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Parts List Manual
For Commercial Use Only



Marathon 2000 Forward Only Extractor

CATALOG NO.
98190 (115V, 60 HZ)

NOTES

This illustrated parts book covers:

CATALOG NO.	98190
SERIES	H
SIZE	22"
CAPACITY	20 Gal.
VOLTS	115V
AMPS	15

All specifications are subject to change without notice.

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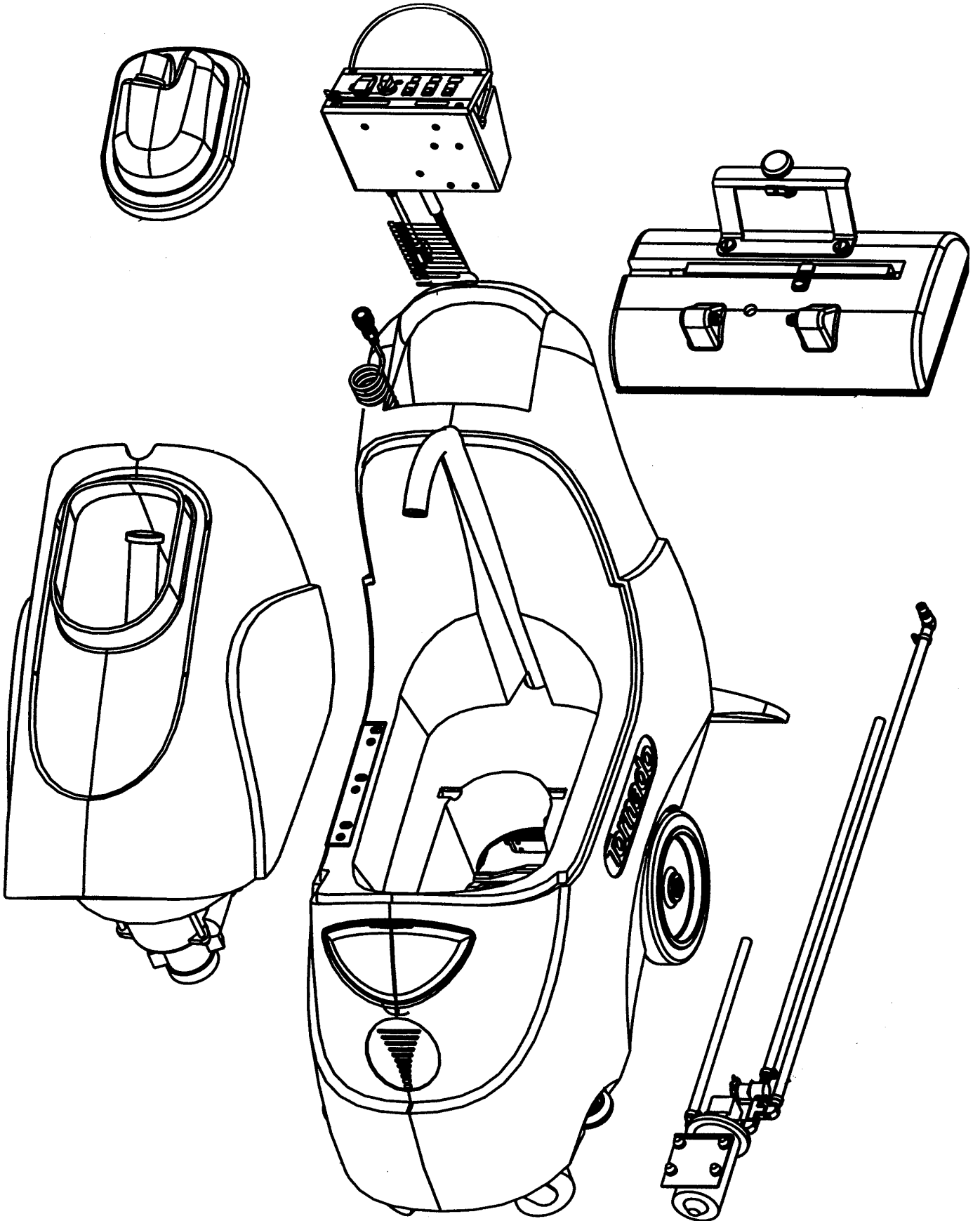
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Tornado® Standard Warranty Program*	
<p>Warranties do not cover components subject to normal wear or abuse and misuse, and have other limitations not specified here. For full details, contact your Authorized Tornado Distributor, Service Center, or the Tornado Technical Service Department.</p> <p>Tornado sales and service representatives are not authorized to waive or alter the terms of this warranty, or to increase the obligations of Tornado under the warranty.</p>	<p>10 Years: <i>All plastic tanks and rotationally-molded bodies</i> ^{1) 5)}</p>
	<p>2 Years: <i>Parts on all Tornado and Tornado/Karcher cleaning equipment</i> ^{1) 2) 3) 5)}</p>
	<p>1 Year: <i>Labor on all Tornado and Tornado/Karcher cleaning equipment</i> ^{2) 5)}</p>
	<p>1 Year: <i>Warranty on batteries and chargers, one year pro-rated.</i></p>

* Effective January 1st, 2004. Terms subject to change without notice.

- 1) Windshear™ Blower-Dryer, Insulation Blowers, T191, T201, CV 30, CV 38, CW 50, CW 100, Pro PAC Vacs, Duo-Upright Carpetkeepers™, and all chargers are warranted for 1 (one) year for both parts and labor.
- 2) Warranties on all riding sweepers including the ICC1, KM 100/100 R, KMR 1250, and KMR 1700 are 24 months parts/6 months labor OR 1000 hours of operation, whichever comes first. Warranties on the 75/140 & 90/140 are 24 months parts/12 months' labor OR 1,000 hours of operation whichever comes first.
- 3) All-non wear item parts purchased after warranty expiration are warranted for 90 days.
- 4) Warranty starts from the date of sale to the consumer or, at Tornado's discretion, 6 months after dealer purchased the unit from Tornado, whichever comes first.
- 5) See separate limited 2-year pressure washer policy.

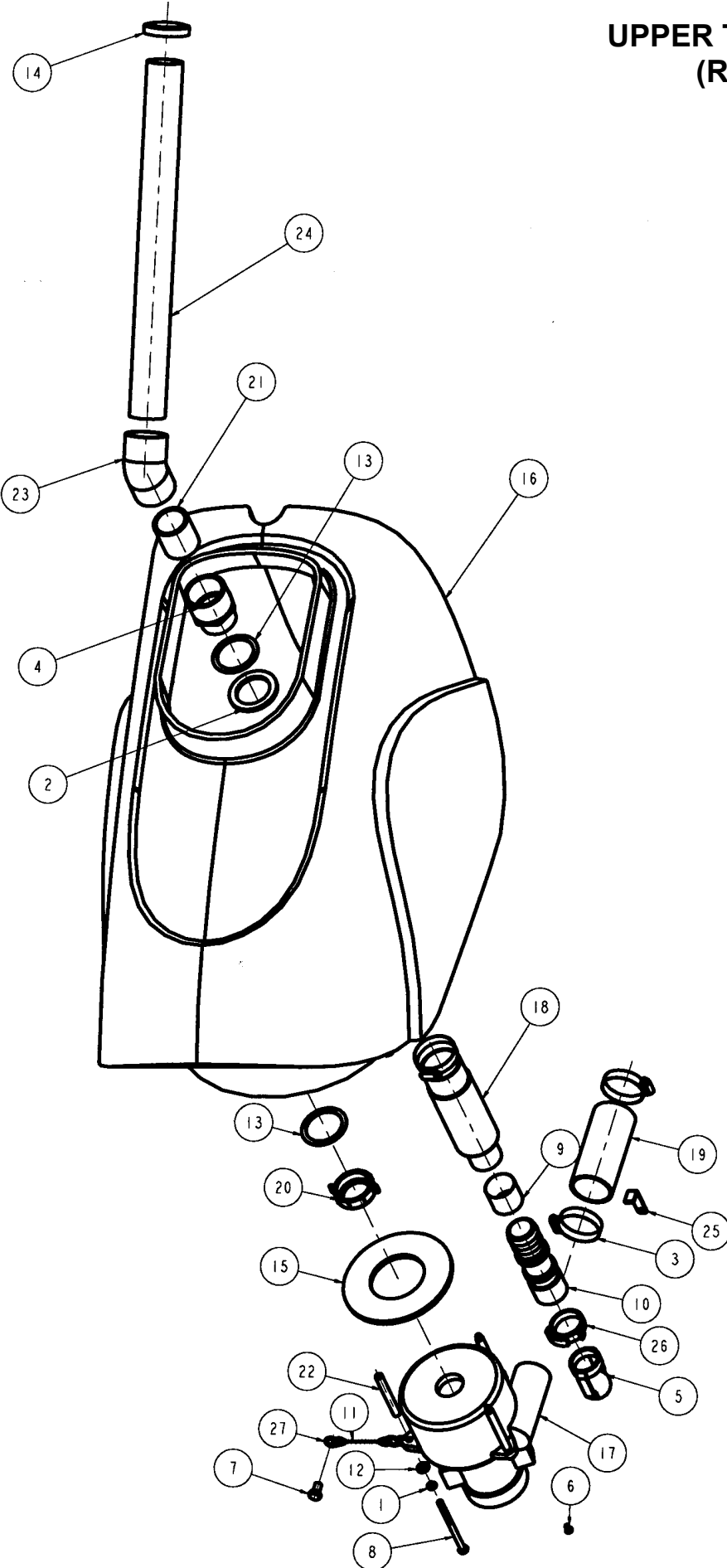
MAIN ASSEMBLY



**UPPER TANK ASSEMBLY
(REF. #30642)**

BILL OF MATERIALS			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	3	01574	LOCK WASHER 1/4"
2	1	05781	GASKET
3	3	14858	CLAMP-HOSE (SCREW)
4	1	15088	MALE ADAPTER 1-1/2
5	1	16089	STOPPER-RETAINED PLUG (DRAIN HOSE)
6	1	16583	SCREW-PHILLIPS PAN HEAD MACHINE #10-24 X 3/8
7	1	16671	SCREW-HEX HEAD CAP 3/8-16 X 5/8
8	3	17644	SCREW-HEX HEAD CAP 1/4-20 X 4.00
9	1	18357	ALUMINUM SLEEVE
10	1	18563	DRAIN HOSE, NOZZLE
11	1	18789	CABLE - COVER RETURN (CAST STEEL)
12	3	18885	WASHER-PLAIN 1/4
13	2	18886	WASHER-PLAIN 2.000
14	1	19097	FILTER-VAC MOTOR INTAKE (STANDPIPE)
15	1	19119	GASKET-VAC MOTOR
16	1	30022	TANK-TOP (ROTOMOLD)
17	1	30041	VAC MOTOR
18	1	30051	DRAIN HOSE-TOP TANK
19	1	30066	EXHAUST HOSE
20	1	30067	NUT-PVC-VAC STAND PIPE
21	1	30069	PIPE 2"LG-VAC STAND PIPE
22	3	30070	SPACER-VAC MOTOR
23	1	30563	ELBOW-VAC STAND PIPE
24	1	30564	PIPE-LONG-VAC STAND PIPE
25	1	30584	BRACKET-EXHAUST HOSE
26	1	31301	CLAMP, HOSE
27	3	31303	SPLIT RING

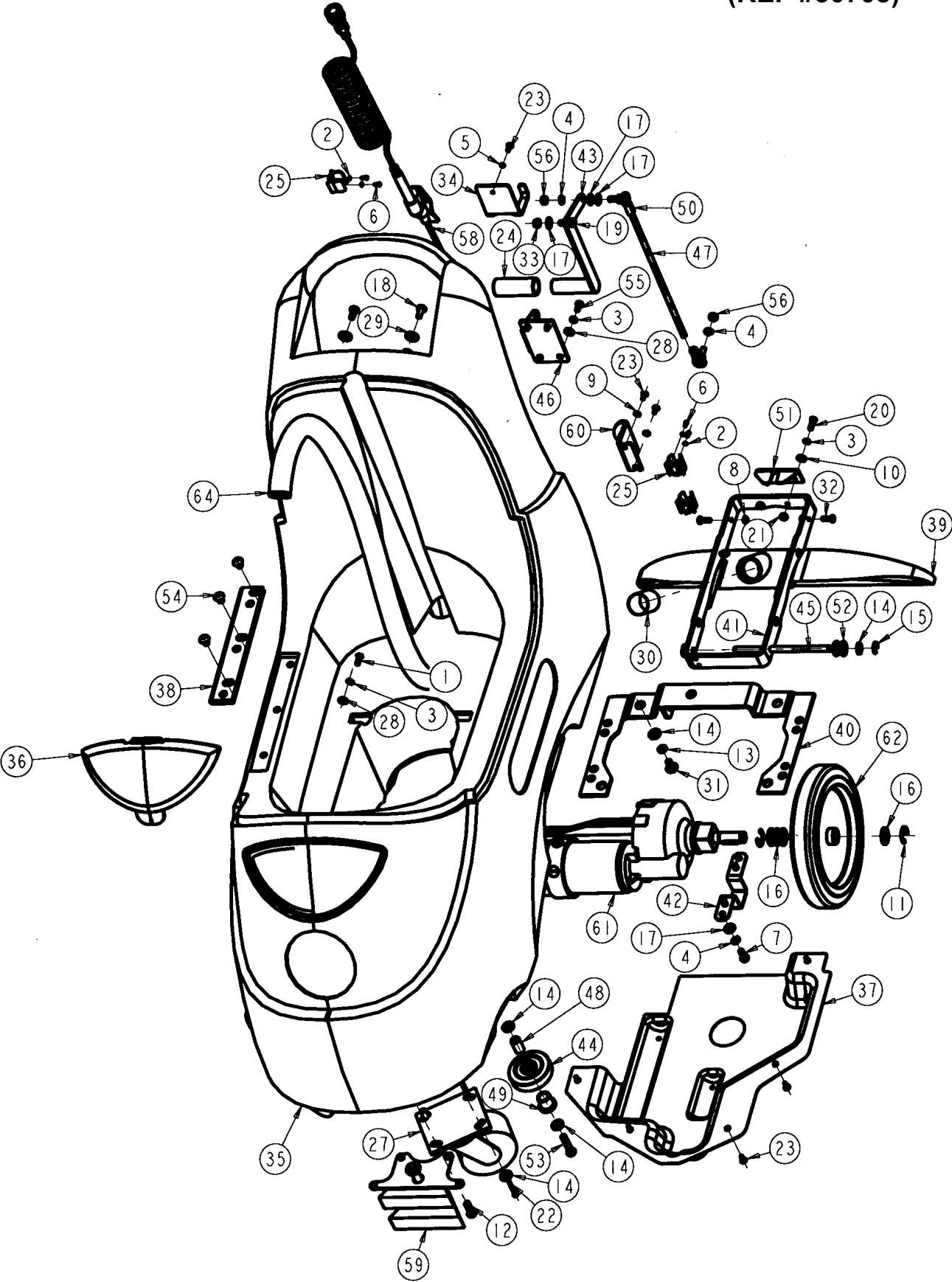
**UPPER TANK ASSEMBLY
(REF. #30642)**



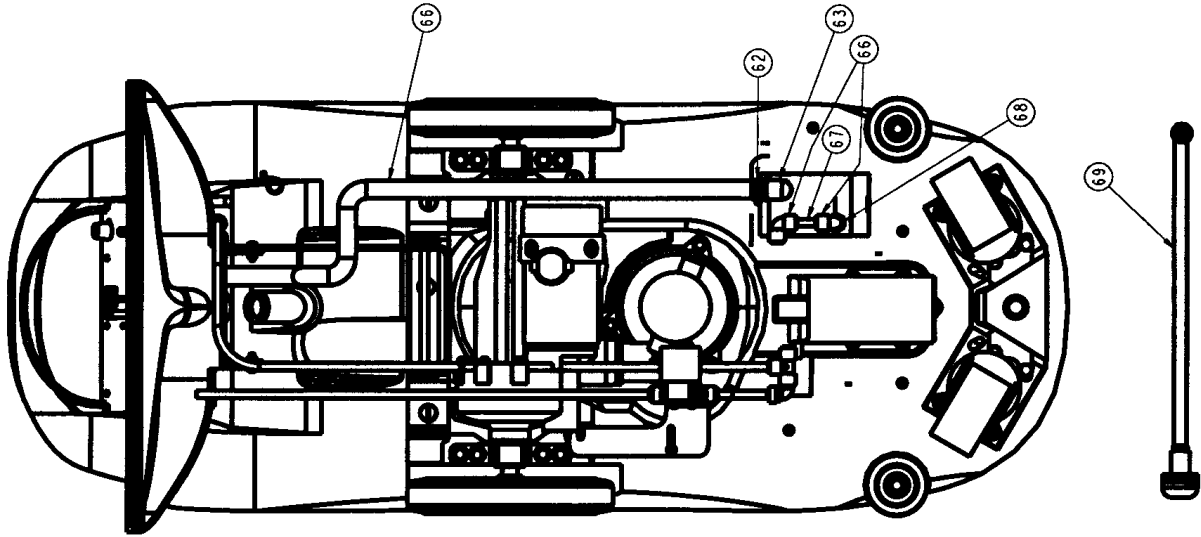
LOWER TANK ASSEMBLY (REF. #30708)

BILL OF MATERIALS			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	00064	SCREW-PHILLIPS OVAL HEAD MACHINE 1/4-20 X 3/4
2	6	01246	LOCK WASHER #6
3	7	01574	LOCK WASHER 1/4"
4	10	01577	LOCK WASHER 5/16"
5	1	01713	LOCK WASHER #10
6	6	01734	SCREW-PHILLIPS ROUND HEAD MACHINE #6-32 X 3/8
7	8	02109	SCREW-HEX HEAD CAP 5/16-18 X 3/4
8	4	02217	NUT-HEX JAM LOCK (NYLON INSERT) 1/4-20
9	2	03060	WASHER-PLAIN .199
10	2	03218	WASHER-PLAIN 1/4
11	4	03313	RING RETAINING EXT. 3/4"
12	4	03320	SCREW-HEX HEAD CAP 3/8-16 X 1.000
13	5	03536	LOCK WASHER 3/8"
14	15	03736	WASHER-PLAIN 3/8
15	2	03947	RING RETAINING EXT. 3/8"
16	8	03960	WASHER-PLAIN 25/32
17	11	14142	WASHER-PLAIN .265
18	3	15067	SCREW-PHILLIPS PAN HEAD MACHINE 5/16-18 X 3/4
19	1	15677	SCREW-SOCKET HD SHOULDER 3/8D x 3/8
20	2	17160	SCREW-HEX HEAD CAP 1/4-20 X 3/4
21	2	17508	NUT-FINISHED HEX 1/4-20
22	4	17575	SCREW-HEX HEAD CAP 3/8-16 X 3/4
23	9	17848	SCREW-PHILLIPS TRUSS HEAD MACHINE #10-24 X 1/2
24	1	18251	GRIP-HANDLE
25	3	18468	CLIP-HOSE
26	1	18717	CLAMP-CABLE (5/8" DIA.)
27	2	18773	CASTER-SWIVEL
28	5	18885	WASHER-PLAIN 1/4
29	3	19191	WASHER-PLAIN .328
30	1	19197	TUBE-NOZZLE HOSE ADAPTER
31	5	19207	SCREW-SLOTTED TRUSS HEAD MACHINE 3/8-16 X 3/4
32	4	19254	SCREW-PHILLIPS PAN HEAD MACHINE 1/4-20 X 3/4
33	1	19513	NUT-HEX LOCK (NYLON INSERT) 5/16-18
34	1	19948	HANGER, DRAIN HOSE
35	1	30021	BOTTOM TANK
36	1	30026	INLET COVER-BOTTOM TANK
37	1	30027	COVER-PUMP
38	1	30030	HINGE
39	1	30031	VACUUM NOZZLE
40	1	30032	BRACKET-BOTTOM TANK
41	1	30033	BRACKET-NOZZLE
42	2	30035	BRACKET-TRANSAXLE
43	1	30036	LIFT HANDLE
44	2	30044	WHEEL-BUMPER
45	1	30048	ROD-BRUSH ATTACHMENT
46	1	30049	BRACKET-LIFT HANDLE
47	1	30056	ROD-LIFT HANDLE
48	2	30570	SPACER-BUMPER WHEEL
49	2	30571	BUSHING-BUMPER WHEEL
50	2	30577	BALL JOINT - HANDLE
51	1	30578	BRACKET-ADJUSTING SCREW
52	4	30581	SPACER-BRUSH ROD
53	2	30660	SCREW-HEX HEAD CAP 3/8-16 X 1-5/8
54	6	30673	SCREW-PHILLIPS ROUND HEAD MACHINE 3/8-16 x 1/2
55	4	30674	SCREW-PHILLIPS PAN HEAD MACHINE 1/4-20 X 5/8
56	2	30675	NUT-FINISHED HEX 5/16-24
57	1	30678	SCREW-PHILLIPS PAN HEAD MACHINE #10-24 X 3/8
58	1	30687	ASS'Y SPRAY WAND
59	1	30704	WEIGHT ASSEMBLY, EXTRACTOR
60	1	32319	BRACKET - TOOL
61	1	32352	TRANSAXLE
62	2	32353	WHEEL
62	1	07626	CLAMP-HOSE (SCREW) 5/16-7/8
63	1	23292	ELBOW 5/8 X 1/2 NYLON
64	1	30050	HOSE-NOZZLE
65	1	30052	HOSE-DRAIN BOTTOM TANK
66	2	32189	ELBOW-SWIVEL 3/8" TUBE
67	1	32258	HOSE-3/8" OD X 2" LG.
68	1	32308	STEM ADAPTER 3/8" X 3/8"
69	1	32315	DRAIN HOSE ASSY

**LOWER TANK ASSEMBLY
(REF #30708)**

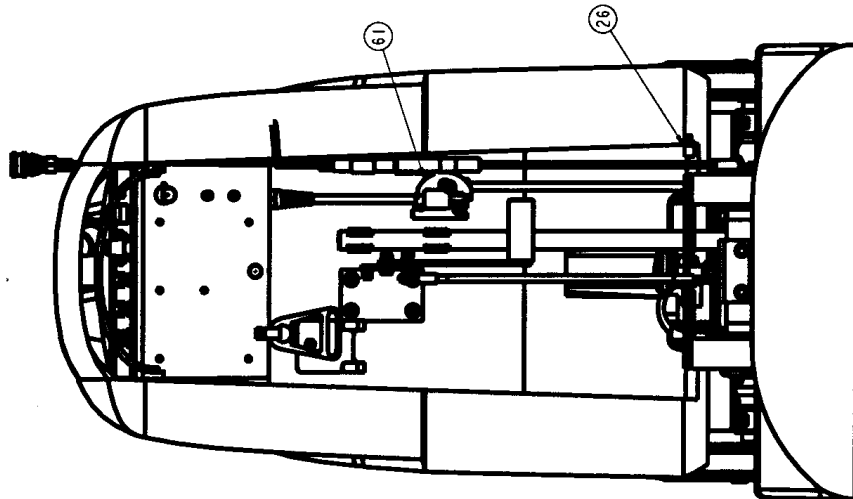


**LOWER TANK ASSEMBLY
(REF. #98190)**



NOTE: PLACEMENT OF
HOSE WITHOUT PAN.

BOTTOM VIEW



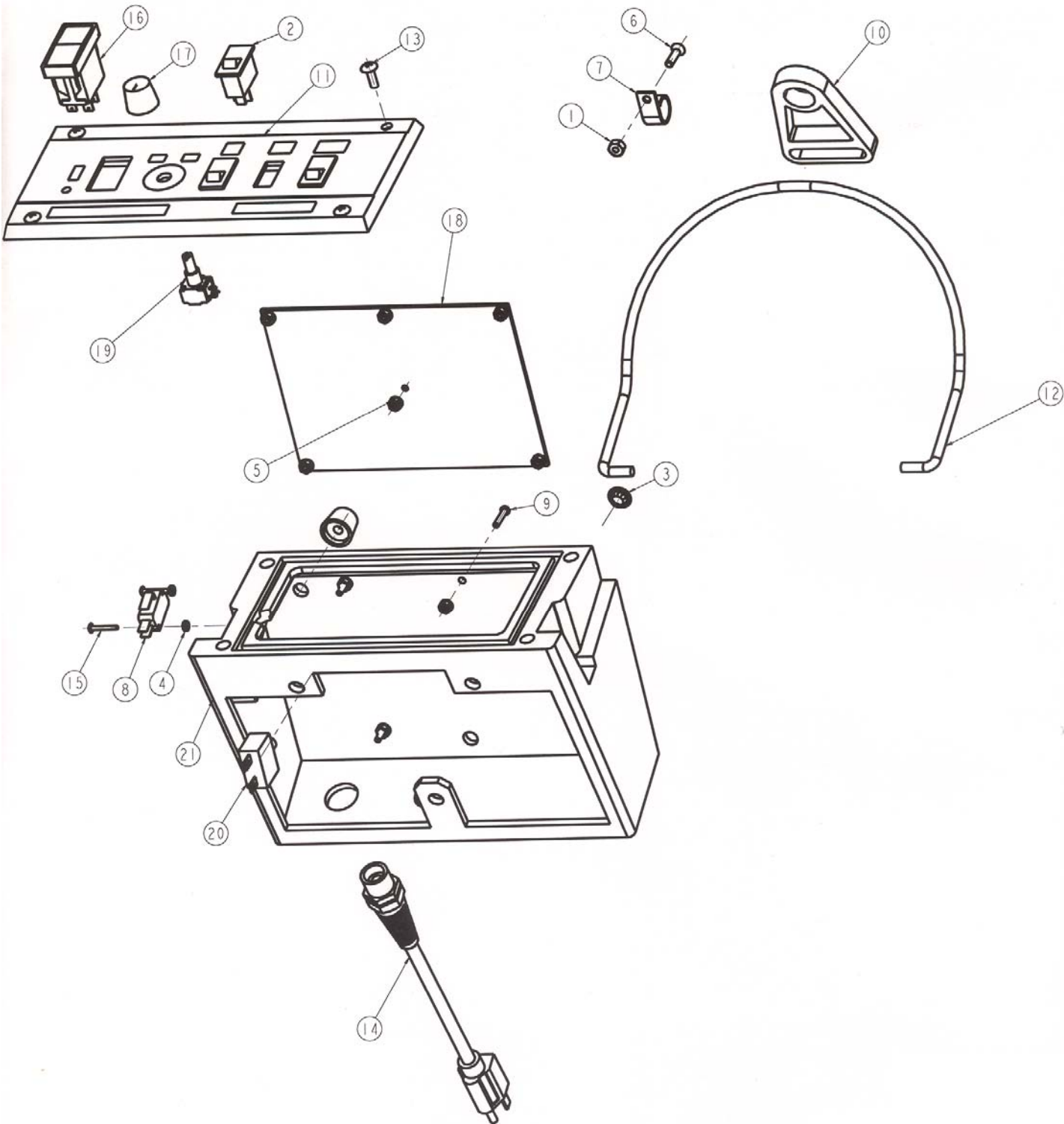
BACK VIEW

CONTROL PANEL ASSEMBLY
(REF. # 30644)

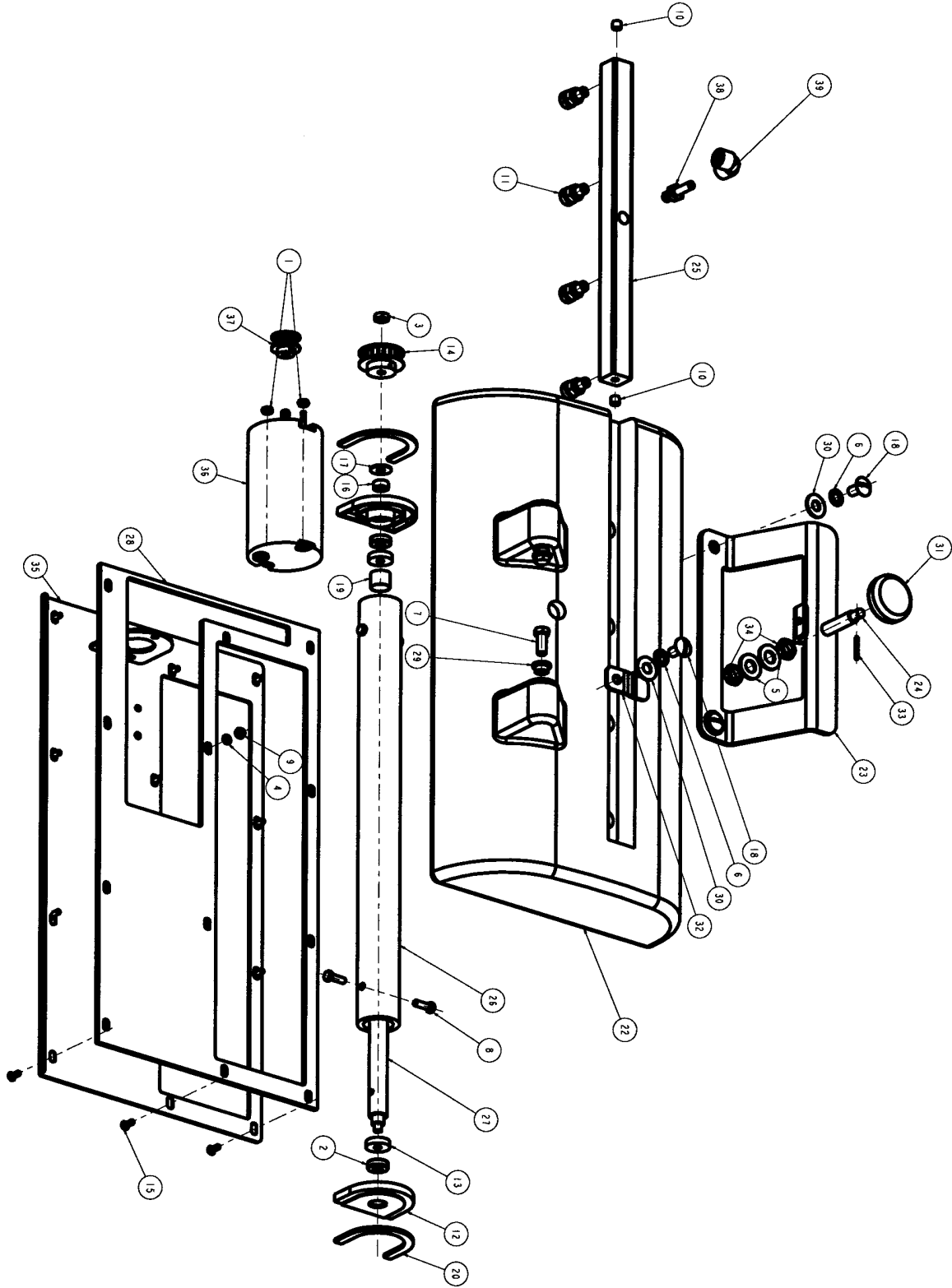
BILL OF MATERIALS			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	01477	NUT-FINISHED HEX #10-24
2	3	10670	SWITCH-ROCKER
3	1	14624	PLUG-HOLE
4	2	15560	NUT-#4-40 (KEPS)
5	12	17883	NUT-HEX 6-32 LOCK PLASTIC
6	1	18339	SCREW-PHILLIPS FLAT HEAD MACHINE #10-24 X 3/4
7	1	18717	CLAMP-CABLE (5/8" DIA.)
8	1	18818	SWITCH-MOMENTARY
9	6	19124	SCREW-SLOTTED ROUND HEAD MACHINE #6-32 x 3/4
10	1	19261	BELT CLIP-CORD CONTROL
11	1	30028	CONTROL PANEL
12	1	30038	ROD-DRIVE ACTUATION
13	4	30676	SCREW-PHILLIPS TRUSS HEAD MACHINE #10-24 x 3/4
14	1	30688	ASS'Y POWER CORD
15	2	30703	SCREW-PHILLIPS TRUSS HEAD MACHINE #4-40 x 3/4
16	1	32147	SWITCH-CONTROL VAC
17	2	32172	CONTROL KNOB
18	1	32330	CONTROLLER - 115 VDC
19	1	32359	ASS'Y POTENTIOMETER WIRE
20	1	32362	CIRCUIT BREAKER 20 AMP
21	1	32382	CONTROL HOUSING
23	1	32364	WIRING HARNESS KIT *
24	1	32377	SOLUTION DECAL *

* NOT SHOWN

CONTROL PANEL ASSEMBLY
(REF. # 30644)



BRUSH ASSEMBLY (REF. # 30643)

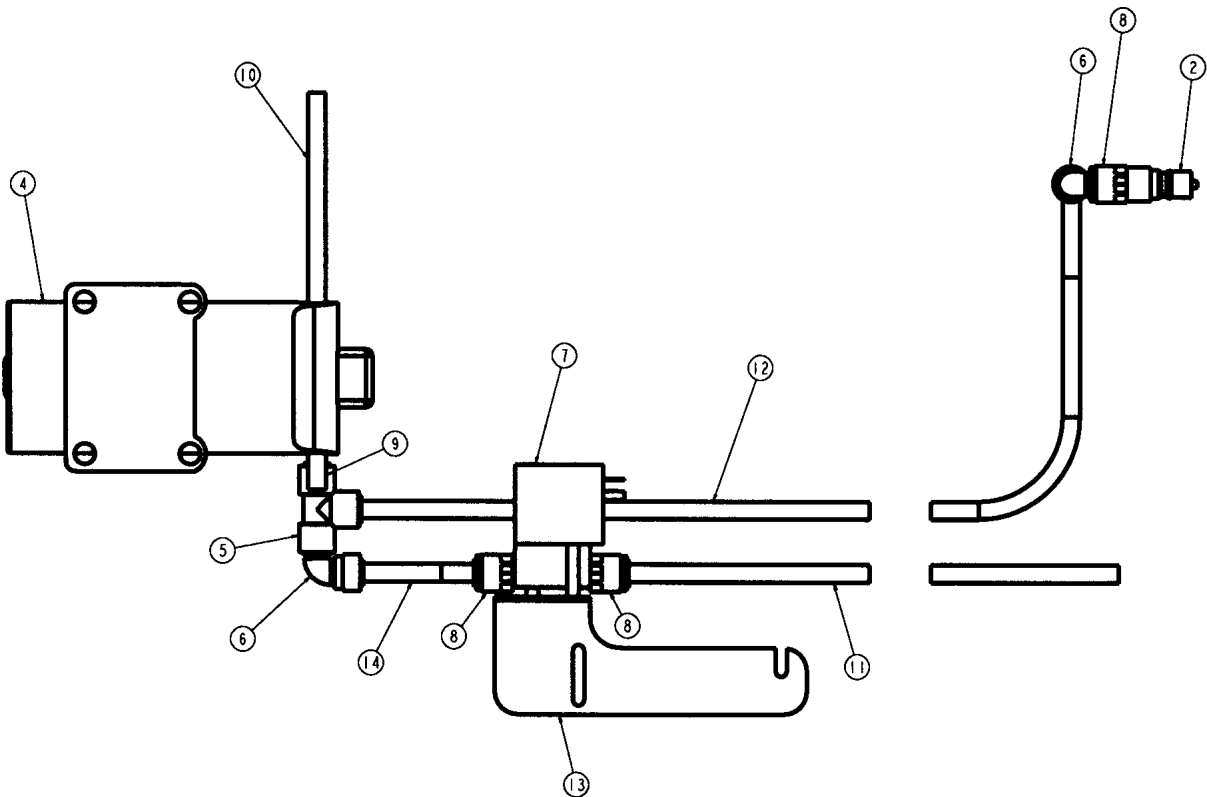


**BRUSH ASSEMBLY
(REF. #30643)**

ITEM	DESCRIPTION	PART #	QTY
1	NUT, HEX. LOCK, KEPS, #10-32	02625	2
2	BEARING, RADIAL BALL	05209	2
3	NUT, HEAVY HEX JAM 5/16-18	05282	1
4	WASHER, LOCK #10	11007	1
5	WASHER, PLAIN 1/2"	16581	2
6	WASHER, LOCK 3/8"	16586	3
7	SCREW, HEX-HEAD CAP 3/8-16 X 7/8	16907	2
8	SCREW, HEX HEAD CAP 1/4-20 X 3/4	17160	4
9	NUT, HEX. LOCK, NYLON INSERT, #10-24	19145	1
10	FITTING, BRASS PLUG 1/8 NPT HEX SOCKET	19149	2
11	SPRAY NOZZLE, 1/8 V-JET	19154	4
12	BEARING BLOCK-BRUSH	19157	2
13	BEARING SEAL	19158	2
14	PULLEY TIMING (SHAFT)	19161	1
15	SCREW, PHILLIPS FLAT HEAD MACHINE #10-24 X 1/2	19165	12
16	SPACER, 5/16 DELRIN	19190	1
17	WASHER, PLAIN .328	19191	1
18	SCREW, SLOTTED TRUSS-HD MACHINE, 3/8-16 X 3/4	19207	3
19	BEARING SLEEVE 3/4" (NYLINER)	19227	2
20	GASKET, BEARING BLOCK	19228	4
21	BELT, TIMING	19233	1
22	BRUSH HOUSING	30023	1
23	BRACKET, BRUSH LEVEL	30034	1
24	ADJUSTING SCREW	30039	1
25	MANIFOLD SPRAYBAR	30045	1
26	BRUSH	30046	1
27	SHAFT, BRUSH	30047	1
28	GASKET, BRUSH PLATE	30057	1
29	BUSHING, BRUSH PIVOT	30064	2
30	WASHER, PLAIN 3/8	30075	3
31	KNOB	30562	1
32	BRACKET, SPRAYBAR HOLDER	30569	1
33	SPRING PIN	30707	1
34	NUT, HEX LOCK 1/2-13	30920	2
35	WELDMENT, BRUSH PLATE & MOTOR BRACKET	30973	1
36	MOTOR, BRUSH-TYPE 115V	32173	1
37	MOTOR TIMING PULLEY, 115V	32175	1
38	STEM ADAPTER 3/8"	32181	1
39	SWIVEL ELBOW 3/8"	32189	1

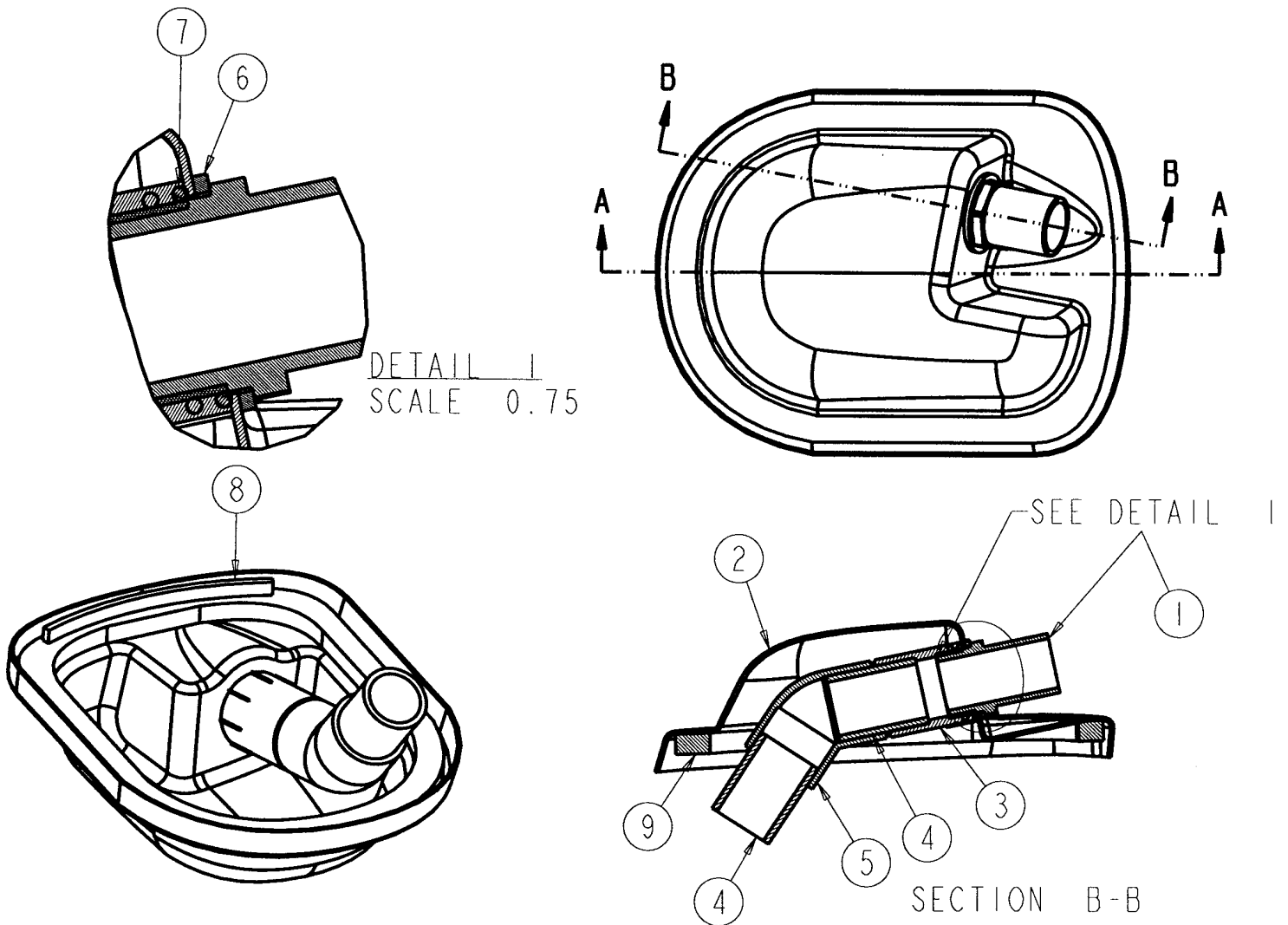
**PUMP ASSEMBLY
(REF. # 30645)**

ITEM	DESCRIPTION	PART #	QTY
1	WASHER-LOCK (I/T) #10	11007	2
2	FITTING QUICK CONN. NIPPLE X 1/4" FPT	14881	1
3	SCREW-SLOTTED FILLISTER HEAD M4 X .70 - 10	23192	2
4	PUMP	32180	1
5	UNION TEE 3/8"	32182	1
6	PLUG IN ELBOW 3/8"	32183	2
7	SOLENOID VALVE 1/4" PORT (120V)	32185	1
8	MALE CONNECTOR 3/8"	32186	3
9	HOSE-3/8" OD X 1 - 1/4" LG	32314	1
10	HOSE-3/8" OD X 5" LG	32316	1
11	HOSE-3/8" OD X 22" LG	32317	1
12	HOSE-3/8" OD X 39" LG	32318	1
13	BRACKET - SOLENOID	32320	1
14	HOSE-3/8" OD X 2 - 1/2" LG	32342	2
15*	MOUNTING SPACER	15666	4
16*	SCREW-PHIL. PAN HD MACHINE SCREW #10-24X1-1/4 (SS)	19205	4

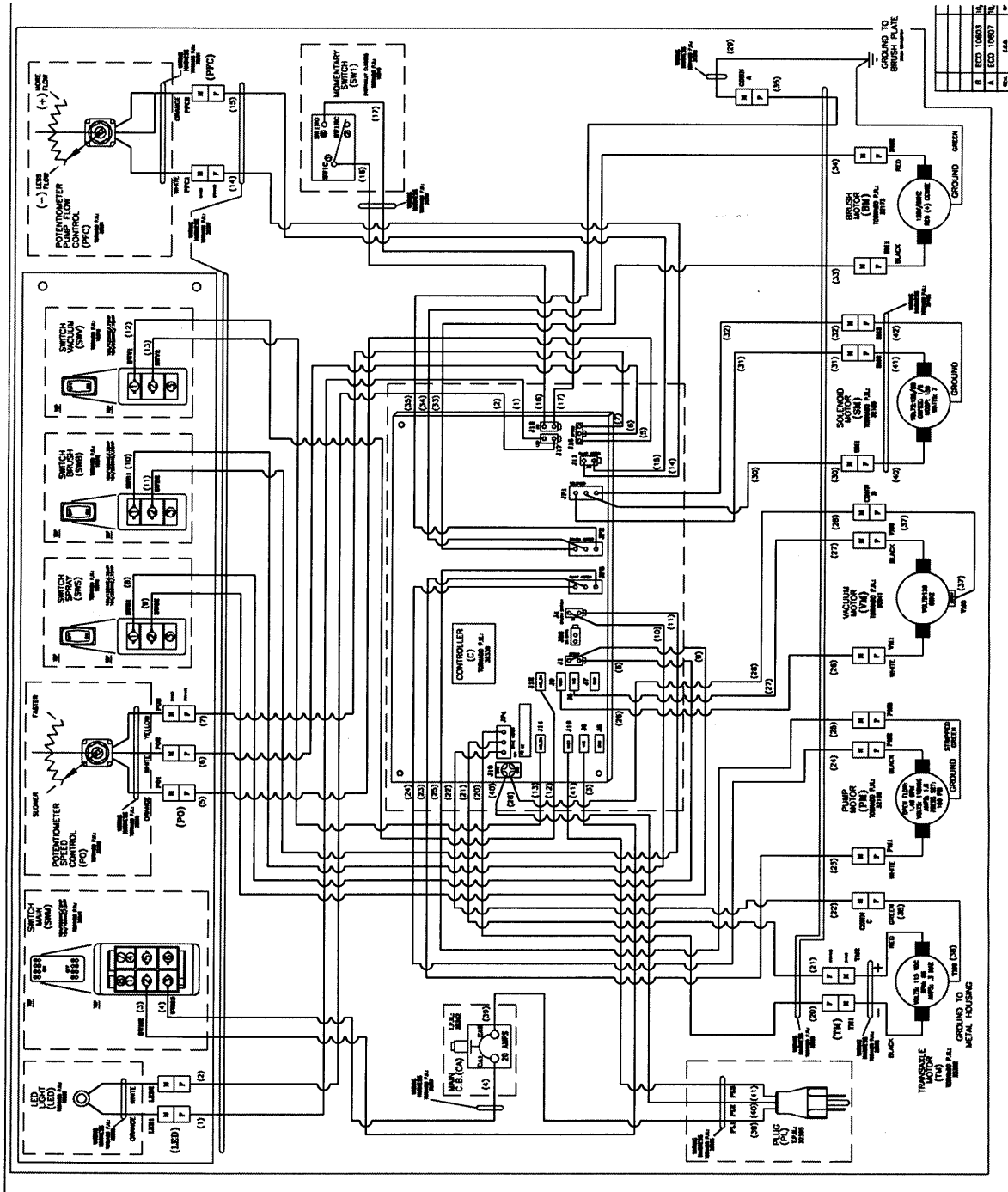


RECOVERY DOME ASSEMBLY (REF. # 30646)

BILL OF MATERIALS			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	19270	FITTING-RECOVERY HOSE
2	1	30025	COVER-TOP TANK
3	1	30059	FITTING, FEMALE-COVER
4	2	30060	PIPE-COVER 1 1/4" PVC
5	1	30061	ELBOW-COVER 45 DEG. PVC
6	1	30062	WASHER-COVER
7	2	30063	O-RING -COVER
8	1	31403	SUPPORT GASKET
9	1	31300	GASKET-COVER



WIRING DIAGRAM (REF. # 32356)



WIRING DIAGRAM (REF. # 32356)

	WIRE NO'S	AWG	TYPE	COLOR	FROM	TO
WIRING HARNESS T.P.N.: 32357	1	18	X	ORANGE	C(J17)	LED1
	2	18	X	WHITE	C(J17)	LED2
	3	14	X	BLACK	C(J2)	SWM2
	4	14	X	ORANGE	CA1	SWM3
	5	18	X	ORANGE	C(J15)	PO1
	6	18	X	WHITE	C(J15)	PO2
	7	18	X	YELLOW	C(J15)	PO3
	8	18	X	BLUE	C(J1)	SWS1
	9	18	X	WHITE	C(J1)	SWS2
	10	18	X	YELLOW	C(J4)	SWB1
	11	18	X	ORANGE	C(J4)	SWB2
	12	18	X	RED	C(J12)	SWV1
	13	18	X	BLACK	C(J14)	SWV2
	14	18	X	WHITE	C(J11)	PFC1
	15	18	X	ORANGE	C(J11)	PFC3
	16	18	X	YELLOW	C(J13)	SW1C
	17	18	X	WHITE	C(J13)	SW1NO
	WIRING HARNESS T.P.N.: 32358	18		X		
19			X			
20		14	X	BLACK	C(JP4)	TM1
21		14	X	RED	C(JP4)	TM2
22		18	X	GREEN	C(JP4)	CONN C
23		18	X	RED	C(JP3)	PM1
24		18	X	BLACK	C(JP3)	PM2
25		18	X	GREEN	C(JP3)	PM3
26		18	X	WHITE	C(J9)	VM1
27		18	X	BLACK	C(J5)	VM2
28		18	X	GREEN	C(J19)	VM3
29		18	X	GREEN	CONN A	GROUND
30		18	X	RED	C(JP1)	SM1
31		18	X	BLACK	C(JP1)	SM2
32		18	X	GREEN	C(JP1)	SM3
33		18	X	BLACK	C(JP2)	BM1
34		18	X	RED	C(JP2)	BM2
35		18	X	GREEN	C(JP2)	CONN A
36		X				
37	18	X	GREEN	CONN B	VM3	
38	18	X	GREEN	CONN C	TM3	
WIRING HARNESS T.P.N.: 32365						
	39	12	X	BLACK	PL1	CA2
	40	12	X	GREEN	PL2	C(J19)
	41	12	X	WHITE	PL3	C(J2)