



**Parts Manual**  
**E20 SPORT Floor Scrubber**  
**Disc Traction Drive**

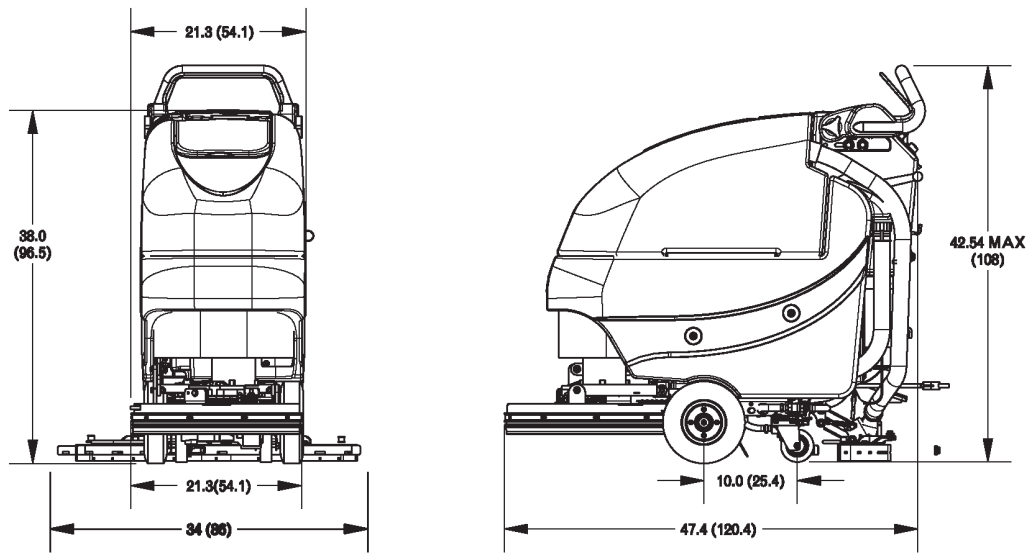
# Technical Specifications



Model **E20 SPORT Traction Drive**

Model No. E20S, E20SQP, E20SQPG

<b>Current (Max)</b>	<b>E20 SPORT</b>	32/40 amps
<b>Battery Capacity (Lead Acid)</b>		140Ah @ 20 hr
<b>Battery Capacity (Gel)</b>		140Ah @ 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>		1 HP (750W)
<b>Number of brushes</b>		1
<b>Brush RPM</b>		180 RPM (LOW) / 370 RPM (HIGH)
<b>Aqua-Stop equipped</b>		Optional
<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>		380 lbs (172 kg)
<b>Weight without batteries</b>		240 lbs (109 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)



in (cm)

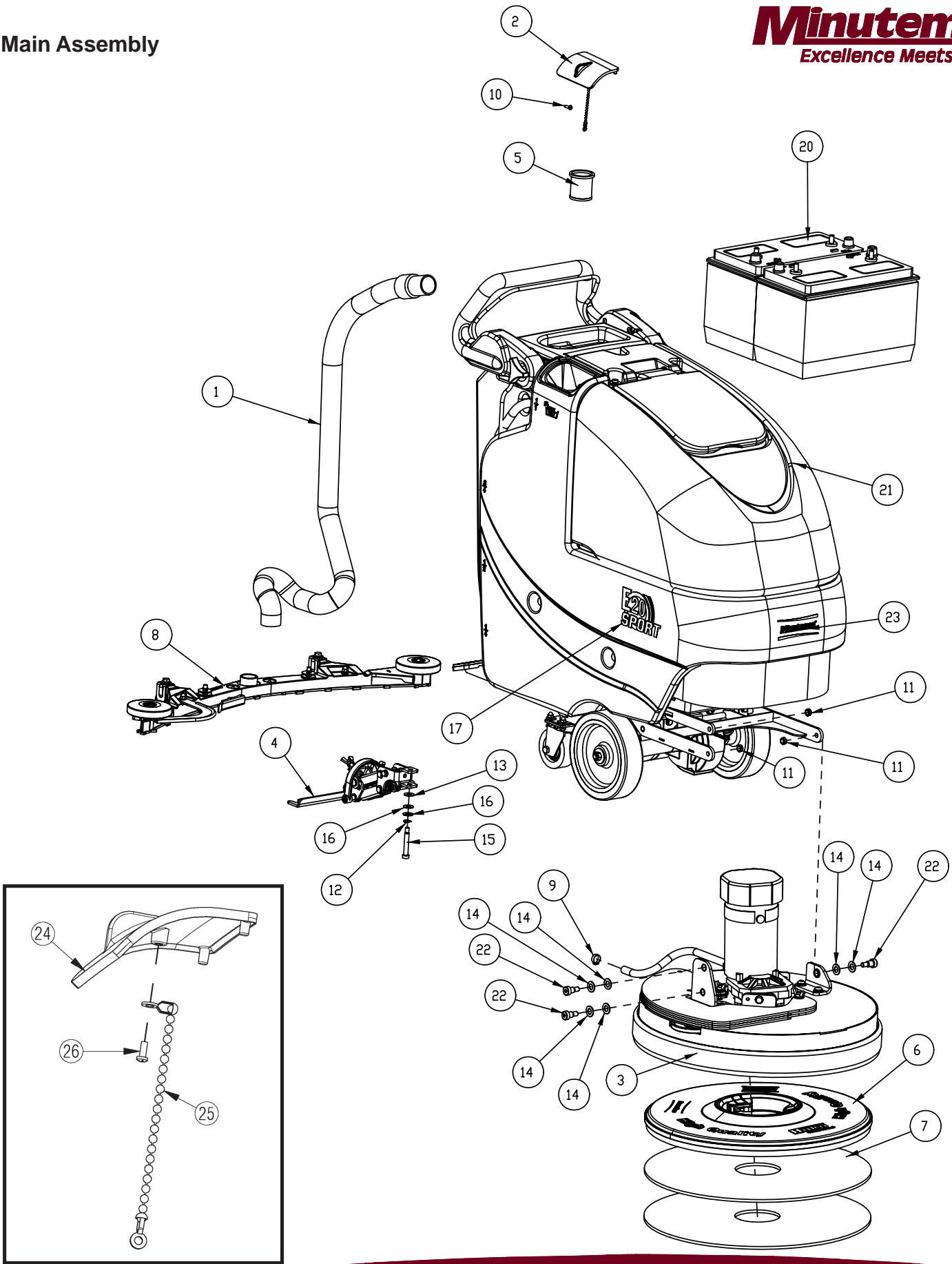
## For Safety When Servicing or Maintaining Machine

- 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 Minuteman supplied replacement parts.

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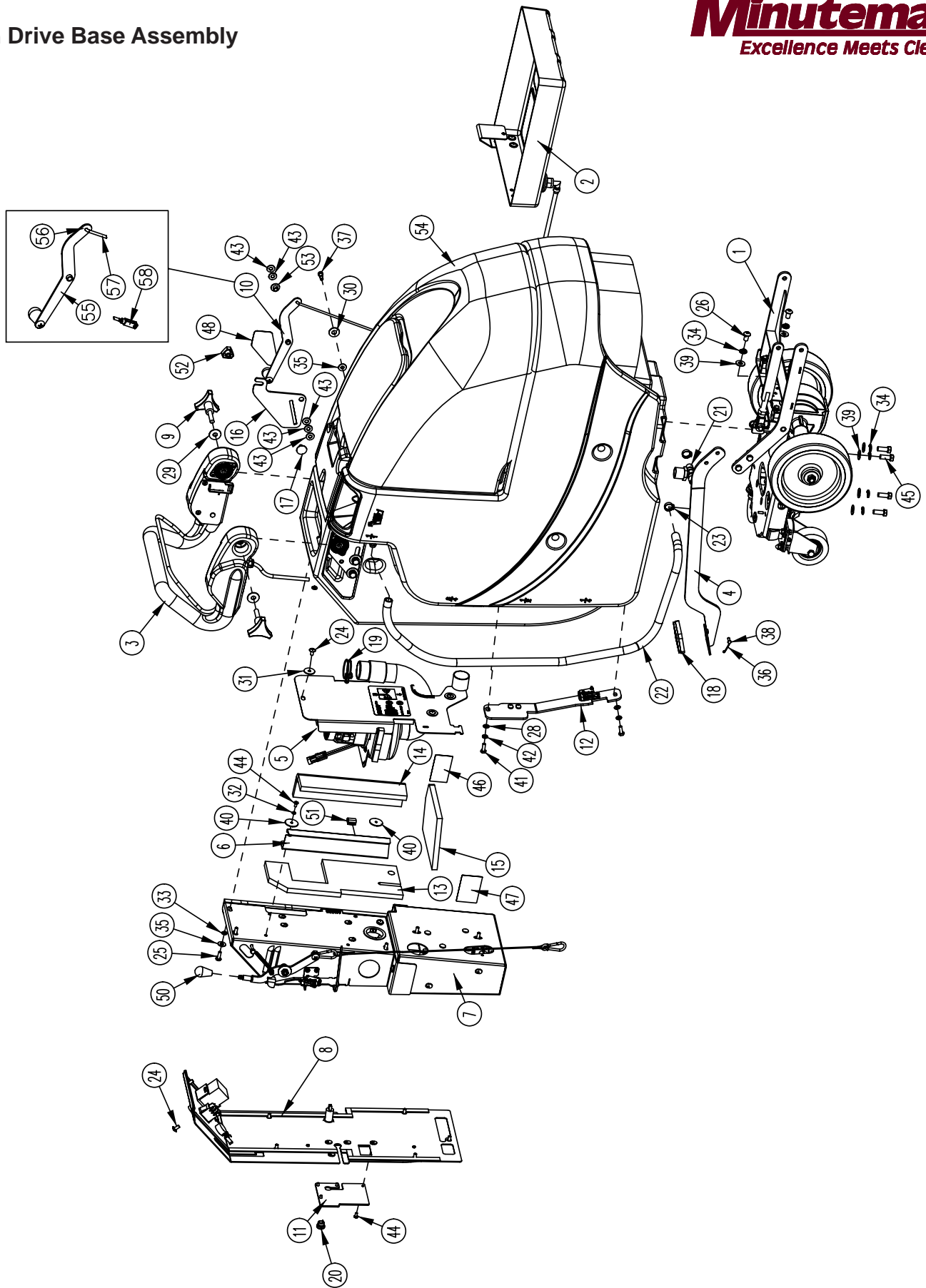
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# Main Assembly



BILL OF MATERIAL - E20SQP			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172010	1	HOSE, CLEAR VAC W/ 90 CUFF
2	172018	1	SOLUTION TANK LID ASSY
3	172100-SPORT	1	SPORT BRUSH DECK ASSY 20"
4	172150	1	SQUEEGEE LIFT MECH ASSY
5	172159	1	FILTER, FILL PORT , ES1720
6	172520-2	1	20" PAD DRIVER
7	172520-8	2	FLOOR PAD, 20", SURF PREP
8	172534	1	SQG ASSEMBLY 34" (860MM), CURVED
9	450076	1	CLAMP-CRIMP 185R SS
10	711118	1	SCR-ST-A 10 X .75 SS
11	711375	3	NUT - NYLON LOCK, 3/8-16 HALF 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
17	715925	2	DECAL, E20 SPORT
18	740164-1	1	JUMPER CABLE ASSY, RED 4G 12"
19	747649	1	CABLE ASSY, BATTERY E17
20	956140	2	BATTERY, 12V 140AH
21	172001SPORT	1	LIFT MAIN ASSY
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-PAN HD HI/LO 6-19 X .37SS

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	AQUASTOP
7951-02	BRUSH, 20" LIGHT-MEDIUM A/S, K901	AQUASTOP
7951-03	BRUSH, 20" MEDIUM NYLON 600GR. A/S, GREY	AQUASTOP
7951-04	BRUSH, 20" MEDIUM-HEAVY PP.8 A/S	AQUASTOP
7951-05	BRUSH, 20" HEAVY NYLON 180GR. A/S, GREY	AQUASTOP
7951-06	BRUSH, 20" HEAVY-2 NYL 120GR. A/S, GREEN	AQUASTOP

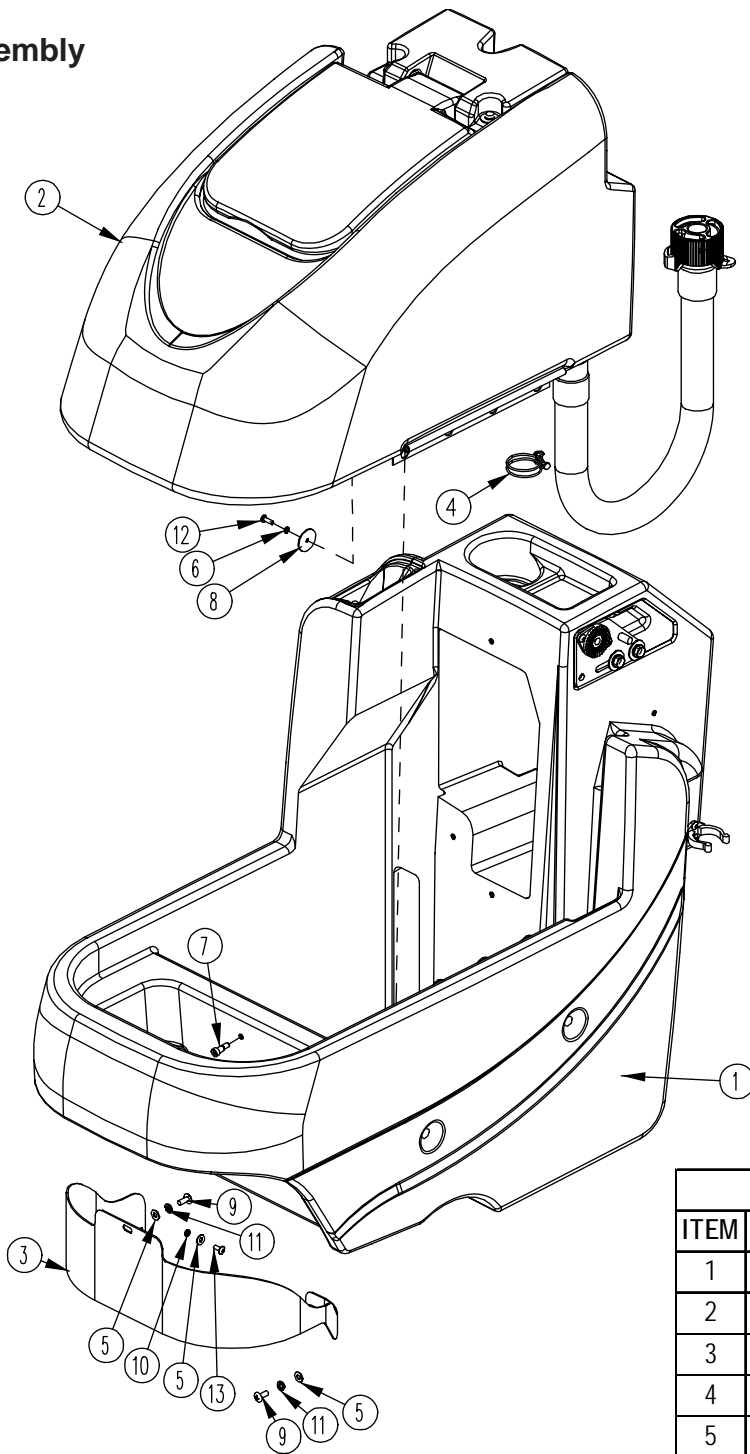


# Traction Drive Base Assembly BOM



BILL OF MATERIAL - 172001TD-SPORT							
ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	172009	1	TD CHASSIS ASSY, E1720	30	711508	1	WSR-FLAT .44X 1.0X.08
2	172012	1	BATTERY TRAY ASSY	31	711519	3	WSR- FLAT .25 X 1.01 X .06
3	172015	1	E1720 TD HANDLE ASSY	32	711543	2	WSR-HELICAL #10
4	172032	1	LIFT PEDAL WMT	33	711544	5	WSR-HELICAL 1/4
5	172050	1	VAC MOTOR ASSY	34	711546	6	WSR-HELICAL 3/8
6	172055	1	BKT , VAC AREA INSIDE COVER	35	711575	6	WSR-FLT .31x.75x.06ST
7	172075-SPORT	1	ELEC BOX ASSY-SPORT	36	711803	1	COTTER PIN
8	172079-SPORT	1	LIFT ELEC BOX COVER ASSY	37	712041	1	BLT - SHLDR .31 X .375 X 1/4-20
9	172085	2	KNOB, 3/8-16 STUD, 3 LOBE	38	712117	1	CLEVIS PIN 3/16
10	172112	1	SOL CONTROL ASSY	39	712301	6	WSR-FLAT .37 X .87 X .06
11	172129	1	BKT , PWR CORD MOUNT	40	712312	2	WSR-FLAT .187 X 1.25
12	172166	1	TD LIFT PEDAL BKT ASSY	41	712562	2	BOLT -HH 1/4-20X3/4 SS
13	172184	1	FOAM COVER, REAR 1	42	712758	2	WSR-HELICAL 1/4 SS
14	172185	1	FOAM COVER, REAR 2	43	712772	5	WSR-FLAT .344 x .75 x .06 SS
15	172187	1	FOAM COVER, FRONT 2	44	712810	6	SCR-MC 10-24 X .37 ST PL
16	172416	1	BKT , AQUASTOP SOL CTRL	45	713042	4	BLT-HH 3/8-16 X 1 #5
17	172424	1	BLT -ELEVATOR, 1/4-20 X .75 ZINC	46	715029	1	DECAL-NAME PLATE SERIAL
18	210142	1	PEDAL PAD	47	715047	1	DECAL-CLEAR LAMINATE 2X3
19	260203	1	WIRE GRIP HOSE CLAMP	48	715690	1	DECAL, AQUASTOP SOL CTRL
20	293080	1	STRAIN RELIEF-HEYCO 1207	49	715950	1	LABEL, PATENT NUMBERS
21	342440	1	FITTING, TEE 3/4MPT 1/2BARB	50	760592	1	KNOB, OVAL TAPERED
22	430156	1	HOSE, 1/2 X 42 CLEAR	51	809443	1	CLIP-WIRE & CORD
23	450093	2	CRIMP CLAMP 3/4" STEPLESS	52	833214	1	KNOB-3 SIDED 1/4-20
24	710178	10	SCR-MC 1/4-20 X .50 TRUSS ST PL	53	840202	1	BUSHING-FLG .31 X .437 X .325 NYL
25	710380	5	SCR-MC RD HD 1/4-20 X .75 ST L PL	54	172001BASE	1	E1720 BASE ASSY
26	710985	2	SCR-SC 3/8-16 X .62 ST PL	55	172115	1	SOL CNTRL LEVER ASSY
27	711379	2	NUT , FLANGED WIZZ 5/16-18	56	172122	1	NUT , PUSH-ON WSR CAP, 3/16
28	711504	2	WSR-FLAT 1/4 ID SS	57	172069	1	ROD, SOL. CTRL, ES1720
29	711507	2	WSR-FLAT .37 X 1.12 X .06	58	172062	1	YOKE, 3/16 CLEVIS, 10-32, LONG

Base Assembly

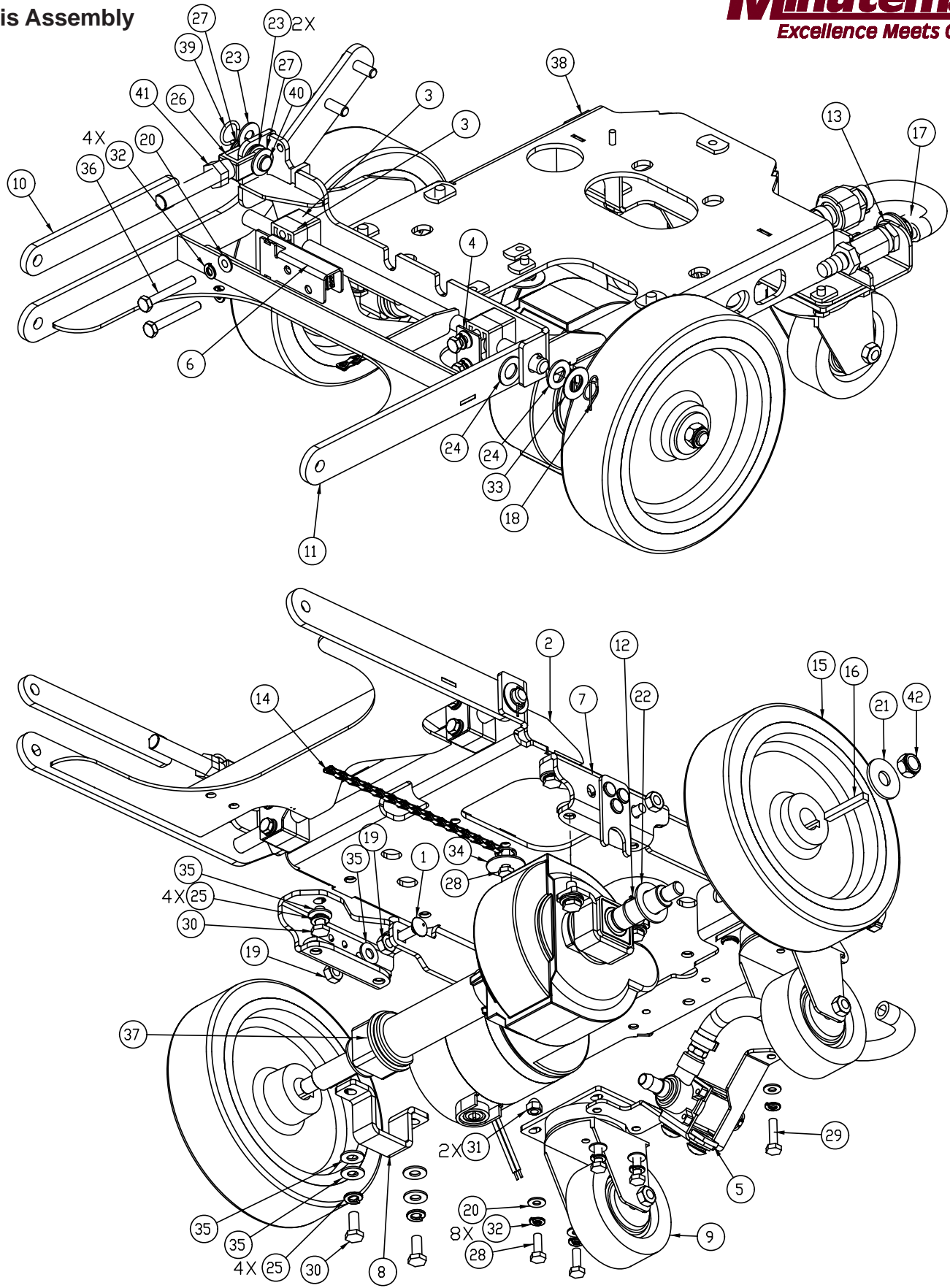


BILL OF MATERIAL - 172001BASE

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	172329	1	CLAMP-HOSE 1.56" 102122 MURRAY
5	711504	3	WSR-FLAT 1/4 ID SS
6	711543	4	WSR-HELICAL #10
7	712041	1	BLT- SHLDR .31 X .375 X 1/4-20
8	712312	4	WSR-FLAT .187 X 1.25
9	712565	2	SCR-MC 1/4-20X.63 SS TR HD
10	712757	1	WASHER- HELICAL, #10, SS
11	712758	2	WSR-HELICAL 1/4 SS
12	712812	4	SCR-MC 10-24 X .62 PPH ST PL
13	712822	1	SCR-MC TR HD 10-24 X .50 SS

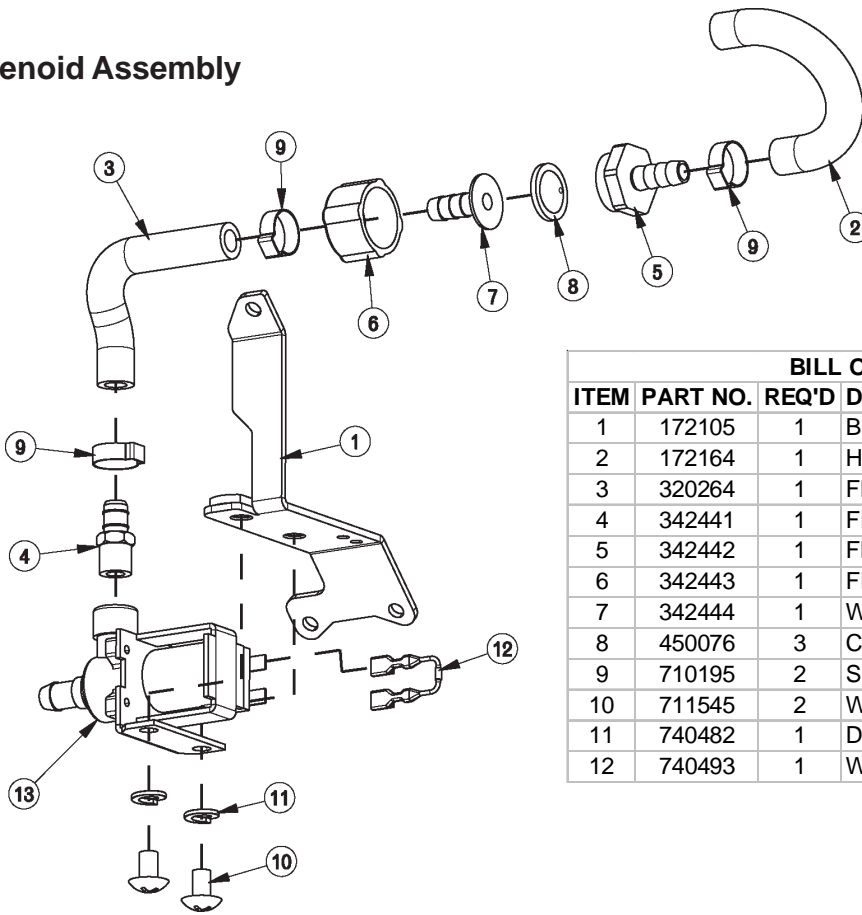


# Chassis Assembly



BILL OF MATERIAL - 172009			
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	172038	4	BEARING BLOCK
4	172039	1	BEARING BLOCK PLATE
5	172104	1	TD SOLENOID ASSY
6	172110	1	DECK SWIT CH ASSY
7	172113	2	BKT , TRANSAXLE MOUNT BASE
8	172114	2	BKT , TRANSAXLE MOUNT
9	172167	2	CASTER, 3-1/2 POLYURETHANE
10	172368	1	UPPER LIFT ARM
11	172370	1	DISC DECK LIFT WMT , E1720
12	172425	2	RING-RET EXT .75 HD
13	172514	1	SOLUTION VALVE ASSY, SMC
14	172516	1	DRAG CHAIN, SS, 8"
15	172518	2	WHEEL, 8X2 URETHANE 75A
16	172519	2	KEY-SQUARE, 6MM X 45MM
17	450076	1	CLAMP-CRIMP 185R SS
18	600578	1	PIN-COTTER 1/2 RUE RING
19	711383	4	NUT-HEX CLR LOC 5/16-18
20	711504	12	WSR-FLAT 1/4 ID SS
21	711510	2	WSR FLAT .5 X 1.37 X .100
22	711512	2	WSR-FLAT .75X1.37X.08
23	711569	3	WSR-FLT .390 X .880 X .062 NYL
24	711592	2	WSR-FLAT .506 X .9 X .064 NYL
25	712140	8	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	8	BOLT-HH 1/4-20X3/4 SS
29	712564	1	BOLT-HH 1/4-20X1.00 SS
30	712575	8	BLT-HH 5/16-18 X .75 SS
31	712591	2	NUT , ACORN 1/4-20 SS
32	712758	12	WSR-HELICAL 1/4 SS
33	712760	1	WSR-FLAT .56X1.06X.04 SS
34	712761	1	WSR-FLAT .28 X 1.25 X .059SS
35	712772	14	WSR-FLAT .344 x .75 x .06 SS
36	713007	4	BLT-HH 1/4-20 X 2 #5
37	747606	1	TRANSAXLE, ES1720 24V
38	809444	1	CLIP-CORD
39	833374	1	PIN, HAIRPIN COTTER 3/8
40	833833	1	PIN-CLEVS 3/8 X 1.25
41	3400449	1	NUT-HEX JAM 1/2-20 ZP
42	12040077	2	NUT-NYLOC M12X1.75 STL ZINC DICH

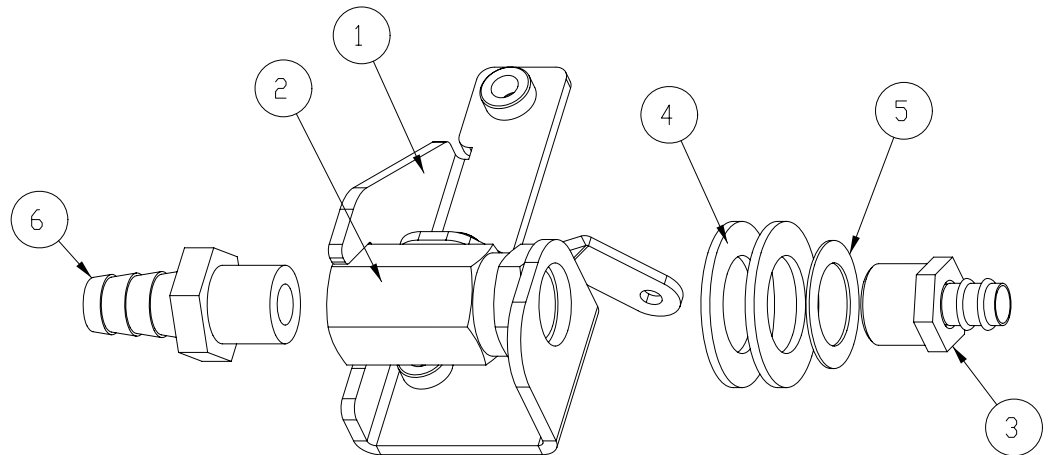
## Solenoid Assembly



**BILL OF MATERIAL - 172104**

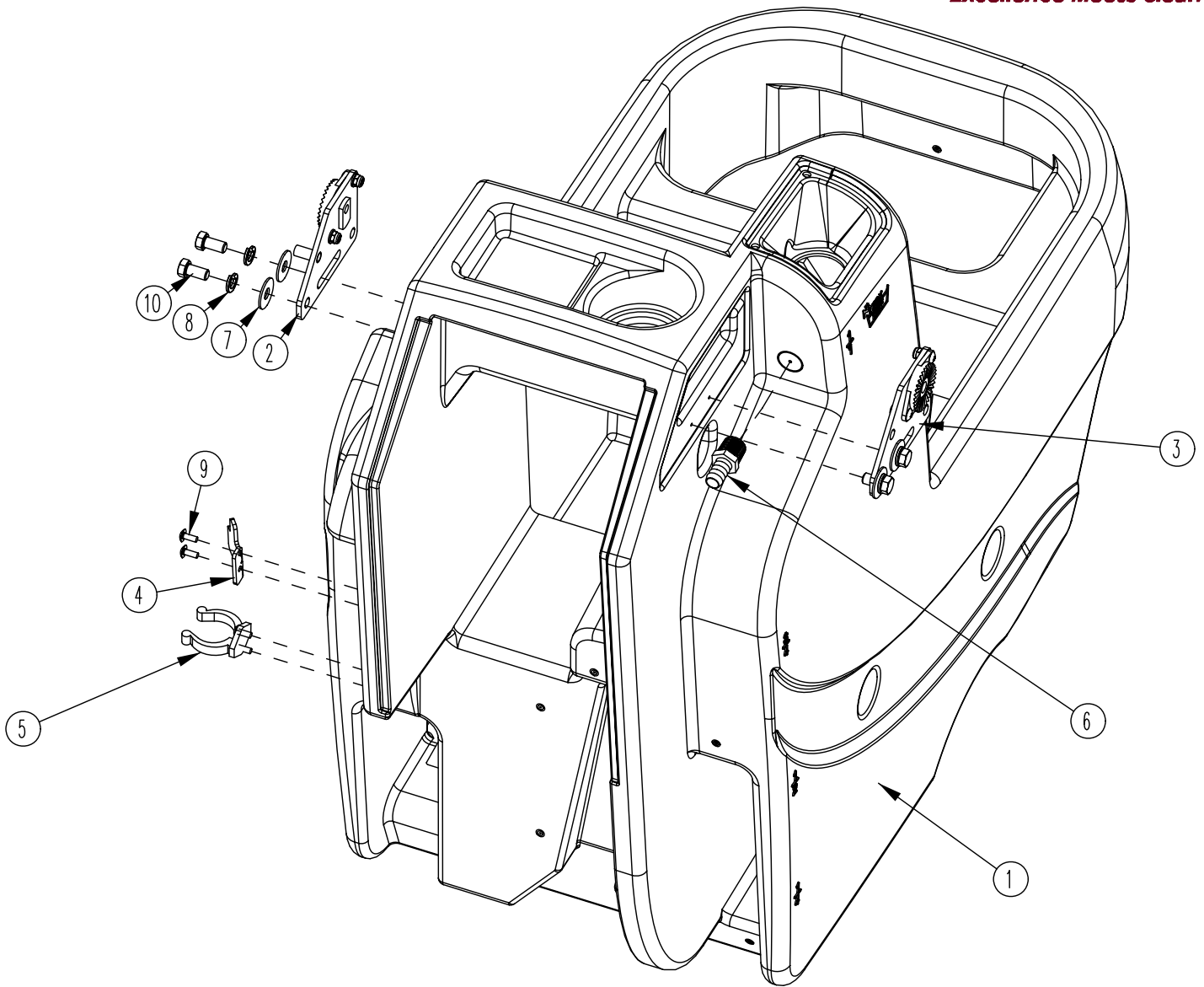
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172105	1	BKT, TD SOLENOID MOUNT
2	172164	1	HOSE-NYLO REINF 3/8 X 5.5"
3	320264	1	FITTING BRASS - 3/8 DBL BARB X 1/4MPT
4	342441	1	FITTING, MGHT X 3/8HB PP
5	342442	1	FITTING, FGHT NUT PP
6	342443	1	FITTING 3/8HB INSERT PP
7	342444	1	WSR-FILTER, GARDEN HOSE SIZE
8	450076	3	CRIMP CLAMP SS 185R
9	710195	2	SCR-MC 5/16-18 X .50
10	711545	2	WSR-HELICAL 5/16
11	740482	1	DIODE ASY, 1N4007 W/PIGGY
12	740493	1	WATER VALVE 24VDC

## Solution Valve Assembly



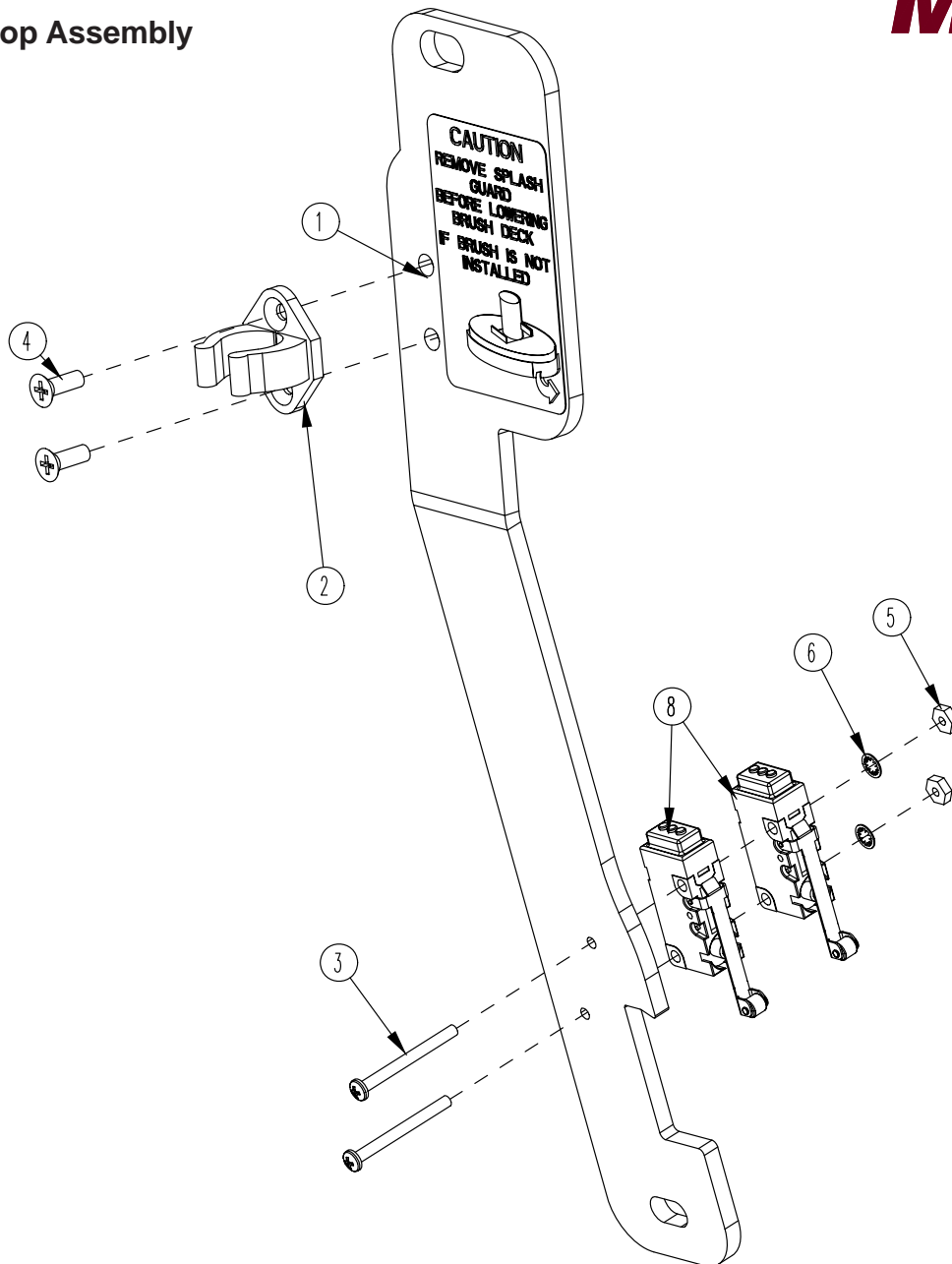
**BILL OF MATERIAL - 172514**

ITEM	PART NO.	REQ'D	DESCRIPTION
1	172513	1	BKT, SOL VALVE MOUNT, SMC
2	172515	1	BALL VALVE, BRASS, 45 OPEN/CLOSE
3	320265	1	FITTING DUBL 3/8HBx3/8MPT
4	711512	2	WSR-FLAT .75X1.37X.08
5	711513	1	WSR-FLAT .69 X 1.06 X .03 SS
6	827008	1	FITTING, 3/8 MPT 1/2 HOSE

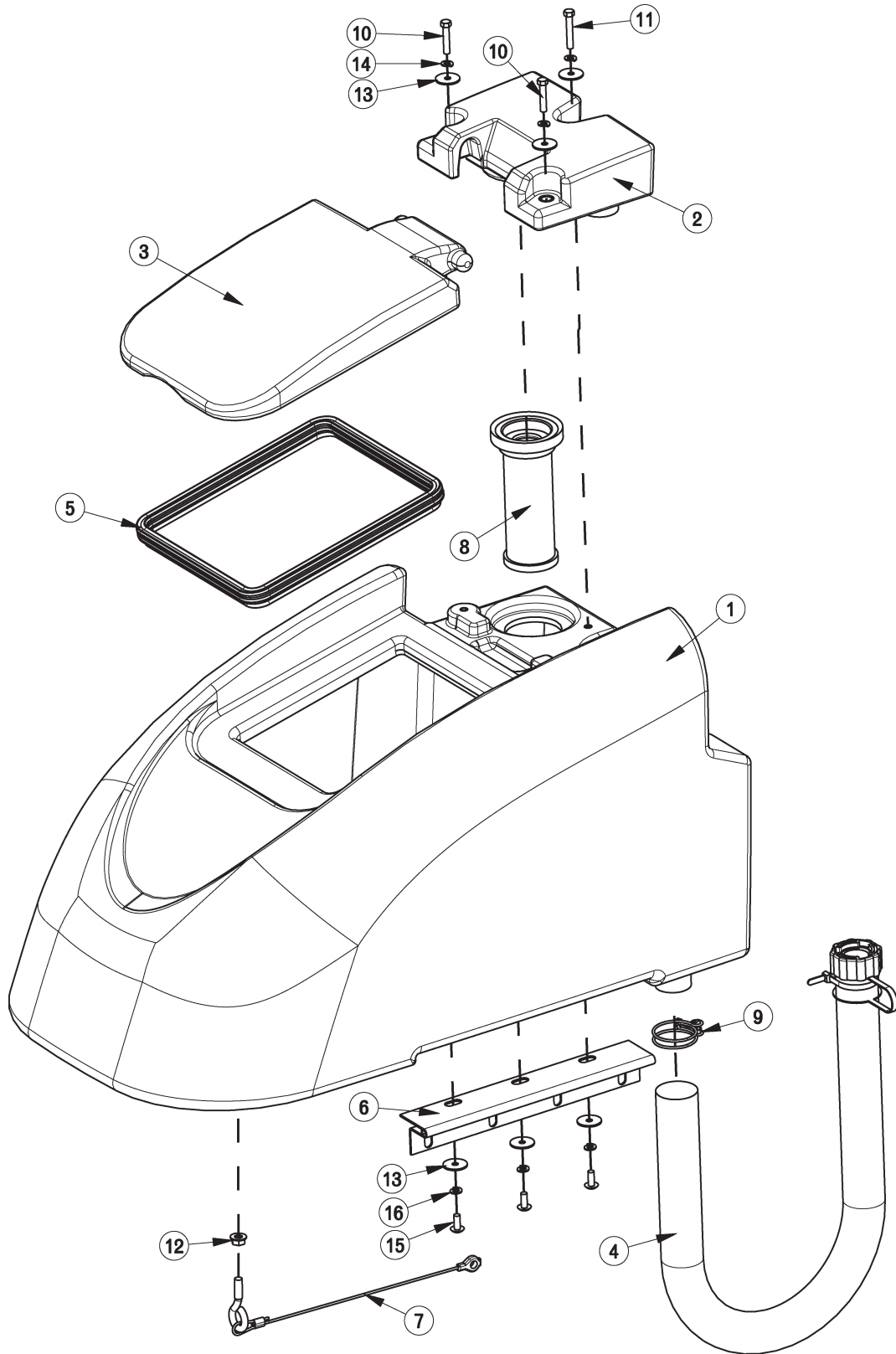


BILL OF MATERIAL - 172013			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172003	1	SOLUTION TANK
2	172080	1	HANDLE MOUNT ASSY, LEFT
3	172082	1	HANDLE MOUNT ASSY, RIGHT
4	172341	1	HOOK, DRAIN HOSE WITH TWIST VALVE
5	260579	1	TOOL CLIP, 1.5" HOSE
6	342438	1	FITTING, 1/2 MPT 1/2 HB BRASS
7	711507	4	WSR-FLAT .37 X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

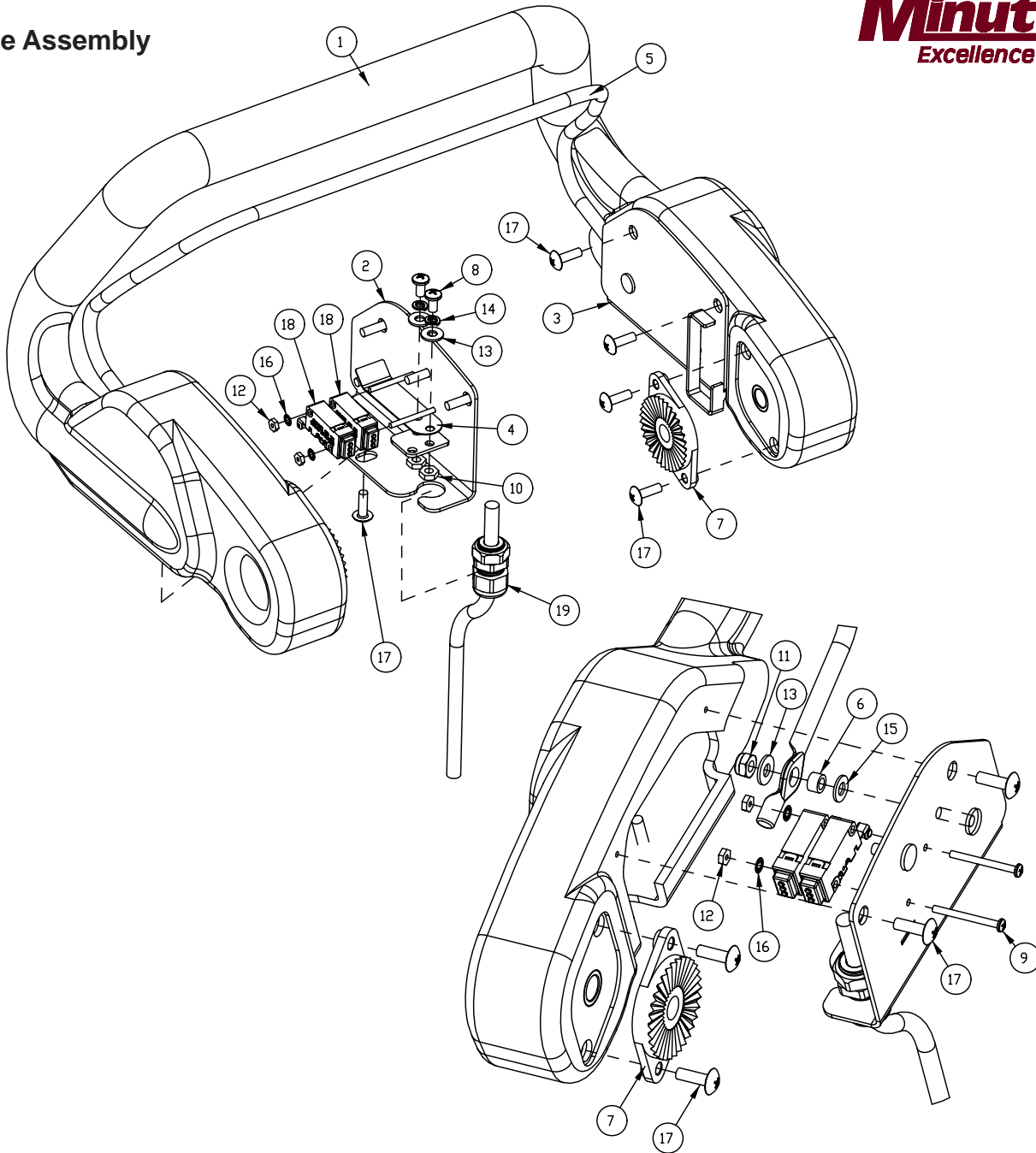


BILL OF MATERIAL -172166			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172036	1	BKT, PEDAL STOP
2	172065	1	CLIP, FOR 1/2" ID HOSE
3	710495	2	SCR-MC 4-40 X 1.25 STL Z
4	710530	2	SCR-MC FL HD 8-32 X .50 BRS
5	711428	2	NUT-HEX 4-40
6	712326	2	WSR-INT LOCK #4
7	715685	1	DECAL, REMOVE SPLASH GUARD
8	747603-2	2	SWITCH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



BILL OF MATERIAL - 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

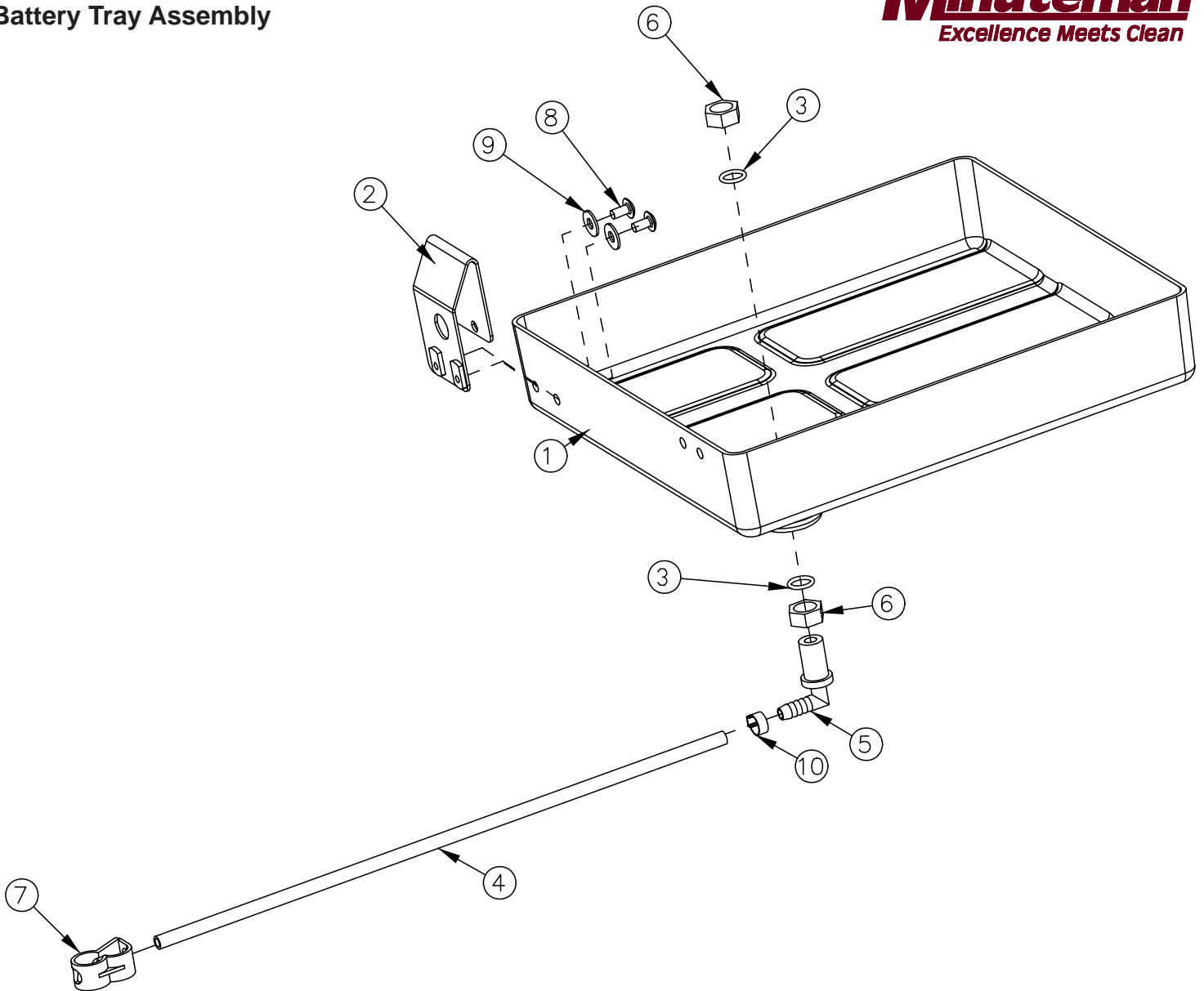
# Handle Assembly



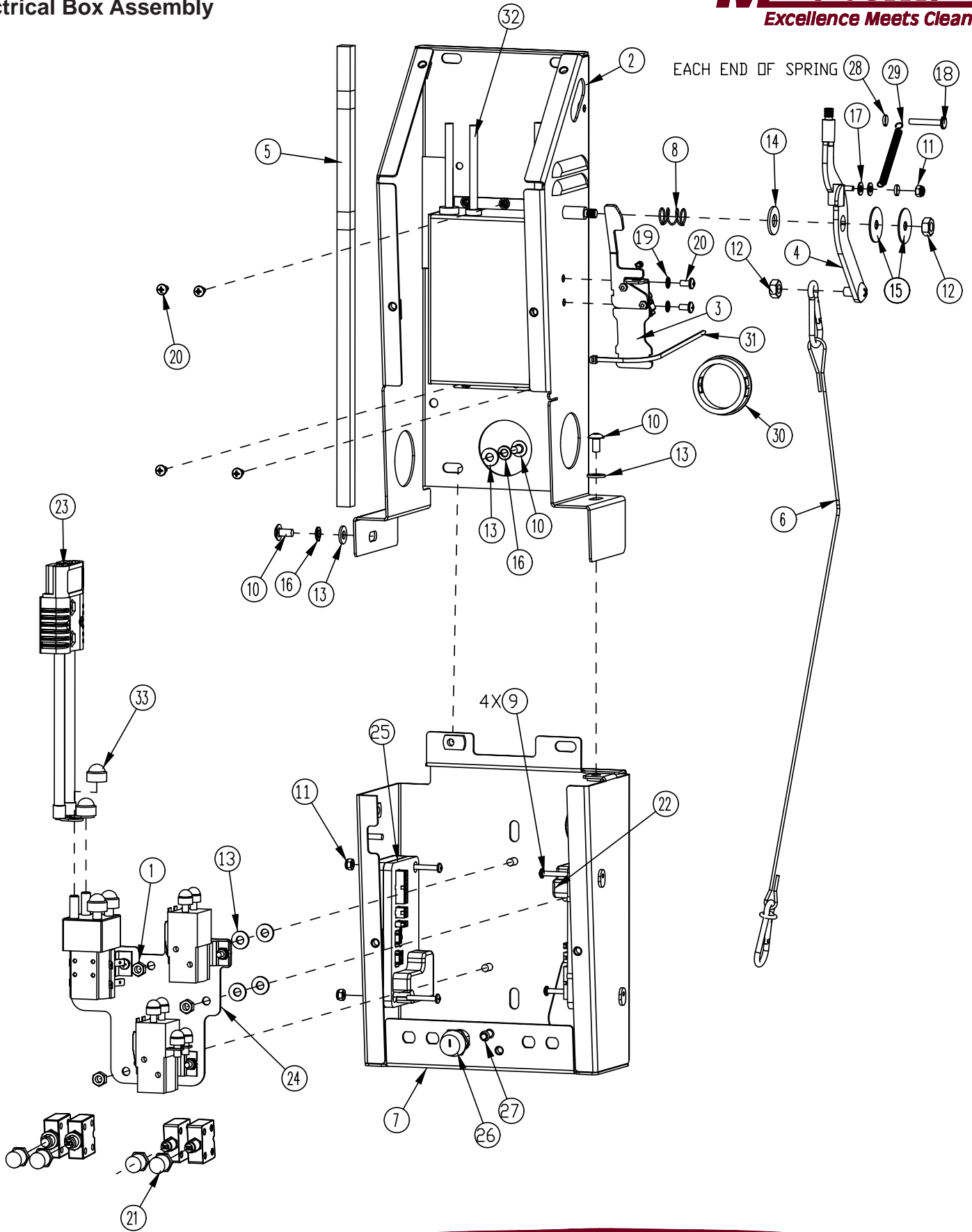
BILL OF MATERIAL - 172015

ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	172006	1	ES1720 HANDLE	11	711350	2	NUT-NYLOC 10-32
2	172053	1	BAIL PLATE WMT RH	12	711428	2	NUT-HEX 4-40
3	172054	1	BAIL PLATE WMT LH	13	711503	6	WSR, FLAT #10
4	172057	2	ES1720 LEAF SPRING	14	711543	4	WSR-HELICAL #10
5	172059	1	ES1720 BAIL, HANDLE	15	712320	2	WSR-NYLON .22 X .45 X .04
6	172074	2	SPACER, 5/16OD X 17GA, ALUM	16	712326	2	WSR-INT LOCK #4
7	270143	2	HANDLE PIVOT JAW	17	712830	10	SCR-MC 10-24 X .62 STLZ TR HD
8	710353	4	SCR-MC RD HD 10-32 X .37 STL	18	747603-3	2	SWITCH ASY, MICRO ROLLER W/PACK/CONDUIT
9	710495	2	SCR-MC 4-40 X 1.25 STL Z	19	747715-1	1	CABLE ASY, 5 COND 18G E1720TD
10	711310	4	NUT, HEX 10-32 ST PL				



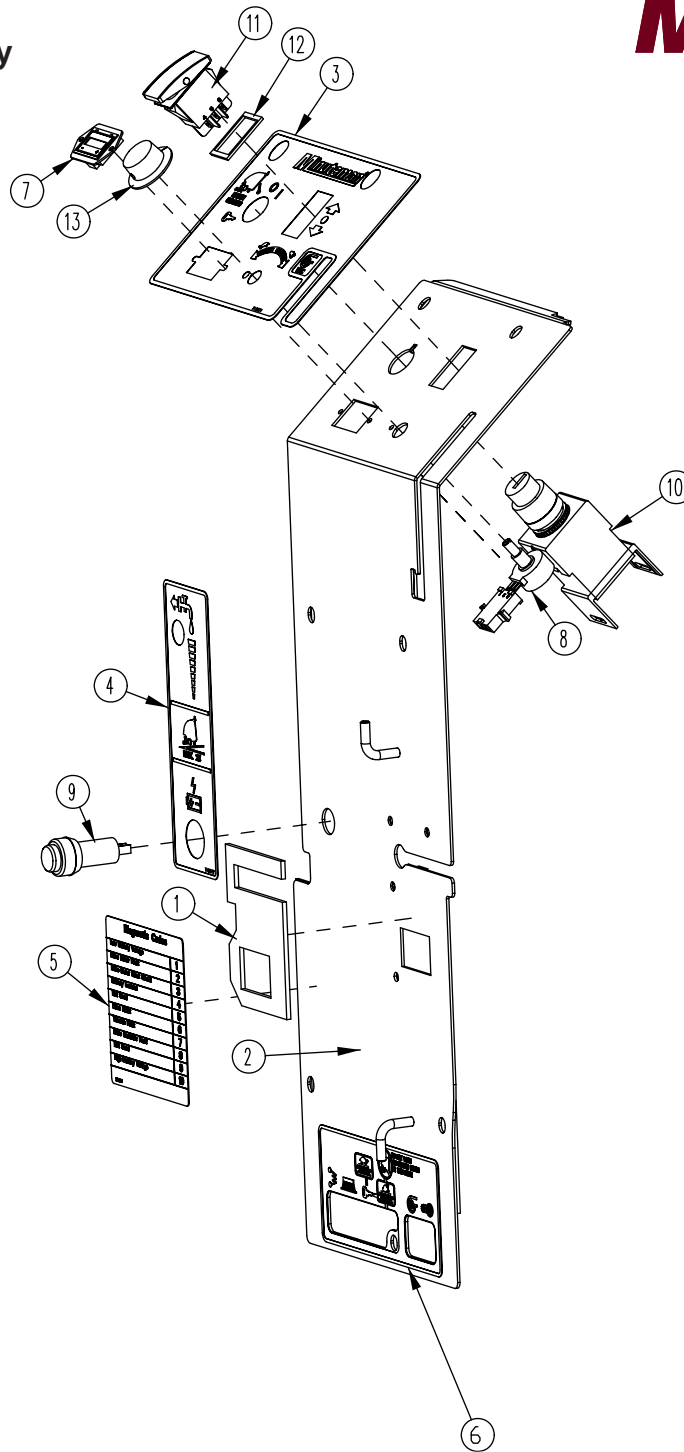


<b>BILL OF MATERIAL - 172012</b>			
<b>ITEM</b>	<b>PART NO.</b>	<b>REQ'D</b>	<b>DESCRIPTION</b>
1	172116	1	BATTERY BOX
2	172213	1	BKT, SPACER FOR BATTERIES
3	210414	2	O RING 2-113
4	260224	1	18" HOSE
5	320271	1	NOZZLE BODY-ELBOW
6	320272	2	NOZZLE BODY LOCKNUT
7	320273	1	HOSE SHUT-OFF CLAMP
8	710178	2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



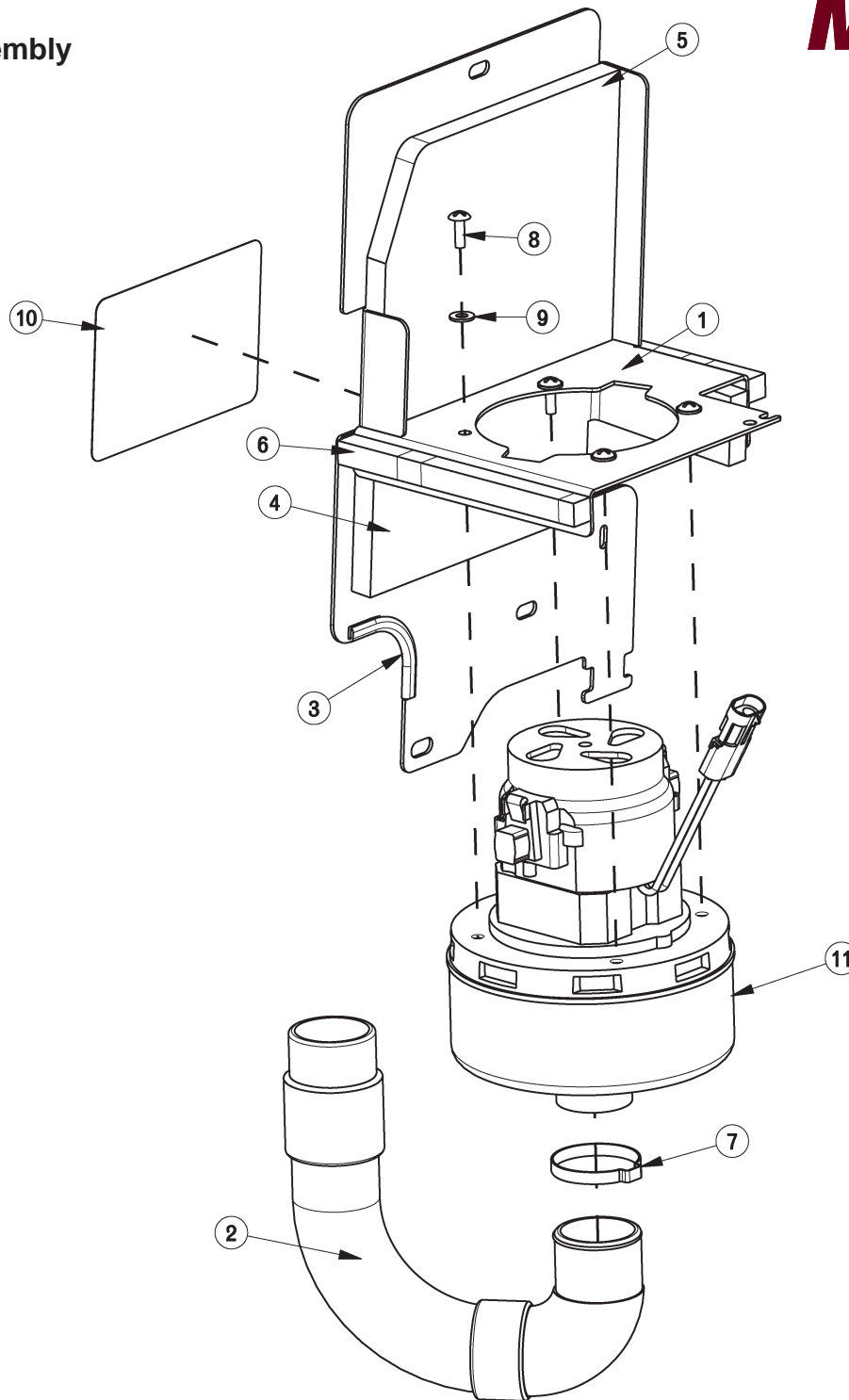
BILL OF MATERIAL - 172075-SPORT			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	369-416	3	NUT-HEX 1/4-20 NYLOC SERATED
2	172088	1	ELEC BOX-TOP HALF WMT
3	172141	1	VAC SWITCH ASSY
4	172152	1	VAC LEVER WMT
5	172188_	1	FOAM TAPE, 1/2" SQ X 16.5"
6	172381	1	CABLE ASSY, SQUEEGEE LIFT
7	172481	1	ELEC BOX BOT WMT -SPORT
8	670093	1	SPRING, COMPRESSION
9	710035	4	SCR-MC 8-32 X 1.125 ST PL
10	710178	3	SCR-MC 1/4-20 X .50 TRUSS ST PL
11	711372	3	NUT-NYLOC 8-32 STL ZINC
12	711383	2	NUT-HEX CLR LOC 5/16-18
13	711505	9	1/4 FLAT WASHER, STEEL
14	711508	1	WSR-FLAT .44X 1.0X.08
15	711516	2	WSR- FLAT .31 X 1.25 X .05
16	711544	2	WSR-HELICAL 1/4
17	712320	2	WSR-NYLON .22 X .45 X .04
18	712533	1	SCR-MC 10-24 X 1.25 SS
19	712770	6	WSR INT LOCK #10A SS
20	712810	6	SCR-MC 10-24 X .37 ST PL
21	742748	4	CIRCUIT BREAKER BOOT
22	747608	1	I-DRIVE,24V 70A PM MOTOR CONTROL
23	747637	1	WIRE ASY, MACHINE-BATTERY E1720
24	747670-SPORT	1	ELEC PANEL ASSY, LIFT
25	747716	1	I-DRIVE,24V 70A PM MOTOR CONTROL
26	747717-1	1	KEYSWITCH, 2 POS, ON/ON
27	747718-1	1	LAMP, LED AMBER 28V
28	760134	2	MOUNT RING
29	762084	1	SPRING-EXT .25OD X 2" F.L. MUSIC
30	762400	1	HEYCO BUSHING 2.00"
31	828062	1	CABLE TIE LARGE
32	957761	1	CHARGER, 24V ONBOARD 120V5-15P
33	15592033	2	CAP, SAFETY NUT COVER M8

# Electrical Box Cover Assembly



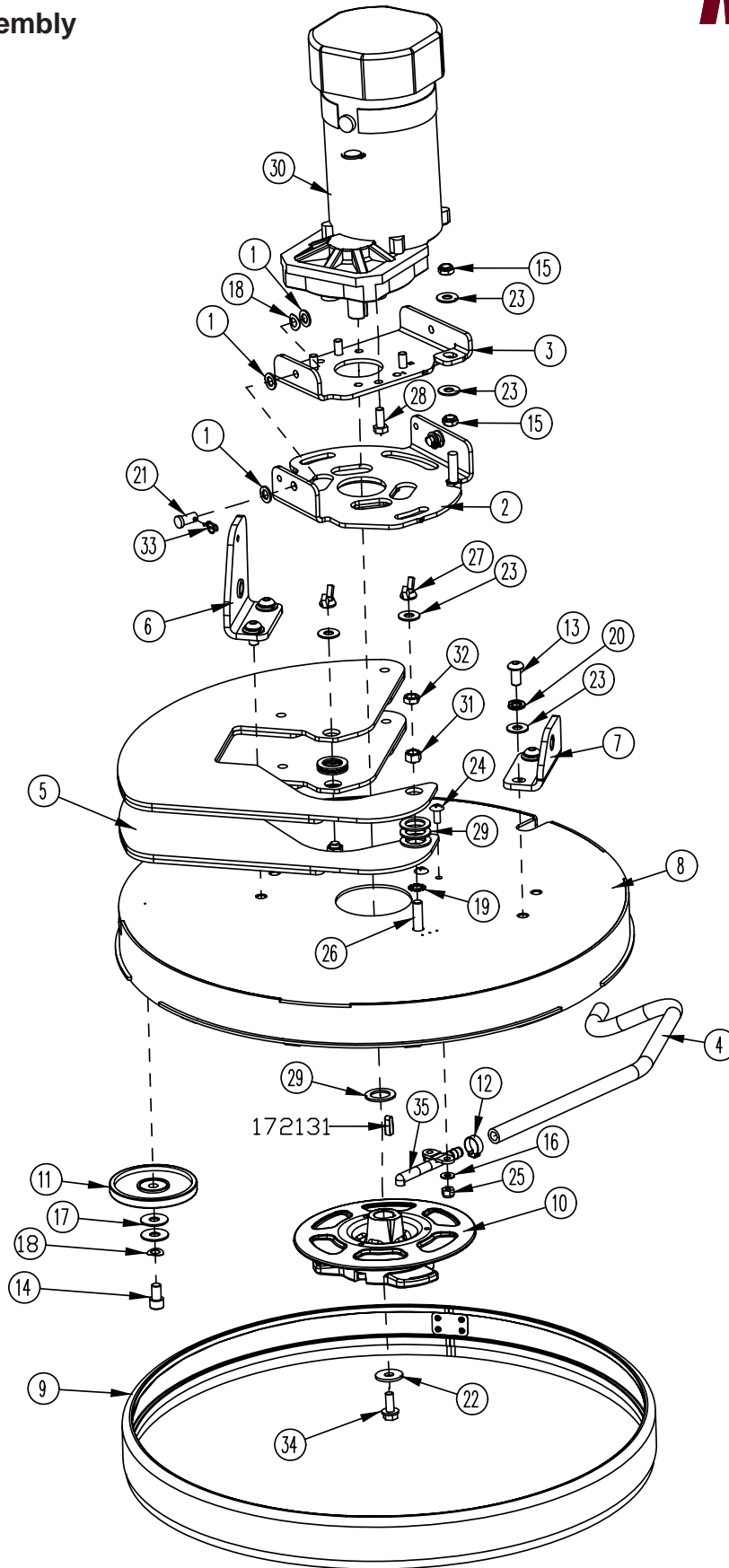
BILL OF MATERIAL - 172079-SPORT

ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	172194	1	GASKET, CHARGER CORD PLATE	8	747026	1	POTENTIOMETER ASSY SPEED CONTROL
2	172485	1	LIFT COVER WMT	9	747614	1	CHARGE STATUS INDICATOR
3	715671	1	DECAL, 1720 TD DASHBOARD	10	747617-2	1	KEYSWITCH ASY, KEYSWITCH + WIR
4	715672	1	DECAL, CHARGE STATUS, SOLUTION CTRL	11	748201	1	SWITCH, DPDT ON/OFF/ON
5	715678	1	DECAL, DIAGNOSTIC CODES E1720TD	12	748209	1	GASKET -FOR 2 POLE ROCKER SWITCHES
6	715693	1	DECAL, LIFT C.B./KEY/LED	13	809874	1	KNOB, SPEED CONTROL
7	747011	1	BATTERY GAUGE, TRU CHARGE				

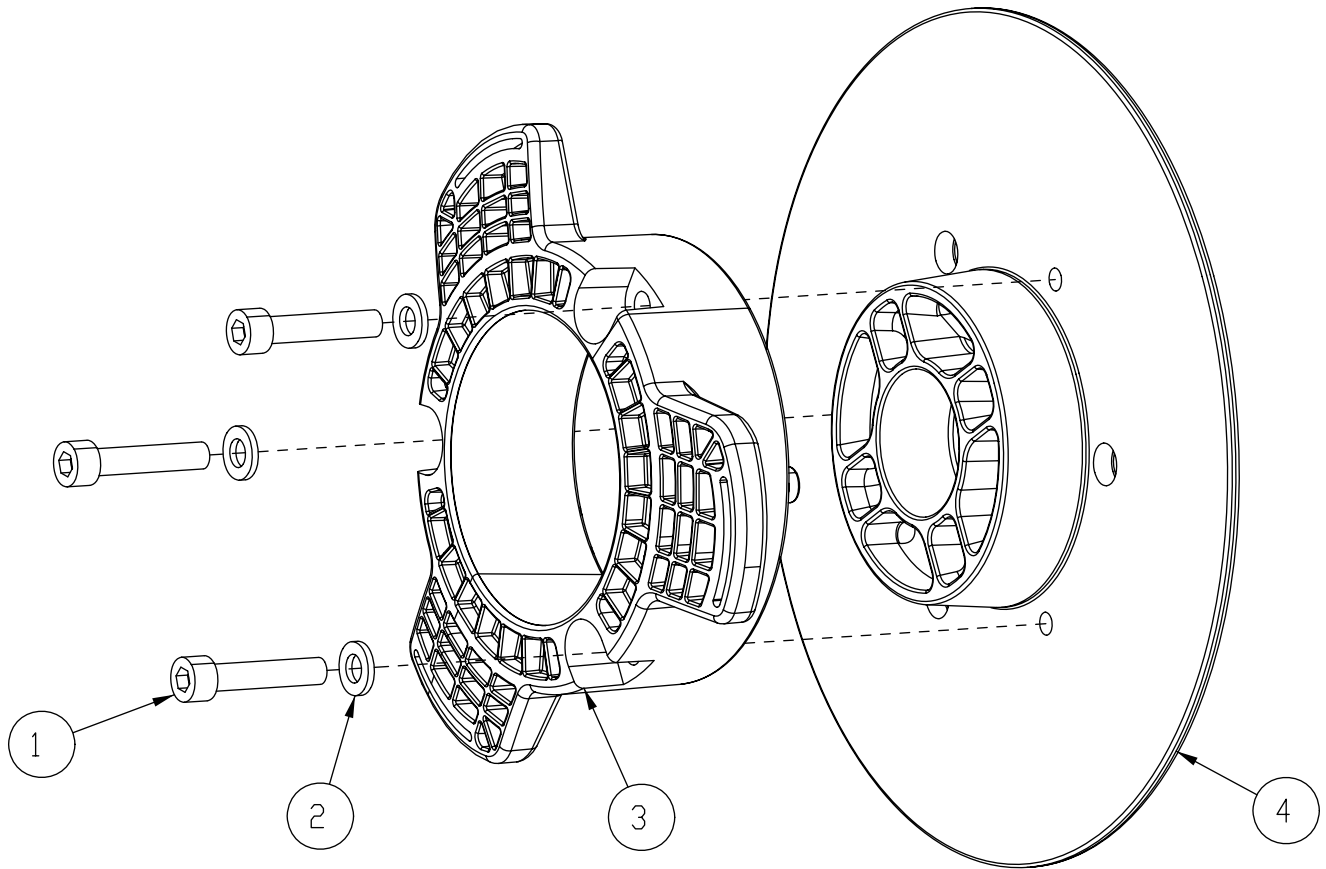


**BILL OF MATERIAL - 172050**

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 - 172100-SPORT			
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	172198	1	HOSE-NYLO REINF 3/8 X 22.5"
5	172208-1	2	E20 SPORT DECK WEIGHT
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	4	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 - NYLON LOCK, 3/8-16 HALF NUT
16	711504	2	WSR-FLAT 1/4 ID SS
17	711507	2	WSR-FLAT .37 X 1.12 X .06
18	711523	3	WSR-WAVE .37X .68 X .08
19	711539	2	WSR-EXTERNAL LOCK 3/8
20	711546	4	WSR-HELICAL 3/8
21	711679	2	CLEVIS PIN 3/8 X 3/4
22	711855	1	WSR-FLT .37X1.12X.10 STL Z HARD
23	712301	8	WSR-FLAT .37 X .87 X .06
24	712565	2	SCR-MC 1/4-20X.63 SS TR HD
25	712667	2	NUT, HEX 1/4-20 NYLOC SS
26	712835	2	BLT-HH 3/8-24 X 1.5 FULL THD, SS
27	712836	2	NUT-WING 3/8-24
28	717024	4	BOLT-HH M8X1.25 X 20
29	717025	7	WSR-FLAT 13/16ID X 1.25 X .08
30	747706	1	MOTOR, 400RPM OFFSET GEAR, 750W
31	3400067	2	NUT-HEX 3/8-24 ZP
32	3400075	2	NUT-HEX JAM 3/8-24 ZP
33	3400125	2	PIN-COTTER 3/8 RUE RING
34	11717203	1	BLT-HH FLG M8X1.25X20 PRECOTE, ZD 10.9
35	90311663	1	SOL FEED NOZZLE

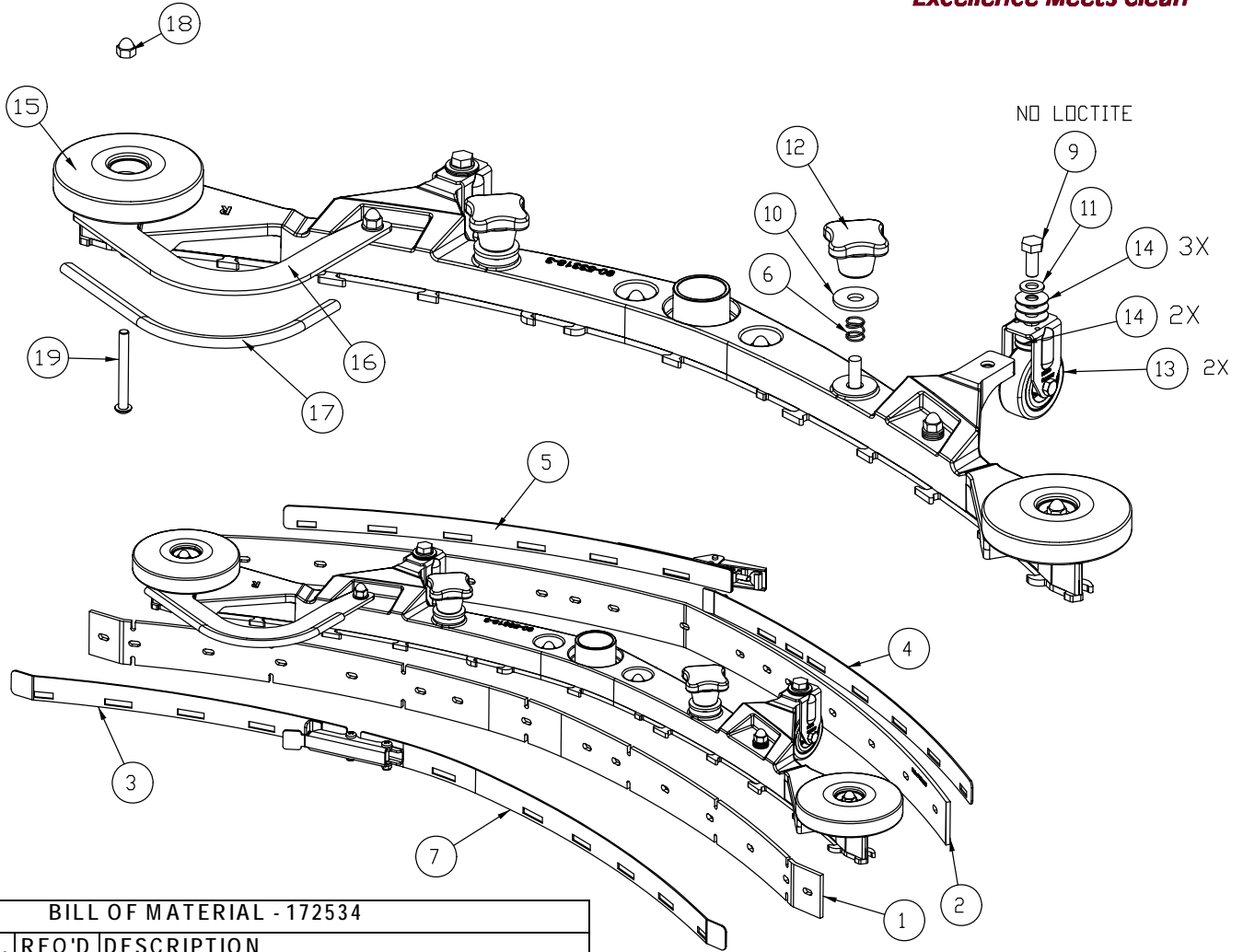


**BILL OF MATERIAL - 172510**

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

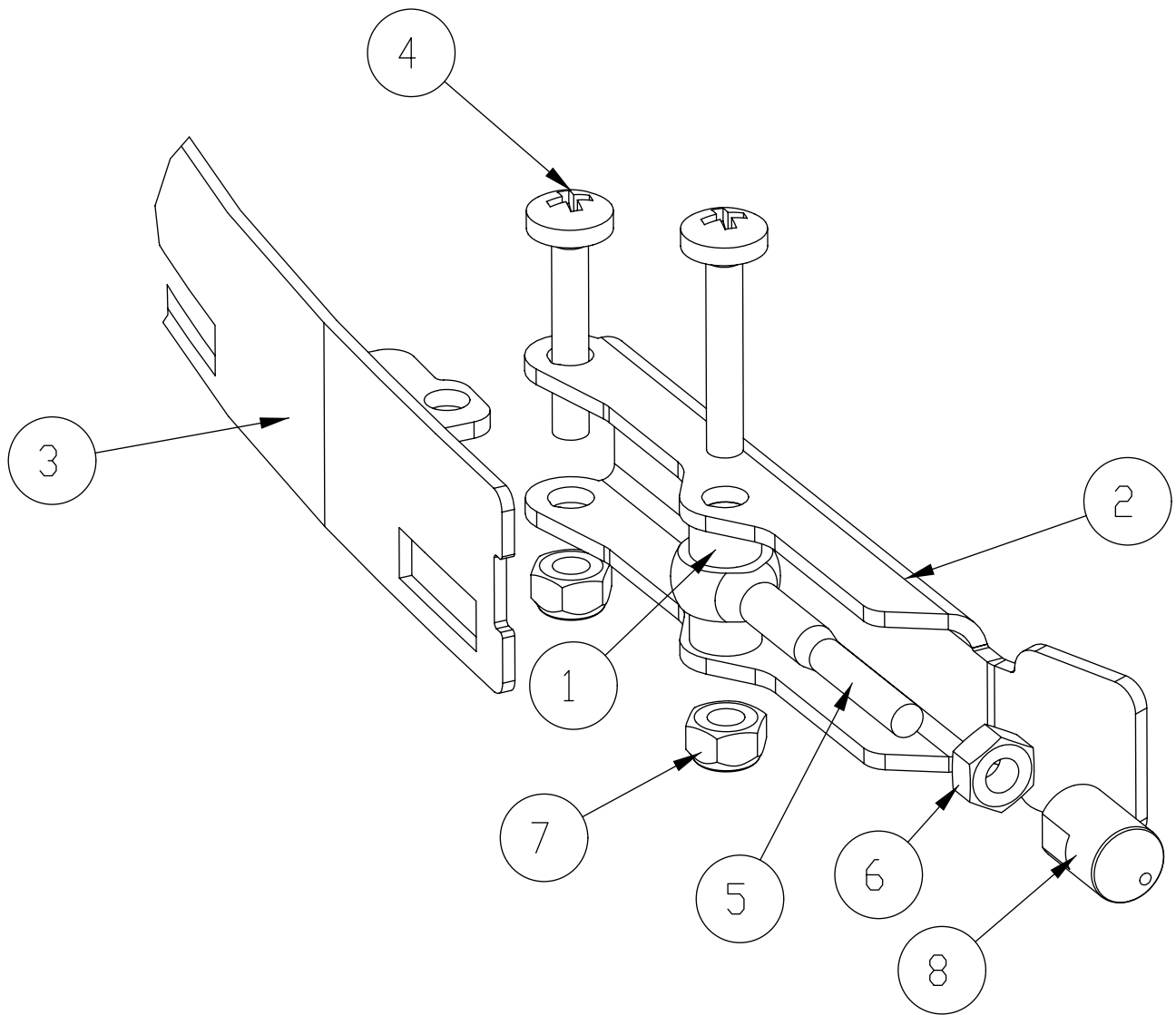


# E20 Rear Squeegee Assembly

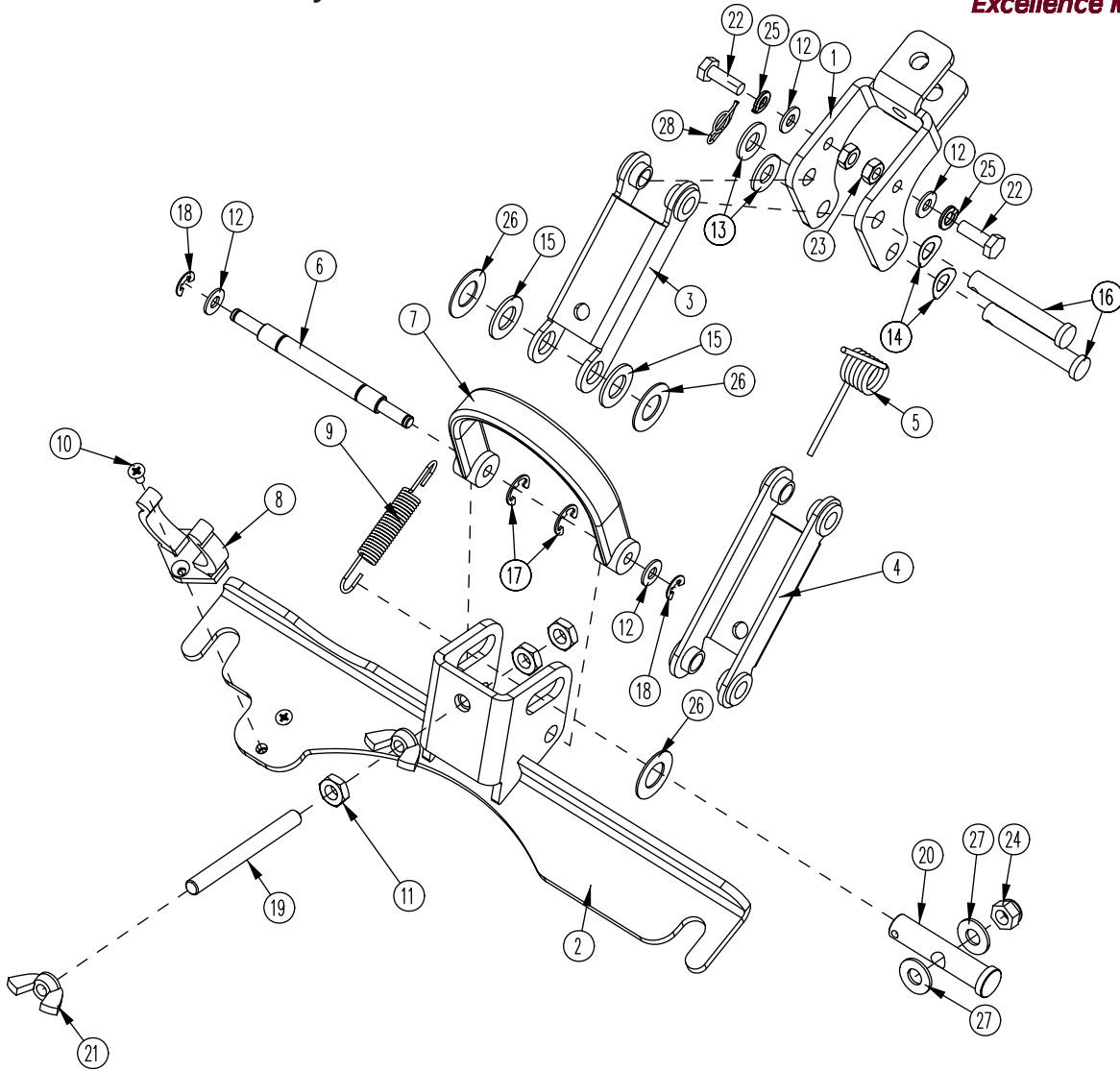


BILL OF MATERIAL - 172534

ITEM	PART NO.	REQ'D	DESCRIPTION
1	172162	1	BLADE, FRONT 34" SQUEEGEE
2	172163	1	BLADE, REAR 34" SQUEEGEE
3	172241	1	STRAP WMT, FRONT
4	172245	1	STRAP WMT, REAR
5	172246	1	STRAP WMT, REAR
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	712591	6	NUT, ACORN 1/4-20 SS
19	712592	2	SCR-MC BHCS, 1/4-20 X 2.25 SS



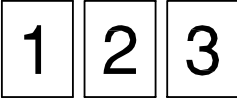
BILL OF MATERIAL - 172440			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172074	2	SPACER, 5/16OD X 17GA, ALUM
2	172234	1	LEVER, 90535758
3	172240	1	STRAP WMT, FRONT LEFT
4	11175494	2	SCR-MC M5 X 25 SS DIN7985
5	11518313	1	BLT-EYE M5 X 40 SS
6	12022430	1	NUT - HEX, M5, SS DIN934
7	12040283	2	NUT - HEX, M5 NYLON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



BILL OF MATERIAL - 172150

ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	172134	1	BKT, MAIN SQUEEGEE HINGE	15	711592	2	WSR-FLAT .506 X .9 X .064 NYL
2	172155	1	SQUEEGEE MOUNT WMT	16	711678	2	CLEVIS PIN 3/8 X 2-1/4
3	172196	1	SQ TOP LINK W/ BUSHING	17	711717	2	RETAINING RING - E TYPE .37
4	172197	1	SQ BOT LINK W/ BUSH	18	711720	2	.250 DIA RETAINING RING - E TYPE
5	172261	1	TORSION SPRING	19	712147	1	ROD-THD 5/16-18 X 3.25 SS
6	172352	1	PIN, 3/8 X 3.0, SQG STRAP	20	712148	1	CLEVIS PIN, 1/2 x 2.25 W/ HOLE
7	172357	1	STRAP, 9" PU, BLACK	21	712157	2	NUT - WING 5/16-18 SS
8	260579	1	TOOL CLIP, 1.5" HOSE	22	712562	2	BOLT-HH 1/4-20X3/4 SS
9	430051	1	RETURN SPRING-3.00"	23	712665	2	NUT-HEX 1/4-20 SS
10	710528	2	SCR-MC 8-32 X .37 FH - BR	24	712683	1	NUT, HEX 5/16-18 NYLOC SS
11	711420	3	NUT - HEX JAM 5/16-18 ST PL	25	712758	2	WSR-HELICAL 1/4 SS
12	711504	4	WSR-FLAT 1/4 ID SS	26	712760	3	WSR-FLAT .56X1.06X.04 SS
13	711515	2	WSR-FLAT .406 X .812 X .0625	27	712772	2	WSR-FLAT .344 x .75 x .06 SS
14	711523	2	WSR-WAVE .37X .68 X .08	28	3400125	1	PIN-COTTER 3/8 RUE RING

PAGE LAYOUT



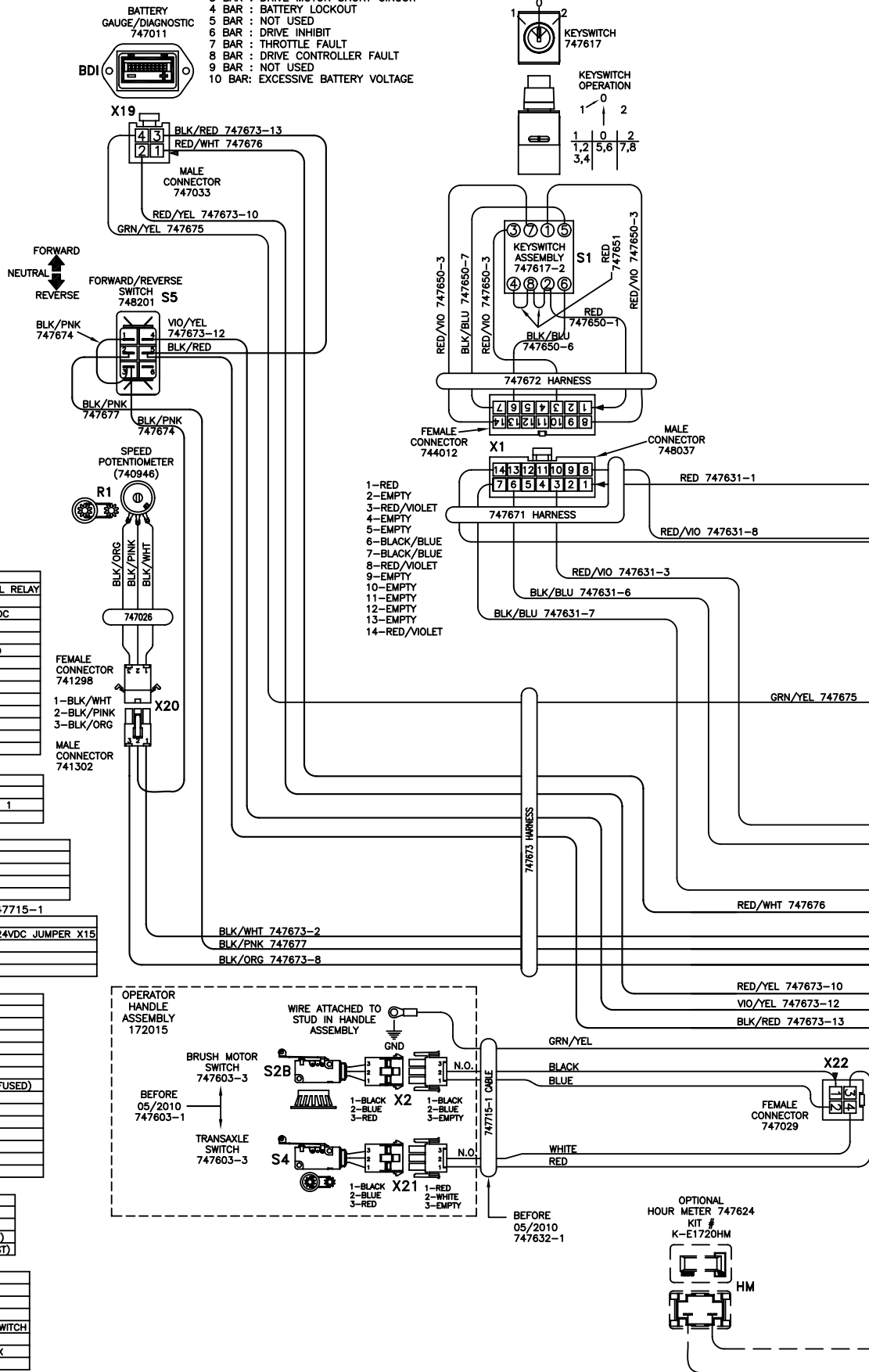
PAGES GO TOGETHER AS SHOWN TO SEE THE ENTIRE SCHEMATIC AS ONE.

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

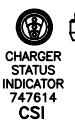
PIN #	COLOR	WHERE TO/FROM
X13	RED	X13: KEYSWITCH P:1
X14	BLACK	X14: CONTROL CB 4.0A
14GA	RED	MAIN RELAY + (REAR LEFT POST)
14GA	BLACK	MAIN RELAY - (FRONT LEFT POST)

OTHER WIRE COLORS

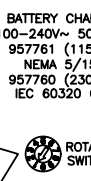
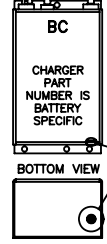
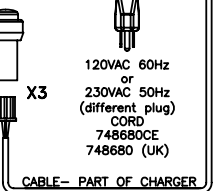
1	RED	BATTERY 24VDC: +
2	BLACK	BATTERY OVDC: -
3	GREEN/YELLOW	GROUND
4	BLACK/BLUE	BRUSH UNLOAD CIRCUIT
5	RED/BLACK	BRUSH UNLOAD CIRCUIT:MICRO SWITCH
6	RED/VIOLET	24VDC AFTER MAIN KEYSWITCH
7	GREY/RED	OPTIONAL POWER 24VDC: 3A MAX
8	GREY/BLACK	OPTIONAL POWER OVDC: 3A MAX

2

**ELECTRICAL BOX ASSEMBLY**  
172075-120  
172075-230

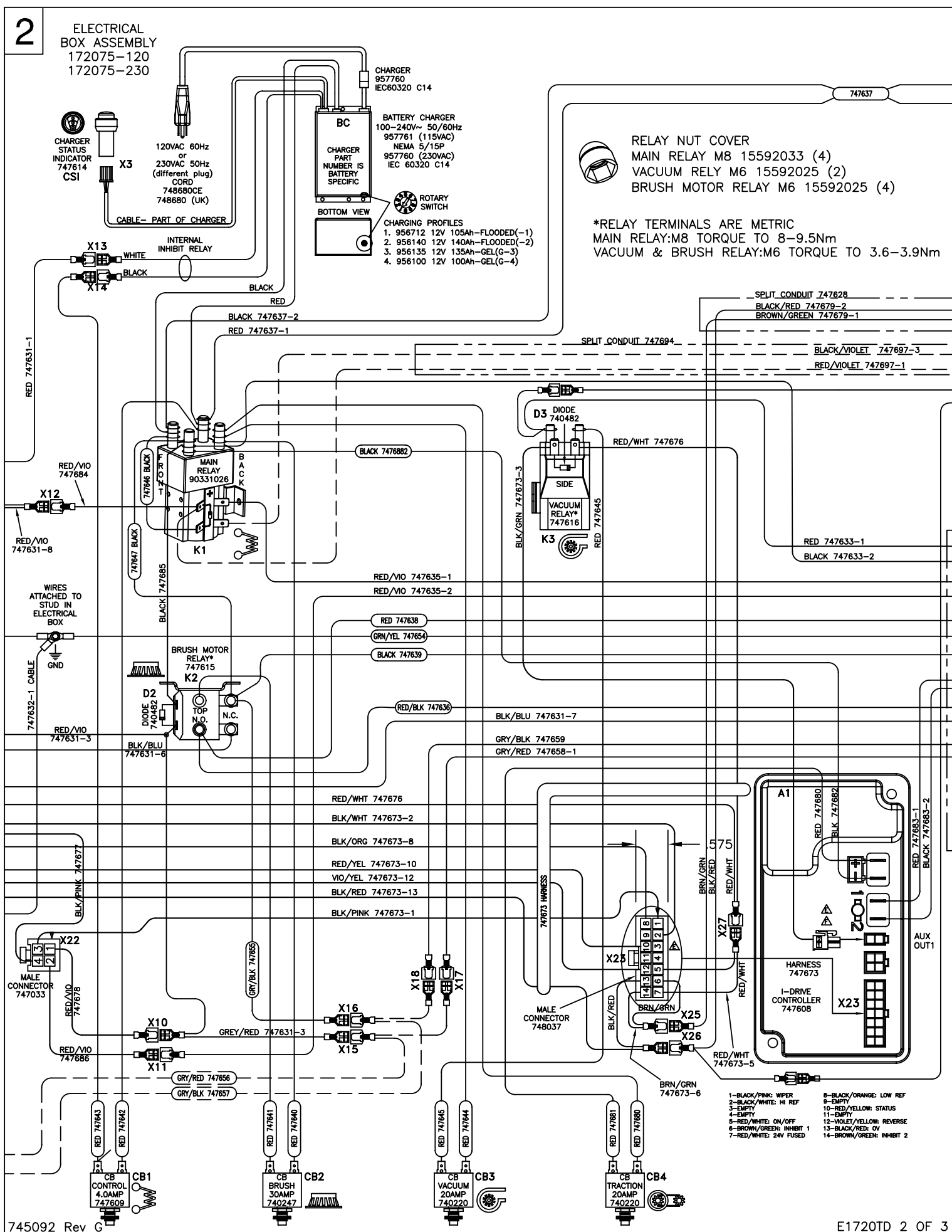


CHARGER STATUS INDICATOR 747614 CSI

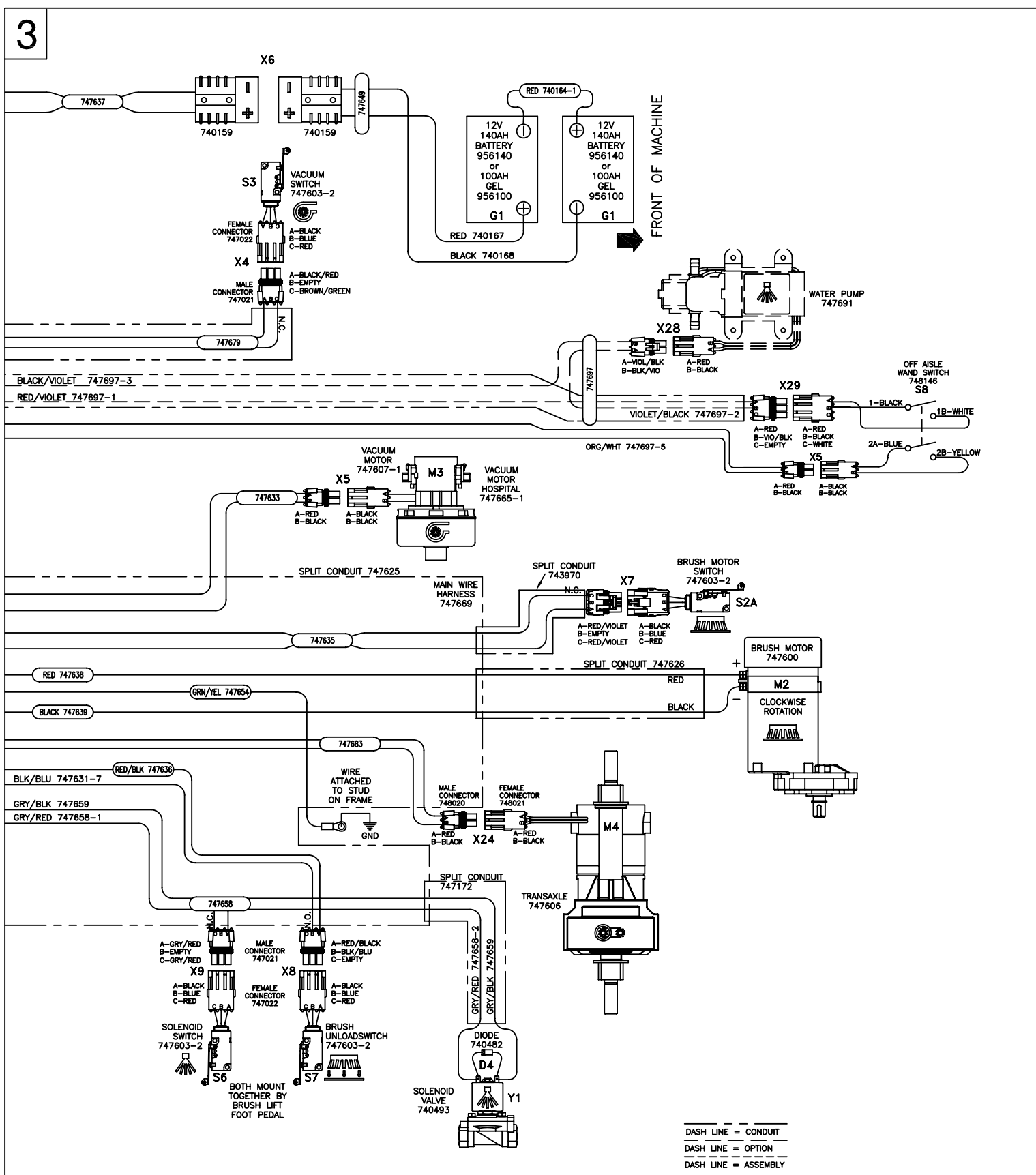


RELAY NUT COVER  
MAIN RELAY M8 15592033 (4)  
VACUUM RELY M6 15592025 (2)  
BRUSH MOTOR RELAY M6 15592025 (4)

\*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: ON
- 14-BROWN/GREEN: INHIBIT 2



# 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:

Replacement Parts:

Batteries:

Polyethylene Plastic Tanks:

**One year replacement**

Ninety days

0-3 months replacement, 4-12 months pro-rate

Tanks have 10yr warranty, no additional labor