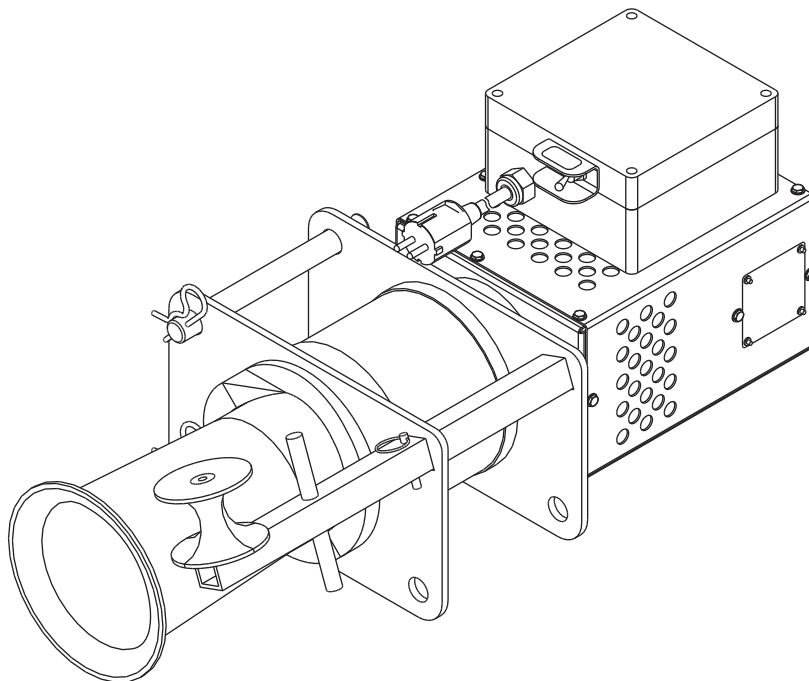


SERVICE MANUAL



6800-22 Ultra Tugger[®] Cable Puller and Pulling Package

Serial Code ADB



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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Safety

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

Do not operate this tool unless fully trained to do so, or under trained supervision.

Purpose of this Manual

This manual is intended to familiarize authorized Greenlee service center personnel with the safe operation and maintenance procedures for the Greenlee 6800-22 Ultra Tugger® cable puller.

Keep this manual available to all personnel.

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

Other Publications

Instruction Manual: 99938502 (IM 1529)

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

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Loctite and 242 are registered trademarks of Loctite Corporation.

Texaco is a registered trademark of Texaco Inc.

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

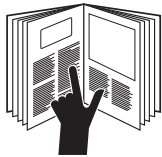


⚠ WARNING

Flying components hazard:

- Inspect and verify the maximum load-bearing capacity or maximum strength of all structural supports, pulling system components and anchoring systems before setting up the puller. Any component that cannot withstand the maximum cable-pulling forces could break and strike nearby personnel with sufficient force to cause severe injury or death.
- Do not allow anything other than the pulling rope to contact the capstan. A grip, swivel, or other component could break and strike operator with great force.

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



⚠ DANGER

Explosion hazard:
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.



⚠ WARNING

Crushing hazard:
Do not stand directly under a vertical pull. Cable could fall suddenly from the conduit.
Failure to observe this warning could result in severe injury or death.



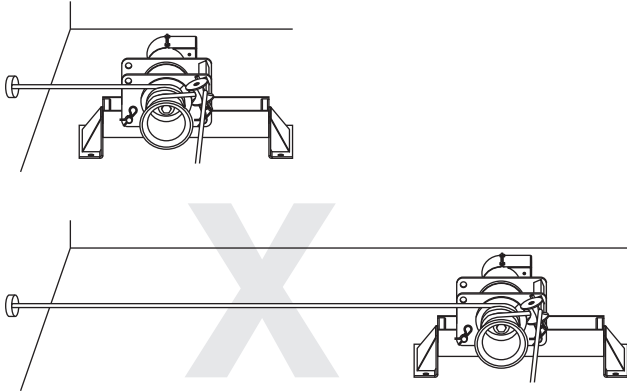
IMPORTANT SAFETY INFORMATION

⚠ WARNING

Flying components hazard:

Locate the puller so that it is close to the conduit. Rope, cable, or connectors could break under tension, causing the rope to whip violently.

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



⚠ WARNING

Attach the pulling rope to the cable with appropriate types of connectors as described in this manual. Select connectors with a maximum-rated capacity of 35.6 kN (8000 lb). An under-rated connector could break under tension.

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

⚠ WARNING



Shear Point:

Do not put fingers through holes in elbow unit. Rotating parts could cut off fingers.

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

⚠ WARNING

- Do not maintain a stationary rope on a rotating capstan. The wear generated could cause the rope to break under tension and whip violently.
- Check the condition of the entire rope before use. An under-rated, worn or damaged rope could break and whip violently.
- Use a double-braided composite rope with the following characteristics:
 - Maximum Rated Capacity: at least 35.6 kN (8000 lb)
 - Average Breaking Strength: at least 143 kN (32,000 lb)

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

⚠ WARNING



Crushing hazard:

Keep hands away from the capstan. Rope at the capstan could crush a hand.

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

⚠ WARNING



Entanglement hazard:

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 may be released quickly.

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



IMPORTANT SAFETY INFORMATION

⚠ WARNING

Rope, cable, or a connecting device could 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 severe injury or death.

⚠ WARNING

Rope overlap hazard:

Do not allow the rope to become overlapped on the capstan. If an overlap begins to develop, relax the tailing force immediately and shut off the cable puller.

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

⚠ WARNING

Lifting hazard:

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 could fall.

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

⚠ WARNING

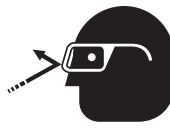
Inspect puller and accessories before use. Replace any worn or damaged components with Greenlee replacement parts. A damaged or improperly assembled item could break and strike nearby personnel with sufficient force to cause severe injury or death.

⚠ WARNING

Entanglement hazard:

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

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



⚠ WARNING

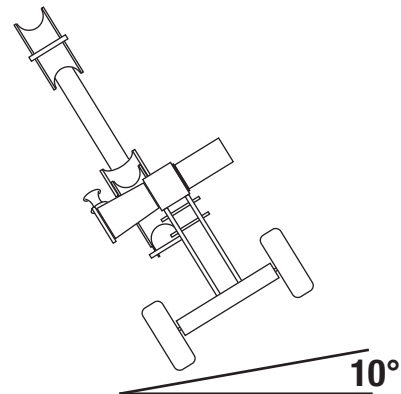
Wear eye protection when using this tool. Failure to wear eye protection could result in severe eye injury from flying debris.

⚠ WARNING

Tipping hazard:

When using the wheeled carriage to transport the Ultra Tugger:


- Keep personnel out of the path of transport.
- Evaluate the terrain over which the carriage is to move. If in doubt, obtain additional help and move the carriage slowly.
- Do not transport over inclines of more than 10°.
- Do not transport the carriage with boom tubes longer than the supplied 3' and 4' tubes.



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



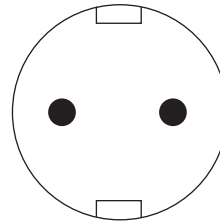
Grounding Instructions

	⚠ WARNING
	Electric shock hazard: Connect this tool to a grounded receptacle on a 16-amp GFCI-protected circuit. Failure to observe this warning could result in severe injury or death.

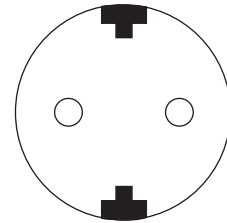
This tool must be grounded. In the event of a malfunction or breakdown, an electrical ground provides a path of least resistance for the electric current. This path of least resistance is intended to reduce the risk of electric shock to the operator.

This tool's electric cord has a grounding conductor and a grounding plug as shown. Connect the plug to receptacle that is properly installed and grounded in accordance with all national and local codes and ordinances. Do not use an adapter.

16-Amp / 230-Volt Plug and Grounded Receptacle



Plug



Receptacle

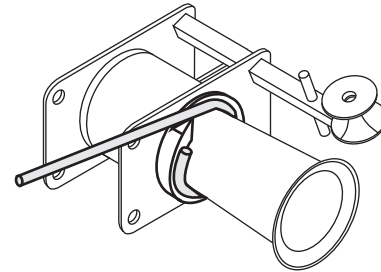
This tool is equipped with a European-style electrical plug. The electrical plug can be replaced with a compatible plug for the country in which the tool will be used. The electrical plug should be replaced by a qualified electrician. Do not use an adapter.



Operation

1. Fish the rope through the conduit.
2. Set up the cable puller. See “Typical Setups” illustrations and instructions in Instruction Manual 99938502 (IM 1529).

- c. Push the ramp toward the mounting plate and rotate it counterclockwise until it locks into place.



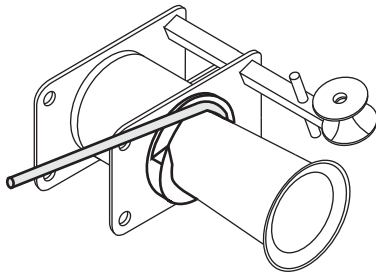
⚠ WARNING

Set up the cable puller so that the rope will approach the capstan at an angle of 90° (±5°). Angles outside of this range may cause the rope to overlap.

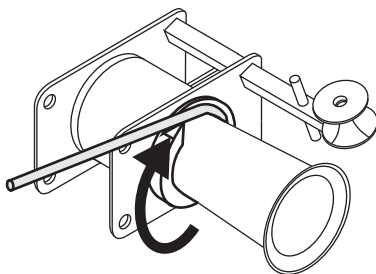
90° (±5°)

4. Check the I/O switch on the puller to be sure it is OFF (O). Plug the puller into the receptacle of the standard force gauge.
5. Connect the force gauge to an appropriate power supply (see “Grounding Instructions” in this manual).
Note: If using an extension cord, it must be rated for 20 amps. Use the shortest cord possible. Longer cords reduce puller speed.
6. Position the force gauge so that it can be monitored by the puller operator.

3. Set the rope ramp as follows:
 - a. Wind the rope several times around the capstan.



- b. Pull the ramp away from the mounting plate and rotate it until the flat surface contacts the rope.



Duty Cycle Table

Color Band on Meter	Pounds of Pulling Force	Duty Cycle (in minutes)
Green	0–17.8 kN (0–4000 lb)	continuous
Yellow	17.8–35.6 kN (4000–8000 lb)	5 per hour
Red	over 35.6 kN (8000 lb)	puller will stop

7. Turn the circuit breaker in the force gauge ON (I).
8. Grasp the tailing end of the rope. Apply a slight amount of tailing force.
9. Turn the puller ON (I).
10. Tail the rope, allowing the spent rope to accumulate on the floor between the operator and the puller.
11. When the pull is complete, turn the puller OFF (O). Tie off the rope and anchor the cable.

⚠ WARNING

Entanglement hazard:
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 may be released quickly.
Failure to observe this warning could result in severe injury or death.



Maintenance

⚠ WARNING

Disconnect power supply before servicing this tool, or when not in use.

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

IMPORTANT

Maintenance should be performed by authorized personnel only.

- Secure motor wires to the motor using tie-wraps. Make sure the wires will not contact the commutator.
- Connect the brown motor wire to the positive (+) terminal on the rectifier (10). Connect the blue motor wire to the negative (-) terminal on the rectifier.

IMPORTANT

The first reduction hub will be damaged if the motor wires are reversed.

- Connect the green and yellow wires from the power cord, motor, and filter to the heat sink plate.

General Maintenance Notes

- Replace any part that is broken, cracked or worn.
- Replace any bearings that don't turn freely.
- Clean all mating surfaces before assembly.
- Replace gearbox grease with Texaco® Regal AFB or equivalent.

Specific Service Notes

- Average brush life for commutator brushes is about 100 hours. Replace brushes if they are shorter than 9.5 mm (3/8").
- Replace rope ramp if it is grooved more than 6.5 mm (1/4").
- Replace the capstan if it is grooved more than 0.15 mm (1/16").
- The puller should not require any lubrication during its normal service life.

Switchbox Removal

1. Remove the four Phillips head screws and cover from the switchbox (1).
2. Remove the green hex head screw (28), three lock washers (29) and three yellow and green wires from the heat sink plate (24).
3. Remove the brown and blue motor wires from the filter (10).
4. Remove fifteen hex head screws (23), and top cover (21) from the motor. Be careful not to damage the brown, blue, and green motor wire when you remove the top cover from the motor.
5. Remove the four hex nuts (5), four screws (4), and switchbox (1) from the top cover.

Switchbox Assembly Notes

1. If replacing the rectifier (10), or filter (11), use a thermal contact grease before mounting to heat sink (24).

Motor Removal

See "Exploded View—Ultra Tugger"

1. Remove switchbox.
2. Remove seven hex head screws (23) and cover (20) from the motor.
3. Use the 7/16" wrench to remove two hex nuts (34) and end cap (19).

See "Exploded View—Motor"

4. Push in and pull out the tab to release the commutator brush springs (2).
5. Use 7/16" wrench and remove four hex nuts, two lock washers, and tail housing (3) from the motor.
6. Remove brush assembly plate (4).
7. Remove the O-ring (35), baffle (22), and end support (18) from the motor housing. (See "Exploded View—Ultra Tugger.")
8. Remove magnet housing (5).
9. Remove armature (6).
10. Remove screw holding the air vent protective screen and remove screen (9).

Motor Assembly Notes

1. Apply gasket sealant between gearbox housing and the outside of the front armature housing.
2. If the armature does not turn freely after installation, the wrong gear teeth were engaged.
3. Hold armature in place when installing the magnet housing. Position magnet housing with the roll pin outward and pointed towards 8 o'clock. The square hole of the mounting plate should be positioned at 10 o'clock.
4. Install commutator brush assembly. Wires should be at the 9 o'clock position.
5. Insert magnet housing roll pin into the recess on the tail housing.



Maintenance (cont'd)

Capstan Removal

1. Use a 1-1/8" inch 18-point socket to remove capstan retaining bolt (44) and washers (45).
2. Pull the capstan (37) off of the shaft.
If the capstan is stuck: Pull out the rope ramp.
Use two pry bars on opposite sides of the capstan between the gear housing and the capstan.

IMPORTANT

Do not pry against the grease seal. Doing so will damage the seal.

3. Remove key (49).
4. Remove rope ramp (38).

Capstan Assembly Notes

1. Remove oxidation before assembling.
2. **Do not hammer capstan onto shaft.** Use a 65 mm (2-1/2") or longer bolt to draw the capstan onto the shaft.

Right Angle Sheave Bracket Removal

1. Remove detent pin (48).
2. Slide arm towards motor. Use a small punch to remove the roll pin (42).
3. Remove bracket (39).

Gearbox Disassembly

1. Remove motor, capstan and right angle sheave bracket.
2. Remove the screws (38) on the motor side of the gearbox. Remove the mounting plate (20).
3. Remove the motor mounting housing (2).
4. Pull out the 1st reduction planet gear assembly and thrust washer.
5. Pull out the center shaft (12).
6. Pull out the 2nd reduction planet gear assembly and thrust washer.
7. Push out the output shaft/3rd reduction gear assembly and thrust washer.
8. Remove the screws (37) holding the ring gear (18).
9. Tap the bearing housing (1) off the ring gear and dowel pins. **Do not mar the mating surface to the ring gear.**

Gearbox Assembly Note

1. Clean all ring mating surfaces. Apply a flange sealant (Loctite® 515 or equivalent) to all ring mating surfaces.
2. Install center shaft with the small diameter towards the motor.
3. Install the mounting plates. When viewed from the motor end, the motor mounting studs should be positioned at 1 and 7 o'clock. The square hole in the mounting plate should be between 10 and 11 o'clock.
4. Position mounting plates so the screw heads on the capstan side fit into the counterbores of the mounting plates.

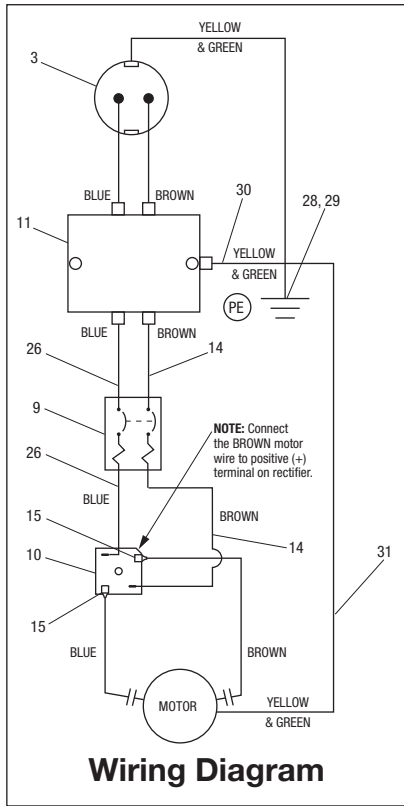
Disassembly of Planet Gear Carriers

1. Remove the flat head screws.
2. Tap or pry off the hub plate from the hub and dowel pins.
3. Remove the thrust washers, gears, thrust washers and shaft.
4. Remove sun gear ONLY if replacement is required.

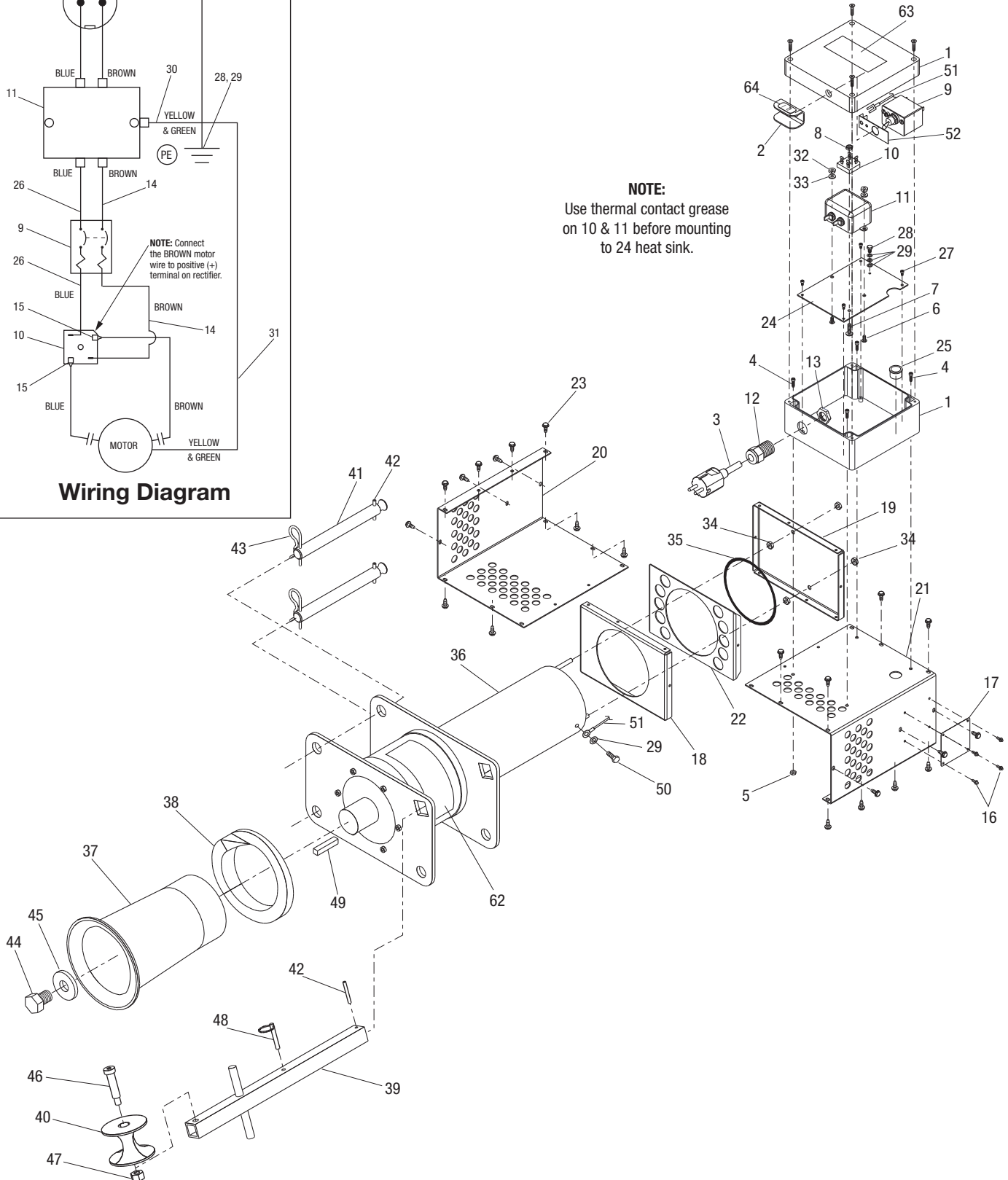
Planet Gear Carrier Assembly

1. Place the shafts in the hub. The end with the flat should face outward.
2. The 1st planet reduction gears must be positioned with the gear end towards the capstan.
3. When replacing the 1st reduction gear bearing/clutch, the locked arrow direction must be counter-clockwise (when viewed from the gear end).
4. **When replacing the ball bearing on the output shaft, the thick side of the outer race must face the capstan.**
5. Use a removable thread locking compound, such as Loctite® 242® Threadlocker or equivalent, on the #10-32 flat head screws (items 35 and 36 on the gearmotor). Follow the manufacturer's instructions for curing.

Exploded View and Wiring Diagram — 50079247 Ultra Tugger (Serial Code ADB)



NOTE:
Use thermal contact grease on 10 & 11 before mounting to 24 heat sink.





Parts List—50079247 Ultra Tugger (Serial Code ADB)

Key	Part No.	Description	Qty	Key	Part No.	Description	Qty
1	50070940	Switchbox.....	1	32	90524349	Nut, hex #8-32.....	2
2	50071050	Switch guard.....	1	33	90533623	Washer, flat #8-32.....	2
3	50071211	Cord unit, power.....	1	34	90517059	Nut, hex 1/4-28.....	4
4	90502787	Screw, cap, #6-32 x .500" socket head.....	4	35	90552512	O-ring, 4.625 x 4.375 x .125.....	1
5	90548493	Nut, hex, #6-32.....	4	36	50079239	Gearmotor.....	1
6	90539559	Screw, machine, #8-32 x .375" button head.....	2	37	50007440	Capstan.....	1
7	90524918	Screw, machine, #10-24 x .750" round head.....	1	38	50007513	Ramp, rope.....	1
8	90533453	Nut, hex, #10-24 lock, zinc-plated.....	1	39	50007416	Bar, tie.....	1
9	91869765	Switch / circuit breaker.....	1	40	50353110	Sheave, right angle.....	1
10	91868130	Rectifier, 50 amp, bridge.....	1	41*	50007432	Puller pin.....	2
11	91863848	Filter, Curtis.....	1	42*	90507002	Pin, roll, .187" x 1.50".....	3
12	90541243	Bushing, strain relief.....	1	43*	90503023	Clip, hitch pin, #8.....	2
13	91862639	Nut, conduit, 1/2" lock.....	1	44	90548485	Screw, cap, 3/4-16 x 1.500" hex head, grade 5.....	1
14	50071041	Wire unit, brown.....	2	45	90548507	Washer, flat, .780 x 2.000 x .250".....	2
15	91861047	Terminal, 1/4" push-on 14 ga. insulated.....	2	46	90539214	Screw, shoulder, 5/8 x 1-3/4 x 1/2-13.....	1
16	90530012	Rivet, pop, .125.....	4	47	90527941	Nut, hex, 1/2-13 zinc-plated.....	1
17	50070924	Plate, ID.....	1	48	90548523	Hitch pin, Rein Leitzke #30-07.....	1
18	50070959	End support.....	1	49	90548515	Key, square, .375" x 1.88".....	1
19	50070967	End cap.....	1	50	90533305	Screw, machine, #8-32 x .312" hex head, green.....	1
20	50070991	Cover.....	1	51	50071181	Wire unit.....	1
21	50071025	Cover, top.....	1	52	52056899	Plate, switch grounding.....	1
22	50070983	Baffle.....	1				
23	90516559	Screw, #10-16 x 1/2.....	22				
24	50070975	Heat sink.....	1				
25	90552806	Bushing, Heyco.....	1				
26	50071190	Wire unit, blue.....	2				
27	90552768	Screw, SHC M3 x 0.5 x 6mm.....	4				
28	90543297	Screw, #8 x .375 SLFTPG hex green....	1				
29	90516494	Washer, internal lock.....	4				
30	50071181	Wire unit, green.....	1				
31	50071173	Wire unit, green.....	1				

Repair Kit

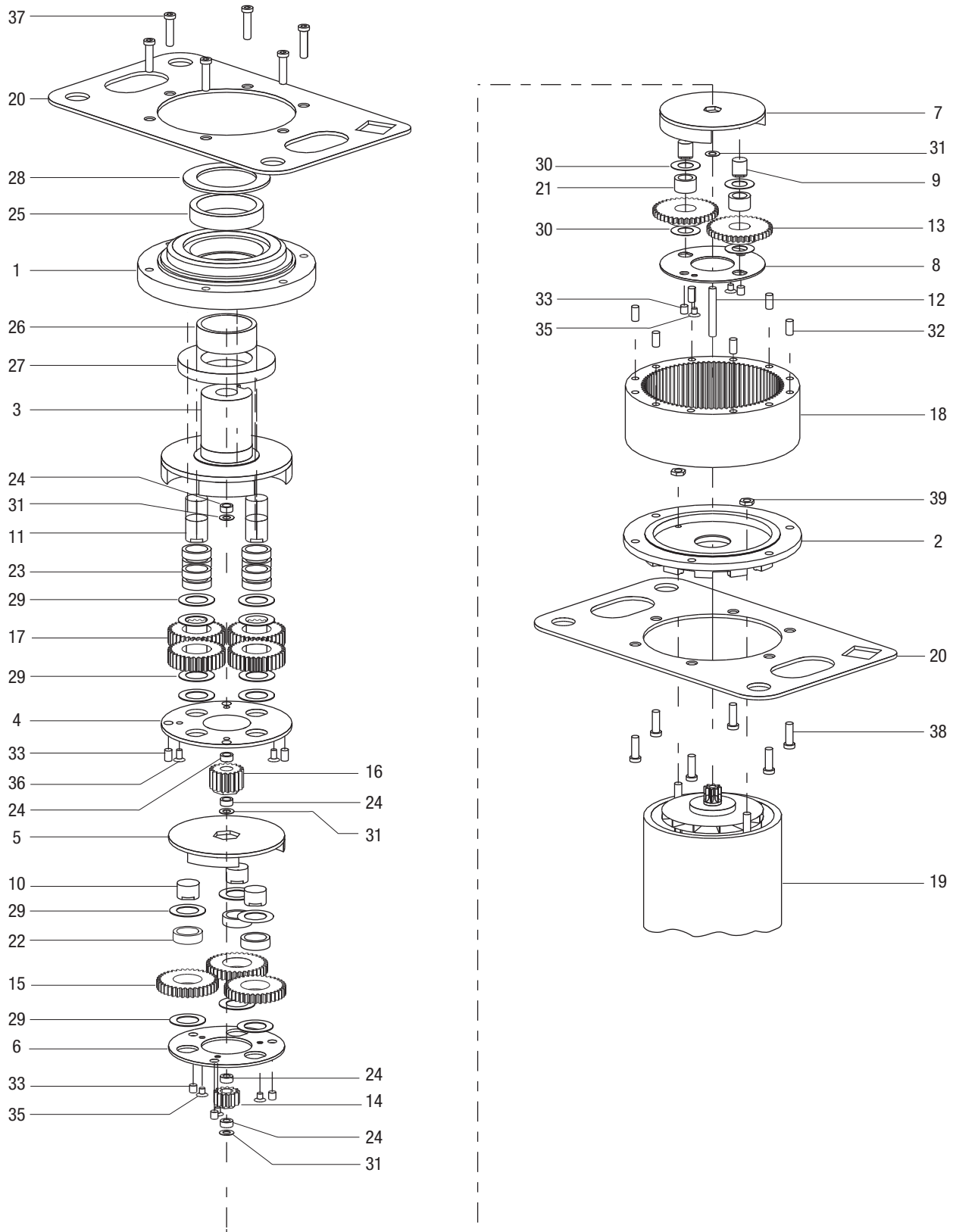
*	50061887	Kit, puller pin (includes one each of the items marked with an asterisk).....	2
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Decals

62	50010298	Decal, Warning.....	1
63	50010590	Decal, Read IM.....	1
64	50071092	Decal, ON/OFF.....	1



Exploded View – Gearmotor (50079239)



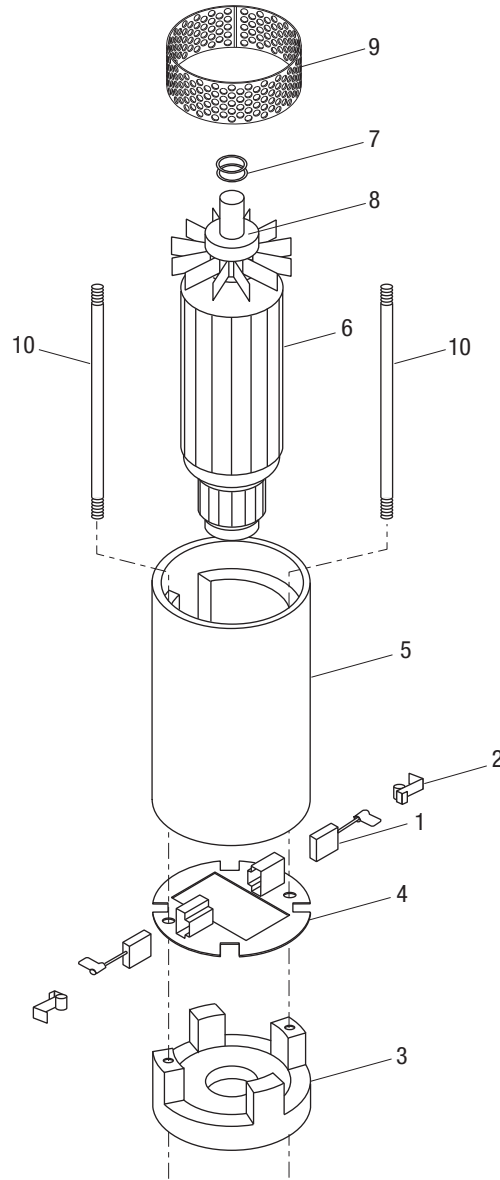


Parts List—Gearmotor (50079239)

Key	Part No.	Description	Qty	Key	Part No.	Description	Qty
1	50006657	Bearing housing.....	1	26	90548280	Inner race, Torrington #IR-2824.....	1
2	50006630	Motor mount.....	1	27	90548299	Bearing, Fafnir #7209W.....	1
3	50006576	Output hub.....	1	28	90548302	Seal, Freudenberg-Nok #UF-0216E.....	1
4	50006584	Output hub plate.....	1	29	90548329	Thrust washer, .760 x 1.25 x .020".....	14
5	50006622	2nd Reduction hub.....	1	30	90548310	Thrust washer, .510 x 1.00 x .020".....	4
6	50006592	2nd Reduction hub plate.....	1	31	90548337	Thrust washer, .260 x .50 x .030".....	8
7	50006606	1st Reduction hub.....	1	32	90534719	Dowel pin, .250 x 1.250".....	6
8	50006517	1st Reduction hub plate.....	1	33	90541036	Dowel pin, .312 x .625".....	9
9	50006487	1st Reduction shaft.....	2	35	90548345	Screw, cap, #10-32 x .500", skt. flt. hd.....	5
10	50006495	2nd Reduction shaft.....	3	36	90548353	Screw, cap, #10-32 x .750", skt. flt. hd.....	4
11	50006509	3rd Reduction shaft.....	4	37	90548361	Screw, cap, 1/4-28 x 2.00", skt. hd.....	6
12	50006479	Center shaft.....	1	38	90501535	Screw, cap, 1/4-28 x 1.500", skt. hd.....	6
13	50006525	1st Reduction planet gear.....	2	39	90521080	Nut, hex, 1/4-20.....	2
14	50006533	2nd Reduction sun gear.....	1	Repair Kits			
15	50006541	2nd Reduction planet gear.....	3	50022920	Gearmotor repair group #1 (includes 3, 4, 11, 17, 23, 24[2], 29[2], 33, 36)		
16	50006550	3rd Reduction sun gear.....	1	50022954	Gearmotor repair group #2 (includes 5, 6, 10, 15, 16, 22, 24, 29[2], 34, 35)		
17	50006568	3rd Reduction planet gear.....	4	50022970	Gearmotor repair group #3 (includes 7-9, 13, 14, 21, 24, 30[2], 31, 34, 35)		
18	50006614	Ring gear.....	1				
19	50079220	Motor, 230 V.....	1				
20	50006665	Motor mounting plate.....	2				
21	90548230	Clutch, Torrington #RCB-081214.....	2				
22	90548248	Bearing, Torrington #B-1210.....	3				
23	90548256	Bearing, Torrington #B-128.....	8				
24	90548264	Bearing, Torrington #B-46.....	5				
25	90548272	Bearing, Torrington #BH-3316.....	1				



Exploded View and Parts List—Motor (50079220)

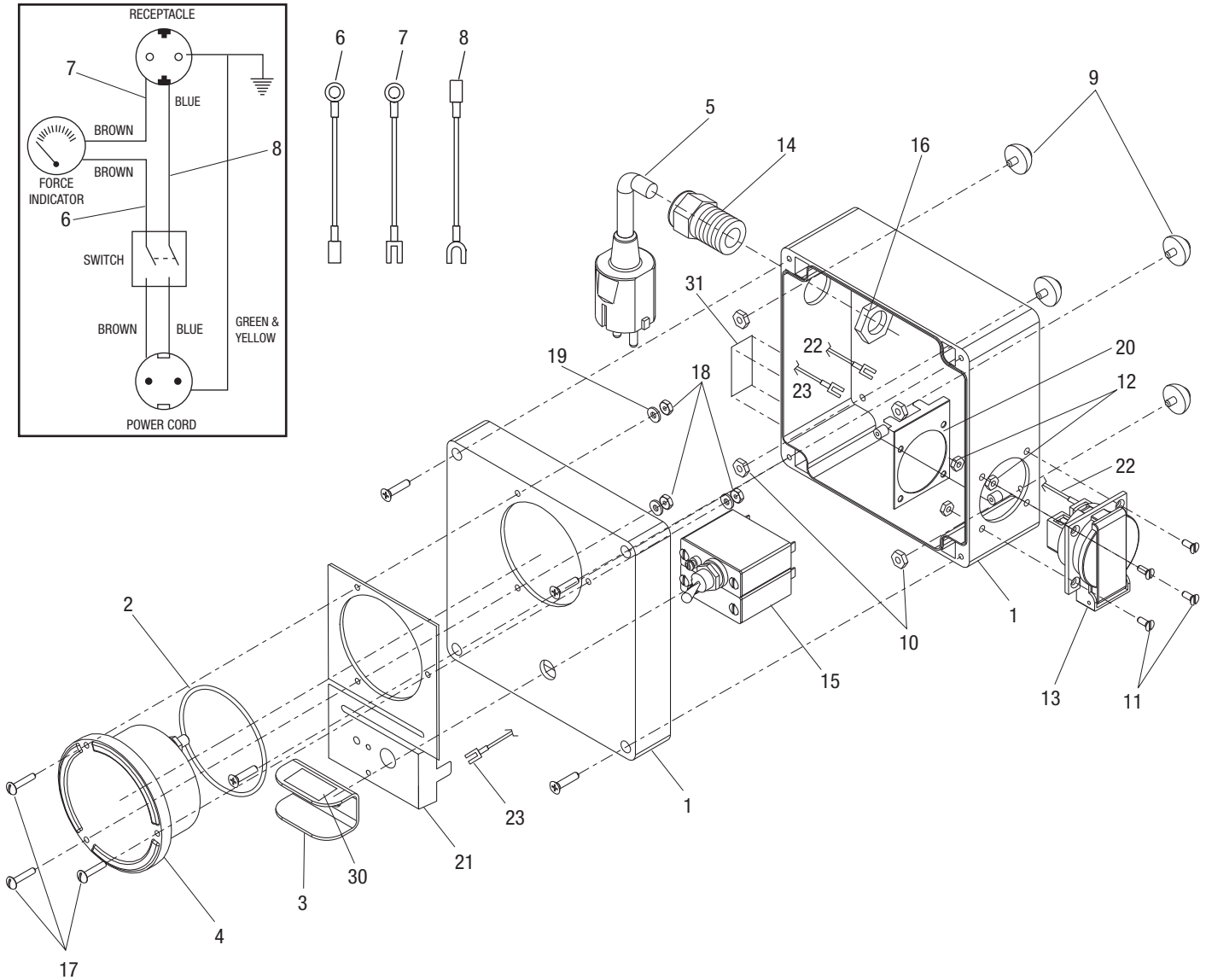


Key	Part No.	Description	Qty
1	91867053	Commutator brushes.....	2
2	91867061	Commutator brush retention spring	1
3	91865581	Tail housing.....	1
4	91865603	Brush assembly plate	1
5	91865611	Magnet housing	1

Key	Part No.	Description	Qty
6	91868408	Armature	1
7	90543483	Belleville washers.....	2
8	91860717	Bearing.....	1
9	91869218	Screen.....	1
10	91871000	Threaded rod	2



Exploded View and Parts List—50071203 Force Gauge (Serial Code ADD)



Key	Part No.	Description	Qty
1	50071149	Box.....	1
2	90513509	O-ring, 2.68 x 2.87 x .093.....	1
3	50071050	Guard, switch.....	1
4	50026917	Meter (includes keys 2,17,18 & 19).....	1
5	50071130	Cord, power.....	1
6	50071068	Wire unit, 12 AWG x 8", brown.....	1
7	50356313	Wire unit, 12 AWG x 6", brown.....	1
8	50071076	Wire unit, 12 AWG x 8", blue.....	1
9	90539346	Bumper, #8-32 mch screw, rubber.....	4
10	90524349	Nut, hex, #8-32.....	4
11	52037564	Screw, machine, #6-32 x .500".....	4
12	90506324	Nut, hex, #6-32.....	4
13	91869790	Receptacle, 16 amp female.....	1
14	90541243	Bushing, strain relief.....	1

Key	Part No.	Description	Qty
15	91869773	Switch.....	1
16	91862639	Nut, conduit, 1/2" lock.....	1
17	90537254	Screw, cap, #6-32 x .750", skt btn hd.....	3
18	90548493	Nut, hex, #6-32.....	3
19	90523245	Washer, #6 lock.....	3
20	52056900	Plate, receptacle grounding.....	1
21	52056901	Plate, motor grounding.....	1
22	52056905	Wire unit.....	1
23	52056902	Wire unit.....	1

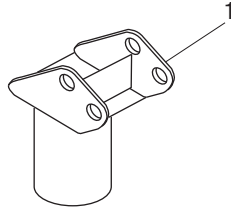
Decals

30	50071092	Decal, ON/OFF.....	2
31	50071157	Decal, Identification.....	1



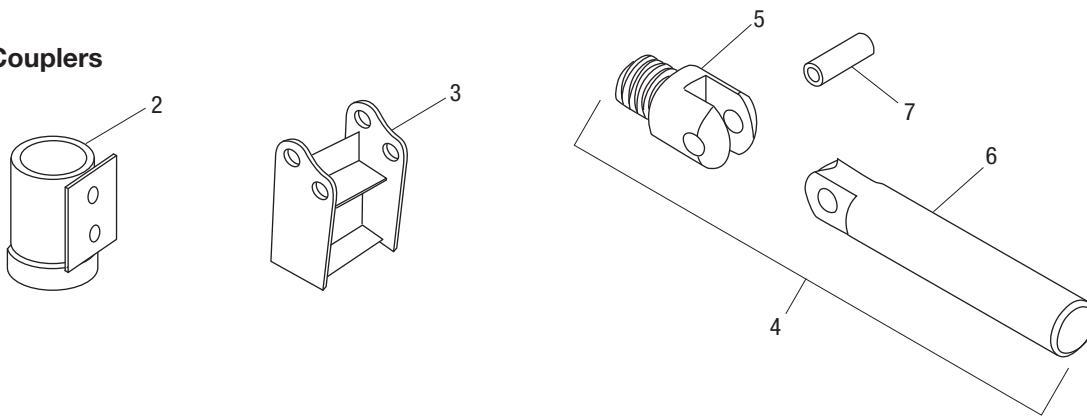
Accessories

Slip-in Couplers



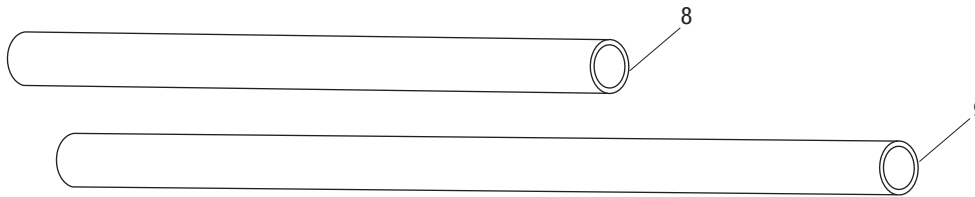
Key	Part No.	Description	Qty
1	50008048	Slip-in coupler for 2-1/2" conduit (EMT, IMC or Rigid)	1
1	50008110	Slip-in coupler for 3" conduit (EMT, IMC or Rigid)	1
1	50008153	Slip-in coupler for 3-1/2" conduit (EMT, IMC or Rigid)	1
1	50008200	Slip-in coupler for 4" conduit (EMT, IMC or Rigid)	1
1	50008277	Slip-in coupler for 5" conduit (EMT, IMC or Rigid)	1

Screw-on Couplers



Key	Part No.	Description	Qty
—	50008684	Screw-on coupler set for 2-1/2", 3", 3-1/2" and 4" conduit (includes items 2, 3, and 4)	
2	50036610	Screw-on coupler for 2" IMC or Rigid only	1
2	50007815	Screw-on coupler for 2-1/2" IMC or Rigid only	1
2	50007823	Screw-on coupler for 3" IMC or Rigid only	1
2	50007831	Screw-on coupler for 3-1/2" IMC or Rigid only	1
2	50007840	Screw-on coupler for 4" IMC or Rigid only	1
3	50007998	Adapter for screw-on IMC or Rigid only	1
4	50008773	Screw assembly (includes items 5, 6 and 7)	2
5	50007955	Screw	1
6	50007963	Handle	1
7	90527178	Roll Pin	1

Boom Tubes

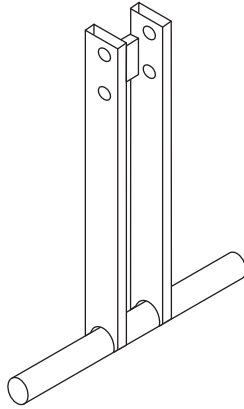


Key	Part No.	Description	Qty
8	50008358	3' Boom tube	1
9	50007912	4' Boom tube	1

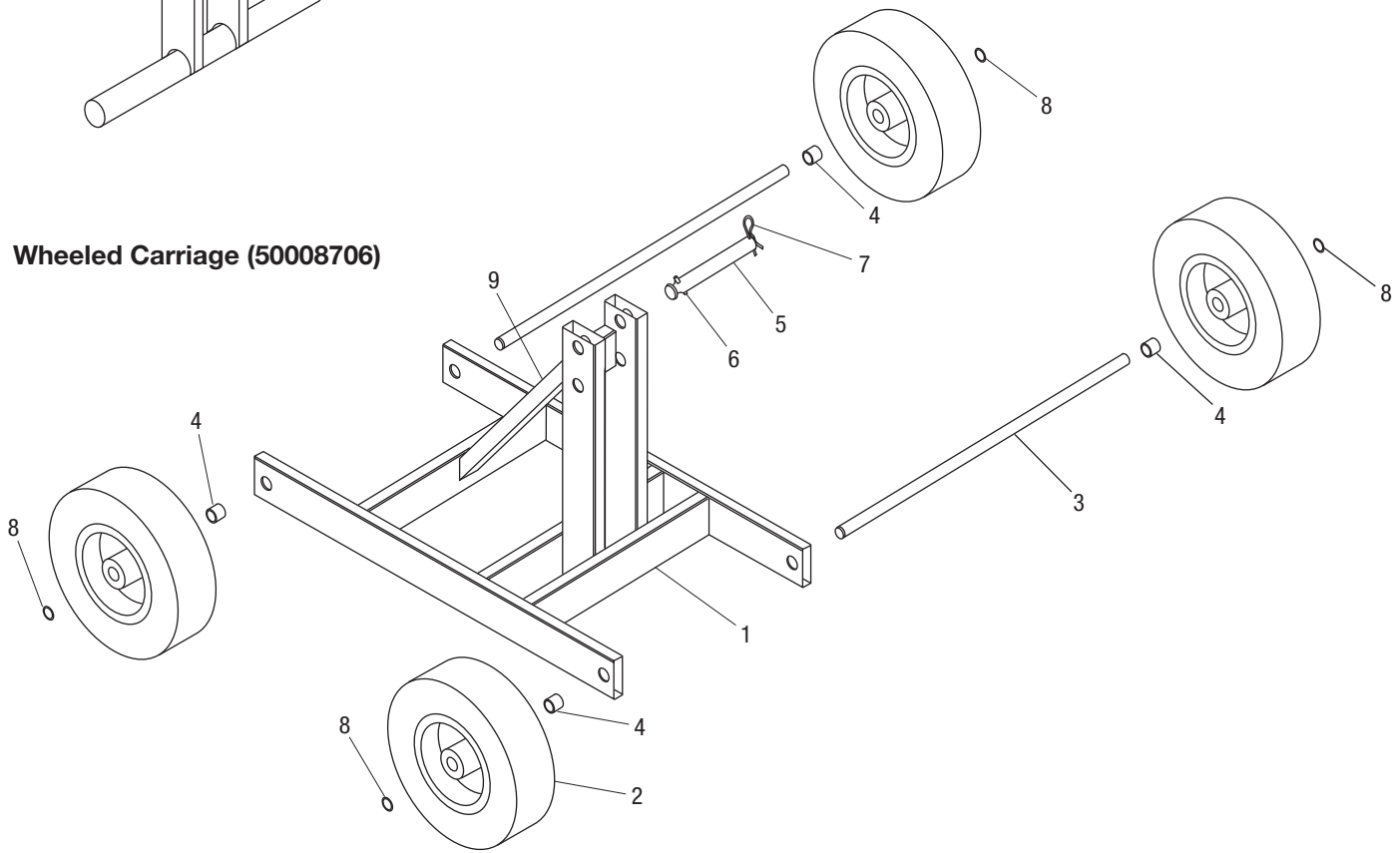


Accessories (cont'd)

T-Stand (50008676)



Wheeled Carriage (50008706)



Key	Part No.	Description	Qty
1	50007700	Frame	1
2	90548396	Wheel, 4.10/3.50-6 x 3/4 shaft, 3" hub length.....	4
3	50007688	Axle	2
4	50320262	Spacer, .824 x 1.05 x .750"	4
5*	50007432	Puller pin	2
6*	90507002	Pin, roll, .187 x 1.50"	2
7*	90503023	Clip, hitch pin #8	2
8	90515285	Retaining ring, .750", Truarc #5160-75-S-PP	4
9	50010638	Decal, Warning.....	1

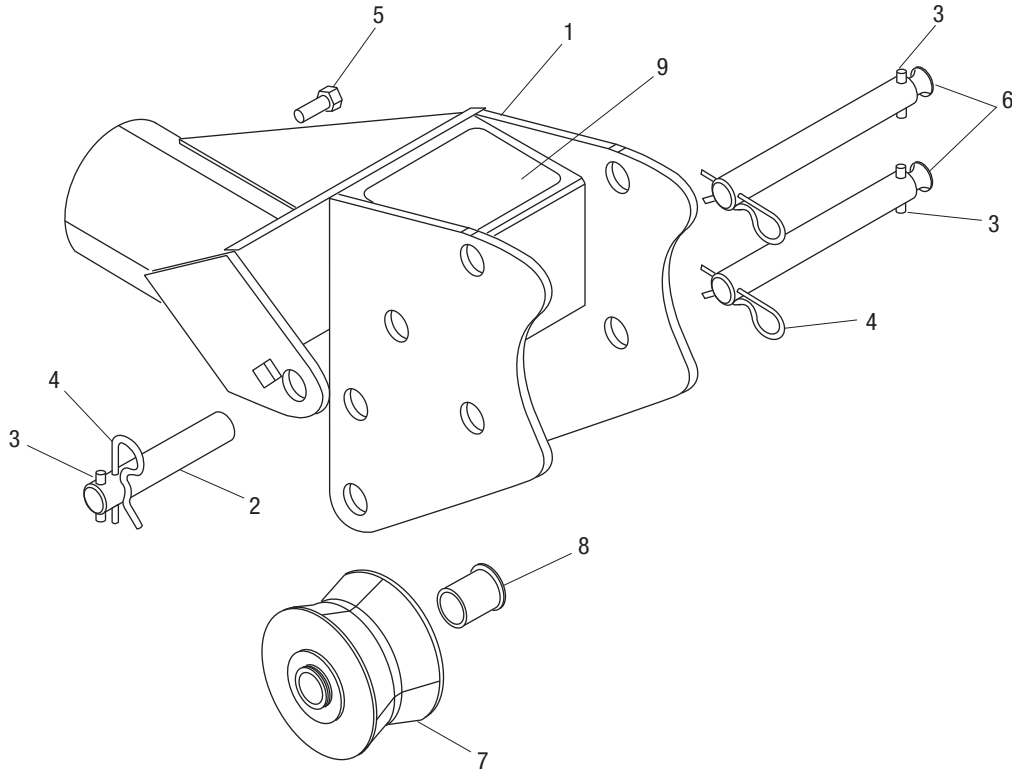
Repair Kit

*	50061887	Kit, puller pin (includes one each of the items marked with an asterisk)	2
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Accessories (cont'd)

Boom Mount (50008714)



Key	Part No.	Description	Qty
1	50007610	Frame	1
2+	50007556	Shaft.....	1
3*+	90507002	Pin, roll, .187 x 1.50"	3
4*+	90503023	Clip, hitch pin #8	3
5	90505301	Screw, cap, 3/8-16 x 1.000" hex head	1
6*	50007432	Puller pin	2
7	50009206	Wheel unit, idler	1
8	50167987	Bushing	2
9	50010310	Decal, Warning.....	1

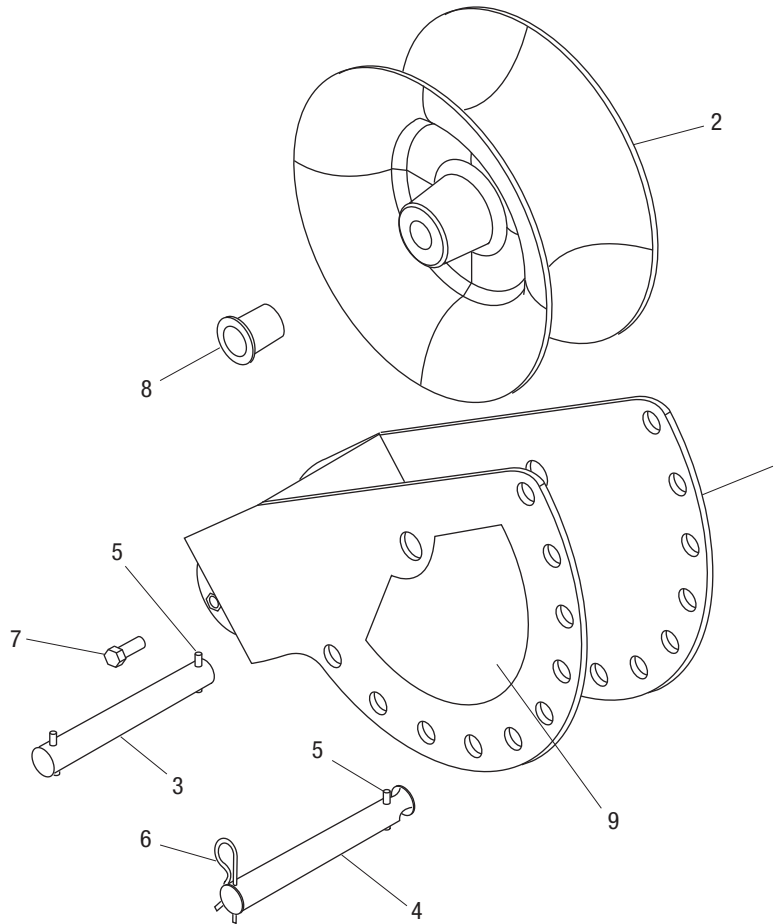
Repair Kits

*	50061887	Kit, puller pin (includes one each of the items marked with an asterisk)	2
+	50061917	Kit, shaft (includes one each of the items marked with a plus sign)	1



Accessories (cont'd)

Nose Unit (50008641)



Key	Part No.	Description	Qty
1	50008323	Elbow, adjustable.....	1
2	50008439	Sheave unit, 12".....	1
3	50007904	Shaft, elbow.....	1
4	50007432	Puller pin.....	1
5*	90507002	Pin, roll, .187 x 1.50".....	3
6*	90503023	Clip, hitch pin #8.....	1
7	90505301	Screw, cap, 3/8-16 x 1.000" hex head.....	1
8	90548388	Bushing.....	2
9	50010425	Decal, Warning.....	1

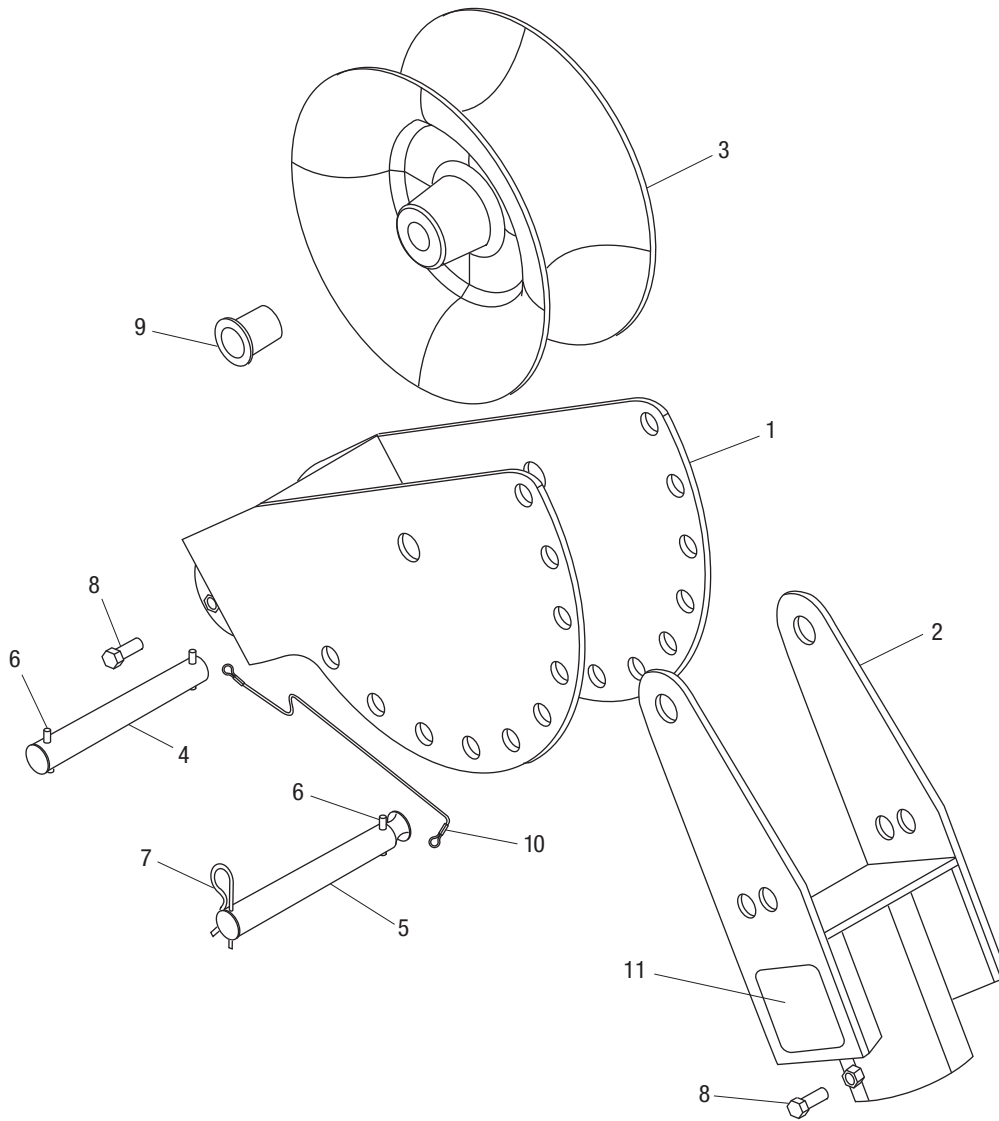
Repair Kit

*	50061887	Kit, puller pin (includes one each of the items marked with an asterisk).....	2
	50061925	Kit, elbow shaft (includes one of item 3 and two of item 5).....	2



Accessories (cont'd)

Elbow Unit (50008633)



Key	Part No.	Description	Qty
1	50008323	Elbow, adjustable.....	1
2	50008285	Elbow, pivot	1
3	50008439	Sheave unit, 12".....	1
4	50008366	Shaft, pivot.....	1
5*	50008374	Pin, elbow	1
6*	90507002	Pin, roll, .187 x 1.50".....	3
7*	90503023	Clip, hitch pin #8.....	1
8	90505301	Screw, cap, 3/8-16 x 1.000" hex head	2

Key	Part No.	Description	Qty
9	90548388	Bushing.....	2
10	50013971	Lanyard.....	1
11	50010328	Decal, Warning.....	1

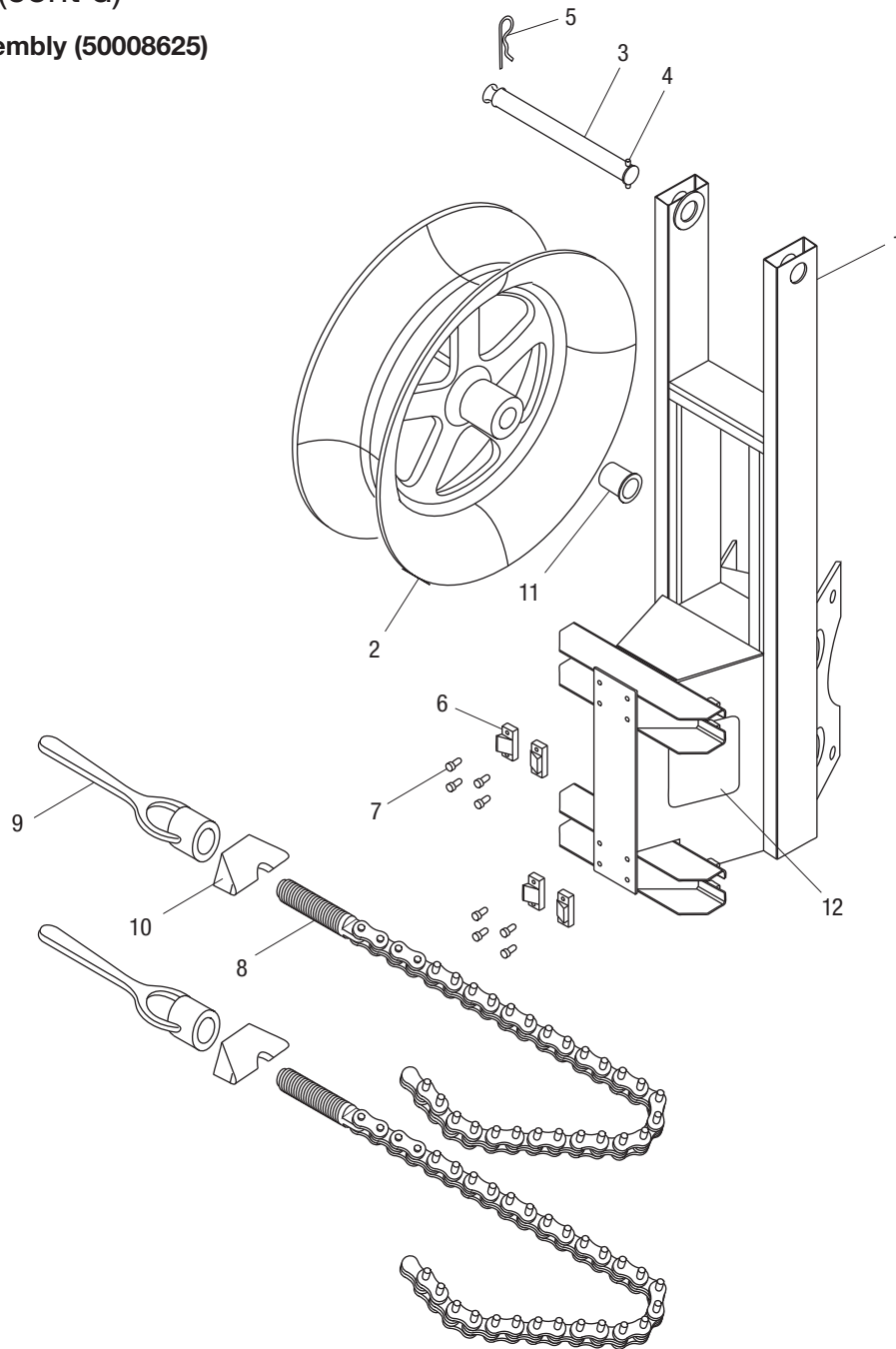
Repair Kits

*	50061941	Kit, elbow pins (includes one each of the items marked with an asterisk).....	1
	50061950	Kit, pivot pins (includes one of item 4 and two of item 6).....	1



Accessories (cont'd)

Pipe Adapter Assembly (50008625)



Key	Part No.	Description	Qty
1	50006681	Frame.....	1
2	50008447	Sheave unit, 18".....	1
3*	50006908	Shaft.....	1
4*	90507002	Pin, roll, .187 x 1.50".....	1
5*	90503023	Clip, hitch pin #8.....	1
6	50296647	Foot.....	4
7	90505794	Screw, cap, 1/4-20 x .500", skt hd	8
8	50278312	Screw unit, 24" vise chain	2

Key	Part No.	Description	Qty
9	50296302	Handle unit, vise chain.....	2
10	50296388	Positioner, chain.....	2
11	90548388	Bushing.....	2
12	50010468	Decal, Warning.....	1

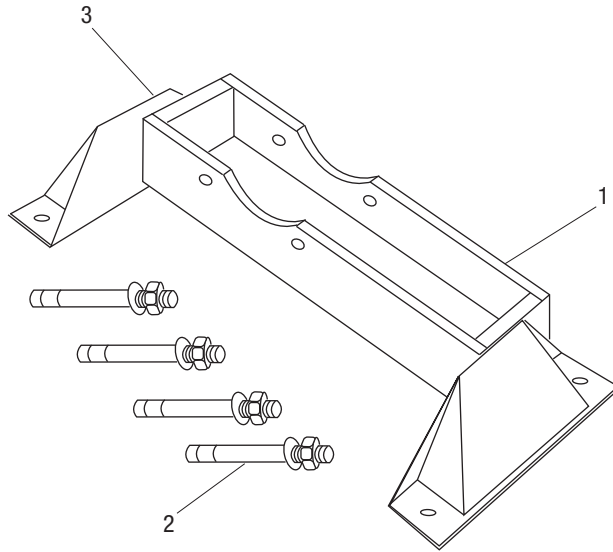
Repair Kit

*	50061933	Kit, shaft (includes one each of the items marked with an asterisk)	1
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Accessories (cont'd)

Floor Mount (50008650)



Key	Part No.	Description	Qty
1	50007890	Frame	1
2	50356070	Anchor, wedge, .625 x 6.00"	4
3	50010476	Decal, Warning.....	1

