



BHW

Bushey Hall Winchmaster

www.bhwgroup.com

FITTING & OPERATING INSTRUCTIONS



RAMP•ASSIST MODEL 2 HYDRAULIC RAMP ACTUATION SYSTEM

Part No: #6887

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GENERAL

The RAMP•ASSIST System is designed to raise and lower loading ramps typically installed on 'beaver tail' plant carrying bodies. The system is so designed that the body builder can fabricate the loading ramps and integrate RAMP•ASSIST during the manufacture and installation process enabling them to be power raised and lowered. Providing the basic requirements for the installation of RAMP•ASSIST is adhered to, then the system is able to operate ramps irrespective of their construction or load bearing capacities. **It must be noted however that the positioning and dimensions provided in these fitting instructions are strictly complied with.**

RAMP•ASSIST MODEL 2:

The ramp lever arms provided are integrated into the ramps during their fabrication and their positioning relative to the hinge centres for the ramps are critical. Each ramp is powered by its own hydraulic ram that is supplied with a carrier, and these are positioned under the beaver tail section of the body.

THERE ARE TWO ALTERNATIVES TO PROVIDING HYDRAULIC POWER FOR RAMP ASSIST.

1. **Electro-hydraulic power pack**, for use when no other form of hydraulic power is available on the vehicle. 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 as 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 hose lengths required. After installation of the components telephone BHW Group Ltd and these items will be sent out after a price has been provided. (Price will vary depending on the hose length required)

2. **Existing PTO / pump on vehicle.** If a hydraulic winch, lorry loader crane or other hydraulic equipment is fitted to the vehicle then it is possible to utilise this power source for Ramp Assist. Additional control valve equipment will be supplied with RAMP•ASSIST to allow connection into the existing hydraulic circuit. (Hydraulic hoses are not included as part of the kit)

The installer of RAMP•ASSIST will be required to fit a mechanical 'top limit' stop for the ramps in their upright stowed position. In addition, the installer will be required to fit a 'steady bar' to the ramps to secure them in their upright stowed position.

Under no circumstances should the ramps be supported in the raised position, when travelling, solely by the RAMP•ASSIST unit. A substantial mechanical support strut must be used for each ramp that is connected to the body side rave, and these must prevent movement of the ramps forward and rearward. Diagonal ratchet straps must not be used.

FITTING – MECHANICAL

RAMP FABRICATION – The ramps can be fabricated to suit the application as required. The hinge bar must not be less than 38.1mm (1.5”) diameter. Two brackets are provided One for each ramp and these must be fitted to the ramp by stitch welding prior to fully welding to a structural member following dimensional checks. (See fig 1).

Note: dimensions marked * must be maintained for the system to operate and also the structural member must be positioned so the connecting ram clears the chassis and crossmember.

The size of the bracket should if necessary be adjusted to maintain the correct dimensions.

CAPACITY OF RAMP•ASSIST – Use this calculation to work out the maximum weight of each ramp so that the RAMP•ASSIST kit is not overloaded.

Weight of Ramp (Kg) x ½ Ramp length (Metres)

– the results of this calculation **MUST NOT EXCEED 1074 KgM**

BODY REAR CROSS MEMBER – The rear cross member can be a folded section or an RSC. It must be substantial and well supported to enable the twisting effect transmitted by the rams to be resisted. It is recommended that the minimum depth of this section is 200mm. Cut outs are required in the cross member to provide clearance for the rams see fig 1 and these should be cut out prior to installation. Ensure a radius is maintained in the top corners to prevent cracking occurring. Note: - Ensure cut outs are positioned so the rams clear the chassis and body subframe

FITTING RAMS – Position the ram carrier assemblies as indicated in fig 1 and stitch weld and dimensionally check prior to fully welding to the inside face of the rear cross bearer. Secure the outboard end of the ram carrier assemblies to the underside of the body structure by welding angle straps. (Not supplied)

ASSEMBLY – Fit the ramps to the body and support in the upright travelling position. Extend the ramrods and fit the hinge pin provided ensuring it is well greased through the ram end boss. This is a running fit and should be taped into position ensuring the keeper plate-retaining hole is in line. The ramps should be fully lowered to ensure full travel is achieved allowing for uneven ground conditions and all attachments must then be fully welded.

Note: When manually moving ramps ensure adequate lifting equipment is used to withstand weight of ramps.

RAMS

Picture of pipe work attached to rams.

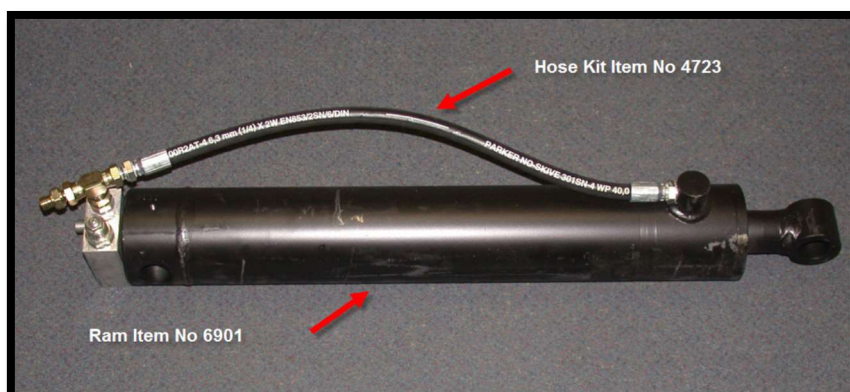
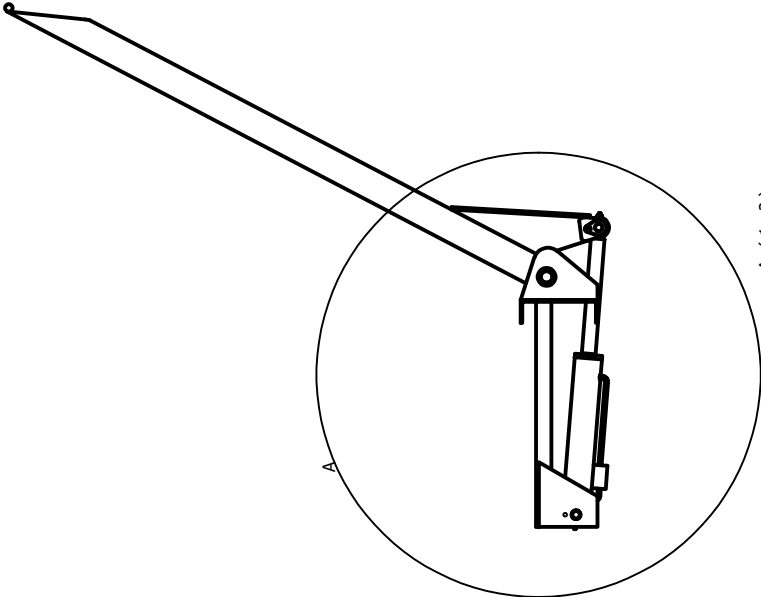
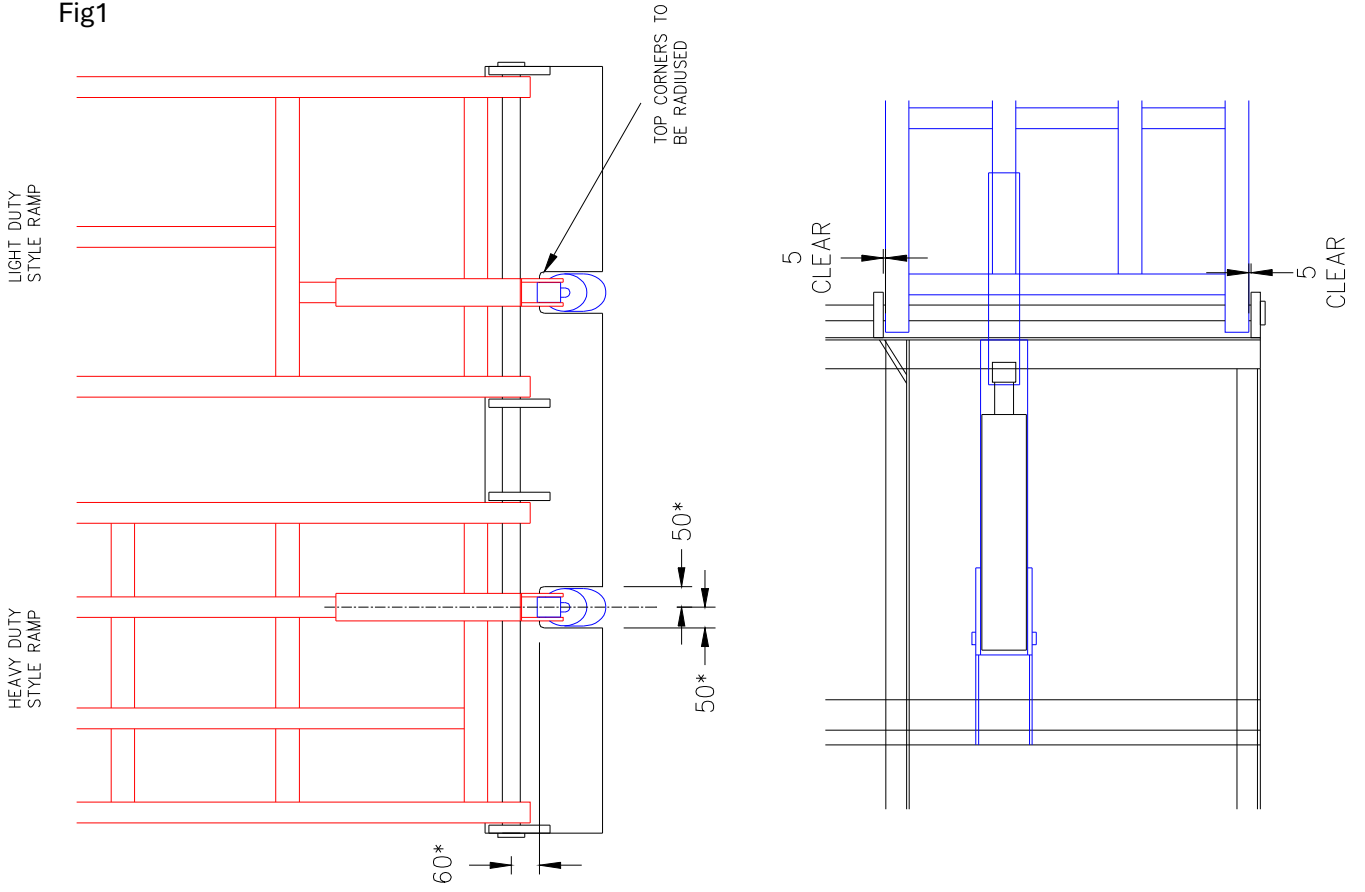
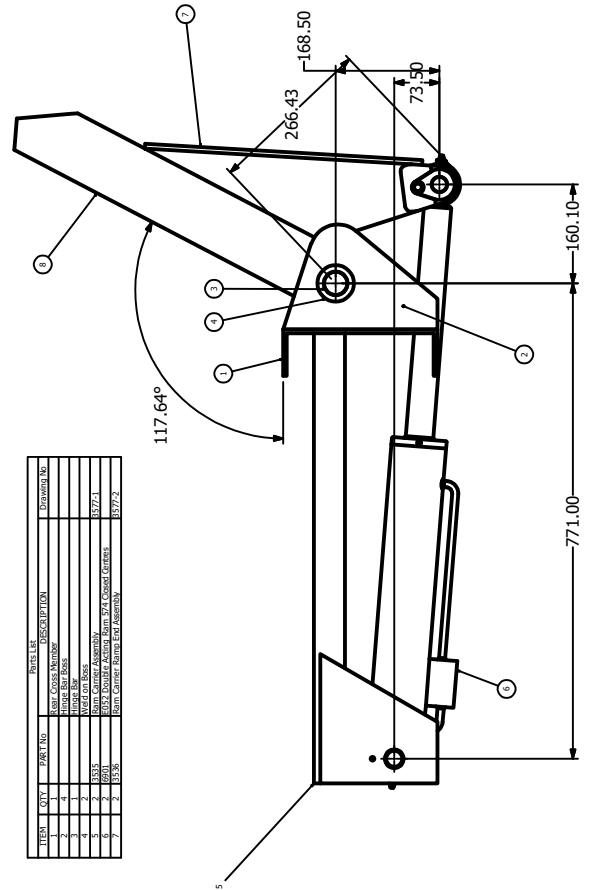


Fig1



A (1:2)

ITEM	QTY	PART NO	DESCRIPTION	QUANTITY
1	1	1333	WINDING DRUM	1
2	1	1334	WINDING GEAR	1
3	1	1335	WINDING BEARER	1
4	2	1336	WINDING BEARER PIN	2
5	2	1337	WINDING BEARER PIN WASHER	2
6	2	1338	WINDING BEARER PIN NUT	2

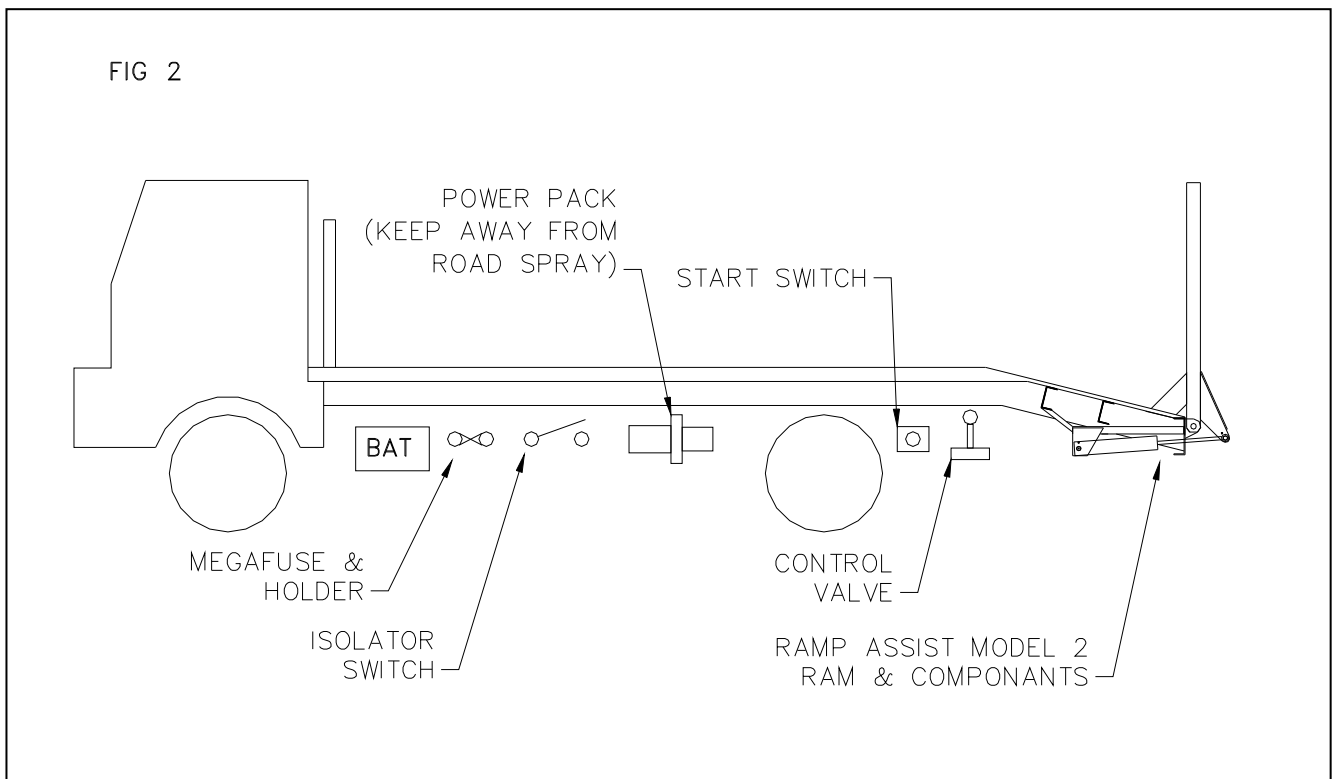


FITTING INSTRUCTIONS WHEN “ELECTRIC DC POWER PACK” OPTION IS USED

Before fitting ensure ramps are in lowered position.

The power pack is supplied complete with an enclosure mounted start button connected to the pack with a 3m-control cable. Determine a location under the body to mount the power pack ensuring it is protected from rear wheel spray and also ensure access to the hydraulic oil filler point on the tank. For general power pack layout see fig 2. For hydraulic circuit see fig 3

The manual spool valve should generally be fitted just under the nearside body side rave approximately 1.5m from the rear to enable the operator to see the ramps being raised and lowered. **The power pack start button must be located adjacent to the control valve so they can be operated simultaneously.**



Connect the hydraulic pipes from the power pack and connect electrically as shown in fig 3.

Ensure the pipes are supported and will not chafe in operation or whilst the vehicle is travelling.

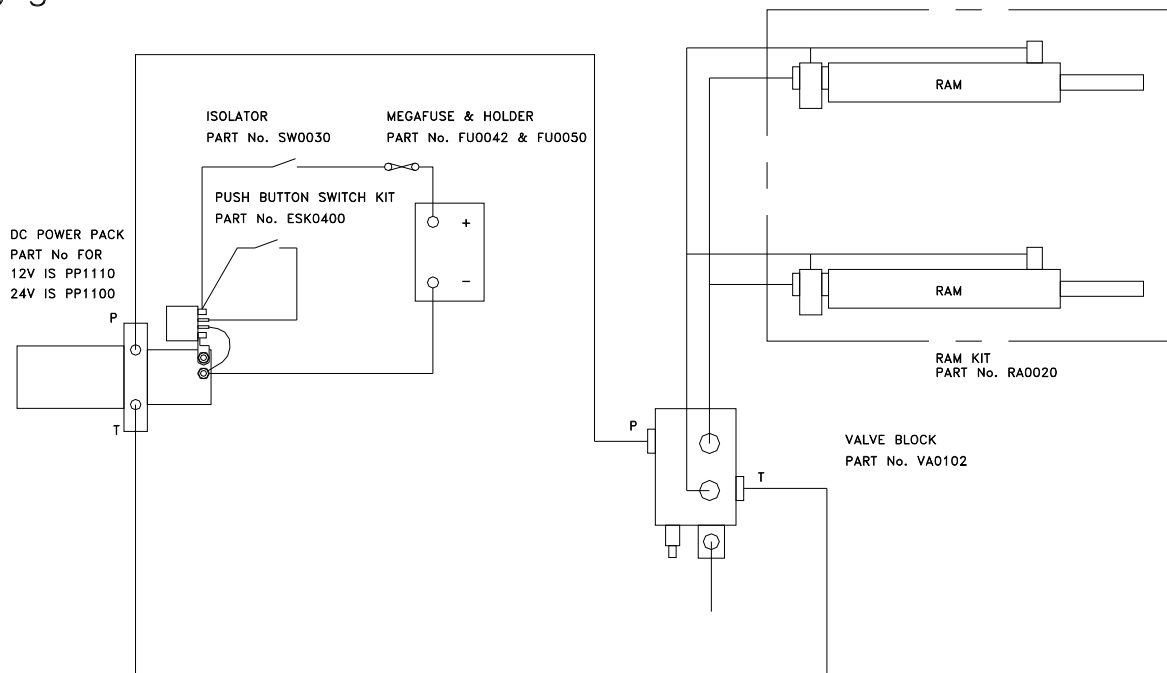
Following the chassis manufacturers' recommendations; fit power cable from battery to the power pack. Within this cable the isolation/emergency stop switch (supplied) must be fitted and an in-line fuse should be included. (See fig 3)

Locate the isolator switch in a readily accessible position so that the “Emergency Stop” label is easily 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.

Ensure electrical cables are routed and supported according to chassis manufacturers' recommendations.

Fill hydraulic tank on power pack with hydraulic oil to ISO 32 specification.

FIG 3



Operate ramp raise control button and observe movement of ramps. Raise ramps only to approximately horizontal position. Operate ramp lower control

**WHEN CARRYING OUT THESE OPERATIONS
 KEEP ALL PERSONNEL WELL CLEAR OF RAMP AREA.**

Check operation of Emergency Stop switch. With switch in “off” position no movement of the ramps should be observed when either the raise or lower controls are operated.

Operate ramps to stowed position and fit stowage struts (not included). Unit must not be put into operation without stowage struts fitted. Fit stow position stops if required.

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 fig 4).

For other configurations contact BHW Group Ltd.

For hydraulic systems with maximum oil flows of 60l/min – see fig 5

For hydraulic systems with oil flows of 60l/min – 100l/min – see fig 5

FIG 4

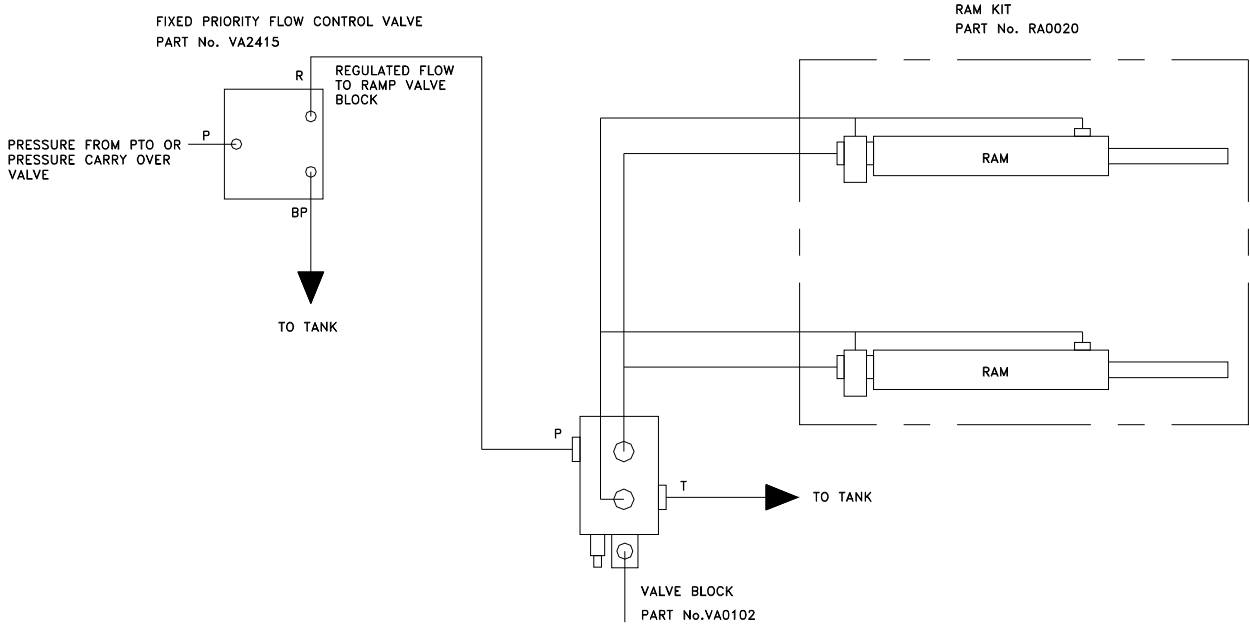
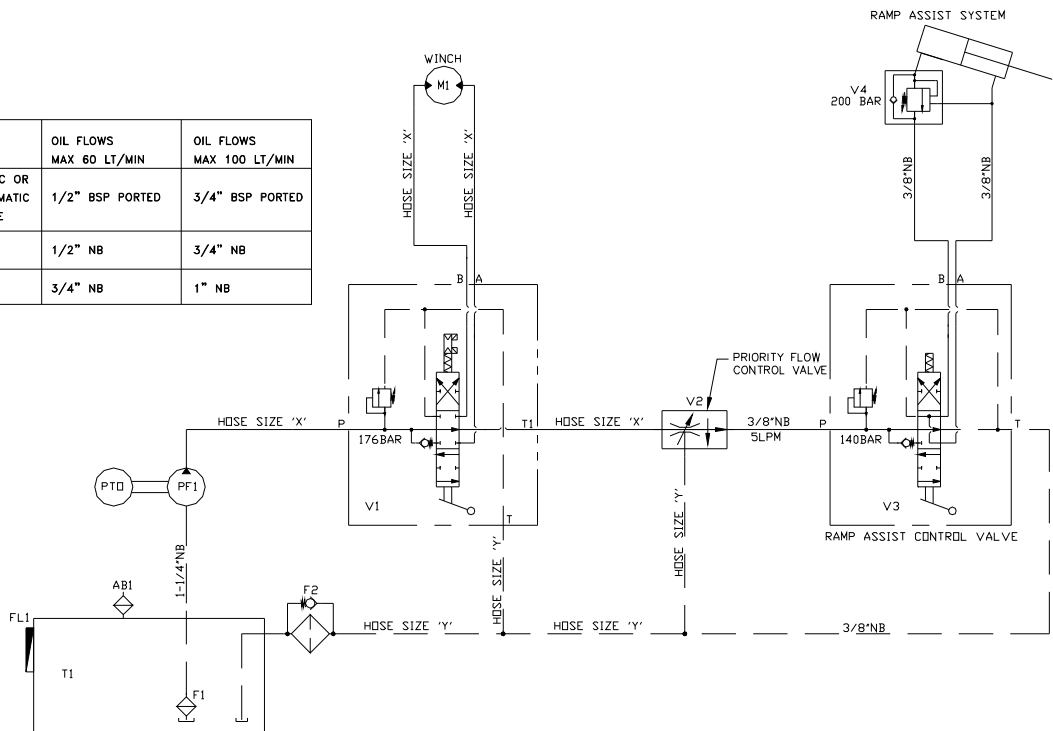


FIG 5

	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



Before fitting, ensure ramps are in lowered position.

Determine a location under the body to mount the ramp control 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.

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. Connect hydraulic pipes 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.

Connect the “return to tank” pipes from the fixed displacement priority flow control valve and the ramp control valve to the hydraulic tank.

Connect the hydraulic pipes from the control valve to the ram. Ensure all pipes are supported and will not chafe in operation.

Operate ram control valve to “raise” and observe movement of ramps. Raise ramps only to approximately horizontal position. Operate ramp lower control. Observe movement of ramps

Note, PTO / pump must be engaged before RAMP•ASSIST will operate.

**WHEN CARRYING OUT THESE OPERATIONS
KEEP ALL PERSONNEL WELL CLEAR OF RAMP AREA.**

Operate ramps to stowed position and fit stowage struts (not included). Unit must not be put into operation without stowage struts fitted. Fit stow position stops if required.

OPERATION - Electro-Hydraulic power pack version

TO LOWER RAMPS

- Ensure isolator/Emergency Stop switch is “on” to provide power to the power pack
- Ensure area around ramps is clear of all personnel.
- Momentarily operate the control valve to “raise” whilst simultaneously depressing button on the power pack to relieve any load on stowage struts.
- Release stowage struts.
- Operate control lever to lower whilst simultaneously depressing button to activate the power pack until ramps contact ground.

TO RAISE RAMPS

- Ensure isolator/Emergency Stop switch is “on” to provide power to the power pack.
- Ensure area around ramps is clear of all personnel.
- Operate control lever to ‘raise whilst simultaneously depressing button to activate the power pack. Continue until ramps are in fully stowed position.
- Fit stowage struts.
- Turn isolator/Emergency Stop switch to “off”.

OPERATION – PTO / pump version

TO LOWER RAMPS

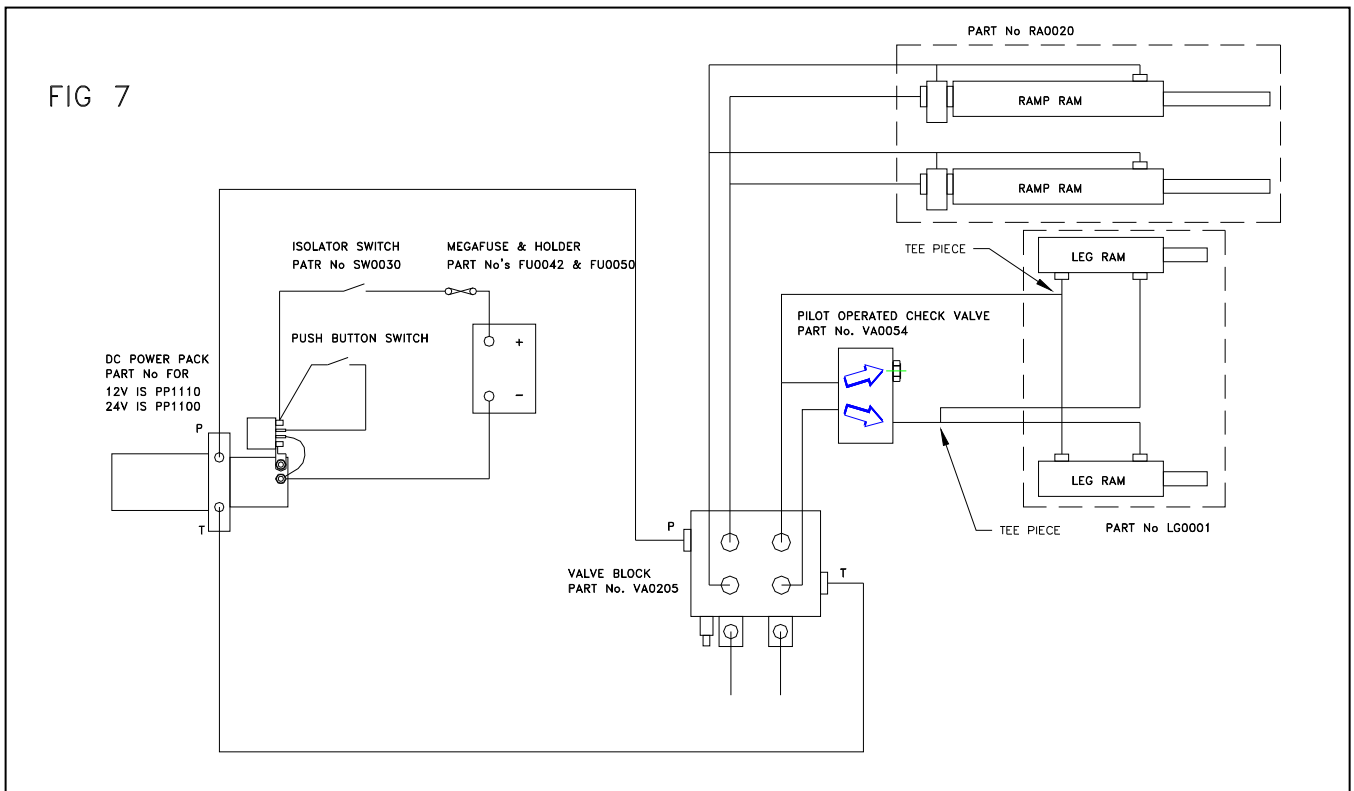
- Ensure area around ramps is clear of all personnel.
- Engage PTO
- Momentarily operate ramp control valve lever to “raise”.
- Release stowage struts.
- Operate ramp control lever to “lower” until ramps contact ground
- Disengage PTO

TO RAISE RAMPS

- Ensure area around ramps is clear of all personnel.
- Engage PTO
- Operate ramp control valve lever to “raise” until ramps are in fully stowed position.
- Fit stowage struts.
- Disengage PTO

STABILISER LEGS

When BHW Group Ltd Hydraulically operated stabiliser leg system is also included in an installation using RAMP•ASSIST 1 or 2, a two-bank control lever will be provided. Connect as described above using one section for RAMP-ASSIST and the second section for the stabiliser legs. (See fig 7)



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.



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RAMP•ASSIST.....