HORIZONTAL BORING
PDD-PD7 SINGLE SPEED

OPERATORS MANUAL

PM-000152

CRITICAL - DO NOT CONNECT OR OPERATE YOUR DRIVE UNIT WITHOUT FIRST HAVING READ AND UNDERSTOOD THIS STATEMENT

Your Digga Planetary Drive Gearbox is a high performance attachment that is designed for Drilling, Screw Anchoring (Pier) installation, Core Barreling and other extreme applications where it is seeing high levels of torque. To avoid premature wear and failure, and to fulfill your terms of warranty please read this statement.

All **DIGGA PLANETARY DRIVES** must have a first oil change within the **first 30hrs (extreme use) or 50hrs (Moderate use) or 3mths** of use (which ever comes first) to ensure the bed in of the drive unit. For more detailed information Please refer to the Auger Drive PDD-PD50 Operators manual (PM-000002) for maintenance of the drive unit.

If the first oil change is not performed within this period excessive wear within the gearbox will occur that will cause premature failure. All Warranty will be void.

Oil must then be changed thereafter every 300/500hrs and a full service every 6mths 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 (including serial number of gearbox and hydraulic motor) records. Service must be performed by an **authorised Digga service agent**.

2 TABLE OF CONTENTS

THANK YOU

Congratulations on the purchase of your new Horizontal Borer. 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 more detailed information Please refer to the Auger Drive PDD-PD50 Operators manual (PM-000002) for maintenance of the drive unit.

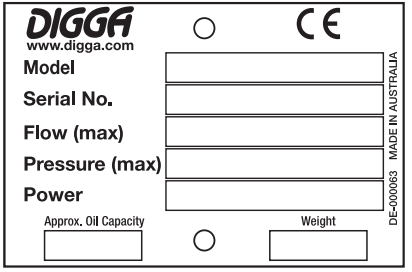
The complete manual must be read and understood before connecting and operating. Be sure to observe all safety precautions and maintenance procedures as described in this manual.

Optional Extras are available for special applications or extreme conditions: these are noted throughout the manual. Contact your DIGGA dealer for any further information pertaining to this product or for further information on other products available in the DIGGA range.

ABOUT THIS MANUAL

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

Remember; never let anyone operate this unit without reading the “Safety Precautions” and “Operating Instructions” sections of this manual. Unless noted otherwise, right and left sides are determined from the position of the machine operator when facing forward.



SAFETY ALERT SYMBOL

This is the “Safety Alert Symbol” used by this industry. This symbol is used to warn of possible injury. Be sure to read all warnings carefully. They are included for your safety and for the safety of others working with you.

4 SERVICE & PREPARATION FOR USE

Only minor maintenance (such as visual checking) is required to keep your horizontal borer in top working condition. Please refer to the Auger Drive PDD-PD50 Operators manual (PM-000002) for maintenance of the drive unit.

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 plate located on the product.

MODEL_____

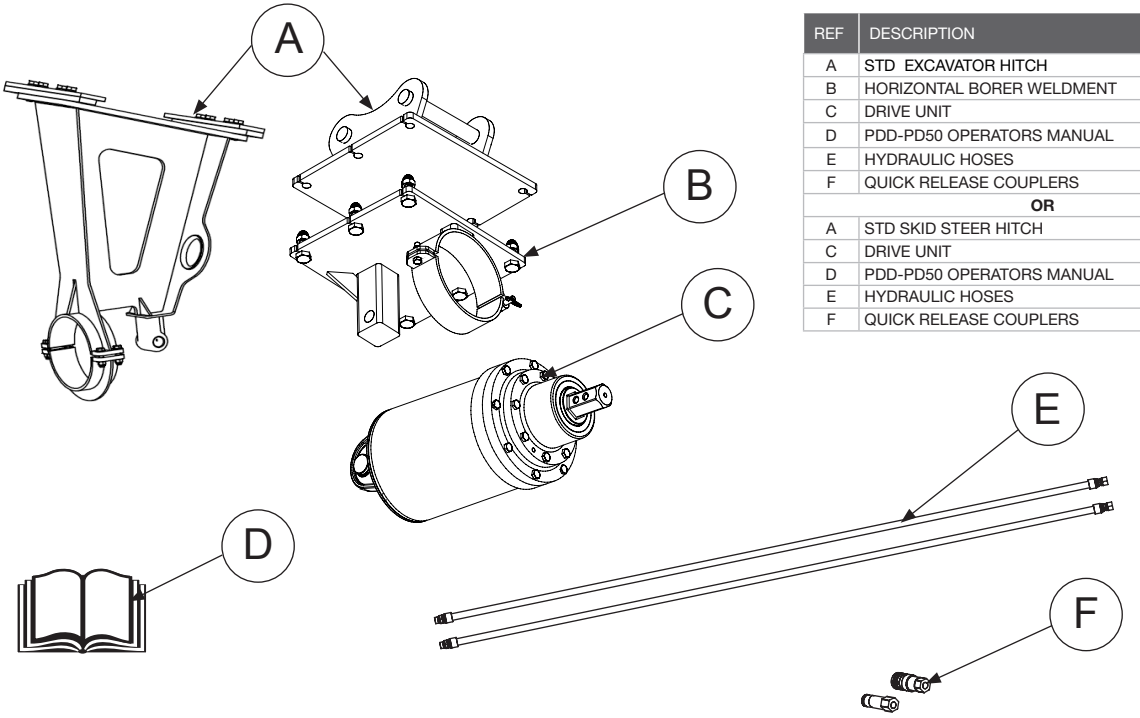
SERIAL NUMBER_____

DATE PURCHASED_____

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

MODELS COVERED IN THIS MANUAL
HORIZONTAL BORER TO SUIT SINGLE SPEED PREMIUM DRIVES (PDD, PDX, PDX1, PDX2, PDX3, PD3, PD4, PD4HF, PD5, PD6, PD6HF, PD7)

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 Horizontal Borer is to be fitted to.



REF	DESCRIPTION	QTY
A	STD EXCAVATOR HITCH	1
B	HORIZONTAL BORER WELDMENT	1
C	DRIVE UNIT	1
D	PDD-PD50 OPERATORS MANUAL	1
E	HYDRAULIC HOSES	2
F	QUICK RELEASE COUPLERS	2
	OR	
A	STD SKID STEER HITCH	1
C	DRIVE UNIT	1
D	PDD-PD50 OPERATORS MANUAL	1
E	HYDRAULIC HOSES	2
F	QUICK RELEASE COUPLERS	2

5 SAFETY PRECAUTIONS - GENERAL INFORMATION

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

THIS SYMBOL MEANS:

ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

SIGNAL WORDS: Note the use of signal words DANGER, WARNING, and CAUTION with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

DANGER: Indicates an imminently hazardous situation, which if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, typically for machine components which, for functional purposes, cannot be guarded.

WARNING: Indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices and indicate potential failure or damage to equipment.

CAUTION: Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

This section is composed of various warnings and safety tips. **Read and learn all the information in this section before you attempt to use your attachment.** Also read your machines owner's manual before using your equipment. This knowledge will help you operate your unit safely. **Do not take this information lightly, it is presented for your benefit and for the benefit of others working around you.**

The "Safety Alert Symbol"  will be used throughout this manual. It will appear with the word **DANGER, WARNING,** or **CAUTION**, and a safety message pertaining to the specific topic being covered. Take the time to read these messages as you come across them.

WARNING

KNOW WHERE UTILITIES ARE

Observe overhead electrical and other utility lines. Be sure equipment will clear them. When digging, call DIAL BEFORE YOU DIG ON 1100 (in Australia), or your local UTILITIES location service provider for location of buried utility lines, gas, water, and sewer, as well as any other hazard you may encounter.

WARNING

EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.

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

WARNING

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.

WARNING

END OF LIFE DISPOSAL

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

WARNING **OPERATING THE HORIZONTAL BORER WITH PLANETARY DRIVE**

- 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 equipment.
- All bystanders should be kept a minimum of 6 meters (20 feet) away from the working area of the drive.
- Do not allow Site workers to climb or ride on a drill mast, Planetary Drive, Auger or Auger Extension at any time, including while stationary, in operation or being moved or rotated.
- Operate only from the operator's station.
- Avoid steep hillside operation which could cause the machine to overturn. Consult your machines operator's and safety manuals for maximum incline allowable.

WARNING

- Only connect one auger unsupported to the drive unit at any time.
- Reduce speed when driving over rough terrain, on a slope, or turning, to avoid overturning the vehicle.
- Travel only with the planetary drive in a safe transport position to prevent uncontrolled movement. Drive slowly over rough ground and on slopes.
- Remove all augers from the horizontal borer when moving from position to position.
- Do not drive close to ditches, excavations, etc., cave in could result.
- Before exiting the machine, lower the attachment to the ground, apply the parking brakes, turn off the prime mover's engine, and remove the key.
- Flow and pressure gauges, fittings, and hoses must have a continuous operating pressure rating of at least 25% higher than highest pressures of the system.
- Do not smoke when refueling the prime mover. Allow room in the fuel tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.

WARNING

- Remove the Horizontal Borer unit from the prime mover before transporting to and from the work site and job sites.
- Planetary Drives shall be used only for their designed intent and shall not be loaded beyond their rated capacity. Over-loading or exceeding the manufacturers specifications will void all warranty.

WARNING

OPERATING THE HORIZONTAL BORER WITH PLANETARY DRIVE CONT....

- Drill stem rotation must be stopped before adding or removing sections, or making adjustments to the drill stem or sampling equipment.
- Augers shall be cleaned only when the rotating mechanism is in neutral and the auger stopped; long-handled shovels shall be used to move cuttings from the auger. Materials heavier than 10kgs must be moved mechanically or by using at least two people.
- Drilling 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.
- Open bore holes must be capped and flagged.

WARNING

STORAGE OF THE HORIZONTAL BORER WITH PLANETARY DRIVE

- Seal hydraulic couplers from contaminants and secure all hydraulic hoses off the ground to help prevent damage.
- Clean the unit thoroughly, removing all mud, dirt, and grease.
- Inspect for visible signs of wear, breakage, or damage. Order any parts required and make the necessary repairs to avoid delays upon removal from storage.
- Check that drive unit motor and hoses are full of clean oil and planetary 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, capscrews and hydraulic connections.
- Replace decals that are damaged or in unreadable condition.
- Store unit in a dry and protected place. Leaving the unit outside will materially shorten its life.

WARNING

GROUND PERSONNEL AND BYSTANDERS

- Be alert to others in the work area. Be sure others know when and where you will be working. Make sure no one is behind equipment or within 6 metres of it operating.
- Loose fitting clothing, long hair, jewellery and equipment which might become entangled in moving equipment are prohibited while working near Horizontal Boring equipment.
- Operators, helpers, and other personnel working near Horizontal Boring equipment must wear steel-toe safety shoes, safety glasses, and hard hats as a minimum. Hearing protection, respirators, and personnel protective clothing will be specified in the site-specific Health and Safety Plan.

WARNING

MAINTAINING THE PLANETARY DRIVE

- Before performing maintenance, lower the attachment to the ground, apply the parking brakes, turn off the engine, and remove the key.
- Drill rigs must be shut down and properly locked-out and tagged before repairs or maintenance is performed. Only properly trained and qualified individuals are permitted to perform repairs and maintenance.
- Never adjust a relief valve for pressure higher than recommended by the machine's manufacturer.

WARNING

TRANSPORTING

Follow all local government regulations that may apply along with recommended tie down points and any equipment safety precautions at the front of this handbook when transporting your attachment.

WARNING

TIE DOWN POINTS

- Tie down points are identified by tie down decals where required. Securing to trailer at other points is unsafe and can damage attachment.
- Do not attach tie down accessories around cylinders or in any way that may damage hoses or hydraulic components.
- Attach tie down accessories to unit as recommended.
- Check unit stability before transporting.

Verify that all tie down accessories (chains, slings, ropes, 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. Failure to do so could result in serious personal injury or death.

TO THE OPERATOR

The primary responsibility for safety with this equipment falls to the operator. Make sure that the equipment is operated only by trained individuals that have read and understand this manual. 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. Know your equipment before you start. Know its capabilities and how to operate all the controls.

Visually inspect your equipment before you start, ensure correct assembly and installation of the attachment and never operate equipment that is not in proper working order.

Practice the operation of your new attachment and become familiar with the controls and the way it handles on your machine. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer.

1. Never operate the Attachment without first reading and understanding the entire operator's manual.
2. Do not paint over, remove or deface any safety signs or warning decals on your equipment.
3. Follow all safety decals. Keep them clean and replace them if they become worn, damaged or illegible.
4. Know your equipment inside and out. Know how to operate all controls and know emergency shut down procedures.
5. Keep all stepping surfaces, pedals, and controls free from dirt, grease and oil. Keep equipment clean to help avoid injury from slipping or a fall when getting on or off equipment.
6. Operate the attachment only in daylight or with sufficient artificial light.
7. Always carry loads close to the ground. Do not step off machine platform with load raised.
8. Turn off engine before performing maintenance. All maintenance can be performed with the machine arms lowered. If lift arms must be left raised for any reason, use a positive lift arm lock to secure the arms in place. Serious damage or personal injury could result from lift arms accidentally lowering.
9. Do not exceed rated operating capacity of the host machine, as machine may become unstable resulting in loss of control.
10. Always lower the loader arms or machine boom to the ground, shut off the engine and remove the key before getting off the unit.
11. Never use the Drive Unit on a machine that is not equipped with a cab or ROPS, FOPS and operator restraints (seat belts or equivalent devices).

WHEN DEALING WITH HYDRAULICS DURING ANY TYPE OF ASSEMBLY, OPERATION, MAINTENANCE, OR OTHER WORK ON OR NEAR THIS PRODUCT

- Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. 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's manual for detailed instructions on connecting and disconnecting hydraulic attachments.
- Make certain 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 loaders 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.
  - Make certain that the hoses cannot interfere with or actuate the quick-attach mechanism.
  - Make certain that hoses will not be pinched, or get tangled, in any equipment.
- Do not lock the auxiliary hydraulics of your power unit in the "ON" position.
- Refer to your power unit's operator's manual and this manual for procedures and intervals, then inspect and maintain the entire hydraulic system to insure that the fluid remains clean, that all devices function properly, and that there are no fluid leaks.

WHEN MOUNTING THIS PRODUCT TO YOUR MACHINE

- Refer to the operator's manuals of your machine, and your quick-attach for special or detailed mounting instructions.
- This product should fit onto the quick-attach Frame or Hitch (Machine Mount).
- If this product does not fit properly, contact your Digga Dealer before operating.
- Never place any part of your body into the mounting plate, frame, hitch or loader holes. A slight movement of the power unit and this product could cause serious injury.
- Where 'Dead Man' connections are connected or installed it is illegal to disengage, tamper with or remove them.

WHEN ADJUSTING, SERVICING OR REPAIRING THIS PRODUCT

- Make no modifications to your Horizontal Borer with Drive Unit.
- When making repairs use only authorised Digga service agents, use only genuine Digga parts for the gearbox. For fasten ers, hydraulic hoses, or hydraulic fittings, use only properly rated parts.
- Replacement parts must also have safety signs attached.

For additional safety information please see Risk Management booklet. To obtain a copy contact Digga Head Office on +61 7 3807 3330

6 SAFETY - DECAL LOCATION

GENERAL INFORMATION

The following decals are reductions of the actual decals used on auger drives. Use this information to order replacements for lost or damaged decals. Be sure you understand all decals before operating the attachment. They contain information you need to know for attachment safety.

IMPORTANT

Keep all safety decals clean and legible. Replace all missing, or damaged safety decals. When replacing parts with safety decals attached, the safety decals must also be replaced.

REPLACING SAFETY DECALS

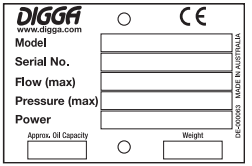
Clean the area of application with a nonflammable solvent, then wash the same area with soap and water. Allow the surface to dry. Remove the backing from the safety decal, exposing the adhesive surface. Apply the safety decal to the position shown in the diagram, and smooth out any bubbles.

DECAL LOCATION

Safety / Warning decals should be placed on each side of the drive unit facing any bystanders. Dial Before you Dig and operator warning decals should be placed to face the operator when sitting in the cab.

ORDERING NEW DECALS

Contact your local Digga dealer to obtain
new safety decals as well as logo and model decals.



Part Number: DE-000063

Part Number: DE-000088

Part Number: DE-000426

The key feature of your Digga Auger 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.

SAFETY FIRST!! READ AND UNDERSTAND THE SAFETY INSTRUCTIONS BEFORE BEGINNING ANY DRIVE UNIT MAINTENANCE.

BEFORE FIRST USE

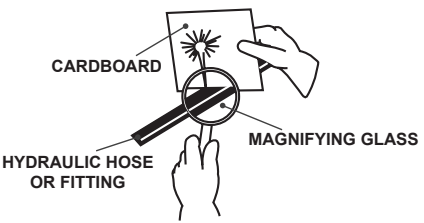
- Inspect the attachment for shipping damage. If damage does exist, do not operate until the damaged parts have been replaced or repaired.

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!

If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.



Escaping fluid under pressure can have sufficient force to penetrate the skin 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. Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.

OPERATING PARAMETERS - HP (KW) POWER RATINGS

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

				MAX POWER		MAXIMUM FLOW		MAXIMUM PRESSURE	
MODEL	PRV	ECV	Case Drain	HP	Kw	LPM @ BAR		BAR @ LPM	
PDD	Opt	Opt	Opt	34	25	115	130	240	60
PDX	Opt	Opt	Opt	34	25	95	160	240	60
PDZ3	N/A	N/A	N/A	34	25	70	200	240	60
PDX2	Opt	Opt	Opt	34	25	115	130	240	60
PDX3	Opt	Opt	Opt	34	25	115	130	240	60
PD3	Opt	Opt	Opt	34	25	115	130	240	60
PD4	Opt	Opt	Opt	34	25	115	130	240	60
PD5	Opt	Opt	Opt	34	25	115	130	240	60
PD6	Opt	Opt	Opt	34	25	115	130	240	60
PD7	Opt	Opt	Opt	34	25	115	130	240	60
PD4HF	Opt	Opt	Opt	67	50	170	180	240	130
PD6HF	Opt	Opt	Opt	67	50	210	145	240	130
PD8HF	Opt	Opt	Opt	67	50	230	130	240	130
PD10HF	Opt	Opt	Opt	67	50	230	130	240	130

NOTE: BEFORE THE DRIVE UNIT IS EVEN CONNECTED TO THE MACHINE ENSURE THAT THE DRIVE IS FULL OF HYDRAULIC OIL AND THE GEARBOX IS FULL OF GEAR OIL.

All Digga planetary drive units are despatched from the factory full of fluids (hydraulic and gearbox oil) unless this 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.

DE-0000127

1. 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 GEABOX OIL. Connect the hydraulic hoses and if required, optional 2 speed electrical harness to the machine.

8 COMMISSIONING PROCEDURE

NOTE: IF REQUIRED, ENSURE THAT THE CASE DRAIN HOSE IS CONNECTED TO THE RESERVOIR OF THE MACHINE. IT IS IMPORTANT THAT THE PRESSURE IN THE CASE DRAIN HOSE IS NOT READING MORE THAN 100PSI WHILST OPERATING AND THAT A CONSISTENT TRICKLE OF HYDRAULIC OIL IS BEING RETURNED TO THE EXCAVATOR RESERVOIR. INTERMITTENT AND SPURTS OF FLOW FROM THE CASE DRAIN HOSE ARE NOT STANDARD DESIGN SYMPTOMS. PLEASE CONSULT A DIGGA DEALER OR DIGGA AUSTRALIA SERVICE IF THIS OCCURS.

NOTE: 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.

All PD planetary gear drive units listed in this manual use ISO EP 320 (mineral oil) gearbox oil for operating in tropical ambient temperatures. See maintenance section in the operators manual on gearbox oil level checking as well as the gearbox oils recommended for cold climate conditions. Digga produce many drive units with many different gear set ratios and as a result don't list every possible gearbox option and gearbox oil quantity required. See the maintenance section in the PDD-PD50 operators manual (PM-000002) page 48 for gearbox oil volume and checking/topping up the gearbox oil. The gearbox oil quantity is also on the serial tag located between the ears of the hood.

NOTE: WHEN PROCURING ANY HOSE ASSEMBLIES FOR USE ON YOUR DIGGA PLANETARY DRIVE UNIT ENSURE THAT THE MAX OPERATING PRESSURE OF THE HOSES IS ALWAYS HIGHER THAN WHAT THE EXCAVATOR OR MACHINE (WHICH THE PLANETARY DRIVE UNIT WILL BE USED ON) CAN PRODUCE.

INSTALLING YOUR HORIZONTAL BORER WITH PLANETARY DRIVE

1. Remove the shipping banding from around the attachment.
2. ENSURE YOU HAVE READ THE SERIAL TAG ON THE DRIVE UNIT TO OBTAIN THE MAX FLOW AND PRESSURE RATINGS. Ensure your machine flow and pressure settings are aligned with the requirements of the drive unit.

NOTE: NEVER EXCEED THE MAX FLOW AND PRESSURE RATINGS AS WARRANTY WILL BE VOID.

3. Following all standard safety practices and the instructions for installing an attachment as shown in your machine operator's manual.
4. Lower the unit to the ground and remove any attachments from the front of the host machine.
5. Attach the quick attach mounting frame or hitch to the host machine as per the machine manufacturers specifications. Ensure the locking mechanisms on the machine are engaged & the attachment is secure.

NOTE: IT IS IMPORTANT TO MAKE SURE THE LOCKING MECHANISM ON YOUR QUICK ATTACH IS ENGAGED, THEREFORE LOCKING THE ATTACHMENT ONTO THE MACHINE.

6. Relieve any pressure from the auxiliary hydraulic system and after making sure there is no foreign matter on the hydraulic couplers, connect the power and return couplers to the auxiliary hydraulic system of your machine. The list below shows the most common places to "tap" into the hydraulic system on various types of machines.

- SKID STEER LOADERS - Auxiliary hydraulic outlets.
- BACKHOES & EXCAVATORS - Auxiliary hydraulic outlets or bucket curl cylinder circuit.
- WHEEL LOADERS - Auxiliary hydraulic outlets or bucket tilt (dump) cylinder circuit.

7. If applicable connect the case drain coupler to the case drain on your machine. If your machine has a case tap, ensure the case tap is open. Failure to connect the case drain will severely damage the motor and void all warranty. Case Drain hose is already fitted to the units Hydraulic motor and must be unravelled. This Case drain hose must return directly to Hydraulic Oil Reservoir on the Parent machine. There can be no valving or restrictions in the line and the hose must be minimum ½" ID. The loose end of this case drain line must have a fitting fitted to match the fitting on the parent machine.

WARNING: ENSURE THAT THERE ARE NO QUICK RELEASE COUPLERS IN THE CASE DRAIN LINE OR THE T-CONNECTORS. OPERATION WITHOUT CASE DRAIN WILL CAUSE MOTOR FAILURE.

8. VARIABLE FOOT CONTROL - Excavators used to power Drive units must have their Auxiliary Circuit controlled with 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.

9. 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.

10. With the unit lying horizontally on the ground connect one auger only. ENSURE THE AUGER PIN AND SAFETY CLIP ARE IN STALLED CORRECTLY. The machine is now ready for use.

11. 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.

PLEASE NOTE: ALTERING, TAMPERING OR DISMANTLING ANY PART OF THE DIGGA UNIT WITHOUT WRITTEN PERMISSION FROM DIGGA WILL VOID ANY WARRANTY.

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 host machine 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
- And the supplies that are available in your area

In order to provide the best possible guidelines, use the information in this document and the following criteria:
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. Refer to page 44 for detail.
Prepare the machine for the weather conditions as instructed In your machines operator manuals.

PROCEDURE FOR STARTUP IN COLD WEATHER

- Your Digga Planetary Drive System is designed to operate within ambient temperatures of 5°C (41°F) and 30°C (86°F).
- For temperatures below 5°C (48°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 of of 5°C (48°F).
- 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.

N.B. 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 & 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 PROCEDURES - HORIZONTAL AUGERING

YOUR DIGGA HIGH PERFORMANCE PLANETARY DRIVE IS SPECIFICALLY DESIGNED FOR DRILLING AND ROTATIONAL OPERATION ONLY, IT IS NOT A LIFTING DEVICE !

INTENDED USE

This unit is designed for drilling horizontal holes into the ground. Use in any other way is considered contrary to the intended use.

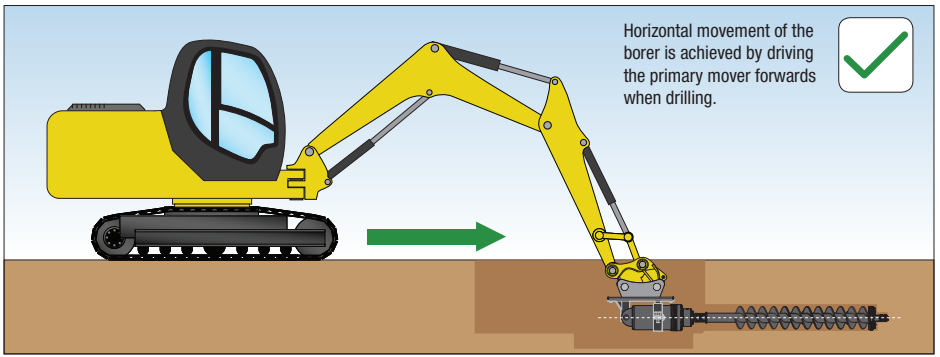
After all installation instructions have been completed, safety information read and understood, and the rest of this operator's manual has been reviewed, your DIGGA Auger Drive is now ready for use.

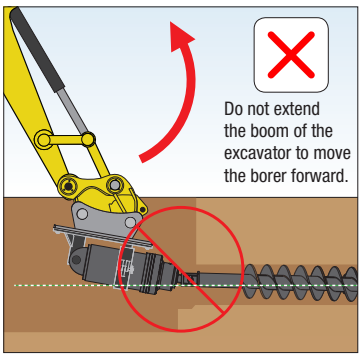
1. With the auger raised off the ground and the vehicle engine set at a low RPM, activate the host machines drive control valve to determine which position the control valve lever must be in to turn auger in a forward (clockwise) rotation. This is the "digging" position.
2. Before beginning to dig, experiment 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 auger RPM, increase vehicle engine RPM. To decrease auger RPM, decrease vehicle engine RPM.
3. Line up the front of the auger with the required starting point, with the auger rotating in a clockwise direction gradually move the unit forward. Be sure to keep the unit level.Do not extend the boom of the excavator to move the unit forward. Horizontal movement of the borer is achieved by driving the primary mover backwards and forwards.
4. As the auger loads up with spoils, cease the forward motion and keep the auger rotating clockwise to clear spoils from the hole into the spoil pit. Proceed forward again once the spoils have cleared. Repeat this process until the auger has reached its limit.
5. Should you require to bore further forward, stop rotation once the spoils have been cleared from the hole. Be sure the eyelets on the auger are visible for easy access to the D-clips. Now you can disconnect the auger from the drive unit by removing the D-clip from the auger and moving the drive unit backwards, leaving the auger supported in the hole. Always ensure that persons assisting are clear and visible to the operator at all times.The second auger can now be connected to the first auger by means of a hex joiner and D-clips. Connect the drive unit to the two connected augers and resume boring.

NOTE: A MAXIMUM OF TWO CONNECTED AUGERS MAY BE USED AT A TIME WHEN BORING HORIZONTALLY, THE DIMENSIONS OF THESE AUGERS ARE DETERMINED BY THE SIZE OF THE DRIVE UNIT AND THE AGGREGATE BEING BORED INTO. CONTACT YOUR AGENT FOR FURTHER INFORMATION ON THESE PARAMETERS. EXCEEDING THESE PARAMETERS COULD CAUSE THE HEX JOINERS TO FAIL AND OR DAMAGE THE DRIVE UNIT.

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

6. Do not remove the auger at an angle out of the hole, as you will run the increased risk of bending the auger or shaft.
7. Remove the augers one at a time from hole.
8. If trying to remove the auger full of material and you experience strong resistance, rotate the auger counter clockwise whilst slowly reversing the primary mover to assist with removal. Do not crowd the boom as you may run the risk of damaging the drive shaft.
9. Do not flick the dirt (especially mud or clay) from the auger, as you may run the increased risk of bending the auger shaft.
10. Keep clearing the auger hole regularly as you drill further. This will help prolong the life of the auger and the wear parts.
    *Note: In rock it is recommended to add a slow stream of water to help the performance and life of the rock teeth.
    Clearing the hole is done by ceasing forward movement whilst the auger is still rotating in a clockwise position.





SINGLE AND TWO SPEED DRIVE UNIT

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	Contact your DIGGA Dealer*
	Planetary gear failure	Contact your DIGGA Dealer*
	Machine oil pump faulty	Refer to machine manual
Slow Rotation	Low oil flow	Check machine specifications
	Drive unit to large for machine	Contact your DIGGA Dealer*
	Hydraulic system too hot	See hydraulic section
Hood 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	Contact your DIGGA Dealer*
	Hydraulic motor failure	Contact your DIGGA Dealer*
No Torque	Oil pressure too low	Check machines specifications
	Drive unit too small for machine	Contact your DIGGA Dealer*
	Hydraulic system too hot	See hydraulic section
Grinding or Loud Noise	Gearbox failure	Contact your DIGGA Dealer*

NOTE: DO NOT DISASSEMBLE DRIVE TO ASSESS FAULT, DISASSEMBLY WITHOUT WRITTEN PERMISSION AND INSTRUCTIONS FROM DIGGA WILL VOID ALL WARRANTY.

HYDRAULIC SYSTEM

TROUBLE	POSSIBLE CAUSE	REMEDY
Oil Over Heating	Oil Pressure too Low	Set Relief Valve to Machine Spec
	Restriction in Line	Inspect and Repair
	Auger Continually Stalling	Limit Down Pressure
	Drive Unit 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 (See Wear parts, inside back cover)
	Ground too Hard	Contact your DIGGA Dealer
	Low Oil Flow	Check Machine Specifications
	Auger too Large for Drive Unit	Fit Larger Drive Unit
	Machine too Small	Fit Drive Unit to Larger Machine

11 CONTACT INFORMATION

For further information on spare parts please contact one of the Digga sales office below your closest authorised Digga Dealer.

DIGGA INTERNATIONAL SALES OFFICES

ASIA PACIFIC

DIGGA HEAD OFFICE - BRISBANE
4 Octal St, Yatala QLD 4207

PH: (07) 3807 3330

EMAIL: info@digga.com

DIGGA NEW SOUTH WALES
Unit 2, 36 Bluett Drive,
Smeaton Grange NSW 2567

PH: 1300 2 DIGGA

EMAIL: nsw@digga.com

DIGGA VICTORIA
27 Metcalf Street,
Dandenong, VIC 3175

PH: 1300 2 DIGGA

EMAIL: vic@digga.com

WEB: www.digga.com

NORTH AMERICA

DIGGA NORTH AMERICA
2325 Industrial Parkway SW
Dyersville IA 52040

PH: + 1 563 875 7915

WEB: www.diggausa.com

EMAIL: info@diggausa.com

EUROPE

DIGGA EUROPE
Unit 6, Smitham Bridge Road
Hungerford Trading Estate,
Hungerford, Berkshire RG17 0QU
England, United Kingdom

PH: +44 (0) 1488 688 550

WEB: www.diggaeurope.com

EMAIL: info@diggaeurope.com

WARRANTY STATEMENT

PD & MLT Drive Units - Used for Drilling Application
Motor - Warranty up to 3 years subject to manufacturers inspection
Gearbox - Warranty up to 5 years subject to manufacturers inspection

PD Drive Units - Used for Anchor Application PD4HF – PD50 fitted with ECV (Swoosh)
Motor - Warranty up to 2 years subject to manufacturers inspection
Gearbox - Warranty up to 3 years subject to manufacturers inspection

PD Drive Units - Used for Anchoring Application up to 16,000Nm WITHOUT ECV (Swoosh)
Motor - Warranty up to 1 years subject to manufacturers inspection
Gearbox - Warranty up to 2 years subject to manufacturers inspection

PD Drive Units - Used for Anchoring Application over 16,000Nm not fitted with ECV (Swoosh)
No warranty

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.

Australian Designed and Manufactured