***SealVac*™ FUEL Drain System**
TECHNICAL MANUAL
PARTS, OPERATION AND MAINTENANCE

You are welcome to visit SpokaneIndustries.com

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SPOKANE INDUSTRIES

SealVac™ FUEL Drain System
Models SV100, SV125, SV150 & SV200
TECHNICAL MANUAL

PARTS, OPERATION AND MAINTENANCE

INDEX

1.0 INTRODUCTION

1.1 To obtain optimum benefit from your *SealVac*™ unit, it is recommended that all personnel operating it read and understand this manual prior to operation.

1.2 Upon receipt of the *SealVac*™ unit, a visual inspection should be made to determine that it is complete and has not sustained any damage during transportation.

2.0 SAFETY

2.1 Potential Fire Or Explosion

2.1.1 Due to the nature of fuel, care should be exercised to eliminate all sparks and open flame in the area of the unit.

2.1.2 A 50 foot radius area around the unit for no smoking, sparks, or open flames is usually a good practice.It is strongly recommended all local or other regulations be consulted for further restrictions.

CAUTION: The *SealVac*™ unit should never be used inside of an enclosed area. Proper ventilation is required at all times.

2.2 Telescoping Drain

2.2.1 Care should be exercised in using the telescope to prevent injury fingers between clamps by dropping sections.

2.3 Grounding

2.3.1 To eliminate static sparks, the unit is equipped with grounding reels which should be connected prior to draining or filling operations.

2.4 Towing

2.4.1 Make sure the tow bar is securely attached to the towing vehicle.

2.4.2 Before moving the bowser unit, check to assure the parking brake is released.

2.4.3 Maximum allowable towing speed is 15 MPH.

2.5 Parking

2.5.1 Parking brake must be applied when filling and draining or when left unattended.

2.6 Air Supply

2.6.1 Caution: Check the air pressure of supply lines to the vacuum generator to assure it is not in excess of 100 PSI.

2.7 Inspections

2.7.1 Inspection of tires, undercarriage, tow bar, vent, valves, hoses, sight gauge, reflectors, safety labels, etc., should be inspected on a periodic basis. It is recommended these inspections be performed weekly.

2.7.2 Internal inspection will be necessary to insure structural integrity and cleanliness. It is recommended that interval inspections be performed at least every (6) six months.

2.8 Vacuum Manway

2.8.1 Insure the manway cover is provided with a "lock out" devised to prevent accidental closing of the manway while doing internal inspections and to prevent unwanted elements from being introduced to the fuel supply.

2.9 Hoses

2.9.1 Inspect hoses daily prior to usage. The hoses should be extended, as it normally would be for operating. Check for evidence of blistering, carcass saturation or separation, cuts, nicks or abrasions that expose reinforcement materials. Look for slippage, misalignments or leaks at the couplings; if coupling slippage or leaks are found the cause of the problem shall be determined. All defective hoses should be removed for service.

2.10 Vacuum Governor

2.10.1 The *SealVac*™ unit is provided with a pre-adjusted vacuum governor. See maintenance for adjusting.

Caution! When entering confined spaces such as the interior of the *SealVac*™ unit, care should be taken to provide proper breathing equipment and a separate person dedicated solely to a safety watch of the person inside. It is strongly recommended that all local or other regulations be consulted.

3.0 OPERATION

3.1 Intended Use

3.1.1 The unit is intended for use in draining and collection of fuel from aircraft and the transportation to a disposal site.Any other use is prohibited and may void any and all warranties.

3.2 Parking Brake

3.2.1 The unit is equipped with a mechanically operated parking brake. The brake should be applied prior to disengaging tow bar. The brake should be applied when filling, or draining tank, or whenever left unattended.

3.3 Tow Bar and Undercarriage

3.3.1 The unit is equipped with steerable front wheels controlled by the tow bar.

3.3.2 Care should be taken not to jackknife the unit when backing up.

3.3.3 Tire inflation should be checked and maintained as described in the maintenance section.

3.3.4 Before towing, check to see the brake is disengaged, grounding reels and hoses are disconnected, valves are closed, tow bar is securely attached to the towing vehicle, telescoping drain is collapsed and its lid is closed and secured, that the manway and vacuum covers are closed, secured and latched.

3.3.5 The unit is equipped with a tow bar latch to hold it in the upright position.

3.4 Telescoping Drain Assembly

3.4.1 The unit is equipped with a telescoping drain assembly. That is capable of being adjusted up to 16'0" high.

3.4.2 To Raise:

(1) Loosen top clamp if necessary.
(2) Grasp top section with one hand and lift until the top clamp raises approximately 6 inches.
(3) Tighten clamp securely with the other hand.
(4) Reposition lifting hand by grasping tube below tightened clamp and lift until next clamp is raised approximately 6 inches.
(5) Repeat steps 1-4 until desired height is obtained or assembly is fully extended.

3.4.3 To Lower:

(1) Tightly grasp bottom extended tube with one hand and loosen the securing clamp.
(2) Slowly lower tube, hand over hand, until the following clamp is resting on the loosed clamp.
(3) Repeat steps 1 and 2 until all sections are lowered.

3.4.4 Funnel is equipped with a nitrile rubber seal around the top edge to allow placement against the underside of a wing.

3.4.5 When not in use, telescope should be collapsed and the cover closed to eliminate contamination.

3.5 Vacuum Assembly

3.5.1 This assembly is equipped with an air powered vacuum generator.

3.5.2 It is intended for vacuum draining or depuddling fuel and condensation.

Caution! If other objects such as rock or metallic pieces are vacuumed into the vacuum chamber, they may create a hazard due to sparks.

3.5.3 Vacuum is started by attaching a recommended air supply of 60CFM at 100 PSI and turning on the air supply valve.

3.5.4 The vacuum chamber is equipped with a screened drain opening. This opens directly into the main tank.

3.5.5 The vacuum generator is equipped with an autovac shutoff mechanism preventing overflowing. When the level of product is full, the valve shuts off and eliminates the vacuum. The vacuum chamber will then automatically drain.

3.5.6 The vacuum assembly is supplied with 50 feet of vacuum hose and a ball valve on the vacuum suction outlet.

3.5.7 The vacuum assembly is equipped with (4) four each 1/2" NPT opening for use with pencil drains. To use, the pipe caps must be removed and self-closing quick disconnects attached that match local standards. To operate, close vacuum suction valve, turn air supply on and connect drain lines.

3.6 Grounding Reels

3.6.1 The unit is supplied with grounding reels.

3.6.2 Before filling, draining, or vacuuming, the grounding reels must be attached to the aircraft or object being serviced and an appropriate ground.

3.7 Drain Valves

3.7.1 The unit is equipped with a 1-1/2" NPT ball valve with a camlock connector.

3.8 Sample Port

3.8.1 The unit is equipped with a 1/2" NPT valve for use as a sample port.

3.9 Telescoping Drain Strainer

3.9.1 The unit is equipped with a sump with removable bottom to allow cleaning of the drain strainer.

3.10 Vacuum Manway

3.10.1 The *SealVac*™ unit is equipped with a quick opening manway assembly for internal inspections.

3.10.2 The manway is equipped with a flip locking cross arm assembly to ensure sealing and securing the cover in place.

3.11 Vacuum Governor

3.11.1 The vacuum governor has been preset at the factory and needs no further adjustments. See maintenance should adjustments or replacement be needed.

4.0 MAINTENANCE

4.1 Parking Brake

4.1.1 The unit is equipped with a parking brake assembly consisting of a 7" diameter brake drum with 2-1/4" wide brake shoes.

4.1.2 The shoes are activated via a mechanical linkage, eccentric and lever.

4.1.3 Adjustment may be necessary as the shoes wear.

(1) Tightening is accomplished by removing the bolt through one yoke and screwing yoke in to shorten connecting rod.

(2) Do not over tighten or brakes may drag when released.

4.1.4 Replacement of shoes.

(1) Remove wheel.
(2) Remove nut retaining hub and drum assembly.
(3) Disconnect actuating rod.
(4) Remove shoe retainers.
(5) Install new shoes.
(6) Replace shoe retainers.
(7) Adjust actuator rod length.
(8) Replace wheel.

4.2 Under Carriage and Tow Bar

4.2.1 The unit is equipped with steerable front wheels, fixed rear wheels, and a tow bar.

4.2.2 Maintenance should consist of the following:
(1) King pin bushing, turning bushings and tie rod ends are self lubricating and need no additional maintenance.
(2) Pack wheel bearing at intervals not to exceed three (3) months.
(3) Check tire pressure weekly. Pressure should be maintained at 60 PSI.

4.2.3 Tow bar pivot pin and hook ring should be inspected monthly for excessive wear or cracks.

4.3 Telescoping Drain Assembly

4.3.1 The telescoping Drain Assembly consists of stainless steel housing permanently attached to the tank and multible tube sections.

4.3.2 The stainless tube and four largest aluminum tubes are equipped with a clamp assembly.

4.3.3 Each aluminum tube is crimped on the lower end which acts as a stop to prevent the tube from sliding through the clamp.

4.3.4 Disassembling of the telescope assembly is accomplished by rotating the four sections 180 degrees from normal position and gently lifting each section so that the crimped edge on the tube is aliened with the slot on the clamp.

4.4 Vacuum Assembly

4.4.1 The vacuum assembly consists of a vacuum chamber with an air powered vacuum generator mounted on a removable cover. The cover is held in place by three (3) latches.

4.4.2 The vacuum chamber is equipped with an autovac shut off mechanism. Lable each air hose and locations prior to disconnecting for maintainance. The assembly is pre-adjusted at the factory and should not need further adjustment.

4.4.3 The vacuum cover is equipped with an overflow valve which should require no maintenance.

4.4.4 The vacuum generator is attached to the chamber cover. It is equipped with an exhaust silencer which should be cleaned at six (6) month intervals or more often depending on the amount of use and conditions.

4.4.5 The vacuum hose should be inspected monthly for cracks. Any sudden loss of vacuum suction power may indicate a crack in the vacuum hose.

4.4.6 The cover gasket should be inspected monthly for deterioration. This gasket should be pliable and free from weather checking.

4.5 Grounding Reels

4.5.1 Grounding reel cables should be pulled out, cleaned and inspected monthly.

4.5.2 Cable clamps and ends should be inspected for loose connections monthly.

4.6 Sight Gauge

4.6.1 The sight gauge should be inspected monthly for loose connections and weathering of clear tubing.

4.7 Vacuum Manway

4.7.1 Inspect the manway gasket weekly for cuts, cracks and galling. Replace as needed.

4.8 Vent Overflow Preventor

4.8.1 The vent overflow preventor is located inside the tank directly under the vent.

4.8.2 It consists of a caged float with an elastomer seal.

4.9 Vacuum Governor

4.9.1 The vacuum governor has been preset at the factory and should need no further adjustments.

4.9.2 Should adjustments be required:

(1) A ½" nipple on the lid of the vacuum pot is provided for the attachment of a vacuum gauge.

(2) The air supply must be started from 0 pressure and slowly open while simultaneously adjusting the vacuum governor until you reach the desired operating range.

CAUTION: (1) The governor **must not** be adjusted outside of the designed operating range and to do so may damage the tank. Improper adjustments will nullify the factory warranty.

4.10 TROUBLE SHOOTING

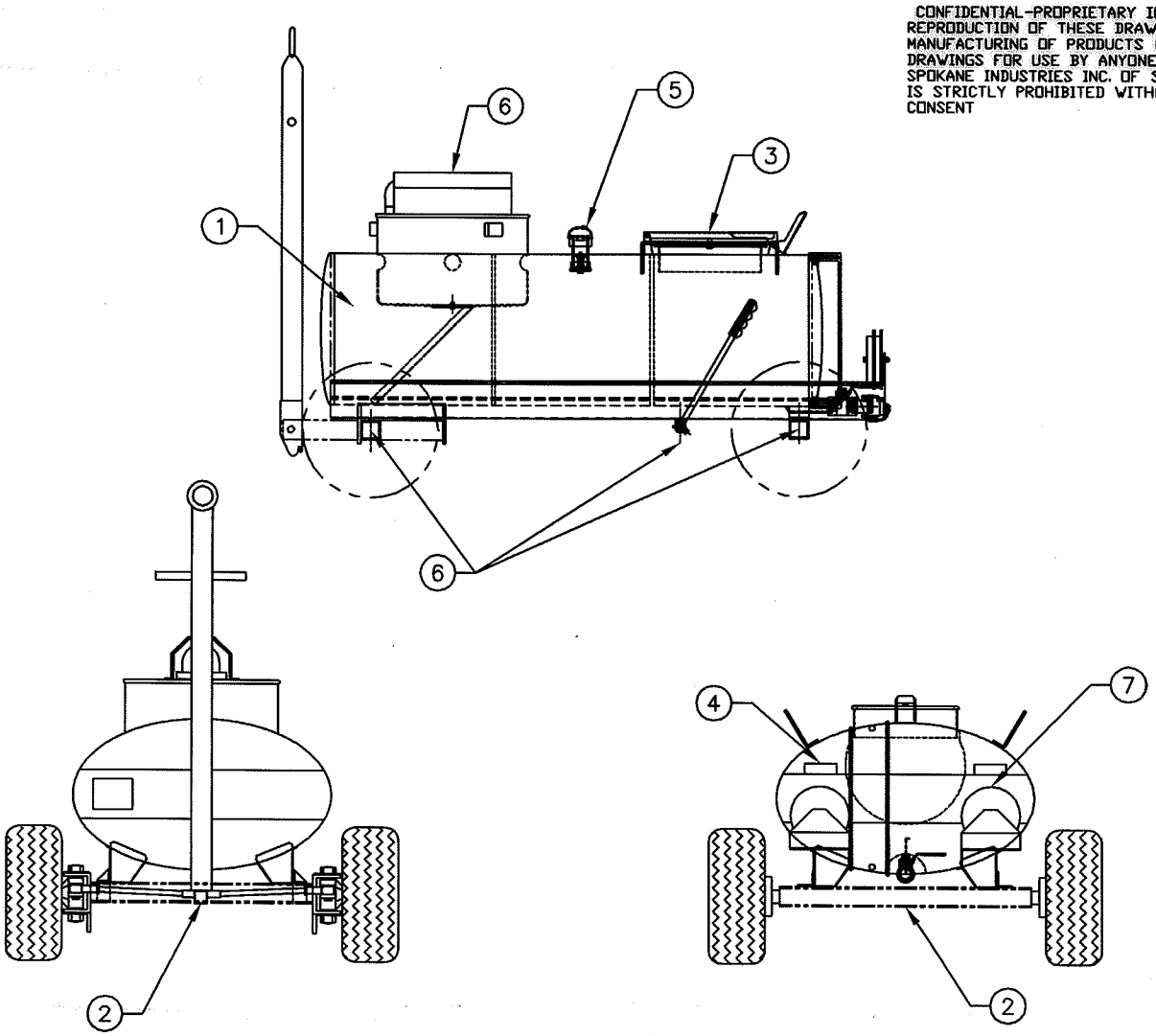
SYMPTOM	PROBABLE CAUSE	PROBABLE CORRECTIONS
The unit does not track or steer correctly or steers Loosely	Bent King Pin housing see see section 5.2.1 Item#7	Replace King Pin Housing
	Defective Tie Rod End see section 5.2.1 Item#12	Replace Tie Rod End
	Loose or worn out Bushings see section 5.2.1 Items#11,16 or 18	Replace as needed
Toe Bar does not stay in The upright position	Broken or stretched spring see section 5.2.1 Item #26	Replace as needed
Parking Brake does not work	Needs adjustment	Adjust as per instructions in sections 4.1.0
	Needs repairing	Replace as needed see section 5.2.3
Vacuum System does not Have much suction	Defective lower drain stop gasket see section 5.6 Item#2	Replace as needed
	Not enough air pressure to operate generator, see section 3.5.3 and 4.4	Increase air pressure and volume
	Plugged outlet Filter see section 5.6	Replace or clean as required
Telescoping Drain wont stay up	Loose clamp handles	Tighten handles a little tighter
Telescoping Drain is over flowing	Tank is full	Empty main tank
	Clogged screen or strainer, see section 4.7 and or 5.5	Remove and clean as required

5.0 REPLACEMENT PARTS

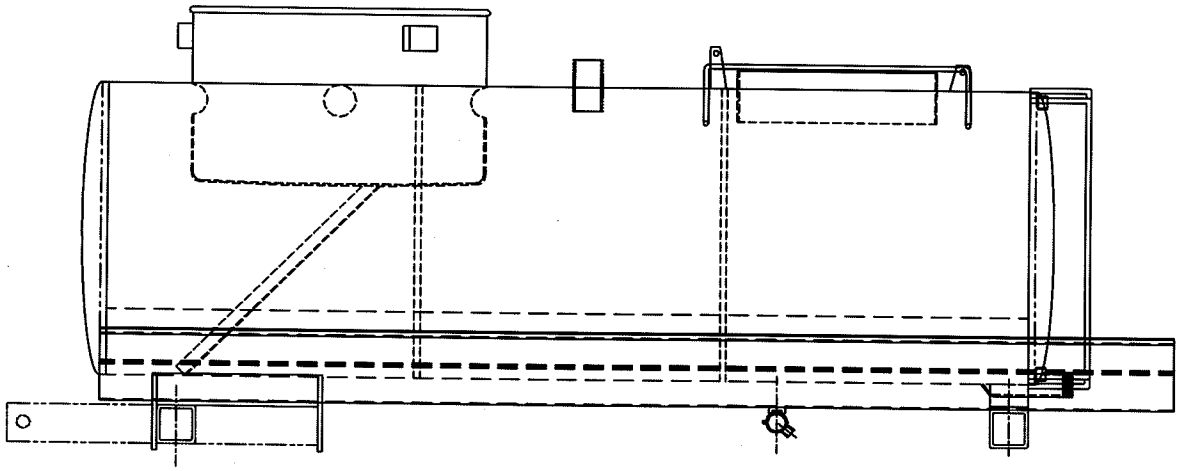
This section provides information for identification of parts for ordering. To order, it is important to have the Model Number, Subassembly Number, Part Number and Description. Parts may be ordered by calling or writing to:

Spokane Industries, Inc.
Fuel Bowser Division
P.O. Box 3303
Spokane, WA 99220-3303
Telephone: (509)928-0720
Tele Fax:(509)927-0826

You are welcome to visit us at SpokaneIndustries.com



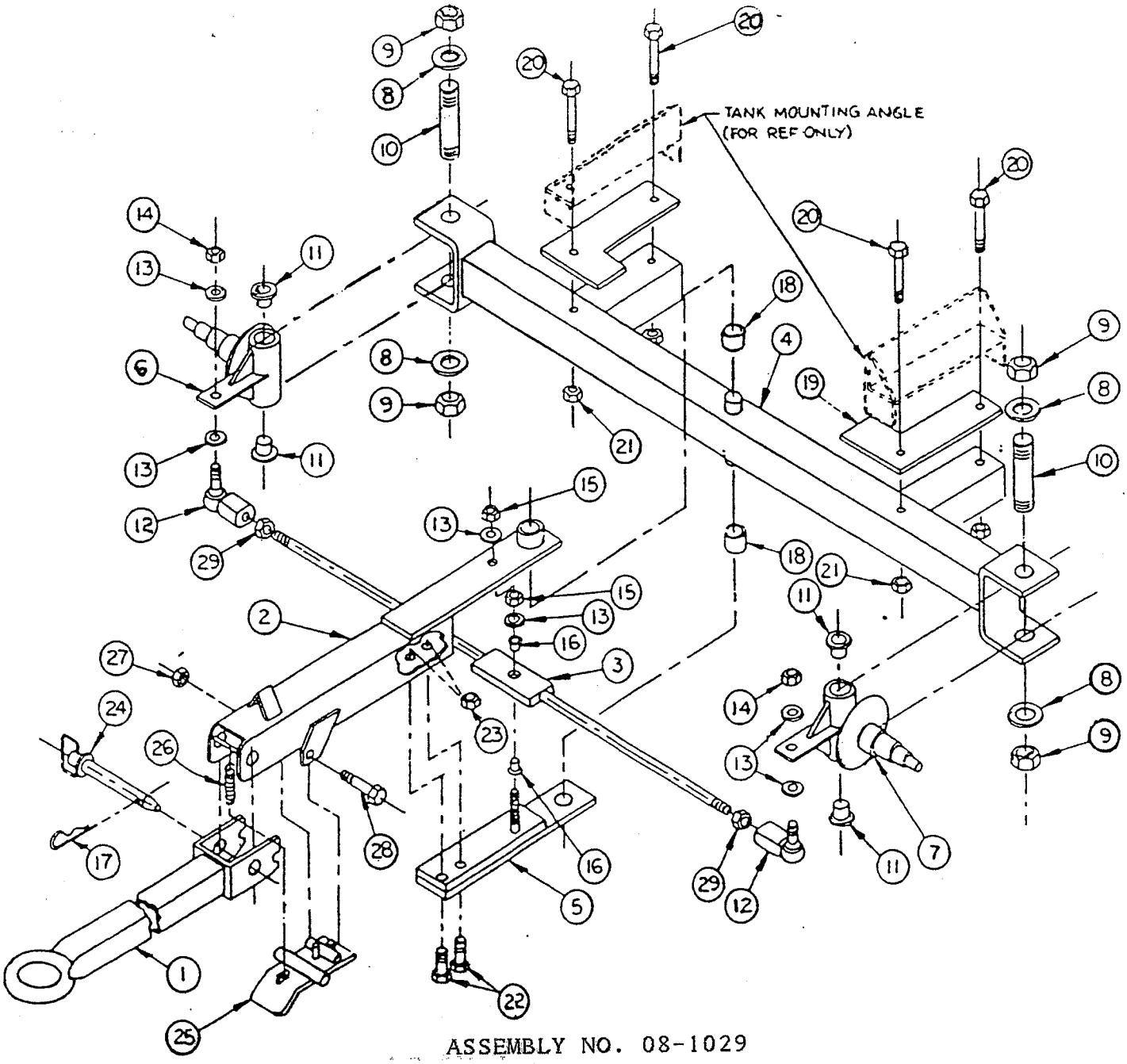
Item No.	Description	Section
1	Main Tank	5.1
2	Axle, Front	5.2.1
2	Axle, Rear	5.2.2
2	Brake, Parking	5.2.3
2	Wheel Assembly, Front	5.2.4
2	Wheel Assembly, Rear	5.2.5
3	Vacuum Manway	5.3
4	Decal Package	5.4
5	Vacuum Governor	5.5
6	Vacuum Assembly	5.6
7	Miscellaneous Fixtures	5.7



ASSEMBLY NO. SMP-19235

MAJOR ASSEMBLY - TANK WELDMENT

Item	Sub Assy.	Part No.	Qnt.	Description	Wt.#
1		SMP-19235	1	Stainless Steel Tank Weldment	398



ASSEMBLY NO. 08-1029

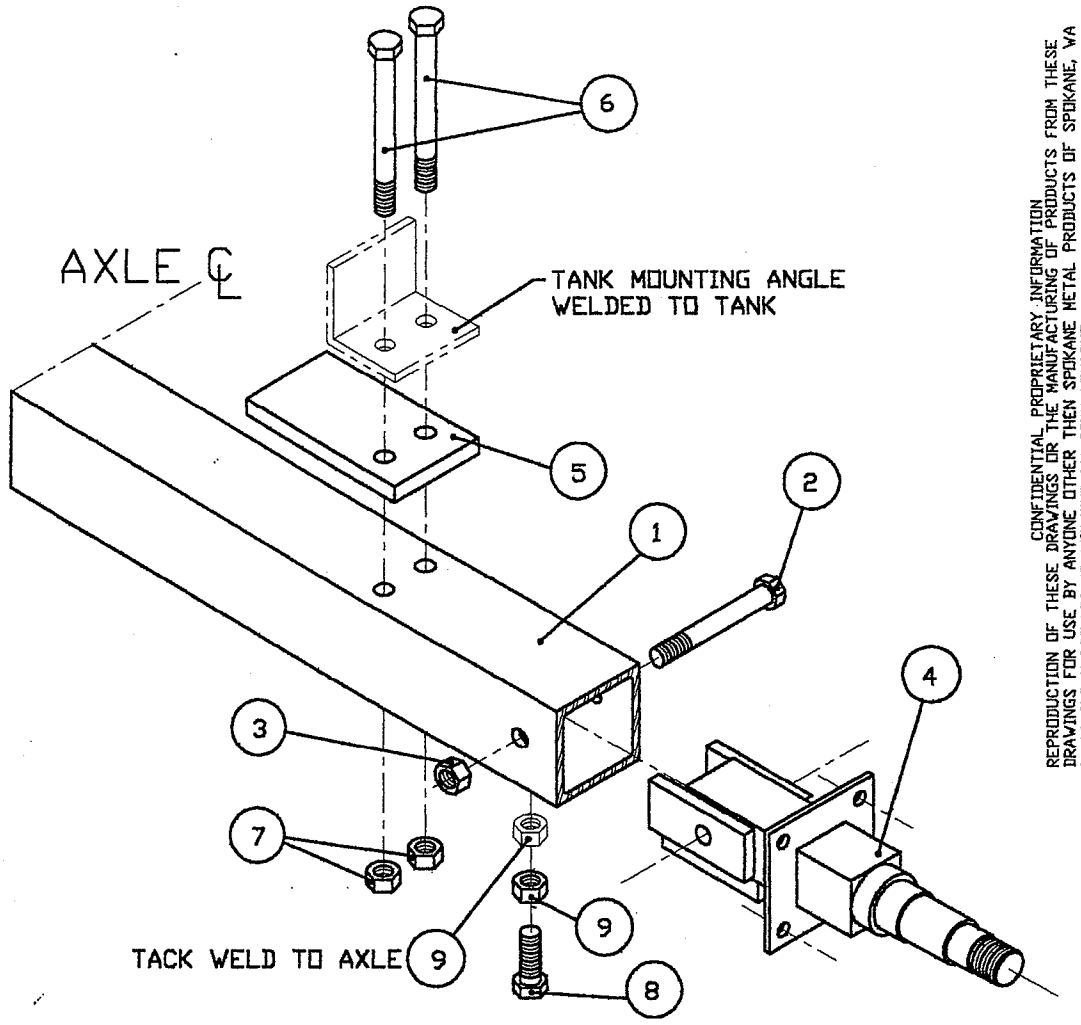
MAJOR ASSEMBLY - AXLE ASSEMBLY

Sub Assy.	Item	Part No.	Quantity	Description	Wt.#
08-1029				Axle, Assembly, Front	
	1	07-1103	1	Tow Bar	23
	2	07-1052	1	Arm, Turning	16
	3	07-10371	1	Tie Rod	7.3
	4	07-1053	1	Axle, Front	53

ASSEMBLY NO 08-1029

MAJOR ASSEMBLY - AXLE ASSEMBLY (CONTINUED)

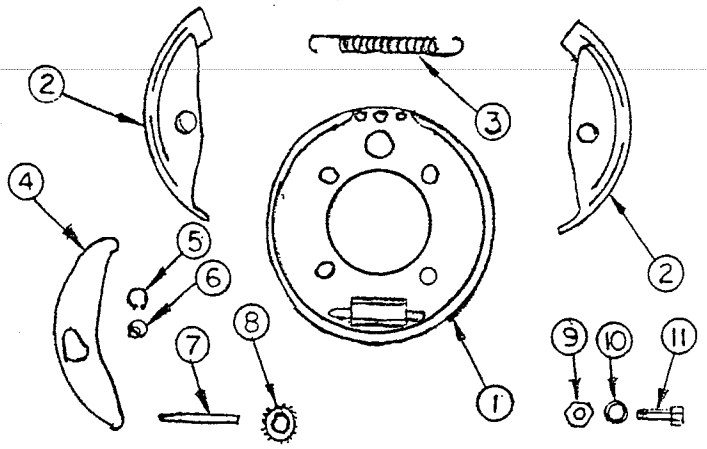
Sub Assy.	Item	Part No.	Quantity	Description	Wt.#
	5	07-1046	1	Steering Arm, Lower Plate	6.1
	6	05-1009	1	Sleeve, King Pin, Right	24
	7	05-1009	1	Sleeve, King Pin, Left	24
	8	02-11131	4	Washer, King Pin	1
	9	02-12131	4	Nut, King Pin	2
	10	05-1010	2	King Pin	11
	11	03-1013	4	Bushing, King Pin Sleeve	1
	12	03-1016	2	Ends, Tie Rod	5
	13	02-11072	5	Washers, Tie Rod	
	14	02-12071	2	Nuts, Tie Rod Ends	1
	15	02-12071	1	Nut, Tie Rod Pivot	.5
	16	03-1015	2	Bushing, Tie Rod Pivot	.8
	17	02-1300	2	Cotter Pin	.2
	18	03-1014	2	Bushing, Axle Pivot	1
	19	06-1023	2	Mounting Pad, Tank	4
	20	02-1503	4	Bolts, Tank Mounting	1.3
	21	02-12041	4	Nuts, Tank Mounting	.5
	22	02-1502	2	Bolts, Turning Arm Clamp	.32
	23	02-12041	2	Nuts, Turning Arm Clamp	.2
	24	02-1304	1	Hitch Pin	2
	25	07-1020	1	Toe Latch	3.1
	26	04-1054	1	Spring, Toe Latch	.5
	27	02-1201	1	Nut, Toe Latch	.1
	28	02-1501	1	Bolt, Toe Latch	.2
	29	02-12141	2	Hex Nut, Tie Rod	.2

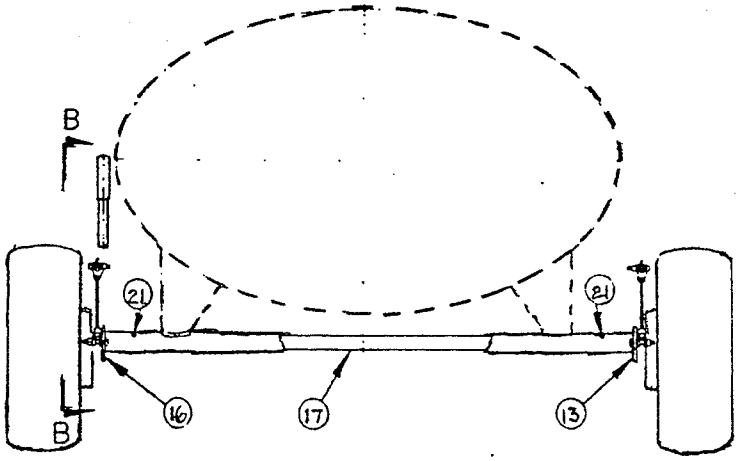


ASSEMBLY NO. 08-1030Z

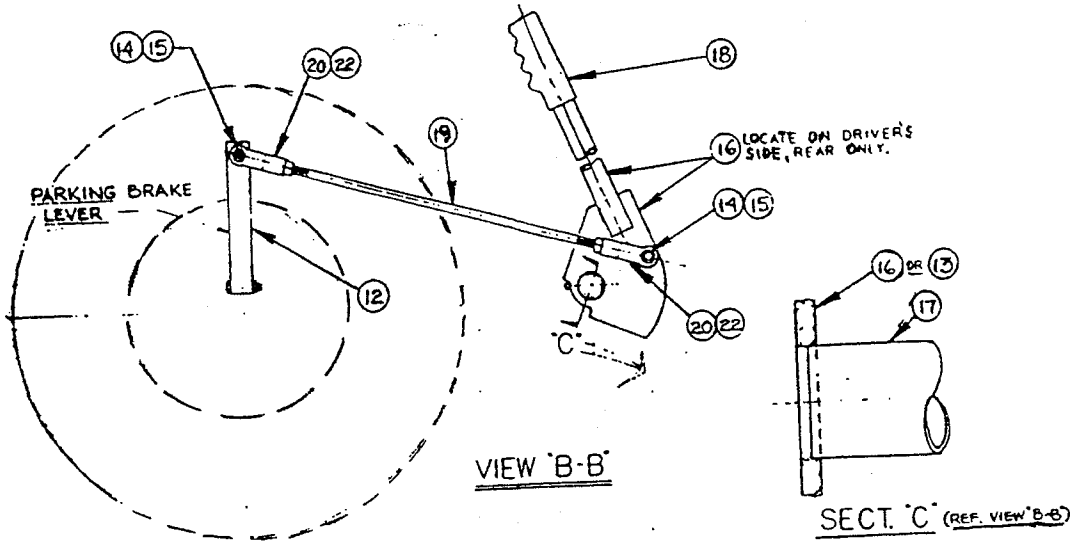
MAJOR ASSEMBLY - AXLE ASSEMBLY (CONTINUED)

08-1030Z				Axle Assembly, Rear	
	1	05-1054	1	Axle, Rear Weldment	40
	2	02-1505	2	Bolts, Mounting Spindle	.6
	3	02-12041	2	Nuts, Mounting Spindle	.5
	4	05-1022	2	Spindle, Rear	17
	5	06-1012	2	Mounting Pad, Tank	1
	6	02-1503	4	Bolt, Tank Mounting	1.3
	7	02-12041	4	Nuts, Tank Mounting	.5
	8	02-10041	2	Bolt, Spindle Stablizer	.5
	9	02-1203	4	Nuts, Spindle Stablizer	.5





REAR VIEW
NTS



VIEW "B-B"

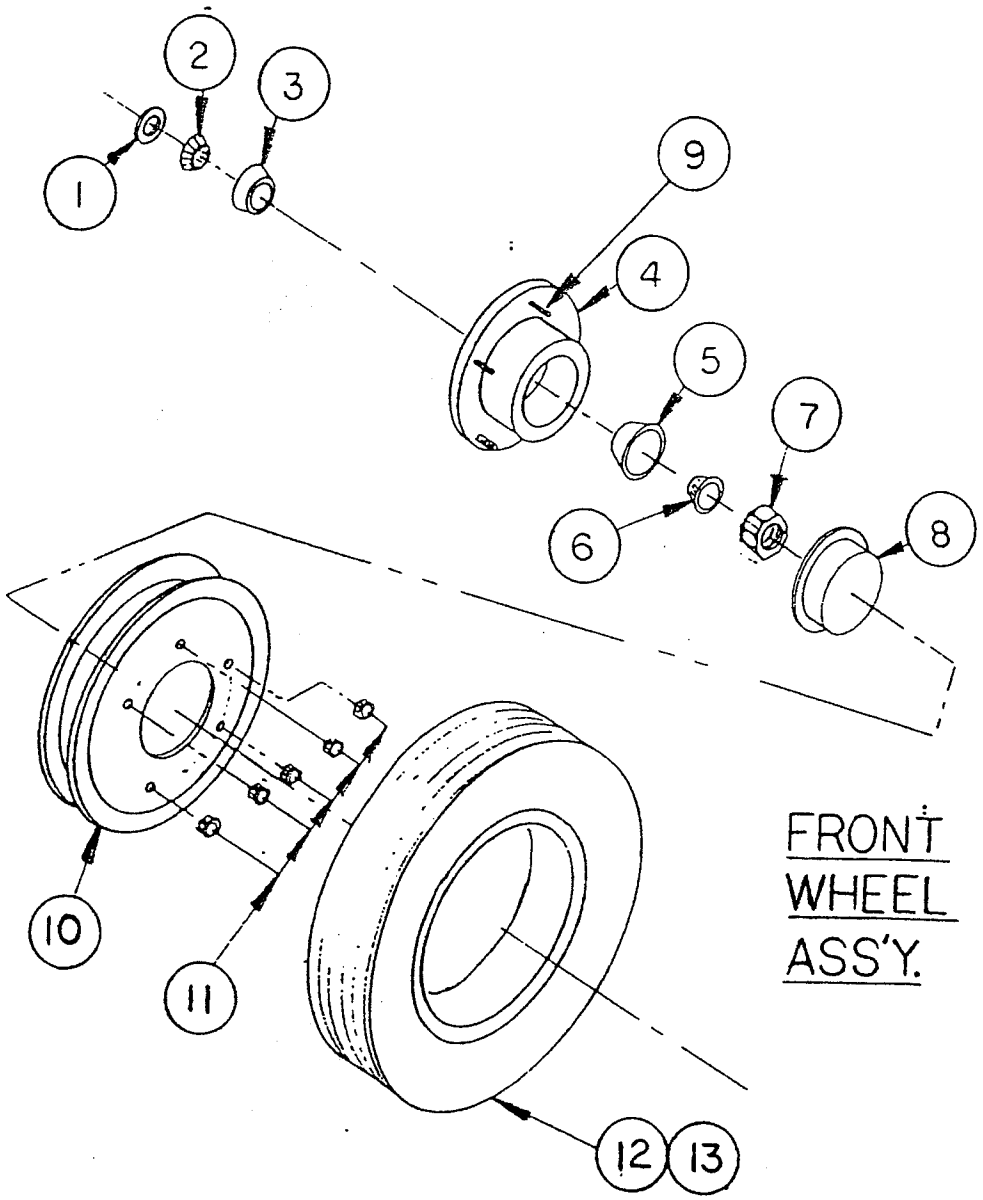
SECT. "C" (REF. VIEW "B-B")

SPOKANE METAL PRODUCTS

ASSEMBLY NO. 10-100030

MAJOR ASSEMBLY - BRAKE, PARKING

Sub Assy.	Item	Part No.	Quantity	Description	Wt.#
08-1007		04-1063		Brake Assembly (2 Req'd)	
	1	04-1023	1	Brake, Plate Assembly	7
	2	04-1024	1	Brake, Shoe Assembly	4
	3	04-1026	2	Brake, Shoe Lever Spring	1
	4	04-1025	2	Brake, Shoe Lever	1
	5	02-1400	2	1\2" Retaining Ring	.2
	6	02-1303	2	Anchor Pin	.2
	7/8	04-1027	2	Adjusting Screw Assembly	.7
	9	02-12031	4	Nut	.2
	10	02-11031	4	Lockwasher	.1
	11	02-10031	4	Bolt, 7/16" Shoulder	.5
	12	04-1030	1	Brake, Control Arm	3
08-1008				Brake Linkage Assembly	
	13	05-1025	1	Cam, Brake Linkage	1.4
	14	02-10012	1	Bolt	.4
	15	02-12021	1	Nut	.1
	16	07-1033	1	Brake Handle, Fabd Sub-Ass	5.4
	17	01-8104	1	Brake Handle, Connector	4
	18	04-1055	1	Grip, Vinyl	1
	19	05-1026	1	Rod, Brake Linkage	1
	20	04-2516	4	Yoke Ends	.5
	21	03-1020	2	Grease Fitting	.5
	22	02-100231	4	Jam Nut, 3/8"	.5



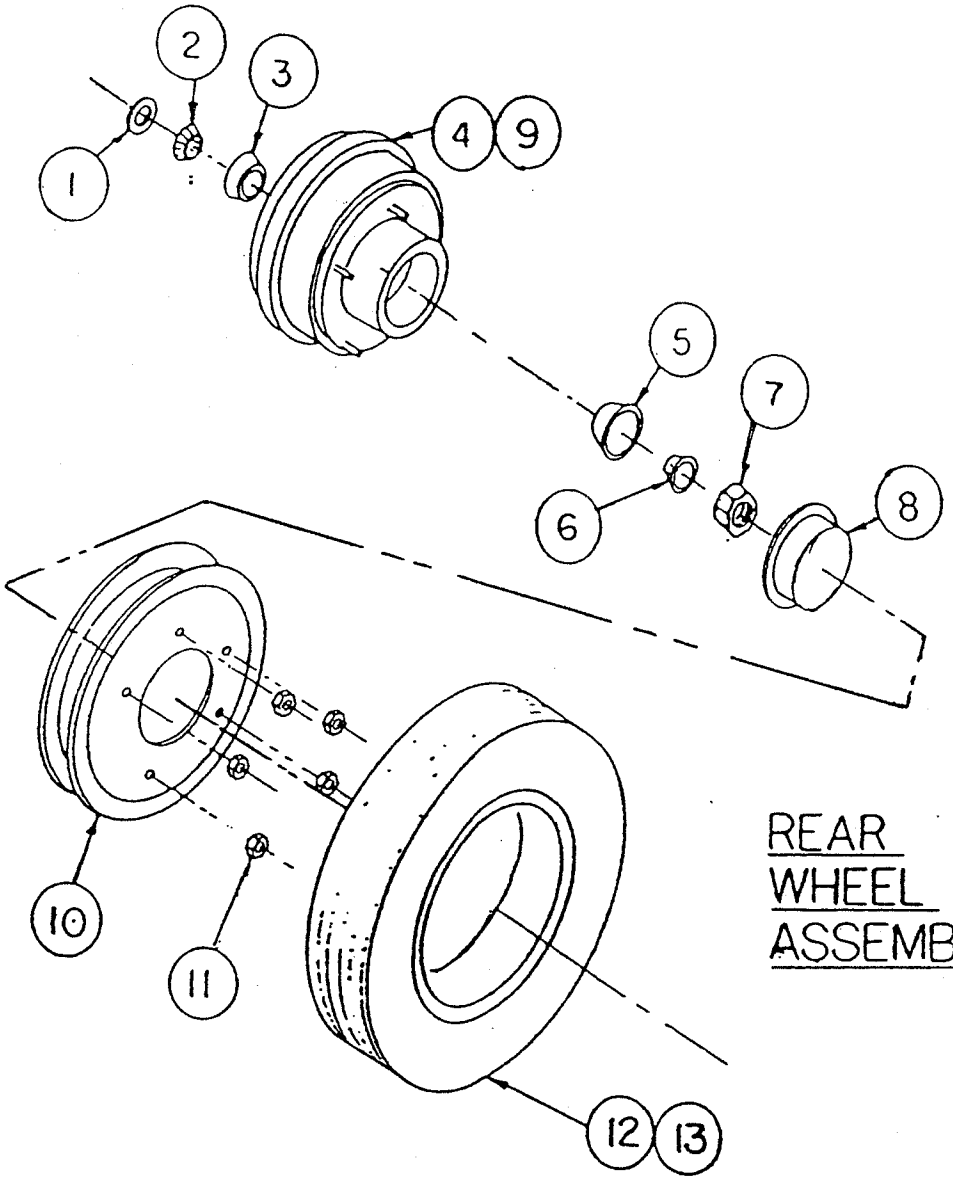
FRONT WHEEL ASS'Y.

ASSEMBLY NO. 10-100042

MAJOR ASSEMBLY - WHEEL ASSEMBLY, FRONT

Sub Assy.	Item	Part No.	Quantity	Description	Wt.#
08-1011		04-1050		Bearing & Hub Assembly (2 Reqd)	
	1	04-1012	1	Seal, Bearing	1
	2	04-1013	1	Bearing, Inner	3
	3	04-1015	1	Cup, Inner	2
	4	04-1017	1	Hub, Wheel	7
	5	04-1016	1	Cup, Outer	4
	6	04-1014	1	Bearing, Outer	3
	7	02-1205	1	Spindle Nut	1
	8	04-1019	1	Dust Cap	1
	9	02-1017	5	Studs, Hub	1
08-10061		04-10201		Tire/Wheel/Tube Assembly (2 Reqd)	
	10	04-1020	1	Wheel, Split Rim, 10"	9.5
	11	04-1021	5	Lug Nuts, Wheel	1
	12	04-10221	1	Tire, 10"	4
	13	04-1045	1	Tube Assembly	11

SECTION 5.2.5.

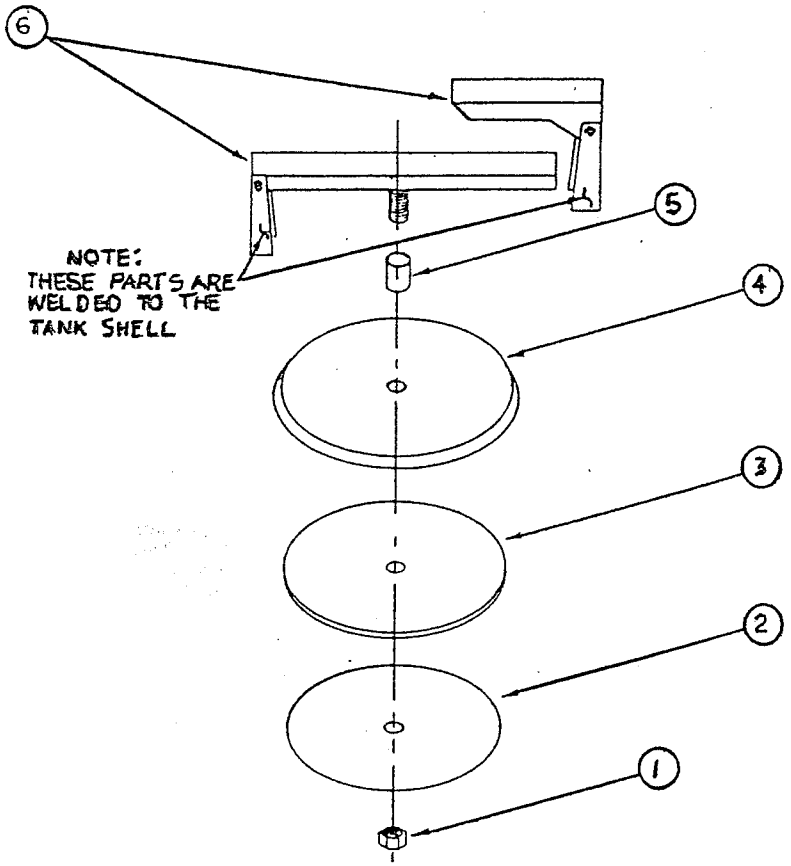


REAR WHEEL ASSEMBLY

ASSEMBLY NO. 10-100052

MAJOR ASSEMBLY - WHEEL ASSEMBLY, REAR

Sub Assy.	Item	Part No.	Quantity	Description	Wt.#
08-10111		04-1062		Bearing & Hub Assembly (2 Reqd)	
	1	04-1012	1	Seal, Bearing	1
	2	04-1013	1	Bearing, Inner	3
	3	04-1015	1	Cup, Inner	2
	4	05-1008	1	Hub/Brake Drum Sub-Assy	16
	5	04-1016	1	Cup, Outer	4
	6	04-1014	1	Bearing, Outer	3
	7	02-1205	1	Nut, Spindle	1
	8	04-1019	1	Dust Cap	1
08-10061		04-1020		Tire/Wheel/Tube Assembly (2 Reqd)	
	10	04-10201	1	Wheel, Split Rim	9.5
	11	04-1021	5	Lug Nuts, Wheel	1
	12	04-10221	1	Tire, 10"	4
	13	04-1045	1	Tube Assembly	11



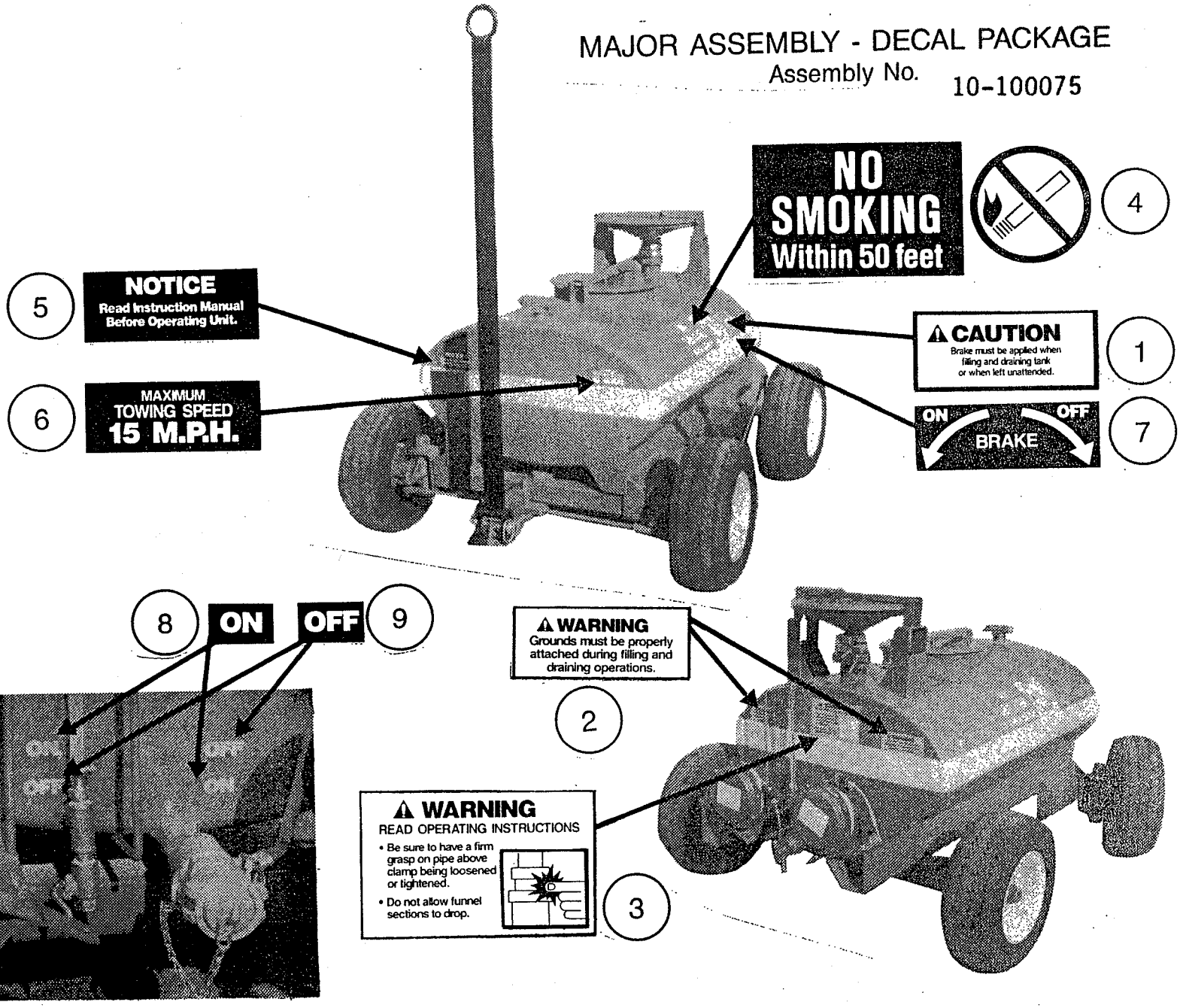
ASSEMBLY NO. 10-100060

MAJOR ASSEMBLY - MANWAY ASSEMBLY

Sub Assy.	Item	Part No.	Quantity	Description	Wt.#
08-1025				Manway Cover Assembly	
	1	07-2102	1	16" Cross Arm Sub-Assy	2.5
	2	01-8222S	1	7" Cross Arm	4
	3	01-93455S	1	Spacer	.5
	4	01-86001	1	Cover	5
	5	06-25025	1	Gasket	1
	6	07-2303	1	Gasket Retainer	2
	7	02-1206	1	Nut	.5
	8	02-10013	1	Bolt	1
	9	02-10014	1	Bolt	1
	10	02-1202	2	Nut	.5

MAJOR ASSEMBLY - DECAL PACKAGE

Assembly No. 10-100075

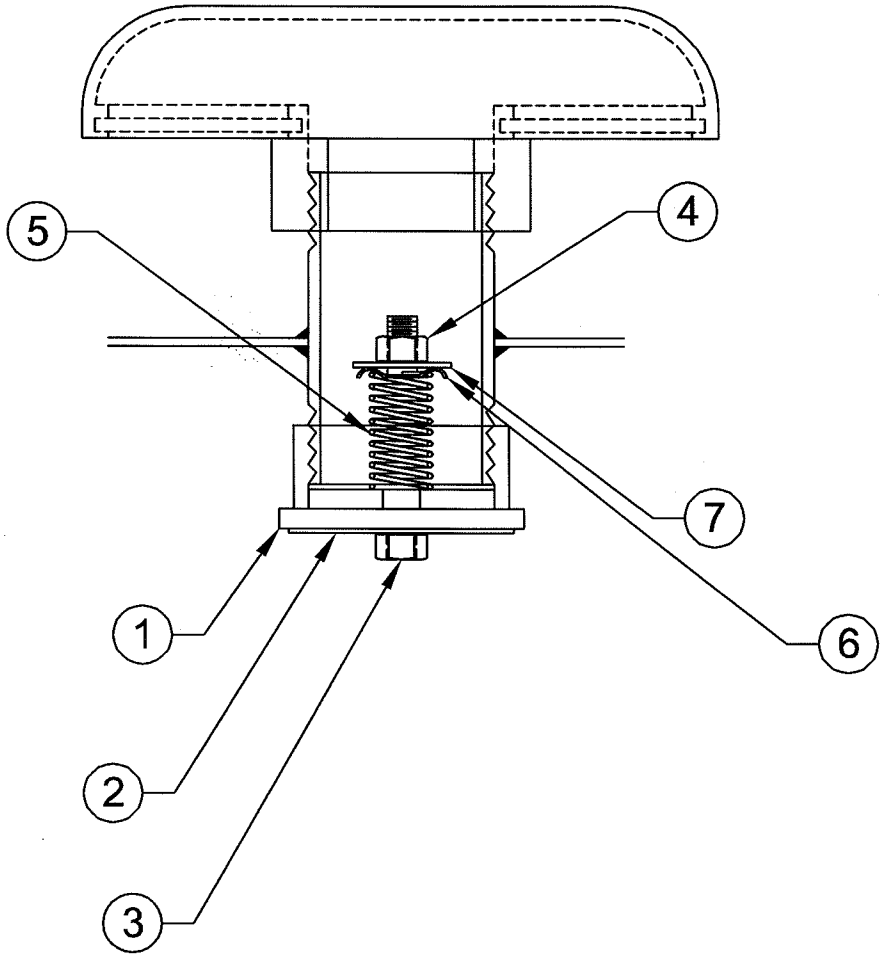


ASSEMBLY NO 10-100070

MAJOR ASSEMBLY - DECAL PACKAGE

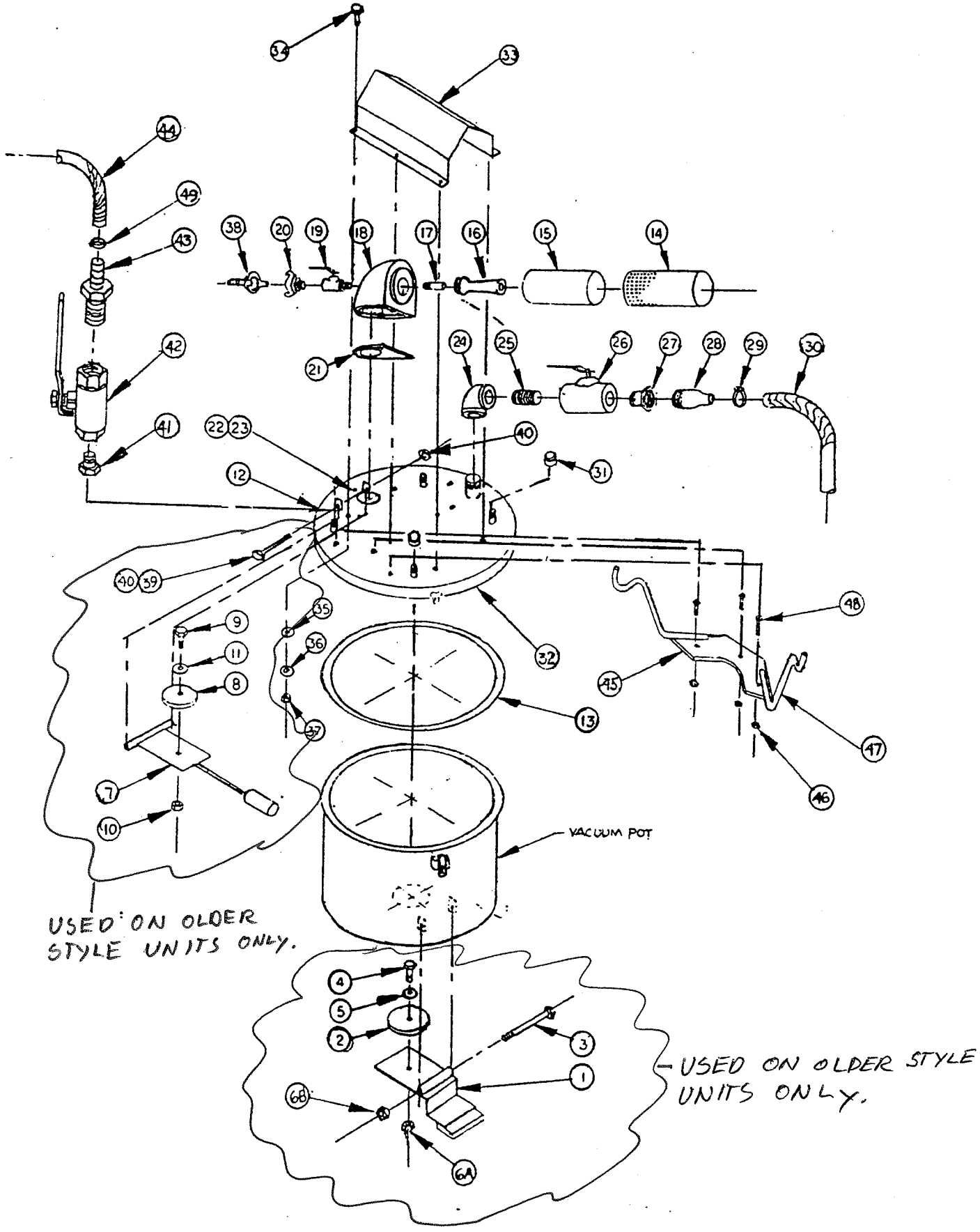
Sub Assy.	Item	Part No.	Quantity	Description	Wt.#
10-100070				Decal Assembly	.1
	1	06-1002	1	Caution, Vacuum System	.1
	2	06-1003	1	Caution, Parking Brake	.1
	3	06-1004	2	Warning, Grounding Reels	.1
	4	06-1005	1	Warning, Telescoping Drain	.1
	5	06-1006	2	Danger, No Smoking	.2
	6	06-1007	1	Notice, Read Manual	.1
	7	06-1008	1	Maximum Towing Speed 15MPH	.1
	8	06-1010	1	Off/On, Parking Brake	.1
	9	06-1011	8	Off/On, Drain Valve	.8
*	11		8	Reflector Tape	.8

* = ITEMS NOT SHOWN



ASSEMBLY No. 08—10015
MAJOR ASSEMBLY— VACUUM GOVERNOR

Sub Assy.	Item	Part No.	Quantity	Description	Wt. #'s
08—10015			1	Vacuum Govenor Assembly	
	1	08—10015—4	1	Gasket	.3
	2	08—10015—5	1	Washer, Flat	.1
	3	08—10015—6	1	Bolt	.2
	4	08—10015—10	1	Nut	.1
	5	08—10015—7	1	Spring, Century J—38	.1
	6	08—10015—8	1	Washer, Cup 92922A036	.1
	7	08—10015—9	1	Washer, Flat 91090A121	.1

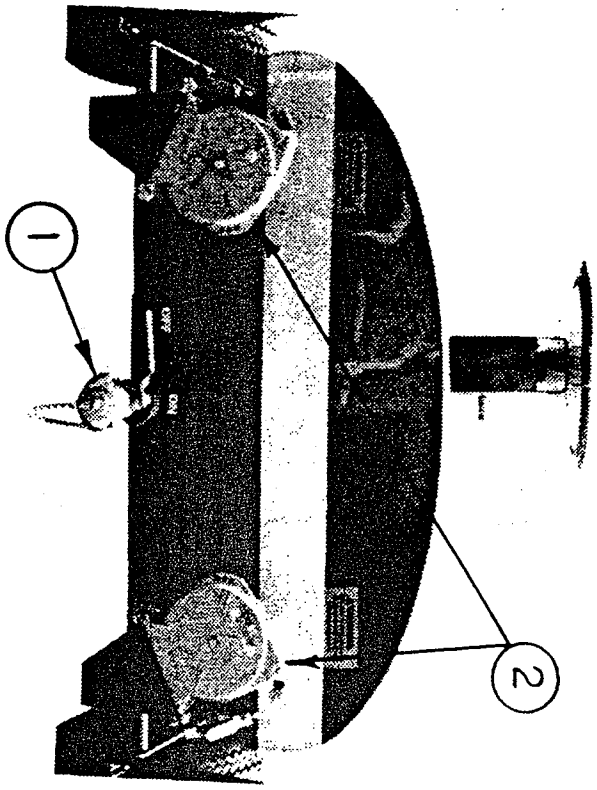


ASSEMBLY NO. 08-0001U
VACUUM SYSTEM ASSEMBLY

Sub Assy.	Item	Part No.	Quantity	Description	Wt.#
08-1000				Drain Stop Assembly	
	1	07-1000	1	Drain Stop Arm	3.5
	2	04-1000	1	Gasket	1.5
	3	02-10016	1	Bolt	.1
	4	02-10002	1	Bolt	.1
	5	02-1100	1	Flatwasher	.1
	6A	02-1201	1	Nut	.1
	6B	02-1200	1	Nut	.1
08-1001				Overflow Stop Assembly	
	7	07-1109	1	Float Sub. Assembly	4
	8	04-1001	1	Gasket	.1
	9	02-10003	1	Bolt	.1
	10	02-1200	1	Nut	.1
	11	02-1100	1	Flatwasher	.1
08-10022				Cover Assembly	
	12	07-1002	1	Lid	5
	13	06-1022	1	Gasket	2.7
08-1003				Nortech Vacuum Head Assy.	
	14	04-1004	1	Exhaust Housing	9.5
	15	04-1005	1	Exhaust Silencer	4.7
	16	04-1006	1	Venturi	2.2
	17	04-1007	1	Air Jet	2.7
	18	04-1008	1	Venturi Box	2.7
	19	04-1032	1	Valve	5.8
	20	04-1056	1	Coupler	1.7
	21	04-1010	1	Gasket	.1
	22	02-10010	3	Bolt	.1

ASSEMBLY NO. 08-0001U (CONTINUED)
VACUUM SYSTEM ASSEMBLY

	23	02-11001	3	Washer	.1
08-1004				Accessories	
	24	03-1001	1	Elbow	2
	25	03-02922S	1	Nipple	.5
	26	04-10321	1	Valve	3
	27	03-1002	1	Hex Bushing	.2
	28	03-1003	1	Nipple	.1
	29	03-10101	1	Hose Clamp	.1
	30	06-10161	1	Hose	15
	31	03-1021	4	Pipe Cap (Optional)	1
	32	07-1019	1	Lid	24
	33	07-1034	1	Cover, Vacuum Generator	8
	34	02-10010	6	Bolt	.1
	35	06-1021	6	Washer	.1
	36	02-1100	6	Washer	.1
	37	02-1200	6	Nuts	.1
	38	04-1057	1	Coupler	.5
	39	02-10016	1	Bolt	.5
	40	02-1201	1	Nut	.1
	41	03-10155	4	Bushing (Optional)	.5
	42	04-10320	4	Ball Valve (Optional)	4
	43	03-10091	4	Hose Barb (Optional)	2
	44	06-10185	4	Tubing (Optional)	4
	45	01-9026S	2	Hanger Plate (Optional)	3
	46	02-12014	6	Hex Nuts (Optional)	.5
	47	01-9172S	4	Tubing Hangers (Optional)	2.5
	48	02-100115	6	Bolt (Optional)	1
	49	03-101005	4	Hose Clamp (Optional)	.5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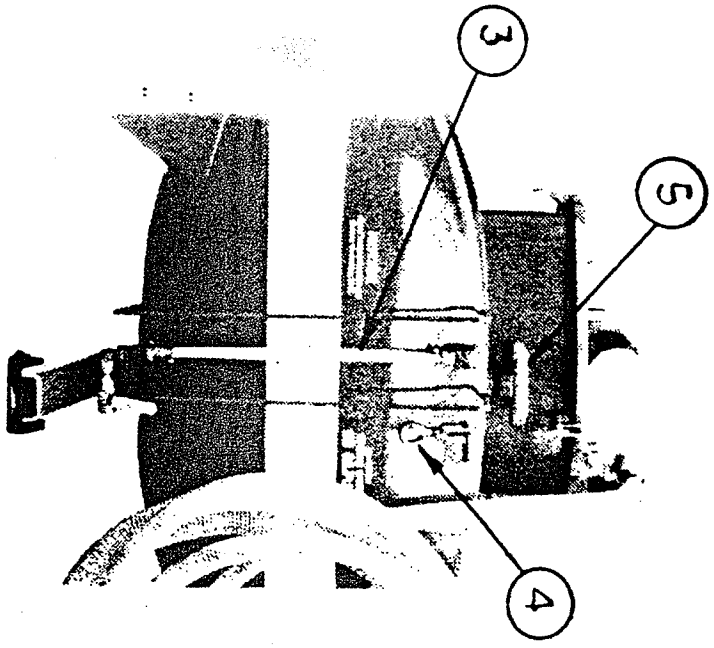
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5
4

ASSEMBLY NO. 10-100110

MAJOR ASSEMBLY - MISC. FIXTURES

Sub Assy.	Item	Part No.	Quantity	Description	Wt.#
08-1012				Drain Assembly	
	1A	04-10321	1	Ball Valve	6
	1B	04-1033	1	Camlock Adaptor	1.5
	1C	04-10331	1	Camlock Plug	.5
	1D	04-1034	1	Safety Chain	.2
	1E	04-1034	1	S-Hook, Safety Link	.1
	1F	04-1035	1	S-Hook, Safety Link	.1
08-1013				Grounding Reel Assembly	
	2	04-10361	1	Grounding Reel	12
	2A	04-1036	1	Grounding Reel	12
	2B	02-10040	4	Bolts	.3
	2C	02-12041	4	Nuts	.1
08-1014	3			Sight Gauge Assembly	
	3A	03-0017S	2	Elbow	.5
	3B	03-1007	1	Tee	.5
	3C	03-1008	2	Nipple	.5
	3D	03-11130	2	Hose Barb	1
	3E	03-1010	2	Hose Clamp	.1
	3F	04-1032	1	Ball Valve	2.7
	3G	06-2527	1	Tubing	.1
	5	04-1037	1	Vent	3

AutoVac Shut Off

Introduction

The AutoVac Shut-Off (AVSO) is designed to prevent overfilling the tank during the vacuum process. The AVSO is equipped with a float *Item 20* set to regulate the maximum tank volume at 92% allowing for fuel expansion. The AVSO operates on compressed air, the same air that operates the primary vacuum generator. Once the 92% tank liquid level point is reached the air powered cylinder *Item 25* actuates and turns off the air supply to the primary vacuum generator. The AVSO is also equipped with a bypass valve *Item 18* that allows you to override the air cylinder so that you can finish draining the hoses prior to emptying the tank. The AVSO is equipped with a twist coupler *Item 19* for fast air connection.

Operation

Start-Up

1) To start the AVSO first hook up an adequate air supply (60CFM @ 90PSI) to the twist coupler *Item 19*
2) Turn on the air control valve *Item 3* by pushing the handle *Item 27* inward so the air cylinder *Item 25* rod is not visible and compressed.
3) You should here the primary vacuum generator turn on.

Shut-Down

1) Pull the handle *Item 27* toward you so the air cylinder *Item 25* rod is visible.
2) The primary vacuum generator will turn off.

AVSO Override

1) When the tank level reaches approximately ¾ full it should be emptied.
2) In the event that the AVSO energizes the air cylinder *Item 25* and the air control valve *Item 3* shuts off, you can override the system so that you can finish draining the suction hoses.
3) Locate the bypass valve *Item 18*
4) Push in and hold the bypass valve push button.
5) Turn on the air control valve *Item 3* by pushing the handle *Item 27* inward so the air cylinder *Item 25* rod is not visible and compressed.
6) The vacuum generator will remain on until you let go of the bypass valve button *Item 18* at which time the ASO will energize the air cylinder *Item 25* and shut off the air control valve *Item 3.*
7) When the suction lines are clear of liquid release the bypass valve push button
8) The primary vacuum generator will turn off.

Maintenance

Prior to each use

The AVSO requires little maintenance. It is strongly suggested that you test the AVSO operation prior to each use.

1) Simply turn on the AVSO as shown in the operations start-up section.
2) Once the primary vacuum generator has turned on simply pull up on the cylinder control valve *Item 2* lever located on the top cover of the level sensor assembly *Item*
3) If the AVSO is operating correctly the air cylinder *Item 25* should energize and turn off the primary vacuum generator.
4) If you hear any air leaks once the vacuum generator shuts off, locate and fix as required.

Check the 1/8" air lines *Items 34 & 35* for leaks or cuts, replace as required.

Every Six months

1) Check the float *Item 20* to ensure that it has no cracks or leaks.
2) Remove the 4 bolts that hold down the top cover of the level sensor assembly *Item 1*
3) Carefully lift up on the assembly and viewing the float *Item 20*
4) Check to ensure that the float level rod moves the *operating rod Item 24* up and down with little effort.
5) Replace any parts as required.
6) Reinstall using a new gasket if required.

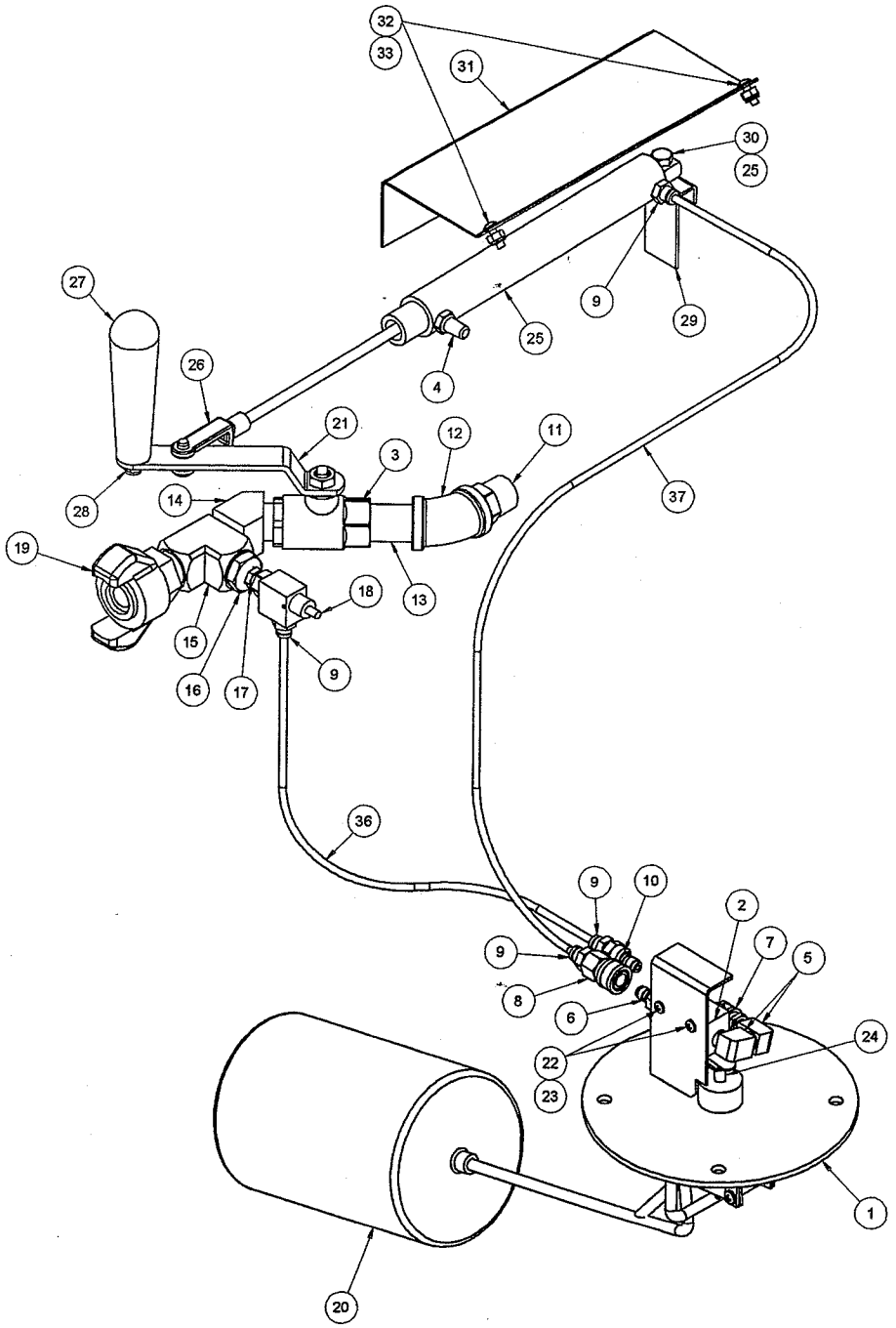
(Special Note) You must remove the 2 small quick couplers *Items 8 & 10* prior to removing the vacuum lid and reinstall the 2 small quick couplers *Items 8 & 10* when the vacuum lid has been reinstalled.

Trouble Shooting

Problem: Air cylinder does not energize

1) Perform AVSO test as listed in the maintenance section.
2) If the air cylinder *Item 25* does not move, check to ensure that the 1/8" air lines *Items 34 & 35* are connected as shown.
3) Check the float *Item 20* as listed in the maintenance section.
4) Check the cylinder control valve *Item 2* by removing quick couplers *Items 10 & 7*
5) Perform the AVSO test again and listen for air coming out of the disconnected quick coupler.
6) If you hear air then the air cylinder *Item 25* needs replacing.
7) If no air escapes then the cylinder control valve *Item 2* requires replacing.

08-1802 AUTO SHUT-OFF



ITEM	QTY	P.N.	DESCRIPTION	MATERIAL	WT
37	1	06-0100	TUBING, 1/8" x 31" LG.	Nylon	.0
36	1	06-0100	TUBING, 1/8" x 14" LG.	Nylon	.0
33	2	02-1211	NUT, NYLON INSERT, #8-32	Stainless Steel	.0
32	2	02-1498	MACHINE SCREW, PAN HEAD PHILLIPS #8-32 x 1/2" LG.	Stainless Steel	.0
31	1	01-8360	COVER, CYLINDER	Stainless Steel	.6
30	1	02-1497	BOLT, HEX HEAD, 1/4-20 UNC x 3/4" LG.	Stainless Steel	.0
29	1	01-8093	CLIP, BASKET	Stainless Steel	.1
28	2	02-1200	NUT, NYLON INSERT, 1/4-20 UNC	Stainless Steel	.0
27	1	04-10551	HANDLE	Phenolic	.1
26	1	04-25161	YOKE, 1/4-28 UNF	Steel, Mild	.1
24	1	05-0501	OPERATING ROD	Bronze	.0
23	2	02-1212	NUT, NYLON INSERT, #6-32	Stainless Steel	.0
22	2	02-1496	MACHINE SCREW, PAN HEAD PHILLIPS #6-32 x 1" LG.	Stainless Steel	.0
21	1	01-8359	HANDLE, VALVE	Stainless Steel	.1
20	1	06-1013	FLOAT	Plastic	.4
19	1	04-1056	CHUCK, AIR	Aluminum	.3
18	1	04-10327	VALVE, BYPASS	Brass	.2
17	1	03-1077	NIPPLE, HEX, 1/8" NPT	Brass	.0
16	1	03-10151	BUSHING, HEX, 1/2" MNPT x 1/8" FNPT	Brass	.1
15	1	03-10057	TEE, STREET, 1/2" NPT	Brass	.3
14	1	03-10062	ELBOW, STREET, 45 DEGREE, 1/2" NPT	Brass	.2
13	1	03-10082	NIPPLE, 1/2" NPT x 2" LG.	Brass	.2
12	1	03-10061	ELBOW, 45 DEGREE, 1/2" NPT	Brass	.2
11	1	03-10083	NIPPLE, HEX, 1/2" NPT x 1 1/2" LG.	Brass	.1
10	1	03-1071	PLUG, STRAIGHT THROUGH, 1/8" x 1/8" FNPT	Brass	.0
9	4	03-1075	ADAPTER, HOSE, 1/8" MNPT x 1/8" HOSE	Brass	.0
8	1	03-1074	COUPLER, STRAIGHT THROUGH, 1/8" x 1/8" FNPT	Brass	.1
7	1	03-1073	COUPLER, STRAIGHT THROUGH, 1/8" x 1/8" MNPT	Brass	.1
6	1	03-1072	PLUG, STRAIGHT THROUGH, 1/8" x 1/8" MNPT	Brass	.0
5	2	03-1070	ELBOW, STREET, 1/8" NPT	Brass	.0
4	2	03-1076	MUFFLER, 1/8" NPT	Brass	.0
25	1	04-7001	CYLINDER, AIR		2.0
3	1	04-1032	VALVE, BALL, 1/2"		.5
2	1	04-10326	VALVE, CYLINDER CONTROL		.2
1	1	08-1801	LEVEL SENSOR ASSEMBLY		1.8

Parts List

SPOKANE INDUSTRIES

SealVac™ FUEL Drain System

ONE YEAR LIMITED WARRANTY

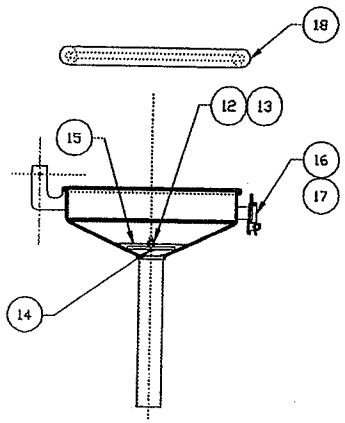
Seller warrants its " *SealVac*™ " to be free from defects in material and workmanship under the normal use and service for which the unit is intended if, but only if the unit has been properly operated, maintained and stored in accordance with printed directions contained in the product manual. Our obligation under this warranty shall be limited to the repair or exchange of equipment and parts which may prove defective within one year of the date the unit is put into service but shall in no event extend beyond a date two years from the date the unit is shipped from our plant. All transportation charges on parts returned to us for replacement under this warranty must be returned pre-paid.

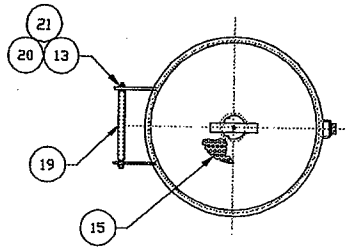
This warranty does not extend to damages caused by environmental factors varying from normal design conditions, whether natural or man-made, or to units subjected to misuse, negligence or accident. This warranty likewise does not extend to the unit or any parts thereof which have been repaired or altered improperly or in any way so as to effect adversely its stability or reliability. This warranty does not cover parts or labor required to repair or replace parts whose usefulness is exhausted due to normal operation of this unit.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOT SET FORTH IN A WRITING SIGNED BY AN AUTHORIZED REPRESENTATIVE OR SELLER. SELLER SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL LOSS OR DAMAGE RESULTING FROM THE USE OR LOSS OF USE OF THIS UNIT.

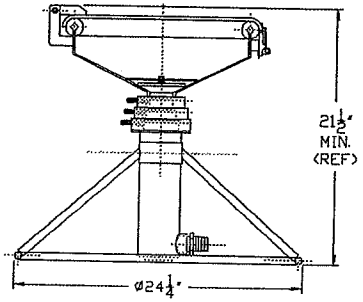
DRAWING/REVISION APPROVALS

SYMB.	REQ. BY:	DESCRIPTION	DWN. BY/DATE	ENG. MGR./DATE	Q.C. MGR./DATE
		ORIGINAL ISSUE	MDD/ 8-24-92		
-	-	REVISED PER MANUAL PRESENTATIONS	MDD/ 01-26-00		

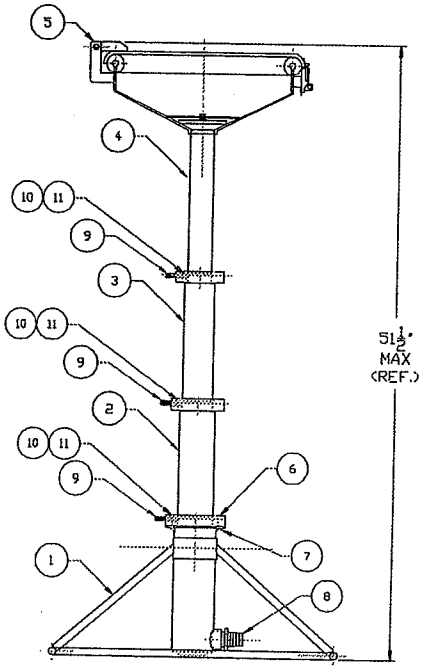




(4) FUNNEL SECTION ASSEMBLY



FUNNEL COLLAPSED DETAIL



FUNNEL EXTENDED DETAIL

ITEM	QTY.	PART No.	DESCRIPTION	MAT'L.	WGHT.
21	2	02-1200S	WASHER	S/S	.02
20	1	01-91984S	1/4" ALL THREAD ROD	S/S	.1
19	1	01-9233S	PIPE	S/S	.2
18	1	06-1022	GASKET	RUB	.2
17	2	STOCK	RIVET	S/S	.01
16	1	04-1053	DRAW LATCH	S/S	.1
15	1	04-1039	PERFERATED PLATE	S/S	.1
14	1	02-10002	CARRIAGE BOLT	S/S	.2
13	4	02-1200	NUT	S/S	.2
12	2	02-1100	FLAT WASHER	S/S	.1
11	3	04-0093	HELI-COIL	S/S	.1
10	3	05-0037	WEDGE	NYLON	.01
9	3	05-10182	HANDLE	S/S	.3
8	1	03-1003	HOSE BARB	ALUM	.24
7	3	02-10010	BOLT	S/S	.04
6	1	05-10012	BASE MOUNTING FLANGE	ALUM	1.22
5	1	07-11107	LID SECTION ASSEMBLY	ALUM	.36
4	1	07-11106	FUNNEL SECTION ASSY (INCLUDES ITEMS 12-21)	ALUM	4.70
3	1	07-11105	UPPER SECTION ASSEMBLY	ALUM	1.70
2	1	07-11104	LOWER SECTION ASSEMBLY	ALUM	1.83
1	1	07-11103	BASE SECTION ASSEMBLY	S/S	17.2
				APPROX. WGHT.	28.9#

Bill of Material

SUPPLEMENTAL DWG. NUMBERS

WORK ORDER
W/O: XXXXX

SALES ORDER
S/O: XXXX

TOLS. EXCEPT AS NOTED
FRACT.= 1/8"
.XX =± .13"
.XXX =± .005"
ANG. =± 1°

SPOKANE INDUSTRIES
Spokane Metal Products Division
P.O.Box 3303, Spokane, WA 99220 (509) 928 0720

TITLE:
SERVICE MANUAL PRESENTATION USE, ONLY
REMOTE DRAIN FUNNEL ASSEMBLY
BOWSER

SIZE: A | DWG. No.: 07-1110U | SCALE: - | SHT 1 OF 1

SPOKANE INDUSTRIES

***SealVac*™ FUEL Drain System**

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THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOT SET FORTH IN A WRITING SIGNED BY AN AUTHORIZED REPRESENTATIVE OR SELLER. SELLER SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL LOSS OR DAMAGE RESULTING FROM THE USE OR LOSS OF USE OF THIS UNIT.