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EGR, QC - 09074 Operators And Parts Manual



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MODEL 0009074 - ELECTRIC GREENS ROLLER QC

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STATEMENT OF FACT

You have just purchased the highest quality, most dependable, Greens Roller, on the market today. This unit has the ability to meet exact standards and perform for years with minimum downtime. HOWEVER, it cannot read nor will it understand this manual no matter how long you leave it on top of the machine.

It is your responsibility to read and understand this manual; it is also your responsibility to be certain this information is passed along to anyone who is expected to operate this equipment. Should you choose not to read, understand and pass along the information provided you, please expect equipment failure and possible injuries to persons around this equipment.

For the safety of the operator, it is **imperative** that this manual is carefully read and understood.

Once you have read this manual, it is your responsibility to be sure that all new operators read and understand this manual, especially all cautions stated.

As a manufacturer of equipment, we have a responsibility to design a safe piece of equipment. NOTE: The important safeguards and instructions in this manual are not meant to cover all possible conditions and situations that may occur. It must be understood that common sense, caution, and care are factors, which cannot be built into any product. These factors must be supplied by the person(s) caring for and operating this equipment.

ONLY YOU CAN PREVENT ACCIDENTS!!

MACHINE REGISTRATION

MANUFACTURED BY:	SALSCO, INC. 105 Schoolhouse Rd., Cheshire, CT 06410 800-872-5726, 203-271-1682, 203-271-2596 (Fax) sales@salsco.com www.salsco.com
THIS MANUAL COVERS MODEL(s):
	discontinue, add improvements to, or change the my time without obligation to improve existing esign or adding new parts.
	ne policy of SALSCO to update existing machines at ble, new designs will be made in such a way that
Record in the space provided below retain these numbers for future refer	the model and serial number of this unit. Please ence.
	ed WITHOUT A SERIAL NUMBER, MODEL All part numbers are listed in this manual.
Serial Number	Model Number
NOTE: Be sure to complete your wa of any warranty claims.	arranty card. This will ensure immediate processing

READ AND UNDERSTAND THIS MANUAL BEFORE STARTING THE MACHINE

Operators and Parts Manual, EGR, QC – 0009074, REV. 6-12-24

SAFETY INSTRUCTIONS

- 1. **NEVER** leave unit running while unattended.
- 2. **NEVER** park on a green for any reason.
- 3. **NEVER** go down steep hills sideways. **ALWAYS** approach hills straight on.
- 4. **NEVER** change your mind mid-way down a steep incline. Once you've started down a steep incline, change direction only with the greatest of care and gentlest touch.

OPERATING INSTRUCTIONS

- 1. Check that the unit has been serviced.
- 2. You should start unit from seated position. Just reach down to On/Off switch and turn unit on. Keep feet off pedals.
- 3. REMEMBER: RIGHT PEDAL TO GO RIGHT, LEFT PEDAL TO GO LEFT.
- 4. Once unit is running, push pedal down slowly. Unit will begin to move. Drive it out of trailer on to a grassy area.
- 5. Speed is controlled by pressure on the pedal.

HINTS:

- 1. **KEEP BOTH FEET ON PEDALS AT ALL TIMES.** By keeping your heels planted and moving your toes to change direction, you have smooth control left to right.
- 2. If you roll the same direction as green was mowed, it's easy to follow the lines. This helps a new operator do a fine job sooner.
- 3. To ensure longer life to your unit, when changing direction do so smoothly.
- 4. REMEMBER TO TURN UNIT OFF BEFORE GETTING OFF.

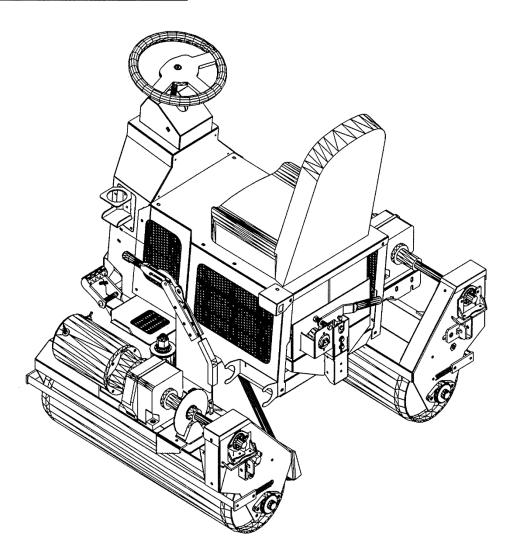
SERVICE & MAINTENANCE INSTRUCTIONS

- 1. Check all grease fittings as listed below on a **WEEKLY** basis, and grease as necessary. (Add grease till grease leaks slightly from fitting.)
 - Bearings on roll housings Quantity 4
 - Pivot bearing on main housing Quantity 2
 - U-Joint on steering shaft Quantity 1
- After approximately 1 WEEK of use, and then every 2 WEEKS thereafter, check drive chains. Adjust chain using the idler sprocket shown on drawing #6 page 14. Reference "How to Install Electric Motor, Gearbox, and Final Drive" page 33 items #16 & #17.
- 3. After approximately **1 WEEK** of use, **and then every 2 WEEKS thereafter**, check chains on steering. Adjust as needed.
- 4. Pivot for articulating steering should be tight, **with no play**, much the same as wheel bearings on cars.
- 5. **Keep unit clean**. Should rust form on rolls, simply drive the unit on a rough area till rolls are clean.
- 6. Battery Maintenance/Charging. SEE MATERIALS/MANUAL PROVIDED BY TROJAN, ENCLOSED IN THE MANUAL PACKAGE YOU RECEIVED WITH THE ROLLER.

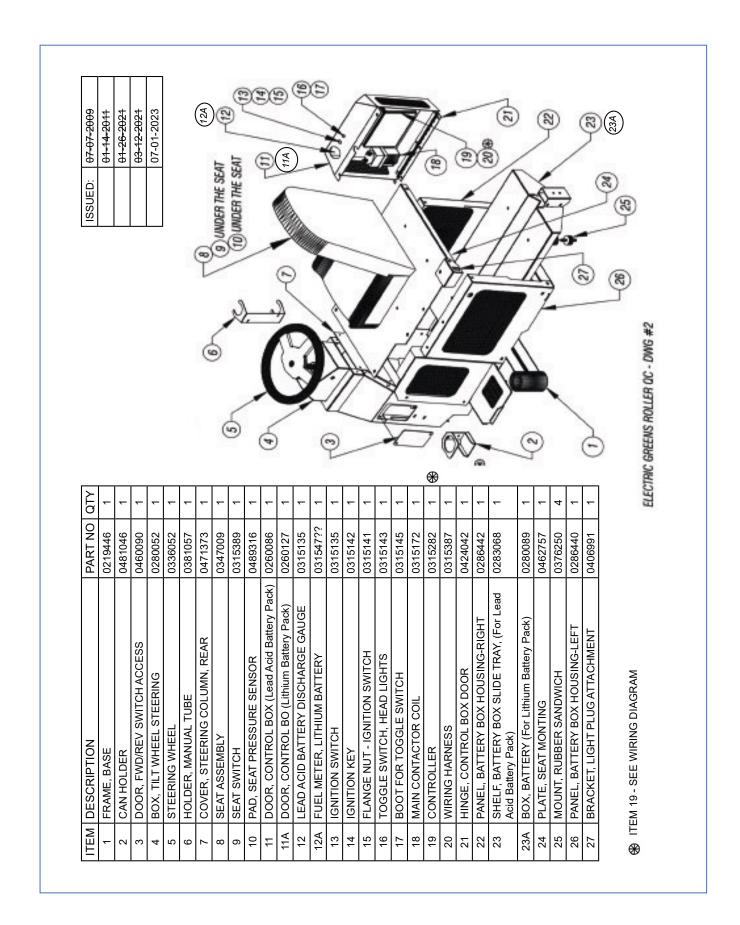
SAFETY IS A PRIME CONCERN AT SALSCO AND THE SAFETY DECALS ON YOUR MACHINE ARE A HIGHLY VISIBLE AND CONSTANT REMINDER TO ALL OPERATORS. REPLACEMENT SAFETY DECALS MAY BE OBTAINED BY CALLING SALSCO @ 1-800-872-5726, OR THE DEALER IN YOUR AREA.

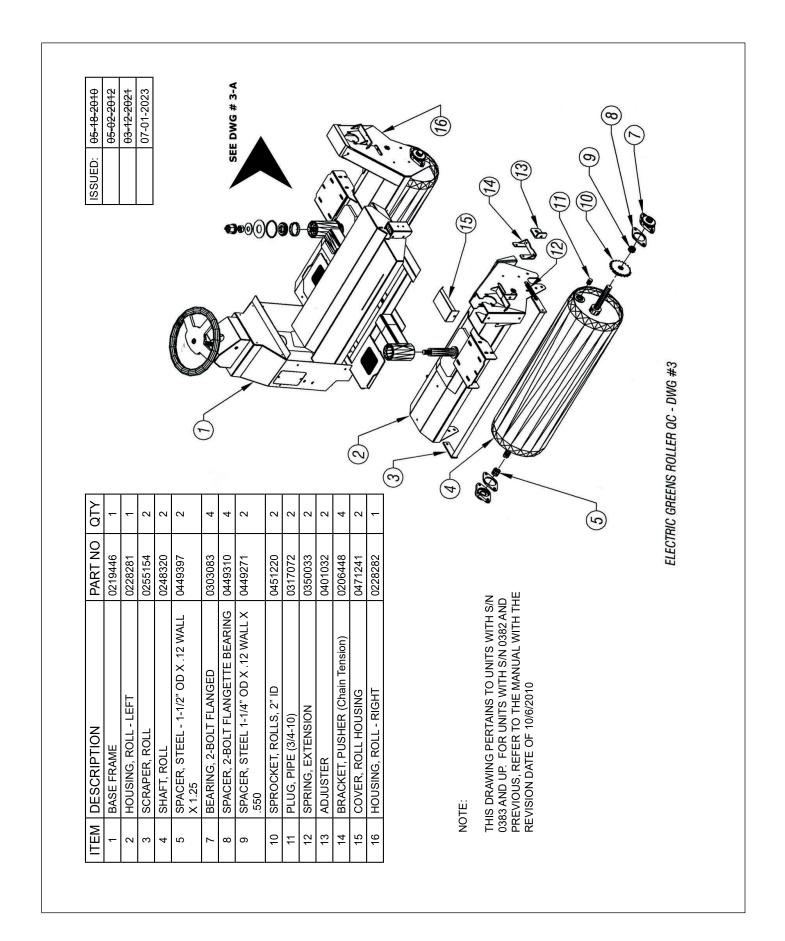
ITEM	DESCRIPTION	PART NO
	ELECTRIC GREENS ROLLER QC ASSY	0009074

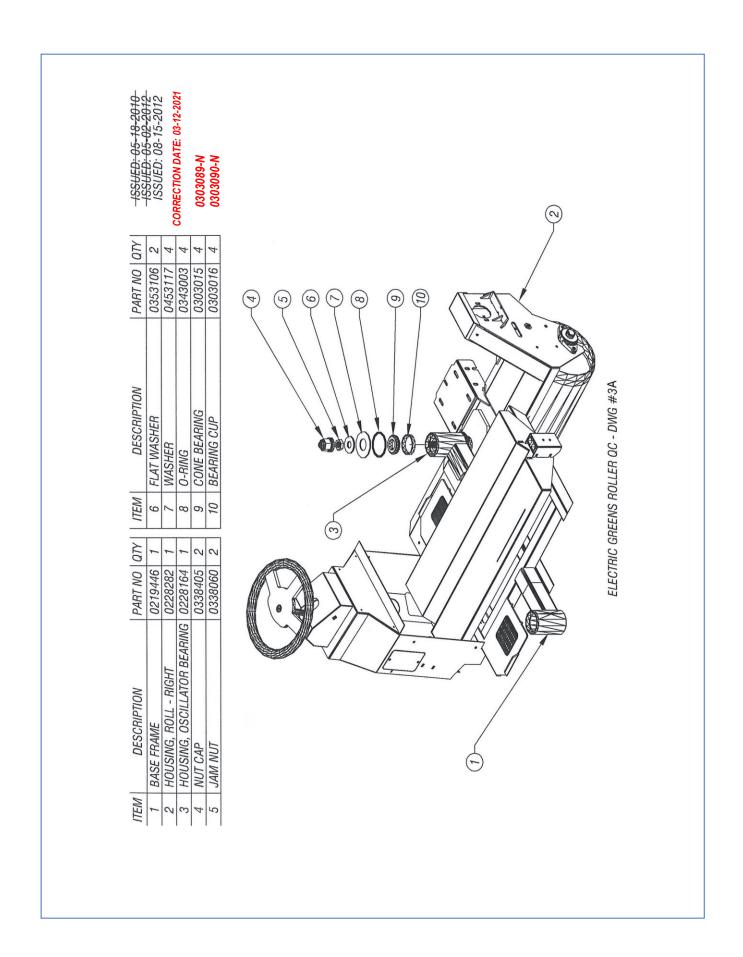
ISSUED: 03-25-2009



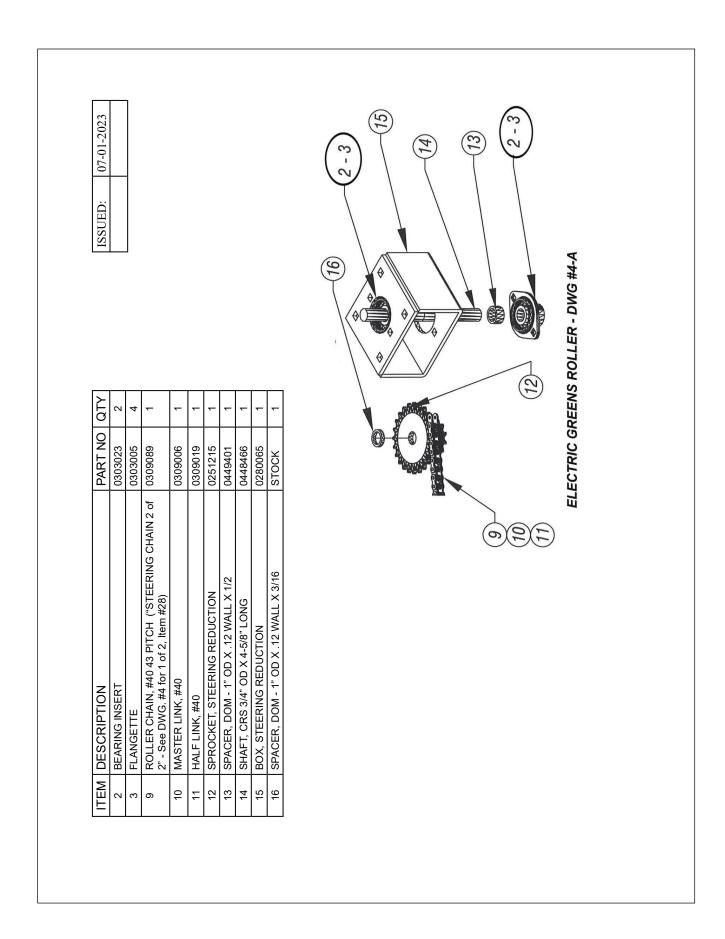
ELECTRIC GREENS ROLLER QC - DWG #1

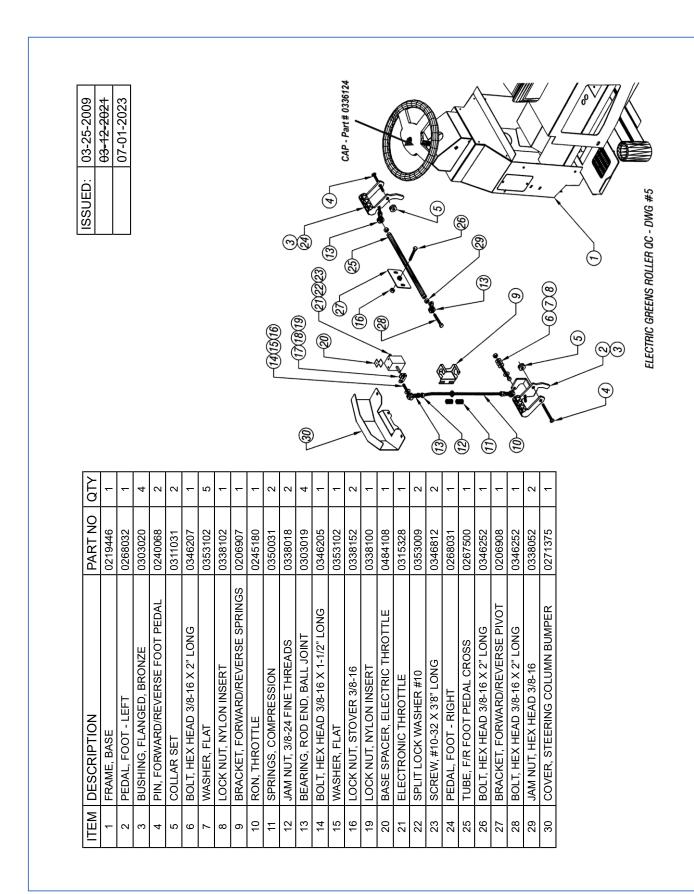




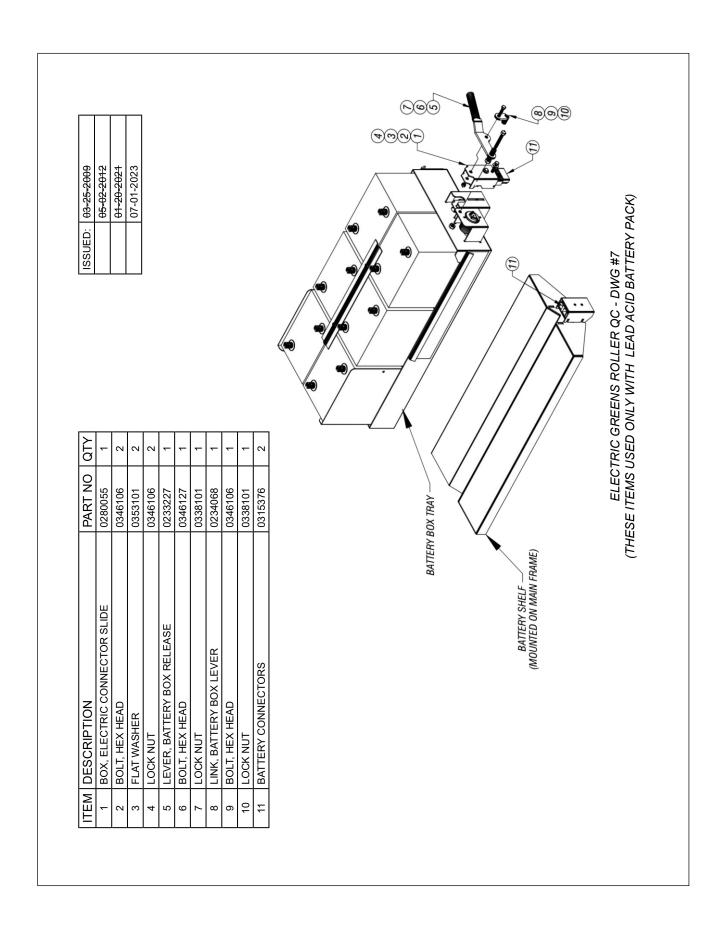


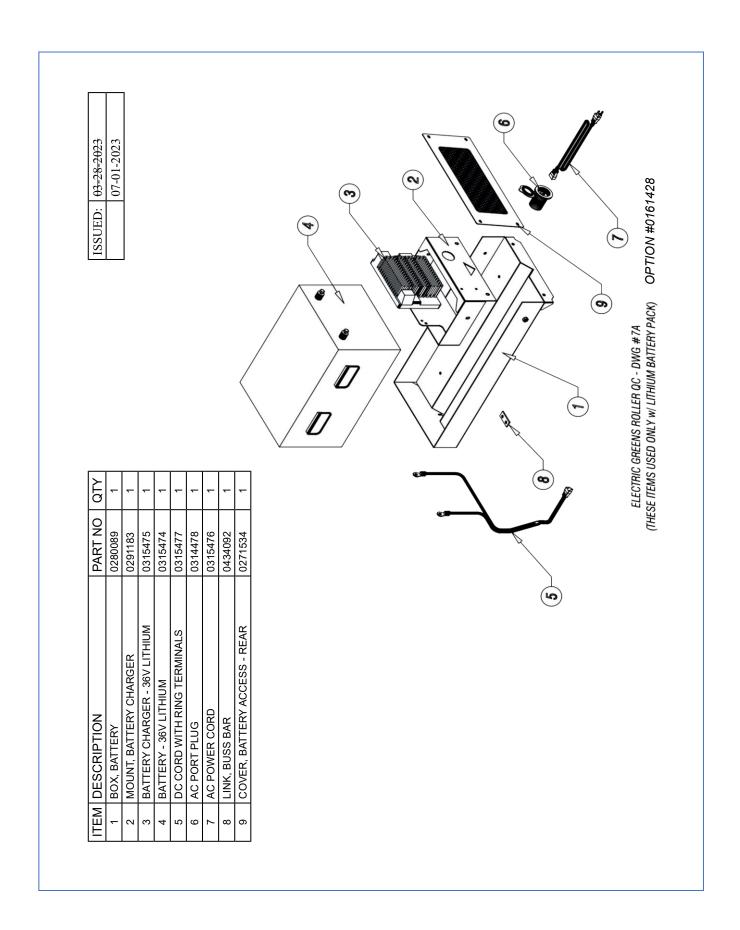
PART NO QTY. ISSUED:	VER LOCKING 0467491 1	0346458 1		90° (Bulb Only) 0315343 2	S 0315136 2 :4 X 3/4" ID 0351187 1		WHEEL 0336124 1	1	39	14		41 31		(30/29/28)															
1 DESCRIPTION	TUBE, HANDLE LEVER LOCKING	CARRIAGE BOLT	HEADLIGHT BOX	BULB PIGIAIL HEADLIGHT BULB 90° (Bulb Only)	BULB COVER/LENS SPROCKET, 40BS24 X 3/4" ID	ROLLER CHAIN, #40, 41 PITCH	CAP, STEERING WHEEL KEY, 3/16" SQUARE X 1" LONG		NOTE: SEE DWG. #4-A FOR DETAIL OF STEER-	ING ASSEMBLY PARTS.			0	(K)			to			X						<i>-</i>	/8 <i>t</i>)		(A)
ATY TEM	1 31	1 32	2 33	1 35	1 36 E		2 39 4	1	1 NOTE: S FOR DE	4 ING ASS	2	-	2	2	1	2	2	-	-	2	-	2	2	2	2	1	(1 (23/22/21)	T.
PART NO QTY ITEM	0354142 1 31	0265113 1 32	<u>_</u> T	1 35		38	39	1	0248411 1 NOTE: \$		0303023 2	0206982 1	0351003 2	0431004 2	0311046 1	0303024 2	0303023 2	0309051 1	0309008 1	0309022 2	0245182 1	0353015 2	0338058 2	0303017 2	0350009 2	0206120 1	0251060 1	0309012 1 (23/22/21)	
QTY	_	_	2	DOM TUBE - 1" OD X 1/4 WALL X 2.000" 1 34 35 35	1 36	38	035333 2 41	_	-	4								ROLLER CHAIN, #50, 63 PITCH 0309051 1	MASTER LINK, #50 0309008 1		TIE ROD, STEERING 0245182 1					-	-	-	

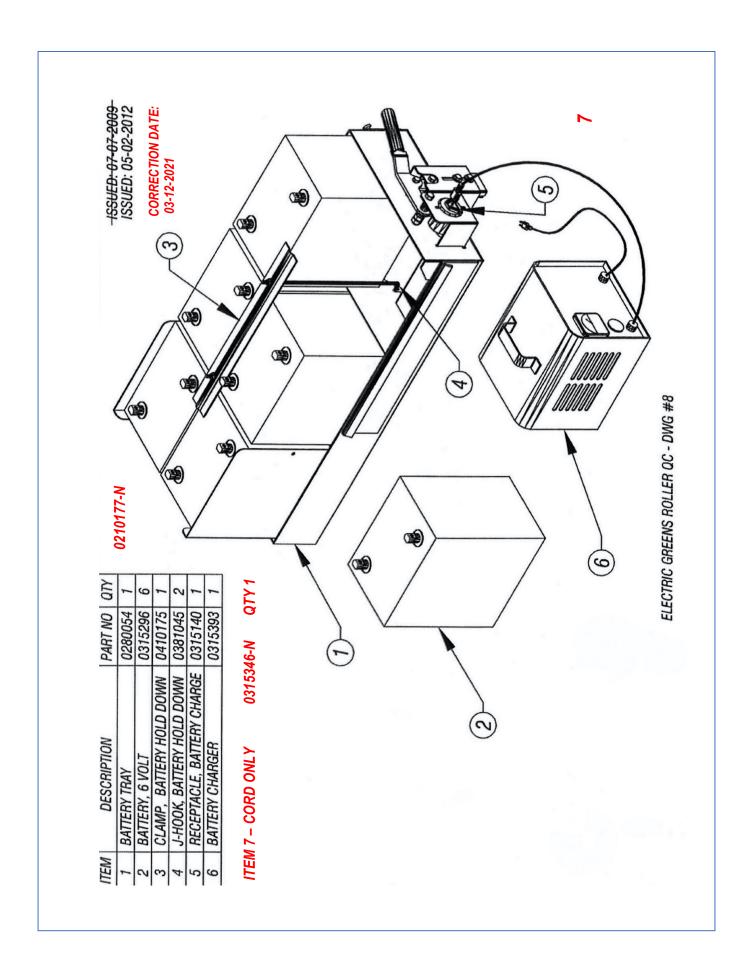


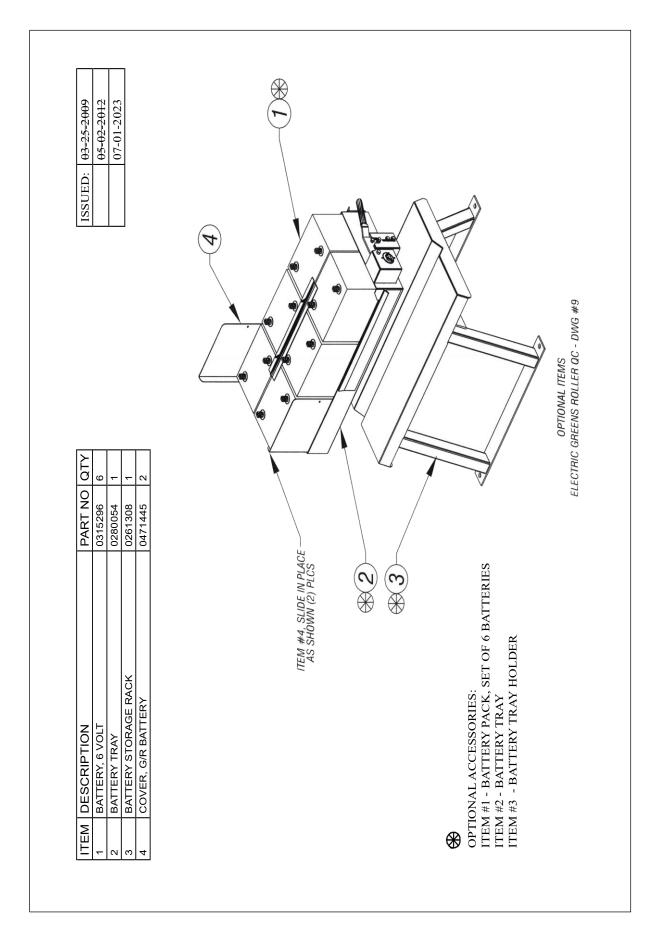


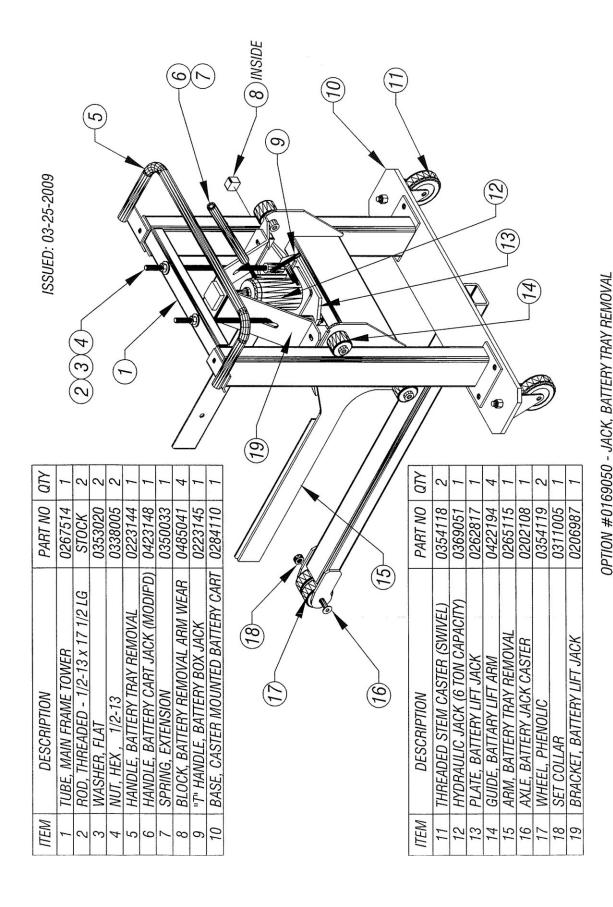
ISSUED: 05-18-2010	09-21-2011	08-15-2012	03-12-2021	07-01-2023										(32)		(29/30/31)		887			25/20			/.0.\	(21)		61)	(18)						(13(14)
NOTES:	ITEM #4 - MUST BUY 2 AS THEY	NEED TO BE IDENTICAL.		MITH S/N 0383 AND LIP FOR LINITS	WITH S/N 0382 AND PREVIOUS,	REFER TO THE MANUAL WITH THE	REVISION DATE OF 10/6/2010.								34)	(33)									6554								(123)	ELECTRIC GREENS ROLLER QC - DWG #6
QTY	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	9	2	2	4	2	1	1	8	4	1	1	1	_	_	2	2	1	1	_
PART NO	0337345	0431025	0307037	0363018	0363015	0363016	0313080	0431122	0329086	0448220	0309090	80060£0	0451220	0351213	0346517	0353110	0338105	0351107	0311010	0351217	0276544	0462342	0366002	0303007	0336126	0336128	0434060	0309078	0346205	0353111	0338052	0315072	0406711	0333004
TEM DESCRIPTION	MOTOR, ELECTRIC, DC	KEY, (6mm)	BUSHING, GEARBOX/MOTOR	GEARBOX (SEE NOTES)	GEARBOX SEAL - HIGH SPEED	GEARBOX SEAL - LOW SPEED	COUPLER, SPLIT	KEY, STEEL - 1/4' X 1/4" X 3" LONG	DISC & HUB	SHAFT, DRIVE	ROLLER CHAIN	MASTER LINK	SPROCKET, ROLLS, 2" ID TAPERED BORE	BUSHING	BOLT, HEX HEAD, 5/8-11 X 2" LONG	WASHER, FLAT 5/8" ID	LOCK NUT, 5/8-11	SPROCKET, IDLER	COLLAR, SINGLE SPLIT 1" ID	SPROCKET, DRIVE SHAFT	MOUNT, BRAKE CALIPER	PLATE, BRAKE CALIPER CLAMP	FLANGETTE	BEARING INSERT (1" ID)	DISCO CALIPER BRAKE ASSEMBLY	PUCK KIT, (REPLACEMENT)	BRAKE, CHAIN LINK	BRAKE CHAIN, 27 PITCH	BOLT, BRAKE CHAIN GUIDE	FLAT WASHER	JAM NUT	SNAP SWITCH - HAND BRAKE	BRACKET, EMERGENCY BRAKE LEVER	LEVER, PARKING BRAKE
ITEM	1	2	3	4	2	9	7	8	6	9	7	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	78	59	30	31	32	33	34





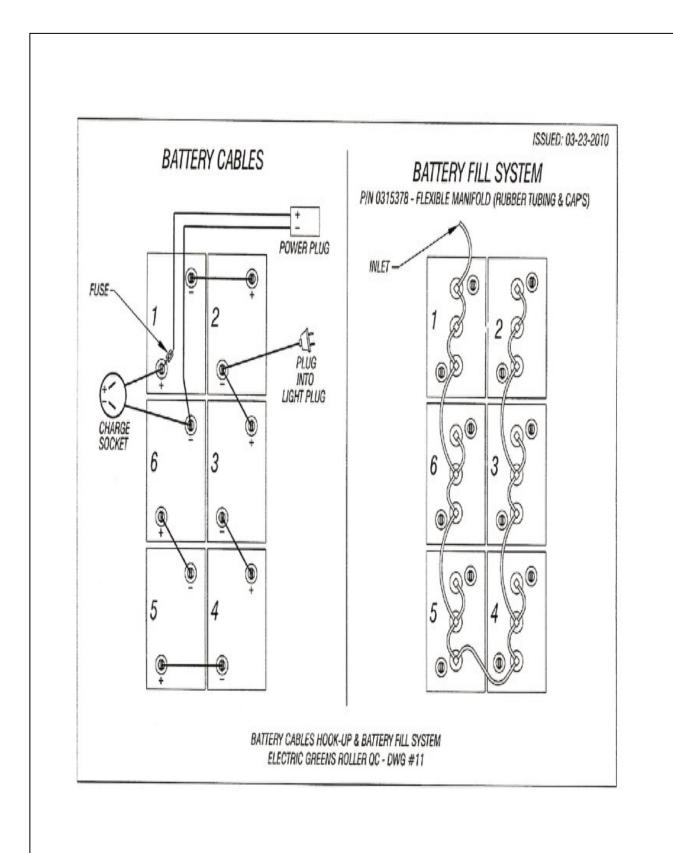




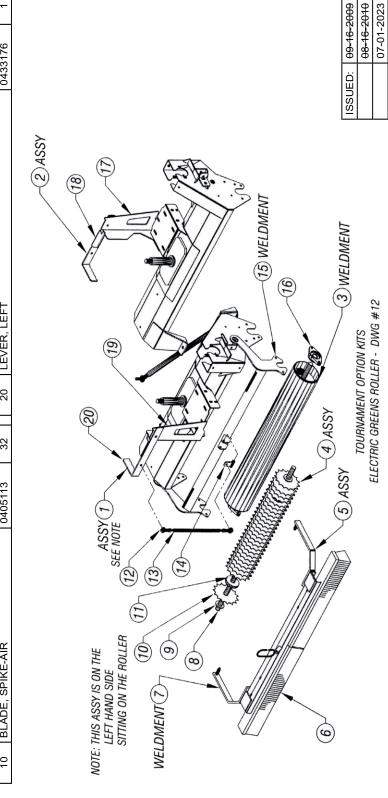


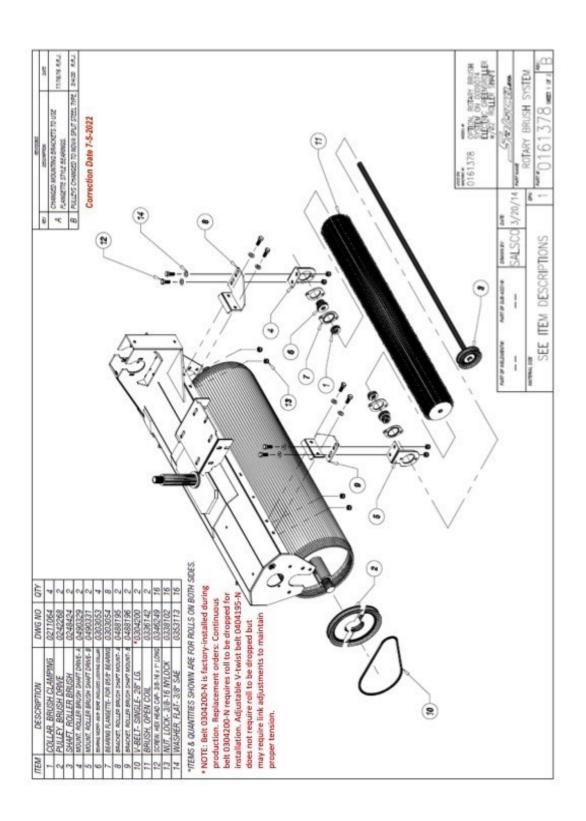
Operators and Parts Manual, EGR, QC - 0009074, REV. 6-12-24

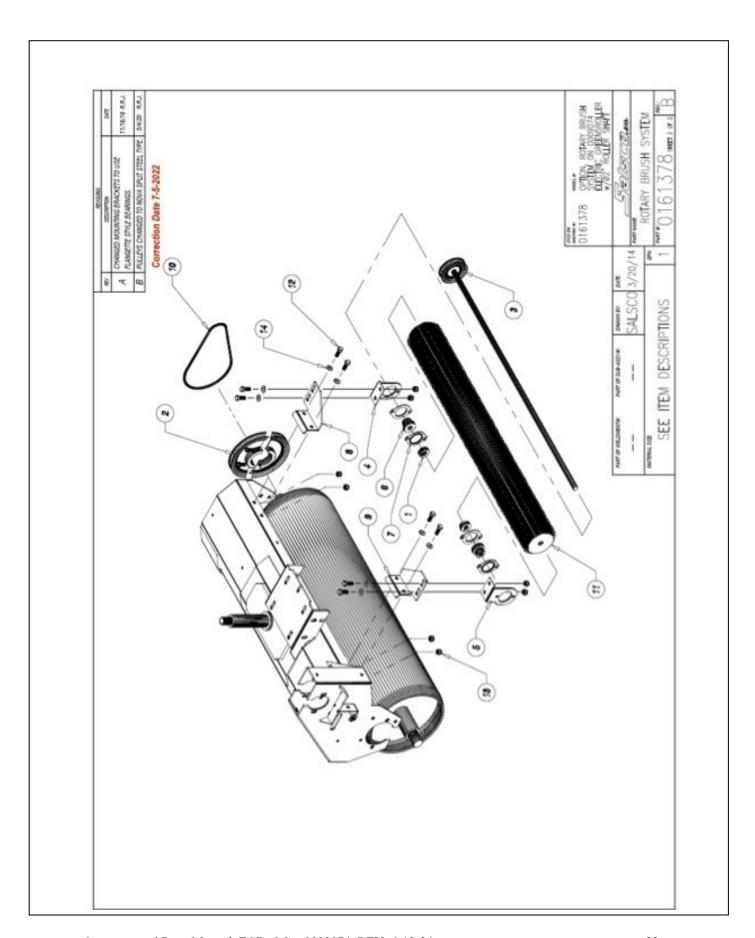
ELECTRIC GREENS ROLLER QC - DWG #10

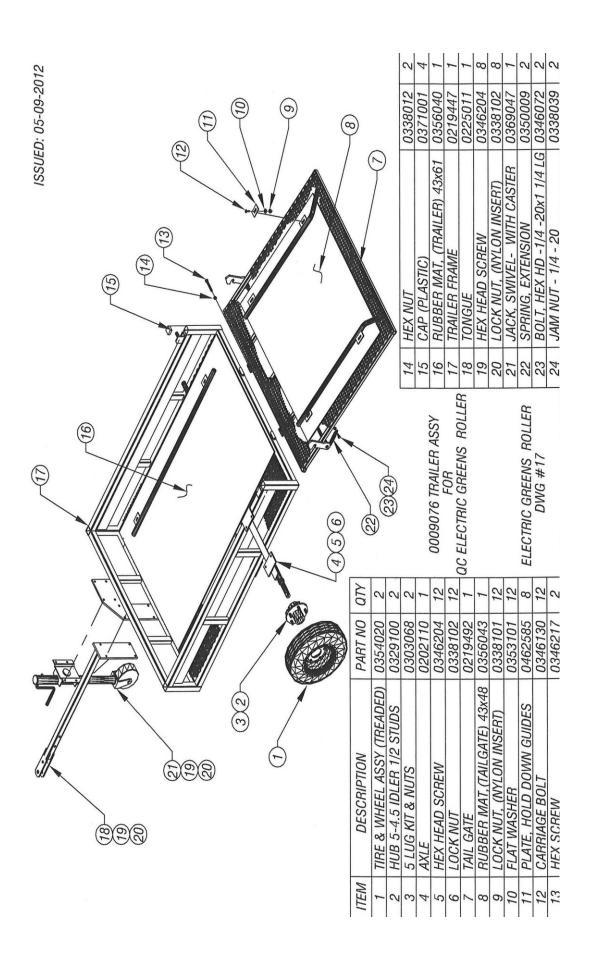


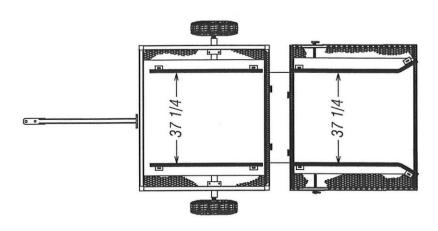
ITEM	TEM DESCRIPTION	PART NO QTY	QTY	ITEM	ITEM DESCRIPTION	PART NO QTY	QTY
1	KIT - ATTACHMENT FRAME, LEFT	0161237	1	11	SPACER, SPIKE-AIR BLADES	0449207	64
2	KIT - ATTACHMENT FRAME, RIGHT	0161238	1	12	BEARING, ROD END	0303019	2
3	SHAFT, TOURNAMENT ROLL	0248229	1	13	ROD, ARM LIFTING	0245158	1
4	SPIKE-AIR ASSEMBLY	0161225	1	14	BRACKET, LIFTING ARM SWIVEL	0206783	1
2	BRUSHASSEMBLY	0161395	1	15	ARM, TOURNAMENT ROLL & SPIKE-AIR	0265102	~
9	BRUSHES	0909880	2	16	BEARING, 2-BOLT FLANGE	9008080	2
7	FRAME, BRUSH KIT	0219542	1	17	BRACKET, TOURNAMENT ROLL & SPIKE-AIR, RIGHT 0406710	0406710	1
8	SHAFT, CRS ROD - 1" DIA. X 39" LONG	0448226	1	18	LEVER, RIGHT	0433179	_
6	WASHER, FLAT USS - 1"ID	0353150	2	19	BRACKET, TOURNAMENT ROLL & SPIKE AIR, LEFT	0406801	1
10	10 BLADE, SPIKE-AIR	0405113	32	20	20 LEVER, LEFT	0433176	7



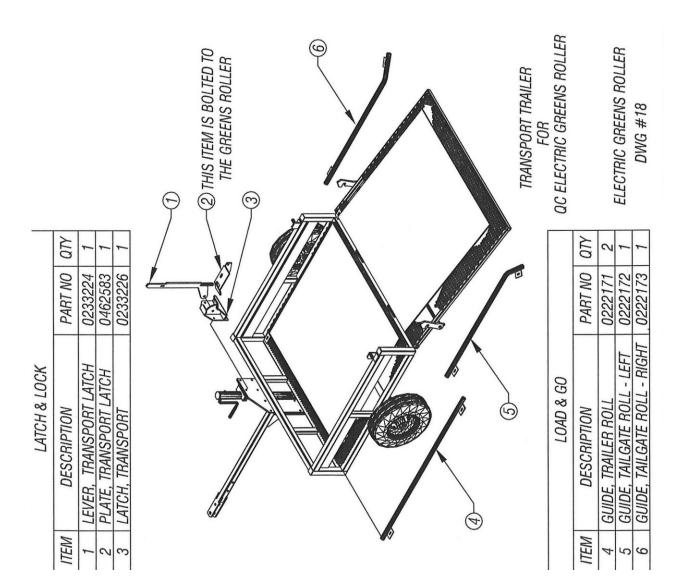








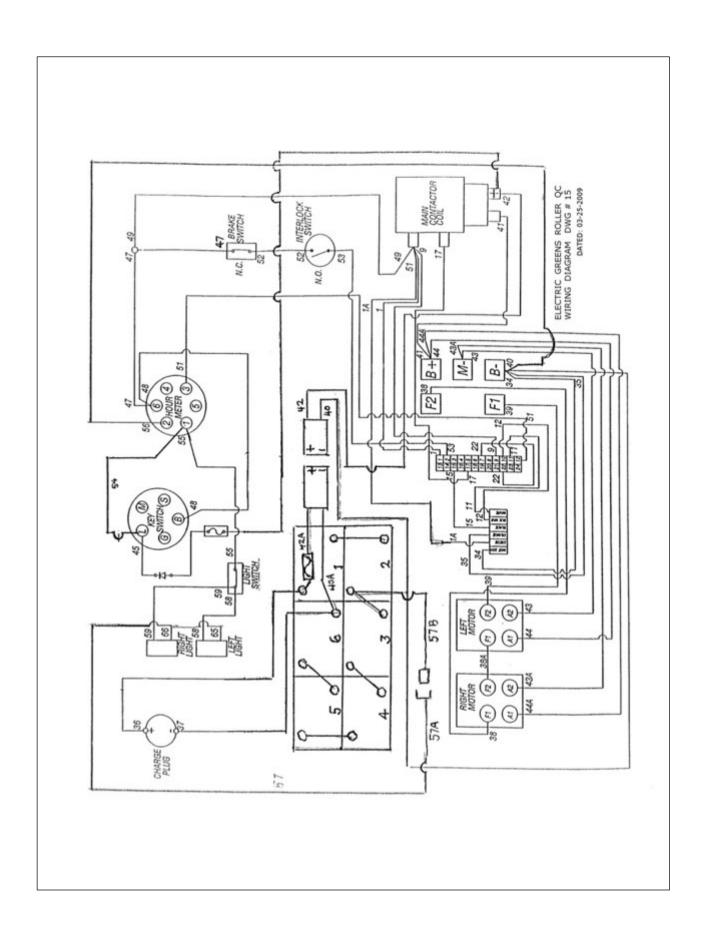
TOP VIEW LOCATION OF ROLLER GUIDES



DATED: 03-25-2009

				DATED	: 03-25-2009
ITEM	LOCATION	COLOR	GA.	LG.	TERMINALS
44	CONT. (B+) TO MOTOR (L) A1	RED	4	61	5/16" T/L - E/E
44A	CONT. (B+) TO MOTOR (R) A1	RED	4	43	5/16" T/L - E/E
43	CONT. (M-) TO MOTOR (L) A2	BLK	4	59	5/16" T/L - E/E
43A	CONT. (M-) TO MOTOR (R) A2	BLK	4	41	5/16" T/L - E/E
41	MCC TO CONT. (B+)	RED	4	17	5/16" T/L - 3/8" T/L
42	MCC TO BATT POWER PLUG	RED	4	40 1/2	3/8" T/L - O/E
40	CONT. (B-) TO POWER PLUG (-)	BLK	4	46	5/16" T/L - O/E
40A	POWER PLUG TO BATTERY #6 (-)	BLK	4	25	Q.D. LUG - 5/16 T/L
42A	POWER PLUG TO BATTERY #1 (+)	RED	4	20	Q.D. LUG - 5/16 T/L
60	BATTERY #1(-) TO BATTERY #2 (+)	RED	4	6 1/2	5/16" T/L - E/E
61	BATTERY #2(-) TO BATTERY #3 (+)	RED	4	6	5/16" T/L - E/E
62	BATTERY #3(-) TO BATTERY #4 (+)	RED	4	6	5/16" T/L - E/E
63	BATTERY #4(-) TO BATTERY #5 (+)	RED	4	6 1/2	5/16" T/L - E/E
64	BATTERY #5(-) TO BATTERY #6 (+)	RED	4	6	5/16" T/L - E/E
38	CONT. (F2) TO MOTOR (R) (F1)	RED	10	43	1/4" R/T - E/E
38A	MOTOR (R) (F2) TO MOTOR (L) (F1)	RED	10	40	1/4" R/T- E/E
39	CONT. (F1) TO MOTOR (L) (F2)	BLK	10	55	1/4" R/T - E/E
36	CHG. PLUG TO POWER FUSE	RED	10	18 1/2	B/S - #10 R/T
37	CHG. PLUG TO BATT. #6 (-)	BLK	10	26	B/S - #10 R/T
34	6 PIN WHT/BRN TO CONT. (B-)	WHT	20	74	9 PIN - 5/16" R/T
35	6 PIN ORANGE TO CONT. (B-)	WHT	20	74	9 PIN - 5/16" R/T
65	BATTERY B/S#57 (-) TO LIGHT (L) (-)	BLK	14	41	5/16" R/T - O/E
66	BATTERY B/S#57 (-) TO LIGHT (R) (-)	BLK	14	6 1/2	5/16" R/T - O/E
57	QUICK DISCONNECT TO B/S #'S 65 & 66	BLK	12	71	1/4 Q.D.x B/S
57A	#57 QUICK DISCONNECT	BLK	10	12	3 PR SOCKET x Q.D.
57B	#57A SOCKET TO BATT#2 (12V-)	BLK	10	36	3 PR PLUG x 5/16 R/T
45	(FUSE & DIODE IN LINE) K/S (L) TO MCC+	RED	14	3 1/2	1/4" F/S - 3/8" R/T
15	6 PIN BLK TO 24 PIN (#15)	WHT	20	65 1/2	9 PIN - MOLEX
11	6 PIN WHT TO 24 PIN (#11)	WHT	20	65 1/2	9 PIN - MOLEX
12 17	6 PIN BLK/WHT TO 24 PIN (#10)	WHT	20	65 1/2	9 PIN - MOLEX
	24 PIN (#17) TO MCC	WHT	20	15	MOLEX - 1/4" F/S
	24 PIN (#1) TO MCC	WHT	20	17 1/2	MOLEX - 1/4" F/S
1A	24 PIN (#9) TO MCC	WHT	20	17 1/2	MOLEX - 1/4" F/S
	6 PIN (GRN) TO MCC	WHT	20	68	9 PIN - 1/4" F/S
	24-PIN #12 TO H/M #3 #47 B/S TO BRAKE SWITCH	WHT	20	16	MOLEX-1/4" F/S
	#47 6/3 TO BRAKE SWITCH H/M (#6) #48 MATE TO B/S TO BRK SW	RED	14	17	B/S - #8 R/T
48	K/S B TO HM (#6) #47 MATE	RED	14	68	1/4" F/S - B/S
	BRAKE SWITCH TO SEAT SWITCH	RED	14	6	1/4" F/S - E/E
	24 PIN (#2) TO SEAT SWITCH	WHT	20	105	1/4" F/S - #8 R/T
54	H/M (#1) TO K/S (L) #45MATE	WHT	20	53 1/2	MOLEX - 1/4" F/S
	LIGHT SWITCH TO H/M (#1) #54 MATE	RED	14	5	1/4" F/S - 1/4" F/S
58	LIGHT SWITCH TO HIM (#1) #54 MATE LIGHT SWITCH TO LIGHT (L)(+)	RED	14	7	#8 R/T - 1/4" F/S
	LIGHT SWITCH TO LIGHT (L)(+) LIGHT SWITCH TO LIGHT (R) (+)	RED	14	52	#8 R/T - O/E
	H/M (#2) TO CONTROLLER (B-)	RED	14	36	#8 R/T - O/E
22	24 PIN LOOP (#7) TO (#22) LOOP	BLK WHT	14	24	1/4" F/S - 5/16" R/T
L	0315387 REVISIONS PER LEUSCO		20	3 1/2	MOLEX - MOLEX

0315387 REVISIONS PER J FUSCO 12MAR09



LED DIAGNOSTICS

A Status LED is built into the 1244 controller. It is visible through a window in the label on top of the controller. This Status LED displays fault codes when there is a problem with the controller or with the inputs to the controller. During normal operation, with no faults present, the Status LED flashes steadily on and off. If the controller detects a fault, a 2-digit fault identification code is flashed continuously until the fault is corrected. For example, code "3,2"—welded main contactor—appears as:

¤	Ø	a	p	¤	 a			n	¤	 ¤	¤	¤	1	1	¤	
	(3,	2)			(3,2)			(3,	2)			

The codes are listed in Table 6.

Table 6 STATUS LED FAULT CODES										
LED CO	DES	EXPLANATION								
LED off solid on		no power or defective controller controller or microprocessor fault								
0,1	■ ¤	controller operational; no faults								
1,1 1,2 1,3 1,4	a aaaa a aa a aa a a	[not used] hardware failsafe fault M-, current sensor, or motor fault [not used]								
2,1 2,2 2,3 2,4	aa aaaa aa aa aa aa aa a	throttle fault static return to off (SRO) fault high pedal disable (HPD) fault emergency reverse circuit check fault								
3,1 3,2 3,3 3,4	aaa aaaa aaa aaa aaa aa aaa a	contactor driver overcurrent welded main contactor precharge fault missing contactor, or main cont. did not close								
4,1 4,2 4,3 4,4	aaaa aaaa aaaa aaa aaaa aa aaaa a	low battery voltage overvoltage thermal cutback, due to over/under temp. anti-tiedown fault								

NOTE: Only one fault is indicated at a time, and faults are not queued up. Refer to the troubleshooting chart (Table 5) for suggestions about possible causes of the various faults.

Table 5 TROUBLESHOOTING CHART												
LED CODE	PROGRAMMER LCD DISPLAY	FAULT CATEGORY	EXPLANATION	POSSIBLE CAUSE								
1,2	HW FAILSAFE1-2-3	1	self-test or watchdog fault	1. Controller defective.								
	M- SHORTED	1	internal M- short to B-	1. Controller defective.								
1,3	FIELD OPEN	1	field winding fault	Motor field wiring loose. Motor field winding open.								
	ARM SENSOR	1	armature current sensor fault	1. Controller defective.								
	FLD SENSOR	1	field current sensor fault	1. Controller defective.								
2,1	THROTTLE FAULT 1	1	wiper signal out of range	 Throttle input wire open. Throttle input wire shorted to B+ or B 								
27, 1	THROTTLE FAULT 2	1	pot low fault	Throttle pot defective. Wrong throttle type selected.								
2,2	SRO	3	SRO fault	Improper sequence of KSI, interlock, and direction inputs. Wrong SRO type selected. Interlock or direction switch circuit open. Sequencing delay too short.								
2,3	HPD	3	HPD fault	 Improper seq. of direction and throttle inputs. Wrong HPD type selected. Misadjusted throttle pot. Sequencing delay too short. 								
2,4	BB WIRING CHECK	1	emergency reverse wiring fault	Emergency reverse wire open. Emergency reverse check wire open.								
3,1	CONT DRVR OC	1	cont. driver output overcurrent	1. Contactor coil shorted.								
3,2	MAIN CONT WELDED	1	welded main contactor	Main contactor stuck closed. Main contactor driver shorted.								
3,3	PRECHARGE FAULT	1	internal voltage too low at startup	Controller defective. External short, or leakage path to B- on external B+ connection.								
	MISSING CONTACTOR	1	missing contactor	1. Any contactor coil open or not connected.								
3,4	MAIN CONT DNC	1	main contactor did not close	1. Main contactor missing or wire to coil open.								
4,1	LOW BATTERY VOLTAGE	2	low battery voltage	Battery voltage <undervoltage battery="" controller="" corroded="" cutback="" limit.="" loose="" or="" td="" terminal.="" terminal.<=""></undervoltage>								
4,2	OVERVOLTAGE	2	overvoltage	 Battery voltage > overvoltage shutdown limit. Vehicle operating with charger attached. Battery disconnected during regen braking. 								
4,3	THERMAL CUTBACK	2	over-/under-temp. cutback	 Temperature >85°C or < -25°C. Excessive load on vehicle. Improper mounting of controller. Operation in extreme environments. 								
4,4	ANTI-TIEDOWN	3	Mode 2 or Mode 4 selected at startup	Mode switches shorted to B+. Mode switches "tied down" to select Mode 2 or Mode 4 permanently.								

FAULT OUTPUT DRIVERS

The 1244 controller provides two fault output drivers designed for use with a display to provide fault information to the operator. The fault output drivers, Fault 1 (Pin 5) and Fault 2 (Pin 6), are open collector drivers rated at 10 mA maximum current at the nominal battery voltage. They are intended to drive display LEDs but can be used to drive anything that operates within the drivers' limits. These outputs can be configured to display faults in Fault Code format or Fault Category format—see Section 3, page 42.

In <u>Fault Code</u> format, the two fault outputs operate independently. The Fault 1 line flashes the same codes, at the same time, as the controller's built-in Status LED (see Table 6). This line can therefore be used to drive an LED located on the display panel in order to provide fault code information directly to the operator. The Fault 2 line pulls to ground (B-) when a fault is present; it can be used to drive a remote LED that simply indicates whether or not there is a fault. When no faults are present, both of the fault lines are in their normal state (high).

In <u>Fault Category</u> format, the two fault outputs together define one of four fault categories, as listed in Table 7. When a fault occurs, the Fault 1 and Fault 2 lines (Pins 5 and 6) go to the state indicating the category of the particular fault: **LOW**/HIGH, HIGH/**LOW**, or **LOW**/**LOW**. When the fault is cleared, the fault ouputs return to their normal state (i.e., HIGH/HIGH).

	T	able 7 F	AULT CATEGORY CODES
FAULT 1 DRIVER	FAULT 2 DRIVER	FAULT CATEGORY	POSSIBLE FAULT
HIGH	HIGH	0	(no known faults)
LOW	HIGH	1	Hardware failsafe fault M-, current sensor, or motor fault Throttle fault Emergency reverse wiring fault Contactor or output driver fault Precharge fault
HIGH	LOW	2	Low battery voltage Overvoltage Thermal cutback, due to over/under temp
LOW	LOW	3	Static return to off (SRO) fault High pedal disable (HPD) fault Anti-tiedown fault

MAINTENANCE

There are no user serviceable parts in the Curtis PMC 1244 controller. No attempt should be made to open, repair, or otherwise modify the controller. Doing so may damage the controller and will void the warranty.

It is recommended that the controller be kept clean and dry that its diagnostics history file be checked and cleared periodically.

CLEANING

Periodically cleaning the controller exterior will help protect it against corrosion and possible electrical control problems created by dirt, grime, and chemicals that are part of the operating environment and that normally exist in battery powered systems.



When working around any battery powered vehicle, proper safety precautions should be taken. These include, but are not limited to: proper training, wearing eye protection, and avoiding loose clothing and jewelry.

Use the following cleaning procedure for routine maintenance. Never use a high pressure washer to clean the controller.

- 1. Remove power by disconnecting the battery.
- Discharge the capacitors in the controller by connecting a load (such as a contactor coil or a horn) across the controller's B+ and B- terminals.
- Remove any dirt or corrosion from the power and signal connector areas.
 The controller should be wiped clean with a moist rag. Dry it before reconnecting the battery.
- Make sure the connections are tight. Refer to Section 2, page 7, for maximum tightening torque specifications for the battery and motor connections.

DIAGNOSTIC HISTORY

The handheld programmer can be used to access the controller's diagnostic history file. Connect the programmer, press the MORE INFO key, and then—while continuing to hold the MORE INFO key—press the DIAGNOSTICS key. The programmer will read out all the faults that the controller has experienced since the last time the diagnostic history file was cleared. The faults may be intermittent faults, faults caused by loose wires, or faults caused by operator errors. Faults such as contactor faults may be the result of loose wires; contactor wiring should be carefully checked. Faults such as HPD or overtemperature may be caused by operator habits or by overloading.

After a problem has been diagnosed and corrected, it is a good idea to clear the diagnostic history file. This allows the controller to accumulate a new file of faults. By checking the new diagnostic history file at a later date, you can readily determine whether the problem was indeed fixed.

To clear the diagnostic history file, go to the Special Program Menu by pressing and holding the MORE INFO key, and then pressing the PROGRAM key. Scroll through the menu until "Clear Diagnostic History" is the top line in the display, and then press MORE INFO again. The programmer will prompt you to acknowledge or cancel. See Section 7 of this manual for more detail on programmer operation.

How to install Electric Motor, Gearbox, and Final Drive

These instructions must be followed EXACTLY. USE LOC-TITE, Blue

- 1) Install the flangette bearings to the roller frame. The flangettes should be to the outside of the frame and the bearings should have the exocentric collars towards the outside of the frame also. Install the bolts so they will hold the bearings in place but the bearings will slide if needed.
- 2) Slide the drive shaft through the bearings, installing the sprocket and key.
- 3) Install the shaft keepers outside the flangettes at this time keeping the locking bolts loose and not touching anything.
- 4) Set the gearbox on the gearbox-mounting pad.
- 5) Install the four bolts and only tighten to a snug fit. You must be able to slide the box by hand and it must sit flat on the mounting pad.
- 6) Now slide the drive shaft so the end of the drive shaft and the output shaft of the gear box touch. Line up the keyways.
- 7) Install a full key and a split shaft collar over both shafts keeping the ends of both shafts touching and in the center of the shaft collar.
- 8) Tighten this split collar watching the bearings and flangettes; they should not be forced left or right but may move up or down within the slots. Move the gearbox if needed to keep the bearings and flangettes in a free state.
- 9) Next tighten the flangettes watching that the bearings don't move in any direction.
- 10) Now tighten the four gearbox mounting bolts.
- 11) At this time, turn the lock bolts on the shaft keeper so they touch the lock pad. Tighten the jam nuts so as to hold the shaft keeper and bearing in place.
- 12) Set the exocentric collars and tighten the setscrews. With a punch, turn the exocentric collar in a clockwise direction, and then tighten the setscrew.
- 13) Set the sprocket the same distance from the inside wall of the roller frame as the roller sprocket. Tighten the setscrews and shaft collars on both sides of the sprocket.
- 14) The Electric motor comes with a plastic bushing over the shaft. Check the key between the plastic bushing and the motor shaft. It is very important the key is as long as the slot.
- 15) Some motors have a spacer between the motor and gearbox; it must be installed if it was there when disassembled.
- 16) Install the chain between the drive shaft and the roller. This chain should be installed with as little slack as possible. Avoid the use of ½ links.
- 17) Install the idler-adjusting sprocket. Shim the idler sprocket so it fits in the center of the chain, as closely as possible.

Below is a quick reference chart for various "Flat Head Cap Screws" and the torque recommendations.

VALUES ARE STATED IN FOOT POUNDS

BOLT SIZE	Thds Per Inch	SAE Grade 5	SAE Grade 8
1/4	20	10	14
7 4	28		
5/16	18	19	29
	24		
3/8	16	33	47
	24		
7/16	14	54	78
	20		
1/2	13	78	119
, 2	20		
9/16	12	114	169
	18		
5/8	11	154	230
	11		
3/4	10	257	380
	10		
7/8	9	382	600
	9		
1	8	587	700
	8		

WARRANTY POLICY

Please remember to complete and return your Warranty Card and Dealer Delivery Report. Warranty Claims will not be considered if the Warranty Card and Dealer Delivery Report have not been returned to Salsco.

Your Salsco Commercial or Turf Equipment product is a commercial type product and is normally manufactured and sold for commercial or industrial use. Salsco will, for the original purchaser, for (5) years from the date of purchase (90 days if used for rental purposes) repair or replace, free of charge, any part or parts found to be defective in material, workmanship or both. Any transportation or shipping charges will be borne by the purchaser. If, during the warranty period stated above, the product does not function properly due to defect, simply contact Salsco and follow the Warranty Procedures included in this manual.

This warranty does not include:

- Incidental or consequential damages and is exclusive of any implied warranties.
- · Normal maintenance parts, including, but not limited to hoses, chains, belts, filters, lubricants, etc.
- Parts or components, which are covered under the original manufacturer warranty, including, but not limited to engines, pumps, and motors.

WARRANTY PROCEDURE

In order for Salsco to consider your warranty claims in a timely manner you must follow the simple procedures listed below:

MACHINE OR PART FAILURE

- Call our service department for helpful instruction on how to correct or repair the problem. Preventive maintenance will also be suggested.
- b) When ordering parts for Warranty issues, you MUST retain possession of the old parts in question until notified with respect to returning the parts to Salsco or other disposition.
- c) Warranty Claims MUST be filed within 30-days from completion of the work performed. Contact our office for an electronic warranty claim form.
- d) Fill in all information requested on warranty claim form, a copy of which is included in this manual, (date of purchase, company name, address, etc.). List all parts used. Make sure part numbers are correct. You can obtain these from your manual. (include good description of problem; i.e. "leaking from spool" rather than "leaking").
- e) It is our goal to consider and reach a disposition on each Warranty Claim within 30-days from the date that it is received. Therefore it is important that you respond promptly to any request for further information. Claims with no response to inquiries will be closed as "denied for lack of response" 90-days from the date of request.
- f) Email, Fax or Send Warranty Claim form to our Warranty Department. **Warranty on parts most often requires** return of the parts that were replaced. DO NOT DISCARD OLD PARTS UNTIL YOU HAVE RECEIVED A DETERMINATION AS TO WHETHER THESE PARTS MUST BE RETURNED.
- g) Our Warranty Department will contact and instruct you on how to return the Parts to Salsco on an RA #. Returns MUST be made within 30-Days from issuance of RA #. FREIGHT CHARGES ON RETURN OF PARTS IS THE RESPONSIBILITY OF THE CUSTOMER. Normal pre-delivery adjustments are not covered under warranty. Labor Warranties are based on reasonable time allowances as determined by Salsco, Inc. and paid at 75% of posted labor rate. TRAVEL TIME IS NOT REIMBURSED UNDER THE WARRANTY POLICY.
- h) Be sure to put the RA form inside the box that you are shipping back, also be sure to put on the outside of the box "Return of Goods" and the RA #.
- Ship returns via a traceable method such as UPS Ground Service. Be sure that the shipment is insured for the appropriate value. If uninsured parts are lost, we cannot issue a credit.

PLEASE NOTE: Warranty forms should be filled out completely.

PREVENTIVE MAINTENANCE IS YOUR BEST INSURANCE AGAINST EQUIPMENT FAILURE. BE SURE TO READ THIS MANUAL, ESPECIALLY THE MAINTENANCE, OPERATING AND CAUTION SECTIONS.

SALSCO, INC., 105 Schoolhouse Rd.

Cheshire, CT 06410

TOLL FREE: 800-872-5726, 203-271-1682, FAX: 203-271-2596 EMAIL: <u>sales@salsco.com</u>, <u>www.salsco.com</u>

SALSCO WARRANTY CLAIM FORM

SALSCO, INC. 105 SCHOOLHOUSE RD. CHESHIRE, CT 06410	PHONE: 203-271-1682, 800-872-5726 FAX: 203-271-2596 EMAIL: A.Fowler@salsco.com WEB: www.salsco.com
END OWNER	PHONE:
NAME:	FAX:
EMAIL:	
ADDRESS:	
PURCHASED FROM:	PHONE:
NAME:	FAX:
EMAIL:	
ADDRESS:	
EQUIP/WARRANTY INFO: (MUST BE COMPLETE)	
PURCHASE DATE: INV #:	DATE FAILED:
MODEL #: SERIAL #	REPAIR DATE:
HRS USED:	
WARRANTY CLAIM/WORK ORDER #	
WAS A SALSCO RETURN AUTH. # ISSUED FOR	R REPAIRS OR RETURN OF PARTS: YES NO
IF YES, RA #:	
PROBABLE CAUSE OF FAILURE:	

SALSCO WARRANTY CLAIM FORM - Continued

WORK PERFORMED/COMMENTS ON REPAIR:						
SHOP LABOR RATE:		SUBMITTED BY:				
TOTAL LABOR HRS TO REPAIR:	PRINTED NAME:					
SALSCO PART #: DESCRIPTION:	QTY	PRICE EACH	TOTAL	INVOICE #:		
FILL IN ALL INFORMATION REQUESTED ON WARRANTY CLAIM FORM. INCOMPLETE FORMS CANNOT BE PROCESSED & WILL BE RETURNED. LIST ALL PARTS USED. MAKE SURE PART NUMBERS ARE CORRECT. ANY PARTS THAT YOU BELIEVE TO BE DEFECTIVE OR ANY PARTS THAT BREAK SHOULD BE RETAINED FOR POSSIBLE INSPECTION UNTIL AFTER THE WARRANTY HAS BEEN PAID OR PART HAS BEEN RETURNED. INV. # NEEDS TO BE INCLUDED ON WARRANTY CLAIM.						
OFFICE USE ONLY						
DATE REC'D:	DLR. DEL REPORT	ON FILE:	YES	NO		
CUST ID:	WARRANTY CLAIM ON FILE: YES NO					
SALSCO WC:		PARTS TOTAL:				
SALSCO RA:		LABOR TOTAL:				
DATE APPROVED:	TOTAL APPROVED:					
DATE REJECTED:	REJECTED DATE:					
PROCESSED BY:	REASON:					

	SERIAL#		MODEL NO.	
	SAL	SCO LIMITED WARRAN	TY CARD	
1. DAT	TE PURCHASED:			
2. PUF	RCHASER:			
3. PUI	RCHASER ADDRESS:			
_				
4. EM	AIL ADDRESS:			
5. DE/	ALER:			
6. DE	ALER ADDRESS:	,		
7. WIL	L THIS EQUIPMENT BE U	JSED COMMERCIALLY?	□ YES	□ NO
8. DID	DEALER SERVICE THIS	EQUIPMENT AND INSTRU	CT YOU IN ITS CARE A	ND
SAF	FE OPERATION ?		☐ YES	□ NO
9. DID	YOU RECEIVE AN "OPE	RATION & SERVICE MANU.	AL" AND SAFETY PAM □ YES	
NIO	TICE SIG	GNED		
			Purchaser	
IMPOF		BE FILLED OUT COMPLETE OF PURCHASE DATE, OR YO		
	WHITE - DEALER	YELLOW - OWNER	CARD - FACTOR	

SALESMAN ID#_ SALES MANAGER'S NAME Salsco, Inc. 105 School House Rd. sales@salsco.com 800-872-5726 Cheshire, CT 06410 203-271-2596 (Fax) 203-271-1682 www.salsco.com DEALER DELIVERY REPORT MODEL DEALER PURCHASER (Last Name or Company) STATE (First Name) (Middle Name) ADDRESS CITY ZIP The undersigned dealer warrants that the above-described machine was carefully inspected, adjusted and prepared for delivery before delivery to the purchaser; that both the operation and maintenance of the machine were explained to the purchaser; and that a copy of the Owner's Instruction Manual were given to the purchaser and his attention called to Our Warranty and any operating instructions included in the manual and caution notes. The undersigned purchaser certifies that the operation and maintenance of the above-described machine have been explained to him; acknowledges receipt of a copy of the Owners's Instruction Manual and Our Warranty Policy printed in said Instruction Manual and Caution Notes. I also understand that it is my responsibility to explain and make Salsco manuals available to new operators. Date Dealer Date Purchaser Sign By .

FACTORY COPY WHITE - DEALER'S COPY YELLOW - OWNER'S COPY PINK

SERVICE RECORD

If kept properly, this schedule will help track problems in the future.

Ţ			1		Total Hours
Date	Qty.	Part #	Description of Work Done	Hours Used	to Date
		-			

·					
	-				

MODEL #	S/N	
e e e e e e e e e e e e e e e e e e e		DATE PURCHASED: