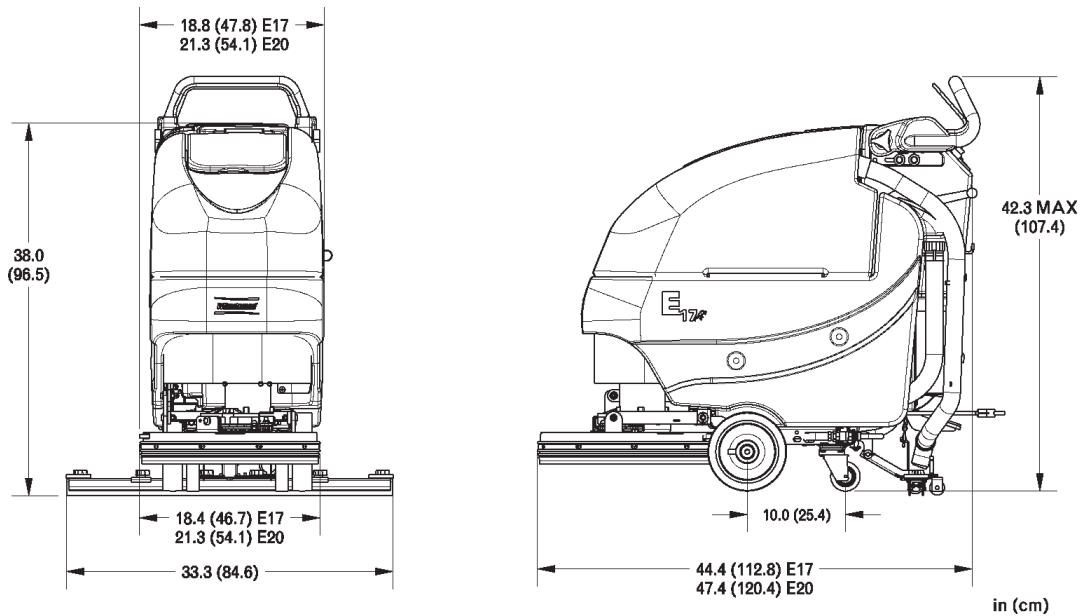


**Parts Manual**  
**E17/E20 Electric Floor Scrubber**  
**Disc Brush Drive**

# Technical Specifications

Model **E17/E20 Electric**  
 Model No. E17115BD / E20115BD / E17230BD / E20230BD

	<b>E17</b>	<b>E20</b>
Current (Max)	32 amps	32 amps
Sound Level	69 dBA	69 dBA
Cleaning path width	17 in (43 cm)	20 in (51 cm)
Squeegee width	33 in (84 cm)	34 in (86 cm)
Theoretical productivity	12,750 ft <sup>2</sup> /hr ( 1,185 m <sup>2</sup> )	15,000 ft <sup>2</sup> /hr ( 1,394 m <sup>2</sup> )
Working speed	1.7 mph (2.7 km per hr)	1.7 mph (2.7 km per hr)
Rated voltage	24 volts	24 volts
Vacuum flow	65 cfm (110 m <sup>3</sup> /hr)	65 cfm (110 m <sup>3</sup> /hr)
Vacuum waterlift	45 inches ( 112mbar)	45 inches ( 112mbar)
Vacuum power	.60 HP (450 W)	.60 HP (450 W)
Brush type	Disc	Disc
Brush motor(s) power	3/4 HP (560W)	3/4 HP (560W)
Number of brushes	1	1
Brush RPM	180 RPM	180 RPM
Aqua-Stop equipped	Coming Soon	Coming Soon
Solution capacity	12Gal (45 liters)	12 Gal (45 liters)
Recovery capacity	13 Gal (49 liters)	13 Gal (49 liters)
Working Grade	2%	2%
Weight	316 lbs (143 kgs)	312 lbs (142 kgs)
Dimensions (LxWxH)	44.4 x 18.8 x 42.3 (112.8 x 47.8 x 107.4 cm)	47.4 x 21.3 x 42.3 (120.4 x 54.1 107.4 cm)



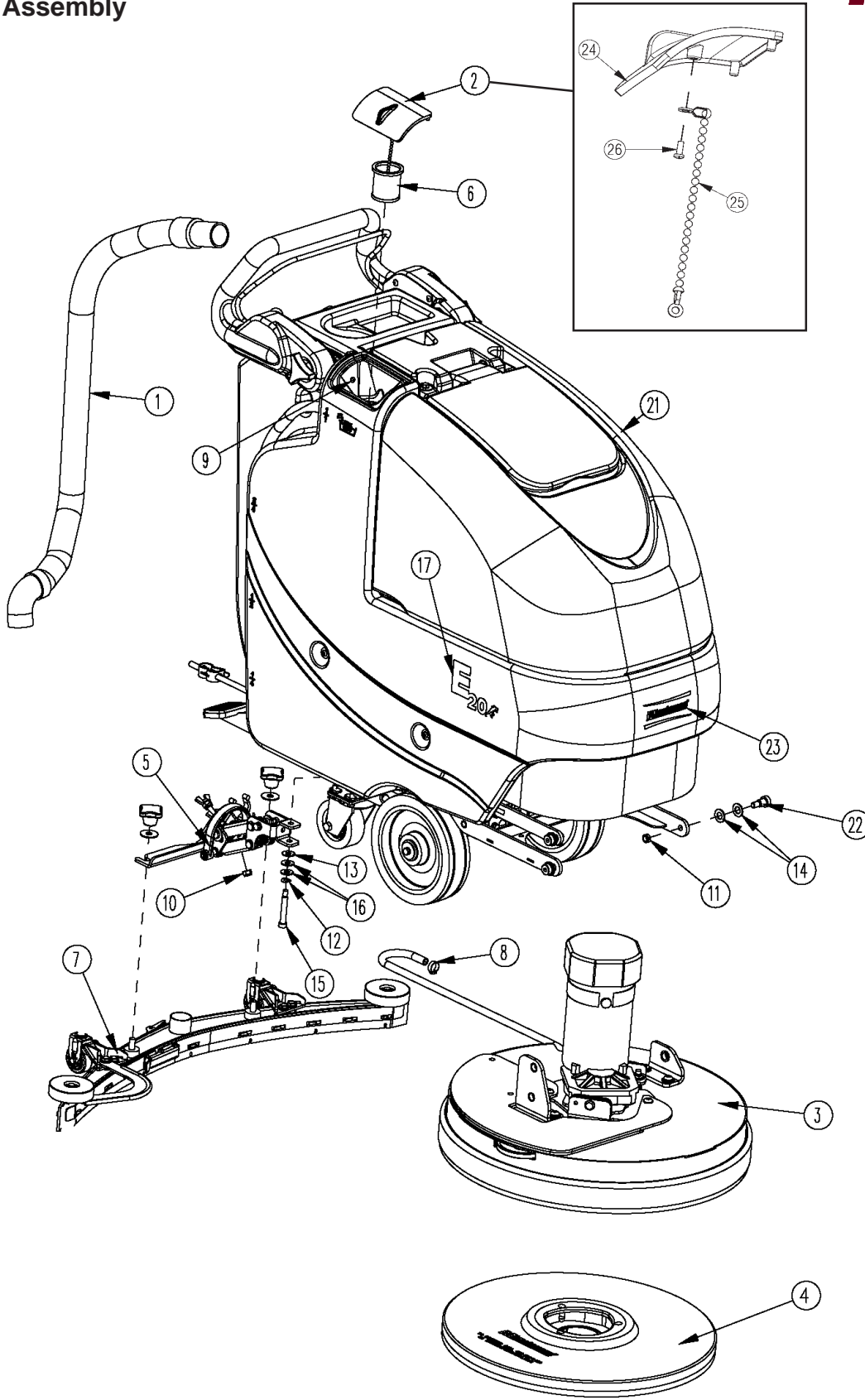
### For Safety When Servicing or Maintaining Machine

- Stop on level surface.
- Disconnect the power to the machine by pulling the red Power Supply Connector located under the recovery tank.
- Avoid moving parts. Do not wear loose jackets, shirts, or sleeves when working on machine.
- Do not clean machine with a pressure washer.
- Authorized personnel must perform repairs and maintenance. Use Minuteman supplied replacement parts.

## Table of Contents

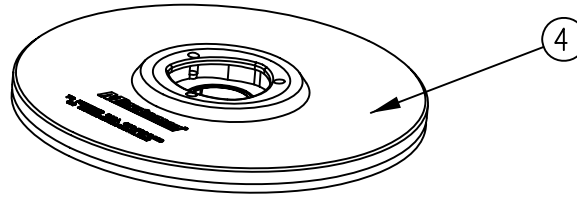
Main Assembly .....	1
Main Assembly BOM .....	2
Retainers/Optional Brushes .....	3
Brush Drive Base Assembly .....	4
Brush Drive Base Assembly BOM .....	5
Power Assembly .....	6
E17/20 Base Assembly .....	7
Chassis Assembly .....	8
Chassis Assembly BOM .....	9
Solution Valve Assembly .....	10
Solution Tank Assembly .....	11
Lift Pedal Stop Assembly .....	12
Recovery Tank Assembly .....	13
Recovery Tank Assembly BOM .....	14
Handle Assembly .....	15
Electrical Box Assembly .....	16
Electrical Box Assembly BOM .....	17
Electrical Box Cover Assembly .....	18
Vac Motor Assembly .....	19
17" Brush Deck Assembly .....	20
17" Brush Deck Assembly BOM .....	21
20" Brush Deck Assembly .....	22
20" Brush Deck Assembly BOM .....	23
E17/20 Brush Hub Assembly .....	24
E17 Rear Squeegee Assembly (Curved) .....	25
E17 Tension Band Sub-Assembly .....	26
E20 Rear Squeegee Assembly (Curved) .....	27
E20 Tension Band Sub-Assembly .....	28
Squeegee Mechanism Assembly .....	29
Kit K-E1720S - Water Solenoid Valve .....	30
Wiring Diagrams .....	31
<b>WARRANTY .....</b>	<b>34</b>

# Main Assembly



BILL OF MATERIAL				
ITEM	PART NO.	REQ'D	DESCRIPTION	NOTES
1	172010	1	HOSE, CLEAR VAC W/ 45 CUFF	
2	172018	1	SOLUTION TANK LID ASSY	
3A	172090	1	BRUSH DECK ASSY 17"	E17
3B	172100	1	BRUSH DECK ASSY 20"	
4A	172117-2	1	17" PAD DRIVER - SEE RETAINER/BRUSH PAGE	E17 - BEFORE S/N 1202XXXX*
	172517-2	1	17" PAD DRIVER - SEE RETAINER/BRUSH PAGE	E17 - AFTER S/N 1202XXXX*
4B	172520-2	1	20" PAD DRIVER - SEE RETAINER/BRUSH PAGE	
5	172150	1	SQUEEGEE LIFT MECH ASSY	
6A	172159	1	FILTER, FILL PORT, ES1720	
6B	172159-1	1	FILTER, FILL PORT 4"	230V
7A	172530-1	1	SQUEEGEE, 30" (760mm)	E17
7B	172534-1	1	SQUEEGEE, 34" (860mm)	
8	450076	1	CLAMP-CRIMP 185R SS	
9	711118	1	SCR-ST-A 10 X .75 SS	
11	711375	3	NUT-NYLOC 3/8-16 X 1/2 NUT	
12	711523	1	WSR-WAVE .37X .68 X .08	
13	711569	1	WSR-FLT .390 X .880 X .062 NYL	
14	711592	6	WSR-FLAT .506 X .9 X .064 NYL	
15	712143	1	BLT-SHLD 3/8 X 2.0, 5/16-18	
16	712301	2	WSR-FLAT .37 X .87 X .06	
17A	715917	2	DECAL, E17	E17
17B	715920	2	DECAL, E20	
21A	172501	1	E1720 ELECTRIC BD MAIN ASSY, 115V	
21B	172502	1	E1720 ELECTRIC BD MAIN ASSY, 230V	230V
22	712099PLT	3	BLT - SHLDR 1/2 X 1/2 ZINC PLT	
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	

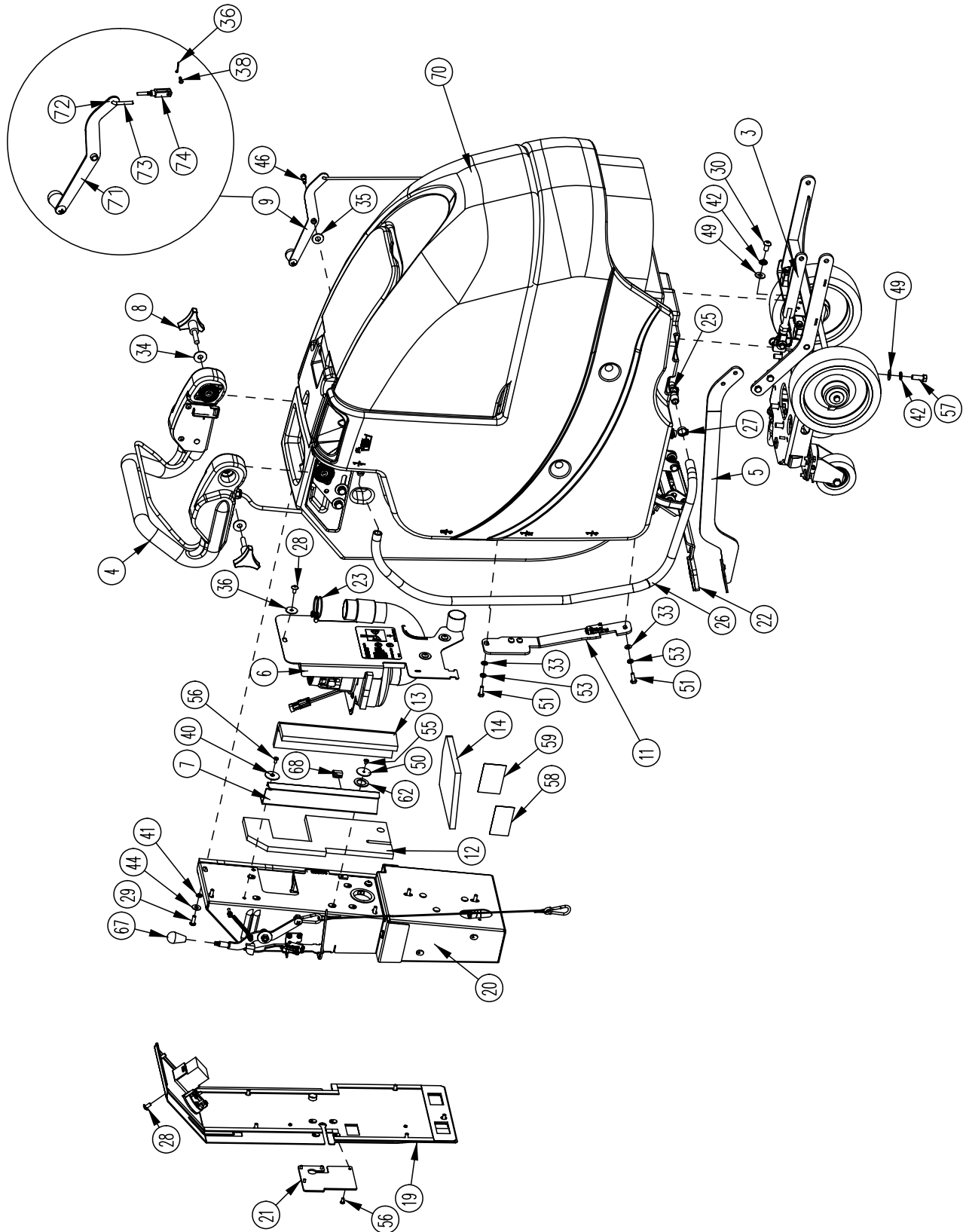
\* 172517-2 PAD DRIVER WILL START IN PRODUCTION APPROXIMATELY 02/2012



E17 - RETAINERS AND OPTIONAL BRUSHES		
PART NO.	DESCRIPTION	NOTES
762394	PAD RETAINER, FIXED	
762370	PAD RETAINER, REMOVEABLE	
172117-1	BRUSH, 17" NYLON	FOR USE WITH 172117-2 (BEFORE S/N 1202XXXX)*
172117-3	BRUSH, 17" NYLO-GRIT	FOR USE WITH 172117-2 (BEFORE S/N 1202XXXX)*
172117-4	BRUSH, 17" STRATA-GRIT	FOR USE WITH 172117-2 (BEFORE S/N 1202XXXX)*
172117-6	BRUSH, 17" SCRUB-GRIT 2 120 GR	FOR USE WITH 172117-2 (BEFORE S/N 1202XXXX)*
7943-01	BRUSH, 17" LIGHT-MEDIUM PP.5 A/S, WHITE	FOR USE WITH 172517-2 (AFTER S/N 1202XXXX)*
7943-02	BRUSH, 17" LIGHT-MEDIUM A/S K901	FOR USE WITH 172517-2 (AFTER S/N 1202XXXX)*
7943-03	BRUSH, 17" MEDIUM NYLON 600GR. A/S, GREY	FOR USE WITH 172517-2 (AFTER S/N 1202XXXX)*
7943-04	BRUSH, 17" MEDIUM-HEAVY PP.8 A/S	FOR USE WITH 172517-2 (AFTER S/N 1202XXXX)*
7943-05	BRUSH, 17" HEAVY NYLON 180GR. A/S	FOR USE WITH 172517-2 (AFTER S/N 1202XXXX)*
7943-06	BRUSH, 17" HEAVY-2 NYL 120GR. A/S, GREEN	FOR USE WITH 172517-2 (AFTER S/N 1202XXXX)*

\* 172517-2 PAD DRIVER WILL START IN PRODUCTION APPROXIMATELY 02/2012

E20 - RETAINERS AND OPTIONAL BRUSHES		
PART NO.	DESCRIPTION	NOTES
762394	PAD RETAINER, FIXED	
762370	PAD RETAINER, REMOVEABLE	
172520-1	BRUSH, 20" NYLON	
172520-3	BRUSH-DISC, 20" NYLO-GRIT 80GR, GREEN	
172520-6	DISC BRUSH 20", SCRUB GRIT 2, 120GR RED	
7951-01	BRUSH, 20" LIGHT-MED PP.5 A/S, WHITE	
7951-02	BRUSH, 20" LIGHT-MEDIUM A/S, K901	
7951-03	BRUSH, 20" MEDIUM NYLON 600GR. A/S, GREY	
7951-04	BRUSH, 20" MEDIUM-HEAVY PP.8 A/S	
7951-05	BRUSH, 20" HEAVY NYLON 180GR. A/S, GREY	
7951-06	BRUSH, 20" HEAVY-2 NYL 120GR. A/S, GREEN	



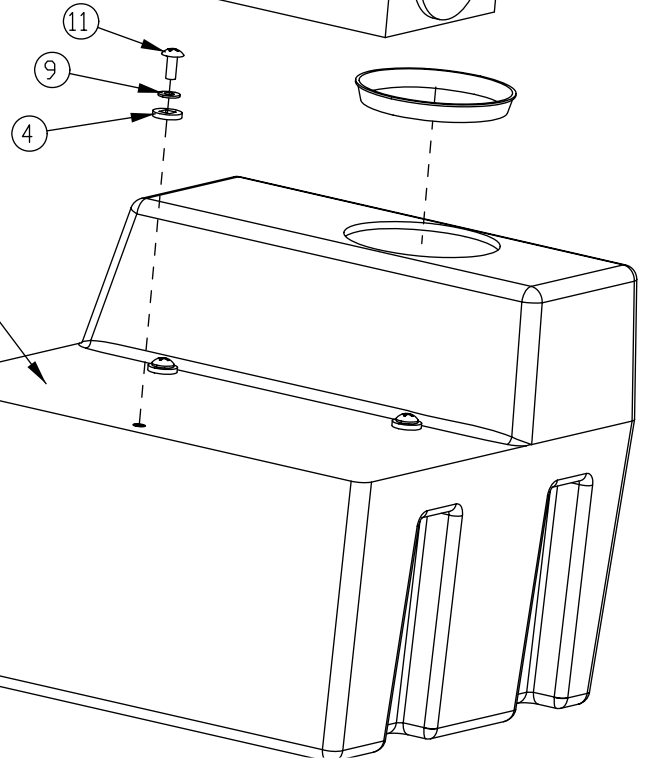
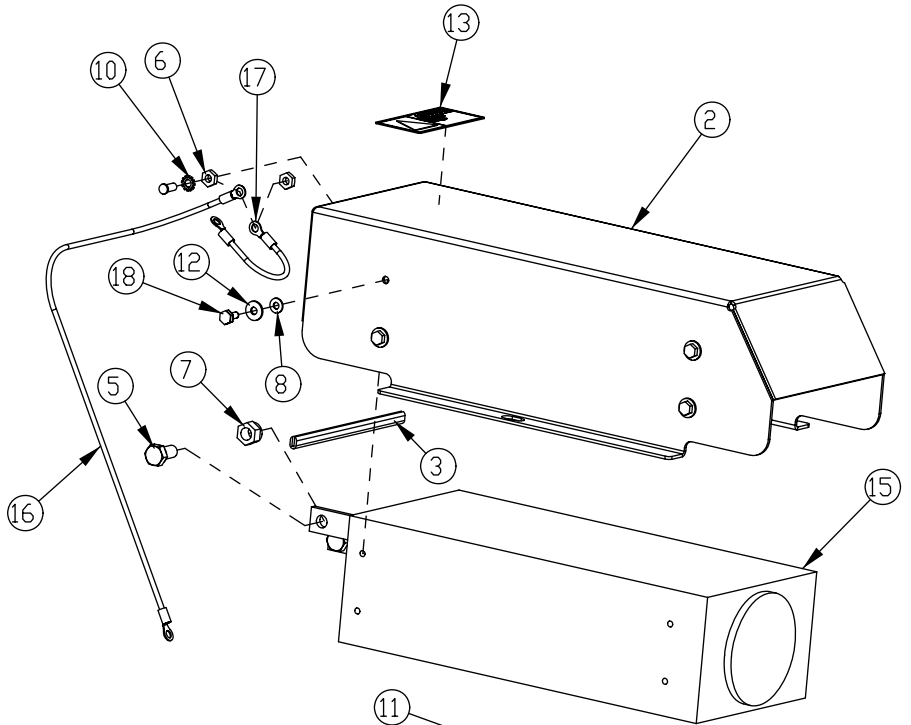
# Brush Drive Base Assembly BOM



## BILL OF MATERIAL - 172501/172502

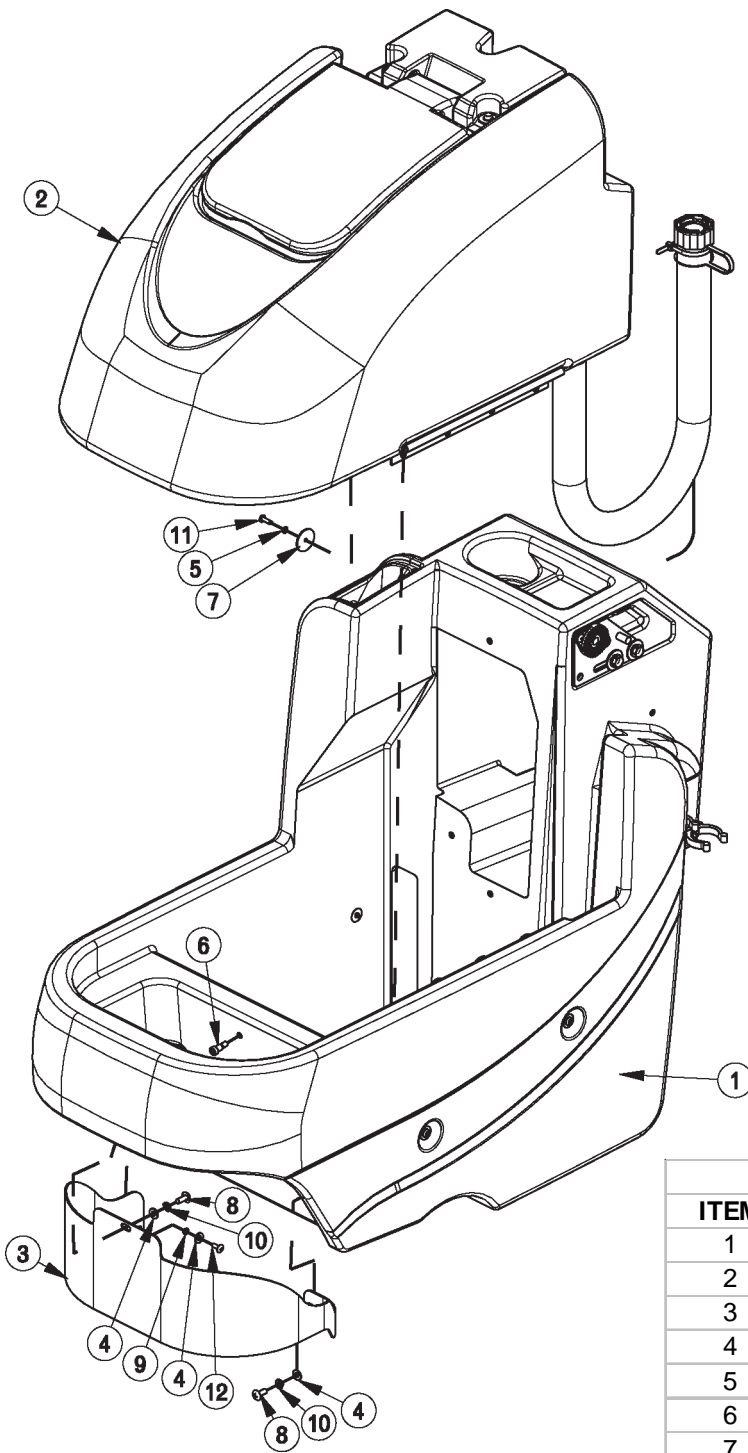
ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	82-54-A	1	CLAMP, MS21333-114	40	711543	1	WSR-HELICAL #10
2	141650-1	1	FLEXIBLE CORD SLIDE	41	711544	8	WSR-HELICAL 1/4
3	172002	1	BD CHASSIS ASSY, E1720	42	711546	6	WSR-HELICAL 3/8
4	172016	1	E1720 BD HANDLE ASSY	43	711569	1	WSR-FLT .390 X .880 X .062 NYL
5	172032	1	LIFT PEDAL WMT	44	711575	5	WSR-FLT .31x.75x.06ST
6	172050	1	VAC MOTOR ASSY	45	711803	1	COTTER PIN
7	172055	1	BKT, VAC AREA INSIDE COVER	46	712041	1	BLT - SHLDR .31 X .375 X 1/4-20
8	172085	2	KNOB, 3/8-16 STUD, 3 LOBE	47	712117	1	CLEVIS PIN 3/16
9	172112	1	SOL CONTROL ASSY	48	712143	1	BLT-SHLD 3/8 X 2.0, 5/16-18
10	172150	1	SQUEEGEE LIFT MECH ASSY	49	712301	8	WSR-FLAT .37 X .87 X .06
11	172157	1	LIFT PEDAL STOP ASSY	50	712312	2	WSR-FLAT .187 X 1.25
12	172184	1	FOAM COVER, REAR 1	51	712562	2	BOLT-HH 1/4-20X3/4 SS
13	172185	1	FOAM COVER, REAR 2	52	712565	3	SCR-MC 1/4-20X.63 SS TR HD
14	172187	1	FOAM COVER, FRONT 2	53	712758	2	WSR-HELICAL 1/4 SS
15	172454	2	CLAMP-P, 3/8ID .28HOLE, STEEL INSUL.	54	712764	8	WSR #10 SS
16	172455-1	1	WEIGHT BOX, E1720E	55	712800	1	SCR-MC 10-24 X .25 ST PL
17	172456	1	BKT, POWER SUPPLY MOUNT, E20E	56	712810	5	SCR-MC 10-24 X .37 ST PL
18	172457	1	EDGE TRIM, .063 X 5.0, BLACK	57	713042	4	BLT-HH 3/8-16 X 1 #5
19	172503	1	ELECTRIC BD DASH COVER ASSY	58	715029	1	DECAL-NAME PLATE SERIAL
20	172505	1	ELECTRIC BD ELEC BOX ASSY	59	715047	1	DECAL-CLEAR LAMINATE 2X3
21A	172529	1	BKT, PWR CORD MOUNT, 3/4 HOLE	60	715646	1	DECAL, HAZ VOLT WARN 3X1-3/8
21B	172129	1	BKT, PWR CORD MOUNT, 5/8 HOLE	61	715950	1	LABEL, PATENT NUMBERS
22	210142	1	PEDAL PAD	62	717025	1	WSR-FLAT 13/16ID X 1.25 X .08
23	260203	1	WIRE GRIP HOSE CLAMP	63A	740108	1	STRAIN RELIEF
24	290014	3	WSR RUBBER .312SQ X .75 X .12	63B	293080	1	STRAIN RELIEF
25	342440	1	FITTING, TEE 3/4MPT 1/2BARB	64	748123	1	POWER SUPPLY, AC-24V
26	430156	1	HOSE, 1/2 X 42 CLEAR	65	748666	1	WIRE ASSY, GREEN/YELLOW 14G, 20"
27	450093	2	CRIMP CLAMP 3/4" STEPLESS	66	748927	1	WIRE ASSY, GREEN/YELLOW 14G, 4"
28	710178	10	SCR-MC 1/4-20 X .50 TRUSS ST PL	67	760592	1	KNOB, OVAL TAPERED
29	710380	5	SCR-MC RD HD 1/4-20 X .75 STL PL	68	809443	1	CLIP-WIRE & CORD
30	710985	2	SCR-SC 3/8-16 X .62 ST PL	69	11038965	8	BOLT-HH M4X0.7 X 10 Z DICH
31	711310	2	NUT, HEX 10-32 ST PL	70	172001BASE	1	E1720 BASE ASSY
32	711379	2	NUT, FLANGED WIZZ 5/16-18	71	172115	1	SOL CNTRL LEVER ASSY
33	711504	5	WSR-FLAT 1/4 ID SS	72	172122	1	NUT, PUSH-ON WSR CAP, 3/16
34	711507	2	WSR-FLAT .37 X 1.12 X .06	73	172069	1	ROD, SOL. CTRL, ES1720
35	711508	1	WSR-FLAT .44X 1.0X.08	74	172062	1	YOKE, 3/16 CLEVIS, 10-32, LONG
36	711519	3	WSR-FLAT .25 X 1.01 X .06	75	746034	1	FERRITE-BEAD SNAP IT (NOT SHOWN)
37	711523	1	WSR-WAVE .37X .68 X .08	76	747690	1	FERRITE-BEAD CLAMP ON (NOT SHOWN)
38	711524	1	WSR-WAVE .52 X .87 X .01	77A	748925	1	CORD, PIGTAIL TWIST-LOCK, GRAY (NOT SHOWN)
39	711534	1	WSR-EXTERNAL LOCK #10	77B	748928	1	CORD, PIGTAIL CE CONNECTOR, GRAY (NOT SHOWN)





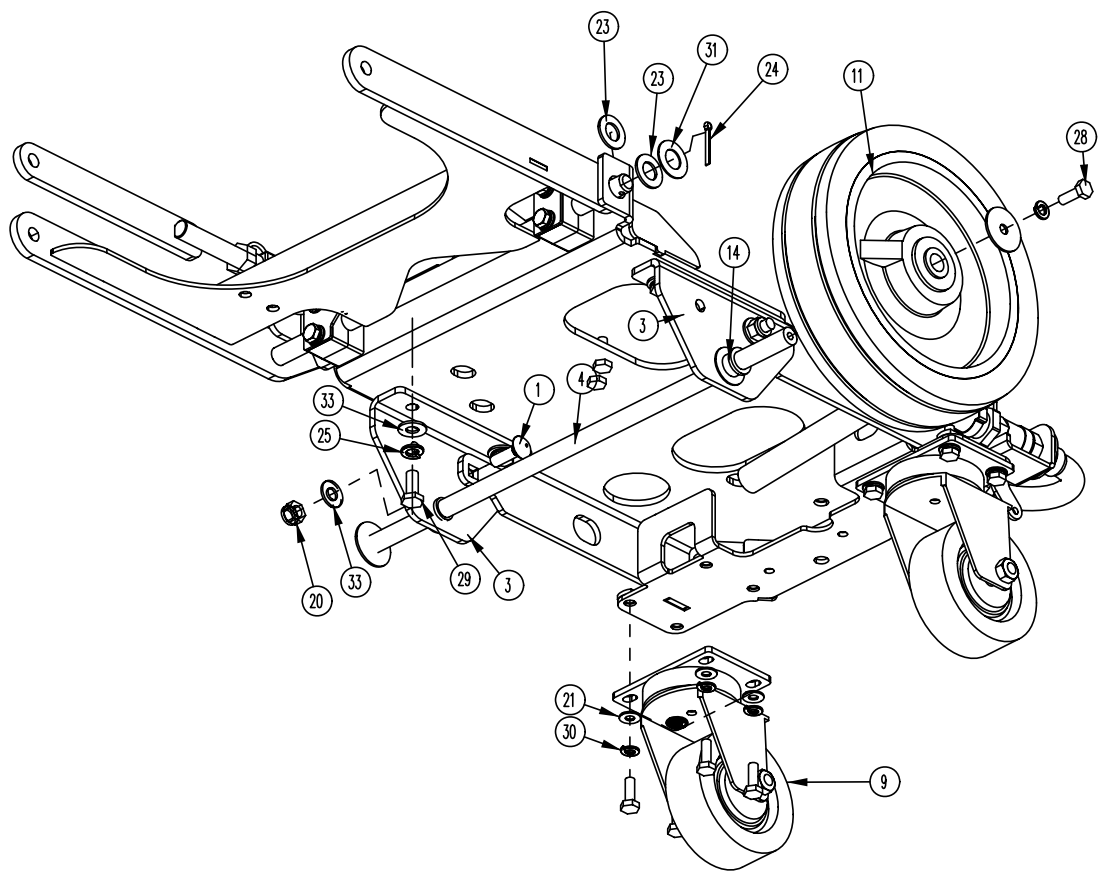
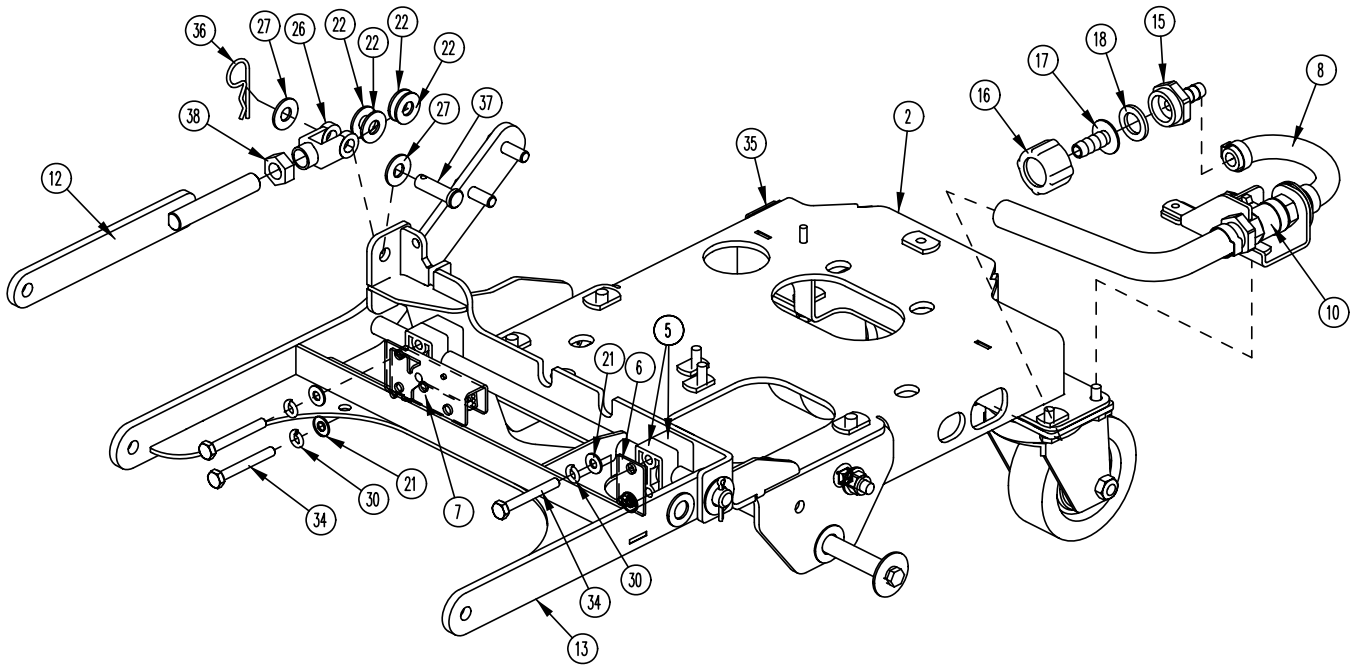
**BILL OF MATERIAL**

ITEM	PART NO.	REQ'D	DESCRIPTION
1	172455-1	1	WEIGHT BOX, E1720E
2	172456	1	BKT, POWER SUPPLY MOUNT, E20E
3	172457	1	EDGE TRIM, .063 X 5.0, BLACK
4	290014	3	WSR RUBBER .312SQ X .75 X .12
5	711227	2	BLT-HH 5/16-18 X .62 ST PL
6	711310	2	NUT, HEX 10-32 ST PL
7	711374	2	NUT-NYLOC 5/16-18
8	711502	8	WSR-FLT .170 x.38 x.032 STL ZINC
9	711504	3	WSR-FLAT 1/4 ID SS
10	711534	1	WSR-EXTERNAL LOCK #10
11	712565	3	SCR-MC 1/4-20X.63 SS TR HD
12	712764	8	WSR #10 SS
13	715646	1	DECAL, HAZ VOLT WARN 3X1-3/8
14	715950	1	LABEL, PATENT NUMBERS
15	748123	1	POWER SUPPLY, AC-24V
16	748666	1	WIRE ASSY, GREEN/YELLOW 14G, 20"
17	748927	1	WIRE ASSY, GREEN/YELLOW 14G, 4"
18	11038965	16	BOLT-HH M4X0.7 X 10 Z DICH

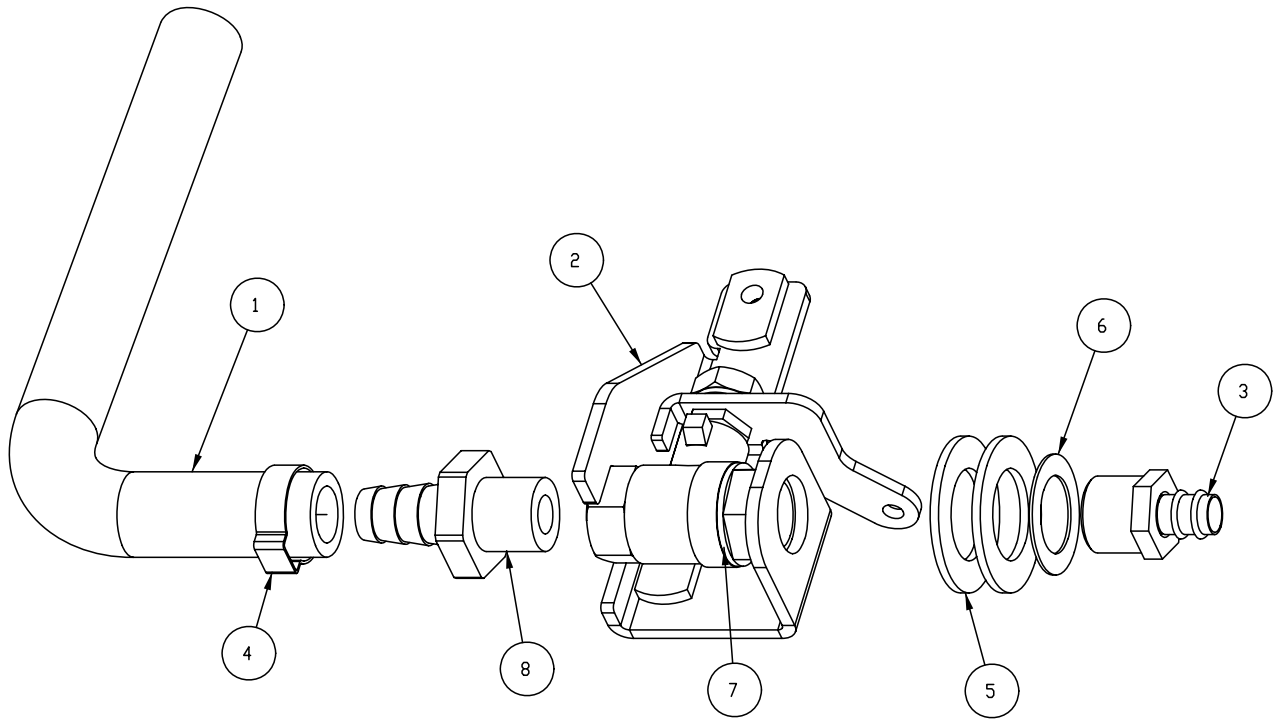


**BILL OF MATERIAL - 172001BASE**

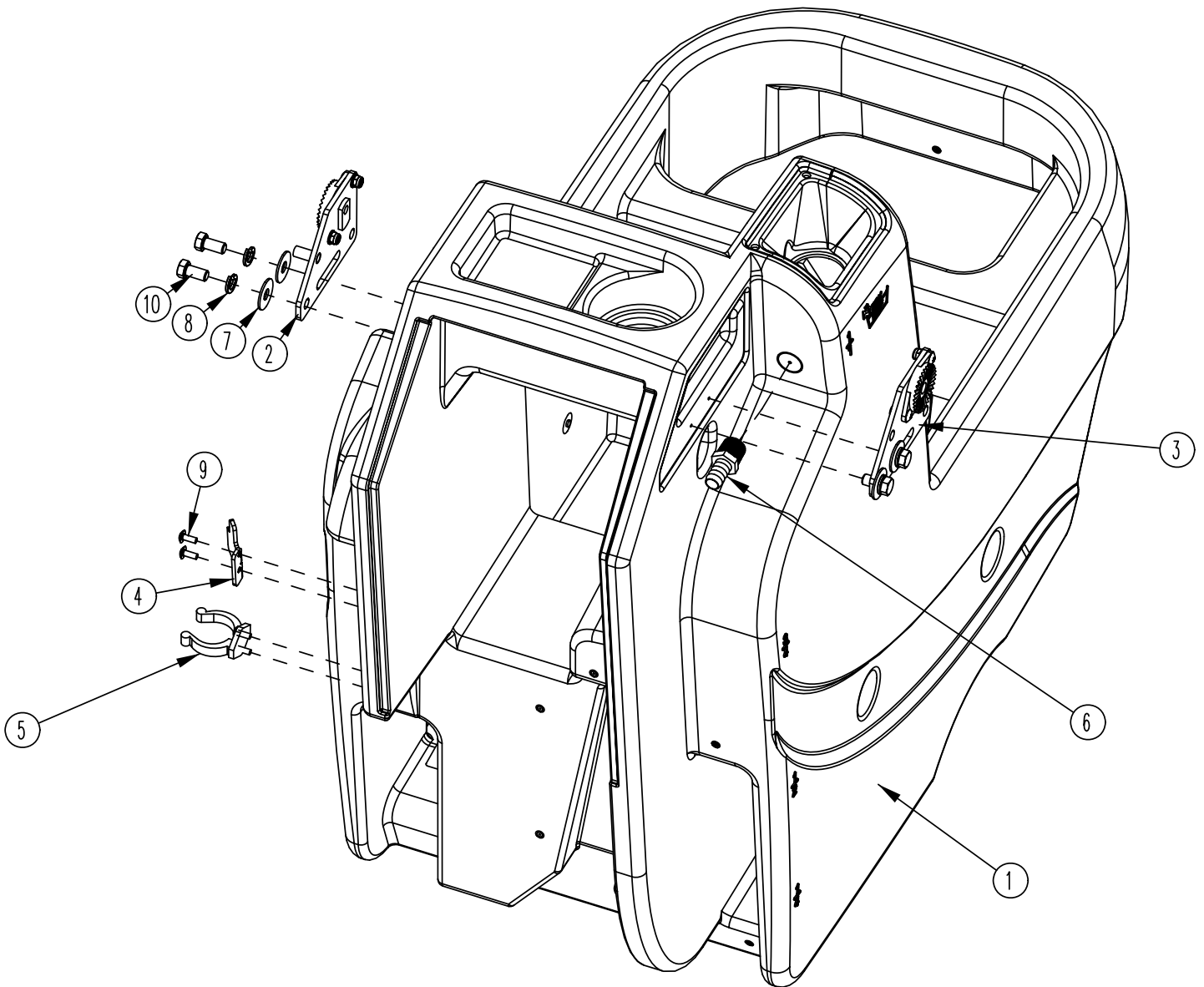
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172013	1	SOL TANK ASSY, E1720
2	172014	1	REC TANK ASSY
3	172144	1	PANEL, FRONT 1720
4	711504	3	WSR-FLAT 1/4 ID SS
5	711543	4	WSR-HELICAL #10
6	712041	1	BLT- SHLDR 1/4-20 X .44 X .37
7	712312	4	WSR-FLAT .187 X 1.25
8	712565	2	SCR-MC 1/4-20X.63 SS TR HD
9	712757	1	WSR - HELICAL #10 SS
10	712758	2	WSR-HELICAL 1/4 SS
11	712812	4	SCR-MC 10-24 X .62 PPH ST PL
12	712822	1	SCR-MC TR HD 10-24 X .50 SS



BILL OF MATERIAL - 172002			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	70-516-16	2	BLT-CAR 5/16-18 X 1.00 ZP
2	172020	1	MAIN FRAME WMT, E1720
3	172024	2	WHEEL BRACKET, ES1720
4	172035	1	WHEEL ROD, ES1720
5	172038	4	BEARING BLOCK
6	172039	1	BEARING BLOCK PLAT E
7	172110	1	DECK SWIT CH ASSY
8	172164	1	HOSE-WIRE REINF 3/8 X 5.5"
9	172167	2	CASTER, 3-1/2 POLYURETHANE
10	172264	1	SOLUTION VALVE ASSY
11	172265	2	WHEEL, 8 X 2 X .5, 75A
12	172368	1	UPPER LIFT ARM
13	172370	1	DISC DECK LIFT WMT, E1720
14	260041	2	OILITE FLANGE BUSHING
15	342441	1	FITTING, MGHT X 3/8HB PP
16	342442	1	FITTING, FGHT NUT PP
17	342443	1	FITTING 3/8HB INSERT PP
18	342444	1	WSR-FILTER, GARDEN HOSE SIZE
19	450076	2	CLAMP-CRIMP 185R SS
20	711374	2	NUT-NYLOC 5/16-18
21	711504	12	WSR-FLAT 1/4 ID SS
22	711569	4	WSR-FLT .390 X .880 X .062 NYL
23	711592	2	WSR-FLAT .506 X .9 X .064 NYL
24	711809	1	COTTER PIN, 1/8 X 1.0
25	712140	4	WSR-HELICAL 5/16 SS
26	712265	1	CLEVIS-YOKE, 1/2-20 W/ .375 PIN
27	712301	2	WSR-FLAT .37 X .87 X .06
28	712562	12	BOLT-HH 1/4-20X3/4 SS
29	712575	4	BLT-HH 5/16-18 X .75 SS
30	712758	14	WSR-HELICAL 1/4 SS
31	712760	3	WSR-FLAT .56X1.06X.04 SS
32	712761	2	WSR-FLAT .28 X 1.25 X .059SS
33	712772	6	WSR-FLAT .344 x .75 x .06 SS
34	713007	4	BLT-HH 1/4-20 X 2 #5
35	809444	1	CLIP-CORD
36	833374	1	PIN, HAIRPIN COTTER 3/8
37	833833	1	PIN-CLEVIS 3/8 X 1.25
38	3400449	1	NUT-HEX JAM 1/2-20 ZP

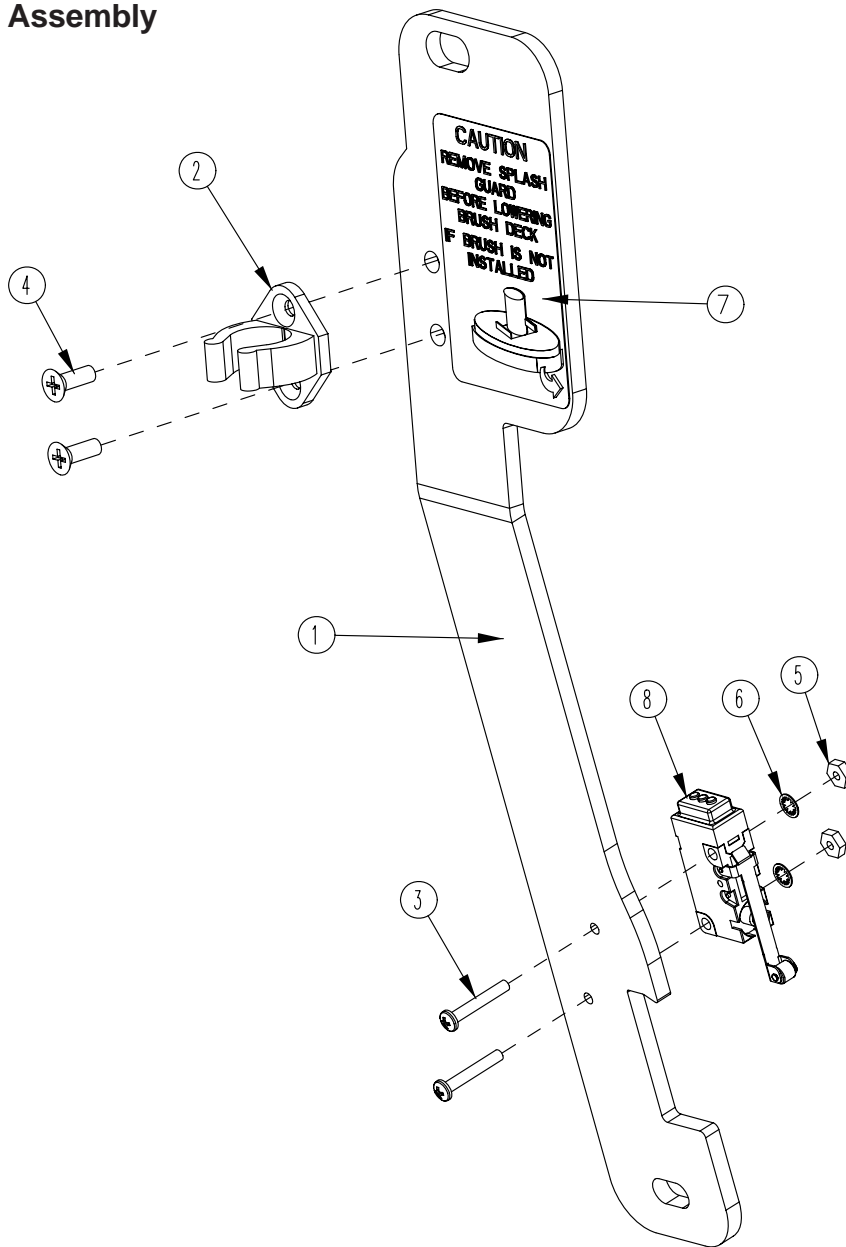


BILL OF MATERIAL - 172264			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172158	1	HOSE, 1/2"ID X 7.5" NYLOBRAID
2	172263	1	BKT, SOL VALVE MOUNT
3	320265	1	FITTING DUBL 3/8HBx3/8MPT
4	383347	1	CRIMP CLAMP 1/2 HOSE SS 185R
5	711512	2	WSR-FLAT .75X1.37X.08
6	711513	1	WSR-FLAT .69 X 1.06 X .03 SS
7	809415	1	VALVE, 3/8 FPT, 45 OPEN/CLOSE
8	827008	1	FITTING, 3/8 MPT 1/2 HOSE

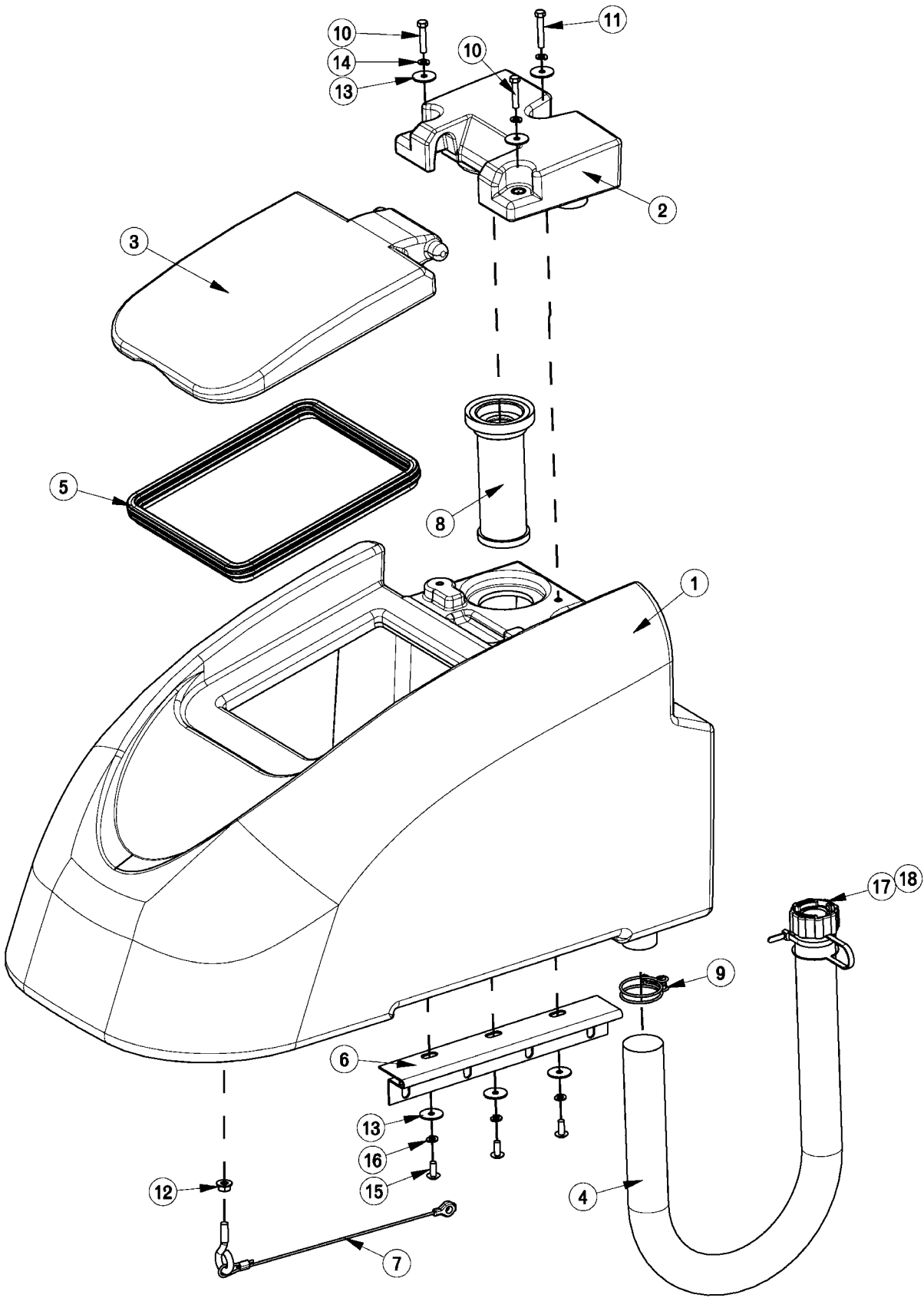


BILL OF MATERIAL - 172013			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172003	1	SOLUTION TANK
2	172080	1	HANDLE MOUNT ASSY, LEFT
3	172082	1	HANDLE MOUNT ASSY, RIGHT
4	172341	1	HOOK, DRAIN HOSE WITH TWIST VALVE
5	260579	1	TOOL CLIP, 1.5" HOSE
6	342438	1	FITTING, 1/2 MPT 1/2 HB BRASS
7	711507	4	WSR-FLAT .37 X 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

# Lift Pedal Stop Assembly

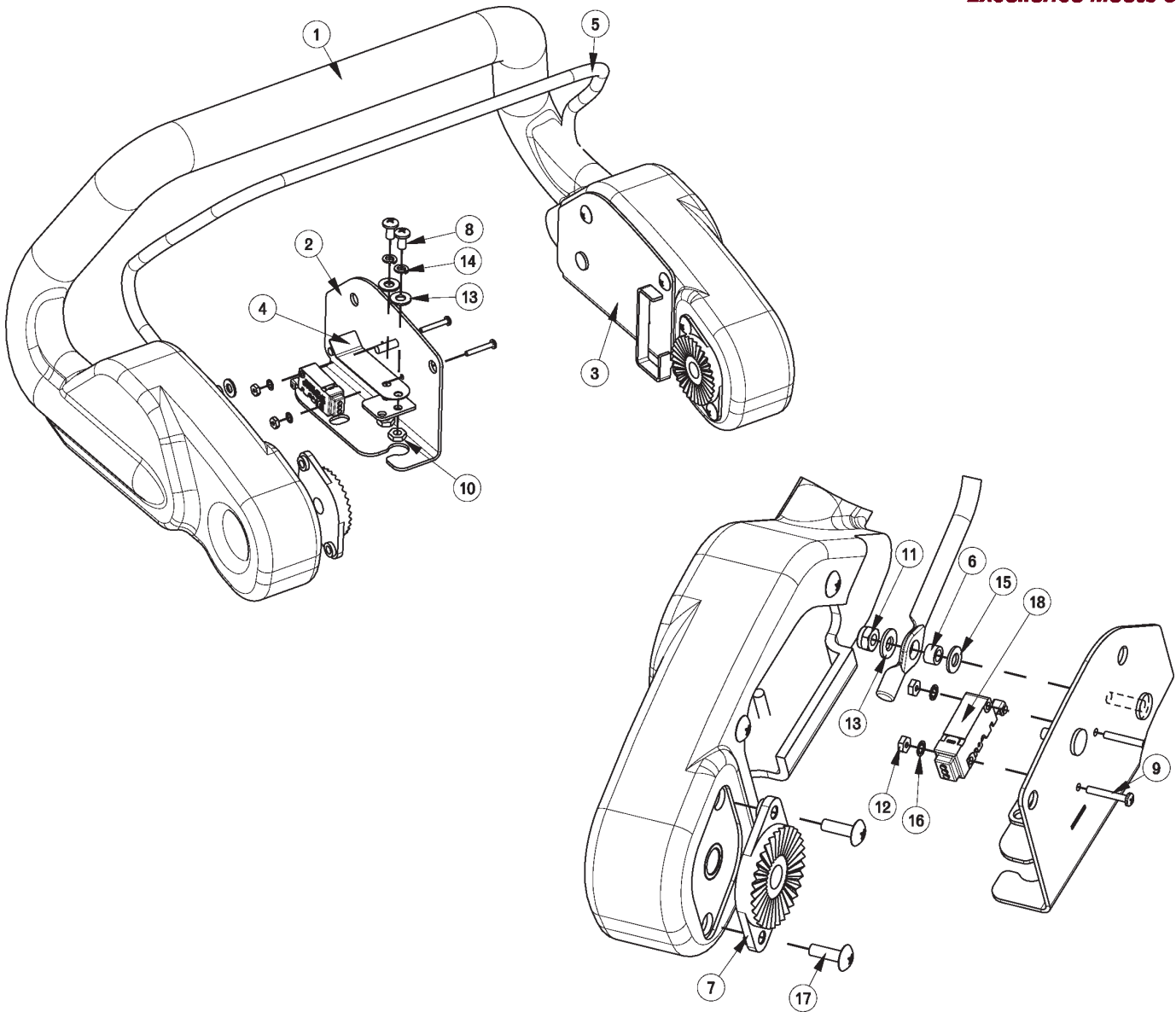


BILL OF MATERIAL - 172157			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172036	1	BKT, PEDAL STOP
2	172065	1	CLIP, FOR 1/2" ID HOSE
3	710493	2	SCR-MC 4-40 X .75 PAN HD
4	710530	2	SCR-MC FL HD 8-32 X .50 BRS
5	711428	2	NUT-HEX 4-40
6	712326	2	WSR-INT LOCK #4
7	715685	1	DECAL, REMOVE SPLASH GUARD
8	747603-2	1	SWIT CH ASY, MICRO ROLLER W/PACK/CONDUIT

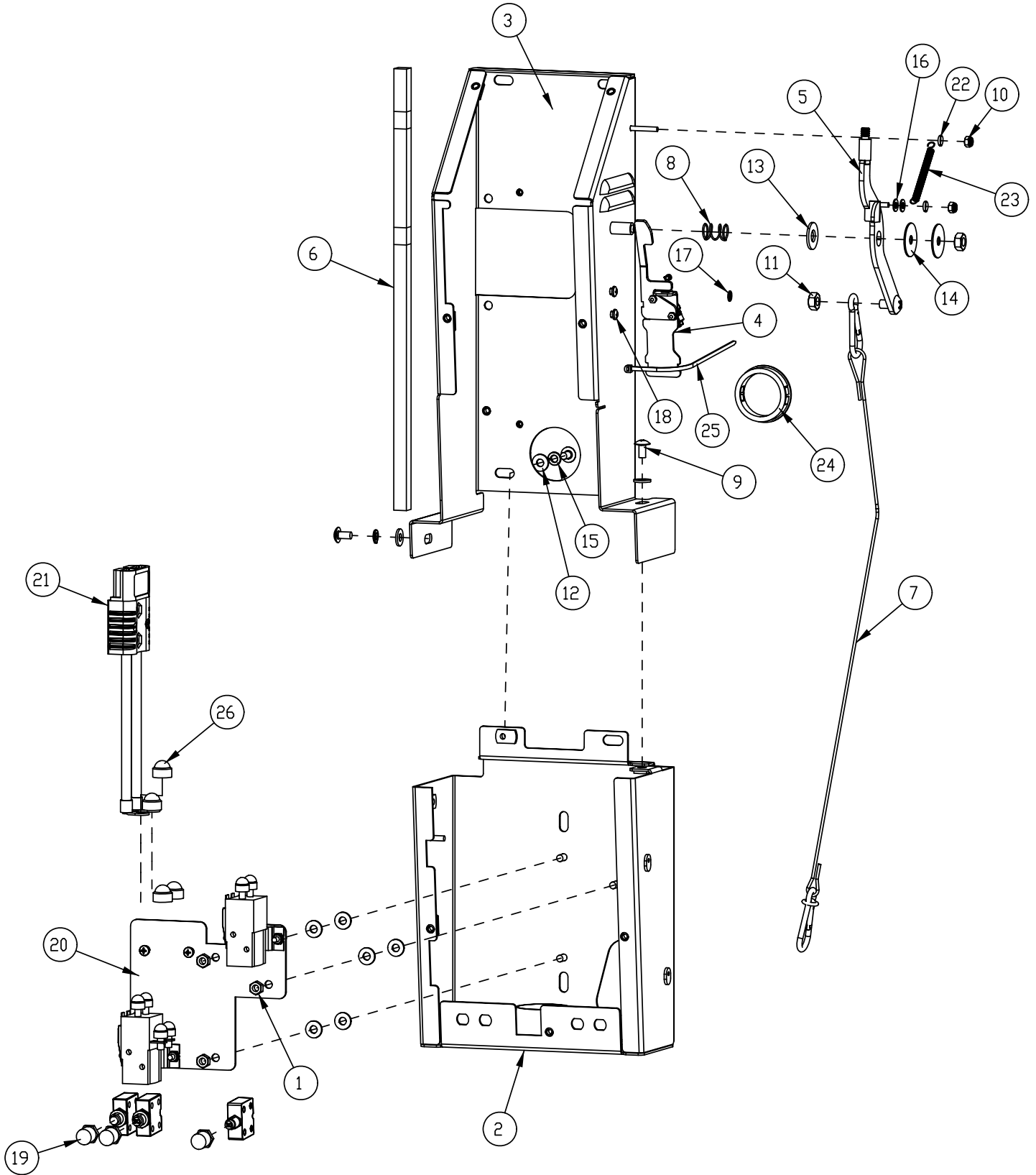




BILL OF MATERIAL - 172014			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172004	1	ES1720 RECOVERY TANK
2	172005	1	ES1720 VACUUM MANIFOLD
3	172007	1	ES1720 LID
4	97090096	1	DRAIN HOSE ASSY, RECOVERY TANK
5	172017	1	GASKET, LID
6	172049	1	HINGE, RECOVERY TANK
7	172394	1	REC TANK CABLE ASSY 11.625
8	172132	1	SCREENED FLOAT
9	172329	1	CLAMP-HOSE 1.56" 102122 MURRAY
10	711210	2	BLT-HH 1/4-20 X 1.25 STPL
11	711212	1	BLT-HH 1/4-20 X 1.50 STPL
12	711379	1	NUT, FLANGED WIZZ 5/16-18
13	711519	6	WSR- FLAT .25 X 1.01 X .06
14	711544	3	WSR-HELICAL 1/4
15	712565	3	SCR-MC 1/4-20X.63 SS TR HD
16	712758	3	WSR-HELICAL 1/4 SS
17	15282072	1	REPLACEMENT O-RING (NOT SHOWN)
18	90304528	1	REPLACEMENT CAP

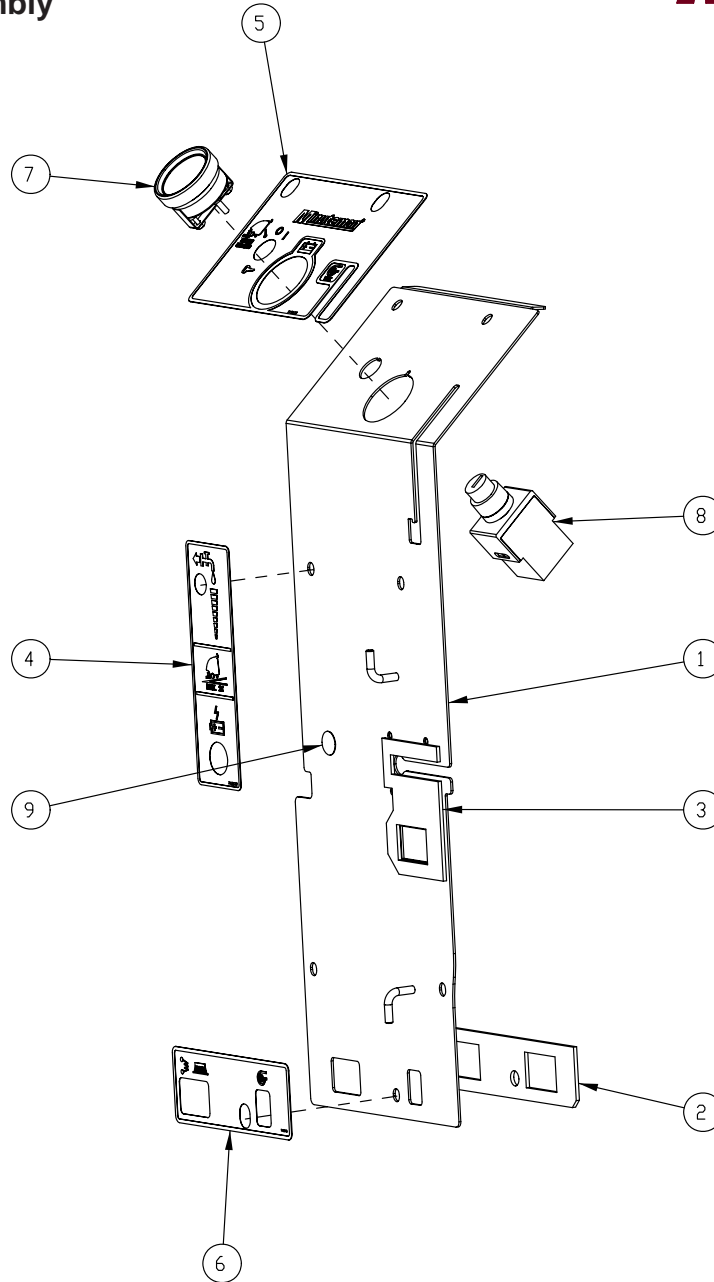


BILL OF MATERIAL - 172016			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172006	1	ES1720 HANDLE
2	172053	1	BAIL PLATE WMT RH
3	172054	1	BAIL PLATE WMT LH
4	172057	2	ES1720 LEAF SPRING
5	172059	1	ES1720 BAIL, HANDLE
6	172074	2	SPACER, 5/16OD X 17GA, ALUM
7	270143	2	HANDLE PIVOT JAW
8	710353	4	SCR-MC RD HD 10-32 X .37 STL
9	710493	2	SCR-MC 4-40 X .75 PAN HD
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	747603-1	1	SWITCH ASY, MICRO ROLLER W/PACK/CONDUIT
19	747632	1	CABLE ASY, 5 COND 18G CONSOLE

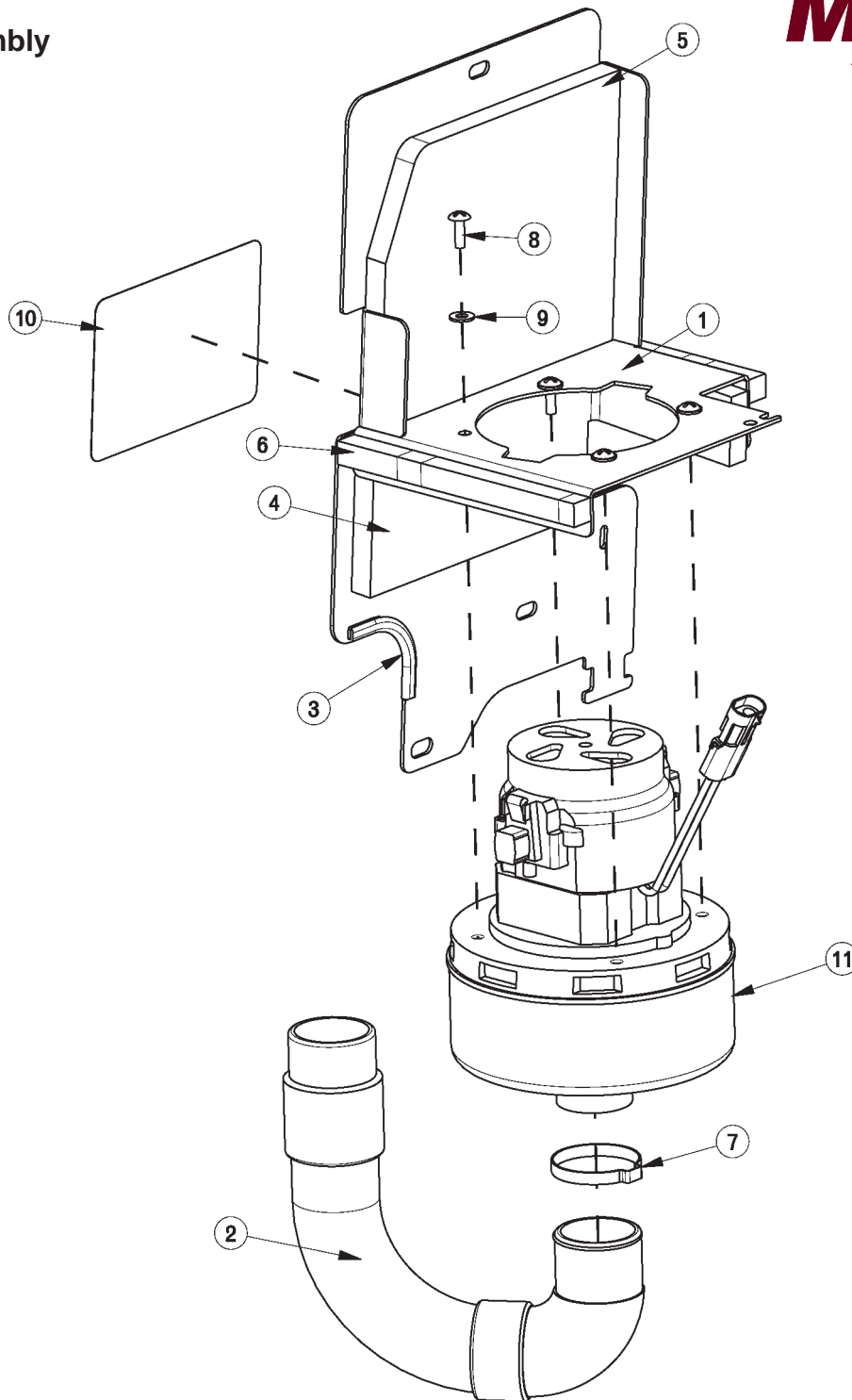


BILL OF MATERIAL - 172505			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	369-416	3	NUT-HEX 1/4-20 NYLOC SERATED
2	172077	1	ELEC BOX-BOT HALF WMT
3	172088	1	ELEC BOX-TOP HALF WMT
4	172141	1	VAC SWIT CH ASSY
5	172152	1	VAC LEVER WMT
6	172188_	1	FOAM TAPE, 1/2" SQ X 16.5"
7	172381	1	CABLE ASSY, SOUEEGEE LIFT
8	670093	1	SPRING, COMPRESSION
9	710178	3	SCR-MC 1/4-20 X .50 TRUSS ST PL
10	711372	2	NUT-NYLOC 8-32 STL ZINC
11	711383	2	NUT-HEX CLR LOC 5/16-18
12	711505	9	1/4 FLAT WASHER, STEEL
13	711508	1	WSR-FLAT .44X 1.0X.08
14	711516	2	WSR- FLAT .31 X 1.25 X .05
15	711544	2	WSR-HELICAL 1/4
16	712320	2	WSR-NYLON .22 X .45 X .04
17	712770	2	WSR INT LOCK #10A SS
18	712810	2	SCR-MC 10-24 X .37 ST PL
19	742748	3	CIRCUIT BREAKER BOOT
20	747630	1	ELEC PANEL ASSY, E1720BD
21	747637	1	WIRE ASY, MACHINE-BAT TERY E1720
22	760134	2	MOUNT RING
23	762084	1	SPRING-EXT .25OD X 2" F.L. MUSIC
24	762400	1	HEYCO BUSHING 2.00"
25	828062	1	CABLE TIE LARGE
26	15592033	2	CAP, SAFETY NUT COVER M8

# Electrical Box Cover Assembly

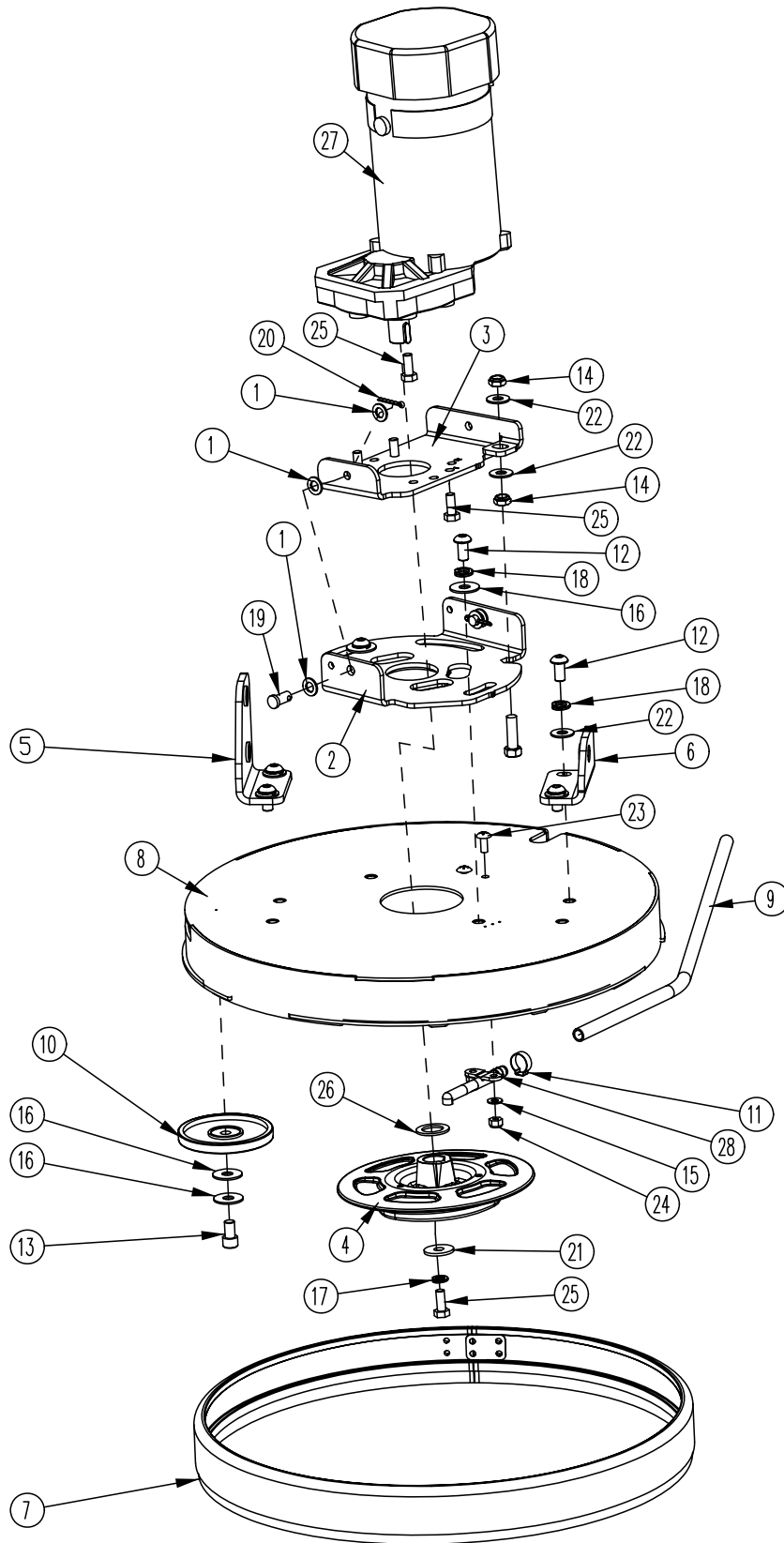


BILL OF MATERIAL -172503			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172181	1	ELEC BOX, COVER, WMT
2	172193	1	GASKET , CB OUTLINE
3	172194	1	GASKET , CHARGER CORD PLATE
4	715672	1	DECAL, CHARGE ST AT US, SOLUTION CTRL
5	715673	1	DECAL, 1720 BD DASHBOARD
6	715675	1	DECAL, BD CIRC BKRS
7	740216	1	VOLT METER
8	747617-1	1	KEYSWIT CH ASY, KEYSWIT CH + WIR
9	3301669	1	PLUG-HOLE 0.687



**BILL OF MATERIAL - 172050**

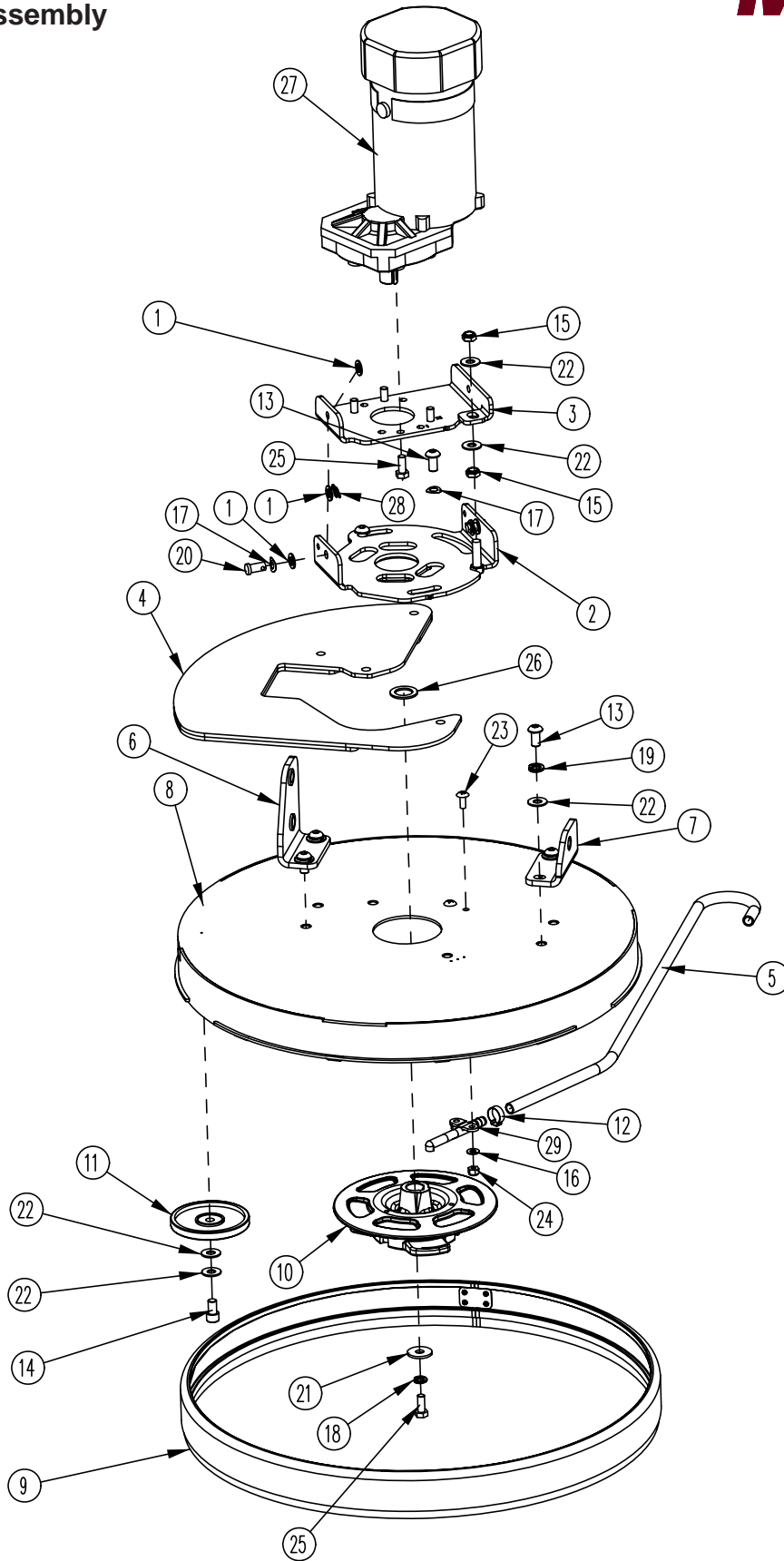
ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	172045	1	VAC MOUNT WMT, ES1720	7	450095	1	CRIMP CLAMP, 1.75"
2	172048	1	HOSE, STRETCH 13"	8	711160	4	#10 X 5/8 HI-LO
3	172124	1	EDGE TRIM, .063 X 3.0, BLACK	9	711503	4	WSR, FLAT#10
4	172186	1	FOAM COVER, FRONT 1	10	715676	1	DECAL, BATT CABLE ROUTE, E1720
5	172187	1	FOAM COVER, FRONT 2	11	747607-1	1	VAC MOTOR ASY, E1720
6	172188	2	FOAM TAPE, 1/2" SQ X 16.5"				



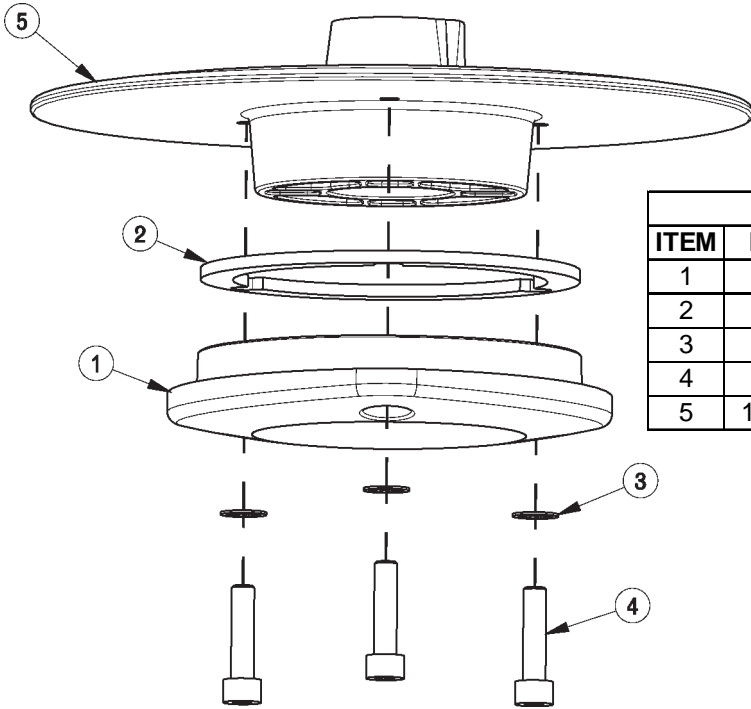
BILL OF MATERIAL -172090			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	81-166-A	6	SPECIAL WASHER
2	172040	1	DECK ANGLE ADJUST WMT
3	172044	1	PLATE, MOTOR MOUNT
4	172095	1	BRUSH HUB ASSY
5	172296	1	BKT, DECK MOUNT RH
6	172297	1	BKT, DECK MOUNT LH
7	172363-1	1	17" SPLASH GUARD
8	172365	1	DECK COVER WMT 17"
9	172198	1	HOSE-WIRE REINF 3/8 X 23"
10	210153	1	ROLLER WHEEL
11	450076	1	CLAMP-CRIMP 185R SS
12	710990	6	SCR-SC 3/8-24 X .75 BHEAD ST PL
13	710991	1	SCR-SC 3/8-24 X 5/8 ST PL
14	711375	2	NUT -NYLOC 3/8-16 X 1/2 NUT
15	711504	2	WSR-FLAT 1/4 ID SS
16	711507	4	WSR-FLAT .37 X 1.12 X .06
17	711545	1	WSR-HELICAL 5/16
18	711546	6	WSR-HELICAL 3/8
19	711679	2	CLEVIS PIN 3/8 X 3/4
20	711809	2	COTTER PIN, 1/8 X 1.0
21	711855	1	WSR-FLT .37X1.12X.10 STL Z HARD
22	712301	6	WSR-FLAT .37 X .87 X .06
23	712565	2	SCR-MC 1/4-20X.63 SS TR HD
24	712667	2	NUT, HEX 1/4-20 NYLOC SS
25	717024	5	BOLT -HH M8X1.25 X 20
26	717025	1	WSR-FLAT 13/16ID X 1.25 X .08
27	747600	1	MOTOR, OFFSET PM GEAR, 550W
28	90311663	1	HAKO SOL FEED NOZZLE
29	172268	1	E17 DECK WEIGHT (OPTIONAL - NOT SHOWN)



# 20" Brush Deck Assembly

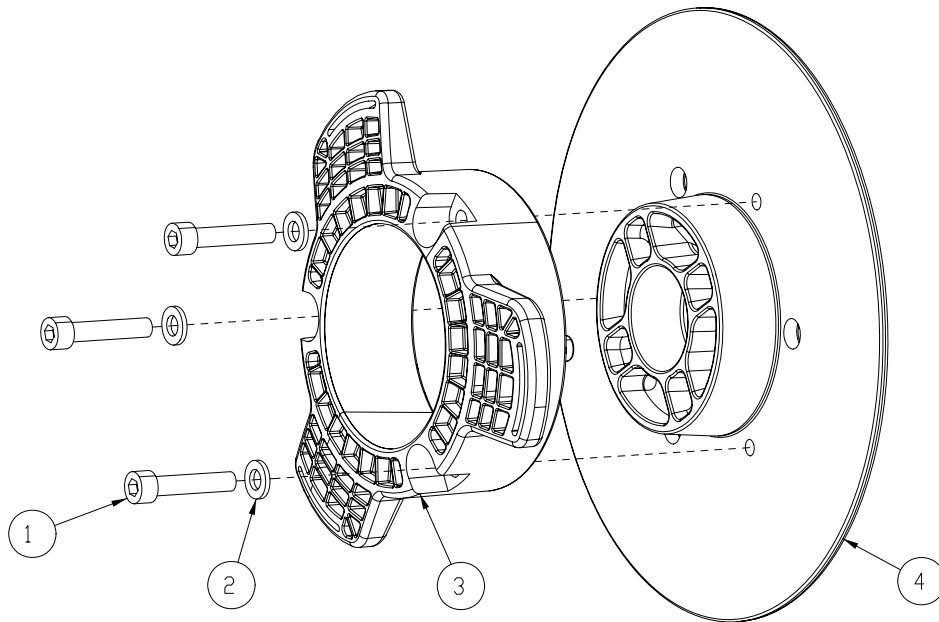


BILL OF MATERIAL - 172100				
ITEM	PART NO.	REQ'D	DESCRIPTION	NOTES
1	81-166-A	6	SPECIAL WASHER	
2	172040	1	DECK ANGLE ADJUST WMT	
3	172044	1	PLATE, MOTOR MOUNT	
4	172208	1	E20 BRUSH DECK PLATE	
5	172198	1	HOSE-NYLO REINF 3/8 X 22.5"	
6	172296	1	BKT, DECK MOUNT RH	
7	172297	1	BKT, DECK MOUNT LH	
8	172375	1	DECK COVER WMT 20"	
9	172384	1	E20 FLOATING BRUSH DECK SKIRT	
10	172510	1	HUB ASSEMBLY, DISC DECK	
11	210153	1	ROLLER WHEEL	
12	450076	1	CLAMP-CRIMP 185R SS	
13	710990	6	SCR-SC 3/8-24 X .75 BHEAD ST PL	
14	710991	1	SCR-SC 3/8-24 X 5/8 ST PL	
15	711375	2	NUT-NYLOC 3/8-16 X 1/2 NUT	
16	711504	2	WSR-FLAT 1/4 ID SS	
17	711523	4	WSR-WAVE .37X .68 X .08	
18	711545	1	WSR-HELICAL 5/16	
19	711546	4	WSR-HELICAL 3/8	
20	711679	2	CLEVIS PIN 3/8 X 3/4	
21	711855	1	WSR-FLT .37X1.12X.10 STL Z HARD	
22	712301	8	WSR-FLAT .37 X .87 X .06	
23	712565	2	SCR-MC 1/4-20X.63 SS TR HD	
24	712667	2	NUT, HEX 1/4-20 NYLOC SS	
25	717024	5	BOLT-HH M8X1.25 X 20	
26	717025	1	WSR-FLAT 13/16ID X 1.25 X .08	
27	747600	1	MOTOR, OFFSET PM GEAR, 550W	
28	3400125	2	PIN-COTTER 3/8 RUE RING	
29	90311663	1	HAKO SOL FEED NOZZLE	



**E17 Brush Hub Assembly**

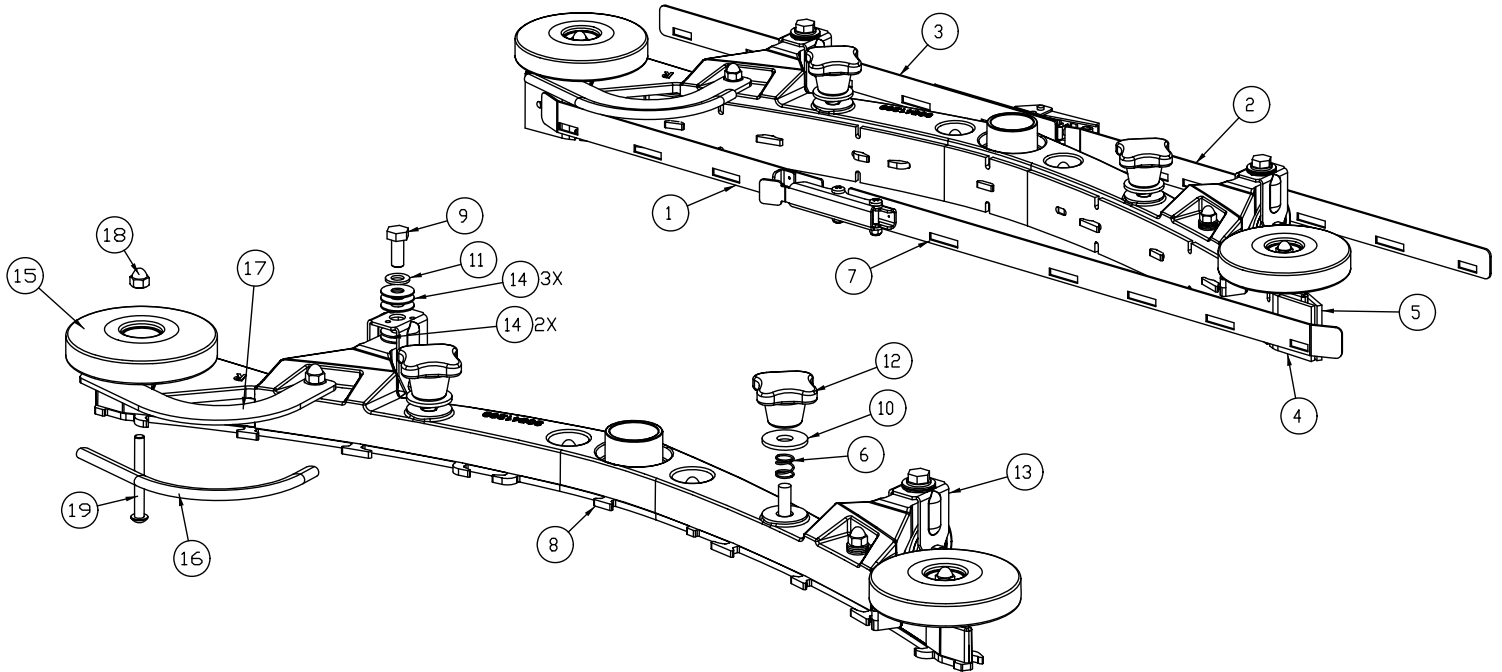
BILL OF MATERIAL - 172095			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172097	1	ES1720 BRUSH HUB BASE
2	172133	1	BRUSH HUB SPACER
3	711554	3	WSR-INTERNAL LOCK 1/4 ID
4	717026	3	SCR-SC SHCS M6X1.0 X 25 STL Z
5	172096MCH	1	BASE, DRIVE HUB WITH KEYWAY



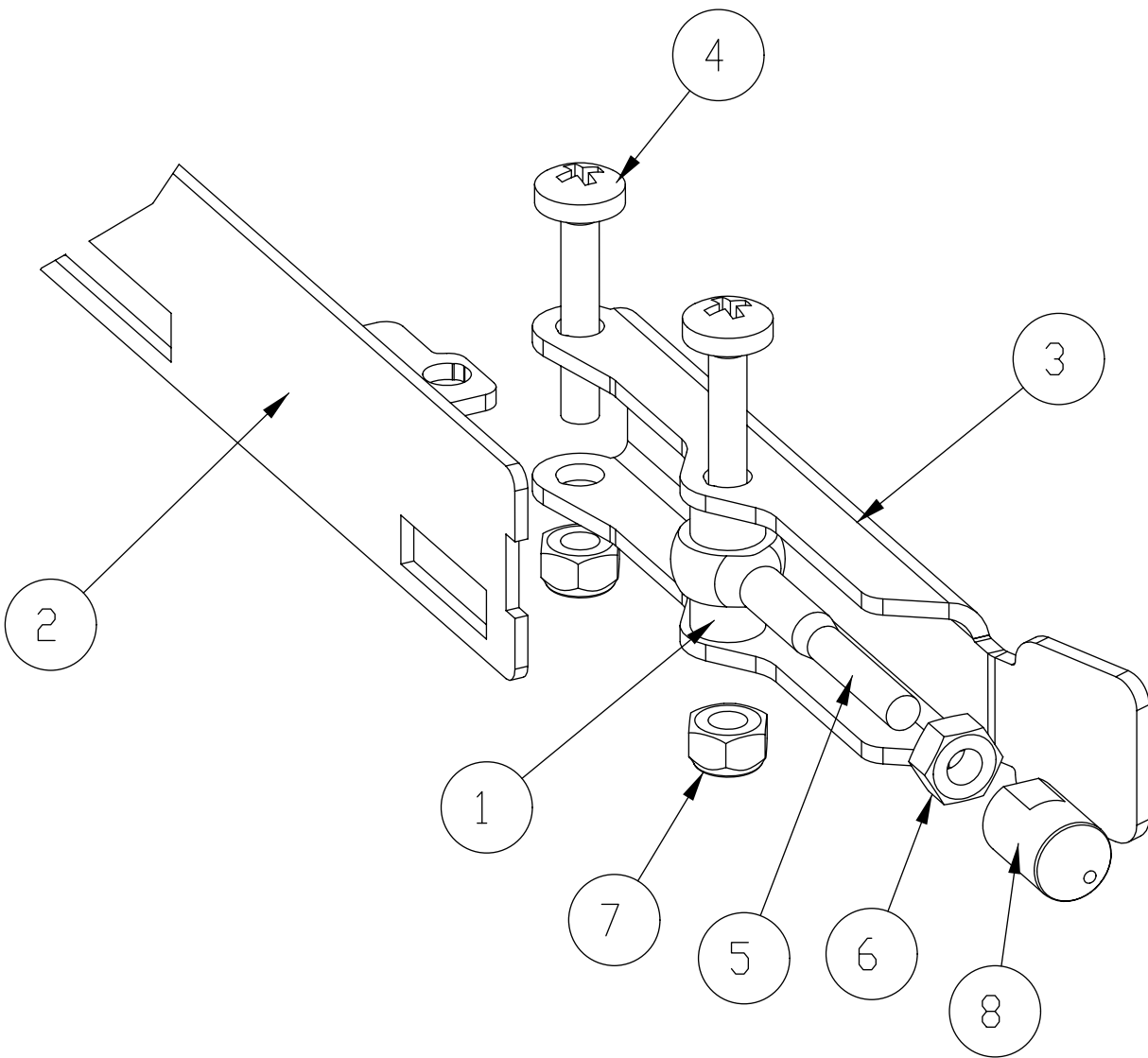
**E20 Brush Hub Assembly**

BILL OF MATERIAL - 172510			
ITEM	PART NO.	REQ'D	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

# E17 Rear Squeegee Assembly (Curved)

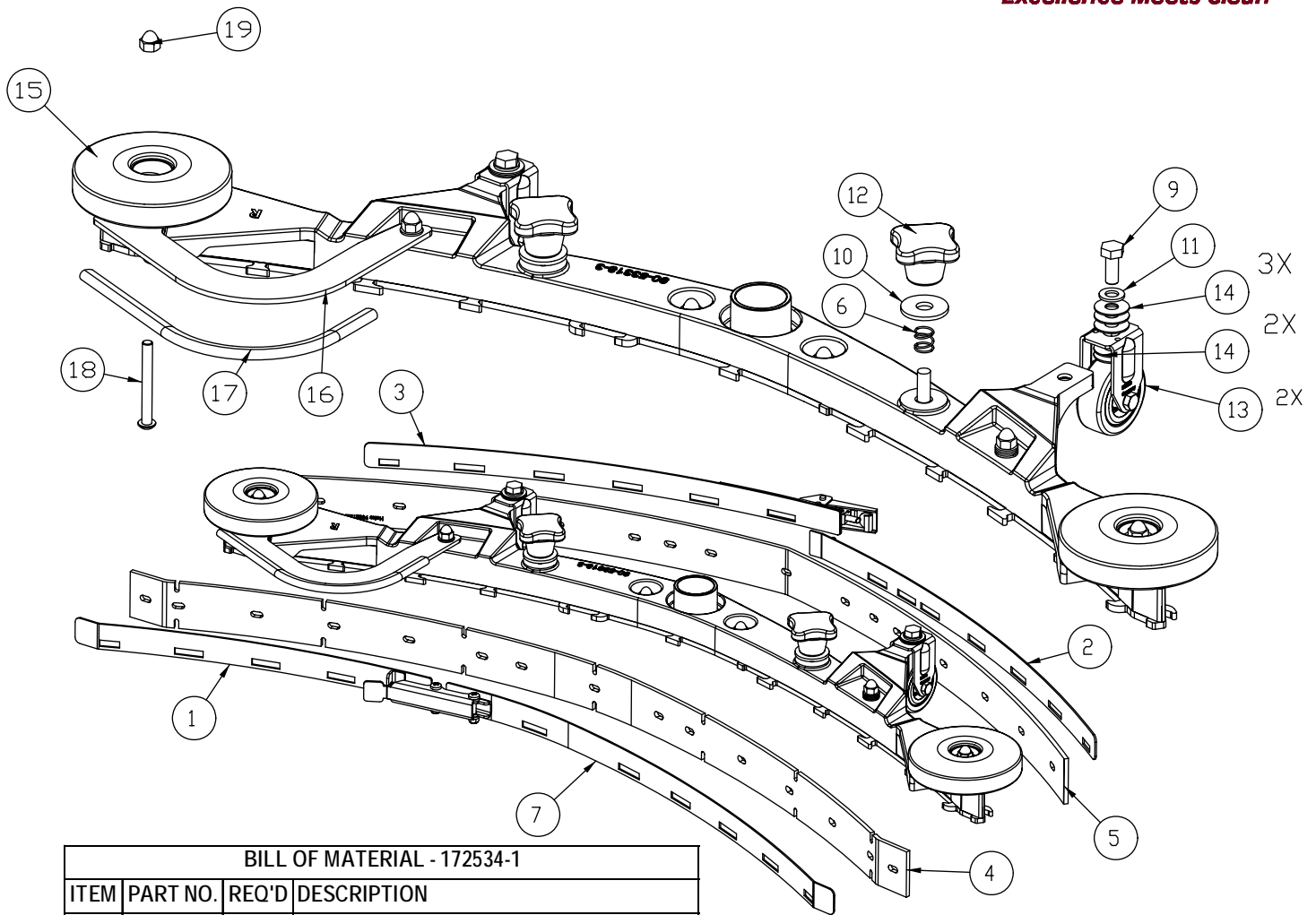


BILL OF MATERIAL - 172530-1			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172224	1	STRAP WMT , FRT RT -30" (760)
2	172226	1	STRAP WMT , REAR LEFT -30" (760)
3	172227	1	STRAP WMT , REAR RT -30" (760)
4	172258	1	FRONT SQ BLADE 30", 1/8 PU
5	172259	1	REAR SQ BLADE 30", 1/8 PU
6	172429	2	SPRING, COMPRESSION
7	172443	1	TENSION BAND ASM, FRONT LEFT 34"
8	172531	1	30" SQUEEGEE BASE ASM
9	717030	2	BOLT-HH M8X1.25 X 20 SS
10	717040	2	WSR-FLT 10.5 X 30 X 2.5 SS
11	12310264	2	WSR-FLT M8.4X16X1.6 SS
12	17133026	2	KNOB, M10 STAR HANDLE
13	90513094	2	FIXED CASTOR
14	90531112	10	WSR-FLT 8.3 X 22 X 1MM SS
15	90548397	2	ROLLER - PLASTIC, 100mm DIA. (4"), BLACK
16	172275	1	EDGE TRIM, 5/16 X 8" BLACK
17	172257	1	BUMPER, 30" SQG
18	712591	6	NUT , ACORN 1/4-20 SS
19	712592	2	SCR-MC BHCS, 1/4-20 X 2.25 SS



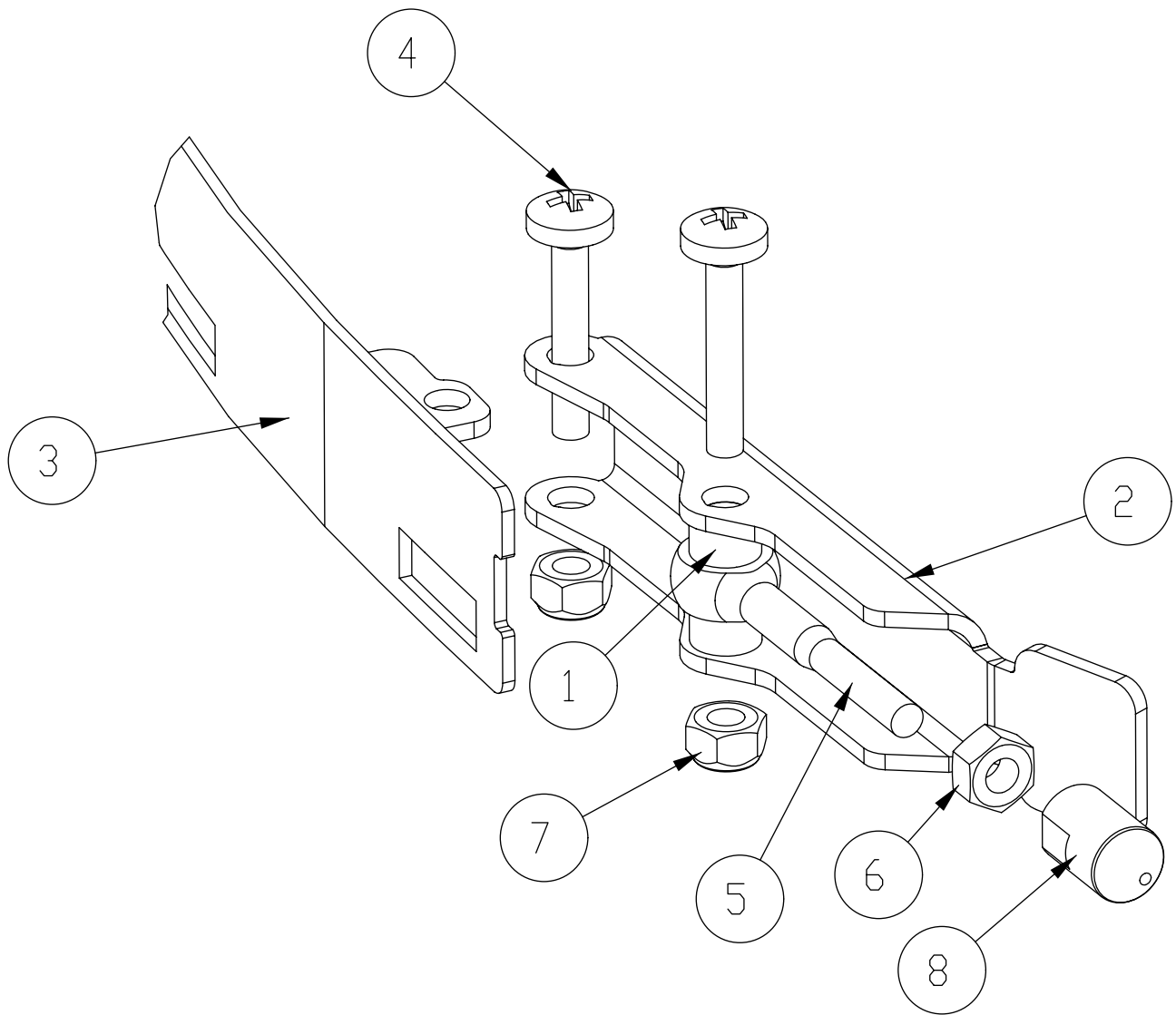
BILL OF MATERIAL - 172443			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172074	2	SPACER, 5/16OD X 17GA, ALUM
2	172223	1	STRAP WMT, FRT LEFT -30" (760)
3	172234	1	LEVER, 90535758
4	11175494	2	SCR-MC M5 X 25 SS DIN7985
5	11518313	1	BLT-EYE M5 X 40 SS
6	12022430	1	NUT - HEX, M5, SS DIN934
7	12040283	2	NUT - HEX, M5 NYLON LOCK, SS DIN985
8	90513631	1	PIN, THD 90513631

## E20 Rear Squeegee Assembly (Curved)



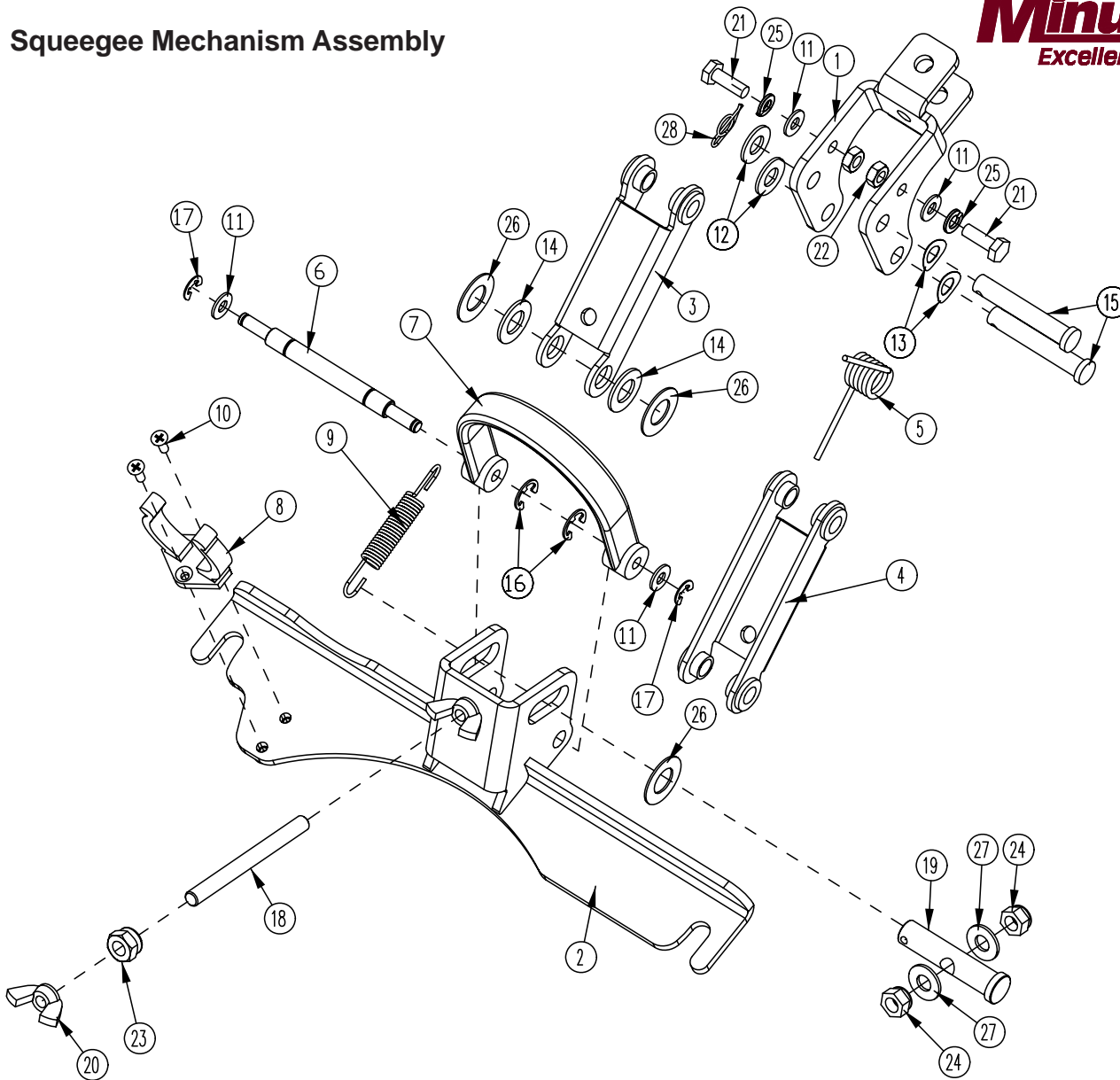
**BILL OF MATERIAL - 172534-1**

ITEM	PART NO.	REQ'D	DESCRIPTION
1	172241	1	STRAP WMT, FRONT
2	172245	1	STRAP WMT, REAR
3	172246	1	STRAP WMT, REAR
4	172272	1	FRNT SQG BLADE 34", 1/8 PU
5	172273	1	REAR SQG BLADE 34", 1/8 PU
6	172429	2	SPRING, COMPRESSION
7	172440	1	TENSION BAND ASM, FRONT LEFT 34"
8	172535	1	SQG BASE ASSEMBLY 34"
9	717030	2	BOLT-HH M8X1.25 X 20 SS
10	717040	2	WSR-FLT 10.5 X 30 X 2.5 SS
11	12310264	2	WSR-FLT M8.4X16X1.6 SS
12	17133026	2	KNOB, M10 STAR HANDLE
13	90513094	2	FIXED CASTOR
14	90531112	10	WSR-FLT 8.3 X 22 X 1MM SS
15	90548397	2	ROLLER - PLASTIC, 100mm DIA (4"), BLACK
16	172271	1	BUMPER, 34" SQG
17	172274	1	EDGE TRIM, 5/16 X 10" BLACK
18	712592	2	SCR-MC BHCS, 1/4-20 X 2.25 SS
19	712591	6	NUT, ACORN 1/4-20 SS



BILL OF MATERIAL - 172440			
ITEM	PART NO.	REQ'D	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

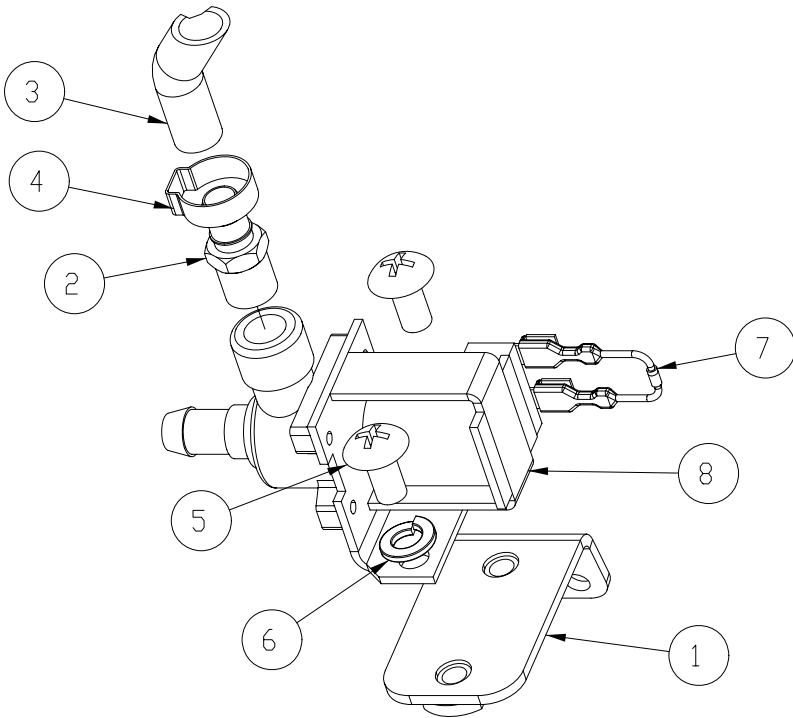
# Squeegee Mechanism Assembly



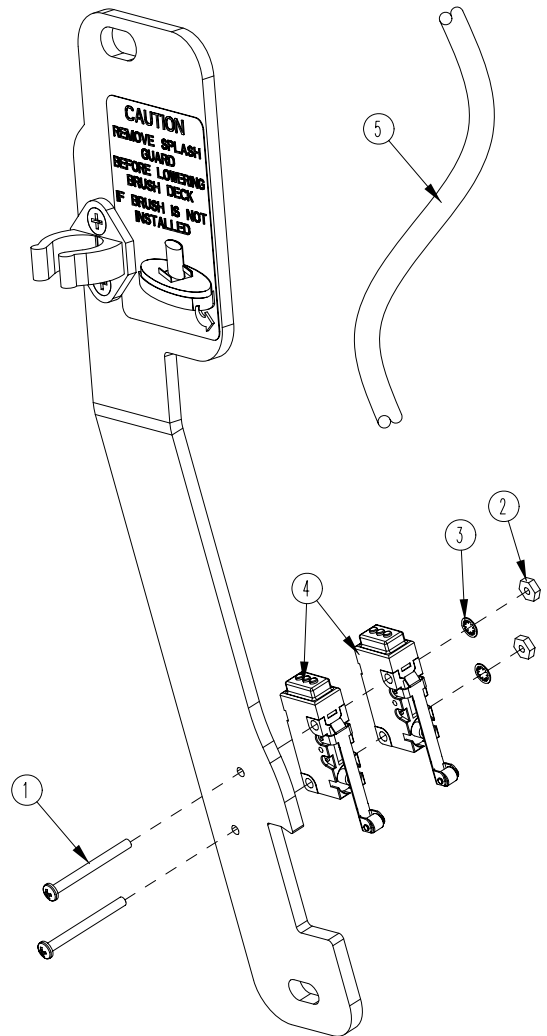
**BILL OF MATERIAL - 172150**

ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	172134	1	BKT, MAIN SQUEEGEE HINGE	15	711678	2	CLEVIS PIN 3/8 X 2-1/4
2	172155	1	SQUEEGEE MOUNT WMT	16	711717	2	RETAINING RING- E TYPE .37
3	172196	1	SQ TOP LINK W/ BUSHING	17	711720	2	.250 DIA RETAINING RING- E TYPE
4	172197	1	SQ BOT LINK W/ BUSH	18	712147	1	ROD-THD 5/16-18 X 3.5 SS
5	172261	1	TORSION SPRING	19	712148	1	CLEVIS PIN, 1/2 x 2.25 W/ HOLE
6	172352	1	PIN, 3/8 X 3.0, SQG STRAP	20	712157	2	NUT- WING 5/16-18 SS
7	172357	1	STRAP, 9" PU, BLACK	21	712562	2	BOLT-HH 1/4-20X3/4 SS
8	260579	1	TOOL CLIP, 1.5" HOSE	22	712665	2	NUT-HEX 1/4-20 SS
9	430051	1	RETURN SPRING-3.00"	23	712680	1	NUT-HEX 5/16-18 SS
10	710530	2	SCR-MC FL HD 8-32 X .50 BRS	24	712683	2	NUT, HEX 5/16-18 NYLOC SS
11	711504	4	WSR-FLAT 1/4 ID SS	25	712758	2	WSR-HELICAL 1/4 SS
12	711515	2	WSR-FLAT .406 X .812 X .0625	26	712760	3	WSR-FLAT .56X1.06X.04 SS
13	711523	2	WSR-WAVE .37X .68 X .08	27	712772	2	WSR-FLAT .344 x .75 x .06 SS
14	711592	2	WSR-FLAT .506 X .9 X .064 NYL	28	3400125	1	PIN-COTTER 3/8 RUE RING





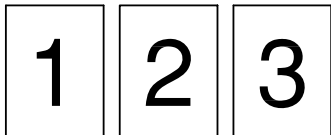
BILL OF MATERIAL - 172169			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172168	1	BKT, BD SOLENOID MOUNT
2	320264	1	FITTING BRASS - 3/8 DBL BARB X 1/4MPT
3	450055_	1	HOSE-NYLO REINF 3/8 X 9"
4	450076	1	CLAMP-CRIMP 185R SS
5	710196	2	SCR-MC 5/16-18 X .62
6	711545	2	WSR-HELICAL 5/16
7	740482	1	DIODE ASY, 1N4007 W/PIGGY
8	740493	1	WATER VALVE 24VDC



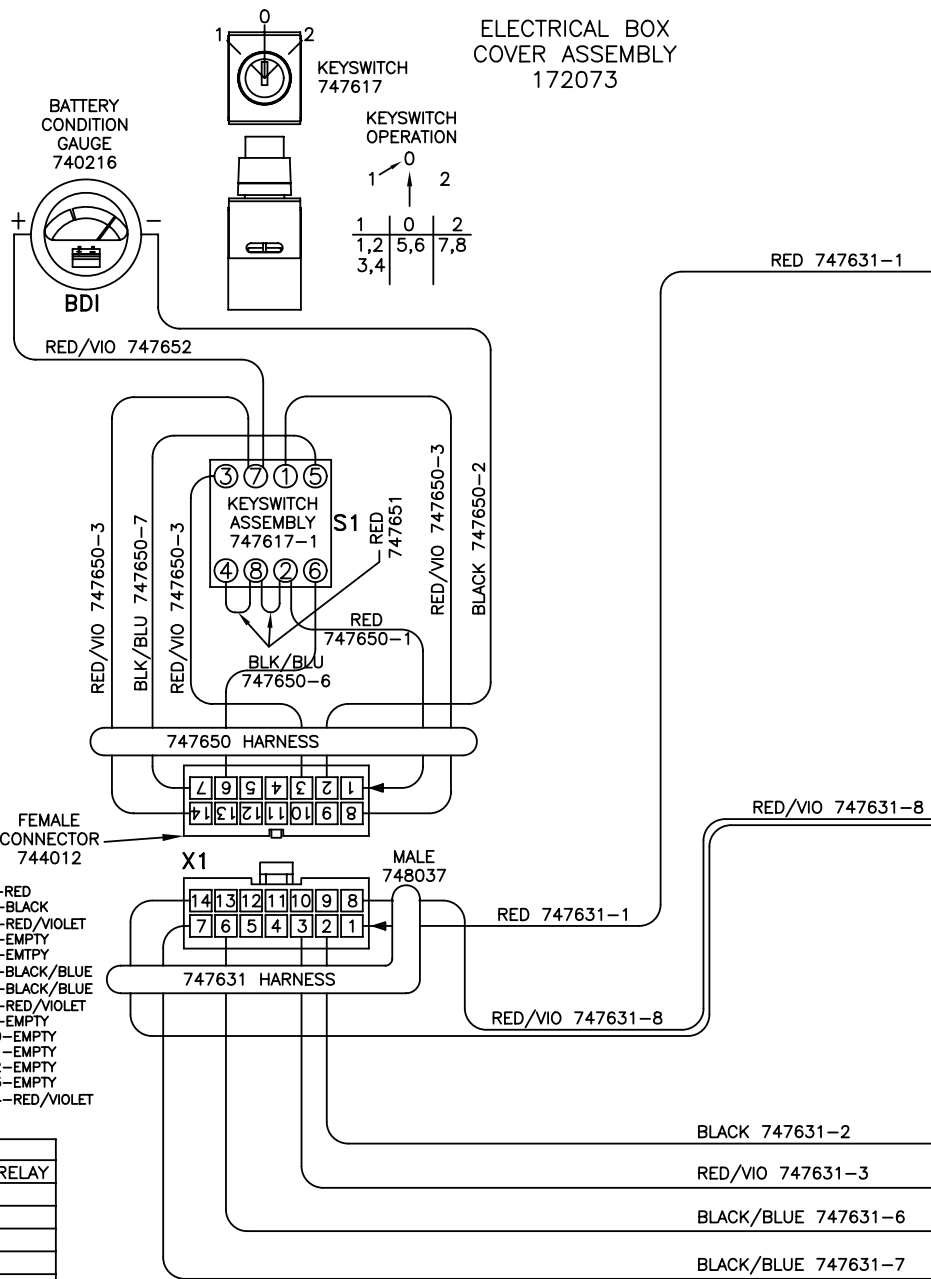
BILL OF MATERIAL			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	710495	2	SCR-MC 4-40 X 1.25 STL Z
2	711428	2	NUT-HEX 4-40
3	712326	2	WSR-INT LOCK #4
4	747603-2	2	SWITCH ASY, MICRO ROLLER W/PACK/CONDUIT
5	747660	1	HARNESS, SOLENOID KIT E1720BD

# 1 Wiring Diagrams

## PAGE LAYOUT



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



- 1-RED
- 2-BLACK
- 3-RED/VIOLET
- 4-EMPTY
- 5-EMPTY
- 6-BLACK/BLUE
- 7-BLACK/BLUE
- 8-RED/VIOLET
- 9-EMPTY
- 10-EMPTY
- 11-EMPTY
- 12-EMPTY
- 13-EMPTY
- 14-RED/VIOLET

X1:MAIN KEYSWITCH ASSEMBLY: 747617-1

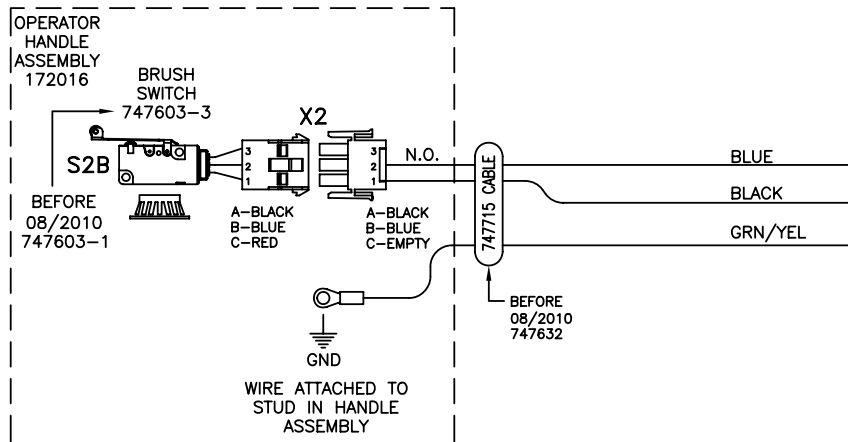
PIN #	COLOR	WHERE TO/FROM
1	RED	X13: BATTERY CHARGER INTERNAL RELAY
2	BLACK	RELAY COILS: 0V
3	RED/VIOLET	BRUSH MOTOR RELAY COIL: 24VDC
4	-	-
5	-	-
6	BLACK/BLUE	BRUSH RELAY NORMALLY CLOSED
7	BLACK/BLUE	BRUSH UNLOAD SWITCH P:B
8	RED/VIOLET	X12: MAIN RELAY COIL: 24VDC
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	RED/VIOLET	X12: MAIN RELAY COIL: 24VDC

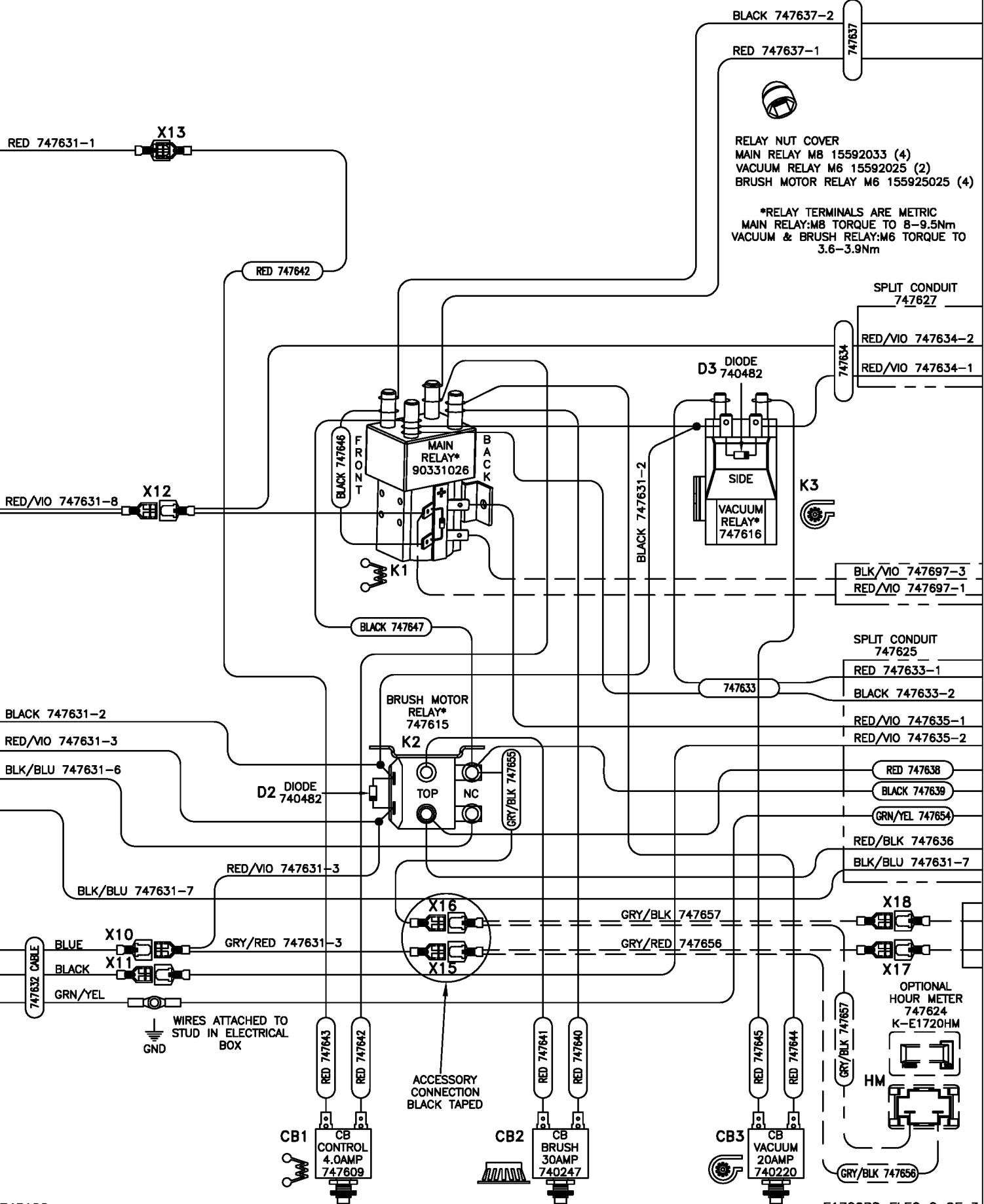
BATTERY CHARGER: 957761 or 957760

	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

-	RED	BATTERY 24VDC: +
-	BLACK	BATTERY 0VDC: -
-	GREEN/YELLOW	GROUND
-	BLACK/BLUE	BRUSH UNLOAD CIRCUIT
-	RED/BLACK	BRUSH UNLOAD CIRCUIT:MICRO SWITCH
-	RED/VIOLET	24VDC AFTER MAIN KEYSWITCH
X15	GREY/RED	OPTIONAL POWER 24VDC: 3A MAX
X16	GREY/BLACK	OPTIONAL POWER 0VDC: 3A MAX





- BLACK 747637-2
- RED 747637-1
- RELAY NUT COVER
- MAIN RELAY MB 15592033 (4)
- VACUUM RELAY M6 15592025 (2)
- BRUSH MOTOR RELAY M6 155925025 (4)

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

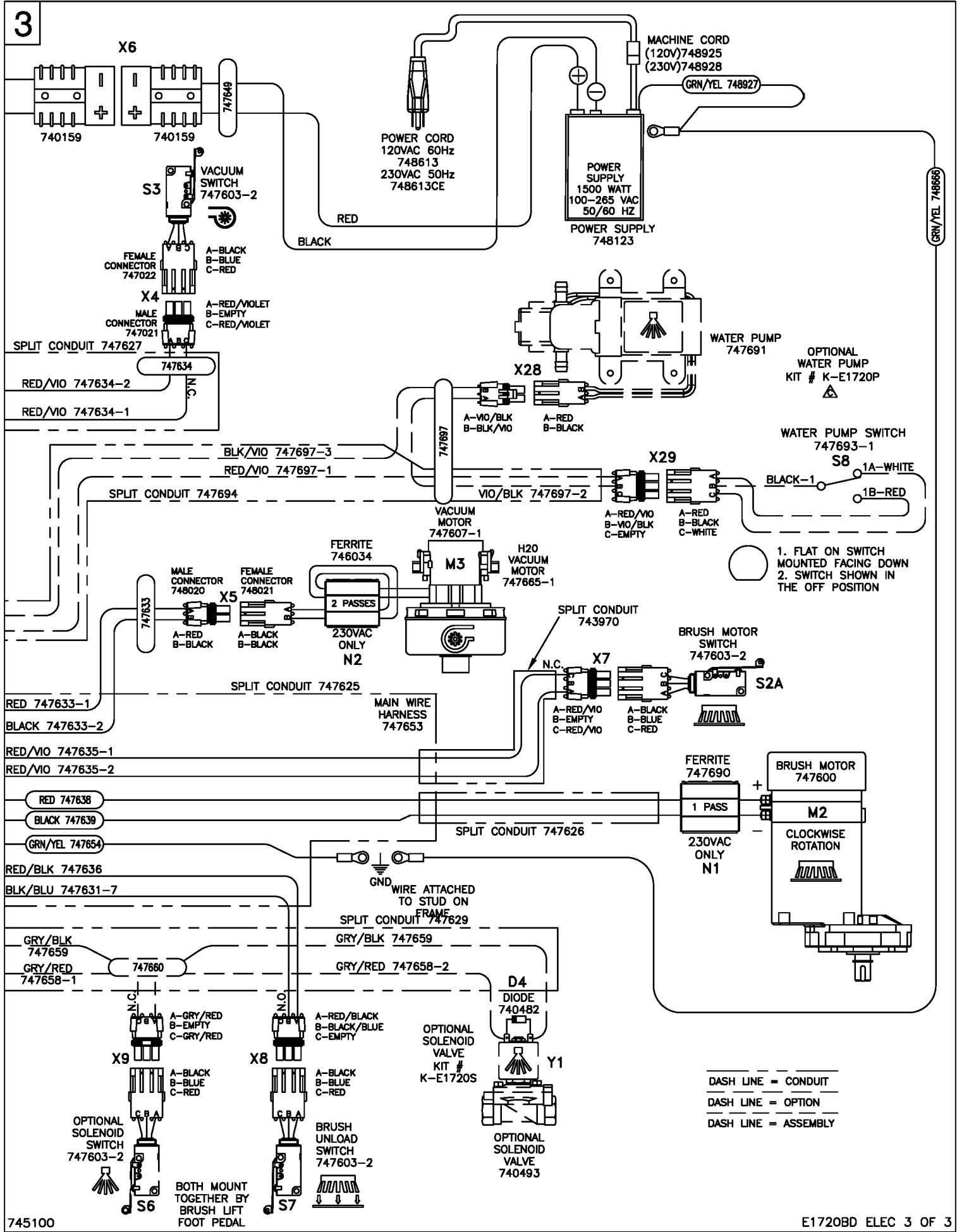
- SPLIT CONDUIT 747627
- RED/VIO 747634-2
- RED/VIO 747634-1

- BLK/VIO 747697-3
- RED/VIO 747697-1

- SPLIT CONDUIT 747625
- RED 747633-1
- BLACK 747633-2
- RED/VIO 747635-1
- RED/VIO 747635-2

- RED 747638
- BLACK 747639
- GRN/YEL 747654
- RED/BLK 747636
- BLK/BLU 747631-7

- X18
- X17
- OPTIONAL HOUR METER 747624 K-E1720HM
- HM
- GRY/BLK 747657
- GRY/BLK 747656



# Minuteman International Made Simple Commercial Limited Warranty



REVISION F  
EFFECTIVE 6/1/2009

Minuteman International, Inc. warrants to the original purchaser/user that the product is free from defects in workmanship and materials under normal use. Minuteman 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, such as belts, cords, switches, hoses, rubber parts, electrical motor components or adjustments. Parts manufactured by Minuteman are covered by and subject to the warranties and/or guarantees of their manufacturers. Please contact Minuteman for procedures in warranty claims against these manufacturers.

Special warning to purchaser — Use of replacement filters and/or prefilters not manufactured by Minuteman 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 or its original manufacturer, whichever the case may be.

Minuteman disclaims any implied warranty, including the warranty of merchantability and the warranty of fitness for a particular purpose. Minuteman 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. Minuteman is not responsible for costs or repairs performed by persons other than those specifically authorized by Minuteman. 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.

Cord Electric Group: Three years parts, two years labor, ninety days travel (Not to exceed two hours)

## Exceptions.....

Model	Parts	Labor	Poly	Travel
Port A Scrub	1yr	6months	10yrs	0
MPV 13	1yr	0	0	0
MPV 14 & 18	2yrs	1yr	0	0
V Series Upright Vacuums	1yr	1yr	0	0
Rapid Air Blower	1yr	1yr	10yrs	0
Explosion Proof Vacuum	1yr	1yr	0	0
X12, X12H & TRS 14	1yr	1yr	10yrs	0
E17 & E20 Electric Scrubbers	1yr	6month	10yrs	0
Pneumatic Vacuums	3yr	1yr	0	0

Description	Parts	Labor	Poly	Travel
Battery Operated Group	3yrs	2yrs	10	90 days
Sweepers	1yr	1yr	10	90 days
Internal Combustion Group	1yr	1yr	10	90 days

Not to exceed two hours

**Exception: PAS 14B**      **1yr**      **1yr**      **10yr**      **0**

**Battery Chargers:**      **One year replacement**  
*Replacement Parts:*      Ninety days  
*Batteries:*      0-3 months replacement, 4-12 months pro-rate  
*Polyethylene Plastic Tanks:*      Tanks have 10yr warranty, no additional labor