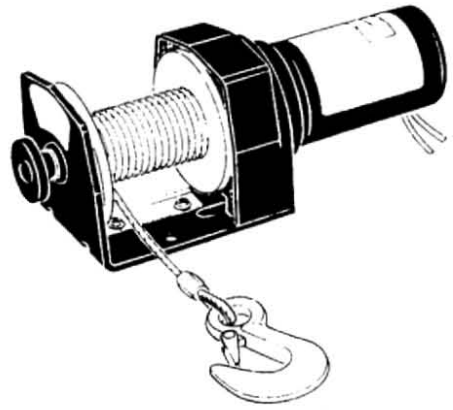
ELECTRIC WINCH

12/24 VOTL DC
MODEL DW2
1500Lbs/680Kg

ASSEMBLY & OPERATING

INSTRUCTIONS



INSTALLATION

Thank you very much for purchasing an Electric Winch .It has been designed and manufactured to provide years of trouble-free operation. We hope and expect that you will be pleased with its performance and reliability of this unit.

When requesting information or ordering replacement parts; always give the following information:

1. Winch Reference Number
2. Part Description
3. Part Quantity

Please read and understand this Owner s Manual prior to in stalling and using your winch .Pay particular attention to the General Safety Information. 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 features in this winch to minimize this possibility; however, your safety ultimately depends on your caution when using this product.

GENERAL DESCRIPTION

Each winch is equipped with a permanent magnet motor and is designed to for intermittent duty general use. The winch is not designed to be used in industrial or hoisting applications and the man-ufacturer does not warrant it to be suitable for such use.

Freespool Clutch is operated by a pull and turn knob which disengages the gearbox to allow the wire rope to be pulled out without using electric power . A tension plate reduces backlash and snarling when pulling out the wire rope .

Remote Switch allows a wide variety of mounting options

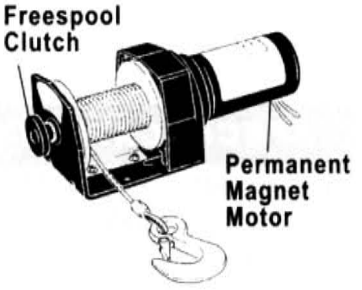


Figure 1

ROLLING LOAD CAPACITIES

Slope*	10%(6)	20%(11)	30%(17)	100%(45)
Lbs.**	7,525	5,100	3,925	1,925
Kg**	3413	2313	1780	873

Ratings assume a 10% coefficient of friction .
A 10% slope is a rise of one foot in ten feet . Slope in approximate degrees also shown above.
All loads shown are for single-line operation . Double-line operation with optional pulley block . (see Figure 2) approximately doubles capacity of winch

UNPACKING

This carton contains the following items. Please unpack carefully.
Read instructions before beginning.

Description	Quantity
Winch assembly with wire rope	1
Circuit assembky with hardware	1
Handsaver bar	1
Hardware kit	1
Assembly and operating instructions	1

PERFORMANCE

Wire Rope Layer	Max.Pullingt lbs.	Capacity kg
1	1,500	680
2	1,225	556
3	1,025	465
4	900	408

Load Lbs.	Kg	speed ft/min	m/min	Motor Current Amps 12V	24V
0	0	16.5	5.0	8	4
250	113	14.2	4.3	20	9
500	227	12.1	3.7	35	15
1,000	425	7.9	2.4	65	26
1,500	680	3.6	1.1	90	43

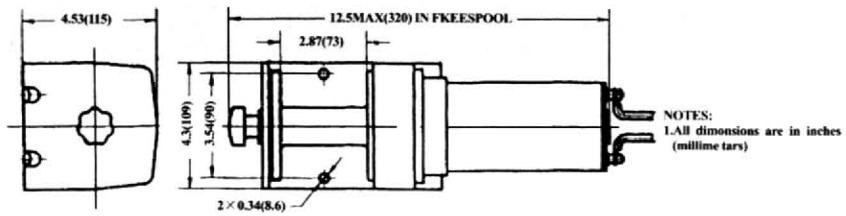
Based on first layer performance

SPECIFICATIONS

Working Load*.....1,500 lb. (680 kg)
Stall Load.....1,950 lb. (680 kg)
Wire Rope .....5/32" × 25'

Motor.....12 or 24 VDC 0.45 hp (0.3kW)peak
Gear Ratio.....153:1
*Based on first layer performance

DIMENSIONS



GENERAL SAFETY INFORMATION

Your winch is a very powerful machine . If used unsafely or improperly , these is a possibility that property damage or personal injury could result.

⚠ WARNING ***The wire rope may break before the winch stalls . For heavy Loads, use a pulley block to reduce the wire rope.***

1. Maximum working load capacity is on the wire rope layer closest to the drum. DO NOT OVERLOAD. DO NOT ATTEMPT PROLONED PULLS AT HEAVY LOADS. Overloads can damage the winch and/or the wire rope and create unsafe operating conditions. FOR LOADS OVER 1,000 POUNDS (454Kg), WE RECOMMEND THE USE OF THE OPTIONAL PULLEY BLOCK TO DOUBLE LINE THE WIRE ROPE (Figure 2). This reduces the load on the winch and the strain on the wire rope by approximately 50%. Attach hook to load bearing part. **The vehicle engine should be running during winch operation .** If considerable winching is performed with the engine off, the battery may be too weak to restart the engine

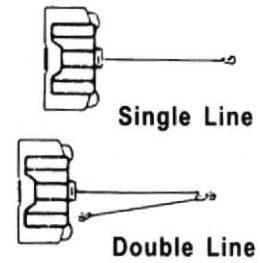


Figure 2

2. AFTER READING AND UNDE-RSTANDING THIS MANUAL, LEARN TO USE YOUR WINCH. After installing the winch ,practice using it when the need arises.
3. DO NOT "move" your vehicle to assist the winch in pulling the load . The combination of the winch and vehicle pulling together could overload the wire rope and the winch.
4. ALWAYS STAND CLEAR OF WIRE ROPE ,HOOK AND WINCH. IN THE UNLIKELY EVENT OF ANY COMPONENT FAILURE IT S BEST TO BE OUT OF HARM S WAY.
5. INSPECT WIRE ROPE AND EQUIPMENT FREQUENTLY. **A FRAYED WIRE ROPE WITH BROKEN STRANDS SHOULD BE REPLACED IMMEDIATELY.** Always replace wire rope with the manufacturer s identical replacement part (see replacement parts list). Periodically check the winch installation to ensure that all bolts are tight.
6. USE HEAVY LEATHER GLOVES When handling wire rope . DO NOT LET WIRE ROPE SLIDE THROUGH YOUR HANDS.
7. NEVER WINCH WITH LESS THAN 5 TURNS of wire rope AROUD THE WINCH DRUM since the wire rope end fastener may NOT withstand full load.

GENERAL SAFETY INFORMATION (CONT.)

8.KEEP CLEAR OF WINCH, TAUT WIRE ROPE AND HOOK WHEN OPERATING WINCH. Never put your finger through the hook. If your finger should become trapped in the hook, you could lose your finger. ALWAYS USE THE HANDSAVER BAR when guiding the wire rope in or out (See Figure 3).

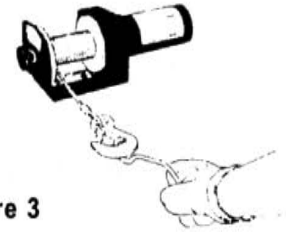


Figure 3

9.NEVER HOOK THE WIRE ROPE BACK ONTO ITSELF because you could damage the wire rope. Use a nylon sling (Figure 4).

Wrong **Right**

Figure 4

10. It is a good idea to lay a heavy blanket or jacket over the wire rope near the hook end when pulling heavy loads(Figure 5).If a Wire rope failure should occur,
the cloth will act as a damper and help prevent the rope from whipping

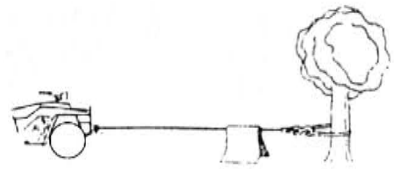
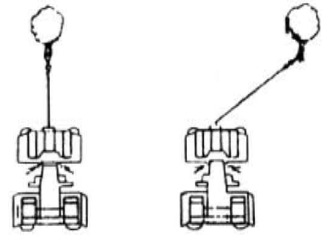


Figure 5

11.NEVER USE YOUR WINCH FOR LIFTING OR MOVING PEOPLE.

12.Your winch is not intended for overhead hoisting operations.

13.AVOID CONTINUOUS PULLS FROM EXTREME ANGLES as this Will cause the wire rope to pile Up on one end of the drum (Figure 6). This can jam the wire rope in the winch, causing damage to the rope or the winch.



Right **Wrong**

Figure 6

14.NEVER OBSCURE THE WARNING INSTRUCTION LABELS.

15.Always operate winch with an unobstructed view of the winching operation.

16.Equipment such as tackle, hooks, pulley blocks, straps, etc. should be sized be periodically inspected for damage that could reduce their strength.

GENERAL SAFETY INFORMATION (CONT.)

17.NEVER RELEASE FREESPOOL CLUTCH WHEN THERE IS A L OAD ON THE WINCH.

18.NEVER WORK ON OR AROUN D THE WINCH DRUM WHEN WINCH IS UNDER LOAD.

19.DO NOT OPERATE WINCH W HEN UNDER THE INFLUENCE OF DRUGS, ALCOHOL OR ME DICATION.

20.ALWAYS DISCONNECT WINCH POWER LEADS TO BATTERY BEFORE WORKING IN OR AR OUND THE WINCH DRUM so th at the winch cannot be turned on a ccidentally.

21.When moving a load, slowly take u p the wire rope slack until it becom es taut . Stop, recheck all winching connections. Be sure the hook is properly seated. If a nylon sling is used, check the attachment to the l oad .

22. When using your winch to move a load, place the vehicle transmission in neutral, set vehicle brake, and c hock all wheels .

23. DO NOT USE THE WINCH TO H OLD LOADS IN PLACE. Use other means of securing loads such as ti e down straps.

24.USE ONLY FACTORY APPROVED SWITCHES, REMOTE CONTROLS AND ACCESSORIES. Use of non- f actory approved components may ca use injury or property damage and could void your warranty.

25.DO NOT MACHINE OR WELD ANY PART OF THE WINCH. Such alterations may weaken the structural integrity of the winch and could void your warranty.

26.DO NOT CONNECT WINCH TO EITHER 110V AC HOUSE CURRENT OR 220V MAINS AS WINCH BURNOUT OR FATAL SHOCK MAY OCCUR.

27.Never allow shock loads to be applied to winch or wire rope.

28.Use caution when pulling or lowering a load up and down a ramp or incline. Keep people, pets and property clear of the path of the load .

INSTALLATION

Correct installation of your winch is repuired for proper operation.
Mounting kits are available for most popular vehicles.
Detailed mounting instructions are provided with each mounting kit.
Read and follow directions carefully to ensure proper winch alignment and trouble free operation.

⚠WARNING ***This winch MUST be Mounted with the wire rope in the underwind direction. Improper mounting could damage your winch and void your warranty.***

Step (1)

Install mounting kit or structural support for winch.

Step (2)

Mount the winch to the mounting kit base plate or to the mount that you have designed. Typical mount is to a flat surface capable of handling the loads.
The M8×1.25×30mm mounting bolts supplied are the correct length for use with a 1/4″ (6.3mm)thick mounting plate.

⚠WARNING ***Do not substitute any Strength grade weaker than ISO grade 4.6***

Disconnect the vehicle battery leads.

⚠WARNING ***Batteries contain gasses Which are flammable and explosive. Wear eye protection during installation and remove all metal jewelry. Do not lean over battery while Making connections.***

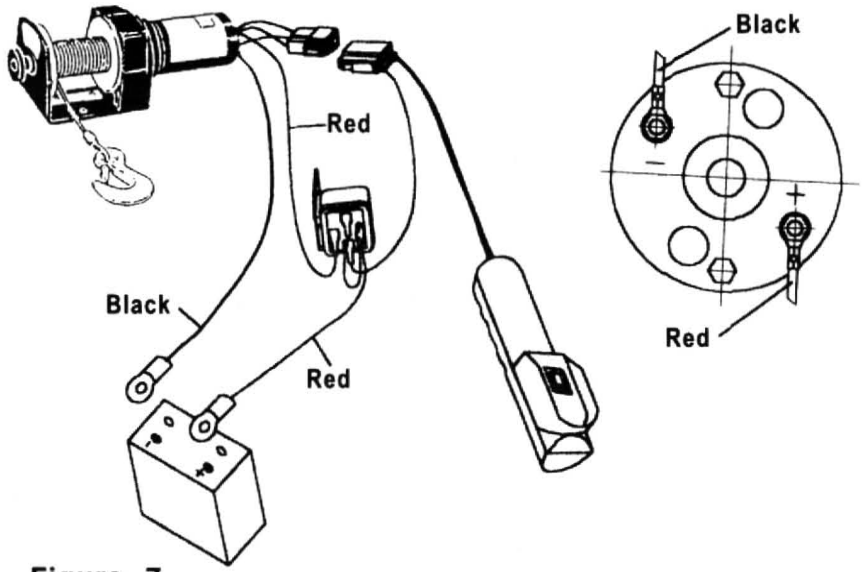


Figure 7

Step (4)

Refer to Figure 7 for wiring diagram .
Install the relay at the desired location .
Connect the relay from the switch to the socket from the winch .
Connect the black wire to the motor negative terminal and the other end to the battery negative terminal .
Connect the red wire to the motor positive terminal and the other end to the battery positive terminal.
NOTE: Be sure the wires are connected properly , if the wires are wrong direction , the control switch will be out of work.

Step (5)

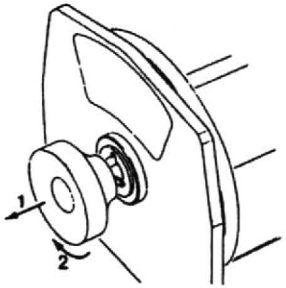
Pull and turn (see Figure 8) the freespool clutch knob to the " Free" position . Pull several feet of wire rope off the drum . Return the clutch knob back to the "Engaged" position . Activate the winch in cable out momentarily to check drum rotation direction . If the drum rotates in the wrong direction , recheck your wiring

FREESPOOL OPERATION

Pull and turn the clutch knob to the "Free" position as shown in Figure 8. If there is a load on the wire rope , the clutch knob may not pull out easily . DO NOT FORCE THE CLUTCH KNOB . Release tension on the clutch by jogging out some of the wire rope . Release the clutch and pull out the wire rope and secure to anchor or load . Check that there are at least five (5) turns of wire rope left on the drum . Re-engage the drum by returning the clutch knob to the " Engaged" position . (see Figure 8).

⚠CAUTION ***Clutch must be fully engaged before winching . Never engage clutch knob while drum is turning .***

Figure 8



⚠CAUTION ***The clutch knob has been adjusted and permanently locked in place with a thread locking compound at the factory . Do not attempt to re-adjust the knob .***

EXTENDING THE LIFE OF YOUR WINCH

1. KEEP A TIGHTLY WOUND WIRE ROPE DRUM . Do not allow the wire rope to become loosely wound. A loosely wound spool allows a wire rope under load to work its way down into the layers of wire rope on the drum. When this happens, the wire rope may become wedged within the body of the windings damaging the wire rope . To prevent this problem keep the wire rope tightly and evenly wound on the drum at all times. A good practice is to rewind the wire rope under tension after each use. One way to do this is to attach the hook to a stationary object at the top of a gradual incline and winch your vehicle up the incline .
2. DO NOT ALLOW WINCH MOTOR TO OVERHEAT. Keep the duration of pulls as short as possible. If the motor becomes uncomfortably hot to the touch, stop winching and allow the motor to cool down At 1,250 lb (567kg) allow motor to cool after 20 seconds of on time. At loads of 500 lb. (227kg) or less allow to cool after 21/2 minutes of on time. KEEP THE ENGINE RUNNING TO RECHARGE THE BATTERY during this break.
3. USE A PULLEY BLOCK FOR HEAVY LOADS. To maximize winch and wire rope life, use a pulley block to double line heavier loads (figure 2)

⚠ CAUTION ***If the winch motor stalls, do not continue to apply power .***

4. The pull required to start a load moving is often much greater than the pull required to keep it moving. AVOID FREQUENT STOPS AND STARS during pull.
5. PREVENT KINKS BEFORE THEY OCCUR.

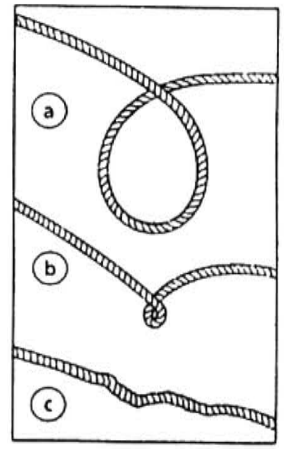


Figure 9

1. This is the start of a kink. Wire rope should be straightened
2. Wire rope was pulled and loop has tightened into a kink. Wire rope is now permanently damaged and must be replaced.
3. Result of kinking is that each strand pulls a different amount causing strands under greatest tension to break and reduce load capacity of wire rope. The wire rope must be replaced.

REPLACING THE WIRE ROPE

Never substitue a heavier or lighter wire rope, Never use rope made of any other materials other than wire. **Always replace damaged wire rope with manufacturer's identical replacement part** (see Replacement Parts list). Pass attaching end of wire rope through the fiarlead (if epuiped) and attach it to the drum.When inserting the wire rope into the drum,insert it into the correct end of the hole provided (Figure 11).Tighten the set screw securely.

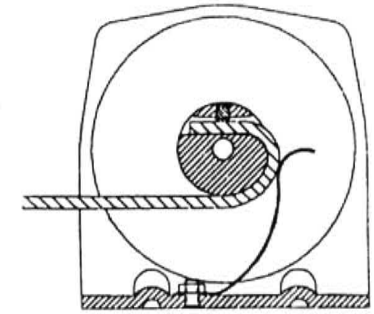


Figure 10

MAINTENANCE AND REPAIR

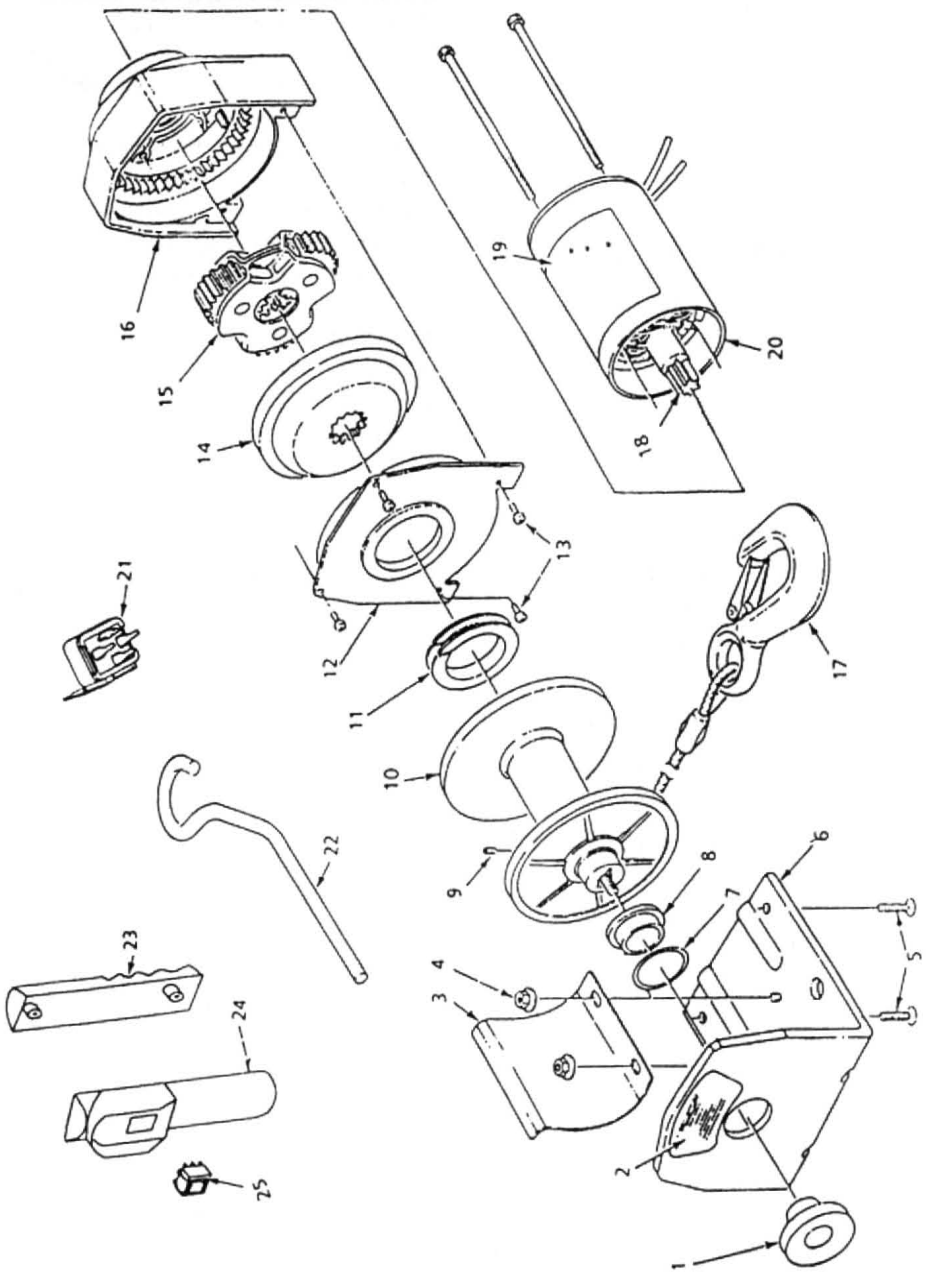
Periodically check tightness of mounting bolts and electrical connections. Remove any dirt or corrosion that may have accumulated on the electrical connections.

Repairs should be done by Authorized Repair Centers ONLY. Do not attempt to disassemble the gearbox.
Disassembly will void warranty.

LUBRICATION

The gearbox is permanently lubricated. Relubrication is necessary after repair or disassembly. Use Shell Alvenia EP2 or equivalent.

WINCH ASSEMBLY



Reference Number	Description	Quantity
1	T-Series F/W Knob Assembly	1
2	F/W Instruction Label	1
3	Tension Plate	1
4	M5 × 0.8 Hex Flanged Nut	2
5	M6 × 1 × 20 ST Hex Skt FH Screw	2
6	T-Series Baseplate Assembly	1
7	0.020 Thick Flat Washer	As Required
	0.030 Thick Flat Washer	As Required
8	T-Series Bushing	1
9	M5 × 0.8 × 8 Set Screw	1
10	Drum Assembly	1
11	Drum Support Bushing	1
12	Drum Support Plate	1
13	M4 × 0.7 × 12 ST Pan Head Screw	4
14	T-Series Rotator Gear	1
15	T-Series Carrier Assembly	1
16	Stationary Gear Housing Assembly	1
17	5/32″ × 30′ Wire Rope and Hook Assembly	1
18	Rotor	1
19	Product/Warning Label (Specify Winch part no. When ordering)	1
20	Stator	1
21	Relay	1
22	Handsaver Bar	1
23	Switch Cover (up)	1
24	Switch Cover (down)	1
25	Switch	1

INSTALLATION

If a problem arises,contact your nearest Supplier or repair center.

Symptom	Possible Cause(s)	Corrective Action
Motor will not operate or runs in one direction only	1. Switch inoperative 2. Broken wires or bad Connection 3. Damaged motor	1. Replace switch 2. Check for poor Connections 3. Replace or repair motor
Motor runs extremely hot	1.Long period of operation 2.Damaged of operation	1.Allow to cool 2.Replace or repair motor
Motor runs but with Insufficient power or line speed	1.Weak battery 2.Battery to winch wire too long 3.Poor battery connection 4.Poor ground 5.Damaged motor	1.Recharge or replace battery. Check charging system 2.Keep winch within distance allowed by lead wires 3.Check battery terminals for corrosion. Clean as required 4.Check and clean connections 5.Repair or replace motor
Motor runs but drum doesn t turn	1.Clutch not engaged	1.Engage clutch
Winch runs backwards	1.Motor wires reversed 2.Switch wires reversed 3.Switch installed incorrectly	1.Recheck wiring 2.Recheck wiring 3.Check switch installation
Winch coasts	1.Excessive load	1.Reduce load or double line