and leaks.
- 6.2 Replace damaged parts immediately.
- 6.3 Do not exceed oil temperature above 60°C.
- 6.4 Keep all hydraulic components clean.
- 6.5 Use dust caps when puller is disconnected from the hose. Keep entire puller clean to prolong puller life.
- 6.6 Wipe thoroughly clean and store puller in the carry case (provided). Avoid temperature extremes.

7.0 Troubleshooting

Problem	Cause	Solution
Cylinder moves but does not maintain pressure	Leaking cylinder seals	<ul style="list-style-type: none"> • Replace worn seals • Check for excessive contamination or wear • Replace contaminated fluid as necessary
	Malfunctioning pump/valve	<ul style="list-style-type: none"> • Repair or replace as necessary
Cylinder leaks hydraulic fluid	Worn or damaged seals	<ul style="list-style-type: none"> • Replace worn seals • Check for excessive contamination or wear • Replace contaminated fluid as necessary
Cylinder will not retract or retracts slower than normal	Internally damaged cylinder	<ul style="list-style-type: none"> • Send to a Durapac authorised service centre for repair
	Pump reservoir too full	<ul style="list-style-type: none"> • Drain hydraulic fluid to correct level
Erratic Action	Air in system or pump cavitation	<ul style="list-style-type: none"> • Add fluid, bleed air and check for leaks
	External leakage	<ul style="list-style-type: none"> • Replace worn packings • Check for excessive contamination fluid as necessary • Replace contaminated fluid as necessary
	Sticking or binding cylinder	<ul style="list-style-type: none"> • Check for dirt or leaks • Check for bent, misaligned, worn parts or defective packings
Cylinder does not move	Improper valve position	<ul style="list-style-type: none"> • Close release valve or shift to new position
	Low or no hydraulic fluid in pump reservoir	<ul style="list-style-type: none"> • Fill and bleed the system
	Air-locked pump	<ul style="list-style-type: none"> • Add fluid, bleed air and check for leaks
	Load is above the capacity of the system	<ul style="list-style-type: none"> • Use the correct equipment
Cylinder extends only partially	Low or no hydraulic fluid in pump reservoir	<ul style="list-style-type: none"> • Fill and bleed the system
	Load is above the capacity of the system	<ul style="list-style-type: none"> • Use the correct equipment
	Sticking or binding cylinder	<ul style="list-style-type: none"> • Check for dirt or leaks • Check for bent, misaligned, worn parts or defective packings
Cylinder moves slower than normal	Low fluid level in pump reservoir	<ul style="list-style-type: none"> • Fill and bleed the system
	Leaking cylinder seals	<ul style="list-style-type: none"> • Replace worn seals • Check for excessive contamination or wear • Replace contaminated fluid as necessary

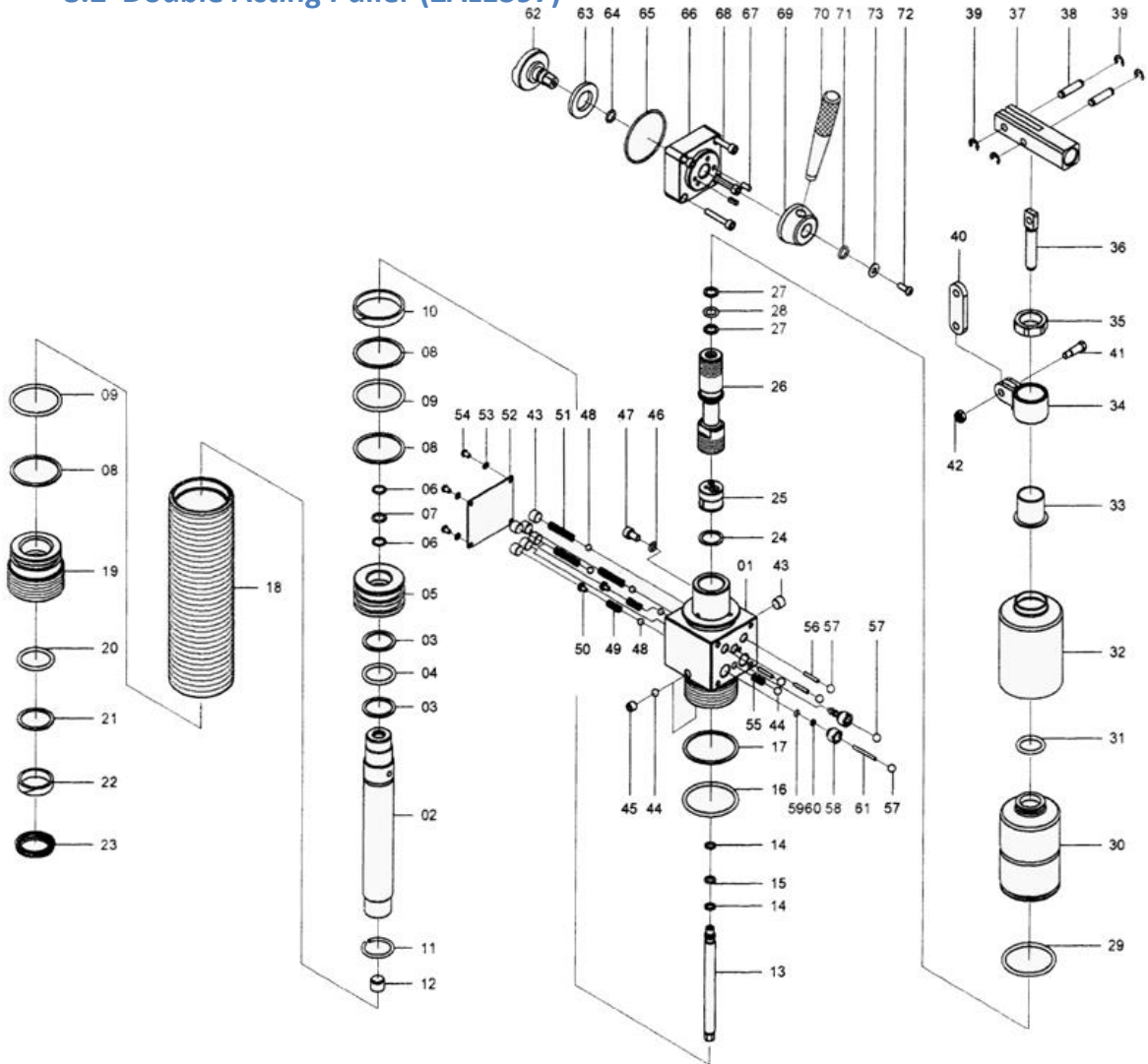
8.0 Parts Breakdown and List

8.1 Main Assembly



Item	Description	Part No.	Qty	Item	Description	Part No.	Qty
1	Double acting puller	ZAL1397	1	7	Extension bar	ZAL1167	1
2	Adjusting ring	ZAL1169	2	8	Removable cone assembly	ZAL1014	1
3	Crosshead	ZAL1202	1	9	Connector	ZAL1030	1
4	Jaw	ZAL1163	3	10	Inner puller	ZAL1338	1
5	Jaw head	ZAL1203	3	11	Metal box	ZAL1031	1
6	Nut	ZAL1318	3				

8.2 Double Acting Puller (ZAL1397)



Item	Description	Part No.	Qty	Item	Description	Part No.	Qty	Item	Description	Part No.	Qty
1	Cylinder base	ZAL1510	1	26	Pump piston housing	ZAL1127	1	51	Spring	ZAL1363	3
2	Piston rod	ZAL1511	1	27	Back-up ring*	ZAL1247	2	52	Cover	ZAL1532	1
3	Back-up ring*	ZAL1512	2	28	O-ring*	ZAL1282	1	53	Spring washer	ZAL1533	4
4	O-ring*	ZAL1513	1	29	O-ring*	ZAL1529	1	54	Screw	ZAL1534	4
5	Brass bushing	ZAL1514	1	30	Reservoir bladder*	ZAL1530	1	55	Spring	ZAL1359	1
6	Back-up ring*	ZAL1515	2	31	O-ring*	ZAL1241	1	56	Pin	ZAL1535	3
7	O-ring*	ZAL1516	1	32	Bladder housing	ZAL1531	1	57	Steel ball	ZAL1377	5
8	Back-up ring*	ZAL1517	3	33	Piston housing cap	ZAL1134	1	58	Ball seat	ZAL1133	2
9	O-ring*	ZAL1456	2	34	Swivel clevis	ZAL1012	1	59	O-ring*	ZAL1276	2
10	Split ring	ZAL1518	1	35	Retaining nut	ZAL1116	1	60	O-ring end cap	ZAL1131	2
11	Spring ring	ZAL1519	1	36	Pump piston rod	ZAL1115	1	61	Pin	ZAL1536	2
12	Screw	ZAL1297	1	37	Handle clevis	ZAL1047	1	62	Control switch	ZAL1161	1
13	Main piston	ZAL1520	1	38	Clevis pin	ZAL1333	2	63	Pin	ZAL1374	1
14	Back-up ring*	ZAL1521	1	39	Retaining ring	ZAL1332	4	64	O-ring*	ZAL1251	1
15	O-ring*	ZAL1522	1	40	Link connector	ZAL1046	1	65	O-ring*	ZAL1249	1
16	O-ring*	ZAL1523	1	41	Clevis screw	ZAL1111	1	66	Top plate	ZAL1058	1
17	Back-up ring*	ZAL1524	1	42	Anti-loosen nut	ZAL1301	1	67	Pin	ZAL1335	2
18	Cylinder base	ZAL1525	1	43	Screw	ZAL1303	7	68	Screw	ZAL1317	4
19	Fasten nut	ZAL1526	1	44	Steel ball	ZAL1366	3	69	Switch base	ZAL1162	1
20	O-ring*	ZAL1277	1	45	Screw	ZAL1284	2	70	Valve handle	ZAL1160	1
21	Back-up ring*	ZAL1527	1	46	O-ring*	ZAL1234	1	71	O-ring*	ZAL1215	1
22	Split ring	ZAL1528	1	47	Oil fill screw	ZAL1288	1	72	Screw	ZAL1311	1
23	Wiper*	ZAL1214	1	48	Steel ball	ZAL1367	5	73	Washer	ZAL1364	1
24	Copper washer	ZAL1341	1	49	Spring	ZAL1362	2		Seal kit	ZAL1537	1
25	Safety valve	ZAL1029	1	50	Spring end cap	ZAL1096	2				

Items marked with a * are contained within a standard seal kit.
 Serial, model and part numbers need to be quoted when ordering parts.