



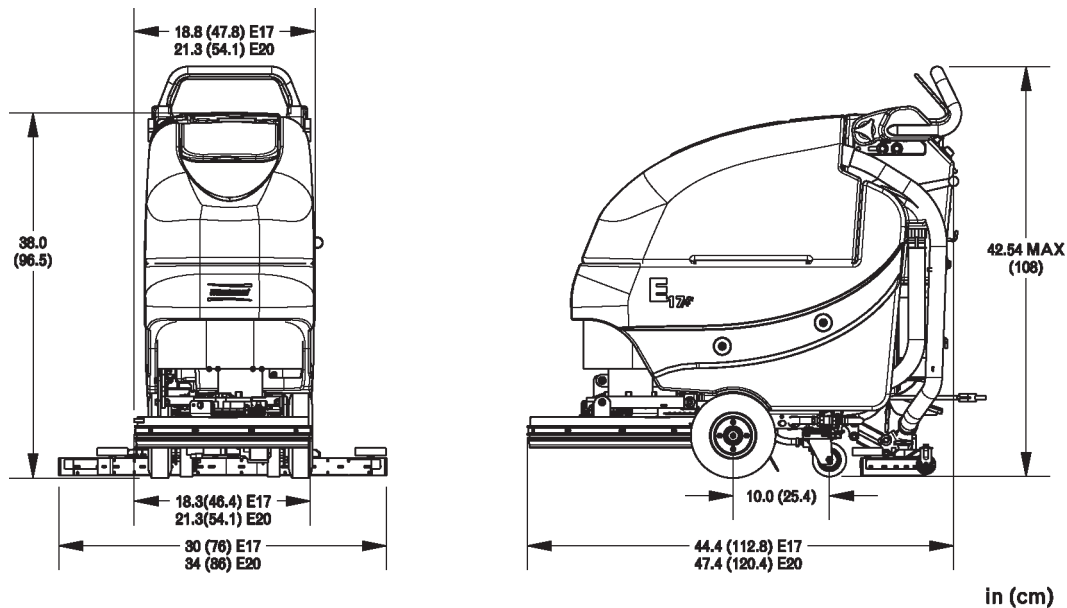
Parts Manual
E17/E20 Floor Scrubber
Disc Traction Drive

Technical Specifications

Model E17/E20 Traction Drive

Model No. E17TD / E17TDCE / E17TDQP / E17TDQPCE
E17TDQPG / E17TDQPGCE
E20DTD / E20DTDCE / E20DTDQP / E20DTDQPCE
E20DTDQPG / E20DTDQPGCE

	E17	E20
Current (Max)	38 amps	40 amps
Battery Capacity (Lead Acid)	140Ah @20 hr	140Ah @20 hr
Battery Capacity (Gel)	95Ah @20 hr	95Ah @20 hr
Sound Level	69 dBA	69 dBA
Cleaning path width	17 in (43 cm)	20 in (51 cm)
Squeegee width	30 in (76 cm)	34 in (86 cm)
Productivity (Traction Drive)	23,120 ft ² /hr (2,147 m ²)	27,200 ft ² /hr (2,527 m ²)
Working speed (Traction Drive)	3.1 mph (5 km per hr)	3.1 mph (5 km per hr)
Rated voltage	24 volts	24 volts
Vacuum flow	65 cfm (110 m ³ /hr)	65 cfm (110 m ³ /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 with batteries	365 lbs (166 kg)	372 lbs (169 kg)
Weight without batteries	231 lbs (105 kg)	238 lbs (108 kg)
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)
Drive Motor Power	1/5 HP (150W)	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 Minuteman supplied replacement parts.

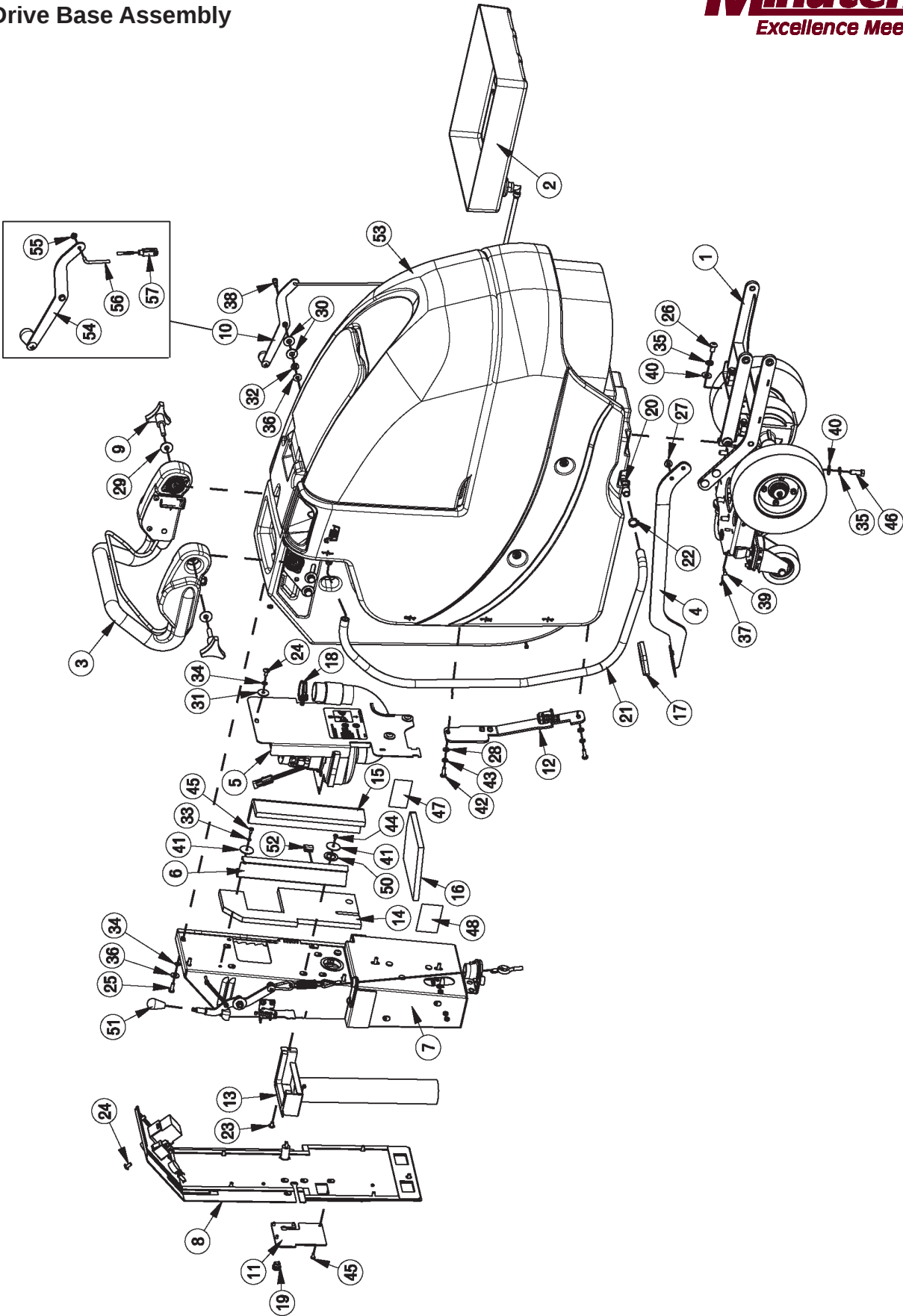
Table of Contents

Main Assembly	1
Main Assembly BOM	2
Traction Drive Base Assembly	3
Traction Drive Base Assembly BOM	4
E17/20 Base Assembly	5
Chassis Assembly	6
Chassis Assembly BOM	7
Solenoid Assembly	8
Solution Valve Assembly	8
Solution Tank Assembly	9
Lift Pedal Stop Assembly	10
Recovery Tank Assembly	11
Recovery Tank Assembly BOM	12
Handle Assembly	13
Battery Tray Assembly	14
Electrical Box Assembly	15
Electrical Box Assembly BOM	16
Electrical Box Cover Assembly	17
Vac Motor Assembly	18
17" Brush Deck Assembly	19
17" Brush Deck Assembly BOM	20
20" Brush Deck Assembly	21
20" Brush Deck Assembly BOM	22
E17/20 Brush Hub Assembly	23
E17 Rear Squeegee Assembly	24
E17 Tension Band Sub-Assembly	25
E20 Rear Squeegee Assembly	26
E20 Tension Band Sub-Assembly	27
Squeegee Mechanism Assembly	28
Wiring Diagrams	29
WARRANTY	33

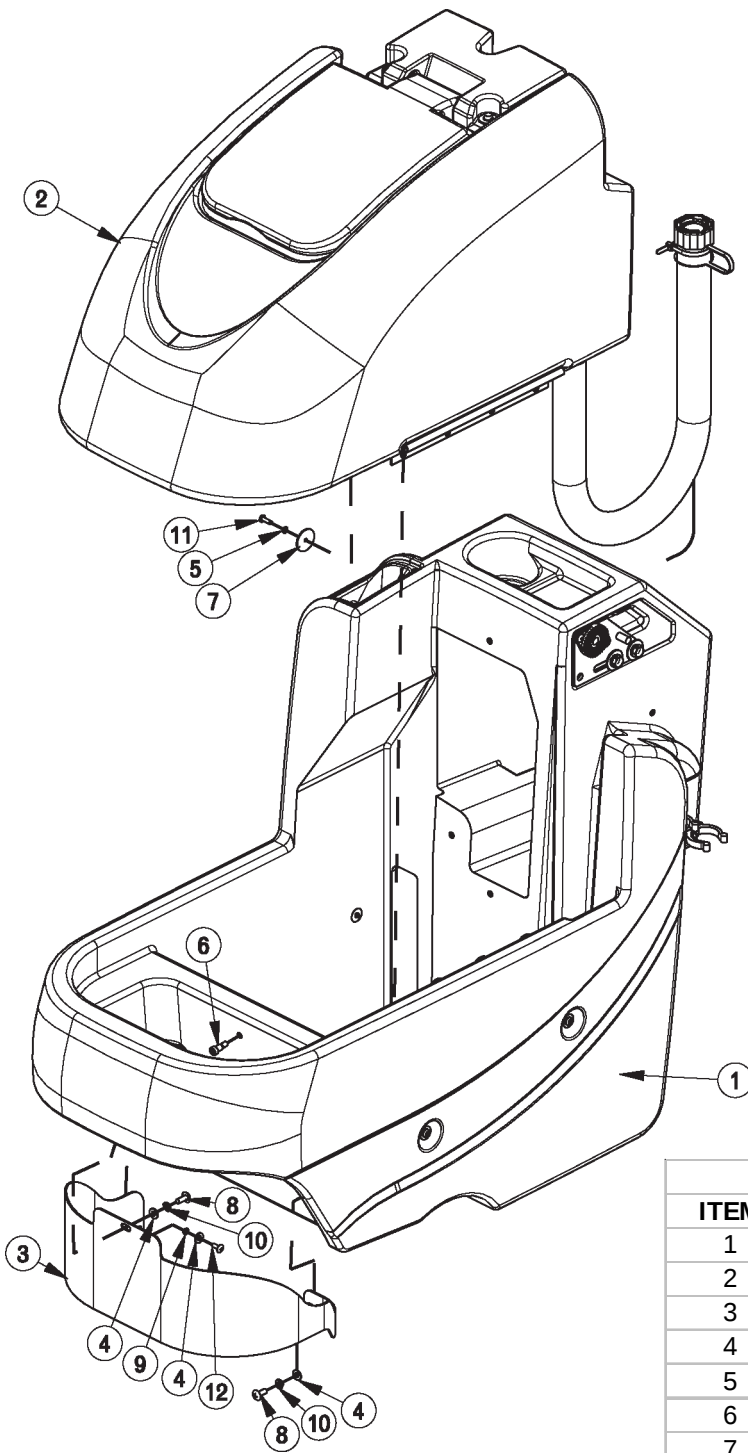


BILL OF MATERIAL - E20DTDQP				
ITEM	PART NO.	REQ'D	DESCRIPTION	NOTES
1	172010	1	HOSE, CLEAR VAC W/ 45 CUFF	
1CE	172340	1	HOSE, PU CLEAR W/ 45 CUFF (230V Version)	OPTIONAL ON ALL UNITS
2	172018	1	SOLUTION TANK LID ASSY	
3	172150	1	SQUEEGEE LIFT MECH ASSY	
4	172159	1	FILTER, FILL PORT, ES1720	
5	172530	1	SQUEEGEE ASSY, 30" (760) CURVED	REPLACED 172220
5A	172534	1	SQUEEGEE ASSY, 34" (860) CURVED	REPLACED 172230
6	450076	1	CLAMP-CRIMP 185R SS	
7	711118	1	SCR-ST-A 10 X .75 SS	
8	711374	1	NUT-NYLOC 5/16-18	
9	711375	3	NUT-NYLOC 3/8-16 X 1/2 NUT	
10	711523	1	WSR-WAVE .37X .68 X .08	
11	711569	1	WSR-FLT .390 X .880 X .062 NYL	
12	711592	6	WSR-FLAT .506 X .9 X .064 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	715917	2	DECAL, E17	
15A	715920	2	DECAL, E20	
16	740164-1	1	JUMPER CABLE ASSY, RED 4G 12"	NOT SHOWN
17	747649	1	CABLE ASSY, BATTERY E17	NOT SHOWN
18	956140	2	BATTERY, 12V 140AH	
18G	956100	2	GEL BATTERY 12V 95AH	
19	172001TD-120	1	TRAC DRV BASE ASSY-120V CHARGER	
19CE	172001TD-230	1	TRAC DRV BASE ASSY-230V CHARGER	
20	172090TD	1	TD BRUSH DECK ASSY 17"	
20A	172100TD	1	TD BRUSH DECK ASSY 20"	
21	712099PLT	3	BLT- SHLDR 1/2 X 1/2 ZINC PLT	
22	715914W	1	DECAL, MINUTEMAN W/SWOOSHES, WHITE	
23	172117-2	1	17" PAD DRIVER	NOT SHOWN
23A	172120-2	1	20" PAD DRIVER	NOT SHOWN
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	

OPTIONAL BRUSHES		
ITEM	PART NO.	DESCRIPTION
OPT-1	762394	PAD RETAINER, FIXED - NOT SHOWN
OPT-2	762370	PAD RETAINER, REMOVEABLE - NOT SHOWN
OPT-3	172117-1	BRUSH, 17" NYLON
OPT-4	172117-3	BRUSH, 17" NYLO GRIT
OPT-5	172117-4	BRUSH, 17" STRATA GRIT
OPT-6	172117-6	BRUSH, 17" SCRUB-GRIT2 120GR

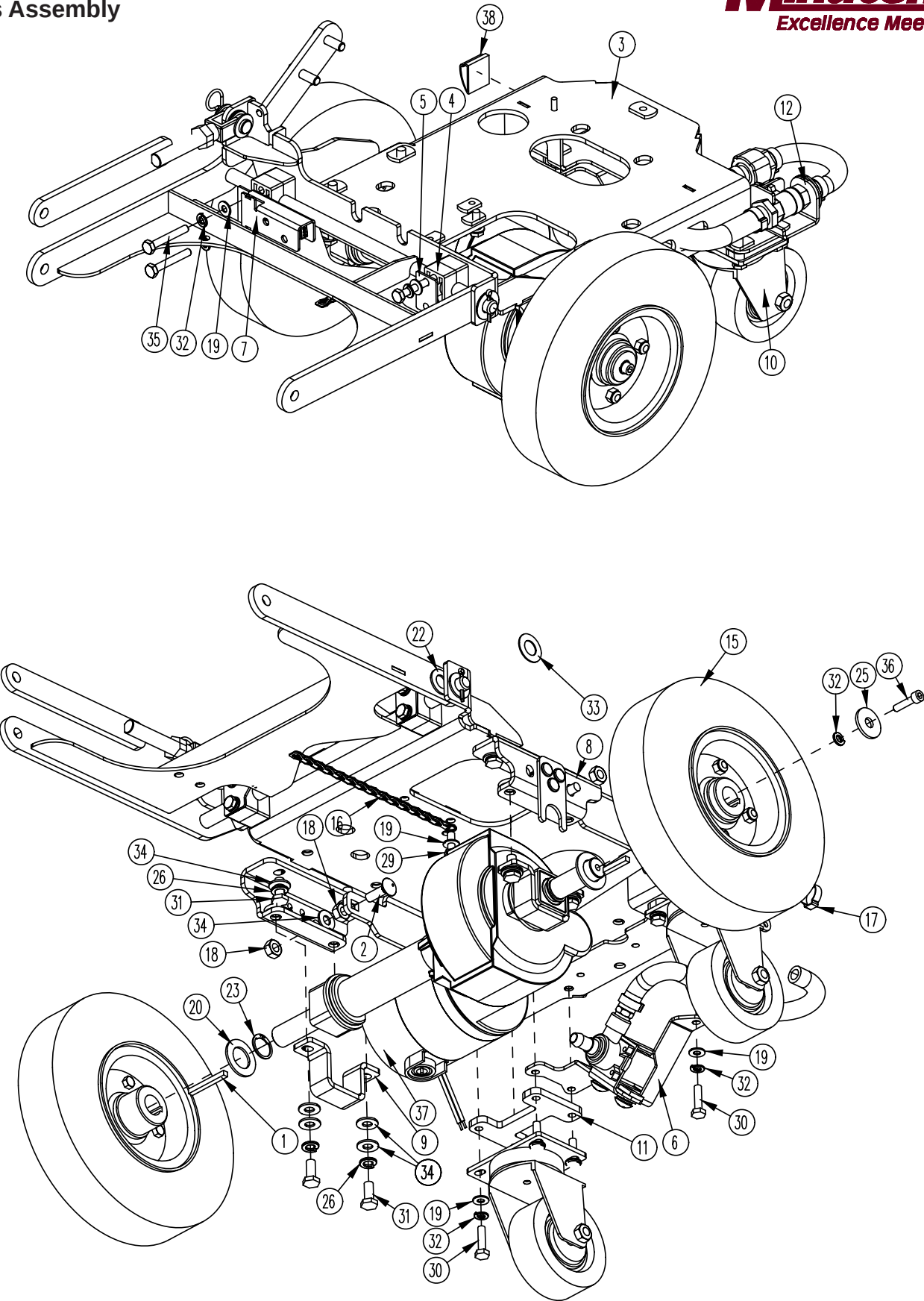


BILL OF MATERIAL - 172001TD-120/230							
ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	172009	1	TD CHASSIS ASSY, ES1720	29	711507	2	WSR-FLAT .37 X 1.12 X .06
2	172012	1	BATTERY TRAY ASSY	30	711508	2	WSR-FLAT .44X 1.0X .08
3	172015	1	E1720 TD HANDLE ASSY	31	711519	3	WSR- FLAT .25 X 1.01 X .06
4	172032	1	LIFT PEDAL WMT	32	711523	1	WSR-WAVE .37X .68 X .08
5	172050	1	VAC MOTOR ASSY	33	711543	1	WSR-HELICAL #10
6	172055	1	BKT, VAC AREA INSIDE COVER	34	711544	9	WSR-HELICAL 1/4
7	172075-120	1	ELEC BOX TD ASSY 120V	35	711546	6	WSR-HELICAL 3/8
7A	172075-230	1	ELEC BOX TD ASSY 230V	36	711575	6	WSR-FLT .31x.75x..06ST
8	172079	1	TD ELEC BOX COVER ASSY	37	711803	1	COTTER PIN-HAIR
9	172085	2	KNOB, 3/8-16 STUD, 3 LOBE	38	712041	1	BLT- SHLDR 1/4-20 X .44 X .37
10	172112	1	SOL CONTROL ASSY	39	712117	1	CLEVIS PIN
11	172129	1	BKT, PWR CORD MOUNT	40	712301	6	WSR-FLAT .37 X .87 X .06
12	172166	1	TD LIFT PEDAL BKT ASSY	41	712312	2	WSR-FLAT .187 X 1.25
13	172179	1	CHARGER INLET ASSEMBLY	42	712562	2	BOLT-HH 1/4-20X3/4 SS
14	172184	1	FOAM COVER, REAR 1	43	712758	2	WSR-HELICAL 1/4 SS
15	172185	1	FOAM COVER, REAR 2	44	712800	1	SCR-MC 10-24 X .25 ST PL
16	172187	1	FOAM COVER, FRONT 2	45	712810	5	SCR-MC 10-24 X .37 ST PL
17	210142	1	PEDAL PAD	46	713042	4	BLT-HH 3/8-16 X 1 #5
18	260203	1	WIRE GRIP HOSE CLAMP	47	715029	1	DECAL-NAME PLATE SERIAL
19	293080	1	STRAIN RELIEF-HEYCO 1207	48	715047	1	DECAL-CLEAR LAMINATE 2X3
20	342440	1	FITTING, TEE 3/4MPT 1/2BARB PP	49	715950	1	LABEL, PATENT NUMBERS
21	430156	1	HOSE, 1/2 X 42 CLEAR	50	717025	1	WSR-FLAT 13/16ID X 1.25 X .08
22	450093	2	CRIMP CLAMP 3/4" STEPLESS	51	760592	1	KNOB, OVAL TAPERED
23	710177	1	SCR-MC 1/4-20 X .37 ST PL	52	809443	1	CLIP-WIRE & CORD
24	710178	10	SCR-MC 1/4-20 X .50 TRUSS STPL	53	172001BASE	1	ES1720 BASE ASSY
25	710380	5	SCR-MC RD HD 1/4-20 X .75 STL PL	54	172115	1	SOL CNTRL LEVER ASSY
26	710985	2	SCR-SC 3/8-16 X .62 ST PL	55	172122	1	NUT, PUSH-ON WSR CAP, 3/16
27	711379	2	NUT, FLANGED WIZZ 5/16-18	56	172069	1	ROD, SOL. CTRL, ES1720
28	711504	2	WSR-FLAT 1/4 ID SS	57	172062	1	YOKE, 3/16 CLEVIS, 10-32, LONG



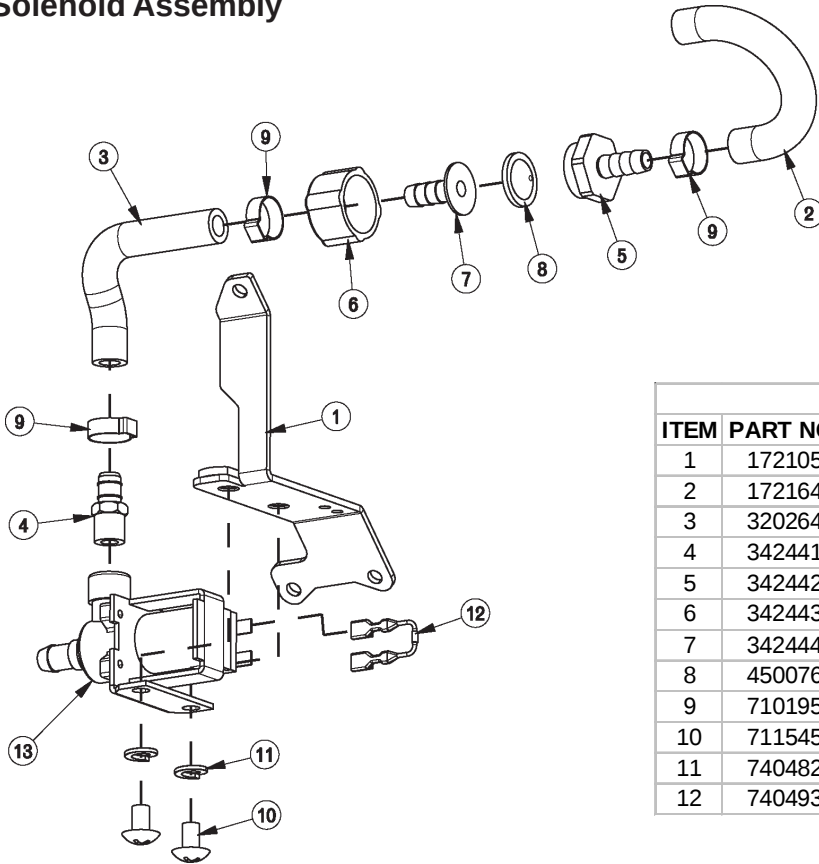
BILL OF MATERIAL - 172001BASE

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 - 172009			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	61-65-A	2	KEY, 3/16 X 1-3/4"
2	70-516-16	2	BLT-CAR 5/16-18 X 1.00 ZP
3	172020	1	MAIN FRAME WMT, E1720
4	172038	4	BEARING BLOCK
5	172039	1	BEARING BLOCK PLATE
6	172104	1	TD SOLENOID ASSY
7	172110	1	DECK SWITCH ASSY
8	172113	2	BKT, TRANSAXLE MOUNT BASE
9	172114	2	BKT, TRANSAXLE MOUNT
10	172167	2	CASTER, 3-1/2 POLYURETHANE
11	172192	2	PLATE, 1/4" SPACER
12	172264	1	SOLUTION VALVE ASSY
13	172368	1	UPPER LIFT ARM
14	172370	1	DISC DECK LIFT WMT, E1720
15	200172-2	2	WHEEL, 8.5" FOAM FILL
16	281200	1	DRAG CHAIN ASSY, FRAME
17	450076	1	CLAMP-CRIMP 185R SS
18	711383	4	NUT-HEX CLR LOC 5/16-18
19	711504	13	WSR-FLAT 1/4 ID SS
20	711512	2	WSR-FLAT .75X1.37X.08
21	711569	3	WSR-FLT .390 X .880 X .062 NYL
22	711592	2	WSR-FLAT .506 X .9 X .064 NYL
23	711715	2	RETAINING RING EXT .75
24	711809	1	COTTER PIN, 1/8 X 1.0
25	711855	2	WSR-FLT .37X1.12X.10 STL Z HARD
26	712140	8	WSR-HELICAL 5/16 SS
27	712265	1	CLEVIS-YOKE, 1/2-20 W/ .375 PIN
28	712301	2	WSR-FLAT .37 X .87 X .06
29	712562	1	BOLT-HH 1/4-20X3/4 SS
30	712564	8	BOLT-HH 1/4-20X1.00 SS
31	712575	8	BLT-HH 5/16-18 X .75 SS
32	712758	14	WSR-HELICAL 1/4 SS
33	712760	1	WSR-FLAT .56X1.06X.04 SS
34	712772	14	WSR-FLAT .344 x .75 x .06 SS
35	713006	4	BLT-HH 1/4-20 X 1 3/4 #5
36	717026	2	SCR-SC SHCS M6X1.0 X 25 STL Z
37	747606	1	TRANSAXLE, ES1720 24V
38	809444	1	CLIP-CORD
39	833374	1	PIN, HAIRPIN COTTER 3/8
40	833833	1	PIN-CLEVIS 3/8 X 1.25
41	3400449	1	NUT-HEX JAM 1/2-20 ZP

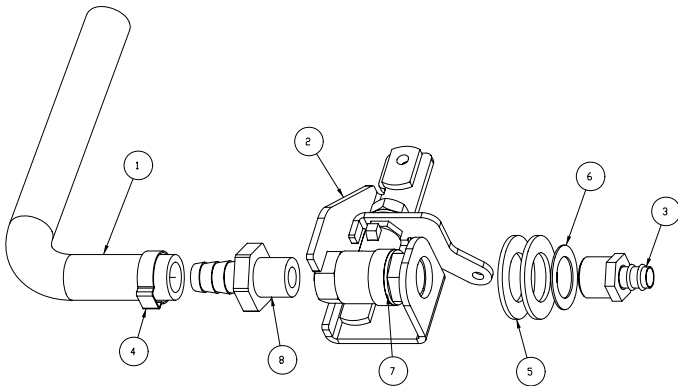
Solenoid Assembly



BILL OF MATERIAL - 172104

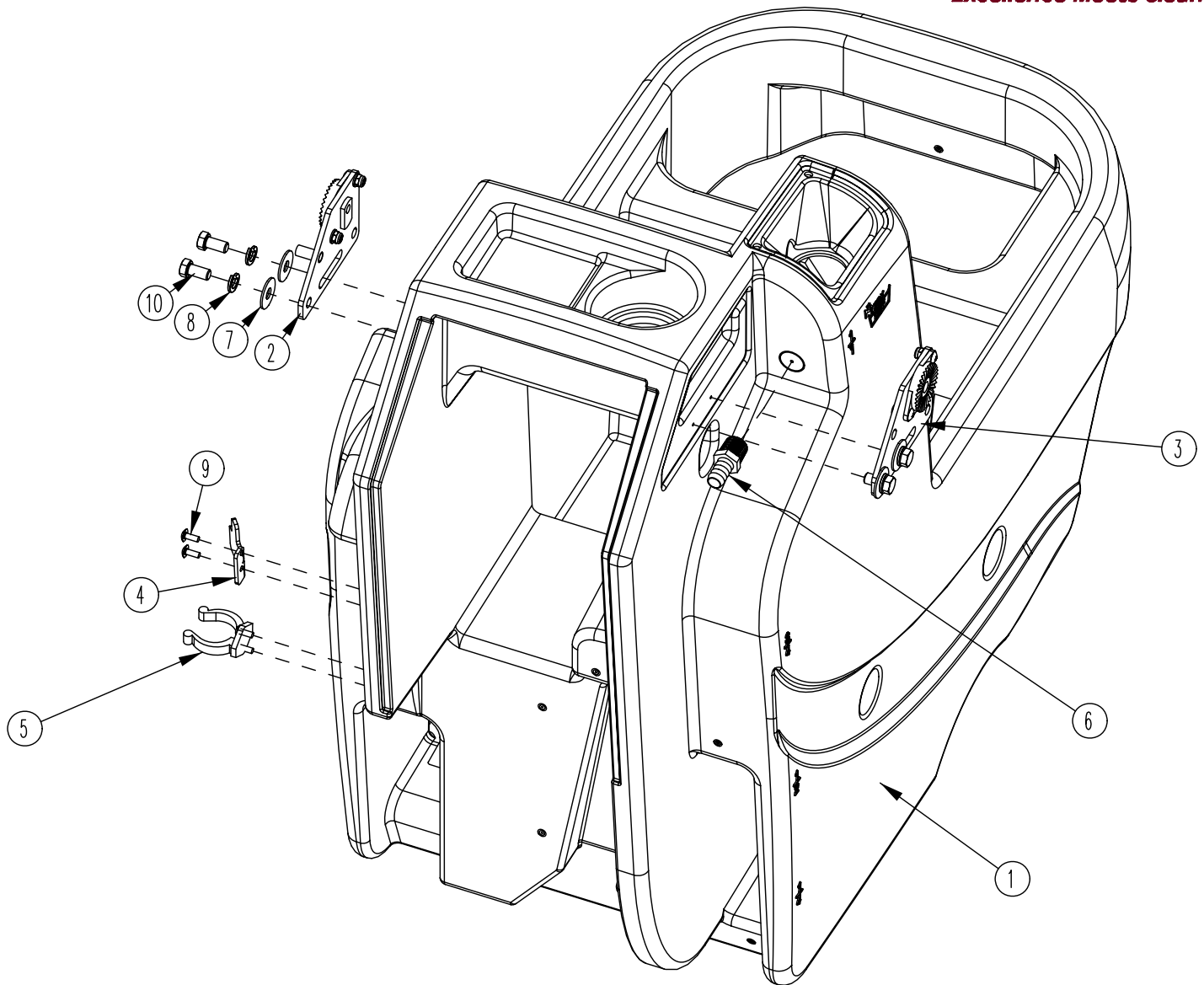
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172105	1	BKT, TD SOLENOID MOUNT
2	172164	1	HOSE-NYLO REINF 3/8 X 5.5"
3	320264	1	FITTING BRASS - 3/8 DBL BARB X 1/4MPT
4	342441	1	FITTING, MGHT X 3/8HB PP
5	342442	1	FITTING, FGHT NUT PP
6	342443	1	FITTING 3/8HB INSERT PP
7	342444	1	WSR-FILTER, GARDEN HOSE SIZE
8	450076	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

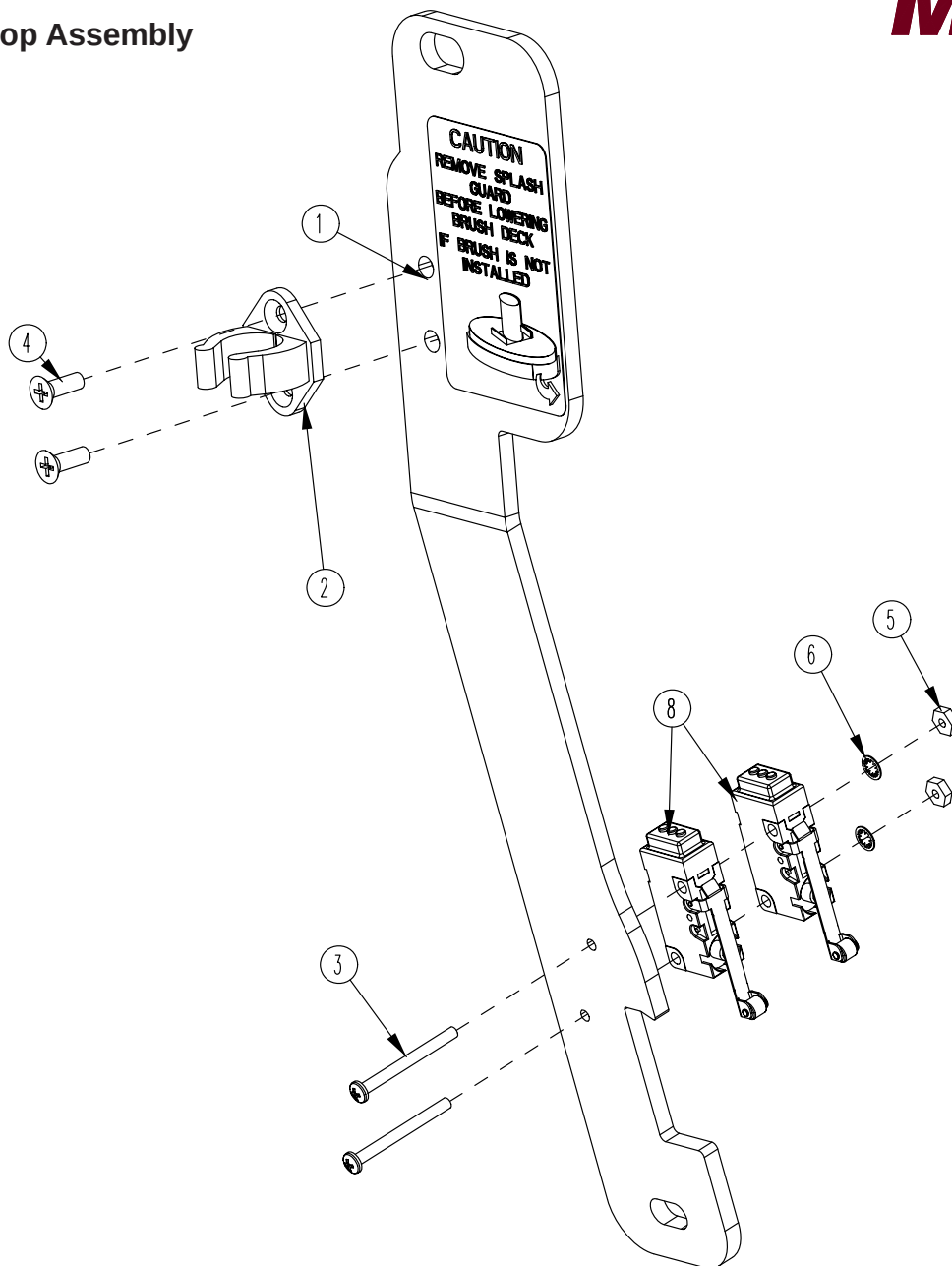


BILL OF MATERIAL - 172264

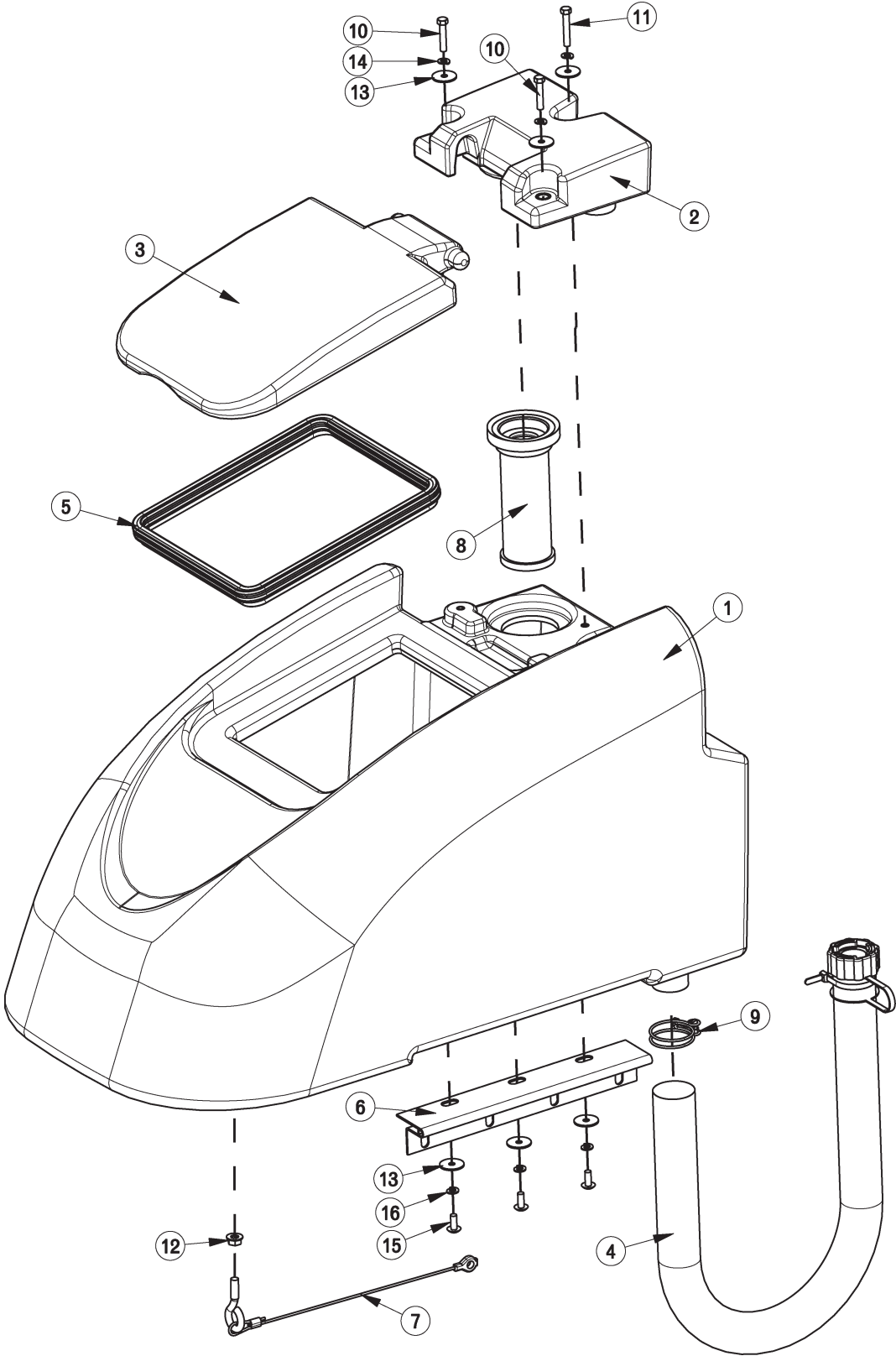
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172158	1	HOSE, 1/2"ID X 7.5" NYLOBRAID
2	172263	1	BKT, SOL VALVE MOUNT
3	320265	1	FITTING DUBL 3/8HBx3/8MPT
4	383347	1	CRIMP CLAMP 1/2 HOSE SS 185R
5	711512	2	WSR-FLAT .75X1.37X.08
6	711513	1	WSR-FLAT .69 X 1.06 X .03 SS
7	809415	1	VALVE, 3/8 FPT, 45 OPEN/CLOSE
8	827008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

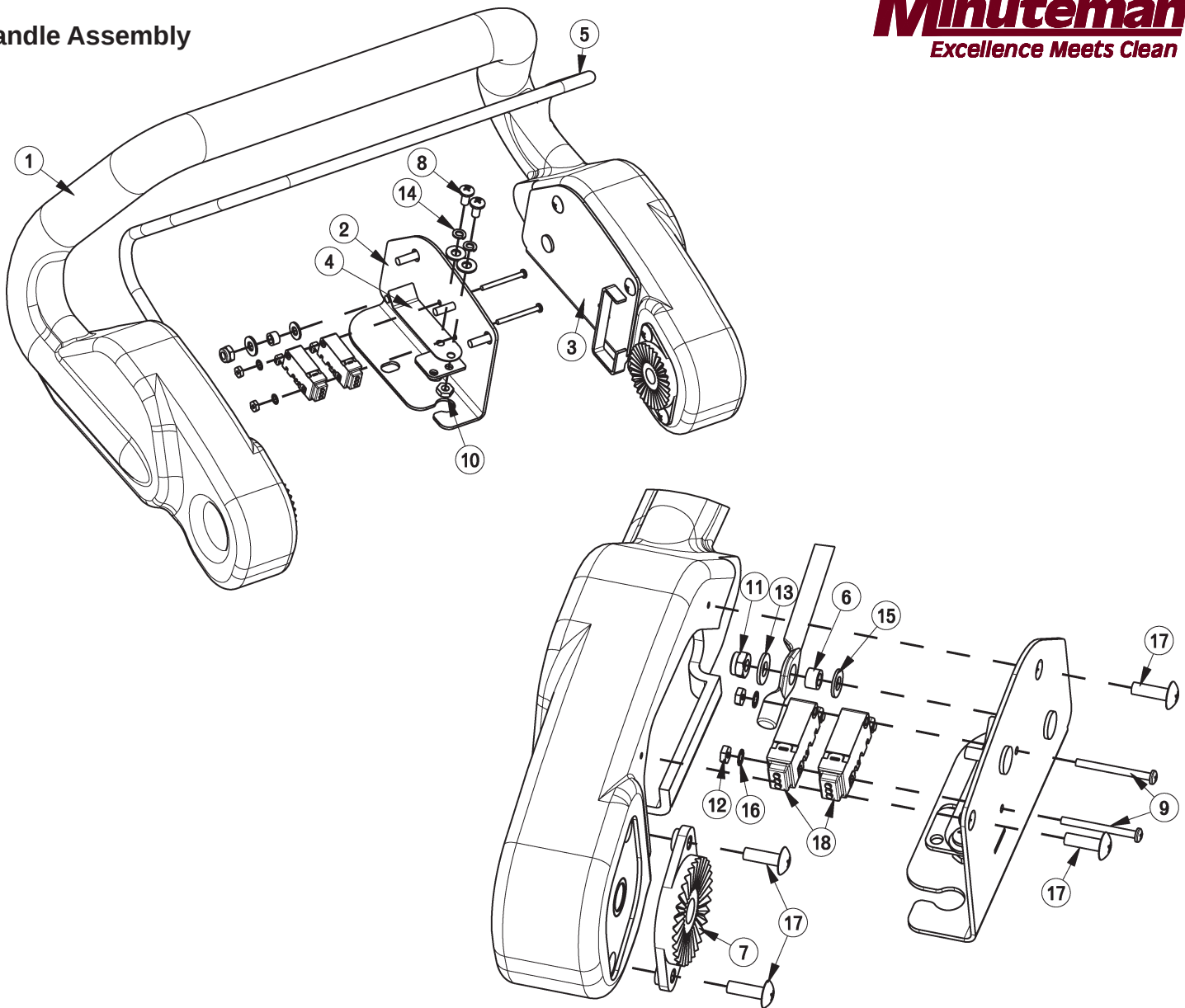


BILL OF MATERIAL -172166			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172036	1	BKT, PEDAL STOP
2	172065	1	CLIP, FOR 1/2" ID HOSE
3	710495	2	SCR-MC 4-40 X 1.25 STL Z
4	710530	2	SCR-MC FL HD 8-32 X .50 BRS
5	711428	2	NUT-HEX 4-40
6	712326	2	WSR-INT LOCK #4
7	715685	1	DECAL, REMOVE SPLASH GUARD
8	747603-2	2	SWITCH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



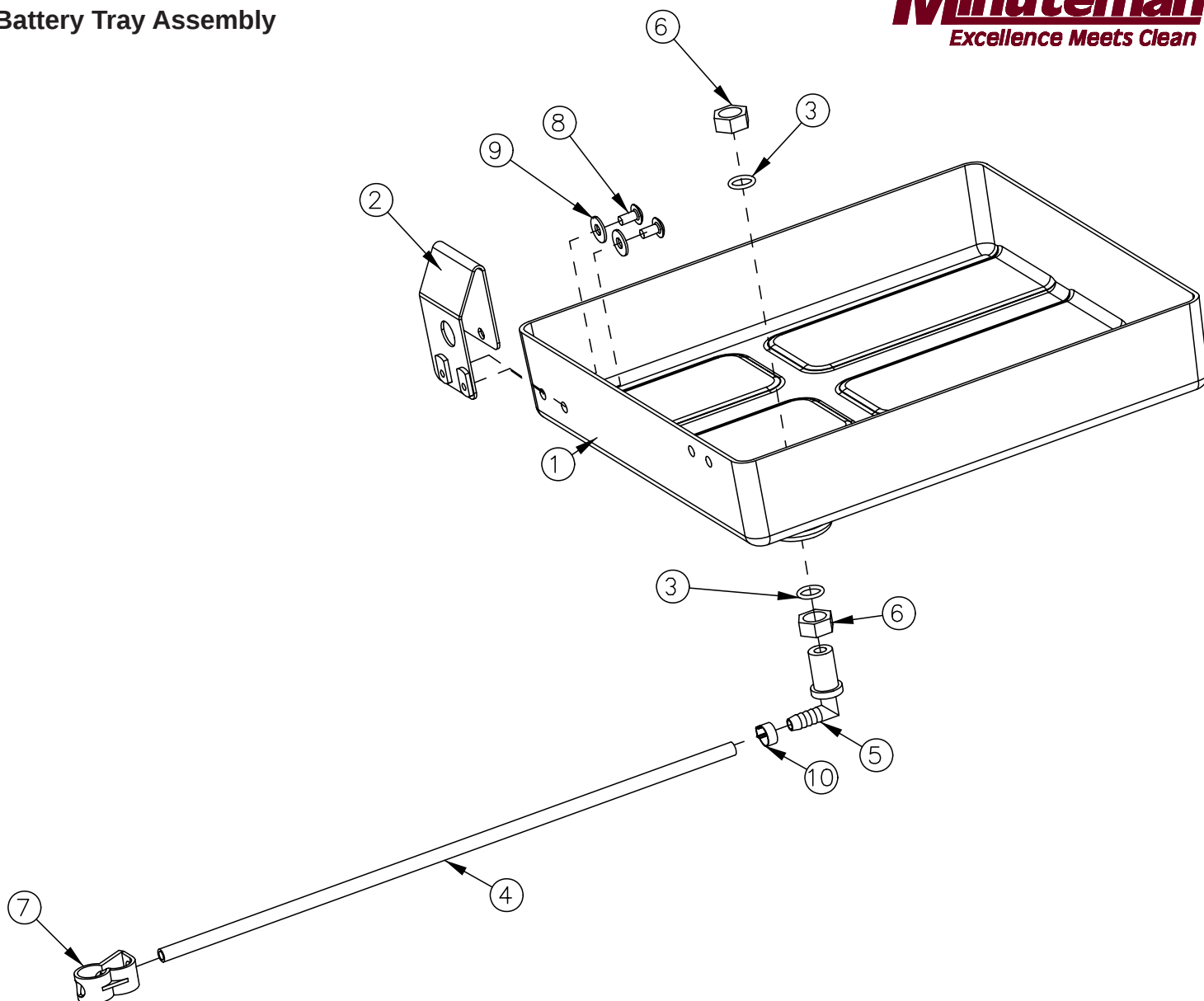
BILL OF MATERIAL - 172014			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172004	1	ES1720 RECOVERY TANK
2	172005	1	ES1720 VACUUM MANIFOLD
3	172007	1	ES1720 LID
4	97090096	1	DRAIN HOSE ASSY, RECOVERY TANK
5	172017	1	GASKET, LID
6	172049	1	HINGE, RECOVERY TANK
7	172394	1	REC TANK CABLE ASSY 11.625
8	172132	1	SCREENED 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

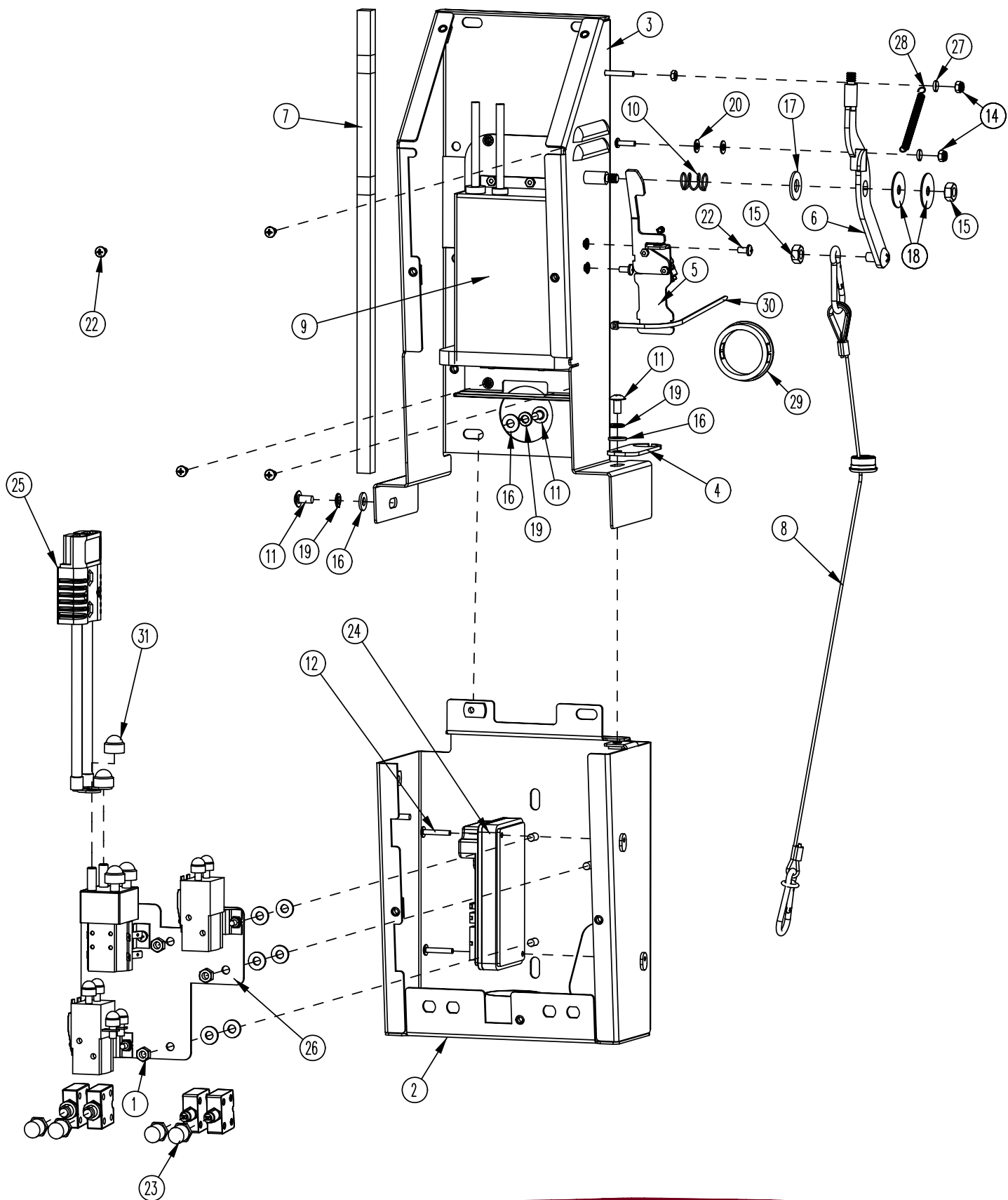


BILL OF MATERIAL - 172015

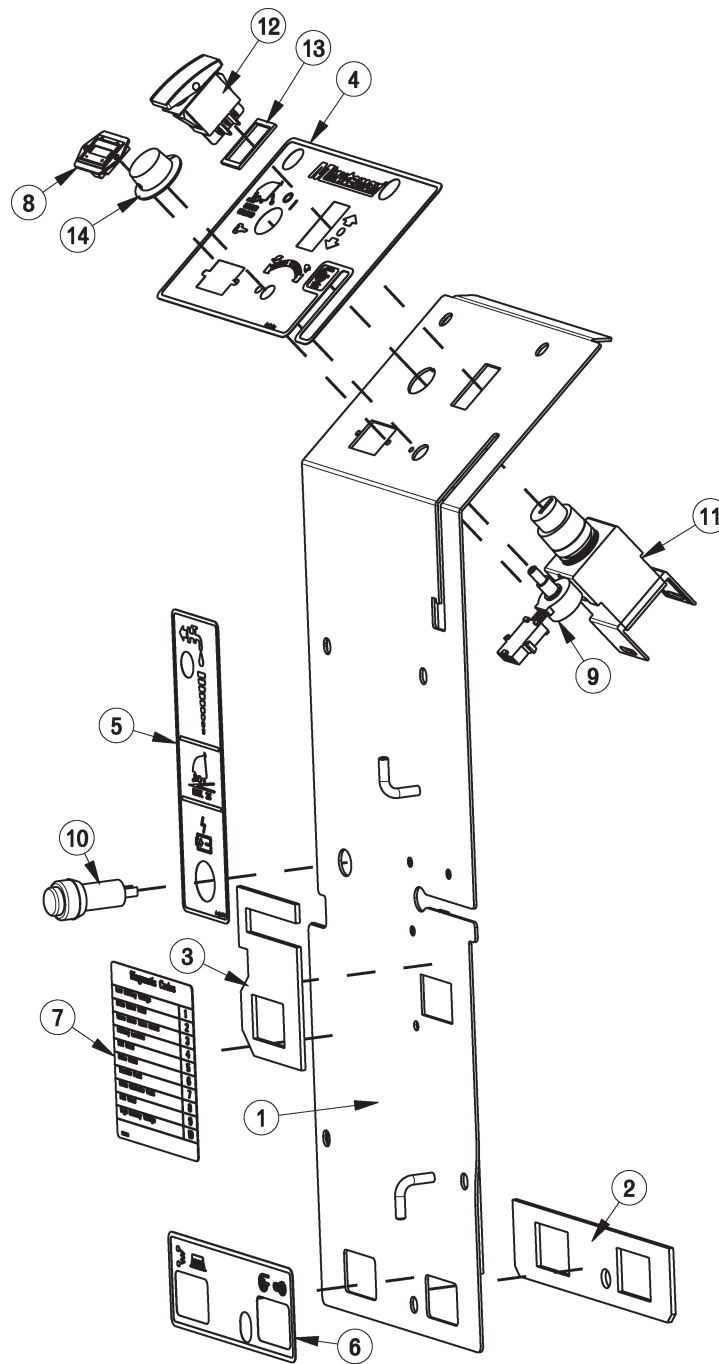
ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	172006	1	ES1720 HANDLE	11	711350	2	NUT-NYLOC 10-32
2	172053	1	BAIL PLATE WMT RH	12	711428	2	NUT-HEX 4-40
3	172054	1	BAIL PLATE WMT LH	13	711503	6	WSR, FLAT#10
4	172057	2	ES1720 LEAF SPRING	14	711543	4	WSR-HELICAL #10
5	172059	1	ES1720 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	747603-1	2	SWITCH ASY, MICRO ROLLER W/PACK/CONDUIT
9	710495	2	SCR-MC 4-40 X 1.25 STL Z	19	747632-1	1	CABLE ASY, 5 COND 18G CONSOLE
10	711310	4	NUT, HEX 10-32 ST PL				



BILL OF MATERIAL - 172012			
ITEM	PART NO.	REQ'D	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

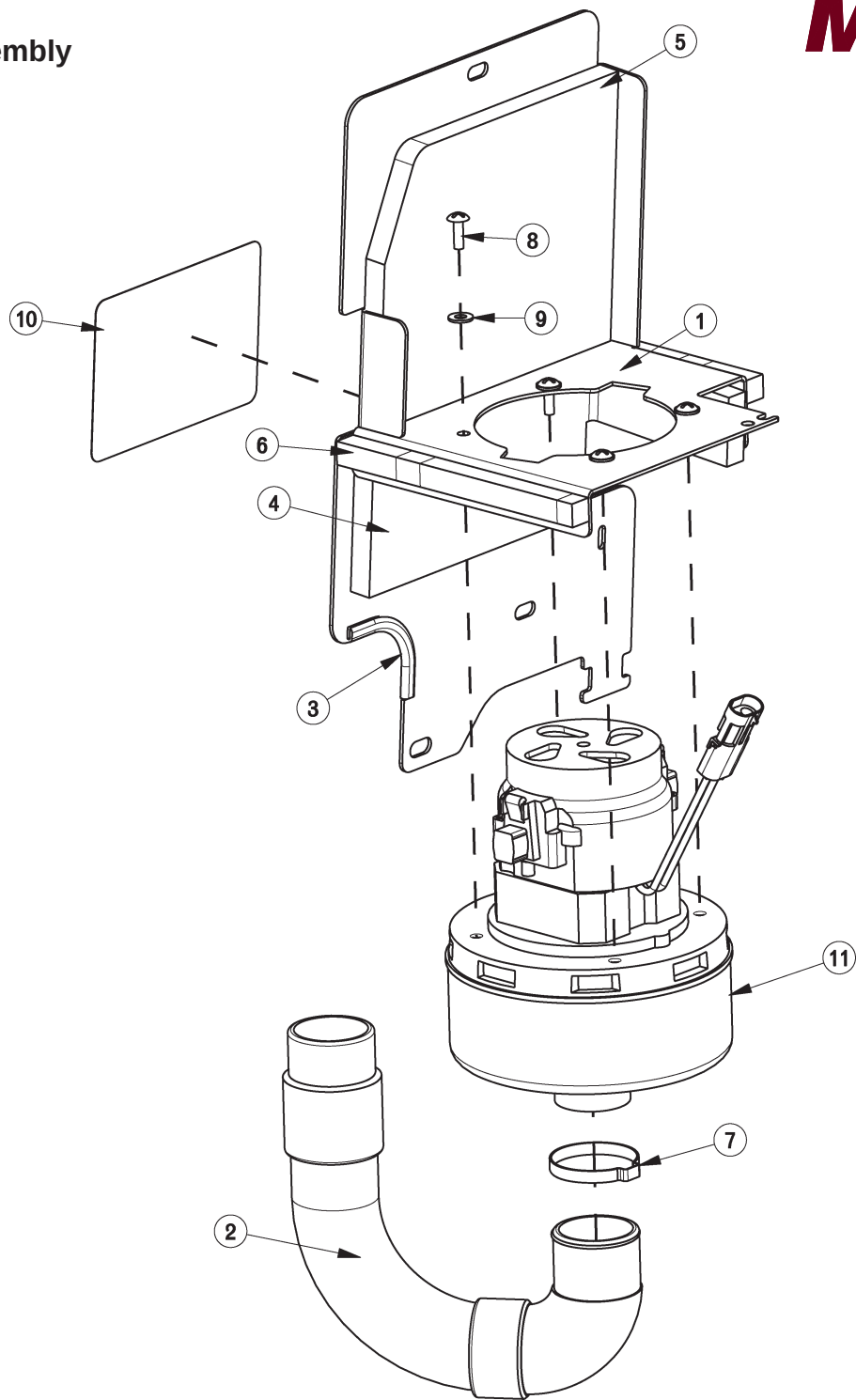


BILL OF MATERIAL - 172075-120/230			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	369-416	3	NUT-HEX 1/4-20 NYLOC SERATED
2	172077	1	ELEC BOX-BOT HALF WMT
3	172088	1	ELEC BOX-TOP HALF WMT
4	172107	1	BKT, UPPER BUSHING MOUNT
5	172141	1	VAC SWITCH ASSY
6	172152	1	VAC LEVER WMT
7	172188_	1	FOAM TAPE, 1/2" SQ X 16.5"
8	172381	1	CABLE ASSY, SQUEEGEE LIFT
9	172385	1	E1720 120V CHARGER ASSEMBLY
9CE	957753	1	E1720 230V CHARGER ASSEMBLY
10	670093	1	SPRING, COMPRESSION
11	710178	3	SCR-MC 1/4-20 X .50 TRUSS STPL
12	710534	2	SCR-MC TR HD 8-32 X 1.00 SS
13	711305	1	NUT, HEX 8-32 BR
14	711372	2	NUT-NYLOC 8-32 STL ZINC
15	711383	2	NUT-HEX CLR LOC 5/16-18
16	711505	9	1/4 FLAT WASHER, STEEL
17	711508	1	WSR-FLAT .44X 1.0X.08
18	711516	2	WSR- FLAT .31 X 1.25 X .05
19	711544	3	WSR-HELICAL 1/4
20	712320	2	WSR-NYLON .22 X .45 X .04
21	712770	6	WSR INT LOCK #10A SS
22	712810	6	SCR-MC 10-24 X .37 ST PL
23	742748	4	CIRCUIT BREAKER BOOT
24	747608	1	I-DRIVE, 24V 70A PM MOTOR CONTROL
25	747637	1	WIRE ASY, MACHINE-BATTERY E1720
26	747670	1	ELEC PANEL ASSY, E1720TD
27	760134	2	MOUNT RING
28	762084	1	SPRING-EXT .25OD X 2" F.L. MUSIC
29	762400	1	HEYCO BUSHING 2.00"
30	828062	1	CABLE TIE LARGE
31	15592033_CAP	2	CAP, SAFETY NUT COVER M8

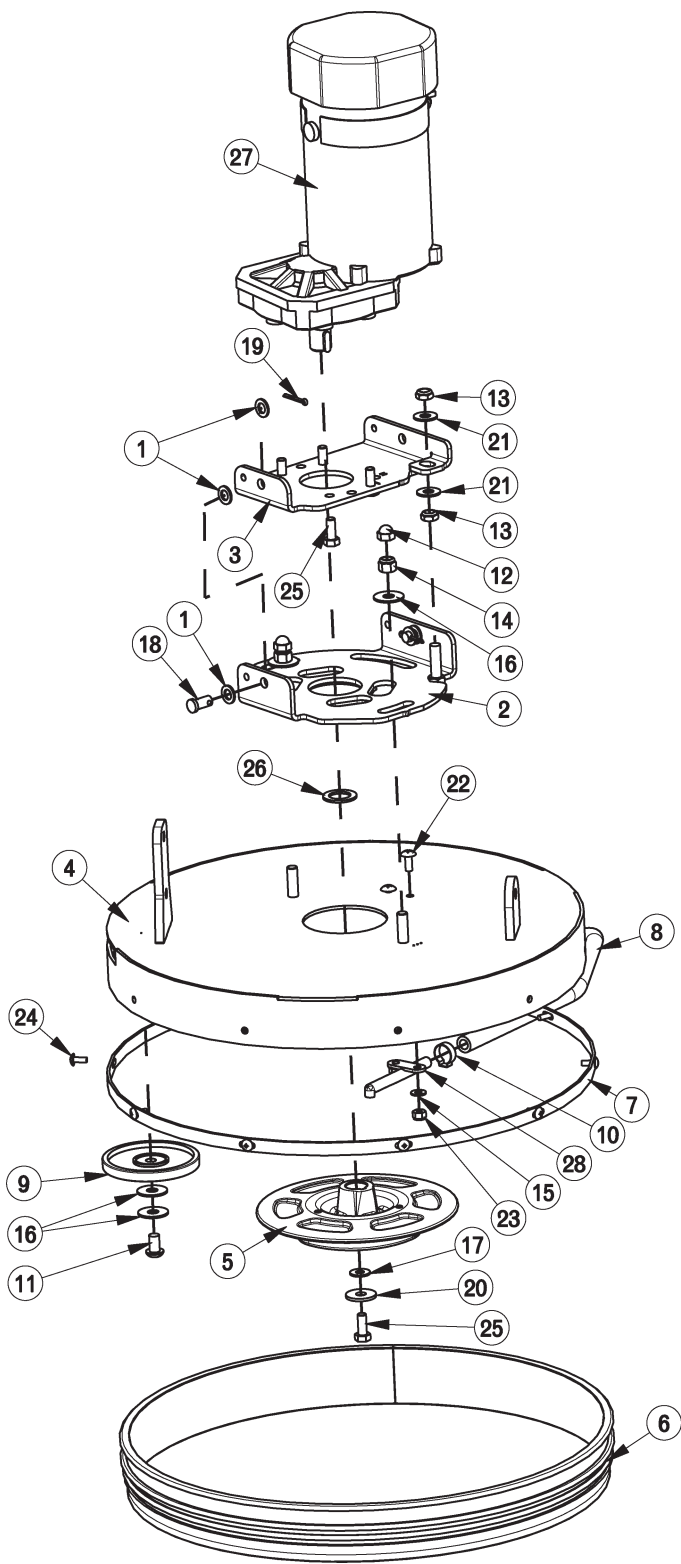


BILL OF MATERIAL - 172079

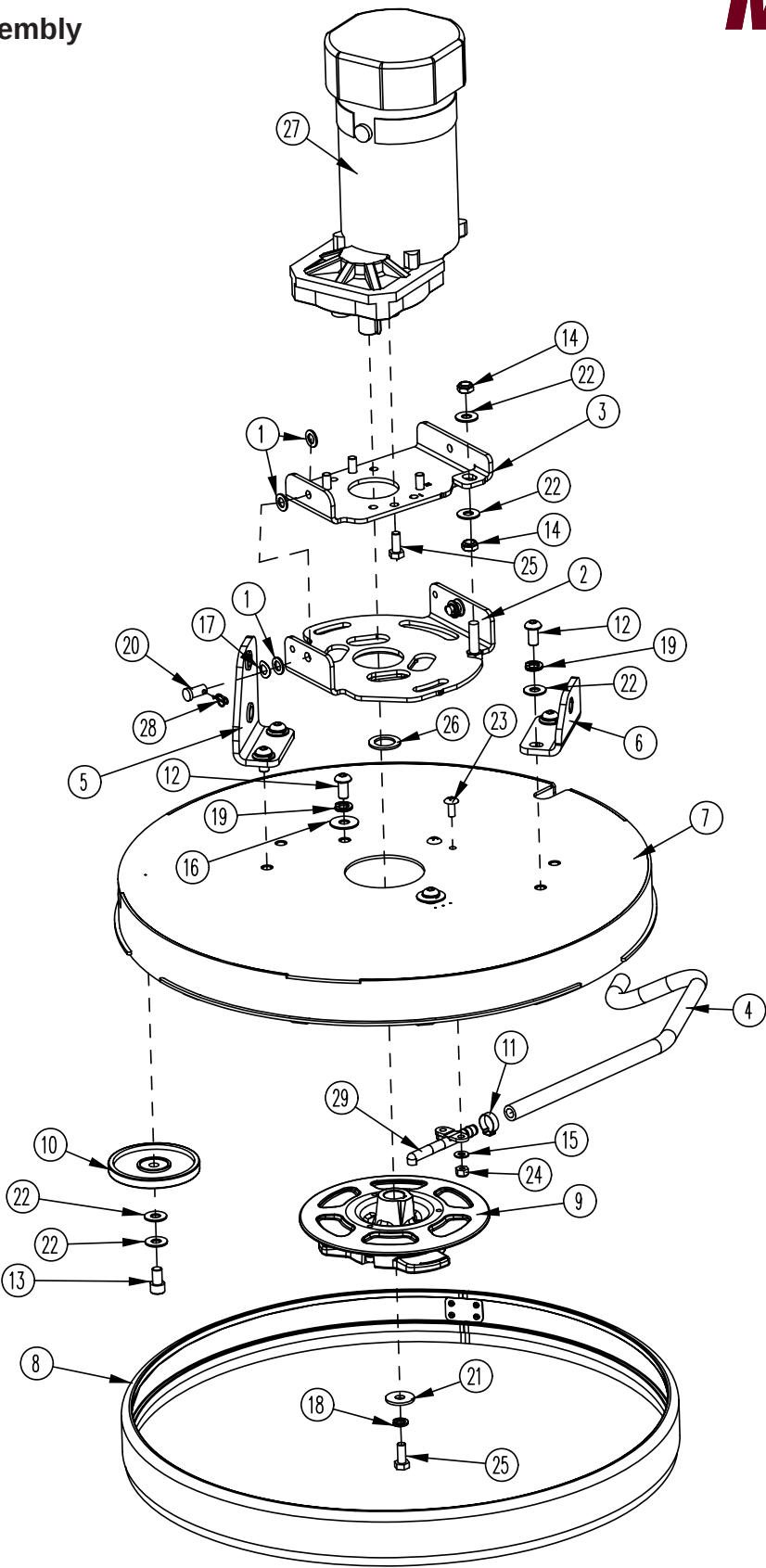
ITEM	PART NO.	REQ'D	DESCRIPTION			
1	172182	1	TD COVER WMT	8	747011	1 BATTERY GAUGE, TRUCHARGE
2	172193	1	GASKET, CB OUTLINE	9	747026	1 POTENTIOMETER ASSY SPEED CONTROL
3	172194	1	GASKET, CHARGER CORD PLATE	10	747614	1 CHARGE STATUS INDICATOR
4	715671	1	DECAL, 1720 TD DASHBOARD	11	747617-2	1 KEYSWITCH ASY, KEYSWITCH + WIR
5	715672	1	DECAL, 1720 BD ELEC BOX	12	748201	1 SWITCH, DPDT ON/OFF/ON
6	715674	1	DECAL, TD CIRCUIT BREAKER	13	748209	1 GASKET-FOR 2 POLE ROCKER SWITCHES
7	715678	1	DECAL. DIAGNOSTIC CODES E1720TD	14	809874	1 KNOB, SPEED CONTROL



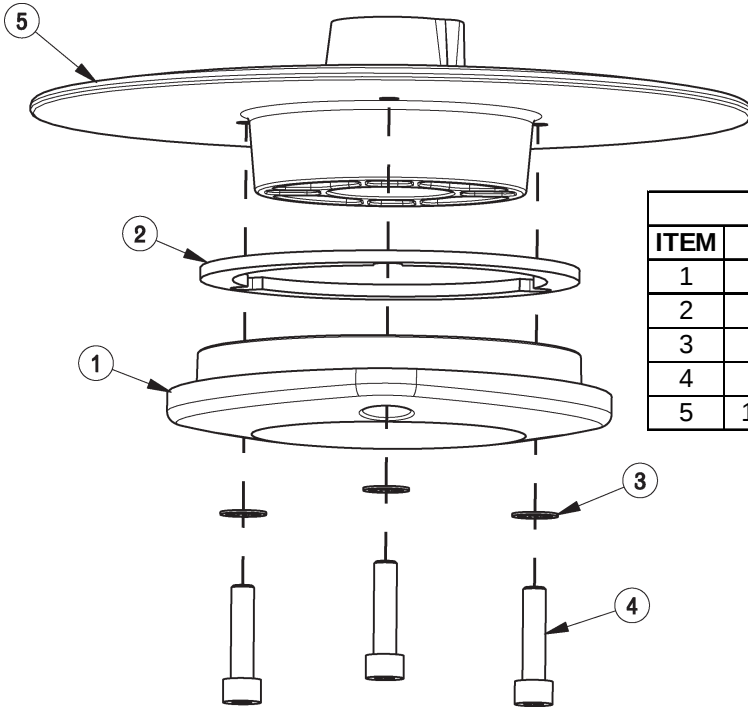
BILL OF MATERIAL - 172050							
ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	172045	1	VAC MOUNT WMT, ES1720	7	450095	1	CRIMP CLAMP, 1.75"
2	172048	1	HOSE, STRETCH 13"	8	711160	4	#10 X 5/8 HI-LO
3	172124	1	EDGE TRIM, .063 X 3.0, BLACK	9	711503	4	WSR, FLAT#10
4	172186	1	FOAM COVER, 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 - 172090TD			
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	172091	1	DECK COVER WMT 17"
5	172095	1	E20 BRUSH HUB ASSY
6	172118	1	17" DECK SKIRT
7	172119	1	RETAINER, 17" DECK SKIRT
8	172199	1	HOSE-NYLO REINF 3/8 X 23"
9	210153	1	ROLLER WHEEL
10	450076	1	CLAMP-CRIMP 185R SS
11	710985	1	SCR-SC 3/8-16 X .62 ST PL
12	711354	2	NUT-ACORN 3/8-16 ST NI
13	711375	2	NUT-NYLOC 3/8-16 X 1/2 NUT
14	711380	2	NUT-NYLOC 3/8-16 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-FLT .31x.75x..06ST
18	711679	2	CLEVIS PIN 3/8 X 3/4
19	711809	2	COTTER PIN, 1/8 X 1.0
20	711855	1	WSR-FLT .37X1.12X.10 STL Z HARD
21	712301	2	WSR-FLAT .37 X .87 X .06
22	712565	2	SCR-MC 1/4-20X.63 SS TR HD
23	712667	2	NUT, HEX 1/4-20 NYLOC SS
24	712822	10	SCR-MC TR HD 10-24 X .50 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

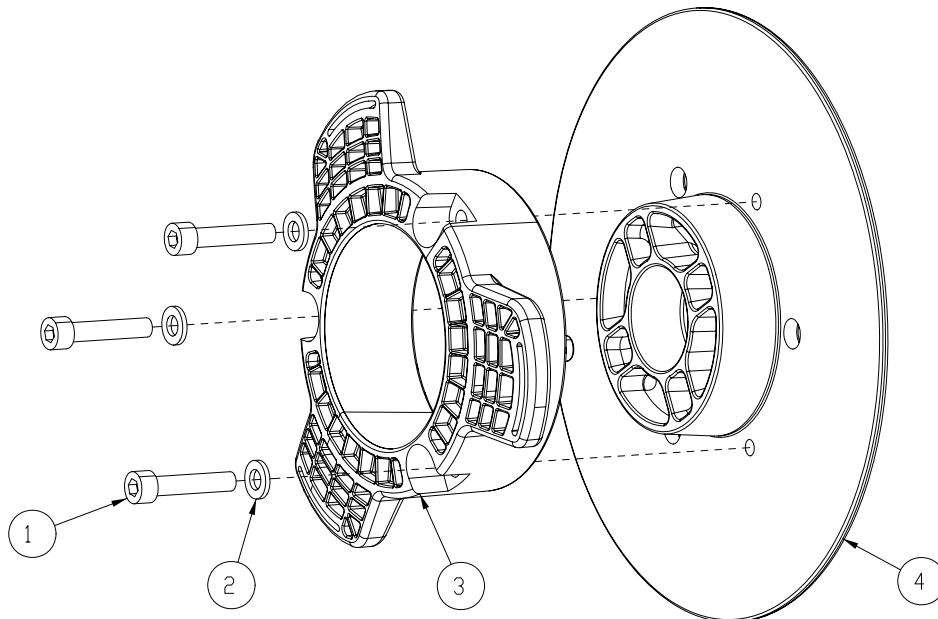


BILL OF MATERIAL - 172100TD			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	81-166-A	6	SPECIAL WASHER
2	172040	1	DECK ANGLE ADJUST WMT
3	172044	1	PLATE, MOTOR MOUNT
4	172198	1	HOSE-NYLO REINF 3/8 X 22.5"
5	172296	1	BKT, DECK MOUNT RH
6	172297	1	BKT, DECK MOUNT LH
7	172375	1	DECK COVER WMT 20"
8	172384	1	E20 FLOATING BRUSH DECK SKIRT
9	172510	1	HUB ASSEMBLY, DISC DECK
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	2	WSR-FLAT .37 X 1.12 X .06
17	711523	2	WSR-WAVE .37X .68 X .08
18	711545	1	WSR-HELICAL 5/16
19	711546	6	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



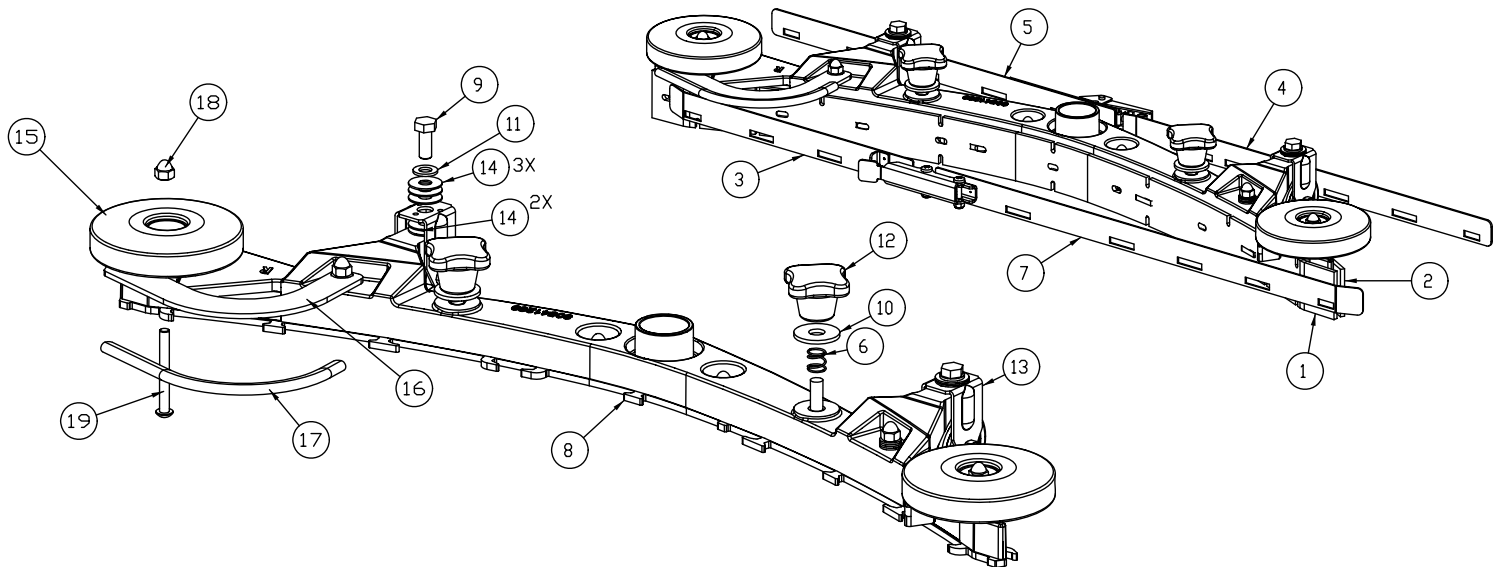
E17/20 Brush Hub Assembly

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

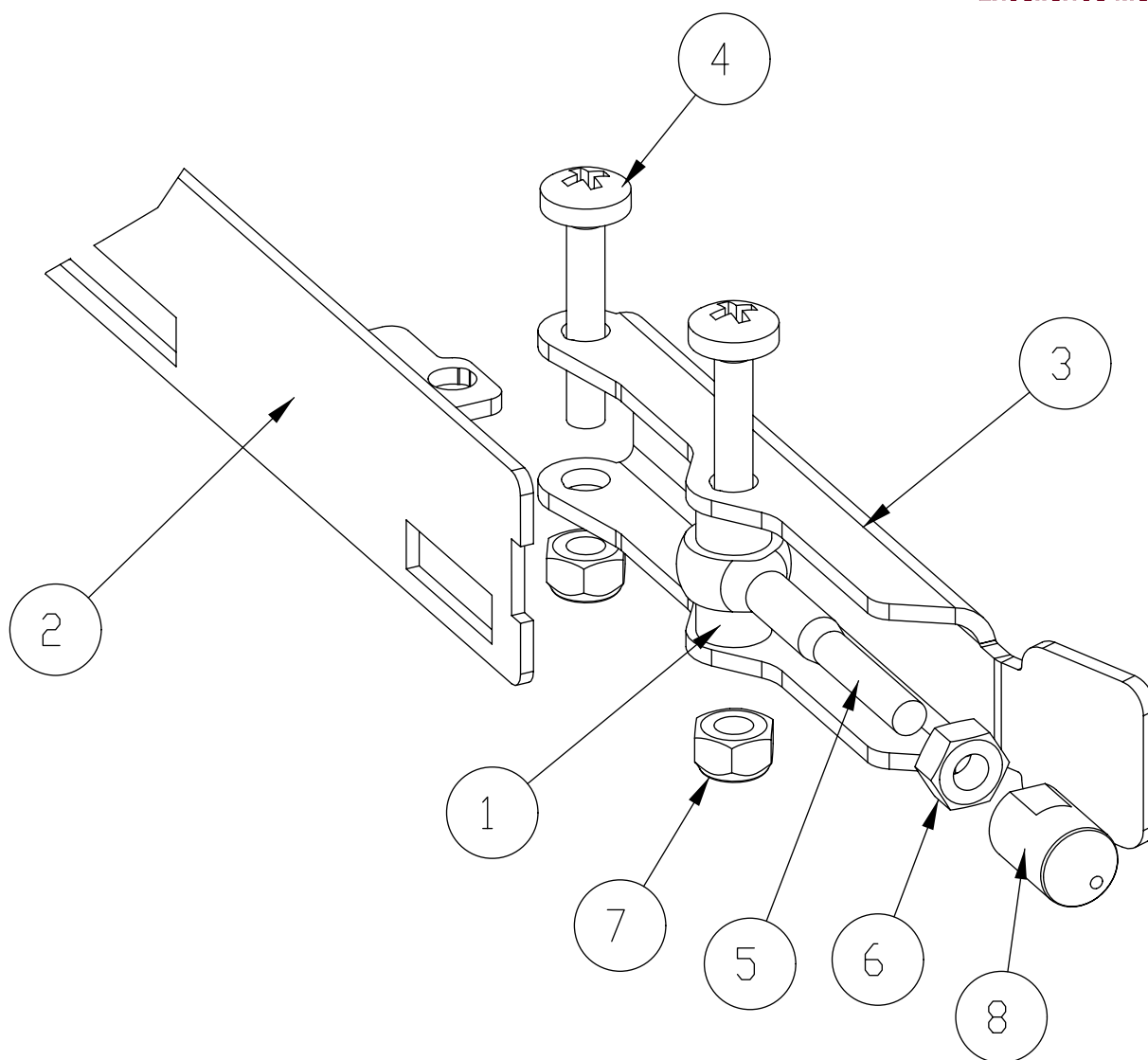


E20 Brush Hub Assembly

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

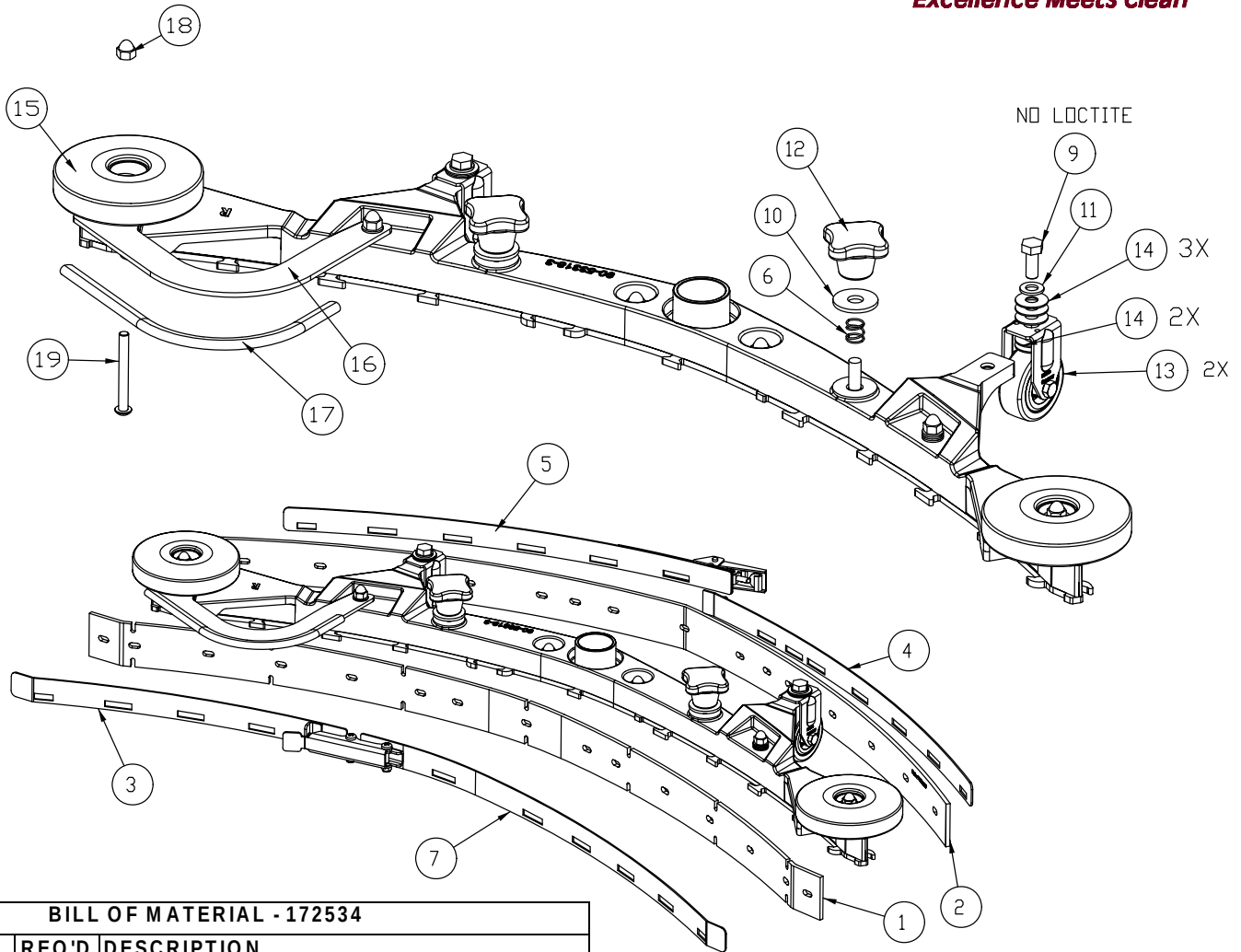


BILL OF MATERIAL -172530			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172218	1	FRONT SQ BLADE, 30" (760)
2	172219	1	REAR SQ BLADE, 30" (760)
3	172224	1	STRAP WMT , FRT RT-30" (760)
4	172226	1	STRAP WMT , REAR LEFT-30" (760)
5	172227	1	STRAP WMT , REAR RT-30" (760)
6	172429	2	SPRING, COMPRESSION
7	172443	1	TENSION 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	172257	1	BUMPER, 30" SQG
17	172275	1	EDGE TRIM, 5/16 X 8" BLACK
18	712591	6	NUT , ACORN 1/4-20 SS



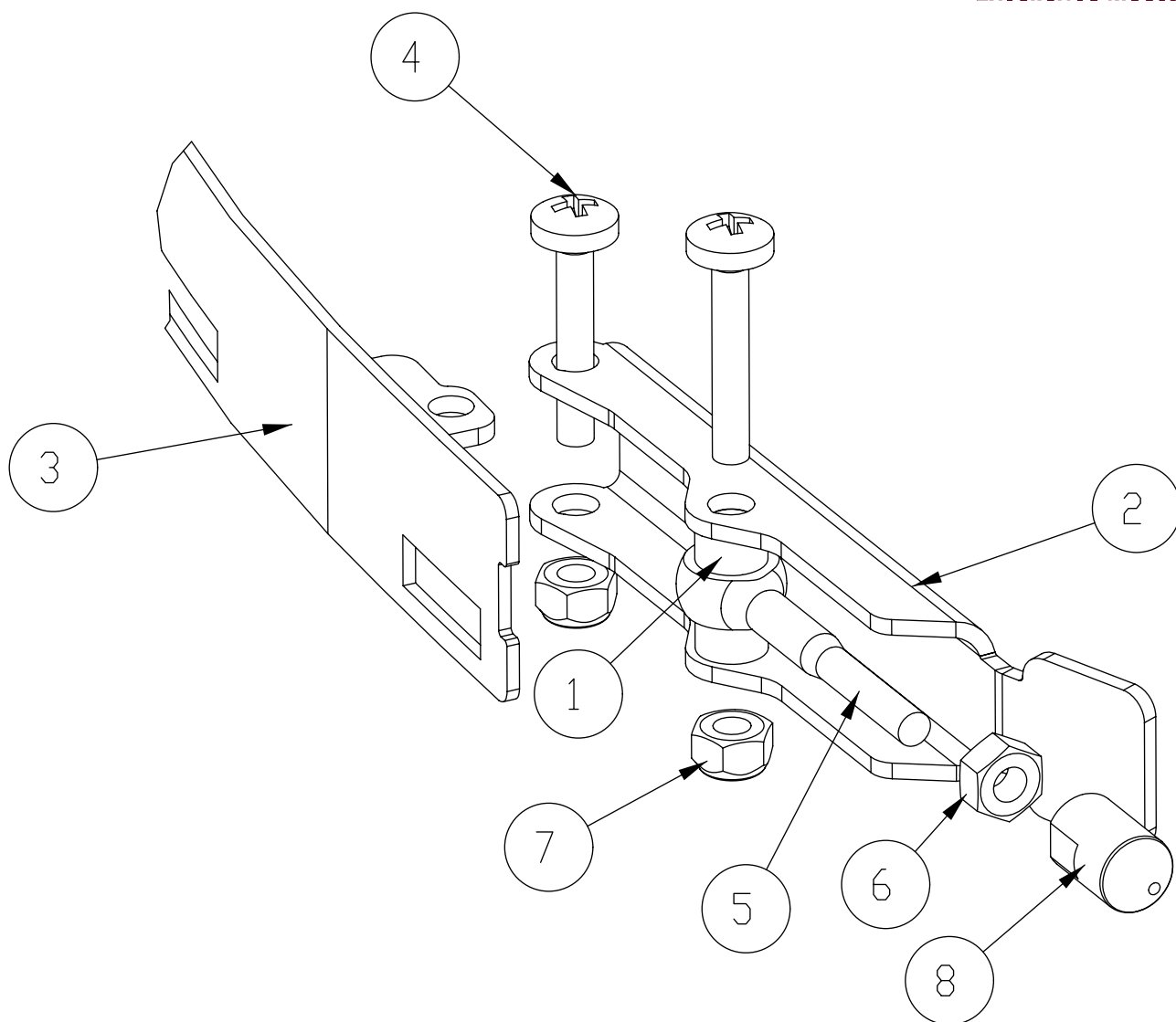
BILL OF MATERIAL - 172443			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	172074	2	SPACER, 5/16OD X 17GA, ALUM
2	172223	1	STRAP WMT, FRT LEFT-30" (760)
3	172234	1	LEVER, 90535758
4	11175494	2	SCR-MC M5 X 25 SS DIN7985
5	11518313	1	BLT-EYE M5 X 40 SS
6	12022430	1	NUT - HEX, M5, SS DIN934
7	12040283	2	NUT - HEX,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

E20 Rear Squeegee Assembly

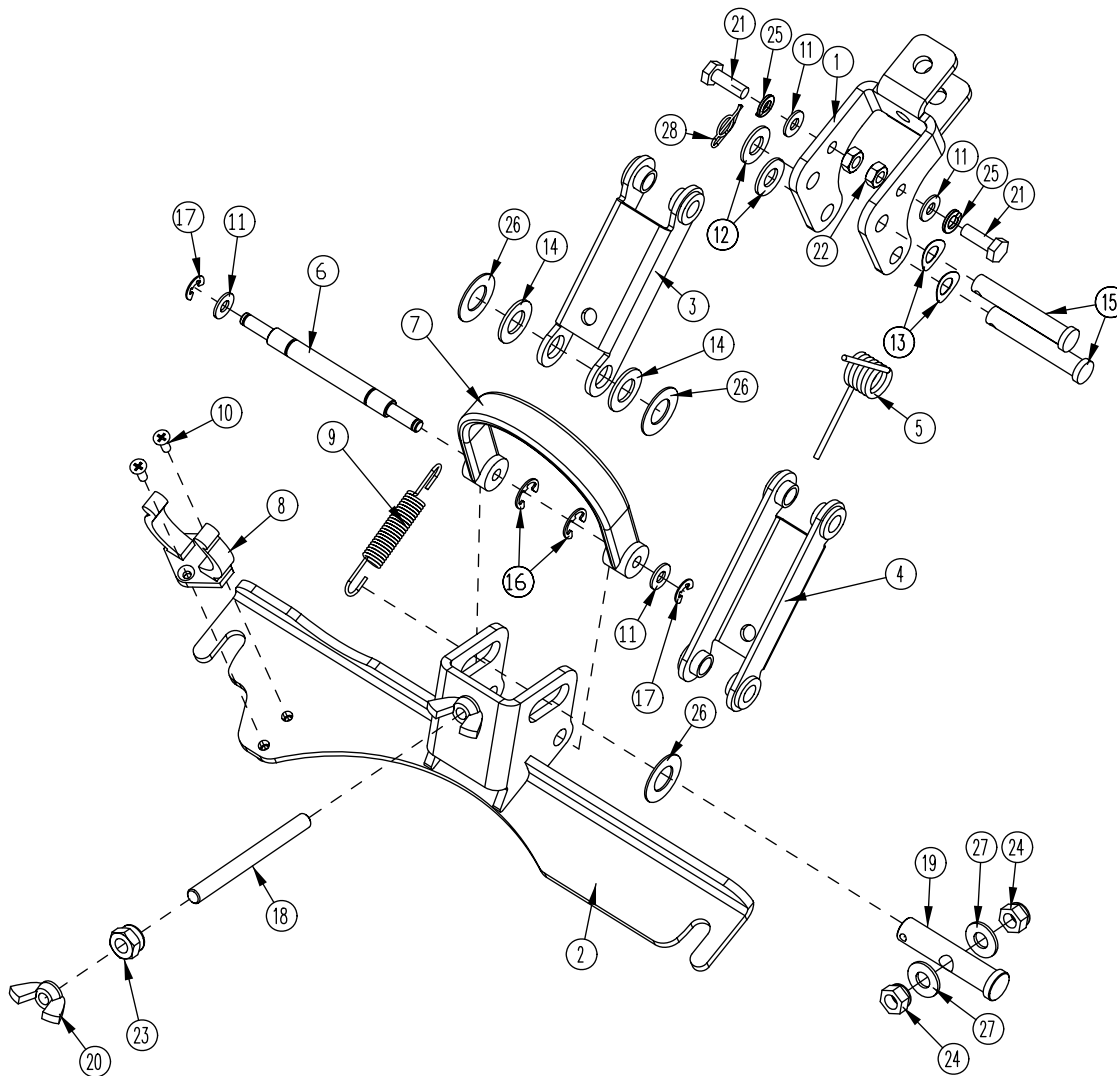


BILL OF MATERIAL - 172534

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	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

PAGE LAYOUT



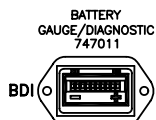
PAGES GO TOGETHER
AS SHOWN TO SEE THE
ENTIRE SCHEMATIC AS
ONE.

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



X19

BLK/RED 747673-13

RED/WHT 747676

MALE CONNECTOR 747033

RED/YEL 747673-10

GRN/YEL 747675

FORWARD
NEUTRAL
REVERSE

FORWARD/REVERSE SWITCH S5

748201

VIO/YEL 747673-12

BLK/RED

BLK/PNK 747674

BLK/PNK 747677

BLK/PNK 747674

SPEED POTENTIOMETER (740946)

R1

BLK/ORG

BLK/PNK

BLK/WHT

747026

FEMALE CONNECTOR 741298

1-BLK/WHT

2-BLK/PNK

3-BLK/ORG

X20

MALE CONNECTOR 741302

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: CONNECTOR TO OPERATOR HANDLE CABLE: 747632-1

PIN #	COLOR	WHERE TO/FROM
1	RED	KEYSWITCH P:1
2	BLACK	CONTROL CB 4.0A
3	RED	MAIN RELAY + (REAR LEFT POST)
4	BLACK	MAIN RELAY - (FRONT LEFT POST)

X23: OPERATOR HANDLE CABLE: 747632-1

PIN #	COLOR	WHERE TO/FROM
1	RED	KEYSWITCH P:1
2	BLACK	CONTROL CB 4.0A
3	RED	MAIN RELAY + (REAR LEFT POST)
4	BLACK	MAIN RELAY - (FRONT LEFT POST)

X23: I-DRIVE HARNESS: 747673

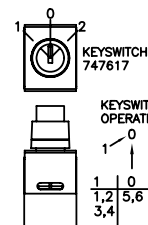
PIN #	COLOR	WHERE TO/FROM
1	BLACK/PINK	X22: P:3
2	BLACK/WHITE	X20: SPEED POT P:1
3	BLACK/GREEN	VACUUM RELAY COIL: OVDC
4	EMPTY	-
5	RED/WHITE	JUMPER TO P:7 (ON/OFF)
6	BROWN/GREEN	JUMPER TO P:14 (INHIBIT 1)
7	RED/WHITE	JUMPER TO P:5 (24VDC I-DRIVE FUSED)
8	BLACK/ORANGE	X20: SPEED POT P:3
9	EMPTY	-
10	RED/YELLOW	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: 957745 or 957753

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



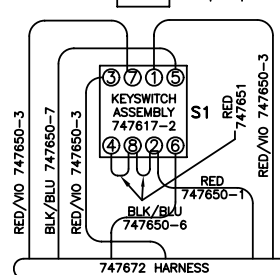
KEYSWITCH 747617

KEYSWITCH OPERATION

1 0 2

1,2 0 2

3,4 5,6 7,8



747672 HARNESS

FEMALE CONNECTOR 744012

X1

747671 HARNESS

MALE CONNECTOR 748037

RED 747631-1

RED/VIO 747631-8

RED/VIO 747631-3

BLK/BLU 747631-6

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

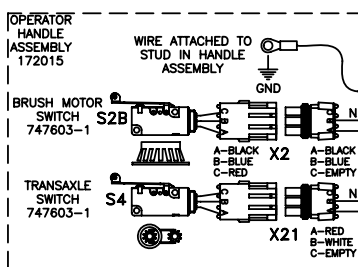
BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7

RED/VIO 747631-3

BLK/BLU 747631-7



WIRE ATTACHED TO STUD IN HANDLE ASSEMBLY

GND

N.O.

A-BLACK

B-BLUE

C-RED

X2

A-BLACK

B-BLUE

C-EMPTY

X21

A-RED

B-WHITE

C-EMPTY

X22

FEMALE CONNECTOR 747029

GRN/YEL

BLACK

BLUE

WHITE

RED

OPTIONAL HOUR METER 747624

KIT #

K-E1720HM

HM

FEMALE CONNECTOR 747029

HM

FEMALE CONNECTOR 747029

HM

FEMALE CONNECTOR 747029

HM

FEMALE CONNECTOR 747029

HM

FEMALE CONNECTOR 747029

HM

FEMALE CONNECTOR 747029

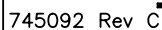
HM

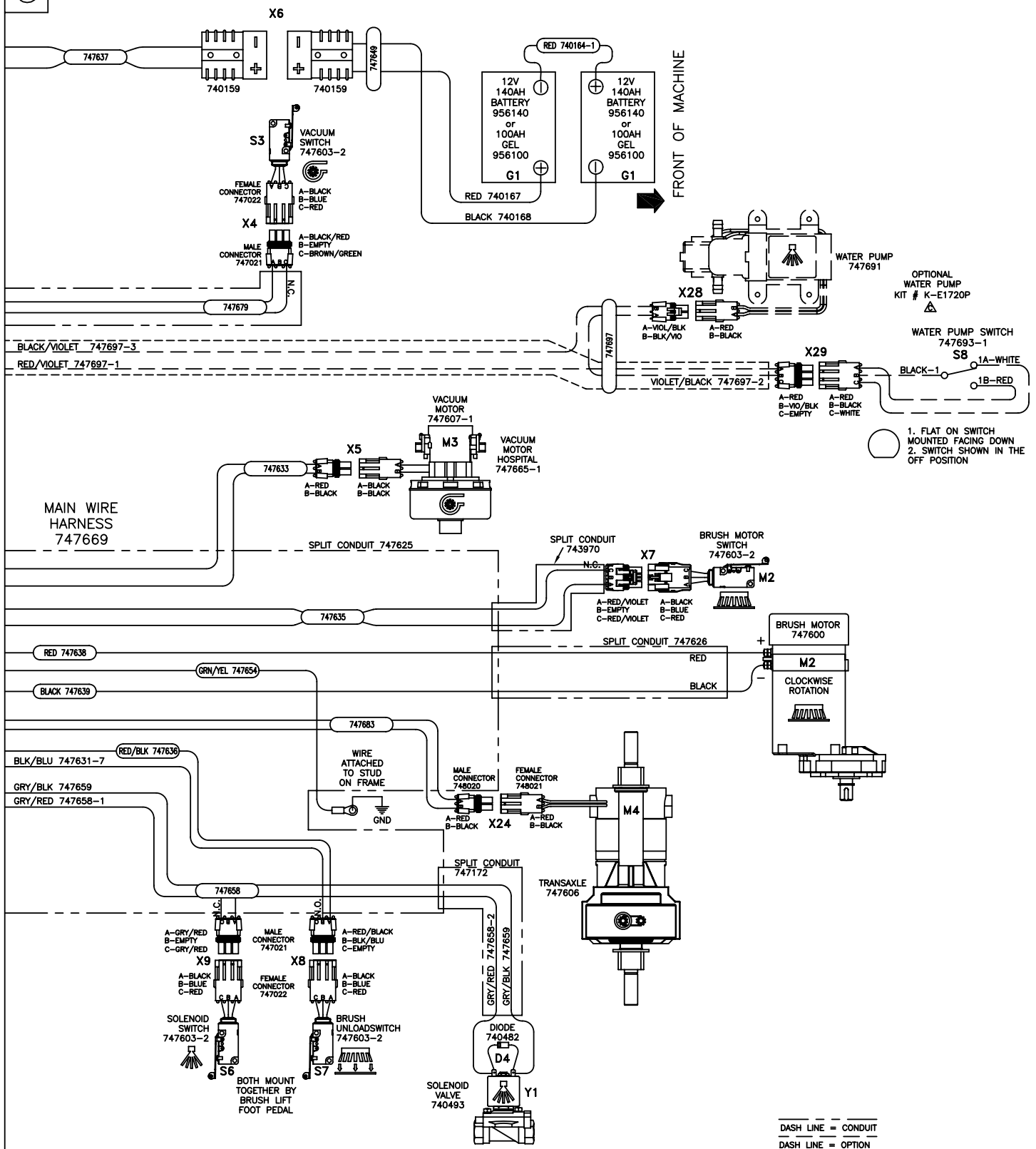
FEMALE CONNECTOR 747029

HM

FEMALE CONNECTOR 747029

HM





E1720TD PART REFERENCE LIST
Schematic 745092

REFERENCE #	COMPONENT NAME	PART NUMBER
M1 (optional)	PUMP, WATER (KIT K-E1720P)	748691
M2	MOTOR, BRUSH	748692
M3	MOTOR, VACUUM ASSEMBLY	747607-1
M3 (model specific)	MOTOR, VACUUM ASSEMBLY (H20 only)	747665-1
M4	TRANSAXLE	747606
Y1	SOLENOID VALVE, WATER	740493
K1	RELAY, MAIN	90331026
K2	RELAY, BRUSH MOTOR	747615
K3	RELAY, VACUUM	747616
CB1	CIRCUIT BREAKER 4.0A, CONTROL	747609
CB2	CIRCUIT BREAKER 30A, BRUSH MOTOR	740247
CB3	CIRCUIT BREAKER 20A, VACUUM MOTOR	740220
CB4	CIRCUIT BREAKER 20A, TRANSAXLE	740220
S1	KEYSWITCH	747617
S2A	SWITCH, BRUSH MOTOR (at motor)	747603-2
S2B	SWITCH, BRUSH MOTOR (handle)	748603-1
S3	SWITCH, VACUUM MOTOR	748603-2
S4	SWITCH, TRANSAXLE (handle)	748603-1
S5	SWITCH, DIRECTION	748201
S6	SWITCH, BRUSH UNLOAD	748603-2
S7	SWITCH, SOLENOID	747603-2
S8 (optional)	SWITCH, PUMP- OFF AISLE WAND (KIT K-1720P)	747693-1
A1	CONTROLLER, I-DRIVE	747608
CSI	CHARGER STATUS INDICATOR	747614
HM (optional)	HOUR METER (KIT K-E1720HM)	747624
BC (model specific)	BATTERY CHARGER 115VAC (battery type specific)	957761 (-2 or G-4)
BC (model specific)	BATTERY CHARGER 230VAC (battery type specific)	957760 (-2 or G-4)
G1	BATTERY, 12V 140AH (2 REQUIRED)	956140
G1 (optional)	BATTERY, GEL 12V 100AH (2 REQUIRED)	956100
D1	DIODE, MAIN RELAY	Part of K1
D2	DIODE ASM, BRUSH MOTOR RELAY	740482
D3	DIODE ASM, VACUUM MOTOR RELAY	740482
D4	DIODE ASM, SOLENOID VALVE	740482

REFERENCE #	CONNECTOR FUNCTION	PART # -female	PART # -male
X1	KEYSWITCH (S1)	744012	748037
X2	SWITCH, BRUSH MOTOR (S2B)	747022	747021
X3	CHARGER STATUS INDICATOR (CSI)	Part of CSI	Part of BC
X4	SWITCH, VACUUM (S3)	747022	747021
X5	MOTOR, VACUUM (M3)	748021	748020
X6	BATTERY CONNECTOR	740159	740159
X7	SWITCH, BRUSH MOTOR (S2A)	747022	747021
X8	SWITCH, BRUSH UNLOAD (S6)	747022	747021
X9	SOLENOID VALVE, WATER (Y1)	747022	747021
X10	OPERATOR HANDLE CABLE	741093	740697
X11	OPERATOR HANDLE CABLE	740366	740697
X12	KEYSWITCH (S1)- MAIN RELAY COIL (K1)	741093	741165
X13	BATTERY CHARGER (BC)- INTERNAL RELAY	740366	740697
X14	BATTERY CHARGER (BC)-INTERNAL RELAY	740366	740697
X15	SOLENOID (Y1) /HOUR METER CONNECTION (HM)	740366	741165
X16	SOLENOID (Y1) /HOUR METER CONNECTION (HM)	740366	741165
X17 (optional)	OPTIONAL HOUR METER (HM) WIRE-747656	740366	741165
X18 (optional)	OPTIONAL HOUR METER (HM) WIRE-747657	740366	741165
X19	BATTERY GAUGE (BDI)	Part of BDI	747033
X20	SPEED POT ASSEMBLY (R1)	741298	741302
X21	SWITCH, TRANSAXLE (S4)	747022	747021
X22	OPERATOR HANDLE CABLE: 747632-1	747029	747033
X23	I-DRIVE HARNESS: 747673	Part of A1	748037
X24	TRANSAXLE (M4)	748021	748020
X25	I-DRIVE (A1) TO VACUUM SWITCH (S3)	740366-1	741165
X26	I-DRIVE (A1) TO VACUUM SWITCH (S3)	741093	740698
X27	I-DRIVE (A1) TO VACUUM RELAY-CONTACT	741093	741165
X28 (optional)	SWITCH, TOGGLE WATER PUMP (S8)	747022	747021
X29 (optional)	PUMP, OFF AISLE WAND (M1)	748021	748020

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