MAINTENANCE

1. Exercise extreme caution when working around or with high-pressure hydraulic systems. Depressurize the system when connecting or disconnecting the hose couplings.

2. Wear heavy gloves and a face shield for eye protection when searching for suspected hydraulic leaks. A high-pressure concentrated stream of hydraulic fluid can pierce the skin. If such happens, seek immediate medical attention, as infection and toxic reaction could develop.

3. Do not attempt any adjustments or maintenance to any system of the Valmar Applicator when the implement is in motion.

4. Do not adjust the fan V-belt when it is rotating.

5. Make sure all guards and shields are in place when the Valmar Applicator is being operated.

6. Be very careful when near a rotating PTO shaft.

7. Do not operate a PTO-driven system unless the rotating shield and all other guards are in place.

8. Never wear ill-fitting, baggy or frayed clothing when working on any drive system components.

9. Store and transfer gasoline, solvents, cleaners or any flammable liquids only in Safety Standard approved containers.

This section provides information on daily and periodic maintenance of the Valmar Pneumatic Applicator. Follow these recommendations for safe and dependable operation of your Valmar Applicator. Refer to the Safety Section at the front of this manual for all applicable safe maintenance and operating procedures.

You are responsible for the SAFE operation and maintenance of your Valmar Pneumatic Applicator. You must ensure that you and anyone else who is going to operate, maintain or work on or around the Valmar Applicator be familiar with the operating and maintenance procedures and related safety information contained in this manual.

5.1 GENERAL MAINTENANCE

The efficient and safe operation of your Valmar Pneumatic Applicator will depend to a great degree on your diligence in following the maintenance and adjustment procedures outlined in this section. If you follow these recommendations, your Valmar Applicator should work to its maximum potential.

The metering rollers are a major component of the system. These should be removed and inspected for damage on a regular basis. Extensive nicking, grooving or flattening of the fluted roller surfaces can drastically alter the metering rate. Such damage must be repaired, or if such cannot be done, it must be replaced.

The Applicator must be kept free of moisture. Moisture causes the product to cake and build up on the metering rollers and to plug up the venturis and distribution hoses.

Always close the HOPPER lid tightly. Store the unit in a building or cover with a water-proof tarpaulin when not in use.

Do not store product in the HOPPER overnight. Condensation moisture will cause the product to cake in the HOPPER.

Always check the screen surface for any foreign objects, such as bits of paper, metal, nuts or bolts, small tools, etc., and remove immediately.
5.1.1 METERING ROLLERS

The metering rollers are easily removed to access the stone trap and to clean out the system. A latch located on the front of the roller units secures these in place. A similar latch retains the clear plastic venturi shield when it is raised.

Fig. 26 ROLLER AND VENTURI AREA

1. Raise the clear plastic venturi shield and retain with the rotating latch located on the HOPPER above the roller assemblies.

2. Unlock the metering roller by rotating the latch 90 degrees.

3. Pull the metering roller forward and lift to remove. The venturis and surrounding metering area can now be accessed and cleaned as required.

5.1.2 METERING ROLLER ADJUSTMENT

SPROCKET AND CHAIN GEAR

The metering roller sprocket gear should positively engage the chain gear on the clutch shaft when the metering roller unit is locked in place by the latch. However, these gears should not jam or mesh too tightly.

1. Adjust the sprocket and chain gear meshing by turning the latch bolt out to provide the required clearance.

Fig. 27 SPROCKET AND CHAIN GEAR ADJUSTMENT
5.1.3 CALIBRATION PLATE GAP

The product application rate is affected by the gap between the metering rollers and the CALIBRATION PLATE. This gap must be adjusted to 3 mm (1/8 in.).

1. Loosen the two end plate bolts on each side of the metering roller units.

2. Insert 3 mm (1/8 inch) spacers between the surface of the roller and the calibration plate. 1/8 inch drill bits make excellent spacers.

3. Tighten the two calibration bolts on each end of the roller unit with the spacers positioned between the length of the calibration plate and raised fluted surface of the metering rollers. The rollers should turn easily with the spacer plates still in place between the rollers and the calibration plates.

Fig. 28 CALIBRATION PLATE GAP ADJUSTMENT

5.2 LUBRICATION

GEARBOX LUBRICATION

Keep the idler gear, gear clusters and shafts well lubricated to maintain free movement of the shifting mechanisms. Use a “cleaner lubricant” such as WD-40. Do not use grease or a heavy oil. Heavy lubricants will attract dust and dirt which will make shifting difficult and cause premature wear.

BEARINGS

Standard sealed bearings are used in the Valmar Applicator and do not require lubrication. Bearings showing signs of wear such as tightness or binding should be replaced immediately, as product application can be affected by defective bearings.

CHAIN DRIVES

Use a recommended chain oil lubricant. Do not use grease or heavy oil as these will attract dust and dirt.

PTO SHAFT (IF APPLICABLE)

Lubricate the universal joints with an all-purpose high-pressure grease. Maintain the oil level in the gear box up to the side plug hole. Use an 85W140 gear oil (MIL 2105B Spec.) Refer to Options Section for detailed information.
5.3 MAINTENANCE

BELT AND CHAIN TENSION

Proper V-belt and chain adjustments are critical for efficient function and long wear of the drive systems.

5.3.1 BELT TENSION

FAN DRIVE BELT

The correct fan drive V-belt adjustment is 13 mm (1/2 in.) of deflection when a 2.3 kg (5 lb.) downward force is applied at the mid-point of the belt span.

![BELT TENSION](image)

Adjust the fan belt by loosening the locking bolts on the telescoping motor mount. Use a pry bar between the motor mount and the hopper to adjust the belt tension.

PTO DRIVE BELT

Adjust the PTO belt idler pulley by turning the crank handle to provide 13 mm (1/2 in.) of deflection when a 2.3 kg (5 lb.) downward force is applied at the mid-point of the belt span.

5.3.2 CHAIN TENSION

CHAIN IDLER

The roller chain slack from the gear box to the hopper shaft is adjusted by rotating the idler block.

![CHAIN IDLER](image)

GROUND DRIVE ASSEMBLY

The roller chains should not be too slack so that the chain will whip or run off the sprocket. Conversely, do not over-tighten and eliminate all deflection as this will cause premature chain and sprocket wear. To adjust the roller chain slack, loosen off the telescoping tubes, set the chain slack and relock the tubes.

5.3.3 GEAR BOX ADJUSTMENT

Smooth operation of the gear box is necessary for efficient and accurate operation of your Valmar Applicator. The “A” - “B” range and the idler gear shifting levers must shift smoothly and the idler gear and cluster gears must be aligned.

Side to side and front to back adjustments can be made if the gears are not aligning properly.
(A-B) RANGE (CLUSTER GEAR) ADJUSTMENT

1. Loosen the idler gear lever lock, and disengage the idler gear by moving the lever back out of the detent.

2. Move the A-B range shift lever into the “B” range detent and visually check for vertical gear alignment between the two clusters.

3. If the top and bottom cluster gears do not align vertically, make the following adjustments: Loosen the locknuts fastening the shift lever to the top cluster gear yoke. Slide the yoke left or right and tighten the locknuts.

2. Visually check for vertical alignment of the idler gear with the cluster gear sets.

3. If the idler gear does not align with the cluster gears, make the following adjustments. Loosen the two retaining nuts on the detent plate. Keep the idler gear lever in the chosen detent and slide the plate left or right to align the idler gear with the cluster gear sets. Tighten the retaining nuts.

The idler gear lever may bottom into a detent slot and prevent the idler gear from completely engaging with the cluster gear sets. Make the following adjustment if this happens.

Loosen the two retaining nuts on the detent plate and slide the plate forward until the idler gear positively engages with the cluster gear sets. Proper clearance should be attained in any detent when selecting various gears.

IDLER GEAR ADJUSTMENT

1. Move the idler gear shift lever into any detent. Manually rotate the gears to ensure a positive gear mesh between the idler gear and the cluster gear sets.

---

Fig. 31 GEAR BOX ADJUSTMENTS
5.4 DAILY MAINTENANCE

Before starting the day's operation, it is recommended that the following areas of the Valmar Applicator be checked out and the various maintenance functions be carried out. Taking the time to carry out these procedures will lessen the possibility of an unexpected breakdown or malfunction in the field.

5.4.1 METERING SYSTEM

1. Remove the metering rollers, clean off any caked or built up material and visually check the fluted roller surfaces for any nicks or gouges.

**IMPORTANT**

A deep gouge or nick will increase the product feed rate to the venturis. Damaged rollers must be repaired or replaced.

2. Clean out the hopper bottom and the venturis.

3. Drain any water which may have accumulated in the venturis, hoses, fan housing and manifold after a heavy rainfall.

4. Use a dry moisture absorbing cloth to wipe all moisture from the metering rollers, and inside the hopper bottom.

Fig. 32 METERING SYSTEM

5.4.2 CLUTCH DRIVE

1. Raise the ground drive wheel and energize the electromagnetic clutches. Manually rotate the metering system, which should turn without requiring any excessive force.

2. Check the electromagnetic clutches for engagement. If the clutches do not engage, check the clutch plate gap and all the electrical connections. This gap must be less than 1 mm (1/32 inch).

3. To adjust clutch gap:

   Loosen locking collar and slide magnet toward plate. Push collar against magnet and lock on the shaft.

Fig. 33 CLUTCH PLATE GAP
The electromagnetic clutch can be manually engaged by inserting the hitch pin clip through the sprocket sleeve and the clutch shaft. This can be useful when rotating the system by hand or if a clutch malfunction occurs in the field.

![Clutch Locking](image)

**Fig. 33 CLUTCH LOCKING**

### FAN DRIVE

1. Check the V-belt tension and adjust to 13 mm (1/2 inch) of deflection at the belt midpoint when 2.3 kg (5 lbs) of downward force is applied. A fairly accurate downward force measurement can be obtained by using a fish weighing scale and pulling the belt top span downward at the midpoint.

2. Check the PTO drive (if applicable) and ensure that the shield components are rotating freely over the shaft. Lubricate the "U" joints and splined shafts as required.

3. Inspect the hydraulic motor, the flow control, the bypass valve, hoses, fittings and couplings for any fluid leaks. Tighten, repair or replace components as required.

4. Start up the fan and run at the recommended RPM until the manifold, venturis and hoses are blown dry by the airflow.

5. Check the airflow at the deflector outlets with the fan running at operating RPM. If an outlet lacks sufficient air velocity, check the manifold, venturis and hoses for any blockage. Unplug as required.

### 5.4.3 SYSTEM CALIBRATION

1. Adjust the application rates according to the information on the product label. Use the application chart settings as a general guide. Calibrate the Applicator, using the calibration procedure in this manual to determine the actual product distribution per acre.

2. Remove all of the excess product from the hopper at the day's end.

3. Firmly close the hopper lid and cover with a rainproof tarpaulin, or store inside a building.

### GEARBOX

1. Clean and lubricate the gearbox, using a "cleaner" lubricant such as WD 40. Do not use a heavy lubricant such as grease or engine oil. These types of lubricants will attract and retain dust and dirt which will cause premature wear and will make shifting difficult.
5.5 PRE-SEASON MAINTENANCE

Before starting the season's work, take the time to carefully inspect the following areas and carry out the required maintenance procedures. Following through on these checkpoints will lessen the possibility of an unexpected breakdown or malfunction during field operation. One hour of preventive maintenance can eliminate costly time and the accompanying frustration.

1. Inspect all hydraulic lines, hoses, fittings and couplers. Use a clean cloth to wipe any accumulated dirt from the couplers before connecting to the tractor hydraulic system.

2. Inspect all delivery hoses for any wear and restrictions.

3. Inspect the hopper for accumulation of any foreign material that could plug the venturi system.

4. Check the fan and manifold for any accumulation of straw and dirt. Clean as required. Also make sure the 8 mm (5/16 in.) drain hole in the manifold bottom is not plugged.

5. Check all chains, sprockets, belts and pulleys for proper adjustment and tension. Adjust as required. Do not over-tighten.

6. Ensure that all bearings turn freely. If there is any binding or dragging the bearing(s) must be replaced.

7. Inspect the gear box for gear alignment and lubrication. Clean away any accumulation of mud, straw, or debris. Lubricate as required with a "cleaning lubricant" such as WD 40.

8. Check the electric clutch operation. The clutch plate gap should be less than 1 mm (1/32 inch).

9. Manually lock the clutches to the shaft by inserting the pin through the hole in the clutch sleeve and the shaft. Raise the ground drive wheel and turn the drive system by hand. The complete drive and metering system should turn without having to apply excessive force. Check all drives if there is any binding or if the system is difficult to turn.

10. Check the PTO drive (if applicable) and make sure that the rotating shield covering the shaft moves freely.

11. Make sure that the PTO "U" joints and splines are properly lubricated and that the gear box fluid is topped up to the side plug level.

12. Ensure that all guards and shields are in place.

13. Check the ground drive wheel tire and ensure that it is inflated to the operating pressure: 28 - 30 PSI (190 - 210 kPa).

TRANSPORT

1. Make sure that the hydraulics are positively and firmly coupled.

2. Attach a safety chain to the PT 240 drawbar and hitch connection. Fasten the T.M. 240 into the truck box.

3. Make sure that the ground drive wheel is raised off the ground.

4. Ensure that a slow moving vehicle emblem is in place and located so as to be clearly visible to all overtaking traffic.

5. Make sure that all lights and reflectors are in place, and are used when required, in accordance with local by-laws and Standards governing these.

6. Transport according to local laws governing width and weight maximums. Combine the weight of the product and the applicator to determine the maximum weight to be transported. Refer to the "tire load range" on the specification page.
After the season use, inspect all major components of the Applicator. Repair or replace any worn or damaged components.

1. Remove all product from the hopper and the distribution system.

2. Hose down the Applicator, thoroughly washing out all areas to get rid of any product residue.

3. Ensure that the fan, manifold and venturis are cleaned out.

4. Run the fan for a few minutes to thoroughly blow dry the distribution system of any moisture.

5. Remove the metering rollers and thoroughly clean any product residue from the flutes. Inspect closely for any damage to the fluted surface such as gouges, flat spots or chipped edges. Damage such as this must be repaired.

6. Thoroughly inspect all the hydraulic hoses, fittings and couplers. Use a clean cloth and wipe any accumulated fluid and dirt from around the components and couplers. Tighten any loose fittings. Replace any hose that is badly cut, nicked, abraded or is separating from the crimped end of a fitting.

7. If a gas engine powers the fan, remove the battery, clean any accumulated dust and petroleum residue from around the engine and components.

8. Lubricate the various linkages and cover the engine.

9. Clean and lubricate the roller chains and the gear box so that they will not seize. Check the chain tension and loosen if too tight.

10. Tighten all bolts and touch up any scratched or nicked paint using an aerosol can of paint.

11. Store the Applicator away from areas of human activity. Do not permit children to play on or around the stored Applicator.

12. Make sure the air pressure gauge is removed from the manifold and securely stored in a dry, temperature controlled, dust free environment. Plug the fitting on the manifold.

13. Shut the lid tightly and securely cover the Applicator with a waterproof tarpaulin.

---

**CAUTION**

1. **DO NOT** attempt any makeshift repairs to hydraulic lines, fittings or hoses, such as using tape, clamps or cement. The hydraulic system operates under extremely high-pressure; 1600 - 2300 pounds per square inch. Such repairs will fail suddenly and create an unsafe condition.

2. A concentrated stream of hydraulic fluid can pierce the skin and cause infection and toxic reaction. Seek medical attention immediately if injured by hydraulic fluid.

3. Wear proper eye protection, gloves and protective clothing when searching for a high-pressure hydraulic leak.
6 TROUBLE SHOOTING

The Valmar airflo system is a simple metering system that employs a constant flow of air to distribute the granular products. It is an accurate and reliable system which requires minimal maintenance.

In the following trouble shooting section we have listed many of the problems, causes and solutions to the problems which you may encounter.

If you encounter a problem that is difficult to solve, even after having read through this trouble shooting section, please call your local Valmar Dealer or the factory. Before you call, please have this Operator’s Manual and the serial number from your Valmar Applicator at hand.

6.1 HYDRAULIC SYSTEM

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan speed too low.</td>
<td>Insufficient oil going through hydraulic motor.</td>
<td>Refer to hydraulic adjustment in the Operation Section of this manual. Refer to your tractor Operator’s Manual.</td>
</tr>
<tr>
<td></td>
<td>Oil bypassing at check valve.</td>
<td>Replace the check valve.</td>
</tr>
<tr>
<td></td>
<td>Insufficient oil and pressure from tractor.</td>
<td>Clogged hydraulic filter’s source has inadequate supply. Must have 14 GPM at 1500 psi. Check the tractor specifications through your Dealer.</td>
</tr>
<tr>
<td></td>
<td>Loose or worn-out belt.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wrong or unmatched hydraulic tips to tractor couplers causing restrictions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tractor hydraulic system too small.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flow control set too low on tractor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tractor system high-pressure relief valve opening.</td>
<td></td>
</tr>
</tbody>
</table>

38
### PROBLEM
- Fan speed slows down when steering tractor.
- Fan slows down below acceptable speed after 1/2 to 1 hour.
- Oil surges when Applicator is connected to a closed center hydraulic system without flow control.
- Fan RPM too high.
- Oil surges when connected to closed center hydraulic system with flow control.
- No fan RPM.

### CAUSE
- Tractor steering is taking priority over remote control system.
- Hydraulic oil too hot.
- Valmar flow control valve is not set properly.
- Defective flow control component.
- Flow control valves not adjusted.
- Pump sensing incorrect signal.
- Faulty hydraulic system.
- Hydraulic coupler not properly connected, causing high-pressure relief valve to open.
- Check valve installed in reverse.
- Check valve markings incorrect.
- Check valve stuck open.
- Tractor hydraulic lever in reverse position.
- Unmatched quick couplers.
- Hydraulic hose(s) accidently disconnect.

### SOLUTION
- Contact your tractor dealer for a possible modification which will correct this problem.
- Refer to proceeding section on hydraulic oil over heating.
- Refer to hydraulic adjustment in the Operation section of this manual.
- Replace.
- Refer to the hydraulic valve adjustment in the Operation section of this manual.
- Refer to the hydraulic valve adjustment in the Operation section of this manual.
- Trouble shoot tractor hydraulics.
- Install in correct position.
- Remove check valve and check it. Replace if necessary.
- Set hydraulic lever accordingly.
- Replace with matched sets.
- Hose may partially disconnect. Connect hose properly to prevent this.
<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic oil over heating on open centre system.</td>
<td>Filters dirty. Pressure too high at tractor system.</td>
<td>Service filters.</td>
</tr>
<tr>
<td></td>
<td>Hoses too small for high GPM system.</td>
<td>Minimum hose sizes from tractor is 1/2&quot;.</td>
</tr>
<tr>
<td></td>
<td>Wrong hydraulic tips causing restriction.</td>
<td>Use correct matched tips to connect to tractor hydraulics.</td>
</tr>
<tr>
<td></td>
<td>Tractor system not designed for continuous operation.</td>
<td>Check with tractor Dealer for assistance. May require re-plumbing for additional cooling.</td>
</tr>
<tr>
<td></td>
<td>Large open centre pump consuming high horsepower from tractor engine.</td>
<td>Check with tractor Dealer for possible oil flow reduction.</td>
</tr>
<tr>
<td>Cannot lift implement and operate fan at the same time.</td>
<td>Most open center systems use parallel valves. Oil will flow through the valve with the lowest pressure.</td>
<td>Connect priority section of valves to lift cultivator; this will give priority to cultivator and shut off hydraulic motor while lifting. Refer to your tractor Operator's Manual. Consult tractor dealer about installation of a priority flow valve.</td>
</tr>
<tr>
<td>Cannot lift implement when hydraulic system used with Valmar after a couple of hours.</td>
<td>Oil too hot.</td>
<td>Allow oil to cool. Determine why additional cooling may be required.</td>
</tr>
<tr>
<td></td>
<td>Worn seal in lift cylinders.</td>
<td>CHECK TRACTOR SPECIFICATIONS. ADJUST, REPAIR OR REPLACE.</td>
</tr>
<tr>
<td></td>
<td>Defective pump.</td>
<td>Install larger lift cylinder. Reduce amount of material in hopper.</td>
</tr>
<tr>
<td></td>
<td>Worn or faulty control valve.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Faulty relief valve.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lift system at limit when Valmar hopper is filled.</td>
<td></td>
</tr>
<tr>
<td>Leaking motor shaft.</td>
<td>Scal out of place or blown out.</td>
<td>Install new seal kit. Available from your Valmar dealer.</td>
</tr>
<tr>
<td>Seal continues to leak.</td>
<td>Damaged hydraulic motor shaft. Back pressure on return line too high.</td>
<td>Consult your tractor dealer.</td>
</tr>
</tbody>
</table>
6.2 PRODUCT METERING

PROBLEM
The rate of product being applied is lower than the Calibration Chart setting.

CAUSE
Mathematical error made during calibration.
Mistake made while weighing field calibration sample.
Wrong ground drive sprocket setting.
Wrong gearbox setting.
Sprocket slipping on rotating shaft.
Wrong size sprocket.

SOLUTION
Recheck all calibration calculations made.
Weigh sample from calibration again.
Check setting with calibration chart.
Check setting with calibration chart.
Check all sprockets and tighten set screws.
Check sprocket sizes on your applicator with Drive System Diagram.
<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>The rate of product being applied is lower than the Calibration Chart setting.</td>
<td>Wrong plate gap on metering roller.</td>
<td>Set the gap between the roller and the plate to 3 mm (1/8 in.).</td>
</tr>
<tr>
<td></td>
<td>Slippage at ground drive wheel.</td>
<td>Drive system not rotating properly due to misaligned shafts and sprockets or damaged bearings. The entire drive system should turn at the drive wheel without requiring extreme force. Re-align sprockets and shafts, replace damaged bearings. Extreme field conditions: The ground drive wheel will bounce up off the ground.</td>
</tr>
<tr>
<td></td>
<td>Build up of product on metering rollers.</td>
<td>On hot and on humid days, some products will cake up on the rollers. This will reduce the amount of product being metered. Clean rollers as required. Water under roller assembly. Water may accumulate under the roller assembly after a rainfall or a frost. Check hopper bottom before filling with product.</td>
</tr>
<tr>
<td>The rate of product being applied is higher than the Calibration Chart setting.</td>
<td>Mathematical error made during calibration.</td>
<td>Recheck all calibration calculations made.</td>
</tr>
<tr>
<td></td>
<td>Mistake made while weighing calibration sample.</td>
<td>Weigh sample from calibration again.</td>
</tr>
<tr>
<td></td>
<td>Wrong ground drive sprocket setting.</td>
<td>Check setting with Calibration chart.</td>
</tr>
<tr>
<td></td>
<td>Wrong gearbox setting.</td>
<td>Check setting with calibration chart.</td>
</tr>
<tr>
<td></td>
<td>Wrong size sprocket.</td>
<td>Check sprocket sizes on your Applicator with Drive System diagram.</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>CAUSE</td>
<td>SOLUTION</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>Product shooting out of a venturi. Product will shoot back out of a venturi when the back pressure in the hose is sufficient to force some of the air to come out through the top of the venturi.</td>
<td>Obstruction in a product hose.</td>
<td>Check and clean out.</td>
</tr>
<tr>
<td>Collapsed product hose.</td>
<td></td>
<td>Repair or replace hose.</td>
</tr>
<tr>
<td>Fan speed too low: longer product hoses have highest back pressure.</td>
<td></td>
<td>Increase fan speed.</td>
</tr>
<tr>
<td>Traveling at a high speed. Product is metered into the venturis faster thus requiring more air. Longer product hoses will shoot product out of venturi.</td>
<td></td>
<td>Slow down or increase fan speed.</td>
</tr>
<tr>
<td>Venturi filling up with product and spilling over. Insufficient volume of air being delivered to venturi.</td>
<td>Fan not running.</td>
<td>Start up fan; venturi will empty.</td>
</tr>
<tr>
<td>Fan V-belt off sheave.</td>
<td></td>
<td>Check V-belt; replace if worn or damaged.</td>
</tr>
<tr>
<td>Fan V-belt slipping.</td>
<td></td>
<td>Adjust to proper tension.</td>
</tr>
<tr>
<td>Air pressure gauge is defective. Reading higher than actual pressure.</td>
<td></td>
<td>Replace the gauge.</td>
</tr>
<tr>
<td>Plugged fan inlet.</td>
<td></td>
<td>Check and clean out.</td>
</tr>
<tr>
<td>Torn or flattened hose from fan to manifold.</td>
<td></td>
<td>Repair or replace.</td>
</tr>
<tr>
<td>Plugged manifold or manifold hose.</td>
<td></td>
<td>Check and clean out.</td>
</tr>
<tr>
<td>Product caking in venturi. Water in manifold.</td>
<td></td>
<td>Clean out and check periodically. Clean out venturis; run fan until manifold and venturi are dry.</td>
</tr>
<tr>
<td>Product clinging to venturi above outlet. This is caused by static electricity build-up.</td>
<td></td>
<td>If static electricity is extreme, ground out the venturi with a copper wire. (See next section for detailed solution).</td>
</tr>
</tbody>
</table>
PROBLEM
Product clinging onto venturi causing spill over.

CAUSE
An electrical charge builds up in the venturi. This charge will cause the product to cling onto the venturi and resist the suction created by the air stream.

SOLUTION
Clear the venturi by pushing the product through while the fan is running.

For a more serious static electricity problem, the venturi must be grounded to the manifold. Use a small wire, preferably copper and run it as shown in the diagram. The wire must come into contact with the venturi to ground out the electrical charge.

---

Electrical clutch will not engage when the switch is in the on position.

Gap between magnet and plate is too wide.

Dirt or foreign matter lodged between plate and magnet.

No electrical power to clutch.

The gap should be less than 1/32". Make the necessary adjustments to reduce the gap.

Loosen clutch and pull apart on shaft. Clean the contact surfaces and reset clutch to proper gap.

Turn on power to both clutches. Check all wires with a circuit tester.
7 SPECIFICATIONS

7.1 PT 240

Overall Dimensions:
- Length - 5.03 meters (198 inches)
- Width - 2.60 meters (102 inches)
- Height - 1.96 meters (77 inches)
- Boom Width - 14.02 meters (46 feet)

Weight and Capacity:
- Empty - 1090 kilograms (2400 pounds)
- Full - 1635 to 2300 kilograms (3600 to 5000 pounds)
- Capacity - 793 Litres (28 cubic feet or 22 bushels)

Under Carriage:
- Suspension - Leaf springs 8 leaf main, 3 leaf overload.
- Tires - size, 9.5L-15 6 ply l-1 rating
- Maximum Load above 16 km per hour (10 mph) -
  894 kgs (1790 pounds) per tire at 220 kPa (32 psi) air pressure.
- Maximum Load at and below 16 km per hour (10 mph) -
  1046 kgs (2305 pounds) per tire at 220 kPa (32 psi) air pressure.

Metering System:
- Gearbox - 9 drive ratios.
  - 16/24 - 0.67X
  - 16/22 - 0.73X
  - 18/22 - 0.82X
  - 18/20 - 0.90X
  - 20/20 - 1.0X
  - 20/18 - 1.11X
  - 22/18 - 1.22X
  - 22/16 - 1.38X
  - 24/16 - 1.50X
- Ground Drive Assembly - Wheel 4.80-4.00-8
  - Inflate to 220 kPa (32 psi) air pressure.
  - 795 wheel revolutions per kilometer
  - (1280 revolutions per mile)
  - Drive Ratios
    - 1/2 Low - 0.25X
    - Low - 0.50X
    - Medium - 1.0X
    - High - 2.0X
- Metering Rollers - Pesticide Roller 3.2 millimeter (1/8 inch) calibration plate gap.
  - Fertilizer Roller 6.4 millimeter (1/4 inch) calibration plate gap.
- Electric Clutches - Static Torque 90 ft. lbs.
  - Voltage 12 V.D.C.
  - Current 4.7 Amps.
  - Clutch Open Contact Plate Gap 0.80 millimeter (1/32 inch)
Fan Drives:  
Hydraulic - minimum oil flow 43 liters per minute (14 U.S. gpm)  
minimum oil pressure 10,300 kPa (1500 psi)  
4.5 C.I.D. Low speed internal gear motor.  
Belt drive ratio 5.5X  
V-belt size B-85  

Power Take Off - 540 rpm and 1000 rpm drive ratio.  
Sheave size, fan BK30H and BK50H.  
Sheave size, gearbox BK120H and BK140H.  
V-belt size B-70  
Belt drive ratio 4.7X for 540 rpm, 2.6X for 1000 rpm.  
PTO gearbox drive ratio 1.5X  
PTO gearbox oil 85W140 (M.I.L. 2105B)  
Drive shaft tractor joint - 1 3/8 inch 6 spline.  

Gas Engine Drive - Standard 11 hp Honda  

Engine sheave - 11 hp - BK55H  
Fan sheave BK50H  
V-belt size B-80  
Drive ratio 11 hp - 1.11X
7.2 TM 240

Overall Dimensions:
- Length - 4.04 meters (159 inches)
- Width - 2.59 meters (102 inches)
- Height - 1.53 meters (60 inches)
- Boom Width - 14.02 meters (46 feet)

Weight and Capacity:
- Empty - 773 kilograms (1700 pounds)
- Full - 1318 to 1983 kilograms (2899 to 4363 pounds)
- Capacity - 793 Litres (28 cubic feet or 22 bushels)

Metering System:
- Gearbox - 9 drive ratios:
  - 16/24 - 0.67X
  - 16/22 - 0.73X
  - 18/22 - 0.82X
  - 18/20 - 0.90X
  - 20/20 - 1.0X
  - 20/18 - 1.11X
  - 22/18 - 1.22X
  - 22/16 - 1.38X
  - 24/16 - 1.50X

Ground Drive Assembly - Wheel 78-14 ground grip
  Inflated to 220 kPa (32 psi) air pressure.
  472 wheel revolutions per kilometer
  (760 revolutions per mile)

  Drive Ratios
  - Low - 0.50X
  - Medium - 1.0X
  - High - 2.0X

Metering Rollers - Pesticide Roller 3.2 millimeter (1/8 inch) calibration plate gap.
  Fertilizer Roller 6.4 millimeter (1/4 inch) calibration plate gap.

Electric Clutches - Static Torque 90 ft. lbs.
  Voltage 12 V.D.C.
  Current 4.7 Amps.
  Clutch Open Contact Plate Gap 0.80 millimeter (1/32 inch)

Fan Drives:
- Gas Engine Drive - Standard 11 hp Honda

  Engine sheave - 11 hp - BK55H

  Fan sheave BK50H

  V-belt size B-80

  Drive ratio 11 hp - 1.11X
7.3 CLUTCH CONTROL WIRING

FUSES: 7.5 amps

BATTERY CABLE: White Wire +
Black Wire -

5 WIRE CABLE: Black Wire - Ground
Yellow Wire - Air Pressure Gauge
Red Wire - Auxiliary Clutch: red wire changed to white at clutch plug.
Green Wire - Alternate Rate Clutch: Black changed to red at clutch plug.
White Wire - Normal Rate Clutch

CLUTCH CONTROL WIRING DIAGRAM