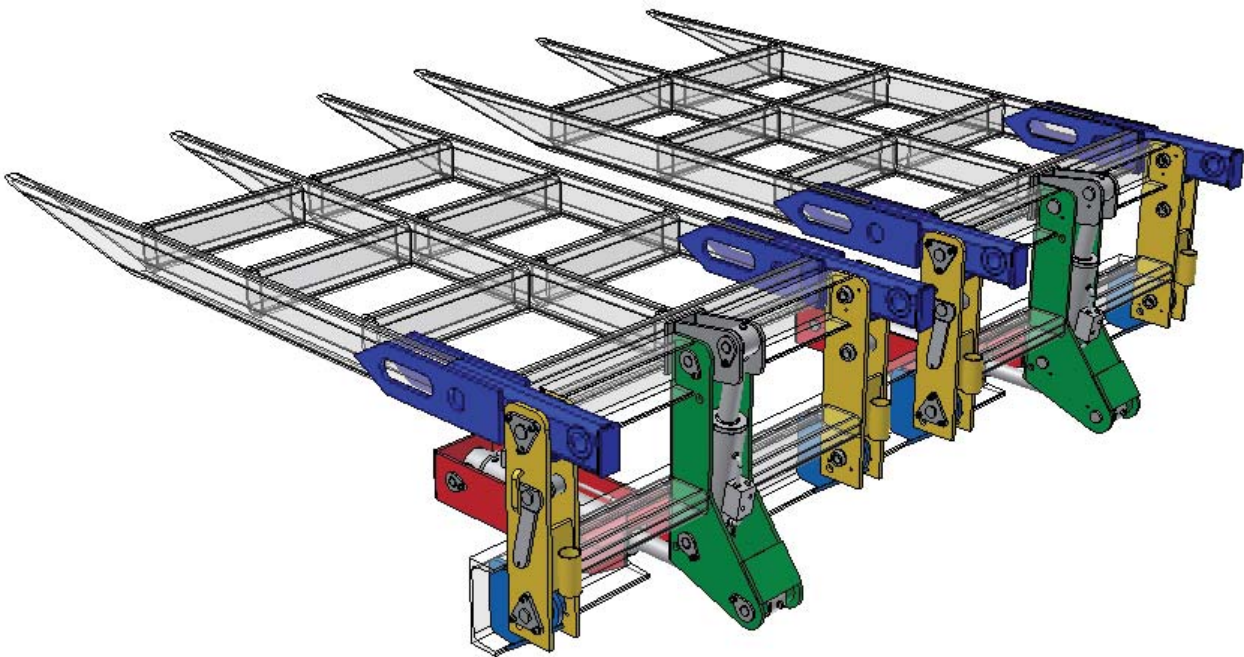


BHW

Bushey Hall Winchmaster

www.bhwgroup.com

FITTING & OPERATING INSTRUCTIONS



POWER•WEDGE RAMP SYSTEM

Part #6890

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GENERAL

The POWER•WEDGE ramp system is designed to provide the main component parts to allow body builders to construct a fully hydraulic loading ramp system that will ‘fill in’ the beaver tail section of a plant type body.



This ‘fill in’ of the beaver tail results in the flat part of the body being continued fully to the rear. The POWER•WEDGE ramp system may also be operated and stowed as standard loading ramps.



The components supplied include the hydraulic rams, all ramp pivot points and hydraulic ram mounting brackets. The body builder is required to incorporate these components within the build of the ramps.

The positioning of the hydraulic ram mountings and pivot brackets is critical, and the stated dimensions must be adhered to.

The POWER•WEDGE ramp system provides components to build two independent loading ramps one for the nearside and one for the nearside. Each ramp then comprises of a short main ramp, pivoted from the rear body member at the bottom of the beavertail, to which is pivoted a longer folding ramp. These two ramp sections are operated independently.



Hydraulic power is required to power the system. This is normally provided by a PTO pump fitted to the vehicle's gearbox which generally is also powering a winch or lorry loader crane which are typically fitted to plant beavertail type bodies. If a PTO pump unit is not fitted, BHW Group Ltd may supply an electro-hydraulic power pack which supplies hydraulic power and is powered from the vehicle's batteries. BHW Group Ltd may also supply PTO pump units if required.

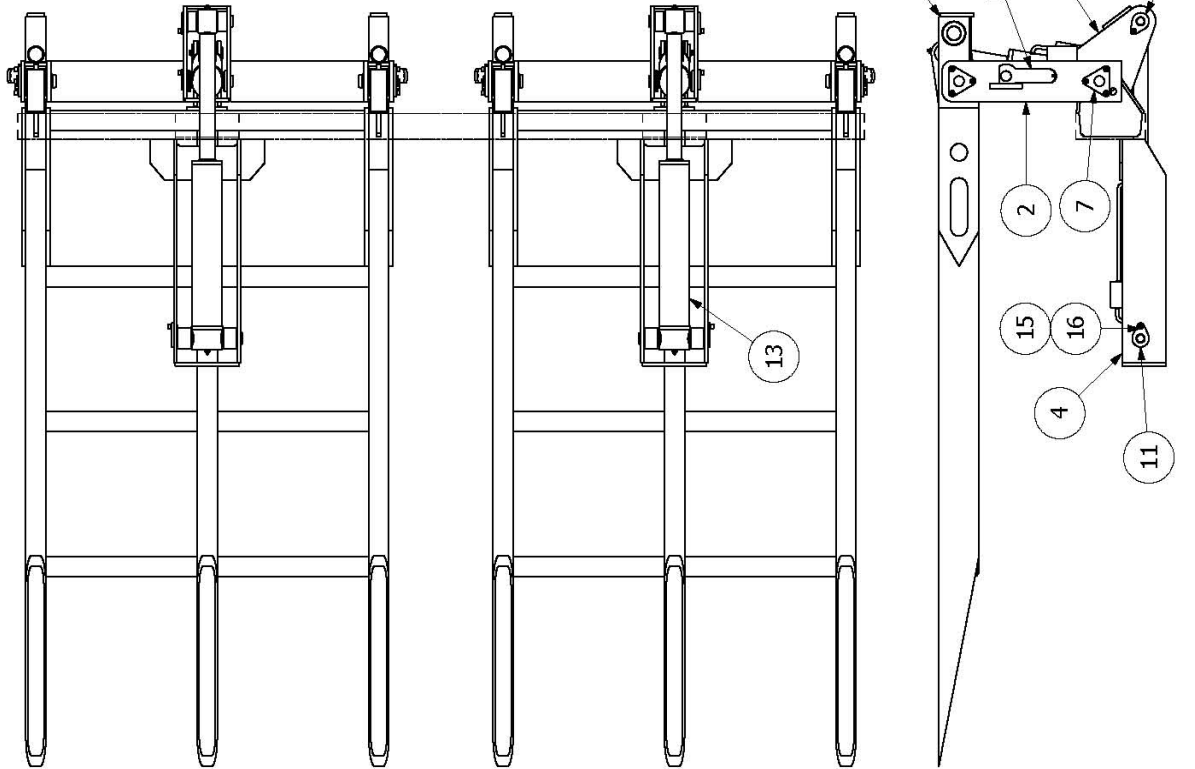
It is important that the bodybuilder and BHW Group Ltd liaise closely when specifying the equipment to ensure the correct hydraulic components are supplied.

FITTING – MECHANICAL COMPONENTS

Mechanical components supplied by BHW Group Ltd are those items shown in the parts list in drawing 3894 below.

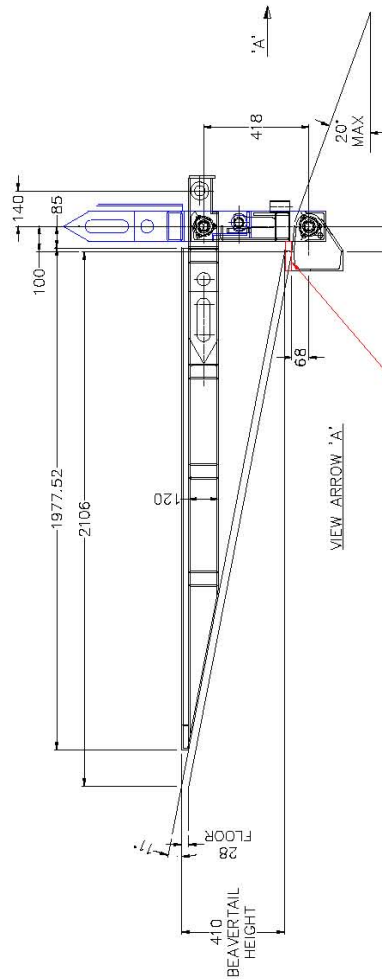
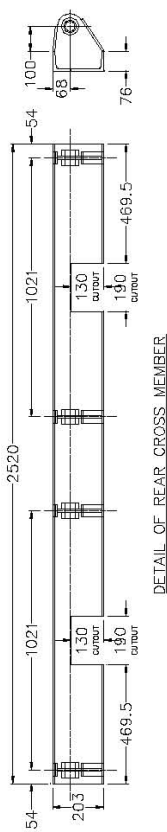
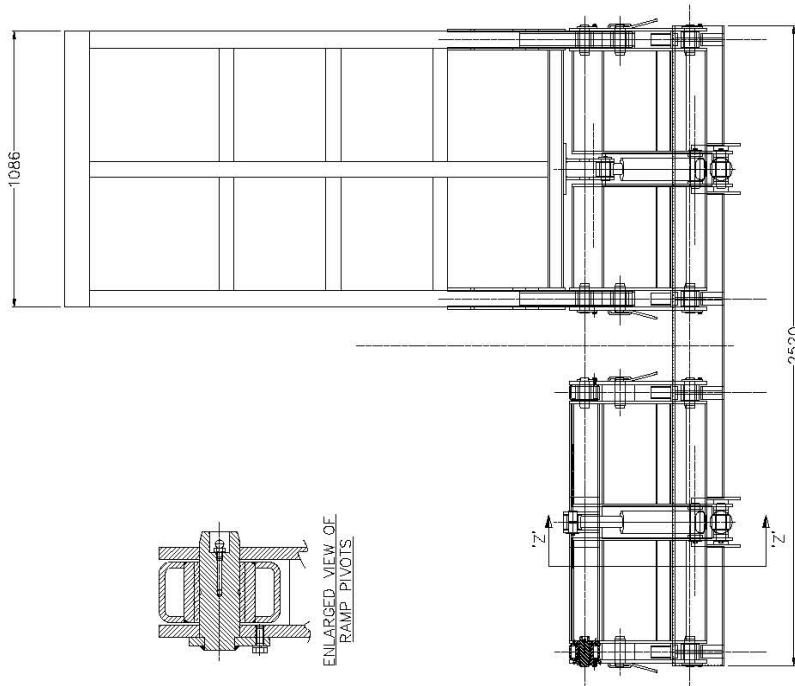
The relative positions of pivots and ram mountings **MUST** be as shown in drawing 3894 pages 5-6 below.

Parts List				
ITEM	QTY	PART NUMBER	DESCRIPTION	Drawing No
1	4	3894-4	Ramp Mounting Lugs	3894-4
2	4	3894-2	Main Ramp Left and Right Hand Side Member Assembly	3894-2
3	2	3894-5	Fold Ram Housing Assembly	3894-5
4	2	3894-3	Main Lift Ram Housing Assembly	3894-3
5	4	3894-6	Fold Ramp Side Member Assembly	3894-6
6	2	3894-1	Ram Mounting Lug Fold Ram Assembly	3894-1
7	8	3936-1	Flange Head Pin Assembly	3936-1
8	4	3936-2	Ramp Locking Pin Assembly	3936-2
9	2	3936-4	Ram Pin Assembly	3936-4
10	4	3936-3	Ram Pin Assembly	3936-3
11	2	3936-5	Ram Pin Assembly	3936-5
12	2	3936-6	Pivot Pin Assembly	3936-6
13	2	6910	CYLINDER 574MM, 3" BORE D/A X 45MM NI-CROMAX BAR FOR POWER WEDGE RAMP	
14	2	6911	CYLINDER 354MM, 3" BORE D/A X 45MM, NI-CROMAX BAR FOR POWER WEDGE RAMP	
15	34	10214	M8 NORDLOCK WASHER DELTA FINISH NL8DP	
16	34	9313	Socket Head Cap Screw M8 x 20	

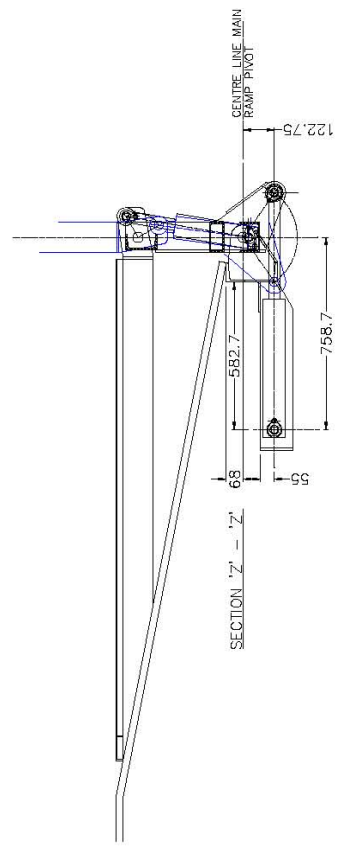


Note:-
Items 15 and 16 need to be lubricated with oil before being torqued to 38Nm

COPYRIGHT © This is the property of BHW GROUP Ltd. and must not be copied or reproduced without their written permission.	TITLE Power Wedge MK 2 Assembly		PART NO 6890		BHW GROUP LTD. Unit 7, Lismirrane Industrial park, Elstree Road, Elstree, Borehamwood, Herts WD6 3EE. Tel: +44 (0)870 8500 8969 Fax: +44 (0)208 207 5308 www.bhwgroup.co.uk e-mail sales@bhwgroup.co.uk	
	MATERIAL & FINISH TOLERANCES EXCEPT OTHERWISE STATED ±10 FABRICATIONS ±1mm MACHINING ±0.25mm DIMENSIONS TO UNLESS OTHERWISE STATED ±0.5 UNLESS OTHERWISE STATED DIMS IN MILLIMETRES	CUSTOMER NAME BHW Group Ltd	DRAWN BY AY	CHECKED BY AY	DATE 15/12/08	DRAWING NUMBER 3894



Note - Ramps shown manufactured from 120 x 60 x 6 M.S.R.H.S.
 Fit 'Stop Block' to prevent ramp from passing upright (block not supplied)



Note - Apply formula to one side of ramps only to ensure lift power is sufficient.

MAIN LIFT
 half length of total ramp (M) x total weight of ramp (kgs) must not exceed 786 (e.g. 1.5M x 500kg = 750 ok)

FOLD
 Half length of fold ramp (M) x total weight of ramp (kgs) must not exceed 340 (e.g. 1.25M x 260kg = 325)

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	PART NO		DRAWING NUMBER		CHECKED BY		DRAWN BY		DATE		
6890		3894		AY		AY		15/12/08		SCALE	
										ISSUE	
										1	
BHW GROUP LTD. Unit 7, Lismerlane Industrial park, Elstree Road, Elstree, Borehamwood, Herts, WD6 3EE. Tel: +44 (0)870 8500 8989 Fax: +44 (0)208 207 5308 www.bhwgroup.co.uk e-mail sales@bhwgroup.co.uk											

The installer must fit a steady bar for travelling with the ramps stowed vertically. Under no circumstances shall the vehicle be moved with the ramps stowed vertically without a steady bar fitted. The steady bar must be rigid to prevent movement of the ramps forward or rearward. Diagonal ratchet type straps are not sufficient.



RAMP FABRICATION

The capacity of the components supplied by BHW Group Ltd allow for a maximum 4 wheeled or tracked load of 12 tonne, total, to be loaded over the ramps. The ramp fabrication requires sufficient strength to withstand that specified by the operator (up to a maximum of 12 tonne).

An indication of ramp fabrication is given in drawing 3894 pages 5-6 although material sizes may need to be adjusted to suit the loadings on the ramps. The relative positions of pivots and ram mountings **MUST** be as shown in drawing 3894 pages 5-6.

It is suggested that items 1,3,5,6, are heavily tack welded only to the main ramp structure until full movement of ramp can be tested.

**NOTE! DO NOT POWER RAMPS WHEN THESE ITEMS ARE TACK WELDED.
MOVE RAMP WITH CRANE SO THE TACK WELDED ITEMS ARE NOT HEAVILY LOADED.
KEEP CLEAR OF RAMPS AT ALL TIMES.**

POWER•WEDGE RAMPS FORMULA

Note: Apply formula to one side of ramps only to ensure lift power is sufficient.

MAIN LIFT:

Half the length of the total ramp length (M) x total weight of ramp (kg) must not exceed 786kg
(e.g. 1.5m x 500kg = 750kg)

FOLD:

Half the length of the Fold ramp length (M) x total weight of ramp (kg) must not exceed 340kg
(e.g. 1.25m x 260kg = 325kg)

REAR BODY CROSS MEMBER

This item is not supplied by BHW Group Ltd and requires to be fabricated by the body builder. It is recommended that the minimum depth of this member is 200mm. It may be a folded section or standard RSC. It must be substantial and well supported to enable the twisting effect transmitted by the rams to be resisted. It is recommended that it is braced back to the side rails and body sub frame. Cut outs are required in the rear body cross member to allow the main lift ram rod to pass through, see drawing 3894 pages 5-6.

Items 1 Ramp Mounting Lugs and 4 Main Lift Ram Housing Assembly require to be welded onto the rear body cross member at the positions shown in drawing 3894 pages 5-6. It is important that the bores in the 4 off Ramp Mounting Lugs, item 1, are in line. NOTE, the forward end of item 4 Main Lift Ram Housing Assembly, requires to be supported to the underside of the body structure by welding angle straps (not supplied).

FITTING

Fit the short main lift ramp to the folding ramp on the bench and check rotation and alignment, particularly the alignment of the ramp locking pins.

**MOVE RAMP WITH CRANE SO THE TACK WELDED ITEMS ARE NOT HEAVILY LOADED.
KEEP CLEAR OF RAMPS AT ALL TIMES.**

Fully weld components except item '1' Ramp Mounting Lugs. Fit ramps to rear cross member check rotation and alignment. Fully weld all components. Fit hydraulic rams. Fit ram body pins first. In order to fit the ram rod pins it may be necessary to operate the rams when the hydraulic are connected.

NOTE, WHEN POWERING RAMS TO FIT RAM ROD PINS ENSURE ALL BODY PARTS ARE KEPT CLEAR OF PIN HOLES, DO NOT INSERT FINGERS INTO PIN HOLES!

During fitting of ramps ensure there is no danger of them being able to fall. Keep them supported at all times.

FITTING-HYDRAULIC EQUIPMENT

Before attempting to connect hydraulic system to the ramp rams ensure the ramps are fully supported by external mechanical means.

CONNECTING THE CONTROLS VALVE TO THE HYDRAULIC RAMS

Select a suitable position for the control valve (i.e. BHW Group Ltd Part #21907) this is normally on the nearside rear of the body approx. 1500mm from the rear of the body. No mounting brackets for the valve are supplied. Ensure only the purpose made mounting holes in the valve are used for fixing. Ensure the fixing plate is flat and no distortion of the valve can occur on tightening the fixings. An effort should be made to protect the valve from road spray, for example housing in a box.

Each ram is individually controlled and therefore has its own control valve. (4 rams = 4 control valves). These four control valve 'slices' are 'banked together' in one single unit with 4 operating levers. Two pipes from each 'slice' are led to each ram

Ensure the pipes from the control valve are fitted to the correct port on the ram. Should it be discovered on final operation that up = down and vice versa, simply swap the pipes over.

Ensure all pipes are well supported and cannot chafe. Ensure that there is sufficient 'loops' at pivot points to allow the pipes to fully articulate during ramp operation. Pipes must not be pulled tight during operation.

CONNECTING HYDRAULIC SUPPLY TO CONTROL VALVE

A hydraulic pressure supply requires to be fitted to the control valve together with a return to tank pipe.

FOR UNITS POWERED BY PTO PUMP AND FITTED WITH OTHER EQUIPMENT POWERED BY THE SAME PUMP

Commonly the body will be fitted with a lorry loader or hydraulic winch, in these cases the same pump will power all these items of equipment. Firstly, a diverter valve is fitted between the pump and hydraulic equipment that allows the selection of equipment required to work (normally fitted by lorry loader supplier). Generally, equipment such as winches and lorry loaders require much higher flow rate than the POWER•WEDGE Ramp System, therefore before the hydraulic supply is fed to the ramp system the flow rate is reduced by passing the oil through a flow regulator (may be supplied by BHW Group Ltd, i.e. item #12355) which gives a measured flow to the ramp system and dumps excess flow back to tank.

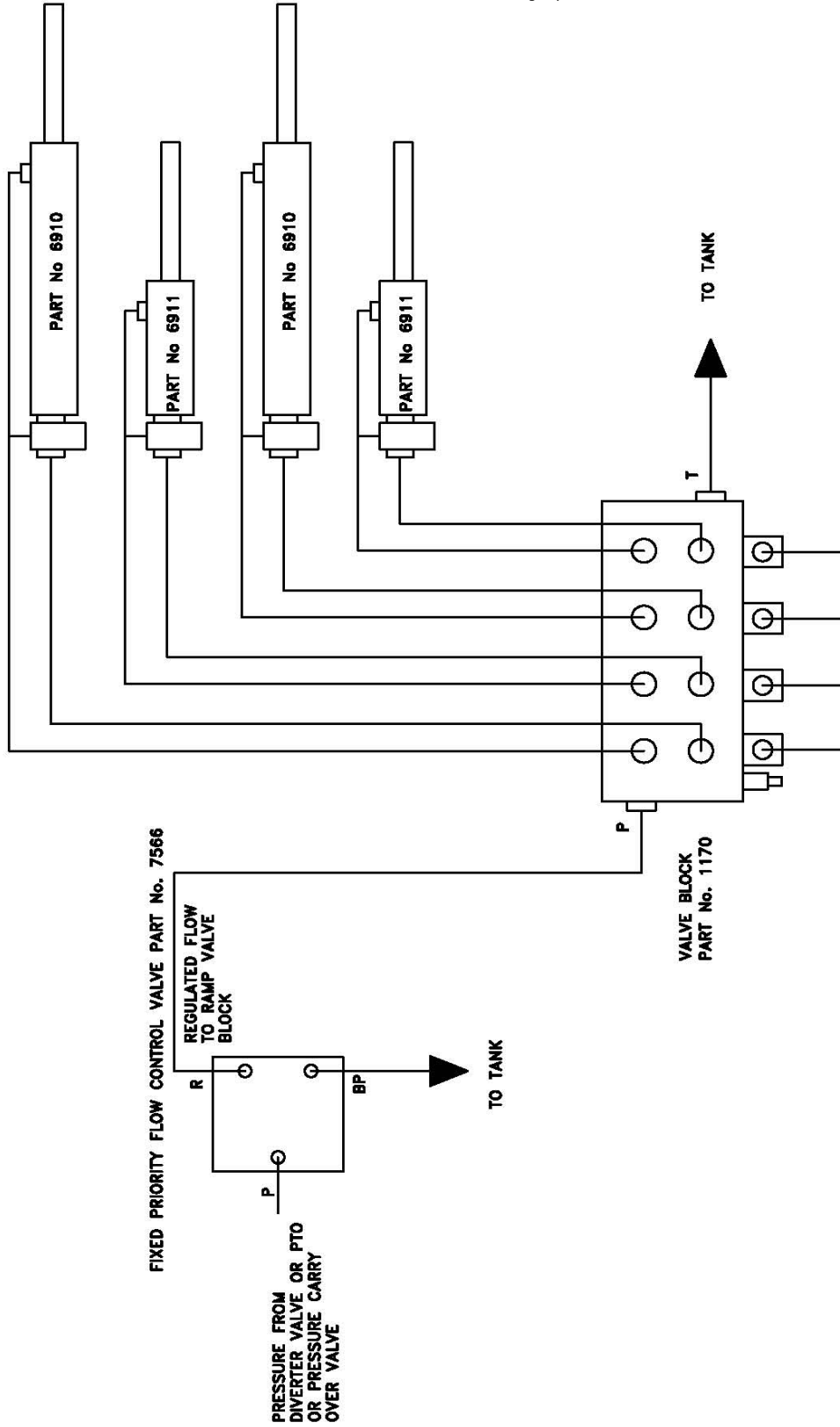
The flow regulator should be positioned for convenient pipe connections to ramp control valve, return line to hydraulic tank and the supply.

It may be that the circuit includes a winch that is fed from the same diverter valve. The connections would be similar to the above but with the supply first passing through the winch control valve located at the front of the vehicle, and on to the flow regulator via pressure carry over. See drawing 4029-2

FOR INSTALLATIONS WHERE NO PTO PUMP IS AVAILABLE.

Electro-hydraulic power pack this item can be supplied by BHW Group Ltd. This 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 rams to be powered in or out using the main control valve. The power pack requires fitting to the body/chassis frame, ideally on the nearside and easily accessible. Both negative and positive battery leads are routed to the power pack connections. A fuse and isolator switch need to be fitted in the positive lead. This switch must be easily visible and accessible as it also acts as an emergency stop. See drawing 4029-1



TOLERANCES EXCEPT OTHERWISE STATED ± 1.0
 FABRICATIONS $\pm .1$ mm MACHINING ± 0.25 mm
 UNLESS OTHERWISE STATED ± 0.1
 UNLESS OTHERWISE STATED DIMS IN MILLIMETRES

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TITLE **POWER WEDGE RAMPS HYDRAULIC CIRCUIT WITH PRIORITY FLOW CONTROL VALVE**

MATERIAL & FINISH

CUSTOMER NAME
BHW GROUP LTD

DRAWN BY
A.Y.

DATE
16-12-2008

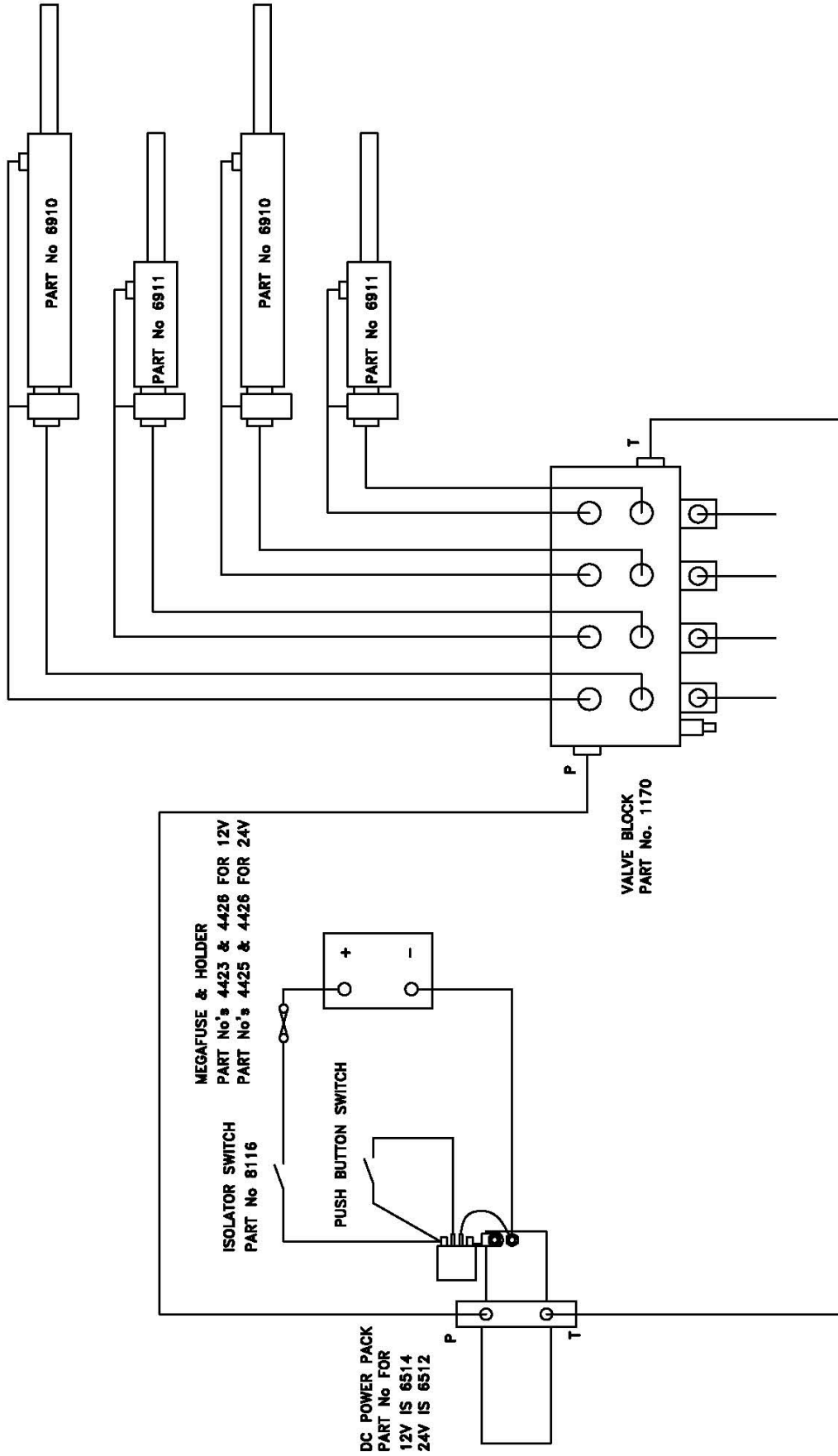
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 e-mail sales@bhwgroup.co.uk

DRAWING NUMBER
4029-2

CHECKED BY
A.Y.

ISSUE No.01



TITLE POWER WEDGE RAMPS HYDRAULIC CIRCUIT WITH DC POWER PACK

MATERIAL & FINISH

CUSTOMER NAME
BHW GROUP LTD

DRAWN BY
A.Y.

DRAWING NUMBER
4029-1

DATE
16-12-2008

CHECKED BY
A.Y.

SCALE
N.T.S.

ISSUE No.01

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TOLERANCES EXCEPT OTHERWISE STATED ± 1.0
FABRICATIONS ± 1mm MACHINING ± 0.25mm
TOLERANCES ON HOLE DIAMETERS
UNLESS OTHERWISE STATED ± 0.5
UNLESS OTHERWISE STATED DIMS IN MILLIMETRES

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REAR STABILISER LEGS

When rear stabiliser legs are supplied an additional two controls are added to the main control valve.

FINAL CHECKS

- Keep personnel well clear of ramp area.
- Read operating instructions.
- Check torque settings on socket cap head bolts are correct to drawing 3894 pages 5-6
- Operate ramps as detailed in the operating instructions.
- When all equipment is complete fully operate ramps. If the control lever is released the ramps should stop. Ensure they do so.
- Check system for hydraulic oil leakage.
- Check pipes are free to articulate at pivot points.
- Check pipes are adequately supported.



WARRANTY

BHW Group Ltd warrants new equipment supplied against factory defects in material and workmanship for one year from date of purchase.

The responsibility for removing the 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 produce, 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.

BHW Group Ltd reserve the right to change the design of any product without assuming any obligation to modify any product previously supplied.

Fitted vehicles or equipment returned under warranty should be sent to BHW Group Ltd service department at the address indicated below, with full name and address of sender, and a statement detailing the defect.



Service Department
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POWER•WEDGE.....