

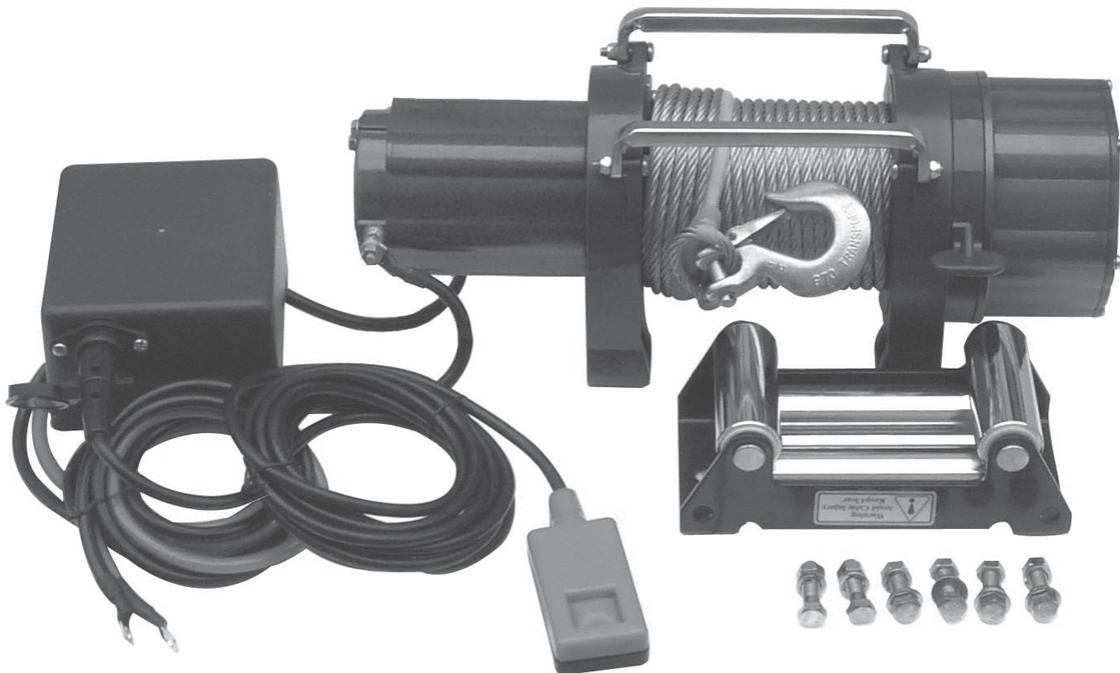
CHICAGO

Electric[®]Power Tools

5,500 LB. WINCH WITH ROLLER FAIRLEAD

Model 91780

ASSEMBLY AND OPERATING INSTRUCTIONS



3491 Mission Oaks Blvd., Camarillo, CA 93011
Visit our Web site at <http://www.harborfreight.com>

**TO PREVENT SERIOUS INJURY,
READ AND UNDERSTAND ALL WARNINGS
AND INSTRUCTIONS BEFORE USE.**

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For technical questions and replacement parts, please call 1-800-444-3353.

Specifications

Maximum Line Pull	5,500 Lbs.
Motor	12V, 3.4 Hp Magnetic Motor
Drum Size	2.64" Dia. x 4.49"
Cable	1/4" x 80 Feet
Winch Dimensions	17.7" x 6" x 6.8"
Weight	58 Lbs.
Mounting Pattern	6.5" x 4.5"

First Layer of Cable Specification					Rated Line Pull	Cumulative Cable Drum Capacity* (1/4" (6mm) Cable)			
Line Pull		Line Speed (FPM)	Line Speed (MPM)	Current (Amps)		Layer	LBS.	KG.	FT.*
(lbs)	(kg)	12V	12V	12V	1	5000	2268	14.7	4.5
0	0	12	3.7	45A	2	4200	1905	29.5	9.0
1000	454	10	3.2	90A	3	3700	1678	56	17.0
3000	1361	7.5	2.3	150A	4	3200	1452	79	24
5000	2268	5	1.5	230A	*Depends on cable being uniformly wound onto the drum.				

Save This Manual

You will need the manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep the manual and invoice in a safe and dry place for future reference.

General Safety Warnings and Precautions

WARNING: When using tool, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment.

Read all instructions before using this tool!

1. **Keep work area clean.** Cluttered areas invite injuries.
2. **Observe work area conditions.** Keep work area well lighted. Do not use electrically powered tools in the presence of flammable gases or liquids.
3. **Keep children away.** Children must never be allowed in the work area. Do not let them handle machines, tools, or extension cords.
4. **Store idle equipment.** When not in use, disconnect the Winch and keep children away from it.
5. **Use the right tool for the job.** Do not attempt to force a small tool or attachment to do the work of a larger industrial tool. There are certain applications for which this tool was designed. It will do the job better and more safely at the rate for which it was intended. Do not modify this tool and do not use this tool for a purpose for which it was not intended.
6. **Dress properly.** Do not wear loose clothing or jewelry as they can be caught in moving parts. Protective, electrically nonconductive clothes and nonskid footwear are recommended when working. Wear restrictive hair covering to contain long hair.

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7. **Do not overreach.** Keep proper footing and balance at all times. Do not reach over or across the Winch cable.
8. **Maintain tools with care.** Keep the Winch clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect cords and cables periodically, and if damaged, have them repaired by an authorized technician.
9. **Stay alert.** Watch what you are doing, use common sense. Do not operate the Winch when you are tired.
10. **Check for damaged parts.** Before using the Winch, any part that appears damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment and binding of moving parts; any broken parts or mounting fixtures; and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician. Do not use the Winch if any switch does not turn On and Off properly.
11. **Replacement parts and accessories.** When this unit is serviced by a qualified technician, only identical replacement parts should be used. Use of any other parts will void the warranty. Only use accessories intended for use with this tool. Approved accessories are available from Harbor Freight Tools.
12. **Do not operate Winch if under the influence of alcohol or drugs.** Read warning labels if taking prescription medicine to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the Winch.
13. **Maintenance.** For your safety, service and repairs should be performed regularly by a qualified technician. This unit should receive regular maintenance.
14. **Pacemaker safety warning.** People with pacemakers should consult their physician(s) before using this product. Electromagnetic fields in close proximity to a heart pacemaker could cause interference to or failure of the pacemaker.

Note: Performance of this tool may vary depending on variations in battery power.

Specific Winch Warnings and Precautions

1. Keeps hands and body away from Fairlead (cable intake slot) and operating gears when operating the Winch and when the Winch is supporting a load.
2. Secure vehicle in position with the emergency brake and wheel blocks before using winch. Never keep the vehicle in Park or in gear while using the Winch.
3. Do not exceed winch Rated Line Pull Capacity (5,500 Lbs.).
4. Be certain winch is properly bolted to a structure (or vehicle) that can hold the Winch and the load supported by the Winch.
5. Always use proper couplings when connecting winch cable hook to load.
6. Do not lift items vertically. The winch was designed for horizontal pulling use only.
7. Never leave the Winch unattended when it is under a load.
8. Do not use inappropriate attachments to extend the length of the winch cable.

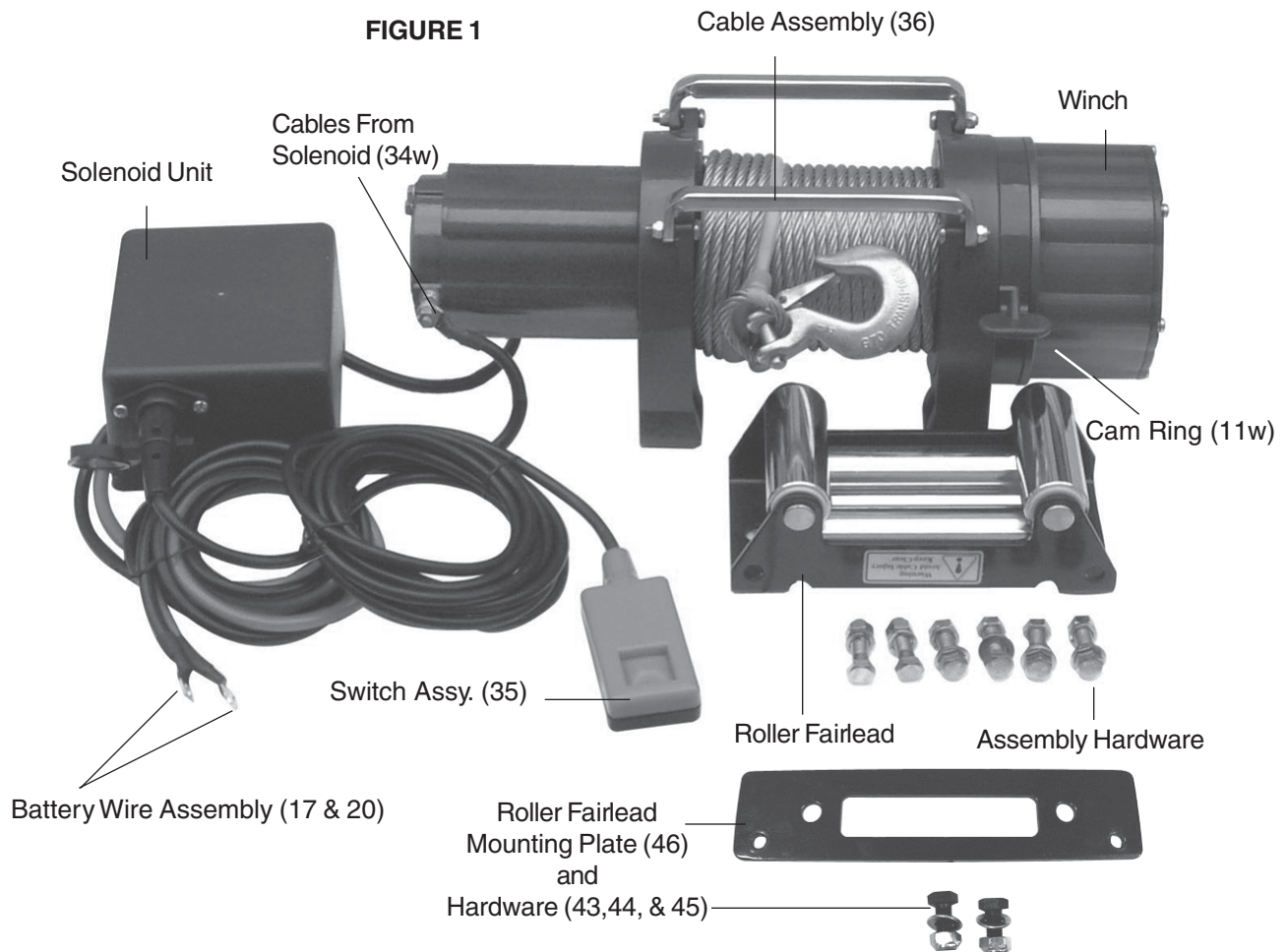
Winch Warnings and Precautions (continued)

9. Never pull people or pull loads over people. Do not lift people or animals; as noted in *Specific Warning 6*, this Winch should not be used for lifting whatsoever.
10. Never come in between the winch and the load when operating.
11. Examine Winch before using. Components may be affected by exposure to chemicals, salts, and rust. Do not use the Winch if even minor structural cracks, bends, a frayed cable, or any other condition that may affect safe operation are noted.
12. Do not apply winch to load when cable is fully extended. Never fully extend cable while under load. Keep 4 complete turns of cable around the winch drum.
13. When loading a boat into a trailer without keel or side hull rollers, make sure the trailer is submerged in the water (**but not the Winch**) when the boat is loaded by the winch. Attempting to drag the boat on to the trailer while on land can cause winch failure and possible injury.
14. Never operate winch if cable shows any signs of weakening, or is knotted or kinked.
15. Winch does not have a locking mechanism. After moving an item with the winch, secure the item. Do not rely on the winch to hold it for an extended period.
16. Do not cross over or under cable under load.
17. Do not move vehicle with cable extended and attached to load to pull it. The cable could snap.
18. Use leather gloves while handling cable. Always wear ANSI approved safety goggles during setup, use, and maintenance.
19. Re-spool cable properly in a smooth pattern as shown in the photo on the next page.
20. Not to be used for aircraft purposes.
21. Make sure to read and understand all instructions and safety precautions as outlined in the manufacturer's manual for the object you will winch. Make sure you attach the Cable Assembly (36) to the manufacturer's recommended pulling point.
22. Make sure to read and understand all instructions and safety precautions as outlined in the manufacturer's manual for the vehicle/trailer to which the Winch will be attached.
23. Use extreme caution when applying or releasing a load. Never allow the load to suddenly release. Carefully and slowly, apply and release the load.
24. This Winch is designed for mounting on square or rectangular surfaces. Never attempt to mount the Winch on a round surface.
25. Do not replace the Steel Cable with ropes or fiberglass straps. This Winch is only designed to work with the 1/4" Steel Cable provided. Replacement cables for this winch should only be ordered through Harbor Freight Tools as parts for this item.

Warning: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Unpacking

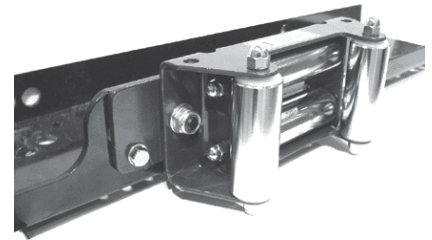
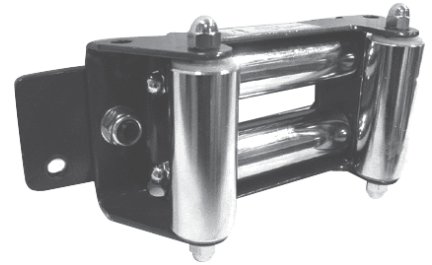
When unpacking, check to make sure that all of the parts listed on pages 9, 11, and 12, are included. If any parts are missing or broken, please call Harbor Freight Tools at the number on the cover of this manual as soon as possible.



Installation

Warning! Injury or death can occur if this Winch comes apart from its mounting location when it is under load. Electrical damage or fire may occur if the Winch is wired improperly. For these reasons, it should only be installed by a qualified technician.

1. After matching up the mounting holes, attach the Roller Fairlead (2w) to the Mounting Plate (46w) using the supplied M12 Bolts (43w), Nuts (44w), and Washers (45w).
2. Now mount the Roller Fairlead and Mounting Plate assembly to the mounting channel (not included) or other suitable mounting point using the included hardware (M10, bolt, lock washer, and nut). It is recommended that the Harbor Freight Universal Mounting Channel (SKU 90476) be used.



NOTE: If recommended mounting channel is not used, a mounting channel or mounting point of equal or greater design, must be used.

3. Now place the mounting channel in position on the vehicle and mark on the vehicle's frame where the holes will need to be drilled for the winch's mounting hardware. Remove the mounting channel from the vehicle and drill the holes for the mounting channel.
4. Attach the Winch to the mounting channel (not included) using Bolts (3w), Flat Washers (5w), Lock Washers (4w), and Nuts (6w). NOTE: Tighten bolts to at least 35 ft. lbs. of torque.

5. Connect the short Solenoid Cables to the terminals on the Winch. The cables can be connected to either terminal.

6. Mount the Solenoid (34w) to the mounting channel (not included) using three Lock Washers (4s) and three Nuts (3s). The Solenoid may also be mounted to the Winch motor using the included Solenoid mounting bracket (7s). Remove both Bolts (12-1w) and Nuts (13w) from the Motor End Bearing Ass'y (33w). Then align the Solenoid Bracket (40w) with the 2 mounting holes. Attach the Solenoid bracket to the Motor End Bearing Ass'y (33w) by reattaching the Tie Bars (10w) with the Bolts (12-1w) and Nuts (13w)

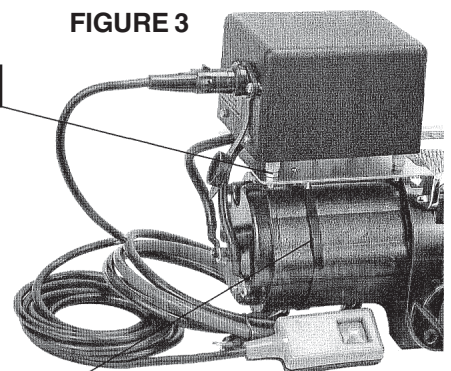
that were previously removed. Tighten. Secure the Solenoid Bracket (40w) to the Motor End Bearing Ass'y (33w) by attaching the Bracket Tie Down Strap (41w) around both the Solenoid Bracket and the Motor End Bearing Ass'y. Pull Strap until secure. Attach the Solenoid to the bracket using the Lock Washers (4s) and Nuts (3s). See **FIGURE 3**.

7. Place the mounting channel and Winch on the vehicle. Now align the holes previously drilled in the vehicle frame with the holes in the mounting channel. Using four each of

FIGURE 3

Support Bracket

Tie down strap to hold support Bracket in place.



Installation (continued)

Bolt (3w), Flat Washer (5w), Lock Washer (4w) and Nut (6w), place through the mounting channel and the vehicle frame and tighten to at least 35 ft. lbs.

NOTE: The winch should be mounted to flat part of the vehicle (frame) that is capable of supporting and evenly distributing the Winch and its full load capacity. Remember, the Winch is designed for horizontal pull, NOT vertical.

8. Connect the (two short Black) Solenoid Cables to both terminals on the Winch (see **FIGURE 1**). Securely tighten nuts.

Caution: The Battery cables should not be drawn taut. Leave slack for some cable movement. Do not route cables near moving engine parts, or heated areas that could melt the cable insulation.

9. Connect the Battery Wire Assy. Red (positive +) (17s) from the Solenoid Assembly (34w) to the positive (+) terminal on the vehicle's 12 volt battery.
10. Connect the Battery Wire Assy. Black (negative -) (20s) from the Solenoid Assembly (34w) to the negative (-) terminal on the vehicle's 12 volt battery.
11. To check for correct winch motor rotation, first disengage the winch clutch by moving the Cam Ring (11w) to the "out" position.
12. Pull out 3-4ft. of the Cable Assy. and then reengage the winch clutch by moving the Cam Ring (11w) to the "in" position.
13. Insert the Switch Assy. (35w) into the Connector (9s) on the side of the of the Solenoid Assy. (34w).
14. Now momentarily press the "Red" button on the Switch Assy. (35w) and observe if the cable is being wound back into the winch. If not, first disconnect the Red (+) battery cable and then reverse the two short Black Solenoid cables attached to the end of the winch motor (see **Figure 1**). Now reconnect the battery cable. Installation of the winch is now complete.

Operation

1. Disengage the clutch of the Winch by moving the Cam Ring (11w) to the out position. See **FIGURE 1**.
2. Pull the Cable Assy. (36w) out the to the desired length, then attach the Hook to the item being pulled. Make sure the Hook's spring-loaded latch is set.

Warning: Always leave at least four turns of cable on the drum. Review Winch Safety Warnings and Precautions on pages 3 and 4 before continuing.

3. Reengage the clutch by moving the Cam Ring (11w) to the in position. See **FIGURE 1**.
4. Open the Cover (Female Conn.) (12s) on the Solenoid (34w) unit. Insert the Switch Assembly (35w) plug into the connector on the Solenoid (34w).

Note: The vehicle battery must be fully charged and the engine running before using the Winch.

Caution: Avoid damaging the vehicle transmission. Do not have the transmission in Park or in any gear. Set the Emergency Brake and place wheel chocks, then put in neutral.

5. While standing aside of the tow path, press (and hold) the RED push-button on the Switch Assy. (35w) to pull the load. If the load will not move, release pull switch and check for obstacles blocking the load, or check to see if load is too heavy for Winch capacity.

Always wait until the motor has stopped before changing directions!

6. To reverse directions, press (and hold) the opposite push-button to release the load.
7. When the pulling is complete, secure the load so it cannot move in either direction.

Caution: The Winch is designed for intermittent use only, and should not be used in a constant duty application. The duration of the pulling job should be kept as short as possible. If the Winch motor becomes very hot to the touch, stop the Winch and let it cool down for several minutes. Never pull for more than one minute at or near the rated load. Do not maintain power to the Winch if the motor stalls as it can damage the motor or gears.

Maintenance

Lubrication

1. All moving parts within the Winch have been lubricated using high temperature lithium grease at the factory. No internal lubrication is required.
2. Lubricate cable periodically using a light penetrating oil.

Cable Assembly Replacement

(To be performed only by a qualified service technician.)

1. Move Cam Ring (11w) to the OUT position.
2. Extend Cable Assy. (36w) to its full length. Note how the existing cable is connected to the inside of the drum.
3. Remove old Cable Assembly and attach new one.

Caution: Do not replace with inferior cable. Always use the approved replacement part from Harbor Freight Tools.

4. Retract Cable onto cable drum being careful not to allow kinking.

General

1. Keep vehicle battery in good condition.
2. Be sure that the Winch battery cables are not drawn tight against any surfaces which could possibly damage them.
3. Periodically remove and clean cable connections to the battery fuse box and chassis ground. Corrosion will reduce performance or may cause a short.
4. Cover the cables and Winch when not in use.

Winch Parts List

Note: When ordering parts for the Winch unit, always include the suffix “w” after the part number.

Part	Description	Qty.
1w	-unused-	
2w	Fairlead	1
3w	Bolt M10x35	6
4w	Lock Washer M10	6
5w	Flat Washer M10	6
6w	Nut M10	6
7w	End Bearing	1
8w	Spring	1
9w	Locking Ring	1
10w	Tie Bar	2
11w	Cam Ring	1
12-1w	Bolt M6x27	2
12-2w	Bolt M6x25	2
13w	Nut M6	4
14w	Gear, Ring	1
15w	Retainer Ring Gear	1
16w	Half Ring	2
17w	Bolt M6x19	6
18w	Gear - Output	1
19w	Bushing - Shaft	1
20w	Roll Pin (3x9)	1
21w	Cable Anchor	1
22w	Bolt	1
23w	Gear (Intermediate)	1

Part	Description	Qty.
24w	Gear (Input)	1
25w	Thrust Disc	1
26w	Thrust Washer	3
27w	Bushing-Drum	2
28w	Gasket	1
29w	Cover Gear Housing	1
30w	Screw M4x12	6
31w	Drum	1
32w	Break/Shaft Assy.	1
33w	Motor End Bearing Assy.	1
34w	Solenoid Assembly	1
35w	Switch Assembly	1
36w	Cable Assy. 80', 1/4" Dia.	1
37w	Gear Carrier Assy. - Output	1
38w	Gear Carrier Assy. - Inter.	1
39w	Gear Carrier Assy. - Input	1
40w	Solenoid Bracket	1
41w	Binding Strap	1
42w	Spring Washer 5mm	6
43w	Bolt M12 x 25	2
44w	Nut M12	2
45w	Washer M12	2
46w	Fairlead Mounting Plate	1

NOTE: Some parts are listed and shown for illustration purposes only and are not available individually as replacement parts.

PLEASE READ THE FOLLOWING CAREFULLY

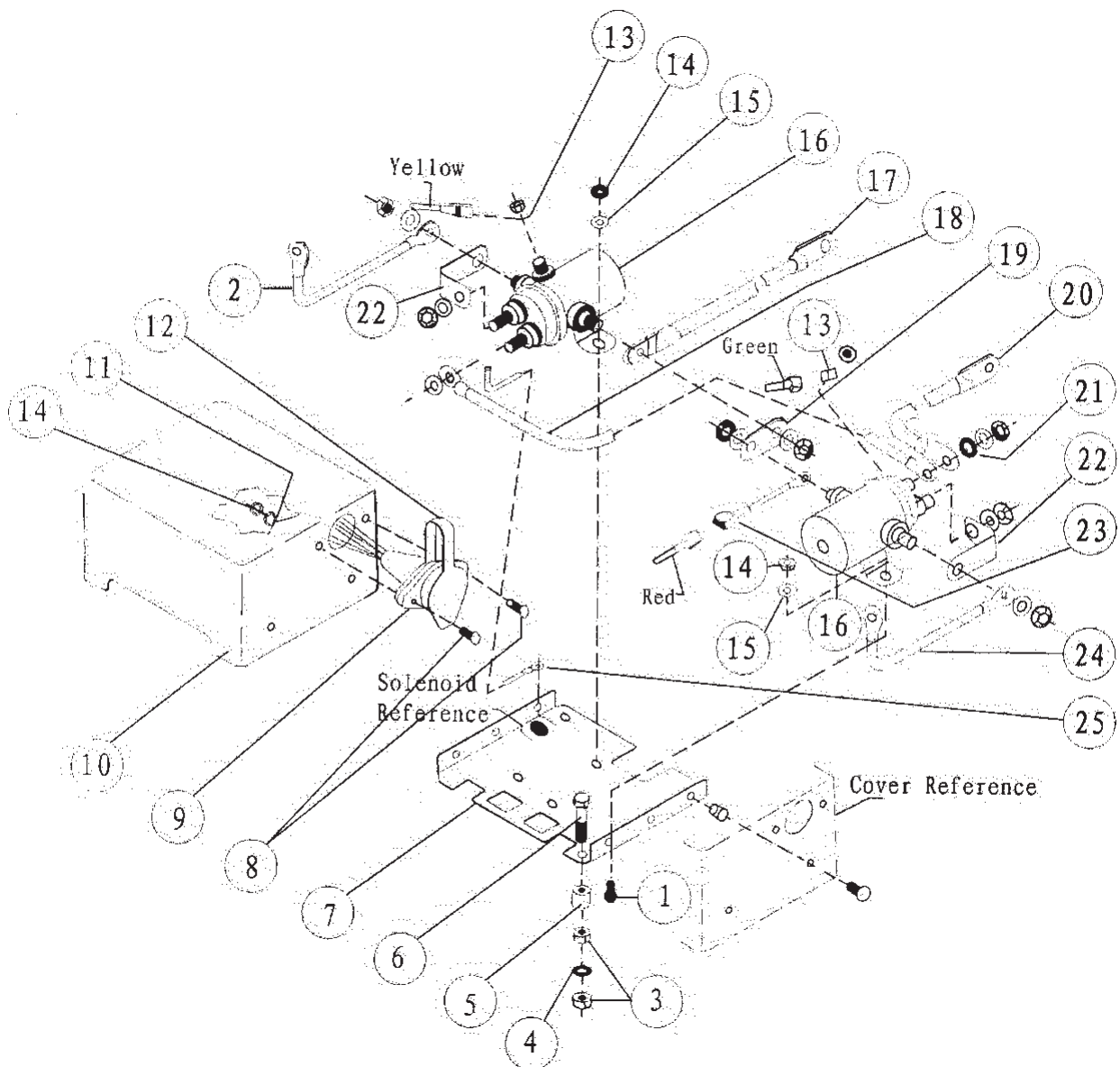
THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER NOR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

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Solenoid Parts List and Assembly Drawing

Part No.	Description	Qty.	Part No.	Description	Qty.
1s	Screw	7	14s	Nut	6
2s	Cable Bracket	3	15s	Washer	4
3s	Nut M6	6	16s	Solenoid (12V)	2
4s	Lock Washer D6	3	17s	Battery Wire Assy. - Red, 60"	1
5s	Spacer	3	18s	Battery Wire Assy. - Blk., 6 Ga.x 3-1/2" L	1
6s	Bolt	3	19s	Copper Strap	1
7s	Bracket	1	20s	Wire Assy. - Battery Black 60"	1
8s	Screw	2	21s	Washer 5/16 Shake-proof External Teeth	1
9s	Connector (Female)	1	22s	Copper Strap	2
10s	Solenoid Cover	1	23s	Wire Assy. - Blk., 16 Ga.x 1-1/2" L	1
11s	Lock Washer	2	24s	Wire Assy. - Blk., 10 Ga.x 6" L	2
12s	Cover (Female Conn.)	1	25s	Wire Assy. - Blk., 6 Ga.x 3" L	1
13s	Terminal Tab	4			

Note: When ordering parts for the Solenoid unit, always include the suffix "s" after the part number.



NOTE: Some parts are listed and shown for illustration purposes only and are not available individually as replacement parts.

Roller Fairlead Specifications, Parts List, and Assembly Drawing

Parts List

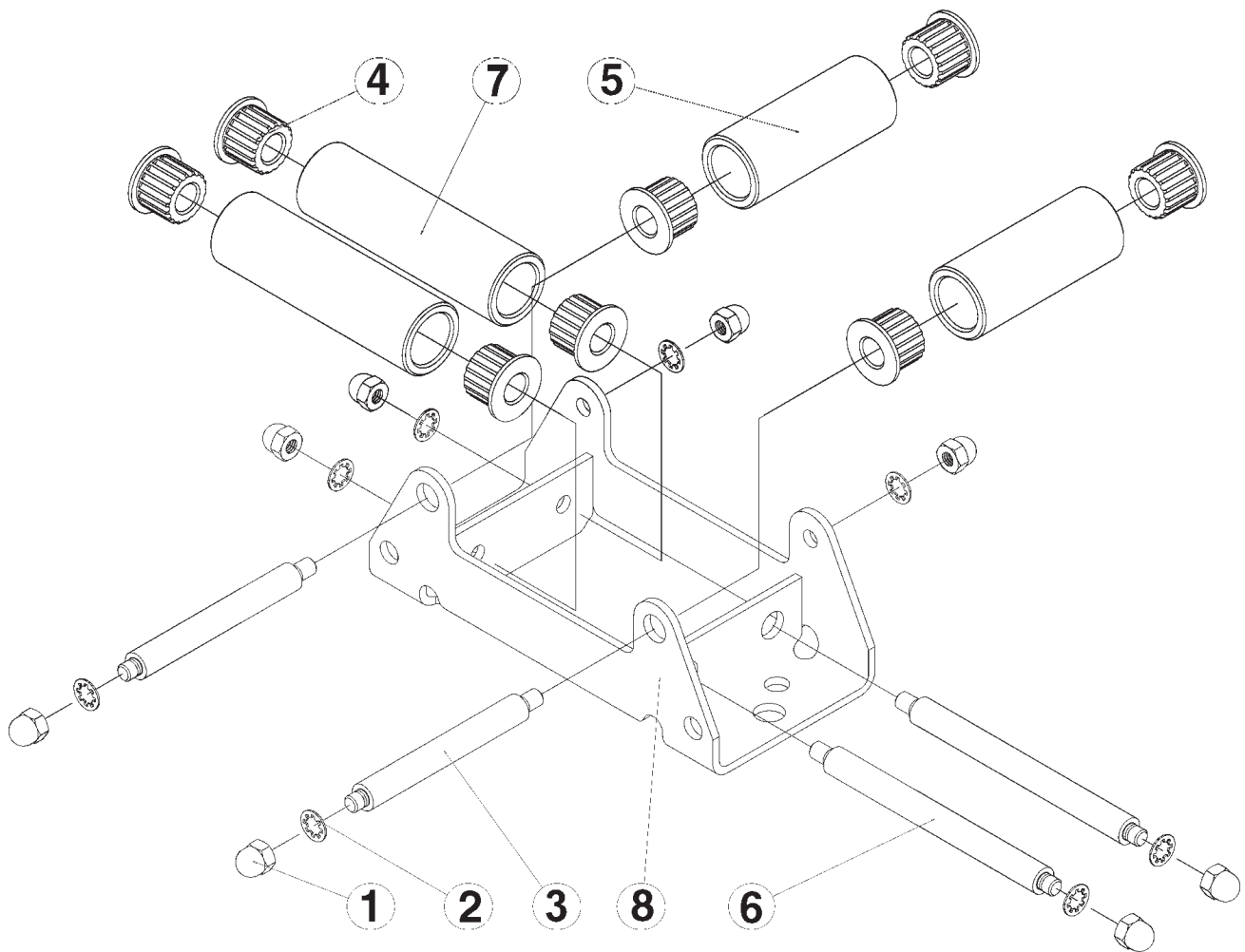
Part	Description	Qty.
1f	Nut	8
2f	Lock Washer	8
3f	Short Shaft	2
4f	Nylon Bushing	2
5f	Short Roller (~3 ³ / ₈ " x 1 ³ / ₈ " Diameter)	2
6f	Long Shaft	2
7f	Long Roller (~4 ³ / ₄ " x 1 ³ / ₈ " Diameter)	2
8f	Base	1

Specifications

Cable Opening	~4 ¹ / ₈ " x 0.7"
Overall Dimensions	~8 ¹¹ / ₃₂ " x 5 ³ / ₁₆ " x 3 ³ / ₁₆ "
Weight	7.14 Lbs.

Note: When ordering parts for the Fairlead unit, always include the suffix "f" after the part number.

Assembly Drawing



NOTE: Some parts are listed and shown for illustration purposes only and are not available individually as replacement parts.

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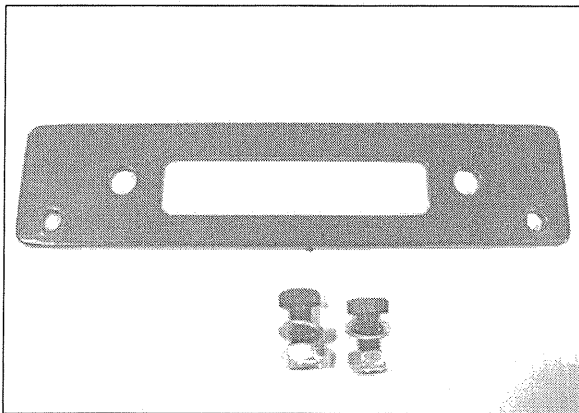
NOTICE

PRODUCTION CHANGE

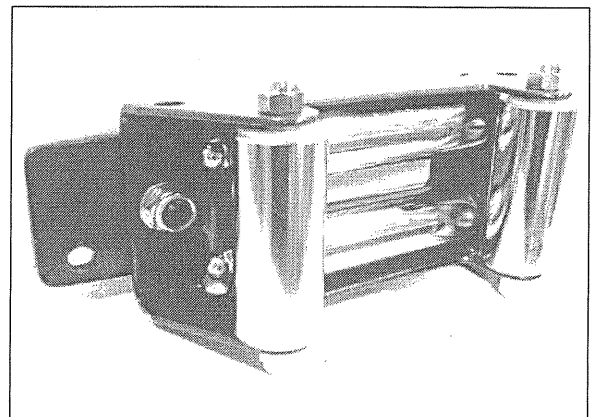
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5500 LB. WINCH WITH ROLLER FAIRLEAD

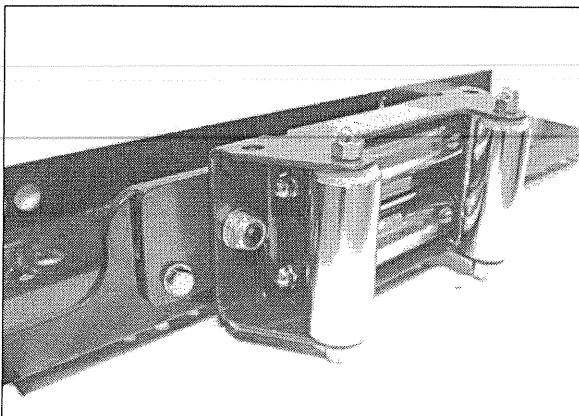
Due to manufacturing production changes, the following parts have been added or deleted. The Mounting Frame (1w) is not included with this winch but can be purchased if needed, from Harbor Freight (SKU 90475 / Universal Mounting Channel) to complete the installation of the winch. Also included/added but not specified in the manual, is the Adapter Bracket needed to mount the Roller Fairlead ((2w) to the Mounting Frame (not included). Please follow the directions below to install the Roller Fairlead and adapter bracket to the Mounting Frame (not included). The Solenoid Bracket (40w) is included and may be used as an alternative mounting location for the Solenoid Assembly (34W).



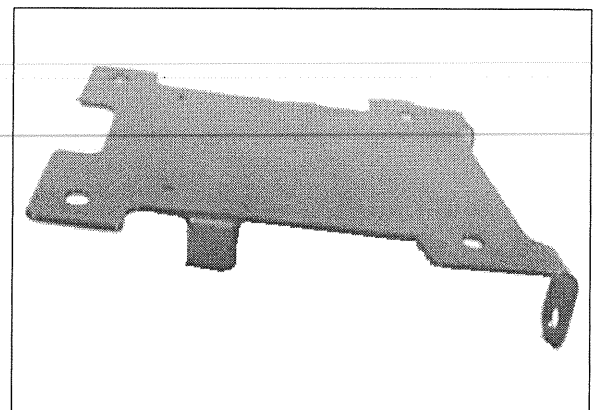
Roller Fairlead adapter bracket and hardware.



Roller Fairlead mounted to the adapter bracket.



Roller Fairlead and adapter bracket mounted to the Mounting Channel (not included) using hardware included with the winch.



Solenoid Bracket (40w) may be used as alternative mounting location for the Solenoid Assembly (34W).

NOTE: The instructions included with the winch, will need to be followed to safely and properly install the winch on the vehicle!

WARNING! Injury or death can occur if this Winch comes apart from its mounting location when it is under load. Electrical damage or fire may occur if the Winch is wired improperly. For these reasons, it is advised that only a qualified technician installs this winch.

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