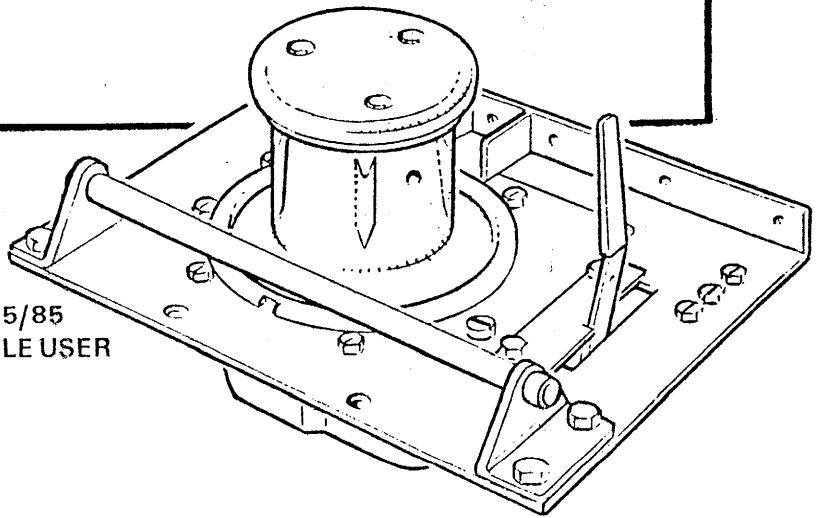


# LAND ROVER

SERIES II, IIA & III

# CAPSTAN WINCH

KIT No.5300



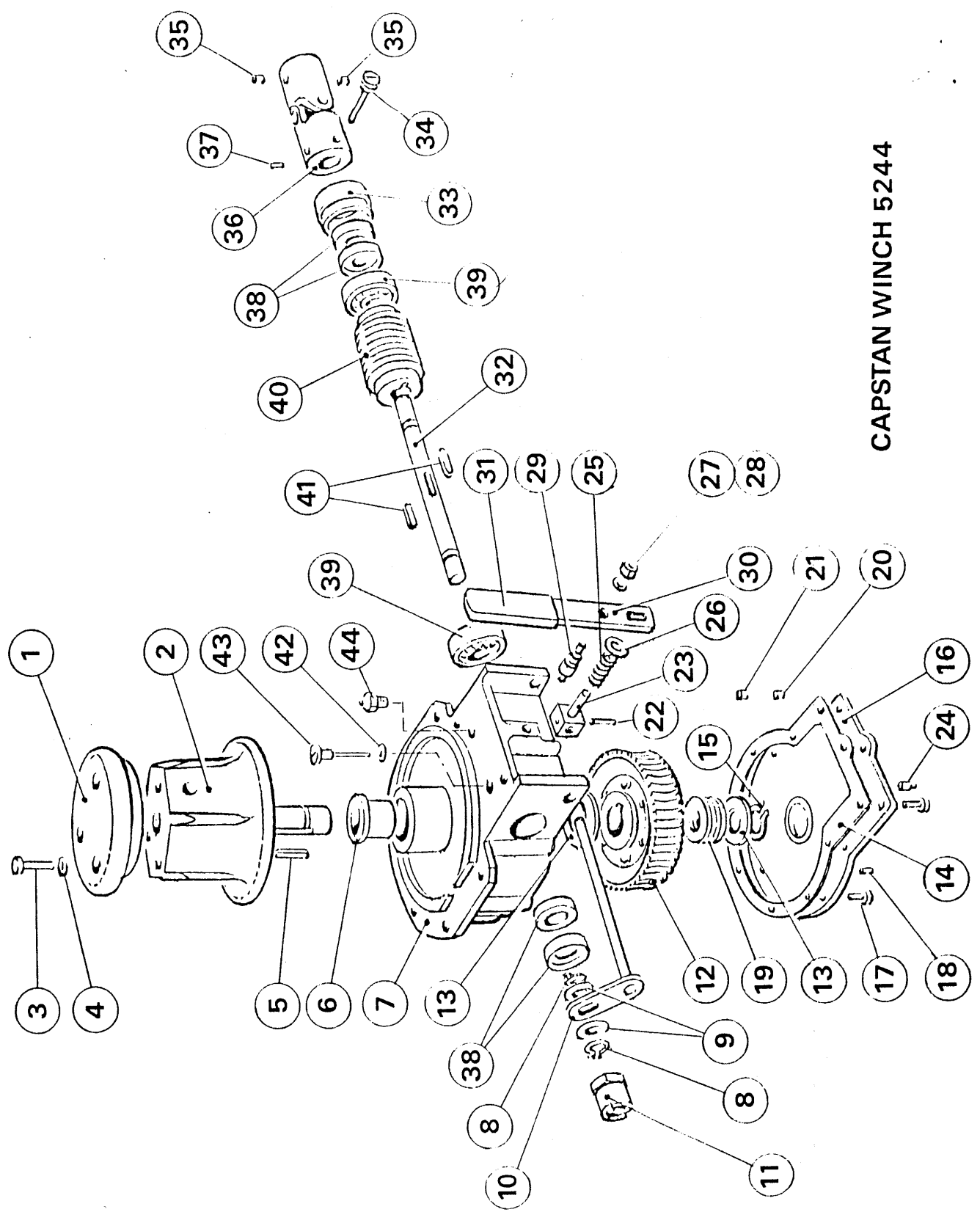
**FITTING INSTRUCTIONS** Issue 5/85  
PLEASE PASS ON THESE INSTRUCTIONS TO VEHICLE USER

CONTENTS	PAGE
Illustrated Parts list	1
Fitting Instructions	5
Operating Instructions	8
Maintenance	10

**V ENGINEERING LIMITED**

ABBEY RISE, WHITCHURCH ROAD, TAVISTOCK, DEVON, PL19 9DR Tel. Tavistock (0822) 4101/7 Telex: 45324

**6945**

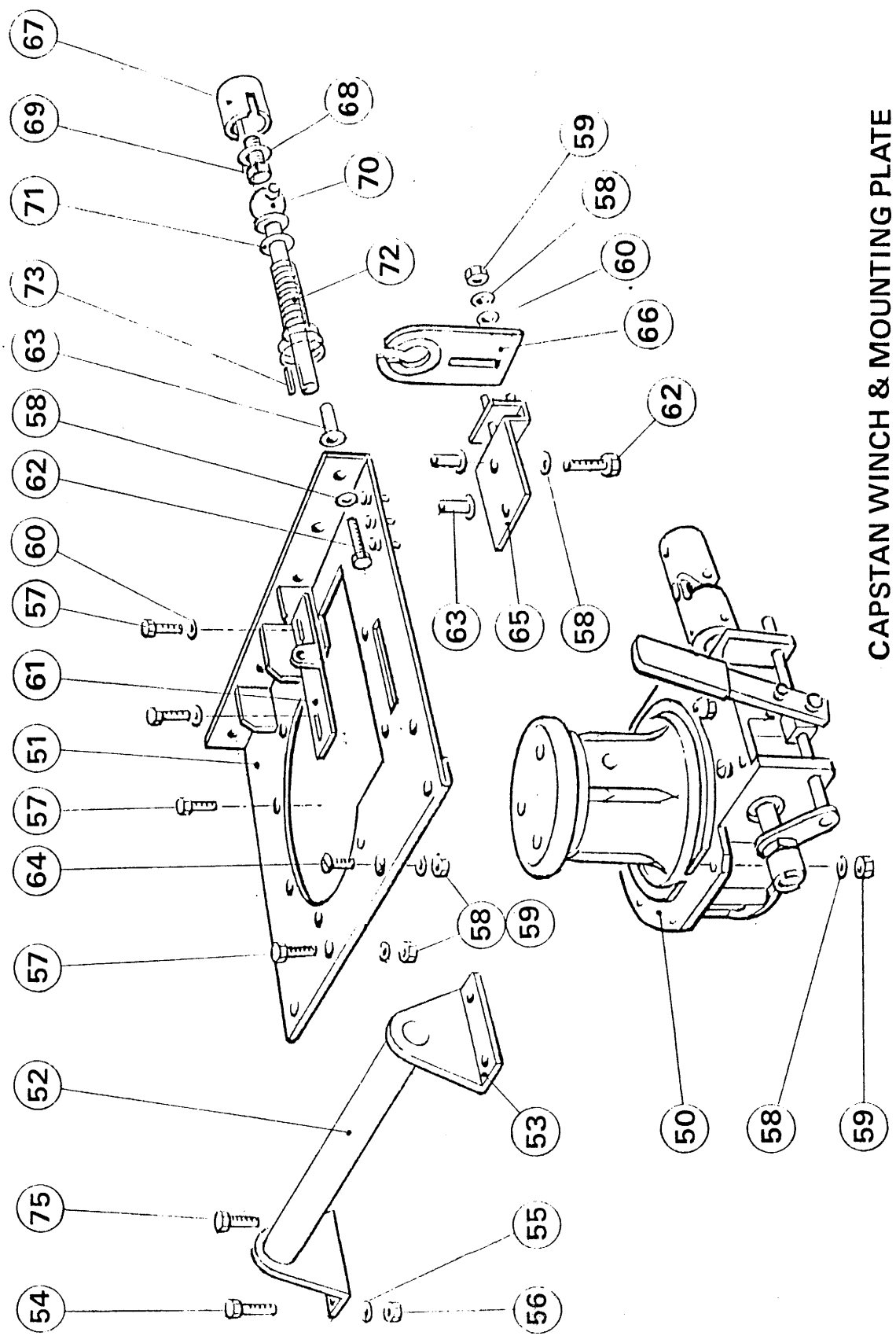


CAPSTAN WINCH 5244

## PARTS LIST - CAPSTAN WINCH

ITEM NUMBER	NAME	FWL PART NO.	NUMBER PER UNIT
1	Bollard Cap	100-A2	1
2	Bollard & Shaft Assembly	5246-A3	1
3	Bolt	164-A4	3
4	Spring Washer	165-A4	3
5	Key	104-A4	1
6	Flange Bearing	5151-A4	1
7	Worm Box	5142-A0	1
8	Circlip	115-A4	2
9	Thrust Washer	116-A4	2
10	Operating Shaft Assembly	117-A3	1
11	Starter Dog	183-A3	1
12	Wormwheel	111-A2	1
13	Thrust Washer	4-03-3249083	2
14	Gasket	113-A2	1
15	Circlip	112-A4	1
16	Baseplate Assembly	5144-A2	1
17	Self Tapping Screw	151-A4	10
18	Roll Pin	4-56-301013	2
19	Shim .08 mm thick	108-A3	As requ'd
20	Grub Screw	139-A4	1
21	Nylon Plug	140-A4	1
22	Roll Pin	145-A4	1
23	Pivot Block	142-A3	1
24	Drain Plug	141-A4	1
25	Spring	143-A4	1
26	Washer	144-A4	1
27	Nut	453-A4	1
28	Washer	156-A4	1
29	Operating Lever Pivot	146-A4	1
30	Operating Lever	147-A3	1
31	Rubber Grip	196-A4	1
32	Worm Shaft	187-A3	1
33	Screwed Thrust Plug	123-A4	1
34	Shear Pin 4000 lb 1815 kg	5095-A4	3
	Starter Pin (not illustrated)	172-A4	1
35	Grub Screw	154-A4	2
36	Universal Joint	186-A3	1
37	Grub Screw, Dog Point	5283-A4	1
38	Seal	118-A4	4
39	Ball Bearing	119-A4	2
40	Worm	121-A3	1
41	Key	122-A4	2
42	'O' Ring Seal	138-A4	1
43	Dipstick	137-A4	1
44	Relief Valve	324-A4	1

ALWAYS QUOTE SERIAL NO. WHEN ORDERING SPARES



CAPSTAN WINCH & MOUNTING PLATE

PARTS LIST - LAND ROVER CAPSTAN WINCH & MOUNTING PLATE

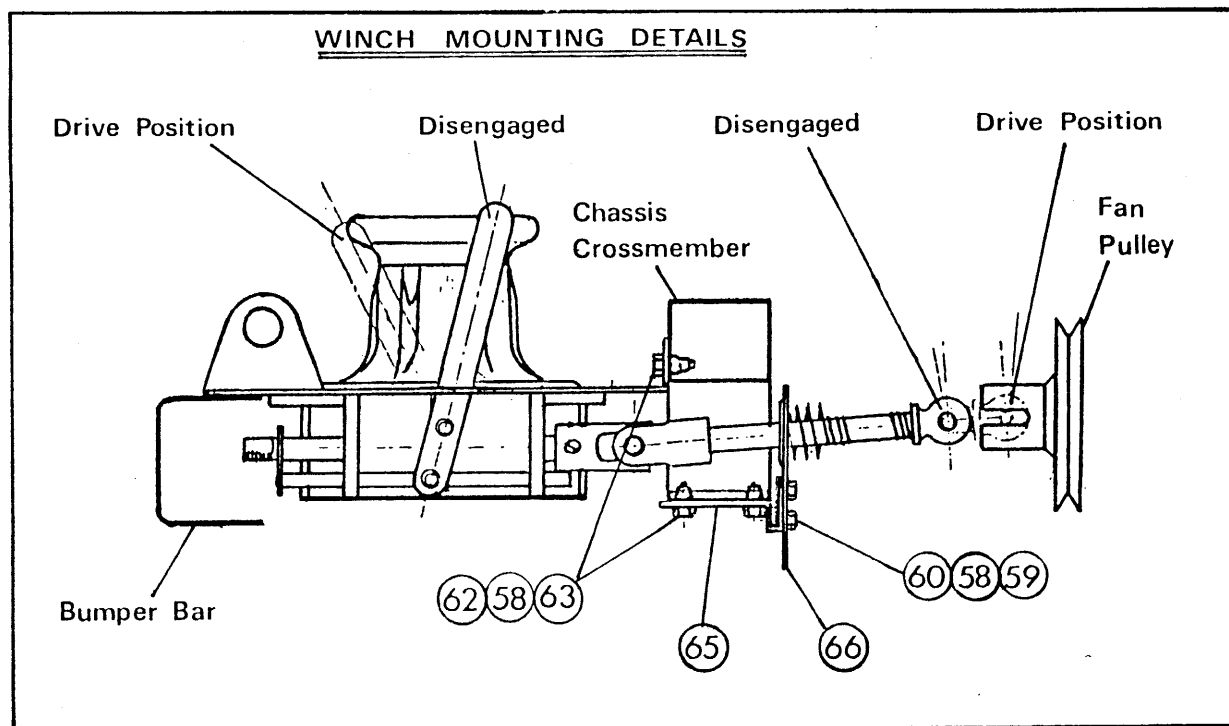
ITEM NUMBER	NAME	FWL PART NO	QTY PER UNIT
50	Capstan Winch Unit	5244	1
51	Mounting Plate	105-A1	1
52	Rope Roller	1034-A3	1
53	Roller Bracket	1030-A3	2
54	Bolt M12 x 35 mm	4-33-1203522	2
55	Spring Washer 12 mm	4-51-1223	4
56	Nut M12	4-47-1223	4
57	Bolt M8 x 25 mm	4-33-0802522	9
58	Spring Washer 8 mm	4-51-0823	19
59	Nut M8	4-47-0823	13
60	Plain Washer 8 mm	4-50-0823	5
61	Lockplate	106-A2	1
62	Setscrew M8 x 35 mm	4-32-0803512	7
63	Rivnut M8	4-60-084003	7
64	C'sk Screw M8 x 25 mm	4-35-0802522	1
65	Support Plate Bracket	5304-A3	1
66	Shaft Support Plate	148-A3	1
67	[ Driving Dog - 5 b'r'g crank	6266-A3	1
	[ Driving Dog - 3 b'r'g crank	136-A3	1
68	[ Washer - 5 b'r'g crank	6268-A4	1
	[ Washer - 3 b'r'g crank	135-A3	1
69	[ Crankshaft Setscrew - 5 b'r'g crank	6267-A4	1
	[ Crankshaft Setscrew - 3 b'r'g crank	134-A4	1
70	Drive Shaft	444-A3	1
71	Thrust Washer	116-A4	1
72	Actuating Spring	129-A4	1
73	Key	128-A4	1
74	Starting Handle	170-A2	1
75	Bolt M12 x 25 mm	4-33-1202522	2
76	Setscrew M8 x 50 mm	4-32-0805012	1

ALWAYS QUOTE SERIAL No WHEN ORDERING SPARES.

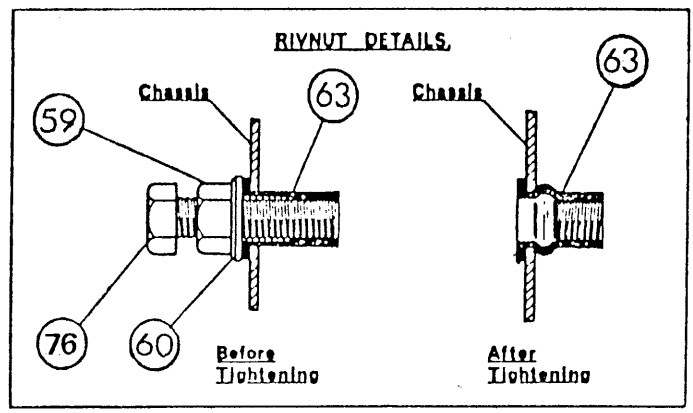
## LAND ROVER FITTING INSTRUCTIONS

IMPORTANT - Land Rover have introduced a 5 bearing (Eng. Nos: Petrol 36100001A on, Diesel 36600001A on) crankshaft to replace the earlier 3 bearing crankshaft. The 2 crankshafts require different driving dogs (67), washers (68) and crankshaft setscrews (69). We endeavour to supply the correct parts to your specification but advise if any doubt exists that you remove your existing starter dog and compare the thread with the crankshaft setscrew supplied (M20 x 1.5mm pitch for 5 bearing,  $\frac{3}{4}$ "-16 PTI for 3 bearing). We will supply correct parts upon return of incorrect parts in new unused condition.

1. Remove existing starter dog from vehicle (DO NOT disturb the fan pulley) and replace with driving dog (item 67, see exploded view), crankshaft setscrew and washer (69, 68). On the driving dog is a small spigot, make sure this locates in fan pulley keyway and tighten setscrew to approximately 200 lbf (27.6m kg).
2. Make sure the parts on the drive shaft are assembled in order (70, 71, 72) and that the key (73) is firmly in position. Insert the shaft and key carefully into the universal joint (36) and tighten grubscrew (35). The shaft is adjustable  $\pm 1/8$ " (3mm).
3. Slacken the four bolts which hold bumper bar in position and remove, if fitted, the metal cowl, remove three of these bolts and swing bumper bar outwards. Offer up the winch, now fitted with drive shaft and insert the shaft through the chassis crossmember, push bumper bar back into position and rest the winch on top.



4. Clamp winch into a position which keeps the drive shaft as straight as possible and in line with vehicle crankshaft.
5. Using winch mounting plate (51) as a template, mark off five holes onto the chassis crossmember. Remove the whole unit and drill these holes 10.6mm (0.417") dia.
6. Seven rivnuts (63) are supplied with your kit. Screw a M8 x 50 setscrew (76) into a nut (59) and put a plain washer (60) under the nut, screw on a rivnut until the thread protrudes, push the rivnut hard home into one of the drilled holes (paragraph 5) and whilst stopping the head of bolt revolving tighten down the nut, this will clamp the rivnut firmly into position. DO NOT overtighten. Carry out the same procedure with remaining rivnuts.



7. Remount the winch assembly and insert five M8 x 35 bolts and spring washers supplied (62, 58) into rivnuts.
8. Bolt the bumper bar back into its correct position on the chassis. Using the winch mounting plate again as a template, drill four holes through bumper bar - two outer holes 13.5mm (0.531") dia and two inner holes 8.7mm (0.343") dia. Secure with M12 x 35 bolts, spring washers and nuts (54, 55, 56, 75) M8 x 25 bolts, spring washers and nuts (57, 64, 58, 59).
9. Bolt the shaft support plate (66) and support plate bracket (65) together using plain washers, spring washers and nuts (60, 58, 59). Whilst engine is still stationary, put winch into the drive position this will engage driving sphere (70) into driving dog (67) and will align the shaft. Take shaft support assembly (65, 66) and push slotted portion over the drive shaft, at the same time, compressing actuating spring (72), the large diameter on spring will locate in the recess on the plate. Clamp support plate bracket (65) in position and using the two holes, mark off, remove, drill 10.6mm (0.417") dia and insert two rivnuts (see paragraph 6). Bolt the shaft support assembly in position using M8 x 35 setscrew and spring washers (62, 58). Check that drive shaft engages and disengages from the driving dog correctly and adjust drive shaft length if necessary.

10. Re-check all nuts and bolts for tightness and retighten as necessary.
11. Remove the dipstick and fill with SAE 90 gear oil to dipstick mark (approximately 0.6 litres. 1 pint).
12. Grease drive shaft, actuating mechanism and other moving parts to ensure the winch is ready for use.
13. Operate the unit, if the shafting knocks when engine accelerator is jerked, then your adjustment on shaft support plate (66) is not quite correct, readjust.
14. Stick self adhesive instruction label supplied in cab.



OPERATING INSTRUCTIONSPLEASE PASS THESE INSTRUCTIONS ONTO VEHICLE USERIMPORTANT NOTE

The worm and wheel set used in this winch is a strong and reliable unit but must be run-in as follows:-

Run the winch lightly loaded (or no-load) for approximately one hour, after which the load should be increased gradually, preferably over one or two hours, to full load.

**Use Shear Pin 5095 -A4 Only**WINCHING IS POTENTIALLY DANGEROUSOBSERVE THE FOLLOWINGSAFETY IN WINCHING

1. Always use a well maintained recommended rope.
2. Always use a brass shear pin in the drive line as specified on mounting plate.
3. If the engine is to be cranked with the starting handle, the steel pin supplied with the winch kit should be fitted. Remove this pin after this operation.
4. Always stand at least 3 metres (10 ft) from the winch. If the vehicle is being moved ensure that this distance is maintained.
5. DO NOT stand on or wrap rope around hand or body. When the rope is under tension do not step over the rope from the capstan to the anchor or load.
6. If single handed winching is to be attempted, an emergency engine stop button fitted to the front of the vehicle is recommended.

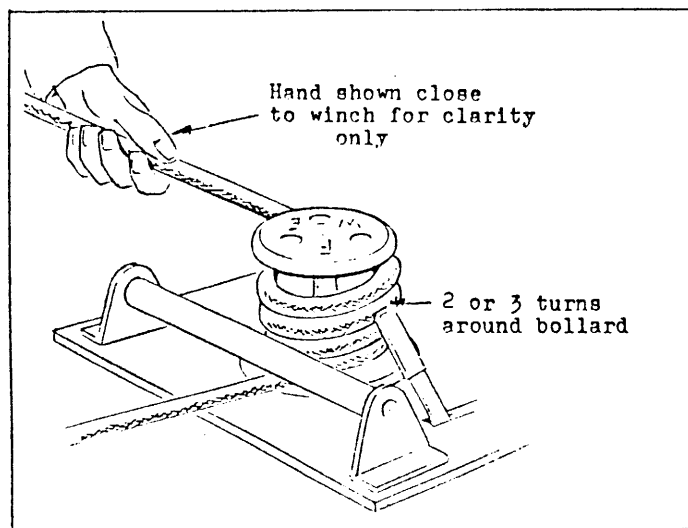
FWE Capstan Winches are built using good quality materials and have been fully tested to give many years of useful work.

The winch is driven directly from the engine crankshaft, and designed for a maximum pull of 4000 lbf (1815 kgf). The maximum pull being governed by a brass shear pin in the winch drive.

The most suitable rope to use is Polyester/Terylene 20mm dia 16 plait with a breaking strain of 7500 kfg (16530 lbf).

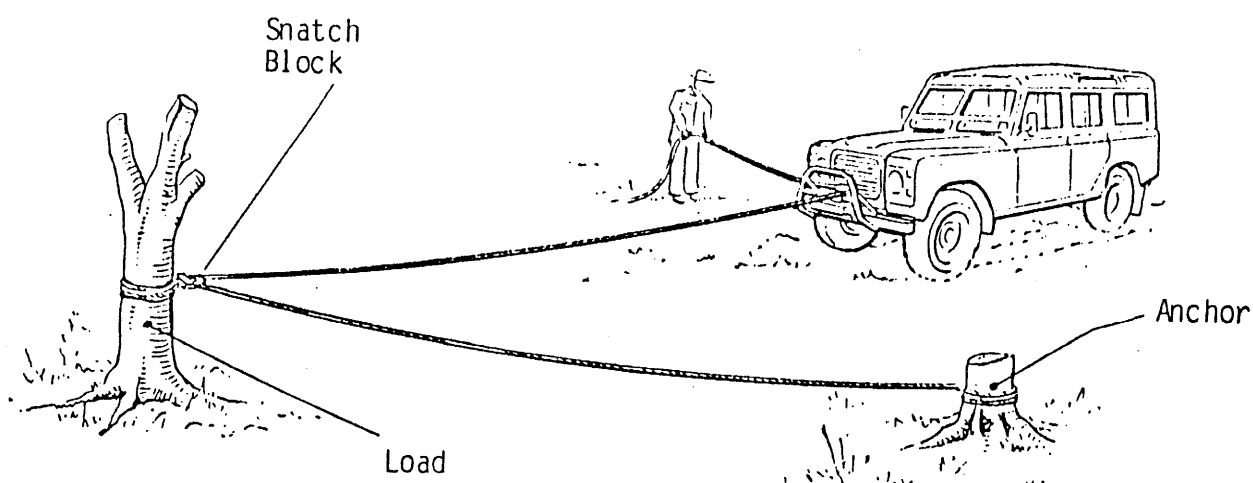
WINCHING PROCEDURE - It is recommended that winching operations should be carried out by two or more people.

1. Secure one end of the rope to the object being pulled or a suitable anchor if the vehicle is being moved.
2. Pass the other end of the rope UNDER the front roller. Take two or three turns around the bollard (barrel) (depending on line pull required) in an anticlockwise direction when looking down on the winch. See sketch below. Two turns are sufficient for light loads, but three turns are required for heavier pulls up to the capacity of the winch.



3. Start engine, engage the winch by pulling the operating lever forward with a firm action and then adjust engine speed to 800-1200 RPM. The maximum recommended for the winch is 1500 RPM.
4. Pick up the free end of the rope at least 3 metres (10 ft) from the winch and pull the rope this will cause the winch to start pulling.
5. When the winching operation is complete, relax the load on the free end of the rope, and if the rope between the capstan and load or anchor is still under tension, drive the vehicle forward to release the tension.
6. Switch off engine and remove the rope from the capstan.
7. OVERLOAD PROTECTION - If the winch is overloaded the shear pin will shear. To replace shear pin, move vehicle forward to release tension in rope. If this is not possible, secure load if necessary, switch off engine. Then standing at least 3 metres (10 ft) from winch, flick rope over the top of the bollard (barrel) to release the tension. Move operating lever to the disengaged position. Unscrew broken shear pin through the aperture in the mounting plate. Replace shear pin with spare carried on the mounting plate.

8. Should you require greater pulling than the winch rating, this can be obtained with the use of a snatch block. Fix the snatch block to the load, pass the winch rope through the snatch block pulley and preferably fix the end of the rope to a tree or some similar good anchor. See sketch below.



- NOTE
9. If the engine is to be cranked with the starting handle, the steel pin supplied with the winch kit should be fitted. Remove this pin after this operation.

#### MAINTENANCE

1. Check the oil level before winching and top up if necessary.
2. Keep the shaft and operating mechanism clean and lightly greased.
3. Change oil annually or every 100 hours winching, whichever is the shorter.
4. Occasionally check bolts for tightness.
5. Check rope for fraying or damage.

