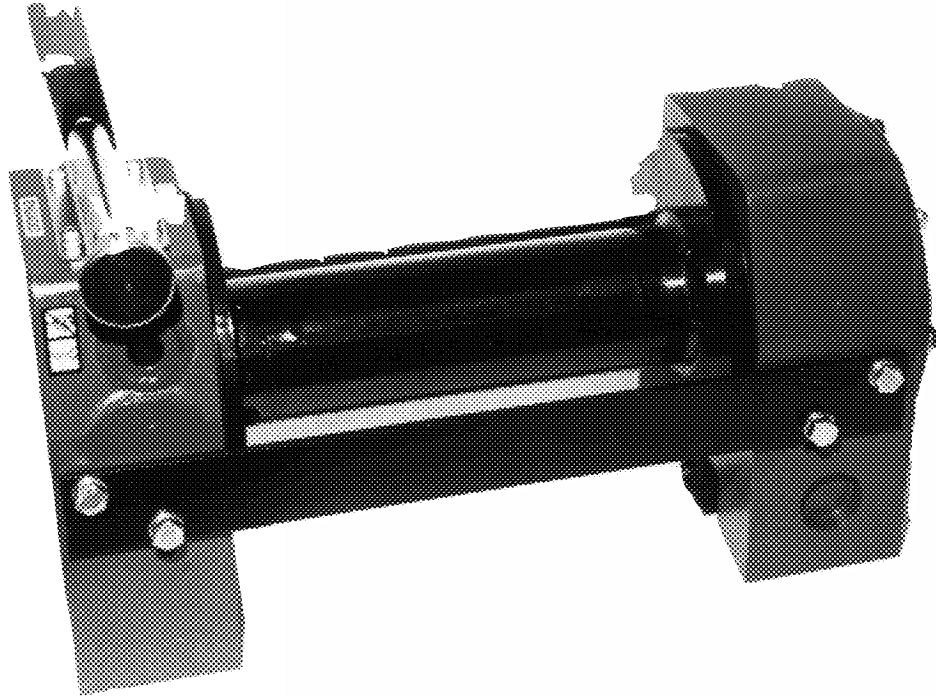


Fitting Instructions

Kit Nos. 6760, 6760V, 7590



MECHANICALLY
POWERED
DRUM
WINCHES

SUPERWINCH[®]

Fitting Instructions

Kit Nos. 6760, 6760V, 7590

These instructions cover kits from
18/11/1997



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SUPERWINCH®

INTRODUCTION

Thank you for purchasing a Superwinch. It has been designed and manufactured to provide years of trouble-free operation. Please read and understand these Fitting Instructions before using your winch. Your winch is a very powerful machine. If used unsafely or improperly, there is a possibility that property damage or personal injury can result. We have included several unique features in the winch to minimize this possibility, however, your safety ultimately depends on your caution when using the product. Correct installation of your winch is a requirement for correct operation. Pay particular attention to the installation section in these Instructions. Congratulations on your choice.

Superwinch reserve the right to alter model specifications without prior notice.

PLEASE KEEP THESE INSTRUCTIONS AND THE TORQUE ADAPTOR WITH THE WINCH.

These instructions are designed to assist skilled technicians in the efficient installation of a Superwinch, using the appropriate trade tools.

WARNINGS, CAUTIONS AND NOTES

These are given through these instructions in the following form :



WARNING : Procedures which must be followed precisely in order to avoid the possibility of personal injury.



CAUTION : This calls attention to procedures which must be followed to avoid damage to components.



NOTE : This calls attention to methods which make a job easier or gives helpful information.

SUPERWINCH winches are not to be used to lift, support or otherwise transport personnel. Any such use shall be considered to invalidate the warranty and Superwinch shall not be responsible for any claims arising from such use.

REFERENCES

References to the left and right hand side in the instructions are made when viewing the vehicle from the rear.

REPAIRS AND REPLACEMENTS

Before you contact Superwinch or your nearest Dealer please have ready the following information :

Kit No.

Serial No. of winch

Part No. required

POISONOUS SUBSTANCES

Many liquids and other substances used should under no circumstances be consumed, and should be kept away from open wounds. These substances include (among others) hydraulic oil.

SYNTHETIC RUBBER

Many 'O' ring seals, flexible pipes and similar items, when subjected to fire or heat can become highly corrosive. Handle with seamless industrial gloves only. Should skin contact occur, remove contaminated clothing immediately and obtain medical assistance without delay. Meanwhile, wash the affected area with copious amounts of cold water or limewater for 15 to 60 minutes.

RECYCLING AND THE ENVIRONMENT

It is illegal to dispose of used oil in the ground, down sewers or drains or into waterways. Dispose of used oil through authorised waste disposal contractors. If in doubt contact your local Authority for advice on disposal facilities.

GENERAL DESCRIPTION

These instructions outline fitting of an H14W drum winch and mechanical PTO onto a Land Rover Ninety, One-Ten, 127, 4 Cylinder or V8.

Please read and understand these instructions before fitting the winch. Correct installation of the winch has a direct affect on correct operation of the winch. If you don't fully understand any section in these instructions it is a good idea to read through again before commencing fitting. Make any notes as you read for additional sundry items not included in the kit.

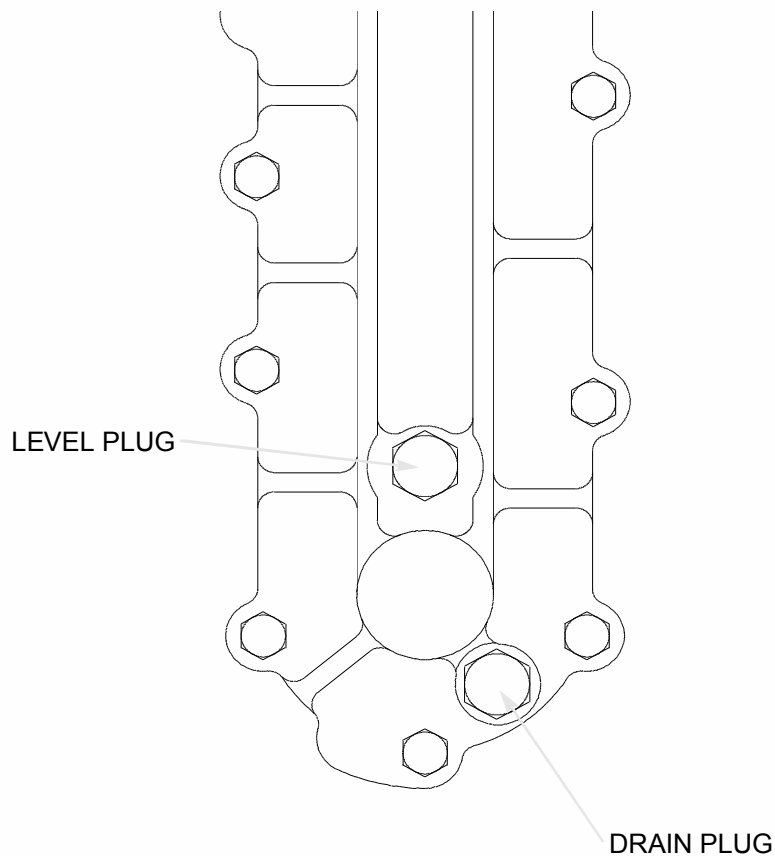
Please ensure all items listed on these pages are included in the package you receive from us. If any items are missing, please contact our customer services department.

WINCH

Type	H14W (drum)								
Gear Reduction	Worm wheel								
Wormbox ratio	48 : 1								
Drum	Fabricated steel mounted on maintenance free plain bearings								
Drum capacity	<table> <tr> <td>∅ 9mm (5/16")</td> <td>77_M (253')</td> </tr> <tr> <td>∅10mm (3/8")</td> <td>54_M (177')</td> </tr> <tr> <td>∅11mm (7/16")</td> <td>46_M (151')</td> </tr> </table>	∅ 9mm (5/16")	77 _M (253')	∅10mm (3/8")	54 _M (177')	∅11mm (7/16")	46 _M (151')		
∅ 9mm (5/16")	77 _M (253')								
∅10mm (3/8")	54 _M (177')								
∅11mm (7/16")	46 _M (151')								
Braking	Irreversible worm and wheel								
Freespool	Manual release								
Safe Working Load (bottom layer)	8000 lbs								
Line Speed	Fully variable, 14 _M / min (46' / min) outer rope layer								
	8 _M / min (26' / min) inner rope layer								
Weight	<table> <tr> <td>Front assembly</td> <td>48.08 kg (106 lb)</td> </tr> <tr> <td>P.T.O.</td> <td>12.24 kg (27 lb)</td> </tr> <tr> <td>Bumper</td> <td>24.29 kg (54 lb)</td> </tr> <tr> <td>Shafting</td> <td>7.50 kg (17 lb)</td> </tr> </table>	Front assembly	48.08 kg (106 lb)	P.T.O.	12.24 kg (27 lb)	Bumper	24.29 kg (54 lb)	Shafting	7.50 kg (17 lb)
Front assembly	48.08 kg (106 lb)								
P.T.O.	12.24 kg (27 lb)								
Bumper	24.29 kg (54 lb)								
Shafting	7.50 kg (17 lb)								

PTO LUBRICANT OIL

Fill PTO to level plug with the same oil as used in the vehicle transfer box (consult Land Rover workshop manuals for specifications). The PTO is fitted with two plugs, the upper one is the level plug, and the lower one is the drain plug. Lubricate grease nipples on PTO shafting using lithium based EP grease.



OVERVIEW

In this section we will fit the bumper / winch / roller fairlead to the vehicle.

110/127 4 cyl engined vehicles : It is recommended to fit heavy duty suspension springs on the front axle of the vehicle. The springs, Land Rover Part No.s NRC 9448 (drivers side) and NRC 9449 (passengers side) are available from any Main Land rover Parts dealer. These should be fitted to the vehicle in accordance with the Land Rover workshop manual.

Now, identify the parts in the following assembly.

BUMPER / WINCH MOUNT KIT			
Part No. 7310			
ITEM	QTY	PART No.	DESCRIPTION
1	2	4.33.1002522	BOLT M10 x 25
2	6	4.50.1023	PLAIN WASHER M10
3	2	4.51.1023	SPRING WASHER M10
4	1	SEE ASSEMBLY DRAWINGS	BUMPER BAR / WINCH / ROLLER FAIRLEAD
5	2	70-52034	NUT PLATE

INSTALLATION OF WINCH, BUMPER BAR & ROLLER FAIRLEAD

Remove existing vehicle bumper, bumper fixing plates and retaining clips (fitted to bumper bottom mounting plate) Fit fixing plates and retaining clips to bumper bar / winch mount.

Make sure the chassis members, where the bumper bar fits, are clean. Smear with grease, top and bottom. Make sure coupling is securely fitted to winch.

Since the winch and bumper are quite heavy, it is a good idea to place the assembly onto a box about 12" high, in front of the vehicle. It is also advisable to have someone to help you with the next stage.

Fit two nut plates (Item 5) into the ends of the chassis members aligning with the holes in the bottom of the chassis member.

Fit the bumper bar / winch / roller fairlead assembly (Item 4) to the front of the vehicle in the same position as the original bumper bar. Inspect the original bumper bolts for damage, and replace if necessary. Place the bolts and washers (Item 2) in position and loosely tighten. Fit two M10 x 25 bolts (Item 1) in the underside of the jacking

bracket with plain and spring washers (Items 2 & 3).

Tighten winch base mounting bolts.

Tighten all bumper bar bolts.

Fit vehicle number plate to front of bumper bar / winch mount.

OVERVIEW

In this section we will fit the Bump Stop Spacer. This will help the shafting to avoid hitting the axle when travelling off road. Identify the parts in the following kit :

BUMP STOP SPACER KIT

Part No. 70-90194

ITEM	QTY	PART No.	DESCRIPTION
6	2	4-32-0805022	SET SCREW M8 x 50
7	2	4-47-0823	NUT M8
8	2	4-50-0833	PLAIN WASHER M8
9	2	4-51-0823	SPRING WASHER M8
10	1	70-20060	BUMP STOP SPACER (LH)
11	1	9365	FITTING INSTRUCTIONS

INSTALLATION OF BUMP STOP SPACER

Remove the rubber bump stop from the front left hand side of the vehicle in accordance with the Land Rover workshop manual.

Place the Spacer between the rubber bump stop and the vehicle chassis and secure it into position in accordance with the Land Rover workshop manual using the nuts, spring washers, plain washers and longer set screws provided.

OVERVIEW

In this section we will fit the Steering Damper Bracket.
First though, identify the parts in the following assembly.

PTO SHAFT KIT (For use on 90/110/127 TDi Defender V.I.N. 939976 onward)

Part No. 70-90028V

ITEM	QTY	PART No.	DESCRIPTION
12	1	4-32-1402512	SET SCREW M14 x 25
13	2	4-33-0803022	BOLT, M8 x 30
14	6	4-33-0802522	BOLT, M8 X 25
15	1	70-90208	EXHAUST CLAMP SUPPORT ASS'Y
16	1	70-90207	EXHAUST CLAMP ASS'Y
17	1	70-90202	MOUNT BRACKET ASS'Y
18	1	70-90201	BRACKET, SUMP ASSY
19	1	70-90275	FRONT SHAFT ASSY
20	1	70-50331	SHAFT, REAR
21	1	4-47-1423	NUT, M14
22	1	4-51-1413	SPRING WASHER M14
23	2	4-50-1413	PLAIN WASHER M14
24	12	4-51-0823	SPRING WASHER, M8
25	12	4-50-0823	WASHER, M8
26	6	4-47-0813	NUT, M8
27	2	4-50-0623	WASHER, M6
28	2	4-51-0613	SPRING WASHER, M6
29	2	4-47-0613	NUT, M6
30	1	4-150-002	BOX, WOODEN
31	4	128	KEY
32	1	244	UNIVERSAL JOINT
33	12	245	SOCKET SET SCREW 1/4" BSF
34	1	277	UNIVERSAL JOINT, TURNED
35	1	284	SELF ALIGNING FLANGE BEARING
36	1	797A	POLYTHENE BAG
37	1	6384	BEARING LOCATION PLATE
38	1	6766	SELF ALIGNING FLANGE BEARING
39	1	6782	STEERING DAMPER BRACKET
40	1	70-50414	HEXAGON STUB SHAFT
41	1	6863	UNIVERSAL JOINT (BROACHED)
42	1	7212	BEARING LOCATION BRACKET
43	2	4-40-050503	SKT SET SCREW M5 x 5
44	2	7222	SKT SET SCREW
	1	5-030-001	CHECK LIST

PTO SHAFT KIT (For use on 90/110/127 Defender 4 cyl (inc. TDi) up to V.I.N. 939976)

Part No. 70-90028

ITEM	QTY	PART No.	DESCRIPTION
45	1	4-32-1402512	BOLT M14 x 25
46	2	4-33-0809022	BOLT M8 x 90
47	2	4-33-0807022	BOLT M8 x 70
48	1	4-32-0805022	SET SCREW M8 x 50
49	4	4-32-0803512	SOCKET SET SCREW M8 x 35
50	8	4-33-0802022	BOLT, M8 x 20
51	1	70-90027	COUPLING SHAFT
52	4	4-60-084003	RIVNUT M8
53	1	70-60063	BRACKET R.H.
54	1	70-60062	BRACKET L.H.
55	1	4-47-1423	NUT, M14
56	1	4-51-1413	SPRING WASHER M14
57	2	4-50-1413	PLAIN WASHER M14
58	14	4-51-0823	SPRING WASHER, M8
59	18	4-50-0823	WASHER, M8
60	6	4-47-0813	NUT, M8
61	4	4-50-0623	WASHER, M6
62	4	4-51-0613	SPRING WASHER, M6
63	4	4-47-0613	NUT, M6
64	7	128	KEY
65	3	244	UNIVERSAL JOINT
66	16	245	SOCKET SET SCREW 1/4" BSF
67	1	797A	POLYTHENE BAG
68	2	6384	BEARING LOCATION PLATE
69	3	6766	SELF ALIGNING FLANGE BEARING
70	1	6782	STEERING DAMPER BRACKET
71	1	6854	HEXAGON STUB SHAFT
72	1	6941	UNIVERSAL JOINT (BROACHED)
73	1	8122	SHAFT, REAR
74	1	8127	BRACKET, REAR ASSEMBLY
75	1	8784	EXHAUST MANIFOLD SEAL
76	1	10515	INTERMEDIATE SHAFT
77	1	10518	FRONT SHAFT ASSY
78	1	10521	BRACKET, SUMP ASSY
79	2	10522	SPACER
80	6	4-40-050503	SKT SET SCREW M5 x 5

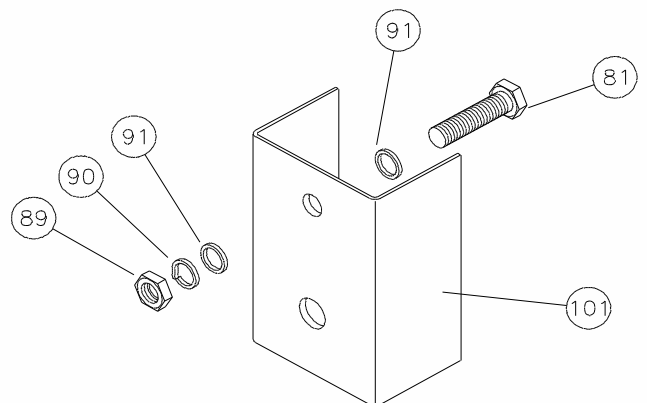
PTO SHAFT KIT(For use on V8 models)

Part No. 70-90038

ITEM	QTY	PART No.	DESCRIPTION
81	1	4-32-1402512	SET SCREW M14 x 25
82	1	4-32-0805022	SET SCREW M8 x 50
83	4	4-32-0803512	SET SCREW M8 x 35
84	6	4-33-0802512	BOLT, M8 x 25
85	1	70-90027	COUPLING SHAFT ASSY
86	4	4-60-084003	RIVNUT M8
87	1	70-60063	BRACKET R.H.
88	1	70-60062	BRACKET L.H.
89	1	4-47-1423	NUT, M14
90	1	4-51-1413	SPRING WASHER M14
91	2	4-50-1413	PLAIN WASHER M14
92	12	4-50-0823	PLAIN WASHER M8
93	6	4-47-0823	NUT, M8
94	12	4-51-0823	SPRING WASHER, M8
95	6	128	KEY
96	1	244	UNIVERSAL JOINT
97	1	267	UNIVERSAL JOINT
98	1	284	FLANGED BEARING
99	1	797A	POLYTHENE BAG
100	1	6766	SELF ALIGNING FLANGE BEARING
101	1	6782	STEERING DAMPER BRACKET
102	1	6854	HEXAGON STUB SHAFT
103	1	6863	UNIVERSAL JOINT
104	1	7185	BEARING BRACKET ASSEMBLY
105	1	7210	FRONT SHAFT ASSEMBLY
106	1	7211	SHAFT, REAR
107	1	7212	BEARING LOCATION PLATE
108	12	245	SKT SET SCREW, 1/4" BSF
109	2	7221	BOLT, 5/16" UNC x 1" LONG
110	2	4-40-050503	SKT SET SCREW M5 x 5
111	2	7222	SKT SET SCREW

STEERING DAMPER BRACKET INSTALLATION

Fit steering damper bracket to existing damper bracket on chassis, using M14 x 25 (Item 90) set screw, two plain washers (Item 91), spring washer (Item 90) and nut (Item 89) as shown below. Refit the steering damper to the lower hole in the steering damper bracket.



Steering Damper Bracket (Item 18)

OVERVIEW

Here we will fit the Mechanical Power Take Off. Identify the parts in the following assemblies:

P.T.O.FITTING KIT

Part No. 7726

ITEM	QTY	PART No.	DESCRIPTION
112	3	4.50.0723	WASHER
113	1	213	LOCK NUT
114	1	214	CONTROL KNOB
115	4	4.33.1004512	BOLT M10 x 45
116	2	4.33.1004012	BOLT M10 x 40
117	6	4.51.1013	SPRING WASHER M10
118	6	4.63.151223	SPLIT PIN
119	1	4.123.1533	GROMMET
120	6	5190	SPIGOT BUSH
121	1	6438	LINK ROD
122	1	6467	OPERATING SHAFT
123	1	6743	TORQUE ADAPTOR
124	1	6770	GASKET
125	3	785	CLEVIS PIN

POWER TAKE OFF

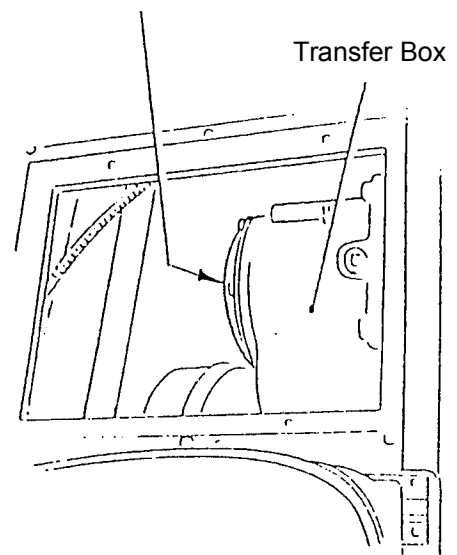
Part No. 6440

ITEM	QTY	PART No.	DESCRIPTION
126	1	6440	POWER TAKE OFF

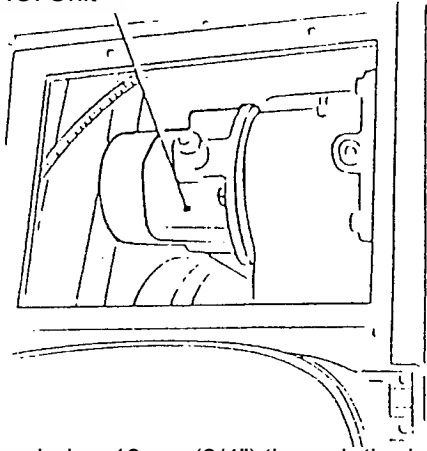
POWER TAKE OFF INSTALLATION

From inside the vehicle remove the vehicle front centre seat squab and cover panel. Remove transfer box rear cover plate. The cover and existing bolts will not be required. Make sure the face of the transfer box is clean and free from old gasket, oil, grime etc. Fit gasket (Item 124) to PTO. Fit PTO to transfer box and secure with M10 x 45 bolts (Item 115) and spring washers (Item 117).

Transfer Box rear cover plate

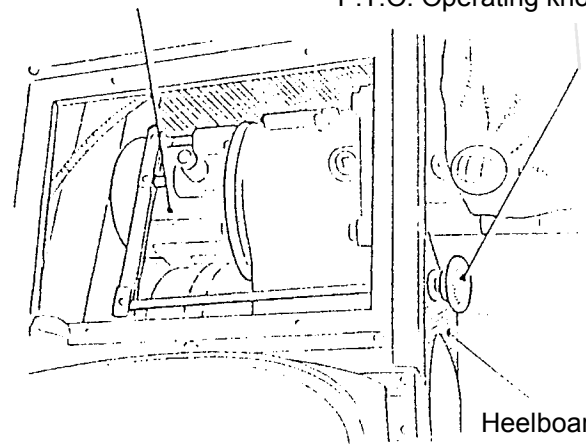


P.T.O. Unit



P.T.O.

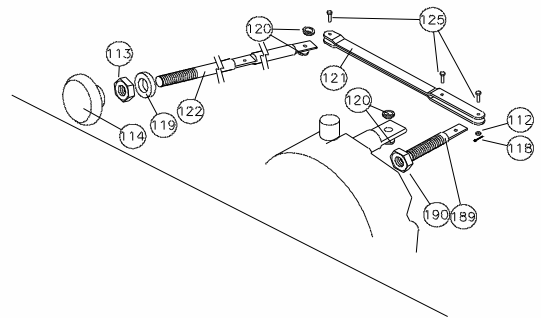
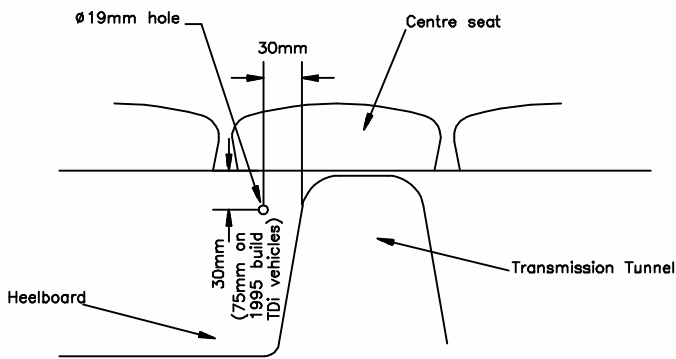
P.T.O. Operating knob



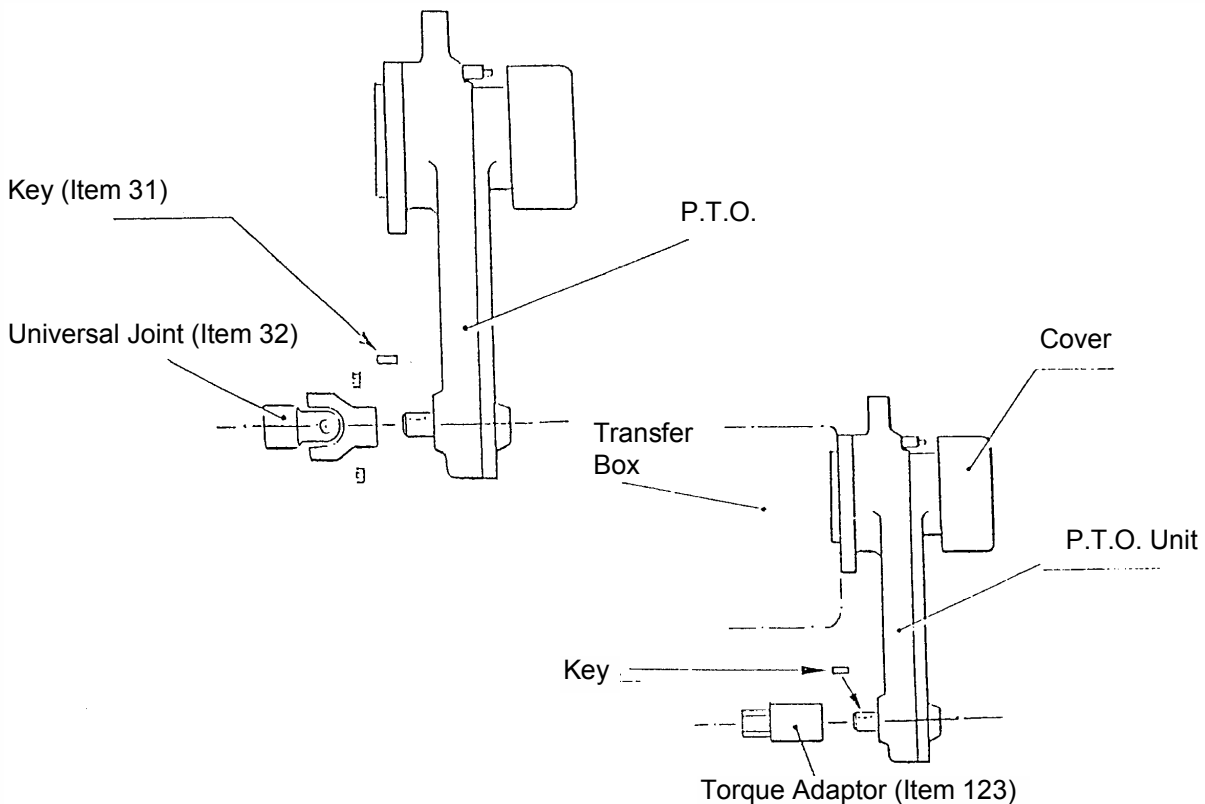
Heelboard

Drill one hole $\varnothing 19\text{mm}$ ($3/4"$) through the heelboard. Deburr hole and fit grommet (Item 119). Push operating shaft (Item 122) through the grommet (from inside the centre seat access hole). Fit link rod (Item 121) to PTO

Fit key (Item 31) and Universal Joint (Item 32) to Power Take Off (bottom end).



using clevis pin (Item 125), washer (Item 112) and split pin (Item 118). Fit operating shaft to link rod using clevis pin (Item 125), washers (Item 112) and split pins (Item 118). Fit $7/16"$ BSF locknut (Item 113) and knob (Item 114) to operating shaft.



SETTING AND ADJUSTING THE PTO

With the engine turned off, engage first gear and PTO (by pulling the knob towards the front of the vehicle), slide the torque adaptor supplied (Item 123) onto PTO output shaft. Using a 20mm A/F socket on the torque adaptor, check the torque reading.


Adjustment : remove the red cover from the rear of the PTO unit, loosen set screw in round nut (Item 171). Insert a $\varnothing 8$ mm bar into the plain hole in the round nut. Turn the adjusting nut with the bar, clockwise to increase torque (increase line pull) and anti-clockwise to decrease torque (lower line pull).

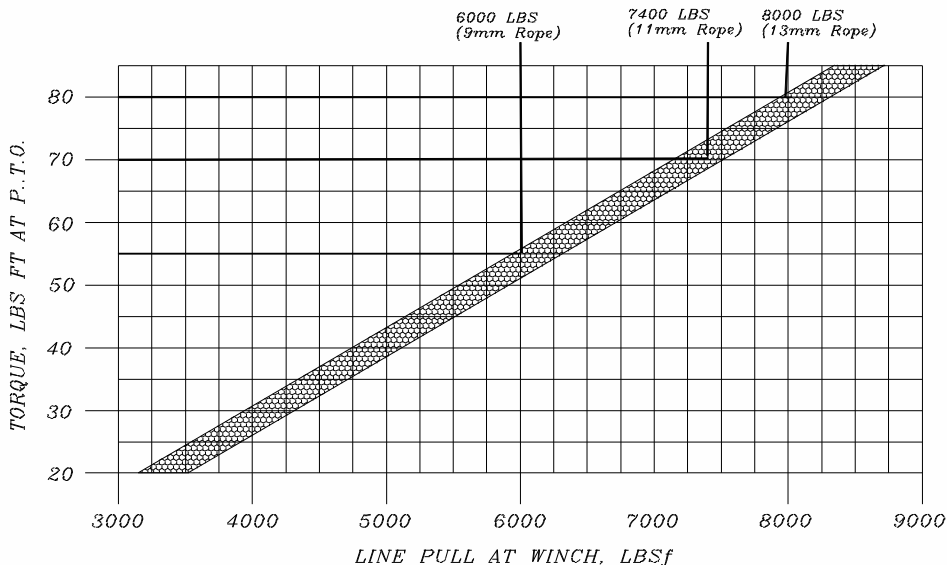
Torque is correct when the steel balls in the PTO snap out of engagement. Output shaft will turn approximately one third of a turn, then the balls will snap into engagement. Tighten M10 setscrew and replace cover.

Typical Torque Settings (anti-clockwise)

Rope Dia (mm)	Min breaking load (lbs)	Max torque setting (lbsft)	Max linepull bottom layer (lbf)
13	23,968	80	8000
11	17,180	75	7400
9	11,513	60	6000

It should be noted that the method of setting the linepull quoted is very approximate. The final linepull may be $\pm 15\%$.

 To set the linepull with the maximum accuracy a load cell should be employed on a fully run in winch. If the torque is set before the winch is run in then the linepull will increase until the winch becomes run in.



OVERVIEW

Refer to previous sections for parts

SHAFTING INSTALLATION

All vehicles except TDi V.I.N. 939967 onwards :

Assemble self-aligning bearing (100) to brackets (88 & 87) with M8 x 25 bolts (84) noting that the bearings slots in the brackets are offset towards the bearing. Position assembly under No.2 crossmember as shown, using the coupling shaft between the winch and the bearing. This will position the brackets under the crossmember. Ensure the coupling shaft is in line with the winch drive coupling. Mark the position of 4 holes in the underside of the crossmember. Remove assembly. Drill 4 holes dia 10.6mm. Fit rivnuts as shown.

Fit left and right hand bracket assembly to crossmember.

4 Cylinder models only :

Fit the rear mount bracket assembly to underside of gearbox, using the two existing tapped holes as shown. Secure with M8 x 20 bolts, plain and spring washers .

Fit the sump assembly bracket to the engine sump flange, using spacers as required, bolts and washers. The bracket is fitted to the front of the sump flange.

NOTE : On Defender 4 cyl up to V.I.N. 939976 vehicles, the sump bracket fits to the **FRONT** of the sump, not the side, using spacers to clear the power steering pump.

Fit the relevant shafting kit as shown on the previous pages.

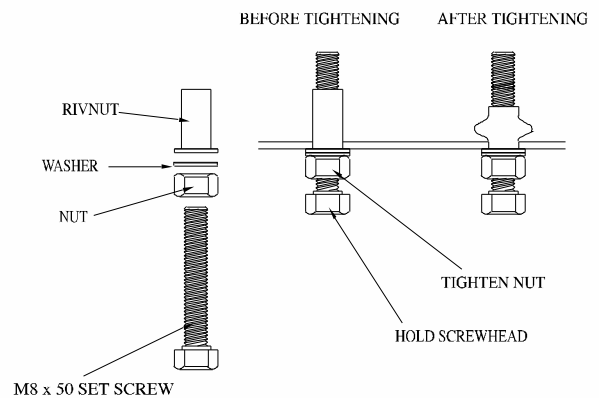
NOTE: Attention should be given to the following points ;

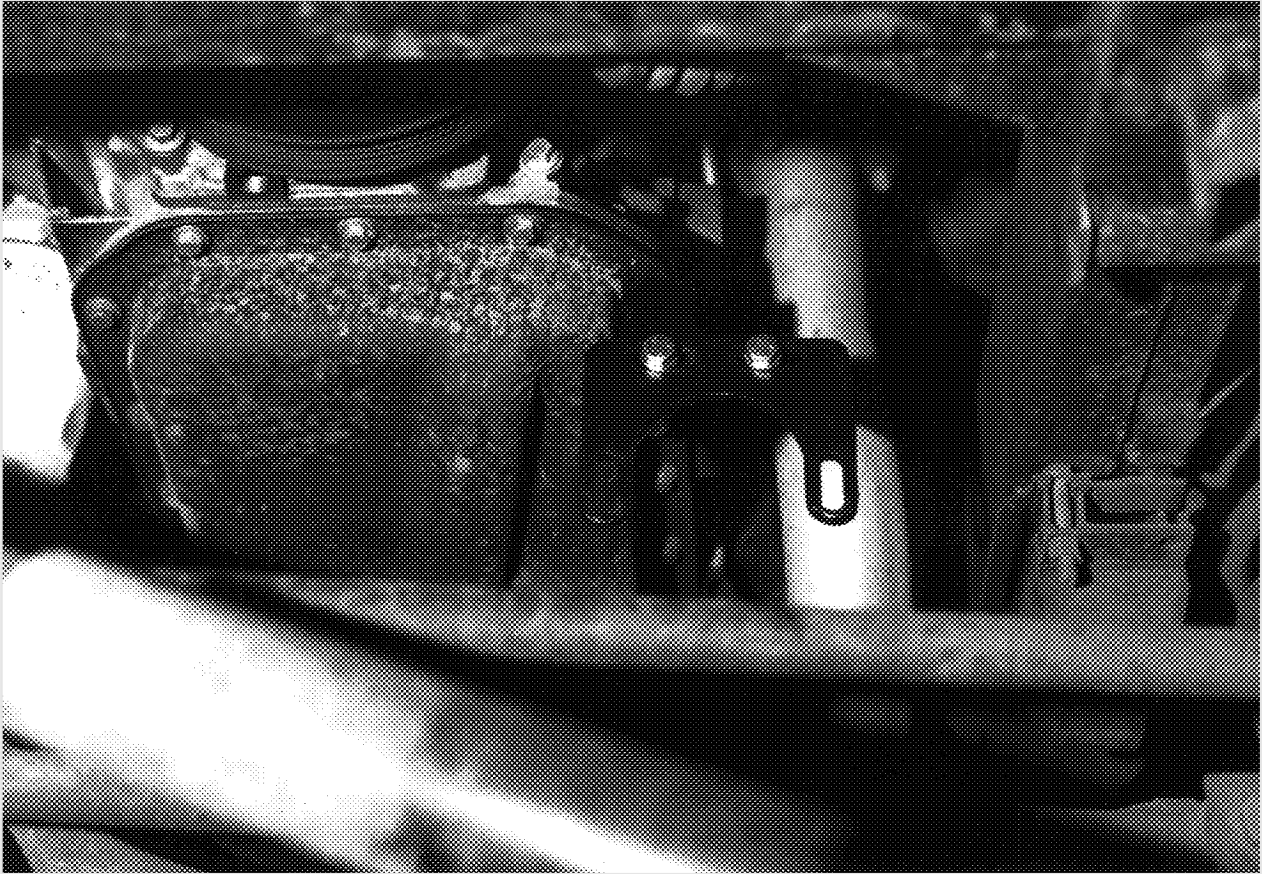
There should be a gap of 12mm between the front shaft and the universal joint (at the hexagon sliding joint to allow for engine movement.

Use adjustments at the sump bracket assembly to obtain the maximum clearance between the front axle and the winch shafting.

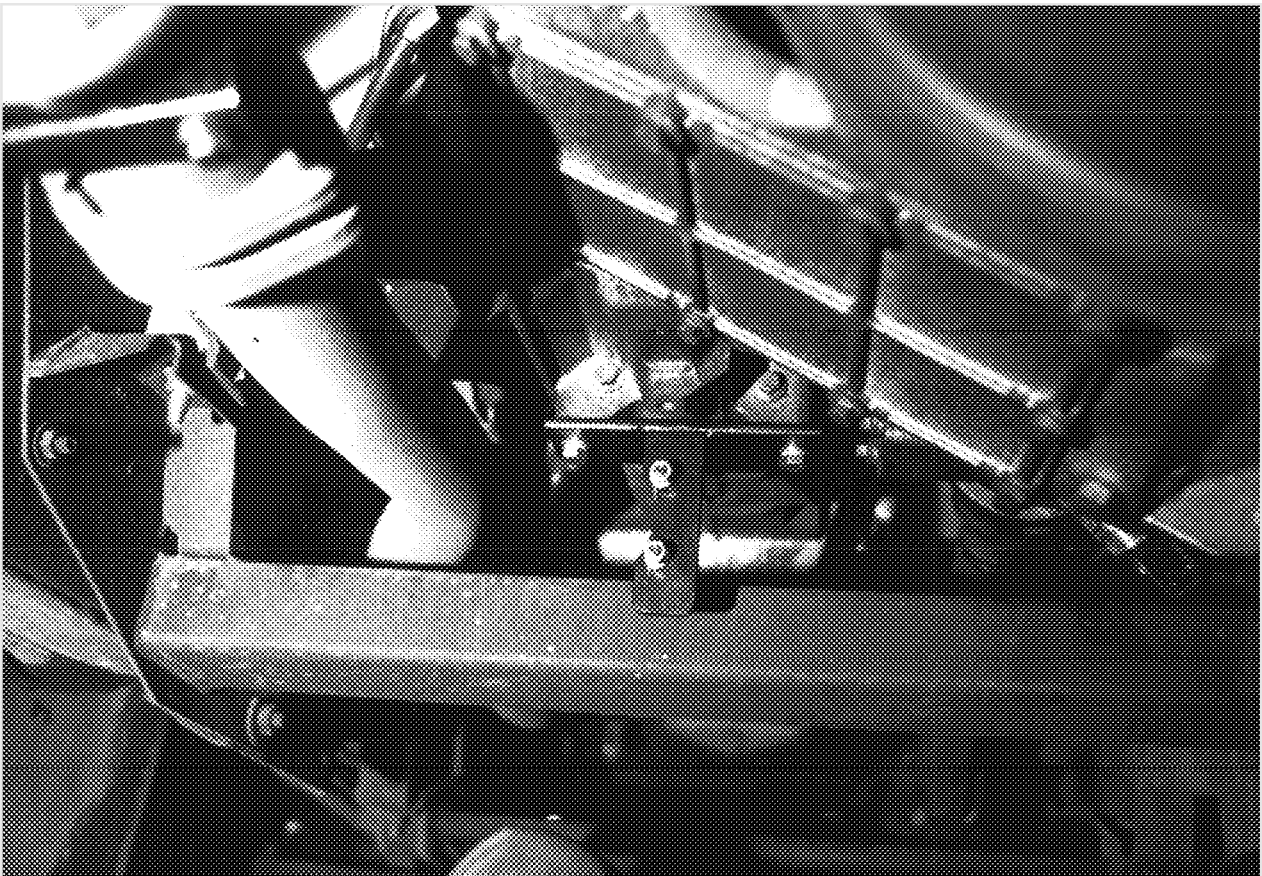
90/110/127 TDi Defender V.I.N. 939976 onwards :

The rear bracket and bearing should be fixed into position after the sump bracket assembly has located the shaft in it's correct position.





Front (sump) mount bracket assembly on V.I.N. 939967 onwards vehicles



Rear mount bracket assembly on V.I.N. 939967 onwards vehicles

NOTES ON EXHAUST CLEARANCE

Exhaust Modification Kit

Part No. 8991

ITEM	QTY	PART No.	DESCRIPTION
127	1	8822	Rear Adaptor
128	1	8825	Front Tube Assembly
129	1	8889	Olive
130	1	8824	Clamp
131	3	4-33-0804522	Bolt M8 x 45
132	3	4-47-0823	Nut M8
133	3	4-51-0823	Spring Washer M8
134	3	4-50-0823	Plain Washer M8

On some vehicles, there is limited room between the Engine sump and the Exhaust Downpipe, where the PTO shafting is sited. To create extra clearance it may be necessary to re-position the exhaust downpipe, if your vehicle is fitted with an exhaust clamp approximately 150mm (6") below the manifold, remove two bolts and clamp bar, clamping Down Pipe and loosen the fixing to the manifold, loosen fixings at rear end of down pipe*, fit down pipe seat as shown and refit but do not tighten two bolts and clamping bar. Starting at the manifold, refit the exhaust down pipe leaving the tightening of the clamp bar to last.

* **NOTE** : It is advisable to fit the new exhaust manifold seal supplied.

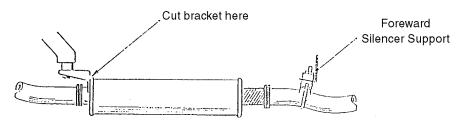
If your vehicle is not fitted with an exhaust clamp, support the down pipe with a block of wood between the down pipe and the chassis and **GENTLY** lever the lower part of the down pipe away from the sump as shown.

NOTE : Whilst levering the down pipe it is important to take special care not to damage the down pipe or sump casing etc.

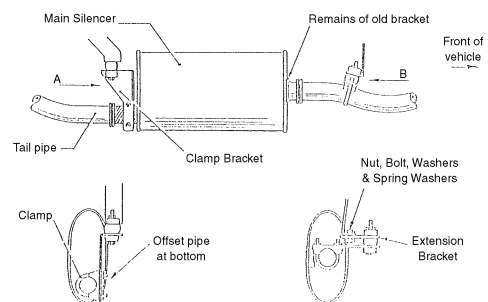
Ninety Non-Turbo charged vehicles (with oval main silencer) :

Slacken nuts on the exhaust clamp at the rear of the tail pipe and at the flange where the down pipe meets the exhaust manifold. Cut off the welded bracket on the main silencer. Turn the main silencer end to end and turn vertically, using clamp bracket.

Fit extension bracket to forward silencer support as shown. Check front pipe and tail pipe clearances and tighten all exhaust connections.



STANDARD SILENCER INSTALLATION



TDi V.I.N. No. 939976 ONWARDS

Remove exhaust bracket in front of main silencer box, replace with supplied exhaust clamp support assembly (70-90208). Fit exhaust clamp assembly (70-90207) to exhaust pipe. Slacken exhaust fixings to gain exhaust movement before refitting exhaust hanger rubber. When exhaust is in position tighten all exhaust fittings.

Ninety Turbo Diesel vehicles NOT TDi (with round main silencer) : Mod Kit 8891

Remove the rear exhaust pipe assembly and main silencer box. Fit the front tube assembly (Item 128) and exhaust olive (Item 129) using M8 x 45 bolts (Item 131), plain and spring washers (Items 133 & 134) supplied, and loosely refit the main silencer box using the original fittings.

Cut across the rear exhaust pipe assembly

approximately 260mm (10.23") from the flange and square to the pipe as shown. Remove the rubber mounting and mounting bracket from the pipe bracket.

Ensure that the new end of the rear pipe is square and de-burred, loosely fit adaptor pipe (Item 127) to end of existing rear pipe to ensure correct fitting. Dis-assemble the two pieces again and remove any grease, soot etc. from the joint areas.

Slide the exhaust clamp (Item 130) over the rear pipe. Smear exhaust jointing compound on the joining area of the rear pipe and rejoin the two pieces in their approximate position, ensuring that the new pipe is at the correct angle to the original pipe section (this may be

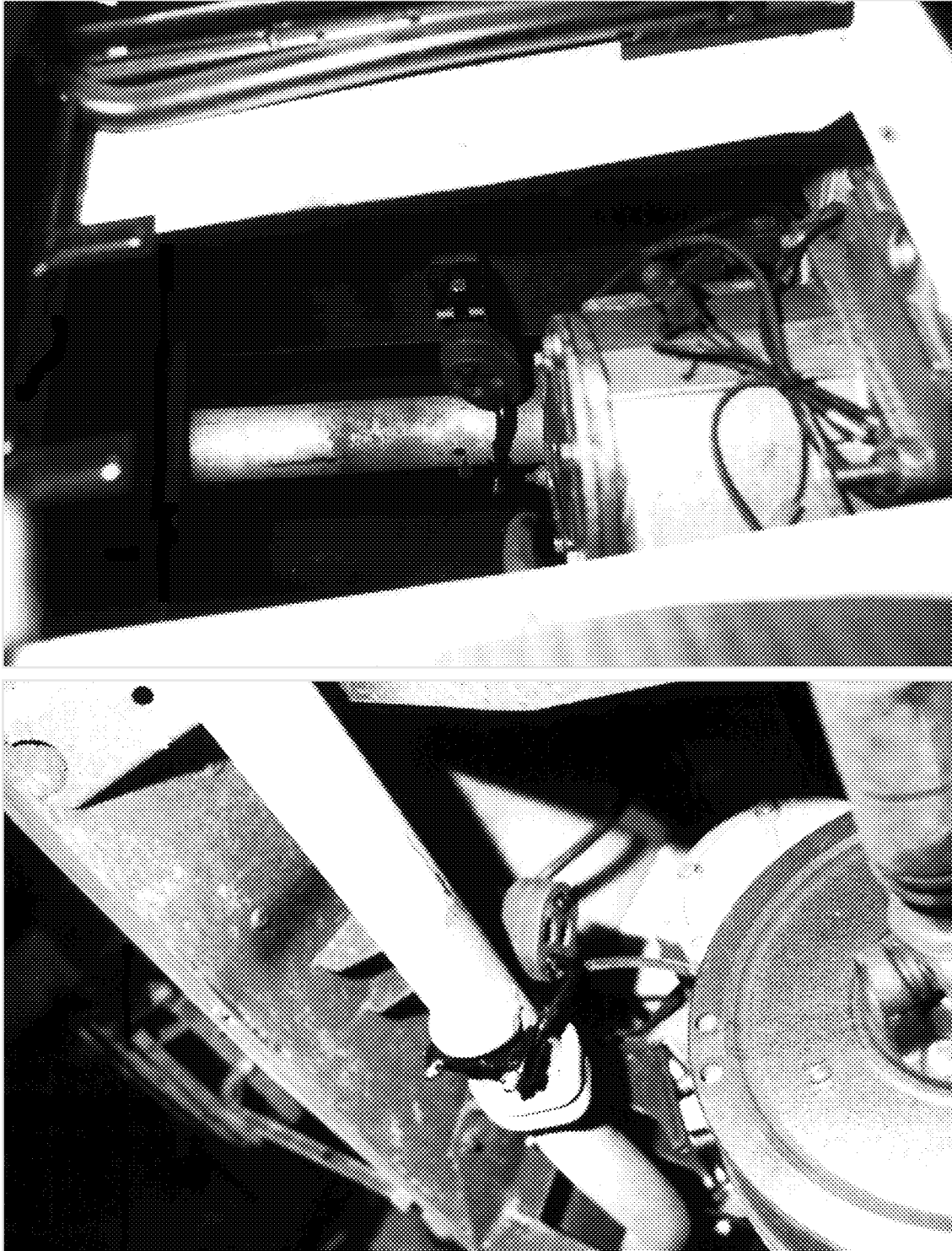
compared with the angle of the 260mm section removed)

Fit the hanging bracket to the new section of rear pipe. Place the modified rear pipe in position and twist the two sections of rear pipe as necessary to ensure correct alignment and clearance with the ground and the vehicle underbody.

Locate and fix the exhaust brackets and tighten all nuts and bolts.

Ninety TDi vehicles :

Remove the complete centre section of exhaust pipe and refit the new pipe supplied.



 FITTING THE ROPE

Slacken off the Socket set screw on the winch drum and turn the drum so that the screw is uppermost. Unwind the rope and lay in a straight line on the ground.


 NEVER wind the rope onto the drum from a coil.

Disengage the drum drive by pulling back the safety interlock handle and pulling the freespool handle towards the drum of the winch. The rope drum should now rotate freely. If it does not, rotate the drum until it does.

Facing the winch, feed the tapered end into the slot between the upper and lower roller on the roller fairlead and **under** the rope drum. Insert the tapered end (from the rear) into the cross-drilled hole, keeping the rope end inside the drum core diameter.

Tighten the set screw onto the rope. Re-engage the rope drum by pulling the freespool handle away from the drum until the safety interlock handle keeps it in position. If the handle will not turn enough, rotate the drum slightly until the handle can be turned sufficiently.


Start the engine, engage the P.T.O. and, while keeping a tension on the rope, start winching in, taking care to coil the rope neatly onto the drum with coils tight against each other.

 Care taken at this stage will prolong the life of the rope.

Run the rope back until about two feet only remain. ease off on the control lever on the wing, and carefully stow the hook into the lug on the winch frame or into the back of the bumper. Lightly tighten up the slack to ensure that the hook does not slip free when on the move.

Then :

IMPORTANT :

 Disengage P.T.O.
Engage the transfer gear required.

Note : Normally the winch freespool handle is left in the “engage” position to prevent accidental spillage of rope when the winch is not in use.



TESTING AND OPERATING INSTRUCTIONS

WINCHING PROCEDURE

Wherever possible, point vehicle directly at load to obtain even cable lay on drum.

Put both vehicle gearbox lever and transfer box lever into neutral. Engage the PTO by moving the horizontal lever fully forward. The PTO engagement lever protrudes from the seat box under the centre seat.

Engage reverse gear to release all tension (or load) in the wire rope.

Ensure gear lever is returned to neutral position.

Pull safety interlock pin out and move freespool lever towards drum (FREE).



IMPORTANT

Ensure there is no load on the wire rope before operating Freespool Handle.

Haul out rope and secure to load.

Re-engage freespool - apply light pressure to freespool handle whilst slowly rotating the drum by pulling out the cable by hand.

Ensure lever snaps in and safety interlock is fully engaged before proceeding (ENGAGED).



IMPORTANT

The Winch Freespool must NEVER be disengaged when winching in or out.

Engage a forward gear and carefully take up the slack cable.

Using the throttle, keep the engine at a fast tickover - 1000 / 1200 rpm and commence winching. Max. speed for the winch is 1500 rpm.

Note : All gears can be used, 2nd gear is usually better for heavy loads.

To secure winch after use, wind slack rope onto drum, using PAY-ON LEVER to ensure even lay.



KEEP HANDS AND FINGERS CLEAR OF WINCH ROPE AND HOOK WHEN OPERATING WINCH. Never put your finger through the hook when reeling in the last few feet. If your finger should become trapped in the hook or rope, you could lose your finger. Use the HAND SAVER BAR to guide the hook for the last few feet. Never guide a wire rope under tension onto the drum with your hand.

Secure hook in stowage position and tighten rope.

Disengage P.T.O. The freespool handle on the winch should remain in the engaged position to prevent unwinding of rope whilst driving.

OVERLOAD PROTECTION

The overload device fitted to this P.T.O. is a fully automatic torque limiter. When an overload condition is reached, an audible clicking will be heard coming from under the centre seat. When this clicking is heard, the clutch pedal must be depressed immediately. The winch is fully self sustaining and will not release the load. Engage reverse gear, to release tension in the rope. If it is obvious that the load is at maximum, reposition vehicle, or use a pulley system (snatch block). Re-engage the gear used in winching, recommence winching.



IMPORTANT

This winch should NEVER be used for lifting or moving personnel.

RUNNING-IN PROCEDURE, MAINTENANCE & SERVICING

RUNNING-IN PROCEDURE

IMPORTANT:

Fitted to your drum winch is a precision worm and wheel set.

Extra time spend running-in is well repaid by a more efficient and reliable winch.



Your drum winch must NEVER be used to pull heavy loads until it has been run-in as below:

1. Run the Winch with no load or very light load for 1-2 hours.
2. GRADUALLY increase the load up to maximum over a period of 2-4 hours (the longer the better). Drain worm box and refill with fresh ESSO GX90/140 or equivalent.

It should be noted that the method of setting the linepull quoted is very approximate. The final linepull may be ±15%. To set the linepull with the maximum accuracy a load cell should be employed on a fully run in winch. If the torque is set before the winch is run in then the linepull will increase until the winch becomes run in.

MAINTENANCE

Periodically check that all nuts and bolts are tight. Check all grub screws in the universal joints are tight.

Make regular checks on the condition of the wire rope over it's entire length. Check it for fraying, signs of kinking or other damage that will significantly reduce the breaking strength of the rope. If you are in any doubt, replace your rope rather than take a chance. The rope should be kept free from mud, grime, grit etc that will damage a rope under tension.

WARNING:



Before winching ALWAYS

1. Check rope for any signs of fraying / kinks etc.
2. Check freespool lever moves easily.

SERVICING

Drain and refill winch wormbox as instructed earlier, under running-in, after 2-4 hours running.

Every 20 Hours or 3 monthly, whichever ever is the sooner :- Check all universal joint grub screws are tight.

1. Clean all grease nipples on winch drive line between P.T.O and winch.
2. Check condition of sliding joint. If seized or badly corroded it must be removed freed & cleaned or replaced & greased. See assembly details for front drive line.
3. Check condition of self aligning bearings, replace if necessary.
4. Check condition of universal joints, replace if necessary.
5. Use a low pressure hand grease gun, apply recommended grease, to grease nipples in all universal and sliding joints.
6. Apply a bead of grease around the exposed parts of the hexagon sliding shaft.
7. Check all grub screws) securing all universal joints are tight. Any grub screws that are found to be loose must be replaced.



USE ONLY GRUB SCREWS SUPPLIED BY SUPERWINCH TO SECURE THE UNIVERSAL JOINTS. SUPERWINCH PART NUMBER - 245.



FOR OTHER WINCH AND P.T.O SERVICING DETAILS SEE FITTING INSTRUCTIONS SUPPLIED WITH WINCH.



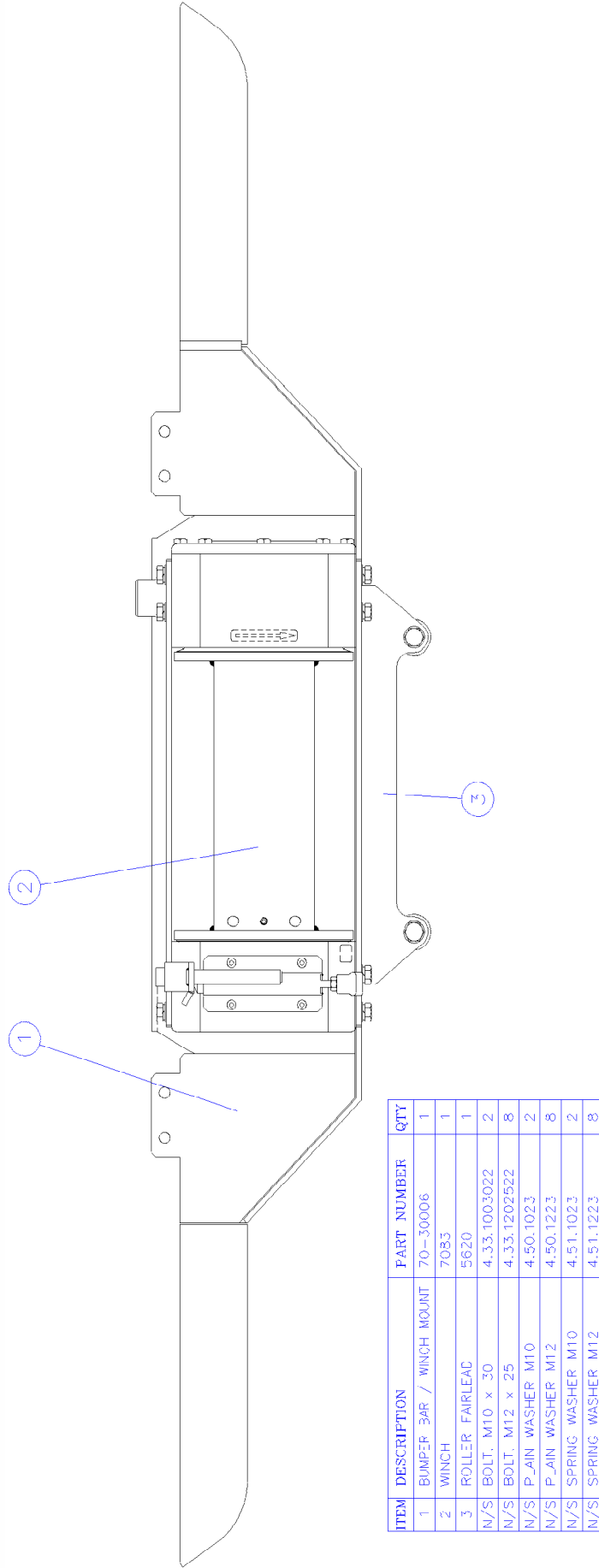
RECOMMENDED GREASE FOR UNIVERSAL JOINTS - LITHIUM BASED EP.

After first 125 hours of running :- Check all fastenings for tightness.

Every 250 hours running :- Drain worm box and refill with fresh ESSO GX90/140 or equivalent..

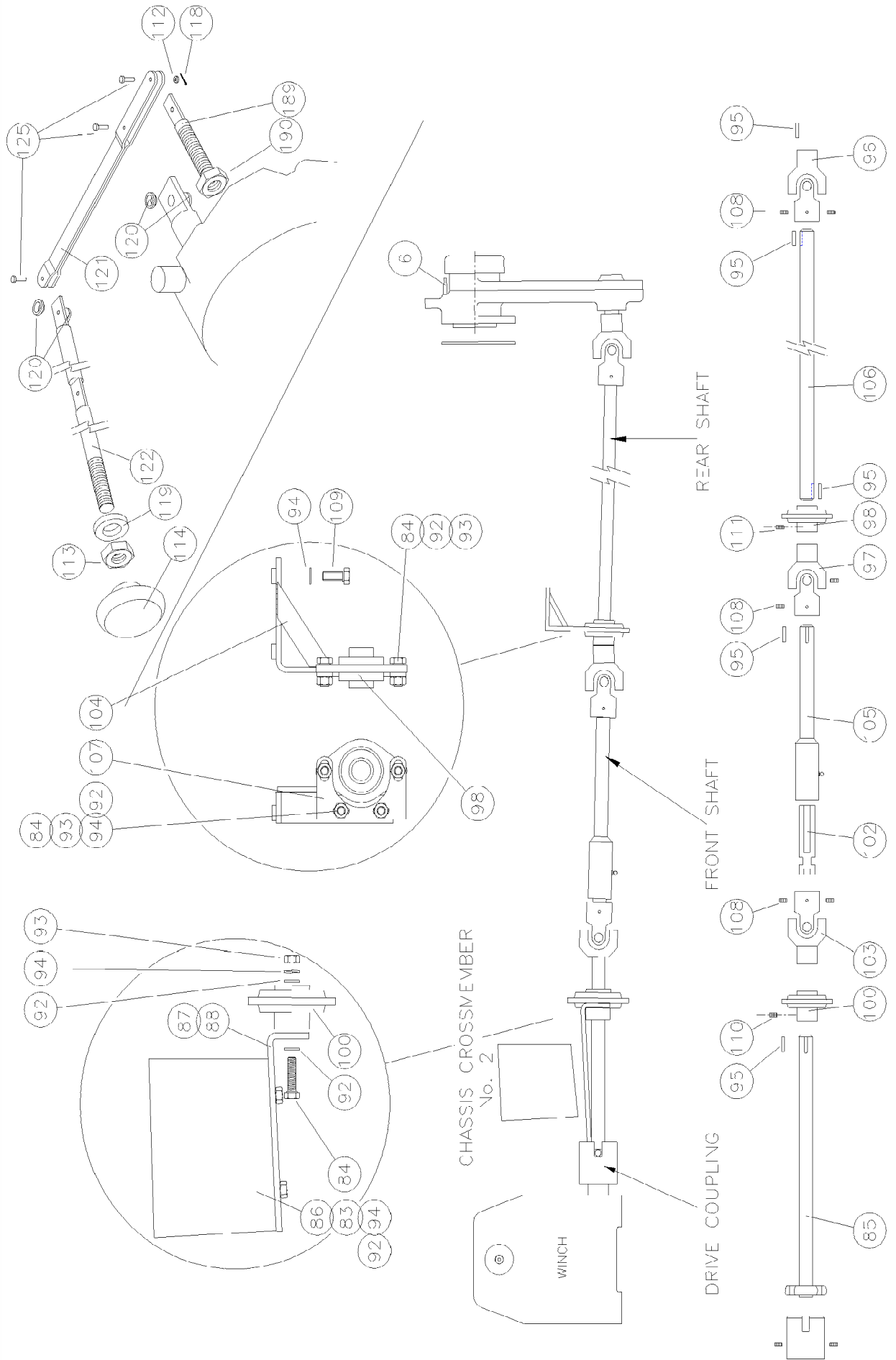
Annually :- Remove drive shaft assembly, clean and lubricate. Take apart flanges on drive shaft bearing and liberally smear grease around area where flanges and bearing meet, reassemble. This will help to exclude water from entering hole in bearing casing. Lubricate all universal joint nipples with lithium based EP grease. Reassemble.

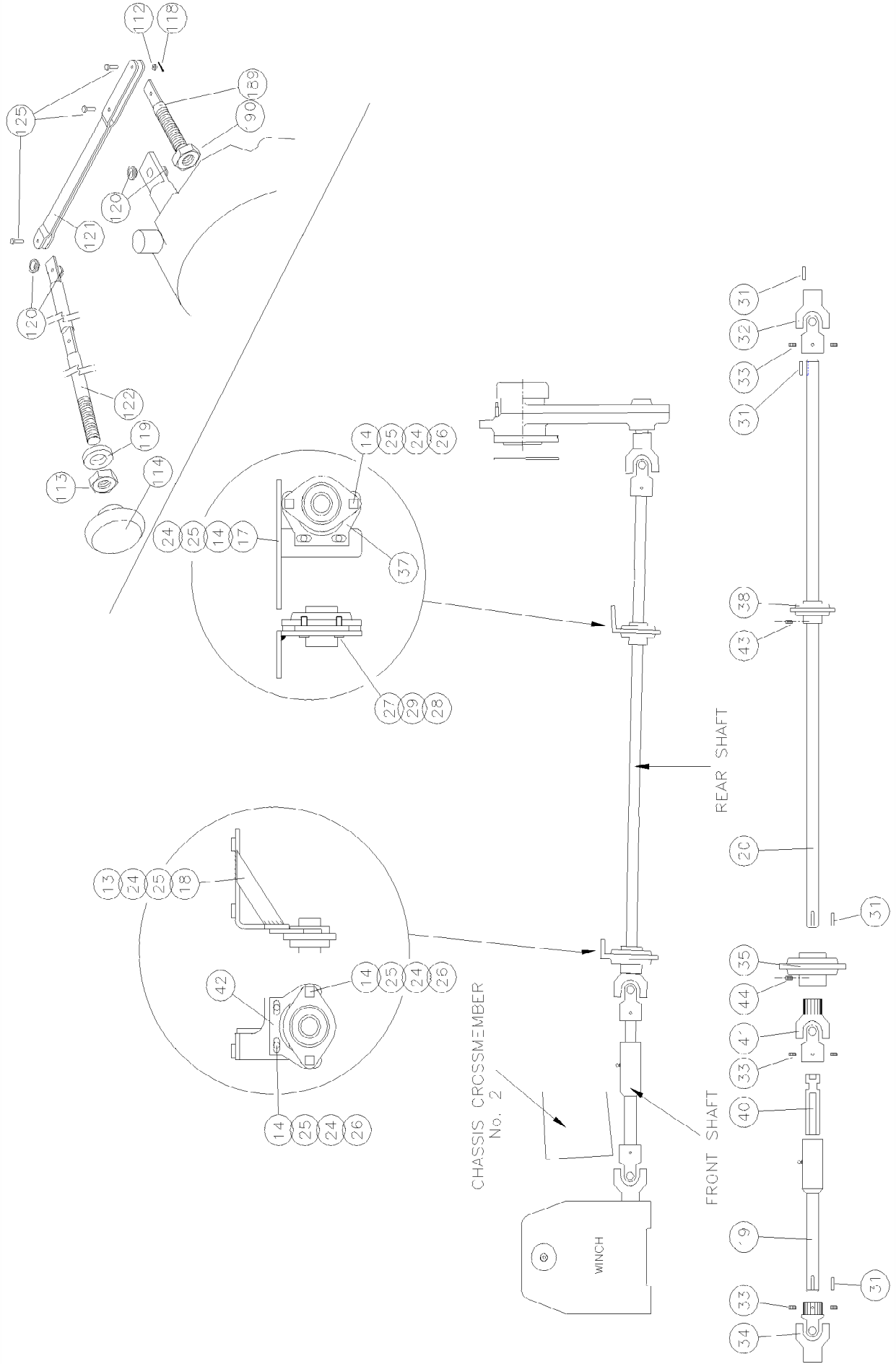
ITEM 4 BUMPER BAR / WINCH / ROLLER FAIRLEAD

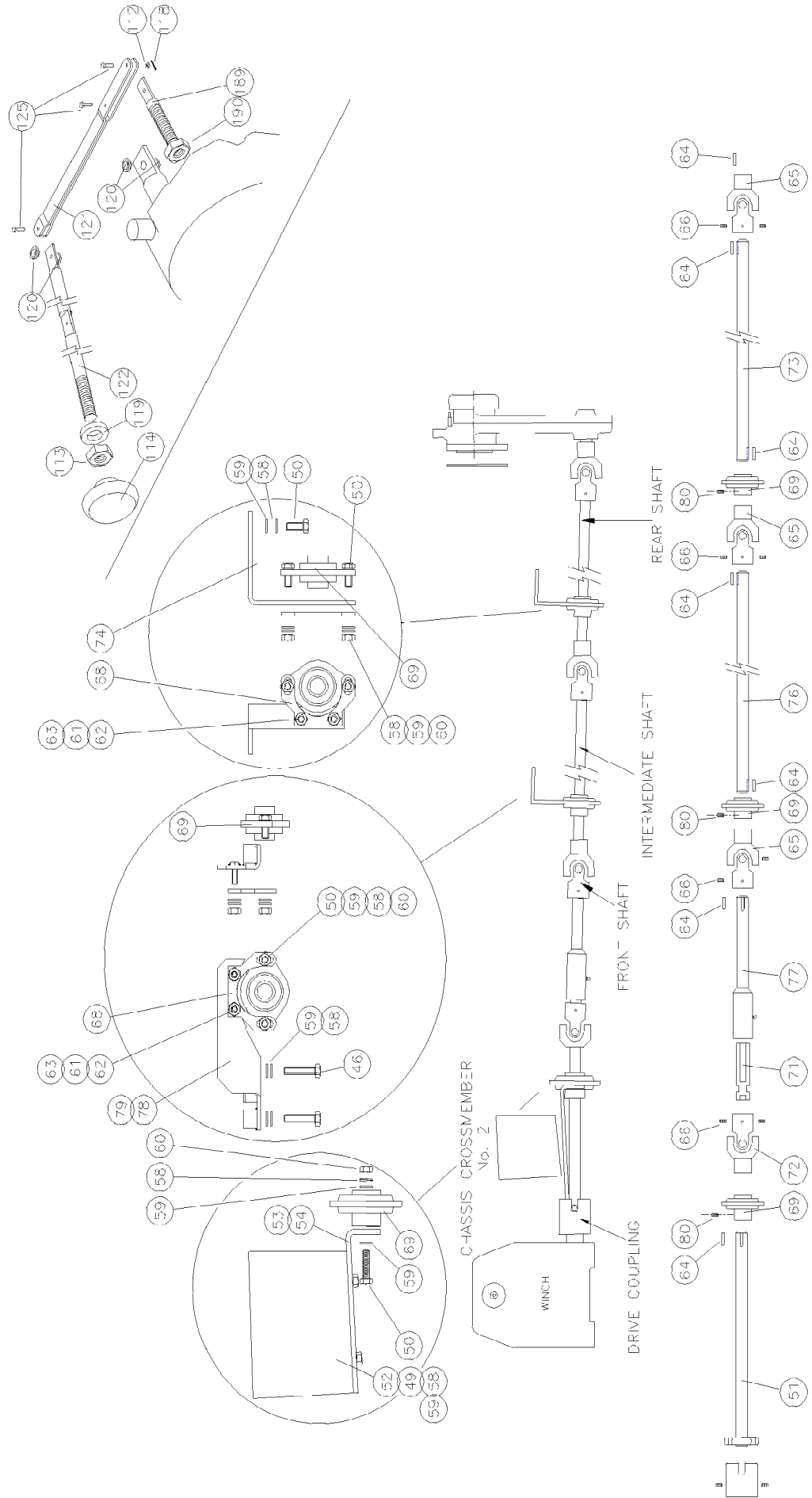


N/S = NOT SHOWN

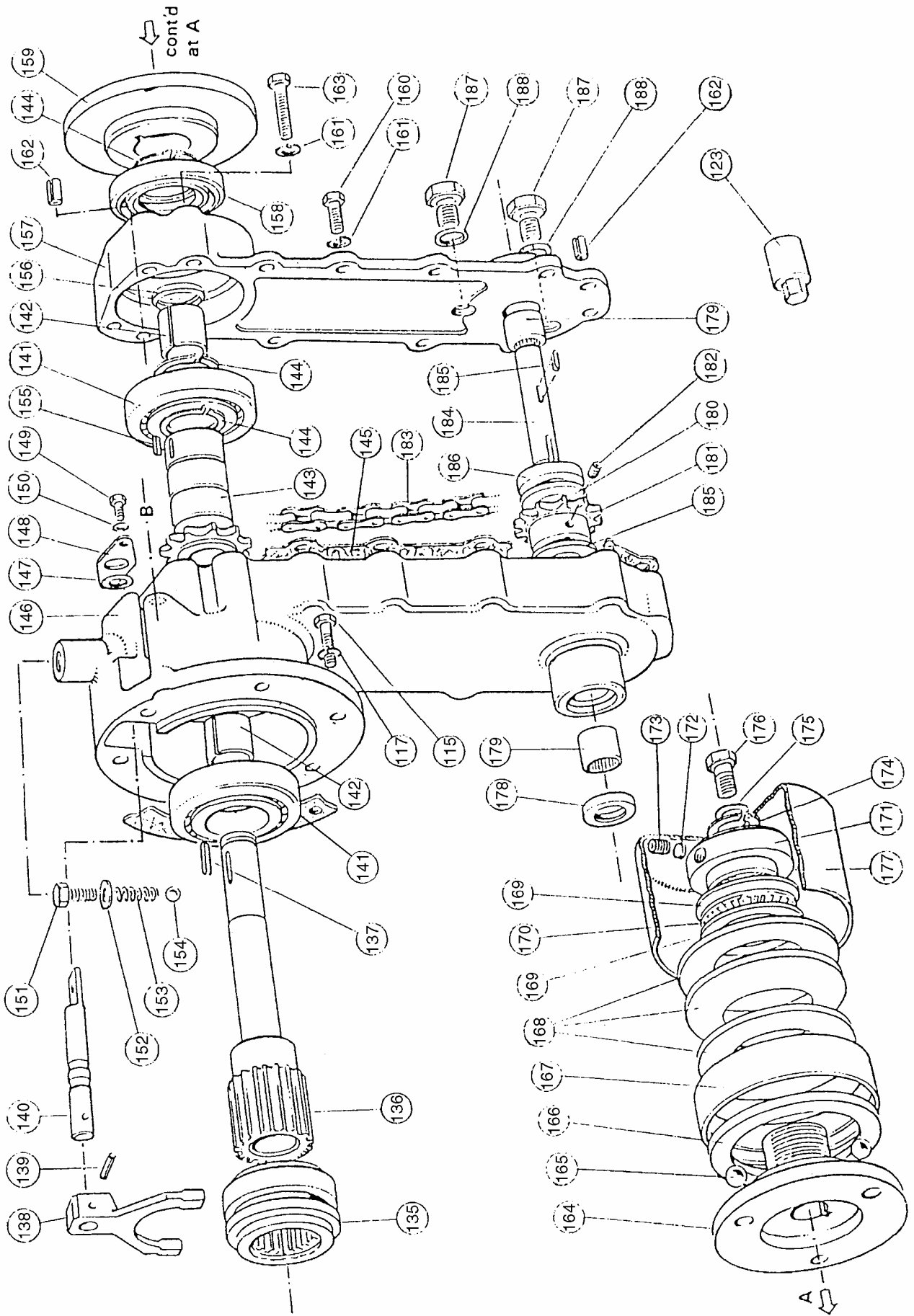
Drive Line for V8 Models







ITEM 126 MECHANICAL P.T.O.



MECHANICAL P.T.O.

Part No. 6440

ITEM	QTY	PART No.	DESCRIPTION	
135	1	6447	SLIDING DOG	
136	1	6443	DRIVE SHAFT	
137	1	6453/4	KEY	
138	1	6448	SELECTOR FORK	
139	1	4.56.502413	ROLL PIN	
140	1	6449	SELECTOR SHAFT	
141	2	4.13.040080183	BALL BEARING	
142	2	4.10.2528253	BUSH	
143	1	6445	DRIVING SPROCKET	
144	3	4.24.4053183	CIRCLIP	
145	1	6459	GASKET	
146	1	6441	CHAIN CASE	
147	1	4.21.6423	'O' RING	
148	1	6451	SEALING PLATE	
149	2	4.33.0501013	BOLT	M5 x 10mm
150	2	4.51.0523	SPRING WASHER	M5mm
151	1	4.32.1001612	SET SCREW	M10 x 16mm
152	1	5713	WASHER COPPER	M10mm
153	1	725	SPRING	
154	1	4.54.79324	STEEL BALL	
155	1	6453/3	KEY	
156	1	4.22.2532043	OIL SEAL	
157	1	6442	CHAIN CASE COVER	
158	1	4.22.4072103	OIL SEAL	
159	1	6455	DRIVEN PLATE	
160	8	4.33.0802512	BOLT	M8 x 25mm
161	12	4.51.0823	SPRING WASHER	M8mm
162	2	4.56.802013	ROLL PIN	DIA 8 x 20mm
163	4	4.33.0805012	BOLT	M8 x 50mm
164	1	6454	DRIVING PLATE	
165	3	4.54.12014	STEEL BALL	
166	1	4.03.801055753	THRUST WASHER	
167	1	6708	LOCATION RING	
168	3	6457	DISC SPRING	
169	2	4.03.4565103	THRUST WASHER	
170	1	4.07.4565303	NEEDLE THRUST BEARING	
171	1	6456	LOCATION NUT	
172	1	140	PLUG	
173	1	4.40.101003	SOCKET SET SCREW	M10 x 10mm
174	1	4.24.2432123	CIRCLIP	
175	1	6791	WASHER	
176	1	4.33.1002012	BOLT	M10 x 20mm
177	1	6773	COVER	
178	1	4.22.1932643	OIL SEAL	
179	2	4.12.19251913	NEEDLE BEARING (DC)	
180	2	4.05.20383213	THRUST WASHER	
181	1	6446	DRIVEN SPROCKET	
182	2	4.40.080803	SOCKET SET SCREW	M8 x 8mm
183	1	6450	CHAIN	
184	1	6444	LOWER SHAFT	
185	1	6453/1	KEY	
186	1	6452	SPACER	
187	2	6265	PLUG	
188	2	5004	WASHER COPPER	M14mm
189	1	6439	PIVOT POST	
190	1	4.49.1023	LOCK NUT M10	

Superwinch Limited Warranty Valid World Wide

LIMITED WARRANTY. Superwinch ("Seller") warrants to the original buyer ("you") all parts and components except wire rope to be free from defects in materials and workmanship for a period of (one) 1 year from the provable date of purchase. Any Superwinch product which is defective will be repaired or replaced without charge to you, upon compliance with these procedures. The warranties set forth herein are exclusive and in lieu of all other warranties, whether oral or written, express or implied.

LIMITED WARRANTY PERFORMANCE PROCEDURE. Upon discovery of a defective Superwinch product, you shall mail to the Seller at his factory or any Factory Authorized Service Centre written notice of such defect and mail, ship or otherwise deliver the defective Superwinch, postage or shipping prepaid. Repairs or replacements by Seller under this limited Warranty will normally be accomplished within fifteen (15) business days after receipt of the defective Superwinch. Seller or its Authorized Agents may make reasonable charges for parts and labour for repairs not covered by this limited warranty.

WARRANTY AND REMEDY LIMITATIONS AND EXCLUSIONS. Repair and/or replacement of the defective Superwinch or component thereof as provided herein is the exclusive remedy for the Buyer. The following exclusions or limitations of warranties and limitations of remedies shall be expressly applicable:

A. **Express warranties.** Seller Warrants that the Superwinch is as described in the "Superwinch Owner's Manual" provided herewith; no other express warranty is made in respect to the Superwinch. If any model or sample was shown to the Buyer, such model or sample was used for illustrative purposes only, and shall not be construed as a warranty that the Superwinch will conform to the sample or model. SELLER MAKES NO EXPRESS WARRANTY WITH RESPECT TO WIRE ROPE INCORPORATED IN THE PRODUCT.

B. **Implied Warranties.** THE IMPLIED WARRANTY OF MERCHANTABILITY AND ALL OTHER IMPLIED WARRANTIES SHALL ONLY EXTEND FROM THE PROVABLE DATE OF PURCHASE FOR ONE (1) YEAR. THE WIRE ROPE IS SOLD "AS IS", WITHOUT ANY IMPLIED WARRANTIES. SOME STATES WITHIN THE USA DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

C. **Incidental and Consequential Damages.** SUBJECT TO SELLER'S LIMITED WARRANTY OBLIGATIONS SET FORTH HEREIN, SELLER SHALL NOT BE RESPONSIBLE FOR INCIDENTAL DAMAGES OF ANY KIND, OR FOR CONSEQUENTIAL DAMAGES TO PROPERTY, LOSS OF PROFITS AND LOSS OF USE WHICH MAY BE CAUSED BY ANY DEFECT IN, OR MALFUNCTION, OR FAILURE OF ENCLOSED SUPERWINCH. SOME STATES WITHIN THE USA DO NOT ALLOW EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

D. **Condition of Warranty.** Seller shall not be required to comply with its warranty duties provided herein if the defect, malfunction, or failure of the Superwinch was caused by damage (not resulting from defective or malfunctioning components) or unreasonable use by you. Unreasonable use shall include, but is not limited to, installation or use of the Superwinch without compliance with the instructions contained in the Superwinch Owner's Manual for the particular model number. Seller's liability under this warranty or for any loss or damage to the Superwinch product shall not exceed the cost of correcting defects in or replacing the Superwinch product, and upon expiration of the warranty period, all such liability shall terminate. The agents, dealers and employees of the Seller are not authorized to make modifications to this warranty, or additional warranties binding on the Seller. Accordingly additional statements, whether oral or written, do not constitute warranties and should not be relied upon.

LEGAL REMEDIES OF BUYER. This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from State to State within the USA and from country to country. You may also have implied warranty rights. In the event of a problem with Limited Warranty service or performance, the Buyer may be able to go to small claims court, a state Court or a federal district court in the USA or to appropriate jurisdictions outside the USA.

INQUIRES. Any enquires regarding compliance with the warranties provided herein may be addressed in writing to:

Superwinch Ltd., Abbey Rise, Whitchurch Road, Tavistock, Devon PL19 9DR, UK.

or to:

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