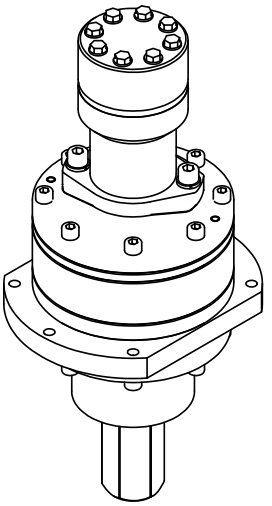
LIGHTWEIGHT DRIVES

Operator's Manual



MY.DIGGA.COM

SCAN THIS QR CODE

ACCESS OPERATOR MANUALS
RISK ASSESMENTS AND MORE

PM-000127-C

MY.DIGGA.COM

SCAN THIS

QR CODE

WARNING

CALIFORNIA PROPOSITION 65 WARNING

This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov

DE-000538

DECAL IS APPLIED TO THE ATTACHMENT

ACCESS OPERATOR MANUALS
RISK ASSESMENTS AND MORE

1 Table of Contents

2 Critical Information - Service Intervals

NOTE

Do not connect or operate your Planetary drive unit without first having read and understood the following statement.

Your Digga Lightweight Planetary drive unit is a high performance attachment that is designed for screw anchoring (Pier) installation, drilling and other extreme applications where it is seeing high levels of torque. To avoid premature wear and failure, and to fulfil your terms of warranty please read this statement.

All Digga Planetary drive units must have a first oil change within the first 30 hours (extreme use) or 50 hours (moderate use) or 3 months of use, which ever comes first to ensure the bed in of the drive unit. For more detailed information please read the maintenance section of this manual.

If the first oil change is not performed within this period, excessive wear within the gearbox will occur that will cause premature failure and all Warranty will be voided.

Oil must then be changed thereafter every 300 hours (extreme use) or 500 hours (moderate use) and a full service every 12 months must be performed by an authorised service agent to ensure Warranty requirements are met.

In the event of a failure under the warranty period:

- Contact Digga immediately, do not disassemble your drive without first obtaining written permission and instructions from Digga.
- Proof of service must be provided in hard copy form of both operational and service history records (including serial number of gearbox and hydraulic motor). Service must be performed by an authorised Digga service agent.

3 To The Purchaser

Thank you and Congratulations on the purchase of your new Digga Planetary drive unit.

This product was carefully designed and manufactured to give you years of dependable service. It is mandatory that oil changes are performed at the specified interval to keep it in top working condition (for details see the maintenance section of this manual).

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.**

Service

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

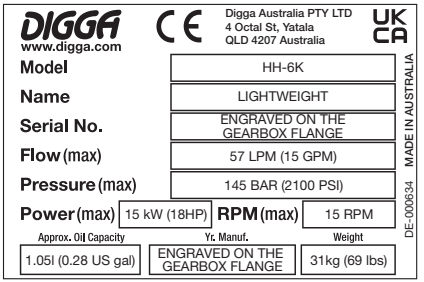
CAUTION

Never allow anyone 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.

4 Service and Preparation for Use

MODELS COVERED IN THIS MANUAL
HH-6K HH-8K

During the specified warranty period, your Digga Planetary drive unit is a user non serviceable part and unauthorised disassembly will void warranty. All service and warranty must be performed by an authorised Digga service agent. Contact your local Digga dealer for details. To facilitate warranty or service, record the model and serial number of your unit in the space provided on this page. This information may be obtained from the identification decal located on the product. HH units have their serial number and year of manufacture directy engraved onto the gearbox flange (see page 18).



DE-000624 (Decal)
Serial number and year of manufacture engraved on the gearbox flange.

NOTE

The parts department needs this information to ensure accurate parts can be sent to the authorised service agent.

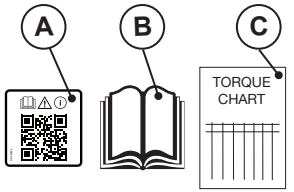
Model: _____

Serial Number: _____

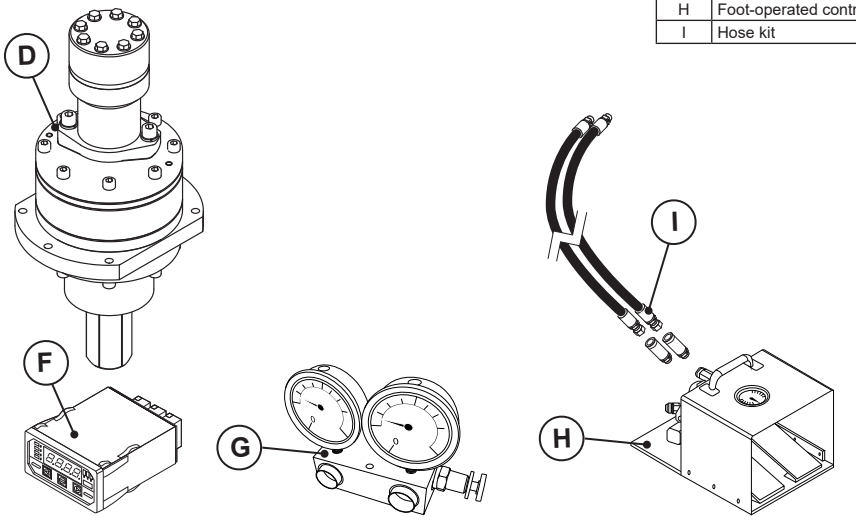
Purchase Date: _____

4 Service and Preparation for Use

To avoid any inconvenience before operation, please check that you have received the following items which you may have ordered. Items may differ depending on type of machine on which the drive units are to be fitted to.



REF	DESCRIPTION
A	QR Code Decal my.digga.com (see page 2)
B	Operator's manual PM-000127
C	Torque Chart
D	HH Lightweight Planetary Drive Unit
F	Pressure Differential Gauge (see manual PM-000081) (optional kit)
G	In-line Pressure Relief Valve (optional kit)
H	Foot-operated control (optional kit)
I	Hose kit



5 Safety Precautions - General Information

You must understand all safety statements shown on your attachment and in this manual. Especially note the information called out by the designations shown below. Follow these safety precautions, when operating or maintaining the attachment.

DANGER

The DANGER designation indicates an imminently hazardous situation that, if not avoided, will result in death.

WARNING

The WARNING designation indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION

The CAUTION designation indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury or property damage.

NOTE

You will also see information called out with the NOTE designation. This additional safety or general information is important to the maintenance and operation of your loader.

During day-to-day operation of your attachment, you will encounter a variety of situations beyond those listed in this manual. We encourage you to assess the risk present at any job site and in every work task before beginning work. Apply appropriate risk mitigation strategies to make safety a first priority at all times, and if these are not sufficient, stop the job and immediately seek the help of a qualified safety consultant.

5 Safety Precautions - General Information

Before You Dig

- Service provided in Australia through the website www.byda.com.au.
- Never begin work at a new location until the work area has been fully marked for underground utilities. Buried electrical, telephone, cable wires, gas, water and sewer lines are likely to be present. Unintentionally disrupting these hidden hazards while working with your loader can result in dangerous situations and property damage.
- Many countries offer a “dial before you dig” or similar service which advises the location of underground services in your area. If available also use this service prior to digging, drilling, trenching or any form of excavating and earthmoving.

⚠ CAUTION

You must ensure that underground utilities have been officially marked before working in the area. Markings must be valid according to state law or practice.

Exposure to Respirable Crystalline Silica Dust Along with Other Hazardous Dusts

- It is recommended to use dust suppression, dust collection, and if necessary personal protective equipment during the operation of this or any other machine attachment that may cause high levels of dust.

Remove Paint Before Welding or Heating

- Hazardous fumes/dust can be generated when paint is heated by welding, soldering, or using a torch. Do all work outside or in a well ventilated area and dispose of paint and solvent properly.
- Remove paint before welding or heating. When sanding or grinding paint, avoid breathing the dust. Wear an approved respirator. If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

5 Safety Precautions - General Information

Operating the Planetary Drive

- The primary responsibility for safety with this equipment falls to the operator. Make sure that the equipment is operated only by trained individuals, who have read and understood this manual.
- A risk assessment is required before commencing any job. Consider the site and terrain conditions, space available, the movement of personnel and equipment and any other factor relevant to this specific job.
- An operator must not use drugs or alcohol, which can change his or her alertness or coordination. An operator taking prescription or over-the-counter drugs should seek medical advice on whether or not he or she can safely operate the equipment.
- Don’t hurry the learning process or take the unit for granted.
- It is the skill, care, common sense, and good judgement of the operator that will determine how efficiently and safely the job is performed.
- Visually inspect your equipment, ensure correct assembly and installation is done and never operate the equipment that is not in proper working order.
- Know the capabilities of your equipment and practice its operation to become familiar with the controls, emergency shut down procedures, and the way it handles on your machine.
- Two persons are required to lift and position the HH lightweight unit in place.
- Lift using your back and not your legs. Keep the unit close to your body and avoid twisting your trunk. Apply the same technique when lowering the unit.
- Follow all safety decals and keep them clean. Replace them, If they become worn, damaged or illegible.
- Do not paint over, remove or deface any safety signs or warning decals on your equipment.
- Operate only from the operator’s station and operate only in daylight or with sufficient artificial light.
- Establish and maintain a minimum 6 meters (20 feet) exclusion zone around the working area. No person other than the operators should enter the work zone, while the hydraulic power supply is running.

Operating the Planetary Drive (Continued)

- Drill stem rotation must be stopped before adding or removing sections, or marking adjustments to the drill stem or sampling equipment.
- Ensure adequate ventilation and exhaust of air contaminants when operating in confined spaces or indoors. Consider the exhaust of hydraulic power packs.
- Flow and pressure gauges, fittings, and hoses must have a continuous operating pressure rating of at least 25% higher than the highest pressures of the system.
- All screw pilling operations must be stopped in the event of local thunderstorm or lightning activity. During operation, weather conditions shall be monitored, operations shall cease during electrical storms or when electrical storms are imminent.

5 Safety Precautions - General Information

DANGER

During screw pilling operation, maintain a minimum “no-work zone” buffer of 3 meters (10 feet) from any overhead electrical service and 2 meters (6 feet) from any underground service .

Ground Personnel and Bystanders

- Be alert to others in the work area. Be sure others know when and where you will be working.
- Loose fitting clothing, long hair, jewellery and equipment which might become entangled in moving equipment are prohibited while working near the Auger Drive.
- Operators, helpers, and other personnel working near the attachment must wear steel-toe safety shoes, safety glasses, and hard hats as a minimum. Hearing protection, respirators, and personal protective clothing will be specified in the site-specific Health and Safety Plan.

Storing Your Planetary Drive Unit

- Seal hydraulic couplers from contaminants and secure all hydraulic hoses off the ground to help prevent damage.
- Clean the unit thoroughly by removing all mud, dirt, and grease etc..
- Inspect for visible signs of wear, breakage, or damage. If required, order any damage parts and perform the necessary repairs to avoid delays upon removal from storage.
- Check that drive unit motor and hoses are full of clean oil and planetary gearbox is full.
- Coat liberally with grease the output shaft and collar, extension shaft and collar, and all connecting pins to prevent rust and reduce wear.
- Tighten loose nuts, cap screws, and hydraulic connections.
- Replace safety decals that are damaged or in an unreadable condition.
- Store unit in a dry and protected place, as leaving the unit outside will materially shorten its life.

5 Safety Precautions - General Information

End of Life Disposal

- At the completion of the useful life of the Planetary Drive unit, drain all fluids and dismantle by separating the different materials (rubber,steel, and plastic etc.). Follow all federal, state and local regulations for recycling and disposal of the fluid and components.

Maintaining the Planetary Drive

- All maintenance should be performed with the hydraulic power supply engine turned off and hydraulic pressure relieved.
- Never adjust a relief valve for pressure higher than recommended by the machine's manufacturer.

Transporting the Planetary Drive

- When transporting your attachment, follow all local government regulations that may apply along with any equipment safety precautions provided in this manual.
- It is the responsibility of the operator that safe systems of work are employed while handling this attachment.
- No tie down points are provided on the attachment and its the responsibility of the operator to ensure that the attachment is firmly fastened without causing any damage to it.
- Attachment should be well secured, when being moved or in transit and furthermore prior to moving, storing, loading/unloading,or parking.
- Verify that all tie down accessories (chains, slings, ropes, and shackles etc.) are capable of maintaining attachment stability during transporting and are attached in such a way to prevent unintended disengagement or shifting of the unit.
- Use extra care when loading or unloading the attachment on to a trailer or truck and disconnect hydraulic couplers during the transportation. No responsibility for loss or damage to persons or property in any regard can be attributed to Digga.

6 Safety - Working with the Attachment

DANGER

All bystanders should be kept at a minimum of 6 meters (20 feet) away from the working area of the planetary drive.

Complete a Risk Assessment

Your Digga Planetary Drive is a versatile earthmoving machinery attachment, capable of performing its tasks in a safe and effective manner. To ensure the safety of operators and others, it is important to document the work at hand for hazard and risk. Before beginning work, complete a risk assessment. The following steps provide a framework for this activity:

1	DOCUMENT THE ACTIVITY Assemble those involved in the activity. Write down the tasks required for the activity in step-by-step form.
2	IDENTIFY THE HAZARDS Next to each task, identify what part of the task may cause injury to those engaged in the task or others in the vicinity. Rate the consequences and likelihood of the hazard using the risk assessment matrix.
3	DOCUMENT THE CONTROL MEASURES Using the results from the risk assessment matrix, determine which hazards require attention. List all mitigation measures that are required to eliminate or minimize those hazards.
4	IDENTIFY THE RESPONSIBLE PERSON Document the name of the person responsible for implementation of the mitigation measure.
5	MONITOR AND REVIEW Ensure that the activity is supervised and that the documented process is being followed.

6 Safety - Working with the Attachment

NOTE

Remember, Personal Protection Equipment (PPE) provides a level of protection during work, but PPE is the last level of harzard control and prevention. Always refer to the hierarcy of hazard control, when planning a safety process.

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.
- All hoses located within 1m (3 ft) of the operator during normal operation must be guarded with a flexible burst protection sleeve (Eaton® Guardian, or equivalent).
- After connecting hydraulic lines:
  - □ Operate the hydraulics on this product to ascertain forward and reverse.
  - □ 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 hydraulics of your power unit or foot control 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.

6 Safety - Working with the Attachment

When Connecting this Product to a Hydraulic Power Unit

- Refer to the operator's manual of your power unit for any special or detailed mounting instructions regarding quick-attach mechanism.
- Be familiar with the emergency shutdown procedure of the hydraulic power unit and ensure quick and unobstructed access to any emergency stop device.
- Where enabler ('Dead Man') switches are installed connections are connected or installed it is illegal to disengage, tamper with, or remove them.

When Adjusting Servicing or Repairing this Product

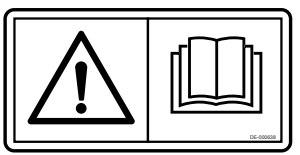
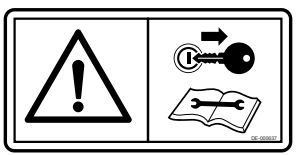
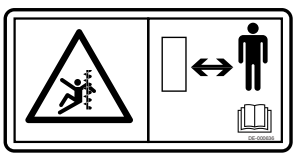
- Do not make any modifications to your Digga Planetary drive unit.
- When making repairs use only authorised Digga service agents and use only genuine Digga parts for the gearbox. For fasteners, hydraulic hoses, or hydraulic fittings, use only properly rated parts.
- Replacement parts must also have safety signs attached.

NOTE

For any additional safety information please see "Risk Management Booklet". To obtain a copy of this document please contact Digga Head Office.

7 Safety - Decal Labels

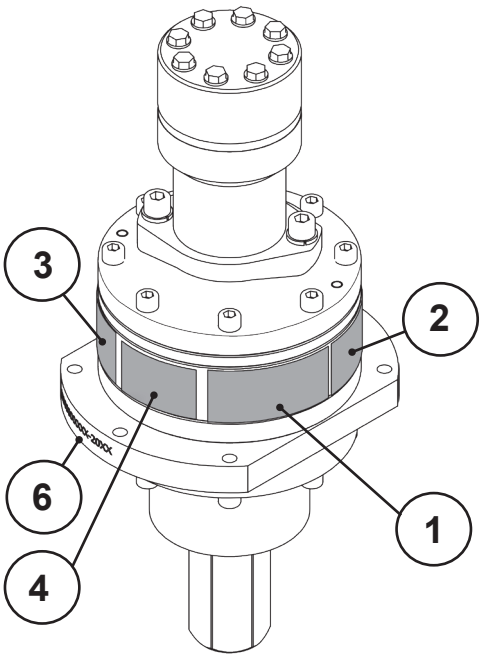
The following section provides a glossary of safety labels found on your Digga Planetary drive unit. These labels are important! Become familiar with both their meaning and location prior to operating your drive unit. They must be maintained and ensure that each label is clean, visible, and legible. To clean the decal, use a soft cloth, water, and soap. Avoid the use of solvents, gasoline, or other harsh chemicals, as these may damage the decal. If a label has been damaged or removed, it must be replaced.

READ OPERATOR'S MANUAL	REMOVE IGNITION KEY	ENTANGLEMENT / CRUSH HAZARD
		
DANGER Completely read and understand this operator's manual before using your attachment. Keep the manual with the attachment at all times.	**CAUTION** Before performing any maintenance on the Planetary drive or attachment, switch engine off and remove the key. Never leave the key in an unattended machine.	**CAUTION** Keep hands and body parts clear of auger drive. Keep all bystanders at a safe distance (6 meters/20 feet) from operating auger drive and work zone. Refer to this operator's manual for more information.

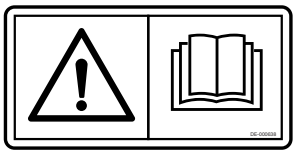
8 Safety - Decal Label Location

NOTE

The following figure and table show typical safety decal labels location. The actual position and quantity of the labels on your product may differ.

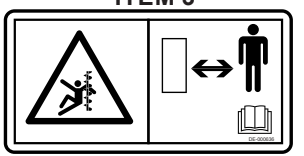


ITEM 1

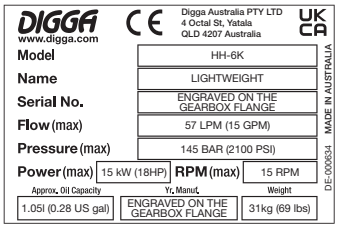


ITEM 2

ITEM 3



ITEM 4



ITEM	RE-ORDER CODE - HH Units	QTY
1	DE-000638	1
2	DE-000637	1
3	DE-000636	1
4	DE-000634	1
5	DE-002063	1

ITEM 6: Serial number and Year of Manufacture engraved on the gearbox flange.

Notes

9 Before Use

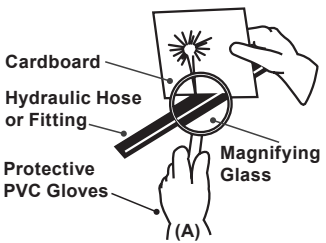
The key feature of your Digga Planetary drive is low maintenance, regular oil changes only are required. It contains no user serviceable parts, unauthorised disassembly will void warranty. Written permission from Digga must be obtained before performing any disassembly.

Before First Use

Inspect the drive unit 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 (see the safety sign section).
- Check for any oil leaks, wear and tear on pins, linkages, clips, bushes and hood.
- Ensure any damage or excessively worn parts are replaced.
- Always wear safety goggles or glasses when inspecting equipment.



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 pressurised fluid injection. Remember 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.

Operating Parameters - HP (KW) Power Ratings

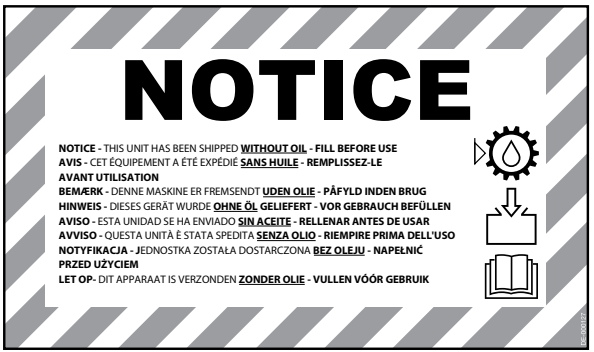
The hydraulic motor of your Planetary drive unit has a maximum power rating. Maximum Pressure and Flow cannot be achieved at the same time. Ensure you know and understand the maximum flow, pressure and power ratings of your drive unit and parent machine. Never exceed the maximum ratings listed below. The following charts indicate the maximum capacities of the drive unit.

MODEL				MAX POWER		MAX TORQUE		MAXIMUM FLOW		MAXIMUM PRESSURE	
MODEL	*PRV	**ECV	Halo	HP	kW	Nm	ft·lbs	LPM [GPM] @ BAR [PSI]		BAR [PSI] @ LPM [GPM]	
HH-6K	Included	Optional	N/A	18	15	8849	6528	57 [15]	145 [2100]	145 [2100]	42 [15]
HH-8K	Included	Optional	N/A	18	15	11588	8546	57 [15]	145 [2100]	190 [2700]	42 [15]

*** PRV - Pressure Relief Valve **ECV - Energy Control Valve**

10 Commissioning Procedure

All Digga Planetary drive units are dispatched from the factory full of fluids (hydraulic and gearbox oil) unless a warning decal is attached. The decal is only applied in special circumstances, for example if a drive unit needs to be air-freighted to the customer. Air transportation regulation prohibits certain fluids from being air-freighted. If there are no fluids in the drive unit at the time of despatching, then the decal **DE-000127** will be applied to the drive unit.



PART NUMBER: DE-000127

- Once you have determined if the drive unit has gearbox oil in or requires oil, ensure that the correct grade and quantity of oil is used. **Do not run the drive unit without gearbox oil**. Connect the hydraulic hoses to the hydraulic power unit through the hydraulic control unit and the inline pressure relief valve if applicable.

CAUTION

Before the drive unit is even connected to the machine ensure that it is full of hydraulic oil and the gearbox is full of gear oil. For details, see the Maintenance section of this manual.

10 Commissioning Procedure

All Planetary drive units listed in this manual use ISO EP 320 (mineral oil) gearbox oil for operating in tropical ambient temperatures. See maintenance section of this manual for gearbox oil volume, gearbox oil volume checking as well as the gearbox oil recommended for cold climate conditions. The gearbox oil quantity is printed on the product identification decal applied to the side of the gearbox housing (see page 18).

To ensure best motor life, run motor for approximate one hour at 30% of rated pressure before application to full load. Be sure that motor and gearbox are full of fluids prior to any load application. When procuring any hose assemblies for use on your Digga Planetary drive unit ensure that the maximum operating pressure of the hoses is always 25% higher than what the excavator or machine can produce (which the planetary drive unit will be used on).

CAUTION

To prevent the risk of hydraulic fluid injection protect the hoses from burst using sleeve guards, such as Eaton Guardian® or equivalent.

10 Commissioning Procedure

Installing your Planetary drive

- Remove the shipping banding from around the attachment.
- Ensure you have read the identification decal on the drive unit to obtain the maximum flow and pressure ratings, and your hydraulic power source flow and pressure settings are aligned with the requirements of the drive unit. **Never exceed the maximum flow and pressure ratings as warranty will be voided.**
- Follow all standard safety practices and the instructions for installing a hydraulic powered device as shown in your hydraulic power source operator's manual.
- Prepare the supporting structure (see page 26) to receive the planetary drive and attacht it as per the the manufacturer's instructions.
- Ensure that the planetary drive is secure to the supporting structure.
- Relieve any pressure from the hydraulic system and after making sure there is no foreign matter on the hydraulic couplers, connect the power and return couplers to the hydraulic system of your hydraulic power source. The list below shows the most common places to "tap" into the hydraulic system on various types of hydraulic power sources.

  - □ Skid Steer Loaders - Auxiliary hydraulic outlets.
  - □ Backhoes and Excavators - Auxiliary hydraulic outlets or bucket curl cylinder circuit.
  - □ Wheel Loaders - Auxiliary hydraulic outlets or bucket tilt (dump) cylinder circuit.
  - □ Hydraulic Power Packs - Hydraulic outlets.

- **Variable foot control -** It is the use of a variable foot control. This foot control gives the operator the ability to ease the power on and off avoiding shock loading, which will cause potential expensive damage to the hydraulic motor and gearbox.
- **Filtration/Contamination -** These units are fitted with a hydraulic motor, therefore require the oil to be of suitable cleanliness. Ensure hoses are clear of any contamination during connecting/disconnecting to prevent contaminants entering the hydraulic motor.
- With the unit lying horizontally on the ground connect the screw anchor, auger or extension. Ensure the auger and safety clip are installed correctly. The machine is now ready for use.

If augering, check the auger teeth and pilots are not worn. Ensure all worn parts are replaced. Worn parts will become ineffective and severely diminish the overall performance of the planetary drive and auger.

NOTE

This Lightweight drive is not designed to be mechanically connected to any machinery such as a loader or an excavator, only hydraulically connected to a hydraulic power source. If there is any portion of this manual that you do not understand, contact your Digga dealer or Digga Head Office. Altering, tampering or dismantling any part of the Digga drive unit without written permission from Digga will void any warranty.

10 Commissioning Procedure

HH units supporting structure connection

HH units require a structure to support its weight and torque load during operation. This structure is typically a telescopic arm and must be connected to the planetary drive unit through the gearbox flange. Do not use the hydraulic motor to connect the unit to the support structure.

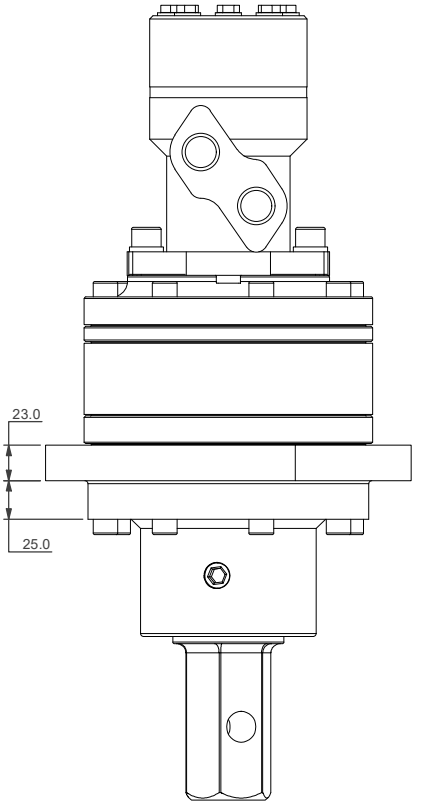
The technical drawings on the next page serve as a reference for the fitment of a torque supporting structure to HH units. Any structure used with the planetary drive unit must the purposely designed to take the loads inherent to the job and a risk assessment considering the complete set up must be undertaken before commencing any work.

CAUTION

6x M10 bolts class 8.8 (or above) are required to hold the HH unit to any structure. Do not rely solely on the bolts to transfer the torque load to the structure.

WARNING

HH units can produce as much as 11,600Nm (8550 ft-lb) of torque. See operating parameters on page 21. Digga does not take responsibility for third-party structures adapted to the drive unit.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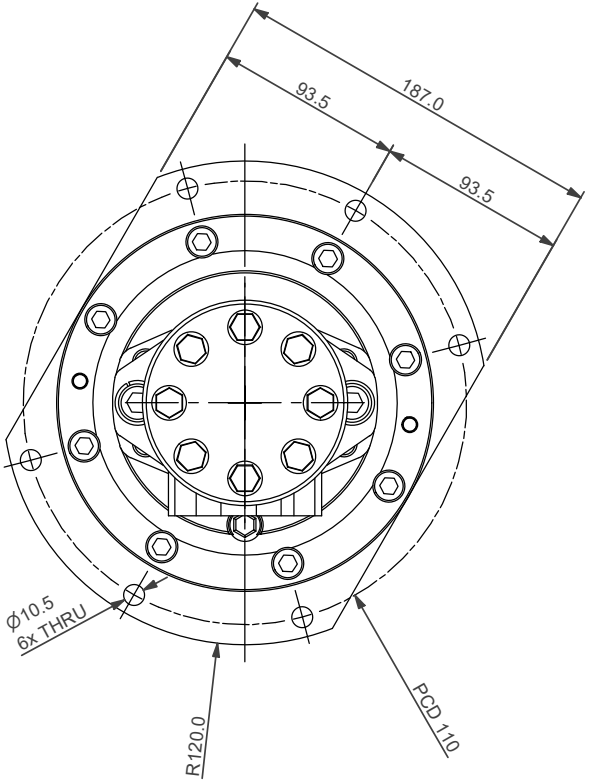
25.0


187.0
93.5
93.5
Ø10.5
6x THRU
R120.0
PCD 110

11 Operating Instructions

Cold Weather Startup Information

The information that is contained on this page is an aid to the operation and maintenance of your Digga planetary drive unit in cold weather. When you operate the hydraulic power source in temperatures from 9°C (48°F) to −40°C (−40°F) refer to the operation and maintenance manual of your machine. It is difficult to outline the operation and maintenance of a machine that is used in freezing temperatures for a general publication. The difficulty in outlining the requirements is caused by the following conditions:

- The unlimited differences in weather conditions
- Applications and ground conditions
- Supplies that are available in your area

In order to provide the best possible guidelines, use the information provided in this manual and other criteria such as: varying factors, recommendations from your machinery dealer, and past proven practices.

Hints for Cold Weather

Make sure that you read the information for selecting the correct oils for use in cold weather. For details refer to the Maintenance section of this manual. Prepare the machine for the weather conditions as instructed in your machines operator's manual.

Procedure for Startup in Cold Weather

- Your Digga Planetary drive unit is designed to operate within ambient temperatures of 5°C (41°F) and 30°C (86°F).
- For temperatures below 5°C (41°F) it is recommended to slowly start the drive under no load, at minimum speed. This will allow warm hydraulic oil from your host machine to circulate through the hydraulic motor of your drive and slowly bring it to the minimum recommended operating temperature.

- Once the minimum temperature has been achieved it is recommended to slowly introduce load to the output of the drive unit, which in turn will increase the internal gear oil temperature.

Note: The host machines cooling system and the lubrication system for the engine do not lose heat immediately upon shutdown. The transmission and the hydraulic system lose heat more rapidly because of more exposed areas. The Planetary gearbox and motor cases cool rapidly, since the cases do not operate as warm as other compartments. Therefore, after any period of down time on the machine, ensure you achieve full operating temperatures through following start up instructions. Thick oil can also cause high case pressures which in turn cause shaft seal problems.

Operating Procedure - AUGERING

- This unit is designed for rotating piers into the ground and can also be used to drill vertical or horizontal holes. However, this equipment was not designed to be attached to a hosting machine, such as a loader or an excavator. Use in any other way is considered contrary to the intended use.
- Consider loads of the planetary drive, augers, extensions and any other structures or accessories attached to the planetary drive, as well as spoil load and dynamic loads inherent to augering work. See Commissioning Procedure on page 27 for details.
- After all installation instructions have been completed, safety information read and understood, and the rest of this operator's manual has been reviewed, your Digga Planetary Drive is now ready for use.
- With the auger raised off the ground and the hydraulic power source's engine set at a low RPM, activate the drive control valve to determine which position the control valve lever must be in to turn the auger in a forward (clockwise) rotation. This is the "digging" position.

CAUTION

Your Digga Planetary drive is specifically designed for drilling and rotational operation only, it is not a lifting device!

11 Operating Instructions

- Before beginning to dig, experiment with auger speed to determine a suitable auger RPM. Generally, in light and sandy soil, a high RPM is desirable. In hard, rocky, or frozen soils a slower RPM is desirable. To increase the auger RPM, increase the hydraulic power source's engine RPM. Decrease the hydraulic power source’s engine RPM to decrease the auger RPM.
- As the auger starts to load up with spoil, stop the rotation whilst still in the hole and raise the auger vertically. Move away from the hole, rotate the auger, and stop, rotate the auger and stop in the forward direction to remove the spoil. Do not rapidly engage forward/reverse action to remove spoil.
- Do not remove the auger on an angle out of the hole, as you will run the increased risk of bending the auger or shaft.
- If trying to remove the auger full of material and you experience strong resistance, reverse the auger slowly whilst raising the auger vertically to assist with removal.
- Do not flick the dirt (especially mud or clay) from the auger, as you may run the increased risk of bending the auger shaft.
- Keep clearing the auger hole regularly as you drill deeper. This will help prolong the life of the auger and the wear parts. In rocks, adding a slow stream of water is recommended to help the performance and life of the rock teeth.
- Ensure the vertical position is maintained when drilling.

⚠ CAUTION

Do not rapidly engage forward reverse operation to remove soil from the Auger, this creates excessive pressure spikes which will adversely effect performance and longevity of the motor.

Operating Procedure - EXTENSIONS AND TELESCOPIC AUGER EXTENSIONS

- Once you have obtained the maximum depth with the extension and auger you have, raise the auger out of the hole and clear the spoil from the auger. Place the auger back into the hole ensuring the auger is bottomed out in the hole and the hub of the extension is clear and easily accessible. Remove the auger pin to disengage the drive unit from the auger.

⚠ CAUTION

Ensure personal safety at all times, determine if access to the auger hub, once the auger is in the hole, is safe. If not safe for persons assisting, place boards or covers across the hole before attempting to reach across to the hub.

- Install the additional extension onto the auger drive with pin and safety clip, lower the extension and attach to the auger with second pin and safety clip. Always ensure persons assisting are clear and visible to the operator at all times.
- Recommence drilling, once you have reached the maximum depth, raise the auger and extension out of the hole until the eyelets of the extension are visible and just above the hole. Slide the two support bars through the two heavy duty eyelets or U-brackets welded to the outer extension. Either then remove the pin and section of extension and place away from the hole. Then re-pin back to the bottom section, take the weight of the rest of the extension and auger on the machine and remove the support bars. Clear the auger and then keep repeating these steps.
- For telescopic extensions, use the same method as above, but slide the inner extension back into the auger and pin.

NOTE

Digga does not accept any liability for injury or damage resulting from the operator using the extension (s) outside the designed operating procedure.

11 Operation Instructions

Operating Procedure - SCREW ANCHORING (PILE/PIER)

- Installation is to be performed by a trained and/or certified installer.
- Connect the manufacturer's approved adapters to the planetary drive head.
- Install pile/pier with a continuous motion. The rate should match the pitch on the pile. Make sure to apply just enough downward pressure to help the advancement of the pile into the ground, but not to much that you are driving or drilling the pile into the ground. Always maintain a plumb line so that you do not bend the pile.

It is therefore highly recommended that Torque monitoring equipment to keep record of the torque and pressure is installed. Contact Digga Head Office or your local Digga Dealer for further information regarding torque monitoring options.

NOTE

It is the responsibility of the installer to correctly calculate, plan and execute the installation of the piers to the nominated required torques. Digga does not accept any liability or consequential loss that is incurred from incorrect installation, over torquing or under torquing of piles.

Hand mounted use

HH units are designed to be light enough to be hand-carried to the screw pilling location and spare the use of a hosting machine, such as an excavator or mini-loader. However, despite their lightweight, HH planetary drive units deploy a massive torque load and must be properly supported during use.

- A risk assessment is required before commencing any job. Consider the site and terrain conditions, space available, the movement of personnel and equipment and any other factor relevant to this specific job.
- At least two persons are required to lift and position the HH unit in place.
- Lift using your back and not your legs. Keep the unit close to your body and avoid twisting your trunk. Apply the same technique when lowering the unit.
- Even though you can mount the HH unit to the screw pile without mechanical assistance, you must install a structure to take the torque load. See "Commissioning Procedure" on page 26.
- Demark an exclusion zone with a radius bigger than the length of the structure used to support the torque load. Telescopic torque bars are typically used and must be designed and built by qualified professionals.
- Keep the exclusion zone clear during operation. Install the controls out of the exclusion zone. Do not allow personnel to stay in the exclusion zone during the operation of the drive.
- Ensure clear vision of the screw pilling from the control station. Do not override enabler (dead-man) controls.
- Anchor points for the supporting structure must support the loads applied. Consult the manufactures' instructions for the supporting structure installation.
- Ensure adequate ventilation when working in confined spaces. Consider the exhaust of hydraulic power packs.

12 Maintenance

Oil Change

The gearbox oil capacity is shown on a decal on the gearbox for lightweight units.

Initial (Bed-in) Oil Change:

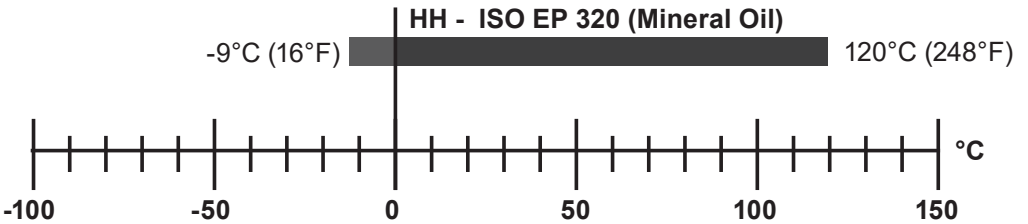
- The first oil change must be carried out within the first 50 hours of use under moderate operating conditions. Thereafter, every 500 hours.
- Change the gear oil after the first 30 hours of severe operating conditions* (i.e. severe ambient temperature conditions of +40°C or below 0°C, when augering, screw piling or core barrelling in hard ground). Thereafter, every 300 hours.

OIL CHANGE SCHEDULE	MODERATE OPERATING CONDITIONS	SEVERE OPERATING CONDITIONS*
FIRST OIL CHANGE	Within 3 months OR initial 50 hours of use	Within the first 30 hours of use
2ND OIL CHANGE PLUS SUBSEQUENT OIL CHANGES	After 500 hours or 12 months of use	After 300 hours of use thereafter (Drive requires a major stripdown, inspection and rebuild)
GEARBOX OIL: ISO EP 320 Extreme Pressure Mineral Gear Oil		

NOTE

***Severe/extreme operating conditions include but are not limited to ambient temperature conditions of +40°C (104°F) or below 0°C (32°F), working in hard ground, anchor applications and/or extended and continuous hours of operation. The gearbox oil capacity is printed onto the product identification decal applied to the gearbox of the planetary drive unit.**

Minimum and maximum gear oil operating temperature for gearboxes



Instructions on how to warm up a drive if operating below 5°C (41°F) can be found in operating instructions section of this manual. Please read and understand these instructions.

12 Maintenance

Procedure to Check the Gearbox Oil Level

Unfortunately, there is no provision to make a quick visual inspection of the gearbox oil level. There is no window or sightglass provision. The gearbox is filled to the correct level at the factory. Unless there are clear signs of gearbox oil leakage it should not require topping up between scheduled oil changes or services. To check the correct oil level see illustration in maintenance on page 37.

Procedure to Drain Gearbox Oil

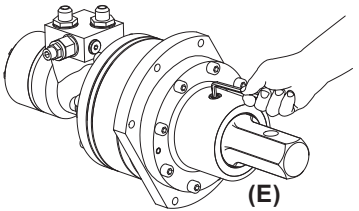
It is advisable to replace the output shaft seal at the first oil change as this is the most important oil change to prolong the life of bearings and gears. The reasoning behind this is that whilst bedding in, gearboxes can generate fine metallic contamination. This will find its way to the lowest part of the gearbox and collect in the output seal thus allowing an abrasive paste to wear the output seal and the output shaft. It is advisable that oil changes are performed by a Digga Authorised Service Agent. Although it is not always possible for many reasons to get this done by a Dealer it is important that the oil is changed at the required intervals.

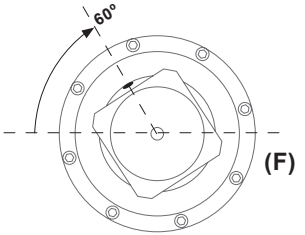
1. Ensure that the gearbox is stable, secure and safe to work on prior and that the drive unit is vertical and that there is an appropriate sized drip tray to catch the drained oil.
2. Before commencing to drain any oil, check the product identification decal/tag of the unit to determine the quantity of oil which the gearbox holds. This will indicate the quantity of oil which has to be replaced into the gearbox and size of bucket needed to contain the oil. Remove the drain plug from the output housing. This will allow the bulk of the gearbox oil to drain out (this will not drain the gearbox entirely). The lower section of the output housing, below the plug will still contain some oil.
3. To drain the remaining oil, lie the drive unit on it's side with the bung hole facing down.
4. Once all oil has been drained follow the procedure on the following page to refill oil.

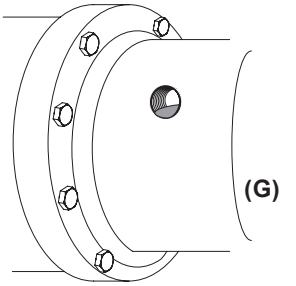
NOTE

Remember to consider the environment, state and federal laws relating to disposal of oil. Dumping and spillage of oil onto land, storm water outlets and waterways is illegal. Oil must be disposed of by professional waste disposal or recycle specialists.

Procedure for Changing or Re-filling Gearbox Oil Level







- Lay the drive unit flat on the ground with the oil fill bung facing up. Using an 8mm (0.31") Allen key remove the bung. To drain oil, turn the drive until the hole is facing down. Allow to drain until all oil has been removed **(E)**.
- Rotate the unit until the oil fill hole is sitting between 60º - 70º from horizontal **(F)**.
- Once the filler hole is at approximately 60º the oil should be sitting at the base of the filler hole thread **(G)**.
- If the oil level is too low to reach the thread it should be topped up. Rotate the unit so the filler hole is sitting at the top and add oil. Repeat steps 2 - 4 until you have achieved the correct level.
- Note that the oil takes time to work it's way through the gearbox. Allow time for it to settle once it has reached the bung hole. Then check the level again until all seepage has occurred.

NOTE

If your Planetary drive unit is leaking oil after you have performed the daily checks , consult your local authorised service agent.

12 Maintenance

Gearbox Oil Capacity

DRIVE UNIT	OIL CAPACITY IN LITRES	RECOMMENDED OIL FOR GEARBOX
HH-6K	940 ml (0.24 US Gal)	ISO EP320 Mineral
HH-8K	940 ml (0.24 US Gal)	ISO EP320 Mineral

NOTE

Digga specified ISO EP320 mineral gear oil is specifically for “Extreme Pressure” industrial gearboxes. Oil capacity charts are estimated for a gearbox being filled the first time. When changing the oil, not all oil will drain out, there will always be some residual oil left in the gearbox. Follow the procedure to fill the gearbox, using the oil capacity charts as a guide only.

13 Spare Parts

For spare parts of your Planetary drive unit, obtain the serial number engraved on the side of the gearbox flange (see page 18). The serial number allows Digga to trace all production and service records. Ensure all service and maintenance is performed by an authorised Digga service agent and all service records are kept.

13 Spare Parts

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
17-21 Babbage Dr,
Dandenong, VIC 3175
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 6, Smitham Bridge Road
Hungerford Trading Estate,
Hungerford, Berkshire RG17 0QU
England, United Kingdom
Phone: +44 (0) 1488 688 550
Email: infouk@digga.com

Web: www.diggaeurope.com

14 Troubleshooting

Trouble	Possible Cause	Remedy
No rotation.	Quick release coupler(s) not engaged.	Check quick release coupler(s).
	Quick release coupler(s) faulty.	Replace faulty coupler(s).
	Auxiliary valve on machine faulty.	Refer to machine manual.
	Hydraulic oil tank low.	Fill oil tank to maximum level.
	Hydraulic motor failure.	Contact your DIGGA Dealer*.
	Output shaft bearing failure.	
	Planetary gear failure.	
	Machine oil pump faulty.	Refer to machine manual.
Slow rotation.	Low oil flow.	Check machine specifications.
	Hydraulic power pack too small	Contact your DIGGA Dealer*.
	Hydraulic system too hot.	See hydraulic section.
Hydraulic motor leaking oil.	Hose(s) or Fitting(s) Leaking.	Tighten or replace.
	Motor ‘O’ ring failure.	Contact your DIGGA Dealer*.
Output shaft leaking oil.	Oil seal failure.	
	Hydraulic motor failure.	
No torque.	Oil pressure too low.	Check machines specifications.
	Hydraulic power pack too small	Contact your DIGGA Dealer*.
	Hydraulic system too hot.	See hydraulic section.
Grinding or loud noise.	Gearbox failure.	Contact your DIGGA Dealer*.

14 Troubleshooting

Hydraulic System

Trouble	Possible Cause	Remedy
Oil over heating.	Oil pressure too low.	Set relief valve to machine specification.
	Restriction in line.	Inspect and repair.
	Auger continually stalling.	Limit down pressure.
	Hydraulic power pack too small	Contact your Digga dealer.
	Machine too small.	Fit drive unit to larger machine.
	Hydraulic oil tank low.	Fill oil tank to maximum level.
	Insufficient oil capacity.	Fit oil cooler.

Augers

Trouble	Possible Cause	Remedy
Slow digging speed.	Worn teeth or pilot.	Replace the wear parts.
	Ground too hard.	Contact your Digga dealer.
	Low oil flow.	Check the machine specifications.
	Auger too large for the drive unit.	Fit larger drive unit.
	Machine too small.	Fit drive unit to larger machine.

Warranty Statement

Motor - Warranty up to 1 years subject to compliance with service Interval information and manufacturers inspection.

Gearbox - Warranty up to 1 years subject to compliance with service Interval information and manufacturers inspection.

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. 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 authorised 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.

If the first oil change and subsequent oil changes are found to have not been performed at the correct specified time, and results in premature gearbox failure during the warranty period, the warranty will be voided.


DIGGA