GO PREPARED™

SERVICE GUIDE

FOR THE

WARN
ATV and Utility Winches
A2000, A2500, T2500, U2500, P2500, Z3500, Pull Pack

12V DC
Electric Winch

- REPAIR / REPLACEMENT INSTRUCTIONS
- TROUBLE SHOOTING GUIDE

This guide has been provided for use by Warn Authorized Service Centers. Any other use is prohibited.

This guide identifies potential hazards and has important safety messages that help you and others avoid personal injury or death. **WARNING** and **CAUTION** are signal words that identify the level of hazard. These signal words mean:

⚠WARNING signals a hazard that *could* cause serious injury or death, if you do not follow recommendations.

⚠CAUTION signals a hazard that *may* cause minor to moderate injury, if you do not follow recommendations.

This guide uses ***NOTICE*** to call attention to important mechanical information, and **Note**: to emphasize general information worthy of special attention

Warn Industries, Inc
12900 SE Capps Road
Clackamas, OR 97015 USA

TABLE OF CONTENTS

SECTION 1 - Getting Started

1.1 Winch Model Identification

To ensure proper winch repair it is necessary to correctly identify the model and part number of your winch. This makes ordering replacement parts easier, and helps you obtain the necessary information from your Authorized Service Center. NOTE: **For a part description, item number and quantity, refer to the Replacement Parts List in this manual for your specific winch model.**

WINCH IDENTIFICATION: label is located on the clutch end housing; this information covers the winch and the pull rating.

WINCH BUILD DATE: build date of the winch is located on the cable protectors, motor end or clutch housing end. The date code, (ex.) 3201A- gives the week, year, 32nd week of 2001 line A.

Figure 1.1 Locations of Product Build Date

1.2 Definitions And Winch Operation

1.2.1 Definitions

Operation and service of a Warn planetary winch can be explained easier by defining a few major structural components. Refer to *Figure 1.2* for the following definitions:

MOTOR: The winch motor is a permanent magnet motor. A 12-volt DC battery powers the electric motor.

DRUM: The winch drum is the structural component of the winch used to store wire rope and to transmit torque from the winch motor and gears to the wire rope.

DRUM SUPPORT: Drum supports (covered by housing) are the structural components of the winch that mount the winch to the vehicle. The drum rotates while being held by the drum supports and both the motor and gear train are attached to a drum support.

GEAR TRAIN: Warn electric planetary winches consist of a gear train made up of three planetary gear stages. The purpose of the gear train is to multiply motor torque and to reduce motor speed transmitted to the drum. Warn gear trains are enclosed in a housing and are lubricated with grease.

FREESPOOL CLUTCH: A freespool clutch is incorporated in the gear train to allow the user to pull the wire rope off the drum to the anchor point where the hook will be attached, without using the winch motor. This is referred to as "Free spooling".

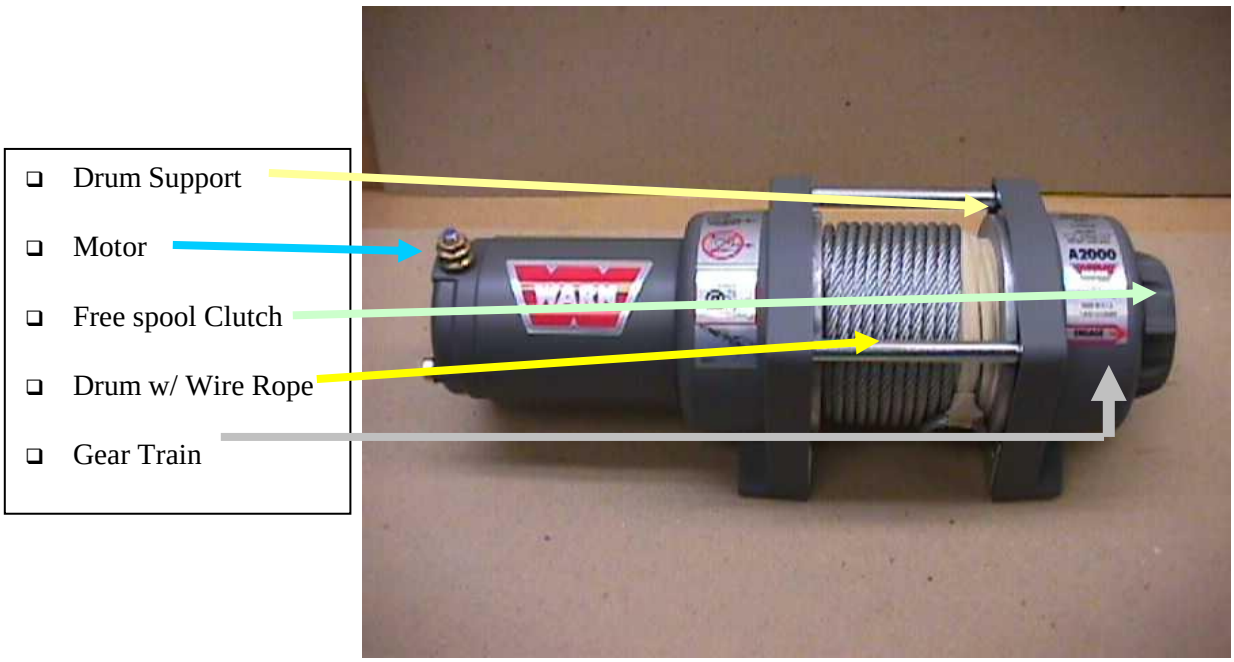
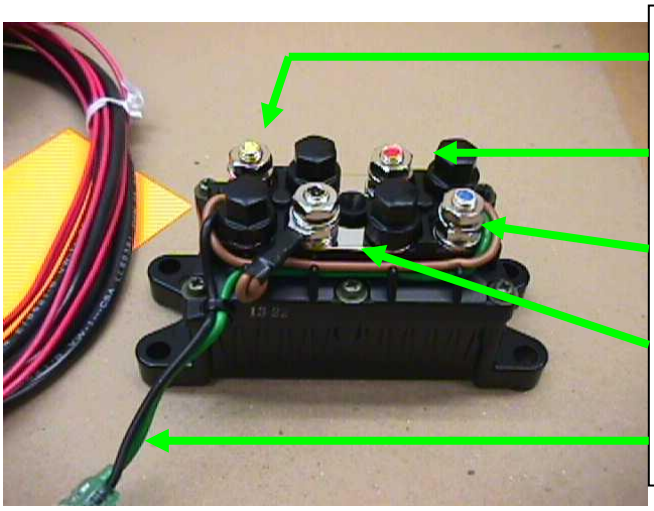
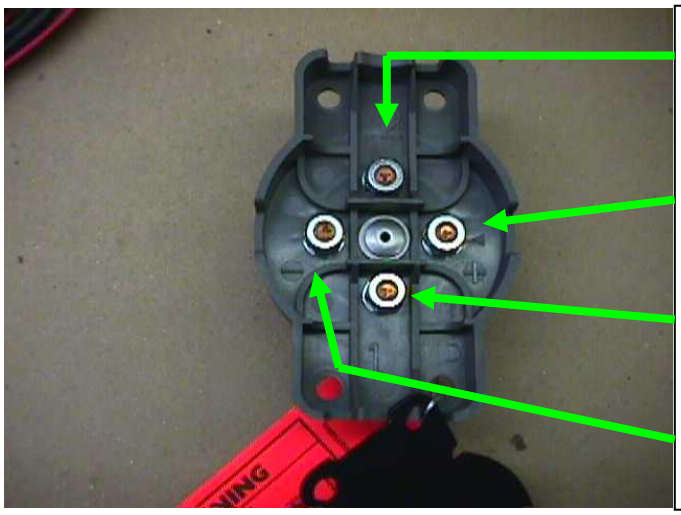


Figure 1.2 Major Winch Components

MOTOR CONTROLS: The electric winch motor is controlled by a control pack (contactor), ATV switch, or a rocker switch. The 12-volt battery power source feeds the electric cables that are connected to these controllers. The main function is to allow the winch to function in both directions.



- Motor Cable (Yellow /#1)
- Positive Battery Cable
- Motor Cable (Blue/#2)
- Control Pack Ground Cable
- Remote Socket Wiring



- Motor Cable (Blue/#2)
- Positive Battery Cable
- Motor Cable (Yellow/ #1)
- Control Pack Ground Cable

POWER-IN and POWER-OUT - Terms used to describe winch operation. When the wire rope is reeled in under motor power, it is being "powered in". When the wire rope is reeled out under motor power it is being "powered out". (This is different than when the winch is "freespooled out", which refers to the wire rope being pulled out by hand with the freespool clutch disengaged.)

1.2.2 Winch Operation

The ATV winch is designed to pull loads in length to approx.48.5 ft. The Utility winch will pull up to approx. 58.5ft.
(Refer to Figure 1.2 when reading the following section). The vehicle battery and charging system generates the power for pulling the load.

Power feeds from the battery power source into the winch control pack. At the push of a control switch the power flows to the winch motor.

The winch motor turns the electrical energy into mechanical energy. The motor shaft powers the gears, which in turn pulls the load. For the winches with a brake, it will hold the load if user must stop.

On power-in operation, the drive shaft rotates and drives the planetary gears, starting with the gear carrier stage farthest from the winch drum (the first stage carrier.) The first stage carrier, in turn, drives the second stage carrier, which then drives the third stage carrier. The third stage directly drives the drum. Since the wire rope is connected to the drum, the rope winds around the drum, causing the load to be drawn in.

On power-out operation, the motor is reversed and the winch drum is rotated in the opposite direction. All winch components operate in the same manner as during power-in.

In stopped position, the switch activates the "dynamic braking" effect of the motor , resisting additional turning of the wire rope drum.

NOTES:

SECTION 2 – Disassembly & Assembly

2.1 Service Technician Repairs

WARNING
Personal Injury
Failure to observe these instructions could lead to severe injury or death.
READ THIS BEFORE BEGINNING REPAIRS **This manual is intended for use by a WARN authorized service technician. It is important that you make repairs with the proper tools and equipment. It is also important to correctly follow the instructions. Failure to do so, may cause the winch to fail.**

2.2 Suggested Tools

The following tools are suggested for these procedures: Hex 3/16 Allen wrench, Torque wrench, 1/2, 7/16, 3/8, and 5/16 sockets, 3/8 & 7/16 box end wrench, needle nose pliers, and one flat blade screwdriver.

2.3 Disassembly

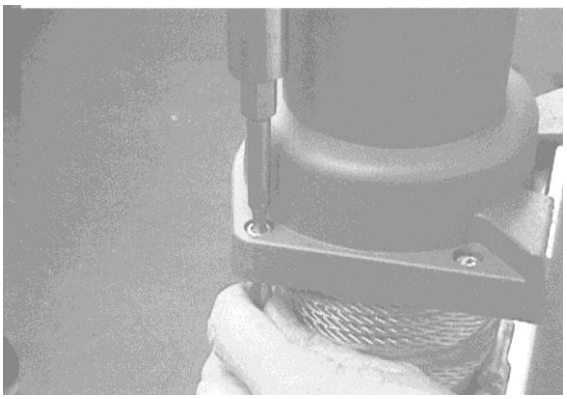
WARNING
Personal Injury
Failure to observe these instructions could lead to severe injury or death.
Never lean over battery while making connections **Always disconnect all wires from battery, before beginning work.** **Always disconnect negative terminal first and reconnect negative terminal last.** **Always remove jewelry and wear eye protection.**

- **MOTOR REMOVAL:**

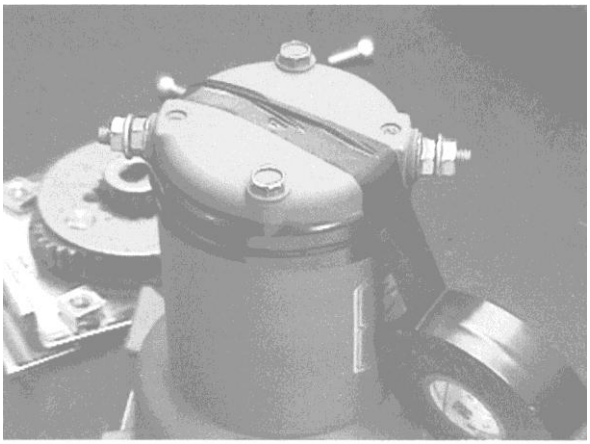
- Note the motor placement for correct replacement before any removal, also checking and marking any wires that will be removed.

- Repairs are easier and safer when winch is removed from vehicle and located on a workbench.

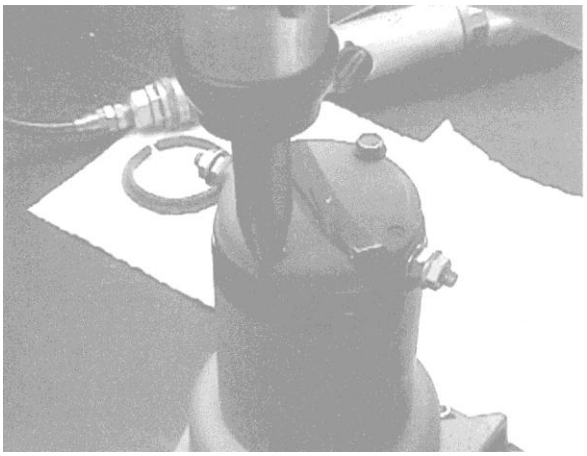
- Secure wire rope with rope or electrical tape to prevent flaring.
- Remove motor with housing and drum support from the drum by removing the two ¼-20x5/8 tie rod screws with the hex Allen wrench or Torque wrench.



- If "not" replacing the armature, the cap assembly must be taped to the body of the motor case to prevent springs pushing cap off and allowing brushes to become dislodged.



- Motor is removed from motor housing by removing the two motor bolts located on top of the motor cap.

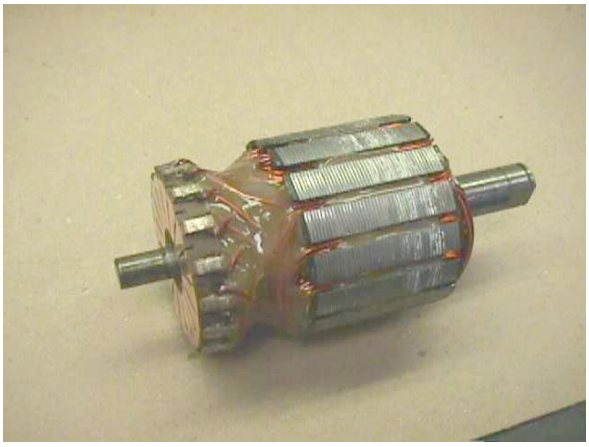


- At this time the cap assembly may be removed, and checked for wear, corrosion, and electrical terminals that may have been damaged or over-tightened.

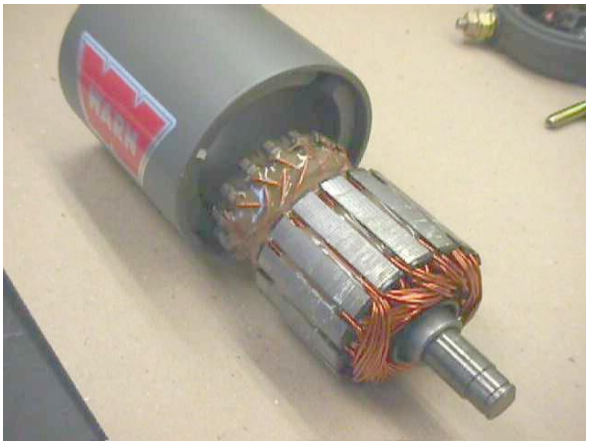
- **ARMATURE REMOVAL:**

- Placing shaft end on the bench and pushing case down, pulling the armature out at the top will remove the armature.

- Check the armature for broken wires, burned, or excessive wear on the commutator.
- If any of these problems are present the armature must be replaced, also the case must be cleaned with alcohol or similar cleaner.



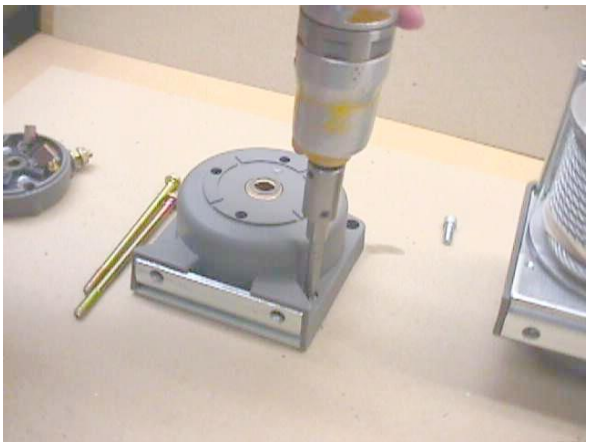
- **ARMATURE REPLACEMENT:**



- To replace the armature, it is slid in from the bottom of the casing, which is identified by the magnets closer to one end of the case. If there is resistance to the armature placement, it is the wrong direction.

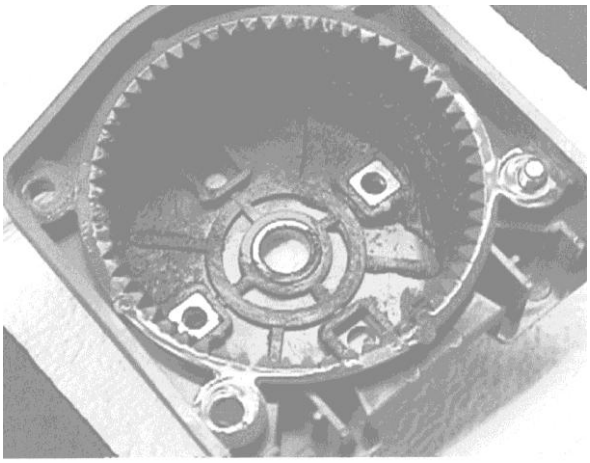
- Inspect housing closely, as some motor housings can be damaged by excessive heat or damaged from a hit.

- **MOTOR REPLACEMENT:**



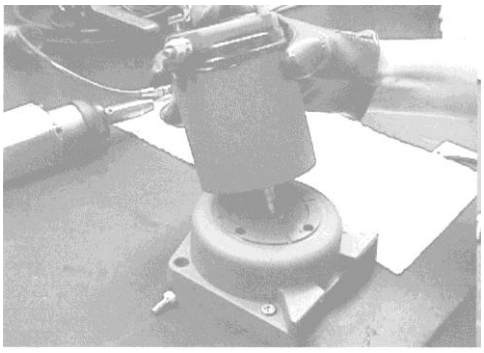
- Motor cannot be installed until the drum support plate is removed and 1st stage planetary gear with sun gear, or brake. The two motor bolt nuts will be found inside the housing.

.



- Inspect housing, as some housings can be damaged by excessive dirt/mud or damaged from a hit.

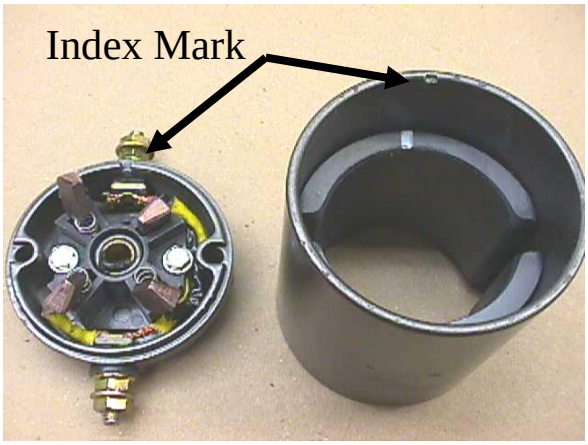
.



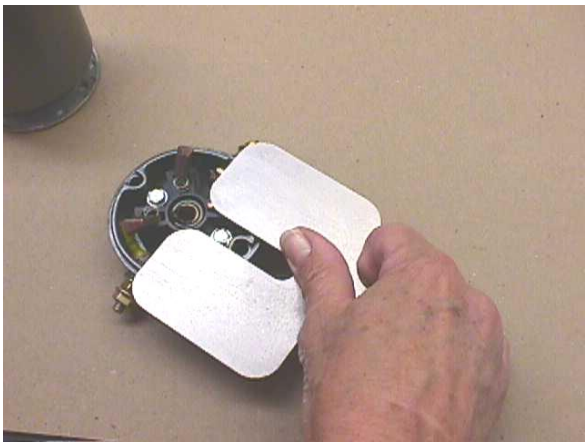
- Check that the brass bushing and thin washer are in place, position the motor shaft through the bushing and washer.

- **MOTOR CAP ASSEMBLY REPLACEMENT**

- On the top of the motor case there is an index, which must mate to the index on the cap assembly. The rotation of the motor should be the same position as when removed.



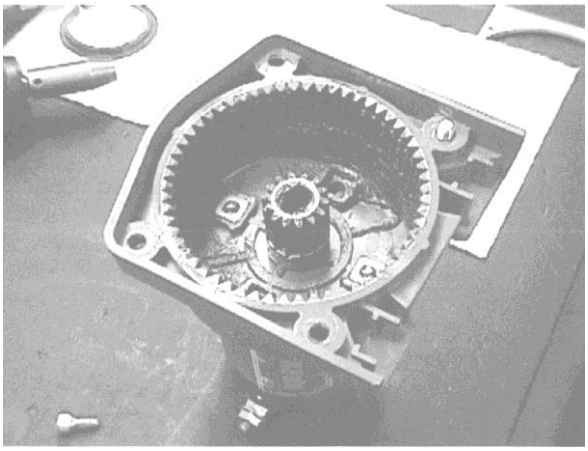
- Replace cap springs in keepers, (a template will help hold brushes in correct position.)



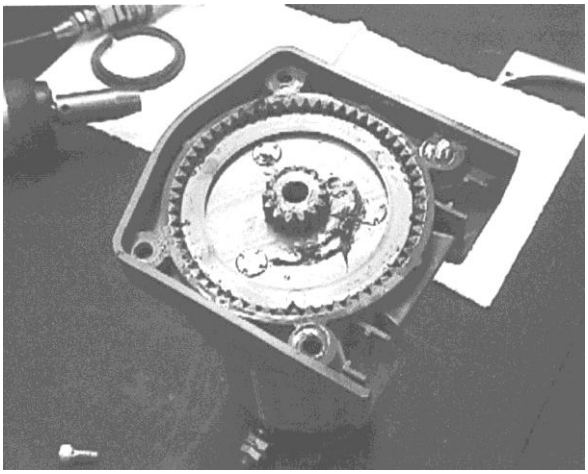
- Place cap on top of armature aligning index marks. Drop bolts through cap holes, matching up with the motor housing holes. Flip unit over with weight of motor down.
- Motor bolts will show through inside housing. Place one nut, flat side out, inside square nut keepers and finger snug each of the two motor bolts into these nuts.
- Turn unit over and tighten bolts to 18 ft lb. Do not over-tighten as it can compress and damage material.

- **MOTOR HOUSING REASSEMBLY:**

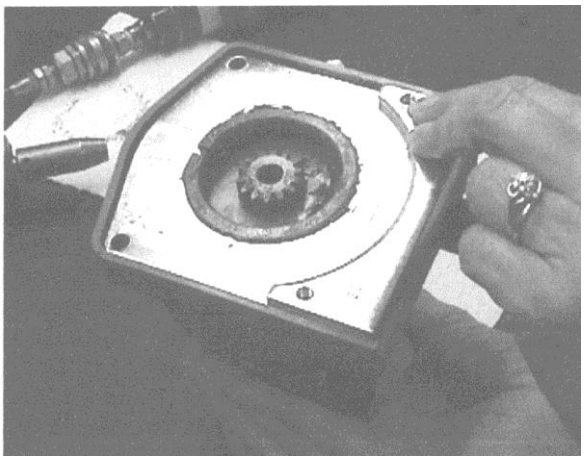
- Replace sun gear .



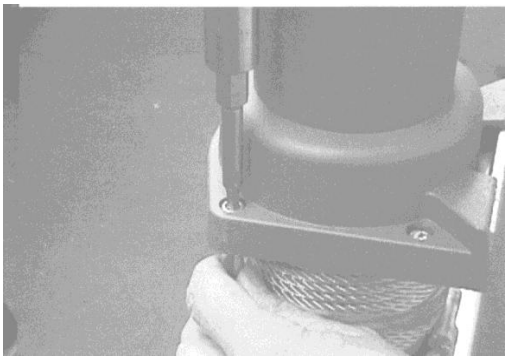
- Replace first stage carrier assembly. If winch had a thrust washer it may be re-installed.
- If winch had a brake, place the thrust washer in first with brake resting on it.



- Replace mounting nuts flat side out. Drum plate is placed on top of gear assembly with drum bushing rounded side out, being placed with opening on either side of tab.
- Cable protector is placed into position screwing down with the ¼-20 x 1/2 screws. Snug is good, do not over-tighten due to damaging the material.



- **CLUTCH HOUSING DISASSEMBLY:**
  - Note the motor placement for correct replacement before any removal, also checking and marking any wires that will be removed
  - Repairs are easier and safer when winch is removed from vehicle and located on a workbench.
  - Secure wire rope with rope or electrical tape to prevent flaring.



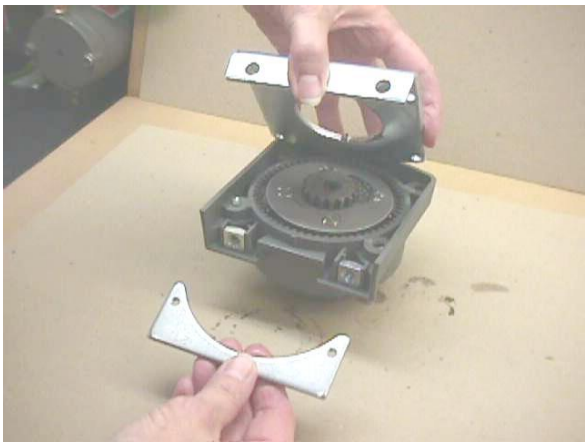
- Remove motor with housing and drum support from the drum by removing the two ¼-20x5/8 tie rod screws with the hex Allen wrench or Torque wrench.

- Remove drum from the drum support plate on clutch end. Remove the drive shaft and check for any damage or wear.

- Remove tie rod screws.

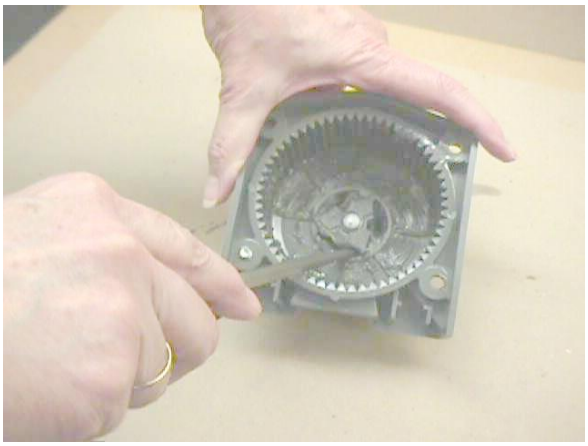
- Remove clutch end and cable protector screws .

- Remove drum support plate. Check the drum bushings on each end for wear or damage. Remove gears.



- Check that Drive shaft must fit easily through the single sun gear on clutch end. This sun gear must have chamfered edges to match drive shaft. If edges are round and shiny, this is wear or damage, and gear must be replaced. Check the teeth of the housing for mud, sand or broken/worn teeth.

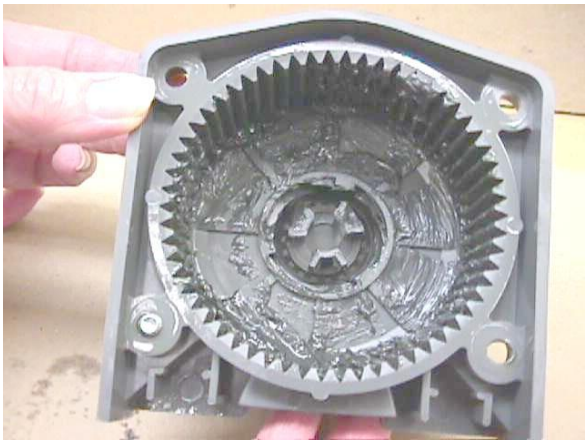
- Cam follower must be removed by prying out with screwdriver.



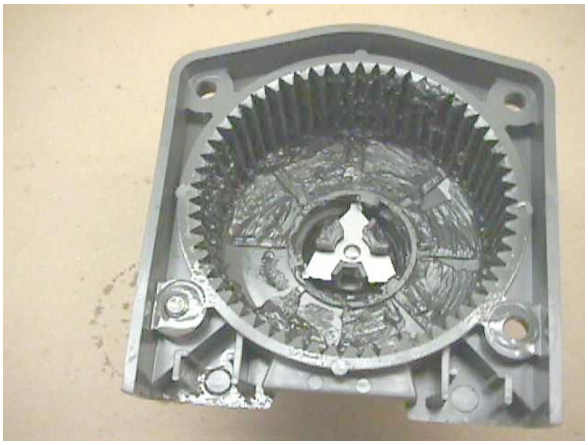
- Cam follower must be removed to check all 3 star shaped ends and that the cam fingers are not damaged.

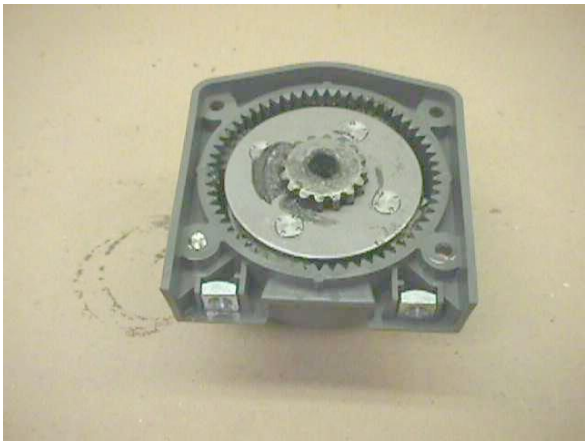
- Check that the clutch-retaining ring is snug, not pulling away from the housing. Tapping it with a flat screwdriver and hammer may help snug it up.

- Check both planetary gears for silt or rust damage.
- Clean and re-grease housing if not damaged. If damaged, it must be replaced



- **CLUTCH HOUSING REASSEMBLY:**
- Turn the clutch dial to the free spool position, insert cam follower button side up. Dial clutch to engage position.





- Grease housing and replace single sun gear, second stage planetary greasing the tall sun gear, replace 3rd stage planetary, greasing the drum sun gear.

- Place drive shaft circle retaining ring up, through all gears rotating the shaft forward and reverse to align all gears, remove shaft and set aside.
- Replace mounting nuts, flat side out.
- Place drum support plate on top of 3rd stage planetary assembly, place the cable protector on bottom of drum support plate. Secure in place with the ¼-20 x ½ screws.
- Insert ¼-20 x 5/8 screw to the top hole and thread tie rod to it, (snug). Same with the second tie rod.

- Insert drum bushing, rounded side up, to plate with openings on either side of the tab with a light amount of grease.
- Check the drum for any tooth or flange damage, if none install on matting drum gear.
- Replace drive shaft through drum and gears with retaining ring up to hold drive shaft spring.

- Place motor housing assembly to drive shaft with slight rotation to align drive shaft to motor sun gear.
- Tighten top tie rod screws and back tie rod screws to suggested tightness.

- Reassemble winch into mounting.
- Replace electrical wires to proper terminals, snug only, do not over-tighten.
- With winch in free-spool, pull out three feet of cable, using hook strap.
- Turn clutch to engage position, touch power in and power out to verify correct direction of rotation.

WARNING

Moving Parts Entanglement Hazard

Failure to observe these instructions could lead to severe injury or death.

To avoid injury to hands or fingers-

Always keep hands clear of wire rope, hook loop, hook and fairlead opening, during installation, operation, and when spooling in or out.

Always use supplied hoop strap whenever spooling wire rope in or out, during installation, operation, to avoid injury to hands or fingers.

NOTES:

SECTION 3 - Brake Removal And Replacement For ATV & Utility Winches

Notice

A mechanical brake is an option for most ATV winches. If so equipped it is a spring brake that expands and contracts holding the load for which it was designed.

Warn Industries <u>does not offer</u> individual replacement brake parts. The complete brake assembly (PN 22142) must be replaced.

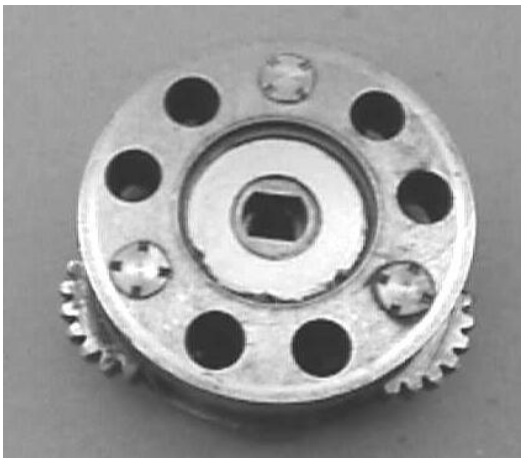
Notice

Long power- out cycles under load can over heat the brake and cause loss of brake function or damage motor.

3.1 Suggested Tools

These tools are suggested for the following procedures: Retaining ring pliers for external rings and a flat blade screwdriver.

3.2 Brake Disassembly



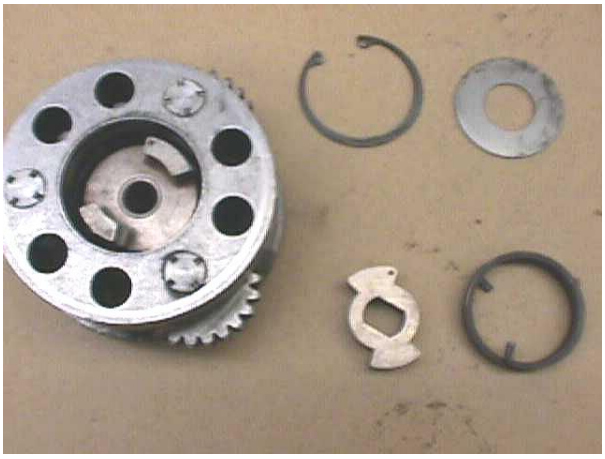
- Remove retaining ring and washer.

- Lift out the input gear and check for any fractures or breaks.

- Remove spring by lifting out with flat blade screwdriver.
- Check both tang ends of the spring for fractures or breaks.

- Remove output gear. Check for fractures or breaks.

- If any parts are broken or damaged, the full brake assembly must be replaced.

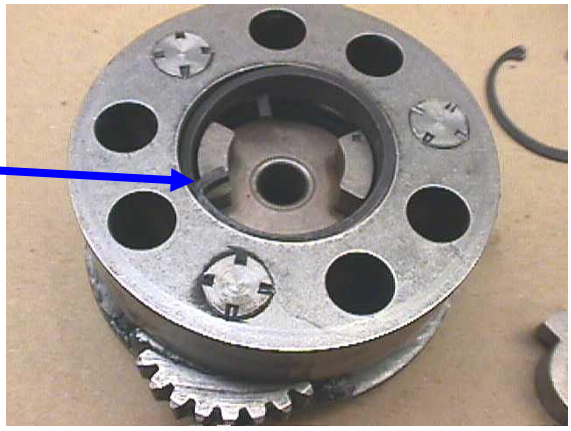


3.3 Reassembly/ New Brake Installation

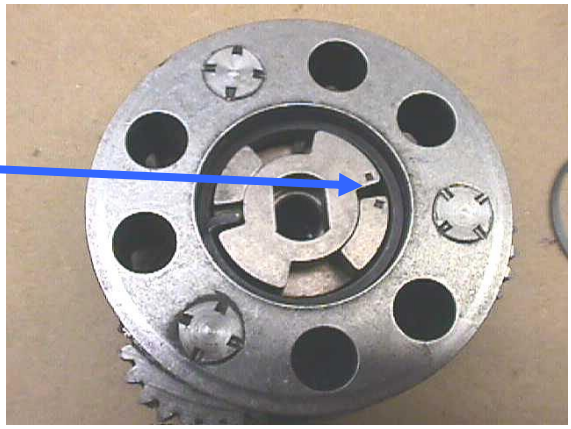
- To service brake, clean residue and use HI-TEMP Brake Slider Grease during reassembly.

- Fill cavity of brake housing with grease.
- Grease and replace output gear.

- Grease spring, insure it fits tang end on step of gear.
  (Tang sits on step)



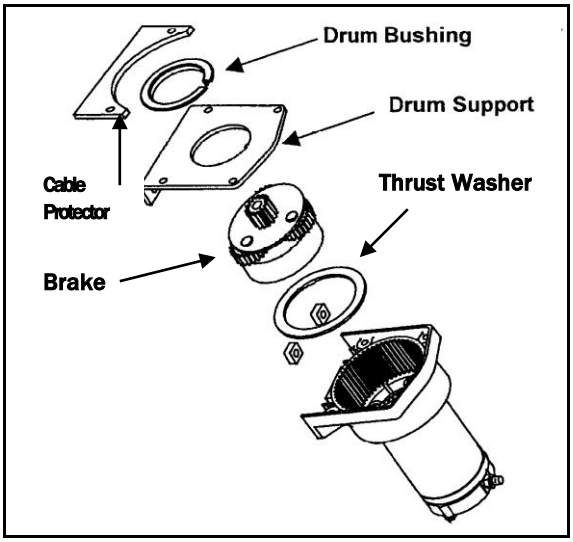
- Grease & replace input gear with spring tab fitting under, being sure to match small square index marks located on both gear tabs.
  (Index marks together)



- Replace washer and retaining ring (flat side up)
  - Check brake function by inserting flat screw driver in in-put gear, rotating in-put gear forwards, backwards with hand restriction on planetary gears.

- Verify thrust washer is inside motor housing and motor bolts do not extend inside motor housing cavity.
- Re-install brake to motor shaft, mounting nuts flat side out, drum support plate, and cable protector. Tighten ¼-20x1/2 screws.
- Replace drum bushing and lightly coat with grease.

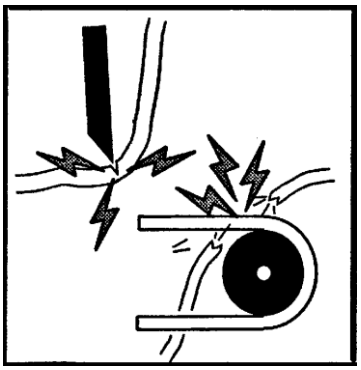
- Reinstall motor as outlined in the winch basic assembly instruction in section 2.3.



NOTES:

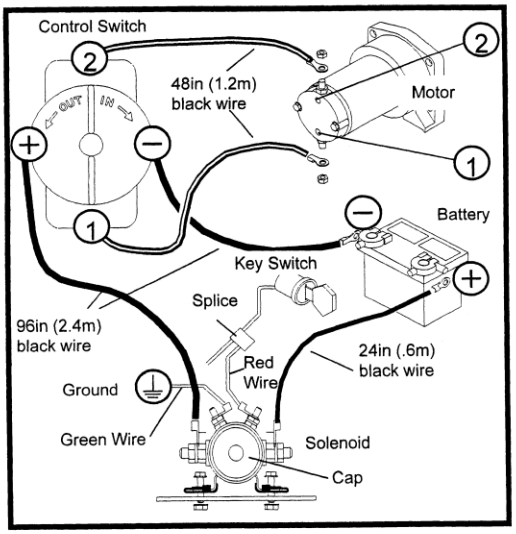
SECTION 4.0 - Control Pack Overview And Wiring Reference

Electrical operation of the winch control may consist of a dial control switch, a power in/ power out contactor or a set of two solenoids.

WARNING
Fire Hazard

Failure to observe these instructions could lead to severe injury or death.
--Never route electrical cables: **- Across any sharp edges.** **- Through or near moving parts.** **- Near parts that become hot.** **--Always insulate and protect all Exposed wiring and electrical terminals.** **--Always install terminal boots as directed in installation instructions.**

4.1 Overview Of Control Operation

4.1.1 Dial Control Switch- This switch is wired between the battery and the winch through a power interrupt solenoid. The switch must be wired properly. Improper installation may result in permanent damage to the control switch. Insure that the control switch is wired to the appropriate terminals.
Figure 4.1a is the basic wiring diagram of the ATV winch dial control switch.
Figure 4.1b is the basic wiring diagram of the ATV winch rocker control switch.



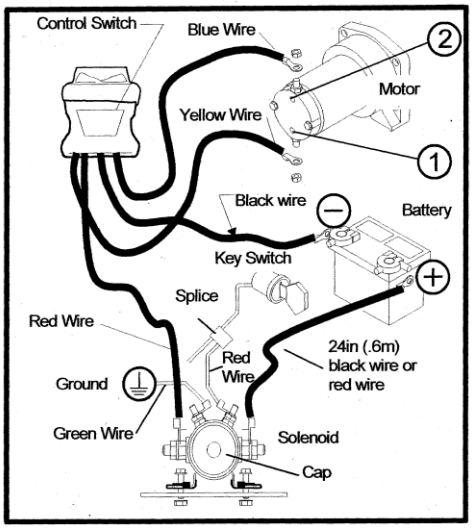
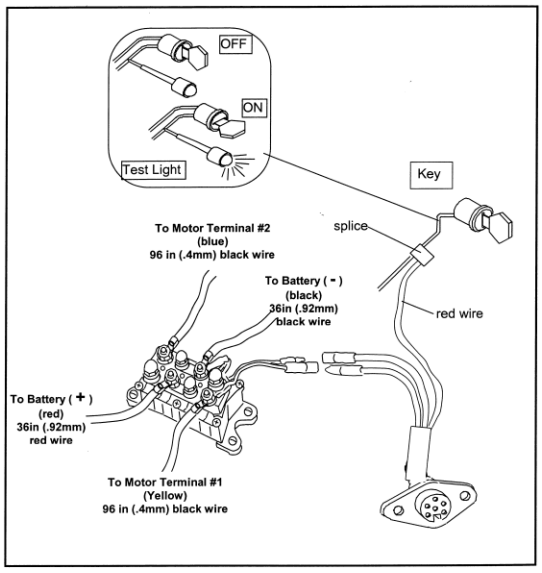


Figure 4.1a *Figure 4.1b*

4.1.2 Contactor Control Pack- Electrical operation of this winch control assembly consists of a contactor. Power to the remote control socket is supplied by the red wire connected to a key controlled electrical wire from the ATV ignition. In the power out mode , the black wire is triggered by the remote control switch to energize the control component.

In the power-in mode, the green wire is triggered by the remote control switch to energize the control component.

Figures 4.2a & b are the basic wiring diagram of the ATV winch contactor control pack .



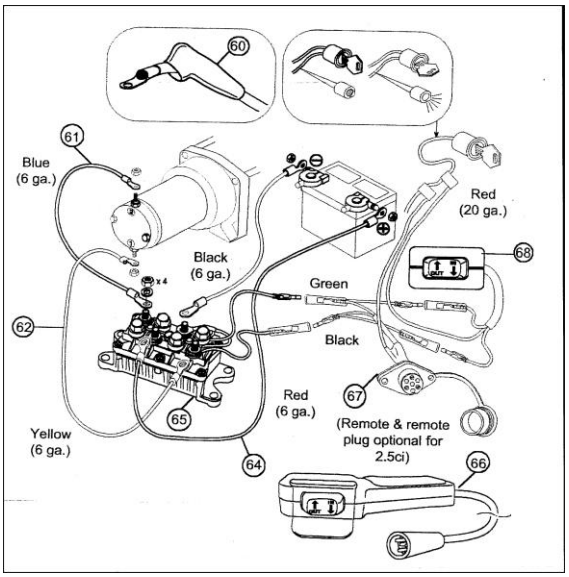


Figure 4.2a *Figure 4.2b*

4.1.3 Solenoid Control Pack(winch)- For the power-in mode, the green wire and the white wire are triggered by the remote control switch. For power out the black and white wire are triggered by the remote.
Solenoids must be grounded and for each two solenoids the use of a diode is very necessary to prevent any electrical danger. This diode will stop the winch in the event of electrical failure. The diode wire is connected to solenoid and grounded to solenoid plate

Figure 4.3 is the basic wiring diagram of the ATV winch solenoid control pack .

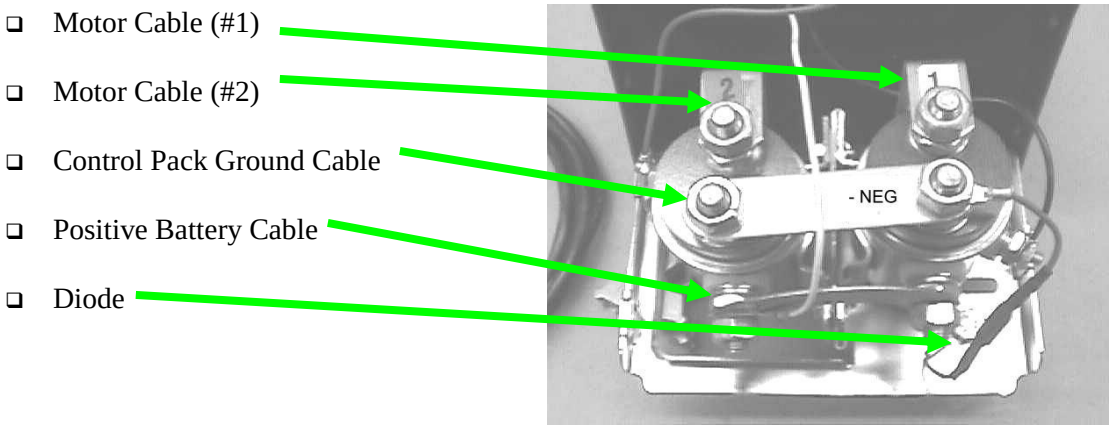


Figure 4.3 Solenoid Control Pack and Wiring Connections

4.1.4 Solenoid Control Pack(Pull Pack)- This solenoid pack contains 2 canister solenoids, a diode, and one electrical cable which will run under the winch motor and connect to terminal #2. Motor terminal #1 will connect to short copper angle bracket. Diode will connect to top solenoid, grounding back to solenoid fastener, attached with screw through plate and fastener. This screw must be snug for grounding purposes.

Figure 4.4 is the basic wiring diagram of the ATV Pull Pack solenoid control pack .

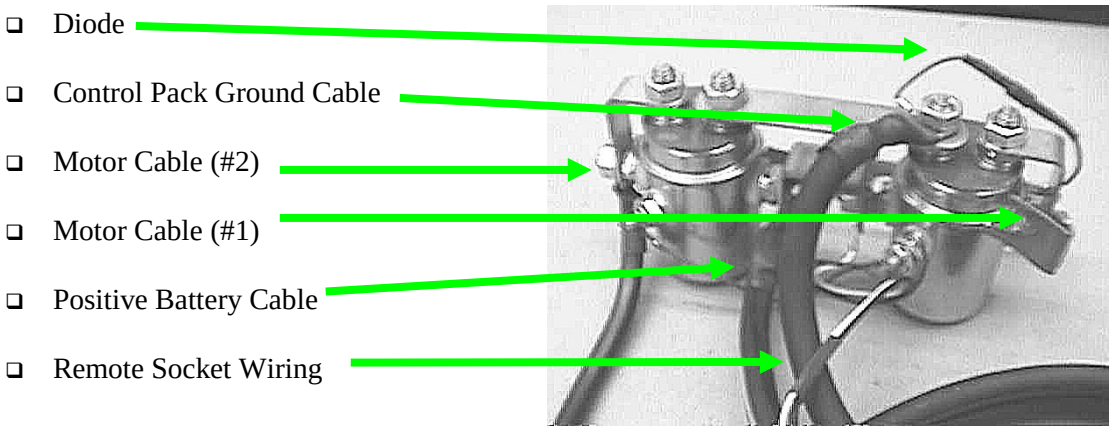


Figure 4.4 Solenoid Control Pack and Wiring connections

Figure 4.5 is the basic wiring diagram of the 3-wire remote control.

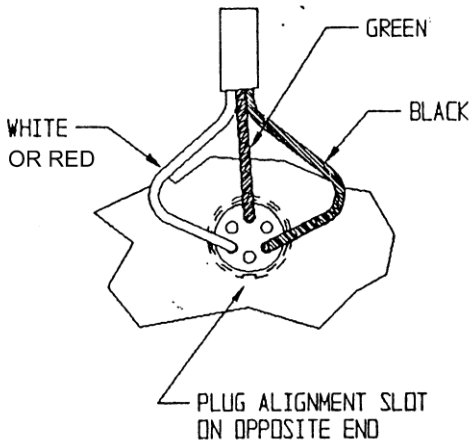


Figure4.5 Remote Control Plug And Wiring Schematic

Inside wiring for the housing harness plug with notch of plug facing down:
Place wires in the back side of the plug.
Going clockwise green wire is opposite notch, skip a hole and black wire position, skip a hole and white or red wire position.

SECTION 5 – Winch Trouble Shooting Guide

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
5.1.1 Winch does not hold load	a. Wire Rope is spooled onto the drum in the wrong direction.	Remove all wire rope from drum and respool in the proper direction. (see directional label on drum support).
	b. Load exceeds winch rating.	Refer to the Winch Operators Manual for the correct line pull rating for your winch. DO NOT EXCEED THE LINE PULL RATING SHOWN ON THE IDENTIFICATION LABEL
	c. Brake inside winch drum is badly worn or broken. (where optional brake is installed)	Replace brake. Entire brake assembly must be replaced. Refer to this manual for winch brake replacement.
5.1.2 Brake over heats and will not hold load. (Where optional brake is installed)	a. Wire rope is spooled onto drum in the wrong direction. Winch is working against the brake in the power-in mode	Remove all wire rope and respool in the proper direction. (See directional label on drum support)
	b. Load exceeds rating for winch.	Refer to Winch Operators Manual for the line pull rating for your winch. DO NOT EXCEED LINE PULL RATING SHOWN ON IDENTIFICATION LABEL.
	c. After a very long power-out cycle (over 30 feet under heavy load), brake has overheated.	Let brake cool for approximately 30 minutes. These winches are rated for intermittent duty operation only. As the load is increased, the duration of power-out cycles must be reduced to limit brake temperature. Allow adequate time for brake to cool between extended power-out cycles.
5.1.3 Difficulty in spooling wire rope OFF drum by hand.	a. Bent drum flange.	Rotate drum on winch and inspect for bent drum flanges. A bent drum must be removed and replaced. See (Section 2.3) drum removal instructions.
	b. Worn drum bushings.	Remove drum from winch (Section 2.3). Inspect drum bushings and drum support for wear.

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
	c. Broken cam or cam follower when clutch knob turned under load	Replace damaged components.
	d. Wire rope is bound up on the drum.	By connecting the hook to a load and alternately powering-in and powering-out, the wire rope will usually work itself free. IMPORTANT:DO NOT PUT YOUR HANDS NEAR THE WIRE ROPE OR FAIRLEAD WHEN ATTEMPTING TO FREE A BOUND ROPE.
	e. Winch is not mounted correctly, which causes winch to bind.	Check mounting hole dimensions. Follow mounting specifications and procedures as described in the operator's manual. Be sure mounting surface is flat to with in 0.020 inch. Be sure all mounting bolts are tight.
5.1.4 Winch lacks power, pulls slowly, stalls or will not run at all.	a. Ground cable is not directly attached to battery	Attach ground cable to negative battery terminal.
	b. Loose connections on battery or motor terminals.	Be sure all connections are tight and clean. Do not let bottom nut or stud turn while tightening.
	c. Vehicle battery not fully charged.	Charge battery.
	d. Battery terminals are corroded.	Clean terminals.
	e. Battery is too small or defective.	Replace with conventional automotive battery with minimum of 12 amp/hour rating.
	f. Burned armature due to continued use near or at stall speed	Replace armature
	g. Corrosion inside motor brush end cap	Clean or replace as needed
	h. Power interrupt solenoid failed	Replace
	i. Failed switch, solenoid or contactor.	Replace failed part
	j. Short circuit in winch power supply or wiring.	Check battery cables and motor cable leads for loose connections, worn or cracked insulation, and fraying or bare spots. Replace cable if necessary.

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
	k. Remote control switch or cord is damaged.	Test winch operation with replacement remote control. Replace remote control if defective.
	l. Battery ground wire connected to vehicles frame.	Connect ground wire directly to negative battery terminal.
	m. Clutch housing has been stripped due to a jerk load or use as a tiedown.	Replace Clutch Housing
	n. Drive shaft has stripped due to incomplete engagement	Replace drive shaft
	o. Sun gear has stripped due to incomplete engagement	Replace Sun Gear
5.1.5 Winch does not have the same pulling power as when it was new.	a. Winch has been submerged in mud and/or water, and not cleaned afterwards	Clean and service as required
	b. Battery may be faulty	Replace battery
	c. See All possible Causes for problem 5.1.4.	See corresponding Corrective Actions for problem 5.1.4.
5.1.6 When remote control switch is activated, only a "clicking sound" results and winch does not operate in either power-in or power-out mode.	a. Faulty electrical grounding.	See possible Cause a. and corresponding Corrective Action for problem 5.1.4.
	b. Faulty battery, battery cable or battery cable connections.	See problem 5.1.4 Possible Causes b. through e. and corresponding Corrective Actions.
	c. Water in motor, caused by submersion or improper installation of motor.	Replace motor. See Section 2.
	d. One of the solenoids or contactor in the control pack is sticking or is damaged from prolonged use.	Replace solenoid or contactor.
	e. Worn or damaged brushes caused by damaged armature commutator or normal wear.	Replace motor.
5.1.7 Electrical sparks appear around the motor or motor end housing.	a. Water in motor, caused by submersion or improper installation of motor.	Replace motor. See Section 2.
	b. Burned armature due to continued use near or at stall speed	Replace armature

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
	c. Motor battery connections have been improperly tightened, and turned to pinch insulation from motor body	Repair insulator or replace motor
	d. Electrical ground is not sufficient. Ground wire was not installed, or the battery ground wires and wire terminals are corroded.	Install a ground wire to the motor housing, and attach to the negative terminal of the battery.
5.1.8 When the remote control is activated, winch operates in only one direction.	a. Remote control switch is damaged.	Check remote control switch and cable. Replace if necessary. Check all connections inside control pack. Check all pins in plug and receptacle for damage.
	b. Pin in remote control plug has slipped out of place.	Re-position pin or replace remote/socket.
	c. One of the solenoids or contactor in the control pack is sticking or is damaged from prolonged use.	Replace solenoid or contactor.
	d. Also see Possible Causes and Corrective Actions for problem 5.1.4.	
5.1.9 Dial switch will not function or operate winch	a. Switch base is bent or spread due to over tightening of "u" bolt attachment	Replace switch
5.1.10 Switch is burned	a. Switch has been incorrectly wired- negative battery cable is attached to positive switch terminal.	Replace switch
5.1.11 Wire harness melted insulation	a. Switch held in on position while winch is stalled	Replace harness
	b. Poor installation leads to rubbed off wire insulation, causing direct short between positive wire and ground wire or frame	Replace harness
5.1.12 Wire rope is behind drum flange	a. Sharp angle pull puts wire rope behind drum flange, damaging bushings	Replace bushings, use snatch block
	b. Sharp angle pull damages wire rope	Replace wire rope, use snatch block
	c. Tie rod damaged by stacking wire rope to one side of drum	Replace tie rods, keep wire rope level on drum

NOTES:

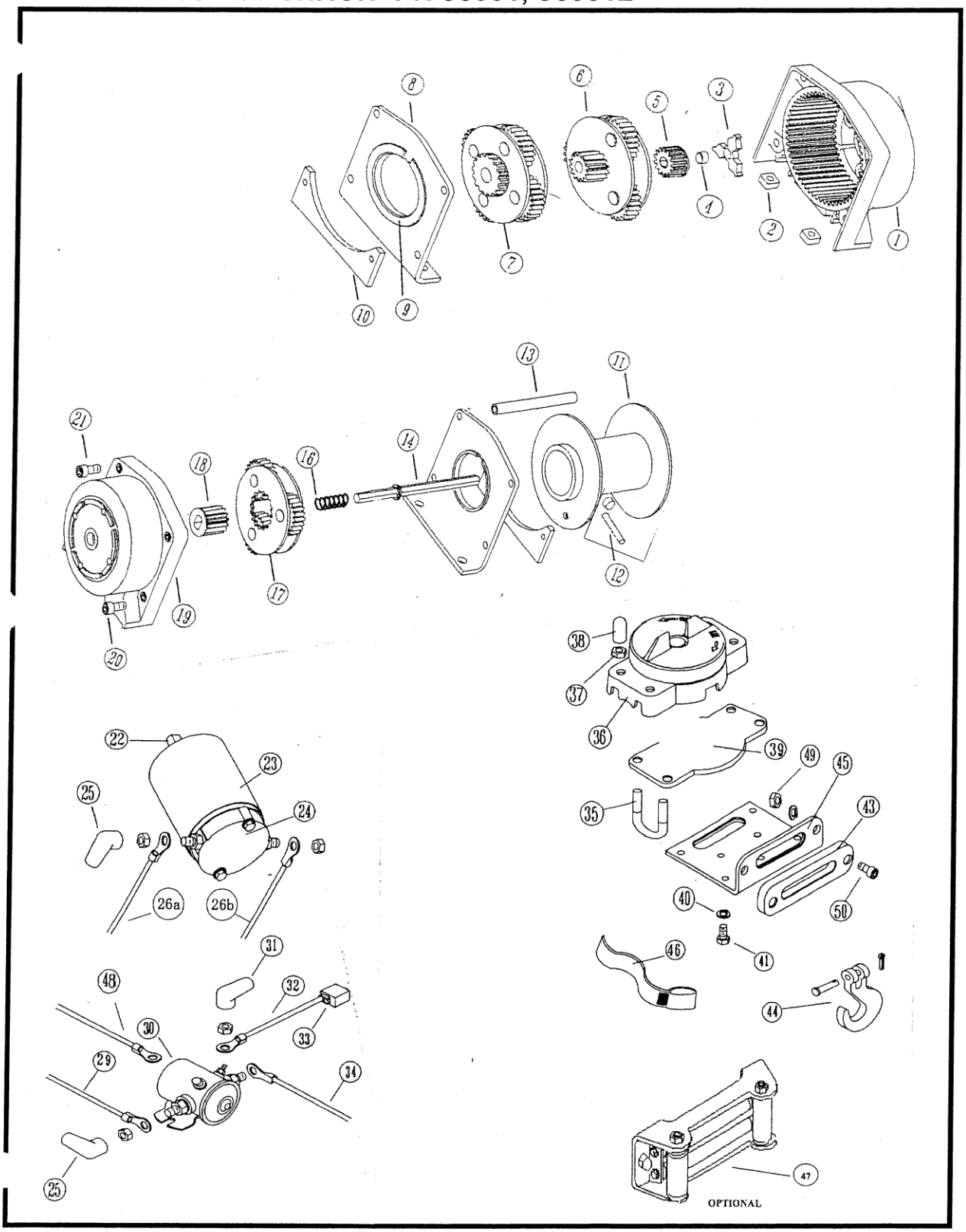
The following Parts breakdown and parts lists are for current winch models. Please refer to your WARN Winch Replacements Parts List for correct information specific to the winch being serviced.

WARN A2000 ATV WINCH
REPLACEMENT PARTS LIST

ORDERING INFORMATION: Parts may be obtained through your local dealer or distributor.

ITEM	QTY	NUMBER	DESCRIPTION
1	1	36030	Endhousing, Clutch assy (includes items 3 & 4)
1	1	36053	Endhousing, No Clutch
2	4	7953	Square Nut
3	1	65617	Cam Follower
4	1	21895	Thrust Plate (NLA- Included in item 3)
5	1	21292	Sun Gear, Stage 2
6	1	21329	Carrier Assy., Stage 2
7	1	21330	Carrier Assy., Stage 3
8	2	21665	Drum Support
9	2	21296	Drum Bushing
9	2	21597	Drum Support with Bushing
10	1	25257	Cable Protector
11	1	60078	Drum Assy (no wire rope)
11	1	39315	Drum Assy
12	1	60076	Wire Rope Assy., 3/16" x 50'
13	2	21268	Tie Rod
14	1	34797	Drive Shaft
14	1	30468	Drive Shaft, No Clutch
16	1	21883	Clutch Return Spring
17	1	21320	Carrier Assy., Stage 1
18	1	21290	Sun Gear, Stage 1
19	1	36054	Endhousing, Motor assy (includes part # 35033 & 21316)
20	4	8956	Socket Head Capscrew 1/4-20 X 1/2
21	4	1936	Socket Head Capscrew 1/4-20 X 5/8
22	1	21594	Armature, 12 VDC Motor
22	1	22572	Armature, 24 VDC Motor
23	1	36031	Motor, 12 VDC
23	1	36032	Motor, 24 VDC
24	1	31928	Cap assy, 12 & 24 VDC Motor
25	4	21422	Boot, Electric terminal
26a	1	64014	Cable assy, 8 GA, yellow, 48 in
26b	1	64015	Cable assy., 8 GA, blue, 48 in
29	1	21522	Cable assy, 8 GA, red, 24 in
30	1	62871	Solenoid Assembly
31	2	21841	Boot, Electric terminal
32	1	21840	Cable assy, 20 GA, red, 72 in
33	1	21842	Splice, 20 GA
34	2	64016	Cable assy, 8 GA, red, 96 in
35	2	37205	U-bolt, 1/4-20 x 1 x 1 3/4
36	1	36015	Control Switch Assy (includes part # 37526, 37205, 6725, & 37543)
37	4	6725	Nut, 1/4-20 W/Nylon Insert
38	4	37526	Cap, Vinyl
39	1	37543	Insulator, Switch, ATV
40	4	1402	5/16 Lockwasher
41	4	21331	5/16-18 Hex Head Capscrew
43	1	28718	Fairlead, Hawse
44	1	39557	Hook, 5/16 Clevis Slip w/ Strap
45	1	21666	Fairlead, Plate Mounting
46	1	38293	Strap, Hook
47	1	28929	Roller Fairlead (Optional)
48	1	36928	Wire, 20 GA, Green, 30 in, Ground
49	1	62759	Nut 7/16-14 W/Nylon Insert
50	1	62760	Socket Head Capscrew 7/16-14 X ¾
51	1	64056	Cable Assy., 8 GA, black, 96 in

WARN A2000 ATV WINCH PN 36001, 360012

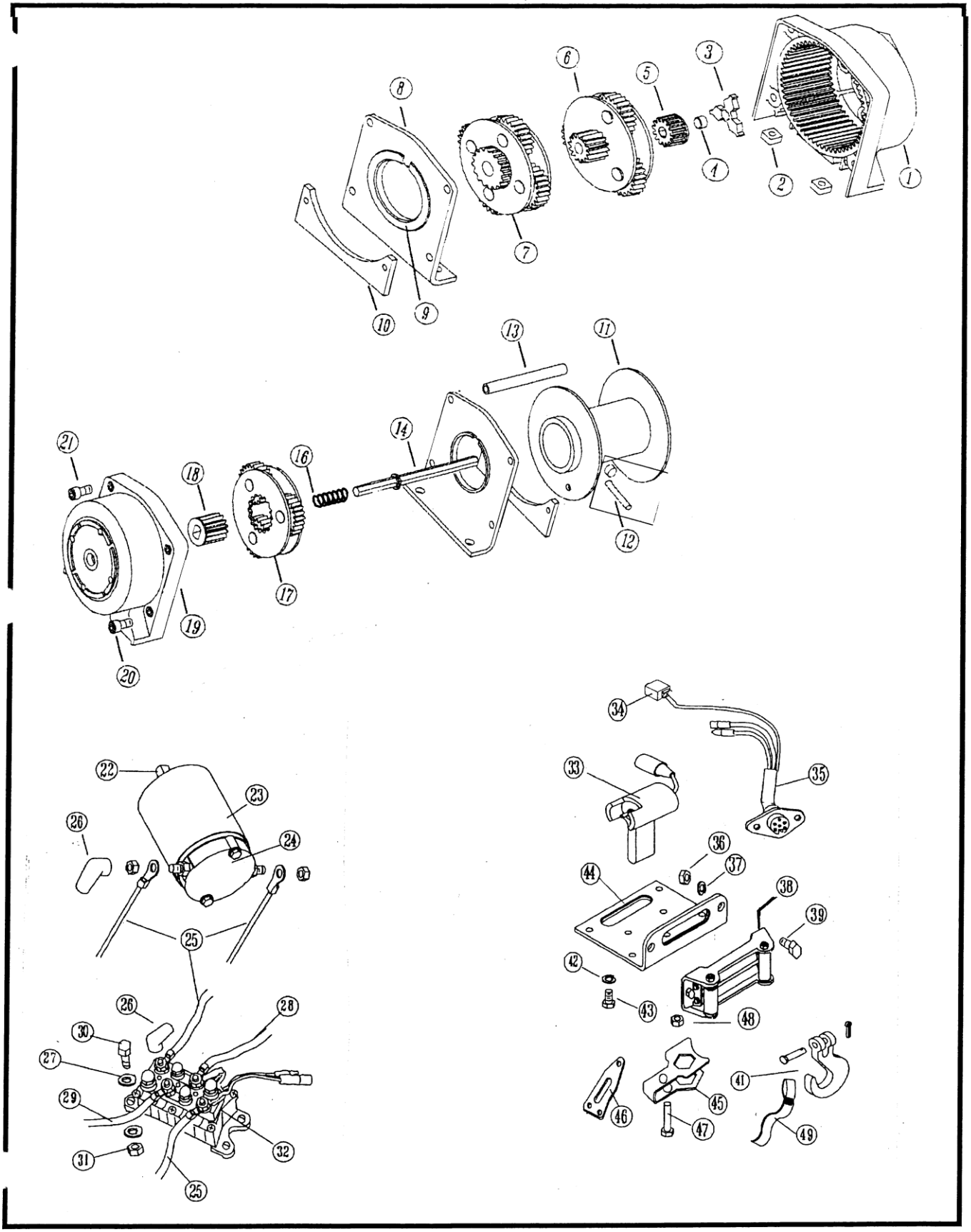


WARN A2500 ATV WINCH
REPLACEMENT PARTS LIST

ORDERING INFORMATION: Parts may be obtained through your local dealer or distributor.

ITEM	QTY	NUMBER	DESCRIPTION
1	1	36030	Endhousing, Clutch assy (includes items 3 & 4)
1	1	36053	Endhousing, No Clutch
2	4	7953	Square Nut
3	1	65617	Cam Follower
4	1	21895	Thrust Plate (NLA- Included in item 3)
5	1	21292	Sun Gear, Stage 2
6	1	21329	Carrier Assy., Stage 2
7	1	21330	Carrier Assy., Stage 3
8	2	21665	Drum Support
9	2	21296	Drum Bushing
9	2	21597	Drum Support with Bushing
10	2	25257	Cable Protector
11	1	60078	Drum Assy (no wire rope)
11	1	39315	Drum Assy
12	1	60076	Wire Rope Assy., 3/16" x 50'
13	2	21268	Tie Rod
14	1	34797	Drive Shaft
14	1	30468	Drive Shaft, No Clutch
16	1	21883	Clutch Return Spring
17	1	21320	Carrier Assy., Stage 1
18	1	21290	Sun Gear, Stage 1
19	1	36054	Endhousing, Motor assy (includes part # 35033 & 21316)
20	4	8956	Socket Head Capscrew 1/4-20 X 1/2
21	4	1936	Socket Head Capscrew 1/4-20 X 5/8
22	1	21594	Armature, 12 VDC Motor
22	1	22572	Armature, 24 VDC Motor
23	1	36031	Motor, 12 VDC
23	1	36032	Motor, 24 VDC
24	1	31928	Cap assy, 12 & 24 VDC Motor
25	2	34786	Cable assy, 6ga, black, 96in
26	6	2090	Boot, Electric terminal
27	4	1321	¼ washer
28	1	62259	Cable assy, 6ga, black, 36in
29	1	62263	Cable assy, 6ga, red, 36in
30	4	1319	¼-20 X 3/4 Hex Capscrew
31	4	1322	¼-20 Hex Nut
32	1	62135	Contactor, 12 VDC
33	1	64849	Remote control, 10ft
34	1	21842	Splice, 20 GA
35	1	62258	Remote control socket
36	2	2317	3/8-16 fin hex nut
37	2	1829	3/8 lockwasher
38	1	28929	Roller fairlead
39	2	2228	3/8-16 hex head capscrew
41	1	39557	Hook, 5/16 Clevis Slip w/ Strap
42	4	1402	5/16 Lockwasher
43	4	21331	5/16-18 Hex Head Capscrew
44	1	21666	Fairlead, Plate Mounting
45	1	37676	Handle bar mount
46	1	37674	Rubber Strap
47	1	2514	1/4-20 X 1.5 Hex Head Capscrew
48	1	6725	1/4in Locknut
49	1	38293	Strap, Hook

WARN A2500 ATV WINCH PN 38076, 380762

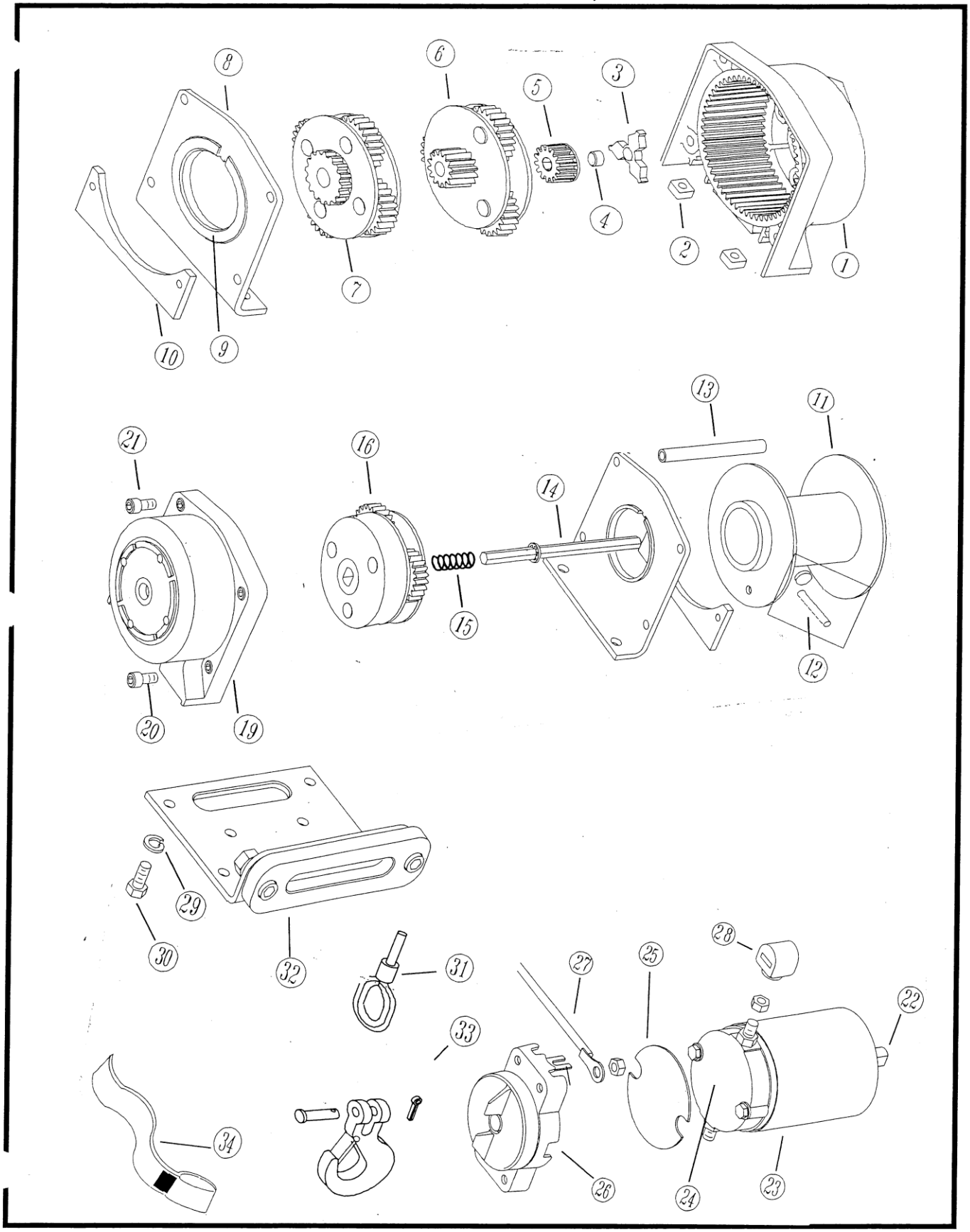


WARN CEU2500 UTILITY WINCH
REPLACEMENT PARTS LIST

ORDERING INFORMATION: Parts may be obtained through your local dealer or distributor.

ITEM	QTY	NUMBER	DESCRIPTION
1	1	36030	Endhousing, Clutch (Includes p\n 35488, 21885, 21872, & 21895)
2	4	7953	Square Nut
3	1	65617	Cam Follower
4	1	21895	Thrust Plate (NLA- Included in Item 3)
5	1	21292	Sun Gear, Stage 2
6	1	21329	Carrier Assy., Stage 2
7	1	21330	Carrier Assy., Stage 3
8	2	21665	Drum Support
9	2	21296	Drum Bushing
9	2	21597	Drum Support with Bushing
10	1	25257	Cable Protector
11	1	60078	Drum Assy (no wire rope)
12	1	38683	Drum Assy
13	2	21268	Tie Rod
14	1	34797	Drive Shaft
14	1	30468	Drive Shaft, No Clutch
15	1	21883	Clutch Return Spring
16	1	22142	Brake
19	1	36054	Endhousing, Motor assy (includes part # 35033 & 21316)
20	4	8956	Socket Head Capscrew 1/4-20 X 1/2
21	4	1936	Socket Head Capscrew 1/4-20 X 5/8
22	1	21594	Armature, 12 VDC Motor
22	1	22572	Armature, 24 VDC Motor
23	1	36031	Motor, 12 VDC
23	1	36032	Motor, 24 VDC
24	1	31928	Cap assy, 12 & 24 VDC Motor
25	1	21343	Insulator
26	1	36016	Control Switch Assy (includes part # 37526)
27	1	21457	Cable, Black, 6 Gage, 120"
27	1	21458	Cable, Red, 6 Gage, 120"
28	2	33751	Boot, Electric Terminal
29	4	1402	5/16 Lockwasher
30	4	21331	5/16-18 Hex Head Capscrew
31	1	60076	Wire rope assy, 3/16" x 50
32	1	36265	Fairlead, Hawse, Kit
33	1	39557	Hook, 5/16 Clevis Slip w/ Strap
34	1	38293	Strap, Hook

WARN U2500 UTILITY WINCH PN 239772, 239782

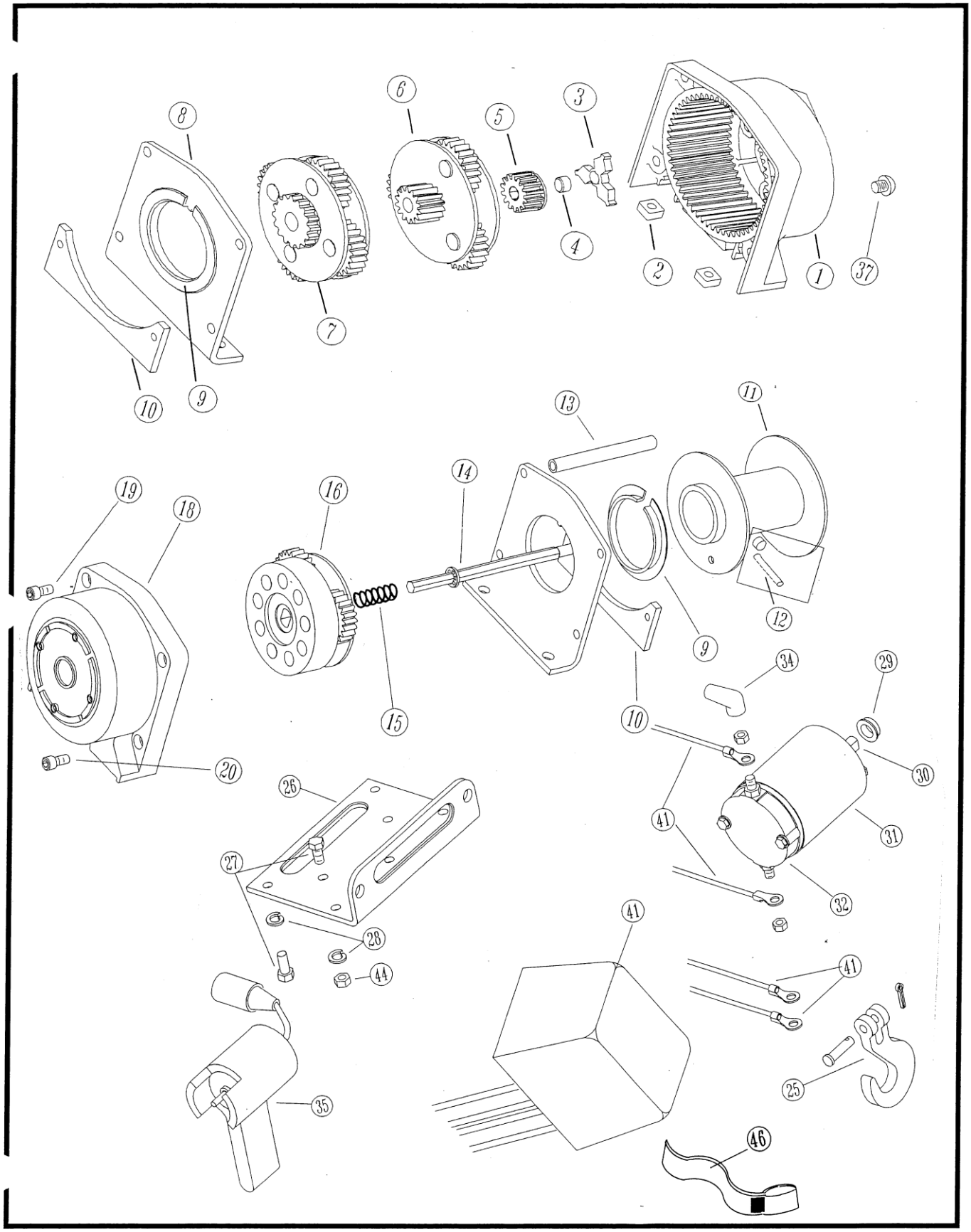


WARN T2500 WINCH
REPLACEMENT PARTS LIST

ORDERING INFORMATION: Parts may be obtained through your local dealer or distributor.

ITEM	QTY	NUMBER	DESCRIPTION
1	1	31335	End Housing, Clutch Assy (inc. items 1,3, 4 & 37)
2	4	7953	Square Nut, 5/16-18
3	1	65617	Cam Follower
4	1	21895	Thrust Plate (NLA- Included in item 3)
5	1	21292	Sun Gear, Stage 2
6	1	21329	Carrier Assy, Stage 2
7	1	21330	Carrier Assy, Stage 3
8	2	21597	Drum Support (includes item 9)
9	2	21296	Drum Bushing
10	2	25257	Cable Protector
11	1	60078	Drum Assy (no wire rope)
11	1	39315	Drum Assy
12	1	60076	Wire Rope Assy., 3/16" x 50'
13	2	21268	Tie Rod
14	1	34797	Drive Shaft
15	1	21883	Clutch Return Spring
16	1	22142	Brake Assy, Stage 1
18	1	21595	End Housing, Stage 1 (includes Motor Shaft Bushing)
19	4	1936	Socket Head Cap screw 1/4-20 x 5/8
20	4	8956	Socket Head Cap screw 1/4-20 x 1/2
22	1	34038	Controler, 12 VDC,
25	1	39557	Hook, 1/4 Clevis Slip w/ Strap
26	1	21666	Mounting Plate, Fairlead
27	7	21331	Hex Head Cap screw 5/16-18 x 1
28	7	1402	Lock washer, 5/16
29	1	21316	Motor Shaft Bushing
30	1	21594	Armature, 12 VDC Motor
30	1	22572	Armature, 24 VDC Motor
31	1	36031	Motor, 12 VDC
31	1	36032	Motor, 24 VDC
32	1	31928	Cap Assy, 12 VDC Motor
34	2	2090	Boot, Electric Terminal
35	1	64849	Remote
37	1	28002	Socket Head Cap screw 4-40 x 3/16
41	1	60486	Control Pack with wiring, 12VDC
44	3	2079	Hex nut 5/16-18
46	1	38293	Hook Strap

WARN T2500 TRAILER WINCH PN 26361

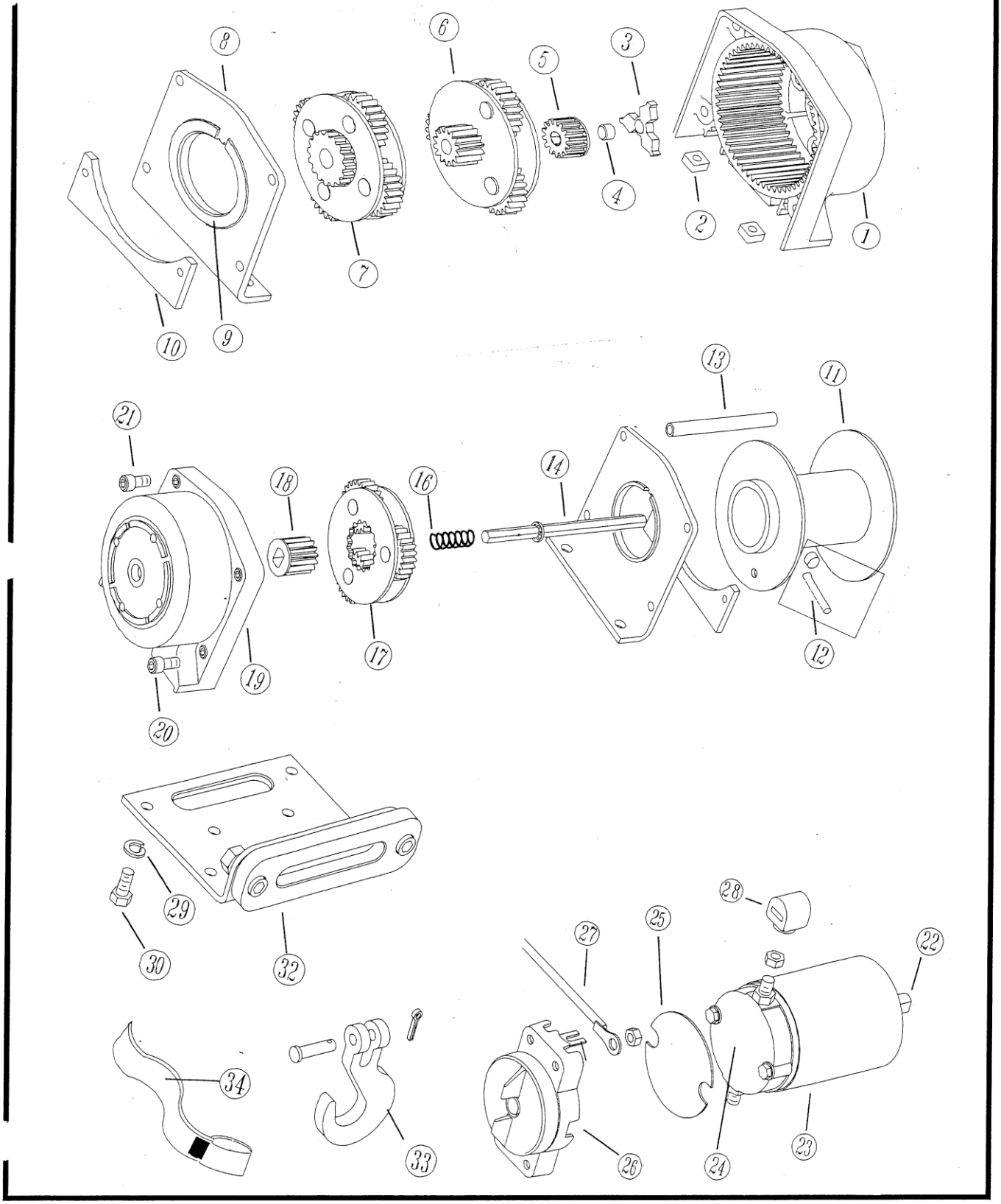


WARN U2500 UTILITY WINCH
REPLACEMENT PARTS LIST

ORDERING INFORMATION: Parts may be obtained through your local dealer or distributor.

ITEM	QTY	NUMBER	DESCRIPTION
1	1	36030	Endhousing, Clutch (Includes p\n 35488, 21885, 21872, & 21895)
1	1	36053	Endhousing, No Clutch
2	4	7953	Square Nut
3	1	65617	Cam Follower
4	1	21895	Thrust Plate (NLA- Included in item 3)
5	1	21292	Sun Gear, Stage 2
6	1	21329	Carrier Assy., Stage 2
7	1	21330	Carrier Assy., Stage 3
8	2	21665	Drum Support
9	2	21296	Drum Bushing
9	2	21597	Drum Support with Bushing
10	2	25257	Cable Protector
11	1	60078	Drum Assy (no wire rope)
11	1	39315	Drum Assy
12	1	60076	Wire Rope Assy., 3/16" x 50'
13	2	21268	Tie Rod
14	1	34797	Drive Shaft
14	1	30468	Drive Shaft, No Clutch
16	1	21883	Clutch Return Spring
17	1	21320	Carrier Assy., Stage 1
18	1	21290	Sun Gear, Stage 1
19	1	36054	Endhousing, Motor assy (Includes p\n 21316, & 35033)
20	4	8956	Socket Head Capscrew 1/4-20 X 1/2
21	4	1936	Socket Head Capscrew 1/4-20 X 5/8
22	1	21594	Armature, 12 VDC Motor
22	1	22572	Armature, 24 VDC Motor
23	1	36031	Motor, 12 VDC
23	1	36032	Motor, 24 VDC
24	1	31928	Cap assy, 12 & 24 VDC Motor
25	1	21343	Insulator
26	1	36016	Control Switch Assy
27	1	21457	Cable, Black, 6 Gage, 120"
27	1	21458	Cable, Red, 6 Gage, 120"
28	2	33751	Boot, Electric Terminal
29	4	1402	5/16 Lockwasher
30	4	21331	5/16-18 Hex Head Capscrew
32	1	36265	Fairlead, Hawse, Kit
33	1	39557	Hook, 5/16 Clevis Slip w/ Strap
34	1	38293	Strap, Hook

WARN U2500 UTILITY WINCH PN 21321, 22000

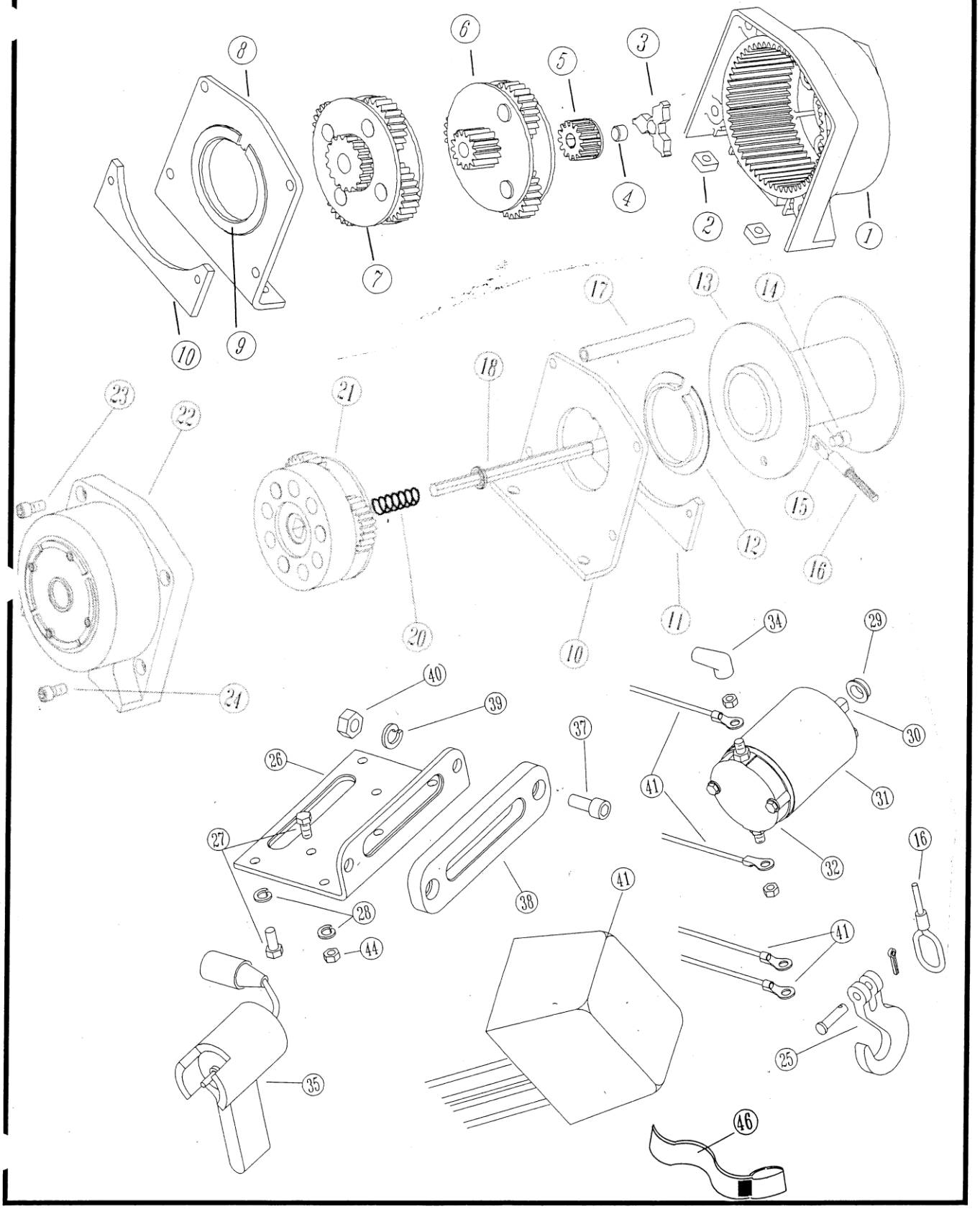


WARN Z3500 WINCH
REPLACEMENT PARTS LIST

ORDERING INFORMATION: Parts may be obtained through your local dealer or distributor.

ITEM	QTY	NUMBER	DESCRIPTION
1	1	21974	End Housing, Clutch Knob, Black (includes items 3 & 4)
2	4	7953	Square Nut, 5/16-18
3	1	65617	Cam Follower
4	1	21895	Thrust Plate (NLA- Included in item 3)
5	1	21292	Sun Gear, Stage 2
6	1	21329	Carrier Assy, Stage 2
7	1	21330	Carrier Assy, Stage 3
8	2	21597	Drum Support (includes item 9)
9 & 12	2	21296	Drum Bushing
10 & 11	2	25257	Cable Protector
13	1	28711	Drum Assy
14	1	13699	Button Head Cap screw 1/4-20 x 1/4
15	1	29586	Terminal Kit, 7/32" Wire Rope
16	1	31098	Wire Rope Assy, 7/32" x 60'
17	2	24479	Tie Rod
18	1	34798	Drive Shaft
20	1	21883	Clutch Return Spring
21	1	22142	Carrier Assy, Stage 1, w/ brake
22	1	21595	End Housing, Stage 1 (includes item 29)
23	4	1936	Socket Head Cap screw 1/4-20 x 5/8
24	3	8956	Socket Head Cap screw 1/4-20 x 1/2
25	1	39557	Hook, 1/4 Clevis Slip w/ Strap
26	1	28885	Mounting Plate, Fairlead
27	7	21331	Hex Head Cap screw 5/16-18 x 1
28	7	1402	Lock washer, 5/16
29	1	21316	Motor Shaft Bushing
30	1	29587	Armature, 12 VDC Motor
31	1	36300	Motor, 12 VDC
32	1	31928	Cap Assy, 12 VDC Motor
34	2	21422	Boot, Electric Terminal
35	1	64849	Remote Control
37	2	14157	Socket Head Cap screw 7/16-14 x 1
36	1	63070	Contactor, 12 VDC (Not pictured)
38	1	27414	Fairlead, Cast
38	1	29256	Roller fairlead
39	2	2146	Lockwasher, 7/16
40	2	2583	Nut, 7/16-14
41	1	60486	Solenoid Pack, 12 VDC, (inc. pack & cables)
44	3	2079	Nut, 5/16-18
45	2	9639	Solenoid, 12 VDC (Not pictured)
46	1	38293	Strap, Hook

WARN Z3500 TRAILER WINCH PN 29255, 29260

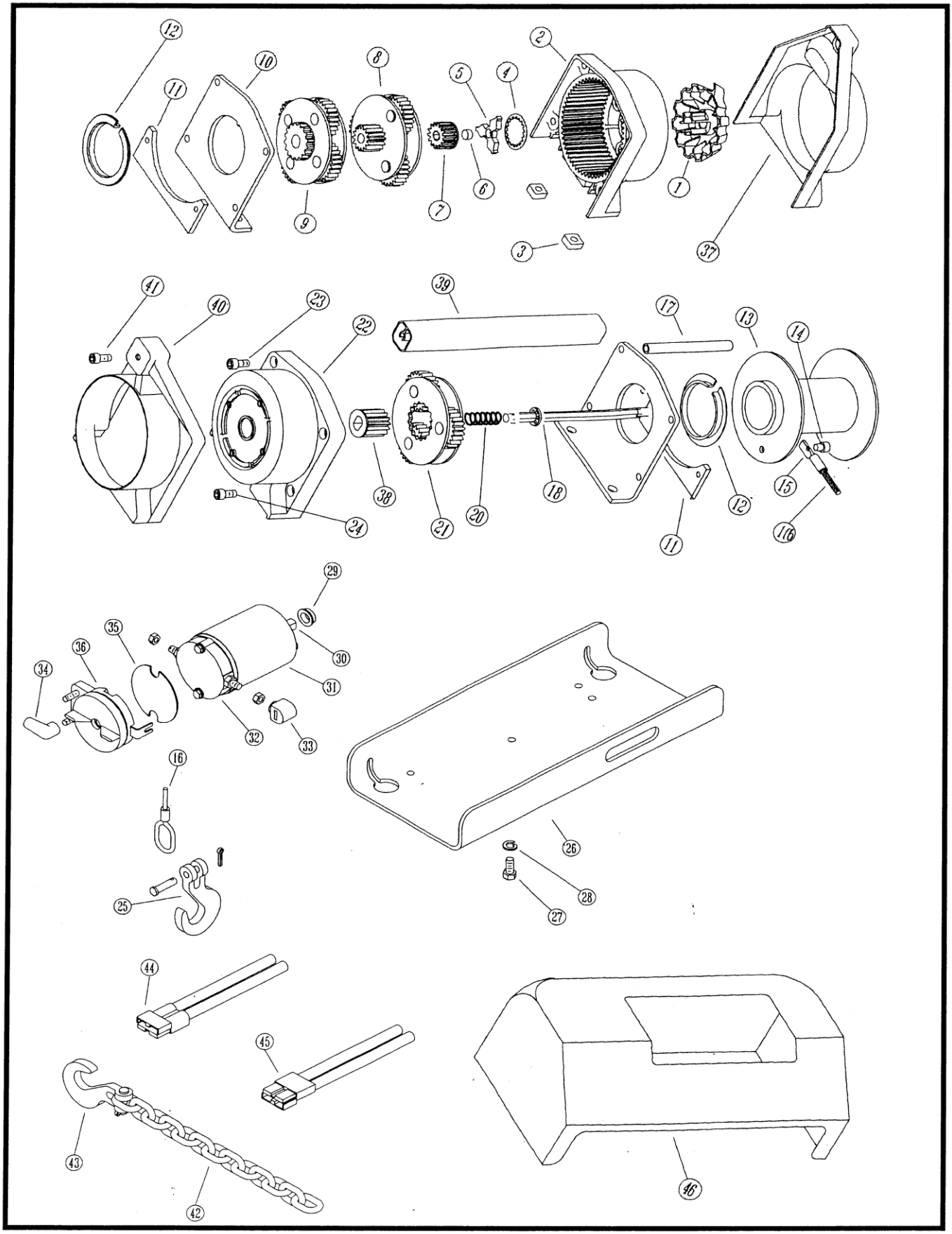


WARN P2500 PORTABLE WINCH
REPLACEMENT PARTS LIST

ORDERING INFORMATION: Parts may be obtained through your local dealer or distributor.

ITEM	QTY	NUMBER	DESCRIPTION
1	1	21871	Knob, Clutch Dial
2	1	21974	End Housing, Stages 2&3 (includes items 1&4)
3	4	7953	Square Nut, 5/16-18
4	1	21885	Retaining Ring
5	1	21872	Cam Follower
6	1	21895	Thrust Plate
7	1	21292	Sun Gear, Stage 2
8	1	21329	Carrier Assy, Stage 2
9	1	21330	Carrier Assy, Stage 3
10	2	21597	Drum Support (includes item 12)
11	2	25257	Cable Protector
12	2	21296	Drum Bushing
13	1	21269	Drum Assy
14	1	13699	Button Head Cap screw 1/4-20 x 1/4
15	1	16461	Terminal Kit, 3/16" Wire Rope
16	1	60076	Wire Rope Assy., 3/16" x 50'
17	2	21268	Tie Rod
18	1	34797	Drive Shaft
20	1	21883	Clutch Return Spring
21	1	21320	Carrier Assy, Stage 1
22	1	21595	End Housing, Stage 1 (includes item 29)
23	4	1936	Socket Head Cap screw 1/4-20 x 5/8
24	4	8956	Socket Head Cap screw 1/4-20 x 1/2
25	1	39557	Hook, 5/16 Clevis Slip w/ Strap
26	1	30491	Mounting Plate, Fairlead
27	4	30498	Button Head Cap screw 5/16-18 x 1
28	4	1402	Lock washer, 5/16
29	1	21316	Motor Shaft Bushing
30	1	21594	Armature, 12 VDC Motor
31	1	21592	Motor, 12 VDC
32	1	31928	Cap Assy, 12 VDC Motor
33	2	21402	Boot, Elect. Term. Control Switch
34	2	21877	Boot, Electric Terminal
35	1	21343	Insulator, Control Switch
36	1	21596	Control Switch (includes items 30, 31 &32)
37	1	30508	Handle End, Clutch
38	1	21290	Sun Gear, Stage 1
39	1	30495	Handle, Aluminum, 6.4"
40	1	30509	Handle End, Motor
41	2	30515	Taptite, 1/4-20 x 1/2", Bolt
42	2	30492	Chain, 1/4" x 4", High Test
43	2	30493	Hook, Clevis Slip, 1/4"
44	1	23321	50 AMP, 18" Quick Connect Power Lead
45	1	23243	50 AMP, 8' Quick Connect Power Lead
46	1	31338	Cover w/ Emblem, P2500

WARN P2500 PORTABLE WINCH PN 30490



WARN PULL PAK
REPLACEMENT PARTS LIST

ORDERING INFORMATION: Parts may be obtained through your local dealer or distributor.

ITEM	QTY	NUMBER	DESCRIPTION
1	1	21871	Knob, Clutch Dial
2	1	21974	End Housing, Stages 2&3 (includes items 1&4)
3	4	7953	Square Nut, 5/16-18
4	1	21885	Retaining Ring
5	1	21872	Cam Follower
6	1	21895	Thrust Plate
7	1	21292	Sun Gear, Stage 2
8	1	21329	Carrier Assy, Stage 2
9	1	21330	Carrier Assy, Stage 3
10	2	21597	Drum Support (includes item 12)
11	2	25257	Cable Protector
12	2	21296	Drum Bushing
13	1	28711	Drum Assy
14	1	13699	Button Head Cap screw 1/4-20 x 1/4
15	1	29586	Terminal Kit, 7/32" Wire Rope
16	1	31098	Wire Rope Assy, 7/32" x 60'
17	2	24479	Tie Rod
18	1	34798	Drive Shaft
19	1	21319	Thrust Washer
20	1	21883	Clutch Return Spring
21	1	22142	Carrier Assy, Stage 1, w/ brake
22	1	21595	End Housing, Stage 1 (includes item 29)
23	4	1936	Socket Head Cap screw 1/4-20 x 5/8
24	4	8956	Socket Head Cap screw 1/4-20 x 1/2
25	1	11710	Hook, 1/4 Clevis Slip
26	1	31112	Mounting Plate
27	4	21331	Hex Head Cap screw 5/16-18 x 1
28	4	1402	Lock washer, 5/16
29	1	21316	Motor Shaft Bushing
30	1	29587	Armature, 12 VDC Motor
31	1	28707	Motor, 12 VDC
32	1	31928	Cap Assy, 12 & 24 VDC Motor
33	1	6008	Cable, Electric, 6 Gage
34	1	25974	Cable Assy, 175 AMP, 20'
35	1	30510	Cable Assy, 175 AMP, 36"
36	1	21710	Remote Control
37	1	30508	Handle End, Clutch
38	1	30507	Handle, 8.1"
39	1	30509	Handle End, Motor
40	2	30515	Taptite, 1/4-20 x 1/2" Bolt
41	1	27414	Fairlead, Hawse
42	2	14157	Socket Head Cap screw 7/16-14 x 1
43	2	2146	Lockwasher, 7/16
44	2	2583	Nut, 7/16-14
45	1	30506	Pin, Lock, Pull Pak
46	1	31937	Connectro Bracket Bus Bar
47	1	25933	Quick Connect Dust Boot
48	1	30511	Pull Pak Cover w Emblem

WARN PULL PAK WINCH PN 30500