



Electronic Service Manuals

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ES320
Floor Scrubber
Traction Driven

Model #:
E320QP
E320CE
E320QPIW

OPERATION ■ SERVICE ■ PARTS ■ CARE



Minuteman[®]



DECLARATION OF CONFORMITY

MANUFACTURER'S NAME: Minuteman International Inc.

MANUFACTURER'S ADDRESS: 111 South Rohlwing Road
Addison, IL. 60101

EQUIPMENT DESCRIPTION: Automatic Floor Scrubbing Machines

EQUIPMENT MODEL DESIGNATION: E260TDCE, E260BDCE,
E320CE

Application of Council Directives: 98/37/EC, 89/336/EEC, 72/23/EEC

Harmonized standards complied with: EN 292, EN 60335-2-72, EN 55022,
EN 953, EN 60335-1:2002

SOUND		VIBRATION
77 dB Operator	74 dB At 3m	1.0 m/s ² At Operators Hand Grips

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

SIGNATURE:

DATE: 1/14/06

PRINTED NAME:

Jeffrey Pollack

TITLE:

Standards Engineer

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IMPORTANT SAFETY INSTRUCTIONS

Operators must read and understand this manual before operating or maintaining this machine. Do not operate this machine in areas containing flammable or explosive materials.

This machine is designed solely for scrubbing dirt and dust in an indoor environment. Minuteman does not recommend using this machine in any other capacity.

The following information below may cause a potential hazard to the operator and equipment. Read this manual carefully and be aware when these conditions can exist. Take necessary steps to locate all safety devices on the machine and train the personnel operating the machine. Report any machine damage or faulty operation immediately. **Do not use machine if it is not in proper operating condition.**

FOR SAFETY DURING OPERATION:

Keep hands and feet clear of moving parts while machine is in operation.

Make sure all safety devices are in place and operate properly. All covers, doors and latches must be closed and fastened before use.

During operation, attention should be paid to other persons in the work area.

Electric motors and components can cause an explosion when operated near explosive materials or vapor. Do not operate this machine near flammable materials such as solvents, thinners, fuels, grain dust, etc.

Store or park this machine on a level surface only, with the key switch in the off position. To prevent unauthorized use, machine should be stored with the key removed.

This machine is designed for level operation only. **Do not operate on ramps or inclines.**

This machine is not suitable for picking up hazardous dusts.

Use caution when moving this machine into areas that are below freezing temperatures. Any water in the tanks or hoses can cause damage to the machine.

FOR SAFETY WHEN SERVICING OR MAINTAINING MACHINE:

Stop on a level surface and turn off the machine.

Disconnect the power to the machine by unplugging the large, red terminal below the recovery tank when charging batteries or during installation or removal of brushes.

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.

Charging batteries generates explosive gasses. **Do not charge batteries when open flames or sparks are present. Do not smoke.** Make sure the charger is turned off before disconnecting it from the machine. Charge the batteries in a well-ventilated area with the battery cover removed completely.

Do not clean machine with a pressure washer.

Authorized personnel must perform repairs and maintenance. Use ONLY Minuteman supplied replacement parts.

SAVE THESE INSTRUCTIONS

ELECTRICAL REQUIREMENTS:

This piece of equipment operates on 24 VOLT DC.

BATTERY REQUIREMENTS:

4 x 6V, 275Ah batteries (Part Number 956740)

BATTERY SERVICE AND INSTALLATION

WARNING: 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.

BATTERY INSTALLATION:

1. Disconnect tank drain hose from rear of machine.
2. Raise the tank assembly by raising rear cover and tilting tank, Figure 1.
3. Install batteries as shown in Figure 2.

CHARGING BATTERIES:

Charging of batteries generates explosive gases. **DO NOT CHARGE BATTERIES WHEN OPEN FLAMES OR SPARKS ARE PRESENT. DO NOT SMOKE.** Make sure charger is turned off before disconnecting it from the batteries. Charge the batteries in well-ventilated area. Fluid levels should be checked before and after charging and maintained at the proper levels.

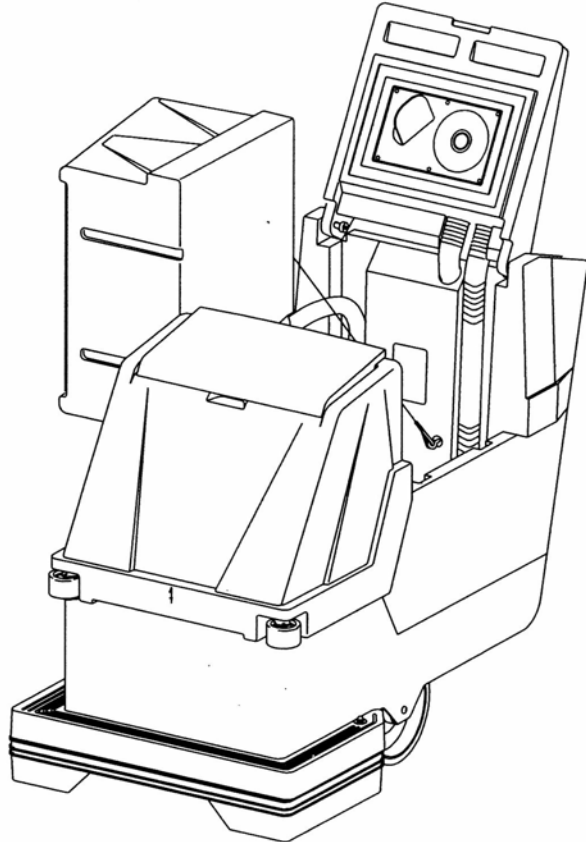


Figure 1

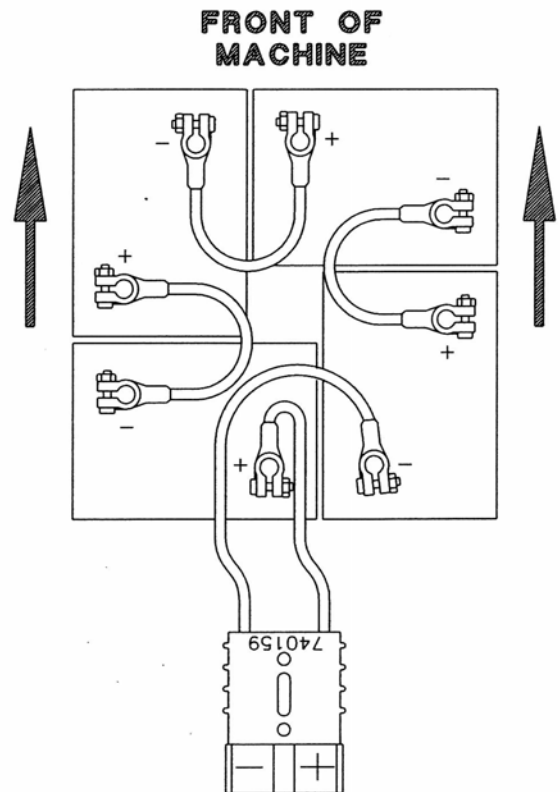
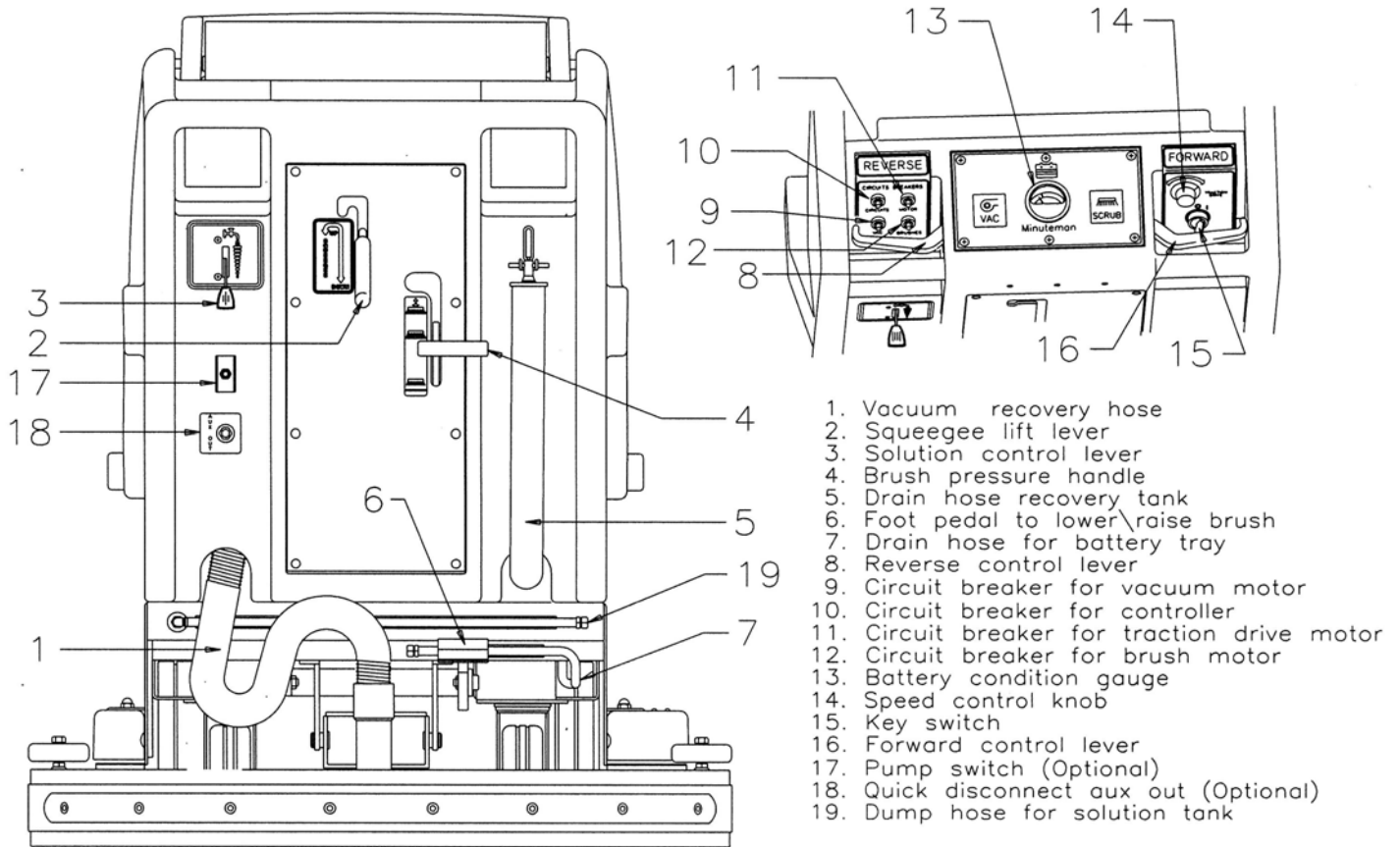


Figure 2

CONTROL PANEL IDENTIFICATION



AUTO SCRUBBER BRUSH DESCRIPTION

TYPE	DESCRIPTION	DURABILITY*	COLOR	COMPARISON TO PADS	RECOMMENDED USE
Nylon	Nylon	Medium	Black	Tan/Red	General cleaning & scrubbing vinyl floors, ceramic tile & concrete floors
Dyna-Scrub	Nylon impregnated with 500 Grit Silicon Carbide Fine Bristle, Dense Fill	Long	Light Blue	Red	General scrubbing, vinyl tile, ceramic tile, epoxy floors, urethane finish, uneven concrete floors
Power-Scrub	Nylon impregnated with 120 Grit Silicon Carbide Fine Bristle, Dense Fill	Long	Rust	Red/Blue	Moderate aggressive scrubbing, tile floors concrete floors
Poly-Grit	Nylon impregnated with 80 Grit Silicon Carbide Coarse Bristle	Long	Green	Brown/Black	Aggressive stripping and scrubbing, tile floors, unfinished concrete floors
Strata-Grit	Nylon impregnated with 46 Grit Silicon Carbide Coarse Bristle	Long	Dark Blue	Black	Heavy duty stripping/scrubbing unfinished concrete

* Durability is dependent on floor surface, chemicals used and proper care.

OPERATING INSTRUCTIONS

1. Filling: Fill the solution tank with the desired amount of water and add liquid cleaning solution to the proper dilution ratio. DO NOT USE powdered cleaning chemicals. Powders are unlikely to dissolve thoroughly, resulting in clogging the in-line solution filter. This can reduce or stop water flow to the brush.
2. Close lid.
3. Turn on main power key switch (refer to page 5, #15).
4. Adjust main speed control knob (#14) to full counter-clockwise position.
5. Lower brush assembly:
 - Depress foot pedal (#6) slightly and push in on lever (#4) to release. To increase brush pressure, pull up and back on lever (#4) to lock position.
 - To lift the brush, press the pedal down until lift mechanism engages.
 - Brushes will begin to rotate when forward (#16) or reverse (#8) levers are engaged.
6. Adjust solution control feed lever (#3).
8. Lower squeegee assembly with lever (#2). This will turn on the vacuum motor. The vacuum will remain on until the squeegee lever (#2) is raised. After this, the motor will continue to run for an additional 10 seconds to clear the recovery lines.

Turning off the power using the key switch will immediately shut down all systems, including vacuum motor, transaxle, and solution feed.

9. Squeeze forward handle (#16), and adjust forward speed using control knob (#14).

After Use:

1. Raise brushes with foot pedal (#6), brushes and solution flow will turn off .
2. Raise squeegee assembly; vacuum will shut off 10 seconds after raising.
3. Solution and recovery tanks should be emptied after every use. These tanks can be emptied using drain hoses (#5 & #19).

MAINTENANCE

Daily:

1. Clean float assembly & squeegee blades.
2. Recharge batteries (check battery acid levels before and after charging).

Monthly:

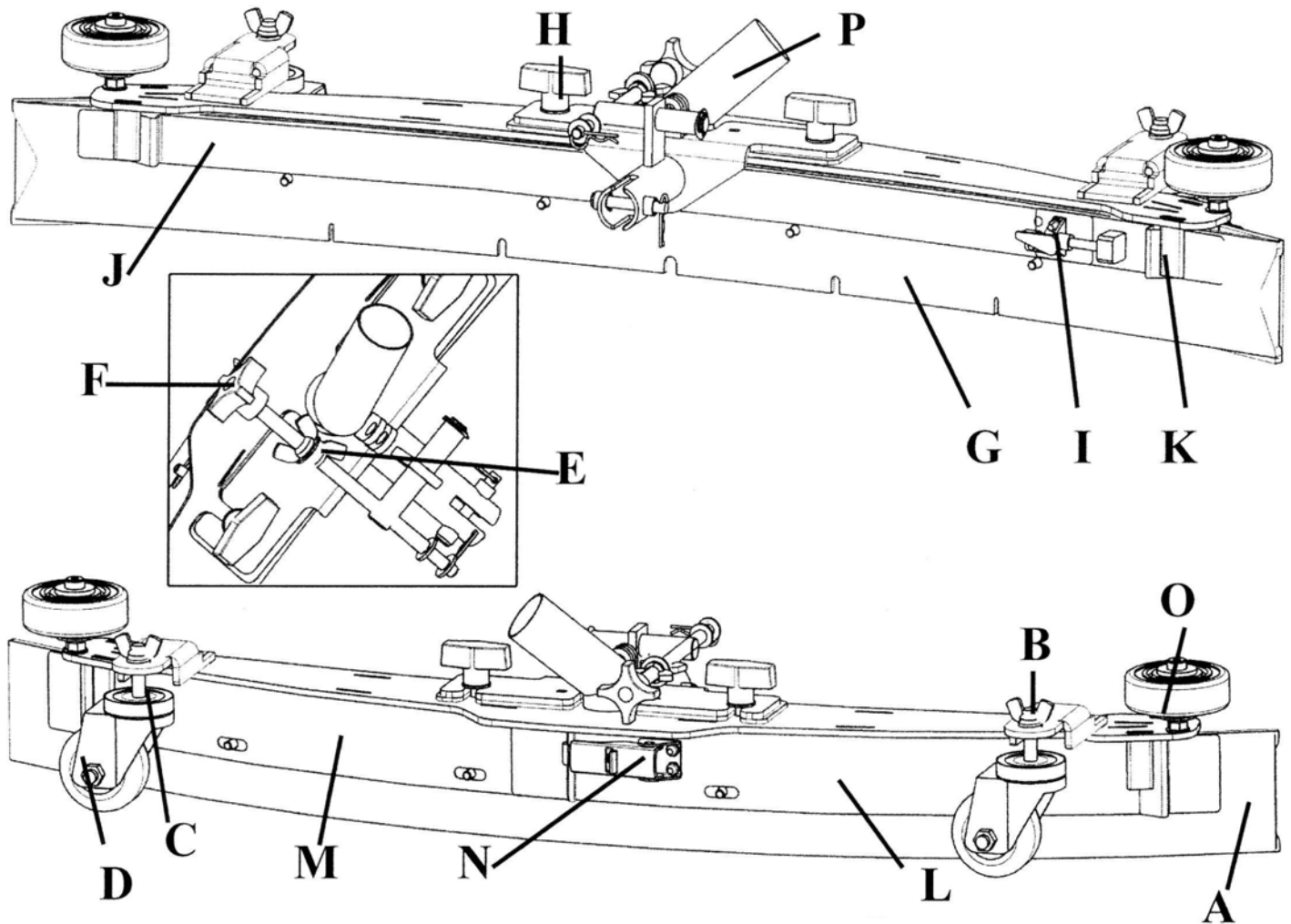
1. Check wear on squeegee blades.
2. Grease front and rear wheels.
3. Grease pivot points on the brush motor assembly.

Every 500 hours check the condition of carbon brushes on vacuum motor and brush drive motor.

REAR SQUEEGEE

The rear squeegee is the main element that acts as the conduit that transfers the spent solution into the recovery tank. A daily maintenance check of this component is essential to have optimum machine performance. The rear squeegee assembly is equipped with a universal front blade that allows the operator the option to use a slotted and a non-slotted side for specific applications. Each blade configuration has two usable edges. The rear blade however has four usable edges.

The squeegee is pre-adjusted at the factory. Adjustments may be required to get optimum performance for different floors and conditions.



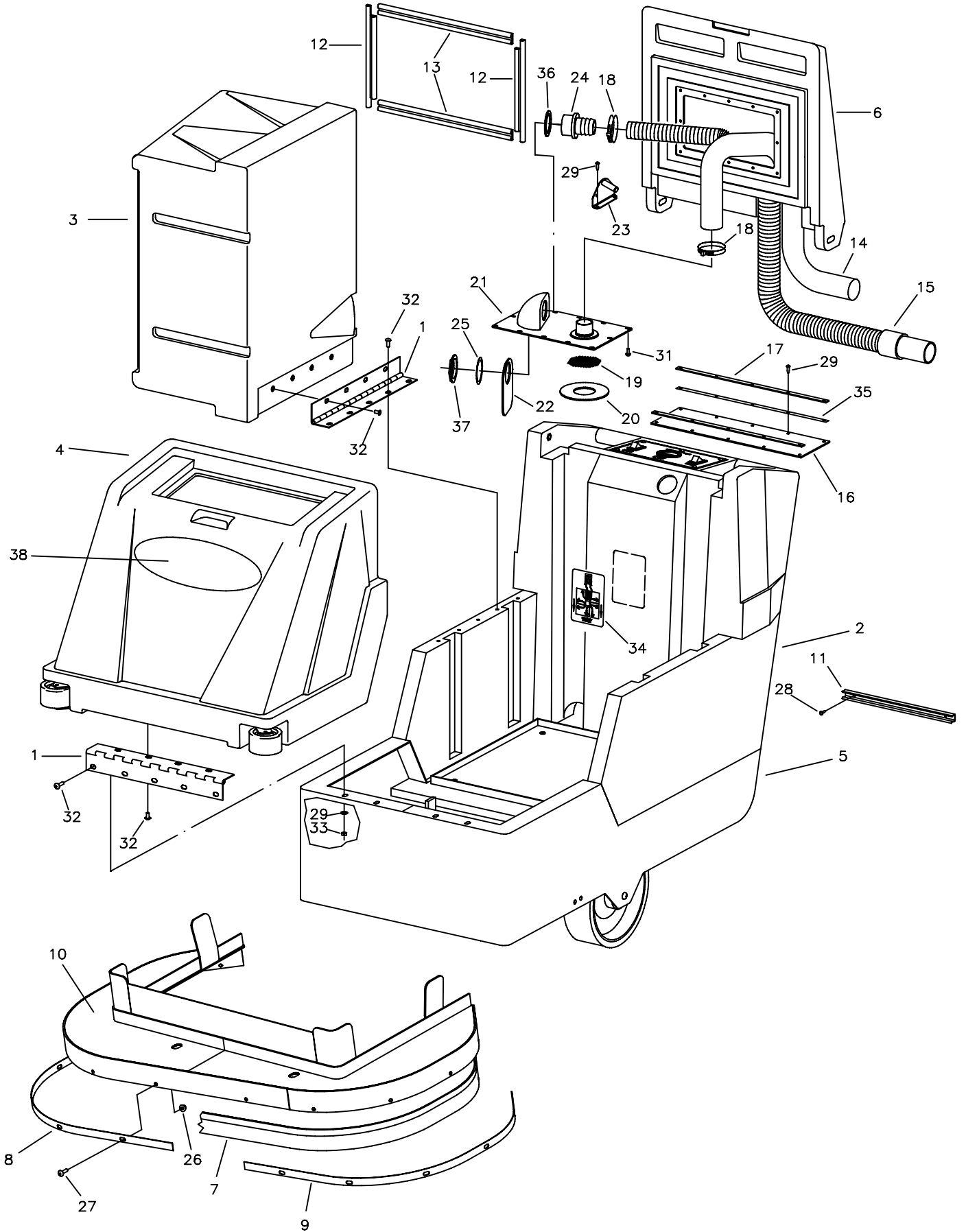
REAR SQUEEGEE COMPONENTS

A	Rear Squeegee Blade	I	Toggle Clamp
B	Wing Nut (2)	J	Front Strap (Long)
C	Caster Stem (2)	K	Front Strap (Short)
D	Swivel Caster (2)	L	Rear Strap (Latch Side)
E	Wing Jam Nut (2)	M	Rear Strap (Catch Side)
F	Turnbuckle Adjustment Knob	N	Latch
G	Front Squeegee Blade	O	Guide Wheel (2)
H	Wing Bolt (2)	P	Recovery Hose Intake

REAR SQUEEGEE ADJUSTMENT

1. Ensure that the scrubber is on a relatively flat surface. Turn on the key switch and lower the squeegee to the floor using the squeegee lift lever. This turns the vacuum motor on.
2. Move the scrubber one or two feet forward slowly while someone behind the machine checks the rear squeegee blade (item **A**) for uniform deflection to the floor.
3. If uneven deflection or lay is evident, minor adjustments may be necessary to avoid streaking and uneven wear on the blade.
4. To correct this, loosen the wing jam nut (item **B**) in order to adjust the caster height. If the squeegee blade is deflecting too much, the casters (item **D**) need to be lowered to control the down pressure. Lower the caster by turning the exposed threaded stem (item **C**) on the caster clockwise. Make the adjustment a few turns at a time. **Repeat step 2.**
5. If the blades are not deflecting enough, raise the caster by turning the stem counter-clockwise to adjust the caster height to allow more down pressure on the squeegee. **Repeat step 2.**
6. Make sure there is even deflection on the entire length of the rear blade. Adjust the casters and retighten the wing jam nuts to lock the caster setting in place.
7. Pitch adjustment is necessary if the outer ends on the squeegee blade do not contact the floor and there is too much deflection in the middle area or if the outer ends are over deflected and there is no contact in the middle.
8. To adjust the pitch, Repeat step 2.
9. Loosen the two wing jam nuts (item **E**) that lock the pitch angle. Turning the knob (item **F**) clockwise or counter-clockwise controls the forward and backward pitch of the squeegee. Having the rear blades deflected uniformly along its entire length is the desired set-up.
10. Repeat step 2 until desired set-up is achieved.
11. In certain applications where a non-slotted front wiper blade (item **G**) is needed, detach the rear squeegee assembly by loosening the two wing bolts (item **H**). Unlock the toggle clamp (item **I**) on the front squeegee to release the front long strap (item **J**) and slide the front short strap (item **K**). Flip the blade over to the non-slotted side. Reattach the straps and lock the clamp back in place.
12. You can also easily replace the rear blade by unlatching the latch (item **N**) and removing the two rear straps (items **L** & **M**) by sliding them off the assembly. You can then flip the blade over in order to use a new edge for better wiping action.

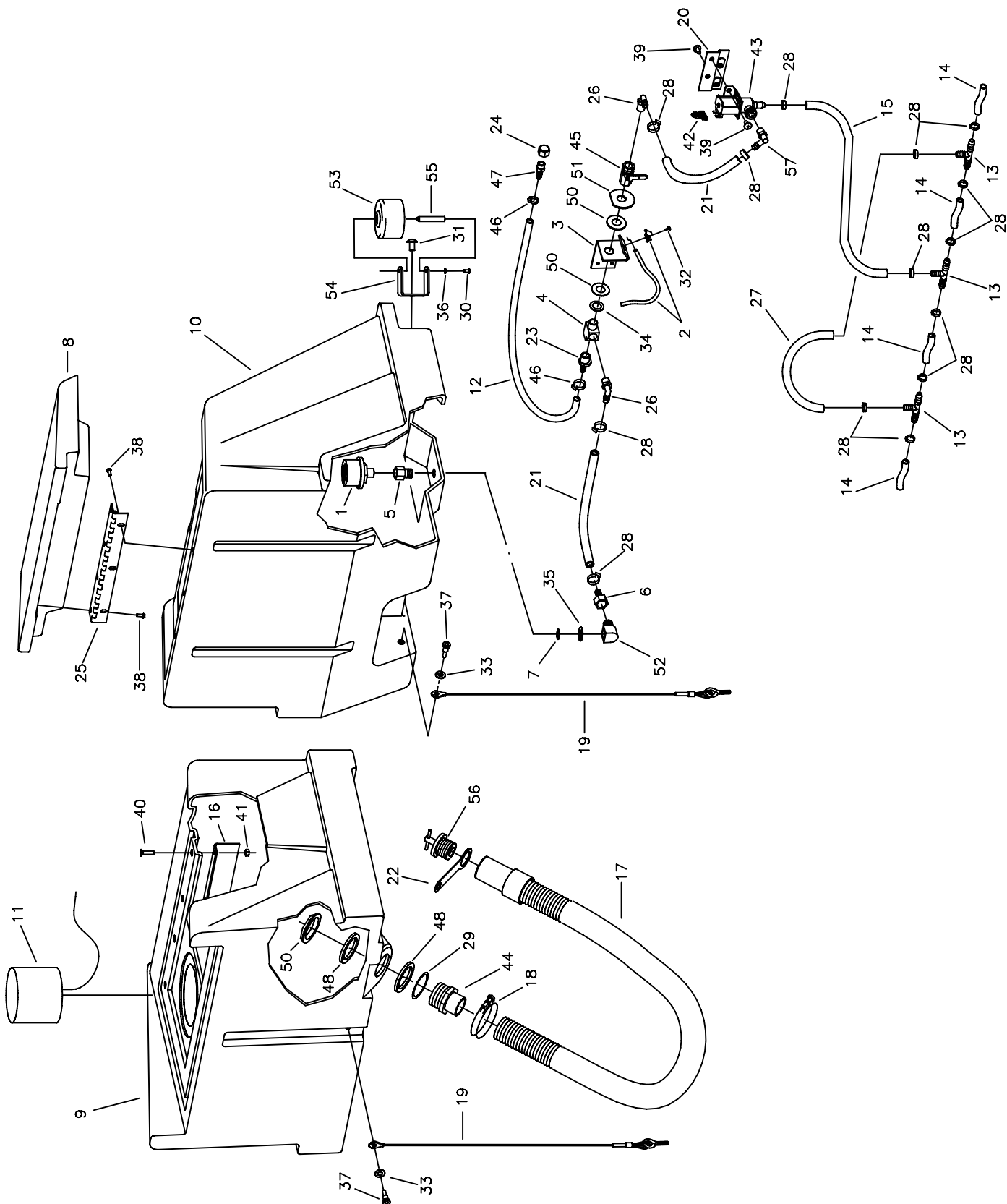
EXPLODED VIEWS MAIN ASSEMBLY



MAIN ASSEMBLY BOM

ITEM	PART NO.	REQ'D	DESCRIPTION
1	260087	2	HINGE-15"
2	260090	1	REAR BASE CHAR GREY
3	260091B	1	RECOVERY TANK, ES260320 BURGUNDY
4	260092B	1	SOLUTION TANK, ES260320 BURGUNDY
5	260360	1	MAINFRAME MMAN 260 TD
6	260096B	1	LID RECOVERY 260 BURGUNDY
7	260620	1	SKIRT, BRUSH, ES320
8	260662	1	BKT, SKIRT RETAINER RH, ES320
9	260662-1	1	BKT, SKIRT RETAINER LH, ES320
10	260635	1	DECK TOP ASSY, ES320
11	260149	1	U CHANNEL 12"
12	260157	2	LID GSKT SHORT 260B
13	260158	2	LID GSKT 260B
14	260159	1	HOSE-VAC 1.5 X 78" WIRELOC
15	260160	1	RECOVER HOSE ASY260B
16	260169	1	LID FLAP
17	260170	2	RETAINER STRIP
18	260203	2	CLAMP-HOSE 102120 MURRAY
19	260212	1	SCREEN FILTER
20	260294	1	GASKET 260
21	260299	1	SHUT OFF PLATE ASY
22	260301	1	DEFLECTOR FLAP
23	260664	2	REC LID MOUNT WMT, ES260320
24	450037	1	ADAPTER MCH
25	450081	1	WSR 1.908 X 2.41 X .03 SS
26	711425	11	NUT-FLANGED WIZZ 1/4-20 STL ZP
27	712534	9	SCR-MC 10-24 X .50 SS
28	712536	3	SCR-MC 10-24 X .62 SS
29	711161	10	SCR-HI/LO #10 X 3/4 ZINC
30	711505	4	WSR-FLT 1/4
31	712540	12	SCR-MC 10-24 X .37 SS TH
32	712565	17	SCR-MC 1/4-20 X .62 SS
33	712667	4	NUT-HEX NYLOC 1/4-20 SS
34	715607	1	DECAL-BATTERY CABLE ROUT
35	760263	2	FOAM TAPE 1/16 X 1/2
36	828970	1	WSR NEOP 1.87X2.4X.125
37	828971	1	NUT 1 1/2 PIPE THREAD
38	715841	1	DECAL, ES260320

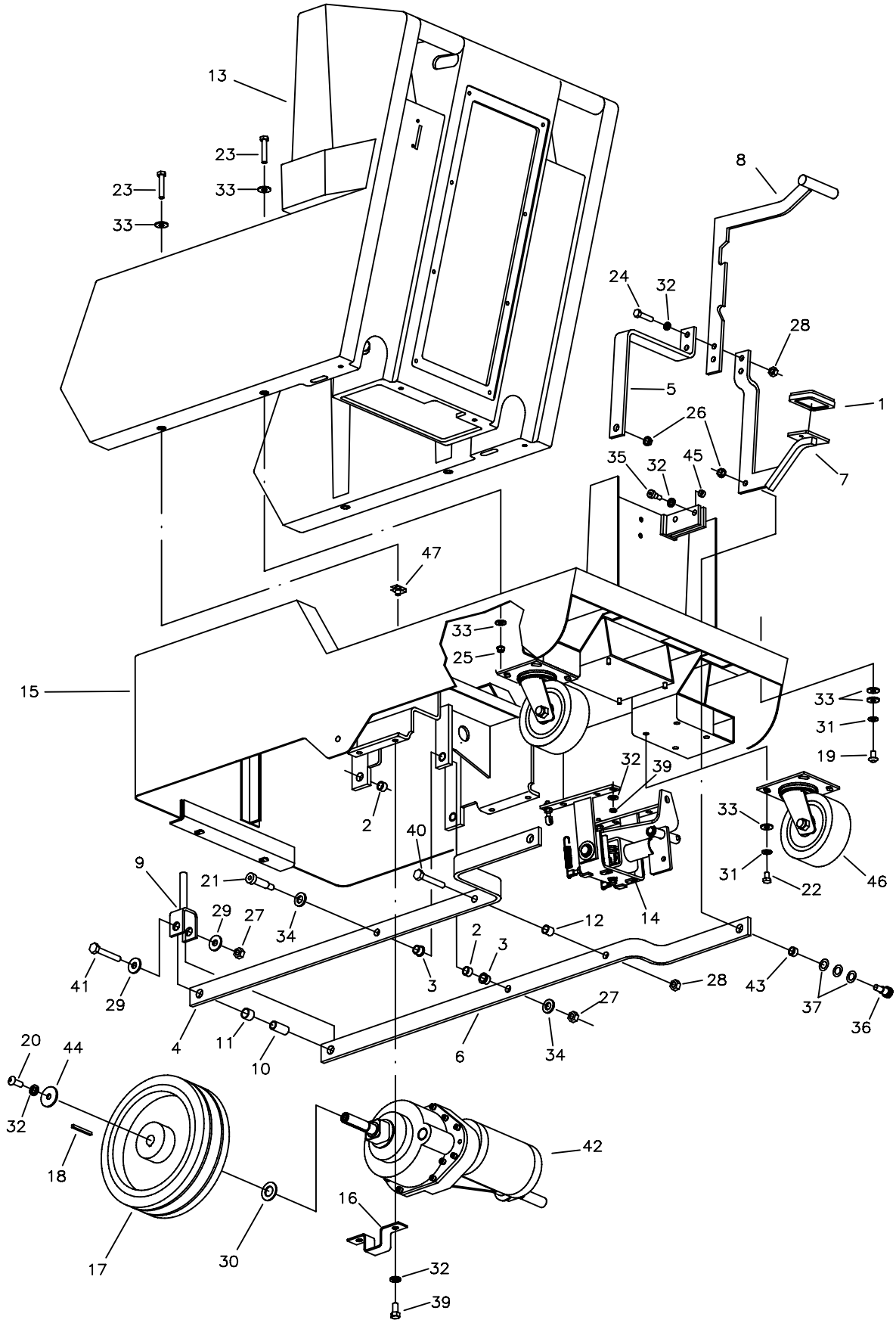
SOLUTION AND RECOVERY TANK



SOLUTION & RECOVERY TANK BOM

ITEM	PART NO.	REQ'D	DESCRIPTION
1	130118	1	STRAINER-SOLUTION M3-40
2	210045	1	CABLE-SOLUTION CONTROL
3	210370	1	SOLUTION VALVE BRACKET
4	210408	1	FITTING BRASS TEE 3/8MPT&FPT
5	210409	1	FITTING BRASS 3/8MPT 3/8FPT
6	210410	1	FITTING BRASS 3/8FPT 3/8HOSE
7	210414	1	O RING 2-113
8	260029B	1	LID SOLUTION BURGUNDY
9	260091B	1	RECOVERY TANK, ES260320 BURGUNDY
10	260092B	1	SOLUTION TANK, ES260320 BURGUNDY
11	260156	1	FLOAT ASSEMBLY
12	260670	1	TUBING, PLASTIC 3/8 ID X 70"
13	260178	3	FITTING NYLON T 3/8HOSE
14	260179	4	HOSE-NYLOBRAID 3/8 X 2.38
15	260182	1	SOLUTION HOSE C/L 18"
16	260184	1	SUPPORT ANGLE
17	260202	1	HOSE ASY 260B NEW STYLE
18	260203	1	CLAMP-HOSE 102120 MURRAY
19	260214	2	TANK CABLE ASY 260
20	260669	1	BRACKET, SOLENOID ES320
21	281637	2	HOSE-WIRE REINF 3/8 X 11"
22	320269	1	STRAP, DRAIN PLUG RETAINING
23	342430	1	FITTING BRASS 3/8MPT 3/8HOSE
24	430114	1	FITTING NYLON CAP 1/4FPT
25	450021	1	HINGE
26	450040	2	ELBOW PLT 3/8MPTX3/8BARB
27	450055	1	HOSE NYLO 3/8ID X 9"
28	450076	12	CLAMP-CRIMP 185R SS
29	450081	1	WSR 1.908 X 2.41 X .03 SS
30	710353	2	SCR-MC 10-32 X .37 ZINC
31	710985	2	SC 3/8-16 X .62
32	711124	1	SCR-ST-B 10 X .37 NI
33	711506	2	WSR-FLT 5/16 (NARROW) ST PL
34	711512	1	WSR-FLT .75 X 1.37 X .08
35	711513	1	WSR-FLT .689 X 1.06 X .029 SS
36	711553	2	WSR-INT LOCK #10
37	712041	2	BLT-SHOULDER 1/4-20 X .44 X .3
38	712540	7	SCR-MC 10-24 X .37 SS TH
39	712560	4	SCR-MC 1/4-20 X .50 SS NYL
40	712563	4	SCR-MC 1/4-20 X 1.00 SS
41	712667	4	NUT-HEX NYLOC 1/4-20 SS
42	740482	1	DIODE ASY
43	740493	1	WATER VALVE 24VDC
44	760220MCH	1	1.5 ADAPTER MCH
45	809413MCH	1	SOLUTION VALVE
46	828490	2	CLAMP-CRIMP 140R
47	828952	1	FITTING PP 1/4MPT 3/8BARB
48	828970	2	WSR NEOP 1.87X2.4X.125
49	828971	1	NUT 1 1/2 PIPE THREAD
50	828975	1	WSR NEOP .75X1.5X.09
51	829463	1	S S WASHER
52	830062	1	FITTING BRASS 90 3/8MPT 3/8FPT
53	832896	2	GUIDE WHEEL
54	832949	2	BRACKET BUMPER
55	833254	2	BUMPER WHEEL AXLE
56	833316	1	DRAIN PLUG
57	833325	1	FITTING NYLON 90 1/4MPT X 3/8HOSE

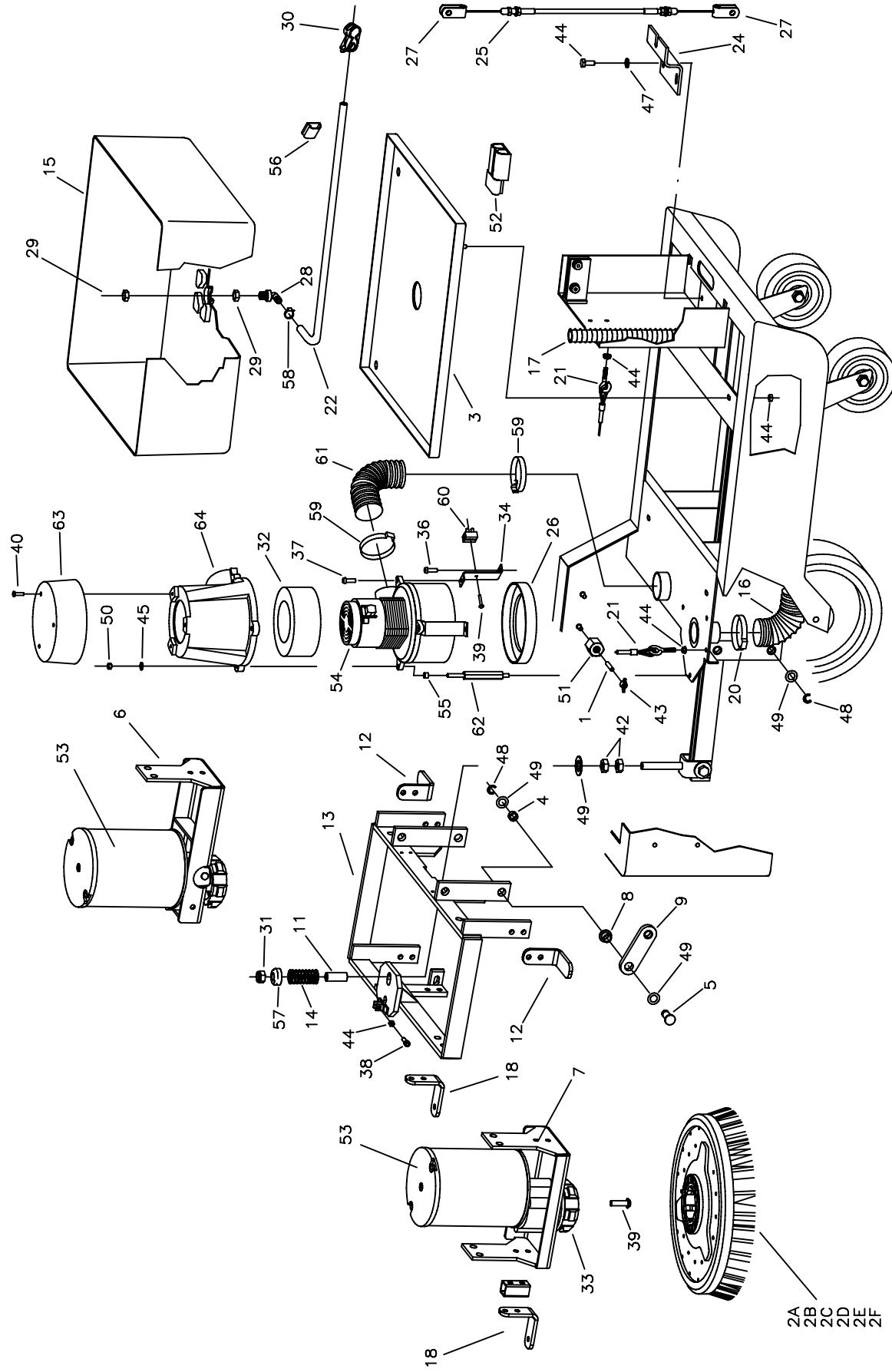
MAINFRAME ASSEMBLY



MAINFRAME ASSEMBLY BOM

PARTS LIST			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	210142	1	PEDAL PAD
2	260030	5	BUSHING-.5015 X .628 X .375 OI
3	260041	2	BUSHING-FLG .502 X .750 X .375
4	260043	1	LIFT ARM, LEFT SIDE
5	260046	1	PEDAL BRACE
6	260044	1	LIFT ARM, RIGHT SIDE
7	260054	1	PEDAL WELDMENT
8	260055PTD	1	LIFT HANDLE WELDMENT
9	260075	1	YOKE WELDMENT
10	260125	1	BUSHING-YOKE .407 X 1.687 STL
11	260128	1	SPACER-YOKE
12	260141	1	SPACER-LIFT ARM
13	260256	1	BASE 260TD CHAR GREY
14	260660	1	SQUEEGEE LIFT ASSY, ES260320
15	260360	1	MAINFRAME MMAN 260 TD
16	260366	2	TRANSAXLE BRACKET 260TD
17	260370	2	WHEEL 10 X 2.75 X.75 BORE
18	260371	2	KEY 3/16 X 3/16 X 2.00
19	710196	4	SCR-MC 5/16-18 X .62
20	710986	2	SC 3/8-16 X 1 ZINC
21	710992	1	BLT-SHOULDER 1/2 X 1.25 X 3/8
22	711228	8	BLT-HH 5/16-18 X .75 STL ZINC
23	711232	4	BLT-HH 5/16-18 X 1.50
24	711250	2	BLT-HH 3/8-16 X 1.25 STL ZINC
25	711374	2	NUT-NYLOC 5/16-18
26	711375	2	NUT-NYLOC 3/8-16 1/2NUT
27	711380	2	NUT-NYLOC 3/8-16
28	711439	3	NUT-FLANGED WIZZ 3/8-16
29	711507	2	WSR-FLT .37 X 1.12 X .06
30	711512	2	WSR-FLT .75 X 1.37 X .08
31	711545	16	WSR-HELICAL 5/16
32	711546	10	WSR-HELICAL 3/8
33	711575	22	WSR-FLT .31 X .75 X .06 STL
34	711579	2	WSR-FLT .56 X 1.00
35	712081	2	BLT-SHOULDER 5/16-18 X .75 X .
36	712099PLT	2	BLT-SHOULDER 1/2 X 1/2
37	712310	6	WSR-FLT .52 X .87 X .06 PL
38	712680	4	NUT-HEX 5/16-18 SS
39	713042	4	BLT-HH 3/8-16 X 1.00 #5
40	713045	1	BLT-HH 3/8-16 X 1.75 #5
41	713048	1	BLT-HH 3/8-16 X 2.50 #5
42	744160	1	TRANSAXLE-13" 24V
43	762340	2	BUSHING-.502 X .625 X .270 STL
44	809226	2	WSR-FLT .40 X 1.50 X .12
45	809247	2	SPACER-.442 X .50 X .312
46	827110	2	CASTER 5 INCH
47	832829	2	NUT-U TYPE 5/16 X 18
48	710493	2	SCR-MC 4-40 X .75 PAN HD
49	711596	2	WSR-INT LOCK #4
50	711428	2	NUT-HEX 4-40
51	747603-1	1	SWITCH, MICRO 1.34" ROLLER ARM

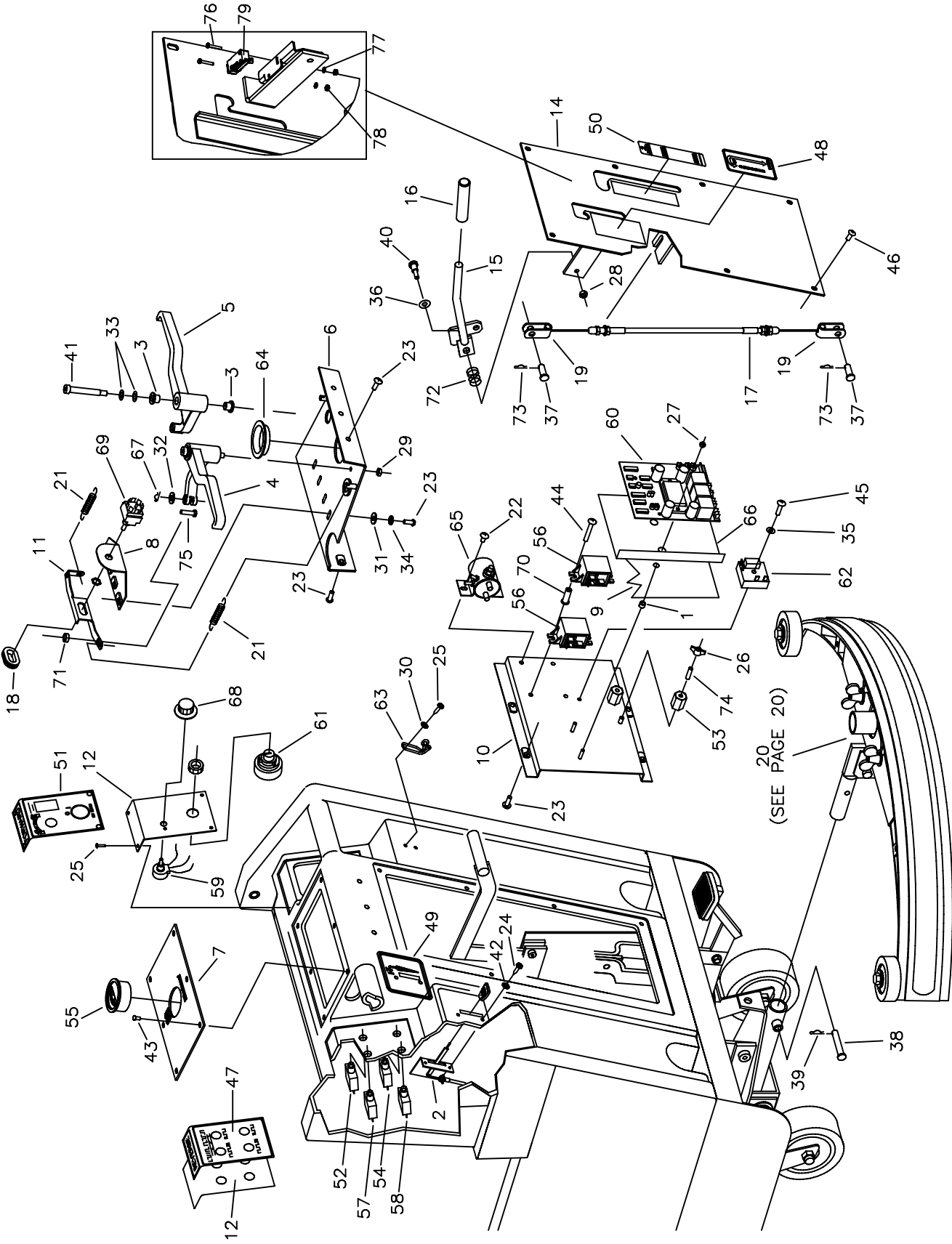
LINKAGE ASSEMBLY



LINKAGE ASSEMBLY BOM

ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	833638	2	BRASS STUD	31	364-816	1	NUT-NYLOC 1/2-13 HALF
2A	430108	2	PAD DRVR-17B/E 32B	32	380064	1	RING, FOAM
2B	430034	2	BRUSH-17B/E 32B NYL	33	3312402	2	HUB-SCRUB BRUSH DRIVE
2C	430137	2	BRUSH-SCRUB DYNA 170,32B	34	450038-H	2	Z BKT 5.7 VDE ZINC
2D	430144	2	BRUSH-SCRUB POWER 170,32	36	710180	2	SCR-MC 1/4-20 X .75 ZINC
2E	430111	2	BRUSH-POLY GRIT 17B/E 32	37	710129	2	SCR-MC 8-32 X .50 ZINC
2F	430132	2	BRUSH-STRATAGRIT 17B/B32	38	710823	2	SC 1/4-20 X .50 NYL
3	260009	1	BATTERY TRAY 14GA	39	710986	8	SC 3/8-16 X 1 ZINC
4	260030	4	BUSHING-.5015 X .628 X .375 OI	40	711160	3	SCR-HI/LO #10 X 5/8 ZINC
5	260036	8	PIN, RETAINER	41	711228	2	BLT-HH 5/16-18 X .75 STL ZINC
6	260640	1	MOTOR MOUNT WMT, RIGHT, ES320	42	711334	2	NUT-HEX 1/2-13 ST PL
7	260641	1	MOTOR MOUNT WMT, LEFT, ES320	43	711368	2	NUT-WING NYLOC 1/4-20 PL
8	260041	8	BUSHING-FLG .502 X .750 X .375	44	711425	8	NUT-FLANGED WIZZ 1/4-20
9	260049	4	LINKAGE BAR .312GA	45	711510	2	WSR-FLT .50 X 1.37 X .10
10				46	711517	2	WSR-FLT .77 X 1.37 X .03
11	260068	1	SPACER-SPRG	47	711545	2	WSR-HELICAL 5/16
12	260673	2	DECK COVER SIDE SUPPORT WMT	48	711713	10	RET RING-E EXT .50
13	260645	1	MOTOR FRAME WMT, ES320	49	712310	20	WSR-FLT .52 X .87 X .06 PL
14	260137	1	SPRING-COMP .960 X 2.00 ZINC	50	712667	1	NUT-HEX NYLOC 1/4-20 SS
15	260150	1	BATTERY LINER	51	740132	2	INSULATOR (GLASTIC)
16	260159	1	HOSE-VAC 1.5 X 78" WIRELOC	52	740159	1	CIRCUIT BRKR-175 RED HOUSING
17	210466	1	CABLE CONDUIT	53	740209	2	GEARMOTOR 24V 17B
18	260667	2	DECK COVER MOUNT BKT WITH PIN	54	740225	1	VAC MTR 6515-13 24V
20	260203	1	CLAMP-HOSE 102120 MURRAY	55	762073	1	BUSHING-.259 X .375 X .265
21	260214	2	TNK CABLE ASY 260	56	809444	1	CLIP-CORD
22	260224	1	DRAIN HOSE 1/4 X 18 SILICONE	57	828264	1	WASHER CUP
24	260315	1	LIFT CABLE BRACKET	58	828490	1	CLAMP-CRIMP 140R
25	260337	1	CABLE-SQUEEGEE	59	829067	2	CLAMP-CRIMP 560R
26	290017	1	MOLDED VAC MOTOR GASKET	60	832996	1	TERMINAL BLOCK 2POLE VDE
27	320248	2	PIN-CLEVIS, SLOTTED	61	833191	1	HOSE RUBBER FLEX 2X9
28	320271	1	FITTING PP 90 3/8MPT 3/8HOSE	62	833265PLT	1	THREADED SPACER PLT ZINC
29	320272	2	NOZZLE BODY LOCKNUT	63	840011	1	VAC MOTOR COVER TOP
30	320273	1	CLAMP-HOSE SHUT-OFF	64	840012	1	VAC MOTOR COVER BOTTOM

CONTROL PANELS

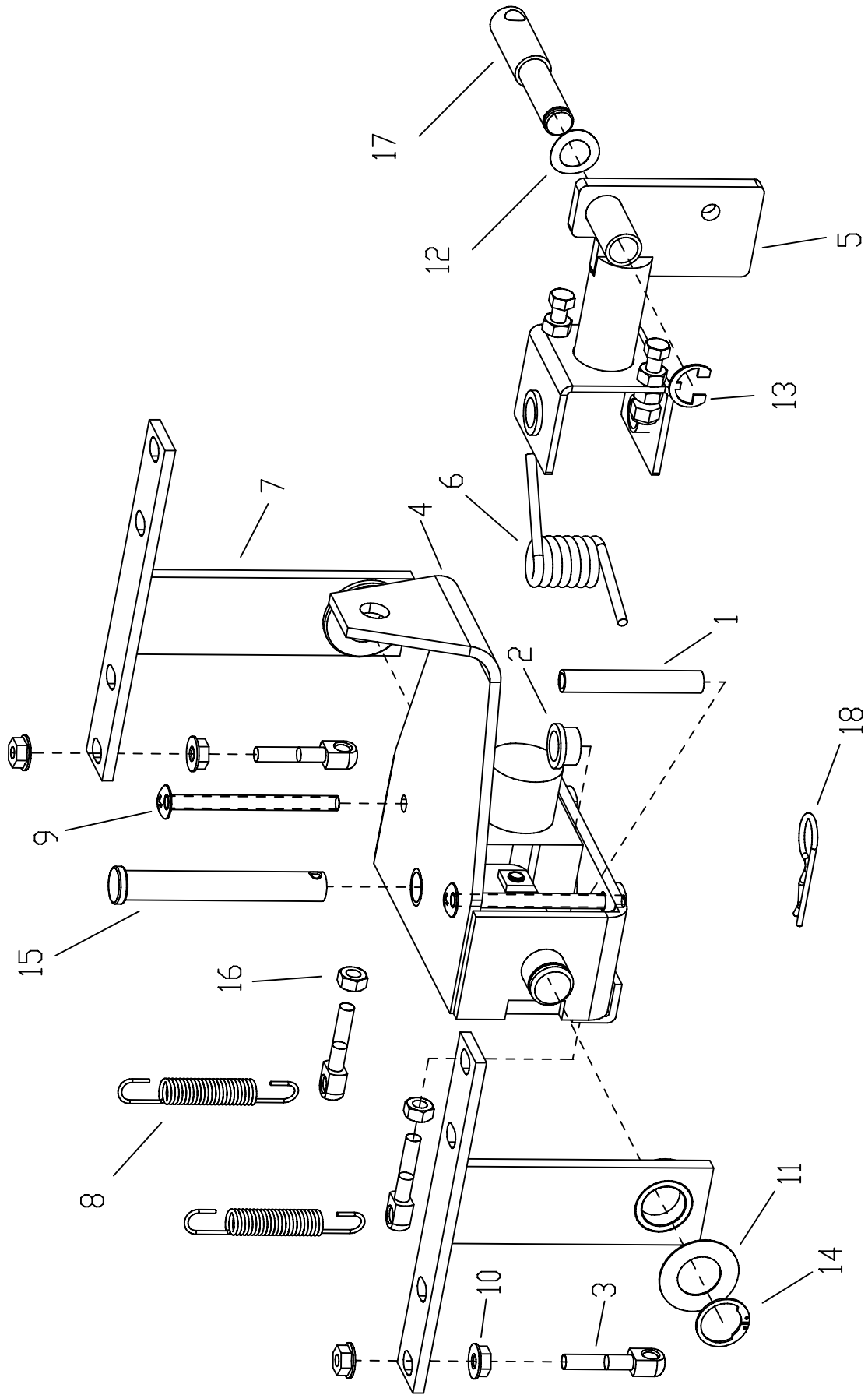


CONTROL PANEL BOM

PARTS LIST

ITEM	PART NO.	REQ'D	DESCRIPTION	ITEM	PART NO.	REQ'D	DESCRIPTION
1	200340	2	SPACER-SCR BOARD	41	712100	2	BLT-SHOULDER 3/8 X 2.25
2	210045	1	CABLE-SOLUTION CONTROL	42	712320	2	WSR .22 X .45 X .04 NYL
3	260066	4	BUSHING-FLG .377 X .687 X .406	43	712540	6	SCR-MC 10-24 X .37 SS TH
4	260069MCH	1	LEFT HANDLE MACHINED	44	712570	2	SCR-MC 1/4-20 X 1.75 SS
5	260070MCH	1	RIGHT HANDLE MACHINED	45	712814	1	SCR-MC 10-24 X .87 ZINC
6	260099	1	CONTROL LEVER MOUNTING BRACKET	46	712822	8	SCR-MC TR HD 10-24 X .50 SS
7	260084	1	DASHBOARD	47	715602-1	1	DECAL, REVERSE ES260320
8	260198	1	SWITCH BRACKET 260TD	48	715603	1	DECAL-SQUEEGEE LIFT 260
9	260210	1	MOISTURE GUARD SCR 260TD	49	715604	1	DECAL-SOLUTION 260
10	260253	1	ELECTRICAL PANEL	50	715605	1	DECAL-BRUSH POSITION
11	260254	1	SWITCH ACTUATOR 260TD	51	715608CE	1	DECAL-FORWARD TD CE
12	260255	1	SPEED CONTROL BRACKET 260TD	52	740238	1	CIRCUIT BREAKER-18AMP PUSH BUTTON
13	260658	1	BKT, CIRCUIT BREAKER PANEL, ES320	53	740132	2	INSULATOR (GLASTIC)
14	260284	1	REAR PANEL ASY 260TD	54	740247	1	CIRCUIT BREAKER-30AMP PUSH BUTTON
15	260286	1	SQUEEGEE HANDLE WELDMENT	55	740216	1	GUAGE BATTERY COND
16	260291	1	HANDLE GRIP 260TD	56	740241	2	CONTACT-24V 50AMP
17	260337	1	CABLE-SQUEEGEE	57	746006	1	CIRCUIT BRKR-3AMP PUSH BUTTON
18	260274	1	GROMMET Z-421	58	742266	1	CIRCUIT BREAKER-60AMP PUSH BUTTON
19	320248	2	CLEVIS, SLOTTED	59	740804	1	POTENTIOMETER ASSY.
20	281579	1	SCV SQUEEGEE BLADE ASSY 32"	60	740944-1	1	SPD CONT 24V 1203A225
21	430051	2	SPRING-RETURN .313 X .438 X 2.	61	747024	1	KEY SWITCH, SPST SOLDER LEADS
22	710178	4	SCR-MC TR HD 1/4-20 X .50 ZINC	62	741640	1	RELAY-TRUE OFF 24V 10SEC
23	710180	15	SCR-MC 1/4-20 X .75 ZINC	63	760286	1	WIRE FORMED HOOK
24	711125	2	SCR-ST-B 10 X .50 NI	64	762400	1	BUSHING-HEYCO 1-5/8 X 2-1/8 X
25	711161	6	SCR-HI/LO #10 X 3/4 ZINC	65	788147	1	SOLENOID-24VDC
26	711368	2	NUT-WING NYLOC 1/4-20 PL	66	805637	1	SCR INSULATOR
27	711372	2	NUT-NYLOC 8-32	67	809311	2	PIN-COTTER 7/64 X 1
28	711373	1	NUT-NYLOC 1/4-20	68	809874	1	KNOB SPEED CONTROL
29	711420	2	NUT-HEX JAM 5/16-18 STPL	69	827060	1	SWITCH-DRIVE
30	711503	2	WSR-FLT #10	70	828935	2	SPACER
31	711505	4	WSR-FLT 1/4	71	832015	2	SPACER-.38 X .5 X .14
32	711506	2	WSR-FLT 5/16 (NARROW) ST PL	72	833102	1	SPRING-KNOB .60 X .73 X 1.75 Z
33	711523	4	WSR-WAVE .37 X .68 X .08	73	833374	2	PIN-HAIRPIN COTTER 3/8
34	711544	4	WSR-HELICAL 1/4	74	833638	2	BRASS STUD
35	711553	1	WSR-INT LOCK #10	75	881002	2	PIN-CLEVIS 11-083 ZINC
36	711575	1	WSR-FLT .31 X .75 X .06 STL	76	710493	2	SCR-MC 4-40 X .75 PAN HD
37	711668	2	PIN-CLEVIS 3/8 X 1 11-141	77	711596	2	WSR-INT LOCK #4
38	711671	1	PIN-CLEVIS .31 X 2.13 11-10	78	711428	2	NUT-HEX 4-40
39	711808	1	PIN-HAIRPIN COTTER #13	79	747603-1	1	SWITCH, MICRO 1.34" ROLLER ARM
40	712070	1	BLT-SHOULDER 5/16 X 3/4 X 1/4-				

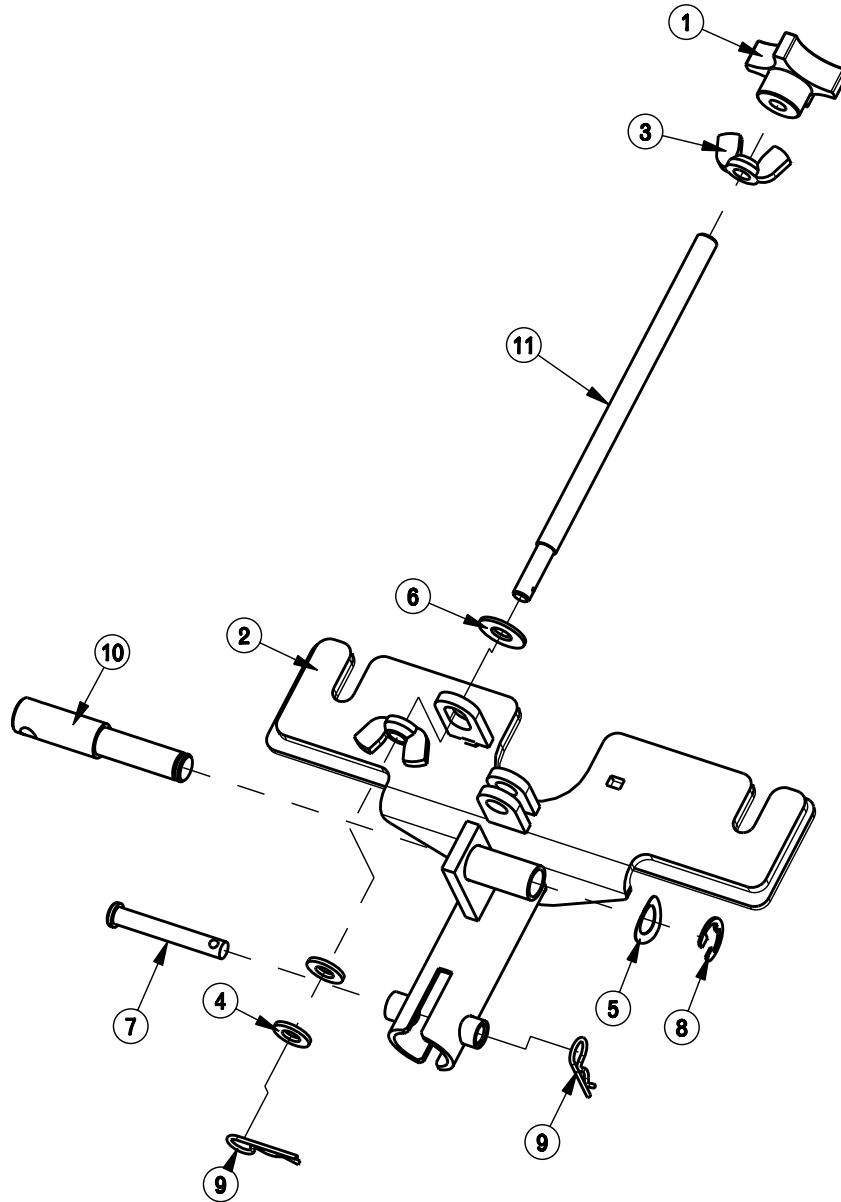
SQUEEGEE LIFT MECHANISM ASSEMBLY (P.N. 260660)



SQUEEGEE LIFT MECHANISM ASSEMBLY BOM

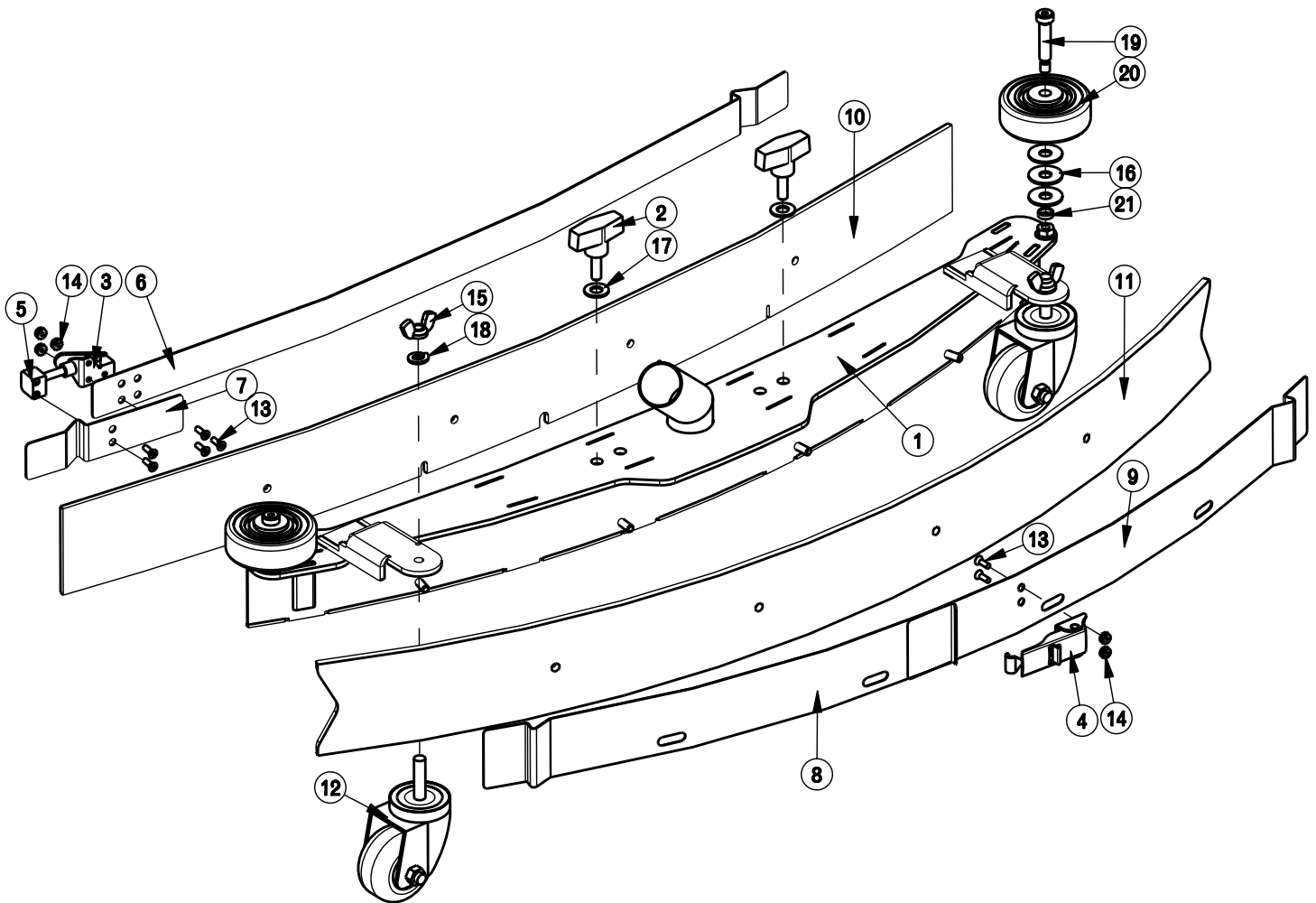
PARTS LIST			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	210400	2	SPACER-TUBE
2	260041	2	BUSHING-FLG .502 X .627 X .375
3	260292	4	BLT-SWING ZINC PLATED
4	260314	1	WELD-HOUSING SPRING
5	260659-1	1	SQUEEGEE OKE SUB-ASSY ES260/320
6	260681	1	TORSION SPRING
7	320008	2	PIVOT BRACKET ASSEMBLY
8	430051	2	SPRING-RETURN .313 X .438 X 2.93 SS
9	710592	2	SCR-MC TH 1/4-20 X 3.00 SS
10	711425	4	NUT-FLANGED WIZZ 1/4-20 STL ZP
11	711517	2	WSR-FLT .77 X 1.37 X .03
12	711524	1	WSR-WAVE .52 X .87 X .01
13	711713	1	RET RING-E EXT .50
14	711715	2	RET RING-EXT .75
15	712098	1	PIN - CLEVIS 1/2 X 3.5
16	712665	2	NUT-HEX 1/4-20 SS
17	762004	1	PIN, ADJUSTING
18	833374	1	PIN - HAIRPIN COTTER 3/8

SQUEEGEE ADJUSTMENT MECHANISM ASSEMBLY (P.N. 241730-1)



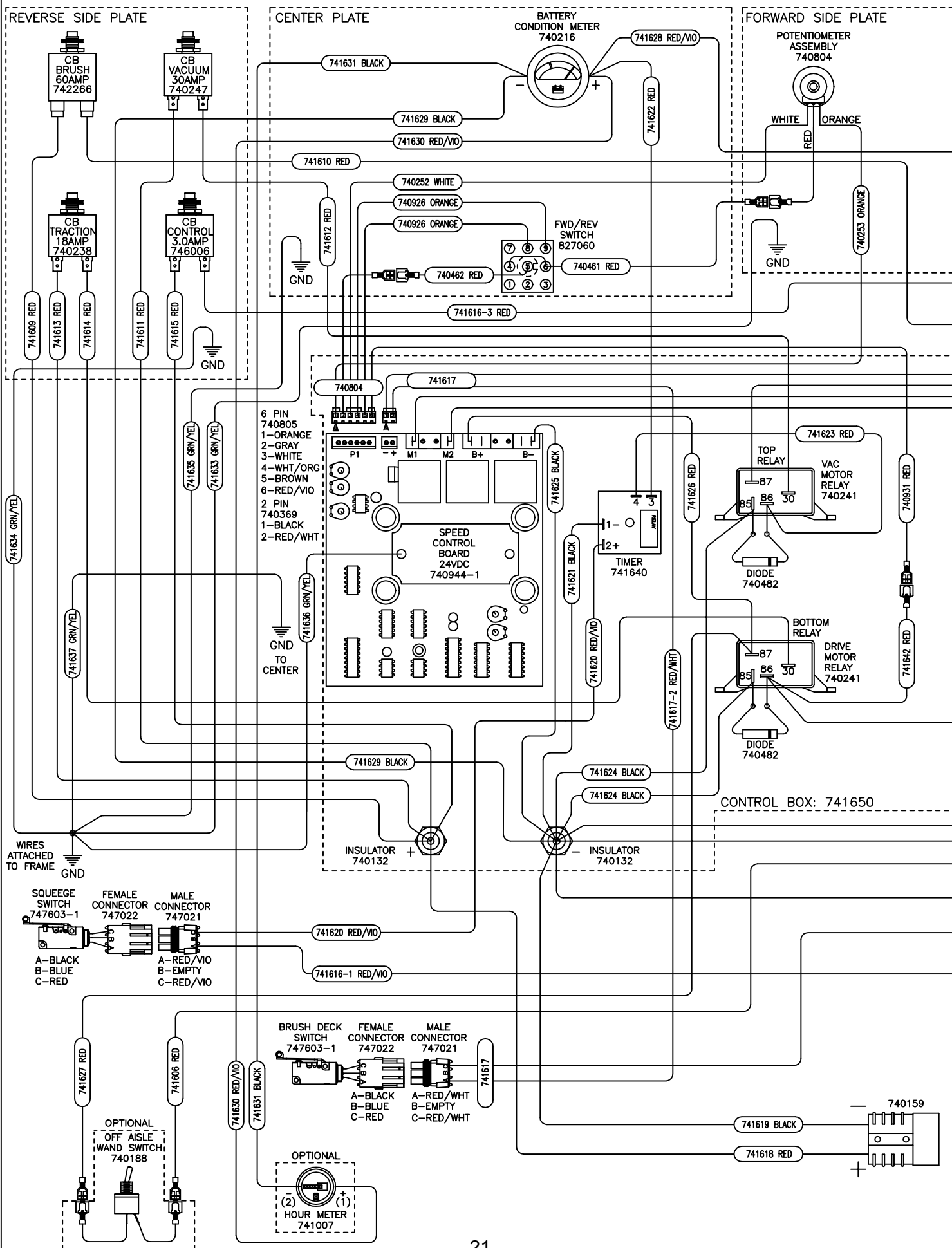
BILL OF MATERIAL			
ITEM	PART NO.	REQ'D	DESCRIPTION
1	241057	1	KNOB, 3/8-16 X 1-3/4 FOUR PRONG.
2	241751-1	1	REAR SQUEEGEE MOUNT PLATE WMNT, SCV 24/26
3	711367	2	NUT- WING 3/8-16 ST PL
4	711506	2	WSR-FLT .344 X .690 X .062 STL ZINC
5	711524	1	WSR-WAVE .52 X .87 X .01
6	711569	1	WSR-FLT .390 X .880 X .062 NYL
7	711671	1	CLEVIS PIN .31X2.13 11-10
8	711713	1	RETAINING RING - "E" TYPE EXT .500
9	711808	2	COTTER PIN-HAIR #13
10	762005	1	ADJUSTING PIN, THREADED
11	762006	1	THREADED ROD, 3/8-16 X 7.5" LG

SQUEEGEE BLADE ASSEMBLY P.N. 281579)



BILL OF MATERIAL

ITEM	PART NO.	REQ'D	DESCRIPTION
1	241743	1	SQUEEGEE WMT ASSY, 32"
2	241745	2	WING BOLT 3/8-16 X 1.00
3	281074	1	SQUEEGEE TOGGLE CLAMP, 2800
4	281075	1	SQUEEGEE LATCH, 2800
5	281740	1	STOP BAR
6	281781	1	STRAP - FRONT CLAMP, 32"
7	281782	1	STRAP - FRONT STOP, 32"
8	281783	1	STRAP - REAR CATCH, 32"
9	281784	1	STRAP - REAR LATCH, 32"
10	281785	1	FRONT BLADE, SQUEEGEE GUM RUBBER, 32"
11	281786	1	REAR BLADE, SQUEEGEE GUM RUBBER, 32"
12	430325	2	CASTER 3/8"-16 X 1.50"
13	710530	7	SCR-MC FL HD 8-32 X .50 BRS
14	711026	5	NUT, HEX 8-32 NYLOC SS
15	711367	2	NUT - WING 3/8-16 ST PL
16	711507	6	WSR-FLAT .37 X 1.12 X .06
17	711515	2	WSR-FLAT .406 X .812 X .0625
18	711546	2	WSR-HELICAL 3/8
19	712091	2	SHOULDER BLT 3/8 X 1.50
20	808829	2	WHEEL, TRUCK
21	832015	2	SPACER .38 X .50 X .140



FORWARD SIDE PLATE

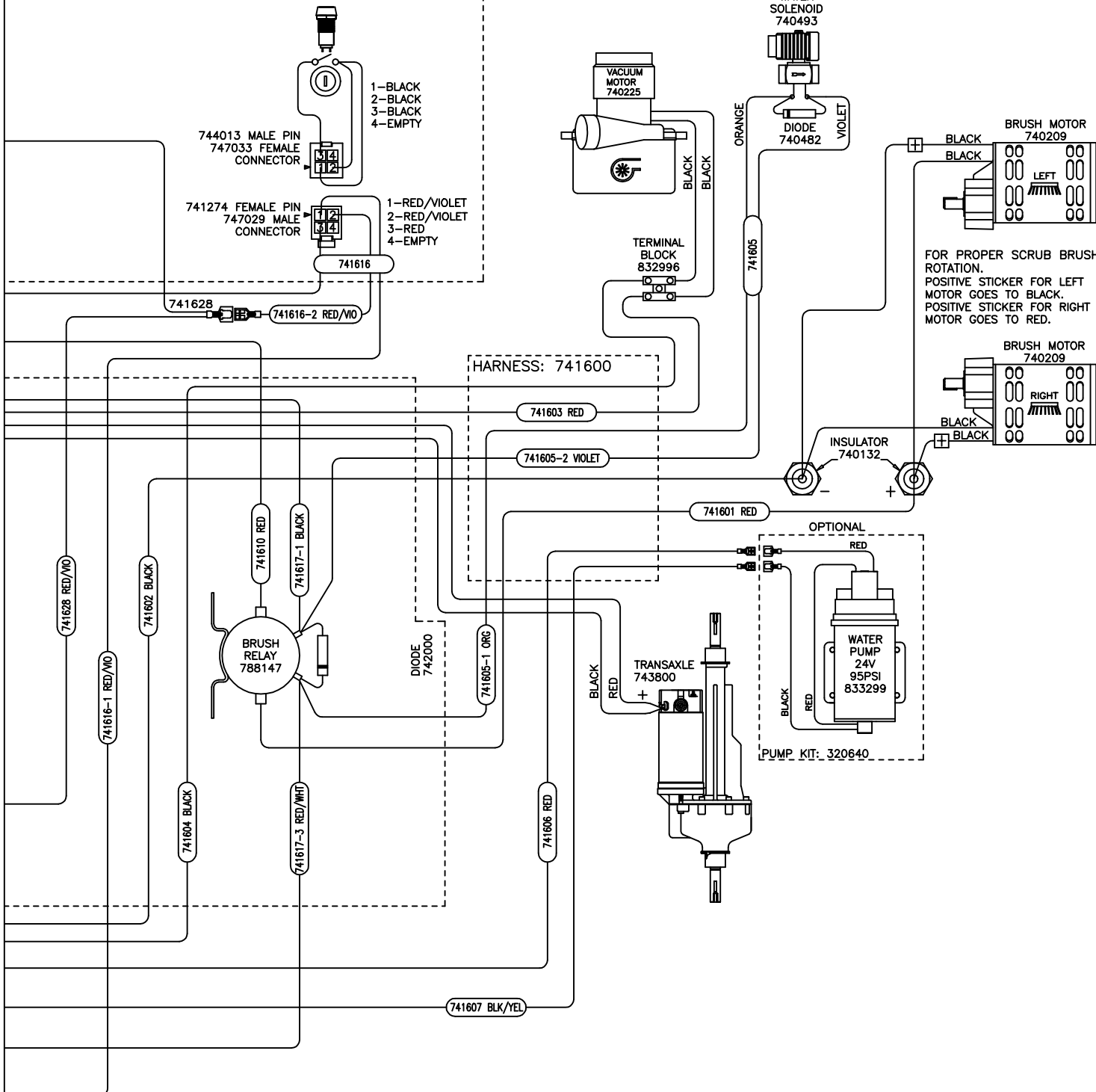
ON/OFF KEYSWITCH
747024

- 1-BLACK
- 2-BLACK
- 3-BLACK
- 4-EMPTY

744013 MALE PIN
747033 FEMALE
CONNECTOR

741274 FEMALE PIN
747029 MALE
CONNECTOR

- 1-RED/VIOLET
- 2-RED/VIOLET
- 3-RED
- 4-EMPTY



HARNESS: 741600

741603 RED

741605-2 VIOLET

741601 RED

OPTIONAL

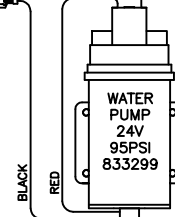
RED

BLACK

RED

+

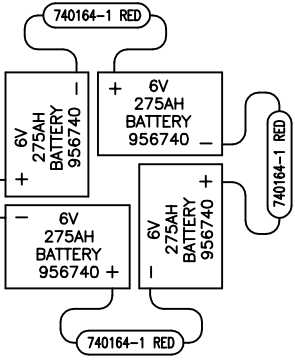
TRANSAXLE
743800



PUMP KIT: 320640

741607 BLK/YEL

FRONT OF MACHINE



FORWARD SIDE PLATE

ON/OFF KEYSWITCH
747024

744013 MALE PIN
747033 FEMALE
CONNECTOR

741274 FEMALE PIN
747029 MALE
CONNECTOR

- 1-BLACK
- 2-BLACK
- 3-BLACK
- 4-EMPTY

- 1-RED/VIOLET
- 2-RED/VIOLET
- 3-RED
- 4-EMPTY

ATTACH TO VAC
MOTOR MOUNT

VACUUM
MOTOR
740225

GND

742281 GND STRAP

ATTACH TO VAC
MOTOR

FERRITE
742254
2 PASSES
1 TURN

TERMINAL
BLOCK
832996

CAPACITOR
ASSY
742278

WATER
SOLENOID
740493

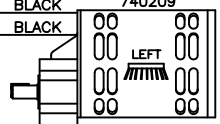
DIODE
740482

ORANGE

BLACK
BLACK

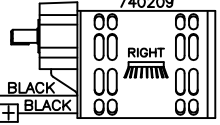
741605

BRUSH MOTOR
740209



FOR PROPER SCRUB BRUSH
ROTATION.
POSITIVE STICKER FOR LEFT
MOTOR GOES TO BLACK.
POSITIVE STICKER FOR RIGHT
MOTOR GOES TO RED.

BRUSH MOTOR
740209



HARNESS: 741600

741603 RED

741605-2 VIOLET

INSULATOR
740132

741601 RED

OPTIONAL

FERRITE
742254
2 PASSES
1 TURN

WATER
PUMP
24V
95PSI
833299

PUMP KIT: 320640

TRANSAXLE
743800

BLACK
RED

FRONT OF MACHINE

740164-1 RED

6V
275AH
BATTERY
956740

6V
275AH
BATTERY
956740

6V
275AH
BATTERY
956740

6V
275AH
BATTERY
956740

740164-1 RED

740164-1 RED

740159

740168 BLACK

740167 RED

740164-1 RED



Minuteman International Made Simple Commercial Limited Warranty

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 not 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..... Port-A-Scrub, one year parts, six months labor
MPV 13, one year parts
MPV 14 and 18, two years parts, one year labor
RapidAir blower, one year parts, one year labor
Explosion-Proof Vacuum, one year parts, one year labor
Pneumatic Vacuums, three years parts, one year labor

Battery Operated Group..... Three years parts, two years labor, ninety days travel
(Not to exceed two hours)
Exceptions..... Sweepers, one year parts, one year labor, ninety days travel
(Not to exceed two hours)

Internal Combustion Group.... One year parts, one year labor, ninety day travel
(Not to exceed two hours)

Replacement Parts.....Ninety days
Batteries.....0-3 months replacement, 4-12 months pro-rate
Polypropylene Plastic Tanks...Ten years, no additional labor

A Member of the Hako Group of Companies

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