

**PowerBoss®**  
The Power of Clean

## **Phoenix 20 Floor Scrubber Disc Traction Drive**



**PowerBoss, Inc.**  
A Member of The Hako Group

## PREFACE

Thank you for your purchase of the new industry standard for scrubbers. PowerBoss takes great pride in offering the most dependable, reliable and best value in industrial power sweepers and sweeper / scrubbers. We set the standard.

Our Customer Service Department would like to hear from you. If you see any errors, omissions or something that needs clarification in this Parts Catalog please let us know. We are working hard towards continually improving our processes to bring you the best you deserve. Please copy the form below, fill out and comment on how you found our catalog.

Thank you!  
*The PowerBoss Team*

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Country: \_\_\_\_\_

Type of equipment or model number: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please return to:  
Customer Service Manager  
PowerBoss, Inc.  
14N845 U.S. Route 20  
Pingree Grove, Illinois 60140 USA

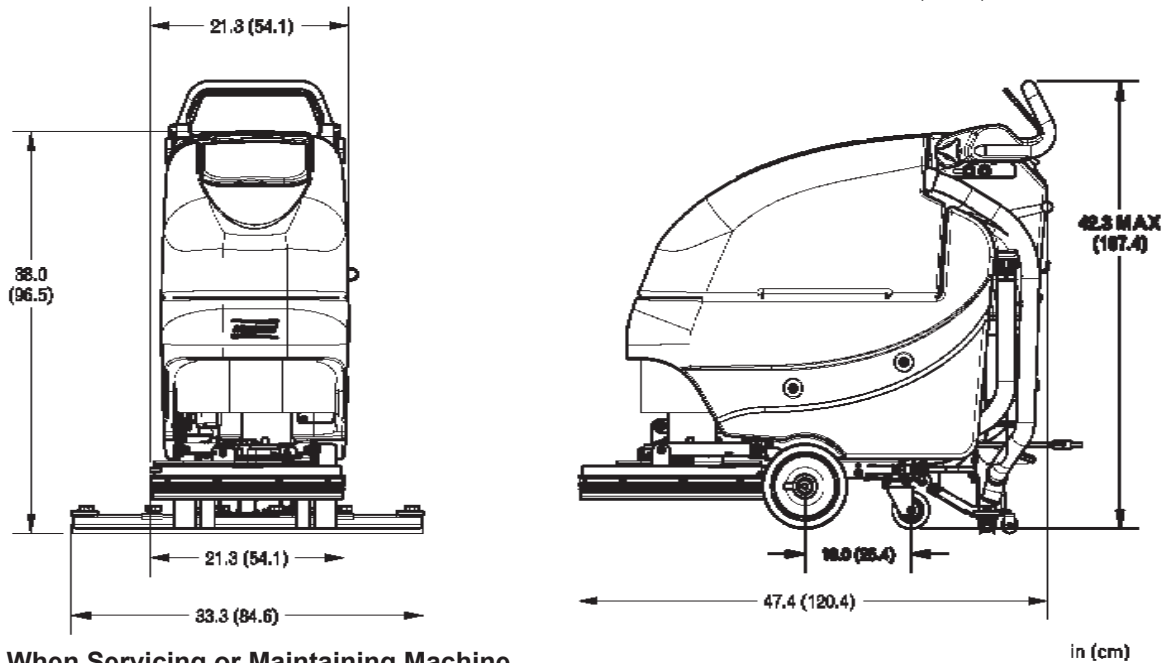
Phone: (800) 323-9420  
Email: [tech@powerboss.com](mailto:tech@powerboss.com)

# Technical Specifications

**Model** Phoenix 20 Traction Drive

**Model No.** PHX20TD / PHX20TDQP / PHX20TDQPG

<b>Current (Max)</b>	40 amps
<b>Battery Capacity (Lead Acid)</b>	140Ah @20 hr
<b>Battery Capacity (Gel)</b>	95Ah @20 hr
<b>Sound Level</b>	69 dBA
<b>Cleaning path width</b>	20 in (51 cm)
<b>Squeegee width</b>	34 in (86 cm)
<b>Productivity (Traction Drive)</b>	27,200 ft <sup>2</sup> /hr ( 2,527 m <sup>2</sup> )
<b>Working speed (Traction Drive)</b>	3.1 mph (5 km per hr)
<b>Rated voltage</b>	24 volts
<b>Vacuum flow</b>	65 cfm (110 m3/hr)
<b>Vacuum waterlift</b>	45 inches ( 112mbar)
<b>Vacuum power</b>	.60 HP (450 W)
<b>Brush type</b>	Disc
<b>Brush motor(s) power</b>	3/4 HP (560W)
<b>Number of brushes</b>	1
<b>Brush RPM</b>	180 RPM
<b>Aqua-Stop equipped</b>	Coming Soon
<b>Solution capacity</b>	12 Gal (45 liters)
<b>Recovery capacity</b>	13 Gal (49 liters)
<b>Working Grade</b>	2%
<b>Weight with batteries</b>	372 lbs (169 kg)
<b>Weight without batteries</b>	238 lbs (108 kg)
<b>Dimensions (LxWxH)</b>	47.4 x 21.3 x 42.3 (120.4 x 54.1 107.4 cm)
<b>Drive Motor Power</b>	1/5 HP (150W)

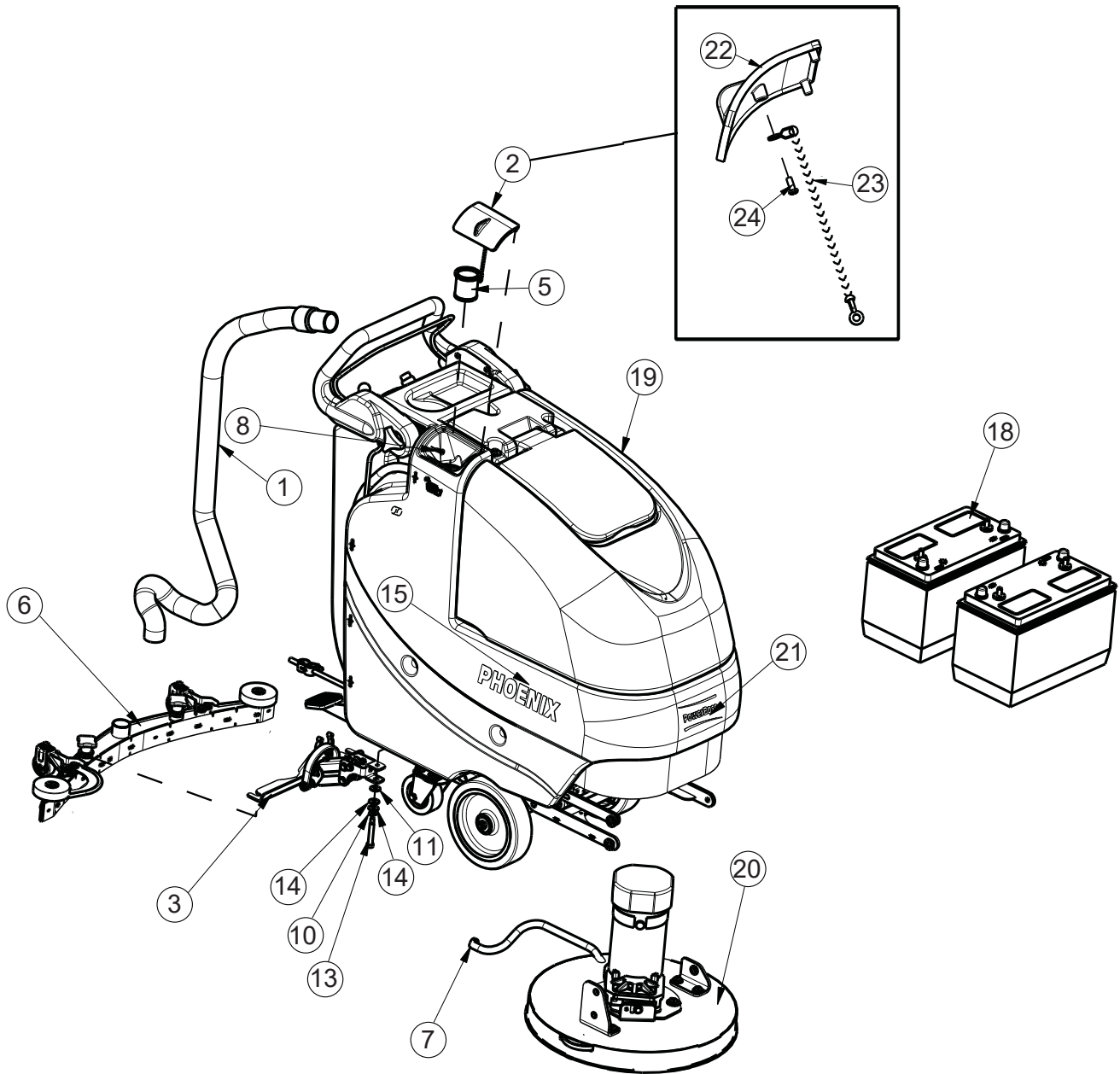


### For Safety When Servicing or Maintaining Machine

- Stop on level surface.
- Disconnect the power to the machine by pulling the red Battery Connector located under the recovery tank near the batteries.
- Avoid moving parts. Do not wear loose jackets, shirts, or sleeves when working on machine.
- Avoid contact with battery acid. Battery acid can cause burns. When working on or around batteries, wear protective clothing and safety glasses. Remove metal jewelry. Do not lay tools or metal objects on top of batteries.
- Do not clean machine with a pressure washer.
- Authorized personnel must perform repairs and maintenance. Use PowerBoss supplied replacement parts.

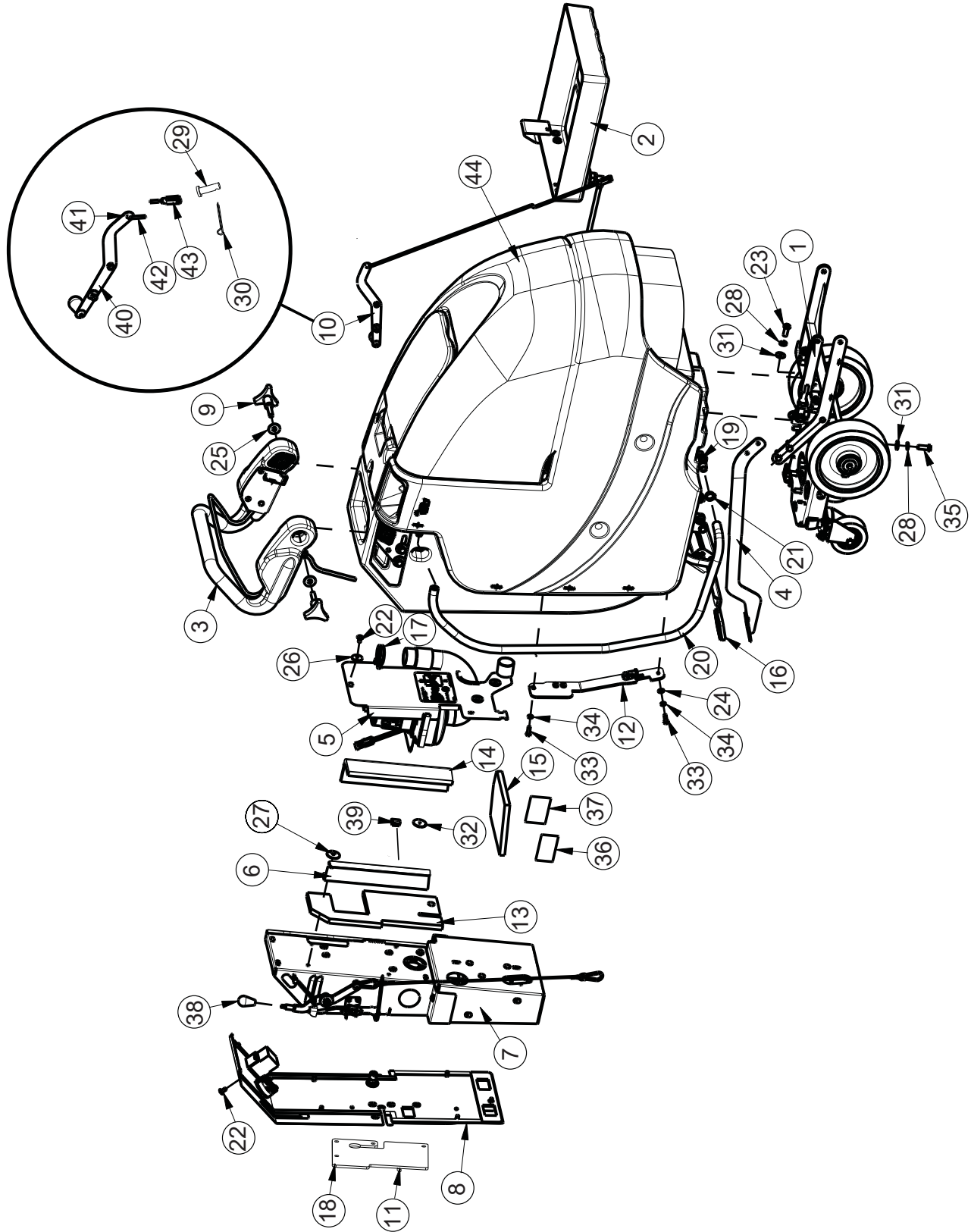
# Table of Contents

Phoenix 20 Floor Scrubber.....	1
Disc Traction Drive .....	1
Main Assembly .....	6
Main Assembly BOM.....	7
Traction Drive Base Assembly .....	8
Traction Drive Base Assembly BOM .....	9
Base Assembly.....	10
Base Assembly BOM.....	11
Chassis Assembly .....	12
Chassis Assembly BOM .....	13
Solenoid Assembly .....	14
Old Style - Solution Valve Assembly .....	15
New Style - Solution Valve Assembly.....	15
Solution Control Handle Assembly.....	16
Solution Control Handle Assembly BOM.....	17
Solution Tank Assembly .....	18
Lift Pedal Stop Assembly.....	19
Battery Tray Assembly.....	20
Recovery Tank Assembly .....	21
Recovery Tank Assembly BOM .....	22
Handle Assembly.....	23
Handle Assembly BOM .....	24
Electrical Box Assembly .....	25
Electrical Box Assembly BOM .....	26
Electrical Panel Assembly .....	27
Vacuum Switch Assembly .....	28
Electrical Box Cover Assembly.....	29
Vac Motor Assembly.....	30
20" Brush Deck Assembly .....	31
20" Brush Deck Assembly BOM.....	32
Brush Hub Assembly .....	33
Tension Band Sub-Assembly .....	34
Rear Squeegee Assembly.....	35
Rear Squeegee Assembly BOM.....	36
Squeegee Mechanism Assembly .....	37
Squeegee Mechanism Assembly BOM.....	38
Wiring Diagrams.....	39
Warranty.....	42



ITEM	PART NO.	QTY	DESCRIPTION
1	172010	1	HOSE, CLEAR VAC W/ 45 CUFF
2	172018	1	SOLUTION TANK LID ASSY
3	172150	1	SQUEEGEE LIFT MECH ASSY
5	172159	1	FILTER, FILL PORT, ES1720
6	172534	1	SQUEEGEE ASSY, 34" (860) CURVED
7	450076	1	CLAMP-CRIMP 185R SS
8	711118	1	SCR-ST-A 10 X .75 SS
10	711523	1	WSR-WAVE .37X .68 X .08
11	711569	1	WSR-FLT .390 X .880 X .062 NYL
13	712143	1	BLT-SHLD 3/8 X 2.0, 5/16-18
14	712301	2	WSR-FLAT .37 X .87 X .06
15	715688	2	DECAL, PHOENIX
16	740164-1	1	JUMPER CABLE ASSY, RED 4G 12"
17	747649	1	CABLE ASSY, BATTERY E17
18	956140	2	BATTERY, 12V 140AH
18A	956100	2	GEL BATTERY 12V 95AH
19	172001TD-120	1	TRAC DRV BASE ASSY-120V CHARGER
19A	172001TD-230	1	TRAC DRV BASE ASSY-230V CHARGER
20	172100TD	1	TD BRUSH DECK ASSY 20"
21	3334902	1	DECAL, POWERBOSS, WHITE
24	172008	1	SOLUTION TANK LID
25	172123	1	CHAIN, BEADED SS W/ EYELETS
26	712145	1	SCR-PAN HD HI/LO 6-19 X .37SS
23	715914W	1	DECAL, MINUTEMAN W/SWOOSHES, WHITE
24	172008	1	SOLUTION TANK LID
25	172123	1	CHAIN, BEADED SS W/EYELETS
26	712145	1	SCR-MC 6-32 X .37 PPH SS

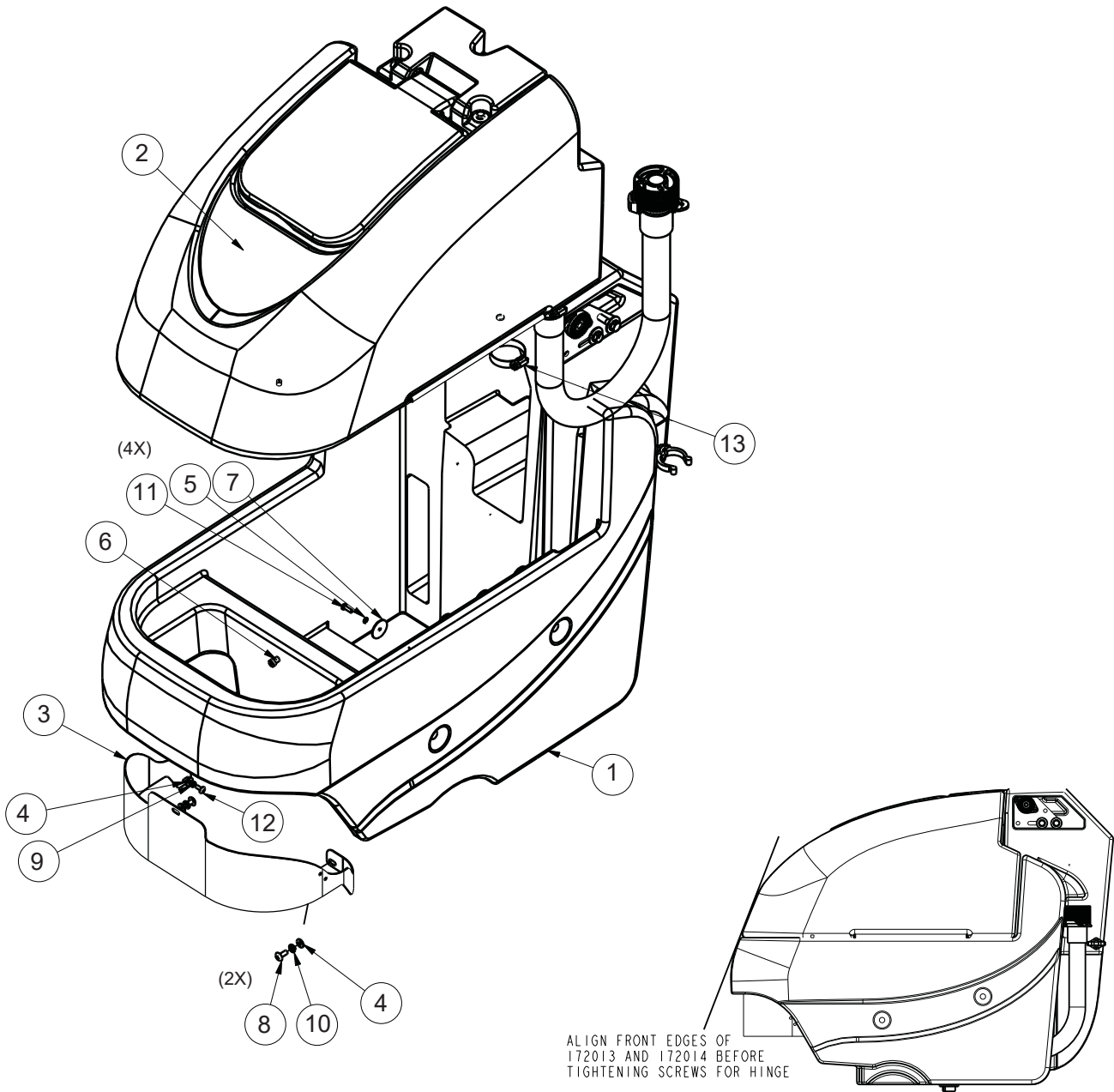
BRUSH OPTIONS			
		AQUA STOP BRUSHES	
762394	PAD RETAINER, FIXED - NOT SHOWN	7951-01	BRUSH, 20" LIGHT-MED PP.5 A/S, WHITE
762370	PAD RETAINER, REMOVEABLE - NOT SHOWN	7951-02	BRUSH, 20" LIGHT-MEDIUM A/S, K901, BLACK
172520-1	BRUSH, 20" NYLON	7951-03	BRUSH, 20" MED NYL 600GR, A/S GREY (STANDARD)
172520-3	BRUSH-DISC, 20" NYLO-GRIT 80GR, GREEN	7951-04	BRUSH, 20" MEDIUM-HEAVY PP.8 A/S, WHITE
172520-6	DISC BRUSH 20", SCRUB GRIT 2, 120GR RED	7951-05	BRUSH, 20" HEAVY NYLON 180GR. A/S, GREY
172520-2	PAD DRIVER, 20"	7951-06	BRUSH, 20" HEAVY-2 NYL 120GR. A/S, GREEN



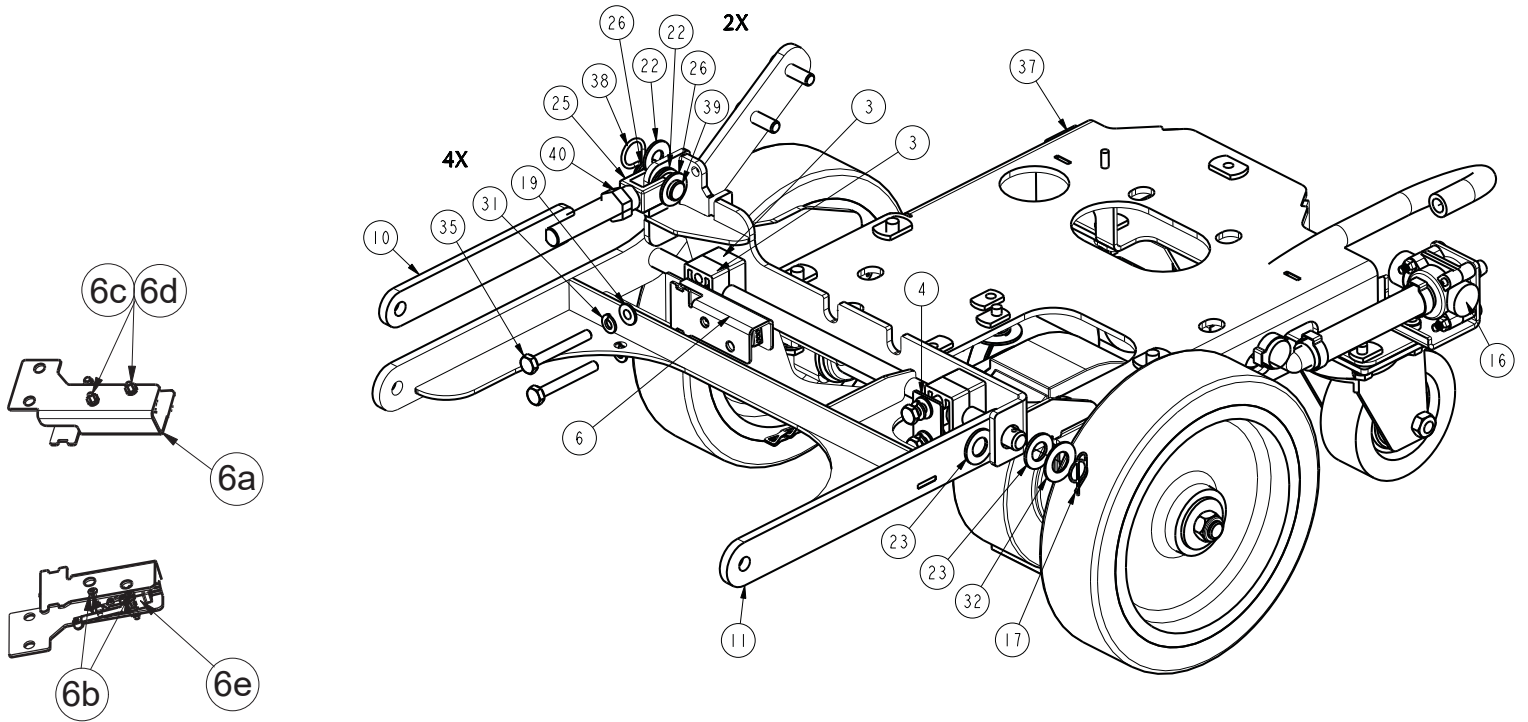
# Traction Drive Base Assembly BOM

BILL OF MATERIAL - 172001TD - 120/230							
ITEM	PART NO	QTY	DESCRIPTION	ITEM	PART NO	QTY	DESCRIPTION
1	172009	1	TD CHASSIS ASSY, ES1720	23	710985	2	SCR-SC 3/8-16 X .62 ST PL
2	172012	1	BATTERY TRAY ASSY	24	711504	2	WSR-FLAT 1/4 ID SS
3	172015	1	E1720 TD HANDLE ASSY	25	711507	2	WSR-FLAT .37 X 1.12 X .06
4	172032	1	LIFT PEDAL WMT	26	711519	3	WSR- FLAT .25 X 1.01 X .06
5	172050	1	VAC MOTOR ASSY	27	711543	1	WSR-HELICAL #10
6	172055	1	BKT, VAC AREA INSIDE COVER	28	711546	6	WSR-HELICAL 3/8
7	172075-120	1	ELEC BOX TD ASSY 120V	29	711803	1	COTTER PIN-HAIR
8	172079	1	TD ELEC BOX COVER ASSY	30	712117	1	CLEVIS PIN
9	172085	2	KNOB, 3/8-16 STUD, 3 LOBE	31	712301	6	WSR-FLAT .37 X .87 X .06
10	172112	1	SOL CONTROL ASSY	32	712312	2	WSR-FLAT .187 X 1.25
11	172129	1	BKT, PWR CORD MOUNT	33	712562	2	BOLT-HH 1/4-20X3/4 SS
12	172166	1	TD LIFT PEDAL BKT ASSY	34	712758	2	WSR-HELICAL 1/4 SS
13	172184	1	FOAM COVER, REAR 1	35	713042	4	BLT-HH 3/8-16 X 1 #5
14	172185	1	FOAM COVER, REAR 2	36	715029	1	DECAL-NAME PLATE SERIAL
15	172187	1	FOAM COVER, FRONT 2	37	715047	1	DECAL-CLEAR LAMINATE 2X3
16	210142	1	PEDAL PAD	38	760592	1	KNOB, OVAL TAPERED
17	3303255	1	CLAMP-HOSE 1.75 DIA NOMINAL	39	809443	1	CLIP-WIRE & CORD
18	293080	1	STRAIN RELIEF-HEYCO 1207	40	172115	1	SOL CNTRL LEVER ASSY
19	342440	1	FITTING, TEE 3/4MPT 1/2 BARB PP	41	172122	1	NUT, PUSH-ON WSR CAP, 3/16
20	430156	1	HOSE, 1/2 X 42 CLEAR	42	172069	1	ROD, SOL. CTRL, ES1720
21	450093	2	CRIMP CLAMP 3/4" STEPLESS	43	172062	1	YOKE, 3/16 CLEVIS, 10-32, LONG
22	710178	10	SCR-MC 1/4-20 X .50 TRUSS STPL	44	172001BASE	1	ES1720 BASE ASSY

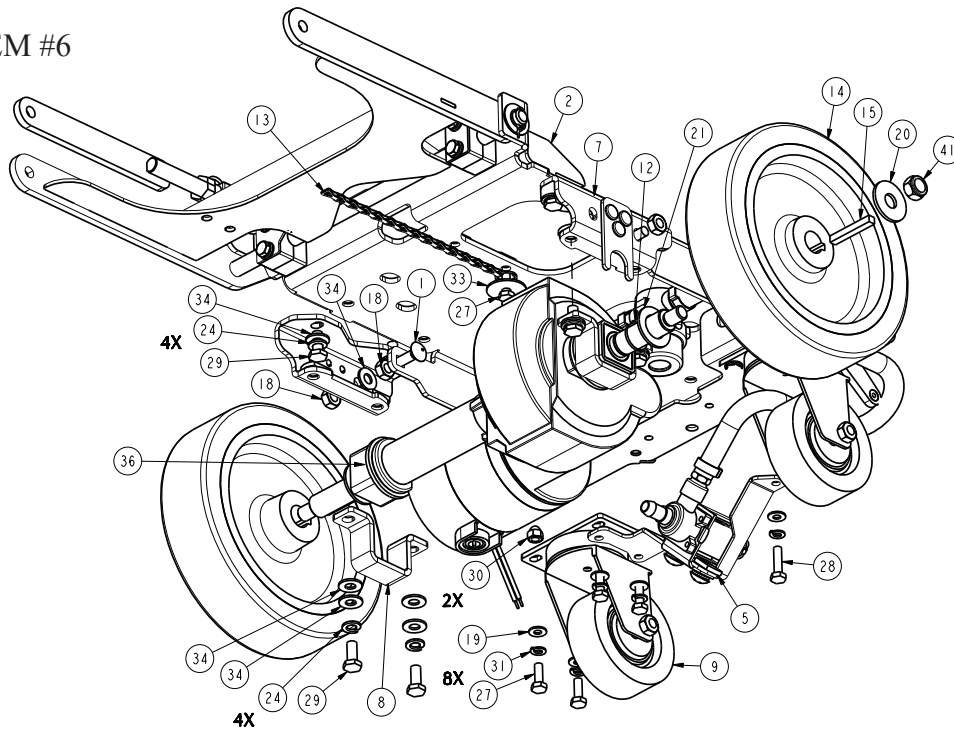




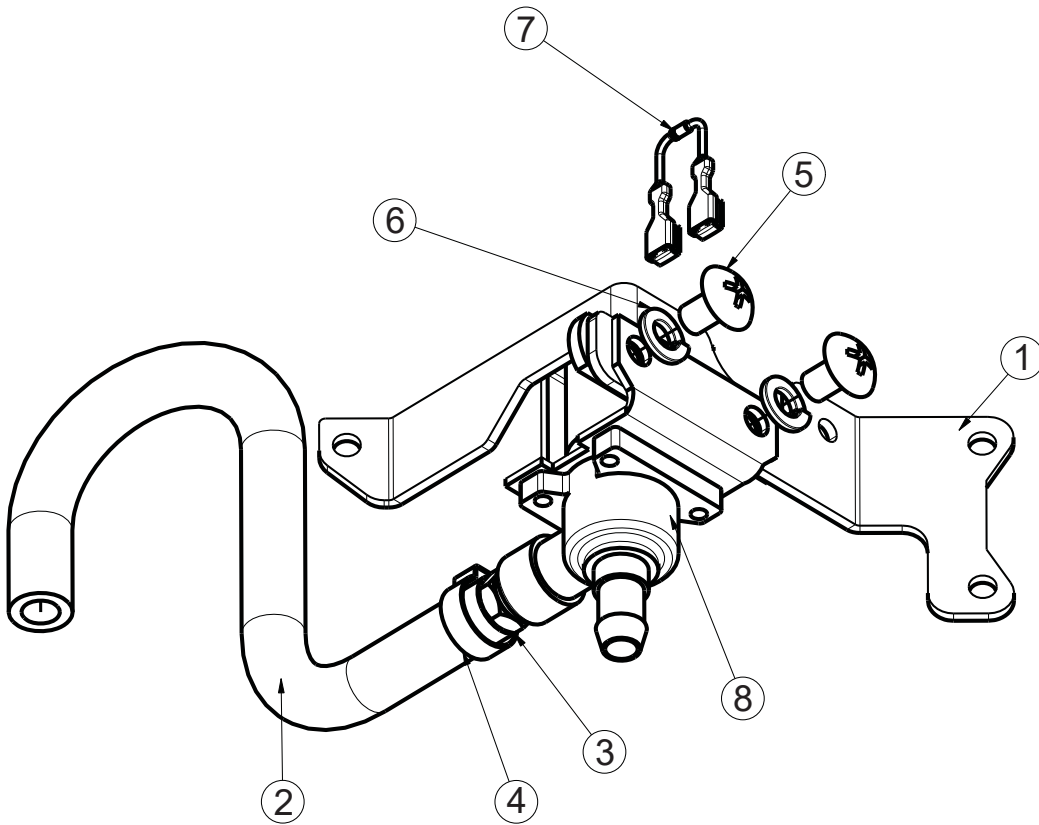
BILL OF MATERIAL - 172001BASE			
ITEM	PART NO.	QTY	DESCRIPTION
1	172013	1	SOLUTION TANK ASSY
2	172014PB	1	RECOVERY TANK ASSEMBLY
3	172144	1	COVER, FRONT PANEL E1720
4	711504	3	WASHER-FLAT 1/4 SS
5	711543	4	WASHER-LOCK #10 SPLIT ZP
6	712041	1	BLT-SHOULDER 5/16 X .375 LG X 1/4-20 BLK
7	712312	4	WASHER-BALANCING .187 X 1.25
8	712565	2	SCR-THMS 1/4-20 X .62 SS
9	712757	1	WASHER-LOCK #10 SPLIT SS
10	712758	2	WASHER-LOCK 1/4 SPLIT SS
11	712812	4	SCR-PHMS 10-24 X .62 ZP
12	712822	1	SCR-THMS 10-24 X .50 SS
13	3303255	1	CLAMP-HOSE 1.75 DIA NOMINAL



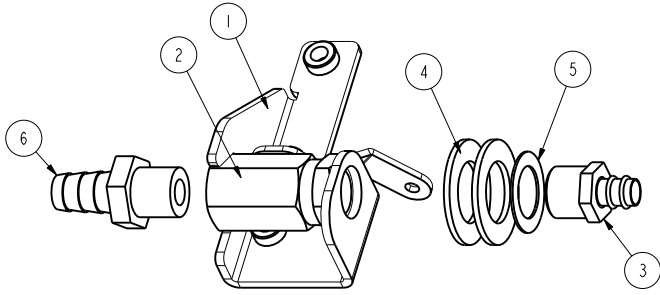
ITEM #6



BILL OF MATERIAL - 172009							
ITEM	PART NO.	QTY	DESCRIPTION	ITEM	PART NO.	QTY	DESCRIPTION
1	70-516-16	2	BLT-CARR 5/16-18 X 1 ZP	19	711504	12	WASHER-FLAT 1/4 SS
2	172020	1	MAIN FRAME WMT	20	711510	2	WASHER-FLAT 1/2 X 1.37 X .10 ZP
3	172038	4	BEARING BLOCK	21	711512	2	WASHER-FLAT 3/4 X 1.37 X .08 ZP
4	172039	1	BEARING BLOCK PLATE	22	711569	3	WASHER-FLAT .390 X .880 X .062 NYL
5	172104	1	SOLENOID MOUNT ASSY	23	711592	2	WASHER-FLAT 1/2 X .90 X .064 NYLON
6	172110	1	DECK SWITCH ASSY	24	712140	8	WASHER-LOCK 5/16 SPLIT SS
6a	172111	1	BEARING BLOCK/SWITCH PLATE	25	712265	1	CLEVIS-YOKE, 1/2-20 WITH .375 PIN
6b	710493	2	SCR-RHMS 4-40 X .75 ZP	26	712301	2	WASHER-FLAT 3/8 X .87 X .06 ZP
6c	711428	2	NUT-HEX 4-40 ZP	27	712562	8	SCR-HH 1/4-20 X .75, 18-8 SS
6d	712326	2	WASHER-INT LOCK #4 SS	28	712564	1	SCR-HH 1/4-20 X 1.00 SS
6e	747603-2	1	SWITCH ASY, MICRO ROLLER W/PACK/CONDUIT	29	712575	8	SCR-HH 5/16-18 X .75 18-8 SS
7	172113	2	BKT, TRANSAXLE MOUNT BASE	30	712591	2	NUT-ACORN 1/4-20 SS
8	172114	2	BKT, TRANSAXLE MOUNT	31	712758	12	WASHER-LOCK 1/4 SPLIT SS
9	172167	2	CASTER, 3 1/2" PU WHEEL	32	712760	1	WASHER-FLAT .56 X 1.06 X .04 SS
10	172368	1	UPPER LIFT ARM	33	712761	1	WASHER-FENDER 1/4 X 1.25 X .059 SS
11	172370	1	DISC DECK LIFT WMT, E1720	34	712772	14	WASHER-FLAT .344 X .75 X .06 SS
12	172425	2	RING-RET EXT .75/20mm HD	35	713007	4	SCR-HH 1/4-20 X 2.00 ZP GR 5
13	172516	1	DRAG CHAIN, SS, 8" W/ RING	36	747606	1	TRANSAXLE, E1720 24V
14	172518	2	WHEEL, 8X2 PU GROOVED	37	809444	1	CLIP-CORD
15	172519	2	KEY-SQUARE 6MM X 45MM	38	833374	1	PIN-HAIRPIN COTTER 3/8
16	172571	1	ASSY-SOLUTION VALVE	39	833833	1	PIN-CLEVIS 3/8 X 1.25
17	600578	1	RING-RUE .50 ZP	40	3400449	1	NUT-JAM 1/2-20 ZP
18	711383	4	NUT-HEX 5/16-18 ZP REVERSE LOC	41	12040077	2	NUT-NYLOC M12 X 1.75 ZD CLASS 8



BILL OF MATERIAL - 172104			
ITEM	PART #	QTY	DESCRIPTION
1	172105	1	BKT, SOLENOID MOUNT
2	281637	1	HOSE-WIRE REINF 3/8 X 11"
3	320264	1	FTG-ADAPTER 1/4 MPT X 1/4 HB BRASS
4	450076	1	CLAMP-HOSE 5/8 (.590-.791) SS
5	710195	2	SCR-PHMS 5/16-18 X .50 ZP
6	711545	2	WASHER-LOCK 5/16 SPLIT ZP
7	740482	1	DIODE ASY, 1N4007 W/PIGGY
8	740493	1	VALVE-WATER 24VDC



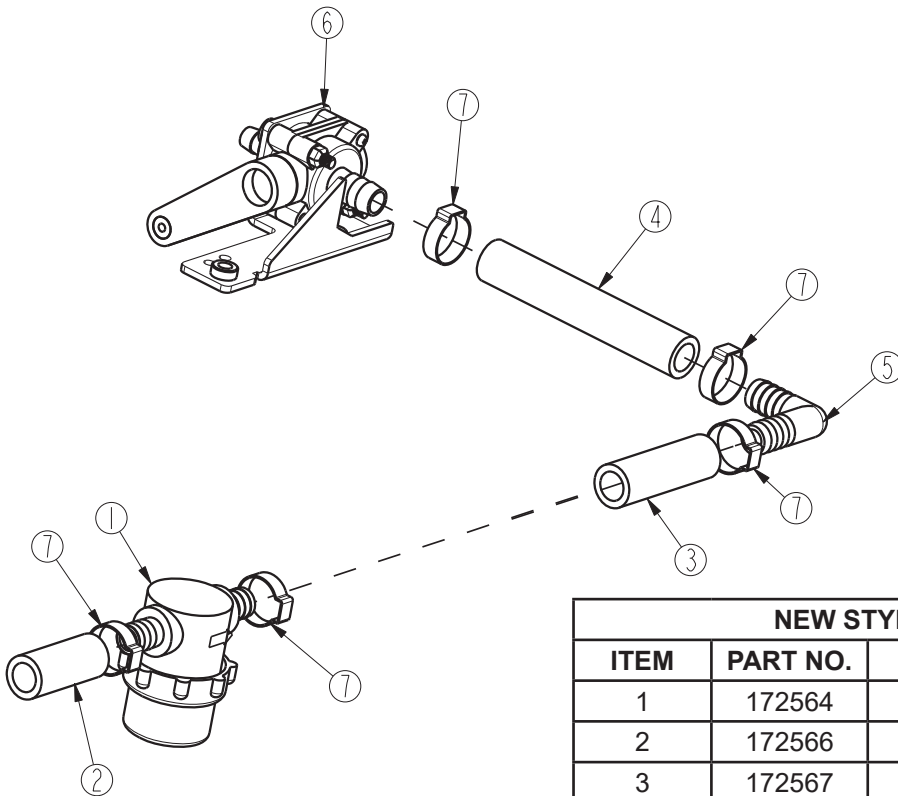
**\*\*\*REPLACING OLD STYLE BRASS SOLUTION VALVE ASSEMBLY 172514 WITH 172571 PLASTIC SOLUTION VALVE ASSEMBLY**

**WILL REQUIRE THE PURCHASE OF KIT K-172571**

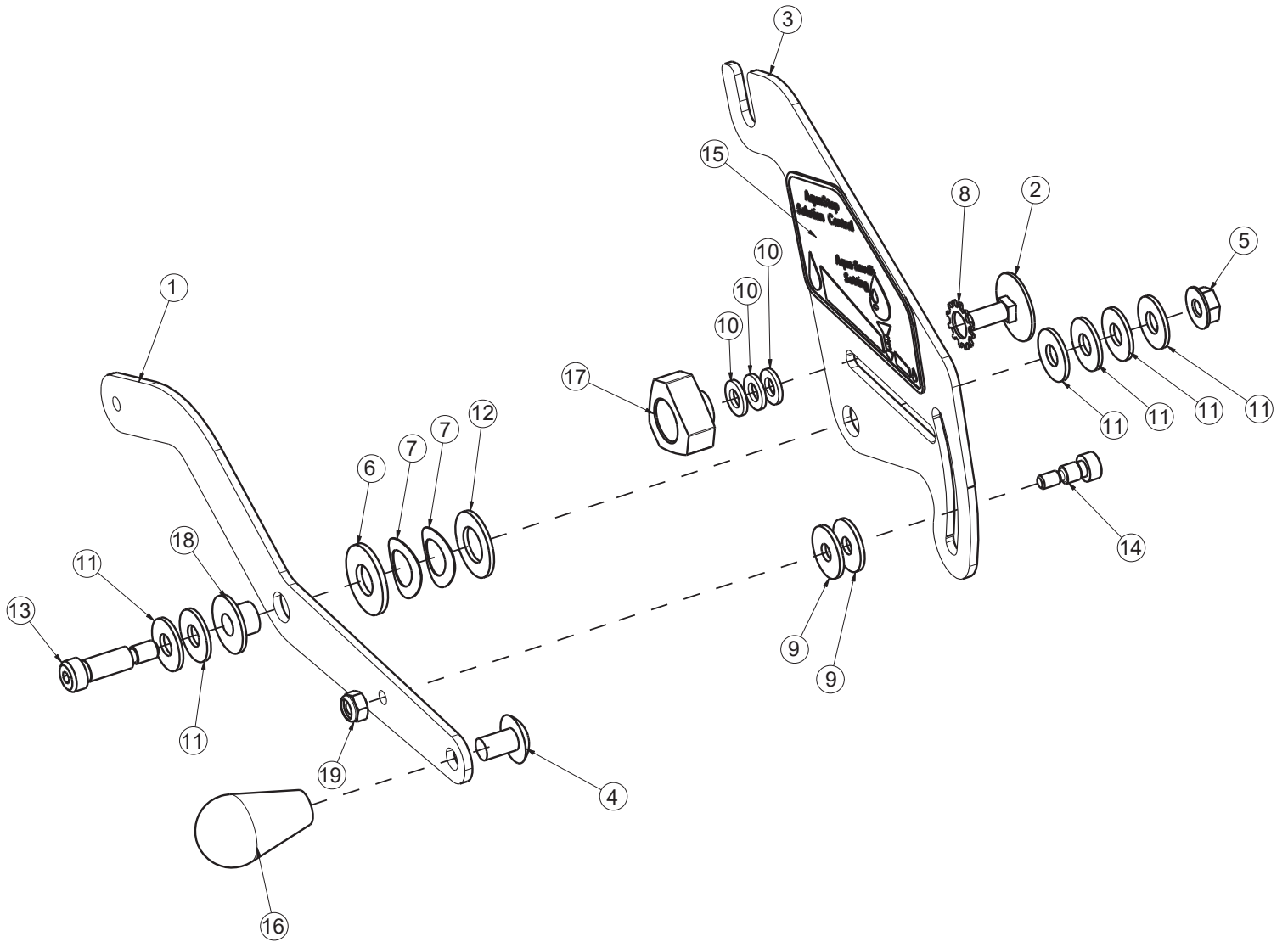
**NO LONGER AVAILABLE**

OLD STYLE - BILL OF MATERIAL - 172514			
ITEM	PART NO.	QTY	DESCRIPTION
1	172513	1	BRKT, SOL VALVE MOUNT
2	172515	1	BALL VALVE, BRASS, 3/8FNPT, CUST HANDLE
3	320265	1	FTG-ADAPTER 3/8 MPT X 3/8 HB BRASS
4	711512	2	WASHER-FLAT 3/4 X 1.37 X .08 ZP
5	711513	1	WASHER-FLAT .689 X 1.06 X .029 SS
6	827008	1	FTG-ADAPTER 3/8 MPT 1/2 HB BRASS

**New Style - Solution Valve Assembly**

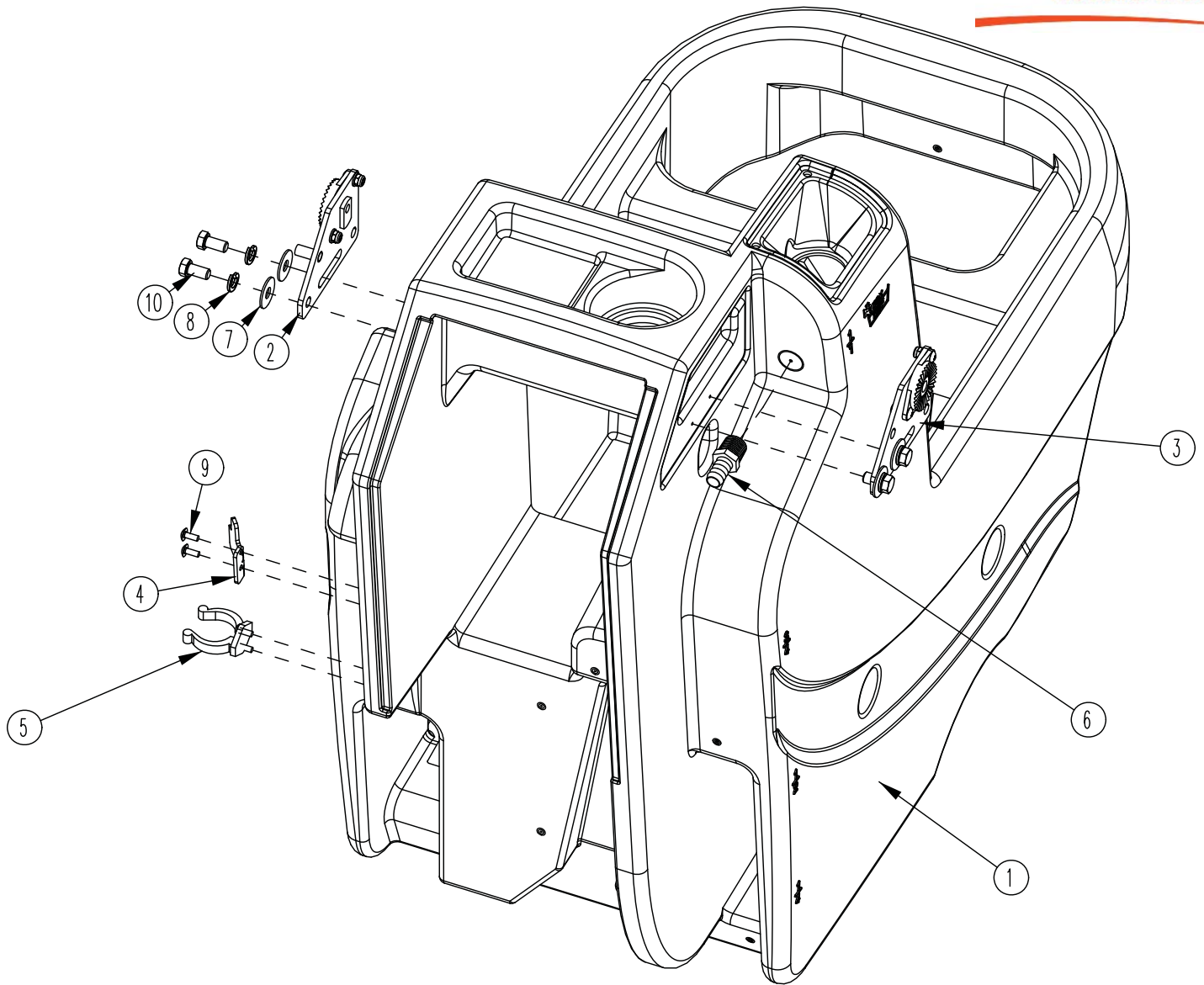


NEW STYLE - BILL OF MATERIAL - 172571			
ITEM	PART NO.	QTY	DESCRIPTION
1	172564	1	FILTER-SOLUTION E1720
2	172566	1	HOSE- 1/2ID X 1.75" NYLOBRAID
3	172567	1	HOSE-1/2"ID X 2.375" NYLOBRAID
4	172568	1	HOSE-WIRE REINF 1/2"ID X 4.25"
5	172569	1	FTG-ELBOW 90 1/2 HB X 1/2 HB NYLON
6	172579	1	SOLUTION CNTRL VALVE, WITH BRKT
7	383347	5	CLAMP-CRIMP 1/2 HOSE

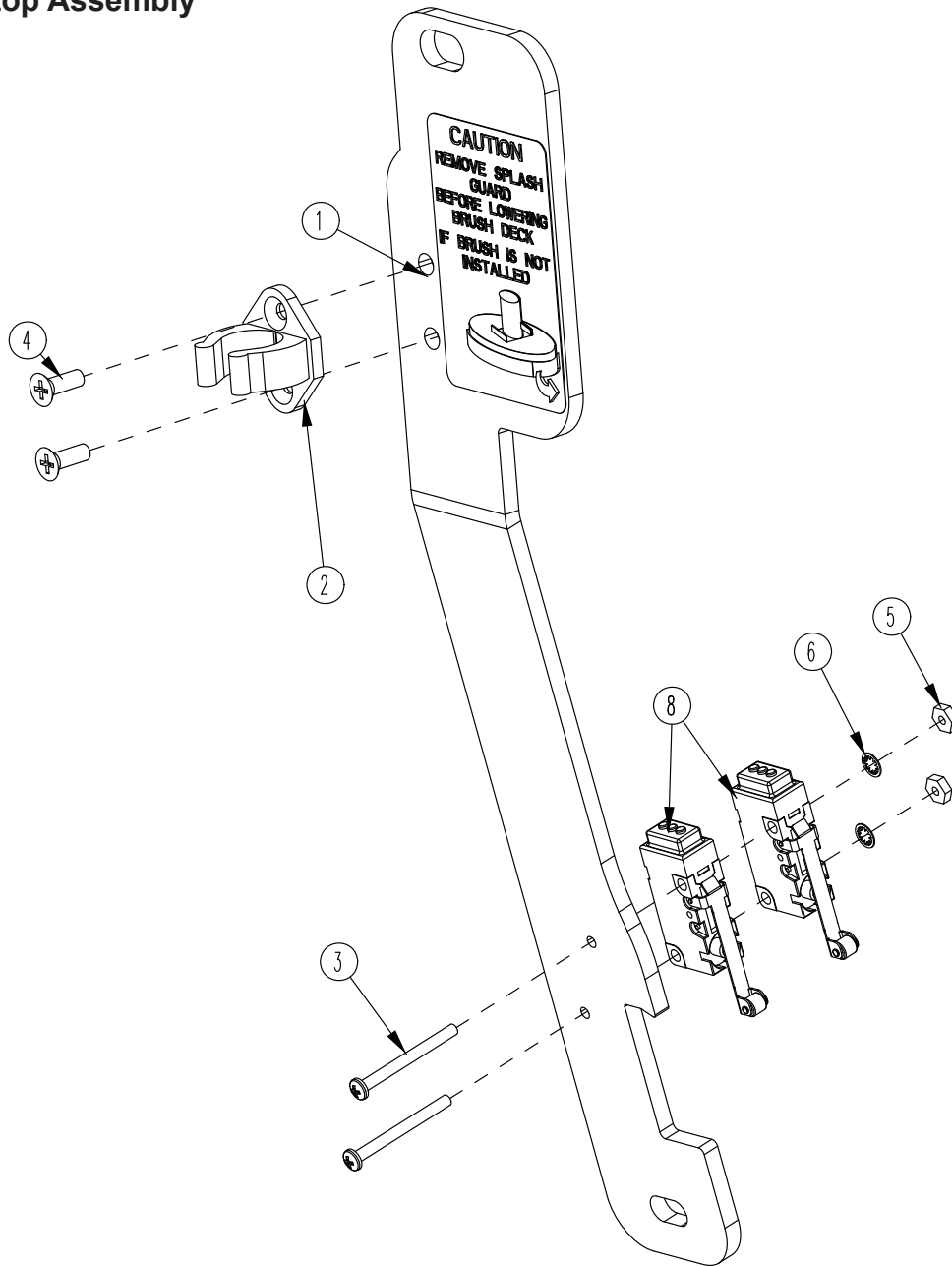


BILL OF MATERIAL - 172577			
ITEM	PART NO.	QTY	DESCRIPTION
1	172061	1	LEVER, SOLUTION CONTROL BRK'T
2	172424	1	BLT-ELEVATOR 1/4-20 x .75 ZINC
3	172575	1	BRKT, AQUASTOP SOL CNTRL
4	710195	1	SCR-PHMS 5/16-18 X .50 ZP
5	711425	1	NUT-FLANGED WIZZ 1/4-20 ZP
6	711508	1	WASHER-FLAT 3/8 X 1.00 X .08 ZP
7	711524	2	WASHER-FLAT 3/8 X 1.00 X .08 ZP
8	711539	1	WASHER-EXT LOCK 3/8 ZP
9	711550	2	WASHER-FLAT 1/4 X .75 NYLON
10	711566	3	WASHER-FLAT #12 X .50 X .065 ZP
11	711575	6	WASHER-FLAT 1/4 X .75 X .06 ZP
12	711592	1	WASHER-FLAT 1/2 X .90 X .064 NYLON
13	712070	1	BLT-SHOULDER 5/16 X .75 LG X 1/4-20 BLK
14	713598	1	BLT-SHOULDER 1/4 X .313 LG X 10-24 SS
15	715690	1	DECAL, AQUASTOP SOLUTION CONTROL
16	760592	1	KNOB-OVAL TAPERED
17	833214	1	KNOB-3 SIDED 1/4-20 INSERT
18	840202	1	BUSHING-FLG .31 X .435 X .325 NYL
19	3400399	1	NUT-NYLOC 10-24 SS

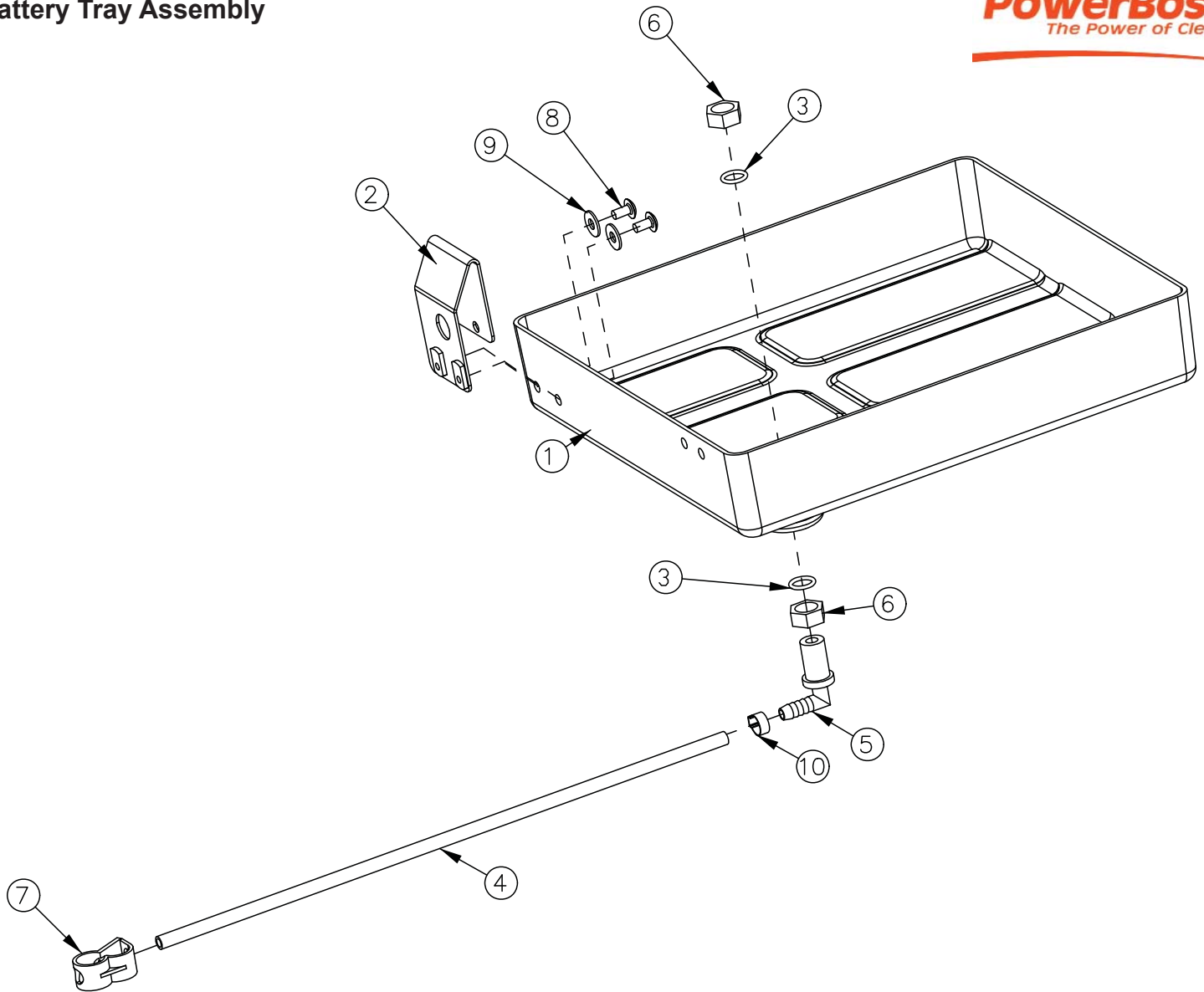




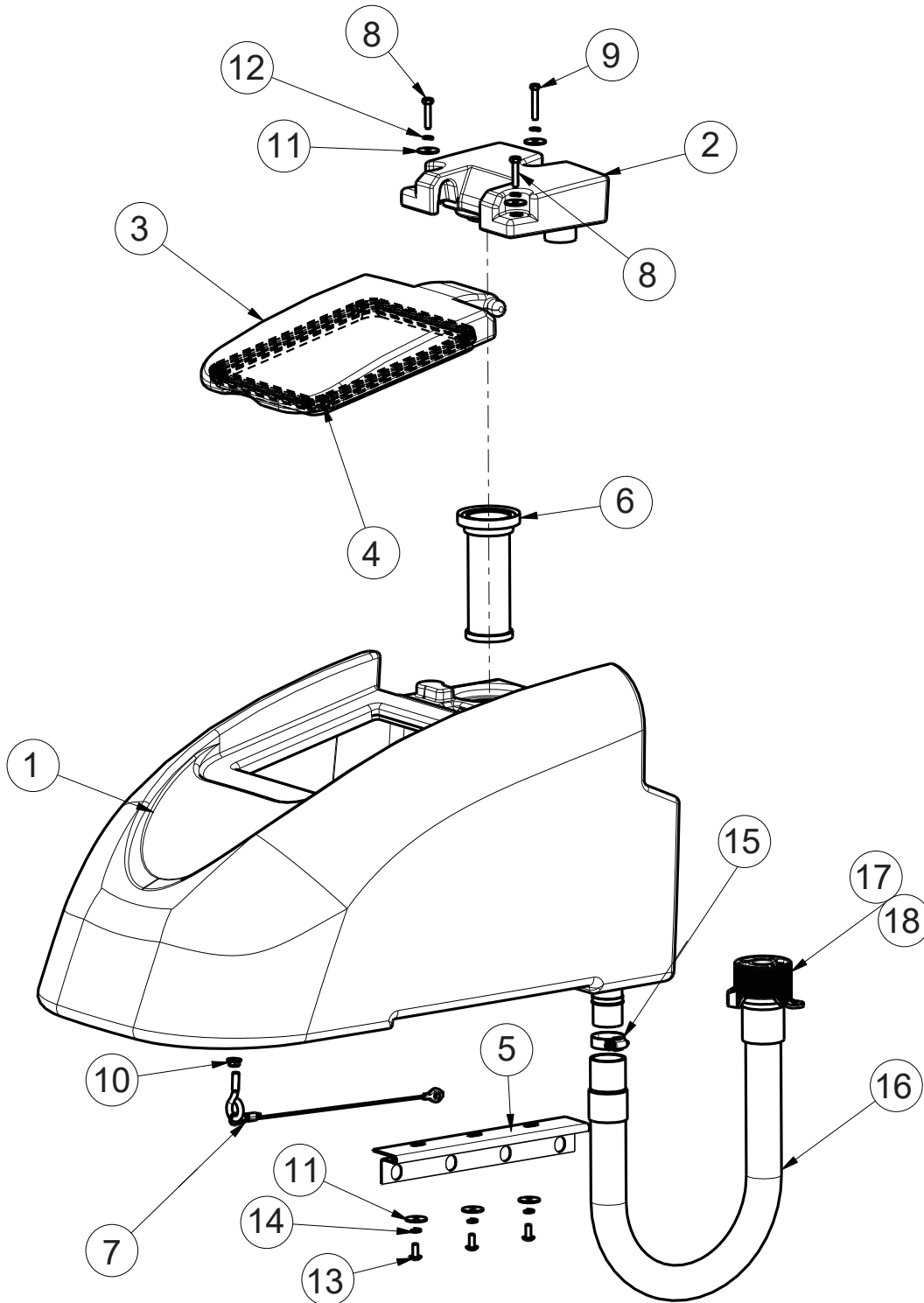
BILL OF MATERIAL - 172013			
ITEM	PART NO.	QTY	DESCRIPTION
1	172003	1	SOLUTION TANK
2	172080	1	HANDLE MOUNT ASSY, LEFT
3	172082	1	HANDLE MOUNT ASSY, RIGHT
4	172341	1	HOOK, DRAIN HOSE WITH TWIST VALVE
5	260579	1	TOOL CLIP, 1.5" HOSE
6	342438	1	FITTING, 1/2 MPT 1/2 HB BRASS
7	711507	4	WSR-FLAT .37 X 1.12 X .06
8	711546	4	WSR-HELICAL 3/8
9	712822	4	SCR-MC TR HD 10-24 X .50 SS
10	713041	4	BLT-HH 3/8-16 X 3/4 #5



BILL OF MATERIAL - 172166			
ITEM	PART NO.	QTY	DESCRIPTION
1	172036	1	BKT, PEDAL STOP
2	172065	1	CLIP, FOR 1/2" ID HOSE
3	710495	2	SCR-MC 4-40 X 1.25 STL Z
4	710530	2	SCR-MC FL HD 8-32 X .50 BRS
5	711428	2	NUT-HEX 4-40
6	712326	2	WSR-INT LOCK #4
7	715685	1	DECAL, REMOVE SPLASH GUARD
8	747603-2	2	SWITCH ASY, MICRO ROLLER W/PACK/CONDUIT

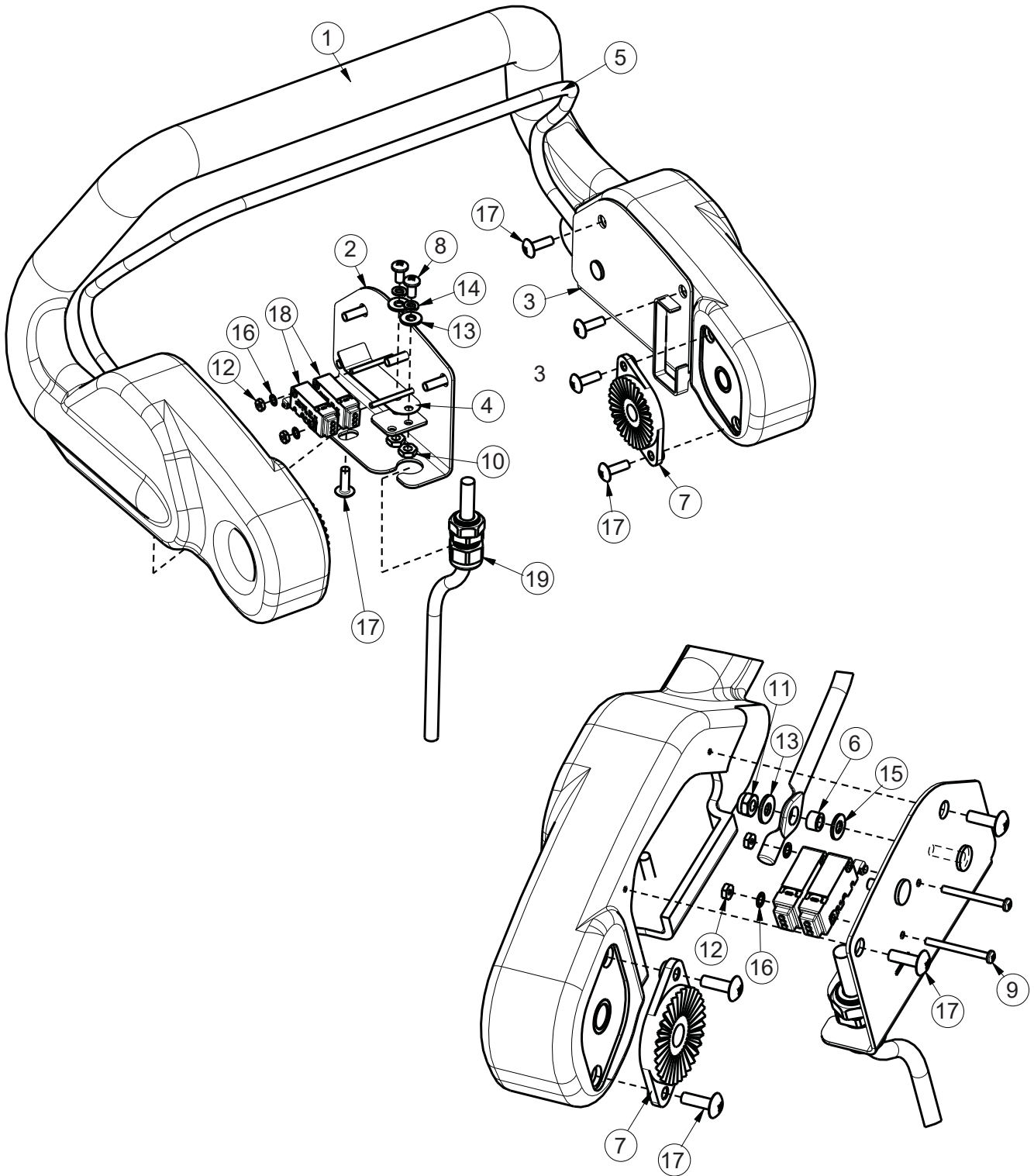


BILL OF MATERIAL - 172012			
ITEM	PART NO.	QTY	DESCRIPTION
1	172116	1	BATTERY BOX
2	172213	1	BKT, SPACER FOR BATTERIES
3	210414	2	O RING 2-113
4	260224	1	18" HOSE
5	320271	1	NOZZLE BODY-ELBOW
6	320272	2	NOZZLE BODY LOCKNUT
7	320273	1	HOSE SHUT-OFF CLAMP
8	710178	2	SCR-MC 1/4-20 X .50 TRUSS STPL
9	711575	2	WSR-FLT .31x.75x.06ST
10	828490	1	CRIMP CLAMP 140R

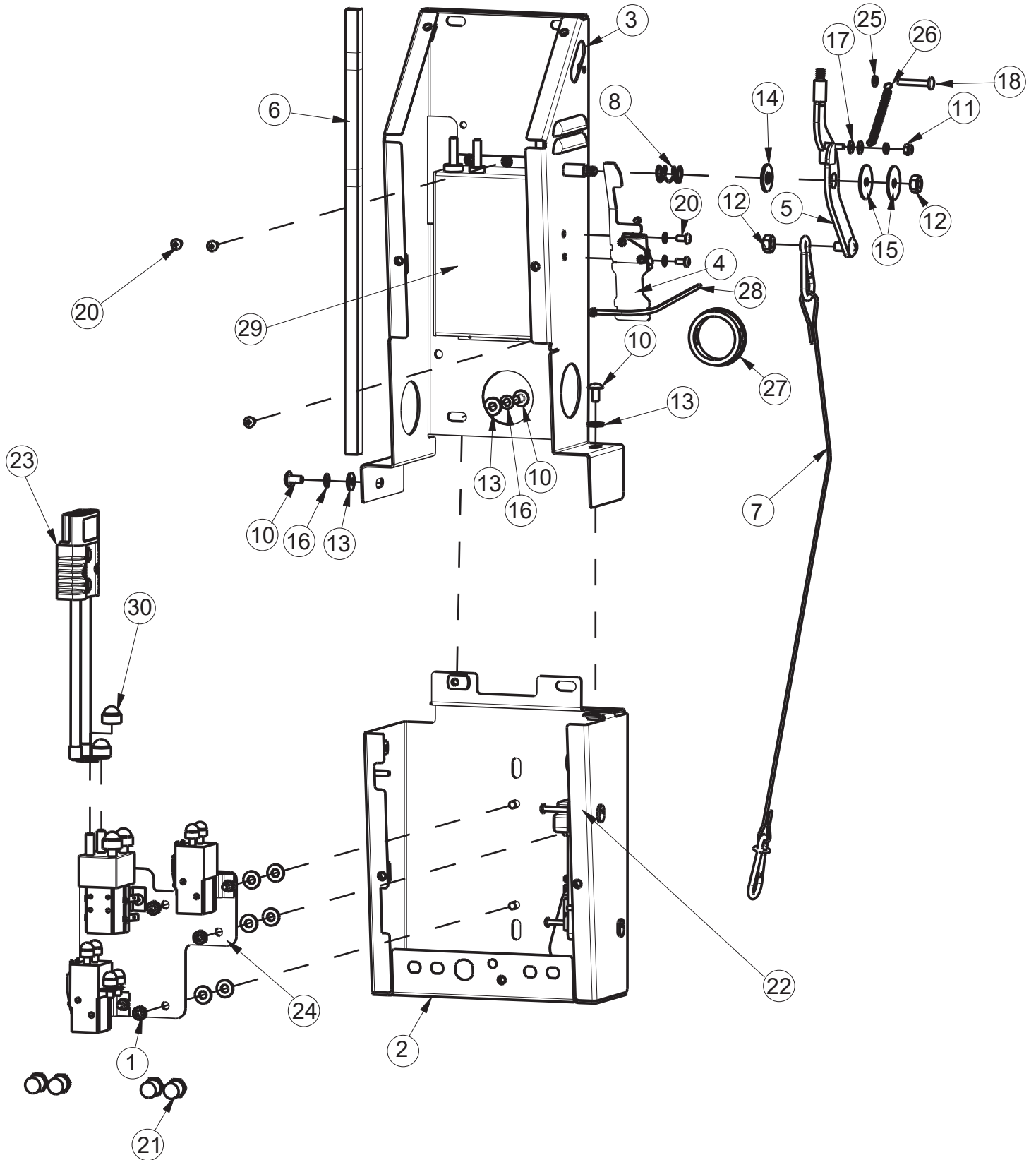


**BILL OF MATERIAL - 172014HR**

ITEM	PART NO.	QTY	DESCRIPTION
1	172004HR	1	RECOVERY TANK
2	172005HR	1	VACUUM MANIFOLD
3	172007	1	LID
4	172017	1	GASKET, LID
5	172049	1	HINGE, RECOVERY TANK
6	172132	1	FLOAT, SCREENED
7	172394	1	CABLE, REC TANK 12.0
8	711210	2	SCR-HH 1/4-20 X 1.25 ZP GR 5 FULL THRD
9	711212	1	SCR-HH 1/4-20 X 1.50 ZP GR 5
10	711379	1	NUT-FLANGED WIZZ 5/16-18 ZP
11	711519	6	WASHER-FLAT 1/4 X 1.00 X .06 ZP
12	711544	3	WASHER-LOCK 1/4 SPLIT ZP
13	712565	3	SCR-THMS 1/4-20 X .62 SS
14	712758	3	WASHER-LOCK 1/4 SPLIT SS
15	3303255	1	CLAMP-HOSE 1.75 DIA NOMINAL
16	97090096	1	DRAIN HOSE ASSY, RECOVERY TANK
17	15282072	1	REPLACEMENT O-RING
18	90304528	1	CAP



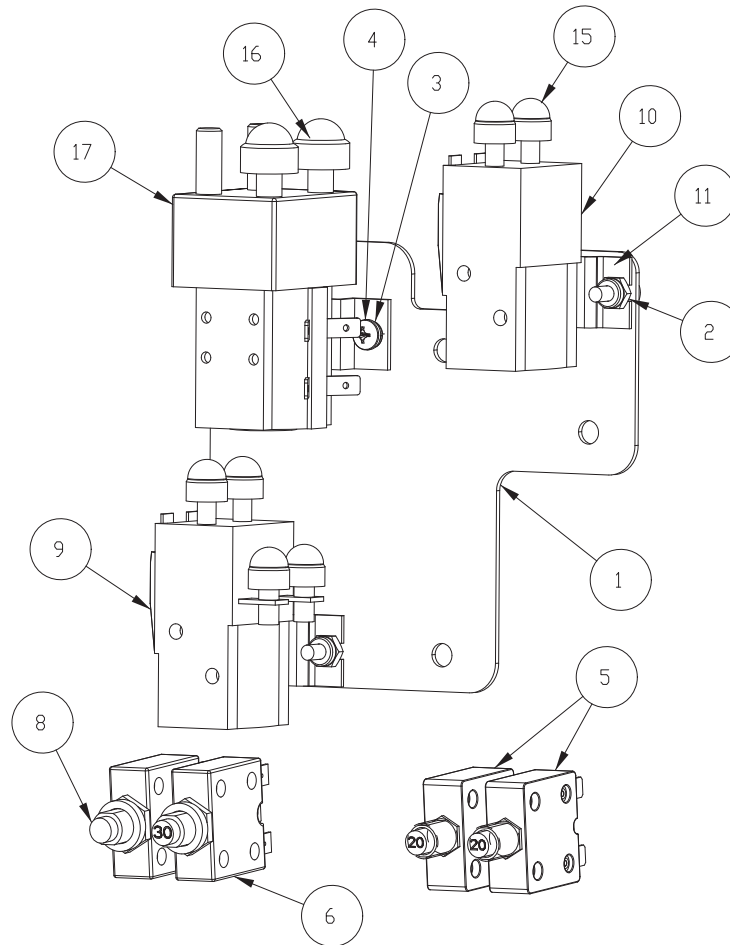
BILL OF MATERIAL - 172015			
ITEM	PART NO.	QTY	DESCRIPTION
1	172006	1	HANDLE
2	172053	1	BAIL PLATE WMT RH
3	172054	1	BAIL PLATE WMT LH
4	172057	2	LEAF SPRING
5	172059	1	BAIL, HANDLE
6	172074	2	SPACER, 5/16OD X 17GA, ALUM
7	270143	2	HANDLE PIVOT JAW
8	710353	4	SCR-MC RD HD 10-32 X.37 STL
9	710495	2	SCR-MC 4-40 X 1.25 STL Z
10	711310	4	NUT, HEX 10-32 ST PL
11	711350	2	NUT-NYLOC 10-32
12	711428	2	NUT-HEX 4-40
13	711503	6	WSR, FLAT#10
14	711543	4	WSR-HELICAL #10
15	712320	2	WSR-NYLON .22 X.45 X.04
16	712326	2	WSR-INT LOCK #4
17	712830	10	SCR-MC 10-24 X.62 STLZ TR HD
18	747603-3	2	SWITCH ASY, MICRO ROLLER W/PACK/CONDUIT
19	747715-1	1	CABLE ASY, 5 COND 18G TD





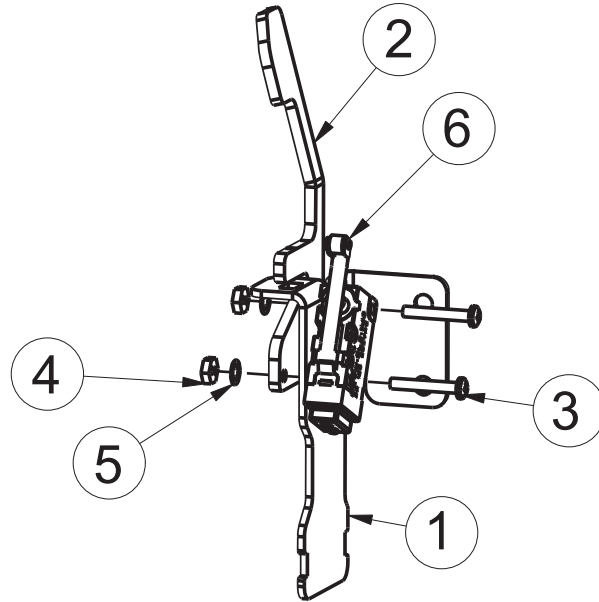
BILL OF MATERIAL - 172075-120			
ITEM	PART NO.	QTY	DESCRIPTION
1	369-416	3	NUT-HEX 1/4-20 ZP DOUBLE SERRATED
2	172077	1	ELEC BOX BOTTOM WMT
3	172088	1	ELEC BOX TOP WMT
4	172141	1	VAC SWITCH ASSY
5	172152	1	WELDMENT-VAC LEVER
6	172188	1	FOAM TAPE, 1/2" SQ X 16.5"
7	172381	1	SQUEEGEE CABLE ASSY (for curved squeegees)
8	670093	1	SPRING-COMP .502 X .6 X 1 ZINC
9	710035	2	SCR-PHMS 8-32 X 1.125 ZP
10	710178	3	SCR-THMS 1/4-20 X .50 ZP
11	711372	1	NUT-NYLOC 8-32 ZP
12	711383	2	NUT-HEX 5/16-18 ZP REVERSE LOC
13	711505	9	WASHER-FLAT 1/4 ZP
14	711508	1	WASHER-FLAT 3/8 X 1.00 X .08 ZP
15	711516	2	WASHER-FLAT 5/16 X 1.25 X .05 ZP
16	711544	2	WASHER-LOCK 1/4 SPLIT ZP
17	712320	2	WASHER-FLAT 20 X .45 X .048 NYLON
18	712533	1	SCR-PHMS 10-24 X 1.25 SS
19	712770	5	WASHER-INT TOOTH LOCK #10 SS
20	712810	5	SCR-RHMS 10-24 X .37 ZP
21	742748	4	CIRCUIT BREAKER-BOOT
22	747608	1	I-DRIVE, 24V 70A PM CONTROL (SEE NOTES)
23	747637	1	WIRE ASY, MACHINE-BATTERY E1720
24	747670	1	ELECTRICAL PANEL ASY, E1720TD
25	760134	2	MOUNT RING
26	762084	1	SPRING-EXT .25OD X 2" F.L. MUSIC
27	762400	1	BUSH -HEYCO 1-5/8 X 2-1/8 X 29/64 2400 B
28	828062	1	CABLE TIE LARGE
29	957761	1	CHRGR, SIGNET HBF300-24 NEMA 5-15 PLUG <i>see below</i>
30	15592033	2	CAP, SAFETY NUT COVER M8

Charger Settings	
Setting	Battery Type
1	Wet 115 AH Group 27, Minuteman Part # 956712
1	AGM 100 AH Group 27 OEM Minuteman Part # 956100 Crown AGM Only
2	Wet 140 AH Group 31 Minuteman Part # 956140 Crown and 956753 Trojan 130 AH
2	AGM 135 AH Group 31 Minuteman Part # 956135 Crown AGM Only
3	All Group 31 GEL and Non Minuteman AGM 135 AH
4	All Group 27 GEL, Minuteman 956157 Trojan 102AH Overdrive AGM and Non Minuteman AGM 100 AH
5 to 0	No Additional Functions

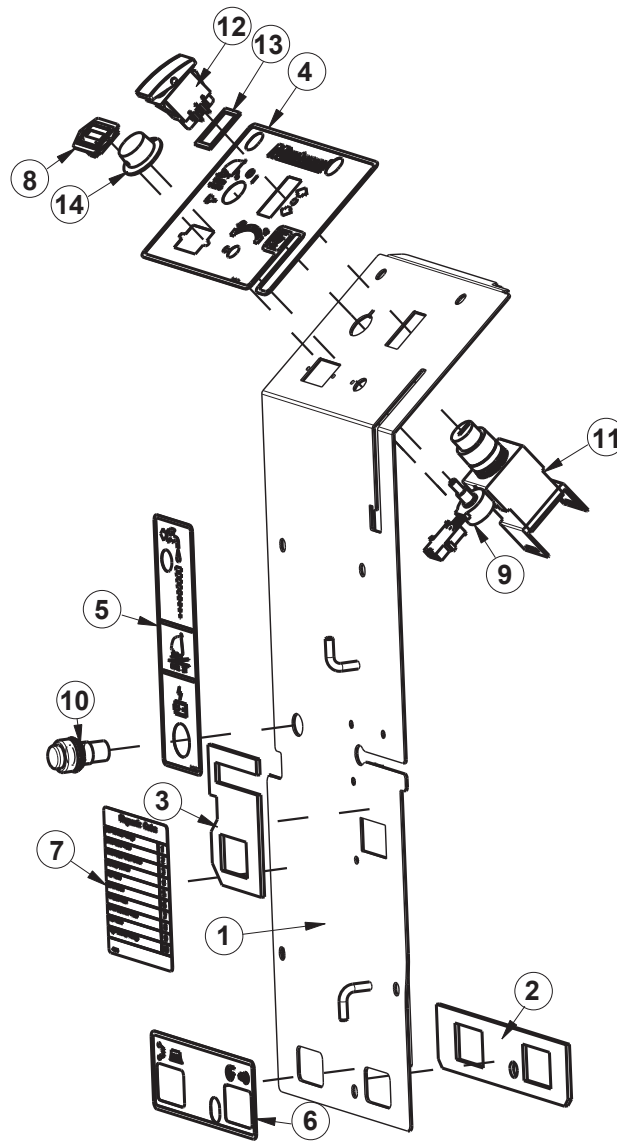


**BILL OF MATERIAL - 747670**

ITEM	PART NO.	REQ'D	DESCRIPTION
1	172189	1	PANEL, RELAY MOUNT
2	711350	4	NUT -NYLOC 10-32
3	711543	2	WSR-HELICAL #10
4	712800	2	SCR-MC 10-24 X .25 ST PL
5	740220	2	CIRCUIT BREAKER-20AMP 2-T ERMIN
6	740247	1	CIRCUIT BREAKER-30AMP PUSH BUT
7	740482	2	DIODE ASY, 1N4007 W/PIGGY (NOT SHOWN)
8	747609	1	CIRCUIT BREAKER-4.0AMP PUSHBUT
9	747615	1	RELAY, 2 POLE CURT IS (1720)
10	747616	1	RELAY, 1 POLE CURT IS (1720)
11	747619	2	BRACKET , RELAY 747615 & 747616
12	747640	1	WIRE ASY, 10G RED 13" (NOT SHOWN)
13	747641	1	WIRE ASY, 10G RED 7" (NOT SHOWN)
14	747669	1	WIRE HARNESS, E1720TD MAIN (NOT SHOWN)
15	15592025	6	CAP, SAFETY NUT COVER M 6
16	15592033	2	CAP, SAFETY NUT COVER M 8
17	90331026	1	RELAY, 24VDC 2 POLE 100A (HAKO)

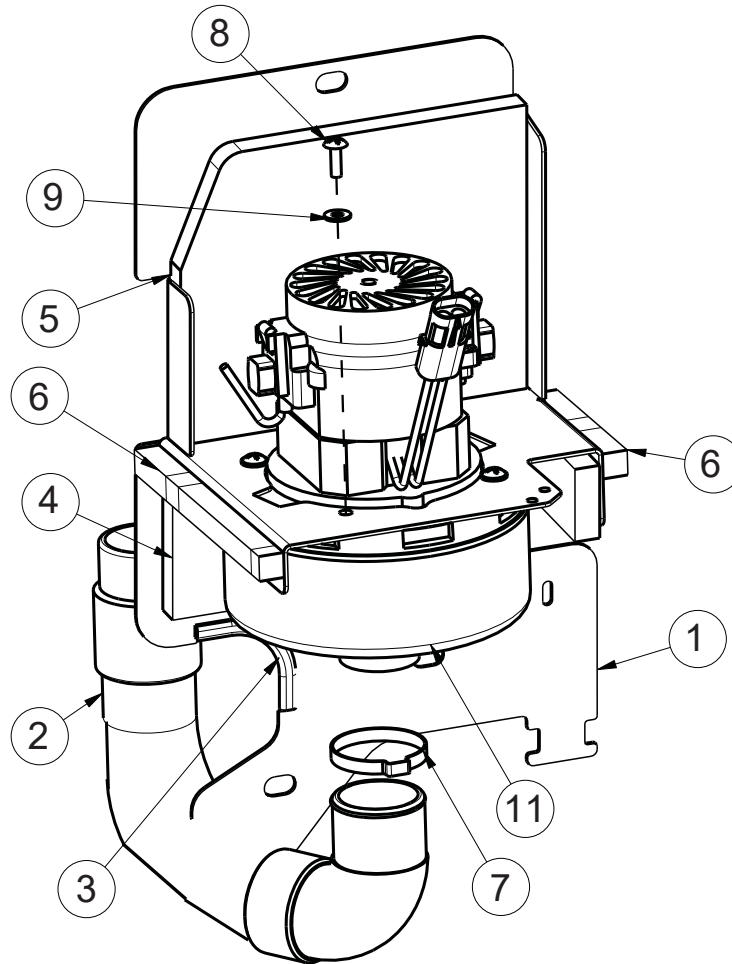


BILL OF MATERIAL - 172141			
ITEM	PART NO.	QTY	DESCRIPTION
1	172140	1	BKT, VAC SWITCH MOUNT
2	172337	1	VAC SWITCH COVER
3	710493	2	SCR-RHMS 4-40 X .75 ZP
4	711428	2	NUT-HEX 4-40 ZP
5	712326	2	WASHER-INT LOCK #4 SS
6	747603-2	1	SWITCH ASY, MICRO ROLLER W/PACK/CONDUIT



**BILL OF MATERIAL - 172079PB**

ITEM	PART #	QTY	DESCRIPTION	ITEM	PART #	QTY	DESCRIPTION
1	172182	1	TD COVER WMT	8	747011	1	GAUGE-BATTERY TRUCHARGE PGDT 36VDC
2	172193	1	GASKET, CB OUTLINE	9	747026	1	POTENTIOMETER ASSY, SPEED CONTROL
3	172194	1	GASKET, CHARGER CORD PLATE	10	747614	1	INDICATOR, BATTERY CHARGE STATUS
4	715682	1	DECAL, DASHBOARD PHOENIX 22 TD	11	747617-2	1	KEYSWITCH ASY, KEYSWITCH + HARNESS
5	715672	1	DECAL, CHARGE STATUS, SOLUTION CTRL	12	748201	1	SWITCH, DPDT ON/OFF/ON (SCV 2426)
6	715674	1	DECAL, TD CIRC BKRS, ES1720	13	748209	1	GASKET-FOR 2 POLE ROCKER SWITCHES
7	715699	1	DECAL, DIAGNOSTIC CODES, NARROW	14	809874	1	KNOB-SPEED CONTROL

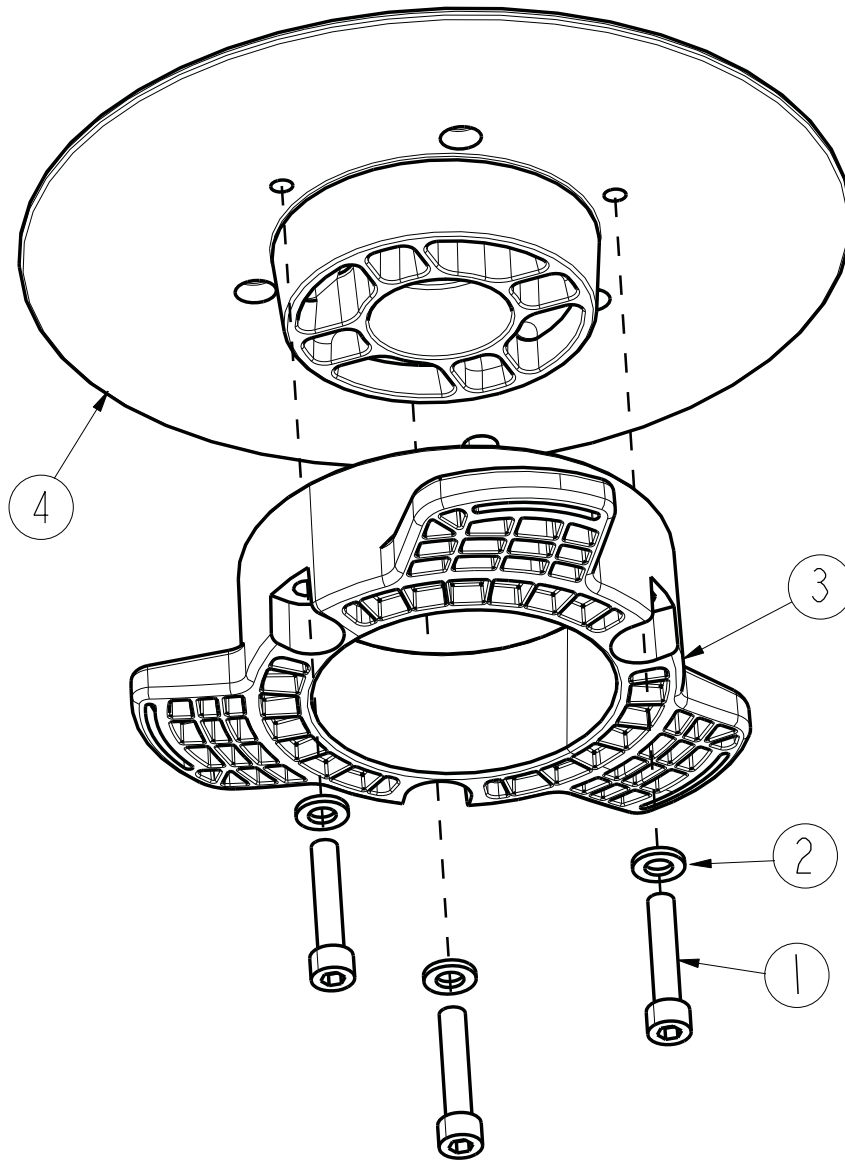


**BILL OF MATERIAL - 172050**

ITEM	PART NO.	QTY	DESCRIPTION
1	172045	1	VAC MOUNT WMT
2	172048	1	HOSE, STRETCH 13", 90 CUFF
3	172124	1	EDGE TRIM, .063 X 3.0, BLACK
4	172186	1	FOAM COVER FRONT 1, 1/2 THICK
5	172187	1	FOAM COVER FRONT 2, 1/2" THICK
6	172188	.5	FOAM TAPE, 1/2" SQ X 16.5"
7	450095	1	CLAMP-CRIMP 1.75" OD
8	711160	4	SCR-HI/LO 10 X .625 BLACK ZINC
9	711503	4	WASHER-FLAT #10 X .50 ZP
10	715967	1	DECAL - WARNING, DO NOT PICK UP (NOT SHOWN)
11	747607-1	1	VAC MOTOR ASY, 24V PERIF BYPASS

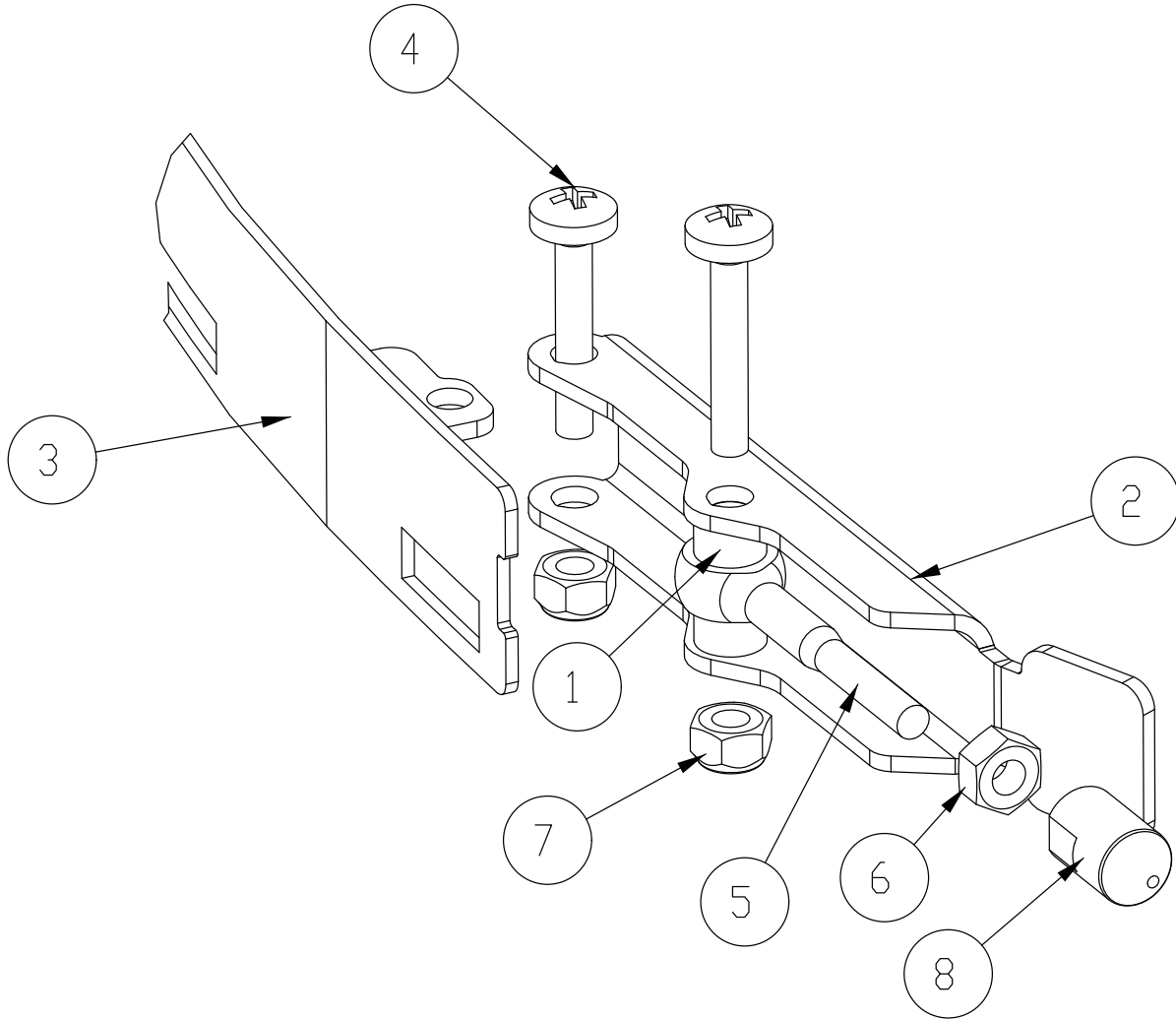


BILL OF MATERIAL - 172100TD			
ITEM	PART NO.	QTY	DESCRIPTION
1	81-166-A	6	SPECIAL WASHER
2	172040	1	DECK ANGLE ADJUST WMT
3	172044	1	PLATE, MOTOR MOUNT
4	172198	1	HOSE-NYLO REINF 3/8 X 22.5"
6	172296	1	BKT, E1720 DECK MOUNT RT
7	172297	1	BKT, E1720 DECK MOUNT LEFT
8	172375	1	DECK COVER WMT, 20"
9	172384	1	E20 FLOATING BRUSH DECK SKIRT
10	210153	1	ROLLER WHEEL
11	450076	1	CLAMP-HOSE 5/8 (.590-.791) SS
12	710990	6	SCR-BHSCS 3/8-24 X .75 ZP
13	710991	1	SCR-HH 3/8-24 X .62 ZP GR 5
14	711375	2	NUT-NYLOC 3/8-16 ZP
15	711504	2	WASHER-FLAT 1/4 SS
16	711507	4	WASHER-FLAT 3/8 X 1.12 X .06
17	711523	3	WASHER-WAVE .37 X .68 X .08
18	711546	6	WASHER-LOCK 3/8 SPLIT ZP
19	711679	2	PIN-CLEVIS 3/8 X .750 ZP
20	711855	1	WASHER-FENDER 3/8 X 1.12 X .10 ZP HARD
21	712301	6	WASHER-FLAT 3/8 X .87 X .06 ZP
22	712565	2	SCR-THMS 1/4-20 X .62 SS
23	717024	4	SCR-HH M8-1.25 X 20 ZP GRADE 8.8
24	717025	1	WASHER-FLAT 13/16 X 1.25 X .08 ZP
25	747600	1	MOTOR, 24VDC PM 600W
26	11127000	3	SCR-SHCS M6X30 SS, ISO4762
27	11717203	1	BLT-HH FLG M8X1.25X20 PRECOTE, ZD 10.9
28	12310256	3	WSR-FLT 6.4X12X1.6, SS DIN125
29	90311663	1	FITTING, WATER NOZZLE W/ MOUNT HOLES
30	90541814	1	DRIVE HUB, PLASTIC, 3-LOBE
31	172096MCH	1	HUB BASE MACHINED

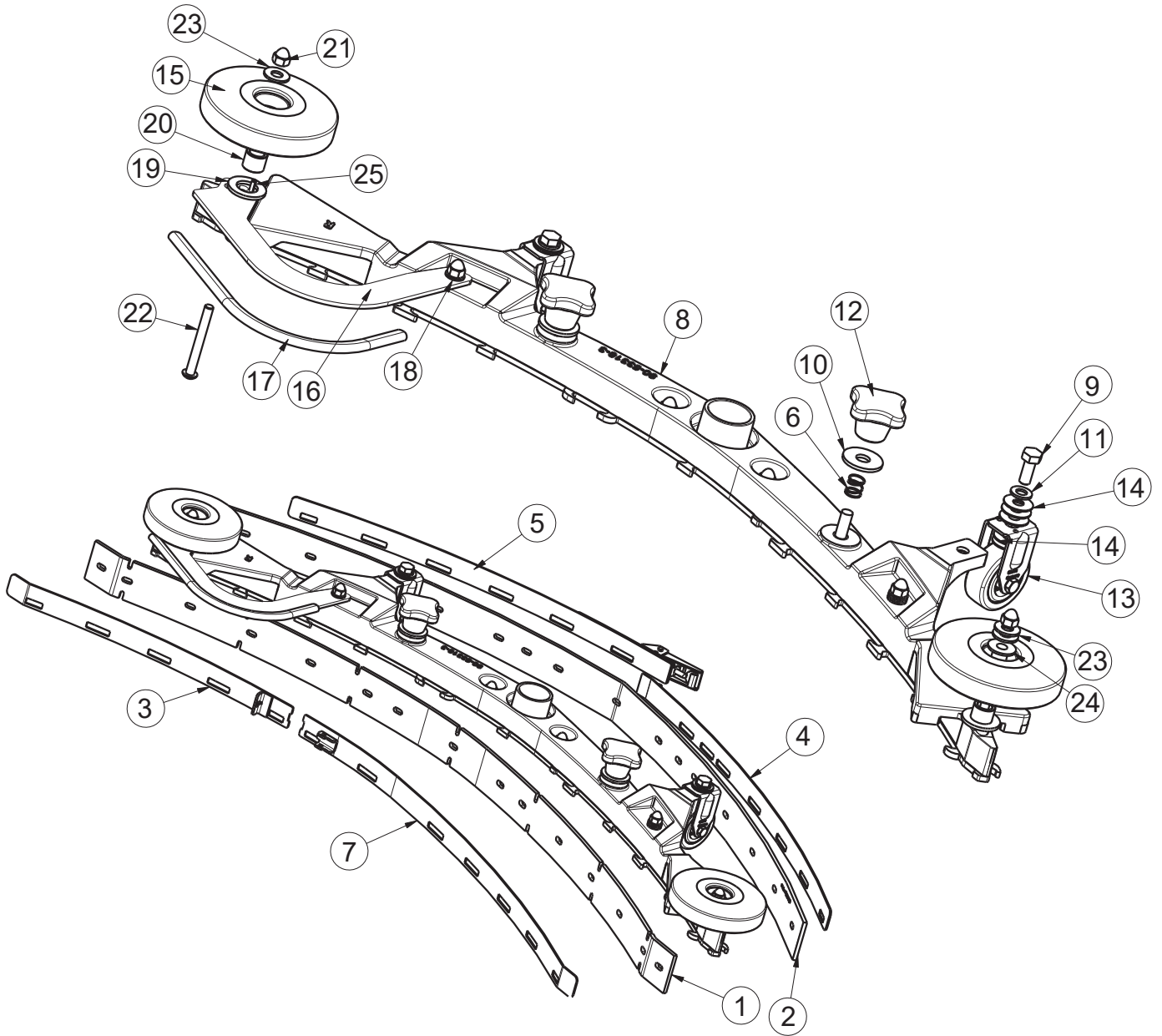


BILL OF MATERIAL - 172510			
ITEM	PART NO.	QTY	DESCRIPTION
1	11127000	3	SCR-SHCS M6X30 SS, ISO4762
2	12310256	3	WSR-FLT 6.4X12X1.6, SS DIN125
3	90541814	1	DRIVE HUB, PLASTIC 3 LOBE
4	172096MCH	1	BASE, DRIVE HUB WITH KEYWAY

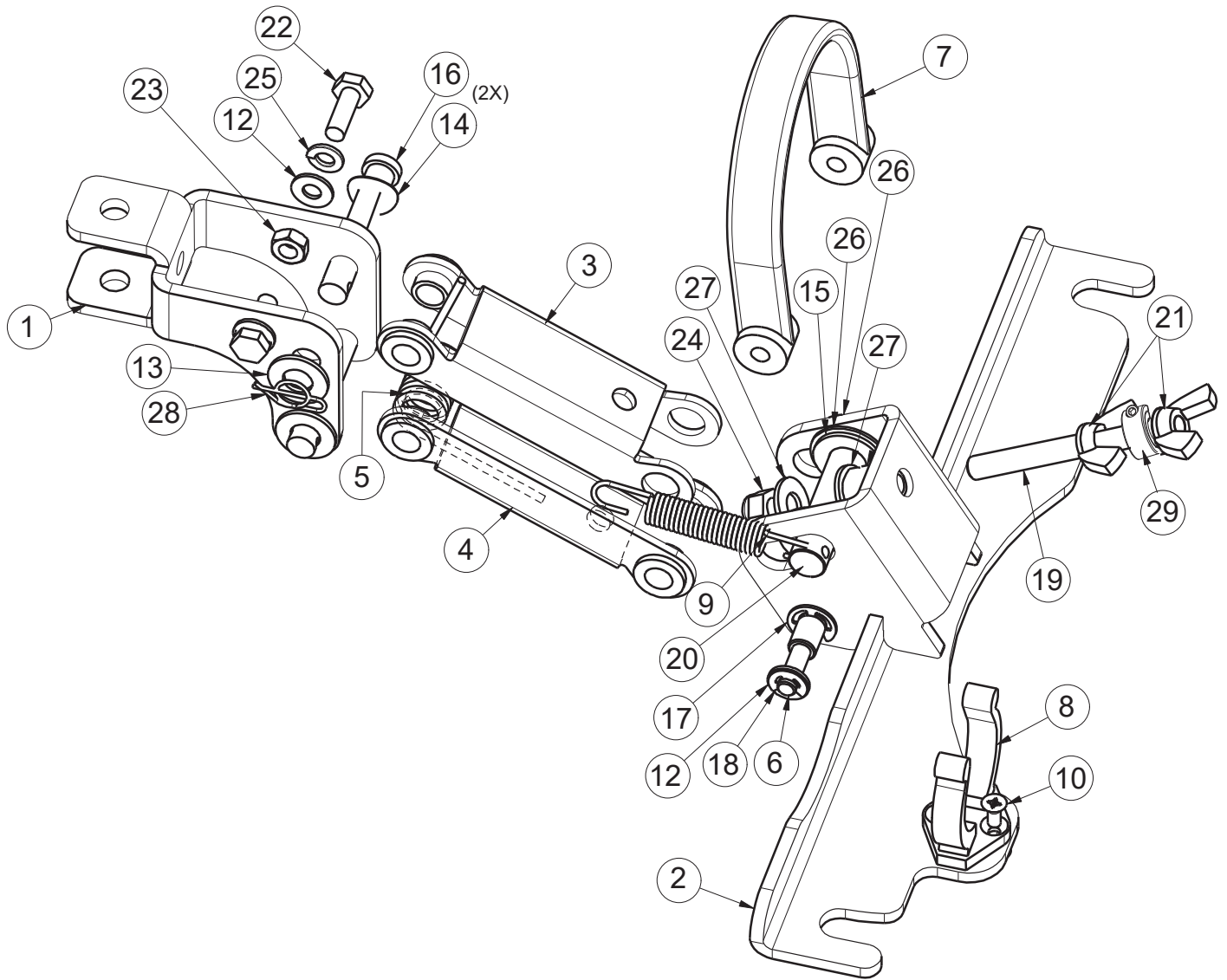




BILL OF MATERIAL - 172440			
ITEM	PART NO.	QTY	DESCRIPTION
1	172074	2	SPACER, 5/16OD X 17GA, ALUM
2	172234	1	LEVER, 90535758
3	172240	1	STRAP WMT, FRONT LEFT
4	11175494	2	SCR-MC M5 X 25 SS DIN7985
5	11518313	1	BLT-EYE M5 X 40 SS
6	12022430	1	NUT- HEX, M5, SS DIN934
7	12040283	2	NUT- HEX, M5 NYLON LOCK, SS DIN985
8	90513631	1	PIN, THD 90513631



BILL OF MATERIAL - 172534			
ITEM	PART NO.	QTY	DESCRIPTION
1	172162	1	SQUEEGEE BLADE, FRONT 34" (860) 4MM PU
2	172163	1	SQUEEGEE BLADE, REAR 34" (860), 4MM PU
3	172241	1	STRAP WMT, FRONT RT - 34" (860) SQG
4	172245	1	STRAP WMT, REAR LEFT - 34" (860) SQG
5	172246	1	WELD-STRAP REAR RT - 34" (860) SQG
6	172429	2	SPRING, COMP .4 ID X .5FL SS
7	172440	1	STRAP W/ LATCH, FRONT LEFT, 34" SQG
8	172535	1	34" SQUEEGEE BASE ASM
9	717030	2	SCR-HH M8-1.25 X 20 SS
10	717040	2	WASHER-FLAT M10.5 X 30 X 2.5 SS
11	12310264	2	WSR-FLT M8.4 X 16 X 1.6 A2 SS 140HV DIN
12	17133026	2	STAR HANDLE, M10, BLACK
13	90513094	2	FIXED CASTER
14	90531112	10	WASHER-FLAT 8.3 x 22 x 1.00mm STAINLESS
15	90548397	2	ROLLER - PLASTIC, 100mm DIA. (4")
16	172271	1	BUMPER, 34" SQG
17	172274	1	EDGE TRIM, 5/16 X 10" BLACK
18	711504	5	WASHER-FLAT 1/4 SS
19	711527	2	WASHER-FLAT .63 X 1.12 X .09
20	430322	2	BUSHING-.435 X .625 X .50 ZINC
21	712591	6	NUT-ACORN 1/4-20 SS
22	712592	2	SCR-BHSCS 1/4-20 X 2.25 SS
23	712772	3	WASHER-FLAT .344 X .75 X .06 SS
24	840202	1	BUSHING-FLG .31 X .435 X .325 NYL
25	3400727	1	PIN-ROLL 1/8 X .50 ZINC



# Squeegee Mechanism Assembly BOM

## BILL OF MATERIAL - 172150

ITEM	PART NO.	QTY	DESCRIPTION
1	172134	1	BKT, SQG HINGE
2	172155	1	SQUEEGEE MOUNT WMT
3	172196	1	UPPER SQG LINK
4	172197	1	LOWER SQG LINK
5	172261	1	SPRING, TORSION 1720 SQG
6	172352	1	PIN, 3/8 X 3.0, SQG STRAP
7	172357	1	STRAP, 9" PU, BLACK
8	260579	1	CLIP-TOOL 1.5 INCH HOSE
9	430051	1	SPRING-RETURN .313 X .438 X 2.93 SS
10	710528	2	SCR-FHMS 8-32 X .37 BRASS
11	711420	1	NUT-JAM 5/16-18 ZP
12	711504	4	WASHER-FLAT 1/4 SS
13	712767	2	WASHER-FLAT .406 X .75 X .035 SS
14	711523	2	WASHER-WAVE .37 X .68 X .08
15	711592	2	WASHER-FLAT 1/2 X .90 X .064 NYLON
16	711678	2	PIN-CLEVIS 3/8 X 2 1/4 ZP
17	711717	2	RET RING-E EXT .37
18	711720	2	RET RING-E EXT .25
19	712147	1	ROD-THD 5/16-18 X 3.25 SS
20	712148	1	PIN-CLEVIS 1/2 X 2.25 WITH HOLE
21	712157	2	NUT-WING 5/16-18 SS
22	712562	2	SCR-HH 1/4-20 X .75, 18-8 SS
23	712665	2	NUT-HEX 1/4-20 SS
24	712683	1	NUT-NYLOC 5/16-18 SS
25	712758	2	WASHER-LOCK 1/4 SPLIT SS
26	712760	3	WASHER-FLAT .56 X 1.06 X .04 SS
27	712772	2	WASHER-FLAT .344 X .75 X .06 SS
28	3400125	1	RING-RUE 3/8
29	713528	1	COLLAR-THREADED CLAMP 5/16-18X5/16-BK OX

# Wiring Diagrams

1

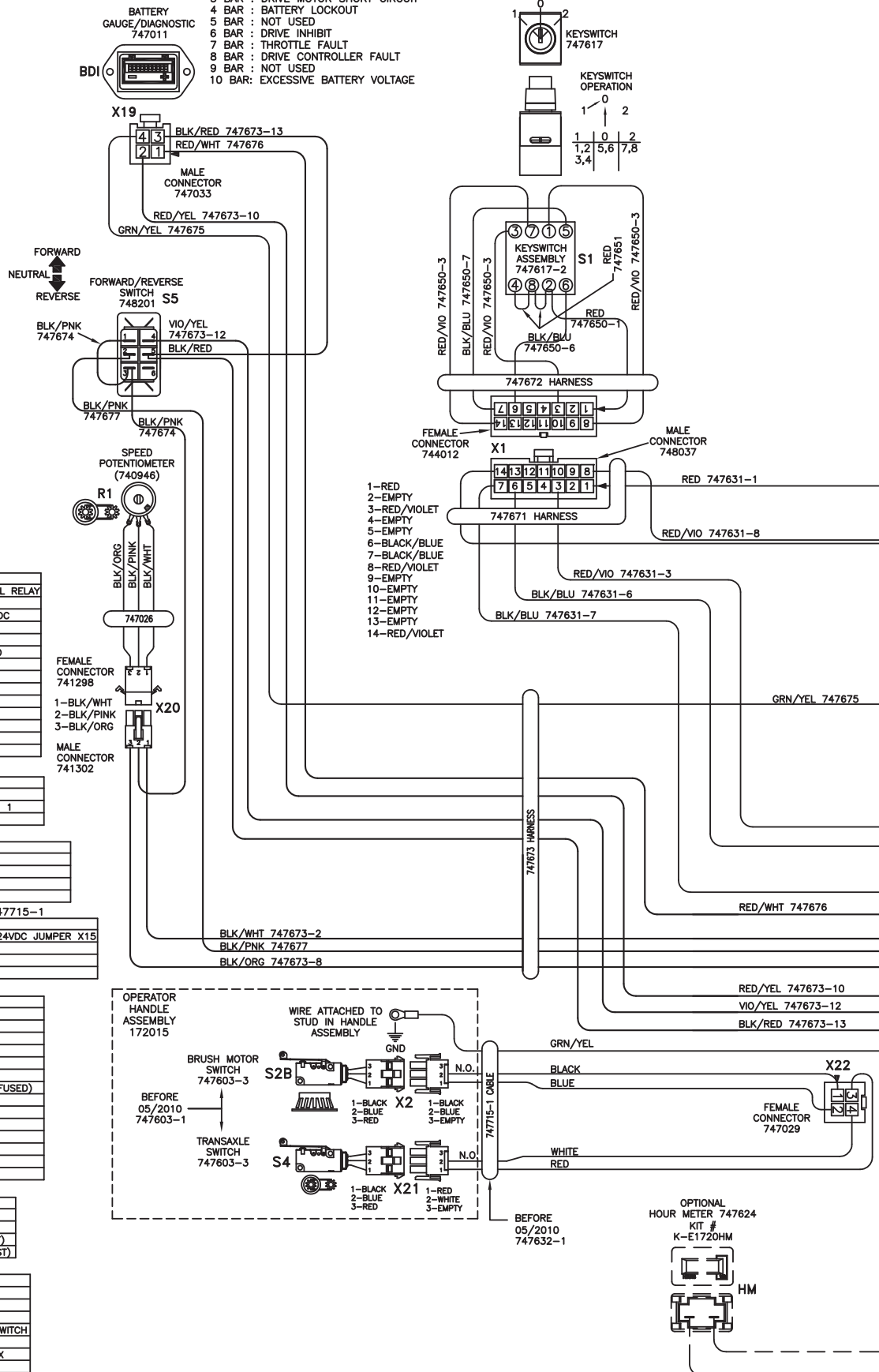
PAGE LAYOUT



PAGES GO TOGETHER AS SHOWN TO SEE THE ENTIRE SCHEMATIC AS ONE.

715678: DIAGNOSTIC CODE DECAL  
 DIAGNOSTIC CODES: BATTERY GAUGE: 747011  
 1 BAR : CHARGE BATTERIES  
 2 BAR : DRIVE MOTOR CONNECTION  
 3 BAR : DRIVE MOTOR SHORT CIRCUIT  
 4 BAR : BATTERY LOCKOUT  
 5 BAR : NOT USED  
 6 BAR : DRIVE INHIBIT  
 7 BAR : THROTTLE FAULT  
 8 BAR : DRIVE CONTROLLER FAULT  
 9 BAR : NOT USED  
 10 BAR : EXCESSIVE BATTERY VOLTAGE

ELECTRICAL  
 BOX COVER  
 ASSEMBLY  
 172079



X1: MAIN KEYSWITCH ASSEMBLY: 747617-1

PIN #	COLOR	WHERE TO/FROM
1	RED	X13: BATTERY CHARGER INTERNAL RELAY
2	-	-
3	RED/VIOLET	BRUSH MOTOR RELAY COIL: 24VDC
4	-	-
5	-	-
6	BLACK/BLUE	BRUSH RELAY NORMALLY CLOSED
7	BLACK/BLUE	BRUSH UNLOAD SWITCH P:B
8	RED/VIOLET	X12: MAIN RELAY COIL: 24VDC
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	RED/VIOLET	X12: MAIN RELAY COIL: 24VDC

X20: SPEED POTENTIOMETER: 747026

PIN #	COLOR	WHERE TO/FROM
1	BLACK/WHITE	X23: I-DRIVE P:2
2	BLACK/PINK	FORWARD/REVERSE SWITCH 3 TO 1
3	BLACK/ORANGE	X23: I-DRIVE P:8

X22: OPERATOR HANDLE CABLE: 747715-1

PIN #	COLOR	WHERE FROM/TO
1	BLUE	X22.1 TO S2B:X2.B
2	BLACK	X22.2
3	RED	X22.3 TO S4:X21.A
4	WHITE	X22.4 TO S4:X21.B

X22: CONNECTOR TO OPERATOR HANDLE CABLE: 747715-1

PIN #	COLOR	WHERE FROM/TO
1	RED/VIOLET	X22.1 TO X10 JUMPER K2:COIL:24VDC JUMPER X15
2	RED/VIOLET	X22.2 TO X11 TO S2A:X7.A
3	BLACK/PINK	X22.3 TO A1:X23.1
4	BLACK/PINK	X22.4 TO S5.2

X23: I-DRIVE HARNESS: 747673

PIN #	COLOR	WHERE TO/FROM
1	BLACK/PINK	X22: P:3
2	BLACK/WHITE	X20: SPEED POT P:1
3	EMPTY	-
4	EMPTY	-
5	RED/WHITE	JUMPER TO P:7 (ON/OFF)
6	BROWN/GREEN	JUMPER TO P:14. (INHIBIT 1)
7	RED/WHITE	JUMPER TO P:5 (24VDC IDRIVE FUSED)
8	BLACK/ORANGE	X20: SPEED POT P:3
9	EMPTY	-
10	RED/YELLOW	X19: BATTERY GAUGE P:2
11	EMPTY	-
12	VIOLET/YELLOW	FORWARD/REVERSE SWITCH 4
13	BLACK/RED	JUMPER TO FOR/REV SWITCH 5
14	BROWN/GREEN	JUMPER TO P:6. (INHIBIT 2)

BATTERY CHARGER: 957761 or 957760

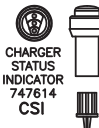
PIN #	COLOR	WHERE TO/FROM
X13	RED	X13: KEYSWITCH P:1
X14	BLACK	X14: CONTROL CB 4.0A
14GA	RED	MAIN RELAY + (REAR LEFT POST)
14GA	BLACK	MAIN RELAY - (FRONT LEFT POST)

OTHER WIRE COLORS

PIN #	COLOR	WHERE TO/FROM
1	RED	BATTERY 24VDC: +
2	BLACK	BATTERY OVDC: -
3	GREEN/YELLOW	GROUND
4	BLACK/BLUE	BRUSH UNLOAD CIRCUIT
5	RED/BLACK	BRUSH UNLOAD CIRCUIT:MICRO SWITCH
6	RED/VIOLET	24VDC AFTER MAIN KEYSWITCH
7	GREY/RED	OPTIONAL POWER 24VDC: 3A MAX
8	GREY/BLACK	OPTIONAL POWER OVDC: 3A MAX

2

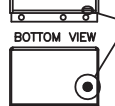
ELECTRICAL BOX ASSEMBLY  
172075-120  
172075-230



120VAC 60Hz or 230VAC 50Hz (different plug) CORD 748680CE 748680 (UK)

CHARGER 957760 IEC60320 C14

BATTERY CHARGER 100-240V~ 50/60Hz 957761 (115VAC) NEMA 5/15P 957760 (230VAC) IEC 60320 C14

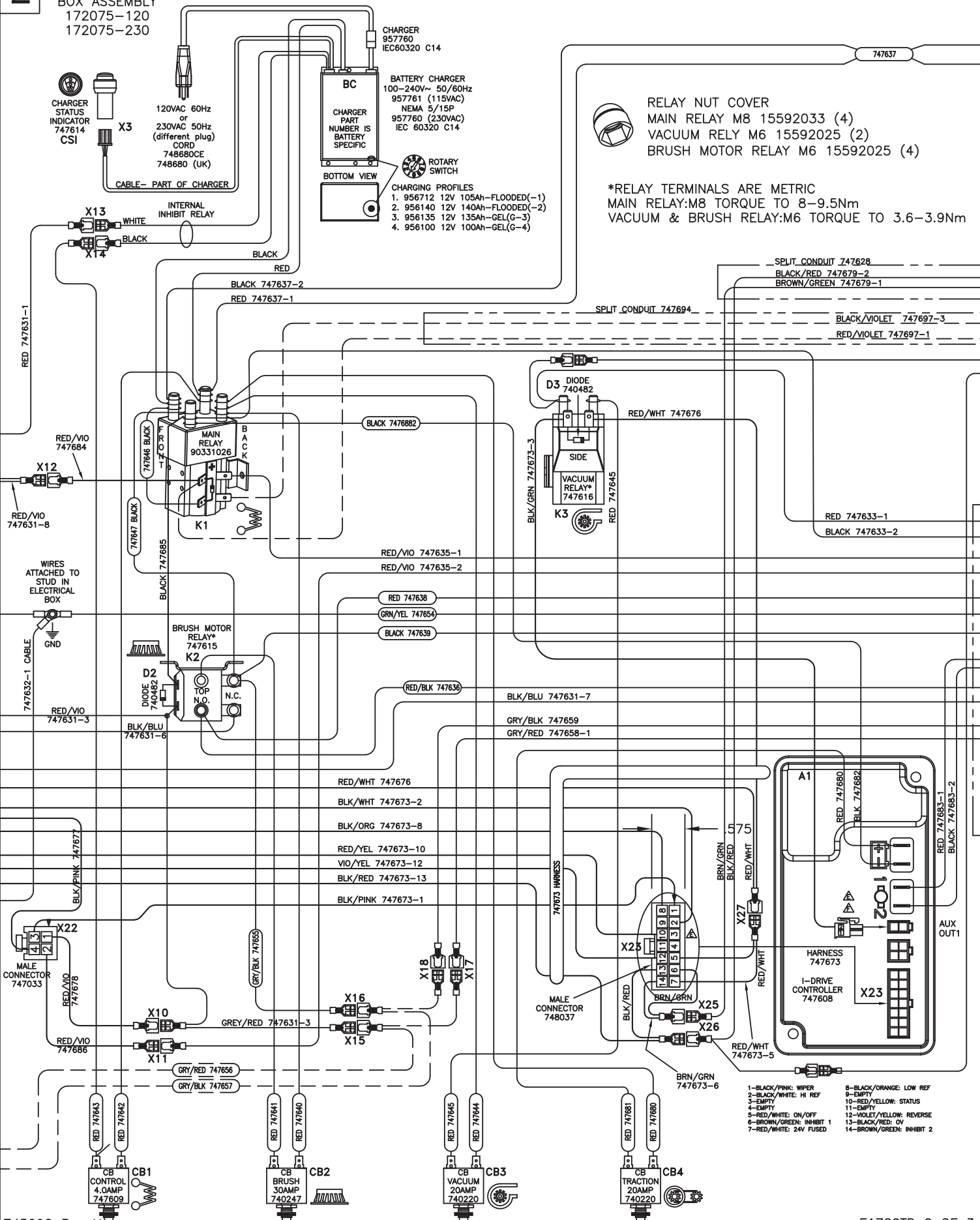


- CHARGING PROFILES
1. 956712 12V 105Ah-FLOODED(-1)
  2. 956140 12V 140Ah-FLOODED(-2)
  3. 956135 12V 135Ah-GEL(G-3)
  4. 956100 12V 100Ah-GEL(G-4)

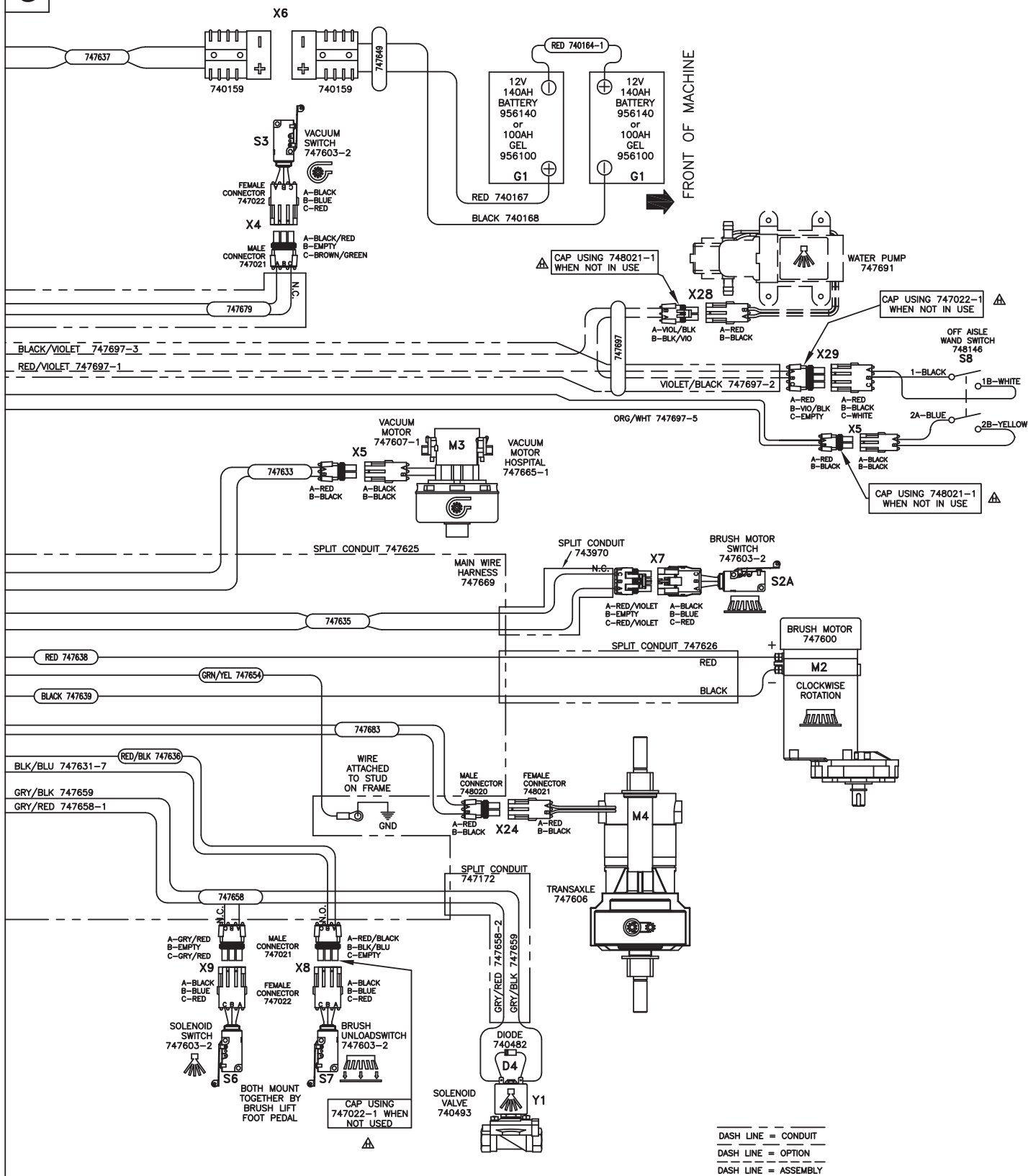


RELAY NUT COVER  
MAIN RELAY M8 15592033 (4)  
VACUUM RELY M6 15592025 (2)  
BRUSH MOTOR RELAY M6 15592025 (4)

\*RELAY TERMINALS ARE METRIC  
MAIN RELAY:M8 TORQUE TO 8-9.5Nm  
VACUUM & BRUSH RELAY:M6 TORQUE TO 3.6-3.9Nm



- 1-BLACK/PINK: WIPER
- 2-BLACK/WHITE: HI REF
- 3-EMPTY
- 4-EMPTY
- 5-RED/WHITE: ON/OFF
- 6-BROWN/GREEN: INHIBIT 1
- 7-RED/WHITE: 24V FUSED
- 8-BLACK/ORANGE: LOW REF
- 9-EMPTY
- 10-RED/YELLOW: STATUS
- 11-EMPTY
- 12-VIOLET/YELLOW: REVERSE
- 13-BLACK/RED: OV
- 14-BROWN/GREEN: INHIBIT 2





**Revision J**  
**Effective January 2014**  
**PowerBoss Made Simple Industrial Limited Warranty**

Minuteman International owner of PowerBoss warrants to the original purchaser/user that the product is free from defects in workmanship and materials under normal use. PowerBoss will, at its option, repair or replace without charge, parts that fail under normal use and service when operated and maintained in accordance with the applicable operation and instruction manuals. All warranty claims must be submitted through and approved by factory authorized repair stations.

This warranty does not apply to normal wear, or to items whose life is dependent on their use and care. Parts not manufactured by PowerBoss are covered by and subject to the warranties and/or guarantees of their manufacturers. Please contact Minuteman International for procedures in warranty claims against these manufacturers.

**Special warning to purchaser** -- Use of replacement parts not manufactured by PowerBoss or its designated licensees, will void all warranties expressed or implied. A potential health hazard exists without original equipment replacement.

All warranted items become the sole property of Minuteman International or PowerBoss or its original manufacturer, whichever the case may be.

PowerBoss disclaims any implied warranty, including the warranty of merchantability and the warranty of fitness for a particular purpose. PowerBoss assumes no responsibility for any special, incidental or consequential damages.

This limited warranty is applicable only in the U.S.A. and Canada, and is extended only to the original user/purchaser of this product. Customers outside the U.S.A. and Canada should contact their local distributor for export warranty policies. PowerBoss is not responsible for costs or repairs performed by persons other than those specifically authorized by PowerBoss. This warranty does not apply to damage from transportation, alterations by unauthorized persons, misuse or abuse of the equipment, use of non-compatible chemicals, or damage to property, or loss of income due to malfunctions of the product. If a difficulty develops with this machine, you should contact the dealer from whom it was purchased.

This warranty gives you specific legal rights, and you may have other rights, which vary from state to state. Some states do not allow the exclusion or limitation of special, incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you.

	Travel *	Labor	Parts	Engine	Extended Warranty	Costs
<b>Walk Behind</b>						****
Battery Sweepers	90 Days	12 months	12 months	N/A	N/A	-
IC Sweepers	90 Days	12 months	12 months	Through Eng. Mfg.	N/A	-
Battery Scrubbers	90 Days	24 months	36 months	N/A	N/A	-
<b>Riders</b>						
Battery Scrubbers	90 Days	24 months	36 months or 2000 hr.	N/A	36 months parts + 24 labor (or 3000 Hours)	5%
IC Sweeper/Scrubbers 82 & 90	90 Days	6 months	24 months or 2000 hr.	24 months or 3000 hrs**	36 months parts + 24 months labor (or 3000 Hours) + 180 days travel	5%
I.C. Sweepers 9X, 10X	90 days	6 months	48 months or 3000 hrs.	60 months or 3000 hrs**	48 months parts + 24 months labor (or 3000 Hours) + 180 days travel	5%
NAUTILUS Scrubber	180 Days	24 months	36 months or 2000 hr.	36 months or 2000 hrs**	48 months parts + 24 months labor (or 3000 Hours) + 180 days travel	3%
All Rider, I.C. (excluding APEX series)					<b>Bumper to Bumper</b> 5000 hr max. 48 months parts, 48 months labor, 180 days travel	8%
<b>Exceptions</b>						
Apex Series Sweeper	90 Days	12 months	12 months or 1000 hr.	12 months or 1000 hrs**	24 months parts + 24 months labor (or 2000 Hours)	5%
6X Sweeper	90 Days	6 months	24 months or 2000 hr.	24 months or 2000 hours**	36 months parts + 24 months labor (or 3000 Hours) + 180 day travel	5%

- Tank Bladders** Eight years/ no additional labor
- Polyethylene plastic tanks** Ten years/ no additional labor
- Batteries** 0-3 months full replacement, 4-12 prorated credit
- Chargers** One-year replacement
- Aftermarket Replacement parts** Ninety days from date of purchase

\*Two-Hour Cap Per Service Call

\*\*Through Engine Manufacturer. See Section 3 of Warranty Manual for Engine Warranty Exceptions

\*\*\* Based Upon Dealer's Certification Status:

Extended Warranty MUST Be Signed Up Within 30 Days of Delivery to End User  
 (Dealer Has 1Year From Receiving Machine To Sign Up For Extended Warranty)

\*\*\*All above labor and travel reimbursed at 65% or 75% of the published shop rate.

# ***“The Power of Clean”***

**PowerBoss® is a Full Line Manufacturer of Sweepers and Scrubbers,  
for Industrial Facilities.**

PowerBoss®, Minuteman International, Inc. 14N845 U.S. Route 20 Pingree Grove, Illinois 60140  
Phone: 800-323-9420 [www.PowerBoss.com](http://www.PowerBoss.com) Email: [tech@powerboss.com](mailto:tech@powerboss.com)  
**A Member of the Hako Group**