



QUICK COUPLER MANUAL



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Installation

Before starting the installation of the Quick Coupler Hydraulic kit, please ensure that you have read this installation guide/instruction fully and understand the fit up process.

Schematics of electrical and hydraulic systems are included to give better understanding of how the system is intended to function and how to fit it correctly.

Fitting of in-cab decals and control box

Note: Please follow the preparation and fitting instructions as per adhesive manufacturer guidelines as outlined below. Failure to do so will result in poor adhesion and will result in decals and control system becoming detached from cab window.

Preparation and fitting instruction:

Select area that control box is easily accessible but not in risk of being impacted or bumped and knocked off the window.

Window must be cleaned with an isopropyl alcohol wipe, supplied in kit.

Heat the machine cab up until it reaches 20°C / 68°F to dry excess moisture and heat the window.

Remove adhesive cover on back of control box and press firmly onto the window.

Place safety / maintenance decals close to the control box where they can be read easily.



Locate a suitable 12/24V fused appliance, such as a cigarette lighter circuit. Establish the positive supply wire, using a DC tester.

Connect the electrical box into the chosen existing circuit as shown in the Electrical installation procedure drawing (section 6 in manual).

Connect the two-core wire supplied as shown, and run it down through the engine compartment to where the solenoid valve will be fitted.

With the control box fully connected, ensure that all wiring is fully secured and that there are no trailing or loose wires left that the driver that may be snagged and damage the connections.

Using the tie wraps supplied, secure the two-core wire or conduit as the case may be, the entire way along to the existing wiring in the engine compartment.

QH & Boom hose installation procedure

(NOTE: this is a generic fit up of a machine and is a representation as to how to fit up all machines. Some variations in fit up may need to take place.)

1. Open kit box and remove all components. Lay all components out on a clean workbench or work area, taking care to avoid dirt that may contaminate the hydraulic system when connecting the hoses and fittings.

2. Obtain the quick coupler hoses (part 2 and 2A) in exploded BOM of hose kit and attach to the quick coupler hydraulic cylinder (one on either side of the port block) as shown in fig. 1. Tighten to secure in place.



Fig. 1

3. Fit the quick coupler to the excavator before any further installation commences. Ensure that any 'O' ring seals required are fitted to the quick hitch as shown in fig. 2 on both link and dipper positions.



Fig. 2

4. Using a suitable straight edge square and a marking tool, mark the position for the supply hose clamp blocks on the dipper arm of the excavator as shown in fig. 3. These positions approximate to the bottom, middle and top of the dipper.



Fig. 3

Option A.

5. Note there are two double hose block clamps and two single hose block clamps supplied for fitting to the dipper arm. The two single clamps are for fitting to the end of the dipper at the quick hitch and are separated so as to route the hoses to each side of the quick hitch cylinder.



6. Using the corresponding hose block clamps supplied in the kit, mark the shape of the base of the clamp at each of the previously marked positions on the dipper. Ensure top clamp is located to one side and angled slightly to direct hoses along the side of the boom.



7. Using a sharp edged tool, scrape off paint cover at edge of marked areas to allow good contact to metal for welding of the hose clamp bases.



8. **WARNING** it is critical that machine is properly grounded to the welding plant before welding begins. Serious damage may be done to the excavator if not correctly grounded. Position the hose clamps in their pre-marked position and weld along top and bottom edges of the clamp base plates to secure in position.



9. Carry out this procedure on all clamps being used and then chip away all weld slag from the welds to leave a clean weld bead and surface, ready for repainting.



10. Using suitable colour match of paint, recoat the clamp base and leave a satisfactory finish to dipper arm in all clamp positions. Refit the hose block clamps to the bases ready to receive the hoses.



11. If using the supplied hose block clamps other than the manifold block, Push back the spring cover on the jumper hoses, locate hose in the clamp and secure in place. Repeat this with second jumper hose also at this time.



12. Run the unsecured portion of the jumper hoses up to the next hose clamp block previously fixed to the dipper and secure hoses in place as shown. Fit male/male hydraulic adapters supplied to hose ends ready to join remaining supply hoses in place.



13. Join supply hoses in place and tighten to secure.



14. Pull hoses along dipper and secure to top hose clamp block as shown.



Go to section 21.

Option B.

15. If the hose manifold block option is supplied the two single hose block clamps will not be required, as the manifold block is used to route the hoses by an alternative method.



16. If the optional hose manifold block is supplied in the kit, then prior to welding the block base to the dipper arm you must first connect the quick hitch jumper hose to the block outside ports as shown.



17. Then with quick coupler fully curled inwards as shown, position manifold block on dipper arm with hose connections pointing up the dipper arm towards the excavator cab.



18. Position the manifold block so that the jumper hoses to the quick coupler have freedom of movement through full quick coupler rotation cycle. Follow the procedure from previous steps to securely locate the block base plate to the dipper arm in the selected location.



19. If using manifold block option, attach supply hoses to remaining two centre ports in block and run hoses up dipper to top hose clamp block. Secure hoses in clamp as before.



20. At this point you should check the manifold hose arrangement throughout the working cycle, to ensure adequate hose clearance and movement especially in the curled out position as shown. It is important that the hoses do not get trapped in the arm linkages as this will cause wear and hose burst problems.



21. With hoses secured to dipper arm you must now run the hoses along the existing dipper ram supply hose line and cable tie in place along the full length of the boom.



22. Secure to existing hose at approximately 300mm centres between cable ties.



23. Continue this process until the hose is fully attached along existing pipework up to the end of the boom.



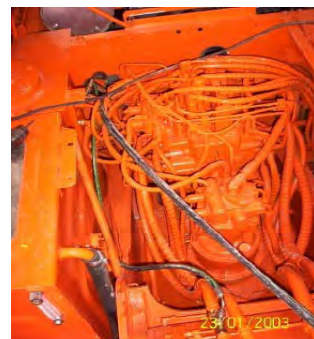
24. Snip off end of cable ties to leave a neat finish to hose installation.



25. Continue to run the supply hoses along the existing pipework and secure in place with supplied cable ties. Snip off cable tie ends to leave neat finish.



26. Continue to run the quick coupler supply hoses from base of boom in through compartment wall inlet to main pump compartment ready for connection to pump and supplied coupler solenoid valve.



27. Locate suitable position for fixing of solenoid valve in the pump housing compartment, typically on a compartment wall as shown or use mounting bracket supplied. Mark location of valve retaining holes for drilling.



28. Drill fixing holes in marked position as shown, taking care not to drill into any part or component that maybe located on opposite side of the compartment wall being drilled. Do not fit valve to panel at this stage.

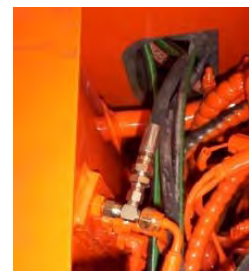


29. You must now fit remaining hoses to the tank, pump and bucket ram supply hose as follows.



Make sure that the tank pressure has been released by pushing vent button on tank.

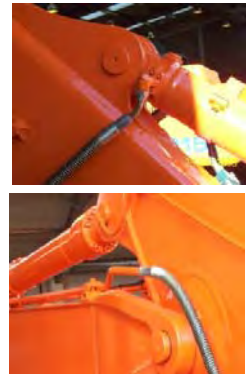
30. Connect tank `T' piece fitting to tank port and connect hose to branch as shown. Feed hose end through compartment panel to pump compartment.



31. Obtain the Bucket ram `T' piece fitting from kit. This fitting is dependent on machine make and model and may not look exactly like the samples shown opposite.



32. Identify the dipper arm bucket ram outstroke port supply line and follow this line back to the base of the boom. Take care to account for any crossover lines that the piping may take along the route.



Installation of the Pressure operated 'Curl to Open' lock feature

Option 1 - Pressure Switch and Relay

Insert 'T' piece or flange fitting at join of flexible hose to steel pipework at base of boom, once again checking that it is on dipper bucket ram outstroke port supply line that you are making the connection to. Connect the hose end to the 'T' piece or flange fitting branch and run the hose through the panel opening to the pump compartment as was done with the previous hoses. This hose is then connected to Pressure switch.



Connect the hose to the pump test port. On twin pump systems this is typically pump No. 1. This should always be confirmed by ensuring that it is the same pump that operates the dipper bucket ram. It is always good practice to fit a 'T' piece to the pump port as this allows the test port facility to be retained.

It is recommended that you connect the hoses to the ports of the solenoid valve at this stage as follows.

The hose fitted to the tank connection `T` piece is connected to the valve port marked `T`.

The hose from the pump is connected to valve port `P`.



The hose from the quick coupler cylinder outstroke port is connected to valve port `A`.

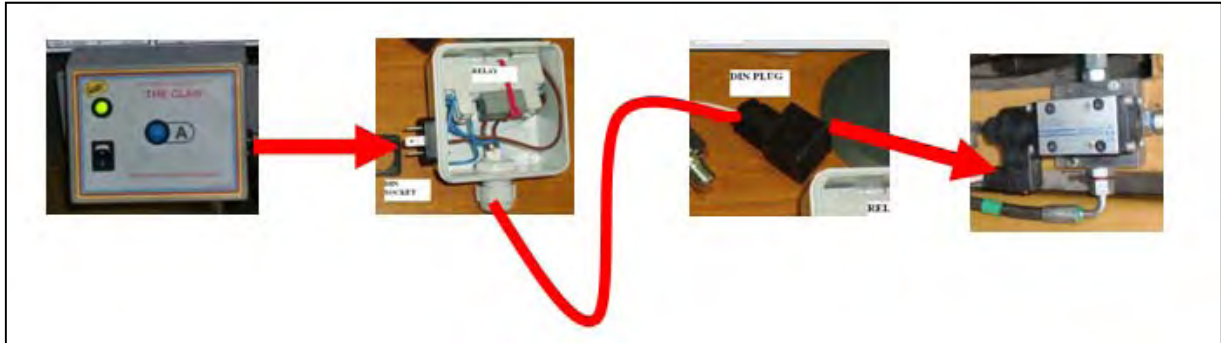
The hose from the quick coupler cylinder instroke port is connected to valve port `B`.

Connect the hose from the bucket supply line `T` piece to the pressure switch.

Cable tie the relay box assembly and pressure switch to the hoses coming from the solenoid valve.



Using the electrical cable supplied, make connections to the relay box assembly and then using the cable from the relay box connect the plug to the solenoid valve.



Secure the plug to the solenoid valve as shown.



Option 2 – 5 Port Solenoid Valve

33. Insert 'T' piece at join of flexible hose to steel pipework at base of boom, once again checking that it is on dipper bucket ram outstroke port supply line that you are making the connection to.



Connect the hose end to the 'T' piece branch and run the hose through the panel opening to the pump compartment as was done with the previous hoses. This hose is then connected to valve port 'X'.



34. Connect the hose to the pump test port. On twin pump systems this is typically pump No. 1. This should always be confirmed by ensuring that it is the same pump that operates the dipper bucket ram. It is always good practice to fit a 'T' piece to the pump port as this allows the test port facility to be retained.



35. Connect the hoses to the ports of the solenoid valve at this stage as follows.

The hose fitted to the tank connection 'T' piece is connected to the valve port marked 'T'.



The hose from the pump is connected to valve port 'P'.

36. The hose from the quick coupler cylinder outstroke port is connected to valve port `A`.

The hose from the quick coupler cylinder instroke port is connected to valve port `B`.

Connect the hose from the bucket supply line `T` piece to the valve port `X`.



37. Secure hosed solenoid valve to the panel wall using bolts supplied.

At this point it is advantageous to attach an earth wire with ring terminal to one of the connecting bolts. The other end of the earth wire is to be connected to the solenoid valve plug.



38. Using the electrical cable supplied, make connections to the solenoid plug terminals and connect the plug to the solenoid valve.



39. Secure the plug to the solenoid valve as shown.



Installation kit bill of materials

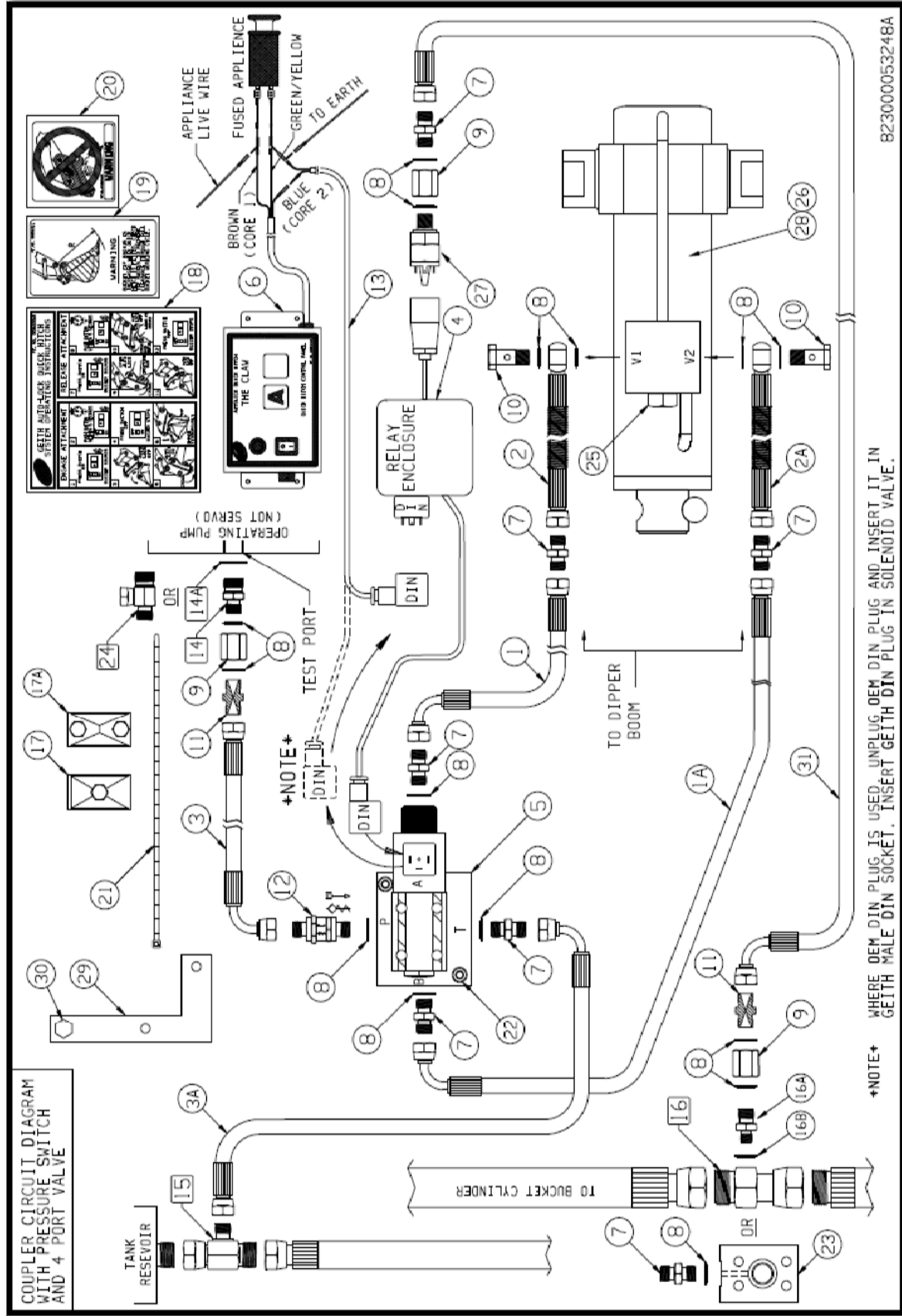


Compatible with "Coupler Circuit Diagram with Pressure Switch and 4 port valve"
823000053248A

Quick-Hitch Kit for Enter Machine make and Model

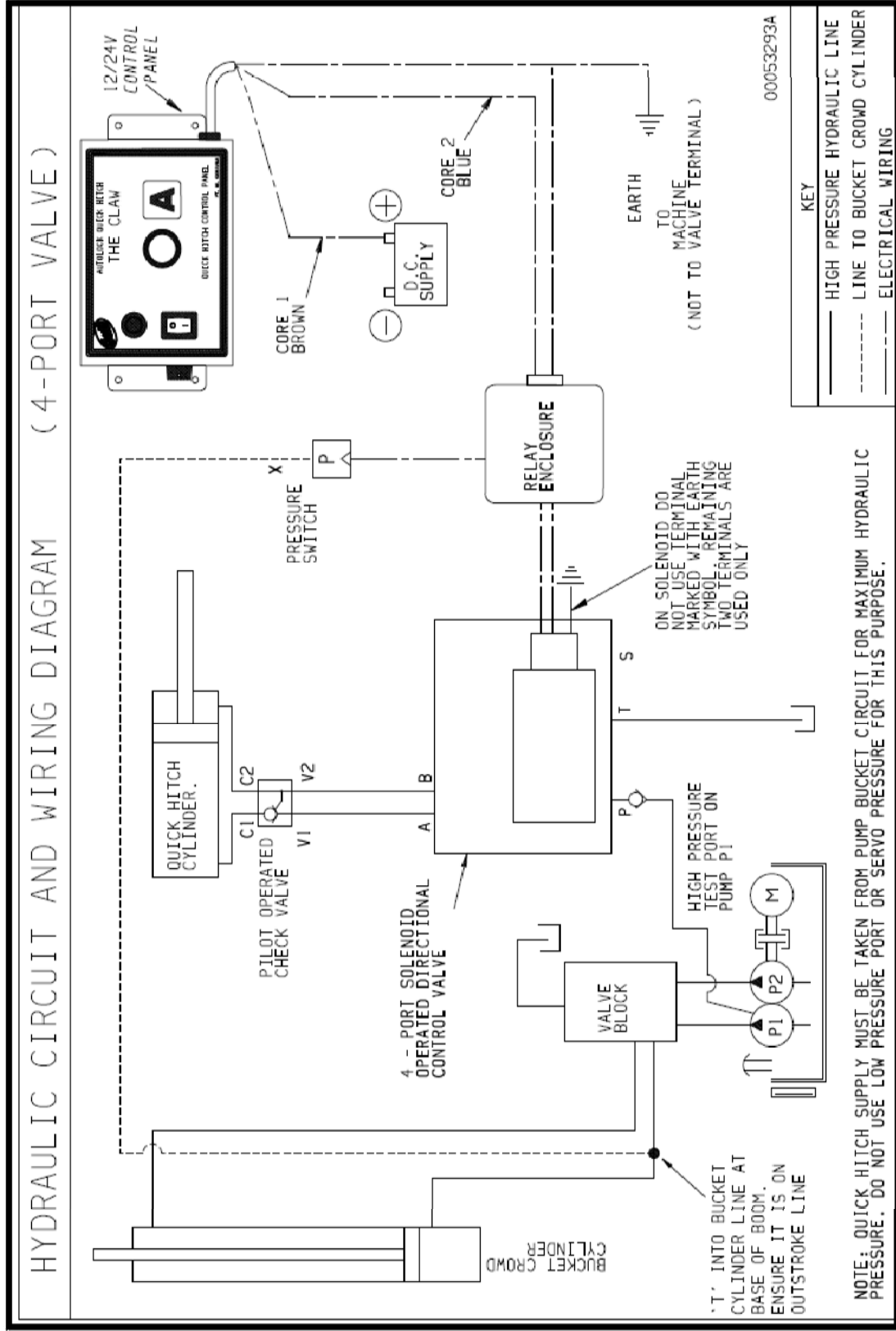
Item	Description	Part Number	Quantity	Check	Unit Cost	Total Cost
1		BOOM HOSE	1			
1A		BOOM HOSE	1			
2		LINK HOSE	1			
2A		LINK HOSE	1			
3		PUMP HOSE	1			
3A		TANK HOSE	1			
4	Relay Enclosure assembly c/w Pressure Switch		1			
5	4-port solenoid operated valve assembly	701000053254	1			
6	Geith Control Box	57696	1			
7	1/4" x 1/4" Male-Male Adaptor		11			
8	1/4" Bonded Seal		14			
9	1/4" Barrel Adaptor	7B/4-4	2			
10	1/4" Banjo Bolt	RX04MBMG	2			
11	1/4"x1/4" restrictor		1			
12	In Line Check Valve	VU14M	1			
13	2 Core Cable c/w DIN connector (assembled)		6 mtrs			
14	PUMP ADPT					
14A	Bonded Seal					
15	Tank Tee					
16	Bucket Adaptor					
16A	Adaptor					
16B	Bonded Seal					
17	Double 1/4" Hose Clamp					
17A	SINGLE 1/4" Hose Clamp					
18	Instruction Sticker	65006	1			
19	Warning Sticker	56311	1			
20	Warning Sticker	56312	1			
21	7mm Cable Ties		50			
22	M6 x 50 Hex Head bolt c/w nut and washer		2			
23	Bucket Adaptor	Optional T	N/A			
24	Optional Pump ADPT.	Optional T	1			
25	Pilot Operated Check Valve	need serial no.	1			
26	Hydraulic Cylinder Seal Kit	need serial no.	1			
27	Pressure Switch	as per item 4	1			
28	Hydraulic Cylinder	need serial no.	1			
29	Valve mounting Bracket	701000053255	1			
30	M12 x 60 Hex Head bolt c/w lock nut and washer		1			
31	H.A. 3000mm x Europulse-04S c/w ST/90s	BUCKET	1			
32	DIN FEMALE CONNECTOR C/W SCREW AND SEAL		1			

Exploded BOM of hyd kit



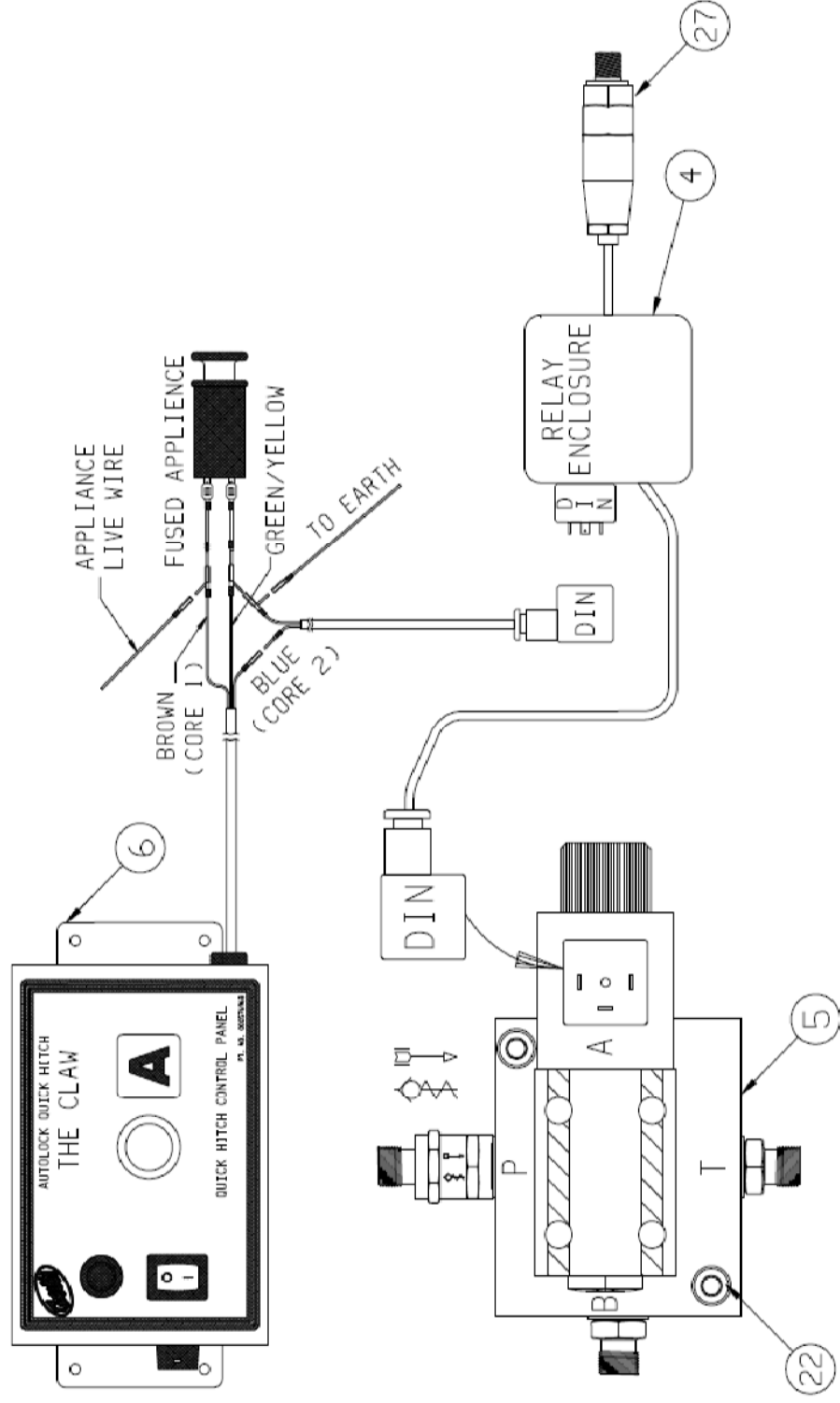
+NOTE+ WHERE OEM DIN PLUG IS USED, UNPLUG OEM DIN PLUG AND INSERT IT IN GEITH MALE DIN SOCKET. INSERT GEITH DIN PLUG IN SOLENOID VALVE.

Circuit installation map



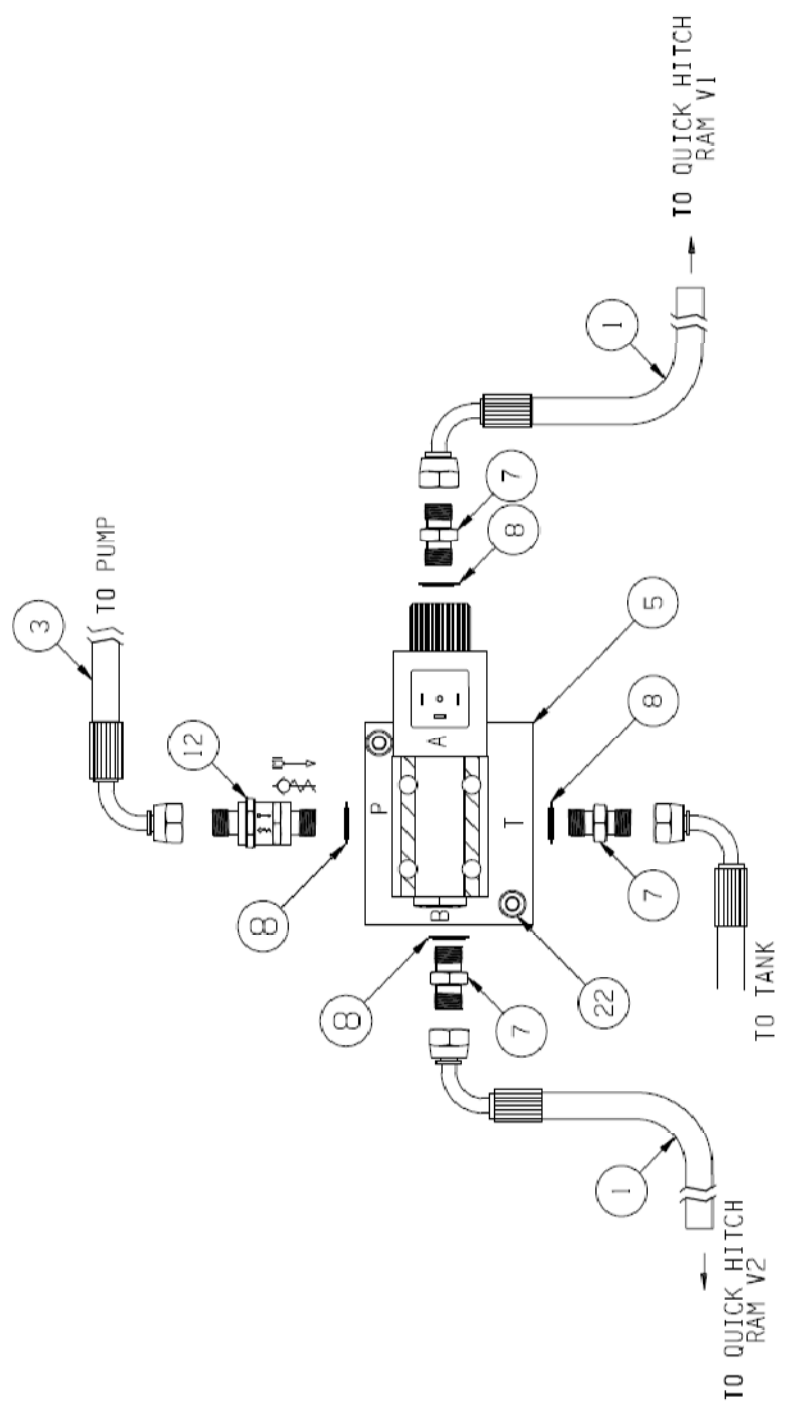
Electrical installation procedure

FIT-UP ARRANGEMENT FOR GEITH CONTROL BOX, 4 PORT CONTROL VALVE AND RELAY ENCLOSURE



Fit up arrangement for solenoid valve

FIT-UP ARRANGEMENT FOR GEITH 4 PORT CONTROL VALVE



Finish and test procedure

- Quick coupler to be worked through several cycles of opening and closing the hitch.
 - Machine to be left running for a number of minutes to show any leaks after start up.
 - Load test procedure as shown below to be completed before final sign off.
 - Any problems with fitting the kit or with the operations of the hitch to be reported back to Geith International.
- Visually check the hydraulic cylinder for leakages at pipes and rod seal. Replace if necessary.
- Internal piston seals can wear over time and are more difficult to check for performance degradation. One method of checking these seals is to

WARNING!

- Ensure test is carried out in a secure, controlled area and is clear of people.

- Connect an attachment to the coupler and open or curl the coupler back to load the hydraulic cylinder with the weight of the attachment.

- Lower the attachment to within **⚠ 300mm** from ground level.

- **⚠ Switch off the machine** and leave machine at rest for a nominal period of **⚠ 10 minutes**,

while observing any change to the position of the quick coupler engaging plate. **⚠ If the position is seen to drift inwards (hydraulic cylinder is in-stroking)** then it is an indication of potential loss of oil over the internal piston seals in the cylinder or a potential problem with the cylinder check valve failing to sufficiently retain the oil in the cylinder.

- Should drifting occur:

- Outstroke Quick Coupler cylinder to engage the attachment pins.

- Lower attachment and coupler on to the ground and **⚠ Switch off machine**.

- **⚠** Remove the hose from quick coupler cylinder port 'V2' and **plug the removed hose** to prevent loss of oil.

- Clean away oil residue from cylinder port.

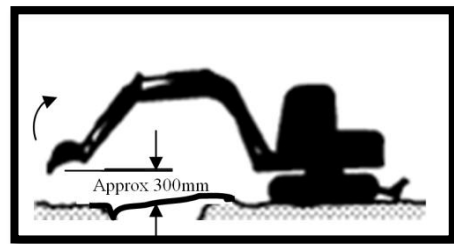
- Start machine and repeat the above procedure.

- **⚠** Observe the cylinder port for further or continued oil flow/seep.

- If oil flow is evident then there is an indication that the piston seals need replacement.

- Replace the piston seals and repeat the test procedure once more.

- If there is continued drift then the cylinder check valve should be replaced and again a re-test should be carried out to confirm resolution of the problem and the cylinder functions correctly.



WARNING!

- Review any previous maintenance history on the product
- Look for evidence of previous repair or re-work
- Document and hand to senior site supervisor, all noticeable issues resulting from the inspection

