

DURAPAC
ENGINEERED FOR RELIABILITY

Instruction Manual

Hydraulic Rail Jack
Model – DRJ-10





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 Rail Jacks are engineered to meet Industrial Standards for Performance and Safety. The DRJ-10 rail jack is ideally suited to aligning, gauging and lifting of rail or sleepers. Utilising a forged aluminium upright base, this 10 ton¹ capacity jack has been designed to be robust, light weight and reduce the risk of operator injury. It has a spring return mechanism that will allow a jack with no load to be returned to the retracted position. The jack is fitted with an internal safety pressure relief valve to protect against overloading. The bladder system inside the aluminium protected reservoir allows the jack to be used in both the horizontal and vertical position making it exceptionally versatile.

- 80cm removable extension handle
- 36kg maximum handle effort with extension handle
- Release valve allows for controlled lowering and is recessed for protection against accidental knocks
- Internal oil reservoir bladder allows operation in horizontal or vertical position
- Oil reservoir cover manufactured from aluminium (6061)
- One piece of forged aluminium (7075T) base provides great support in soft ballast
- Minimum base height of 50mm allows easy positioning under the base of the rail
- 10 ton¹ of lifting force
- Indexed toe minimises swivel and allows for a safe, stable platform
- Internal spring return allows an unloaded jack to return to the retracted position
- Chrome plated steel piston rod resists corrosion and extends life
- Fixed in-line padded carrying handle

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 rail jack'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 rail jack 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 rail jack 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.

¹ Nominal Jack Capacity in ton – see kN values shown in specification table (page 5) for actual capacity

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
- Stay clear of loads supported by hydraulics. A cylinder, when used as a load lifting device, should never be used as a load holding device. After the load has been raised or lowered, it must always be supported mechanically

**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
- All personnel must be clear before lowering load or depressurising the system
- **Do NOT** attempt to lift a load weighing more than the capacity of the cylinder

**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 Rail Jacks

- **Do NOT** exceed the rated capacity of the jack or any equipment in the system
- **Do NOT** tamper with the adjustment of the jacks internal relief valve screw. To do so may cause the jack to fail
- **Do NOT** use in an unstable or hazardous position
- Always use the jack on solid and level surface that is capable of carrying the load. If used to lift a vehicle, set the vehicle's parking brake and block the tyres
- Keep the load stable during lifting. An unstable load may cause the jack or load to slip
- Centre the load on the jack. Off centre loads can damage seals and cause hydraulic failure
- Keep non-essential personnel at a safe distance when using the jack
- **Do NOT** carry the jack by the jacking lever
- **Do NOT** lift people or loads with people on them
- **Do NOT** lift a load on the end of the toe. Fully engage the load with the toe and where practical ensure that the top of the vertical face "head-toe" attachment is also engaged with the load
- Ensure that the jack is undamaged and in good working order. Do not use the jack if it is damaged
- **Do NOT** use the jack for any purpose other than that for which it is intended
- Keep the jack clean, particularly the head-toe attachment
- **Do NOT** operate the system with bent or damaged couplers or damaged threads
- **Do NOT** subject the jack and its components to shock loads
- 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


- 4.1 Familiarise yourself with the specifications and illustrations in this owner’s manual. Know your rail jack, 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.	Jack Capacity (ton*/kN)		Collapsed Height (mm)	Stroke (mm)	Extended Height (mm)	Travel/Pump Stroke (mm)	Max. Handle Effort (kg)	Weight without Handle (kg)
DRJ-10	10	83.3	373	225	598	4.5	36	20.2

* Nominal Jack Capacity in ton - see kN values for actual capacity

- 4.2 Check oil level in reservoir before operating the jack
- 4.3 Remove air from the system – Air can accumulate in the hydraulic system during the initial setup or after prolonged use, causing the cylinder to respond slowly or in an unstable manner. Should removal of air from the jack be required, please follow the steps in 6.2 – Bleeding Air from the System in the Maintenance Section.


5.0 Operation

 **IMPORTANT: Do NOT** lift a load on the end of the toe. Fully engage the load with the toe

5.1 Raising the Jack

- 5.1.1 Close the release valve in a clockwise direction with the jacking handle.
- 5.1.2 Position the jack so that the toe is under the load point.
- 5.1.3 Pump the jacking lever in an up and down motion.

5.2 Lowering the Jack

- 5.2.1 Check beneath the load for any obstructions and remove any mechanical supports.
- 5.2.2 Slowly open the release valve in a counter clockwise direction. Control the rate of descent by smoothly opening or closing the valve.
- 5.2.3 To stop the jack from lowering the load, close the release valve (clockwise).
 -  The release valve should not be closed abruptly (except in an emergency) since this shock loads the hydraulic system
- 5.2.4 After use, the jack should be stored with the load piston and pump piston both fully retracted.

6.0 Maintenance



IMPORTANT:

- Check oil level regularly
- 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 jack, 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

The greatest single cause of failure in hydraulic systems is dirt; keep the jack clean and well lubricated to prevent foreign matter from entering the system. If the jack has been exposed to rain, snow, sand or grit, it must be cleaned before and after each use.


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 Adding Hydraulic Fluid


 **WARNING:** Always add oil with cylinder fully retracted or the system will contain more oil than the reservoir can hold

- 6.1.1 Open release valve.
- 6.1.2 Press down on head to ensure piston is fully down.
- 6.1.3 Remove the oil filler plug.
- 6.1.4 Use a small funnel to fill the reservoir to a level 3 mm below the bottom of the filler hole.
- 6.1.5 Bleed air from system if necessary.
- 6.1.6 Close the release valve.
- 6.1.7 Wipe up any spilled fluid and reinstall the oil filler plug.

6.2 Bleeding Air from the System

- 6.2.1 Repeat Steps 6.1.1 to 6.1.3 (above).
- 6.2.2 Remove the saddle (#12 – Parts Breakdown).
- 6.2.3 Loosen but do not remove the bolt (#10) located at the top of the piston rod (#2)
- 6.2.4 Use a press to prevent the cylinder extending while removing air.
- 6.2.5  **DANGER:** The press must be able to withstand the full ten ton force of the jack
- 6.2.5 Add hydraulic fluid (Step 6.1.4), if required.
- 6.2.6 Pump the handle until oil and air bubbles escape from the threaded area of the bolt. Wipe and continue pumping until air is removed (air bubbles are no longer seen).
- 6.2.7 Tighten the bolt (#10) and replace the saddle (#12).
- 6.2.8 Recheck that cylinder is fully retracted.
- 6.2.9 Add hydraulic fluid (Step 6.1.4), if required.
- 6.2.10 Close the relief valve.
- 6.2.11 Wipe up any spilled fluid and reinstall the oil filler plug.

6.3 Changing Hydraulic Fluid

 For best results, change fluid once a year or every 300 hours of use

- 6.3.1 Repeat Steps 6.1.1 to 6.1.3 (above).
- 6.3.2 Pour used fluid into a sealable container.
- 6.3.3 Repeat Steps 6.1.4 to 6.1.7 (above).
- 6.3.4 Dispose of fluid in accordance with local regulations.

6.4 Lubrication

Oil the pivots of the manual pump mechanism.

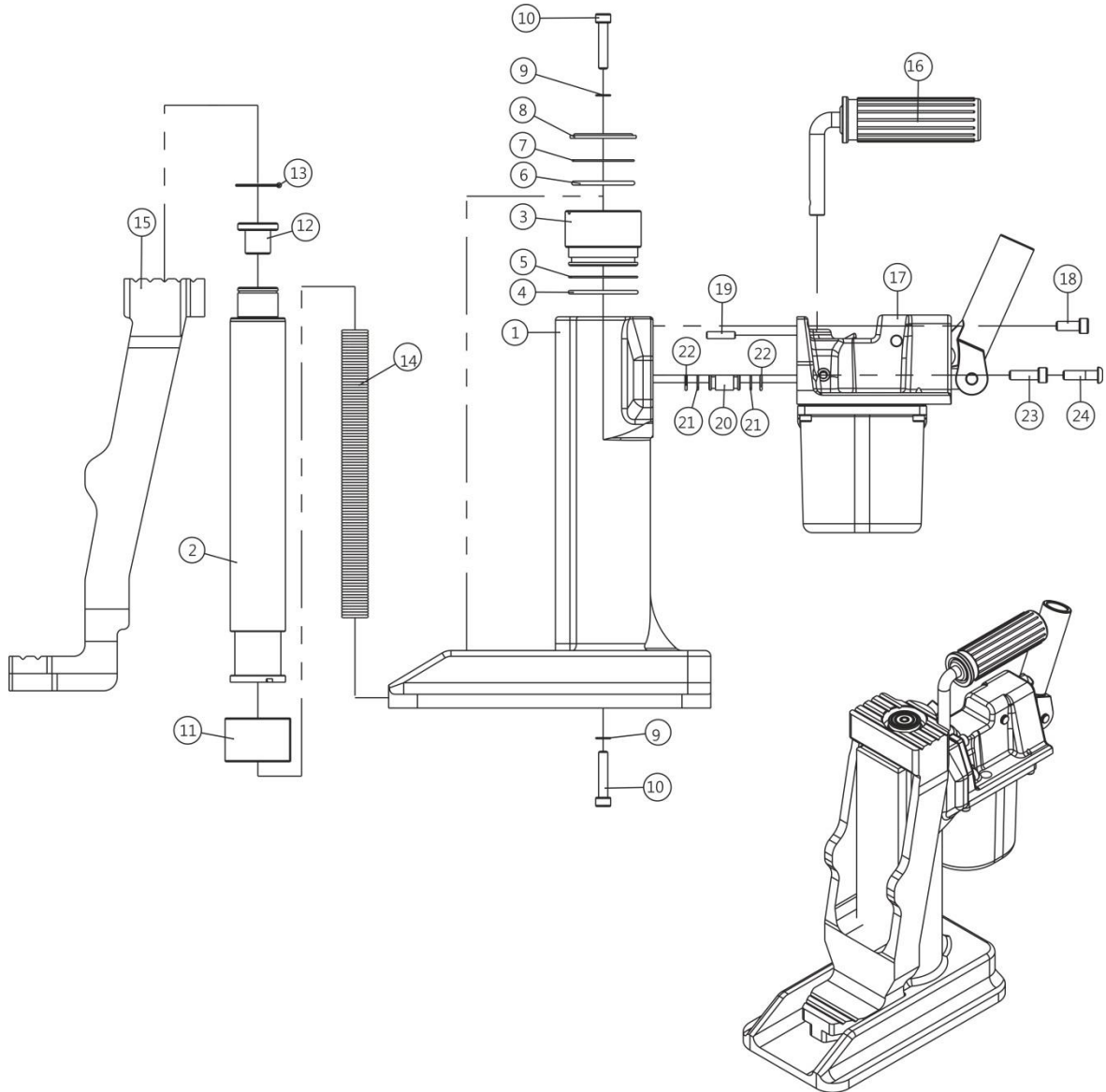
6.5 Storage

- 6.5.1 When not in use, the jack should be stored with the piston and the pump rods both fully retracted.
- 6.5.2 Wipe thoroughly clean and store in a clean, dry environment. Avoid temperature extremes.

7.0 Troubleshooting

Problem	Cause	Solution
Jack will not lift load	Release valve not fully closed	<ul style="list-style-type: none"> • Close valve firmly
	No oil or low oil level	<ul style="list-style-type: none"> • Top-up to correct level
	Air-locked system	<ul style="list-style-type: none"> • Refer to 6.2 - Bleeding Air from the System
	Load is above capacity of system	<ul style="list-style-type: none"> • Use correct equipment
Erratic Action	Air in system	<ul style="list-style-type: none"> • Refer to 6.2 - Bleeding Air from the System
	Viscosity of oil too high	<ul style="list-style-type: none"> • Change to lower viscosity oil
	Internal leakage in cylinder	<ul style="list-style-type: none"> • Replace worn seals • Check for excessive contamination or wear
	Cylinder sticking or binding	<ul style="list-style-type: none"> • Check for dirt, gummy deposits or leaks • Check for misalignment, worn parts or defective seals
Jack will not lift smoothly or to full height	Oil level low	<ul style="list-style-type: none"> • Top-up to correct level
	Air in system	<ul style="list-style-type: none"> • Refer to 6.2 - Bleeding Air from the System
	Cylinder sticking or binding	<ul style="list-style-type: none"> • Check for dirt, gummy deposits or leaks • Check for misalignment, worn parts or defective seals
Jack advances slowly	Pump not working correctly	<ul style="list-style-type: none"> • Rework pump
	Leaking seals	<ul style="list-style-type: none"> • Replace seals
Jack advances but does not hold load	Pump check valve not working correctly	<ul style="list-style-type: none"> • Clean/replace check valve
	Cylinder seals are leaking	<ul style="list-style-type: none"> • Replace seals
	Overload valve leaking or not adjusted correctly	<ul style="list-style-type: none"> • Replace / adjust overload valve
Jack leaks oil	Worn or damaged seals	<ul style="list-style-type: none"> • Replace seals
Jack will not retract or retracts slowly	Release valve is closed	<ul style="list-style-type: none"> • Open release valve
	Cylinder damaged internally	<ul style="list-style-type: none"> • Send to a Durapac authorised service centre for repair
	Reservoir too full	<ul style="list-style-type: none"> • Drain oil to correct level

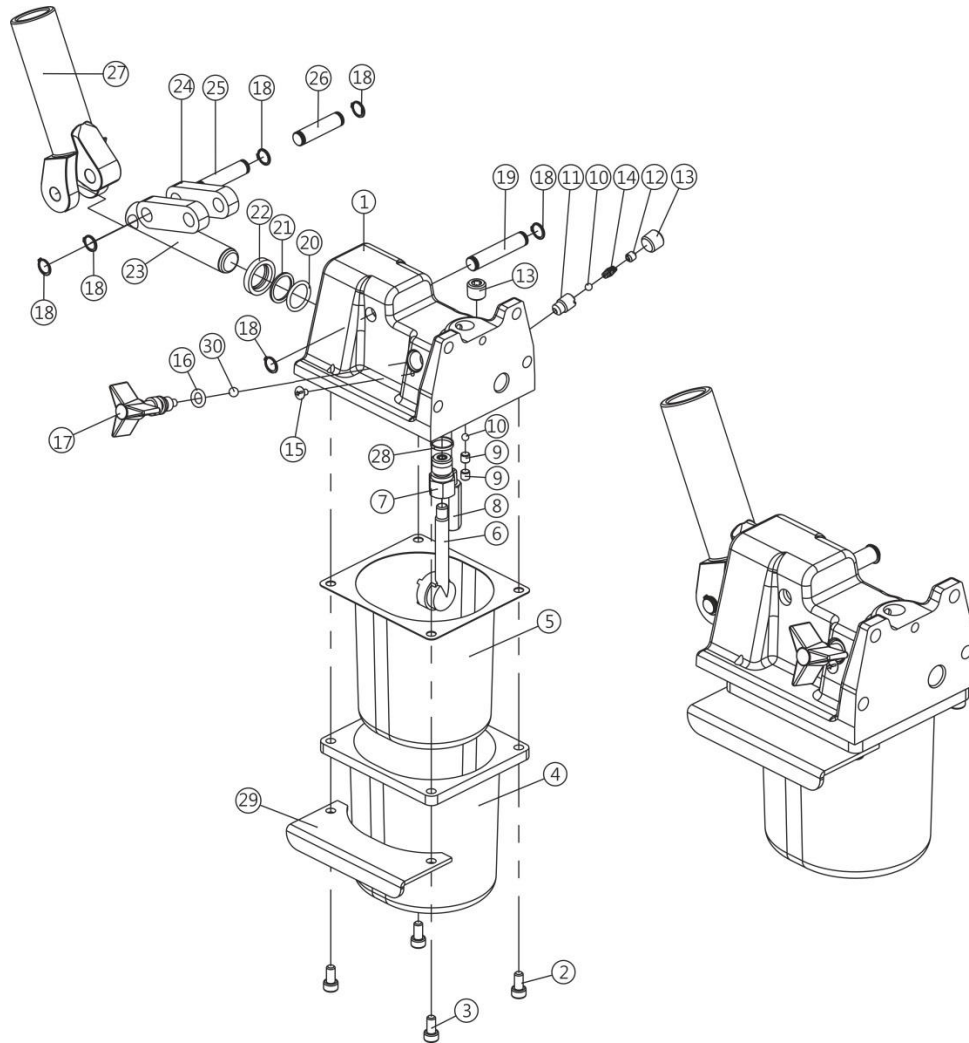
8.0 Parts Breakdown and List



Item	Description	Part No.	Qty
1	Body combination	ZAM1817	1
2	Piston rod	ZAM1818	1
3	Stop-ring	ZAM1819	1
4	O-ring*	ZAM1820	1
5	Back-up ring*	ZAM1821	1
6	O-ring*	ZAM1822	1
7	Back-up ring*	ZAM1546	1
8	Dust ring*	ZAM1823	1
9	Washer*	ZAM1803	2
10	Bolt*	ZAM1824	2
11	Copper liner	ZAM1825	1
12	Load cap	ZAM1117	1

Item	Description	Part No.	Qty
13	C type ring	ZAM1826	1
14	Spring assembly	ZAM1827	1
15	Toe	ZAM1828	1
16	Removable handle	ZAM1829	1
17	Pump assembly	ZAM1830	1
18	Bolt	ZAM1831	2
19	Bolt	ZAM1832	1
20	Plug	ZAM1833	1
21	Back-up ring*	ZAM1834	2
22	O-ring*	ZAM1835	2
23	Bolt	ZAM1836	1
24	Bolt	ZAM1837	1
	Repair kit	ZAM1867	1

8.1 Pump Assembly



Item	Description	Part No.	Qty	Item	Description	Part No.	Qty
1	Pump housing	ZAM1838	1	16	O-ring	ZAM1853	1
2	Bolt	ZAM1839	2	17	Release valve	ZAM1854	1
3	Bolt	ZAM1840	2	18	C ring	ZAM1855	6
4	Reservoir	ZAM1841	1	19	Plug-3	ZAM1856	1
5	Reservoir bladder	ZAM1842	1	20	O-ring*	ZAM1857	1
6	Filter	ZAM1843	1	21	Back-up ring*	ZAM1858	1
7	Check valve	ZAM1844	1	22	Dust ring*	ZAM1859	1
8	Safety valve	ZAM1845	1	23	Pump rod	ZAM1860	1
9	Bolt	ZAM1846	2	24	Handle splint	ZAM1861	2
10	Steel ball	ZAM1847	2	25	Plug-2	ZAM1862	1
11	Outlet valve	ZAM1848	1	26	Plug-1	ZAM1863	1
12	Bolt	ZAM1849	1	27	Handle socket	ZAM1864	1
13	Plug	ZAM1850	2	28	Washer	ZAM1865	1
14	Spring	ZAM1851	1	29	Fixing frame	ZAM1866	1
15	Bolt	ZAM1852	1	30	Steel ball	ZAM1273	1
					Repair kit	ZAM1868	1

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