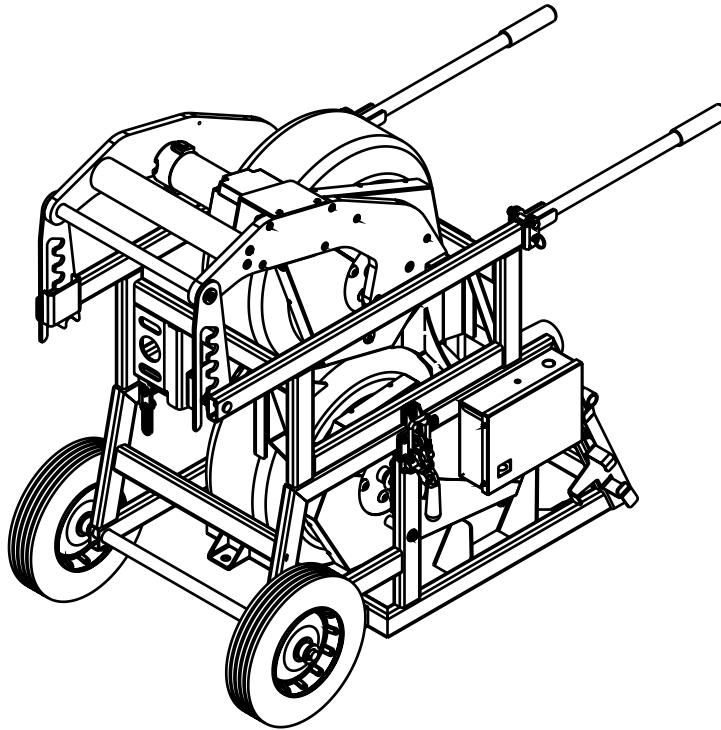




Current Tools

FOR THE PROFESSIONAL ELECTRICIAN

Model 99 Cable Feeder



Operating, Maintenance, Safety and Parts Manual

03/2023



Read and understand this material before operating or servicing the Cable Feeder. Failure to understand how to safely operate and service this unit may result in serious injury or death.

This manual is free of charge. All personnel who operate this Cable Feeder should have a copy of this manual and read and understand its contents. To request a copy, call or write to the address below. 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.

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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 Cable Feeder. Failure to understand how to safely operate and service this unit could result in injury or death. This unit should only be operated and serviced by qualified personnel.



IMPORTANT SAFETY INFORMATION

⚠ DANGER

Do not operate in wet or damp locations. Do not expose to rain.

⚠ DANGER

Do not operate in a hazardous location or near combustible materials.

⚠ WARNING

Keep all body parts, hair, loose clothing, etc. away from rotating parts and pinch points. Also, stay clear of cable during operation as it approaches and is fed through the Cable Feeder.

⚠ WARNING

An emergency stop is provided on the Cable Feeder for your safety. Always inspect before each use to ensure proper operation.

⚠ WARNING

The Cable Feeder has no braking system. Do not use the Cable Feeder to lift or lower any loads or personnel.

⚠ WARNING

Unplug the Cable Feeder when loading cables to avoid accidental starting.

⚠ WARNING

Upper drive clamp **MUST** be in closed, locked position before attempting to lift the Cable Feeder. For instructions on lifting the Cable Feeder, see Page 6.

⚠ WARNING

Always plug the Cable Feeder into a grounded 115 VAC receptacle with a 15 amp GFCI protected circuit. Do not modify the plug provided with the Cable Feeder. Inspect the power cord before each use.

⚠ WARNING

Unplug the Cable Feeder before servicing or maintenance.

⚠ WARNING

Do not remove guards; they are installed for your protection.

⚠ WARNING

The maximum cable diameter is 3.5". The maximum width of all cables in the Cable Feeder is 6". Exceeding this width may cause the cables to run off the tire causing cable damage.

⚠ WARNING

Only use the Cable Feeder for its intended purpose to feed cable off of cable reels as described in this manual. The Cable Feeder is not to be used as a cable puller to pull cable or rope through conduit or in cable trays.

⚠ CAUTION

Only feed electrical cable through the tires of the Cable Feeder. Do not allow any sharp objects to contact the tires; doing so may cause damage to the tires and possibly tire failure.

⚠ CAUTION

Inspect the Cable Feeder for damage or wear before each use.

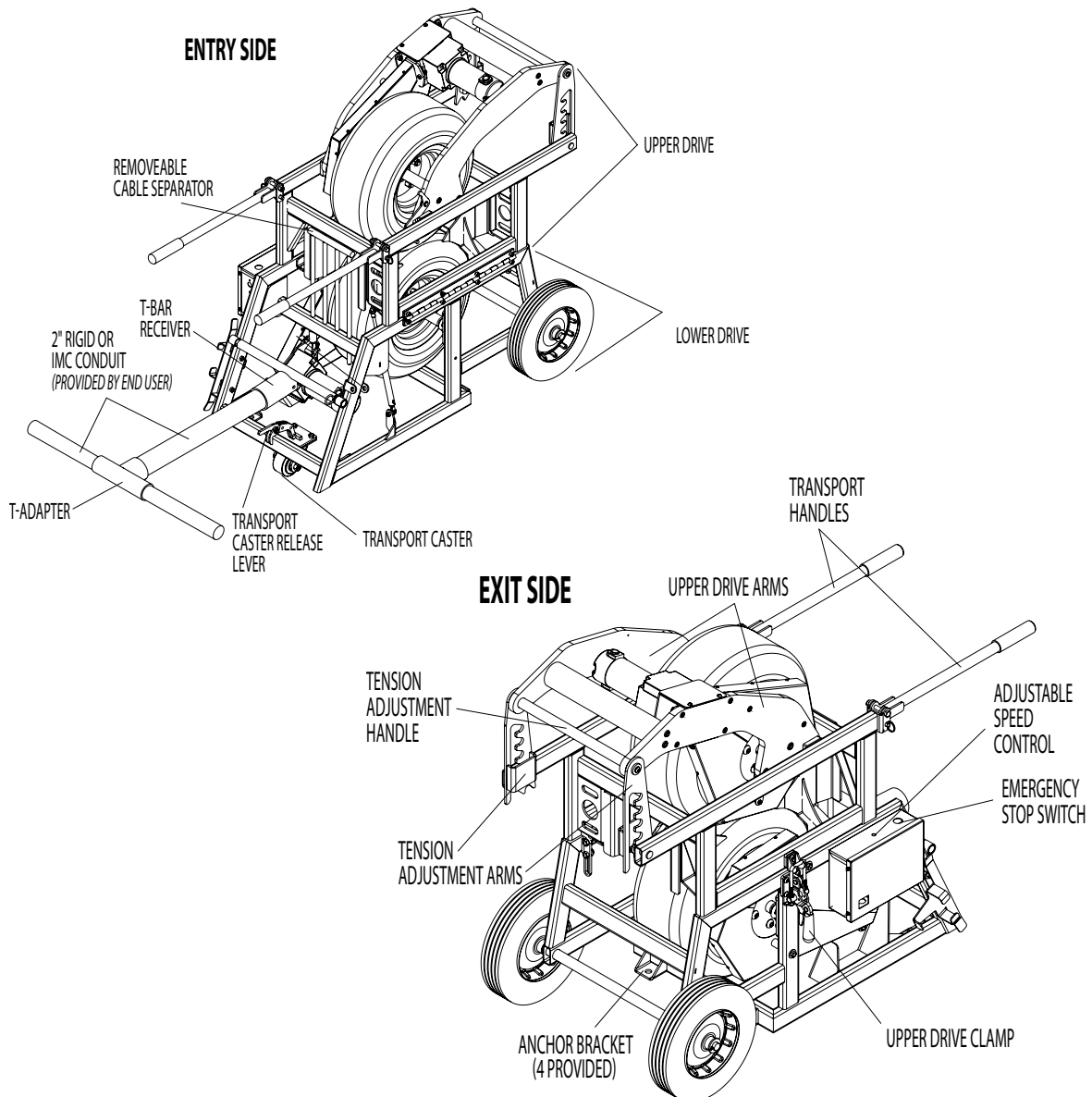


SPECIFICATIONS

- Weight: 345 lbs.
- Dimensions: 26" wide X 42" long X 43" tall
- Power requirements: 115VAC, 15 amps, 60 Hz
- Feeding speed: 0 ft./minute to 36 ft./minute
- Cable Capacity:
 - 8 X 250 MCM Cable
 - 6 X 500 MCM Cable
 - 5 X 750 MCM Cable
 - Cable size — .25" to 3.5" dia. max.
 - Maximum Width of all cables 6"
- Maximum Pulling Force:
 - Single Cable – Approximately 250 lbs.
 - All Cables – Approximately 1,000 lbs.
- Maximum Reel capacity – 25,000 lbs.
- Tire Pressure – Inflate tires to the maximum recommended pressure listed on the tire sidewall.

FEATURES

- Hinged upper drive to allow for easy side loading.
- High grip tires can accommodate no lube or regular cable
- Dual drive motors for maximum grip on cables
- Cable separator guides cables to ensure positive grip on tires
- Heavy duty third wheel caster with quick release mechanism
- Adjustable speed control
- May be operated with remote pendant or optional foot switch
- Low voltage hand control pendant with 8' cable and magnet for easy storage
- Ratcheting tension adjustment provides tension on cable from 1/4" to 3 1/2" diameter
- Self-lubricating drive chain reduces maintenance





TRANSPORTING THE CABLE FEEDER

TO ROLL ON A SMOOTH SURFACE:

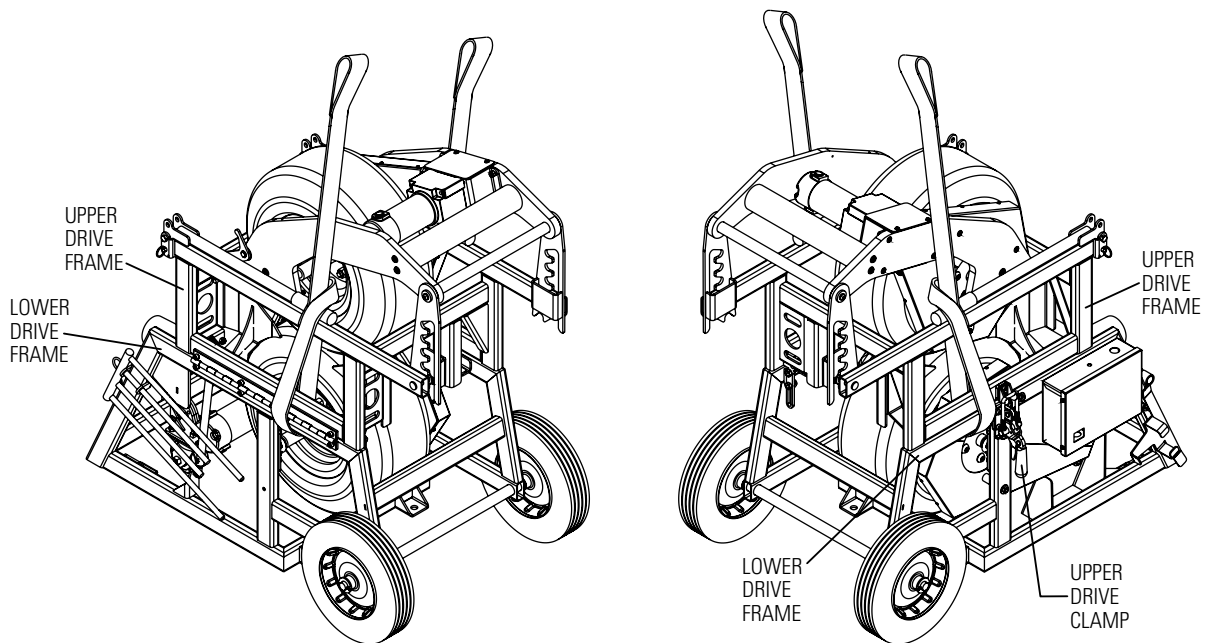
Rotate both transport handles and pin into position with the detent pins provided. Next, lift the Cable Feeder by the handles and the transport caster will rotate into place. To retract the caster, lift up on the transport handles and push the transport caster release lever with your foot. This will allow the caster to rotate out of the way. Next, lower the Cable Feeder.

LIFTING THE FEEDER

When lifting the Cable Feeder, attach sling so that it loops around the drive frame as shown below.

⚠ WARNING

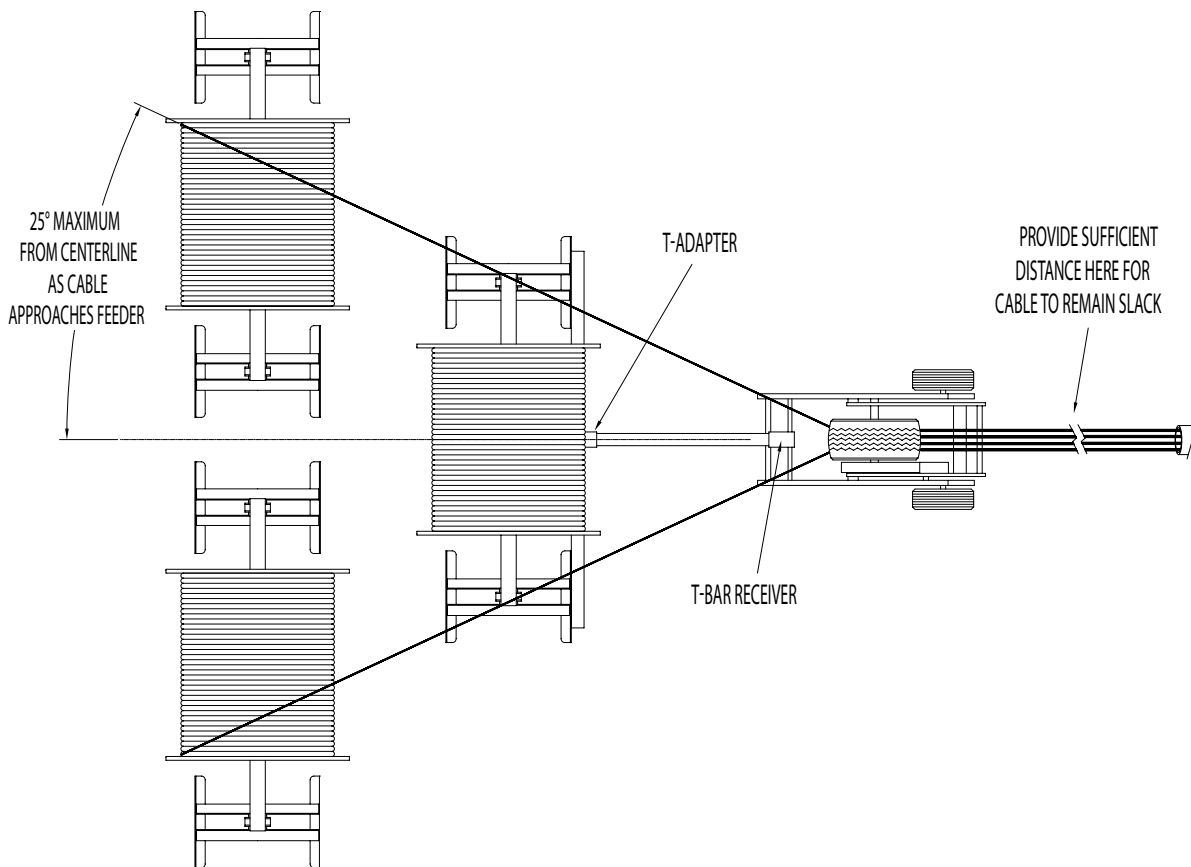
Upper drive clamp MUST be in closed, locked position before attempting to lift the Cable Feeder.



SET-UP

The following will help with setting up the Cable Feeder and cable reels:

- Make sure there is enough room for the cable to remain slack after the cable exits the Cable Feeder.
- The maximum angle that the cable should approach the Cable Feeder is 25° from the center line.
- Make sure the cable insulation will not be damaged.
- The cable may pay off from either the top or bottom of the reel.
- Place the ground cable in the farthest slot to the left of the cable separator as it enters the cable feeder.

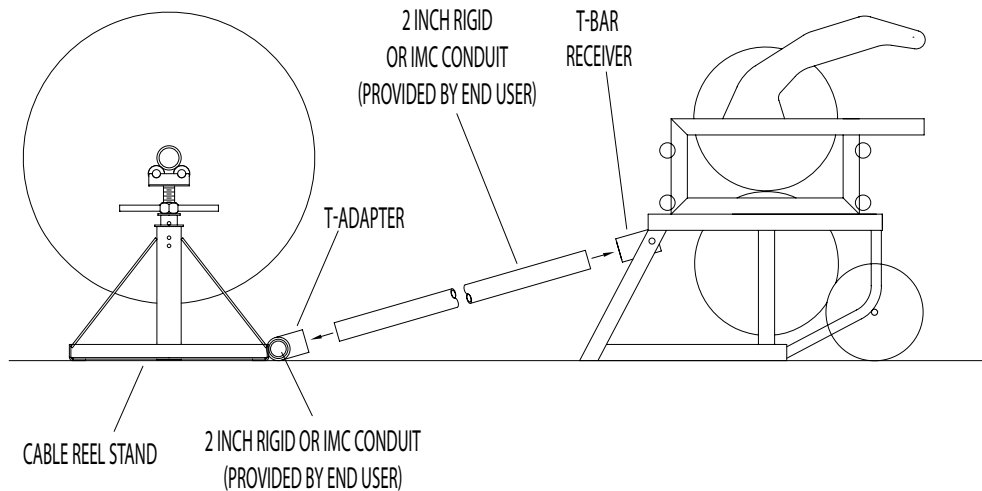


To secure the Cable Feeder:

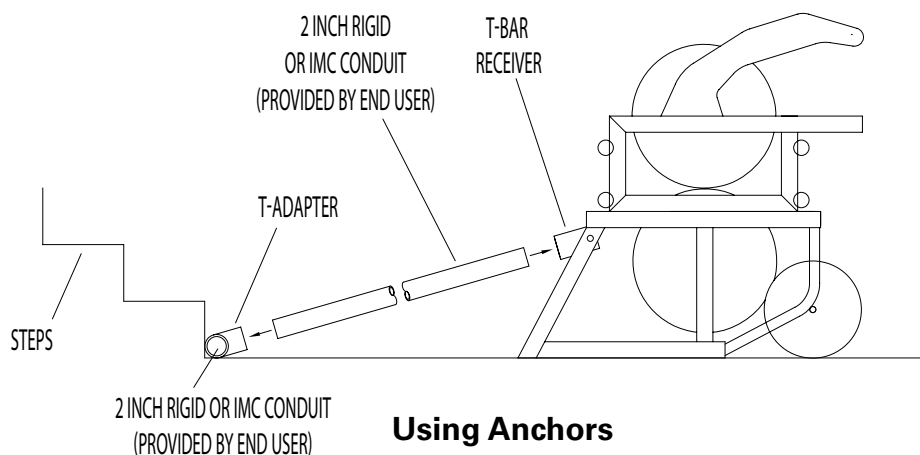
Using T-Bar

- The Cable Feeder may be secured by using the T-Bar method. Slide a section of 2" Rigid or IMC conduit into the T-Bar receiver located at the entry side of the Cable Feeder. Next, slide the other end of the conduit into the T-adapter. Next, slide a second 2" section of Rigid or IMC conduit through the T-adapter. Now the Cable Feeder and T-bar set-up are ready to be positioned against cable reel stands.

Note: The second section of conduit should be long enough to contact both cable reel stands.



Note: Another method of securing the Cable Feeder may be needed if the cable is not on the reels. Place the T-Bar against a stake(s) in the ground, step, etc.



Using Anchors

- Secure the Cable Feeder by anchoring through the four anchor brackets located on the bottom of the Cable Feeder. Use 3/8" or 1/2" anchors (provided by end-user).



WARNING Always ensure that the structure you are anchoring to will support the forces generated by the pull, plus a 4:1 safety factor.



LOADING CABLE INTO THE CABLE FEEDER

1. Standing at the exit end of the Cable Feeder, push down and turn the tension adjustment handle to release the tension adjustment arms from the ratchet studs. Lift up on the handle and place the tension adjustment arms with the resting slots (see Figure 1 below) on top of the ratchet studs.



Lifting tension adjustment arms to place resting slots on top of ratchet studs.

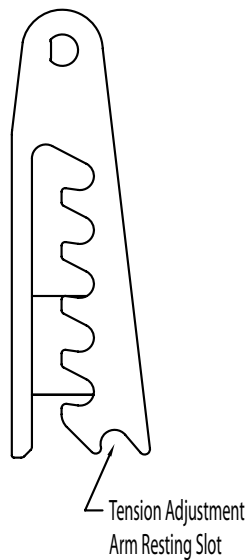
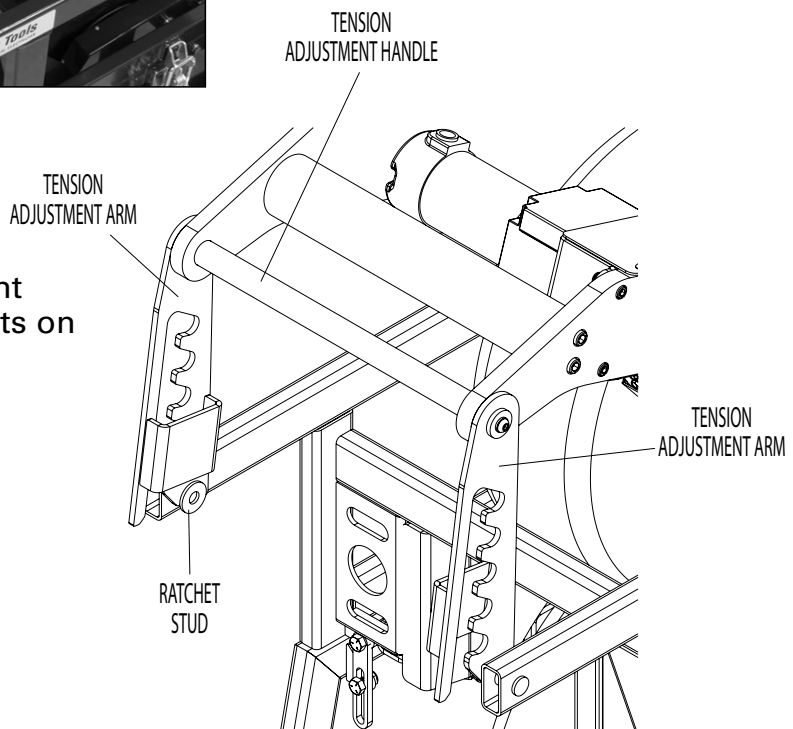


Figure 1



Resting slots shown on top of ratchet studs.



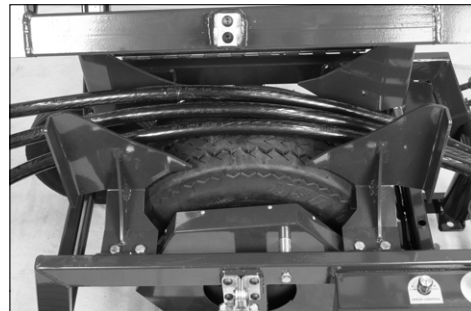
LOADING CABLE INTO THE CABLE FEEDER — CONTINUED

2. Next, release the upper drive clamp and raise the upper drive.

Note: The upper drive clamp has a safety lock which must be released to operate the clamp. See photo below.

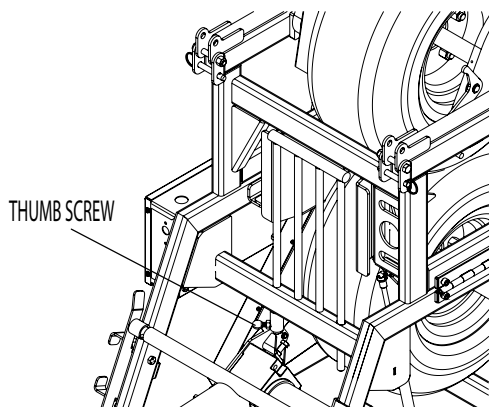


Note: Pull safety lock as shown to release upper drive clamp

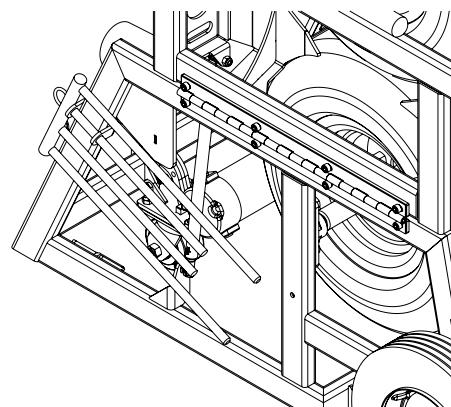


3. Place the cables over the lower tire, being sure not to cross the cables.

4. If needed, remove the cable separator from the storage slots and install as shown below. Be sure to tighten the thumb screw to secure the cable separator.



Cable separator shown installed



Cable separator shown in storage slots



LOADING CABLE INTO THE CABLE FEEDER — *CONTINUED*

- Next, close and reclamp the upper drive



- Using the tension adjustment handle, lower the tension adjustment arms. Push down on the handle with enough pressure to engage one set of the ratcheting slots onto the ratchet studs.

- Now you are ready to feed cable.

Note: If needed, the upper drive can be raised and will latch into open position as shown below.



Upper drive arms raised and shown latched into open position



To release latch, lift the lever on latch as shown.

OPERATING INSTRUCTIONS

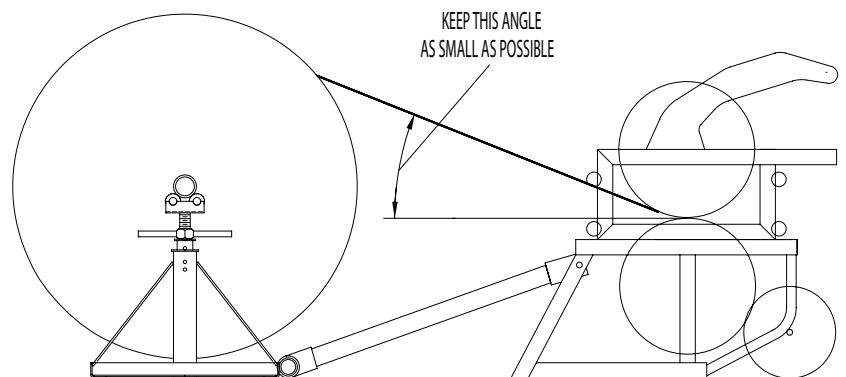
1. Before operation, be sure the pendant ON/OFF switch is in the OFF position.
2. Next, plug the Cable Feeder into an 115 VAC, 15 amp, GFCI protected power source.
3. Adjust the speed control to 12 o'clock position.
4. Turn the circuit break switch located on the side of the Cable Feeder electrical box to the ON position.
Operate the Cable Feeder by one of the following methods:
 - For continuous run: Place the pendant on/off switch in the "continuous on" position.
 - For intermittent operation: With the pendant continuous on/off switch in the OFF position, depress the pendant jog button.
 - If equipped with optional foot switch: Plug the foot switch into the foot switch outlet located on the front of the electrical box on the Cable Feeder and depress the foot switch.
5. Adjust the speed by rotating the speed control knob as follows:
 1. Clockwise – to increase speed
 2. Counterclockwise – to decrease speed

Note: The Cable Feeder is equipped with an emergency stop switch located on the top of the electrical box on the Cable Feeder. To activate, push down. To reset, turn clockwise.



OPERATIONAL NOTES

- Before feeding begins, make sure the cable on the entry side of the cable feeder (between the cable reels and the cable feeder) is **NOT** slack.
- The cable on the exit side of the Cable Feeder should **REMAIN SLACK DURING THE ENTIRE PULL**. Do not allow this cable to become taut.
- Keep the speed control at a low setting at the start of the pull.
- Use the speed control to adjust the rate of cable feed to equal that of the cable puller. Proper use of the speed control should prevent the operator from having to turn the Cable Feeder off and on during the feeding operation.
- When feeding a cable with a smaller diameter (such as a ground cable) than the other cables being fed, the smaller cable may tend to feed at a faster rate. To remedy this:
 - Stop the Feeder, then push down and turn the tension adjustment handle to release the tension adjustment arms from the ratchet studs. Then raise the upper drive arms. (See photo on the bottom of Page 11).
 - Pull back the excess small cable that has built up at the exit end of the Cable Feeder.
 - Lower the upper drive arms and push down on the tension adjustment handle until the tension adjustment arms engage the ratchet studs.
 - Restart the pull.
- If slippage is a problem, more separation may be needed between the ground cable and the larger cables. Simply place the ground cable in the farthest slot to the left of the cable separator and skip a slot between the ground cable and the larger cable.
- If necessary, more than one cable may be placed in a single slot of the Cable Separator.
- If the cable feeding off the reels approaches the Cable Feeder at too steep of an angle, the Cable Feeder may tend to lift. To avoid, move the Cable Feeder further away from the reel(s) or anchor the Cable Feeder by using the (4) four anchor brackets located on the bottom of the Cable Feeder or feed the cable from the bottom of the reel.

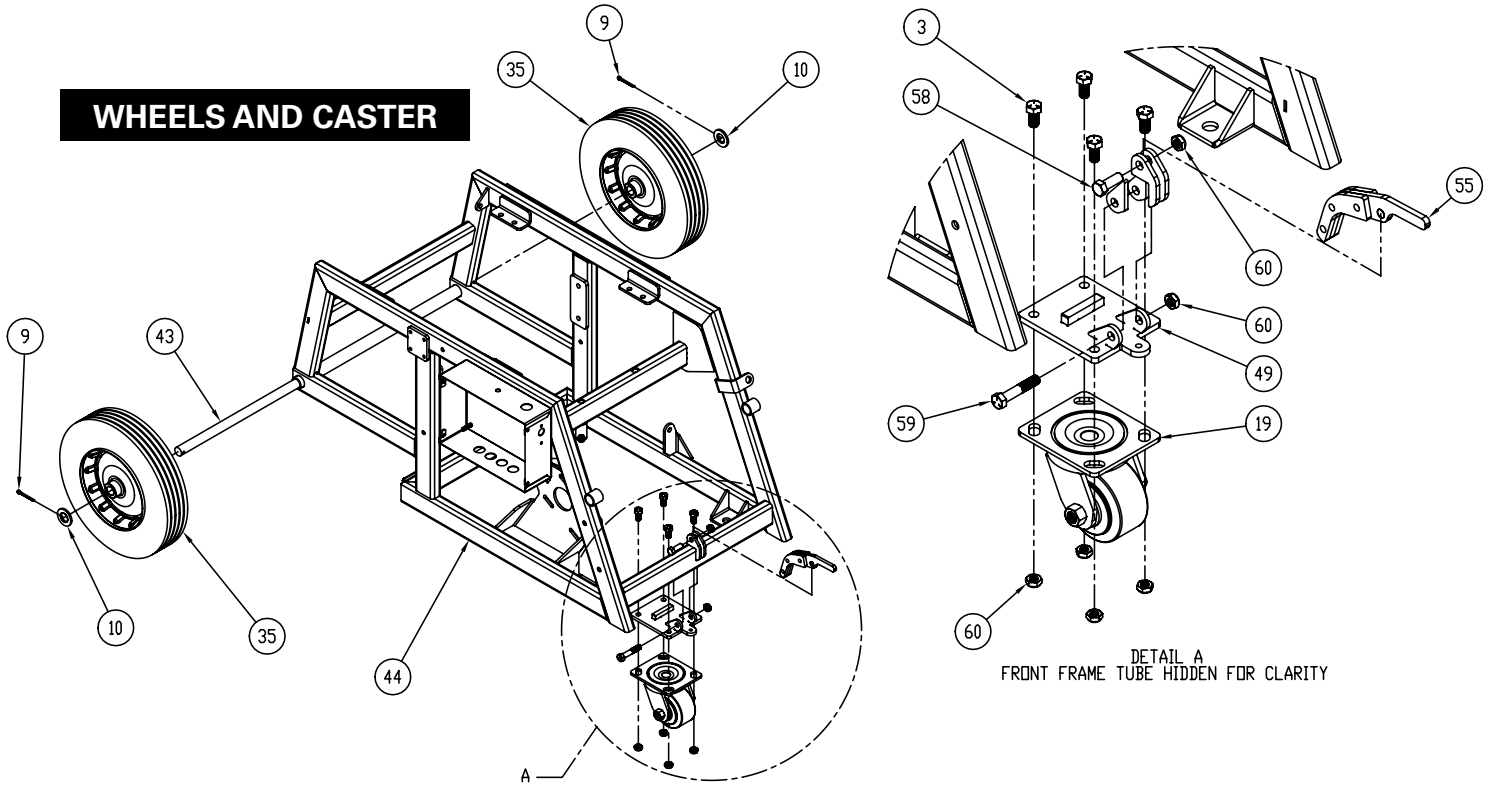


MAINTENANCE

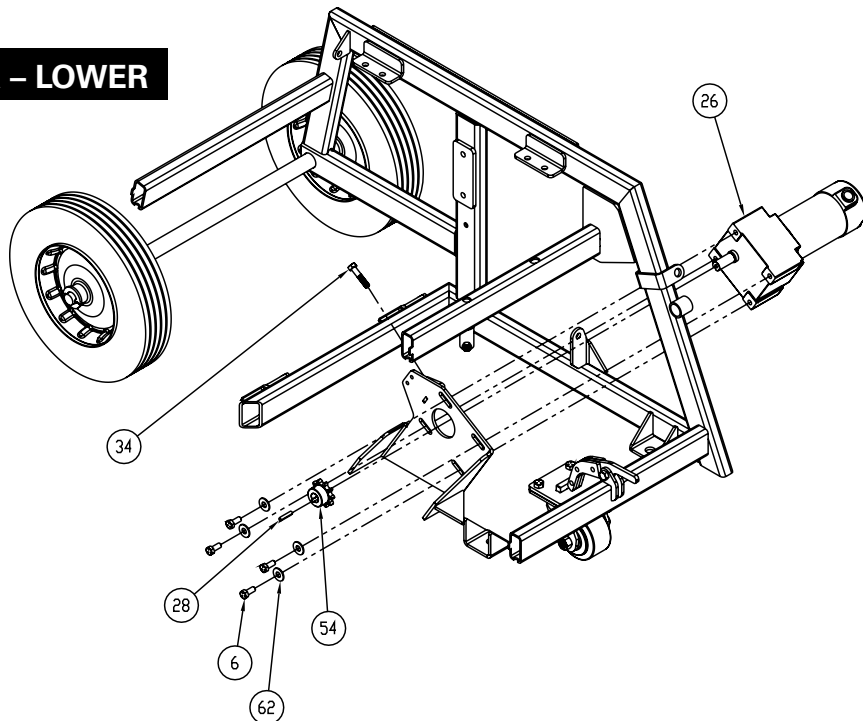
- 1) Before use, make sure each tire is inflated to the maximum recommended pressure listed on the tire sidewall.
- 2) Chains and bearings are permanently lubricated and should not require any additional lubrication.
- 3) Keep all components clean and free of any debris.

EXPLODED VIEW – LOWER DRIVE

WHEELS AND CASTER



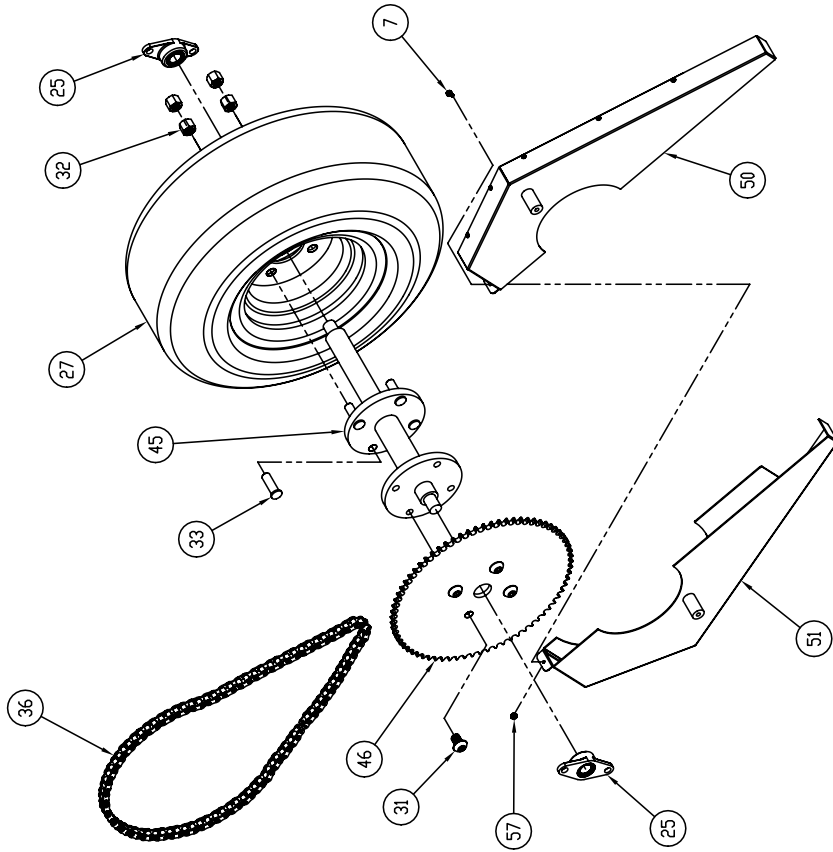
DRIVE MOTOR – LOWER



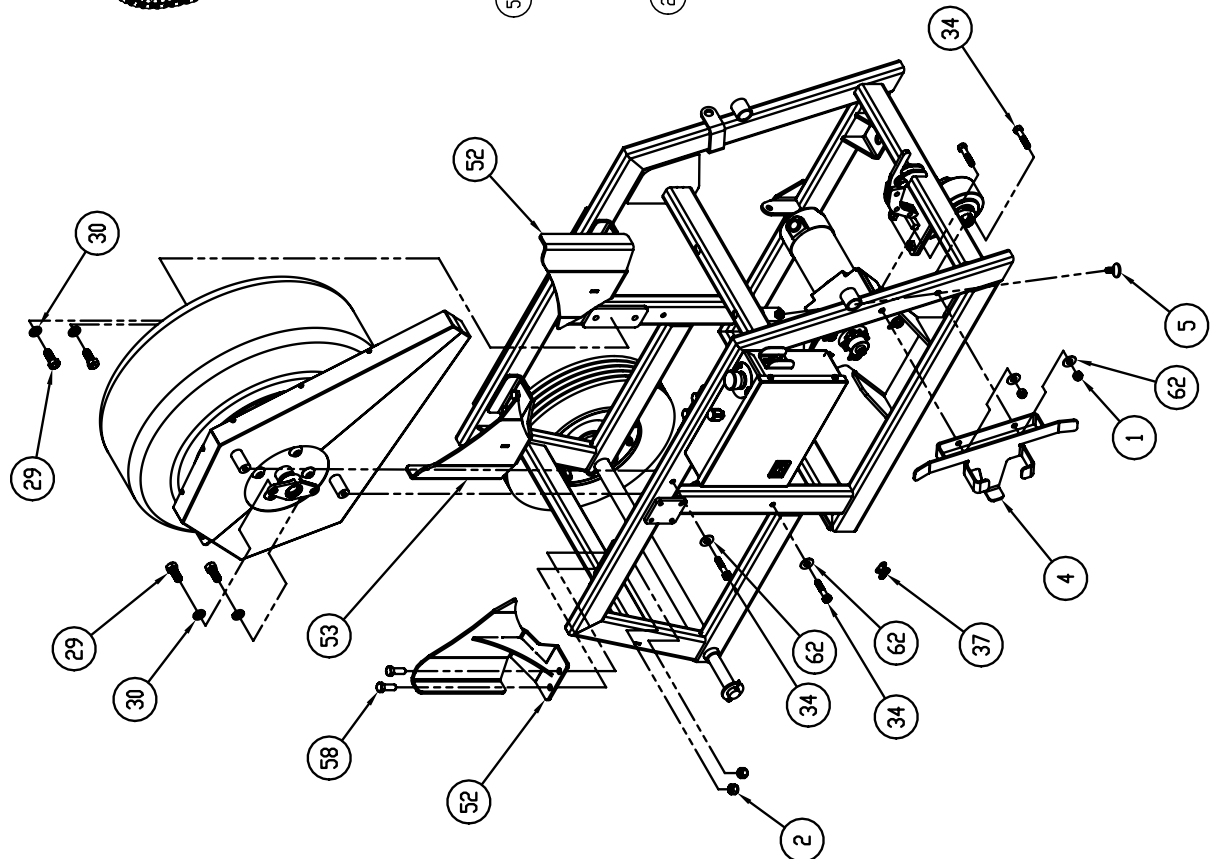
refer to **PARTS LIST** on pages 16

EXPLODED VIEW – LOWER DRIVE

DRIVE TIRE ASSEMBLY



LOWER DRIVE FRAME

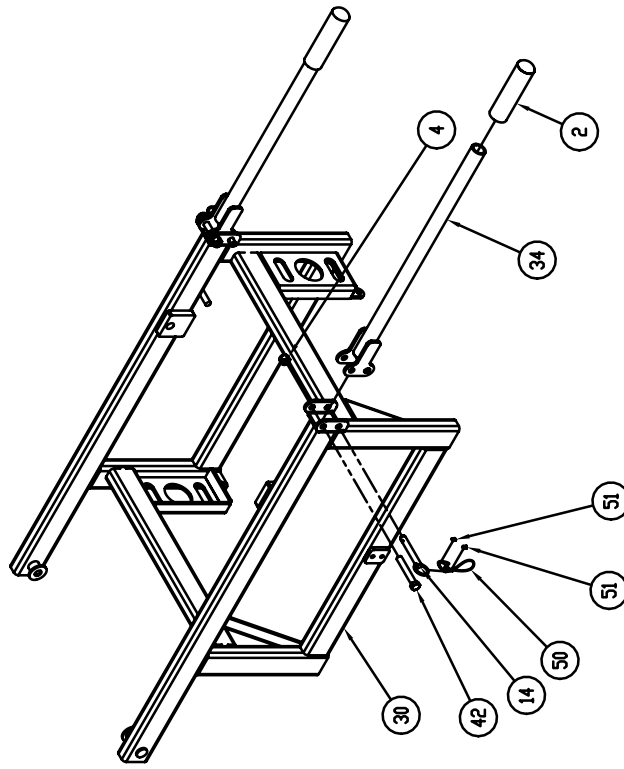


PARTS LIST — LOWER DRIVE

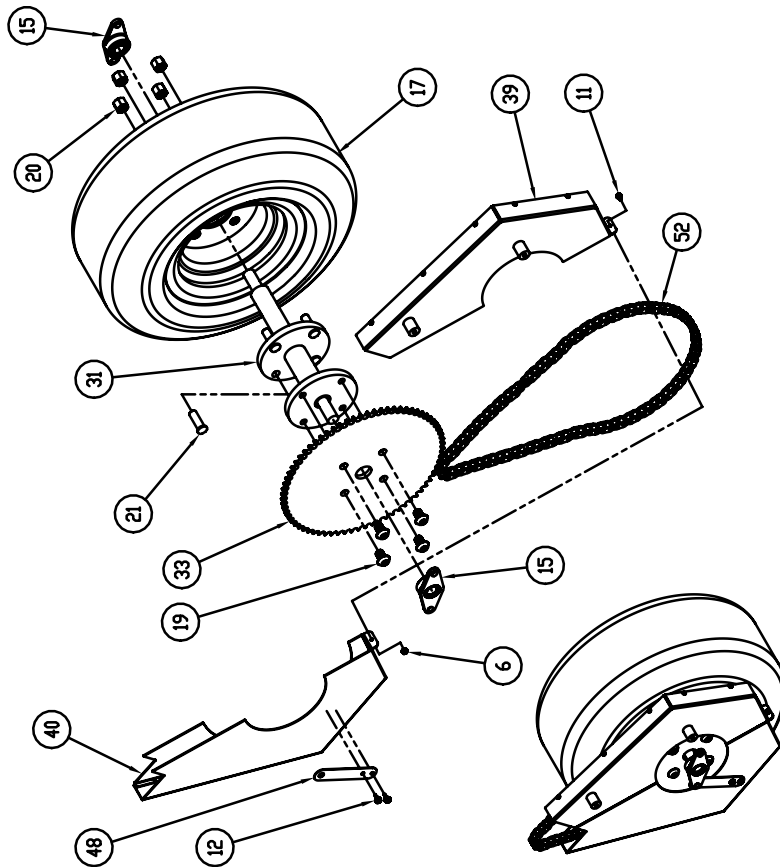
ITEM #	PART #	DESCRIPTION	QTY.
1	2-1301-4	NUT — HEX NYLON INSERT (5/16"-18)	2
2	2-1501-4	NUT — HEX NYLON INSERT (3/8-16)	8
3	33-53	SCREW — HEX HEAD CAP GR5 ZINC (3/8-16 x 3/4)	4
4	33-706	WELDMENT — WIRE/FOOT SWITCH HOLDER	1
5	66-56	SCREW — SPADE THUMB 18.8SS (5/16-18 X 3/4)	1
6	77-002D1	SCREW — HEX HEAD CAP GR5 ZINC (5/16-18 x 3/4)	4
7	77-004A	SCREW — TC (8-32 x 3/8)	12
9	77-016	COTTER PIN — 3/16" x 1-1/4" LONG	2
10	77-017	WASHER — FLAT 3/4"(SAE)	2
19	99-10	CASTER	1
25	99-18	BEARING — FLANGE, PLAIN 3/4"	2
26	99-2	GEAR MOTOR	1
27	99-21	WHEEL ASSEMBLY WITH TIRE	1
28	99-24	KEY — 3/16 x 3/16 x 1" PLAIN	1
29	99-30	SCREW — HEX HEAD CAP GR5 ZINC (7/16-14 x 1)	4
30	99-31	WASHER — LOCK MEDIUM 7/16" ZINC	4
31	99-32	SCREW — BUTTON HEAD SOCKET (1/2-13 x 3/4)	4
32	99-33	NUT — LUG (1/2"-20)	4
33	99-34	STUD - WHEEL 1/2"-20	4
34	99-38	SCREW — HEX HEAD CAP GR5 ZINC (5/16-18 x 1.5)	5
35	99-5	WHEEL	2
36	99-53	DRIVE CHAIN	1
37	99-85	MASTER LINK	1
43	99-545	AXLE	2
44	99-694	BOTTOM FRAME WELDMENT — 99 FEEDER	1
45	99-696	BOTTOM AXLE WELDMENT	1
46	99-715	SPROCKET — DRIVEN, FEEDER	1
49	99-730	PLATE FAB — CASTER, FEEDER	1
50	99-740	LOWER CHAIN GUARD (TOP)	1
51	99-741	LOWER CHAIN GUARD (BOTTOM)	1
52	99-744	GUIDE PLATE WELDMENT	2
53	99-744A	GUIDE PLATE WELDMENT	2
54	99-756	SPROCKET — REDUCER	1
55	99-790	CASTER LOCK WELDMENT	1
57	453-16A	NUT — HEX (#8-32)	1
58	524-11	3/8-16 x 1" HEX HEAD CAP SCREW	9
59	528-2	SCREW — HEX HEAD CAP GR5 ZINC (3/8-16 x 2)	1
60	610-25	NUT — HEX NYLON INSERT (3/8-16)	6
62	9544-21	WASHER — FLAT 5/16" USS ZINC	8

EXPLODED VIEW – UPPER DRIVE

UPPER DRIVE FRAME

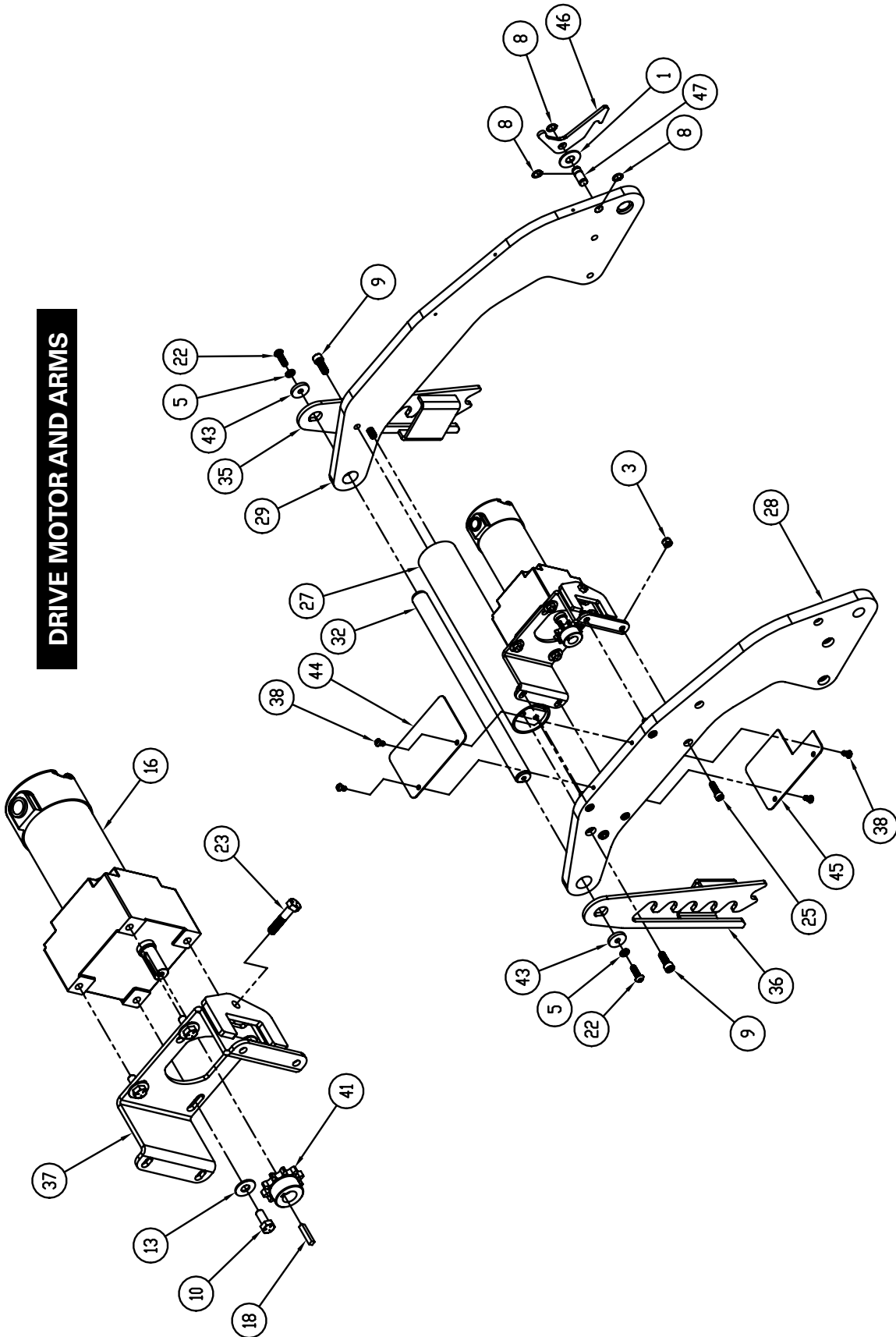


DRIVE TIRE ASSEMBLY



 **EXPLODED VIEW – UPPER DRIVE**

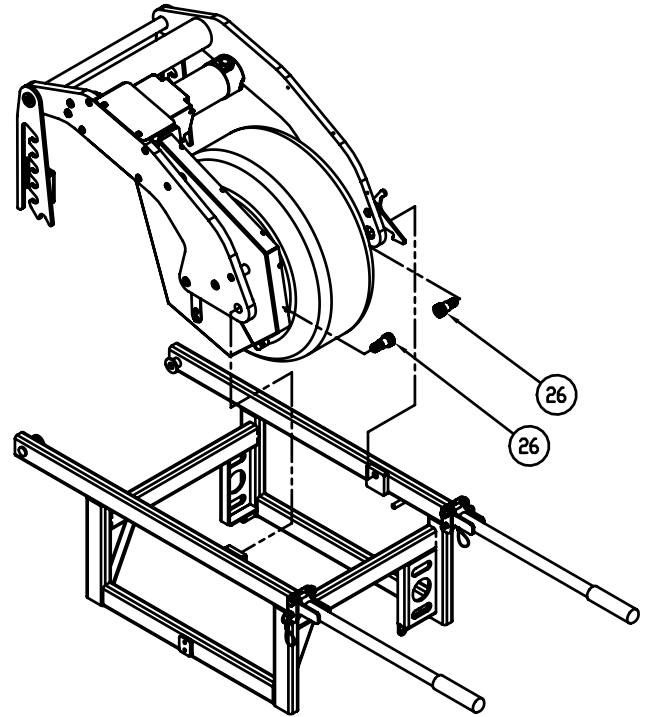
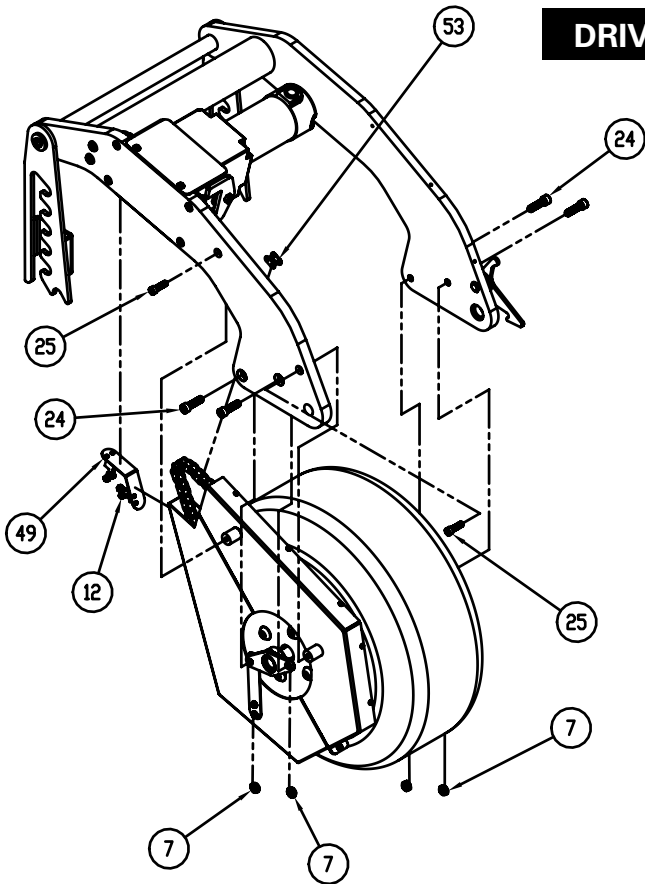
DRIVE MOTOR AND ARMS



refer to **PARTS LIST** on pages 20 & 21

EXPLODED VIEW – UPPER DRIVE

DRIVE TIRE TO ARMS ASSEMBLY





PARTS LIST – UPPER DRIVE

ITEM #	PART #	DESCRIPTION	QTY.
1	12024-7	WASHER – STEEL 1-3/8" OD X 9/16" ID x 14GA (ZINC)	1
2	140-7	GRIP	2
3	2-1301-4	NUT – HEX NYLON INSERT (5/16"-18)	4
4	2-1501-4	NUT – HEX NYLON INSERT (3/8-16)	2
5	412-11	WASHER – LOCK MEDIUM 5/16 ZINC	2
6	453-16A	NUT - HEX (#8-32)	1
7	610-25	NUT – HEX NYLON INSERT (3/8-16)	4
8	750-21	1/2" RETAINER RING	3
9	750-25	SCREW – SOCKET HEAD CAP (3/8-16 x 1")	4
10	77-002D1	SCREW – HEX HEAD CAP GR5 ZINC (5/16-18 x 3/4)	4
11	77-004A	SCREW – TC (8-32 x 3/8)	1
12	77-033A	SCREW – HEX HEAD SELF DRILL ZINC (#10-32 x 1/2)	6
13	9544-21	WASHER – FLAT 5/16" USS ZINC	4
14	9548-7	PIN – QUICK RELEASE 3/8 x 2-1/4"	2
15	99-18	BEARING – FLANGE, BALL 3/4"	2
16	99-2	GEAR MOTOR	1
17	99-21	WHEEL ASSEMBLY WITH TIRE	1
18	99-24	KEY – 3/16 x 3/16 x 1 PLAIN	1
19	99-32	SCREW – BUTTON HEAD SOCKET (1/2-13 x 3/4)	4
20	99-33	NUT – LUG (1/2"-20)	4
21	99-34	STUD – WHEEL 1/2"-20	4
22	99-37	SCREW – BUTTON HEAD SOCKET (5/16-18 x 1)	2
23	99-38	SCREW – HEX HEAD CAP GR5 ZINC (5/16-18 x 1.5)	1
24	99-59	SCREW – SOCKET HEAD CAP (3/8-16 x 1.25)	4
25	99-60	5/16-18 x 1.00 SHCS	6
26	99-61	SCREW – SOCKET SHOULDER (3/4 x 5/8)	2
27	99-687	SPREADERTUBE – FEEDER	1
28	99-688	ARM – DRIVE SIDE	1
29	99-689	ARM – OFF SIDE	1
30	99-690	TOP FRAME WELDMENT – 99 FEEDER	1
31	99-695	TOP AXLE WELDMENT	1
32	99-713	TENSION ADJUSTMENT HANDLE	1
33	99-715	SPROCKET – DRIVEN, FEEDER	2
34	99-723	HANDLE – FEEDER	2
35	99-725	BRACKET FAB – TENSIONER	1
36	99-725A	BRACKET FAB – TENSIONER	1
37	99-739	MOTOR BRACKET WELDMENT (TOP)	1
38	99-74	SCREW – BUTTON HEAD SOCKET (1/4)-20 x 1/2)	4
39	99-742	UPPER CHAIN GUARD (TOP)	1
40	99-743	UPPER CHAIN GUARD (BOTTOM)	1
41	99-756	SPROCKET – REDUCER	1
42	99-77	SCREW – HEX HEAD CAP GR5 ZINC (3/8-16 x 2.5)	2
43	99-774	WASHER – SHAFT	2
44	99-776	COVER – MOTOR BRACKET, TOP	1
ITEM #	PART #	DESCRIPTION	QTY.
45	99-777	COVER – MOTOR BRACKET, BOTTOM	1

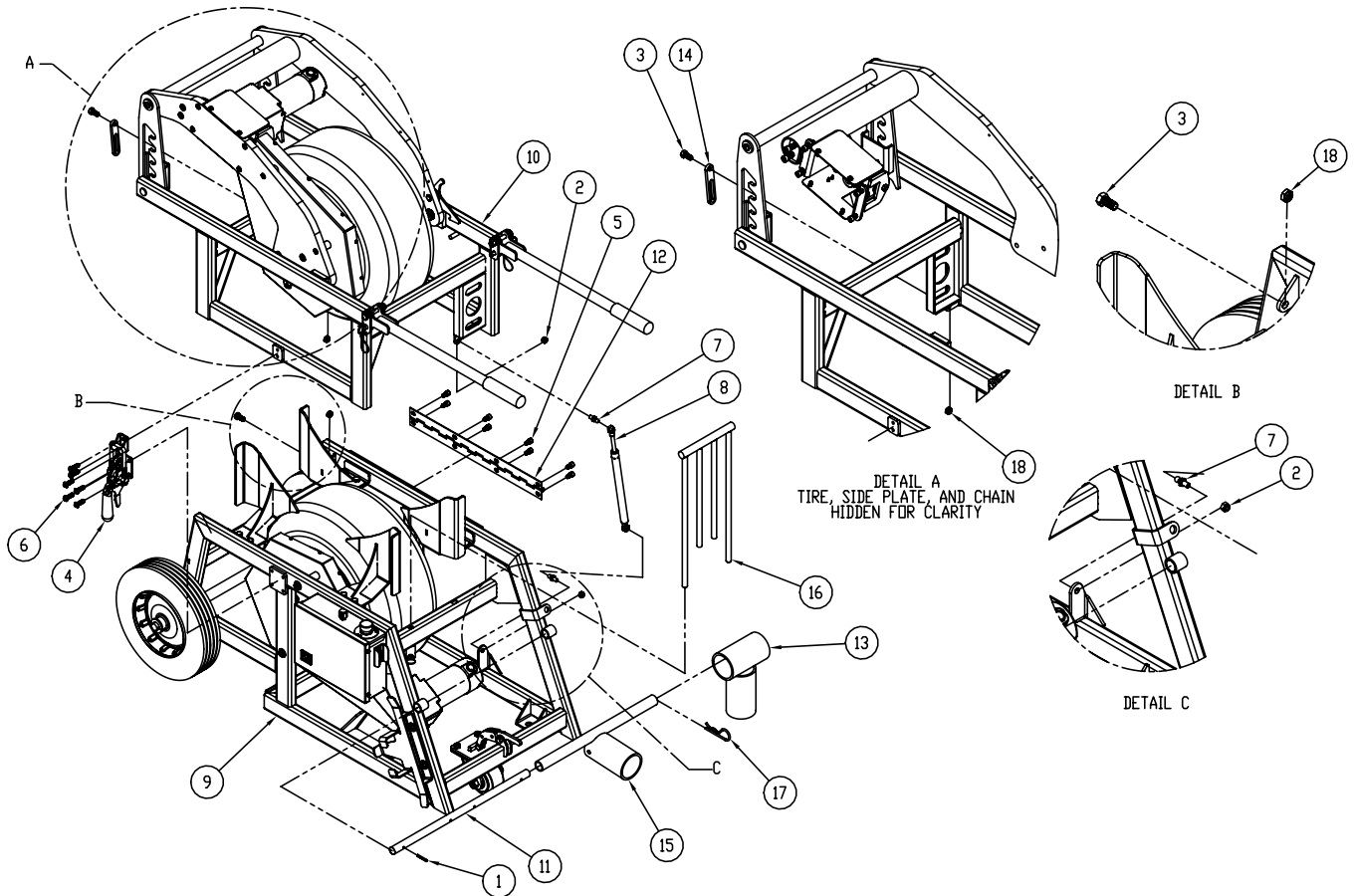


PARTS LIST — UPPER DRIVE — *CONTINUED*

46	99-786	LATCH — TOPTIRE	1
47	99-787	PIN — LATCH	1
48	99-796	STRAP — CHAIN GUARD	1
49	99-816	STRAP — CHAIN GUARD	1
50	99-80	STEEL CABLE, 1/16OD x 8" LG	2
51	670-6	FERRULE — DOUBLE	4
52	99-53	DRIVE CHAIN	1
53	99-85	MASTER LINK	1



EXPLODED VIEW AND PARTS LIST — FINAL ASSEMBLY



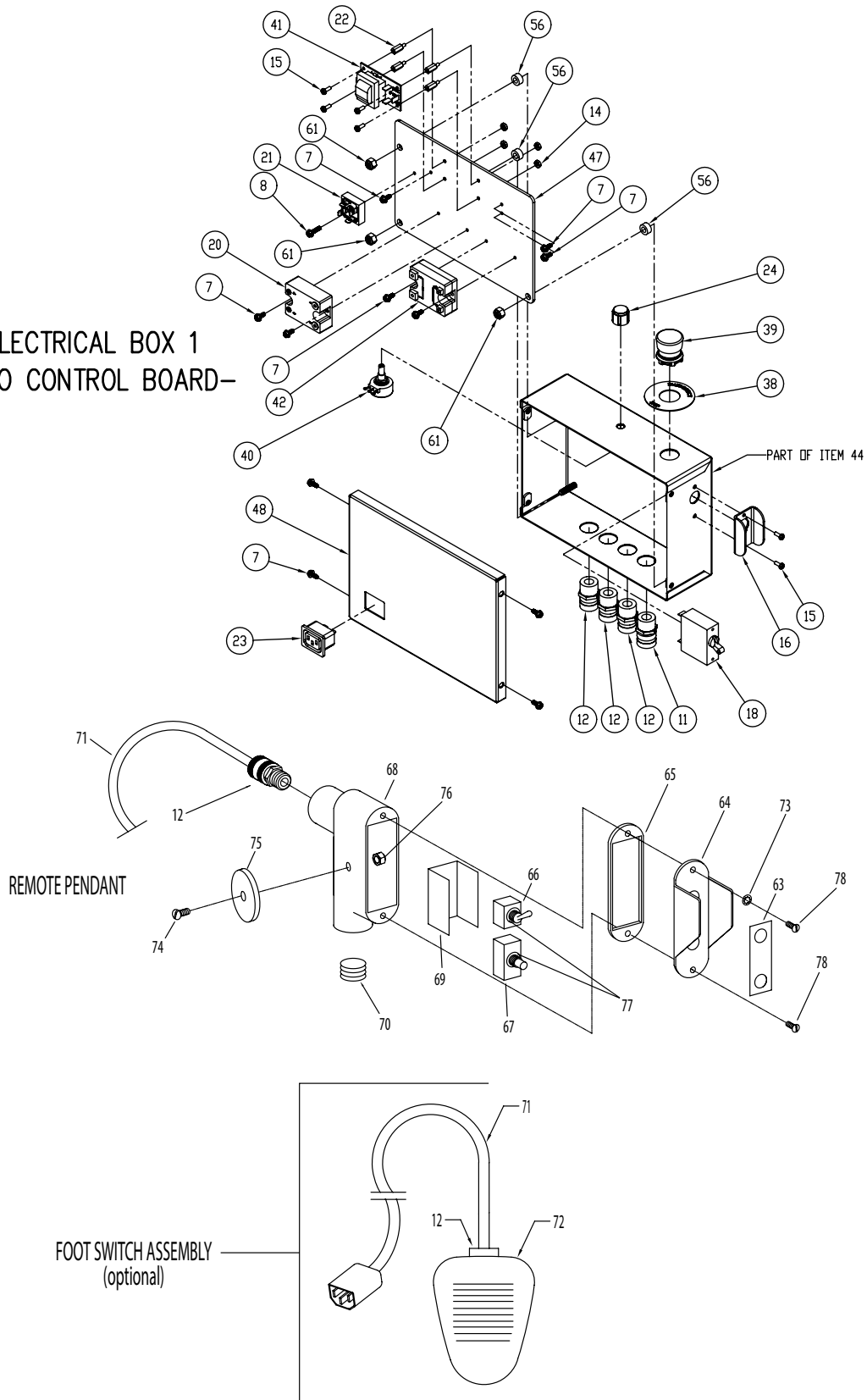
ITEM #	PART #	DESCRIPTION	QTY.
1	2-1111	PIN — ROLL 3/16" x 1-1/4"	1
2	2-1301-4	NUT — HEX NYLON INSERT (5/16"-18)	2
3	33-53	SCREW — HEX HEAD CAP GR5 ZINC (3/8-16 x 3/4)	2
4	99-9	UPPER DRIVE CLAMP	1
5	99-29	SCREW — SOCKET HEAD CAP (5/16-18 x 1/2)	8
6	99-37	SCREW — BUTTON HEAD SOCKET (5/16-18 x 1)	6
7	99-41	BALL — GAS SPRING	2
8	99-64	GAS SPRING	1
9	99-400	99 LOWER DRIVE ASSEMBLY	1
10	99-500	99 UPPER DRIVE ASSEMBLY	1
11	99-714	ROD — REAR SUPPORT HOLDER	1
12	99-717	HINGE — CAGE	1
13	99-735	T — STABILIZER	1
14	99-768	STOP STRAP	1
15	99-823	STABILIZER WELDMENT	1
16	99-827	CABLE SEPARATOR	1
17	406-3	SPRING CLIP	1
18	610-25	NUT — HEX NYLON INSERT (3/8-16)	2

EXPLODED VIEW — ELECTRICAL BOX 1

ELECTRICAL BOX 1
-W/O CONTROL BOARD-

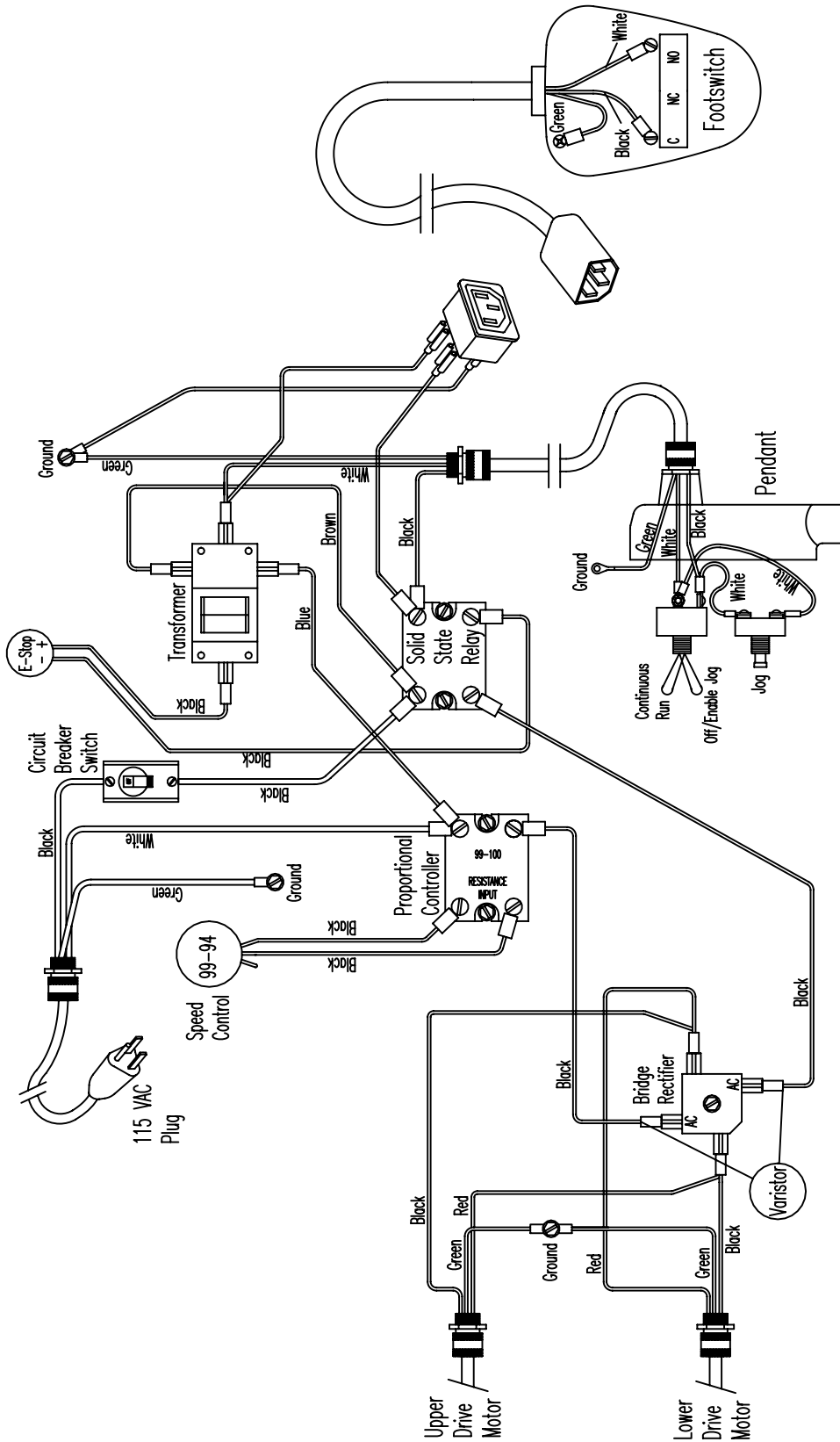
REMOTE PENDANT

FOOT SWITCH ASSEMBLY
(optional)





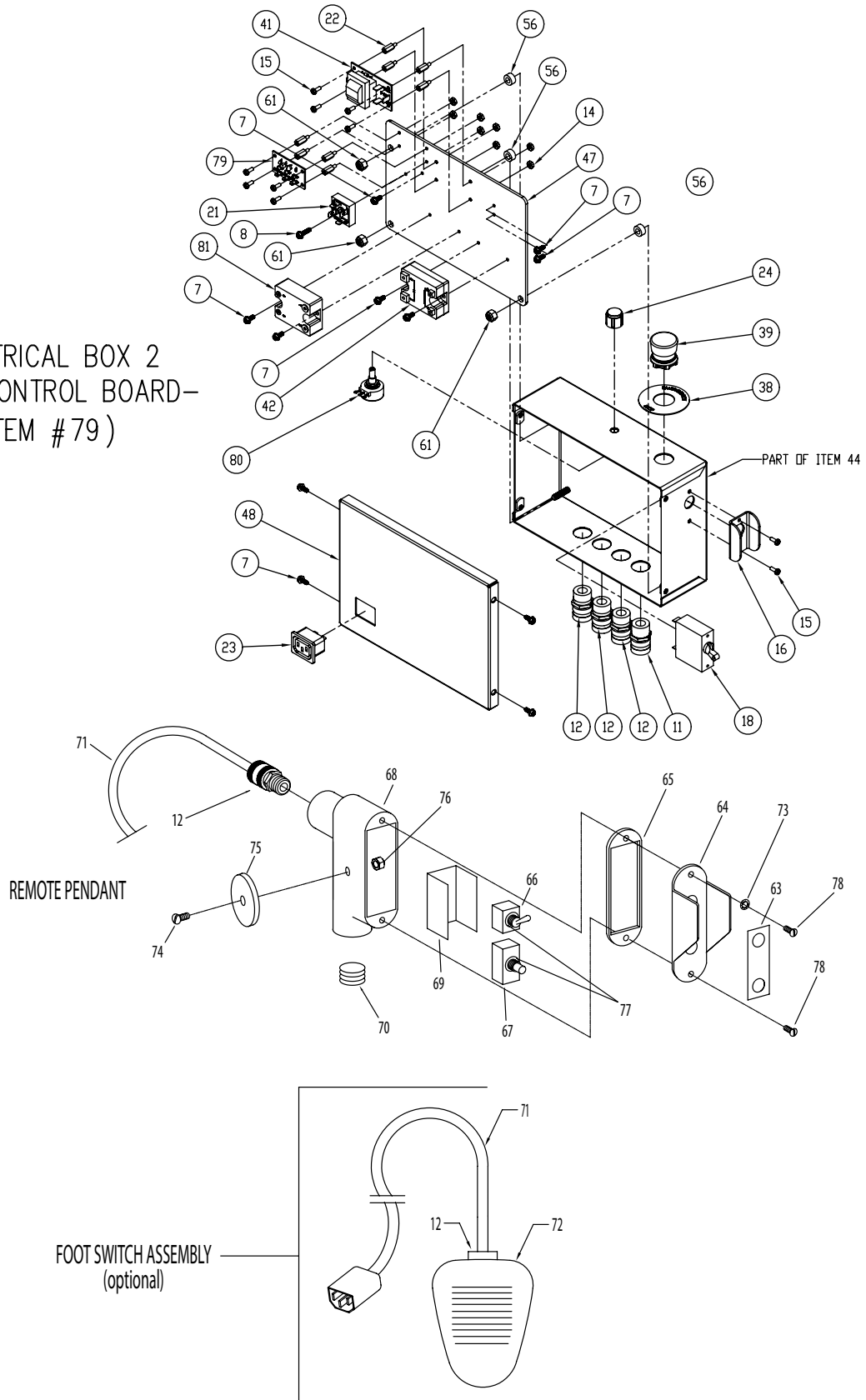
ELECTRICAL SYSTEM DIAGRAM — ELECTRICAL BOX 1



WIRING DIAGRAM 1 — W/O CONTROL BOARD—

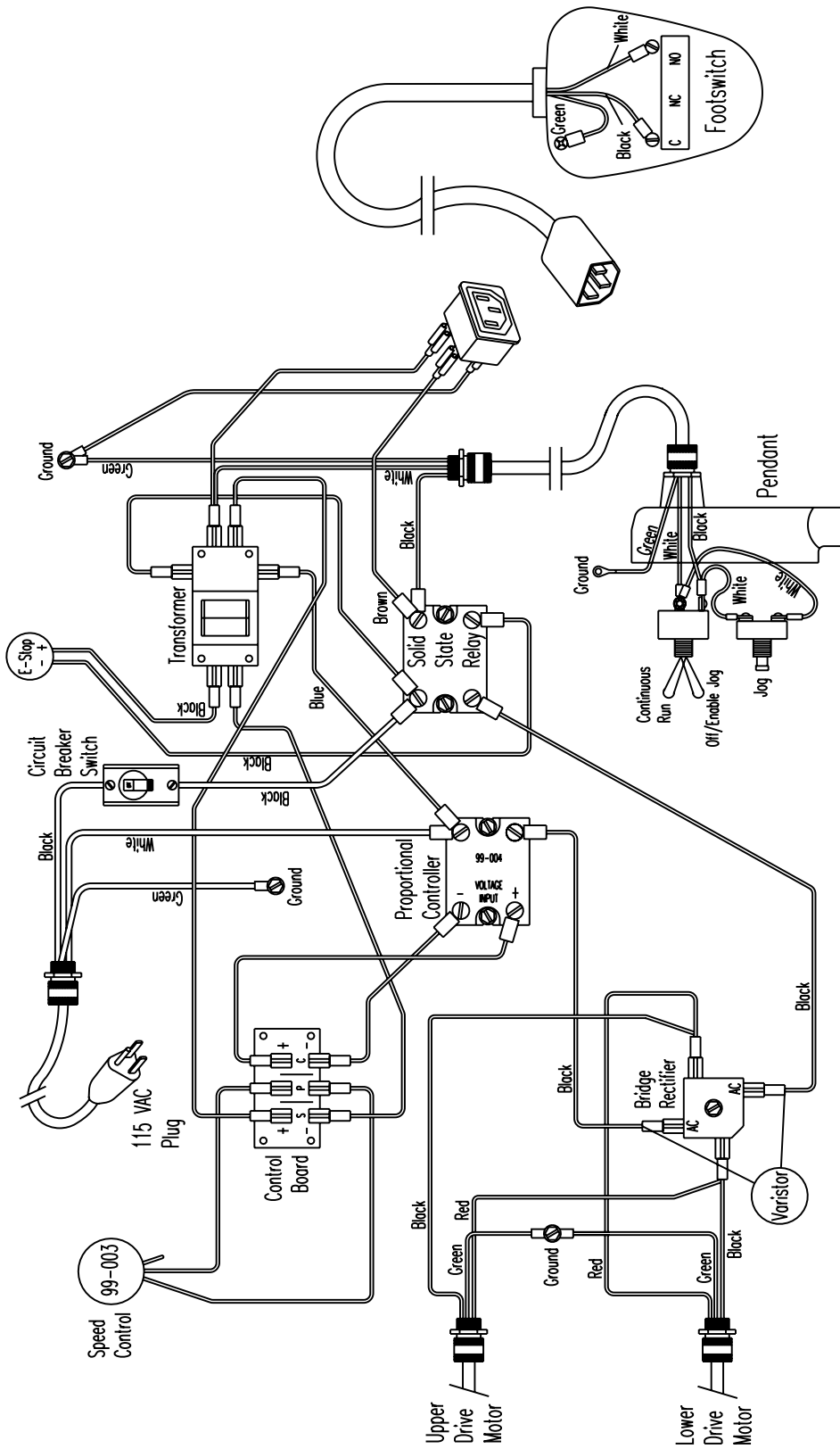
EXPLODED VIEW — ELECTRICAL BOX 2

ELECTRICAL BOX 2
—WITH CONTROL BOARD—
(ITEM #79)





ELECTRICAL SYSTEM DIAGRAM — ELECTRICAL BOX 2



WIRING DIAGRAM 2

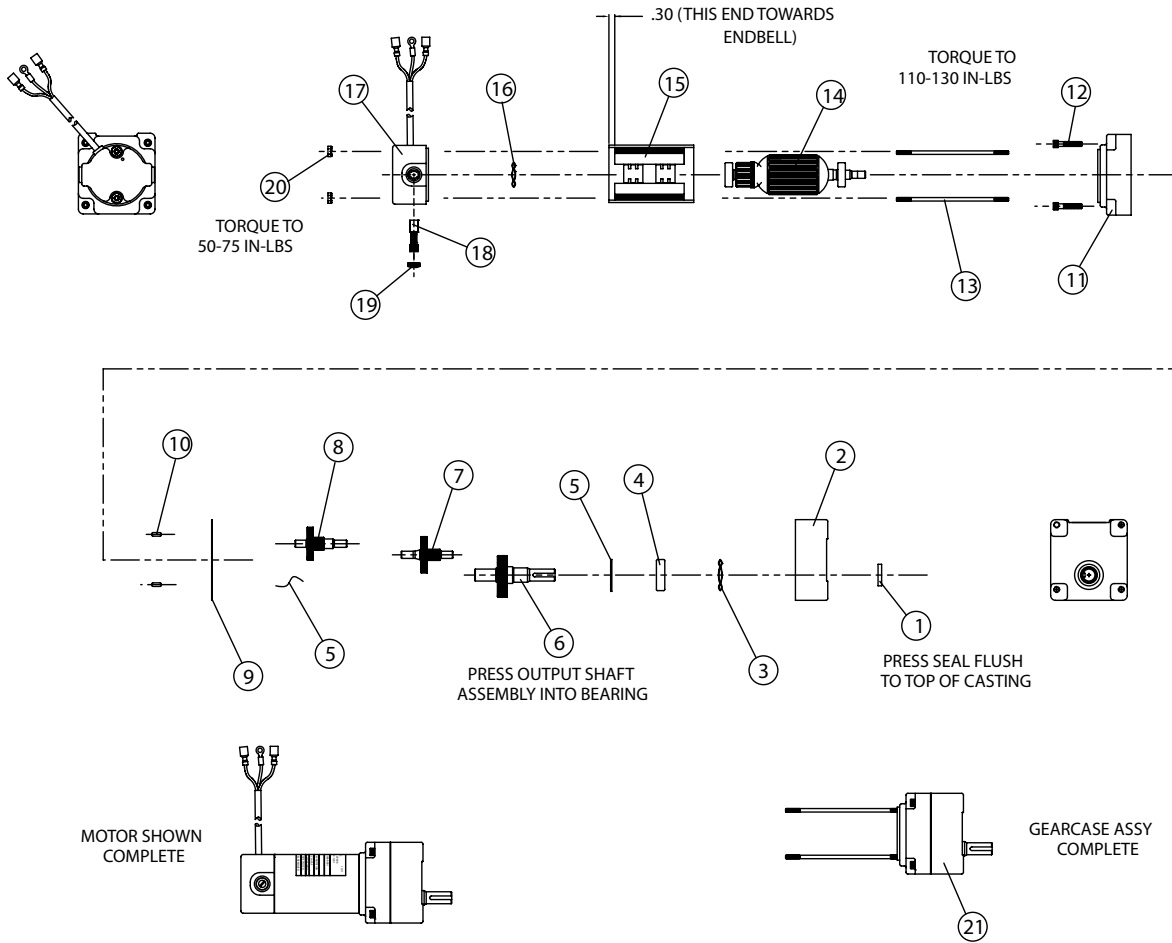


PARTS LIST – ELECTRICAL BOXES 1 AND 2

ITEM #	PART #	DESCRIPTION	QTY.
7	77-004A	SCREW – TC (8-32 x 3/8)	12
8	77-004B	SCREW – TC (8-32 x 5/8)	1
11	77-028	STRAIN RELIEF	1
12	77-028A	STRAIN RELIEF	3
14	77-036A	NUT – HEX (#6-32)	4
15	77-061	SCREW – PAN HEAD SLOT (6-32 3/8)	6
16	77-063	SWITCH GUARD	1
18	88-47	CIRCUIT BREAKER SWITCH	1
20	99-100	PROPORTIONAL CONTROLLER	1
21	99-101	BRIDGE RECTIFIER	1
22	99-102	STAND OFF – NYLON	4
23	99-117	OUTLET – FOOT SWITCH	1
24	99-120	KNOB – SPEED CONTROL	1
38	99-92	E-STOP LEGEND PLATE	1
39	99-93	E-STOP	1
40	99-94	SPEED CONTROL – 150K	1
41	99-98	TRANSFORMER	1
42	99-99	SOLID STATE RELAY	1
47	99-727	ELECTRICAL PLATE – FEEDER	1
48	99-729	TOP – ELECTRICAL BOX – FEEDER	1
56	450-20	SPACER, ELEC. BOX	3
61	9518SR-12	NUT – HEX NYLON (1/4-20)	3
63	99-105	DECAL	1
64	77-128	GUARD - PENDANT	1
65	77-451	GASKET	1
66	77-051	SWITCH - FORWARD / REVERSE	1
67	77-052	SWITCH - JOG	1
68	77-048	CONDULET - 1/2"	1
69	77-065	FISH PAPER	1
70	77-3-1A	PLUG - PLASTIC	1
71	99-115	CORD (16/3-8') - PENDANT	2
72	33-45	FOOT SWITCH	1
73	747-39	LOCKWASHER, EXT. TOOTH - #8	1
74	451-22	SCREW, PAN HEAD PHILLIPS, 10-32 x 3/8"	1
75	747-19	MAGNET - ROUND	1
76	747-34	NUT, HEX - THIN NYLON INSERT #10-32	1
77	747-40	LOCK WASHER, INT. TOOTH – 15/32"	2
78	77-072	SCREW - #8-32 x 1/2" RD. HD. PHILLIPS	2
79	99-001	CONTROL BOARD	1
80	99-003	SPEED CONTROL – 2K	1
81	99-004	PROPORTIONAL CONTROLLER – DC	1



EXPLODED VIEW/PARTS LIST – GEAR MOTOR



ITEM#	QTY	DESCRIPTION	PART#
1	1	OUTPUT SHAFT OIL SEAL	99-2A
2	1	GEARCASE COVER W/NEEDLE BEARINGS	99-2B
3	1	WAVE WASHER	99-2C
4	1	BALL BEARING	99-2D
5	1	INTERNAL SNAP RING	99-2E
6	1	OUTPUT SHAFT GEAR ASSEMBLY	99-2F
7	1	3RD STAGE GEAR/PINION ASSEMBLY	99-2G
8	1	2ND STAGE GEAR/PINION ASSEMBLY	99-2H
9	1	GEARCASE GASKET	99-2I
10	2	DOWEL PIN	99-2J
11	1	INPUT GEARCASE WITH NEEDLE BEARINGS	99-2K
12	4	SOCKET HEAD CAP SCREW	99-2L
13	2	MOTOR STUD	99-2M
14	1	ARMATURE & BEARING ASSEMBLY	99-2N
15	1	MAGNET & HOUSING ASSEMBLY	99-2O
16	1	WAVE WASHER	99-2P
17	1	COMMUTATOR END BELL ASSEMBLY	99-2Q
18	2	BRUSH ASSEMBLY	99-2R
19	2	BRUSH CAP	99-2S
20	2	10-32 "K" NUT	99-2T
21	1	GEARCASE ASSEMBLY COMPLETE	99-2U