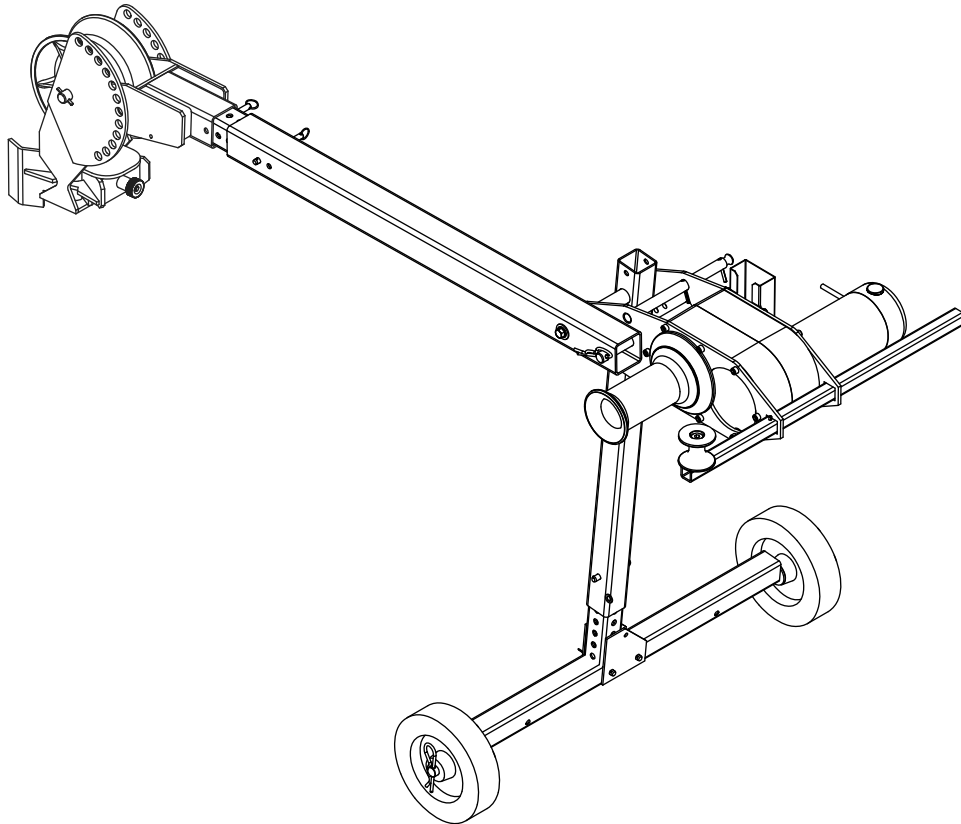


INSTRUCTION MANUAL



UT4 and UT4-22 Cable Pulling Systems

Serial Codes AMJ and ALB



Read and understand all of the instructions and safety information in this manual before operating or servicing this tool.

Register this product at www.greenlee.com

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Description

The Greenlee UT4 and UT4-22 Cable Pulling Systems are intended to pull cable through conduit for medium-duty applications. Typical applications might be: pulling 3x500 kcmil (mcm) cables 300 feet or 3x3/0 cables 600 feet.

Safety

Safety is essential in the use and maintenance of Greenlee tools and equipment. This manual and any markings on the tool provide information for avoiding hazards and unsafe practices related to the use of this tool. Observe all of the safety information provided.

Purpose of this Manual

This manual is intended to familiarize all personnel with the safe operation and maintenance procedures for the following Greenlee tools:

- UT4 Cable Pulling System

- UT4-22 Cable Pulling System

Keep this manual available to all personnel.

Replacement manuals are available upon request at no charge at www.greenlee.com.

All specifications are nominal and may change as design improvements occur. Greenlee Textron Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

KEEP THIS MANUAL

IMPORTANT SAFETY INFORMATION



SAFETY ALERT SYMBOL

This symbol is used to call your attention to hazards or unsafe practices which could result in an injury or property damage. The signal word, defined below, indicates the severity of the hazard. The message after the signal word provides information for preventing or avoiding the hazard.

⚠ **DANGER**

Immediate hazards which, if not avoided, **WILL** result in severe injury or death.

⚠ **WARNING**

Hazards which, if not avoided, **COULD** result in severe injury or death.

⚠ **CAUTION**

Hazards or unsafe practices which, if not avoided, **MAY** result in injury or property damage.



⚠ **WARNING**

Electric shock hazard:
Disconnect the cable puller from the power source before servicing.
Failure to observe this warning could result in severe injury or death.

⚠ **WARNING**

Attach only to steel or schedule 40 PVC conduit. Do not attach to PVC conduit unless it is supported within 2" of the end.

Failure to observe this warning could result in severe injury or death.



⚠ **WARNING**

Do not allow anything other than the pulling rope to contact the capstan. A grip, swivel, or other component could break and strike nearby personnel with great force.

Failure to observe this warning could result in severe injury or death.



⚠ **DANGER**

Read and understand all of the instructions and safety information in this manual before operating or servicing this tool.

Failure to observe this warning could result in severe injury or death.



⚠ **WARNING**

Do not stand directly under a vertical pull. Cable could fall suddenly from the conduit, injuring nearby personnel.

Failure to observe this warning could result in severe injury or death.



⚠ **DANGER**

Do not operate the cable puller in a hazardous environment. Hazards include flammable liquids and gases.

Failure to observe this warning will result in severe injury or death.

IMPORTANT SAFETY INFORMATION

⚠ WARNING

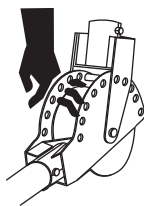
An under-rated or worn rope may break and whip violently. Use a polyester or polyester-jacketed rope with a breaking strength of 16,000 pounds.
Failure to observe this warning could result in severe injury or death.

⚠ WARNING

- Check the condition of the entire rope before use. A worn or damaged rope can break under tension and whip violently.
 - Do not maintain a stationary rope on a rotating capstan. The wear generated may cause the rope to break under tension and whip violently.
- Failure to observe these warnings could result in severe injury or death.

⚠ WARNING

Attach the pulling rope to the cable with appropriate types of connectors. Select connectors with a rated capacity of 4000 pounds. An under-rated connector can break under tension.
Failure to observe this warning could result in severe injury or death.



⚠ WARNING

Do not put fingers through holes in elbow unit. Rotating parts may cut off fingers.
Failure to observe this warning could result in severe injury or death.



⚠ WARNING

Keep hands away from the capstan. Rope at the capstan can crush a hand.
Failure to observe this warning could result in severe injury or death.



⚠ WARNING

Do not wrap rope around hands, arms, waist or other body parts. Do not stand in spent coils or tailed rope. Hold rope so that it can be released quickly.
Failure to observe this warning could result in severe injury or death.

⚠ WARNING

Rope, cable, or a connecting device can break under tension, causing the rope to whip violently.

- Do not allow any unnecessary personnel to remain in the area during the pull.
- Do not allow any personnel to stand in line with the pulling rope.

Failure to observe these warnings could result in serious injury or death.

IMPORTANT SAFETY INFORMATION**⚠ WARNING**

Do not allow the rope to overlap on the capstan. If the rope approaches the top of the angled part of the capstan, relax the tailing force. If an overlap does occur, shut off the puller immediately.

Failure to observe this warning could result in severe injury or death.

⚠ WARNING

Entanglement hazard:

- Do not operate the cable puller while wearing loose-fitting clothing.
- Retain long hair.

Failure to observe these warnings could result in severe injury or death.

⚠ WARNING

Use this tool for manufacturer's intended purpose only. Do not use the cable puller as a hoist or winch.

- The cable puller cannot lower a load.
- The load may fall.

Failure to observe this warning could result in severe injury or death.

⚠ WARNING

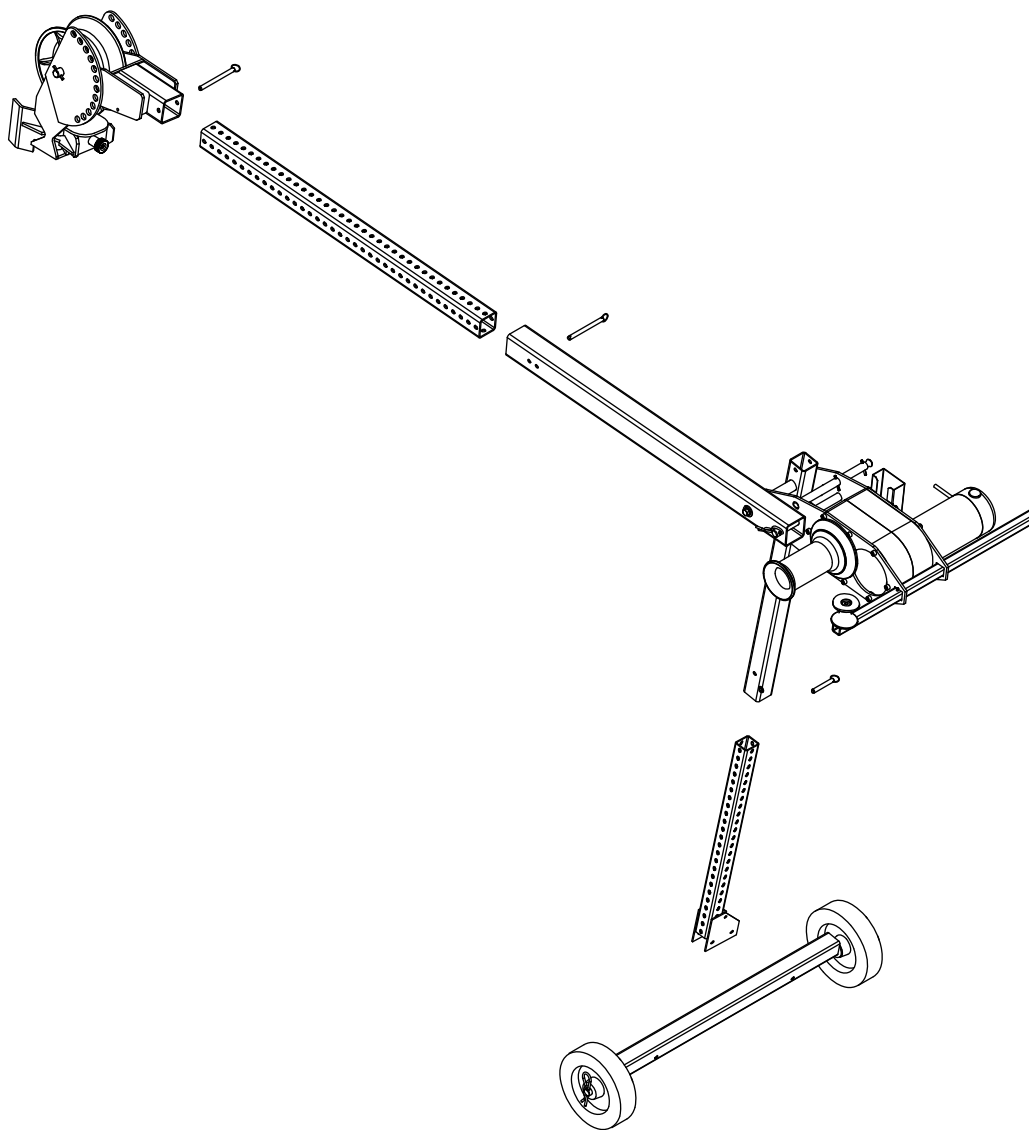
Wear eye protection when using this tool.

Failure to wear eye protection could result in severe eye injury from flying debris.

Specifications

Weight.....	175 lb
Motor	
UT4.....	120 VAC, 50/60 Hz, 15 amps
UT4-22	220 VAC, 50/60 Hz, 9 amps
Speed (high)	
No load.....	26 fpm
1000 lb	24 fpm
2000 lb	22 fpm
Speed (low)	
No load.....	13 fpm
2000 lb	12 fpm
4000 lb	11 fpm
Force (low speed)	3000 lb continuous (4000 intermittent)
Force (high speed).....	1500 lb continuous
Pull Rope	9/16" double-braided composite 16,000-lb minimum break strength

Initial Assembly



1. Insert the leg and wheel assembly tubes together and secure with a short detent pin.
2. Lock the leg from pivoting by inserting the long detent pin into one of the holes in the puller head side plate.
3. Lay the puller down so the bar with the small sheave is next to the ground and the main boom is up in the air.
4. Slide the telescopic boom into the main boom and secure with a long detent pin.
5. Slide the nose onto the telescopic boom and secure with a long detent pin.

Assembly

To open from the folded position shown in Fig. 1, pull the detent pin that locks the leg to the puller head and let the wheel assembly drop to the floor as shown in Fig. 2. Pull the pin that locks the wheels to the leg and rotate the wheels as shown in Fig. 2. Replace the pin that locks the wheels.

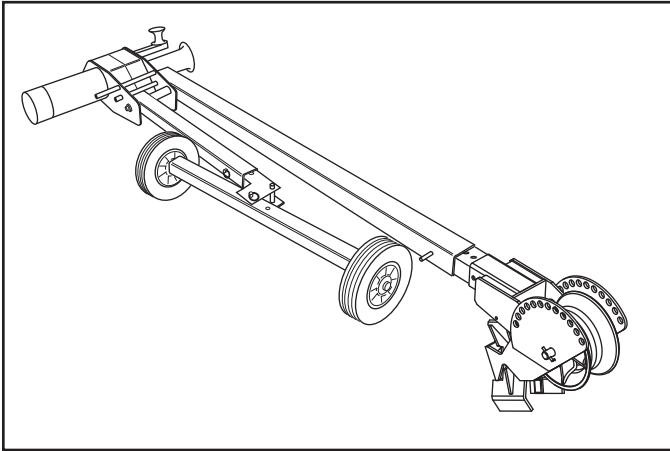


Figure 1

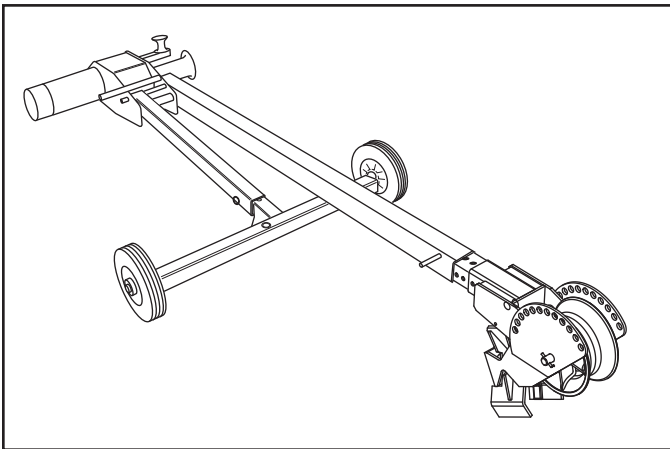


Figure 2

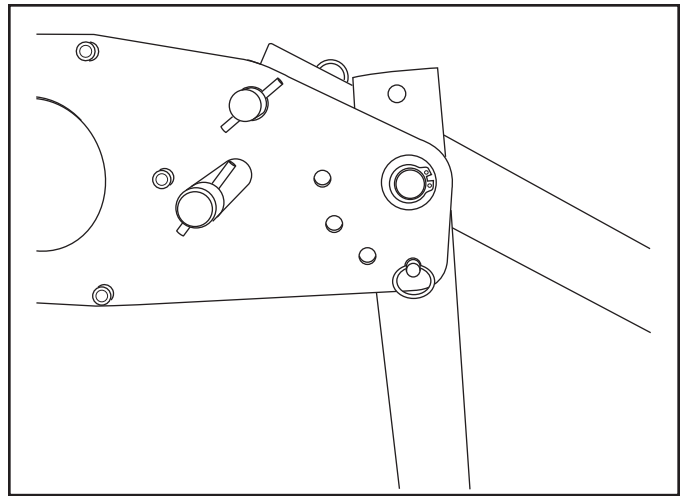
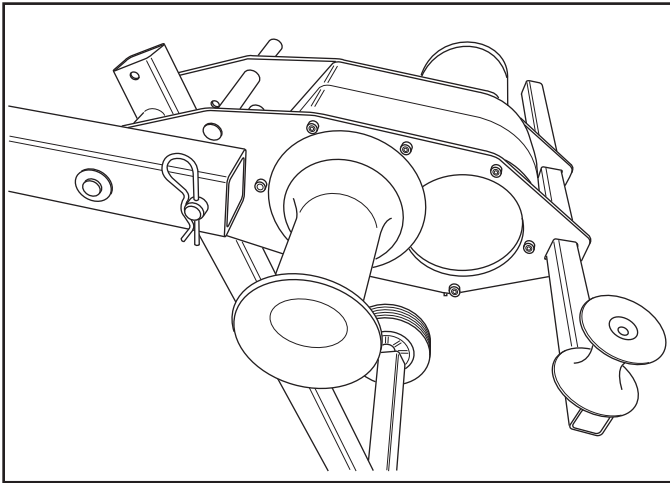


Figure 3

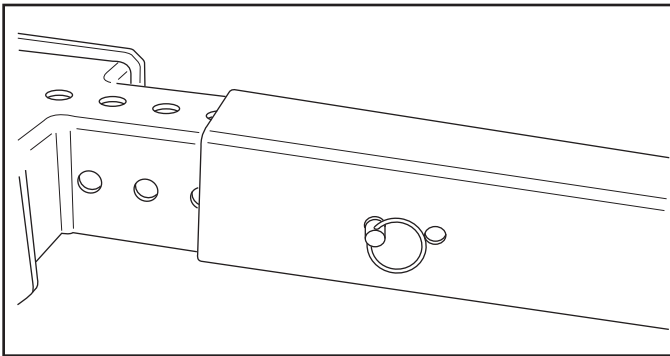
Lift up the puller head until you can insert the detent pin in one of the four positioning holes as shown in Fig. 3. The bottom hole shown often works well as it allows the puller head to act as a counterbalance for easy transport and conduit attachment.

Setup—Up Pull

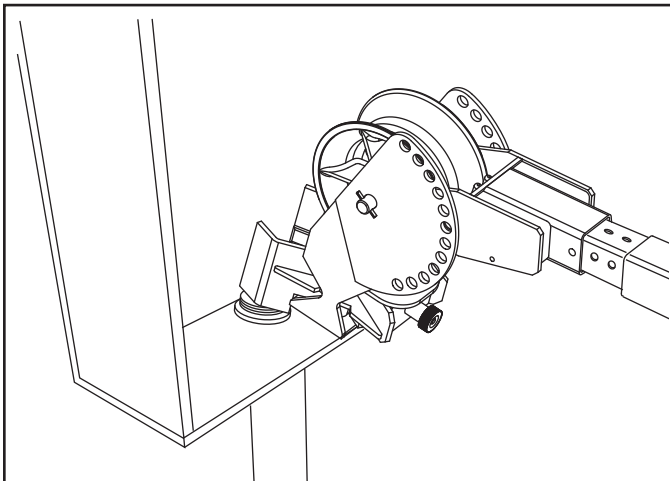
Adjust the puller head to the bottom of the two puller head pivot positions.



Adjust telescopic boom so that it is long enough to reach the conduit or pull out the desired cable tail. Reinsert the detent pin.

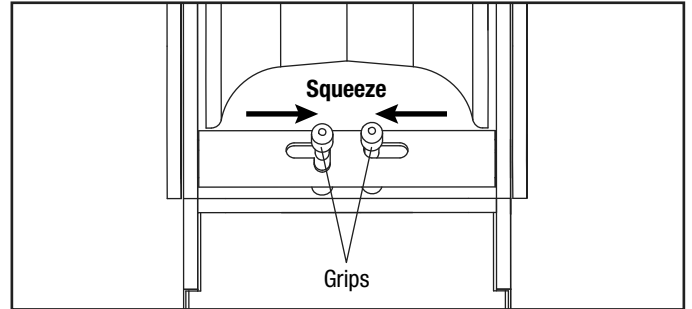


Place the conduit attachment nose near the conduit.



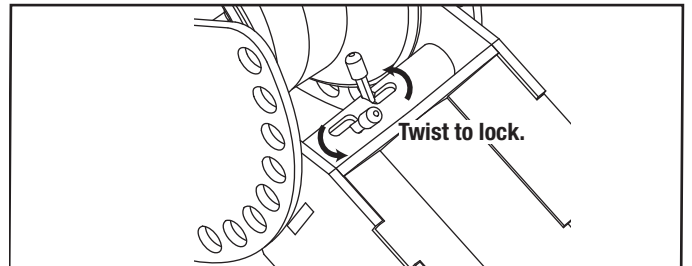
Pivoting the nose unit:

The nose unit pivots and locks at various degrees of rotation. It is locked in place by a detent pin set located between the sheave and the end of the boom tube receptacle. To pivot, squeeze the grips on the detent pins fully inward.



Make sure the detent pins on both sides are fully retracted before trying to pivot. Release the grips when the desired pivot angle is reached, and pivot slightly more to allow both detents to engage in the closest holes.

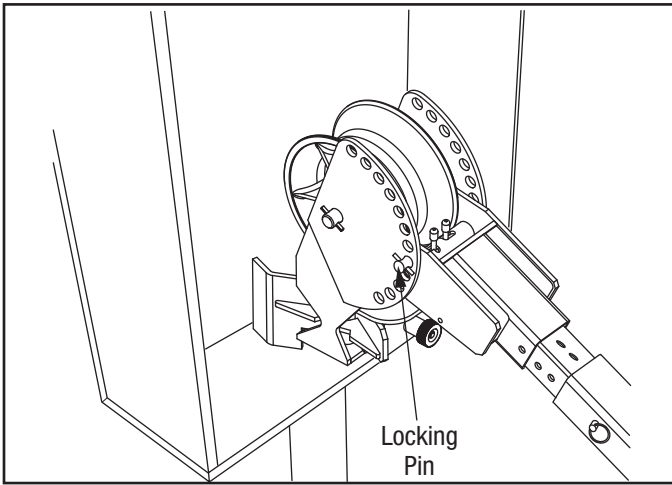
When the detent pins are squeezed to the fully inward position, they can be locked in place by twisting them counterclockwise.



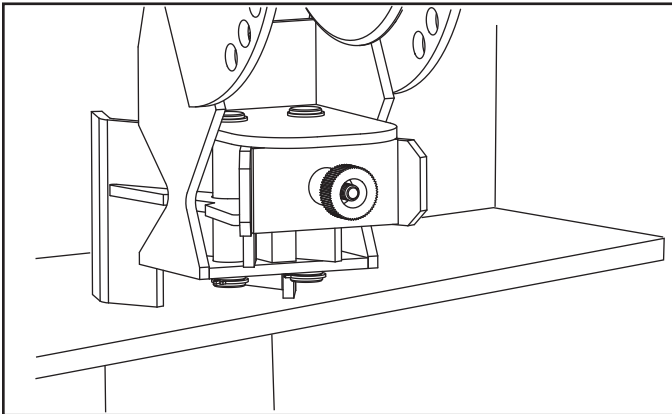
Never pull cable with the detent pins locked inward; the nose unit must be locked from pivoting before pulling.

Setup—Up Pull (cont'd)

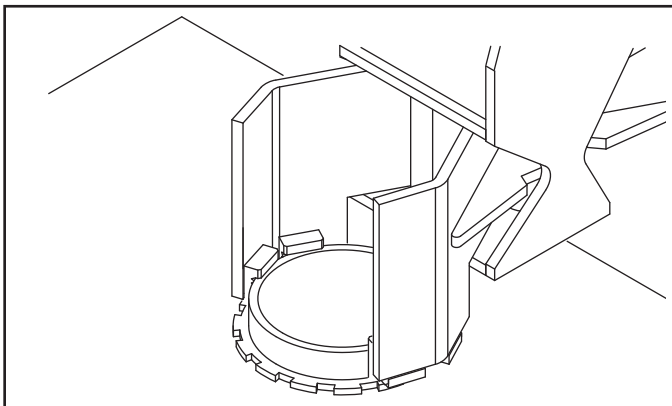
Pull the pivot locking pin and adjust the nose angle so that it is in line with the conduit.



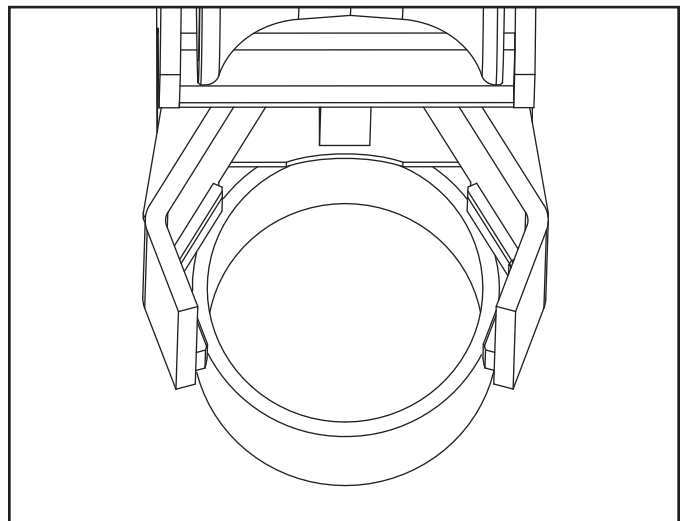
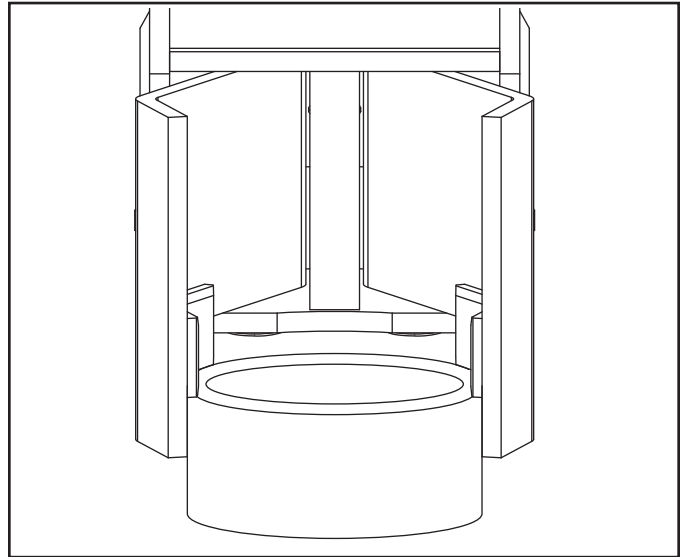
Unscrew the knurled nut until the clamping jaws can fit around the conduit. The jaws will fit 2" to 4" conduit.



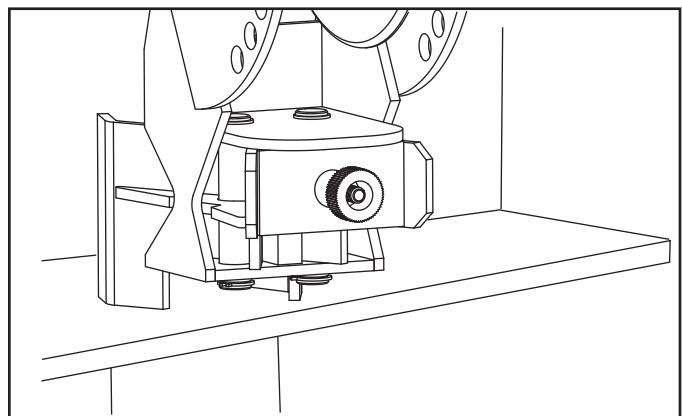
Butt the bottom of the clamping jaws up against the conduit lock nut, or the lip of the grips against the top of the conduit.



If the conduit is free-standing or without threads, position the clamping jaws so that the conduit will butt up against the overhanging flats of the grips.

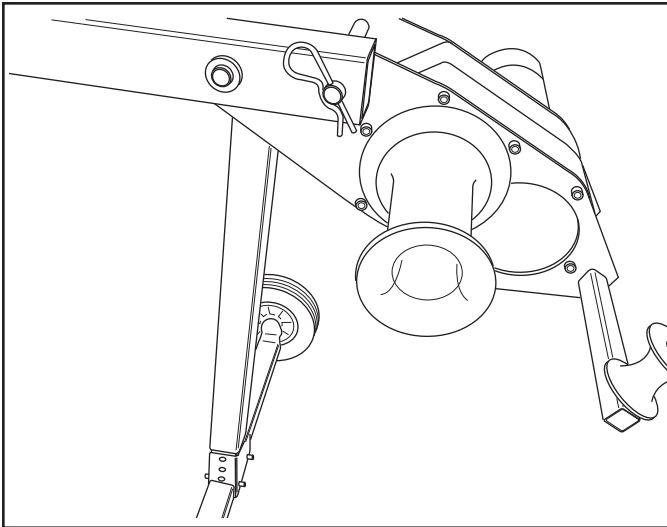


Tighten the knurled knob until the locking jaws are tight against the conduit at all four grip points.

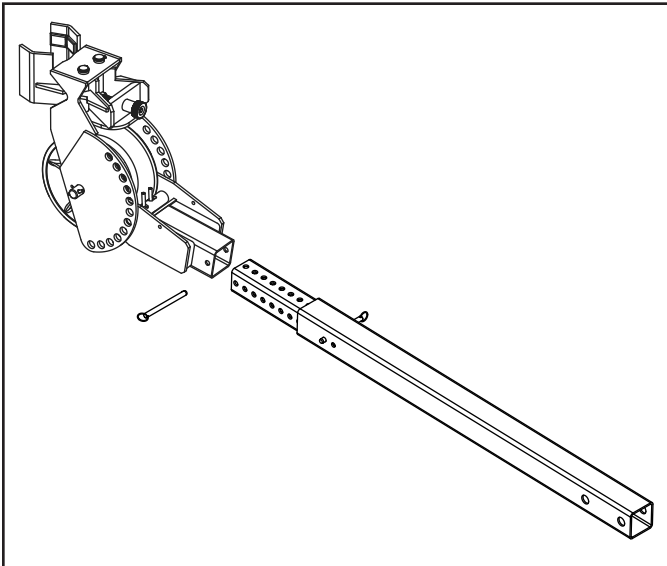


Setup—Down Pull

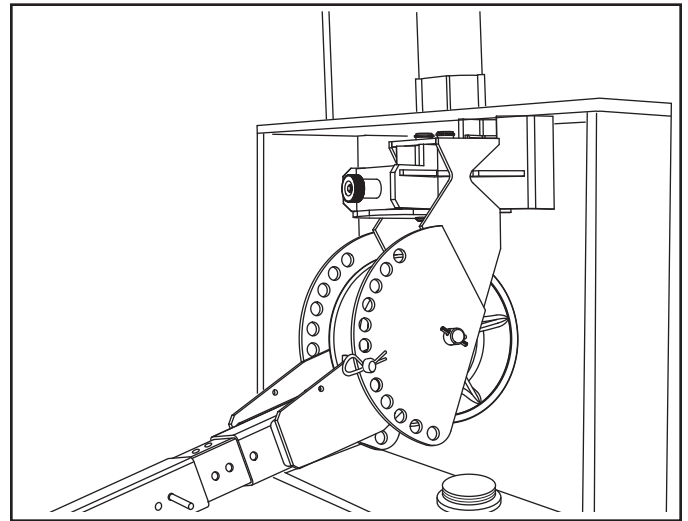
Adjust the puller head to the top of the two puller head pivot positions.



Remove the detent pin.
Remove the nose assembly.

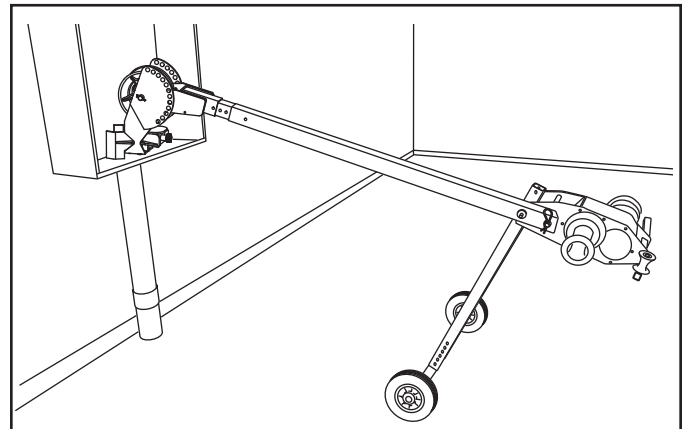


Rotate the nose 180° and reinsert the boom so that the clamping jaws are oriented upwards and secure it with the detent pin.

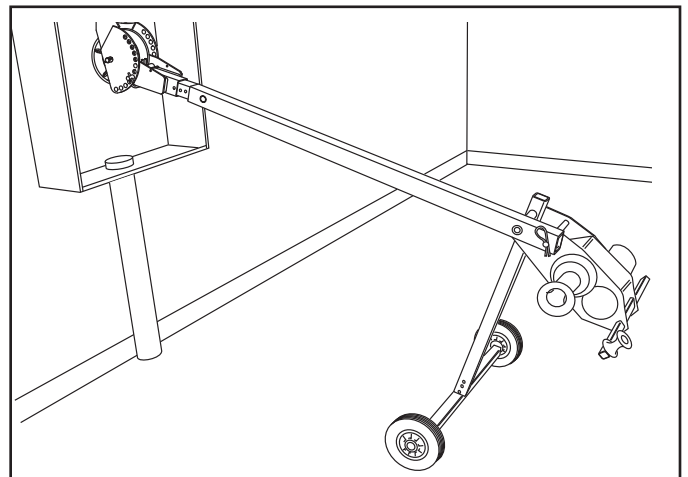


Continue by following the instructions as described for an up-pull.

Typical setup for an up-pull.



Typical setup for a down-pull.



Setup—Floor Mount

Requires: A concrete floor with the following characteristics:

- fully cured structural-type concrete
- minimum compressive strength of 211 kg/cm² (3000 psi)
- free of cracks, crumbling, or patchwork.

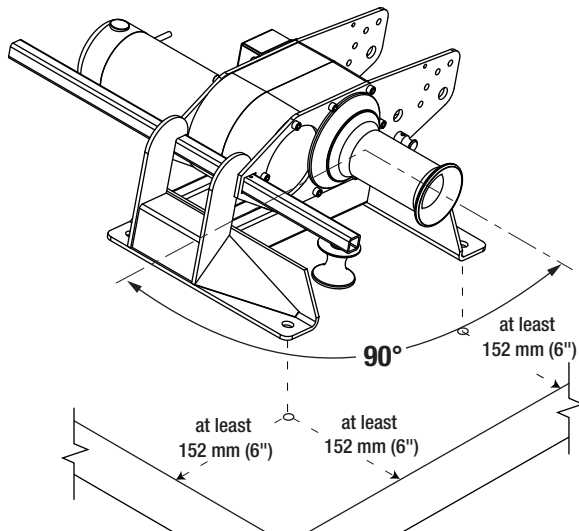
⚠ WARNING

Follow all floor mounting instructions carefully.

- An improperly attached floor mount can come loose and strike nearby personnel.
- Do not attach the floor mount to masonry, brick, or cinder block. These materials will not hold the anchors securely.

Failure to observe this warning could result in severe injury or death.

1. Determine the best position for locating the floor mount. Locate the floor mount:
 - on a flat section
 - at least 152 mm (6") from edge of concrete
 - as close to the conduit as possible to reduce the amount of exposed rope under tension
 - so that the pull rope will approach the puller's capstan at a 90° (± 5°) angle.



2. Set the floor mount in the desired location. Use the floor mount as a template to drill four 5/8" holes at least 152 mm (6") deep.

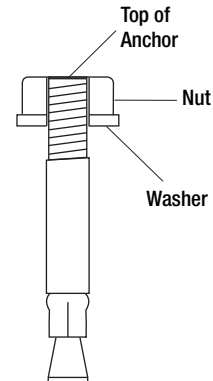
Note: Use a 5/8" carbide-tipped masonry bit manufactured in accordance with ANSI standard B94.12-77.

3. Vacuum the debris from the holes.

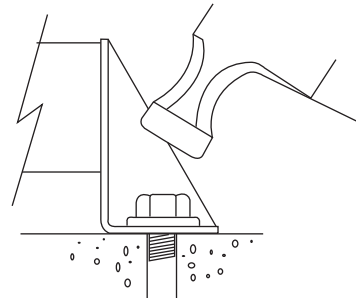
Installation

Greenlee recommends using Greenlee 35607 Wedge Anchors. If another type of anchor is used, they must have an ICBO (International Conference of Building Officials) allowable tension and shear rating of 10.7 kN (2400 lb) in 211 kg/cm² (3000 psi) concrete.

1. Assemble the nut and washer to the anchor so the top of the nut is flush with the top of the anchor, as shown.



2. Insert the four anchors through the floor mount and into the holes in the floor.
3. Hammer the anchors in until the washer is in firm contact with the floor mount.



4. Expand the anchors by torquing the nuts to 122 to 128 Newton-meters (90 to 95 ft-lb).

⚠ WARNING

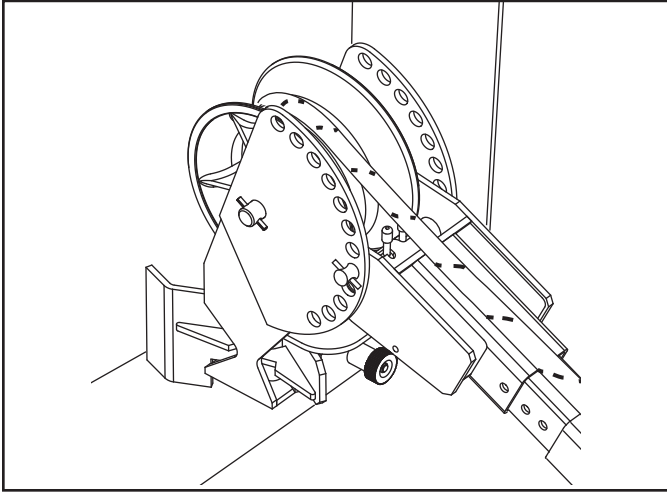
If any of the four anchors spin before the minimum torque is achieved, abandon the location and start elsewhere. An improperly installed anchor can allow the puller to break loose.

Failure to observe this warning could result in severe injury or death.

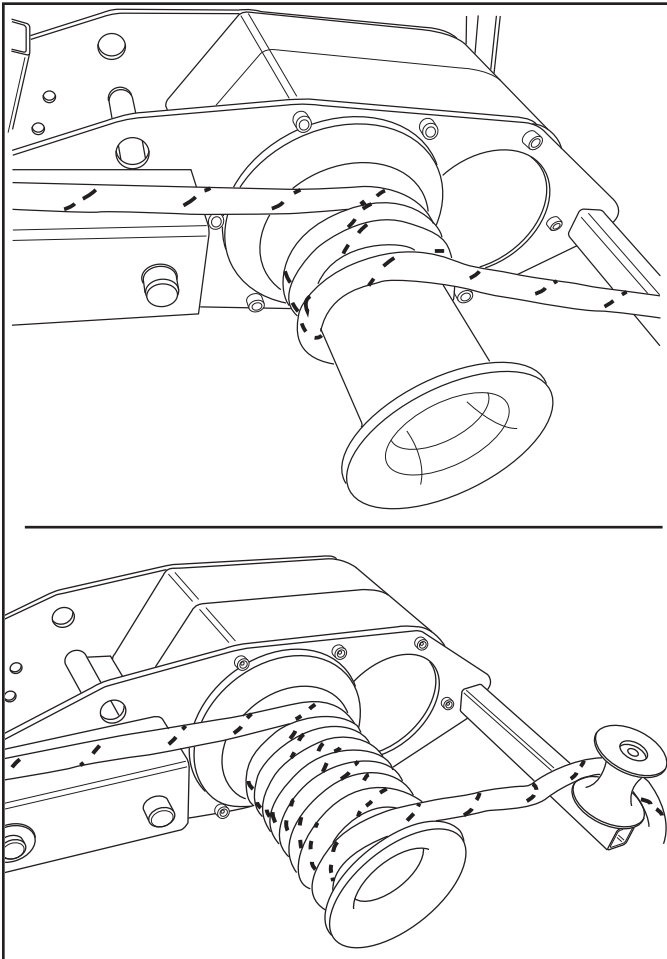
5. Have the installation checked by a qualified inspector.

Operation

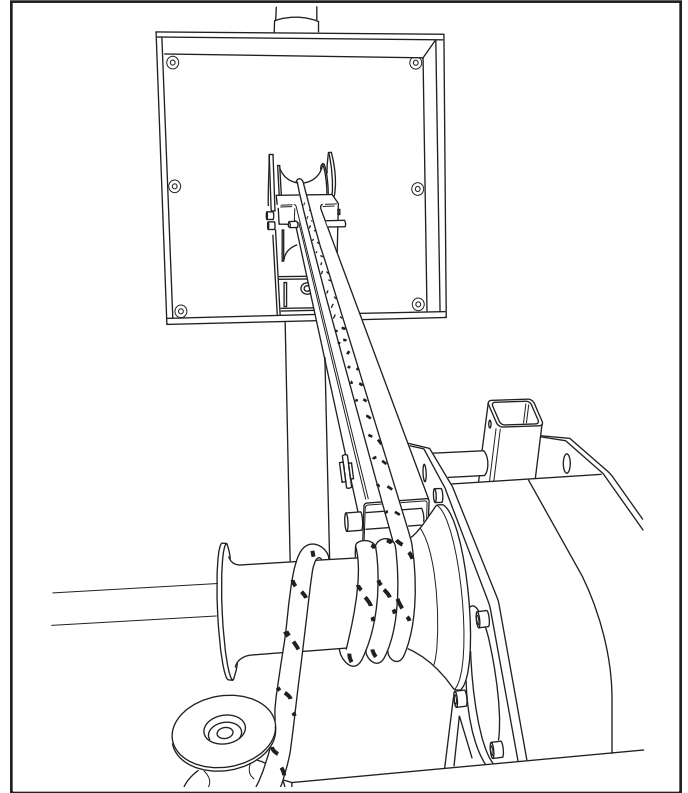
After fishing the pull rope through the conduit, loop it around the 12" sheave at the nose.



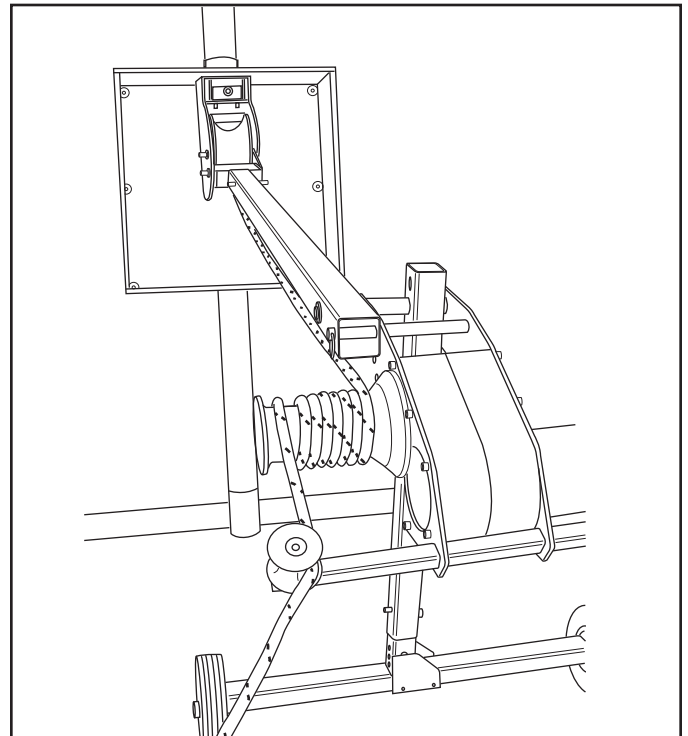
Wind it around the capstan in a clockwise direction, starting at the beveled flange and working outward.



For an up-pull the rope should be just above the boom.



For a down-pull, the rope should be just below the boom.



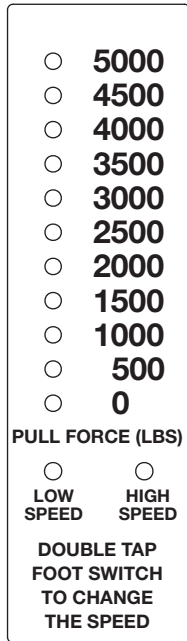
For a side pull, the rope should end up above the boom at the puller head end.

Operation (cont'd)

The lights will cycle through a power up sequence with only the "0" light remaining lit. The default startup speed is high. The high speed light will be lit. To change the speed to low, double tap the foot switch. The low speed light will illuminate. Double tap the foot switch again to change back to high speed.

After the foot switch is depressed, the green light indicating 0 lb will be lit. As the force climbs, an additional light illuminates for every 500 lb increase in pulling force.

- If the continuous operating limit of the puller is exceeded in high speed mode, the green lights start to flash.
- If the continuous operating limit of the puller is exceeded in low speed mode, the yellow lights illuminate.
- The red light illuminates at 4000 lb to indicate that the maximum operating limit of the puller has been reached. The circuit breaker (or current limiting) may shut down the puller before or shortly after the red light illuminates.



Make sure all nearby personnel are not standing in line with or close to the pull rope. The right angle sheave on the UT4 should be used to allow the operator to stand off to the side as required.

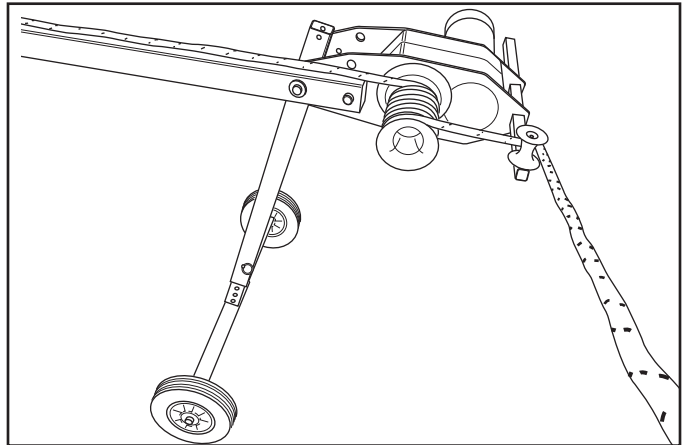
Position yourself so that you can see the force gauge indicator lights. Refer to the table below.

Force Gauge Indicator Lights

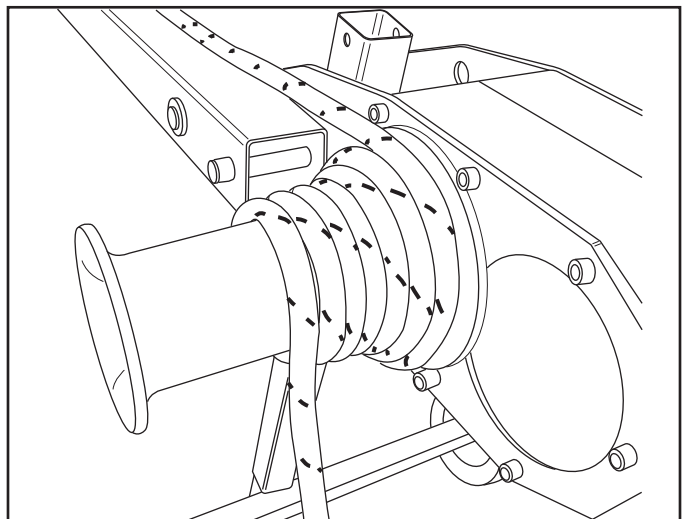
State of Force Lights	Pulling Force (lb)	Duty Cycle
Green	0–3000 (low)	Continuous
	0–1500 (high)	
Green flashing	2500–3000 (high)	15 ON/15 OFF
Yellow	3000–4000 (low)	15 ON/ change to low
Red	Over 4000	STOP

When ready to start pulling cable, use only a few wraps of rope on the capstan at first. Using too many wraps will reduce your ability to control the rope on the capstan.

Use the right angle sheave to position yourself so you are not in line with the high-tension rope in case it, the cable, or the connector breaks.



Turn on the puller, using the foot switch and gradually apply a tailing force to the free end of the rope. If the tailing force becomes uncomfortably high, turn off the puller and add another wrap. If the rope starts climbing up the inside flange of the capstan, ease up in the tailing force to allow it to settle down to the base diameter.



If it is continually climbing up the flange with minimal tailing force, turn off the puller and remove a wrap. Do not allow the rope to climb the flange so high that it runs afoul with the puller head bolts. Applying any additional tailing force over what is needed to prevent the rope from slipping is causing additional friction and slowing down the puller.

Maintenance

⚠ DANGER

Shut off motor and unplug unit before dismantling or servicing.

Failure to observe this warning will result in severe injury or death.

Capstan

Wear

Check for wear on the outside of the capstan. If the rope has worn a groove deeper than 0.10" on the 3" diameter portion of the capstan, replace it.

Adjustment

If the capstan or puller frame is replaced, adjust the axial free play to less than 1/32". Assemble the inner thrust washers and capstan to the frame without the chain. Attach with the bolt and retaining flat washer. If the capstan binds, add 52023123 shim washers one at a time until it rotates freely. If it has more than 1/32" of axial free play, add 50179160 fiber washers to set the free play at less than 1/32".

Motor

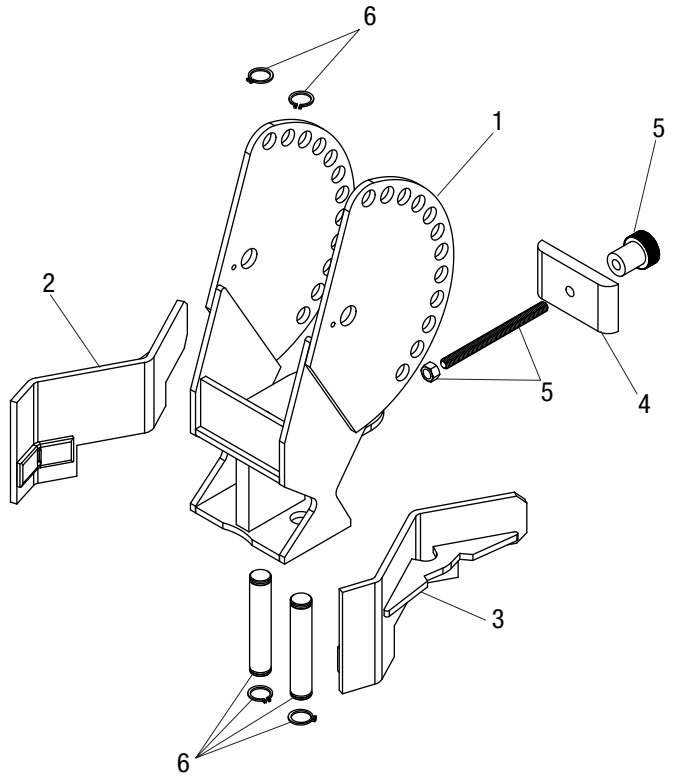
Commutator Brushes

Check the commutator brushes after every 40 hours of operation. Remove the motor brush caps and brushes. Measure the brush lengths. If length of either brush is less than 3/8", replace both brushes.

Illustration and Parts List

Nose Assembly 52059431

Key	Part No.	Description	Qty
1		Nose weldment.....	1
2	52059430	Arm weldment, right	1
3	52059429	Arm, weldment, left.....	1
4	52025811	Cam	1
5		Screw kit	1
6		Pin kit	1



Floor Mount 52044026

Key	Part No.	Description	Qty
1		Floor mount weldment.....	1
2	50356070	Wedge anchor, .625 x 6	4
3		Decal, warning	1

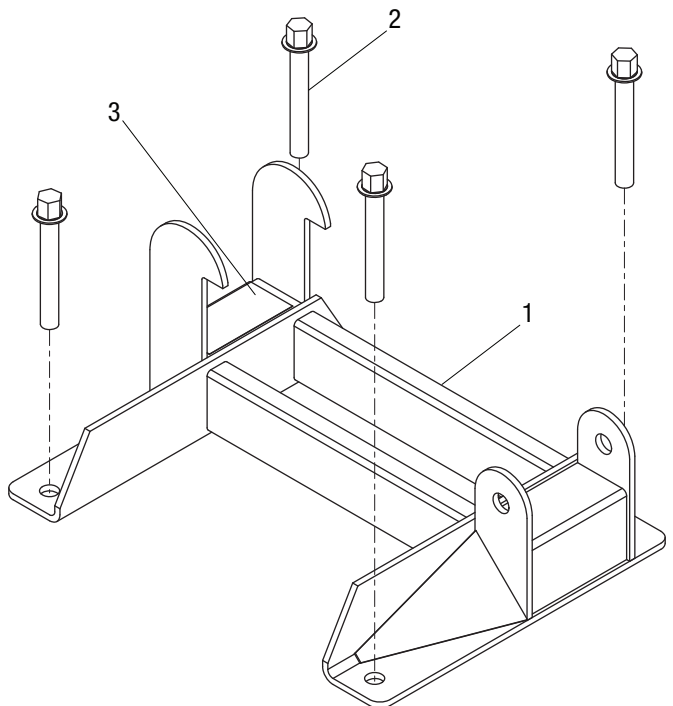
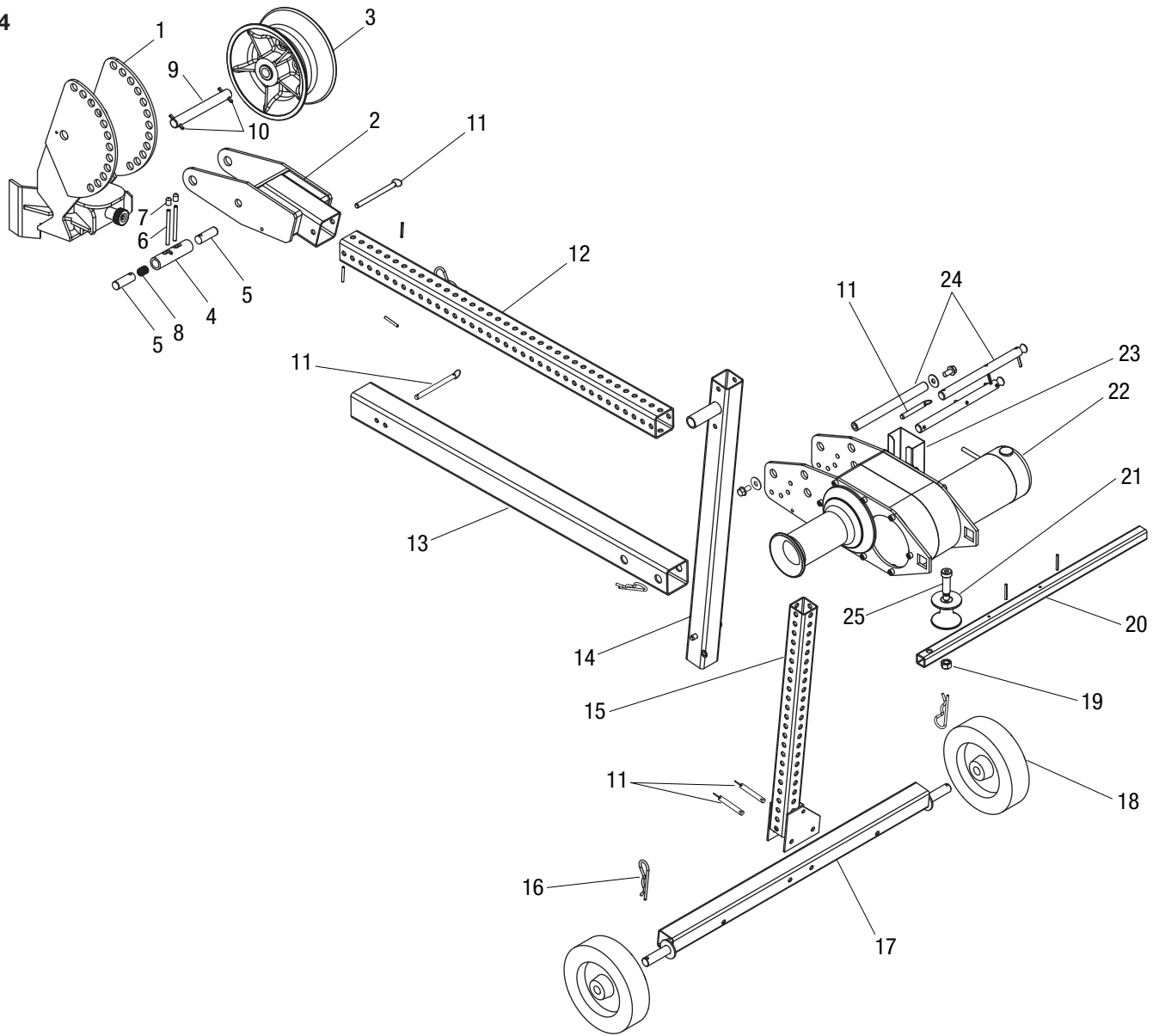


Illustration and Parts List

UT4

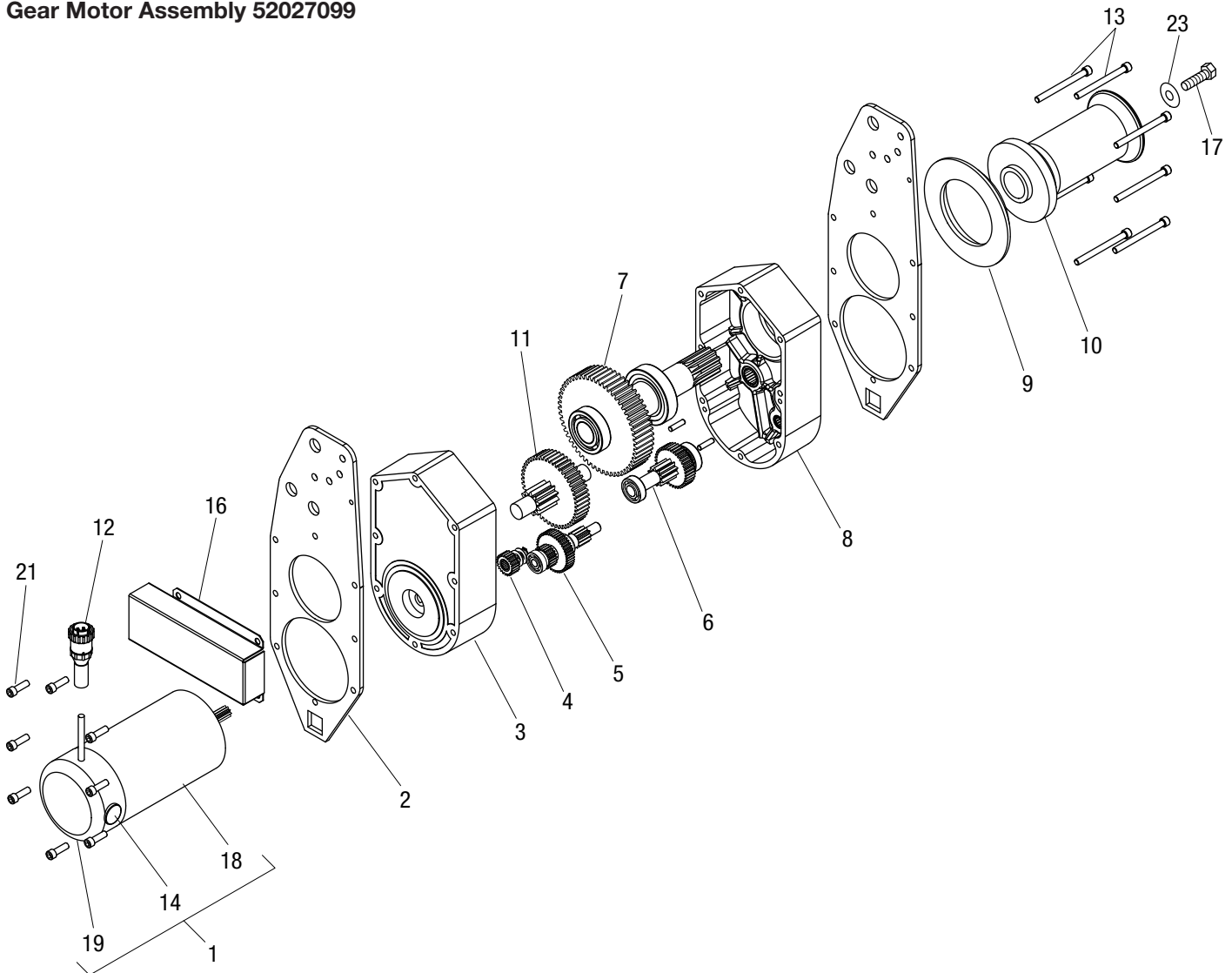


Key	Part No.	Description	Qty
1	52059431	Nose assembly	1
2	52059432	Pivot weldment	1
3	52059427	Sheave assembly, 8"	1
4	52061297	Sleeve, short detent	1
5	52061296	Pin, short detent	2
6		Roll pin, 1/4 x 3.00	2
7		Grip, detent	2
8		Spring, detent	1
9	50251635	Pin	1
10		Roll pin, 3/16 x 1.51	2
11	52044627	Pin kit	1
12	52025782	Tube, telescopic	1
13	52042102	Boom weldment	1
14	52026880	Leg weldment	1

Key	Part No.	Description	Qty
15	52026876	Leg weldment, telescoping	1
16		Hitch clip	4
17	52026881	Foot weldment	1
18	90553276	Wheel	2
19		Nut, hex	1
20	52026879	Bar, crash	1
21	50353110	Sheave, right angle	1
22A	52027099	Gear motor, 115 V	1
22B	52056984	Gear motor, 220 V	1
23	52041840	Holder, document	1
24	52044639	Shaft kit	1
25	90539214	Shoulder bolt	1
	52049279	Motor cord	1

Illustration and Parts List

Gear Motor Assembly 52027099

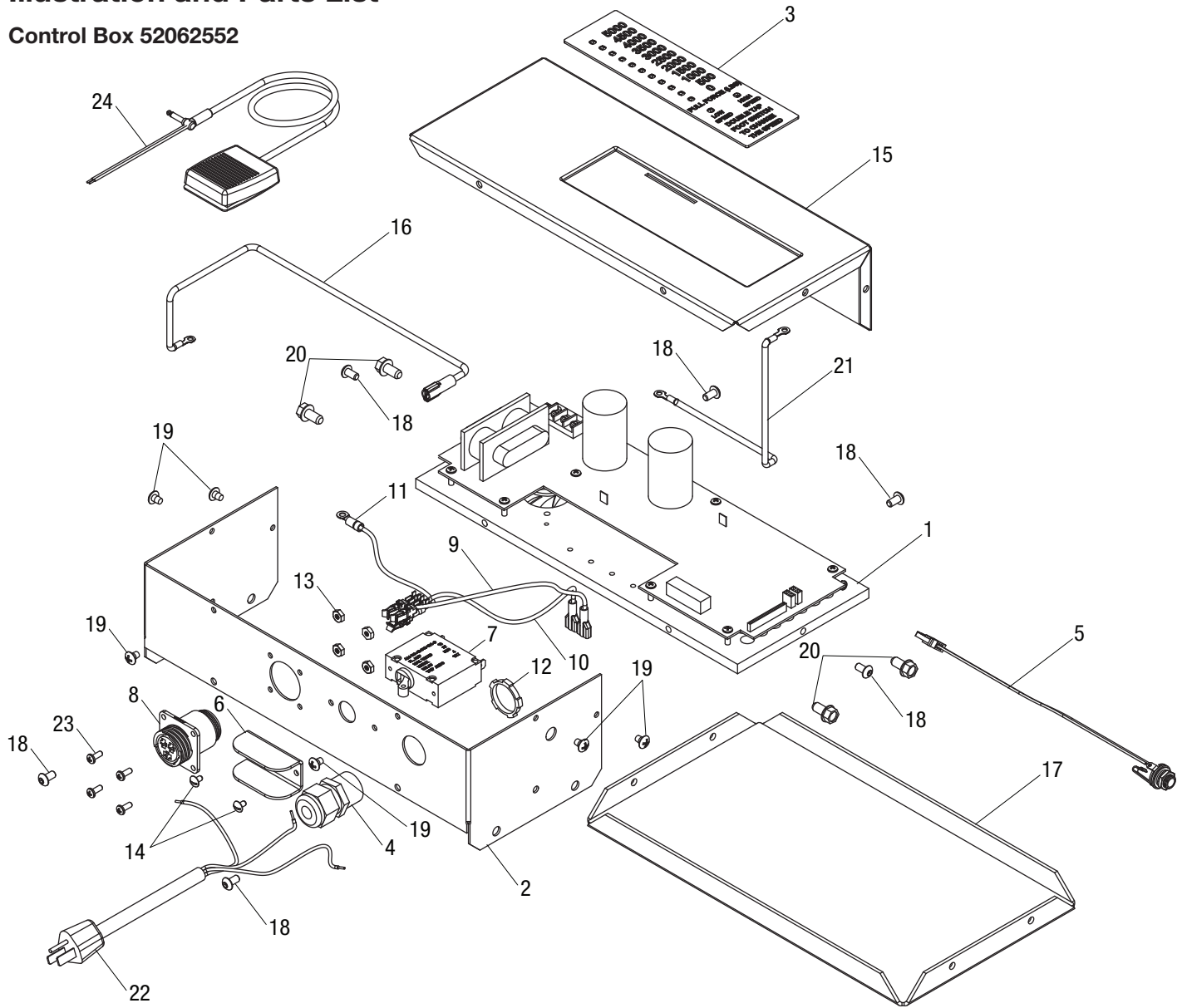


Key	Part No.	Description	Qty
1A	52027092	Motor, 115 V	1
1B	52056985	Motor, 220 V.....	1
2	52026783	Plate, puller mount	2
3	52044633	Gearcase with bearing (motor side)	1
4	52044628	Idler gear kit	1
5	52044629	1st Reduction kit	1
6	52044630	2nd Reduction kit	1
7	52044632	4th Reduction kit	1
8	52044634	Gearcase with bearing (capstan side)	1
9		Flange	1
10		Capstan	1
11	52044631	3rd Reduction kit	1
12	52025761	Plug unit	1

Key	Part No.	Description	Qty
13		Screw, skt head cap, 5/16-24 x 3.5	8
14	52044637	Commutator brush kit.....	1
15	52044638	Bearing kit (not shown)	1
16		Instruction manual holder	1
17		Screw, hex head, 1/2-20 UNF	1
18	52063654	Armature and magnets (115 V)	1
	52063655	Armature and magnets (230 V)	1
19	91865590	Tail housing.....	1
20		Brush plate assembly (not shown).....	1
21		Screw, skt head cap, 5/16-24 x 1.....	8
22		Dowel pin, ø1/4 x 1 (not shown)	2
23		Washer, flat, 1/2".....	1

Illustration and Parts List

Control Box 52062552



Key	Part No.	Description	Qty
1		Electrical assembly	1
2		Housing, electrical box	1
3	52061441	Overlay	1
4	90541243	Bushing, strain relief	1
5		Wire unit, 1/4" phono jack	1
6	50297082	Guard, switch.....	1
7	52040980	Switch, circuit breaker	1
8	52040979	Receptacle.....	1
9	52045645	Wire unit, control board to motor connector	1
10		Wire unit, control board to motor connector	1
11	52045647	Wire unit, ground to motor connector	1

12		Nut, 1/2 conduit lock	1
13		Nut, hex	4
14		Screw, slotted machine	2
15	52061142	Cover, electrical box	1
16	50389416	Wire unit.....	1
17		Pad, control box foot.....	1
18		Screw, cap-button head, #10-24 x .375.....	6
19		Screw, self-tapping	6
20		Screw, 1/4-14 x .50 hex head.....	4
21	52055558	Wire assembly.....	1
22	52061607	Power cord unit.....	1
23		Screw, slftpg, pan head, #6-32 x .375....	4
24	52059723	Foot switch, 16'	1



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