



BHW

Bushey Hall Winchmaster

www.bhwgroup.com



FITTING & OPERATING INSTRUCTIONS



HYDRAULIC STABILISER LEGS

Mark II

Part #9620

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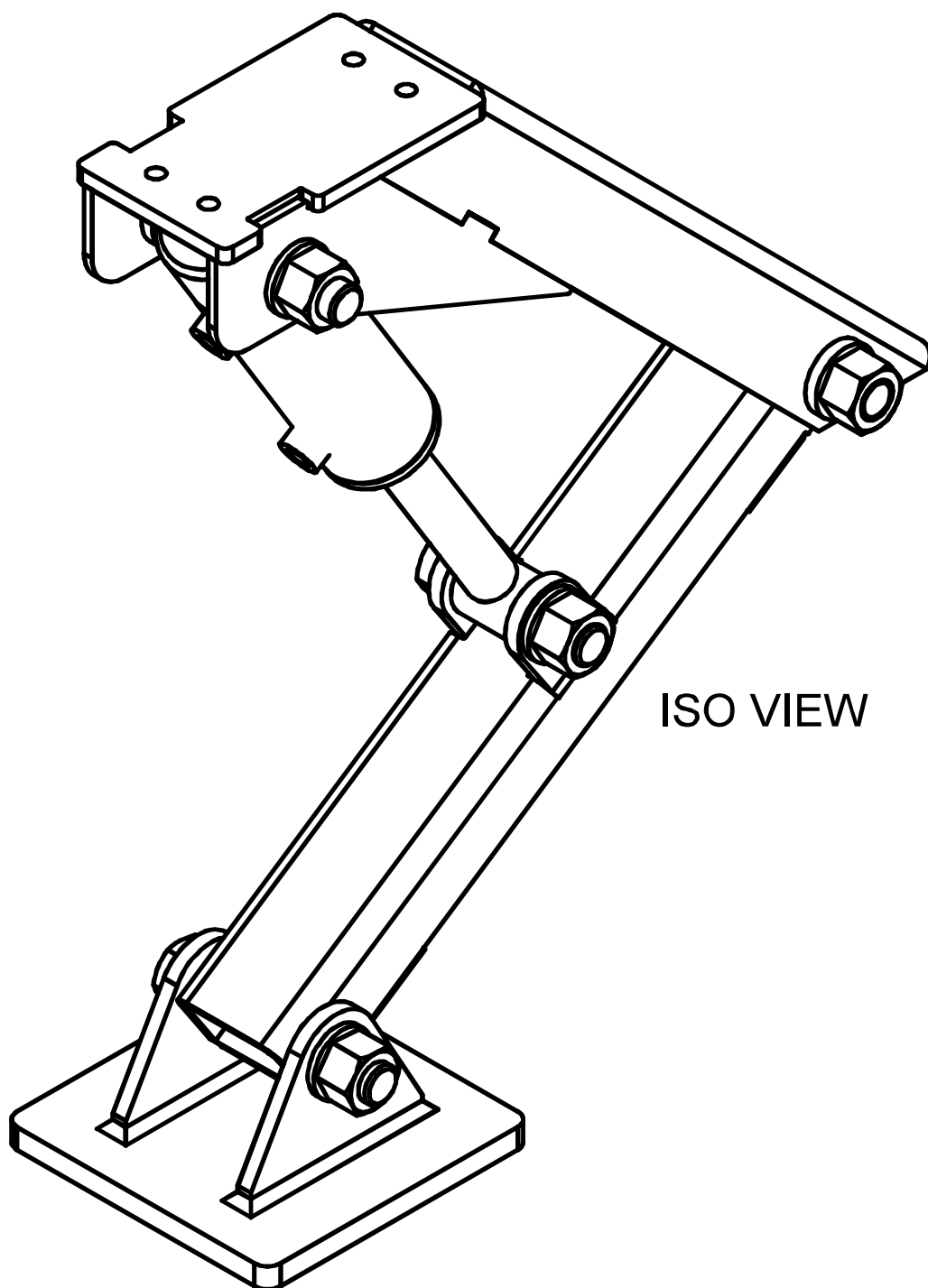



Part No. 16636 / 01.05.2025

The Hydraulic Stabiliser Leg system has been designed, manufactured and supplied by BHW Group Ltd.

For further information, our fully trained sales engineers are always available for help and advice.

Please call +44 (0)20 8953 6050 or email sales@bhwgroup.com



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The Hydraulic Stabiliser Leg system has been designed for use on beaver tail-bodied vehicles to provide stability during both the loading and unloading of plant and equipment.

The stabiliser leg system may be supplied by BHW Group Ltd, ready for mounting by the customer, or may be mounted by BHW Group Ltd, or their approved agent.

Preface

This manual has been written to describe and inform on the technical details of the stabiliser leg system. Failure to pay regard to instructions, suggestions and warnings contained within it may invalidate BHW Group Ltd warranty.

This manual complies with the European Machinery's Directive.

Safeguarding and Complementary Measures

This manual is not intended to be a comprehensive guide to loading and unloading of plant and equipment.

BHW Group Ltd cannot be held responsible for accidents as a result of careless working and disregard of The Health and Safety at Work Act.

The contents of this guidance for use of the stabiliser leg system refers only to the intended use as described by BHW Group Ltd cannot be accountable for any misuse or use by untrained operators.

The European Machinery's Directive 2006/42/EC covers the design and use of all forms of machinery. It requires all machinery to be safe in use in all normal circumstances.

- There is an obligation and expectation on the end user of the Hydraulic Stabiliser Leg system to keep it in good working order.
- There is a legal requirement for end users to maintain this equipment; to only use approved spare parts (obtained from BHW Group Ltd), not to modify the equipment in any way or to effect any repair without consulting BHW Group Ltd.



When using this equipment, due regard must be paid to legislation affecting loading and unloading operations (please refer to page 16 for further information).



When using the Hydraulic Stabiliser Leg System, all operatives must be appropriately trained and wear suitable personal protection equipment.



Before operating the Hydraulic Stabiliser Leg System, always ensure that it is safe to do so. Check that there is no one else in a vulnerable position – there may be onlookers.



When in use on soft ground a spreader pad must be used under the foot of each leg.

Operators must not:

- Drive the vehicle with the stabiliser legs extended.
- Allow the Hydraulic Stabiliser Leg system to be fitted by untrained personnel.

General Information

The Hydraulic Stabiliser Leg system has been designed for use on beavertail vehicles (and other similar vehicle types), to provide stability during both the loading and unloading of plant and equipment.

The leg length must be set in order for the leg to come into contact with the ground when the chassis lowers thus providing support. This will occur as the suspension deflects during the vehicle loading and unloading process.

It is important to note that the foot must be clear of the ground when the vehicle has completed loading to enable the leg to be powered to its stowed position.

An independent electric DC Power Pack may be provided by BHW Group Ltd as part of the kit of supplies and provides the hydraulic power. If alternative hydraulic equipment is installed on the vehicle (for example, a crane or winch powered from a PTO / Pump), this power source can be used. To reduce the oil flow, a priority flow control valve is provided with this option.

Further information follows within the body of this manual on individual components.

Installation

Please contact BHW Group Ltd directly if you have any queries on mounting the legs
sales@bhwgroup.com

The Hydraulic Stabiliser Leg system is supplied assembled.

It is recommended that the Hydraulic Stabiliser Leg system is located towards the rear corners of the body and inboard in order to ensure that it is clearly visible to the operator, thus reducing any potential hazards.

A substantial t-shaped structure designed to withstand the load transmitted by the leg, must be welded or bolted into position. This could be via a 150mm (6") channel with the web parallel to the ground and the leg mounting plate is then secured to this as described below.

Technical Information

- The legs have been designed to provide support at the rear of vehicle bodies; having a low retracted height of 408mm and can extend up to 250mm
- The Hydraulic Stabiliser Leg system is supplied with 3/8" BSPP double acting pilot operated check valves (1 per leg)
- The hydraulic cylinder has two 3/8" BSPP female ports
- Each leg has a mounting plate 200mm long x 115 mm wide
- Four M10 fasteners are required to secure the leg. See drawing No. 1486-21 for the hole pattern and 'footprint' of the required fixing plate
- The legs have a capacity of 8 tonne (per pair), 4 tonne each leg
- The maximum pressure on the cylinder is 210 Bar
- The weight of each leg assembly is approximately 30kg
- The footplate has a vertical stroke of 250mm

Advice and Guidance

Through experience, it has been found that it is easier to mount the legs in parts – making access to the mounting holes in the mounting plate easier. Separate the mounting arm assembly from the bottom arm and the hydraulic cylinder by loosening and removing the M24 fasteners.

It is strongly recommended that the fasteners are retained using Loctite 243 (or equivalent) thread locking compound after final assembly of the vehicle.

Thoroughly grease the legs on re-assembly. BHW Group Ltd assemble the legs 'dry'

Ensure the pilot operated check valve is fitted this prevents the leg from dropping (assuming the lines and fittings are correctly in place and are leak free).

Operation



It is good practise to actuate the 'leg up' longer than is required to 'lock' an excess pressure (up to relief valve setting) into the cylinder in order to give the check valve a higher pressure to hold.

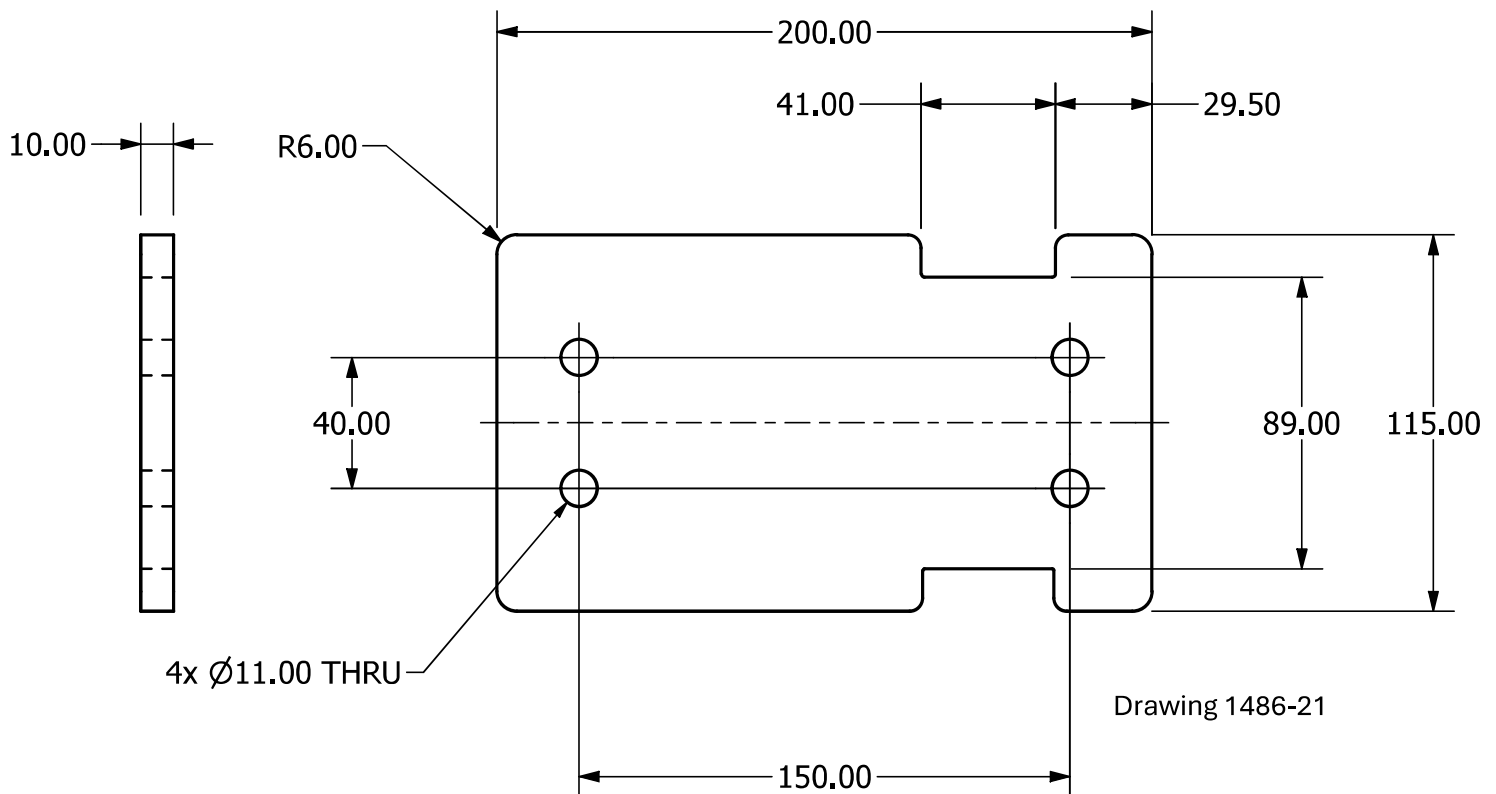


It is good practise not to attempt to lift the rear of the vehicle using the Hydraulic Stabiliser Legs- they are for support – NOT for lifting.

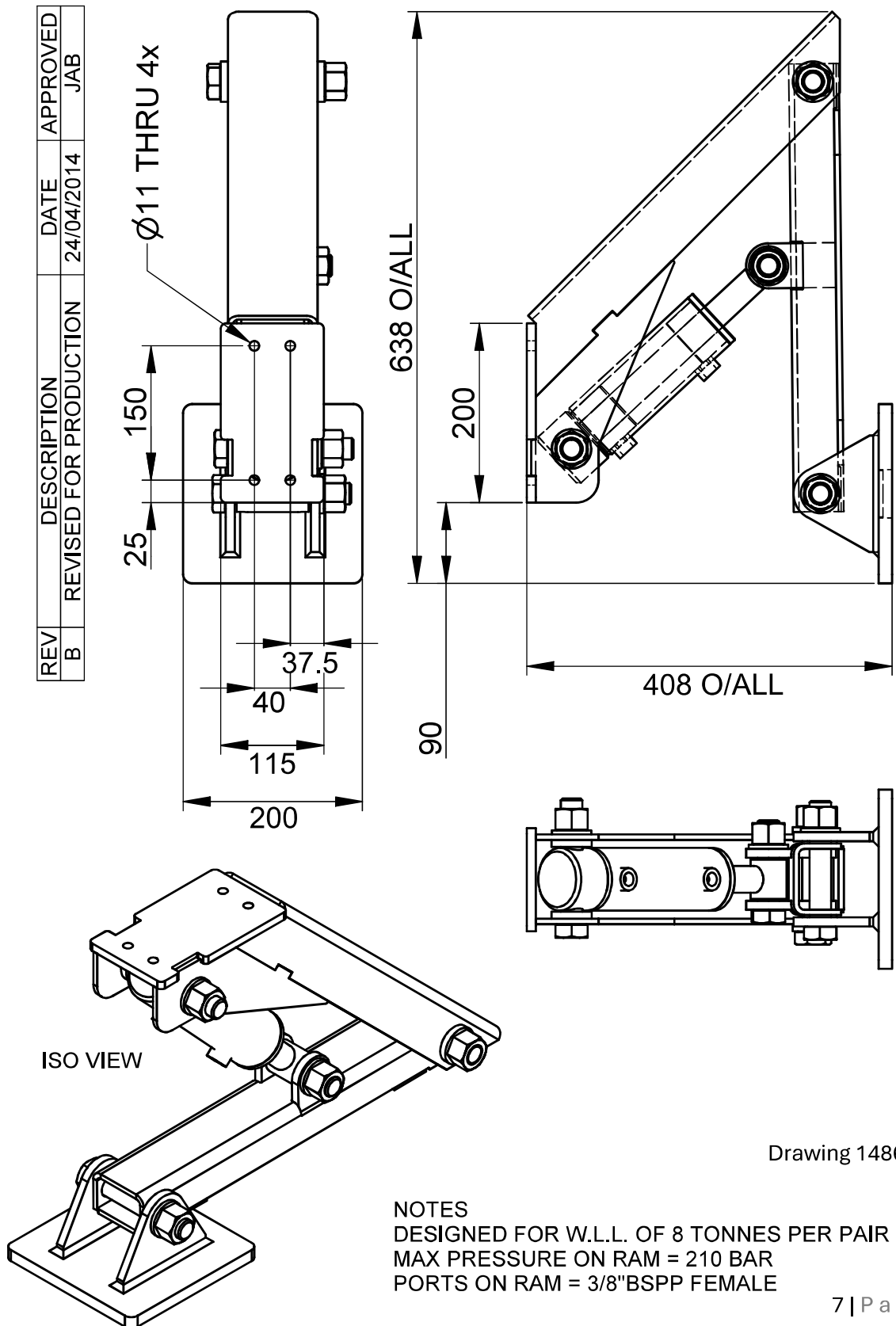


Leg assembly is supplied dry. Thoroughly grease the legs following installation.

Technical Drawings



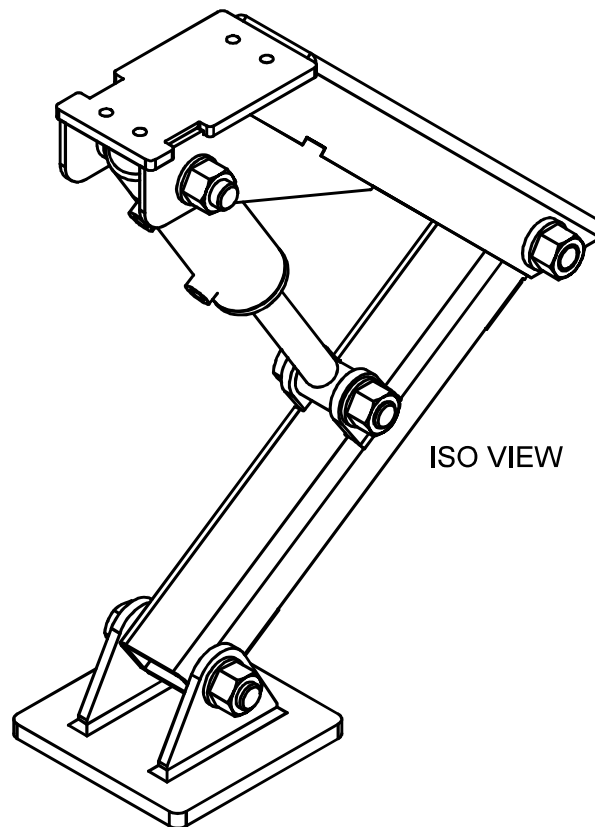
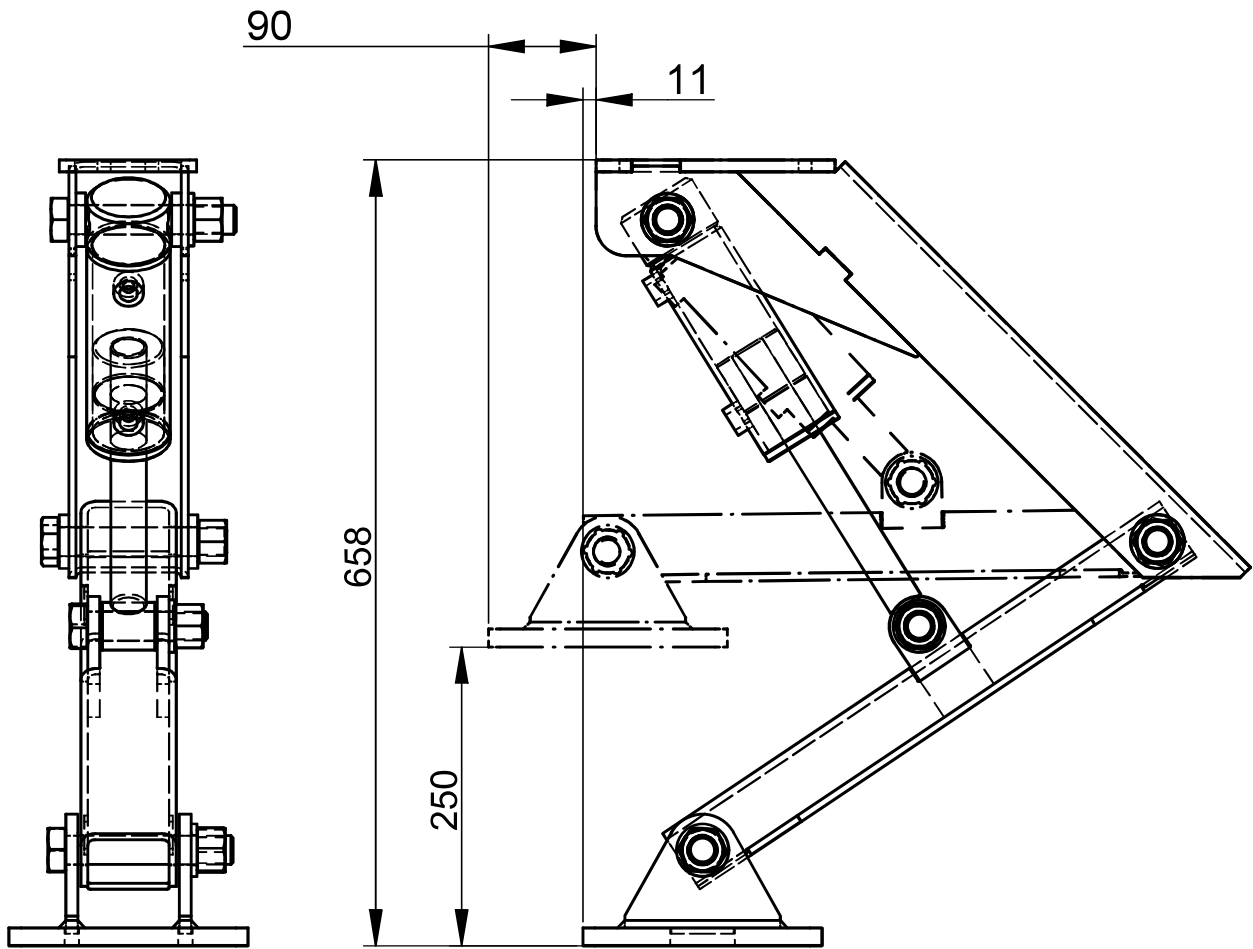
ITEM	PART No.	DESCRIPTION	QTY	REMARKS
1	1486-101	MOUNTING ARM ASSEMBLY	1	
2	1486-115		1	
3	1486-120	FOOTPLATE ASSEMBLY	1	
4	703_100_stroke	DA HYDRAULIC CYLINDER	1	
10	ISO 4014 - M24 x 140	Hexagon head bolt - product grades A and B	3	
11	ISO 4014 - M24 x 100	Hexagon head bolt - product grades A and B	1	
12	ANSI B18.22M - 24 N	Metric Plain Washers	3	
13	ANSI B18.2.4.2M - M24 x 2	Hex Nut	4	



LEG SHOWN STOWED (FOLDED UP)

Drawing 1486-100B

NOTES
DESIGNED FOR W.L.L. OF 8 TONNES PER PAIR
MAX PRESSURE ON RAM = 210 BAR
PORTS ON RAM = 3/8"BSPP FEMALE



Drawing 1486-100

LEG SHOWN FULLY DEPLOYED (FOLDED DOWN)

Photographs illustrate the typical sequence of operation.



Stabiliser leg in raised position (folded up)



Stabiliser leg fully deployed (folded down)

Alternatives Hydraulic Power

Electro-hydraulic power pack

The unit is self-contained and is powered from the vehicle's battery. It is available in 12V or 24V versions. The power pack start solenoid is electrically powered by depressing a control button enabling the hydraulic rams to be powered IN or OUT using a directional control valve (provided as part of the kit).

Hoses and fittings are **not** included as standard; the hose lengths will not be known until the power pack has been positioned. Hoses can be provided, as an option, by contacting BHW Group Ltd with the lengths required.

Existing PTO / pump on vehicle

If a hydraulic winch, lorry loader crane or other hydraulic equipment is fitted to the vehicle, it is possible to utilise this power source for powering the Hydraulic Stabiliser Leg rams. Additional control valve equipment can be supplied with the Hydraulic Stabiliser Leg system to allow connection into the existing hydraulic circuit.

PLEASE NOTE - If this stabiliser leg system is being included into an application that is also using the BHW Group Ltd **RAMP•ASSIST** Model 1 or 2, the manual spool valve provided will be a two-section valve: one valve to be used for **RAMP•ASSIST** and the second valve for the Hydraulic Stabiliser Leg System.

Fitting Instructions When Electric DC Power Pack option is used

The power pack is supplied complete with an enclosure mounted start button connected to the pack with a 3m control cable.

1. Determine a location under the body to mount the power pack ensuring it is protected from rear wheel spray and ensure access to the hydraulic oil filler point on the tank.
2. For general power pack layout see Figure 2.
3. For hydraulic circuit see Figure 3.
4. The manual spool valve should generally be fitted on the kerbside just forward of the stabiliser leg under the nearside body rave. This will generally be around 1.5m from the rear to enable the operator to see the stabiliser legs being raised and lowered.
5. **The power pack start button must be located adjacent to the control valve so they can be operated simultaneously**
6. Connect the hydraulic hoses from the power pack and wire up the electrics (figure 3). Ensure the hoses are supported and will not chafe in operation or whilst the vehicle is travelling.
7. Following the chassis manufacturers' recommendations, fit the power cable from the battery to the power pack. Within this cable the isolation/emergency stop switch (supplied) must be fitted and an in line mega fuse and holder should be included (figure 3).
8. Locate the isolator switch in a readily accessible position so that the "Emergency Stop" label is clearly visible. The earth cable from the power pack must be run back to the vehicle battery or negative earth points provided. Please note that the earth return must not be through the chassis.

IMPORTANT, cable must be of sufficient cross section to minimise voltage drop and BHW Group Ltd recommend 170A (25mm²) multi strand is used.

9. Locate the isolator switch in a readily accessible position so that the “Emergency Stop” label is clearly visible. The earth cable from power pack to chassis can now be fitted.

IMPORTANT, cable must be of sufficient size to minimise voltage drop and BHW Group Ltd recommend 170A (25mm²) cable.

Fitting Instructions When Used With PTO / Pump on Vehicle

In general, with this type of power source, a hydraulic winch will be fitted to the vehicle. The following is based on the use of an electric or electric/pneumatic winch control system from BHW Group Ltd being used with pressure carry over or full operating pressure from another source (See Figure 4).

For other configurations contact BHW Group Ltd.

For hose selection refer to table in Figure 5.

1. Determine a location under the body to mount the stabiliser legs control valve and the pilot operated check valve, as close as practical to the hydraulic ram and protected from rear wheel rain spray. In general, this will be just under the nearside body side rave approximately 1.5m from the rear.
2. Determine a location under the body to mount the fixed displacement priority flow control valve, as close as practical to the winch control valve or other hydraulic equipment such as a crane.
3. Connect hydraulic hoses from the winch control valve to the fixed displacement priority flow control valve and from the fixed displacement priority flow control valve to the ramp control valve.
4. Connect the ‘return to tank’ hoses from the fixed displacement priority flow control valve and the stabiliser legs control to the hydraulic tank.
5. Connect the hydraulic hoses from the control valve to the ram (NOT INCLUDED). Make sure hoses do not deteriorate due to chafing in operation or when the vehicle is travelling by ensuring they are fully supported.
6. To ensure that full movement of the legs is obtained, operate the control valve to raise the legs.
7. Observe the travel of the leg when lowered to ensure full movement is achieved.

The PTO / Pump MUST be engaged before stabiliser legs will operate.

FIG 2

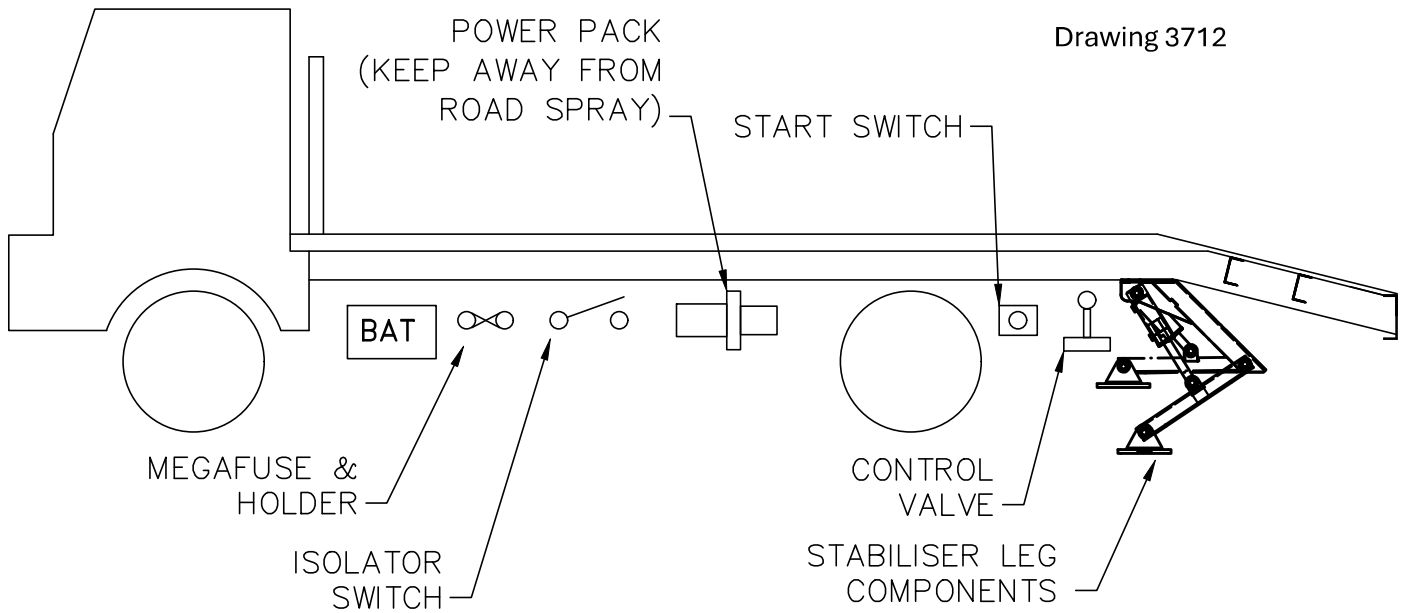


FIG 3

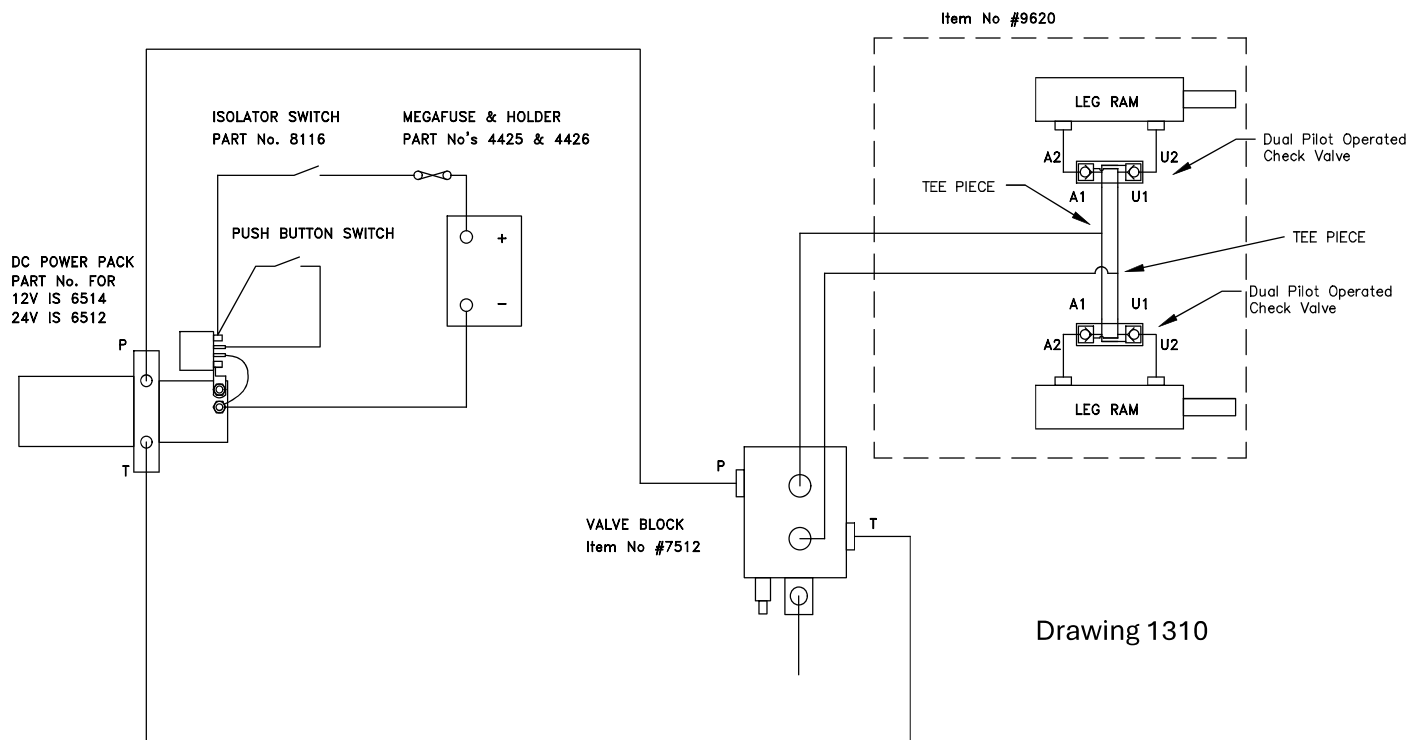


FIG 4

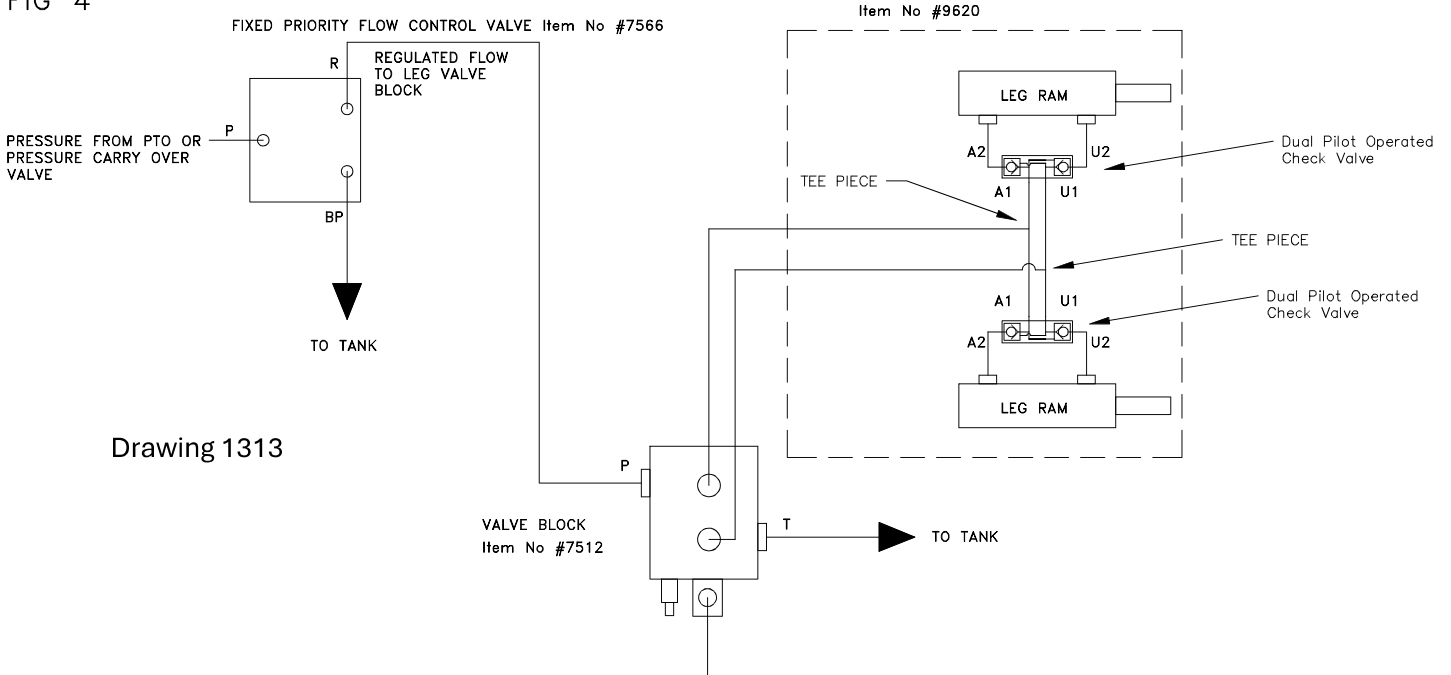
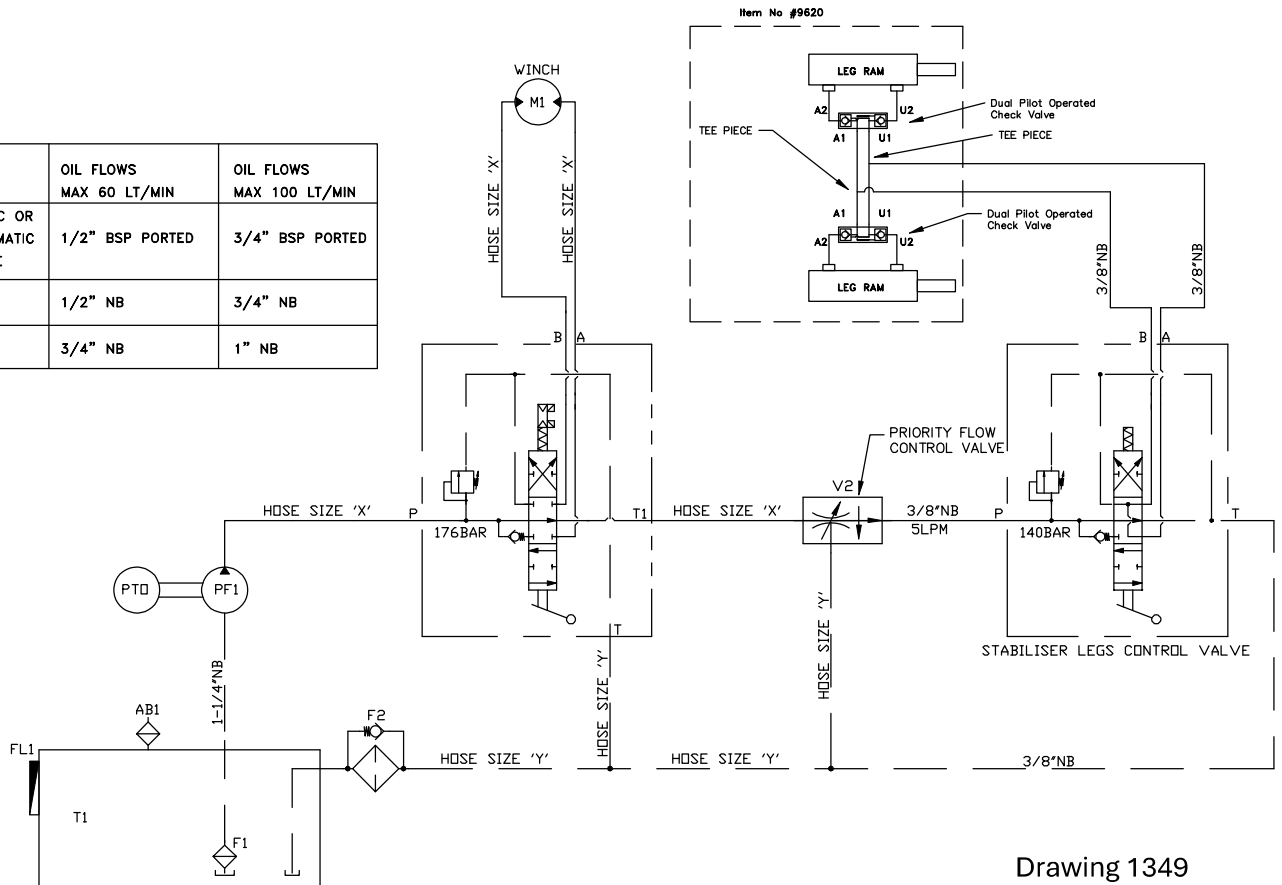


FIG 5

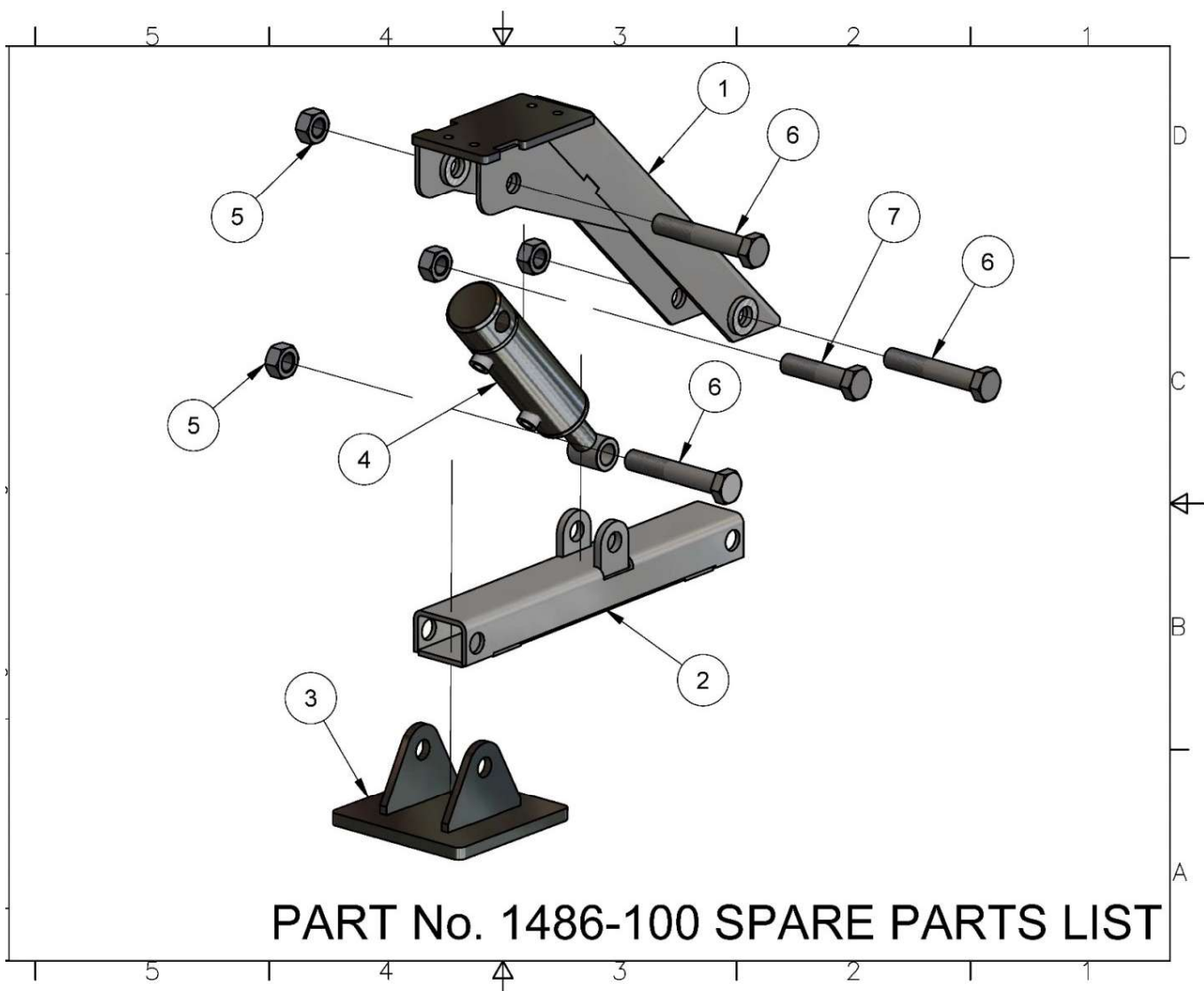
	OIL FLOWS MAX 60 LT/MIN	OIL FLOWS MAX 100 LT/MIN
WINCH ELECTRIC OR ELECTRO PNEUMATIC CONTROL VALVE	1/2" BSP PORTED	3/4" BSP PORTED
HOSE SIZE X	1/2" NB	3/4" NB
HOSE SIZE Y	3/4" NB	1" NB



Drawing 1349

Spare Parts List

ITEM	PART No.	DESCRIPTION	QTY	REMARKS
1	1486-101	MOUNTING ARM ASSEMBLY	1	
2	1486-115	BOTTOM ARM ASSEMBLY	1	
3	1486-120	FOOTPLATE ASSEMBLY	1	
4	703_100_stroke	DA HYDRAULIC CYLINDER	1	
5	BS 3692 - M24	Precision hexagon nuts	4	THREAD LOCK ON ASSY
6	ISO 4014 - M24 x 140	Hexagon head bolts- Product grade A and B	3	THREAD LOCK ON ASSY
7	ISO 4014 - M24 x 100	Hexagon head bolts- Product grade A and B	1	THREAD LOCK ON ASSY



Further Information

Quality Control

The Hydraulic Stabiliser Legs System will be quality assured prior to dispatch by suitably qualified engineers.

Maintenance

Regularly check the Hydraulic Stabiliser Leg system for any signs of wear, distortions, chafing hoses, loose fastenings, loss of hydraulic oil etc. The driver of the vehicle should report any faults or observations to the designated service engineer.

All hinged joints and moving components of the assembly, including the ram connection points, must be regularly greased.

Regularly check to ensure that hoses are not kinked, worn or chafing etc.

Ensure that hydraulic rams are not leaking hydraulic fluid and ensure that all electrical components are free from dirt or contaminants.

Although the legs are not intended to be used for lifting, the following good practise of **LOLER** is recommended:

Thorough examinations and inspections of lifting equipment (LOLER)*extract*.

In order to verify that lifting equipment and accessories remain safe for use, and to detect and remedy any deterioration in good time, thorough examinations are required throughout the lifetime of the equipment, including examinations:

- Before use for the first time.
- After assembly and before use at each location - for equipment that requires assembly or installation before use.
- Regularly, while in service - if the equipment is exposed to conditions that cause deterioration which is likely to result in dangerous situations. Most lifting equipment will be subject to wear and tear and so will need regular in-service examination. Some may be exposed to significant environmental conditions which may cause further deterioration.

Conduct examinations in accordance with an examination scheme, drawn up by a competent person.

Following exceptional circumstances - liable to jeopardise the safety of lifting equipment, which may include damage or failure, being out of use for long periods, major changes, which are likely to affect the equipment's integrity (e.g. Modifications, or replacement / repair of critical parts).

Health and Safety Statutory Requirements

Users of the Hydraulic Stabiliser Legs must work in accordance with statutory requirements of use of lifting equipment and lifting accessories (as required by the Health and Safety Executive). Operators should familiarise themselves with these requirements prior to use.

Documents can be downloaded from: www.hse.gov.uk

Safe use of Lifting Equipment: Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)

This document contains the Approved Code of Practice (ACOP) and guidance on duties under the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) and existing regulations that apply to the use of lifting equipment at work.

You should read this guidance if you have responsibility – directly or indirectly – for work equipment and its use. It applies to all industry sectors and work activities employers, employees, the self-employed and those who hire work equipment.

The document explains the duties relating to establishing the strength and stability of lifting equipment, its positioning and installation, and the general organisation of lifting operations. It also explains ancillary duties, including thorough examination and inspection, reports, defect matters and good information keeping.

Additional resources available:

Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and Guidance (PUWER 98)

Guidance on the Regulations intended to ensure work equipment should not result in health and safety risks regardless of age, condition or origin. PUWER 98 apply to all such equipment including mobile and lifting devices and all workplaces and situations where the Health and Safety at Work Act applies.

Thorough examinations and inspections of lifting equipment:

LOLER addresses the specific risks associated with the use of lifting equipment. Thorough examination and inspection are key requirements of the Regulations. To meet these requirements, duty holders must:

- ensure lifting equipment (including **lifting accessories**) exposed to conditions causing deterioration which could lead to dangerous situations undergoes regular thorough examination by a competent person, and...
- ensure all supplementary inspections and tests recommended by the competent person are carried out within the time scale stated.

Examples of conditions causing deterioration are wet, abrasive or corrosive environments

What equipment is not covered by LOLER?

Some equipment used in lifting is not covered by LOLER. Where this is the case, you would still have duties under PUWER to ensure the work equipment is safe and suitable, for example:

- Equipment whose principal function is not lifting, for example conveyor belts or the three-point linkage on a tractor.
- Items such as pallets, skips, ladles, one-trip slings attached to a load and similar containers, which are considered part of the load.

WARRANTY

BHW Group Ltd, UK and Ireland warrants each new piece of ancillary equipment supplied against factory defects in material and workmanship for one year from date of purchase.

Responsibility for removing the ancillary equipment is the owner's together with its return, transportation prepaid to BHW Group Ltd.

BHW Group Ltd will, under this warranty, without charge repair or replace at its option, parts, which on inspection are deemed to be defective. The loss of use of the product, loss of time, inconvenience, commercial loss or consequential damages are not covered.

Warranty does not apply where the product has been tampered with or altered in any way, or where the serial number or date stamp has been defaced, altered or removed, or if in the view of BHW Group Ltd the damage or failure occurred from misuse, negligence or accident.

BHW Group Ltd reserve the right to change the design of any product without assuming any obligation to modify any product previously supplied. Equipment returned under warranty should be despatched to the relevant division of the BHW Group Ltd service department at the address indicated below, with full name and address of sender, and a statement detailing the defect.

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