

RAMP ASSIST MODEL 1 HYDRAULIC RAMP ACTUATION SYSTEM

Part No:- 6886

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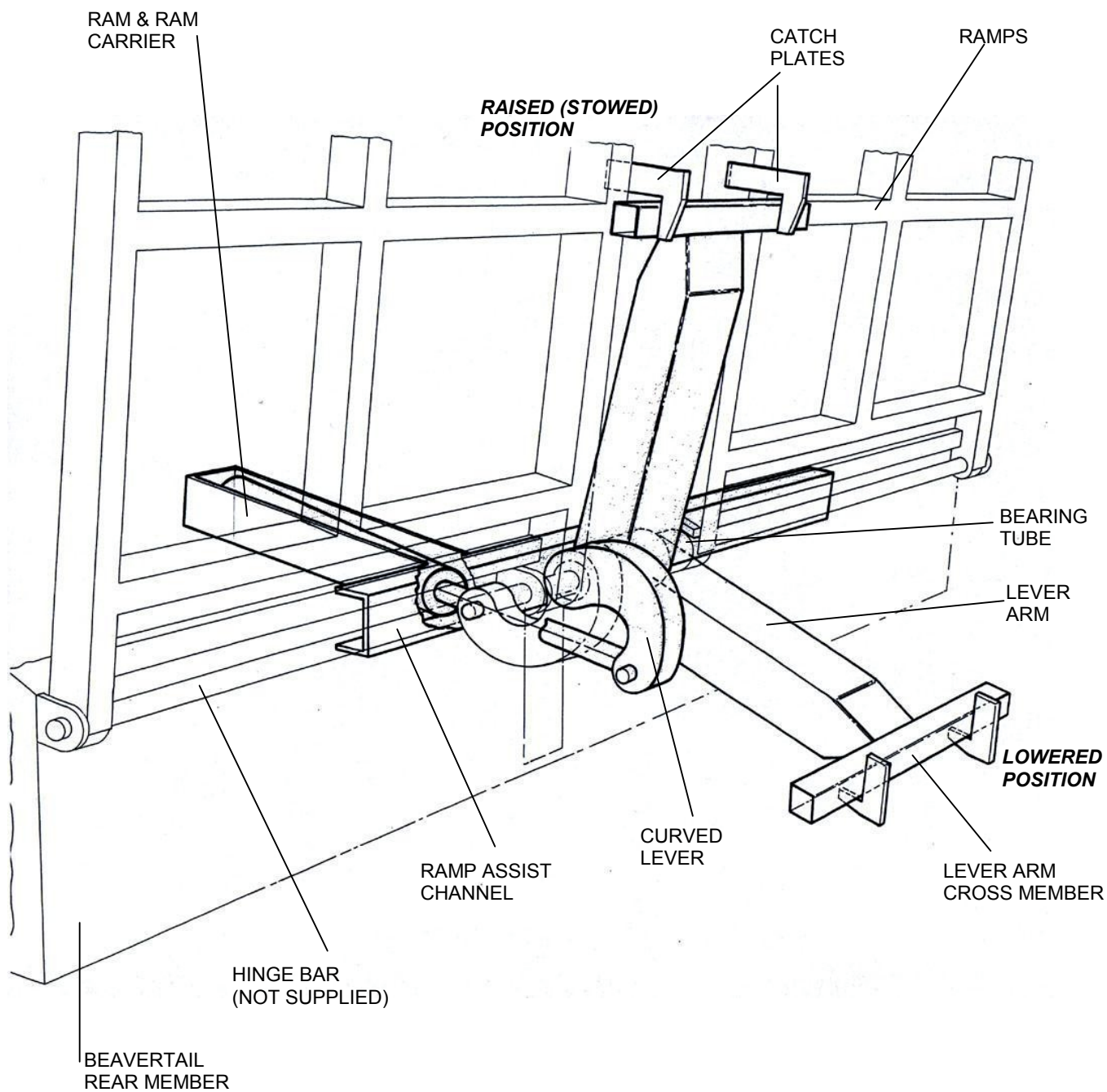
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GENERAL	4
FITTING – MECHANICAL	5
RAMP ASSIST MODEL 1	5
FITTING INSTRUCTIONS WHEN ELECTRIC D.C. POWER PACK OPTION IS USED	6
FITTING INSTRUCTIONS WHEN USED WITH PTO/PUMP ON VEHICLE	8
OPERATION - ELECTRO-HYDRAULIC POWER PACK VERSION	10
TO LOWER RAMPS	10
TO RAISE RAMPS	10
OPERATION – PTO/PUMP VERSION	10
TO LOWER RAMPS	10
TO RAISE RAMPS	10
STABILISER LEGS	11



RAMP ASSIST MODEL 1 GENERAL LAYOUT

GENERAL

IMPORTANT NOTE: - FIRST ENSURE THAT THE MODEL 1: IS SUITABLE TO LIFT THE WEIGHT OF RAMPS BEING INSTALLED AND THIS IS DONE USING THE FOLLOWING FORMULAE: -

$\frac{L \times W}{2}$ MUST NOT EXCEED 650Kg where L= RAM LENGTH IN METERS
W=COMBINED WEIGHT OF BOTH RAMPS IN KG

IF RAMPS HAVE A FOLDOVER END THEN THE LENGTH MUST BE CALCULATED WITH THE RAMP FULLY EXTENDED.

The Ramp Assist System is designed to raise and lower loading ramps typically installed on 'beaver tail' plant carrying bodies. The system has been designed so that the body builder can fabricate the loading ramps and simply install Ramp Assist as the ramps are fitted to the body to enable them to be power raised and lowered. Providing the basic requirements for the installation of Ramp Assist are 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.**

Due to the unique design of Ramp Assist the loads, which will be passing over the ramps have no influence on the Ramp Assist mechanism. It is only the weight of the ramps that has a bearing on the selection of either ramp assist model 1 or 2.

RAMP ASSIST MODEL 1 fits to the rear member of the 'beaver tail' with the actuating hydraulic ram located under the 'beaver tail' floor and the actuating lever fitted to the ramp hinge bar. The actuating lever arm, which is attached to the hydraulic ram, locates on the underside of the ramps via a 'loose' connection, which allows for any ramp mis-alignment. Actuation of the hydraulic ram simply rotates the actuating lever and thus raises the ramps.

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 12 volt or 24 volt 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 with the lengths required. After installation of the components telephone Bushey Hall Winches and these items will be sent out for next day delivery after a price has been provided. (Price will vary depending on 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.

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

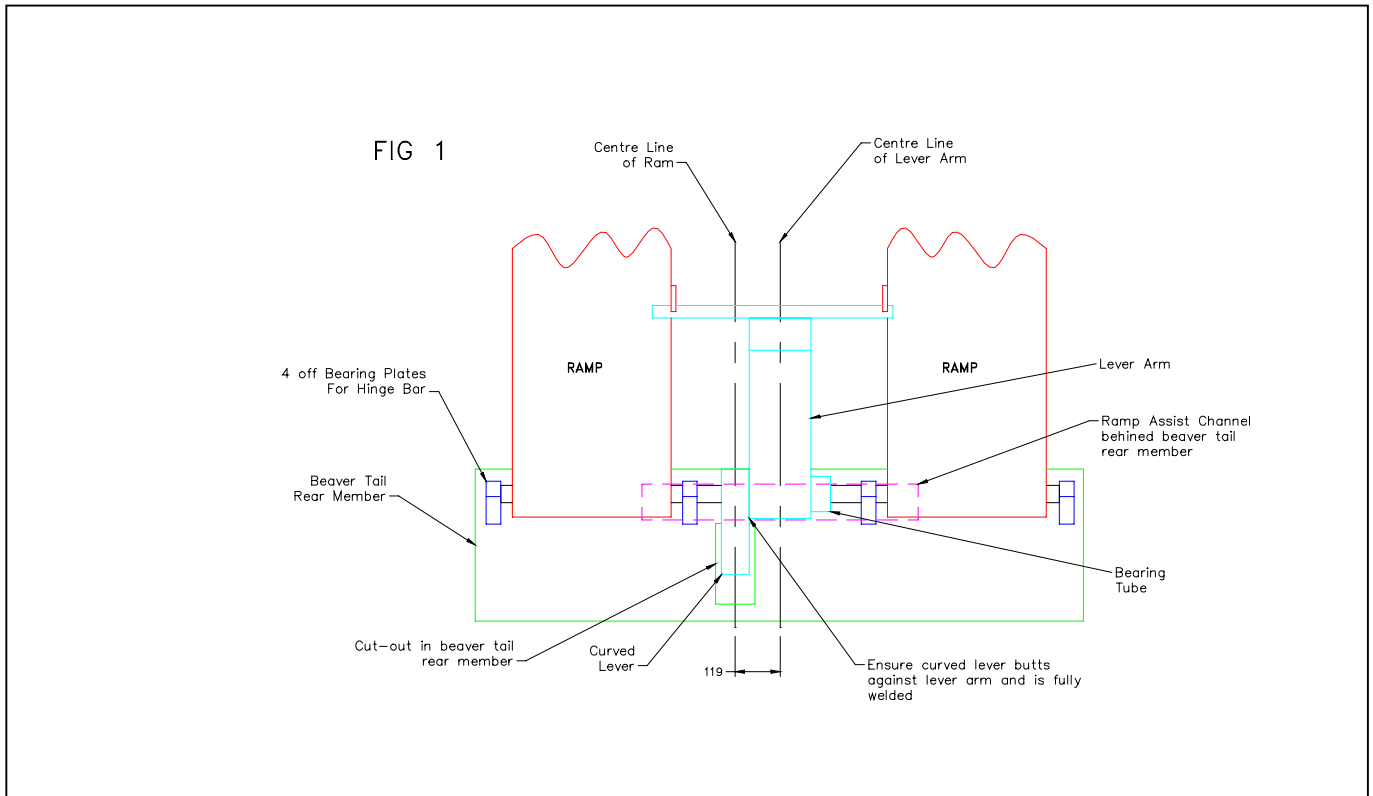
used for each ramp that is connected to the body side rave and these must prevent movement of the ramps forward and rearward. **Diagonal ratchet straps must not be used**

FITTING – MECHANICAL

Ramp assist model 1

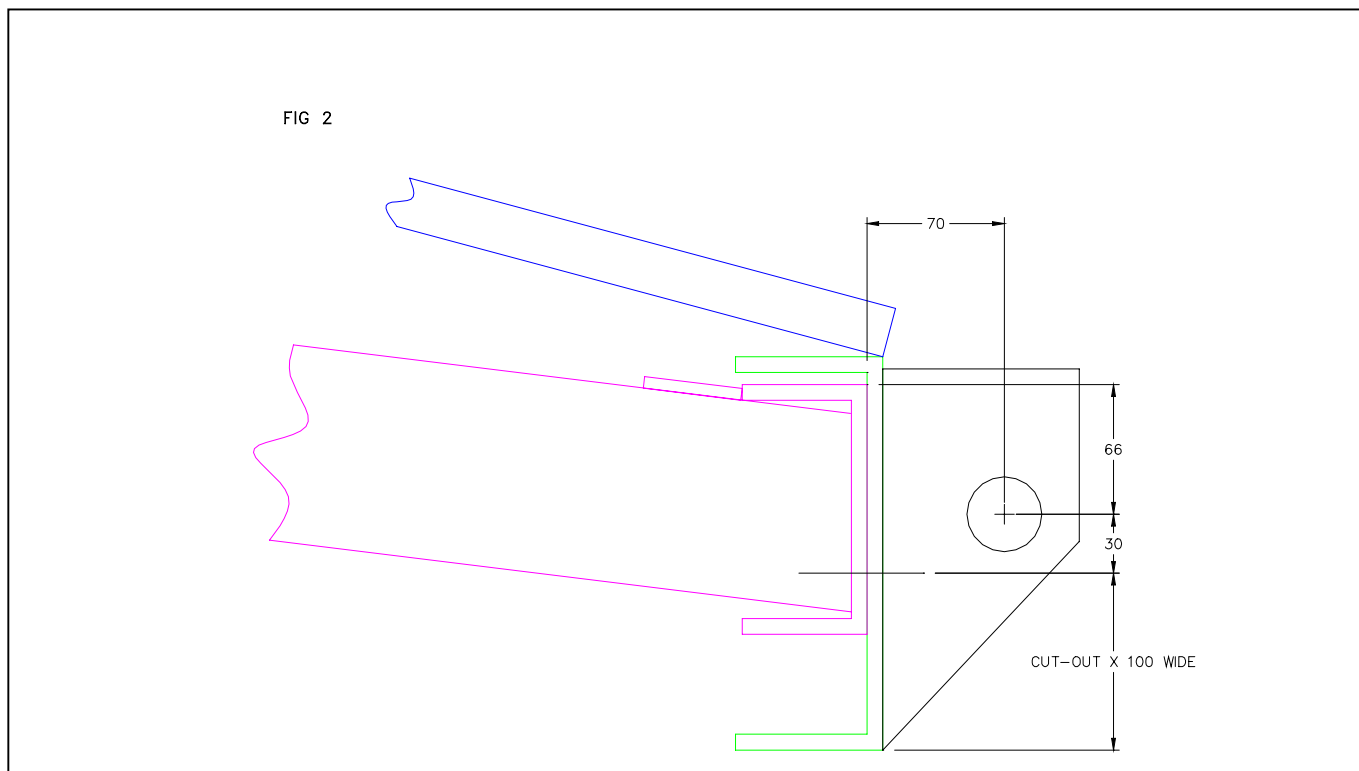
The ramp hinge bar must be 38.1mm (1-1/2") diameter bright round bar.

The hinge bar requires to be supported by bearing plates in four positions. One each on the outside of each ramp and one each between the inside of each ramp and the ends of the Ramp Assist bearing tube, fig. 1



The Ramp Assist Channel Cross Member and Ram Carrier should be positioned on the inside of the beaver tail cross member. (See fig 2) the centre line of the ram must be 119mm off set to the nearside from the centre line of the lever arm. This will ensure contact between the lever arm and the curved lever to allow full welding of the two components. In addition each side plate of the curved lever should be fully fillet welded inside and out to the bearing tube.

The beavertail rear cross member requires a cut-out to allow the Ramp Assist curved lever and ram rod to pass through. This cut-out should be 100mm wide and on the centre line of the Ramp Assist ram. It is recommended that a standard 200mm RSC section should be used.



Do not fully weld the Ramp Assist channel to the inner face of the beavertail rear cross member until the full assembly is complete and checked for correct operation.

Secure the outboard end of the Ramp assist ram carrier to the underside of the body structure by welding angle straps. (Not supplied)

Assemble the ramps, Ramp Assist Bearing Tube and Curved Lever to the hinge bar. Note at this point the Curved Lever is not welded to the Bearing Tube. Ensure that Ramp Assist Lever Arm is beneath the ramps. Fit Catch Plates, one each to the inside face of each ramp with the Lever Arm cross member between catch plates and underside of ramp. Allow 10mm clearance around catch plate and Lever Arm cross member to allow for misalignment. (Refer to general layout)

Support the ramps in the stowed position and secure. Fully extend the ram rod and pin to the Curved Lever. Heavy 'tack weld' Curved Lever to Bearing Tube. Manually lower ramps and ensure they will contact the ground before full travel of ram occurs (remember to allow for uneven ground). Once operation is checked fully weld Curved Lever to Bearing Tube.

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

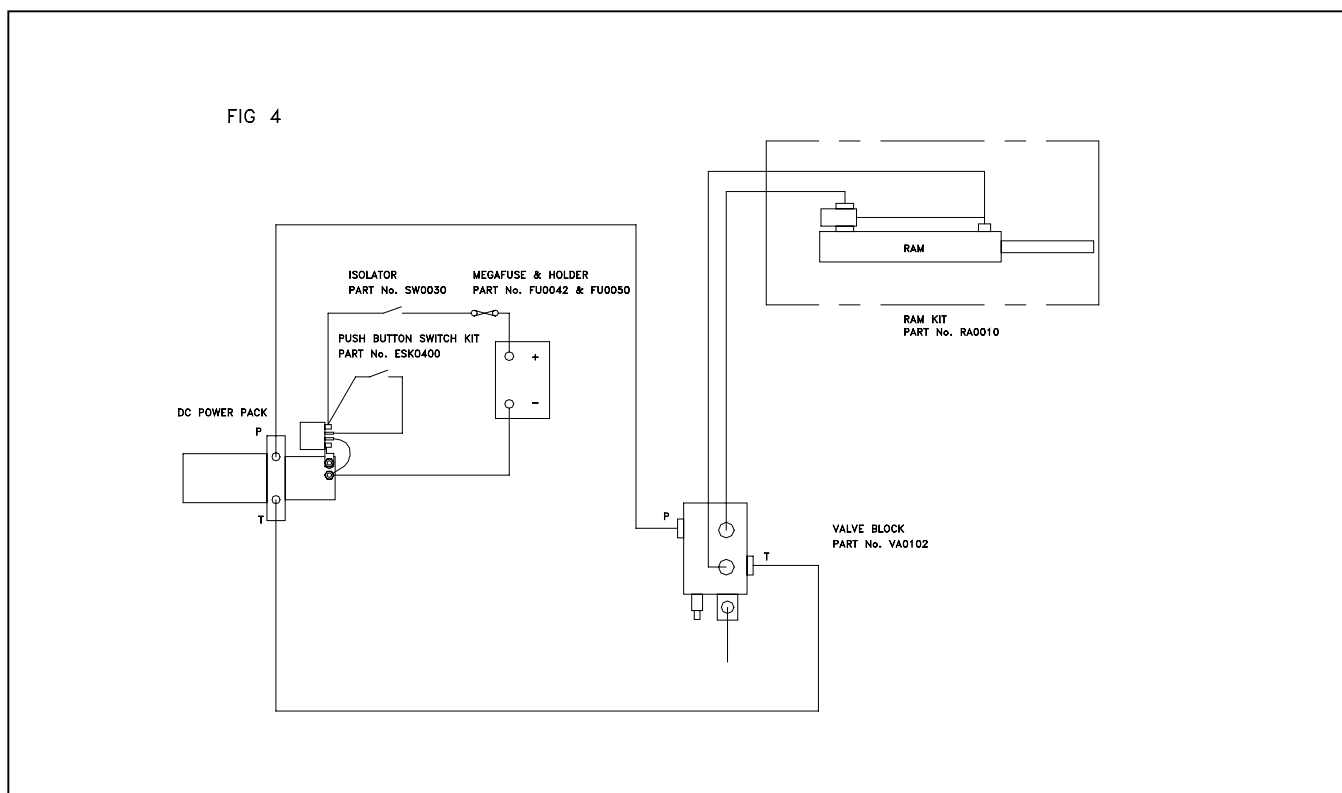
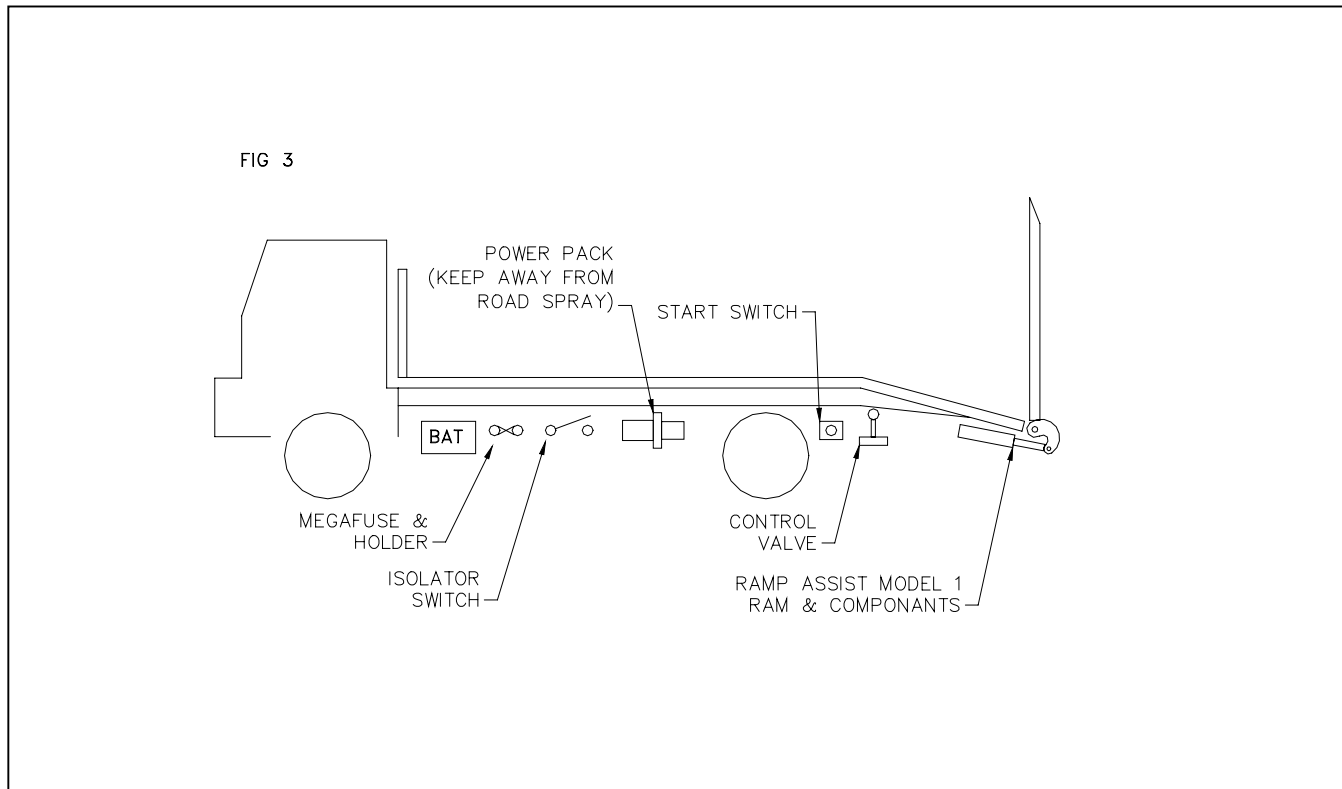
FITTING INSTRUCTIONS WHEN ELECTRIC D.C. POWER PACK OPTION IS USED

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 3. For hydraulic circuit see fig 4.

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. See fig 4 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 also an in line fuse should be included. See fig 4

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 recommend 170 amp (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.

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 Isolator/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 being used with pressure carry over or full operating pressure from another source. (See fig 5) For other configurations contact BHW Group.

- **For hydraulic systems with maximum oil flows of 60 lt/min see fig 6**
- **For hydraulic systems with oil flows of 60lt/min – 100lt/min see fig 6**

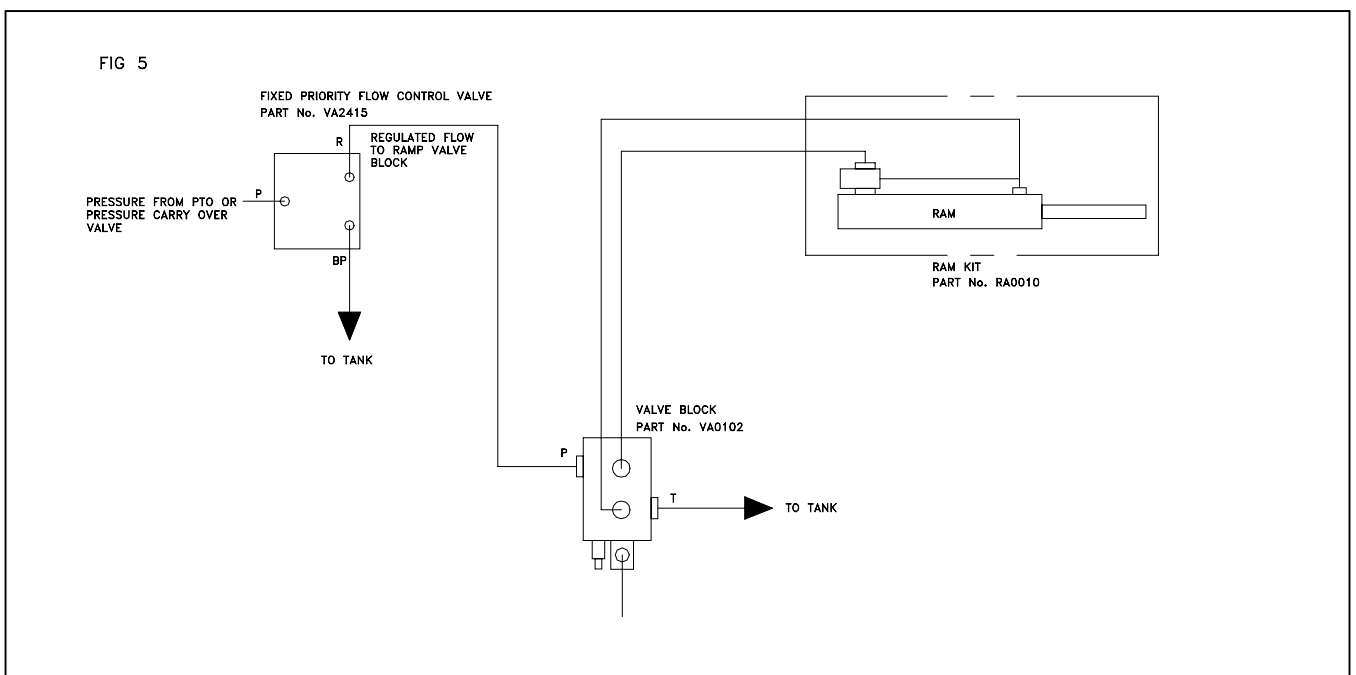
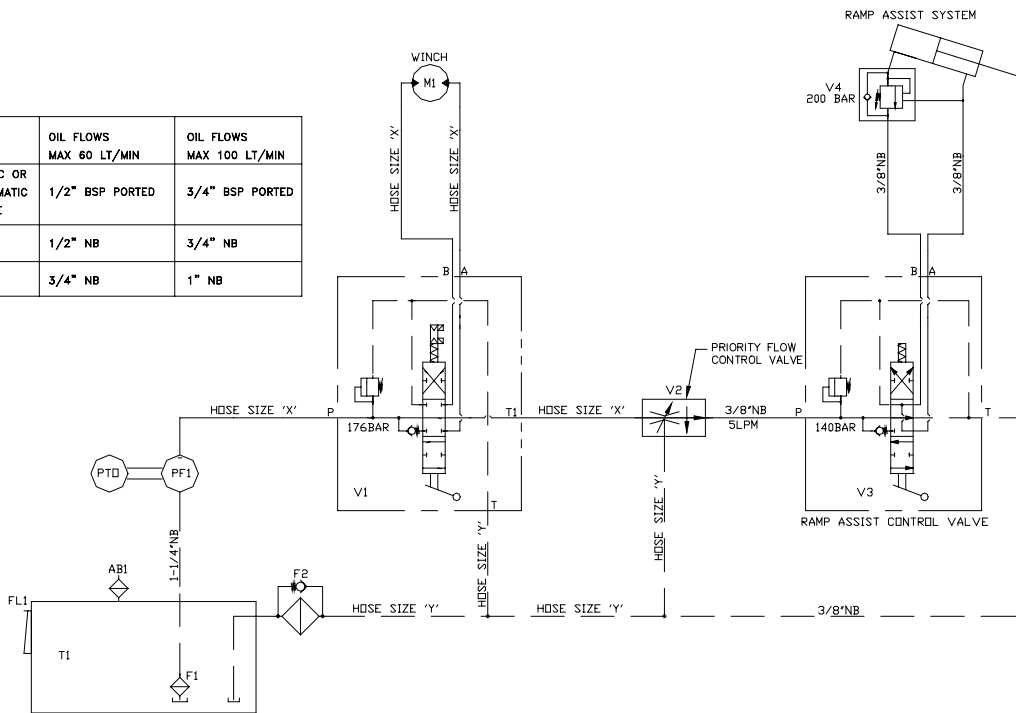


FIG 6

	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. (Not included) Ensure all pipes are supported and will not chafe in operation or why the vehicle is travelling

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 Bushey Hall Winches 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)

