

FAIREY CAPSTAN WINCH

for

LAND - ROVER

FITTING & OPERATING INSTRUCTIONS

LAND ROVER CAPSTAN WINCH FITTING INSTRUCTIONS

1. Make sure your parts on the drive shaft are assembled in order, as shown on the diagram, and that the key (128) is firmly in position. Insert the shaft and key carefully into universal joint (186), and tighten grubscrew (154). The shaft is adjustable $\pm 1/8"$ (3mm).
2. Remove existing starter dog from your vehicle (do not disturb the fan pulley) and replace with drive dog (136), setscrew and washer (134,135). On the drive dog is a small spigot, make sure this locates in fan pulley keyway and tighten to approx. 200 lb. ft torque (27.6 m.kg.).
3. Slacken the four bolts which hold your bumper bar in position and remove, if fitted, the metal cowl, remove three of these bolts and swing your bumper bar outwards. Offer the winch, now fitted with your drive shaft and insert the shaft through your chassis cross member, push bumper back into position and rest your capstan on top.
4. Clamp capstan into a position which keeps your drive shaft as straight as possible and in line with vehicle crankshaft.
5. Using the winch mounting plate (105) as a template, mark off five holes $5/16"$ (8mm) dia. remove the whole unit and drill these holes through $13/32"$ (10.3mm) dia.
6. Seven rivnuts are supplied with your kit (161). Using a $5/16"$ bolt (160) screw on a nut (159) and put under the nut a plain washer (163), screw on a rivnut until the thread protrudes, push the rivnut hard home into one of your holes drilled (para. 5) and whilst stopping the head of your bolt revolving tighten down the nut, this will clamp the rivnut firmly into position. Do Not Overtighten. Carry out the same procedure with your remaining rivnuts.
7. Remount the winch assembly (para. 3) and insert five x $5/16"$ UNF bolts and spring washers supplied (160, 162).
8. Using your winch plate (the bumper bar is now bolted back to its correct position on chassis) as a template, drill the four holes through your bumper bar and use bolts supplied (166, 158, 157) and appropriate nuts to secure.
9. The shaft plate (148) and support plate bracket assembly (149) are bolted together at our factory. Whilst your engine is still stationary, put your capstan clutch into the drive position, this will engage your driving sphere (130) into your driving dog (136) and will align your shaft. Take your assembly (148,149) and push the slotted portion (148) over your drive shaft, at the same time, compressing actuating spring (129), the large diameter on this spring will locate in the recess on the plate. Clamp support plate (149) in position and using the two holes, mark off, remove, drill and insert two rivnuts (as para. 6) replace bracket and check capstan for engage, disengage operation. Adjust if necessary.
10. Recheck all bolts and nuts, tighten where necessary.
11. Operate the unit, if the shafting knocks when engine accelerator is jerked, then your adjustment on plate (148) is not quite correct, readjust.
12. Use oil (SAE90 or equivalent) as instructed and do not overload your unit for the first one hour's running. The shear pins will fracture at 3000-3200 lbf (1361-1450 kp) with an engine speed of approx. 600 r.p.m. that is fast idling speed.

Parts List

<u>Part</u>	<u>Description</u>	<u>No.Off</u>	<u>Part</u>	<u>Description</u>	<u>No.Off</u>
100-A2	Bollard Cap	1	140-A4	Nylon Plug	1
101-A2	Bollard	1	141-A4	Drain Plug	1
102-A4	Bollard Pin	1	142-A3	Pivot Block	1
103-A3	Bollard Shaft	1	143-A4	Pivot Block Spring	1
104-A4	Key 3/8" sq.	1	144-A4	Washer 3/8" I/D	1
105-A1	Mounting Plate	1	145-A4	Roll Pin 3/16" dia.	1
106-A3	Lock Plate	1	146-A4	Per. Lever Pivot	1
108-A3	Shim .003"	2	147-A3	Operating Lever	1
108A-A3	Shim .005"	2	148-A3	Shaft Supp. Plate	1
109-A4	Oilite Bearing	2	149-A3	Supp. Plate Brkt. Assy	1
110-A0	Worm Box	1	150-A4	Spacer	5
111-A2	Worm Wheel	1	151-A4	Self Tapping Screw	10
112-A4	Circlip (1 1/4" dia)	1	154-A4	Grub Screw 1/2" BSF	2
113-A2	Gasket	1	156-A4	Washer 1/2" I/D	1
114-A2	Base Plate	1	157-A4	Bolt 5/16" BSF x 1" lg.	11
115-A4	Circlip (3/4" dia.)	2	158-A4	CSK. Screw 5/16" BSF	1
116-A4	Thrust Washer	3	159-A4	Nut 5/16" BSF	12
117-A3	Operating Shaft	1	160-A4	Bolt 5/16 UNF x 1 1/2" lg. (HT)	7
118-A4	Oilseal	4	161-A4	Rivnut 5/16 UNF	7
119-A4	Bearing	2	162-A4	Spring Washer 5/16" I/D	19
121-A3	Worm	1	163-A4	Washer 5/16 I/D	2
122-A4	Key 3/16" x 1/4"	2	164-A4	Bolt 3/8" BSW x 1 1/2" lg.	3
123-A4	Screwed Thrust Plug	1	165-A4	Spring Washer 3/8" I/D	3
127-A3	Drive Shafts	1	166-A4	Bolt 1/2" BSW x 1 1/4" lg.	4
128-A4	Key 3/16" sq.	1	167-A4	Nut 1/2" BSW	4
129-A4	Actuating Spring	1	168-A4	Spring Washer 1/2" I/D	4
130-A3	Driving Sphere	1	170-A2	Starting Handle	1
131-A4	Drive Pin	1	172-A4	Starter Pin	1
132-A4	Drive Roller	2	173-A4	Shear Pin	3
133-A4	Washer	2	181-A4	Roll Pin 1/8" dia.	1
134-A4	Crankshaft Setscrew	1	183-A3	Starter Dog	1
135-A4	Washer	1	186-A3	Universal Joint	1
136-A3	Driving Dog	1	187-A3	Worm Shaft	1
137-A4	Filler Plug & Dipstick	1	453-A4	Nyloc Nut 1/4" BSF	1
138-A4	'O' Ring seal	1	1034-A3	Rope Roller	1
139-A4	Grub Screw 5/16" BSW	1	1030-A3	Roller Bracket	2

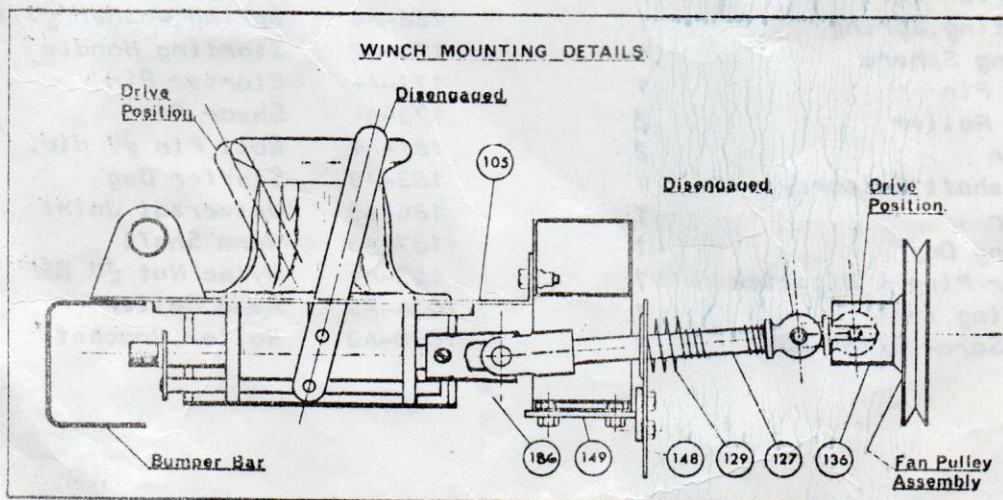
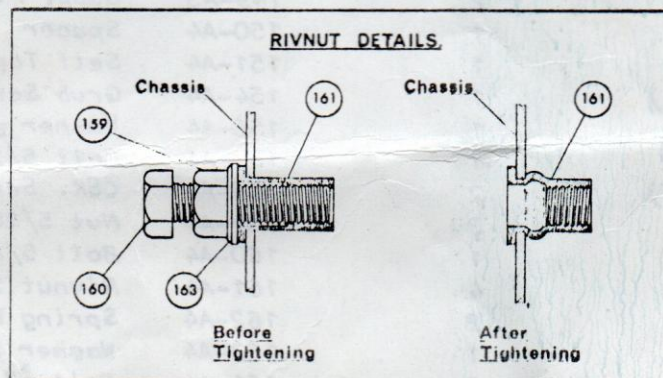
IMPORTANT NOTES

These capstans are fitted with very good quality materials and have been fully tested - you should therefore have many years of useful work. **BUT** for emergency engine starting the shear pin will not accept the torque necessary in the event use starter pin (172), in place of the shear pin. **THIS MUST BE REMOVED BEFORE** loading the capstan in any form.

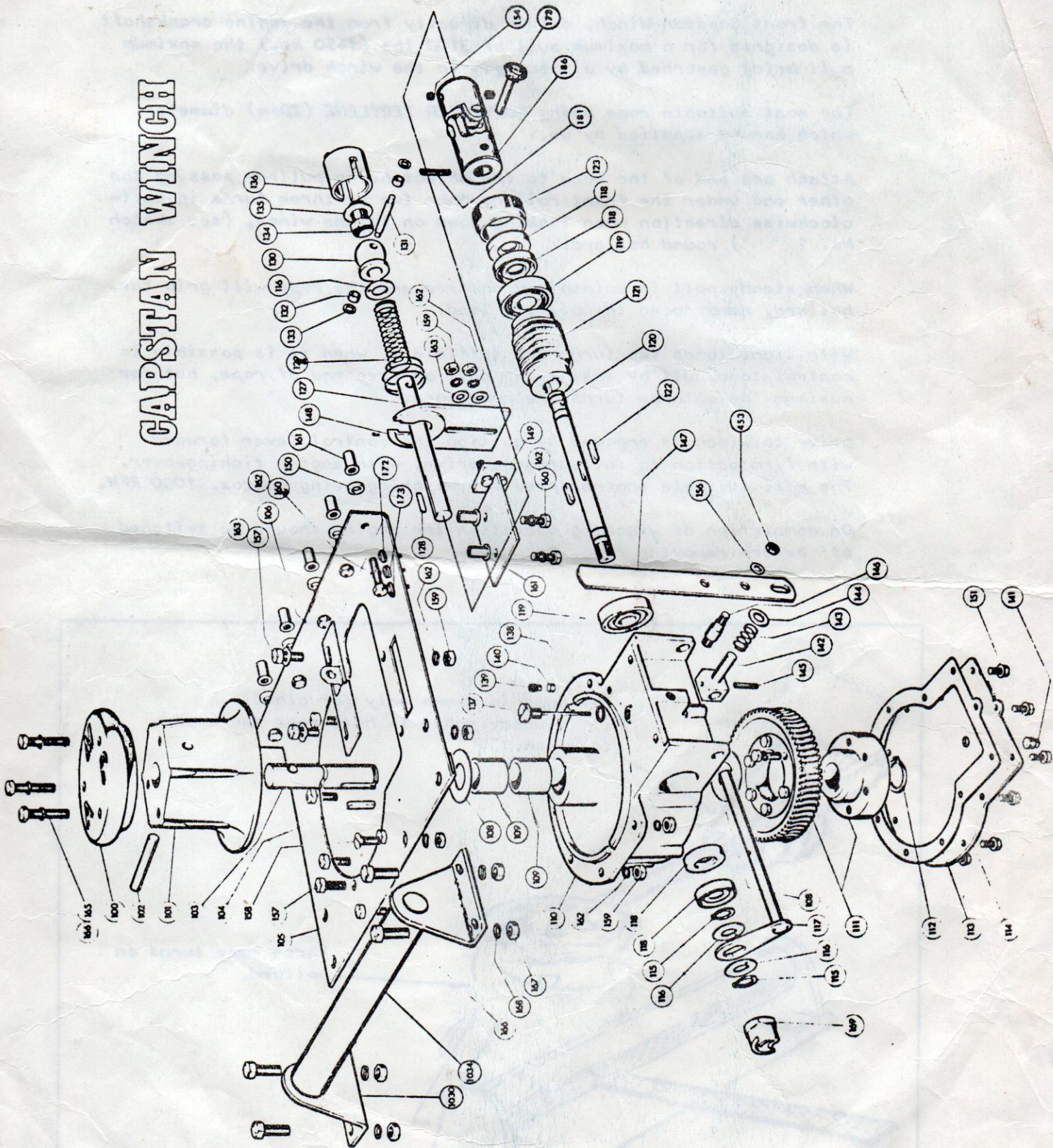
Remember to keep oil level on the dipstick mark.

Recommended Rope: 20mm (7/8") dia. Terylene/Polyester 16 plait, matt finish. This rope has an approximate breaking load of 5580 kp. (12301 lbf).

Taking care of your Capstan Winch. When you have finished fitting your Capstan it is advisable to grease the drive shaft assembly, actuating mechanism and other moving parts. This will ensure that your capstan is always in good working order. It is also advisable to touch up all the bolt heads in the mounting plate with paint to prevent any corrosion.



CAPSTAN WINCH



OPERATING INSTRUCTIONS FOR FAIREY CAPSTAN WINCH

The front Capstan Winch, driven directly from the engine crankshaft is designed for a maximum pull of 3100 lbs (1450 kp.) the maximum pull being governed by a shear pin in the winch drive.

The most suitable rope being **POLYESTER TERYLENE** (20mm) diameter, which can be supplied by us.

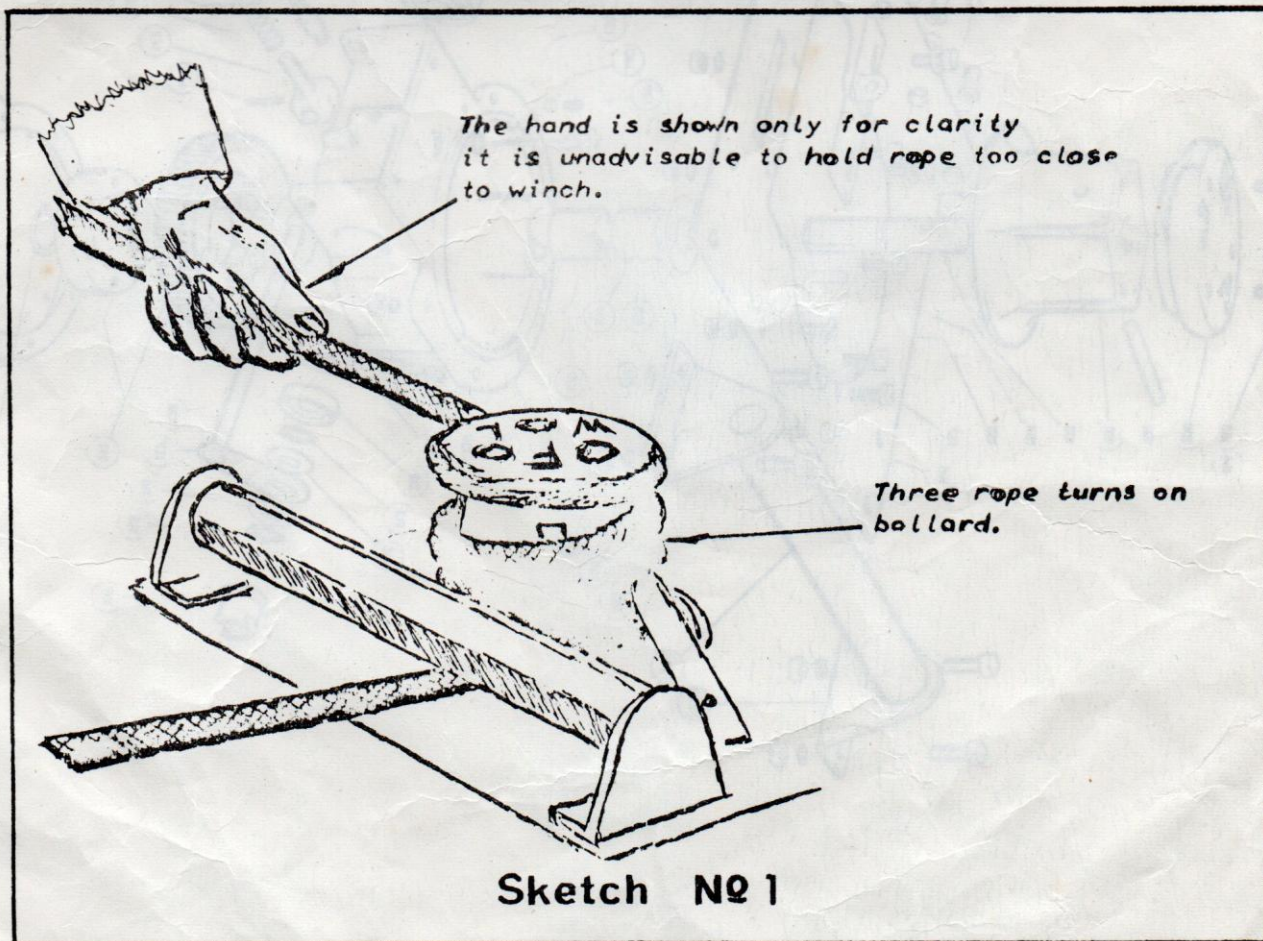
Attach one end of the rope to the object being pulled, passing the other end under the front roller, take two or three turns in anti-clockwise direction when looking down on to the winch, (see sketch No. 1) round bollard.

When steady pull is maintained on free end the rope will grip the bollard, commencing to pull the load.

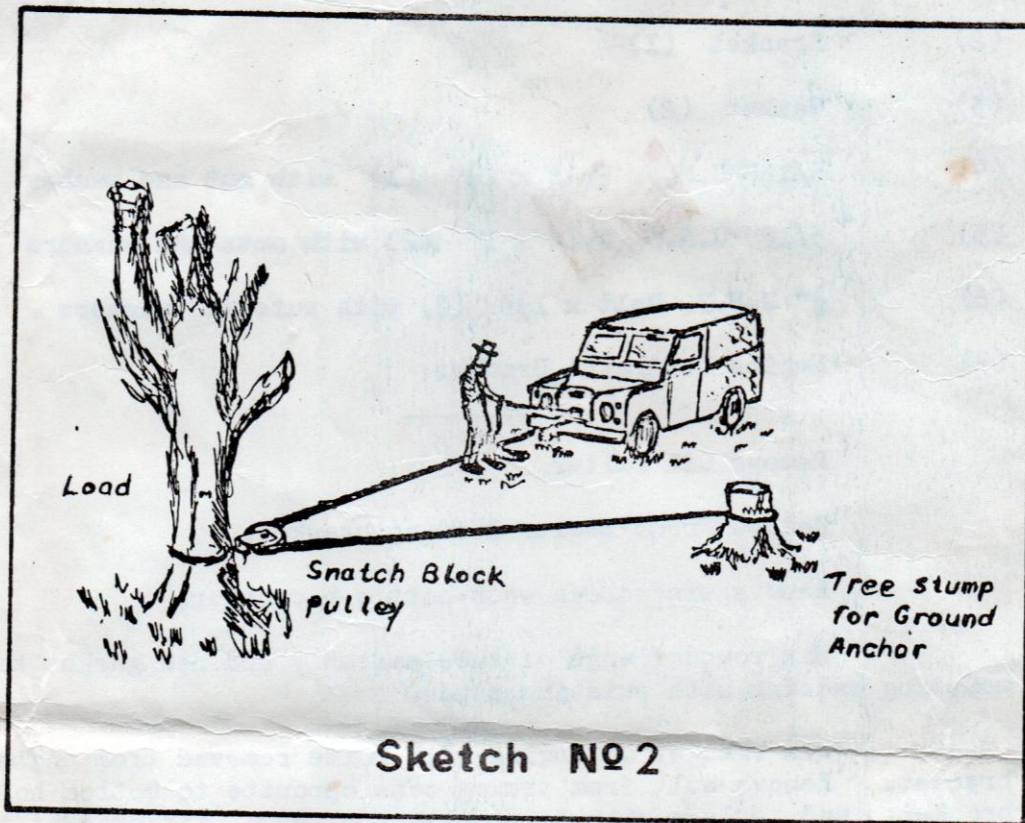
With light loads two turns are sufficient, when it is possible to control load pull by easing the pull on free end of rope, but for maximum loads three turns are necessary.

Drive to winch is engaged by pulling the control lever forward with firm action to fully engage drive, with engine ticking-over. The most suitable engine speed for winching being approx. 1000 RPM.

On completion of winching operation the engine should be switched off before removing rope.



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 winch rope through the snatch block pulley and preferably fix the end of rope to a tree or some similar good anchor.



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SPECIAL FITTINGS for 6 CYLINDER VEHICLES

- (1) Tube assembly (1)
- (2) Bracket (1)
- (3) Gasket (2)
- (4) 5/16" U.N.F. Bolt x 2 $\frac{1}{2}$ " (1) with nut and washer
- (5) 5/16" U.N.F. Bolt x 1" (2) with nuts and washers
- (6) $\frac{3}{8}$ " U.N.F. Bolt x 1 $\frac{1}{2}$ " (2) with nuts and washers
- (7) Engine Restraint Bracket

Remove Oil Filter.

Remove Front Engine lifting bracket.

Remove windscreen wash-bottle & carrier.

Fix round flange of tube assembly and new gasket to filter mounting casting with existing studs.

Fix bracket to engine with bolts removed from engine lifting bracket. Remove bolt from timing case opposite to bottom hole in bracket, and replace with long bolt supplied. Fit bracket to bolt extension at rear, bolt top flange and gasket to bracket with bolts (item 6 supplied). Do not tighten up bolts initially to enable position to be adjusted as necessary. The filter mounting casting may need loosening and repositioning to allow top flange to line up to bracket. The tubes are soft copper and can be carefully bent if necessary.

After fitting filter in new position - tighten bolts.

Fix windscreen washer carrier onto extension on new bracket which is already drilled to take this.

Engine Restraint Bracket - to fit, see Winch fitting instructions (Sketch No.4).