



Current Tools

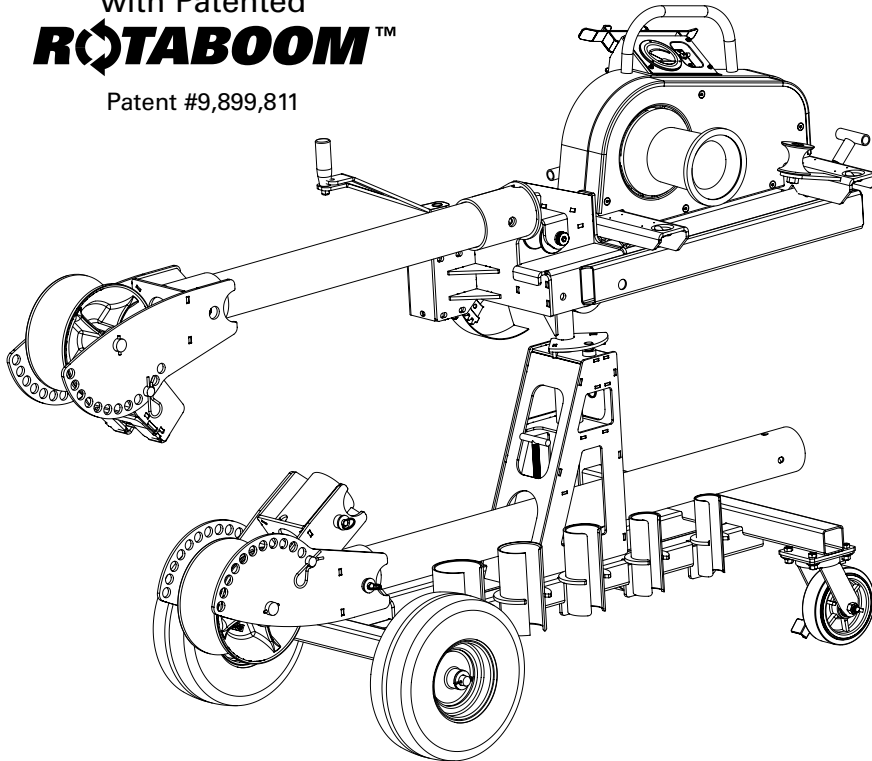
FOR THE PROFESSIONAL ELECTRICIAN

Current Tools™ Model #8288 8,000 lb. Capacity Mobile Cable Pulling Package

with Patented

ROTABOOM™

Patent #9,899,811



Operating, Maintenance, Safety and Parts Manual

01/24



Read and understand this material before operating or servicing the Cable Puller or any component of the Cable Pulling Package. Failure to understand how to safely operate and service these units may result in serious injury or death.

This manual is free of charge. All personnel who operate the Cable Puller or any component of the Cable Pulling Package should have a copy of this manual and read and understand its contents. To request a copy of this manual or replacement safety decals, or for technical assistance, call, write to the address below or visit our website. All information, specifications and product designs may change due to design improvements or updates and are subject to change without notice. Current Tools does not assume any liability for damages resulting from misuse or incorrect application of its products.

**CURRENTTOOLS • P. O. BOX 17026 GREENVILLE, SC 29606
800.230.5421 or 864-721-4230 • FAX 864-721-4232
www.currenttools.com**



TABLE OF CONTENTS

<i>Safety Alerts</i>	3
<i>Important Safety Information</i>	4-7
<i>Specifications and Features</i>	8,9
<i>Major Components</i>	10
<i>Grounding Instructions</i>	11
<i>Cable Pulling Basics</i>	12-15
<i>Assembly Instructions</i>	16-21
<i>Common Set-Ups and Illustrations</i>	22,23
<i>Transport Information</i>	24
<i>Floor Mount</i>	25,26
<i>Cable Puller Fundamentals</i>	27
<i>Operating Instructions</i>	28-31
<i>Maintenance</i>	32
<i>Exploded View and Parts List – 88 Puller</i>	33-37
<i>Wiring Schematic and Drawing – 88 Puller</i>	38
<i>Components Parts Listing</i>	39-43



Safety Alert Symbol

THIS SAFETY SYMBOL is used to call your attention to instructions that concern your personal safety. It means: ATTENTION! BE AWARE! THIS IS AN IMPORTANT SAFETY INSTRUCTION!

Read, understand, and follow these safety instructions. Failure to follow these safety instructions may result in injury or death.

DANGER

Immediate hazards which, if not avoided, WILL result in serious personal injury or death.

WARNING

Hazards or unsafe practices which, if not avoided, COULD result in serious personal injury or death.

CAUTION

Hazards or unsafe practices which, if not avoided, COULD result in minor personal injury or property damage.

RETAIN SAFETY INFORMATION



This manual should be read and understood by all personnel who operate or service this Puller. Failure to understand how to safely operate and service this unit could result in serious injury or death. This unit should only be operated and serviced by qualified personnel.

IMPORTANT SAFETY INFORMATION

⚠ DANGER DO NOT operate cable puller in wet or damp locations. DO NOT expose to rain.

⚠ DANGER DO NOT operate in an explosive atmosphere.

⚠ DANGER DO NOT use cable puller as a hoist or for lifting, supporting or transporting people or loads. Use only for its intended purpose as a cable puller.

⚠ WARNING DO NOT wrap rope around any body parts. DO NOT wrap rope around wrists.

⚠ WARNING ALWAYS keep rope away from operator's feet.

⚠ WARNING DO NOT exceed load rating of cable puller, rope, or accessories.

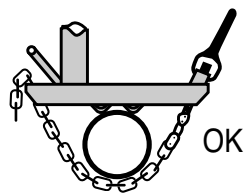
⚠ WARNING ALWAYS inspect rope before each use. Never use a worn or damaged rope.

⚠ WARNING ALWAYS disconnect cable puller before servicing.

⚠ WARNING ALWAYS plug the Model 88 Cable Puller into a grounded receptacle with a 15 amp GFCI protected circuit. DO NOT modify the plug provided with the Model 88 Cable Puller.

⚠ WARNING ALWAYS inspect the structural integrity of any supports, conduit, anchoring system etc. that will hold the cable puller during the pull. These supports should be able to withstand the maximum pulling force of the cable puller with a safety factor of 3:1. Example: 8,000 lb. puller should be anchored to a support that can withstand 24,000 lbs. of pull.

⚠ WARNING ALWAYS ensure cable puller is properly secured before operating. ALWAYS attach to supports that are at least 2" and not more than the 10" in diameter. NEVER attach to PVC conduit of any size.



See mounting chain installation section of this manual for proper mounting of cable puller and tie-down chain installation.

⚠ WARNING DO NOT mount the Model #88 cable puller to square columns or I-Beams. The mounting chains will not tighten properly on these structures.

⚠ WARNING Pulling Rope should be the only thing to contact the capstan. NEVER let swivels, grips, etc. come in contact with the capstan.

⚠ WARNING Keep as much rope confined in conduit as possible. This will help prevent injury should the rope break and whip violently.

⚠ WARNING Rope must ALWAYS be pulled over a rotating sheave. If a sheave does not rotate, turn cable puller off immediately and determine problem before continuing the pull.



IMPORTANT SAFETY INFORMATION – CONTINUED

⚠ WARNING

This cable puller is equipped with an anti-reversing pawl. The pawl will make a clicking sound when the capstan is rotating. If you can not hear the clicking sound as the capstan rotates, immediately turn the cable puller off and do not use until repaired.

⚠ WARNING

ONLY use 3/4" diameter or larger double-braided composite pulling rope, or a pulling rope with a minimum average breaking strength of 26,000 lbs.

⚠ WARNING

NEVER allow the rope to slip on a rotating capstan for more than a couple of seconds. The rope will wear in that spot and the rope could break under pressure. If you need to stop the pull, turn the cable puller off and tie the rope off to the tailing roller mounting arm to hold it in place until you restart your pull.

⚠ WARNING

Keep all body parts, hair, loose clothing, etc. away from rotating parts and pinch points. Keep hands away from capstan.

⚠ WARNING

NEVER allow the rope to overlap on the capstan. If this condition begins to occur, immediately release the tailing force on the rope so that the rope can feed back toward the conduit or cable tray. If this does not remedy the overlap, turn off the cable puller immediately. **There is no known solution for rope overlap.**

⚠ WARNING

Some components of the mobile cable pulling package exceed 50 lbs. and will require more than one person to lift, transport and assemble.

⚠ WARNING

ALWAYS inspect pins to be sure they are the correct part number for the assembly and are fully inserted through holes and have spring clips properly attached. DO NOT substitute any other object for factory supplied pins.

⚠ WARNING

The pulling rope must come in contact with ALL the sheaves used in the boom system. This includes the elbow unit sheave when the elbow unit is installed.

⚠ WARNING

When making a cable pull, keep the area underneath the cable pull clear of all personnel.

⚠ WARNING

ALWAYS ensure the factory supplied boom tubes are fully inserted into the receiver tubes and that the spring loaded boom pins are fully engaged in the boom tube holes. When using boom tubes other than factory supplied, ensure they are fully inserted into the receiver tubes (sight holes are provided to ensure tubes are fully inserted) and 1/2-13 x 2" hex head cap screws (not provided) are installed and tightened against the tubes.

⚠ WARNING

DO NOT transport the puller on the carriage with boom tubes longer than the factory supplied 3' and 4' tubes.

⚠ WARNING

Rope should approach capstan as shown in Figure 5a

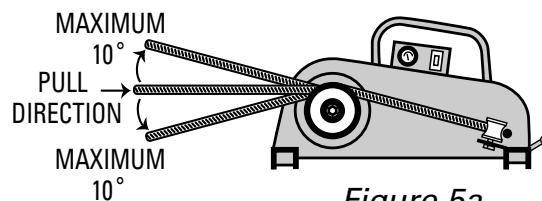


Figure 5a

IMPORTANT SAFETY INFORMATION – CONTINUED

⚠ WARNING ALWAYS place the foot switch on the floor on the capstan side of the puller and use the black roller to guide rope so that the operator stands at a 90° angle to the cable puller and out of the direct line of tight pulling rope. See Figure 6a.

⚠ WARNING ALWAYS wrap rope beginning at housing end of capstan as shown in Figure 6a.

⚠ WARNING To help avoid rope overlap, rope should approach capstan at 90° angle. See figure 6a.

⚠ WARNING When using the Model #8288 Mobile Cable Pulling Package, ALWAYS ensure the nose unit (Part #1840-S or 1840) is properly attached with the correct size coupling to conduit or structure capable of handling the maximum pulling force of the puller with an added safety factor of 3:1.

⚠ WARNING When using the Model #8288 Mobile Cable Pulling Package, ALWAYS ensure the cable puller is properly chained to the puller mount (Part #8290) and that the nose unit (Part #1840-S or 1840) and elbow unit (Part #1710) angle adjustments are properly pinned in place.

⚠ WARNING DO NOT climb or stand on any part of the Model #8288 Cable Pulling Package while in use.

⚠ CAUTION DO NOT alter this cable puller. Doing so will void the warranty. Guards and safety features are provided for your protection.

⚠ CAUTION DO NOT use an extension cord longer than 100 ft. Extension cord should be a minimum of 12 gauge wire with ground.

⚠ CAUTION Wear eye protection when operating cable puller.

⚠ CAUTION Inspect all components of the pulling system before beginning any cable pull. This includes the pulling system (cable puller, boom, etc.) and any accessories (sheaves, swivels, pins, etc.) Replace any worn or defective components.

⚠ CAUTION Be careful during assembly and disassembly of the boom components. Keep pins in place to avoid uncontrolled movement of boom components. Have control of boom components before removing any pins.

⚠ CAUTION The instructions in this manual are intended for use when installing new cable. Removing existing cable will use some of the same principles, and will present some differences as well. Contact CurrentTools if you have questions in regards to removing existing cable with this cable puller.

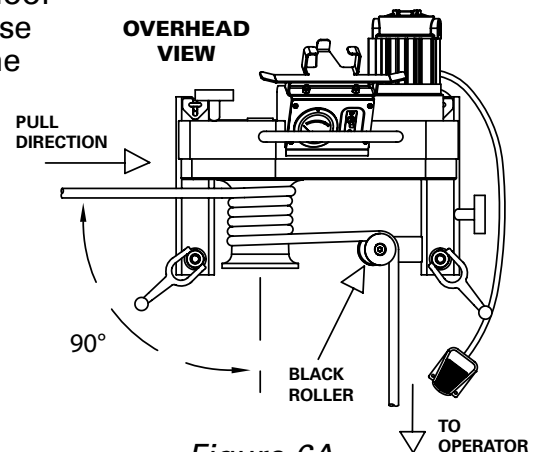


Figure 6A

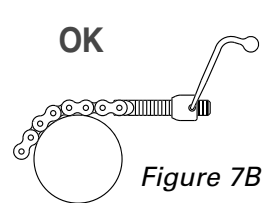
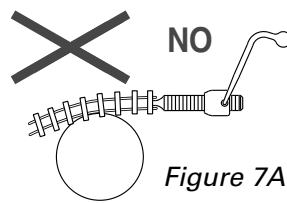
IMPORTANT SAFETY INFORMATION — CONTINUED

⚠ WARNING The ONLY approved method to secure the Model 88 Cable Puller is with the 2 mounting chains provided. Do NOT attempt to use any other object to secure the cable puller.

⚠ WARNING Inspect mounting chains for wear before each installation. NEVER alter the mounting chains or handle.

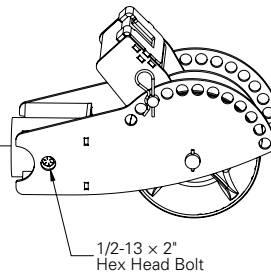
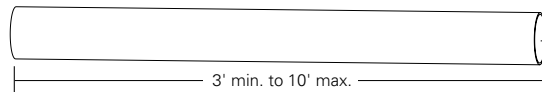
⚠ WARNING

Never tighten chain as shown in Figure 7A. This causes side loading of the chain and can result in failure of the chain or screw causing components to come loose and possibly cause serious injury or death. Figure 7B shows the proper alignment of screw and chain for tightening.



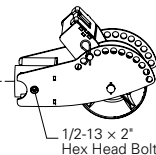
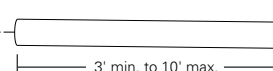
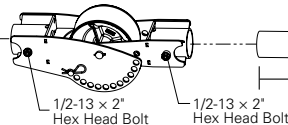
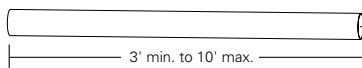
⚠ WARNING

When using one boom tube and nose unit, factory supplied boom tube may be replaced but must meet the following specifications:



- Only use 3" schedule 40 pipe or 3" rigid conduit
- Check sight holes to be sure boom tubes are fully inserted. Then tighten 1/2-13 x 2" hex bolt (user provided).
- DO NOT transport the puller on the carriage with boom tubes other than the factory supplied 3' and 4' tubes.

When using elbow unit, nose unit and both boom tubes, factory supplied boom tubes may be replaced but must meet the following specifications:



- Only use 3" schedule 40 pipe or 3" rigid conduit
- Check sight holes to be sure boom tubes are fully inserted. Then tighten 1/2-13 x 2" hex bolt (user provided).
- DO NOT transport the puller on the carriage with boom tubes other than the factory supplied 3' and 4' tubes.



SPECIFICATIONS – MODEL 88 CABLE PULLER

Model no.	88 Cable Puller
width	20½"
depth	24¾"
height	16"
weight	101 lbs. (includes two mounting chains)

maximum pulling force – 8,000 lbs.

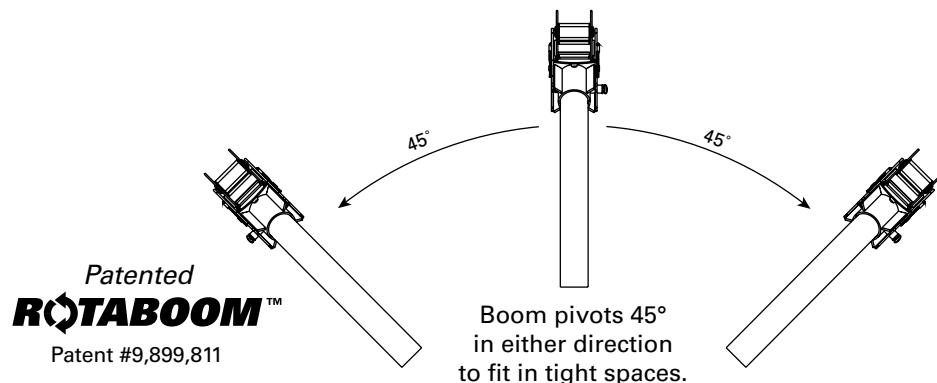
speeds (approx.) no load – 16 ft/min.
 4,000 lbs. – 9 ft/min.
 6,000 – 7 ft/min.

motor – 120 volts AC, 60 hertz, 15 amps

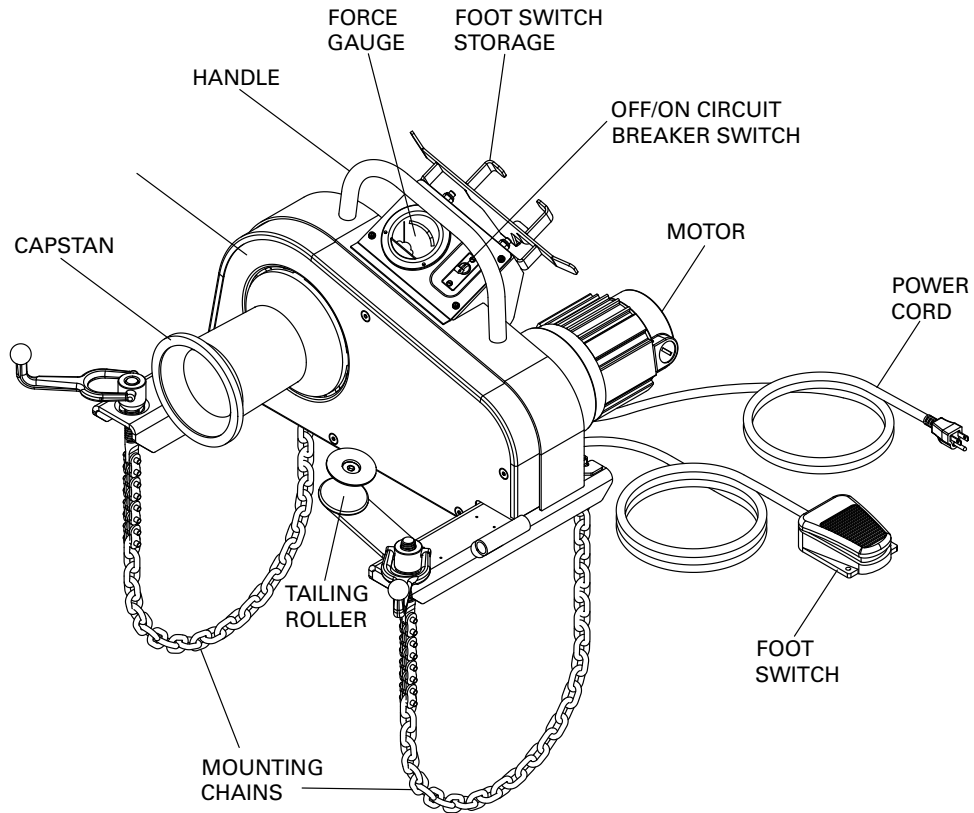


FEATURES – MODEL 8288 PULLING PACKAGE

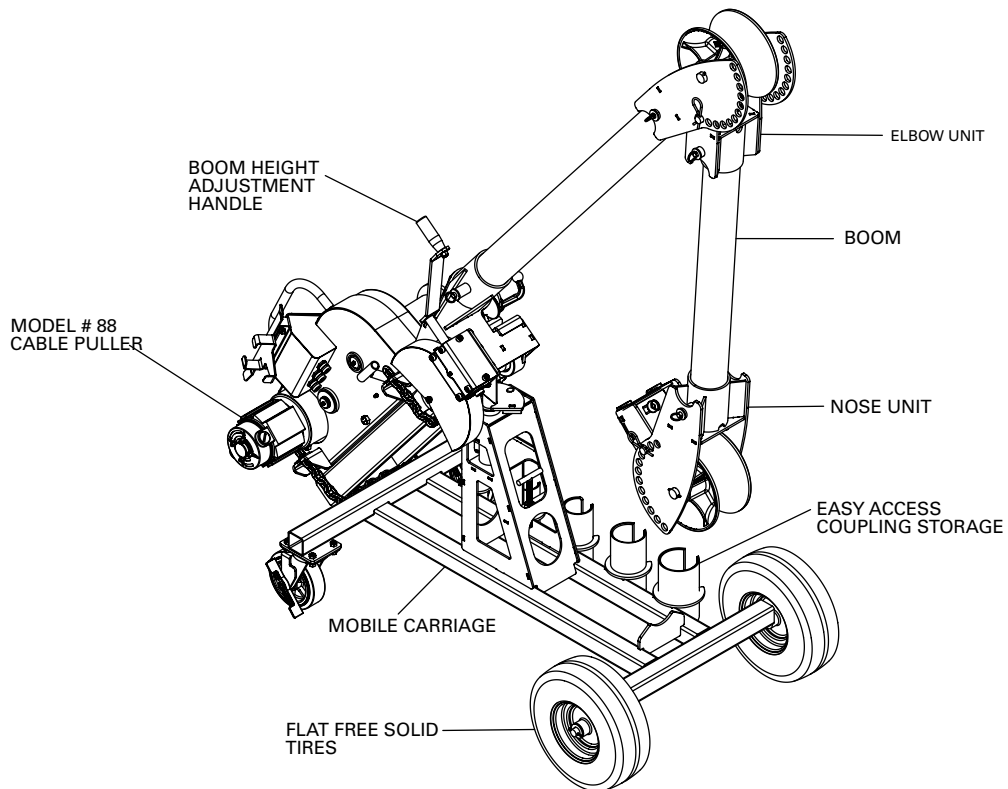
- One person set up
- Patented 45 degree horizontal pivot **ROTABOOM™** allows for use of puller in tight spaces. See drawing below.
- Heavy duty all welded unitized steel frame.
- Circuit breaker on/off switch – helps protect motor
- Integral foot switch
- Permanently mounted force gauge allows operator to monitor the pulling force.
- Safety pawl on capstan sprocket to prevent reverse rotation
- Tapered capstan to help avoid rope overlap
- Tailing rope safety roller for operator safety – lets operator stand out of the direct line of tight pulling rope
- Three handles for carrying or positioning puller
- Simple electrical system for easy maintenance
- Boom height adjustment handle allows for easy vertical positioning of boom sections



FEATURES — CONTINUED



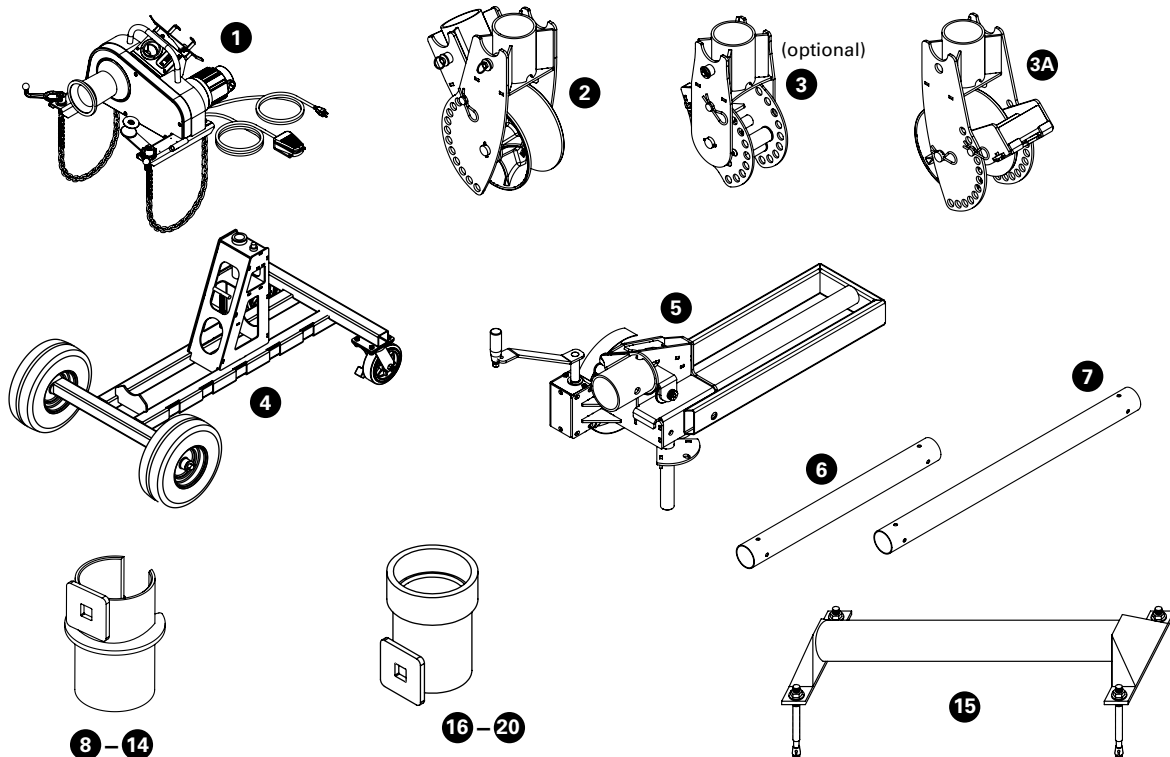
FEATURES — MODEL 8288 MOBILE CABLE PULLING PACKAGE



MAJOR COMPONENTS – 8,000 LB PULLER PACKAGES

ITEM#	CATALOG#	DESCRIPTION	WEIGHT	MODEL 8288	MODEL 8288LP	MODEL 8845
1	88	Cable Puller – 8,000 lb Capacity	101 lbs.	1		1
2	1710	Elbow Unit	43 lbs.	1	1	
3	1840	(optional) Nose Unit	33 lbs.			
3A	1840-S	Nose Unit with Sheave	34 lbs.	1	1	
4	1000	Mobile Carriage	75 lbs.	1	1	
5	8290	Puller Mount	89 lbs.	1	1	
6	1850	Boom Tube – 36" Long	13 lbs.	1	1	
7	1860	Boom Tube – 48" Long	17 lbs.	1	1	
8	198	Coupling – 2"	1.6 lbs.	1	1	
9	199	Coupling – 2 1/2"	1.9 lbs.	1	1	
10	200	Coupling – 3"	2.4 lbs.	1	1	
11	201	Coupling – 3 1/2"	3.8 lbs.	1	1	
12	202	Coupling – 4"	4.3 lbs.	1	1	
13	230	(optional) Coupling – 5"	4.8 lbs.			
14	255	(optional) Coupling – 6"	5.5 lbs.			
15	8045	Floor Mount	16 lbs.			1
16	259	(optional) Screw-on Coupling – 2"	2.1 lbs.			
17	260	(optional) Screw-on Coupling – 2 1/2"	2.4 lbs.			
18	261	(optional) Screw-on Coupling – 3"	2.9 lbs.			
19	262	(optional) Screw-on Coupling – 3 1/2"	4.3 lbs.			
20	263	(optional) Screw-on Coupling – 4"	4.8 lbs.			

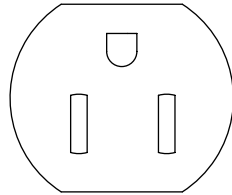
MAJOR COMPONENTS LIST



GROUNDING INSTRUCTIONS

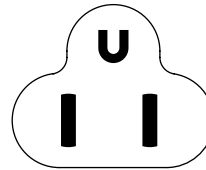
WARNING

ELECTRIC SHOCK HAZARD! Only connect the Model 88 Puller to a 15 amp GFCI protected circuit. DO NOT modify the plug that is provided with the unit. Failure to follow these warnings can result in serious injury or death.



RECEPTACLE

Figure 11



PLUG

Figure 11A

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. The Model 88 puller is equipped with an electric cord having an equipment grounding conductor and a grounding plug. Only connect the Model 88 puller to a 15 amp GFCI protected receptacle which is properly installed and grounded to meet all applicable electrical codes. DO NOT use an adapter.

DO NOT modify the plug provided. If it will not fit the receptacle, have the proper receptacle installed by a qualified electrician.

Improper connection of the equipment grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the Model 88 Puller is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the Model 88 puller's plug.

Repair or replace damaged or worn cord immediately.

This puller is intended for use on a circuit that has a receptacle that looks like the one illustrated in Figure 11 above. The puller has a grounding plug that looks like the plug illustrated in Figure 11A above.



CABLE PULLING BASICS

Model 88 Cable Puller and Accessories

The Model 88 Cable Puller has a maximum pulling force of 8,000 lbs. Therefore, all of the accessories used to make a cable pull with this unit must be rated to meet or exceed the forces generated. This includes, but is not limited to pulling rope, sheaves, swivels, grips, etc. Be aware that the pulling force on a sheave and its anchoring system can be as great as twice the pulling force generated by the cable puller.

WARNING

Do NOT exceed load rating of cable puller, rope or accessories.

CAUTION

Inspect all components of the pulling system before beginning any cable pulling. This includes the cable puller and any accessories (sheaves, swivels, etc.) Replace any worn or defective components

Power Requirements

The Model 88 Cable Puller motor is rated at 120 volt – 60 hz – 15 amps.

WARNING

ALWAYS plug the Model 88 Cable Puller into a grounded receptacle with a 15 amp GFCI protected circuit.

DO NOT modify the plug provided with the Model 88 Cable Puller. If needed, have a 15 amp GFCI receptacle installed by a qualified electrician.

CAUTION

If an extension cord is used, it should be a minimum of 12 gauge wire with ground and a maximum length of 100 ft.



CABLE PULLING BASICS – CONTINUED

Force Gauge

The Model 88 Cable Puller is equipped with an integral force gauge. To adjust the pulling force needle to zero (Ø) prior to a pull, run the puller for 1 minute with no load. While the puller is running (with no load), use adjustment screw on face of force gauge to set needle to zero pounds of force.

The operator should always monitor the force gauge throughout the entire cable pull. The force gauge has 3 color sections to help you identify operating conditions. These sections are:

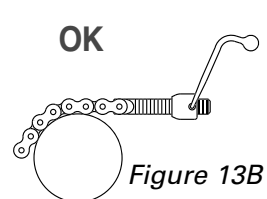
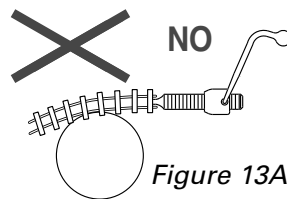
<u>Color</u>	<u>Condition</u>
Green	Puller can be run continuously
Yellow	50% duty cycle; 15 minutes on / 15 minutes off
Red	Overload Condition – Do NOT operate puller Correct overload condition.

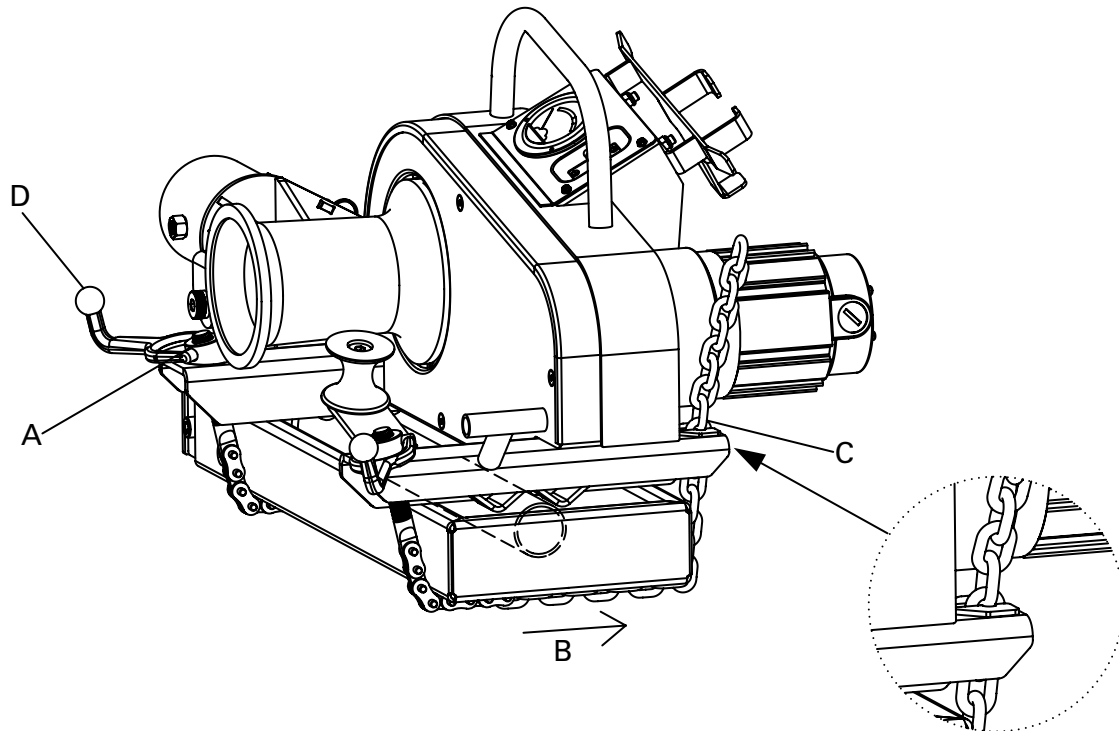
Mounting Chain Installation

The Model 88 Cable Puller is designed to be mounted using the two mounting chains provided. The handles on the chains should provide sufficient leverage to tighten the chains securely. No other tools are needed. Be sure to check the mounting chains for kinks and twists before you tighten them. See Warning below for proper mounting chain installation.

WARNING

Never tighten chain as shown in Figure 13A. This causes side loading of the chain and can result in failure of the chain or screw causing components to come loose and possibly cause serious injury or death. Figure 13B shows the proper alignment of screw and chain for tightening.





- A – Loosen the mounting chain handle so that only 3 or 4 threads remain engaged.**
- B – Wrap the chain around the puller mount, floor mount, conduit or structural support able to withstand the maximum pulling force of the cable puller with a safety factor of 3 to 1.**
- C – Pull the loose end of the mounting chain tight and hook the closest chain link into the recessed area.**
- D – Tighten the chain handle. Repeat this process for second mounting chain.**

 **WARNING**

Be sure threads do not bottom out before chain becomes tight.



WARNING

1. The only approved method to secure the Model 88 cable puller is with the 2 mounting chains provided with the Model 88 cable Puller. Do NOT attempt to use any other object to secure the puller.
2. Inspect mounting chains for wear before each installation.
3. NEVER alter the mounting chains or handle.

WARNING

ALWAYS inspect the structural integrity of any supports, conduit, anchoring system etc. that will hold the cable puller during the pull. These supports should be able to withstand the maximum pulling force of the cable puller plus a safety factor of 3:1. Example: 8,000 lb. puller should be anchored to a support that can withstand 24,000 lbs. of pull.

WARNING

Do NOT mount the Model 88 Cable Puller to square columns or I-Beams. The mounting chains will not tighten properly on these structures.

ASSEMBLY INSTRUCTIONS

Planning the Pull

NOTE: The instructions in this manual are intended for use when installing new cable. Removing existing cable will use some of the same principles, and will present some differences as well. Contact CurrentTools if you have questions in regards to removing existing cable with this cable puller.

WARNING

Some components weigh more than 50 lbs. and will require more than one person to lift, transport and assemble.

1. Referring to the major components list on page 10 make sure you have all the components necessary for your pull.
2. Plan the pull to determine which components you will need.
NOTE: Common pulling setups and illustrations can be found on pages 22 and 23.

Coupling Selection

The nose unit of the puller package is connected to the conduit using CurrentTools slip-in couplings or optional screw on couplings. From the information in this section, choose and install a coupling that will meet your pulling requirements.

Slip-In Couplings

Slip-In Couplings are provided for conduit sizes 2", 2 1/2", 3", 3 1/2" and 4". Optional couplings for 5" and 6" conduit are also available.

Slip-In Couplings Procedure:

1. Match the coupling to the conduit size.
2. Install the correct size slip-in coupling into the coupling adapter located in the nose unit by inserting the receiver plate into the coupling adapter until the spring loaded pawl "snaps" into place. See Figures 16a through 16d.



16a



16b



16c



16d



NOTE: To disassemble couplings from coupling adapter, pull the ring on the back of the coupling adapter. This will retract the spring loaded pawl and release the coupling.

16e

ASSEMBLY INSTRUCTIONS – CONTINUED

Slip-In Couplings Used to Straddle Conduit

Slip-In Couplings can be used to straddle the conduit. One advantage of this is the couplings can be straddled on conduit sizes smaller than 2 1/2". However, the largest conduit you can straddle using a slip-in coupling is 5" (by using the 6" optional slip-in coupling).

When using a slip-in coupling to straddle the conduit, the coupling must seat against a concrete floor or similar structure capable of supporting 8,000 lbs. of force.

Slip-In Couplings Used to Straddle Conduit Procedure:

1. Choose a coupling that is at least 1" larger than the conduit.
2. Place the coupling over the conduit. The conduit must NOT extend past the end of the coupling. (See Figure 17a)

WARNING

Bottom of coupling must be seated against a structure capable of supporting 8,000 lbs.

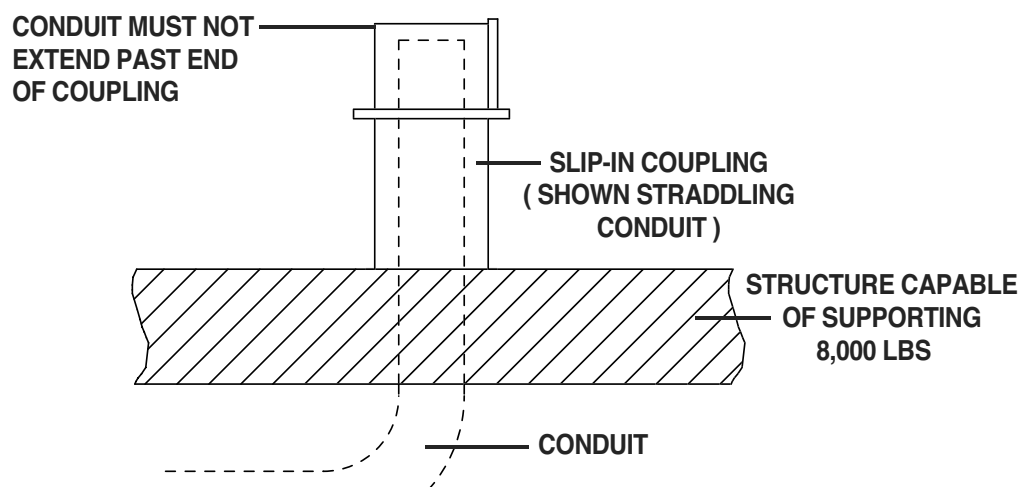


Figure 17a

Screw-On Couplings

Screw-On Couplings, which thread onto the end of Rigid or IMC conduit, are optional for conduit sizes 2", 2 1/2", 3", 3 1/2" and 4".

Screw-On Couplings Procedure:

1. Match the coupling to the conduit size.
2. Thread coupling onto the conduit until tight. Then, slightly back off coupling until the coupling receiver plate faces the direction where the puller will be positioned. See Figure 18.
3. Install the correct size coupling into the coupling adapter located in the nose unit by inserting the receiver plate into the coupling adapter until the spring loaded pawl "snaps" into place. See Figures 16a through 16d.

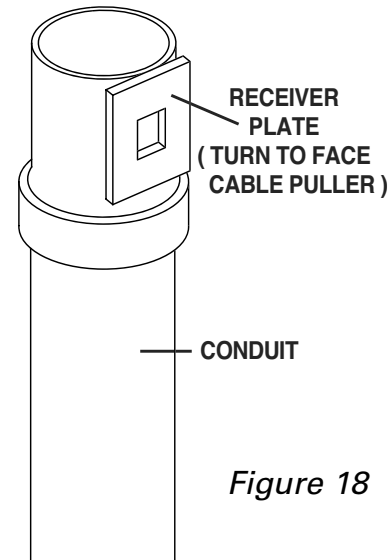


Figure 18

! WARNING

NOTE: To disassemble couplings from coupling adapter, pull the ring on the back of the coupling adapter. This will retract the spring loaded pawl and release the coupling. (See Figure 16e).

! WARNING

Thread Screw-On Coupling onto conduit a minimum of 4 full turns. Inspect the conduit threads to make sure they are in good condition.

! WARNING

DO NOT use screw-on couplings when pulling in PVC conduit. Screw-on couplings may detach and cause serious injury or death. When pulling in PVC conduit, ONLY use slip-in couplings.

ASSEMBLY INSTRUCTIONS — CONTINUED

Boom Assembly

! WARNING

ALWAYS inspect pins to be sure they are fully inserted through holes and have spring clips properly attached. DO NOT substitute any other object for factory supplied pins.

! WARNING

ALWAYS check sight holes to ensure boom tubes are fully inserted into receiver tubes. Ensure all spring loaded boom pins snap into place to securely hold the boom tubes.

! WARNING

Some components weigh more than 50 lbs. and will require more than one person to lift, transport and assemble.

! CAUTION

Be careful during assembly and disassembly of the boom components. Keep pins in place to avoid uncontrolled movement of boom components. Have control of boom components before removing any apins.

Procedure:

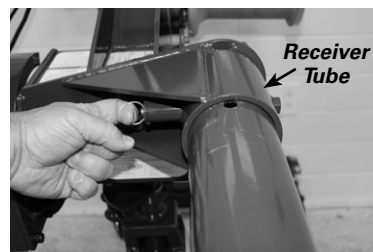
1. Lock the two swivel casters on the carriage. Using the boom height adjustment handle, position the puller mount with the receiver tube parallel to the ground. Insert the supplied 3' or 4' boom tube into the receiver tube. (See Photo 19a). Pull the spring-loaded boom pin located on the receiver tube and fully insert boom tube until it completely fills the sight hole in the back of the receiver tube. (See Photo 19b & 19c). Rotate the boom tube until one of the holes in the boom tube locks into place with the spring-loaded boom pin. Ensure the spring-loaded boom pin is fully engaged in the boom tube hole before proceeding to the next step.

NOTE: When using pipe other than the boom tubes supplied by Current Tools, fully insert the pipe or conduit and install a 1/2-13 x 2" bolt (user provided) into the threaded nut on the side of the receiver tube and tighten against the boom tube. (See photo 19C).

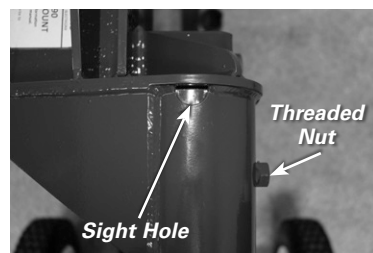
19a



19b



19c

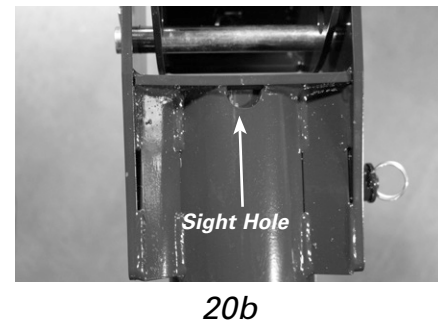


ASSEMBLY INSTRUCTIONS — CONTINUED

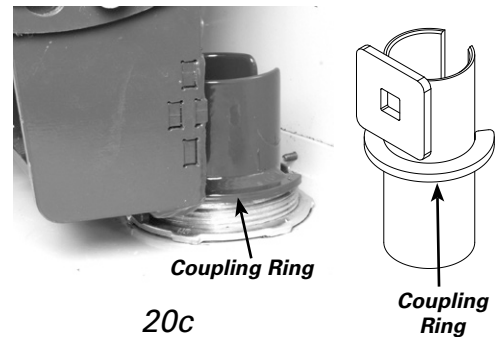
2. If only one boom tube is needed, slide the Model #1840-S nose unit (or #1840 optional nose unit) onto the boom tube you installed in Step #1. (See Photo 20a). Determine the type of pull to be made (up pull, down pull, side pull) and turn the nose unit accordingly. Pull the spring-loaded boom pin located on the nose unit and fully insert the nose unit until it completely fills the sight hole. (See Photo 20b). Rotate the nose unit until the spring-loaded boom pin locks it into the proper position for the pull. Ensure the spring-loaded retainer pin is fully engaged in the boom tube before proceeding to the next step.



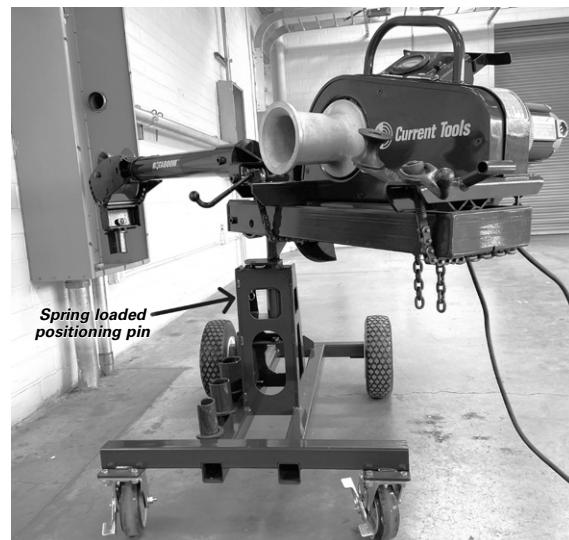
3. Choose the correct size coupling for the size conduit that you will be pulling in and install it into the coupling adapter on the nose unit. (See coupling selection on pg. 16).



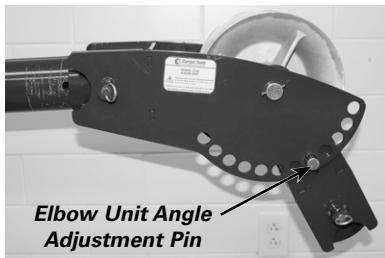
4. To insert the coupling into the conduit, unlock the two swivel casters on the carriage and position the cable puller near the pull sight. Using the boom height adjustment handle, raise or lower the boom until the slip-in coupling fully seats in the conduit. The coupling is fully seated when the coupling ring is flush with the conduit you are pulling in. (See Photo 20c). It may be necessary to adjust the angle of the coupling so that it seats properly in the conduit. To do this, remove the spring clip from the angle adjustment pin on the nose unit, remove pin, and adjust the angle of the coupling. When the correct angle is achieved, re-insert the pin and secure with the spring clip.



5. The Puller Mount offers a patented feature known as the **ROTABOOM™** that gives the Puller Mount the ability to swivel approximately 45 degrees in two directions. This allows the puller to be used in tighter spaces. To use the **ROTABOOM™**, pull down on the spring loaded positioning pin located under the puller mount and swivel the puller as needed (see photo 20d). Once the pull is completed and you are ready to transport the puller, return the puller mount to the center position and ensure the spring loaded positioning pin snaps into place.



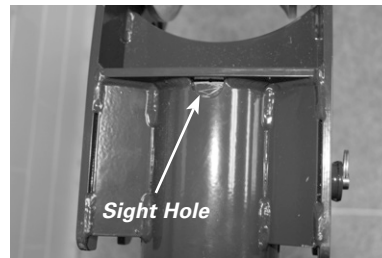
ASSEMBLY INSTRUCTIONS – CONTINUED



21a



21b



21c

If more reach is needed, an extra boom tube is provided. To install, continue assembly instructions as follows:

NOTE: The extra boom tube can be stored on the lower half of the carriage frame and secured with the provided locking screw.

6. Remove the nose unit from the boom tube you installed in Step #1. Slide the Model #1710 elbow unit onto the end of the boom tube as shown in Photo 21a. Pull the spring-loaded boom pin on the elbow unit and fully insert the elbow unit until it completely fills the sight hole. (See Photos 21b & 21c). Rotate the elbow unit until the spring-loaded boom pin locks it into the proper position for the pull.



21d

7. Slide the additional boom tube into the elbow unit. Pull the spring-loaded boom pin on the elbow unit and fully insert the additional boom tube until it completely fills the sight hole. Rotate the boom tube until the spring-loaded retainer pin locks it into position. (See Photo 21d).



21e

8. Refer to step #2 in the assembly instructions section and install the model #1840-S nose unit (or #1840 optional nose unit) on the end of the additional boom tube (see photo 21e).
9. If angle adjustment is needed, remove the spring clip from the elbow unit angle adjustment pin, remove the pin and adjust the angle to the desired degree. When the correct angle is achieved, re-insert the pin and secure with the spring clip.
10. You are now ready to pull cable.
11. If more reach is required, both the 3' and 4' lengths of factory supplied boom tubes may be replaced with up to 10' lengths of 3" rigid conduit or 3" schedule 40 pipe. **ONLY** use 3" rigid conduit or 3" schedule 40 pipe for boom tubes. **NEVER** substitute any other size or type of conduit or pipe for boom tubes. **NEVER** replace factory supplied boom tubes with shorter boom tubes.

NOTE: The weight of boom sections longer than the factory supplied booms will require manual assistance to use the boom height adjustment handle.

IN ADDITION, screw-on couplings may be necessary to support the boom and prevent it from falling.

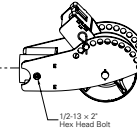
WARNING

The pulling rope must come in contact with **ALL** the sheaves used in the boom system. This includes the elbow unit sheave when the elbow unit is installed.

⚠ WARNING

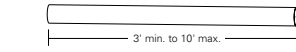
When using one boom tube and nose unit, factory supplied boom tube may be replaced but must meet the following specifications:

- Only use 3" schedule 40 pipe or 3" rigid conduit
- Check sight holes to be sure boom tubes are fully inserted. Then tighten 1/2-13 x 2" hex bolt (user provided).

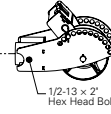
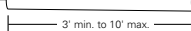
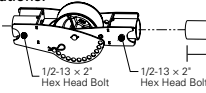


- DO NOT transport the puller on the carriage with boom tubes other than the factory supplied 3' and 4' tubes.

When using elbow unit, nose unit and both boom tubes, factory supplied boom tubes may be replaced but must meet the following specifications:



- Only use 3" schedule 40 pipe or 3" rigid conduit
- Check sight holes to be sure boom tubes are fully inserted. Then tighten 1/2-13 x 2" hex bolt (user provided).



- DO NOT transport the puller on the carriage with boom tubes other than the factory supplied 3' and 4' tubes.

The pulling rope must come in contact with ALL the sheaves used in the boom system. This includes the elbow unit sheave when the elbow unit is installed.



Down Pull



Side Pull



Up Pull

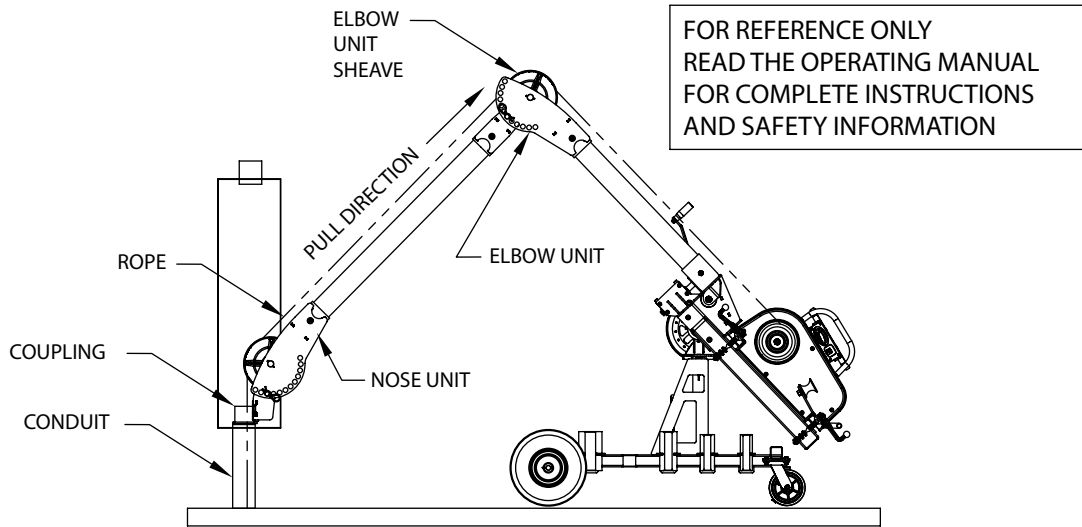


Up Pull using RotaBoom™ feature and one boom tube



Down Pull using elbow unit and nose unit with RotaBoom™ feature

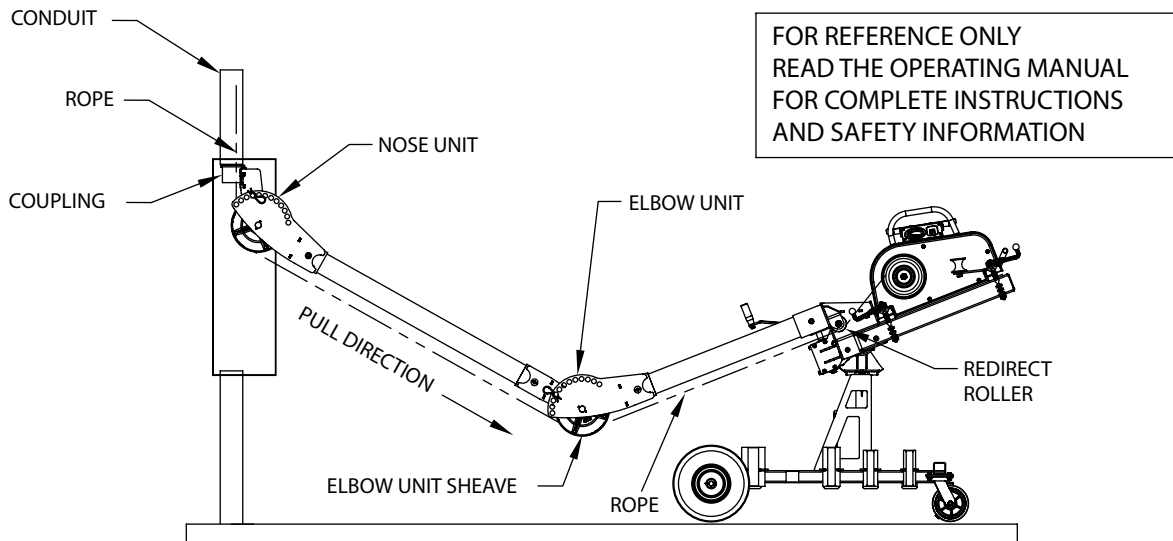
UP PULL SET-UP



FOR AN UP PULL:

- BE SURE THE COUPLING IS PROPERLY SEATED IN THE CONDUIT AND THE ANGLE ADJUSTMENT PINS ARE PROPERLY INSTALLED IN THE NOSE AND ELBOW UNITS.
- WHEN USING BOTH BOOMS, ALWAYS ENSURE THE ROPE CONTACTS THE ELBOW UNIT SHEAVE.
- WHETHER USING ONE OR BOTH BOOMS, THE ROPE PATH WILL ALWAYS TRAVEL ABOVE THE BOOMS ON AN UP PULL.

DOWN PULL SET-UP



FOR A DOWN PULL:

- BE SURE THE COUPLING IS PROPERLY SEATED IN THE CONDUIT AND THE ANGLE ADJUSTMENT PINS ARE PROPERLY INSTALLED IN THE NOSE AND ELBOW UNITS.
- WHEN USING BOTH BOOMS, ALWAYS ENSURE THE ROPE CONTACTS THE ELBOW UNIT SHEAVE.
- WHETHER USING ONE OR BOTH BOOMS, THE ROPE PATH WILL ALWAYS TRAVEL BELOW THE BOOMS ON A DOWN PULL.
- ON A DOWN PULL, USE THE REDIRECT ROLLER TO GUIDE THE ROPE TO THE TOP OF THE CAPSTAN.

TRANSPORT INFORMATION

The Mobile Carriage is designed to easily move the Pulling Assembly from location to location.

To Prepare for Transport

Before moving, use the boom height adjustment handle and raise the boom tube as shown in Figure 24. If both sections of the standard boom tubes are installed, remove the elbow unit angle adjustment pin and rotate the forward section down as far as possible (See Figure 24). Reinstall the elbow unit angle adjustment pin. **DO NOT** transport with boom tubes longer than the factory supplied 3' and 4' sections.

NOTE: ALWAYS return the puller mount to the center position and ensure the spring loaded Rotaboom™ positioning pin snaps into place prior to transport.

NOTE: Failure to properly engage the Rotaboom™ positioning pin during transportation will allow the boom to swing freely, leading to difficulty in controlling the mobile pulling package and can cause unpredicted movement during transport that can lead to injury or damage to property.

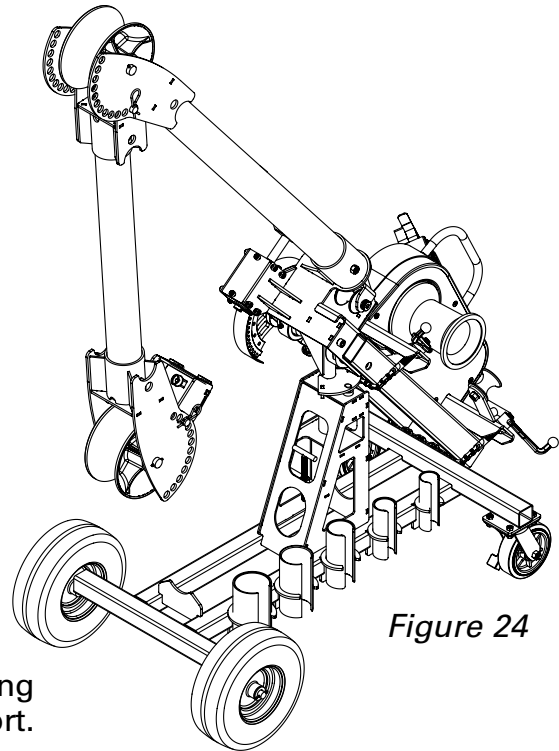
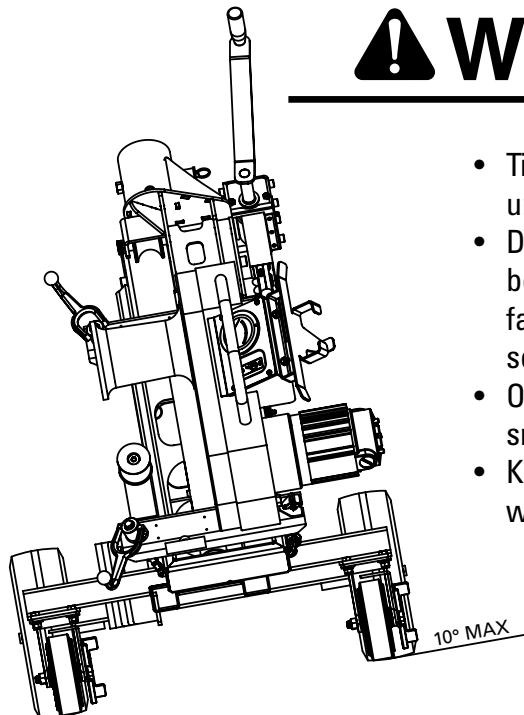


Figure 24

WARNING



- Tip Hazard — **DO NOT** lean unit more than 10°.
- **DO NOT** transport with boom tubes longer than the factory supplied 3' and 4' sections.
- Only transport on firm, smooth surfaces.
- Keep unit under control when transporting.

FLOOR MOUNT

The Model 8045 Floor Mount is made to fit the Current Tools Model 88 Cable Puller. The floor mount is to be mounted only to a concrete floor using the method described below.

Safety Information

1. ALWAYS mount to a smooth, flat concrete floor with a minimum 3000 psi rating.
2. Mount only to a concrete floor. NEVER mount to cinder blocks, brick, etc.
3. Wedge anchors must be at least 12" away from edge of concrete.
4. ALWAYS use new anchors. NEVER REUSE ANCHORS.
5. Use only 5/8" x 6" wedge anchors or equivalent with a tension and shear rating of 2,500 lbs. (Current Tools part #8045-3)
6. **CAUTION** ALWAYS wear eye protection when installing anchors.

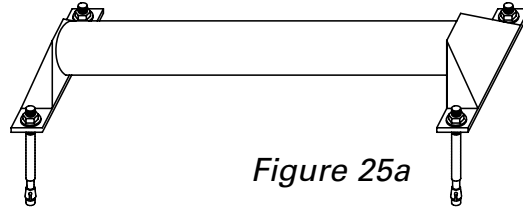


Figure 25a

WARNING

ALWAYS place the floor mount close to the conduit. This will reduce the possibility of injury should the rope break. See Figure 25b.

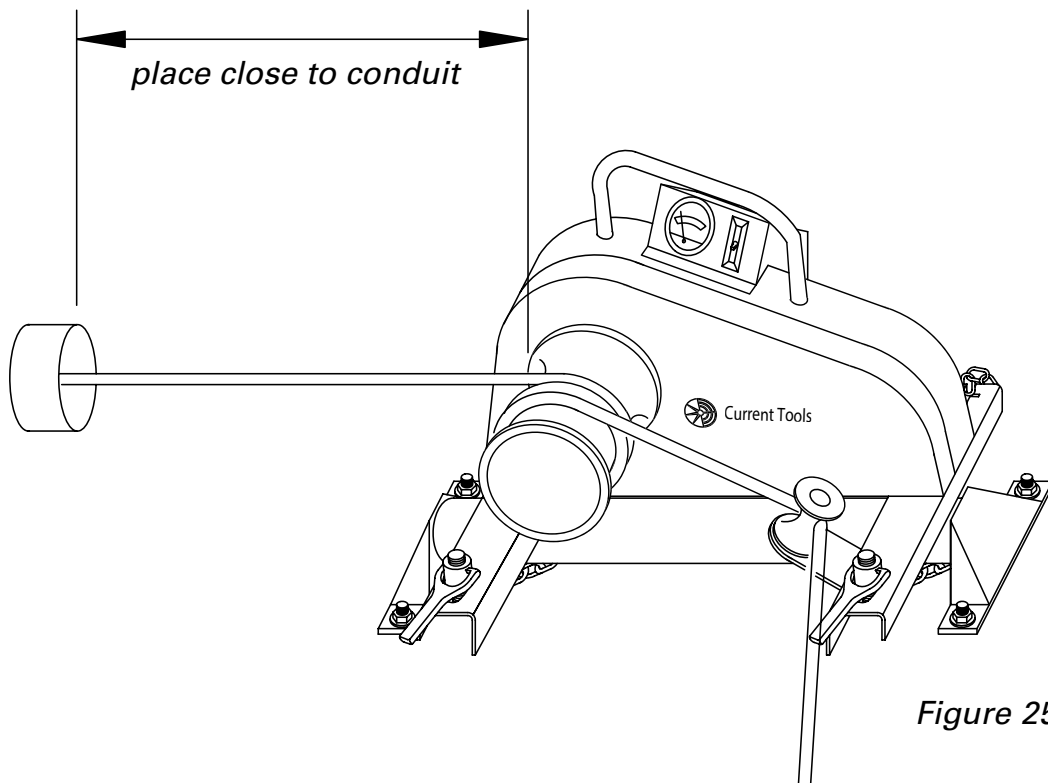


Figure 25b

CAUTION

The pulling direction should **ALWAYS** be parallel to the base of the floor mount. See Figure 26.

**CORRECT
PULLING
DIRECTION**

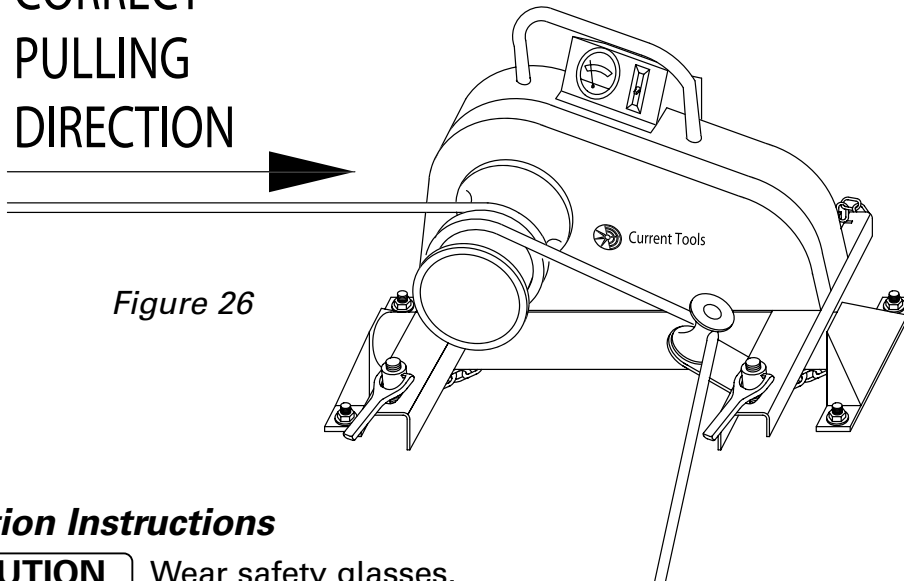



Figure 26

Installation Instructions

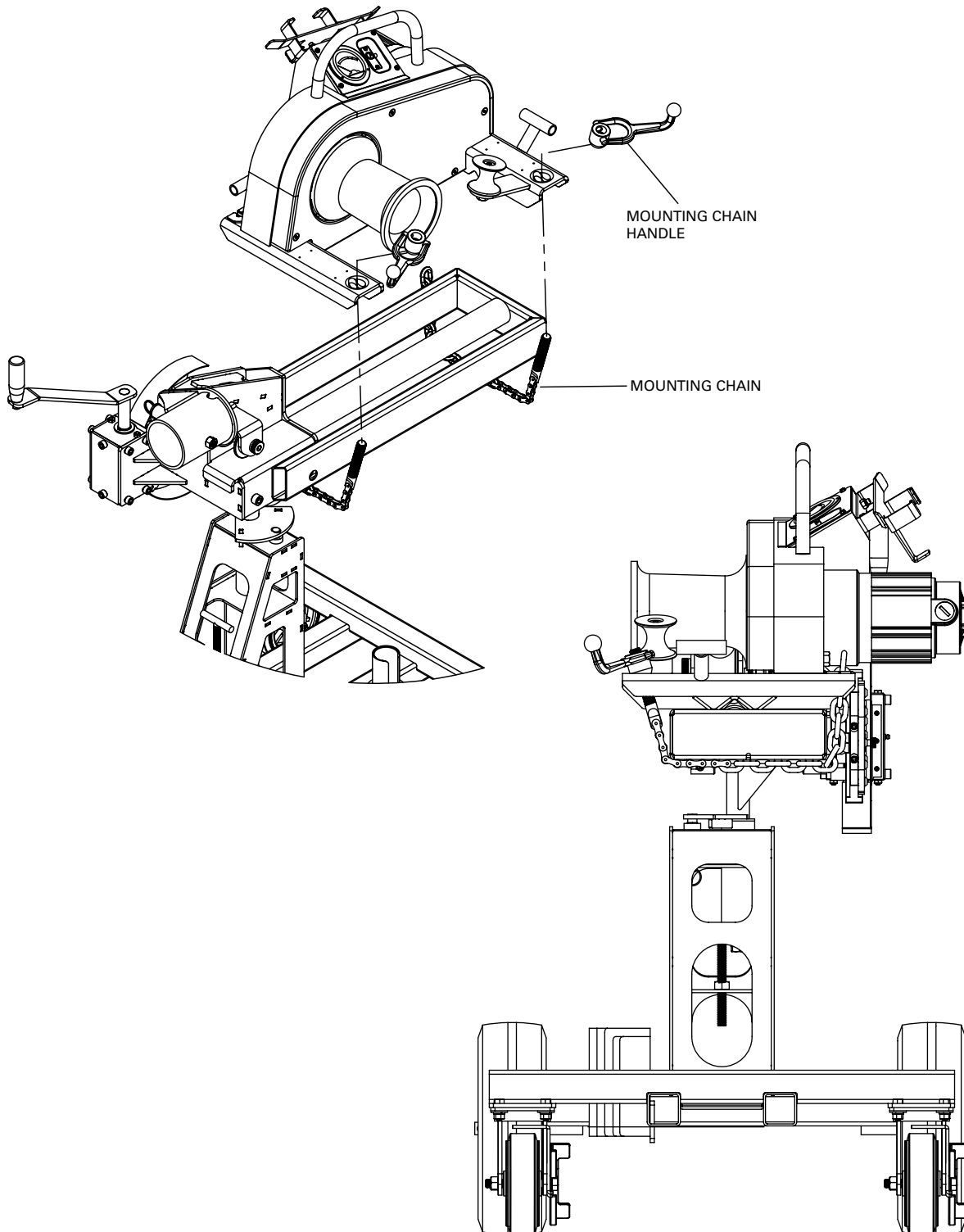
1.  **CAUTION** Wear safety glasses.
2. Follow the safety instructions provided by the drill manufacturer.
3. Use only 5/8" diameter solid carbide tipped bits that meet ANSI B94-12.
4. Using the floor mount as a template, drill four 5/8" holes a minimum of 6" deep but not closer than 1 1/4" to the bottom (opposite surface) of the concrete. Be sure to drill the holes perpendicular to the work surface and do not ream the holes or let the drill bit wobble.
5. Clean the holes with compressed air and a wire brush. Clean holes are necessary for proper performance.
6. Assemble the washer and nut on the anchor so the top of the nut is flush with the top of the anchor.
7. Next, drive the 4 wedge anchors through the 4 floor mount holes and into the concrete holes making sure the nut and washer rests solidly against the floor mount.
8. Tighten the anchors with a torque wrench to 75–90 ft. lbs.
Note: If anchor spins, pull up on the anchor using the claw end of hammer and then torque. If spinning still occurs, Do NOT use this location; reposition the floor mount and repeat this installation procedure.
9. Place the Model 88 Cable Puller so that the "V" positioning units on the bottom of the puller legs straddle the floor mount. Mount puller to the floor mount using the mounting chain installation procedure found on pages 13, 14 & 15 of this manual.



CABLE PULLER FUNDAMENTALS

Model 88 Cable Puller — mounting to Model 8290 Puller Mount.

NOTE: See instructions on page 14 of this manual for properly attaching Model #88 puller to the puller mount.



PULLER MOUNTED ON PULLER MOUNT

OPERATING INSTRUCTIONS – Model 88 Cable Puller

! DANGER

Do NOT operate cable puller in wet or damp locations. Do NOT expose to rain.

! DANGER

Do NOT operate in an explosive atmosphere.

! WARNING

Do NOT use cable puller as a hoist or for lifting, supporting or transporting people or loads. Use only for its intended purpose as a cable puller.

Rope Set-Up

As shown in the overhead view, Figure 28a, the pulling rope must approach the capstan at a 90° angle. This will help avoid rope overlap.

Make several wraps of the pulling rope around the capstan, beginning at the housing end of the capstan. See *Figure 28a*.

Next, guide the pulling rope around the tailing roller as shown in *Figure 28a*. This will enable the operator to stand at a 90° angle to the cable puller and out of the direct line of tight pulling rope.

Also note the pulling rope should approach the capstan as indicated in *Figure 28b*.

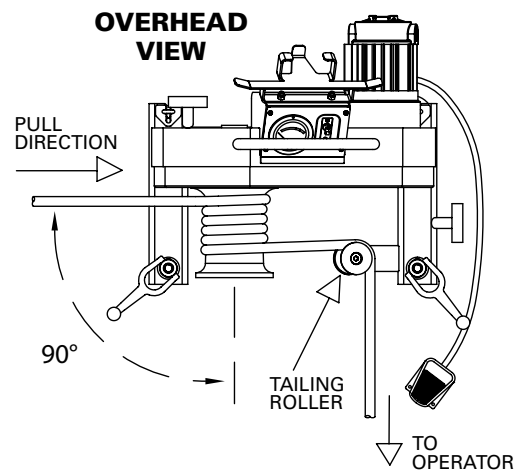


Figure 28a

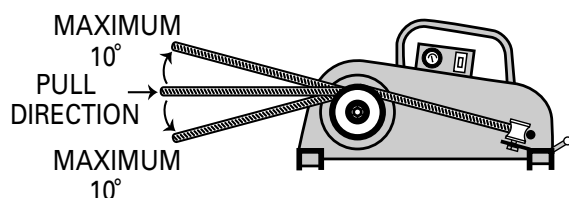


Figure 28b

! WARNING

- ALWAYS place the foot switch on the floor on the capstan side of the puller and use black roller to guide rope so that operator stands at 90° angle to the cable puller and out of the direct line of tight pulling rope. See Figure 28a.
- ALWAYS wrap rope beginning at housing end of capstan as shown in Figure 28a.
- Rope must approach capstan at a 90 angle. See Figure 28a.
- Rope should approach capstan as shown in Figure 28b.
- Rope requirements: Use only 3/4" of larger double braided composite pulling rope, or a pulling rope with a minimum average breaking strength of 26,000 lbs.
- Be sure to inspect rope for damage before each cable pull.

! WARNING

- The pulling rope must come in contact with ALL the sheaves used in the boom system. This includes the elbow unit sheave when the elbow unit is installed.

! WARNING

- The redirect roller located on the capstan side of the puller mount MUST be used during any pull that requires the rope path to be underneath the boom tube. See Figure 29 below.

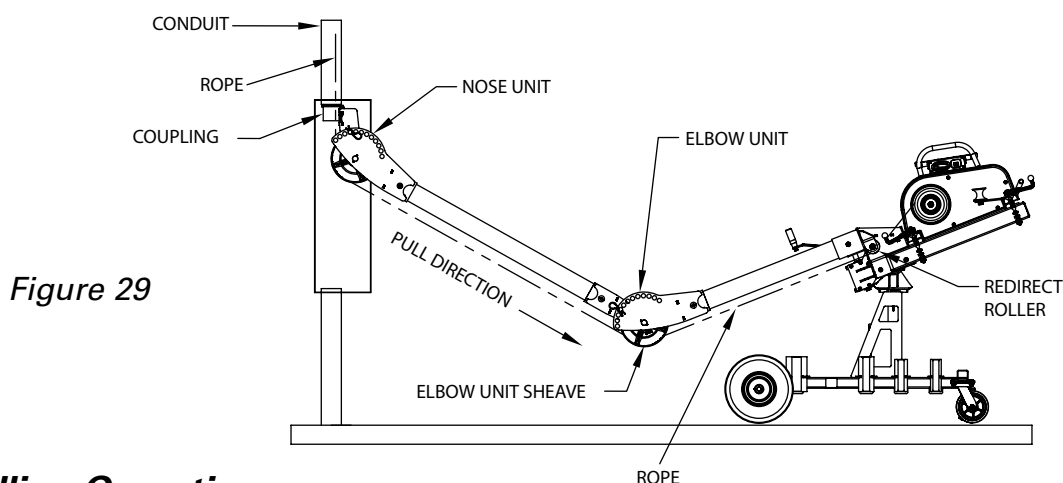


Figure 29

Pulling Operation

1. Be sure the cable puller circuit breaker switch is in the **off** position.
2. Place the foot switch on the floor on the capstan side of the puller and plug the power cord into a grounded receptacle with a 15 amp GFCI protected circuit.
3. Operator should monitor the force gauge throughout the entire cable pull.
4. Hold the tailing end of the pulling rope and pull slightly. Turn the cable puller **on**.

Note: The tailing rope is that portion of the pulling rope that has passed the capstan and is now excess to the pull. By pulling on the tailing rope the operator can control and vary the pulling force. It should require no more than 10 lbs. of tailing force by the operator to engage the pulling rope on the capstan. If the rope slips on the capstan, release the foot switch to stop the capstan and add an additional wrap of rope around the capstan. Also note that with the tailing force at a constant pull, each additional wrap of rope around the capstan will approximately double the pulling force of the cable puller.



OPERATING INSTRUCTIONS – CONTINUED

WARNING

NEVER allow the rope to slip on a rotating capstan for more than a couple of seconds. The rope will wear in that spot and the rope could break under pressure. If you need to stop the pull, release the foot switch to stop the capstan and tie the rope off to hold it in place until you restart your pull.

WARNING

This cable puller is equipped with an anti-reversing pawl. The pawl will make a clicking sound when the capstan is rotating. If you can not hear the clicking sound as the capstan rotates, immediately turn the cable puller off and do not use until repaired.

WARNING

NEVER allow the rope to overlap on the capstan. If this condition begins to occur, immediately release the tailing force on the rope so that the rope can feed back toward the conduit or cable tray. If this does not remedy the overlap, turn off the cable puller immediately. **There is no known solution for rope overlap.**

5. Depress the foot switch to start the pull.
6. As the rope is tailed it should mound on the floor between the operator and the cable puller.
7. Release the foot switch and turn the cable puller switch to the **off** position when the pull is completed.

WARNING

Keep all body parts, hair, loose clothing, etc. away from rotating parts and pinch points. Keep hands away from capstan.
Do NOT wrap rope around any body parts. Do NOT wrap rope around wrists.
ALWAYS keep the tailing rope away from the operator's feet.

Note: The Model 88 Cable Puller is equipped with a circuit breaker switch. If the amperage rating of the breaker is exceeded the puller will stop. Before restarting the pull, allow the motor to cool and determine the cause for the overload condition. Correct before restarting the pull.



WARNING

Rope must ALWAYS be pulled over a **rotating** sheave. If a sheave does not rotate, release the foot switch, turn the cable puller off and determine the problem before continuing the pull.

WARNING

Pulling Rope should be the only thing to contact the capstan. NEVER let swivels, grips, etc. come in contact with the capstan.

WARNING

Keep as much rope confined in the conduit as possible. This will help prevent injury should the rope break and whip violently.

WARNING

When making a vertical cable pull, keep the area underneath the cable pull clear of all personnel.

CAUTION

The instructions in this manual are intended for use when installing new cable. Removing existing cable will use some of the same principles, and will present some differences as well. Contact Current Tools if you have questions in regards to removing existing cable with this cable puller.



WARNING

Unplug the cable puller before servicing.



CAUTION

DO NOT alter this cable puller. Doing so will void the warranty. Guards and safety features are provided for your protection.

Capstan

- Replace the capstan if it is grooved more than 1/16" deep.

Lubrication

Front and Rear Drive Chains — Lubricate the inside of both drive chains every 20 hours of operation with 90 wt. gear oil.

Capstan Shaft, Rear Drive Shaft and Ratchet Pawl — Grease every 10 hours with a good quality multi-purpose (M.P.) grease. These grease fittings are located on the side of the cable puller. See item #27 on Model 88 Cable Puller exploded view on page 34.

Inspection

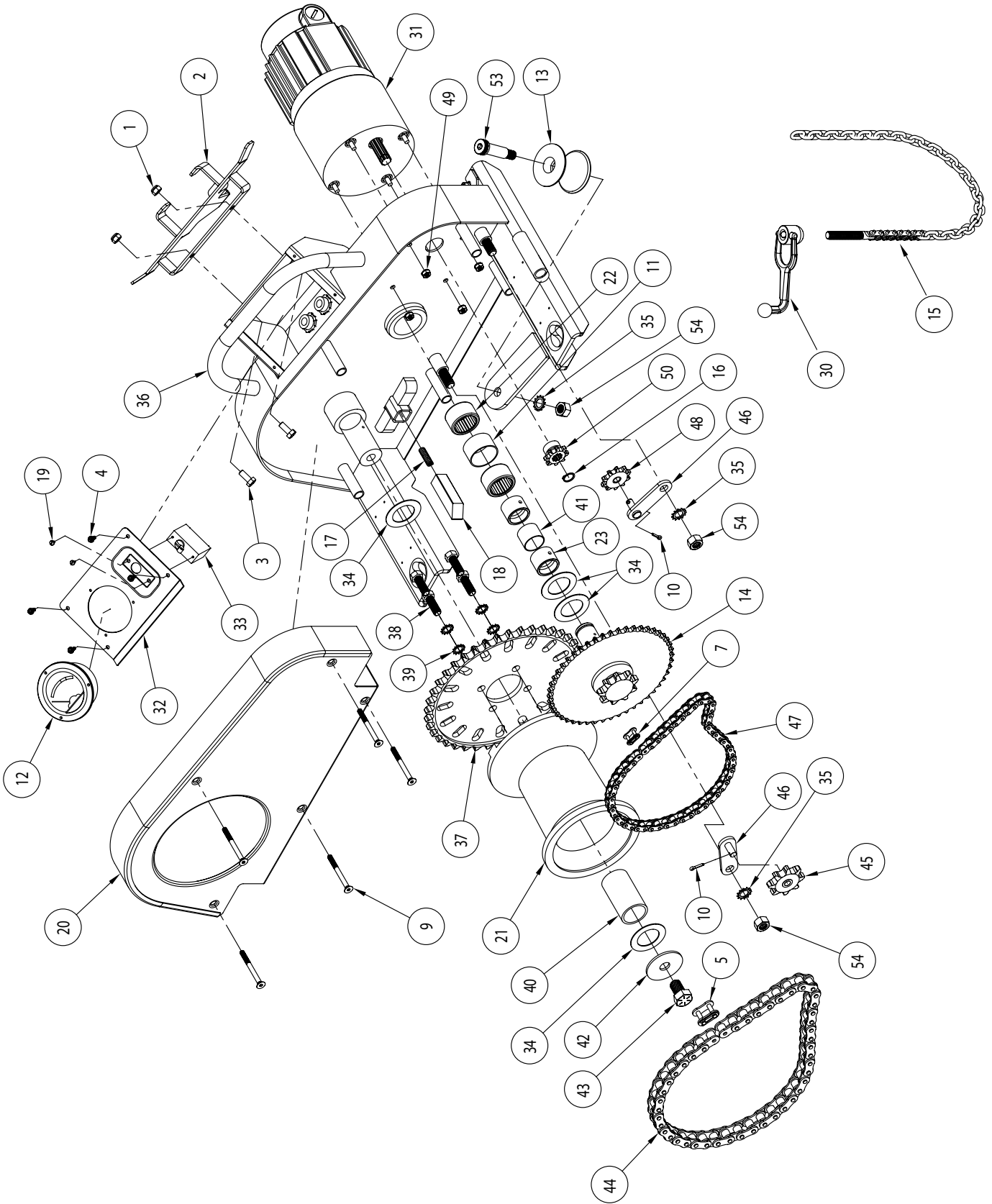
Important: After the first 5 hours of operation remove the cover and inspect both chain tensioners. Adjust as needed.

Front and Rear Chain Inspection — Every 40 hours of operation the front and rear drive chains should be removed and inspected for excessive wear or binding.

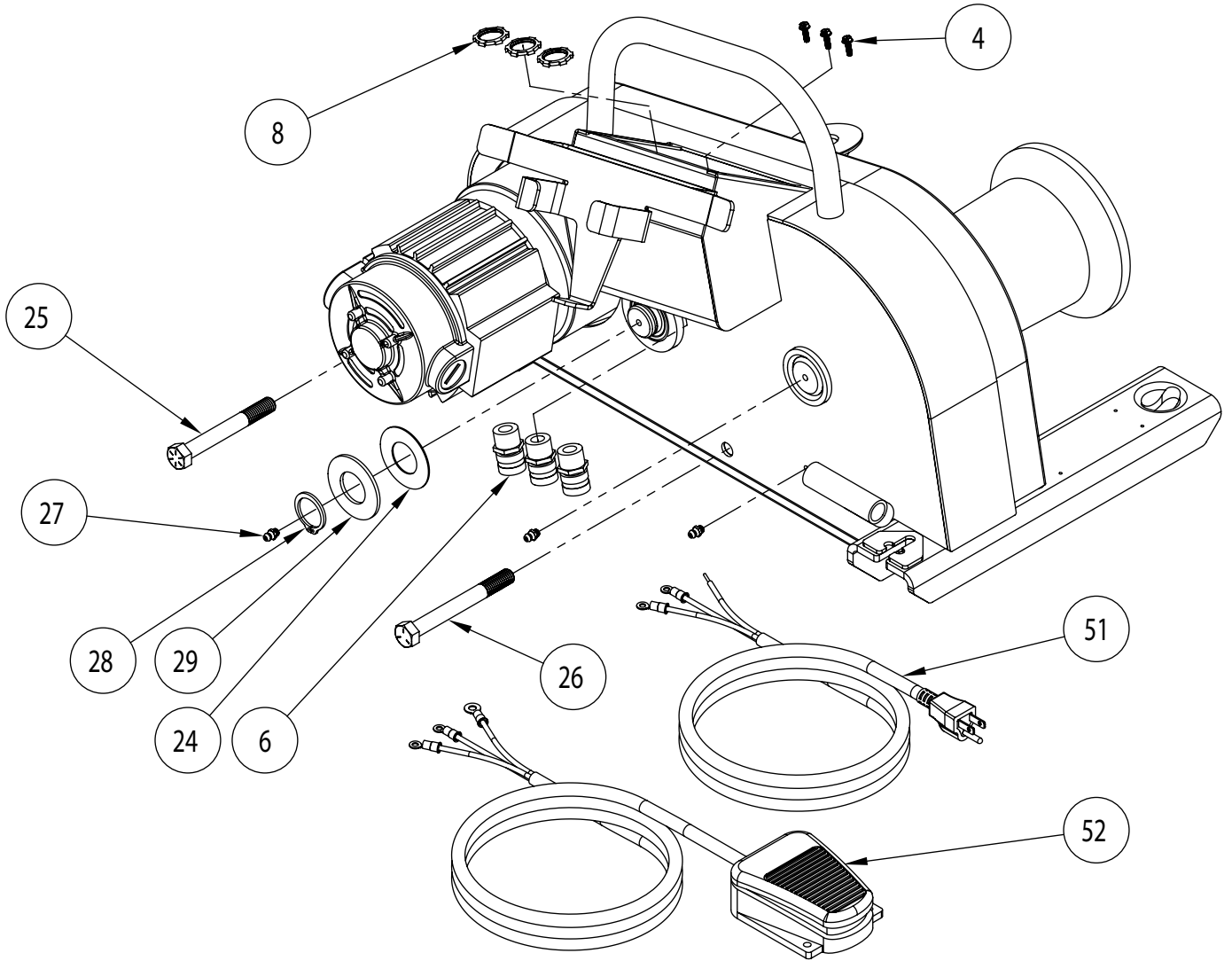
Motor Brushes — Inspect the two motor brushes every 30 hours. Replace if less than 3/8" long. Always replace both brushes at the same time.



EXPLODED VIEW - MODEL 88 CABLE PULLER



EXPLODED VIEW - MODEL 88 CABLE PULLER - CONTINUED

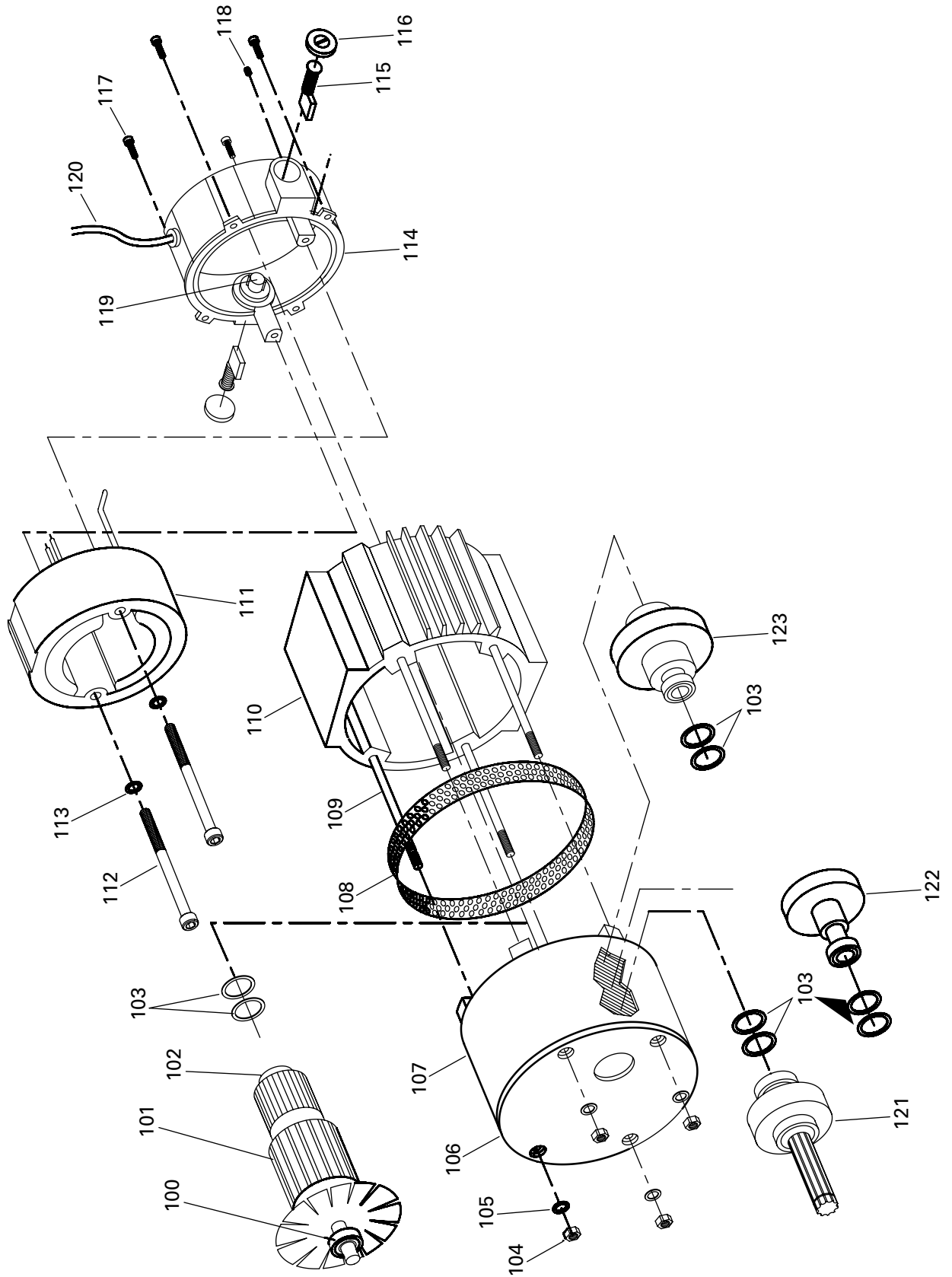




PARTS LIST – MODEL 88 CABLE PULLER

ITEM #	PARTS DESCRIPTION	QTY.	PART #
1	NUT-HEX NYLON INSERT (5/16"-18)	2	2-1301-4
2	FOOT SWITCH HOLDER	1	33-706
3	SCREW-HEX HEAD CAP (5/16-18 x 3/4)	2	77-002D1
4	SCREW-TC (8-32 x 1/2)	7	77-004
5	MASTER LINK, #60	1	77-010
6	STRAIN RELIEF	3	77-028
7	MASTER LINK - #40	1	77-032
8	NUT-LOCK CONDUIT 1/2	3	77-041A
9	SCREW-FLAT SOCKET (1/4-20 x 2.75)	5	88-1
10	PIN-COTTER (1/8 x 1/2)	2	88-2
11	OUTER SPACER - JACKSHAFT	1	88-13
12	PULLER FORCE GAUGE	1	88-17
13	ROLLER-TAILING	1	88-18
14	SPROCKET	1	88-19
15	MOUNTING CHAIN ASM - 88	2	88-21L
16	RING-RETAINING EXTERNAL 5/8	1	88-25
17	PAWL SPRING	1	88-26
18	ANTI-REVERSING PAWL	1	88-27
19	SCREW-PAN HEAD SLOT (6-32 x 1/4)	2	88-31
20	CHAIN GUARD	1	88-32
21	CAPSTAN - 88	1	88-33
22	ROLLER BEARING	2	88-35
23	INNER RACE	2	88-36
24	JACKSHAFT WASHER - PHENOLIC	1	88-37
25	SCREW-HEX HEAD CAP GR8 (1/2-13 x 4)	1	88-38
26	SCREW-HEX HEAD CAP GR8 (1/2-13 x 4.5)	1	88-38A
27	FITTING-GREASE 1/4-28	3	88-39
28	RING-RETAINING EXT H.D. 1.125	1	88-40
29	JACKSHAFT WASHER - STEEL	1	88-41
30	MOUNTING CHAIN HANDLE ASSEMBLY	2	88-42
31	MOTOR - 88	1	88-44
32	ELECTRICAL COVER - 88	1	88-46 BENT
33	CIRCUIT BREAKER SWITCH	1	88-47
34	WASHER - PHENOLIC	4	88-48
35	WASHER-STAR 1/2"	3	88-51
36	PULLER HOUSING	1	88-53
37	SPROCKET-60A40	1	88-54
38	SCREW-HEX HEAD CAP GR8 (7/16-14 x 1.25)	4	88-55
39	WASHER-STAR LOCK 7/16"	4	88-56
40	CAPSTAN BUSHING	1	88-57
41	INNER SPACER - JACKSHAFT	1	88-58
42	WASHER-11GA 2	1	88-59
43	SCREW-HEX HEAD CAP GR8 (5/8-11 x 1)	1	88-60
44	#60 ROLLER CHAIN	1	88-61
45	#60 IDLER SPROCKET W/ BUSHING	1	88-62
46	ARM - CHAIN TENSIONER	2	88-64
47	#40 ROLLER CHAIN	1	88-65
48	#40 IDLER SPROCKET W/ BUSHING	1	88-67
49	NUT-KEP (1/4-28) W/EXT LOCKWASHER	4	88-68
50	MOTOR SPROCKET	1	88-69
51	POWER CORD - 88	1	88-102
52	FOOT SWITCH ASM - 88	1	88-104
53	BOLT-SHOULDER SOC (5/8 x 1.75)	1	280-2D
54	NUT-HEX ZINC (1/2-13)	3	280-2G

EXPLODED VIEW - MODEL 88 CABLE PULLER MOTOR

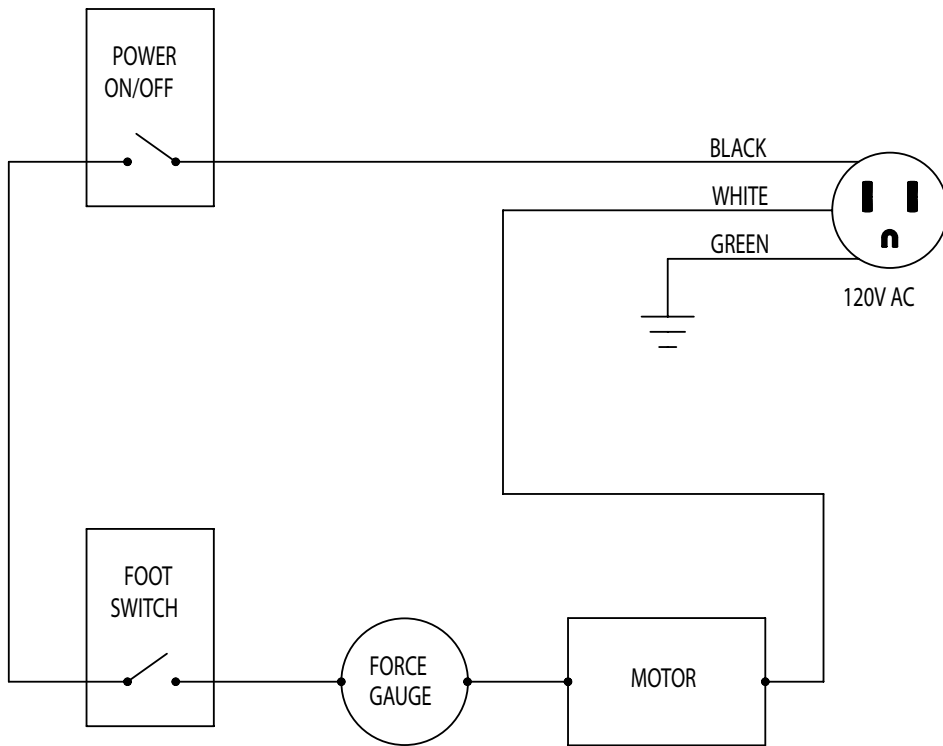




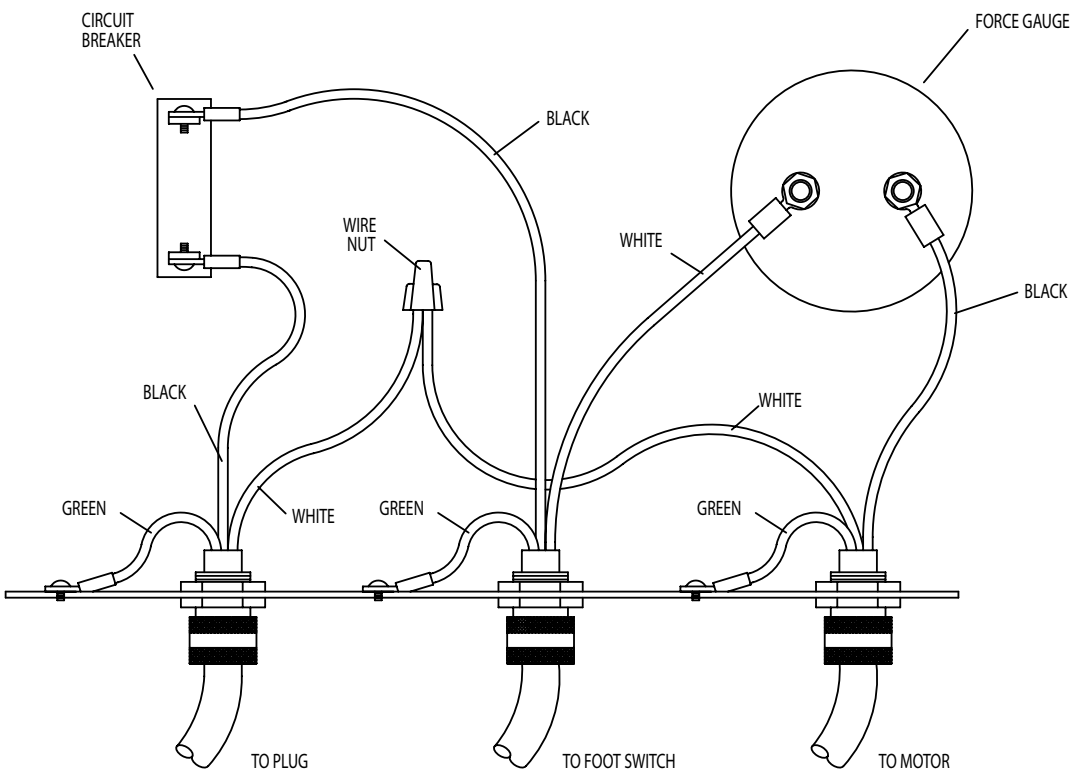
PARTS LIST – PART #88-44 CABLE PULLER MOTOR

ITEM #	PARTS DESCRIPTION	QTY	PART #
100	ARMATURE BEARING – FRONT	1	88-44A
101	ARMATURE	1	88-44B
102	ARMATURE BEARING – REAR	1	88-44C
103	BELLEVILLE WASHER	8	88-44D
104	NUT	4	88-44E
105	LOCK WASHER	4	88-44F
106	MOTOR END PLATE	1	88-44G
107	GEAR BOX HOUSING	1	88-44H
108	FAN SCREEN	1	88-44I
109	THREADED STUD	4	88-44J
110	MIDDLE MOTOR HOUSING	1	88-44K
111	FIELD	1	88-44L
112	SCREW	2	88-44O
113	LOCK WASHER	2	88-44N
114	END CAP HOUSING	1	88-44P
115	BRUSH	2	88-44Q
116	BRUSH CAP	2	88-44R
117	SCREW	4	88-44S
118	SET SCREW	2	88-44T
119	BRUSH HOLDER	2	88-44U
120	MOTOR CORD	1	450-4
121	OUTPUT SHAFT GEAR ASSEMBLY	1	88-44W
122	2ND GEAR ASSEMBLY	1	88-44X
123	1ST GEAR ASSEMBLY	1	88-44Y

WIRING SCHEMATIC – MODEL 88 CABLE PULLER

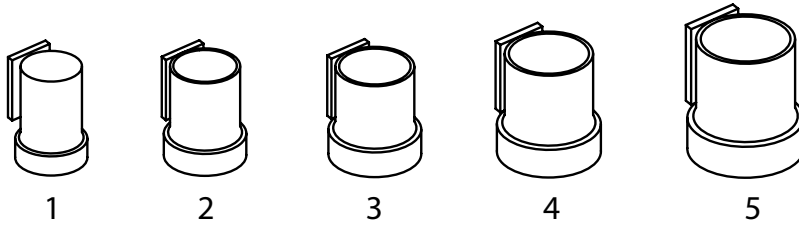


WIRING DRAWING – MODEL 88 CABLE PULLER



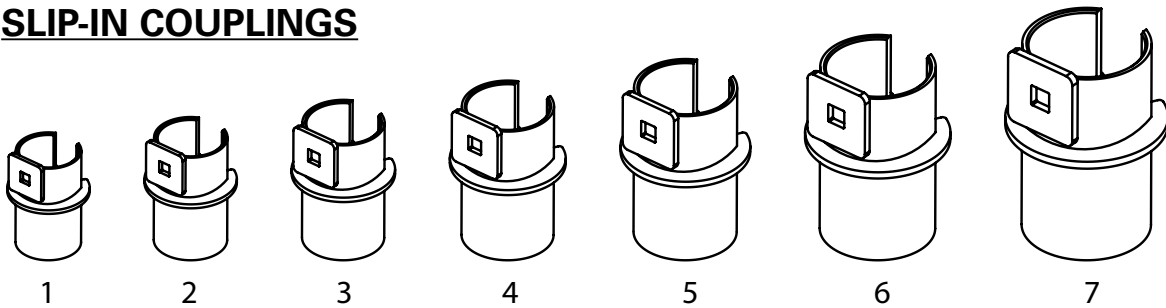
COMPONENT PARTS LISTING

SCREW-ON COUPLINGS



ITEM #	PART #	DESCRIPTION	QTY.
1	259	SCREW-ON COUPLING FOR 2" IMC, RIGID CONDUIT	<i>optional</i>
2	260	SCREW-ON COUPLING FOR 2 1/2" IMC, RIGID CONDUIT	<i>optional</i>
3	261	SCREW-ON COUPLING FOR 3" IMC, RIGID CONDUIT	<i>optional</i>
4	262	SCREW-ON COUPLING FOR 3 1/2" IMC, RIGID CONDUIT	<i>optional</i>
5	263	SCREW-ON COUPLING FOR 4" IMC, RIGID CONDUIT	<i>optional</i>

SLIP-IN COUPLINGS

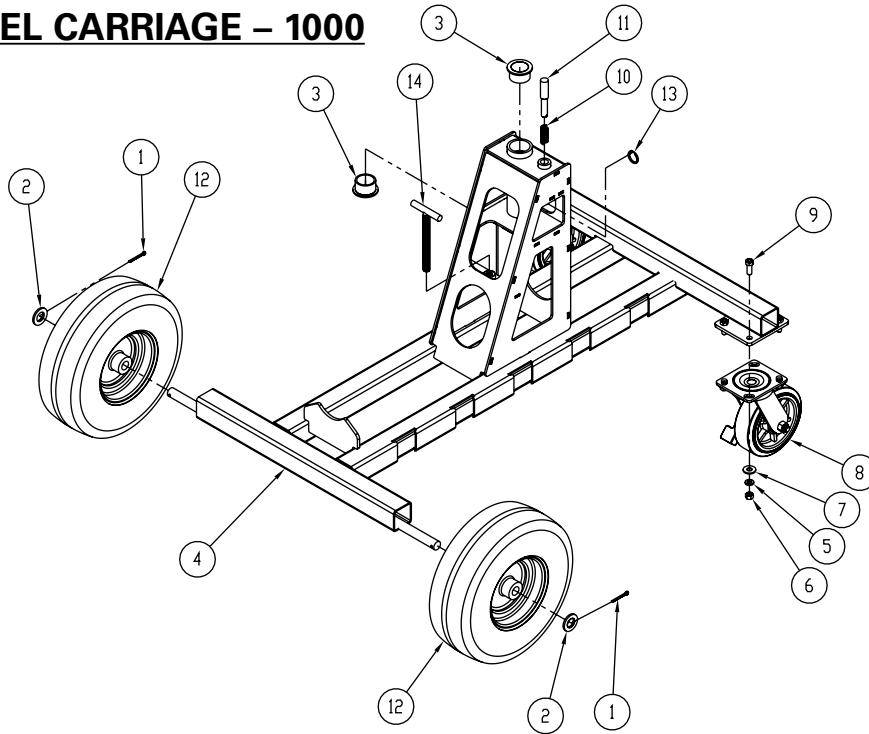


ITEM #	PART #	DESCRIPTION	QTY.
1	198	SLIP-IN COUPLING FOR 2" EMT, IMC, RIGID CONDUIT	1
2	199	SLIP-IN COUPLING FOR 2 1/2" EMT, IMC, RIGID CONDUIT	1
3	200	SLIP-IN COUPLING FOR 3" EMT, IMC, RIGID CONDUIT	1
4	201	SLIP-IN COUPLING FOR 3 1/2" EMT, IMC, RIGID CONDUIT	1
5	202	SLIP-IN COUPLING FOR 4" EMT, IMC, RIGID CONDUIT	1
6	230	SLIP-IN COUPLING FOR 5" EMT, IMC, RIGID CONDUIT	<i>optional</i>
7	255	SLIP-IN COUPLING FOR 6" EMT, IMC, RIGID CONDUIT	<i>optional</i>



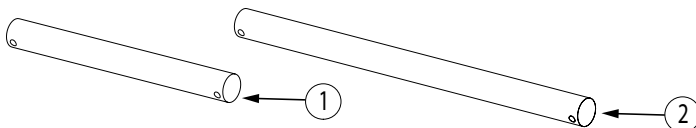
COMPONENT PARTS LISTING – CONTINUED

FOUR WHEEL CARRIAGE – 1000



ITEM #	PART #	DESCRIPTION	QTY.
1	77-016	PIN – COTTER, 3/16" × 1 1/4"	2
2	77-017	WASHER – FLAT 3/4" (SAE)	2
3	100-027	BUSHING – BASE	2
4	100-299	CARRIAGE WELDMENT	1
5	452-27	WASHER – LOCK MEDIUM 3/8" ZINC	8
6	452-28	NUT – HEX ZINC (3/8-16)	8
7	506-3	WASHER – FLAT 3/8 (USS) ZINC	8
8	513-001	CASTER – SWIVEL	2
9	524-11	SCREW – HX HD CAP GR5 ZINC (3/8-16 × 1)	8
10	747-4	SPRING	1
11	747-860	PIN – ROTABOOM™ POSITIONING	1
12	8091-2	12.75" DIAMETER WHEEL	2
13	8099-3	PULL RING	1
14	9548-743	T-SCREW – CLAMP – 4 SIDED ROLLER	1

BOOM TUBES – 1850/1860



ITEM #	PART #	DESCRIPTION	QTY.
1	1850	3' BOOM TUBE	1
2	1860	4' BOOM TUBE	1

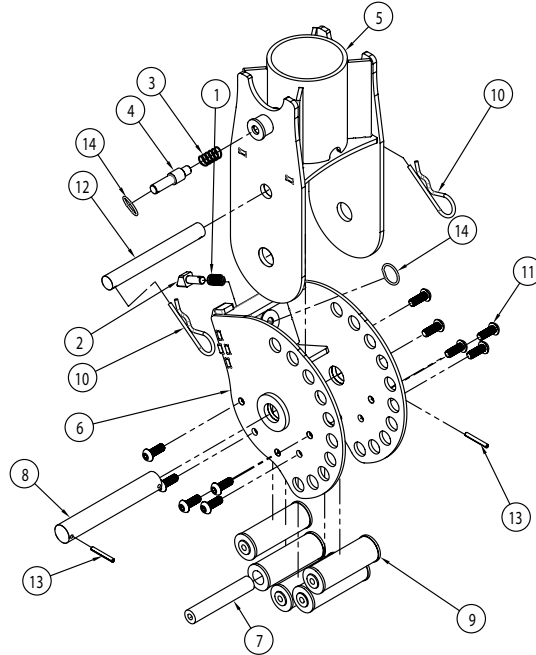


COMPONENT PARTS LISTING – CONTINUED

(optional)

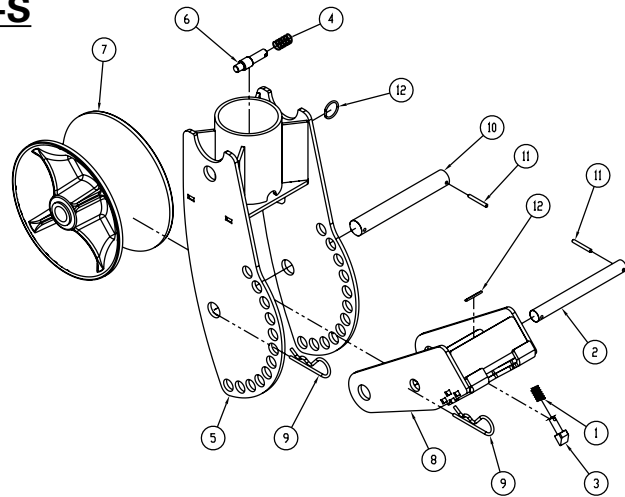
NOSE UNIT – 1840

ITEM #	PART #	DESCRIPTION	QTY.
1	33-22	SPRING – COUPLING MOUNT PAWL	1
2	33-485	PAWL – COUPLING MOUNT	1
3	100-011	BOOM PIN SPRING	1
4	100-170	BOOM PIN	1
5	100-172	NOSE UNIT OUTER	1
6	100-173	NOSE UNIT COUPLING ADAPTER	1
7	100-182	NOSE UNIT CUP ADAP ROLLER PIN	5
8	100-203	1 INCH PIN, NOSE UNIT	1
9	100-232	NOSE UNIT ROLLER PIN ASSEMBLY	5
10	406-3	SPRING CLIP	2
11	610-21	SCREW-BUTTON HEAD CAP (3/8-16 X 1)	10
12	951TR-10	ANGLE ADJUSTMENT PIN	1
13	8094-2A	ROLL PIN 3/16 X 1.5	2
14	8099-3	BOOM PIN RING	2



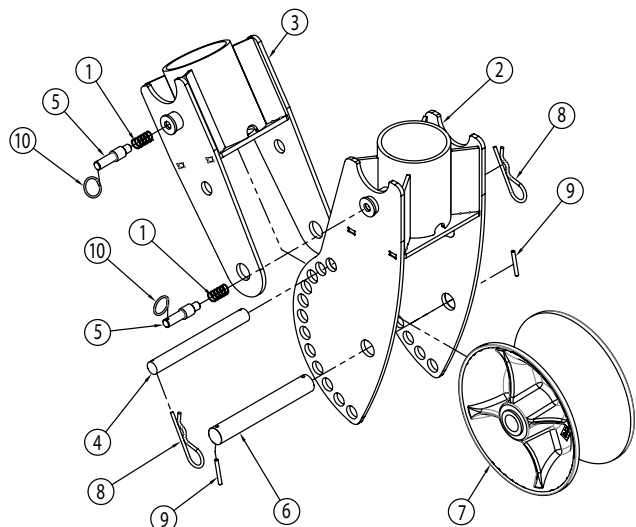
NOSE UNIT with Sheave – 1840-S

ITEM #	PART #	DESCRIPTION	QTY.
1	33-22	SPRING – COUPLING MOUNT PAWL	1
2	333-212	ANGLE ADJUSTMENT PIN	1
3	33-485	PAWL – COUPLING MOUNT	1
4	100-011	BOOM PIN SPRING	1
5	100-160	ELBOW UNIT – OUTER	1
6	100-170	BOOM PIN	1
7	100-219	SHEAVE ASSEMBLY	1
8	100-274	NOSE UNIT COUPLING ADAPTER	1
9	406-3	SPRING CLIP	2
10	812-487	PIN – SHEAVE	1
11	8094-2A	ROLL PIN 3/16 X 1.5	2
12	8099-3	BOOM PIN RING	2



ELBOW UNIT – 1710

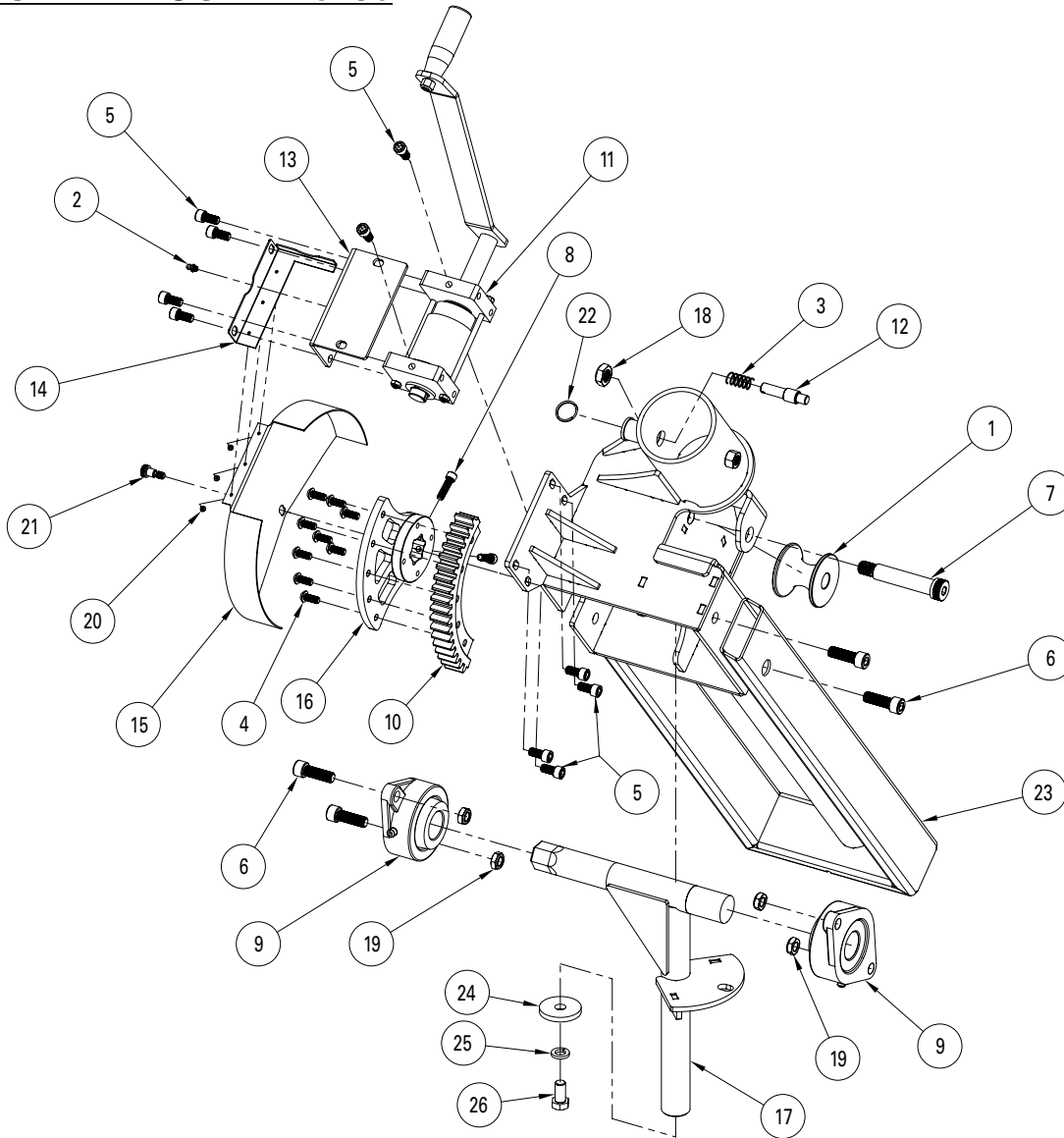
ITEM #	PART #	DESCRIPTION	QTY.
1	100-011	SPRING BOOM PIN	2
2	100-160	ELBOW UNIT OUTER	1
3	100-161	ELBOW UNIT INNER	1
4	333-212	ELBOW UNIT ANGLE ADJUSTMENT PIN	1
5	100-170	BOOM PIN	2
6	812-487	1 INCH PIN, ELBOW UNIT	1
7	100-219	SHEAVE ASSEMBLY	1
8	406-3	SPRING CLIP	2
9	8094-2A	ROLL PIN 3/16 X 1.5	2
10	8099-3	BOOM PIN RING	2





COMPONENT PARTS LISTING – CONTINUED

PULLER MOUNT – 8290



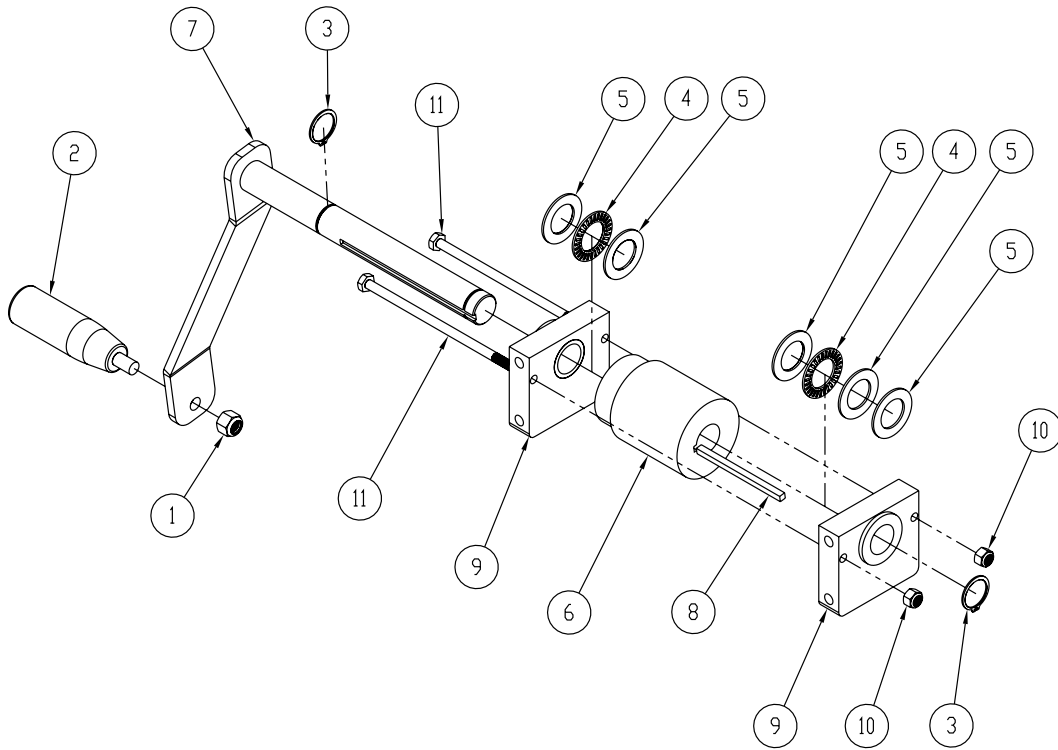
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	2-1204	ROLLER – REDIRECT	1
2	88-39	FITTING-GREASE 1/4-28	1
3	100-011	BOOM PIN SPRING	1
4	100-018	SCREW-BUTTON HEAD SOCKET (5/16-18 x 3/4)	9
5	100-019	SCREW-SOCKET HEAD CAP (3/8-16 x 3/4)	10
6	100-020	SCREW-SOCKET HEAD CAP (1/2-13 x 1.5)	4
7	100-021	SCREW-SHOULDER SOCKET (3/4 x 3.25)	1
8	100-025	SCREW-SOCKET HEAD CAP (5/16-18 x 1.125)	2
9	100-028	BEARING, FLANGE	2
10	100-152	GEAR SEGMENT	1
11	100-156	WORM BOX ASSEMBLY	1
12	100-170	BOOM PIN	1
13	100-192	WORM COVER	1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
14	100-210	GEAR HOUSING PLATE 1	1
15	100-217	GEAR HOUSING WELDMENT	1
16	100-267	GEAR HUB AND PLATE WELDMENT	1
17	100-318	ROTATION T WELDMENT	1
18	281-11	NUT-HEX NYLON INSERT THIN (5/8-11)	1
19	281-1J	NUT-HEX, 1/2-13 THIN (NYL INS)	4
20	450-44A	1/8" DIA. SS RIVET-BLIND	3
21	752-100	3/8 X 3/8 LG SHOULDER BOLT	1
22	8099-3	PULL RING	1
23	8288-120	PULLER MOUNT WELDMENT	1
24	100-297	RETAINING WASHER	1
25	281-2C	WASHER-LOCK 1/2" ZINC	1
26	8092-2	SCREW-HX HD CAP (1/2-13 x 1)	1



COMPONENT PARTS LISTING – CONTINUED

WORM BOX ASSEMBLY – 100-156



ITEM #	PART #	DESCRIPTION	QTY.
1	2-1501-4	NUT-HEX NYLON INSERT (3/8-16)	1
2	100-006	HEIGHT ADJUSTMENT HANDLE	1
3	100-026	7/8 RETAINING RING – EXTERNAL	2
4	100-012	THRUST BEARING	2
5	100-013	THRUST RACE	5
6	100-016	WORM GEAR	1
7	100-233	HEIGHT ADJUSTMENT SHAFT	1
8	100-269	KEYSTOCK 3/16" × 3.125"	1
9	100-270	WORM BOX PLATE AND BUSHING	2
10	747-30	NUT – HX, NYLON INSERT THIN (1/4-20)	2
11	95024RA-7	SCREW – HEX HEAD CAP GR5 ZINC (1/4-20 × 5.5)	2