

STRATOS Asphalt Distributors

Operator's Manual

TRAILER MOUNTED MAINTENANCE UNIT



Models: DMT-400, DMT-600 and DMT-1000

OPERATOR'S MANUAL

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YOUR MAINTENANCE UNIT

MODEL: DMT-1000	SERIAL NUMBER: 3177
CAPACITY: 1000 Gallons	

PURCHASE DATE:

MAY 2019

INSTRUCTIONS FOR IDENTIFYING AND ORDERING OF REPLACEMENT PARTS

For everything related to your Stratos Asphalt Distributor contact:

PAVEMENTGROUP.com
Toll free: 888-999-2660
1525 Western Ave, Albany, NY 12203

Manufacturer Info:

EMPRESAS Y EQUIPOS INDUSTRIALES S.A. DE C.V.
Av. Libertad 150, Zona Industrial. San Luis Potosí, S.L.P. México. 78395
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Please mention the following information when calling with your service questions:

- 1) Model Number, Serial Number, Gallons, Pump Brand, Motor Brand
- 2) Description of the problem
- 3) Steps you've already taken to try and correct the problem
- 4) Need a Part? Part Code number, Description and Quantity

CUSTOMER SUPPORT: Our goal is to help make sure that your equipment performs at its best at all times. Call our customer support department with any questions. We appreciate your feedback and equipment improvement suggestions.

www.PAVEMENTGROUP.com

Toll free: 518-218-7676 or 888-999-2660

1525 Western Ave, Albany, NY 12203

M-F 9am-5pm

DEAR CUSTOMER:

Congratulations on your purchase of a Stratos Asphalt Distributor. Thank you for your business! We know you have a choice in what you buy and appreciate your joining the Stratos family of owners. We wish to reassure you that you have made an excellent choice! You'll find a well-engineered, quality built product, that will provide you with many years of dependable performance.

INTRODUCTION

Bituminous asphalt cement is of great interest to road-building engineers due to its strong, highly adhesive, durable and water-proofing properties. It is a plastic-like substance that provides great flexibility to mineral aggregate mixes asphalt. It is also reaction-resistant to other substances like acids, alkali and salts. Even when it features a solid-like structure, it can be liquefied at ambient temperatures by applying heat, oil products like kerosene, gasoline and others, or emulsifying it with water.

As a construction material, bituminous materials can be heated and transformed to a liquid state. These liquid materials can be mixed with solvents and or water and heated, until the viscosity is low enough to flow and circulate through the Stratos plumbing/tank system. The liquid material can then be pumped and sprayed uniformly onto the surfaces.

Once the Stratos has applied the liquid material to the surface, a layer of aggregate can be evenly spread and compacted to produce a stable and cost effective surface for vehicles. This process can be repeated with multiple layers of emulsion and aggregate to produce thicker paved surfaces.

Once the liquid asphalt is applied, the solvents and or water evaporate and the bitumen goes back to its solid state, becoming a strong, waterproof adhesive agent, cementing the aggregate and forming a solid stable mass. The evaporation degree is controlled by the volatility of the additives used, and the atmosphere exposure time (breaking time).

There are fast, medium and slow breaking bitumen products. Check with your asphalt supplier for an adequate application based on your requirements. The Stratos distributor is designed to apply all of these materials.

CAUTION: If you switch between Anionic (- charge) and Cationic (+ charge) materials, you **MUST FIRST** run a neutralizing product through your entire system. Products such as CRS, CMS, CSS are positively charged. RS, SS products are negatively charged. Switching directly between these product classes will cause the materials to lock together, solidifying and hardening within your tank system. Be sure to use a neutralizer such as an MC material before you switch product classes. Always check with your material supplier for details.

Stratos Distributors are designed and built for spraying low temperature products such as emulsions and oils at up to 185°F, used for chip sealing and water-proofing operations. Stratos will spray the vast majority of emulsion products without issue. There will be some variation in the amount of required heating time to reach a desired temperature and this will depend upon the material you're using. Check with your supplier for details. Material viscosity differs between products and will impact spray pressure and material outflow. Your application rate may change based upon the product you're using.

Stratos Distributors are rugged and well built, utilizing top quality materials, craftsmanship and construction methods. They are designed to provide you with many years of dependable service, while providing ease of operation for your operators.

In order to get the most out of your new equipment, please read this manual so you can get to know it better from the very beginning.

Guideline Temperatures for common liquid Asphalts

Type & Grade <u>Asphalt Cements</u>	Spraying Temperature		Type & Grade <u>Cutback Asphalts</u>	Spraying Temperature	
	Deg. C	Deg. F		Deg. C	Deg. F
AC-2.5	130	270	MC-30	30	80
AC-5	140	280	MC-70	50	120
AC-10	140	280	MC-250	75	165
AC-20	145	295	MC-800	95	200
AC-40	150	300	MC-3000	110	230
AR-1000	135	275	RC-70	50	120
AR-2000	140	285	RC-250	75	195
AR-4000	145	290	RC-800	95	200
AR-8000	145	290	RC-3000	110	230
			SC-70	50	120
PEN 40-50	150	300	SC-250	75	160
PEN 60-70	145	295	SC-800	95	200
PEN 85-100	140	280	SC-3000	110	230
PEN 120-150	130	270			
PEN 200-300	130	270			

Emulsified Asphalts

RS-1	20-60	70-140
RS-2	50-85	125-185
HFRS-2	50-85	125-185
MS-1	20-70	70-160
MS-2	20-70	70-160
MS-2h	20-70	70-160
HFMS-1	20-70	70-160
HFMS-2	20-70	70-160
HFMS-2h	20-70	70-160
HFMS-2s	20-70	70-160
SS-1	20-70	70-160
SS-1h	20-70	70-160
CRS-1	50-85	125-185
CRS-2	50-85	125-185
CMS-2	20-70	70-160
CMS-2h	20-70	70-160
CSS-1	20-70	70-160
CSS-1h	20-70	70-160

These recommendations are provided by "The Asphalt Institute" and advise the minimum spray temperatures for safety.

TECHNICAL SPECIFICATIONS

STANDARD EQUIPMENT

400 gal. (1514L), 600 gal. (2271L) or 1000 gal. (3,785 L) tank with an additional 5% room for expansion of material.

DRIVE PUMP SYSTEM:

- HONDA 9 HP Gasoline engine.
- VIKING HL32 Pump, set at 30GPM @ 1600 RPM
- Belt & Sheaves coupling system
- Optional 60GPM Pumping system with direct coupling engine-pump assembly. HONDA 14 HP, gasoline engine and VIKING K-124a PUMP, set at 60 GPM @ 600 RPM.

MATERIAL TANK SYSTEM:

- Elliptic, low center of gravity, steel tank. 1/4" head plates, 3/16" shell plate construction, 23" Manhole with Lid & Lock down wing nut
- Side Ladder for top access
- 2" Overflow line plumbed through tank center
- Strainer Basket
- Measuring Stick, steel, in-tank

SPRAY SYSTEM:

- Steel Hand-Spray Wand, on/off valve and spray tip
- Hannay 3/4" Hose Reel
- Parker 436 Hose, 50' long, 3/4", up to 185°F water emulsion, 302°F oils, 2250psi, tight bend radius hose

PLUMBING SYSTEM:

- 2" Suction line.
- Strainer Basket
- 1 1/2" Plumbing lines throughout or 2" Plumbing lines throughout in 60 GPM Pumping system.
- 2" Spray Bar (when option is ordered).
- 3/4" Spray wand.
- 3/4" Standard Hose Reel.

HEATING SYSTEM:

- Beckett 300,000 BTU single diesel burner, electronic ignition, fuel pump
- Fuel tank 12 gallons, with air valve
- Thermal ceramic tile on fire tube
- 6"Ø. Sch 40 Heating Flues

CLEANING SYSTEM

- Solvent Tank, with 10 gal. usable capacity when filled up to 75%.
- Circulation system for cleaning plumbing lines

ADDITIONAL STANDARD EQUIPMENT

- Operator and Parts Manuals.

TRAILER

TIRE

Model	400	600	1000
Brand	Supplier	Supplier	Supplier
Size	ST235/80R16	ST235/80R16	ST235/80R16
Tread	2 polyester + 2 Steel + 1 Nylon	2 polyester + 2 Steel + 1 Nylon	2 polyester + 2 Steel + 1 Nylon
Load Range	E	E	E

Axle Brand	Dexter	Dexter	Dexter
Axle Capacity	7 000 Lbs.	7 000 Lbs. (2 Axle)	7 000 Lbs. (2 Axle)
Adjustable Hitch	14 000 Lbs.	14 000 Lbs.	14 000 Lbs.
Jack Capacity	7 000 Lbs.	7 000 Lbs.	7 000 Lbs.

SPRAY BAR SYSTEM

- 7ft Standard Spraybar, 2" profile, 8 nozzles
- 12ft Spray Bar: 134" Length, 70" central (6 nozzles) 34" Extensions (3 nozzles ea.)
- Adjustable Height Spray bar
 - Max Tip height from ground: 16"
 - Min Tip height from ground: 5"

BEST PRACTICES FOR YOUR STRATOS Asphalt Distributor

For your peace of mind and dependable operation, we encourage you to follow these best practices.

Your new Stratos is one of the most reliable, long lasting pieces of equipment on the market, thanks to its sturdy construction, and its well-engineered design which make it easy to operate and maintain.

The following list of recommendations and guidelines will ensure your Stratos receives the necessary care before, during and after operation. This will ensure your Stratos operates reliably:

1. **THE OPERATOR MUST PERFORM THE CLEANING PROCESS IMMEDIATELY AFTER OPERATION.** Once finished operating the machine, begin cleaning out the machine as quickly as possible. To perform the cleaning process, refer to the **CLEANING TANK FILLING** section in this manual.
2. **DO NOT OPERATE YOUR DRIVE PUMP SYSTEM IF THE PUMP IS CLOGGED.** Clogging usually happens when the cleaning process is not performed fully or properly. This also occurs when using contaminated material. Be sure to use the strainer basket in the manhole when loading materials to prevent contaminated materials from entering the tank. Furthermore, if material is stored in the tank for long periods of time, it can create a top layer of coagulated material that can clog your pump when passing through the lines. Another cause of clogging, can be from the material crust formed around the fire tube that builds up over time as a result of heating material while material level is below that top of the heating tube. Keep the level of material above the tube to prevent a crust from forming and to avoid other hazards such as a potential fire when using material that contain any flammable substance.
3. **BEFORE STARTING PUMP HEAT MATERIAL TO MFG'S RECOMMENDED TEMPERATURE.** Cold material will have a high viscosity and may cause the pump to clog or lock up. Preheat your material to mfg's recommended temperature, this will thin the material (reduce its viscosity) allowing it to pump properly.
4. **PUMP PRESSURE RELIEF VALVE** is factory preset at 50 psi. If you are pumping the higher viscosity materials it may be necessary to increase this. The maximum setting is generally 100 psi. If you have the optional 60gpm Viking pump, consult your dealer for details.
5. **BURNER:** Check and clean your burner regularly. Soot buildup can cause obstruction of ducts and fuel valves and may reduce the life of the burner. Fully clean your burner once a week, and make a habit of regularly checking for proper functioning and operation of burner. Tighten or replace fuel valve when detecting any leaks or damage to avoid any risks. REFER TO YOUR BECKETT MANUAL
6. **Read your operation manual carefully,** several times if required, to clarify any questions about operation, function and maintenance. It is important that you fully understand the proper procedure for startup, operation, shut-down and clean-out. With proper care and maintenance your Stratos will perform exceptionally well and last many years.

VALVES AND PLUMBING SYSTEM

OPERATION OF VALVES – STANDARD SETUP

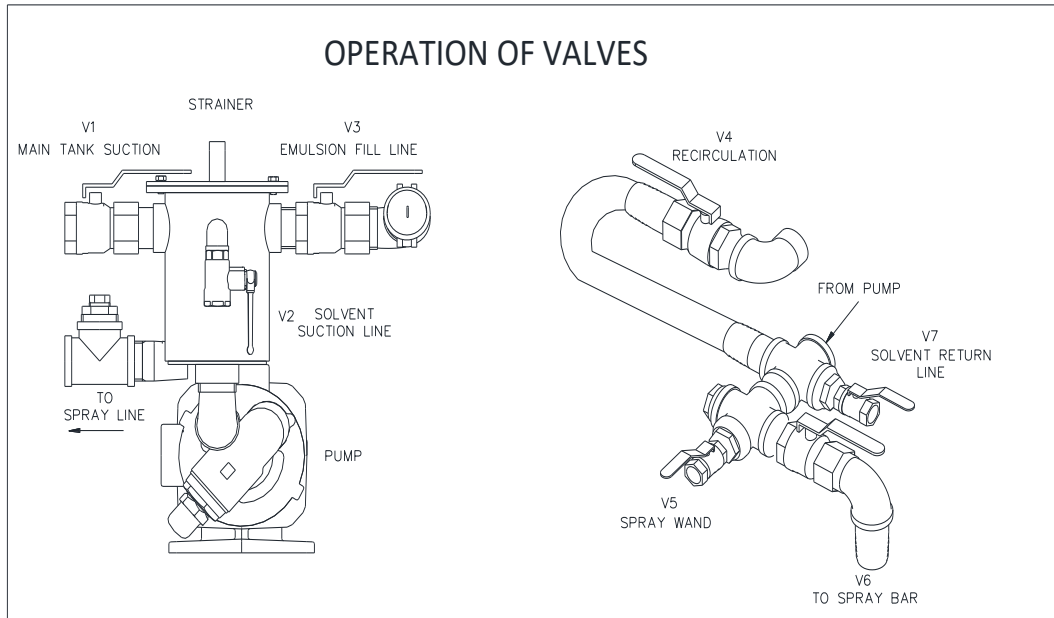


Diagram 1

OPERATION OF VALVES WITH REMOTE CONTROL

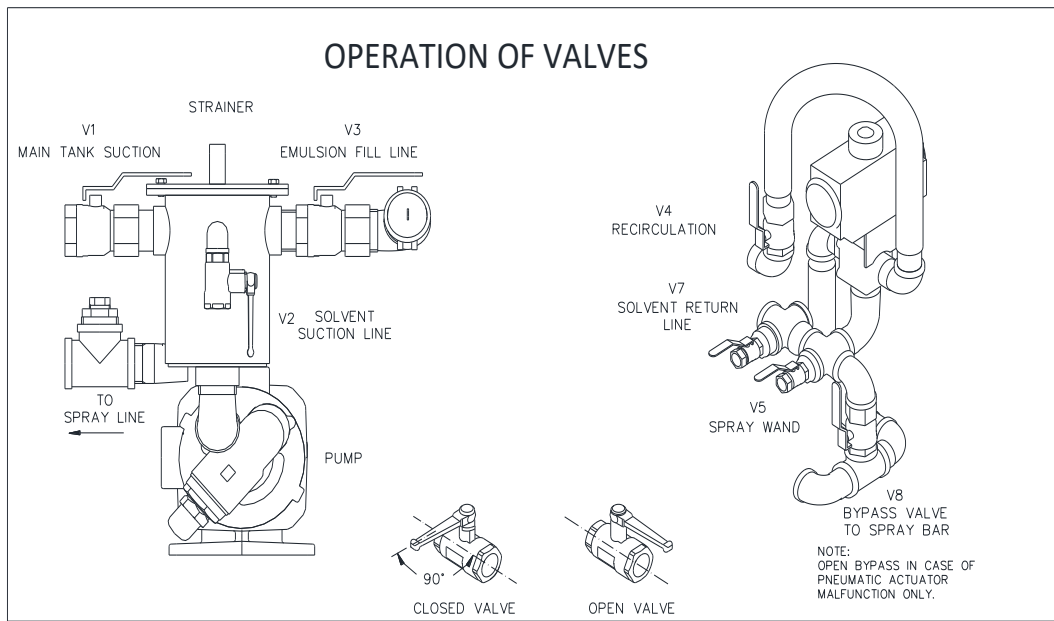


Diagram 2

PRE-START CHECKS

Prior to starting the engine or burner on your Stratos:

Verify proper; engine oil level, fuel level, diesel fuel level for burner, solvent level of flush tank.

Check correct position of valves prior to starting the engine.

Valve operation schematics display red and green dots

Red = 'Closed' Valve Position

Green = 'Open' Valve Position



The valve located directly under the strainer, must remain open during normal operation schedule. If the unit will be stored for a long period of time, after performing a deep cleaning cycle, it is recommended to keep this valve shut to prevent any remaining material to drip down the pump suction.



DIESEL REVERSE SUCTION TO CLEAN TANK

At the start of operation, reverse material flow to suction to purge residual solvent from work lines. This avoids wasting solvent and allows it to be reused for several clean-out cycles.

Follow these steps:

1. Set valves as shown in below images.
2. **IMPORTANT: Make sure the tank valve is CLOSED!** If the tank valve #1 (Diagram 1) is open, 'material' will be drawn in from the material tank along with air from the suction line, which will pump into the solvent tank and overflow it.
3. Remove the cap from the Inflow-Line (camlock fitting). This will allow the pump to draw air through the lines to return solvent to the solvent tank. Images 1, 2 and 3.
4. Start the engine and adjust the idle to proper speed. Any residual fluid in the lines will return to the flush tank.
5. Fluids contained in the spray bar and wand cannot be recovered as these system do not recirculate. Refer to the 'Cleanout' section for details on cleaning out the spray bar.
6. After approximately one minute, stop the pump and close all valves.
7. **IMPORTANT:** To avoid spillage, make sure you understand how each valve should be positioned.



Image 1

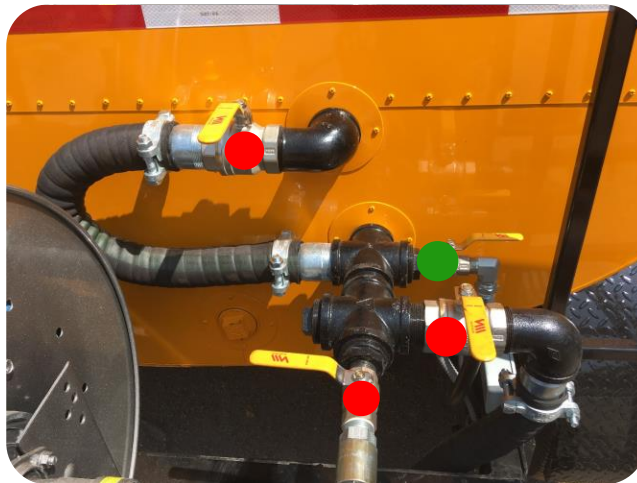


Image 2



OPERATOR'S MANUAL

LOADING MATERIAL TO THE TANK

Method A) Fill through the top loading door, through the strainer basket

Method B) Fill through the Inflow-Line (Camlock)

1. Connect loading hose as shown using the camlock coupling
2. Set valves as shown in images 4, 5 and 6.
3. Verify engine is running at higher speed (adequate rpm) to allow material to be pumped.
4. Monitor the float level indicator to ensure material is loaded to the desired level.
5. Once the desired level is reached, remove the hose from the material supply vessel. Allow air to be drawn through the suction plumbing for 1 minute in order to empty the unloading hose of all material.
6. **CAUTION: DO NOT OVERFLOW tank.** Overflow material will flow through the 2" internal overflow tube to the ground. If you exceed the overflow tube's capacity, material will overflow from the top of the tank.
7. Stop the engine which will disengage your pump.



Image 4



Image 5



Image 6 (With Remote Control)

MATERIAL HEATING

The purpose of this operation is to evenly heat the material contained in the tank:

⚠ WARNING!! Do not ignite the burner when the material tank level indicator needle is in the red area. If the level indicator is not working, verify the actual level by inspecting the level visually through the manhole, making sure that the flue/s (tubes at the bottom) are covered with material. The flues transfer the heat from burner(s) to the material. If the flues are heated and not covered with material, this may cause the burner tubes to overheat causing them to crack or rupture.

FIRING UP THE BURNER

There are two switches used to fire up the burner. When the switches are pointing up they are On, pointing down they are Off. The 'BLOWER' switch starts the blower, and the 'IGNITER' switch electronically ignites the burner.

1. Turn on the BLOWER switch. Allow about a minute to allow lines to fill up with fuel.
2. Turn on the IGNITER switch. At this point the burner should fire up.

If the burner runs out of fuel, the burner will automatically shut off and the red 'DIESEL LOW LEVEL' indicator light will light up. You'll need to add diesel fuel to the diesel fuel tank and repeat steps 1 and 2.



Image 7.

THERMOSTAT CONTROL PACKAGE

The burner's Electric System has a temperature control, so that when the desired temperature is reached, the burner will turn off, when the temperature falls below the desired temperature, the burner will turn on again. This thermostat will power up when toggling BLOWER switch to ON position.

Access only to set Points SP:

- Press and release SET. Parameter SP appears on the display.
- Press SET to see the value of the parameter.

- Modify the value using the UP and DOWN keys.
- Press SET Key to save the value.
- Press SET and DOWN to quit programming, or wait 1 minute for the TIMEOUT.



Image 8

SHUTTING OFF BURNER

Once the desired material temperature is reached

1. Set the IGNITER switch to the down/off position, turning burner off
2. Leave BLOWER switch up/on for 10 minutes to allow the burner to cool down.
3. After 10 minutes, turn off the BLOWER.

RECIRCULATION

When the material reaches the temperature recommended by your material supplier, start recirculating the material to evenly heat it:

1. Start engine
2. Set valves as shown in images 9, 10 and 11.
3. Increase throttle
4. Once the desired temperature has been reached turn off the burner
5. Leave BLOWER on for 10 minutes to allow the burner to cool down



Image 9



Image 10



Image 11 (With Remote Control)

SPRAYING FROM SPRAY BAR

1. Heat material to temperature recommended by material manufacturer
2. Set the valves as shown in images 12, 13 and 14.
3. Start the pump and adjust RPM to get the desired gal/ft2.
4. Open the nozzle valves to provide the desired spraying width
5. Open the material valve to the spray bar
6. Start moving immediately after opening the valve
7. Adjust truck/ground speed as vehicle speed effects gals/sf
8. See Appendix 1 for electro-valve operating instructions.



Image 12



Image 13



Image 14(With Remote Control)

SPRAYING FROM HAND WAND

1. Heat material to temperature recommended by material manufacturer
2. Set the valves as shown in images 15, 16, 17 and 18.
3. Start the pump and adjust RPM to get the desired spray pattern, pressure
4. Open the spray wand valve when you're ready to spray
5. When using the spray wand, the pressure gauge reading should be around 16 PSI or 1.1 kg/cm².



Image 15



Image 16



Image 17

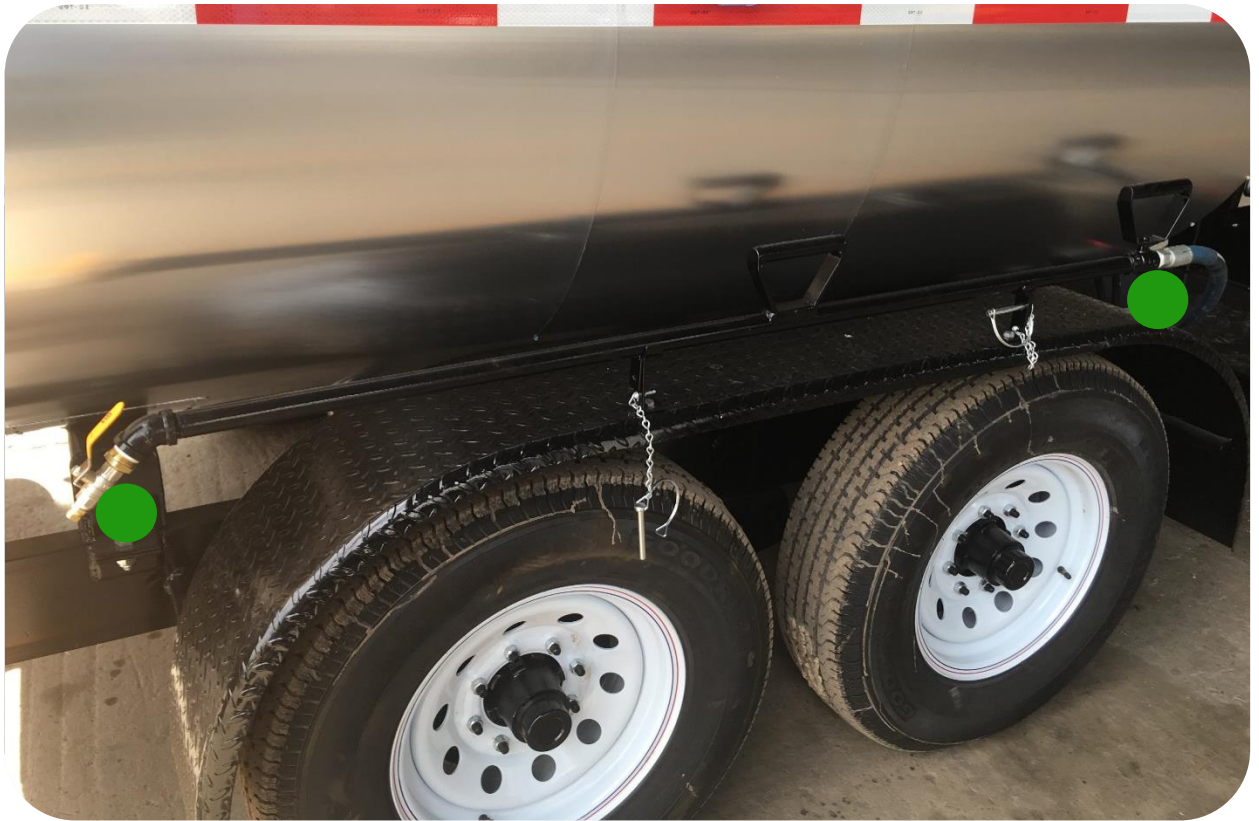


Image 18

ii CAUTION !!

PUMP RELIEF VALVE

The asphalt pump features a relief valve that is calibrated at 70PSI (4.8 kg/cm²) to avoid overloading the plumbing system when all valves are closed.



Image 19

CLEAN OUT

When spraying is finished, you must clean out the plumbing lines, spray bar and wand

STEP 1: CLEANING with AIR

Remove material from lines to avoid clogging. Remove as much material as possible.

1. Set valves as shown in image 20.



Image 20

2. NOTE: Material/fluids contained in the spray bar and wand cannot be recovered to the material tank as these plumbing system do not recirculate.
3. **IMPORTANT: Make sure the tank valve is CLOSED!** If the tank valve 1 (Diagram 1) is open, 'material' will be drawn in from the material tank along with air from the suction line, which will pump into the solvent tank and overflow it.
4. Remove the cap from the Inflow-Line (camlock fitting). This will allow the pump to draw air in through the lines vacating material from the plumbing lines, wand and spray bar.
5. Start the engine and adjust the idle to proper speed.
6. Keep material from spilling on the ground by using a bucket to contain the material coming from the lines and wand.
7. Starting with the hand wand, open the valve and allow material to draw back through it for 1 minute. Then close the hand wand valve.
8. On the spray bar, open each valve intermittently for one minute, working your way across from the end tips back across to the suction line. This will clean out the corresponding spray bar lines and valves.
9. When done, fasten the cap back onto the inflow-line.

STEP 2: CLEANING with RECIRCULATION of SOLVENT

This procedure must be performed at the end of normal operation in order to keep all the lines in optimal conditions. Cleanout with a solvent must be performed every time to avoid clogging of the system.

1. Make certain that you have completed Step 1, CLEANING with AIR, otherwise all of the material within the plumbing lines will flow through the solvent tank.
2. Set valves as shown in image 21, 22 and 23.
3. Open the ½" ball valves have to be opened. Image 22 and 23

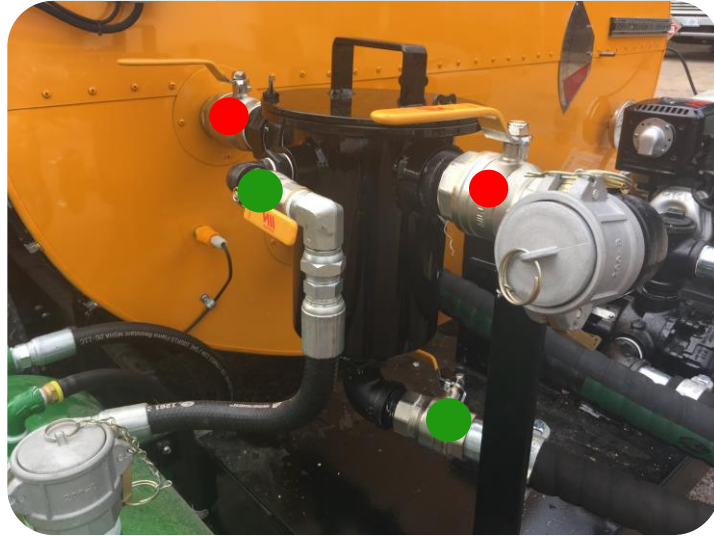


Image 21



Image 22



Image 23

4. Make sure the Loading line cap is in place. Image 21.
5. Drive the pump to start diesel recirculation.
6. Check solvent recirculation by opening the wand valve, but avoid wasting too much solvent.
7. To clean out the line, open the supply valve to spray bar (valve 6 in image 22 or valve 10 in image 23) and check recirculation on leftmost nozzle.
8. Leave pump running for about 2 min.
9. Close the supply valve to spray bar (valve 6 in image 22 or valve 10 in image 23).
10. IMPORTANT: Leave the solvent inside the lines until next operation, to avoid clogging.

EMPTYING TANK USING BOTTOM DRAIN

1. Make sure the material is fluid
2. Tilt the unit backwards to allow material to flow toward the drain valve. Image 24.
3. Open the drain valve and allow material to flow out.
4. When finished, close the drain valve.



Image 24

FILLING THE SOLVENT FLUSH TANK for the CLEANING SYSTEM



Image 25

1. **WARNING:** Only fill Flush Tank with solvent to $\frac{3}{4}$ point. Do NOT fill the tank beyond $\frac{3}{4}$ point or it may overflow during flushing. Filling only to $\frac{3}{4}$ mark allows for additional space, preventing material overflow
2. The system is designed to use a solvent to clean the lines
3. Fill the flush tank to the $\frac{3}{4}$ point. The $\frac{3}{4}$ mark is at the fill port level
4. It is expected that you will lose about half a gallon of solvent on every cleaning operation, which has to be replenished every time.
5. There is a sampling valve at base of the flush tank to visually verify whether it's time to replace the solvent.
6. To drain the flush tank, place a bucket beneath, and open the sampling valve.
7. Once the material is vacated from the tank close the valve and replenish with solvent to the 75% level.
8. Check with solvent manufacturer to determine how many times solvent can be reused before replacing it.
9. Check with your material supplier to ensure that you are using a recommended solvent which is both safe and effective.
10. **IMPORTANT:** It is extremely important to keep closed the suction and recirculation valves (return to tank) when not using the cleaning recirculation system. Otherwise, asphalt will enter and contaminate the cleaning tank.

Appendix 1

OPTIONAL EQUIPMENT DETAILS

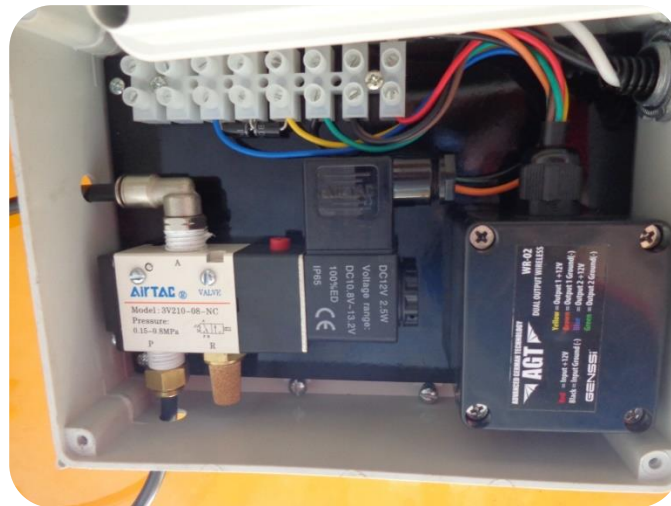
REMOTE ACTUATED SPRAY BAR SYSTEM

1. Your unit includes a remote control system to turn the spray bar valve on/off
2. The system consists of a compressor air with tank, plumbing lines, an electro-valve, a pneumatic actuator, bypass and hand held remote control unit.
3. Ensure Air tank pressure at 80 PSI or above for actuator movement to work properly.
4. The maximum system pressure is 125 PSI. **DO NOT OVERPRESSURIZE THE SYSTEM.**
5. The electro-valve is activated through the remote control unit. The remote unit comes with two buttons. Either button (A) and (B) which can be used to activate the valve that will open or close the actuator. When you press either button to open, you must press **THE SAME** button again to close. Pressing the other one won't have any effect.

PRESSURIZING AIR TANK

1. Turn the Red Switch to ON. The compressor stop when the pressure will be 125 PSI.
2. When the pressure reaches 100 PSI, the compressor will restart
3. To turn off, turn the red switch to off

Remote control Unit. Electro-valve



Air Compressor



Appendix 2

BATTERY CHARGING SYSTEM

This charging system allows the operator to select a power source to charge the battery -either by the vehicle's alternator, or the Honda engine charging coil, via the selector switch on unit's frame.



The available charging modes are:

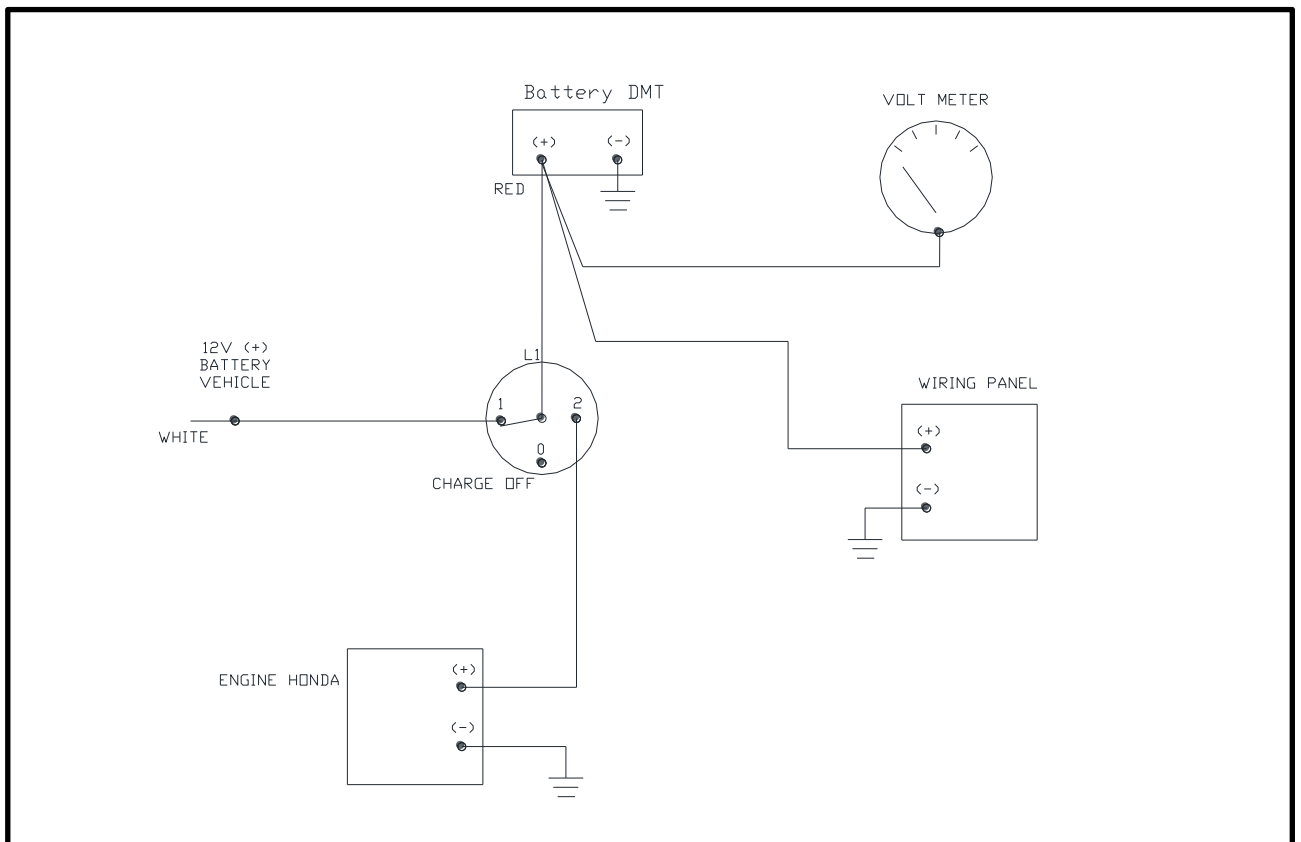
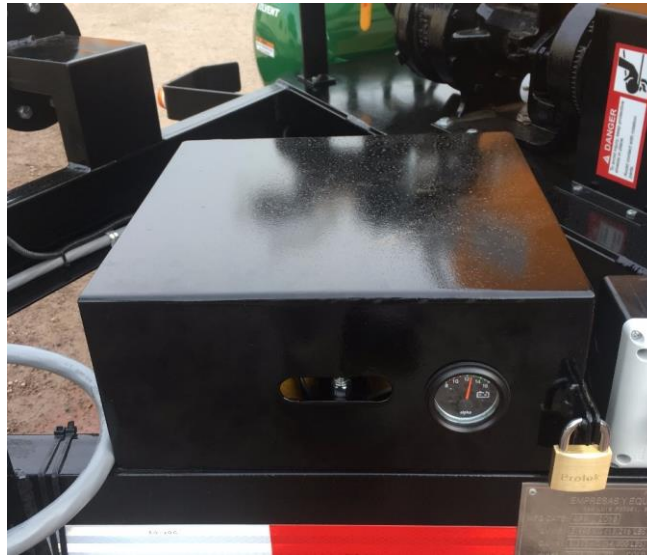
- Select 0 (CHARGE OFF) to turn battery charging completely off
- Select 1 (VEHICLE) to allow the battery to be charged by the vehicle's alternator
- Select 2 (ENGINE) to allow the battery to be charged by the Honda engine's charging coil

NOTES:

- The Honda engine will start only when the switch is in position #2 (ENGINE)
- When in position 2, the system will not allow voltage generated by the Honda engine, to travel back to the vehicle's electrical circuit; thanks to a rectifying diode that serves as circuit protection.

VOLT METER

The unit features a commercial analog volt meter, that will provide information about the current battery charge level, and also the voltage being supplied by either one of the sources selected via the 3-position charging switch.



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