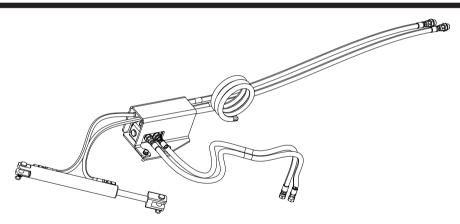
HYDRAULIC RETROFIT KIT FOR MINI POWER RAKE

INSTALLATION MANUAL





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DECAL IS APPLIED TO THE ATTACHMENT

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DECAL TO BE APPLIED TO WINDOW OF MACHINE

ACCESS OPERATOR MANUALS RISK ASSESSMENTS AND MORE

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To the Purchaser

Thank you and congratulations on the purchase of your new Hydraulic Conversion Kit for Digga Mini Power Rake. These kits are carefully designed and manufactured to give you years of dependable service. To keep it running efficiently please read the instructions in the manual. Be sure to observe all safety precautions and maintenance procedures as described in this manual.

This manual is to be read in conjunction with the Mini Power Rake Operators Manual (PM-000051).

Before Operation

Inspect the attachment for shipping damage and if any damage does exist, do not operate until the damaged parts have been replaced or repaired. The primary responsibility for safety with this equipment falls to the operator. Make sure the equipment is operated only by trained individuals that have read and understood this manual. If there is any portion of this manual or function you do not understand, contact your local authorized Digga dealer or the manufacturer to obtain further assistance. Keep this manual available for reference. Provide the manual to any new owners and/or operators.

About This Manual

This manual has been designed to help you do a better and safer job. Read this manual carefully and become familiar with its contents before connecting and operating this unit.

No responsibility will be taken by Digga for any omissions or errors in this manual as all data is correct at time of print, however Digga reserve the right to revise this manual without further notice.

Service

Use only manufacturer replacement parts. Substitute parts may not meet the required standards.



Never allow anyone to operate this attachment without reading the "Safety precautions" and "Operating instructions" sections of this manual. Always choose hard and level ground to park the vehicle on and set the brake, so the unit cannot roll.

Product Identification

MODELS COVERED IN THIS MANUAL

PR-000155 - HYDRAULIC SLEW CONVERSION KIT - DUAL REMOTES

PR-000176 - ELECTRO HYDRAULIC SLEW CONVERSION KIT - SINGLE REMOTE

Product Identification

When servicing or assembling your product, use only genuine Digga replacement parts. Substitute parts may not meet the standards required for safe and dependable operation. Use of non genuine Digga parts will void warranty and Digga accept no liability what so ever for consequential or special damages. All service must be performed by qualified professionals. Contact your local Digga dealer for details. To facilitate warranty or service, record the model and serial number of your Mini Power Rake in the space provided on this page. This information may be obtained from the identification plate located on the Mini Power Rake.



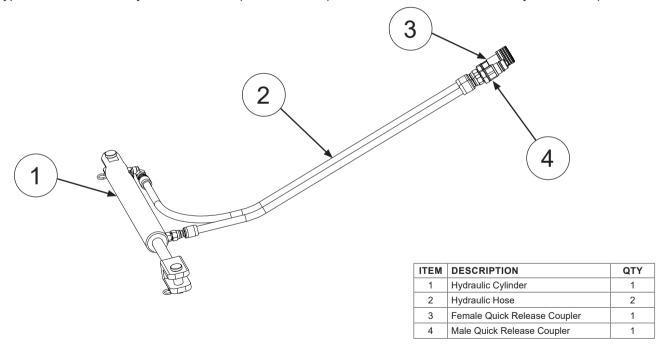
Model:	
Serial Number:	
Purchase Date:	

NOTE

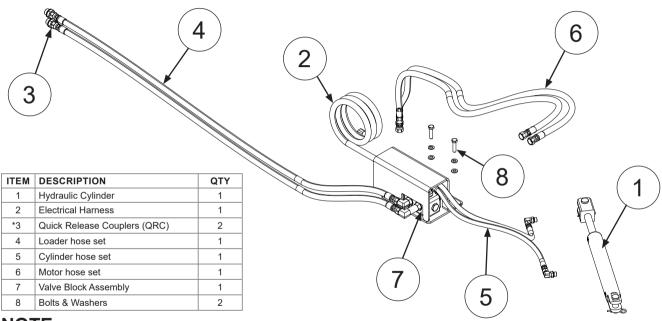
This hydraulic retrofit kit does not contain a serial tag, refer to the serial tag that is on the Mini Power Rake attachment. This contains the Hydraulic specifications such as the pressure & flow rating. The serial tag also contains the model number and serial number for the attachment. This is useful infomation when ordering parts and accessories at Digga.

To avoid any inconvenience before operation, please check that you have received the following items which you have ordered. Items may differ depending on type of machine the Mini Power Rake is to be fitted to. It is produced in 2 variants:

Type 1: PR-000155 - Hydraulic Slew Kit (Duel Remotes); For machines with dual set of hydraulilc couplers.



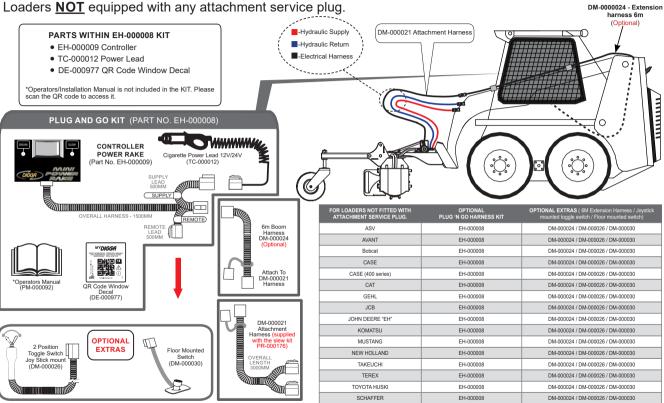
Type 2: PR-000176 - Electro Hydaulic Slew (Single Remote); For machines with a single set of hydraulic couplers.



NOTE

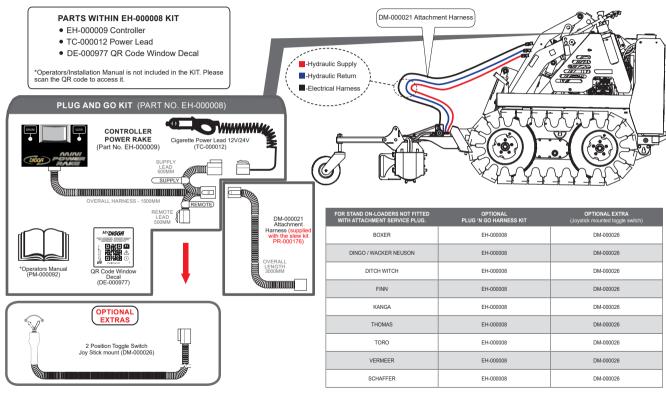
^{*} Item 3 (Quick Release Couplers) are not included in the kit. Please reuse the existing couplers from the current motor hose set on your mini power rake.

This page covers Digga Mini Power Rake (Electric-Over-Hydraulic Slew) models used on any seated host

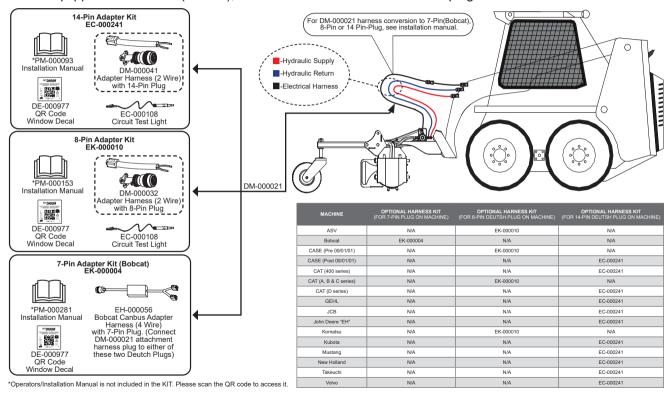


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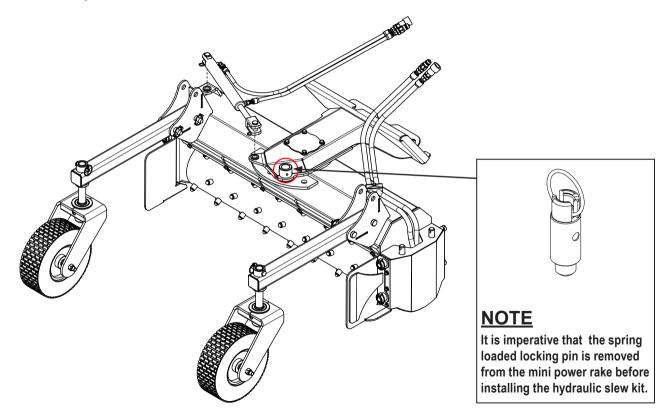
This page covers Digga Mini Power Rake (Electric-Over-Hydraulic Slew) models used on any stand on host Loaders **NOT** equipped with any attachment service plug.



This page covers Digga Mini Power Rake (Electric-Over-Hydraulic Slew) models when connected to any host Loader equipped with a 7-Pin (Bobcat); 8-Pin or 14-Pin attachment serivce plug.



PR-000155 - Hydraulic conversion kit - Dual remotes



To Install the hydraulic slew kit:

- 1. Remove the existing spring loaded slew-locking pin from the Mini Power Rake by loosening the M10 grub screw, as it will not be required on the retrofit hydraulic slew upgrade.
- 2. Install the hydraulic cylinder onto the existing eyelets of the Mini Power Rake and insert the clevis pins and R-clips into position.
- 3. Remove the two plastic dust caps from the hydraulic cylinder.
- 4. Install 1 x 90° elbow adaptor (Item 6 on page 22) at the bottom of the cylinder, this is included in the kit.
- 5. Then, install one straight adaptor (Item 7 on page 22) at the top end of the cylinder, where the piston is located, this is also supplied in the kit.

<u>NOTE</u>

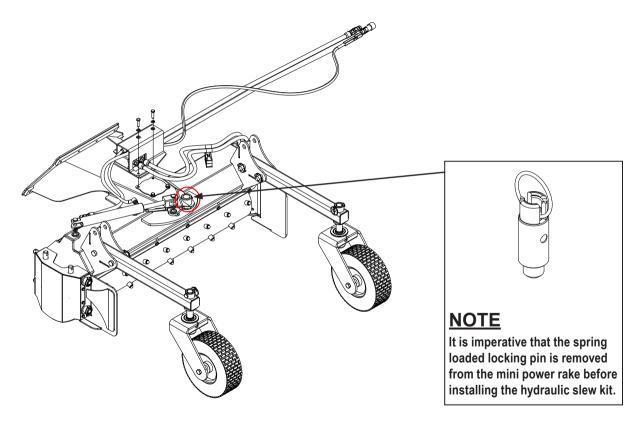
Hoses + Fittings may already be installed at the factory.

To connect the hydraulic hoses:

- 1. Connect the one end of hose set to each adaptor on the hydraulic cylinder. The longer hose (Item 2 on page 22) should be connected to the 90° elbow adaptor and the shorter hose (Item 3 on page 22) should be connected to the straight adaptor on the hydraulic cylinder.
- 2. Install the new quick release couplers to the other end of the hose set. This quick release couplers will be then conneted to the loader.

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PR-000176 - ELECTRO HYDRAULIC CONVERSION KIT - SINGLE REMOTE



To Install the Electro-Hydraulic slew kit:

- 1. Remove the existing spring loaded slew-locking pin from the Mini Power Rake by loosening the M10 grub screw, as it will not be required on the retrofit hydraulic upgrade.
- 2. Install the hydraulic cylinder onto the existing eyelets of the Digga Mini Power Rake and insert the clevis pins and R-clips into position.
- 3. On the hydraulic cylinder remove the 2 plastic dust caps and install 2 x 90° elbow adaptors (Item 12 on page 23) supplied in the kit. Note hoses and fittings may be installed at the factory.
- 4. To mount the hydraulic valve block assembly (Item 8 on page 23) on the mini power rake, begin by removing the two existing rear M10 bolts from the access cover plate. With the hoses already attached to the valve block, position the assembly in place and secure it using the two supplied M10 x 40mm bolts (Item 9 on page 23) along with the spring and commercial washers (Item 10 & 11 on page 23). Finally, fasten the bracket assembly securely to the boom weldment of the mini power rake.

To connect the hydraulic hoses and wiring harness:

- Disconnect your existing loader hose set (which connects the loader to the hydraulic motor) and remove the two quick release couplers(Item 3 & 4 on page 23) and re-use them on the new supplied loader hose (See Item 5 on page 23).
- 2. Connect the one end of loader hose set (Item 5 on page 23) to the diverter valve ports P1 and P2. (These hoses may already be connected to the diverter valve at the factory)
- 3. Hydraulic motor, Port A is inlet & Port B is outlet, connect motor Port A to Port C4 on the diverter valve using one of the hose from the motor hose set (Item 7 on page 23). Connect Port B (on the motor) to Port C1 on the diverter valve using the other hose in the hose set.
- 4. To reverse the drum rotation and direction of the slewing can be achieved by reversing the pickup hoses. This will necessitate switching the quick release couplers on the pickup hoses.
- 5. Connect the two cylinder hoses (Item 6 on page 23) from the diverter valve block to the hydraulic slew

- cylinder (Item 1 on page 23).
- 6. Connect the two cylinder hoses (Item 6 on page 23), supplied with the kit, to the diverter valve and the hydraulic cylinder. The one hose connects port C2 on the diverter valve to the front port of the hydraulic cylinder. The other hose connects port C3 on the diverter valve to the rear port on the hydraulic cylinder.
- 7. The 3m long electrical harness (Item 2 on page 23), connected to the diverter valve can be cable tied to the loader hose set (Item 5 on page 23) which connects to the loader, to aviod pinching or chafing.
- 8. There are two types of electrical connection methods to operate the electro-hydraulic slew kit. Both are optional and are not part of the basic electro-hydraulic slew kit (PR-000176).

Connect the wiring harness (Item 2 on page 23) on the mini power rake using the following options:

- □ Using the Direct connect method:
 - On loaders equipped with an attachment service plug (7-Pin, 8-Pin or 14-Pin), use the equivalent adapter harness (EH-000056, DM-000032 or DM-000041) provided for the respective sevice plugs (see page 11).
- □ Using the Plug N' Go Kit:
 - On loaders not equipped with an attachment service plug, use the optional Plug 'n Go kit (EH-000008) and optional 6m extension harness (DM-000024). There are two other optional aids to make slewing easier to operate being a remote toggle switch (DM-000026) or a foot operated remote switch (DM-000030),see page 9 & 10. **NOTE!** 6m optional extension harness is not required on stand-on mini skid-steer loaders.

Commissioning Procedure

Operating Parameters - HP (kW) Power Ratings

The hydraulic motor of your Mini Power Rake has a maximum power rating. Maximum pressure and flow cannot be achieved at the same time. Ensure you know and understand the maximum flow, pressure and power ratings of your Mini Power Rake and parent machine. Never exceed the maximum ratings listed on the serial tag attached to the side of the Mini Power Rake frame.

NOTE

When shipped, the hydraulic cylinders on this product contained air or an air-fluid mixture. Also, There are orifices beneath the ports on the hydraulic cylinder barrels that will restrict the exit of that air. Failure to remove all the air from the hydraulic cylinders can cause uneven, jerky cylinders movement when hydraulic controls are being operated and unwanted cylinder movement when those controls are not being operated. Slew the attachment left and right through several cycles to dispel all entrapped air.



WARNING

Do not lock the auxiliary hydraulics of your power unit into the ON position. Failure to obey this warning could result in death or serious injury.

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Operating Instructions

Hydraulic angle operation

The Mini Power Rake hydraulic angling can be operated as follows:

For Dual Remote Slew:

The slewing function of the attachment can be activated by using the auxiliary lever on the host machine.

For Single Remote Slew:

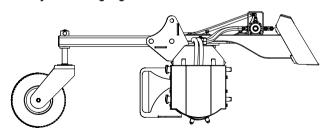
By utilizing the host machine service plug and the optional connectors (7 pin, 8 pin or 14 pin connectors depending on host machine). This allows the attachment angling function to be controlled by a remote toggle switch or foot operated switch.

If the host machine does not have an electrical service package and you have purchased the optional "Plug n Go" kit which can run off the machine's 12V accessory plug, you can slew the attachement left to right by using the rocker switch on the controller. Alternatively an optional 2-position toggle switch is available to fasten to the joystick of the host machine or a foot operated switch placed on the floor of the.

With both options of angling/slewing the attachment, the Mini Power Rake can only run with the drum rotating **OR** the attachment slewing. Both features cannot operate simultaneously.

NOTE

The hydraulic angling function will not work if the drum is running in a reverse direction.



ROLLER ROTATION	TRAVEL DIRECTION

Safety - Working with the Attachment

Take Extreme Care When Dealing with Hydraulics - Whilst Assembling, Operating, Maintaining or Performing any work on or near this product.

- Hydraulic fluid under pressure can penetrate the skin and may develop gangrene or other permanent disabilities. Hydraulic leaks under pressure may not be visible!
- If any fluid penetrates the skin, get immediate medical attention!
- Wear safety glasses, protective clothing, and use a sound piece of cardboard or wood when searching for hydraulic leaks. Do not use your hands!
- Before connecting or disconnecting hydraulic hoses, read your machine or power unit's operator manual for detailed instructions on connecting and disconnecting hydraulic attachments.
- Ensure that all parts meet the specifications for this product when installing or replacing hydraulic hoses or fittings.
- · After connecting hydraulic lines:
 - □ Slowly and carefully raise the loader's arm(s) and cycle the rollback/dump cylinders to check hose clearances and to check for any interference.
 - Operate the hydraulics on this product to ascertain forward and reverse.
 - □ Ensure that the Power Rake drum is rotating in the desired direction.
 - Ensure that the hoses cannot interfere with or actuate the quick-attach mechanism.
 - □ Ensure that hoses will not be pinched, or get tangled, in any equipment.
- Do not lock the auxiliary hydraulics in the "ON" position.
- Refer to host machine operator's manual and this manual for procedures and service intervals, then inspect
 and maintain the entire hydraulic system to ensure that the fluid remains clean, that all devices function
 properly, and that there are no fluid leaks.

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Before Use

The key feature of your Digga Mini Power Rake is low maintenance. When servicing your product remember to use only genuine Digga replacement parts. Use of non-genuine Digga parts will void warranty and Digga will accept no liability what so ever for consequential damages as a result thereof.



DANGER

Safety first!! Read and understand the safety instructions before beginning any maintenance.

Before First Use

Inspect the Mini Power Rake for shipping damage. If damage does exist, do not operate until the damaged parts have been replaced or repaired.

Before Each Use

- Make sure that all nuts and bolts are in place and properly tightened.
- Make sure that all other fasteners are in place and are performing their specified function.
- Make sure that all hydraulic fittings are tightened and that there are no leaks in any fittings or hoses.
- Make sure that all safety signs are in place, are clean, and are legible (refer to "Safety Decal Labels" on the Mini Power Rake operator's manual).
- Check for wear and tear on pins, pivots, wheel bearings, drum teeth, etc.., and replace any damaged parts and excessively worn parts.
- Use only manufacturer recommended replacement parts. Other parts may be substandard in fit and quality.
- Always wear safety goggles or glasses when inspecting equipment.
- Make sure all shielding is in place.

EVERY WEEK

Lubricate all pivot points.

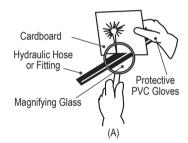
EVERY 40 HOURS OF USE

· Grease all fittings



WARNING

Escaping fluid under pressure as low as 100 PSI can have sufficient force to penetrate the skin up to 4" (100mm) away causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands to search for suspected leaks (A). Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak and use heavy duty PVC protective gloves. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.





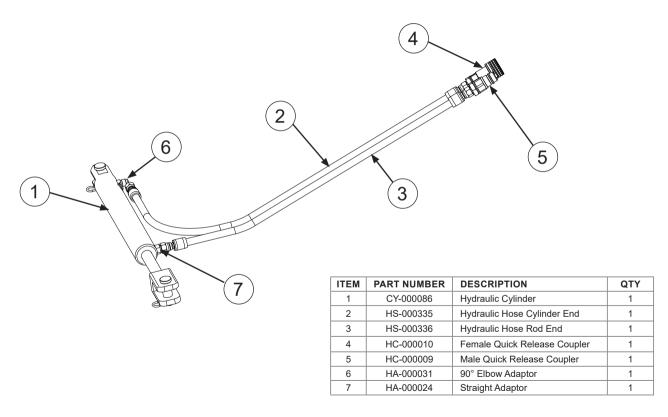
WARNING

Always wear the correct PPE, when operating or performing maintenance on this attachment. If a hydraulic fluid injection injury occurs, seek emergency medical attention immediately. Explain to medical staff that the injury is the result of pressurized fluid injection. Remember that even if the point of entry appears as a minor pin hole, this potentially could be a major injury, especially if not treated in time.

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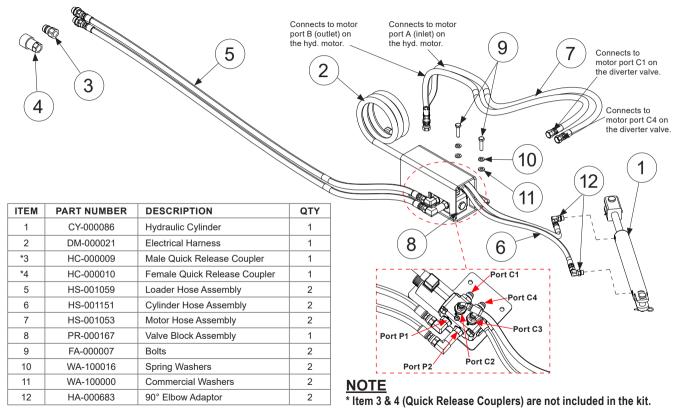
Spare Parts

PR-000155 - Hydraulic conversion kit - Dual remotes



Spare Parts

PR-000176 - ELECTRO HYDRAULIC CONVERSION KIT - SINGLE REMOTE



Troubleshooting

TROUBLE	POSSIBLE CAUSE	REMEDY		
DRUM NOT ROTATING	Hydralic hoses not connected	Check circuitry and connections		
DRUM NOT ROTATING	Abuse	Repair		
DRUM SPINNING IN OPPOSITE TO PREFERRED DIRECTION	Incorrect hosing	Switch hose quick disconnects around		
LEAKING HOSES	Loose fittings Tighten fittings			
ATTACHMENT WILL NOT SLEW (FOR ELECTRIC-OVER-HYDRAULIC SLEW KIT & PLUG'N GO KIT ONLY)	No power reaching the Switch Controller.	Check that the green LED light is Illuminated on the Cigarette lighter power connector of the power lead. (Cigarette lighter is AKA accessory power connector). There is a 10 Amp fuse inside the power plug connector. Check the continuity of the fuse if the LED light is out.		
	No power reaching the Power Rake.	Check that the LED inside the Hirschmann plug on the diverter valve is Illuminated. This is located on the attachment. When power is applied and the LED is not Illuminated, check the harness, no light indicates no power is available to the Power Rake. The clear Hirscmann plug with the LED is a new addition, from June 2022.		
	Controller not connected to the attachment.	Check harness & extension cable to ensure they are pluged in and secure.		
	LED light on Hirscmann plug is illuminating when power is applied, but still fails to slew	Check that the 12V solenoid coil is functional. When the rocker switch on the controller is switched on & off there should be a clicking sound heard when one's ear is close to the solenoid coil. Replace if necessary.		
ATTACHMENT WILL NOT SLEW (FOR DUAL REMOTES KIT ONLY)	Hydraulic couplers from slew cylinder not connected to auxilliary couplers. Check that slew cylinder hoses are connected possible hydraulic fluid blockage to slew cylinder hoses.			

NOTE:

Slew operation operates with hydraulic power, but requires 12 V DC power to the diverter valve to energise the solenoid.

Notes

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Contact Information

For further information on spare parts, please contact one of the Digga sales offices shown below, or contact your local authorised Digga dealer.

DIGGA INTERNATIONAL SALES OFFICES

ASIA PACIFIC

DIGGA HEAD OFFICE - BRISBANE

4 Octal St, Yatala QLD 4207 Phone: +61 7 3807 3330 Email: info@digga.com

DIGGA NEW SOUTH WALES

19 Mckay Close, Wetherill Park, NSW 2164 Phone: 1300 2 DIGGA Email: nsw@digga.com

DIGGA VICTORIA

151 Wedgewood Road, Hallam, VIC 3803 Phone: 1300 2 DIGGA Email: vic@digga.com

Web: www.digga.com

NORTH AMERICA

DIGGA NORTH AMERICA

2325 Industrial Parkway SW Dyersville IA 52040 Phone: + 1 563 875 7915 Email: infous@digga.com

Web: www.diggausa.com

EUROPE

DIGGA EUROPE

Unit 1, Nexus Park Plenty Close Newbury, RG14 5RL England, United Kingdom Phone: +44 (0) 1488 688 550 Email: infouk@digga.com

Web: www.diggaeurope.com

Warranty Statement

All new Digga products are warranted to be free from defects in materials or workmanship, for a period of twelve (12) months from date of original purchase, which may cause failure under normal usage and service when used for the purpose intended. Digga Australia Pty Ltd warrants its equipment for a period of twelve (12) months dating from delivery to the original user.

In the event of failure (excluding cable, ground engaging parts such as sprockets, digging chain, bearings, teeth, tamping and demolition heads, blade cutting edges, pilot bits, auger teeth, auger heads), if after examination, Digga determines failure was due to defective material and/or workmanship, parts only will be repaired or replaced. Digga may request defective product or products be returned prepaid to them for inspection at their place of business or to a location specified by Digga. The warranty will be considered void if the product or any part of the product is modified or repaired in any way not expressly authorized by Digga, or if closed components are disassembled prior to return. Closed components include, but are not limited to: gearboxes, hydraulic pumps, motors, cylinders and actuators. Any goods returned to Digga by the customer under warranty or repair must have all freight charges prepaid for on the customers account.

Any claims under this warranty must be made within fifteen (15) days after the Buyer learns of the facts upon which such claim is based. All claims not made in writing and received by Digga outside the time period specified above shall be deemed waived.

Damage or failure through operator abuse or negligence voids warranty.

This warranty is in lieu of all other warranties expressed or implied and there are no warranties of merchantability or of fitness for a particular purpose. In no event shall Digga be liable for consequential or special damage. Digga's liability for any and all losses and damages to buyer, resulting from any cause whatsoever, including Digga's negligence, irrespective of whether such defects are discoverable or latent, shall in no event exceed the purchase price of the particular products with respect to which losses or damages are claimed, or, at the election of Digga, the repair or replacement of defective or damaged products.

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