



Instruction Manual

Hydraulic Rail Jack
Model – DRJ-15





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-15 rail jack is ideally suited to aligning, gauging and lifting rail or sleepers. Utilising a forged aluminium base plus housing, this 15 ton¹ capacity jack is robust, lightweight and designed to 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 and features a quick release button for fast retraction speed. 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.

- Quick release for fast retraction
- 93cm removable extension handle
- Internal key minimises swivel and allows for a safe, stable platform
- 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
- One piece of forged aluminium (7075T) base provides great support in soft ballast
- Minimum base height of 47 mm allows easy positioning under the base of the rail
- 15 ton¹ of lifting force
- 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 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 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 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 understand 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 jack's 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 can carry 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)	Base Dimensions W x L x H (mm)	Toe Dimensions W x L x H (mm)	Weight without Handle (kg)
DRJ-15	15	150	395	220	615	4.1	44	163 x 250 x 47	100 x 64 x 45	20.1

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

- 4.2 Fully extend and retract the jack without a load. This will ensure that the jack is primed, and oil levels are correct.
- 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 throttle valve (#11 Fig. 3) and the emergency valve (#23 Fig. 3).

Note: Over-tightening of the throttle valve can damage the valve seat, reducing the life of the jack. **Do NOT** use pliers nor pipe wrenches. **Do NOT** tighten excessively. Hand tightening is sufficient.

- 5.1.2 At this point, the lever socket will become difficult or impossible to pump by hand. Insert the lever bar and continue pumping until the desired amount of lift has been reached.

- 5.1.3 Remove the lever bar from the socket.

Note: The jack will advance using only the lever socket under a no load or very light load condition. The lever bar provides additional leverage for lifting heavier loads.

5.2 Lowering the Jack

-  Ensure all personnel are clear

- 5.2.1 Open the throttle valve (#11 Fig. 3) by turning it in a counterclockwise direction. **Do NOT** open the valve knob more than two full turns. The lowering speed can be controlled by slightly opening the valve knob.

Notes:-

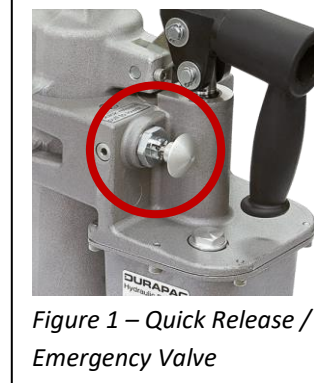
- Full retraction speed is reached when the throttle valve knob is opened two full turns. **Do NOT** open the valve knob more than two full turns

- The jack can also be lowered in small increments by simply reclosing the knob at any time during the jack's descent
- Full retraction speed is about 30 seconds when the jack reaches the maximum stroke. The throttle valve should be used for fine adjustment. That is the purpose of the throttle valve

5.2.2 Open the Quick Release/emergency valve (Fig. 1 or #23 Fig. 3) by pulling and turning, counterclockwise up to 90°. This will start the jack retraction. Release when retraction is complete.

Notes:-

- Full retraction speed is reached when the emergency valve knob is pulled. The jack retraction can also be stopped by simply releasing it / no further turning
- Full retraction speed is about 4 seconds when the jack reaches the maximum stroke. **Use the emergency valve for emergency situations like when a train is approaching the work site.** That is the purpose of the emergency valve



5.3 Horizontal Application

The jack is fully functional when used in a horizontal position if the throttle valve is facing upward. The oil reservoir is not vented and should not leak regardless of the jack's position.

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 Fully retract jack.
- 6.1.2 Place jack in its normal/upright position.
- 6.1.3 Remove the oil filler plug (#23 Fig. 2).
- 6.1.4 Fill the reservoir until the oil level is even with the filler hole. Note - The oil level needs to be accurate. **Ensure the oil level is even with fill hole.**
- 6.1.5 Bleed air from system if necessary.
- 6.1.6 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 Check oil level.
- 6.2.3 Raise and lower the jack to release the air. Wipe and continue pumping until air is removed (air bubbles are no longer seen).
- 6.2.4 Recheck that cylinder is fully retracted.
- 6.2.5 Add hydraulic fluid (Step 6.1.4), if required.
- 6.2.6 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 Lay the jack on its back and pour used fluid into a sealable container.
- 6.3.3 When the reservoir is empty, flush the reservoir out with a clean flushing solvent before refilling.
- 6.3.4 Repeat Steps 6.1.4 to 6.1.6 (above).
- 6.3.5 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.
- 6.5.3 Ensure the reservoir fill plug (#23 Fig. 2) is kept closed and tight.

7.0 Troubleshooting

Problem	Cause	Solution
Jack will not lift load	Throttle valve (#11 Fig. 3) is not fully closed	<ul style="list-style-type: none"> • Turn throttle valve knob clockwise until hand tight
	Emergency valve (#23 Fig. 3) is not fully closed	<ul style="list-style-type: none"> • Pull and turn it to the closed position
	Relief valve poppet (#18 Fig. 3) is not seating properly	<ul style="list-style-type: none"> • Remove relief valve plug (#13 Fig. 3) and check poppet • Flush and clean the relief valve plug seat and replace the poppet
	Check ball in pump piston	<ul style="list-style-type: none"> • Remove pump piston assembly • Flush and clean ball seat
	Seal failure	<ul style="list-style-type: none"> • Replace seals • Send to a Durapac authorised service centre for repair
Jack advances but does not hold load	Relief valve poppet (#18 Fig. 3) is not seating properly	<ul style="list-style-type: none"> • Remove relief valve plug (#13 Fig. 3) and check poppet • Flush and clean the relief valve plug seat and replace the poppet
	Seal failure	<ul style="list-style-type: none"> • Send to a Durapac authorised service centre for repair
Jack will not lift to full height	Oil level low	<ul style="list-style-type: none"> • Refer to 6.1 - Adding Hydraulic Fluid
Jack leaks oil	Worn or damaged seals	<ul style="list-style-type: none"> • Replace seals • Send to a Durapac authorised service centre for repair
Jack will not retract or retracts slowly	Air in system	<ul style="list-style-type: none"> • Refer to 6.2 - Bleeding Air from the System

8.0 Parts Breakdowns and Lists

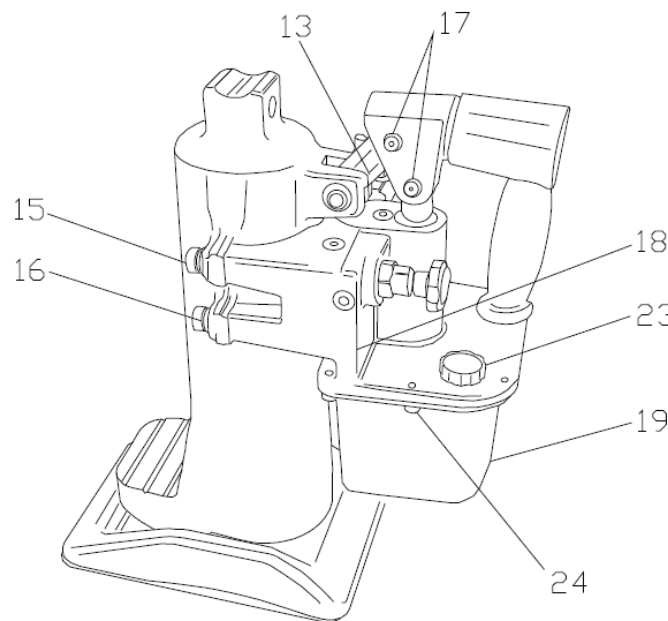
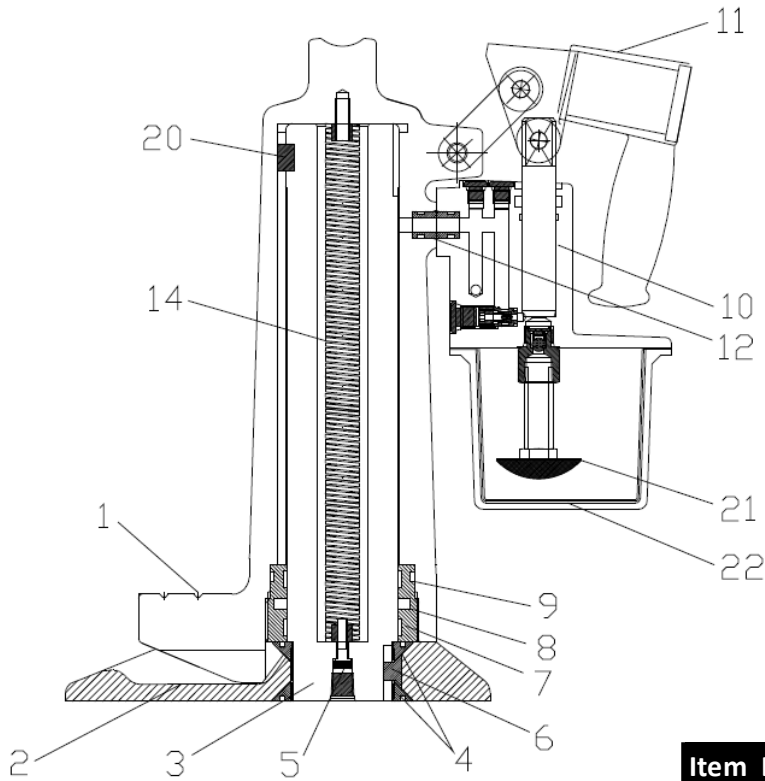


Figure 2

Item	Description	Part No.	Qty
1	Cylinder	ZAA1000	1
2	Base	ZAA1001	1
3	Piston rod	ZAA1002	1
4	Base nut	ZAA1003	2
5	Screw M6x100	ZAA1004	1
6	Base key	ZAA1005	1
7	Piston nut	ZAA1006	1
8	Step seal	ZAA1007	1
9	O-ring	ZAA1008	1
10	Pump piston	ZAA1009	1
11	Pump handle	ZAA1010	1
12	Connector	ZAA1011	1
13	Handle connector	ZAA1012	1
14	Spring	ZAA1013	1
15	Screw 10x35 (SUS)	ZAA1014	4
16	Washer (SUS)	ZAA1015	4
17	Handle pin	ZAA1016	3
18	Pump body	ZAA1017	1
19	Oil tank	ZAA1018	1
20	Cylinder key	ZAA1019	1
21	Filter	ZAA1020	1
22	Oil tank tube	ZAA1021	1
23	Oil cap M22	ZAA1022	1
24	Screw M6x10 (SUS)	ZAA1023	6

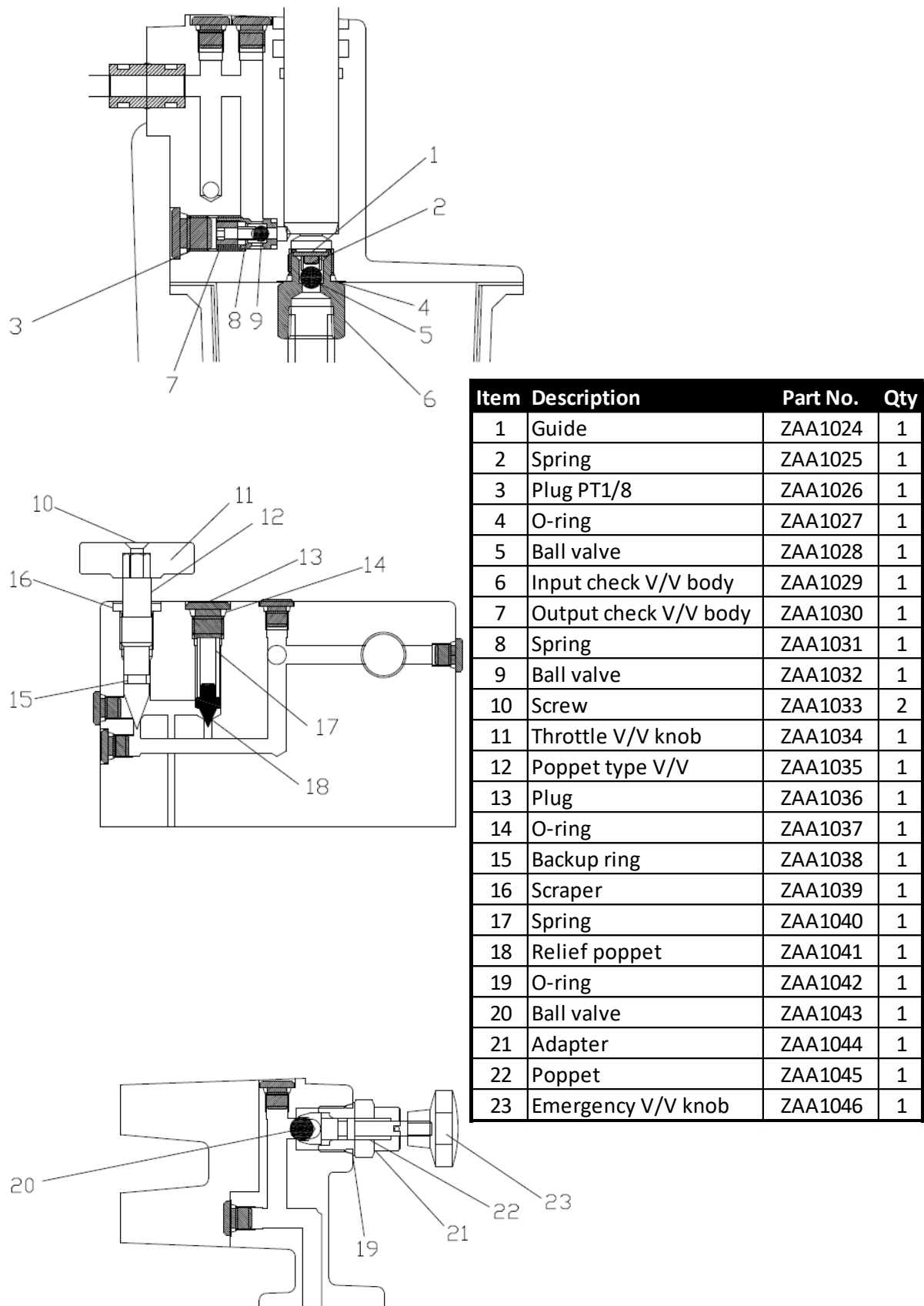


Figure 3