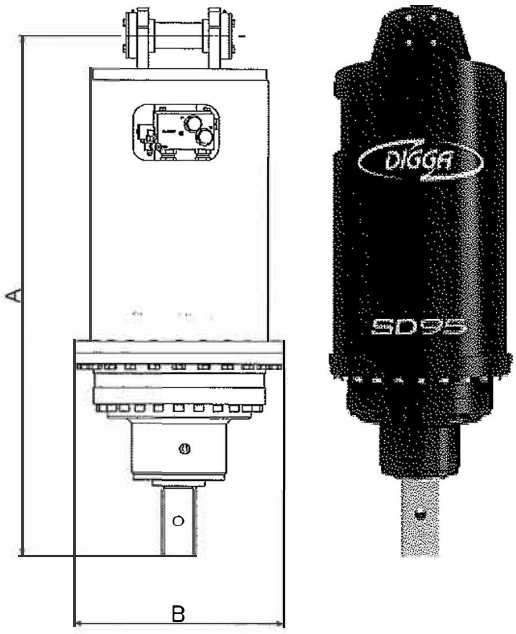
ANCHOR DRIVES
SUPA DRIVE
15 - 30T (30,000 ft-lbs - 70,000 ft-lbs)

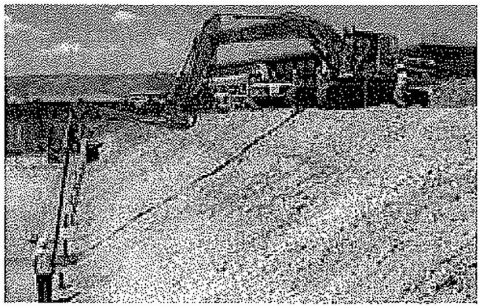


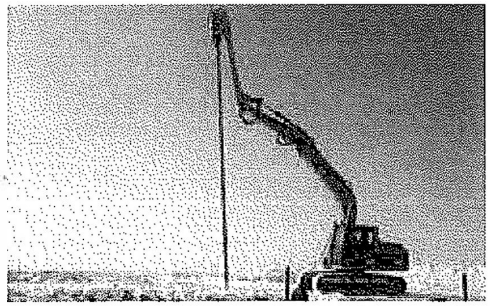
Developed in conjunction with the leading Screw Anchor/Pile installers around the world. The only true Anchor Drives available, designed & manufactured specifically for the rigours of the application. Host machine operates in the most efficient HP range, minimising wear & tear & optimising performance & returns.

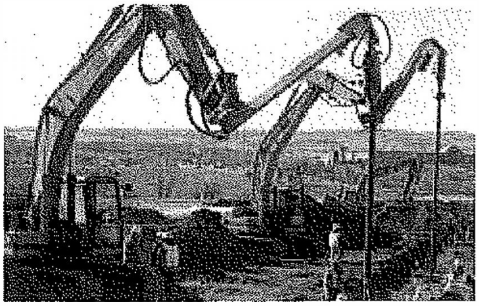
FEATURES

- Highest volumetrically efficient motors available, ensure consistent & efficient pile installation throughout the working day
- Compact, High Quality, Australian made gearbox
- In built PRV (pressure relief valve) standard
- ECV (Energy Control relief Valve) to prevent rapid decompression of oil, caused by the reverse energy created by pile Kick-back
- Engineered hood & ears for maxiumum strength
- Extreme duty shaft locking system
- No complex hoses, valving or filtration
- 2 speed drives available up to 100 gpm, no need to detune your machine
- 1yr Gearbox & 1yr Motor Warranty

SUPA DRIVES					
MODEL	**SD 45**	**SD 50**	**SD 70**	**SD 80**	**SD 95**
Maximum Torque (ft-lbs)	32,892	38,569	50,465	60,828	67,675
Recommended Flow (Gpm)			100 GPM @ 3,500 PSI		
Maximum Pressure - Do Not Exceed			3,500 PSI @100 GPM		
Maximum Horse Power	201	201	201	201	201
Motor Type	Radial Piston	Radial Piston	Radial Piston	Radial Piston	Radial Piston
Pressure Relief Valve	Included	Included	Included	Included	Included
Energy Control Valve	Included	Included	Included	Included	Included
Standard Output Shaft	100mm Square	100mm Square	100mm Square	100mm Square	100mm Square
Weight (lbs)	1848	1843	1843	1843	1859
Overall Length (in)	50.9"	50.9"	50.9"	50.9"	50.9"
Diameter (in)	23.6"	23.6"	23.6"	23.6"	23.6"







ANCHOR DRIVES
SUPA DRIVE
15 - 30T (30,000 ft-lbs - 70,000 ft-lbs)

DIGGA

OUTPUT TORQUE

	SD 45		SD 50		SD 70		SD 80		SD 95	
PSI	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD
700	6,578	3,289	7,714	3,857	10,093	5,046	12,166	6,083	13,535	6,768
800	7,518	3,759	8,816	4,408	11,535	5,767	13,904	6,952	15,469	7,734
900	8,458	4,229	9,918	4,959	12,977	6,488	15,641	7,821	17,402	8,701
1,000	9,398	4,699	11,020	5,510	14,418	7,209	17,379	8,690	19,336	9,668
1,100	10,338	5,169	12,122	6,061	15,860	7,930	19,117	9,559	21,269	10,635
1,200	11,277	5,639	13,224	6,612	17,302	8,651	20,855	10,428	23,203	11,601
1,300	12,217	6,109	14,326	7,163	18,744	9,372	22,593	11,297	25,136	12,568
1,400	13,157	6,578	15,428	7,714	20,186	10,093	24,331	12,166	27,070	13,535
1,500	14,097	7,048	16,530	8,265	21,628	10,814	26,069	13,035	29,004	14,502
1,600	15,036	7,518	17,632	8,816	23,070	11,535	27,807	13,904	30,937	15,469
1,700	15,976	7,988	18,734	9,367	24,511	12,256	29,545	14,773	32,871	16,435
1,800	16,916	8,458	19,836	9,918	25,953	12,977	31,283	15,641	34,804	17,402
1,900	17,856	8,928	20,938	10,469	27,395	13,698	33,021	16,510	36,738	18,369
2,000	18,796	9,398	22,040	11,020	28,837	14,418	34,759	17,379	38,672	19,336
2,100	19,735	9,868	23,142	11,571	30,279	15,139	36,497	18,248	40,605	20,303
2,200	20,675	10,338	24,244	12,122	31,721	15,860	38,235	19,117	42,539	21,269
2,300	21,615	10,807	25,346	12,673	33,163	16,581	39,973	19,986	44,472	22,236
2,400	22,555	11,277	26,448	13,224	34,604	17,302	41,711	20,855	46,406	23,203
2,500	23,494	11,747	27,550	13,775	36,046	18,023	43,449	21,724	48,339	24,170
2,600	24,434	12,217	28,652	14,326	37,488	18,744	45,187	22,593	50,273	25,136
2,700	25,374	12,687	29,754	14,877	38,930	19,465	46,924	23,462	52,207	26,103
2,800	26,314	13,157	30,856	15,428	40,372	20,186	48,662	24,331	54,140	27,070
2,900	27,254	13,627	31,958	15,979	41,814	20,907	50,400	25,200	56,074	28,037
3,000	28,193	14,097	33,060	16,530	43,255	21,628	52,138	26,069	58,007	29,004
3,100	29,133	14,567	34,162	17,081	44,697	22,349	53,876	26,938	59,941	29,970
3,200	30,073	15,036	35,264	17,632	46,139	23,070	55,614	27,807	61,874	30,937
3,300	31,013	15,506	36,366	18,183	47,581	23,791	57,352	28,676	63,808	31,904
3,500	32,892	16,446	38,569	19,285	50,465	25,232	60,828	30,414	67,675	33,838

Output speed and torque specifications are THEORETICAL. Speed and torque output are dependent on the overall system efficiencies associated with the prime movers hydraulic system. This document should be used for information and comparative purposes only. When determining criteria, & application specific information is required, please contact DIGGA.

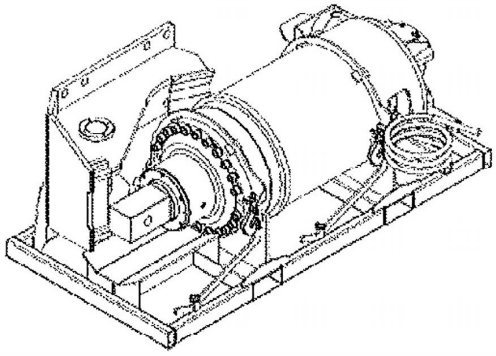
ANCHOR DRIVES
SUPA DRIVE
15 - 30T (30,000 ft-lbs - 70,000 ft-lbs)

DIGGA

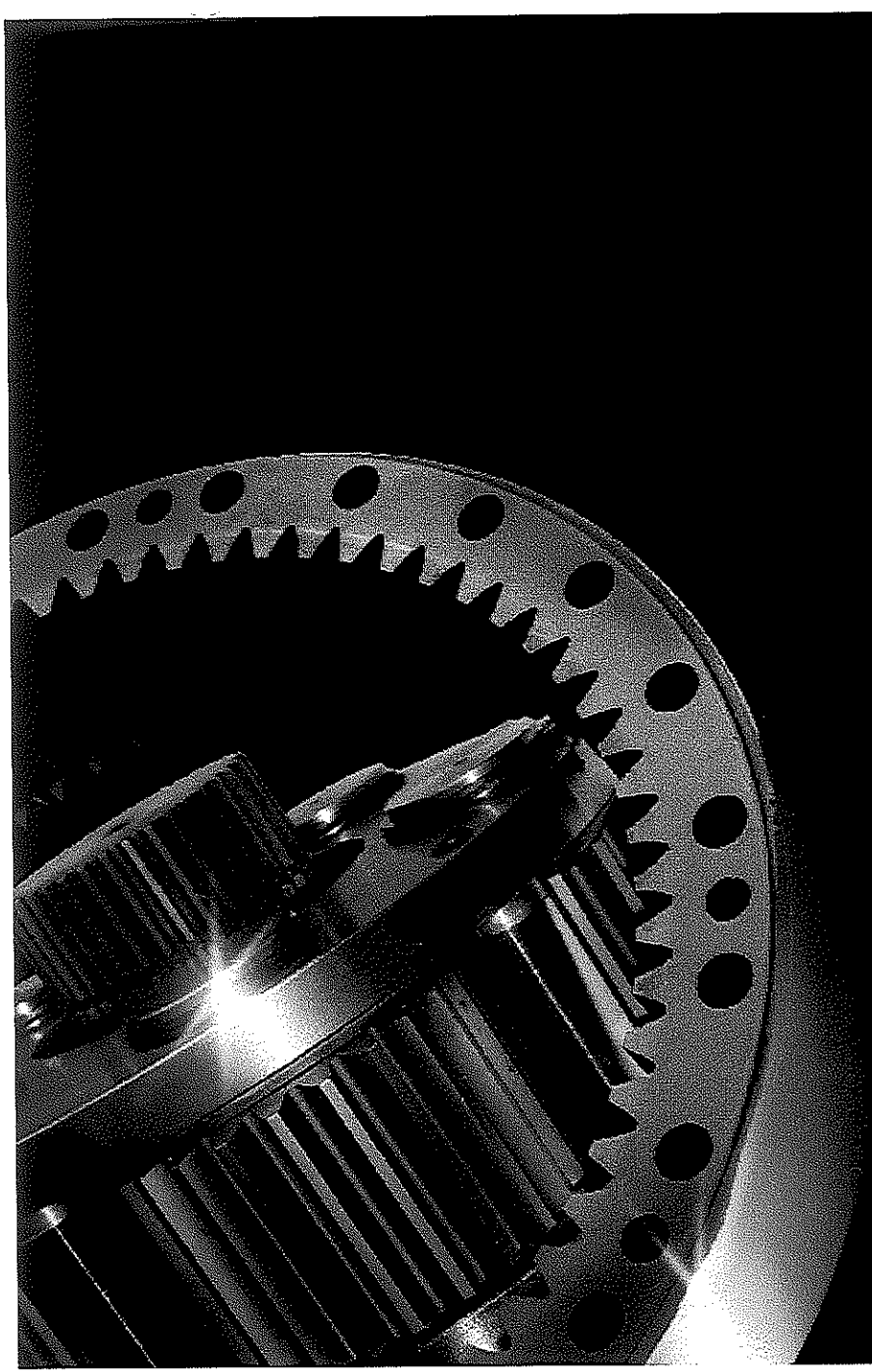
OUTPUT SPEED

	SD 45		SD 50		SD 70		SD 80		SD 95	
GPM	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD
8	3	5	2	4	2	3	1	3	1	3
12	4	8	3	7	3	5	2	4	2	4
16	5	10	4	9	3	7	3	6	3	5
20	7	13	6	11	4	9	4	7	3	6
24	8	16	7	13	5	10	4	8	4	8
28	9	18	8	16	6	12	5	10	4	9
32	10	21	9	18	7	14	6	11	5	10
36	12	23	10	20	8	15	6	13	6	11
40	13	26	11	22	9	17	7	14	6	13
44	14	29	12	24	9	19	8	16	7	14
48	16	31	13	27	10	20	8	17	8	15
52	17	34	14	29	11	22	9	18	8	16
56	18	37	16	31	12	24	10	20	9	18
60	20	39	17	33	13	26	11	21	10	19
64	21	42	18	36	14	27	11	23	10	20
68	22	44	19	38	14	29	12	24	11	22
72	23	47	20	40	15	31	13	25	11	23
76	25	50	21	42	16	32	13	27	12	24
80	26	52	22	45	17	34	14	28	13	25
84	27	55	23	47	18	36	15	30	13	27
88	29	57	24	49	19	37	16	31	14	28
92	30	60	26	51	20	39	16	32	15	29
96	31	63	27	53	20	41	17	34	15	30
100	33	65	28	56	21	43	18	35	16	32

Safe & Secure optional storage & transport cradles available



Output speed and torque specifications are THEORETICAL. Speed and torque output are dependent on the overall system efficiencies associated with the prime movers hydraulic system. This document should be used for information and comparative purposes only. When determining criteria, & application specific information is required, please contact DIGGA.

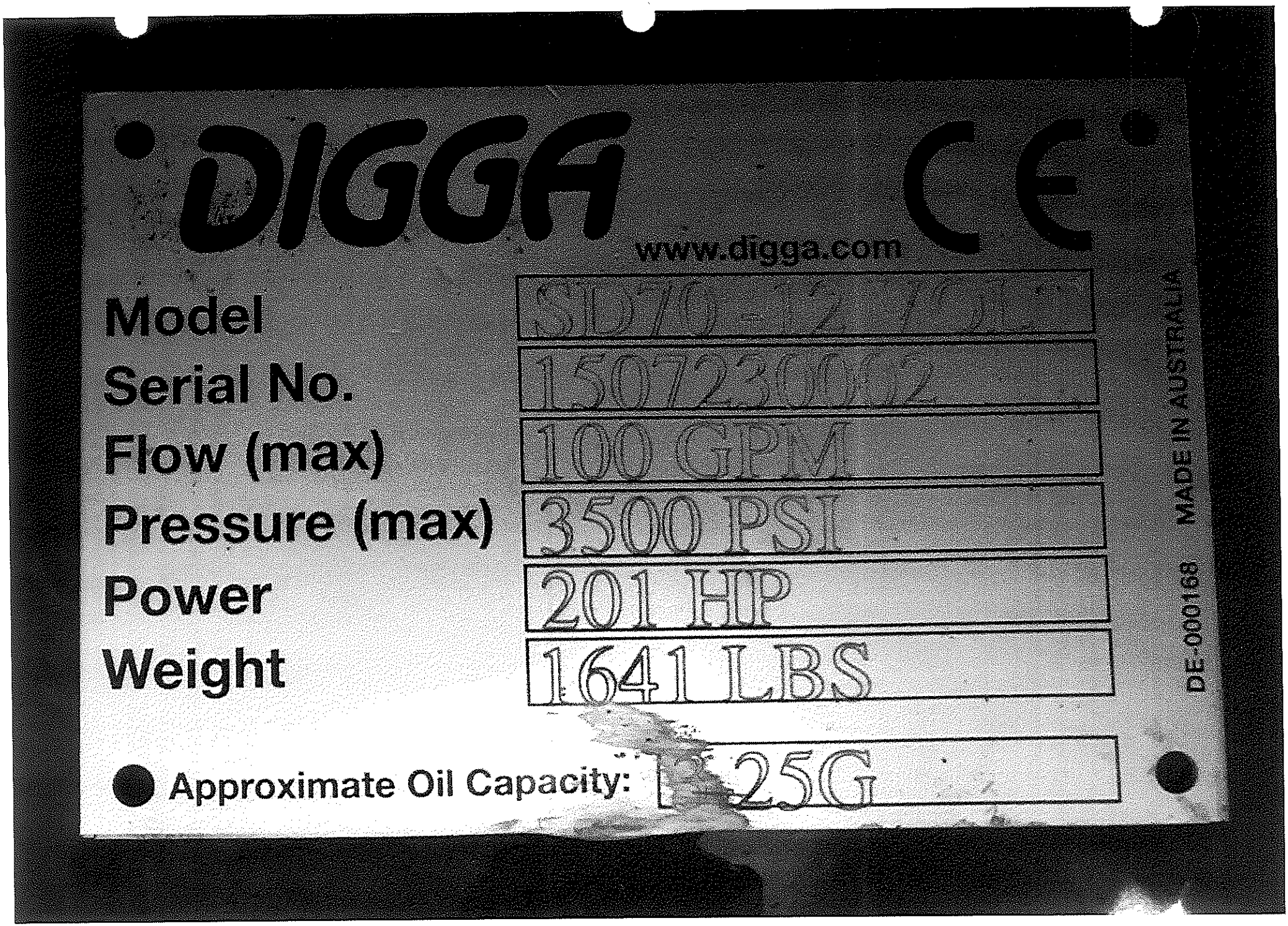


DIGGA®

SD / MD / UD / XD

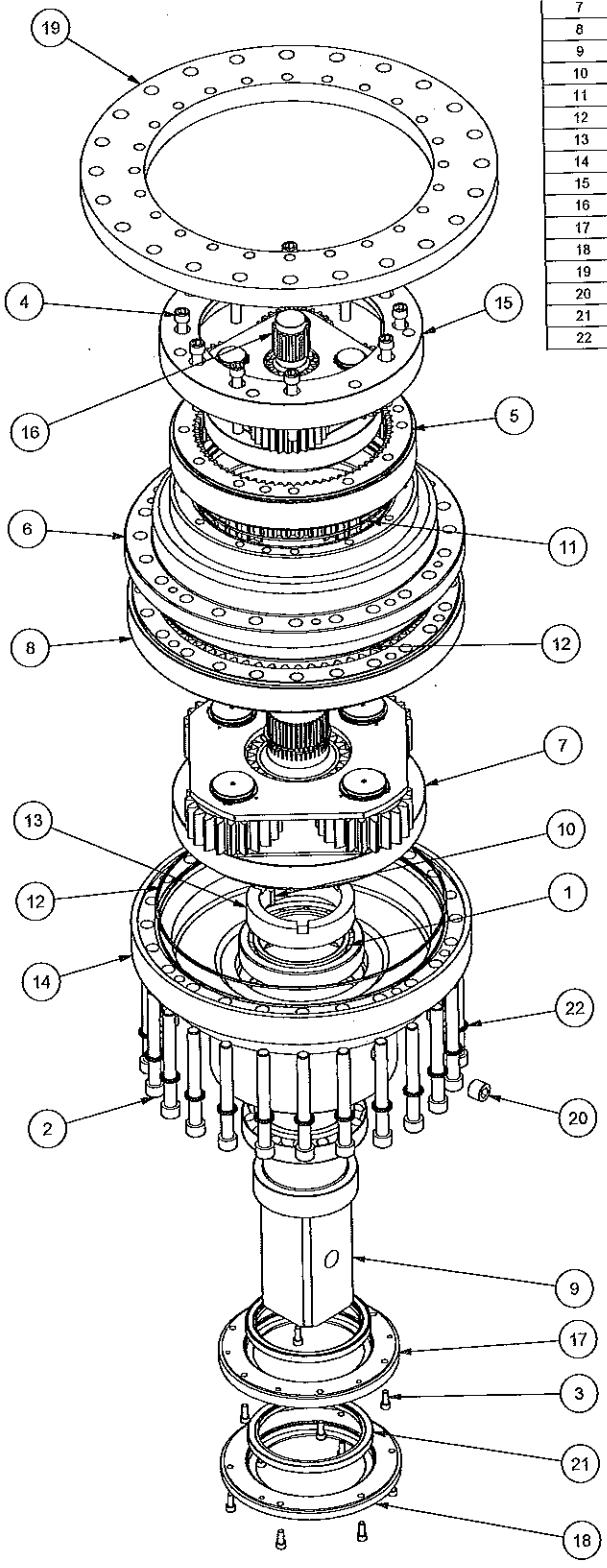
SINGLE SPEED AND 2 SPEED DRIVES

OPERATORS MANUAL

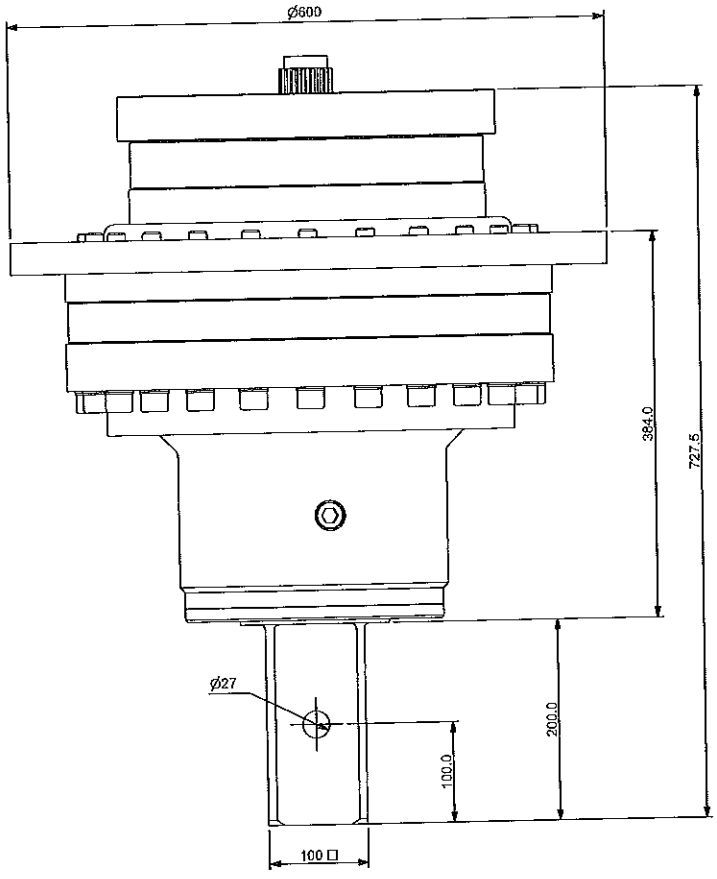

DIGGA
www.digga.com
CE
Model
Serial No.
Flow (max)
Pressure (max)
Power
Weight
100 GPM
3500 PSI
201 HP
164 LBS
Approximate Oil Capacity:
25G
DE-000168 MADE IN AUSTRALIA

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	BE-000029	BEARING TAPERED ROLLER E32024J
2	24	FA-000138	SCREW SOCKET HEAD CAP M18 X 160
3	12	FA-000150	SCREW SOCKET HEAD CAP M8 X 20 ZINC PLATED
4	10	FA-000432	SCREW SOCKET HEAD CAP 9/16 IN X 4 IN ZINC PLATED
5	1	GB-000539	RING GEAR - S8
6	1	GB-000833	INTERIM HOUSING - S10 - SUIT SERIES 10 TO SERIES 8
7	1	GB-001388	GEARSET - S9.5 - RATIO 3.82 - 40 SPLINE SUN GEAR
8	1	GB-001404	RING GEAR - S9.5 - ALL RATIOS
9	1	GB-001429	OUTPUT SHAFT - S9.5 - 37 SPLINE - 100mm SQUARE SINGLE HOLE
10	1	GB-001467	KEY - LOCK - 7.94 X 24
11	1	GB-001469	O-RING - S6/8
12	2	GB-001677	O-RING - S9.5/S10
13	1	GB-001697	LOCKNUT - S9.5 - WITH BUILT IN SPACER
14	1	GB-001940	OUTPUT HOUSING - S9.5 - STANDARD
15	1	GB-002905	S8 INPUT - TD3.5 - DIRECT DRIVE
16	1	GB-003055	GEARSET - S8 - RATIO 5.60 - 40 SPLINE CARRIER - TO SUIT TD3.5
17	1	GB-003572	SEALRETAINER - SD (150x180x12 SEAL) - INNER
18	1	GB-003573	SEAL RETAINER - SD (150X180X12 SEAL) - OUTER
19	1	HO-000373	ADAPTOR RING - 510 TUBE TAPPED HOLES TO S10 BOLTS FROM BOTTOM
20	1	PP-000003	PRESSURE PLUG 3/4 BSPT
21	2	SE-000039	SEAL 150 x 180 x 12
22	24	WA-000028	WASHER - NORDLOC - M18



NOTE:
1. ASSEMBLE FA-00138 APPLY LOCTITE 243, TORQUE TO 240Nm.
2. INSTALL GB-002905 APPLY LIQUID GASKET REFER TO DWG GB-002905
3. INSTALL SE-000039 & RETAINERS REFER TO DWG GB-003571



REVISION HISTORY

REV	DESCRIPTION	DATE	APPROVED
A	GB-003572 WAS GB-003277; GB-3573 WAS GB-003278; FA-000150 WAS FA-000144, QTY 12 WAS 6; FA-000480 REMOVED (ER-000993)	09/01/2017	LARRYL

UNLESS OTHERWISE STATED: ALL DIMENSIONS IN MILIMETERS

TOLERANCES: LINEAR
WHOLE NUMBERS ±0.50
0.0 DEC PLACE ±0.1
0.00 DEC PLACE ±0.05

TOLERANCES: ANGULAR
WHOLE NUMBERS ±0.5
0.0 DEC PLACE ±0.1

DRAWN: LARRYL

DATE: 13/01/2015

DIGGA

DESCRIPTION: GEARBOX ASSEMBLY - TD3.5 S8 5.6 S9.5 3.82 100 Shaft

PART #: GB-003354

SUBJECT: GEARBOXES

MASS: 382.33 kg

FINISH:

SHEET: 1 OF 1

MATERIAL:

SIZE: A3

1 CRITICAL INFORMATION - SERVICE INTERVALS

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 product that is designed for Heavy Duty Drilling, Screw Anchoring (Pier) installation, Core Barreling or 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 **SD, MD, UD, XD** or Special application drives must have a first oil change within the **first 30hrs (extreme use) or 50hrs (Moderate use) or 3mths** (which ever comes first) of use to ensure the bed in of the drive unit. For more detailed information please read page 40 - 45

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 12mths 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 High Performance DIGGA Planetary Drive. 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 (maintenance - Chapter 13).

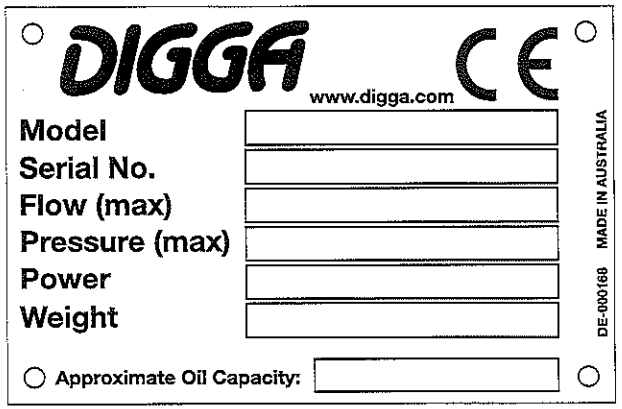
Complete manual must be read and understood before connecting and operating. Be sure to observe all safety precautions and maintenance procedures as described in this manual.

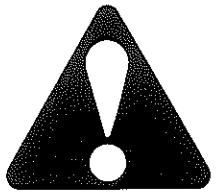
Optional Extras are available for special applications or extreme conditions: these are noted throughout the manual. Contact your DIGGA dealer for any further information pertaining to this product or for further information on other products available in the DIGGA range.

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

Your Digga Auger Drive is a **user non serviceable part. 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 plate located on the product.

MODEL_____

SERIAL NUMBER_____

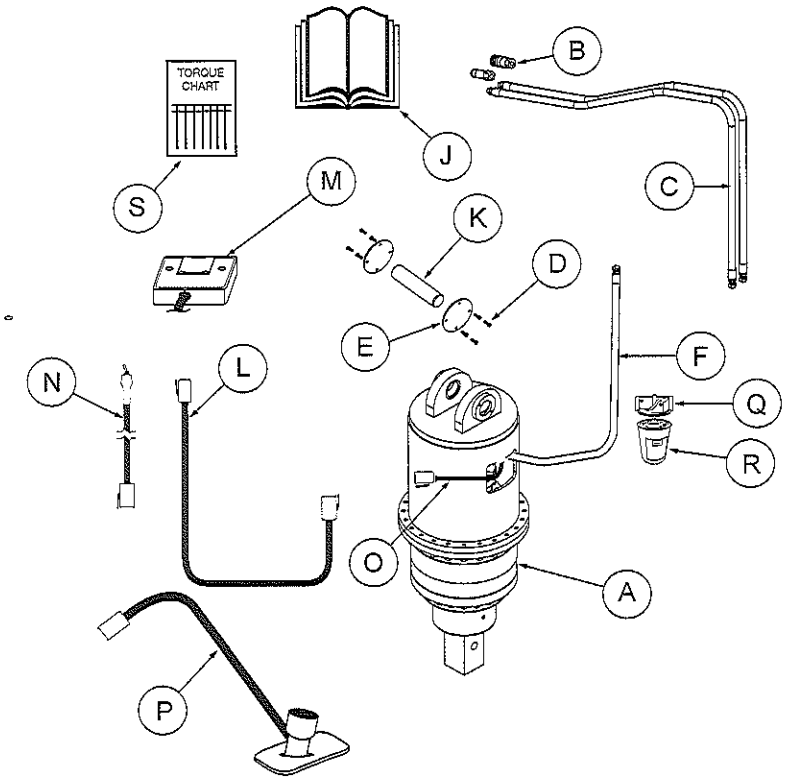
DATE PURCHASED_____

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

MODELS COVERED IN THIS MANUAL			
SUPA DRIVES (SD)	MEGA DRIVES (MD)	ULTRA DRIVE (UD)	EXTREME DRIVE (XD)
SD 45-95	MD 100 - 200	UD 200 - 300	XD 270 - XD500

4 SERVICE & PREPARATION FOR USE

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 Drive units are to be fitted to.

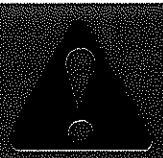


REF	DESCRIPTION	QTY	SINGLE SPEED	2-SPEED 12V / 24V
A	DRIVE UNIT	1	•	•
B	QUICK RELEASE COUPLERS	set	Optional	Optional
C	HYDRAULIC HOSE KIT	set	Optional	Optional
D	BOLT	8	•	•
E	HOOD COVER	2	•	•
F	3M CASE DRAIN HOSE & FITTINGS	1	•	•
J	OPERATORS MANUAL	1	•	•
K	PIN	1	•	•
L	EXTENSION HARNESS (3M, 6M, 12M OR 15M)	1	N/A	•
M	SPEED CONTROLLER	1	N/A	•
N	REMOTE TOGGLE SWITCH (2-SPEED)	1	N/A	Optional
O	DIGGA MOTOR CONTROL HARNESS	1	N/A	•
P	REMOTE FLOOR MOUNTED SWITCH (2-SPEED)	1	N/A	Optional
Q	CASE DRAIN FILTER HEAD	1	Optional	Optional
R	CASE DRAIN FILTER ELEMENT	1	Optional	Optional
S	TORQUE CHART	1	•	•

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.

5 SAFETY PRECAUTIONS - GENERAL INFORMATION

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.

5 SAFETY PRECAUTIONS - GENERAL INFORMATION

WARNING **OPERATING THE 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 10 feet (3 meters) 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

- 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.
- Tether any auger, anchor or extensions connected to the drive with a chain if necessary, to prevent uncontrolled swinging of the attachments 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 auger drive from the prime mover before transporting to and from the job site.
- Planetary Drives shall be used only for their designed intent and shall not be loaded beyond their rated capacity. Overloading or exceeding the manufacturers specifications will void all warranty.

WARNING

OPERATING THE 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 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.

5 SAFETY PRECAUTIONS - GENERAL INFORMATION

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 Auger Drills or Anchoring equipment.
- Operators, helpers, and other personnel working near Auger Drills or Anchoring 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 and 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.

5 SAFETY PRECAUTIONS - GENERAL INFORMATION

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, and operator restraints (seat belts or equivalent devices).

6 SAFETY - WORKING WITH THE ATTACHMENT

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.

6 SAFETY - WORKING WITH THE ATTACHMENT

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 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

7 BEFORE USE

The key feature of your Digga Auger Drive is low maintenance. It contains no user serviceable parts, unauthorised disassembly will void warranty. WRITTEN PERMISSION FROM DIGGA MUST BE OBTAINED before performing any disassembly. v

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

BEFORE FIRST USE

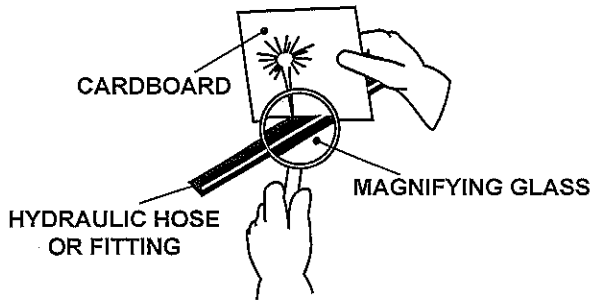
- Inspect the attachment for shipping damage. If damage does exist, do not operate until the damaged parts have been replaced or repaired.

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.

Commissioning Procedure for SAI GM-4 (single speed) and GD4/TD3.5 (2 -speed) hydraulic motors.

NOTE: BEFORE THE DRIVE UNIT IS EVEN CONNECTED TO THE EXCAVATORS 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.

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 installed. DO NOT RUN THE DRIVE UNIT WITHOUT OIL. Connect the hydraulic hoses and 2 speed electrical harness to the excavator. If the customer has ordered the optional Pressure Differential Kit and the Diggalign Kit, then there will be 2 additional electrical harness to connect. When looking into the access hole in the hood, the hose to con nect to the V1 port on the valve block is the inlet hose (LHS). The hose to connect to V2 port of the valve block is the outlet hose (RHS). (See Diagram on page 19 and page 20).

8 COMMISIONING PROCEDURE

2. The case drain hose is already fitted to the hydraulic motor and needs to be connected to the hydraulic line which returns to the hydraulic tank of the excavator.

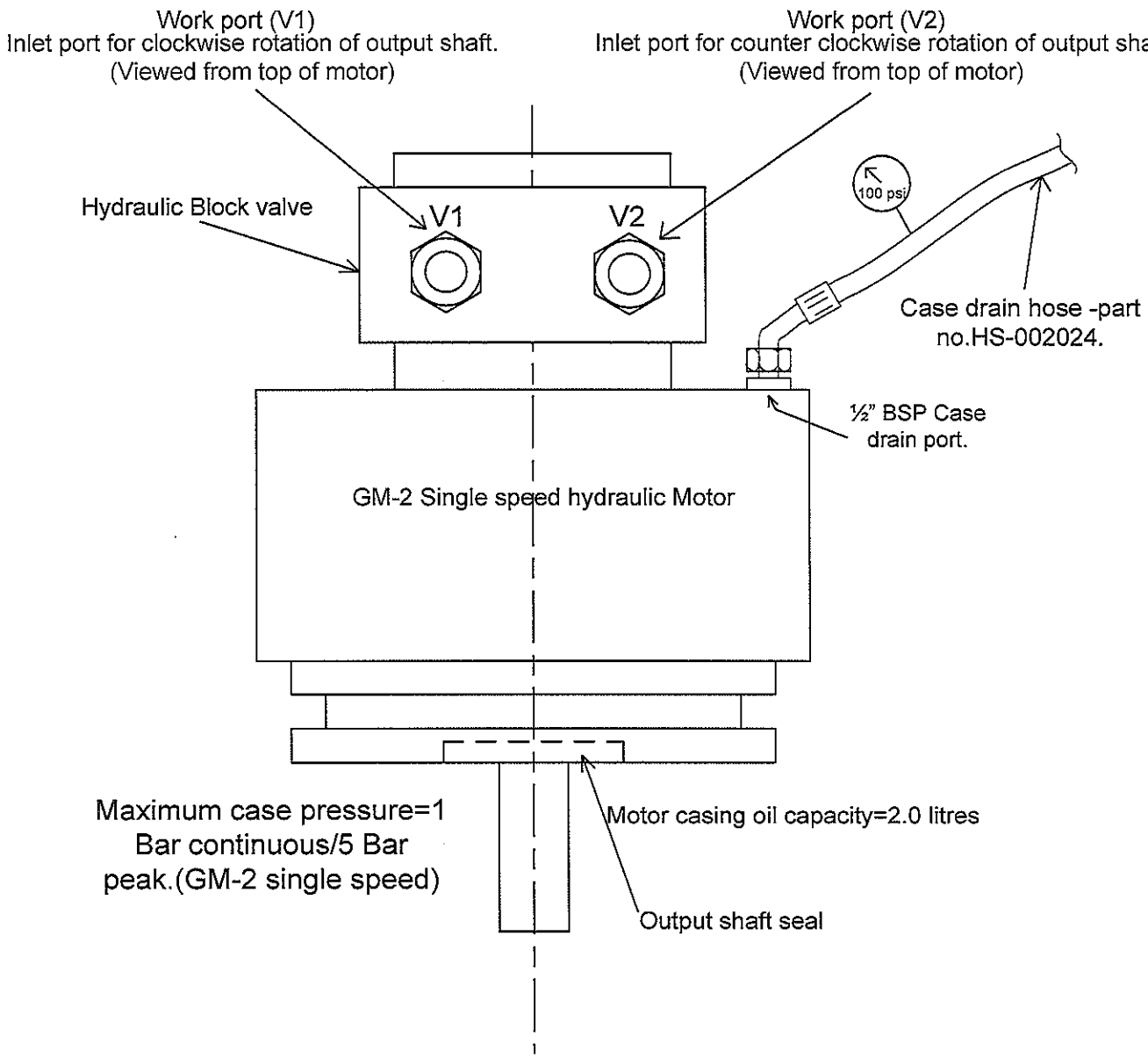
NOTE: ENSURE THAT THE CASE DRAIN HOSE IS CONNECTED TO THE RESERVOIR OF THE EXCAVATOR. IT IS IMPORTANT THAT THE PRESSURE IN THE CASE DRAIN HOSE IS NOT READING MORE THAN 100PSI WHILST OPERATING AND THAT A CONSISTENT TRICKLE OF HYDRAULIC OIL IS BEING RETURNED TO THE EXCAVATOR RESERVOIR. INTERMITTENT AND 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.

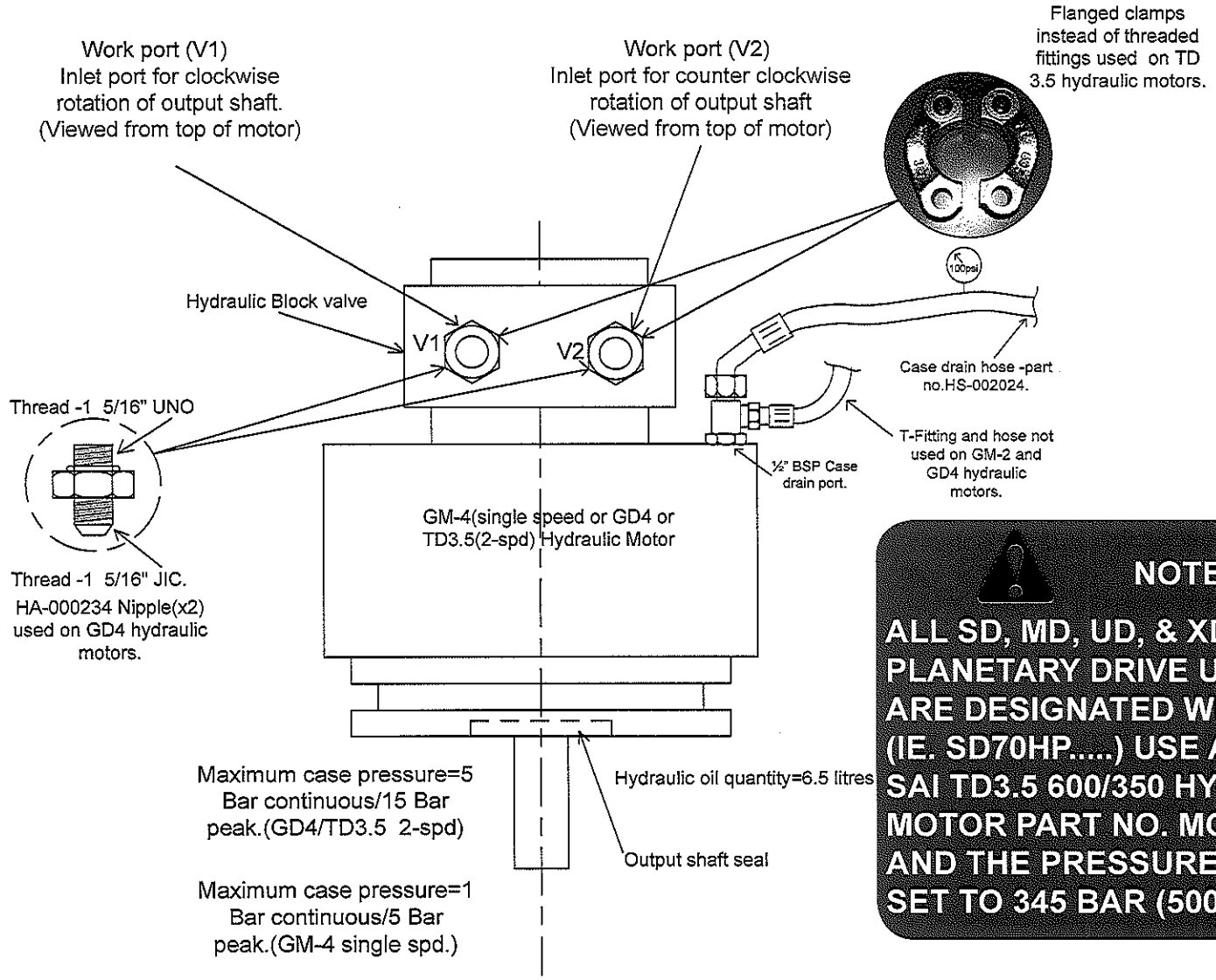
All SD, MD, UD and XD planetary gear drive units use Castrol Alphasyn EP320 (standard) Synthetic gearbox oil for operating in tropical ambient temperatures. See maintenance section in the operators manual on gearbox oil level checking as well as the alternate gearbox oils recommended for cold climate 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 for gearbox volume and checking/topping up the gearbox oil.

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.

8 COMMISIONING PROCEDURE



8 COMMISIONING PROCEDURE



NOTE!

ALL SD, MD, UD, & XD PLANETARY DRIVE UNITS WHICH ARE DESIGNATED WITH HP (IE. SD70HP.....) USE A SAI TD3.5 600/350 HYDRAULIC MOTOR PART NO. MO-000646-5000 AND THE PRESSURE RELIEF IS SET TO 345 BAR (5000 PSI).

INSTALLING YOUR HIGH PERFORMANCE 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. 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 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.

7. 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.

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

8. Route the hoses in such a fashion as to avoid pinching or chafing. Be sure the two hydraulic hoses are long enough to perform at the full range of the auger drives operating motion. HIGH PRESSURE HOSES A & B - Route the hoses in such a fashion as to avoid pinching or chafing.
9. Hydraulic Motor may have code 62 flange ports or BSP 1" depending on the model of drive unit. If Hydraulic motor is a code 62 flange port, it may have ¾" or 1" flange hole size. (This depends on the model of drive unit and Hydraulic motor fitted). We recom mend that high pressure hoses A & B should be custom made and fitted by a Qualified Hose As sembler/Fitter. We also recommend the use of hoses rated to 5000 psi working pressure. Hose size is determined by Machine flow rate and should be calculated by the Qualified Hose Assembler/Fitter. Hoses A & B are normally connected to the Auxiliary lines on the parent machine.

8 COMMISIONING PROCEDURE

9. 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 turned on. 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.

10. VARIABLE FOOT CONTROL - Host machines used to power Supa, Mega, Ultra and Extreme 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.

11. FILTRATION/CONTAMINATION - All Supa, Mega, Ultra and Extreme Drive units that are fitted with Piston Hydraulic Motors which require filtration of 10 micron fitted to both A & B pressure hoses. We recommend these filters be permanently fitted to the Drive unit so any contamination entering the system while connecting/disconnecting hoses is caught before entering the hydraulic motor.

12. With the unit lying horizontally on the ground connect the auger, screw anchor or extension or core barrel. ENSURE THE AUGER PIN AND SAFETY CLIP ARE INSTALLED CORRECTLY. The machine is now ready for use.

13. 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 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 42 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 design to operate within air temperature 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 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

9 OPERATING INSTRUCTIONS - AUGERING

OPERATING PROCEDURES - 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 vertical holes or rotating piers into the ground. Use in any othe 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. Raise the Auger Drive so the auger hangs vertical and the drive is clear of the cradle, then lower the auger into the starting position.
4. Ensure the crowd on your machine is forward and not back. This will keep the Drive clear of the cradle and allow the auger to move freely from side to side and forward and back. The pendulum action must not be hindered otherwise damage / bending of the shaft or auger may occur. Lower the auger into the ground ensuring the auger drive does not stall and remains in a vertical position, start rotation of the auger.
5. 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 & stop, rotate the auger & stop in the forward direction to remove the spoil. DO NOT rapidly engage forward/ reverse action to remove spoil.

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 on an angle out of the hole, as you will run the increased risk of bending the auger or shaft.
7. 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 pull with the machine as you may run the risk of shaft damage to the drive.
8. Do not flick the dirt (especially mud or clay) from the auger, as you may run the increased risk of bending the auger shaft.
9. Keep clearing the auger hole regularly as you drill deeper. 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.

Excavators – Apply the greatest amount of down force from the main boom. Be aware that the boom moves in an arc and you will need to compensate for this movement by adjusting the dipper arm or moving your machine backwards or forwards to ensure you are drilling straight. You must take extreme care when doing this to prevent the auger or screw pile from bending or pulling flights against the inside of the hole.

All other machines – Ensure the vertical position is maintained when drilling.

WARNING: 2 SPEED OPERATION - THE AUGER MUST NOT BE ROTATING WHEN CHANGING SPEEDS

9 INSTALLATION AND OPERATING INSTRUCTIONS - EXTENSIONS

EXTENSIONS & TELESCOPIC AUGER EXTENSIONS - OPERATING PROCEDURE

1. Once you have obtained the maximum depth with the extension & auger you have, raise the auger out of the hole & clear the spoil from the auger. Place the auger back into the hole ensuring the auger is bottomed out in the hole & the hub of the extension is clear & easily accessible, remove the auger pin to disengage the auger drive from the auger. Install the additional extension onto the auger drive with pin & safety clip, lower the extension & attach to the auger with second pin & safety clip. Always ensure persons assisting are clear & visible to the operator at all times.
2. 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 & 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 & 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 & auger on the machine & remove the support bars. Clear the auger & then keep repeating these steps.
3. For telescopic extensions, use the same method as above, but slide the inner extension back into the auger & pin.

DIGGA DOES NOT ACCEPT ANY LIABILITY FOR INJURY OR DAMAGE RESULTING FROM THE OPERATOR USING THE EXTENSION(S) OUTSIDE THE DESIGNED OPERATING PROCEDURE

OPERATING PROCEDURES - SCREW ANCHORING (PILE/PIER)

1. Installation is to be performed by a trained and/or certified installer.

2. Connect the manufacture's approved adapters to the Planetary Drive head. If you have two speed operation, start installation in the high speed, low torque setting and start installing pile. As the pressure builds & the torque increases, stop the unit rotating, change the two speed controller to High Torque low speed and complete the pile installation to your required depth and torque. If your drive is single speed install the pile in one continous motion until the desired depth and torque is acheived.

3. 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.

All SD, MD, XD & UD Digga drives are fitted with an ECV - Energy Contol Valve (Patented). During the screw anchoring process energy builds up in the pile/pier and when the operator stops installation when torque is reached, the pile/pier temporarily 'flicks' back or rotates back forcing energy up the pile/pier back up through the gearsets and into the motor momentarily turning the motor into a pump. The ECV is designed to protect the motor from this action and essentially grabs the oil and gently bleeds it back down the hydraulic lines. The sound it makes is a gentle 'swoosh', this is how you know the valve is working.

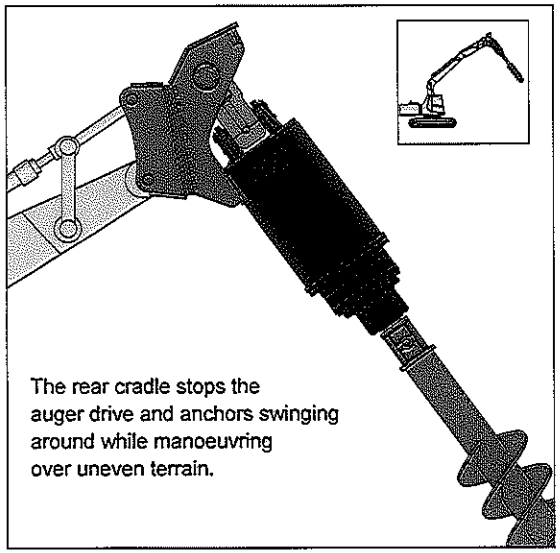
N.B Inefficiencies occur with machinery that can reduce the torque output, such as heat, cold, age of machine etc.. It is therefore highly recommended that Torque monitoring equipment to keep record of the torque and pressure is installed. Contact Digga or your local Digga Dealer for further information regarding torque monitoring options.

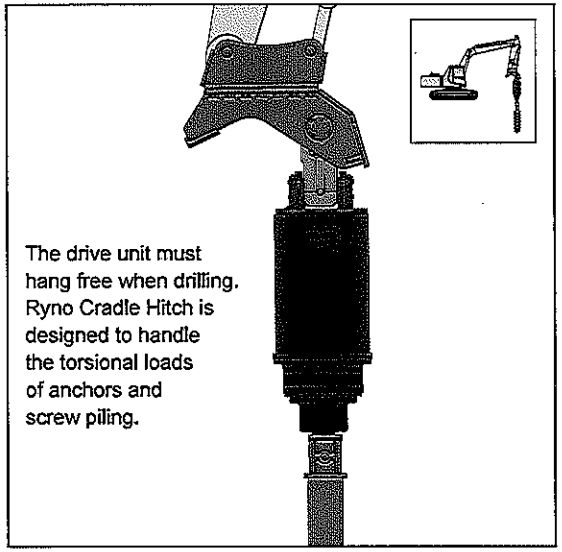
IT IS THE RESPONSIBILITY OF THE INSTALLER TO CORRECTLY CALCULATE, PLAN AND EXECUTE THE INSTALLATION OF THE PIERS TO THE NOMINATED TORQUES REQUIRED. DIGGA DOES NOT ACCEPT ANY LIABILITY OR CONSEQUENTIAL LOSS THAT IS INCURRED FROM INCORRECT INSTALLATION, OVER TORQUING OR UNDER TORQUING OF PILES

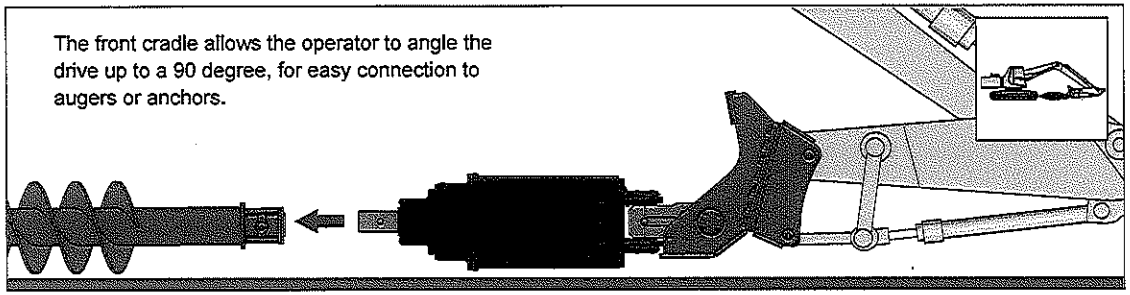
9 OPERATING INSTRUCTIONS - RYNO HITCH

OPTIONAL EXTRA - RYNO HITCH

If you have purchased a Ryno Hitch please ensure you read and understand the following operational procedures

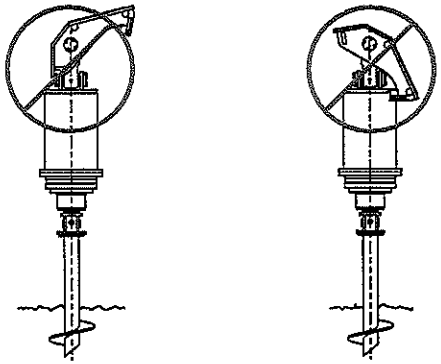






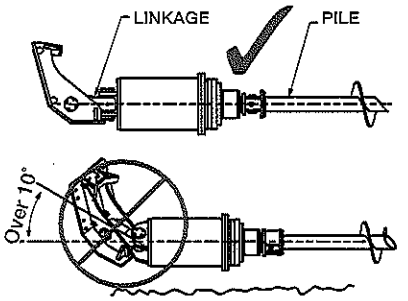
AVOID PILE INSTALLATION WHEN HITCH IS FULLY UP

AVOID PILE INSTALLATION WHEN HITCH IS FULLY DOWN



PILE LOADING

DURING PILE LOADING, MAKE SURE THAT THE LINKAGE IS IN LINE WITH THE PILE BEFORE STARTING THE CROWDING OR LIFTING ACTION. FAILURE TO DO SO MAY LEAD TO DAMAGE.



DIGGA HITCHES

Ryno Hitch

Machine: Large Excavators
Attachment: Ryno Hitch
Class: Heavy Duty

Developed for faster connection to the auger or pile, the Ryno Cradle Hitch is designed to handle the torsional loads of anchors and screw piling. The Ryno Hitch front cradle allows the operator to angle the drive up to 90 degrees for easy connection to augers or anchors while a rear cradle stops the auger drive or anchor from swinging about whilst manoeuvring over uneven terrain

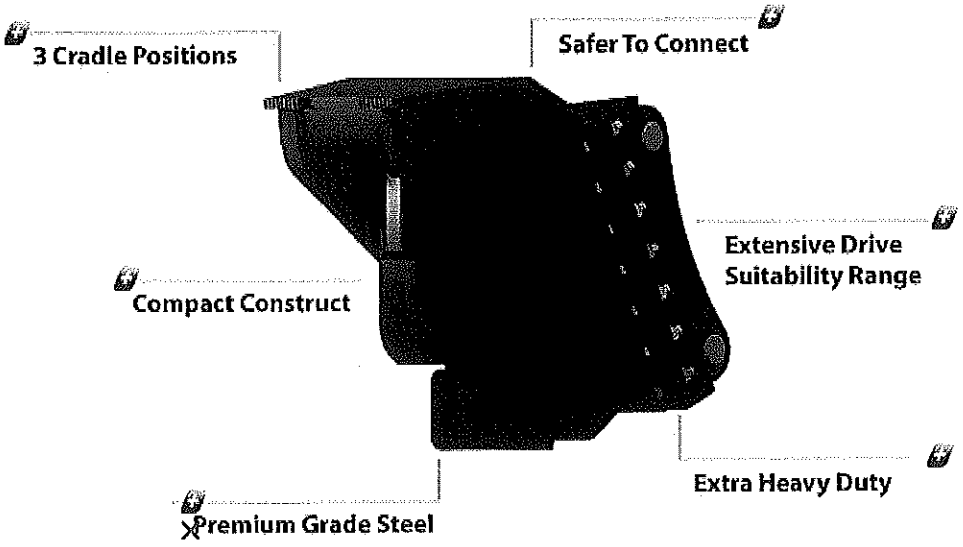
- 3 cradle positions
- Premium Grade Steel
- Extra Heavy Duty, fully engineered design
- Compact and faster connection to the auger/pile
- Safer. No more standing piles or large augers with persons or machinery to connect your drive

Video Photos Flyer

View Ryno Hitch Working Shots

Features & Benefits

Digga Ryno Hitches come packed with really practical features. Hover your mouse over the features ' 'plus' symbol on the diagram below to reveal the respective benefits.



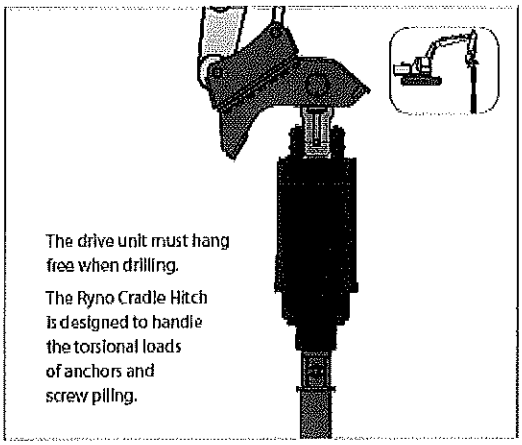
...o Hitch include an angled position (to assist in maneuvering), vertically free-hanging (for ... to 90 degrees (for connecting attachments).

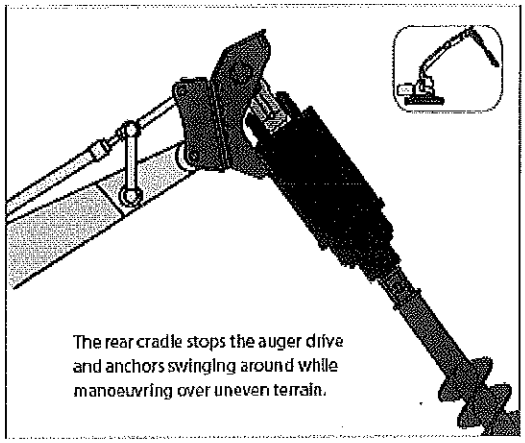
SKID HOE
SLASHER
SPREADA BAR
STICK RAKE
STUMP GRINDER
SSL TILT ATTACH
VIBRATORY ROLLER

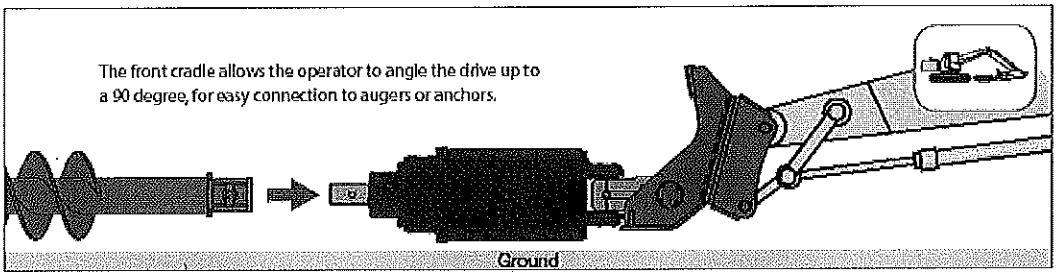
MONITORING EQUIPMENT
DIGGA TORQUE LOGIC
PRESSURE DIFFERENTIAL GAUGE
DIGGALIGN INCLINOMETER

MOUNTING OPTIONS
TELESCOPIC PILING EXTENSION
EURO ADAPTOR FRAME
PILING HITCH
EXCAVATOR HITCH

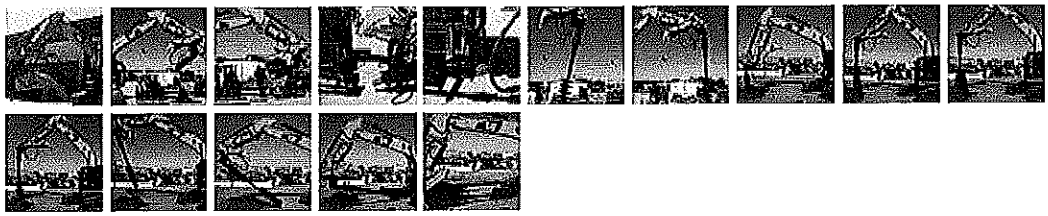
ONLINE RESOURCES
BROCHURES & POSTERS
ONLINE FORMS







Digga Ryno Hitch Working Shots (click thumbnails)



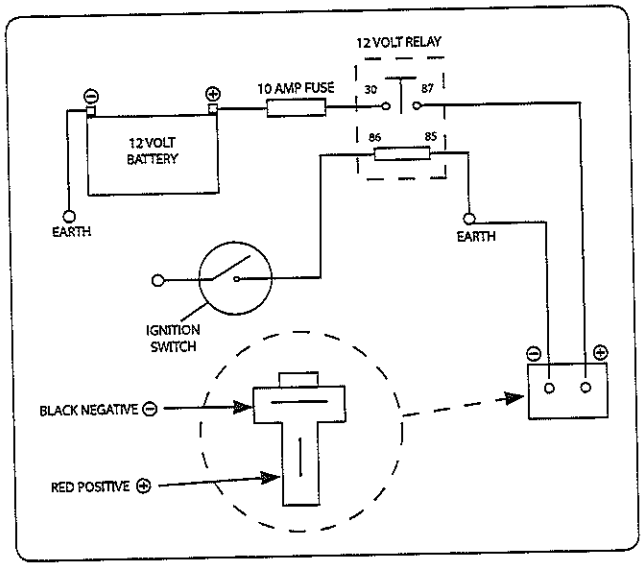
10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

(i) 2-speed Drives

Note: The 2-speed Drive can be supplied in either a 12V or 24V system as per customer request.
There are 2 ways to electrically power the drive unit:

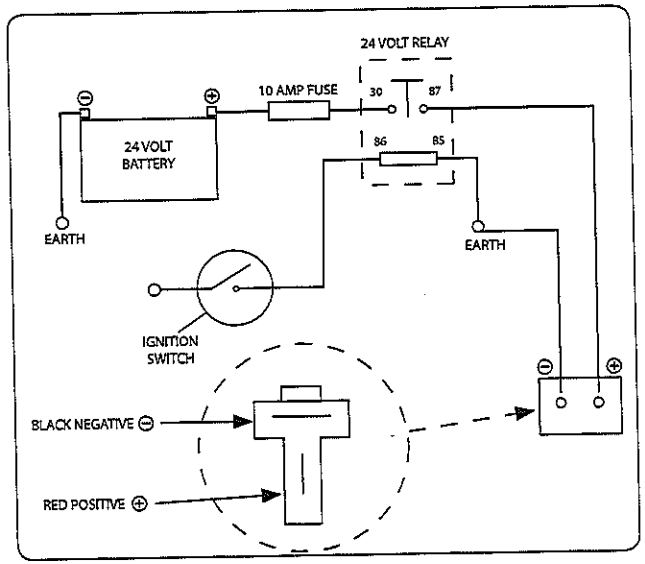
1) HARD WIRE FROM THE MACHINE BATTERY:-

12 Volt Excavator connection diagram to 12V 2-speed Drive Unit



Connect pin 30 of relay via 10 amp fuse to battery.
Connect pin 86 of relay to an ignition source.
Connect pin 85 of relay to an earth point or earth of battery.
Connect pin 87 of relay to two pin plug to connect to 2-speed controller harness. (This connection point is tagged "supply").
Connect an earth to the two pin plug to connect to 2-speed controller harness.

24 Volt Excavator connection diagram to 24V 2-speed Drive Unit



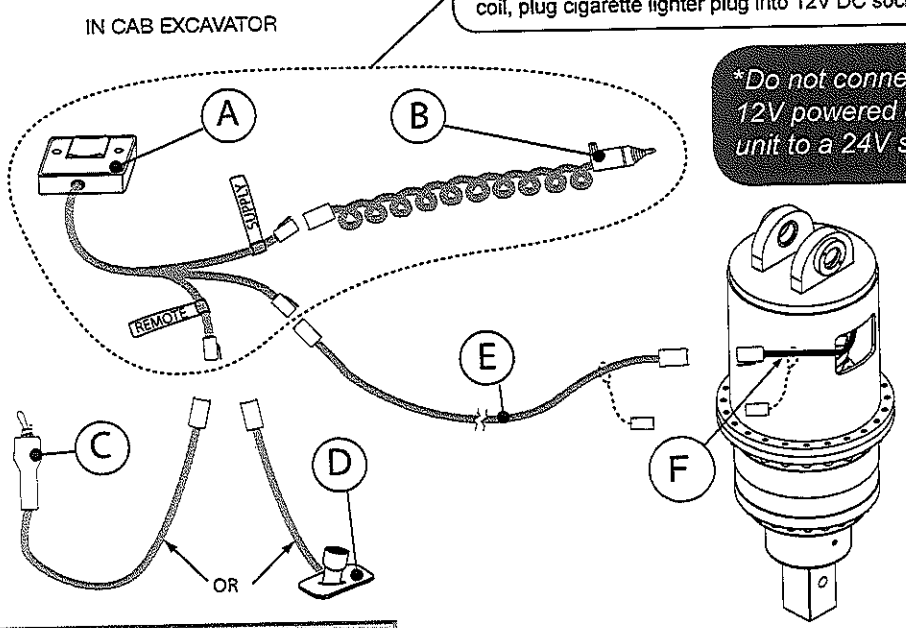
Connect pin 30 of relay via 10 amp fuse to battery.
Connect pin 86 of relay to and ignition source.
Connect pin 85 of relay to an earth point or earth of battery.
Connect pin 87 of relay to positive terminal of the 2 pin plug.
Connect an earth to the two pin plug to connect to the 2-speed controller harness.

10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

2) USE OF THE POWER LEAD PART NO. TC-000012:

If the planetary drive unit is fitted with 24V Solenoid coil, plug cigarette lighter plug into 24V DC Socket. If the planetary drive unit is fitted with a 12V solenoid coil, plug cigarette lighter plug into 12V DC socket.

*Do not connect a 12V powered drive unit to a 24V supply.



ITEM	DESCRIPTION	PART NO
A	Controller 2-Speed	DM-000013
B	12V/24V Power Lead	TC-000012
C	Remote Toggle Switch (OPTIONAL)	DM-000026
D	Remote Floor Mounted Switch (OPTIONAL)	DM-000030
E	15m Extension Harness 2-Speed	DM-000022
	12m Extension Harness 2-Speed	DM-000023
	6m Extension Harness 2-Speed	DM-000024
	3m Extension Harness 2-Speed	DM-000025
F	Harness - Motor 2-Speed	DM-000021

OR

OR

*Only one extension harness is supplied with each drive unit.

10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

CONNECTING THE 2-SPEED HARNESS TO AN EXCAVATOR, TELEHANDLER, TRACKED CRANE OR BACKHOE

The drive unit is connected to the 2-Speed controller (mounted in the Cab) via an extension harness.
(This harness contours the hydraulic hoses on the boom of an excavator). The extension harnesses are available in 3m, 6M, 12M or 15M length. The boom harness can be attached to the hydraulic lines of the excavator using cable ties. (See illustration on the following page)

The 2-speed harness kit comprises the following:

1x motor harness 3m long (part number DM-000021) (this harness is connected to the drive unit at the factory).
1x extension harness. (the extension harness is available in 4 different lengths 3m, 6m, 12m & 15m dependent on machine size.)
1x 2-speed controller (part number DM-000013). This controller has a 1.5m long harness terminated with a 4 pin female Deutsch plug. (See illustration on the following page).
1x12V/24V power lead (part number TC-000012)

The controller plugs into the extension harness and the extension harness plugs into the deutsch plug on the motor harness.
The motor harness is connected inside the hood to the hydraulic motor.

On the harness of the 2-speed controller and approximately 150mm from the Deutsch Plug are two plastic 2-pin plugs. The male plug is tagged showing "SUPPLY 12V/24V" and is the main point where power is supplied to the 2-speed system. The other plastic 2-pin plug is a female plug that is tagged "REMOTE". It is this plug that an Optional 2-speed joystick mounted toggle switch (part number DM-000026) OR Floor Mounted Dipswitch (part number DM-000030) can be plugged into. (See illustration on following page).

OPERATION OF THE 2-SPEED

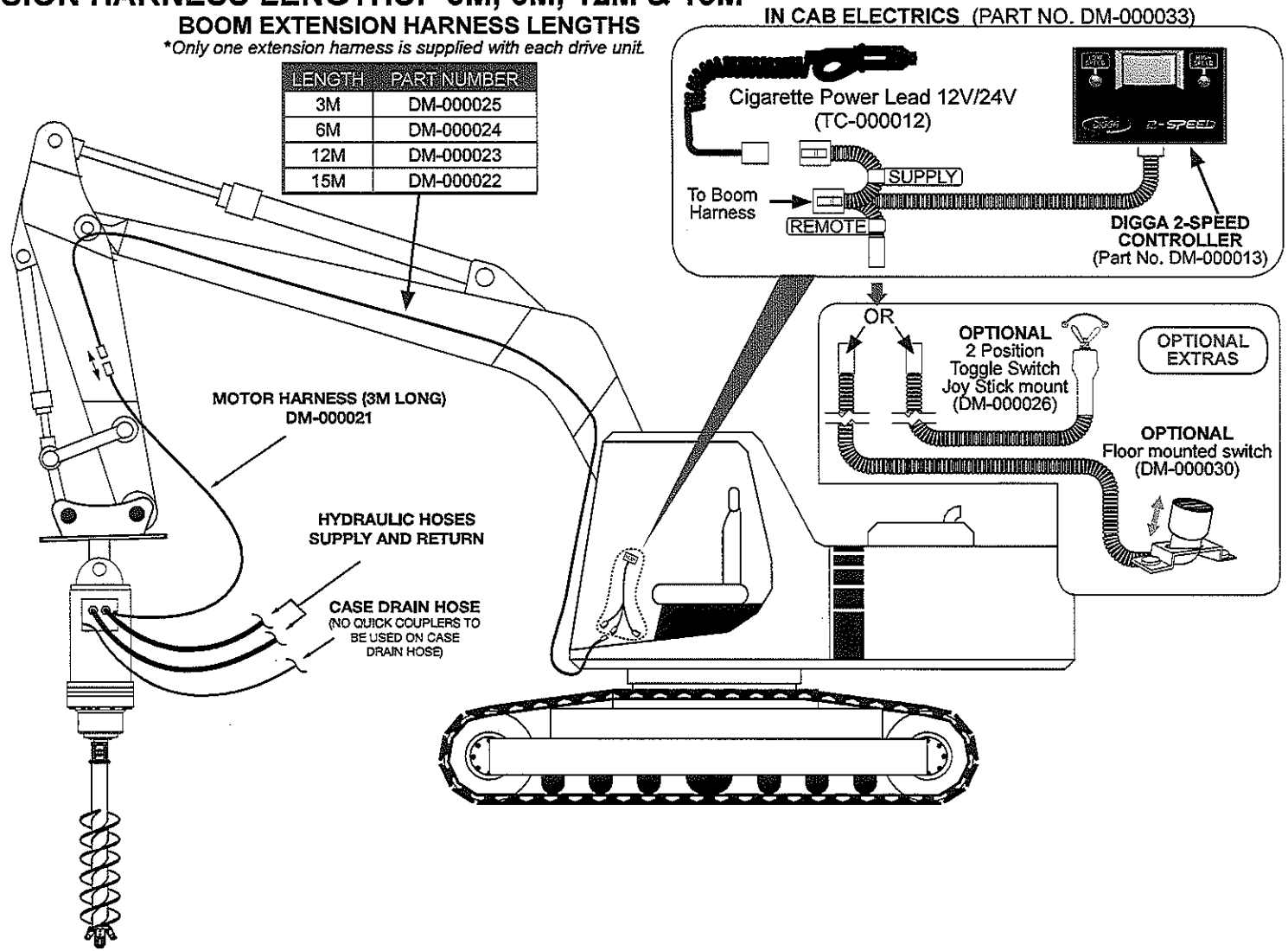
1. The 2-Speed drive unit is manufactured in SD, MD, UD & XD Drive options.
2. The speed controller (mounted in the excavator cab) is a 2-speed unit. This allows the operator to select the optimum speed required for drilling, core barrelling or applying screw pylons into the terrain.
3. HIGH SPEED is low torque - LOW SPEED is high torque. (See the torque chart supplied with your drive unit to read, output RPM and corresponding torque at an applied hydraulic pressure.)
4. The auger must not be rotating when the speed is changed on the speed controller. See Decal (Item 3) on page 40.

BOOM EXTENSION HARNESS LENGTHS:- 3M, 6M, 12M & 15M

BOOM EXTENSION HARNESS LENGTHS

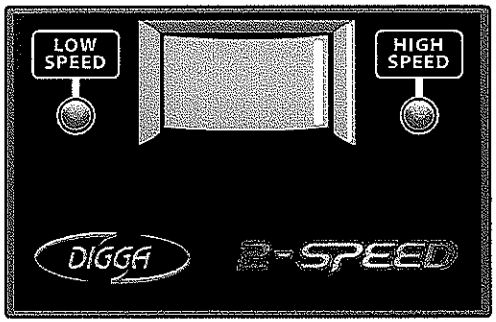
**Only one extension harness is supplied with each drive unit.*

LENGTH	PART NUMBER
3M	DM-000025
6M	DM-000024
12M	DM-000023
15M	DM-000022



HOW TO OPERATE THE SPEED CONTROLLERS

DIGGA 2-SPEED CONTROLLER (FOR 2-SPEED DRIVE UNIT)

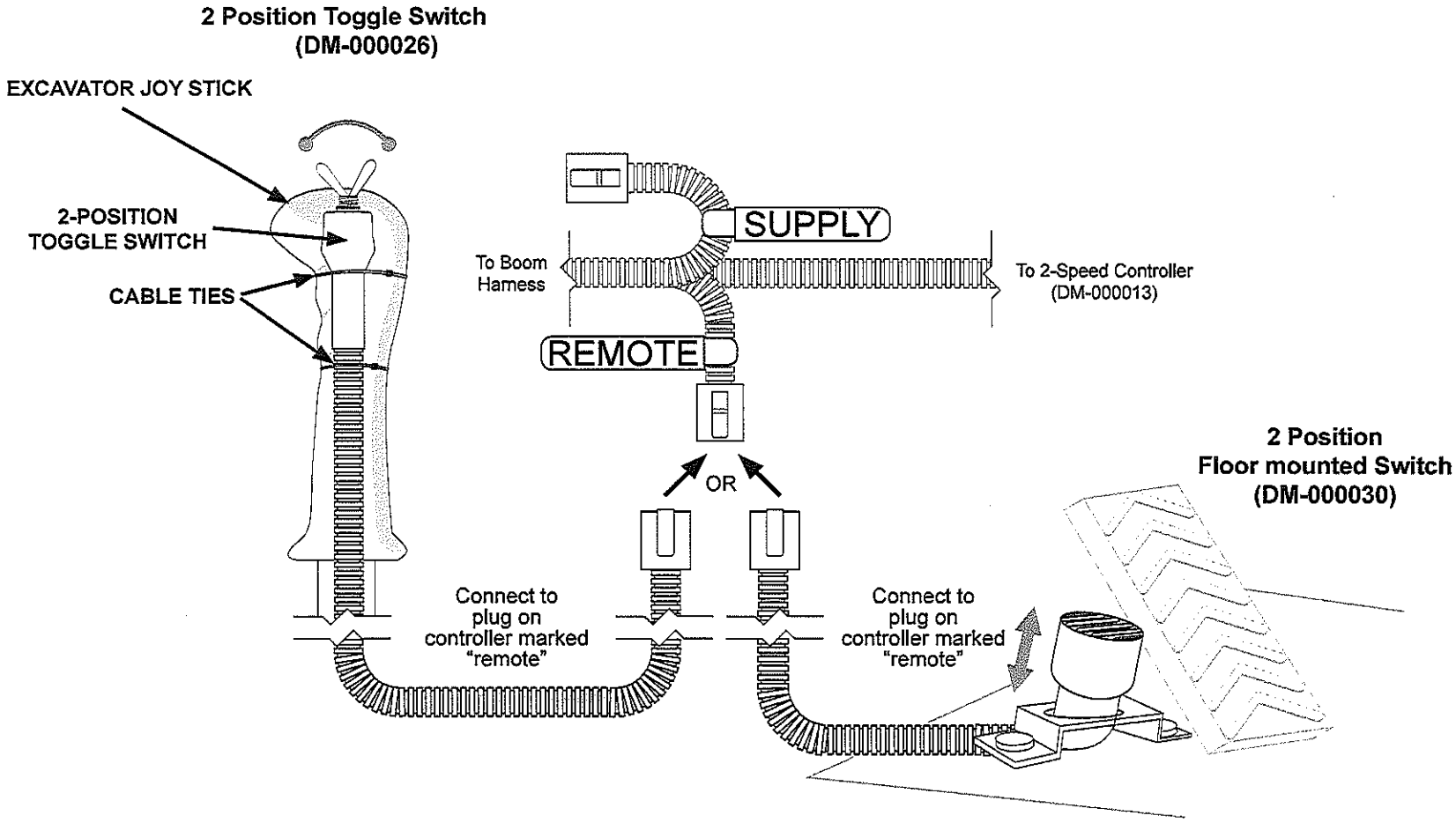


Part No. DM-000013

1. The 2-speed controller runs on 2 set speeds high and low.
2. When power is connected to the 2-pin plug on the controller harness one of the LED's will illuminate dependant on which position the rocker switch is in, thus indicating that there is power getting to the controller.
3. When the rocker switch is set in the low speed position the LED adjacent will illuminate.
4. When the rocker switch is set in the high speed position the LED adjacent will illuminate.
5. The 2 speed switch can also operate with a remote joystick-mounted toggle switch (part no. DM-000026) or floor mounted remote dip switch (part no. DM-000030) (see page 32).
6. To determine the output shaft rotational speeds when in low speed & high speed refer to the Torque Chart for your drive unit.
7. If using a remote joystick mounted toggle switch part number DM-000026 or a floor mounted switch part number DM-000030 to select the two speed, then the rocker switch on the 2-speed controller, must be positioned in the low speed position.

10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

DIGGA REMOTE SWITCHES (OPTIONAL)

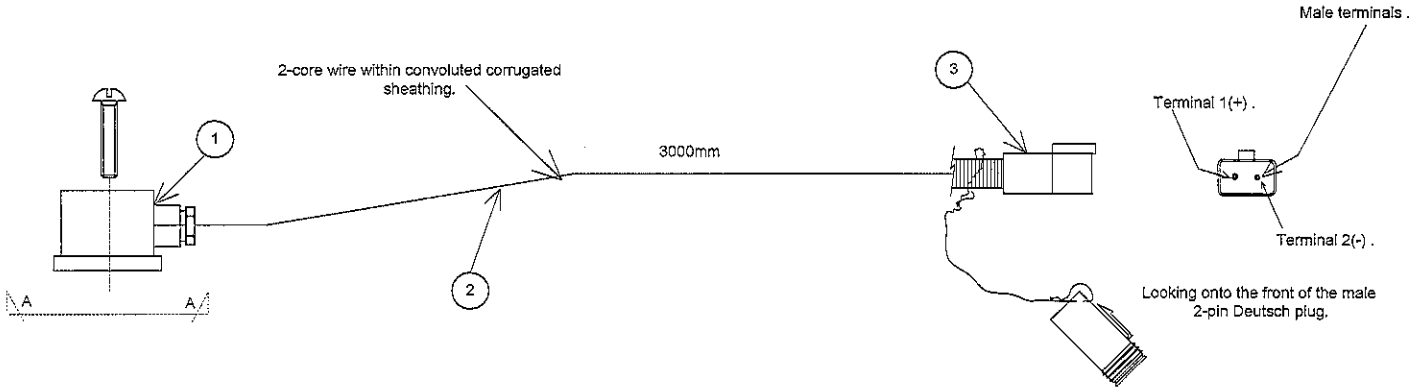


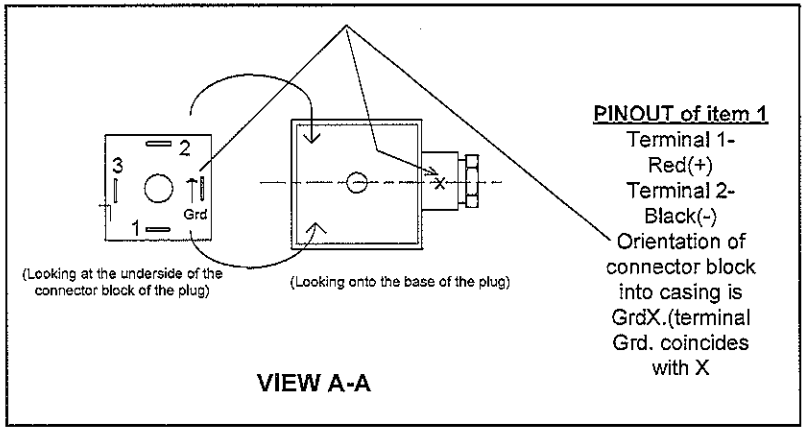
10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

Electrical and hydraulic schematic drawings:

BELOW IS A COPY OF THE MOTOR HARNESS PART NO. DM-000021 USED ON THE GD4 AND TD3.5 HYDRAULIC MOTORS:

NOTE: NO ELECTRICAL HARNESSES OR SPEED CONTROLLERS ARE USED ON SINGLE SPEED DRIVE UNITS





Note:

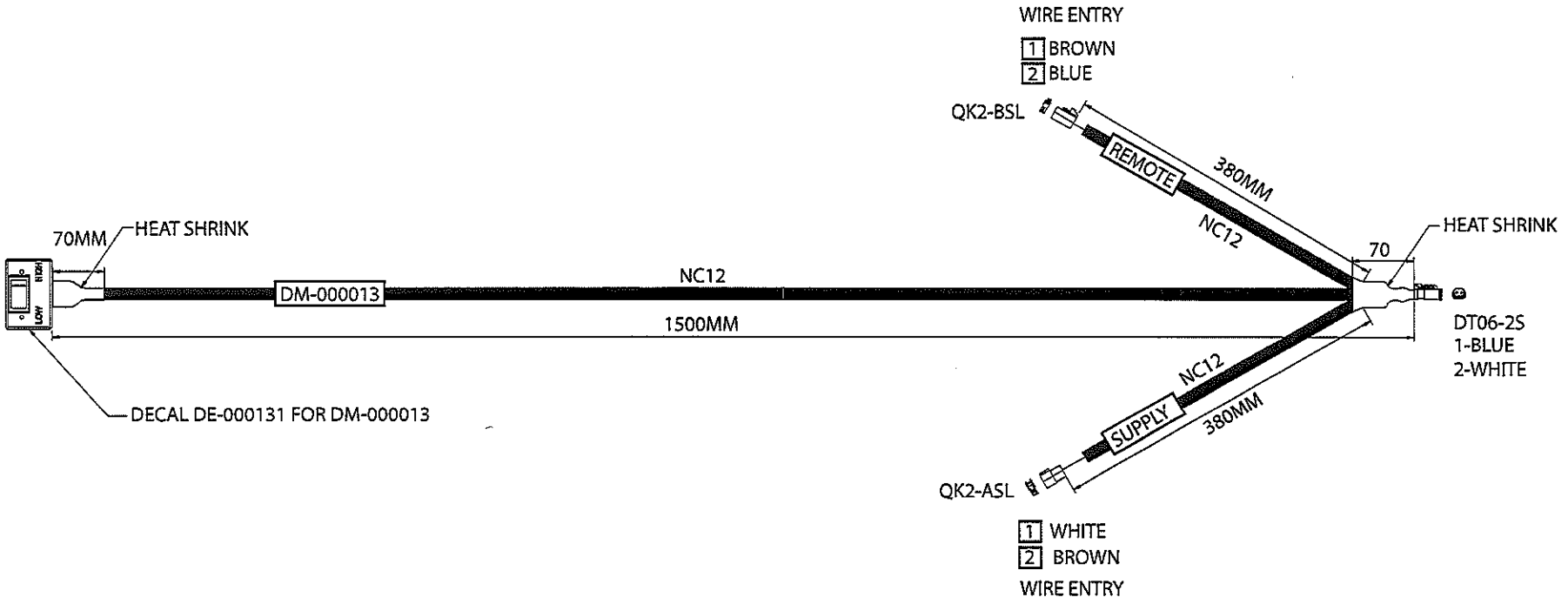
1. Item no. 1 plug. The two points 1 and 2 are terminated .Terminal 1 is red and is positive(+).Terminal 2 is to be black and is negative(-).Note the orientation of the terminal block

2.Harness manufacturer to affix part no. tag to harness .
3.Harness manufacturer to supply DM-000021 in a sealed plastic bag showing part number and order number on bag label.

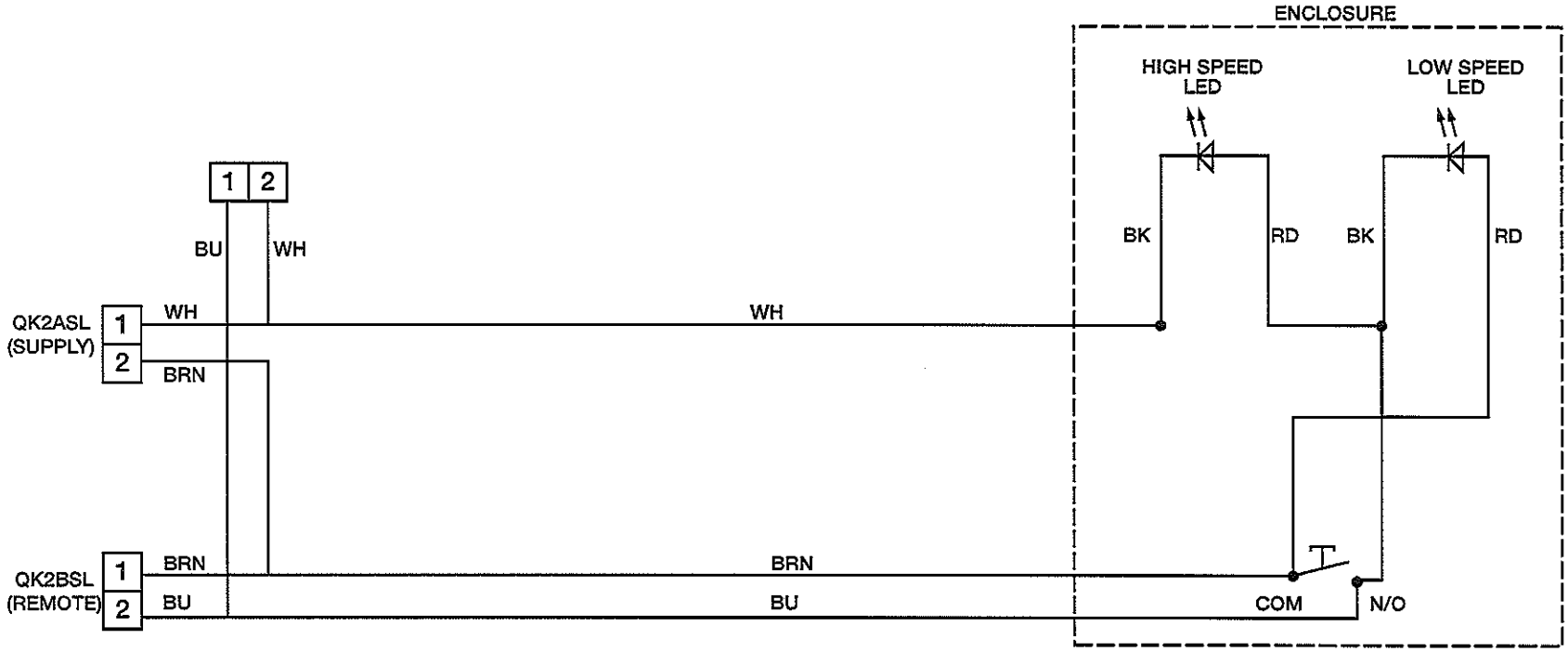
10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

BELOW IS THE LAYOUT DRAWING AND SCHEMATIC DRAWING OF THE TWO SPEED CONTROLLER (PART NO. DM-000013) USED ON THE GD4 AND TD3.5 MOTORS

DM-000013 - LAYOUT



DM-000013 - SCHEMATIC



DUAL SPEED TORQUE CHART

MD190-9-250-2S-095K-GD4-SV - GB-003011

9	5	SPEED (RPM)	SPEED (RPM)	9	5
NEWTON METERS (Nm)				POUND-FORCE FOOT (lbf-ft)	
High Speed (Low Torque)	Low Speed (High Torque)			High Speed (Low Torque)	Low Speed (High Torque)
Nm	Nm	Bar	PSI	lbf-ft	lbf-ft
15,415	29,438	34	500	11,369	21,712
18,498	35,326	41	600	13,643	26,055
21,581	41,213	48	700	15,917	30,397
24,664	47,101	55	800	18,191	34,740
27,747	52,988	62	900	20,465	39,082
30,830	58,876	69	1,000	22,739	43,425
33,913	64,763	76	1,100	25,013	47,767
36,996	70,651	83	1,200	27,287	52,109
40,079	76,539	90	1,300	29,561	56,452
43,162	82,426	97	1,400	31,834	60,794
46,245	88,314	103	1,500	34,108	65,137
49,328	94,201	110	1,600	36,382	69,479
52,411	100,089	117	1,700	38,656	73,822
55,494	105,977	124	1,800	40,930	78,164
58,577	111,864	131	1,900	43,204	82,507
61,660	117,752	138	2,000	45,478	86,849
64,743	123,639	145	2,100	47,752	91,192
67,826	129,527	152	2,200	50,025	95,534
70,909	135,415	159	2,300	52,299	99,876
73,992	141,302	166	2,400	54,573	104,219
77,075	147,190	172	2,500	56,847	108,561
80,157	153,077	179	2,600	59,121	112,904
83,240	158,965	186	2,700	61,395	117,246
86,323	164,852	193	2,800	63,669	121,589
89,406	170,740	200	2,900	65,943	125,931
92,489	176,628	207	3,000	68,217	130,274
95,572	182,515	214	3,100	70,490	134,616
98,655	188,403	221	3,200	72,764	138,959
101,738	194,290	228	3,300	75,038	143,301
104,821	200,178	234	3,400	77,312	147,643
107,904	206,066	241	3,500	79,586	151,986

SAMPLE CHART

GAUGING THE OPERATING CAPABILITY OF YOUR PLANETARY DRIVE UNIT.

There is a combination of parameters which have to be taken into consideration, like size of the machine, hydraulic operating pressure, hydraulic flow and knowing this information is essential to enable Digga to select the optimum drive unit for your specific requirements.

The following is an example of a torque chart to illustrate the torques achieved at corresponding pressure readings. A torque chart is supplied with every drive unit.

*IMPORTANT: This chart is based on theoretical values and is provided as a guide only.Digga accepts no responsibility complying with any installation requiring certain torques being reached. You will need to consult an engineer.

11 TECHNICAL SPECIFICATIONS

Description	GM2 Single speed	GM4 Single speed	GD4 2-speed	TD3.5, 2-Speed, 3500 psi, 240 bar, 800/400.	TD3.5, 2-Speed, 5000 psi, 345 bar, 600/350
Maximum case pressure-Peak (Bar)	5	5	5	15	15
Maximum case pressure-Continuous (Bar)	1	1	1	5	5
Motor casing oil capacity (Litres)	2	6.5	6.5	6.5	6.5
Mass of motor-dry (Kgs)	47	110	166	120	120
Max. Displacement (cm^3/rev)	493	793	850	832	600
Min. Displacement (cm^3/rev)	-	-	440	416	350

12 SAFETY - STICKER LOCATION

SAFETY - STICKER LOCATION

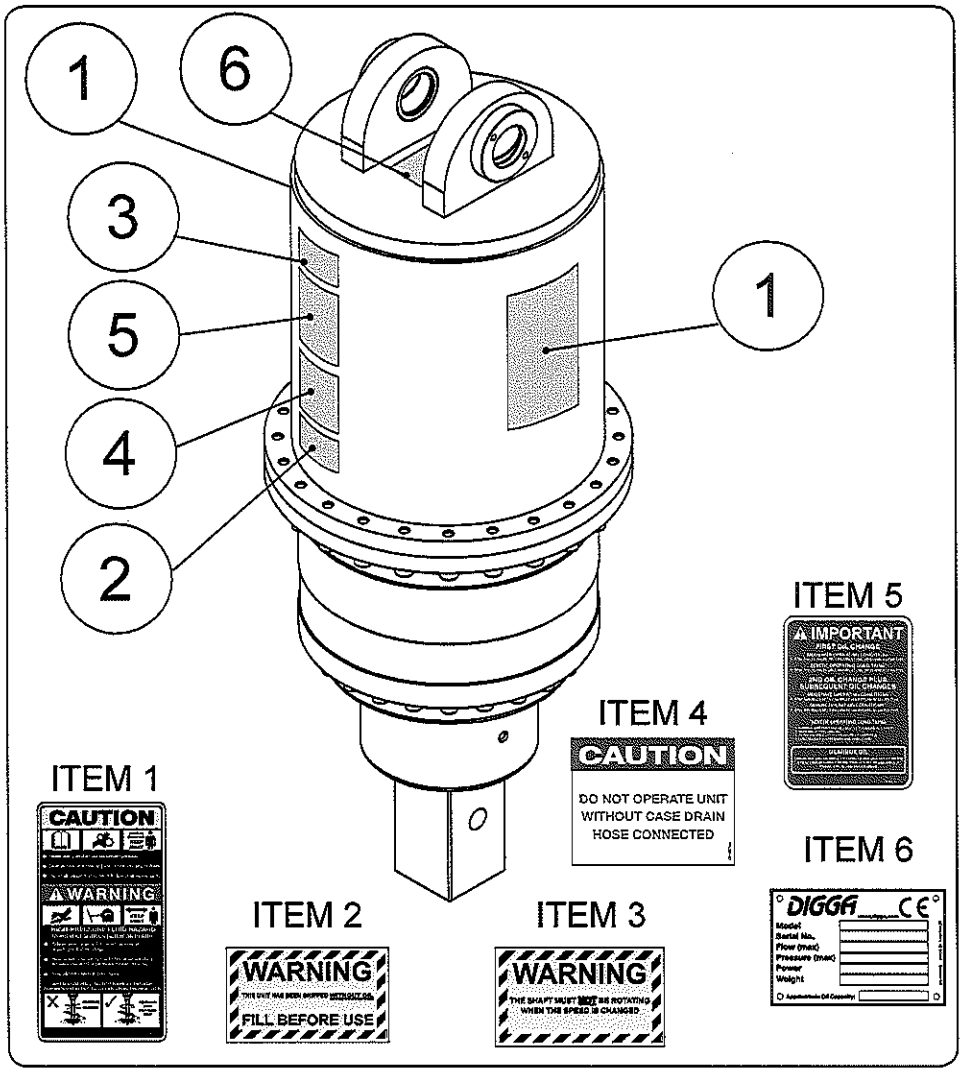
PLACEMENT OR REPLACEMENT
OF SAFETY SIGNS

1. Clean the area of application with non-flammable solvent, then wash the same area with soap and water.
2. Allow the surface to fully dry.
3. Remove the backing from the safety sign, exposing the adhesive surface.
4. Apply the safety sign to the position shown in the diagram above and smooth out any bubbles.

INSTRUCTIONS

- Keep all safety signs clean and legible.
- Replace all missing, illegible, or damaged safety signs.
- Replacement parts for parts with safety signs attached must also have safety signs attached.
- Safety signs are available from your dealer or from Digga.

ITEM NO	ORDER CODE	DESCRIPTION	QTY
1	DE-000791	DECAL - GENERAL WARNING	2
2	DE-000127	DECAL-WARNING - NO OIL	1
3	DE-000368	DECAL-WARNING - CHANGE SPEED	1
4	DE-000126	DECAL-WARNING - CASE DRAIN	1
5	DE-000790	DECAL-WARNING - OIL CHANGE	1
6	DE-000168	SERIAL TAG	1



IMPORTANT: OIL CHANGE SCHEDULE

There are a wide product range of gear set ratios and this has an effect on the volume of oil accommodated in the SD, MD, UD and XD gearboxes. The drive range is constantly being expanded. It is for this reason that each option of gearbox ratio variants and corresponding gearbox oil quantities have not been listed in this manual. Instead THE GEARBOX OIL CAPACITY IS ENGRAVED ONTO THE SERIAL TAG LOCATED ON THE TOP OF THE HOOD.

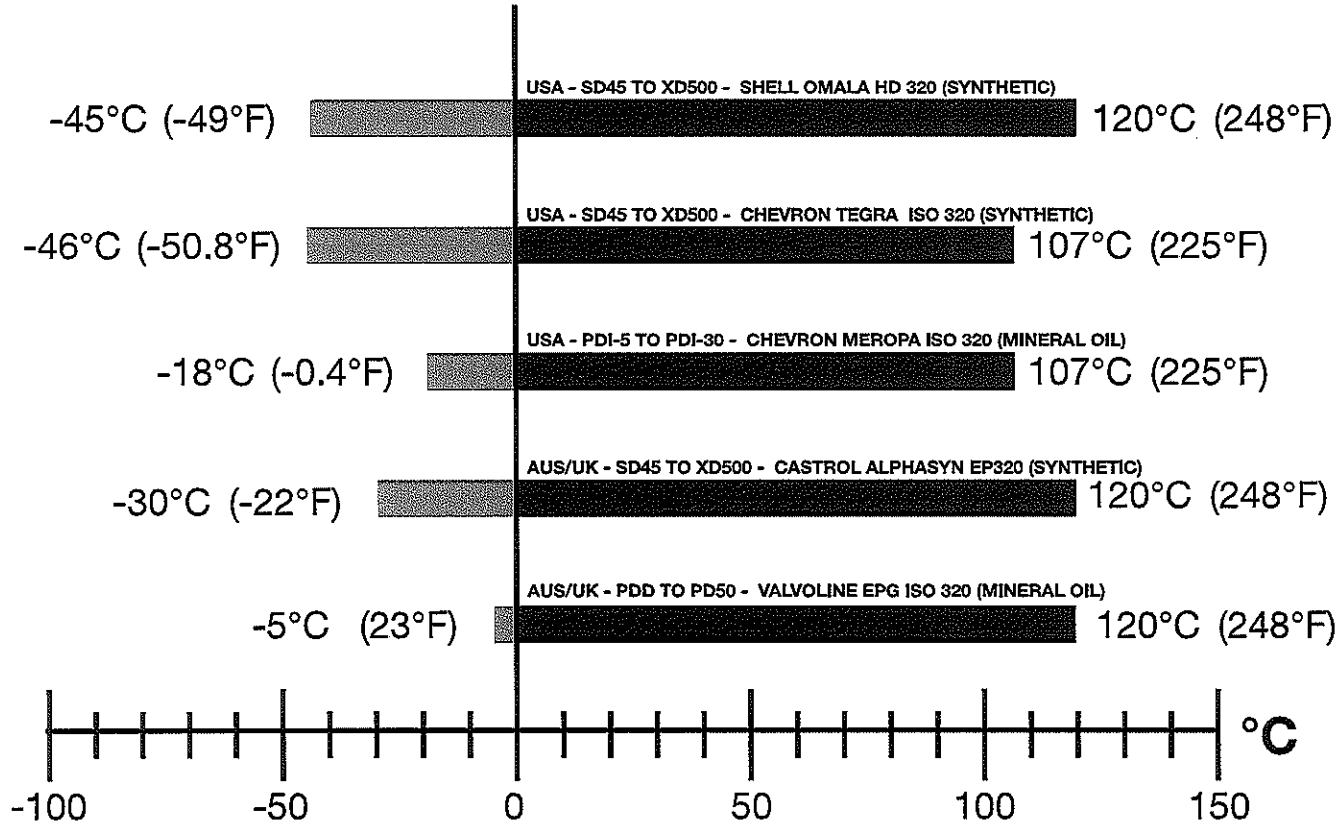
INITIAL (BED-IN) OIL CHANGE:

THE FIRST OIL CHANGE MUST BE CARRIED OUT WITHIN

- MODERATE OPERATING CONDITIONS - AFTER The first 50 hours of use. Thereafter, every 500 hours.
- 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.) AFTER 30 HOURS OF USE Thereafter, every 300 hours.

	MODERATE OPERATING CONDITIONS	SEVERE OPERATING CONDITIONS*
FIRST OIL CHANGE	After first 50 hours OR 3mths of use, whichever comes first	After first 30 hours OR 3mths of use, whichever comes first
2ND OIL CHANGE PLUS SUBSEQUENT OIL CHANGES	After 500 hours or 12 months of use (Whichever comes first)	After 300 hours or 12 months of use (Whichever comes first) drive requires a major stripdown, inspection and rebuild
GEARBOX OIL:- CASTROL ALPHASYN EP320 SYNTHETIC GEAR OIL OR CHEVRON TEGRA ® SYNTHETIC GEAR OIL ISO320 OR SHELL OMALA HD SYNTHETIC - SEE PAGE OVER FOR MORE DETAILS		
*SEVERE OPERATING CONDITIONS:- AMBIENT TEMPERATURES BELOW 0° (32°F) & ABOVE 40°C (104°F). WORKING IN HARD GROUND. EXTENDED AND CONTINUOUS HOURS OF OPERATION. CONTINUOUS HIGH PRESSURE AND HIGH LOADS.		

MINIMUM AND MAXIMUM GEAR OIL OPERATING TEMPERATURE FOR GEARBOXES



PROCEDURE TO CHECK THE GEARBOX OIL LEVEL

Unfortunately, there is no provision to make a quick visual inspection of the gearbox oil level. 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 services.

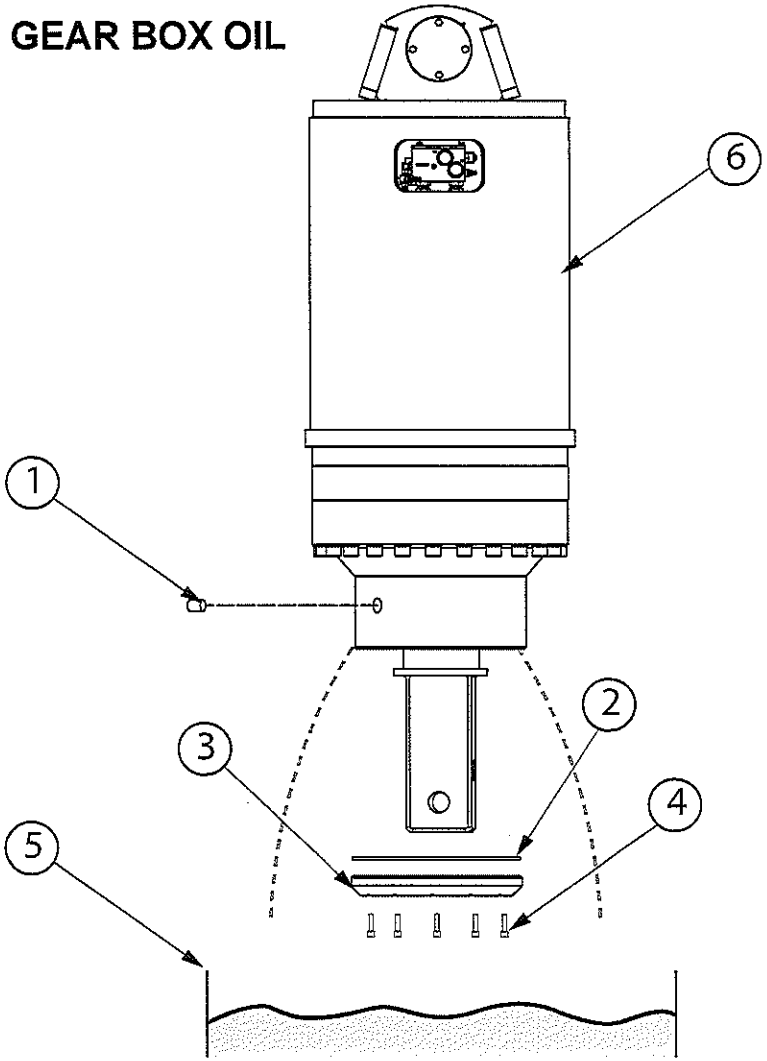
PROCEDURE TO DRAIN GEAR BOX OIL

The gearbox oil change interval should be carried out in accordance with the requirements set out in the table on page 40. 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. It is advisable that oil changes are performed by a Digga Authorised Service Agent, however it is not always possible for many reasons to get this done by a Dealer however what is important is that the oil is changed at the required intervals.

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.

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 (Item no.5) to catch any oil spillage.
2. Before commencing to drain any oil, check the serial 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 (item 1) from the output housing. This will allow the bulk of the gearbox oil to drain out to an appropriate size drum or bucket. (this will not drain the gearbox entirely and therefore the output shaft seal must be removed to totally drain all the gearbox oil. Also this lower section of the output housing is usually where most foreign particles settle).
3. To drain the remaining oil which is below the drain plug level ensure that there is a drip tray to catch the oil spillage once the seal is removed.
4. Proceed to remove the socket head cap screws which attach the seal protector to the output housing and remove the seal protector.
5. The output shaft seal can then be pried out.
6. The oil will dump into the drip tray.
7. Usually the inside of the seal will collect a sludge build up. Proceed to clean the seal or replace if it appears damaged.

PROCEDURE TO DRAIN GEAR BOX OIL

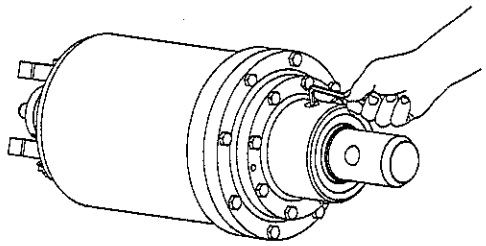


ITEM	DESCRIPTION
1	Pressure Plug (drain plug)
2	Output Shaft Seal
3	Seal Retainer
4	Socket Head Cap Screw
5	Drip Tray
6	Drive Unit

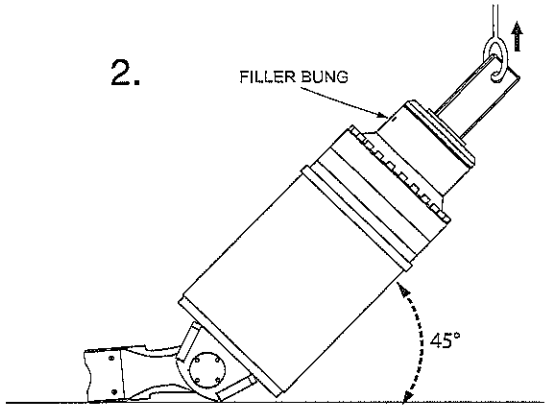
PROCEDURE FOR FILLING GEARBOX OIL LEVEL

- Ensure that you are using the correct grade gearbox oil for the ambient temperature that the drive unit will be operating in. (See page 41)
- Ensure that you have checked the serial tag to determine the quantity of oil that the gearbox holds.
- Ensure that the gearbox is horizontal and the drain plug facing vertically up. (Image 1)
- Tilt the gearbox at approximately 45 degrees to the horizontal by lifting the output shaft end. (Image 2) This should allow the correct volume of oil to be decanted into the gearbox. If the gearbox oil starts to weep out the filler hole, before reaching the required quantity, then increase the tilt angle of the gearbox and continue to decant oil until the correct quantity is applied.

1. Lay the drive unit flat on the ground with the oil fill bung facing up.



2.



NOTE: IF YOUR UNIT IS LEAKING OIL AFTER YOU HAVE PERFORMED THE DAILY CHECKS CONSULT YOUR LOCAL AUTHORISED SERVICE AGENT.

OIL CAPACITY

SD DRIVE UNITS	OIL CAPACITY (LITRES)
SD45	12.8 litres (3.38 US Gallons)
SD50	9 litres (2.38 US Gallons)
SD60	9 litres (2.38 US Gallons)
SD70-SD95	13.3 litres (3.51 US Gallons)

UD DRIVE UNITS	OIL CAPACITY (LITRES)
UD210	32.5 Litres (8.58 US Gallons)
UD250-UD300	32.5 Litres (8.58 US Gallons)

MD DRIVE UNITS	OIL CAPACITY (LITRES)
MD110	11.8 litres (3.11 US Gallons)
MD115	11.8 litres (3.11 US Gallons)
MD160	21.7 Litres (5.73 US Gallons)
MD190	21.7 Litres (5.73 US Gallons)

XD DRIVE UNITS	OIL CAPACITY (LITRES)
XD380-XD500	55.4 Litres (14.63 US Gallons)

14 SPARE PARTS

Digga manufacture High Torque planetary drive units in SD, MD, UD and XD series. An extensive range of ratios is available. For spare parts for your planetary drive unit, obtain the serial number off the aluminium serial tag located between the hood ears on the top of the hood of the drive unit (See illustration for location on page 39). The serial number allows Digga to trace all production and history from the computer database. Ensure all service and maintenance is performed by an authorised Digga service agent and all service records are kept.

Below is a list of electrical switches, speed controllers and harnesses which are available on all SD, MD, UD and XD 2-speed planetary drive units.

2 SPEED

DESCRIPTION	PART NUMBER
Digga 2-speed motor harness	DM-000021
Digga 2-speed controller 12/24V	DM-000013
Digga Remote 2 position toggle switch (optional)	DM-000026
Digga floor mounted remote 2 position switch (optional)	DM-000030
2 Speed 3m Extension Harness	DM-000025
2 Speed 6m Extension Harness	DM-000024
2 Speed 12m Extension Harness	DM-000023
2 Speed 15m Extension Harness	DM-000022
Power Lead	TC-000012

14 AUGERS AND WEAR PARTS

As the auger is engaging the ground, wear must occur to dig holes. Therefore, the auger teeth and pilot must be checked regularly and replaced with new wear parts. Failure to do so will damage the auger pockets and flighting.
THIS WILL CAUSE COSTLY REPAIR TO YOUR AUGER.

SUITABLE AUGERS

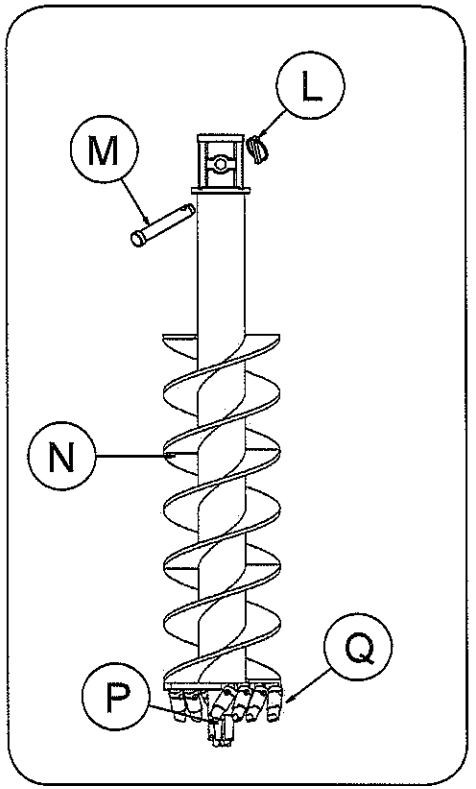
AUGER	OAL	FLIGHT THICKNESS	STD SIZES AVAILABLE	TEETH	SUITABLE DRIVES
A11/RC11*	1550mm	12/16mm	150mm (6"), 1500mm (60")	TTL	SD

*A11 AND RC11 AUGERS ARE THE SAME. NAME DIFFERS IN DIFFERENT COUNTRIES

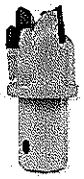
REF	DESCRIPTION	QTY
L	Clip (Lynch Pin)	1
M	AUGER PIN	1
N	AUGER	1
P	WEAR PART - PILOT	1
Q	WEAR PART	*

IMPORTANT:

CHECK THE WEAR PARTS ON YOUR AUGER ON A REGULAR BASIS. ENSURE ALL REPLACEMENT PARTS ARE GENUINE DIGGA WEAR PARTS.



WEARPARTS FOR A11 / RC11 AUGER

TEETH	PILOT
 TTL	 PH-3XL STD Pilot
Multifacet Tungsten teeth are suitable for all ground soil conditions, heavy clay, asphalt, concrete, frozen ground, and fracturable rock.	

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*

2-SPEED DRIVE UNIT

TROUBLE	POSSIBLE CAUSE	REMEDY
The 2-speed is only operating in low speed	No Power supplied to the controller	Ensure that the correct voltage is supplied to the controller. The one LED light will illuminate. **NOTE:** The 2-speed drive units can be supplied from DIGGA in either a 12 volt or 24 volt setup at the factory specific for the excavator which the drive unit is to be used on.
		Check that the green LED light is illuminated on the cigarette lighter plug of the power lead.
	Controller not connected to the extension harness	Check Extension cables and harnesses to ensure they are plugged in and secure.
	Extension harness not plugged into the motor harness	Check Extension cables and harnesses to ensure they are plugged in and secure.
	Excavator is 24v and Drive unit has been setup for a 12v supply	This may have burnt out the solenoid coil. Contact your DIGGA Dealer

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

15 TROUBLE SHOOTING

HYDRAULIC SYSTEM

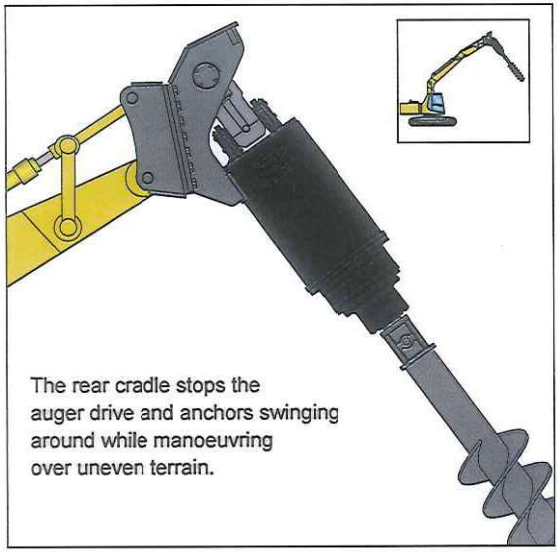
TROUBLE	POSSIBLE CAUSE	REMEDY
Oil Over Heating	Oil Pressure too Low	Set Relief Valve to Machine Spec
	Restriction in Line	Inspect and Repair
	Auger Continually Stalling	Limit Down Pressure
	Drive Unit too Small	Contact your DIGGA Dealer
	Machine too Small	Fit Drive Unit to Larger Machine
	Hydraulic Oil Tank Low	Fill Oil Tank to Maximum Level
	Insufficient Oil Capacity	Fit Oil Cooler

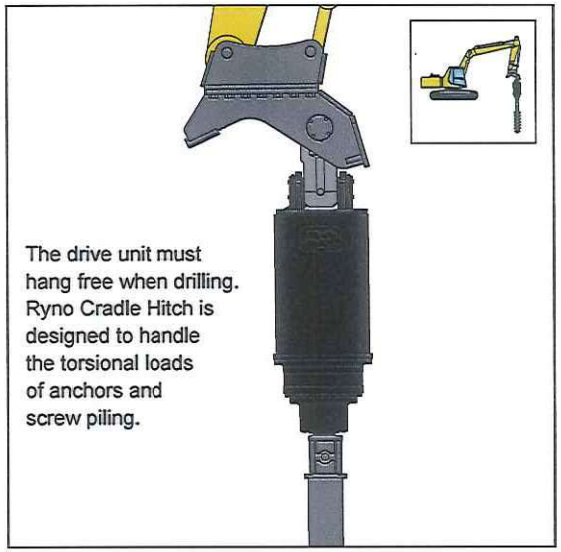
AUGERS

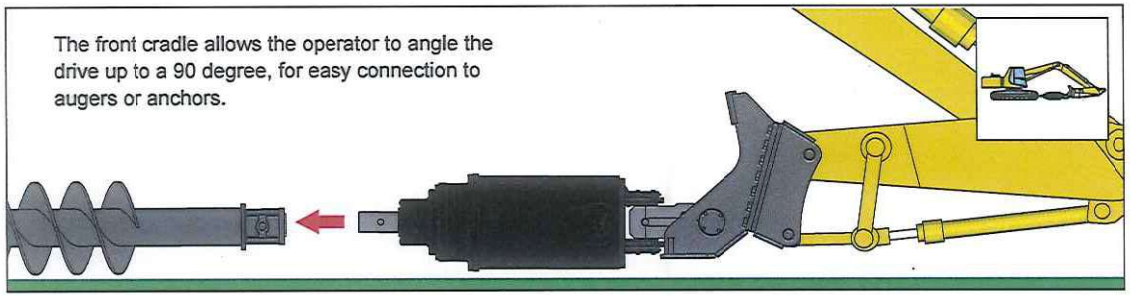
TROUBLE	POSSIBLE CAUSE	REMEDY
Slow Digging Speed	Worn Teeth or Pilot	Replace (See Wear parts, inside back cover)
	Ground too Hard	Contact your DIGGA Dealer
	Low Oil Flow	Check Machine Specifications
	Auger too Large for Drive Unit	Fit Larger Drive Unit
	Machine too Small	Fit Drive Unit to Larger Machine

OPTIONAL EXTRA - RYNO HITCH

If you have purchased a Ryno Hitch please ensure you read and understand the following operational procedures

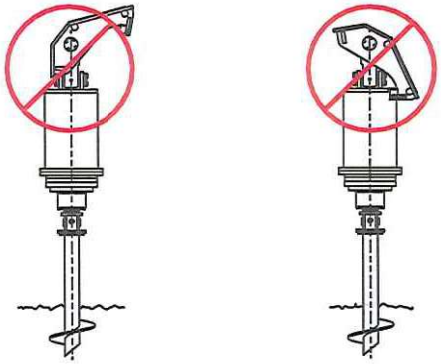






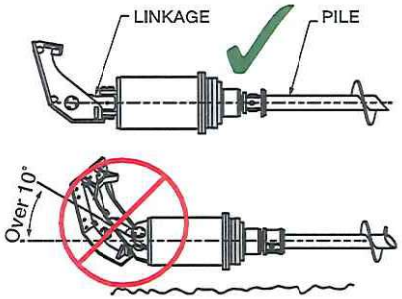
AVOID PILE INSTALLATION WHEN HITCH IS FULLY UP

AVOID PILE INSTALLATION WHEN HITCH IS FULLY DOWN



PILE LOADING

DURING PILE LOADING, MAKE SURE THAT THE LINKAGE IS IN LINE WITH THE PILE BEFORE STARTING THE CROWDING OR LIFTING ACTION. FAILURE TO DO SO MAY LEAD TO DAMAGE.



DIGGA HITCHES

Ryno Hitch

Machine: Large Excavators
Attachment: Ryno Hitch
Class: Heavy Duty

Developed for faster connection to the auger or pile, the Ryno Cradle Hitch is designed to handle the torsional loads of anchors and screw piling. The Ryno Hitch front cradle allows the operator to angle the drive up to 90 degrees for easy connection to augers or anchors while a rear cradle stops the auger drive or anchor from swinging about whilst manoeuvring over uneven terrain

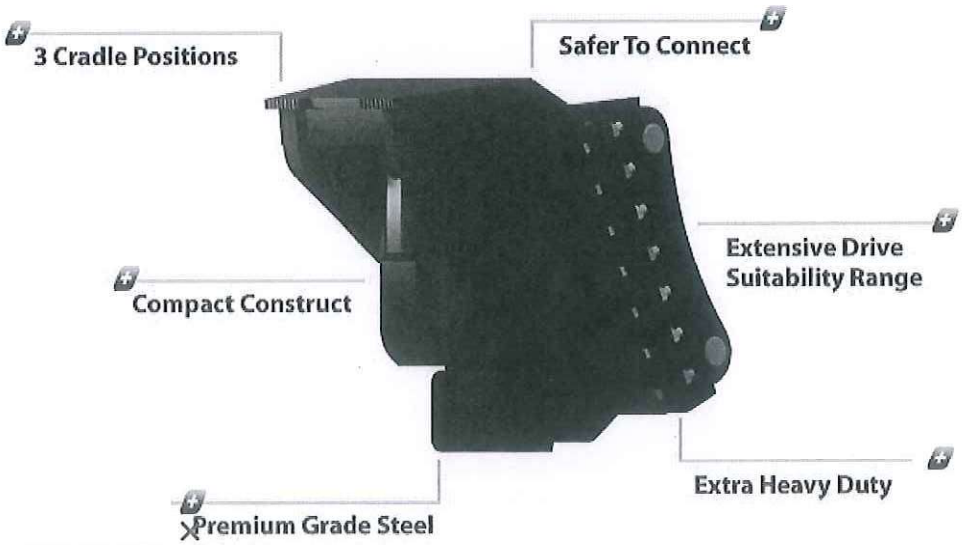
- 3 cradle positions
- Premium Grade Steel
- Extra Heavy Duty, fully engineered design
- Compact and faster connection to the auger/pile
- Safer. No more standing piles or large augers with persons or machinery to connect your drive

Video Photos Flyer

View Ryno Hitch Working Shots

Features & Benefits

Digga Ryno Hitches come packed with really practical features. Hover your mouse over the features´ 'plus' symbol on the diagram below to reveal the respective benefits.



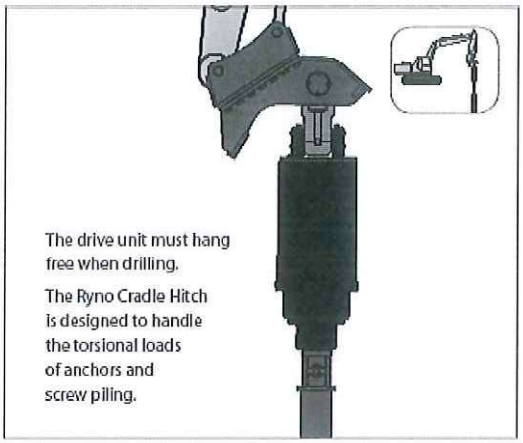
...o Hitch include an angled position (to assist in maneuvering), vertically free-hanging (for ... to 90 degrees (for connecting attachments).

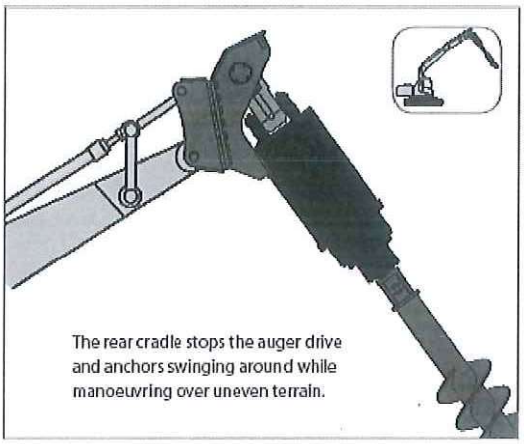
SKID HOE
SLASHER
SPREADA BAR
STICK RAKE
STUMP GRINDER
SSL TILT ATTACH
VIBRATORY ROLLER

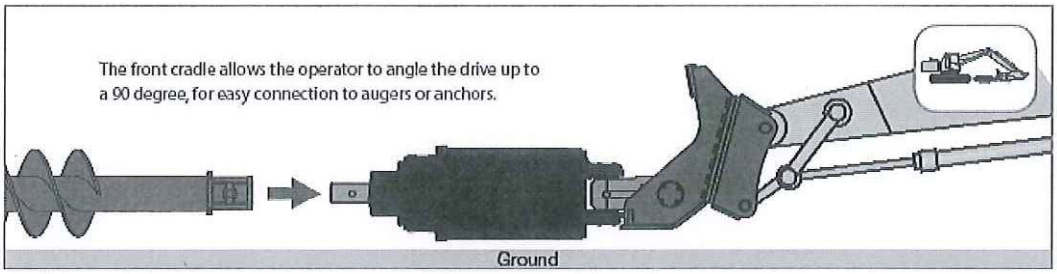
MONITORING EQUIPMENT
DIGGA TORQUE LOGIC
PRESSURE DIFFERENTIAL GAUGE
DIGGALIGN INCLINOMETER

MOUNTING OPTIONS
TELESCOPIC PILING EXTENSION
EURO ADAPTOR FRAME
PILING HITCH
EXCAVATOR HITCH

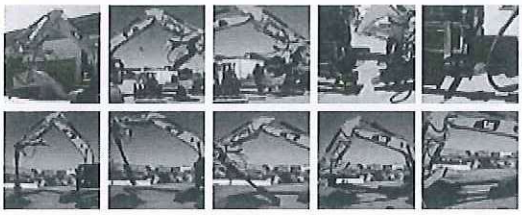
ONLINE RESOURCES
BROCHURES & POSTERS
ONLINE FORMS







Digga Ryno Hitch Working Shots (click thumbnails)



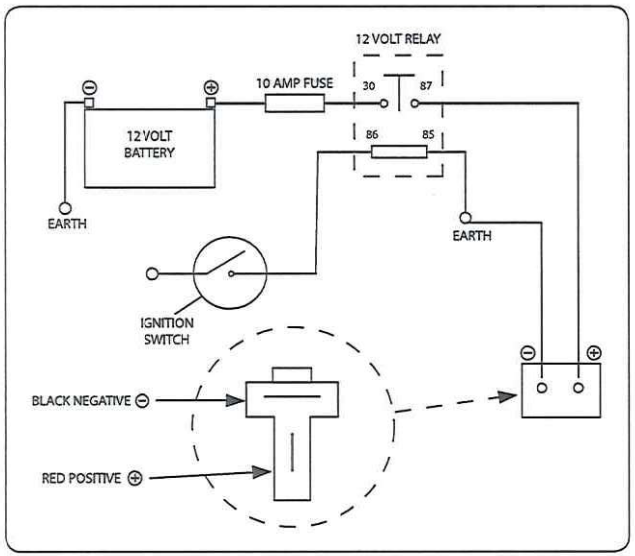
10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

(i) 2-speed Drives

Note: The 2-speed Drive can be supplied in either a 12V or 24V system as per customer request.
There are 2 ways to electrically power the drive unit:

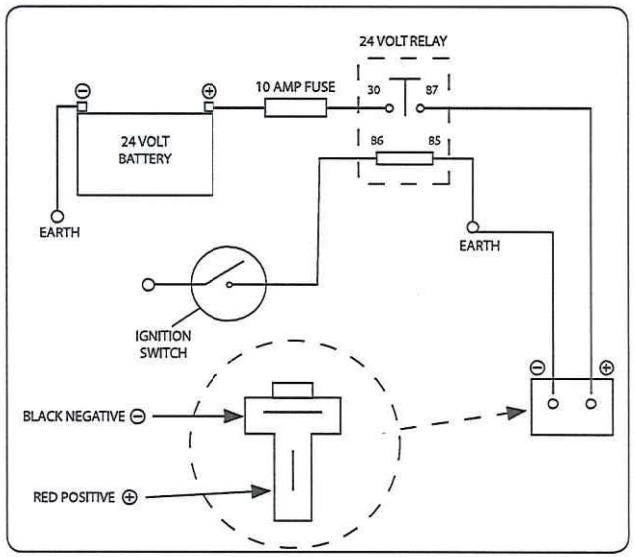
1) HARD WIRE FROM THE MACHINE BATTERY:-

12 Volt Excavator connection diagram to 12V 2-speed Drive Unit



Connect pin 30 of relay via 10 amp fuse to battery.
Connect pin 86 of relay to an ignition source.
Connect pin 85 of relay to an earth point or earth of battery.
Connect pin 87 of relay to two pin plug to connect to 2-speed controller harness. (This connection point is tagged "supply").
Connect an earth to the two pin plug to connect to 2-speed controller harness.

24 Volt Excavator connection diagram to 24V 2-speed Drive Unit



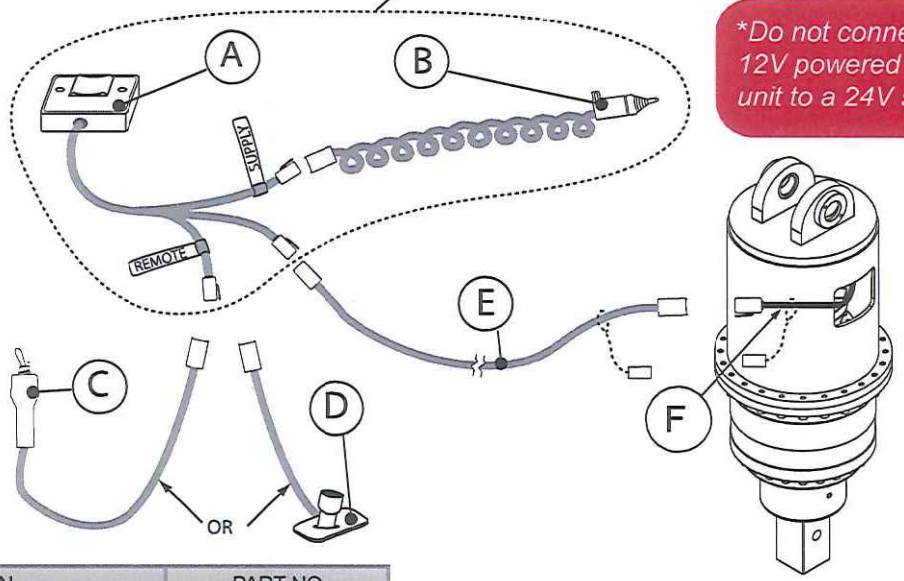
Connect pin 30 of relay via 10 amp fuse to battery.
Connect pin 86 of relay to and ignition source.
Connect pin 85 of relay to an earth point or earth of battery.
Connect pin 87 of relay to positive terminal of the 2 pin plug.
Connect an earth to the two pin plug to connect to the 2-speed controller harness.

10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

2) USE OF THE POWER LEAD PART NO. TC-000012:

If the planetary drive unit is fitted with 24V Solenoid coil, plug cigarette lighter plug into 24V DC Socket. If the planetary drive unit is fitted with a 12V solenoid coil, plug cigarette lighter plug into 12V DC socket.

*Do not connect a 12V powered drive unit to a 24V supply.



ITEM	DESCRIPTION	PART NO
A	Controller 2-Speed	DM-000013
B	12V/24V Power Lead	TC-000012
C	Remote Toggle Switch (OPTIONAL)	DM-000026
D	Remote Floor Mounted Switch (OPTIONAL)	DM-000030
E	15m Extension Harness 2-Speed	DM-000022
	12m Extension Harness 2-Speed	DM-000023
	6m Extension Harness 2-Speed	DM-000024
	3m Extension Harness 2-Speed	DM-000025
F	Harness - Motor 2-Speed	DM-000021

OR
OR

Only one extension harness is supplied with each drive unit.

10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

CONNECTING THE 2-SPEED HARNESS TO AN EXCAVATOR, TELEHANDLER, TRACKED CRANE OR BACKHOE

The drive unit is connected to the 2-Speed controller (mounted in the Cab) via an extension harness.
(This harness contours the hydraulic hoses on the boom of an excavator). The extension harnesses are available in 3m, 6M, 12M or 15M length. The boom harness can be attached to the hydraulic lines of the excavator using cable ties. (See illustration on the following page)

The 2-speed harness kit comprises the following:

1x motor harness 3m long (part number DM-000021) (this harness is connected to the drive unit at the factory).
1x extension harness. (the extension harness is available in 4 different lengths 3m, 6m, 12m & 15m dependent on machine size.)
1x 2-speed controller (part number DM-000013). This controller has a 1.5m long harness terminated with a 4 pin female Deutsch plug. (See illustration on the following page).
1x12V/24V power lead (part number TC-000012)

The controller plugs into the extension harness and the extension harness plugs into the deutsch plug on the motor harness.
The motor harness is connected inside the hood to the hydraulic motor.

On the harness of the 2-speed controller and approximately 150mm from the Deutsch Plug are two plastic 2-pin plugs. The male plug is tagged showing "SUPPLY 12V/24V" and is the main point where power is supplied to the 2-speed system. The other plastic 2-pin plug is a female plug that is tagged "REMOTE". It is this plug that an Optional 2-speed joystick mounted toggle switch (part number DM-000026) OR Floor Mounted Dipswitch (part number DM-000030) can be plugged into. (See illustration on following page).

OPERATION OF THE 2-SPEED

1. The 2-Speed drive unit is manufactured in SD, MD, UD & XD Drive options.
2. The speed controller (mounted in the excavator cab) is a 2-speed unit. This allows the operator to select the optimum speed required for drilling, core barrelling or applying screw pylons into the terrain.
3. HIGH SPEED is low torque - LOW SPEED is high torque. (See the torque chart supplied with your drive unit to read, output RPM and corresponding torque at an applied hydraulic pressure.)
4. The auger must not be rotating when the speed is changed on the speed controller. See Decal (Item 3) on page 40.

AUGER DRIVES
SUPA DRIVE
15 - 30T (30,000 ft-lbs - 50,000 ft-lbs)

DIGGA
CONSTRUCTION GRADE
MACHINERY ATTACHMENTS

2-SPEED AUGER DRIVES

Digga's SD45, SD50 and SD70 range of drilling drives are the ultimate in performance, quality and cost effectiveness. Over 30 years of design and development has produced the highest quality range of auger drives on the market today. Completely manufactured and assembled by Digga, using only the highest grade materials and strictest quality control.

Fitted with a radial piston motor with intergrated pressure relief valve and input housing, the innovative design allows the gearbox to go down the hole to maximise drilling depth without extentions, eliminating downtime and minimizing maintenance - optimizing your returns.

Digga planetary auger drives are specially designed for Excavators for drilling and augering in most ground conditions. Our drives are backed by industry leading warranty and local factory support.

FOR BETTER DRILLING ACCURACY ADD DIGGALIGN (Sold Separately)

ESSENTIALLY 2 DRIVE UNITS IN ONE

Save time and money by eliminating the need for multiple drive units.

LOW SPEED - HIGH TORQUE

Ideal for drilling with large diameter augers or hard fracturable rock.

HIGH SPEED - LOW TORQUE

Ideal for small diameter augers or softer soils where speed is needed.
Switch to high speed for added spin off speed
for clearing larger diameter augers.

FEATURES

- Compact high torque Digga gearbox
- Fitted with high efficiency Radial Piston motor
- Integrated PRV (Pressure Relief Valve)
- Integrated ECV (Energy Control Valve)
- Extreme duty shaft locking system
- Low maintenance with 12 month gear box and motor warranty

	SUPA DRIVES		
MODEL	**SD 45**	**SD 50**	**SD 70**
Nominal Torque (ft-lbs)	32,892	38,569	50,465
Recommended Flow (Gpm)		100 GPM @ 3,500 PSI	
Maximum Pressure - Do Not Exceed		3,500 PSI @100 GPM	
Maximum Horse Power	201	201	201
Motor Type	Radial Piston	Radial Piston	Radial Piston
Pressure Relief Valve	Included	Included	Included
Energy Control Valve	Included	Included	Included
Standard Output Shaft	100mm Square	100mm Square	100mm Square
Recommended Auger	RC11 / DR11	RC11 / DR11	RC11 / DR11
Max Auger Diameter Clay/shale**	60"	60"	60"
Max Auger Diameter Earth**	79"	79"	79"
Weight (lbs)	1843	1843	1843
Overall Length (in)	50.9"	50.9"	50.9"
Diameter (in)	23.6"	23.6"	23.6"

AUGER DRIVES
SUPA DRIVE
15 - 30T (30,000lbs - 50,000lbs)

DIGGA
CONSTRUCTION GRADE
MACHINERY ATTACHMENTS

OUTPUT SPEED

	SD45		SD50		SD70	
GPM	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD
8	3	5	2	4	2	3
12	4	8	3	7	3	5
16	5	10	4	9	3	7
20	7	13	6	11	4	9
24	8	16	7	13	5	10
28	9	18	8	16	6	12
32	10	21	9	18	7	14
36	12	23	10	20	8	15
40	13	26	11	22	9	17
44	14	29	12	24	9	19
48	16	31	13	27	10	20
52	17	34	14	29	11	22
56	18	37	16	31	12	24
60	20	39	17	33	13	26
64	21	42	18	36	14	27
68	22	44	19	38	14	29
72	23	47	20	40	15	31
76	25	50	21	42	16	32
80	26	52	22	45	17	34
84	27	55	23	47	18	36
88	29	57	24	49	19	37
92	30	60	26	51	20	39
96	31	63	27	53	20	41
100	33	65	28	56	21	43

OUTPUT TORQUE

	SD45		SD50		SD70	
PSI	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD	HI TORQUE LOW SPD	LO TORQUE HIGH SPD
700	6,578	3,289	7,714	3,857	10,093	5,046
800	7,518	3,759	8,816	4,408	11,535	5,767
900	8,458	4,229	9,918	4,959	12,977	6,488
1,000	9,398	4,699	11,020	5,510	14,418	7,209
1,100	10,338	5,169	12,122	6,061	15,860	7,930
1,200	11,277	5,639	13,224	6,612	17,302	8,651
1,300	12,217	6,109	14,326	7,163	18,744	9,372
1,400	13,157	6,578	15,428	7,714	20,186	10,093
1,500	14,097	7,048	16,530	8,265	21,628	10,814
1,600	15,036	7,518	17,632	8,816	23,070	11,535
1,700	15,976	7,988	18,734	9,367	24,511	12,256
1,800	16,916	8,458	19,836	9,918	25,953	12,977
1,900	17,856	8,928	20,938	10,469	27,395	13,698
2,000	18,796	9,398	22,040	11,020	28,837	14,418
2,100	19,735	9,868	23,142	11,571	30,279	15,139
2,200	20,675	10,338	24,244	12,122	31,721	15,860
2,300	21,615	10,807	25,346	12,673	33,163	16,581
2,400	22,555	11,277	26,448	13,224	34,604	17,302
2,500	23,494	11,747	27,550	13,775	36,046	18,023
2,600	24,434	12,217	28,652	14,326	37,488	18,744
2,700	25,374	12,687	29,754	14,877	38,930	19,465
2,800	26,314	13,157	30,856	15,428	40,372	20,186
2,900	27,254	13,627	31,958	15,979	41,814	20,907
3,000	28,193	14,097	33,060	16,530	43,255	21,628
3,100	29,133	14,567	34,162	17,081	44,697	22,349
3,200	30,073	15,036	35,264	17,632	46,139	23,070
3,300	31,013	15,506	36,366	18,183	47,581	23,791
3,500	32,892	16,446	38,569	19,285	50,465	25,232

2-SPEED AUGER DRIVES

Output speed and torque specifications are THEORETICAL. Speed and torque output are dependent on the overall system efficiencies associated with the prime movers hydraulic system.
This document should be used for information and comparative purposes only. When determining criteria, & application specific information is required, please contact DIGGA.

AUGERS TO SUIT SD45, SD50 & SD70

DIGGA
CONSTRUCTION GRADE
MACHINERY ATTACHMENTS

DIGGA'S RANGE OF RC AND DR AUGERS ARE THE PERFECT CHOICE FOR HIGH POWERED DRILLING

RC11

ROCK/COMBO

TAPER TEETH FOR ALL GROUND CONDITIONS

THE ULTIMATE HEAVY DUTY AUGER

Ideal in all drilling conditions including heavy duty rock drilling. Cut a clean clear hole in soft earth and clay and have the ultimate ripping ability in fracturable rock.

DR11

DEDICATED ROCK

ROTATING ROCK PICKS FOR SHALE AND FRACTURABLE ROCK

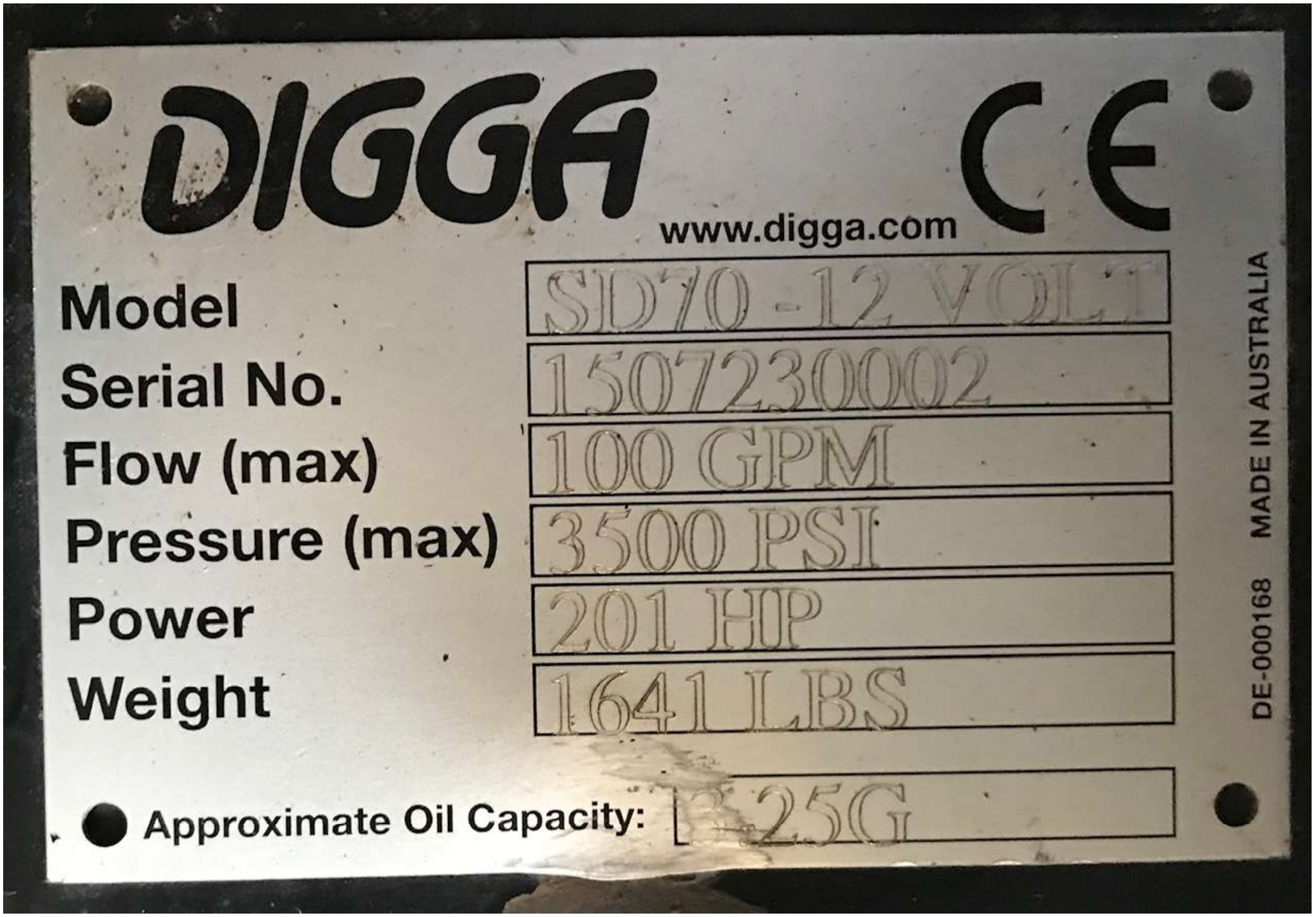
HEAVY DUTY & EFFICIENT CUTTING HEAD FOR THE ULTIMATE ROCK DRILLING AUGER

Heavy duty engineered design with high efficiency cutting heads to maximise your drilling performance. Fitted with a range of quality wear parts providing superior wear and performance.

FEATURES

- TRU-AUGER - A 12" auger cuts a 12" hole, no more oversized holes!
- Over 30 years of auger design and manufacture has resulted in an extremely efficient cutting head design and optimum flight pitches to provide maximum soil removal in all ground conditions
- Easy knock-in / knock-out teeth require no special tools
- Made in the USA

Need a custom solution? Contact Digga

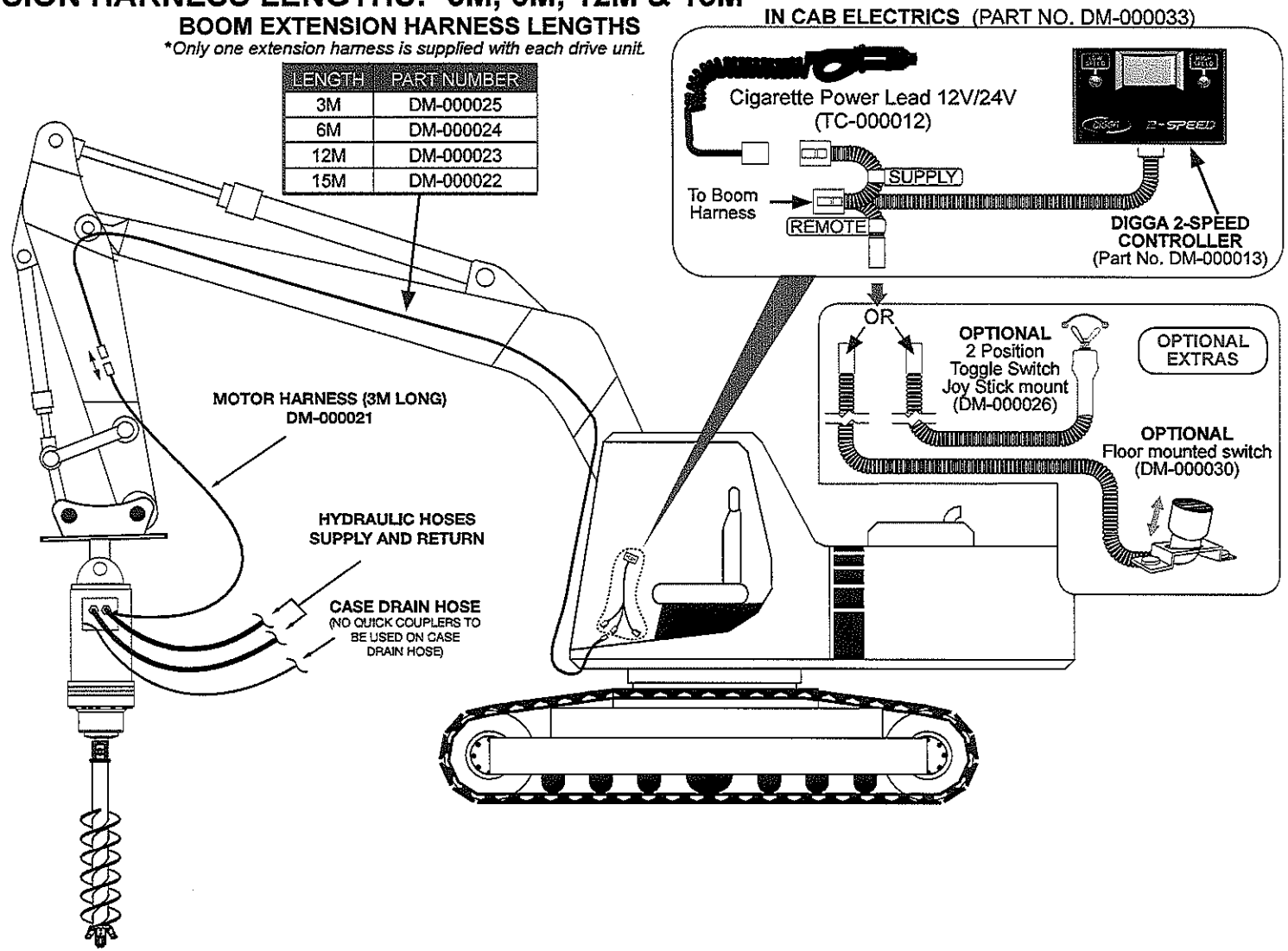

DIGGA
CE
www.digga.com
Model
SD70-12 VOLT
Serial No.
150723002
Flow (max)
100 GPM
Pressure (max)
3500 PSI
Power
201 HP
Weight
1641 LBS
Approximate Oil Capacity:
3.25G
DE-000168 MADE IN AUSTRALIA

BOOM EXTENSION HARNESS LENGTHS:- 3M, 6M, 12M & 15M

BOOM EXTENSION HARNESS LENGTHS

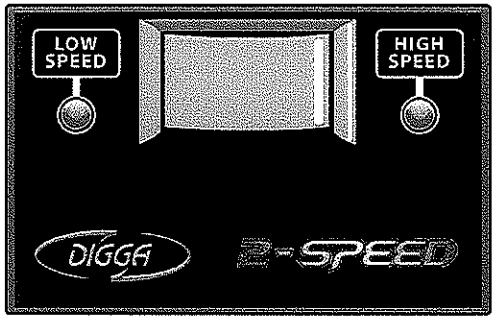
**Only one extension harness is supplied with each drive unit.*

LENGTH	PART NUMBER
3M	DM-000025
6M	DM-000024
12M	DM-000023
15M	DM-000022



HOW TO OPERATE THE SPEED CONTROLLERS

DIGGA 2-SPEED CONTROLLER (FOR 2-SPEED DRIVE UNIT)

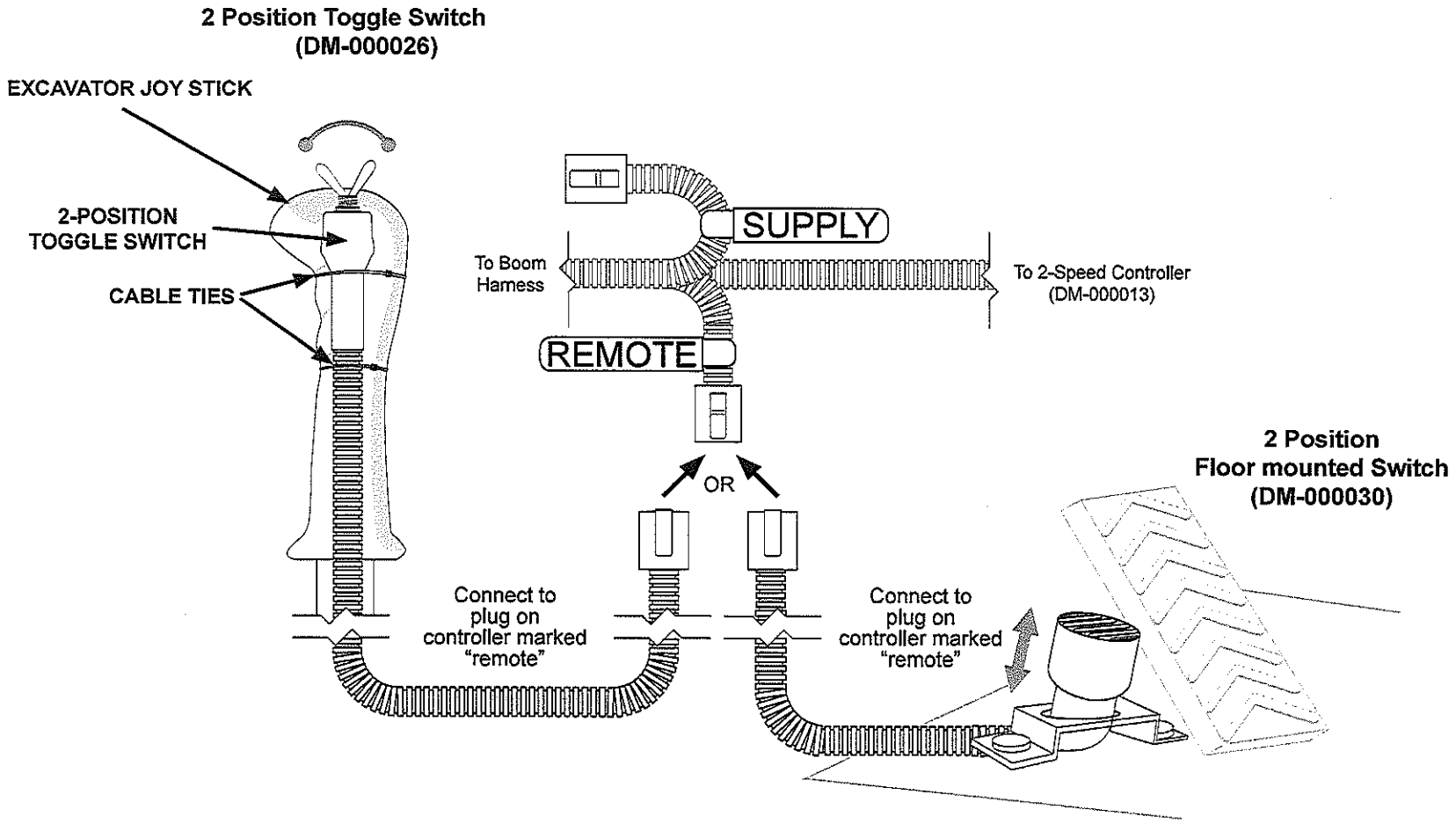


Part No. DM-000013

1. The 2-speed controller runs on 2 set speeds high and low.
2. When power is connected to the 2-pin plug on the controller harness one of the LED's will illuminate dependant on which position the rocker switch is in, thus indicating that there is power getting to the controller.
3. When the rocker switch is set in the low speed position the LED adjacent will illuminate.
4. When the rocker switch is set in the high speed position the LED adjacent will illuminate.
5. The 2 speed switch can also operate with a remote joystick-mounted toggle switch (part no. DM-000026) or floor mounted remote dip switch (part no. DM-000030) (see page 32).
6. To determine the output shaft rotational speeds when in low speed & high speed refer to the Torque Chart for your drive unit.
7. If using a remote joystick mounted toggle switch part number DM-000026 or a floor mounted switch part number DM-000030 to select the two speed, then the rocker switch on the 2-speed controller, must be positioned in the low speed position.

10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

DIGGA REMOTE SWITCHES (OPTIONAL)

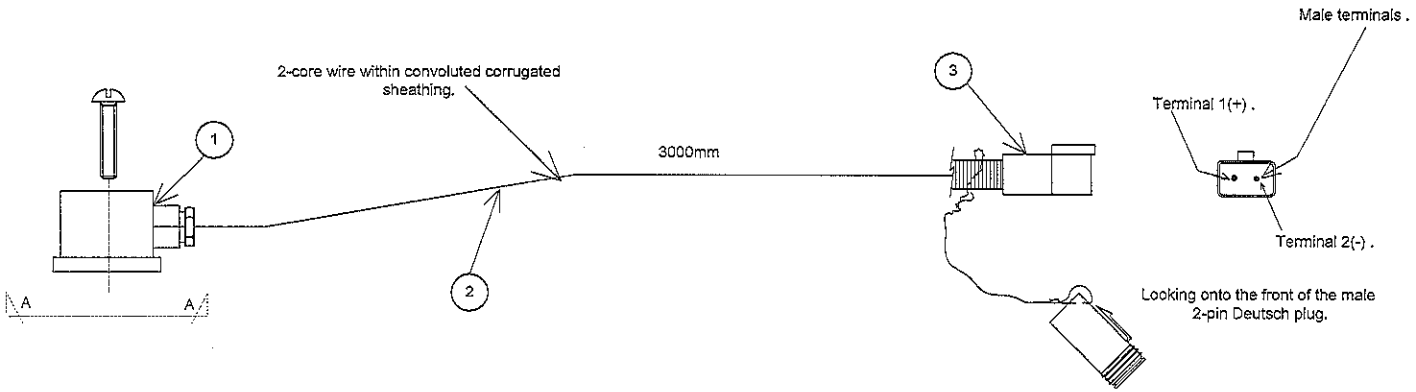


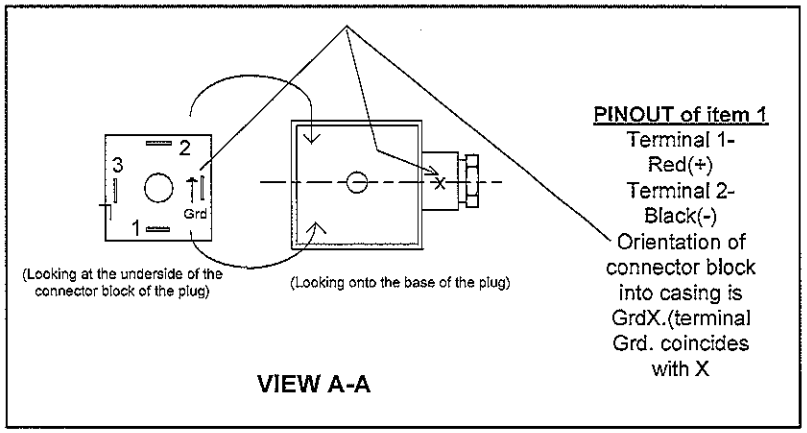
10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

Electrical and hydraulic schematic drawings:

BELOW IS A COPY OF THE MOTOR HARNESS PART NO. DM-000021 USED ON THE GD4 AND TD3.5 HYDRAULIC MOTORS:

NOTE: NO ELECTRICAL HARNESSES OR SPEED CONTROLLERS ARE USED ON SINGLE SPEED DRIVE UNITS





Note:

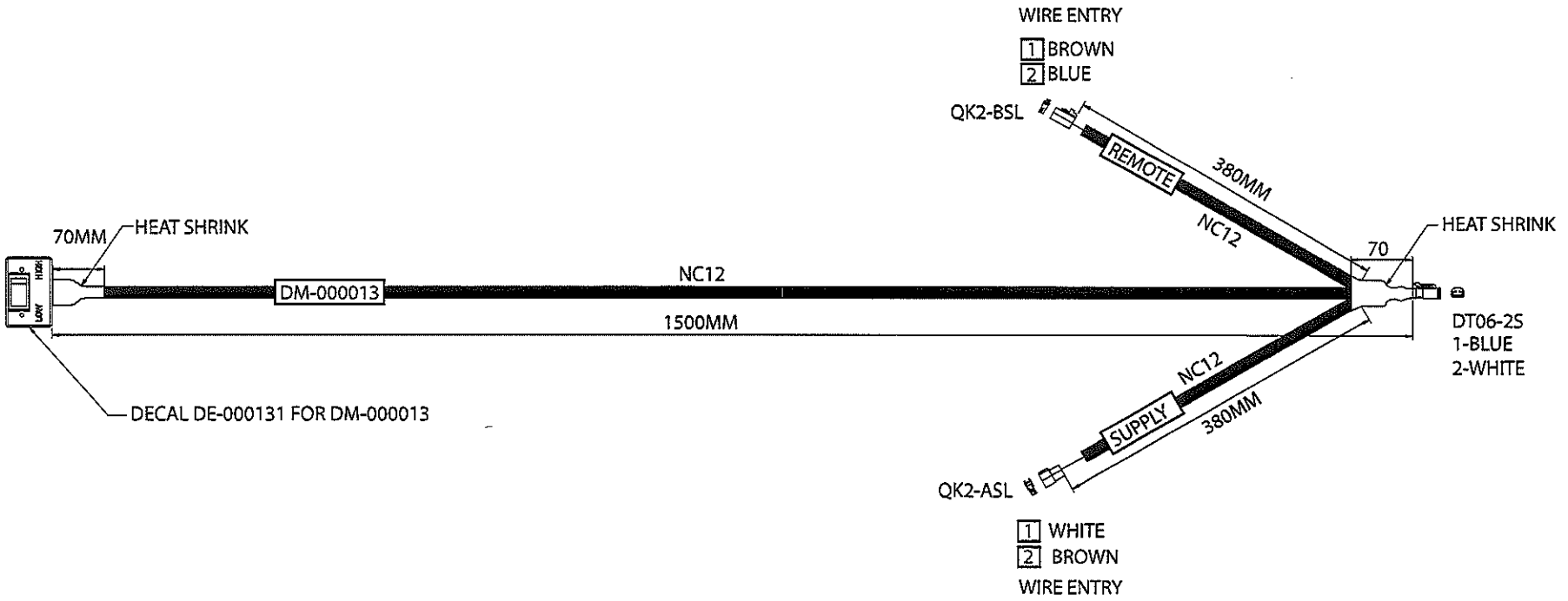
1. Item no. 1 plug. The two points 1 and 2 are terminated .Terminal 1 is red and is positive(+).Terminal 2 is to be black and is negative(-).Note the orientation of the terminal block

2.Harness manufacturer to affix part no. tag to harness .
3.Harness manufacturer to supply DM-000021 in a sealed plastic bag showing part number and order number on bag label.

10 TWO SPEED INSTALLATION AND OPERATING INSTRUCTIONS

BELOW IS THE LAYOUT DRAWING AND SCHEMATIC DRAWING OF THE TWO SPEED CONTROLLER (PART NO. DM-000013) USED ON THE GD4 AND TD3.5 MOTORS

DM-000013 - LAYOUT



DM-000013 - SCHEMATIC