PT 240 & TM 240
OPERATOR'S MANUAL
AND PARTS BOOK
# VALMAR 240 Applicator

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VALMAR WARRANTY

All Valmar products are warranted for one year against defects in materials and workmanship and to perform according to specifications when such products are properly assembled, installed, used and maintained.

Our obligation under this warranty is limited to repairing or replacing, at our option, within 12 months of the retail delivery date. This obligation shall not include any transportation charges or costs, or any liabilities for direct, indirect or consequential damage or delay.

Warranty Limited or Void

Any use for purposes other than those for which the product was designed, operation beyond rated capacity, substitution of parts not approved by us, or alteration or repair by others in such manner as in our judgement affects the product materially and adversely shall void this warranty.

Warranty does not apply to any machine or part which has been repaired or altered in any way so as in the company's judgement to affect its reliability, or which has been subject to misuse, negligence or accident.

Furthermore, component parts, equipment, accessories and items not fabricated by Valmar are warranted only to the extent of the original manufacturer's warranty.

Valmar reserves the right to make improvement changes on any of our products without notice.

Warranty Claims Procedure

1. A warranty claim form must be completed at your Valmar dealer.

2. Defective parts for which a warranty claim is made must be returned to the dealer within 15 days from the claim date.
SERIAL NUMBER LOCATION

Always give your dealer the Model and Serial Number of the machine when ordering parts or requesting service information.

MODEL NUMBER

SERIAL NUMBER

The Serial Number Plate is located where indicated. Please mark the Model and Serial Numbers in the space provided for easy reference.

MOTOR SERIAL NUMBER

The Serial Number Plate is located on the hydraulic motor. Please mark the Serial Number in the space provided for easy reference.

SERIAL NUMBER
1 INTRODUCTION

Congratulations on your choice of a Valmar Applicator to complement your farming operation. This equipment has been designed and manufactured to meet the needs of a discerning Agricultural industry for pneumatic application of fertilizer, seed and granular pesticides.

Safe, efficient and trouble-free operation of your Valmar Applicator requires that you and anyone else who will be operating or maintaining the Applicator, read and understand all of the safety, operation, maintenance and trouble shooting information contained within this Operator's Manual.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Valmar dealer if you need assistance, information, or additional copies of the manuals.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout the manual, are as seen from the driver's seat and facing in the direction of travel.
SAFETY ALERT SYMBOL

This Safety Alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

The Safety Alert symbol identifies important safety messages on the Valmar Applicator and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided

SIGNAL WORDS:

Note the use of the signal words DANGER, WARNING and CAUTION with the safety messages. The appropriate signal word for each message has been selected using the following guide-lines:

DANGER - An immediate and specific hazard which WILL result in severe personal injury or death if the proper precautions are not taken.

WARNING - A specific hazard or unsafe practice which COULD result in severe personal injury or death if proper precautions are not taken.

CAUTION - Unsafe practices which COULD result in personal injury if proper practices are not taken, or as a reminder of good safety practices.
SAFETY

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 around the Valmar Applicator be familiar with the operating and maintenance procedures and related SAFETY information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices while operating the Applicator.

Remember YOU are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that EVERYONE operating this machine is familiar with the procedures recommended and follows safety precautions. Remember, most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Applicator owners must give operating instructions to operators or employees before allowing them to operate the Applicator, and at least annually thereafter per OSHA (Occupational Safety and Health Administration) regulation 1928.57.

- The most important safety device on this equipment is a SAFE operator. It is the operator’s responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. All accidents can be avoided.

- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.

- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.

- Think SAFETY! Work SAFELY!

2.1 GENERAL SAFETY

1. Read and understand the Operator’s Manual and all safety signs before operating, maintaining or adjusting the Applicator.

2. Read and follow ALL the chemical manufacturers safety precautions before attempting to use such.

3. Do not allow riders on any part of the Applicator components or the tractor.

4. Install and properly secure all shields and guards before operating the Applicator.

5. Keep hands, feet, clothing and hair away from moving and or rotating parts.

6. Be very careful. Exercise extreme caution when working around or 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. Stop the engine, remove the ignition key, set the park brake, disengage hydraulics and wait for all moving parts to stop before servicing, adjusting, repairing, refilling or unplugging.

9. Block the implement and Applicator up securely before working underneath the unit.

10. Review all safety instructions annually.

11. Ensure the SMV (Slow Moving Emblem) and all reflectors and lights required by the local highway and transport authorities are in place and are clean and visible by overtaking or oncoming traffic.


13. Do not attempt to make any adjustments to the Applicator systems and drives or to the implement systems while the equipment is being transported or working in the field.

14. Clear the area of people, especially small children, before starting the unit.

15. Review all safety related items annually with all personnel who will be operating or maintaining the Applicator.
2.2 MAINTENANCE SAFETY

1. Read and understand all the information contained in the Operator's Manual regarding maintenance, adjusting and operating the Applicator.

2. Refer to the Operator's Manual for your tillage equipment. Follow ALL the operating, maintenance and safety information in the manual.

3. Do not work around or under the raised wings unless these are securely pinned and/or chained or pinned in the transport wing stops.

4. Block the implement up securely and firmly if adjustments and maintenance to the Applicator require raising the wheel and tire assemblies off the ground.

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

6. Wear heavy gloves and 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.

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

8. Do not adjust the fan belt when it is rotating.

9. Do not attempt any roller chain or sprocket maintenance or adjustment when the unit is in motion.

10. Make sure all guards are in place and properly secured when operating or maintaining the Applicator.

11. Be very careful and exercise extreme caution when working around or near a rotating PTO shaft.

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

13. Never wear ill-fitting, baggy or frayed clothing when working around or on any of the drive system components.

14. Stop the engine, remove the ignition key, set the park brake, disengage hydraulics and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging any system or component.

15. It is recommended that all maintenance and adjustments on the Applicator be made when the implement wings are lowered.

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

- Think SAFETY! Work SAFELY!

2.3 HYDRAULIC SAFETY

1. Make sure that all components in the hydraulic system are kept in good condition and are clean.

2. Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.

3. Do not attempt any makeshift repairs to hydraulic lines, fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.

4. Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backdrop instead of hands.

5. If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop.

6. Before applying pressure to the system, make sure all connections are tight and that lines, hoses and couplings are not damaged.

- Think SAFETY! Work SAFELY!
2.4 TRANSPORT SAFETY

1. Make sure you are in compliance with all local regulations regarding transporting Agricultural equipment on public roads and highways.

2. Ensure that the SMV (Slow Moving Emblem) and all reflectors and lights required by the local highway and transport authorities are in place and are clean and visible by overtaking and oncoming traffic.

3. Do not allow anyone to ride on the Applicator or tractor during transport.

4. Ensure that the PT Applicator is hitched positively and safety to the tractor drawbar. Use a proper safety chain to secure a safe hitch hookup when transporting.

5. Transport according to local regulations covering maximum width and weight.

6. Do not exceed 32 KM/H (20 MPH). Reduce speed on rough roads and surfaces.

7. Ensure that the T.M. Applicator is securely fastened to the truck box.

2.5 STORAGE SAFETY

1. Store the Applicator on a firm, level surface.

2. If required, make sure the unit is firmly blocked up. Use jackstands with adequate capacity or large pieces of timber, blocks or railroad ties that are flat and square.

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

4. Make sure the TM unit is sitting, or blocked up firm and solid and will not tip or sink into a soft area.

5. Cover with a weather-proof tarpaulin and tie down securely.

2.6 TIRE SAFETY

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.

2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.

3. Have a qualified tire dealer or repair service perform required tire maintenance.

2.7 SAFETY DECALS

1. Keep safety decals and signs clean and legible at all times.

2. Replace safety decals and signs that are missing or have become illegible.

3. Replacement parts should also display the current safety sign.

4. Safety decals or signs are available from your Dealer Parts Department.

How To Install Safety Decals:

- Be sure that the installation area is clean and dry.
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper.
2.8 SIGN-OFF FORM

Valmar Airflo Inc. follows the general standard specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Valmar Pneumatic Applicator must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to operate this machine.

A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in the Operator’s Manual and have been instructed in the operation of the equipment.

### SIGN-OFF FORM

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<th>DATE</th>
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3 SAFETY DECAL LOCATIONS

The types of decals and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various Safety Decals, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!

![Decal Illustrations]

D GAS ENGINE

DANGER

FIRE HAZARD
- Allow engine to cool for 2 minutes before refueling.
- Eliminate smoking, sparks and open flames during refueling.
- Never operate in a closed building.
FAILURE TO DO SO WILL RESULT IN SERIOUS INJURY OR DEATH

E PTO DRIVE

WARNING

- KEEP DRIVELINE SHIELDS IN PLACE WHEN OPERATING.
- NORMAL OPERATING SPEED 1000 RPM.

REMINDER - If Safety Decals have been damaged, removed, become illegible or parts replaced without decals, new decals must be applied. New decals are available from your authorized dealer.
4 OPERATION

The Valmar Applicators are designed to efficiently band fertilizer, seed crops and broadcast granular pesticides. The system operates by using a hydraulically (optional PTO or gas engine) powered fan to propel the selected fertilizer, seed or granular pesticide through the distribution system.

The ground drive system uses a variable ratio gear box, adjustable chain and sprocket drives, and electromagnetic clutches to power the metering system.

The product applied is accurately metered from the storage hopper to the distribution system by means of grooved metering rollers that distribute the precise amount of product to the individual venturis.

The ground drive automatically adjusts to field speed changes due to soil conditions and slopes. A consistent metering rate is thus guaranteed for the entire field.

Fig. 1 DIAGRAM ILLUSTRATES THE VALMAR PNEUMATIC APPLICATION SYSTEM.

4.1 HOW THE SYSTEM WORKS:

Air is driven by the fan (A) through the flexible exhaust hose (B), into the manifold collector (C) and through the manifold air lines (D). The air accelerates as it passes through the venturis (H) and creates a negative pressure zone. The granular product (G) is metered out under the grooved metering rollers (E), drawn down through the venturis (H) into the airstream and through the delivery hoses (I) to the deflectors for distribution.
SAFE OPERATION

Efficient and safe operation of the Valmar Pneumatic Applicator requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided and it is important for both personal safety and maintaining the good mechanical condition of the Applicator that this checklist is followed.

4.2 PRE-OPERATION CHECKLIST

Before operating the Applicator and each time thereafter, the following areas should be checked off:

1. Hydraulic Fan Drive

   Check the implement and Applicator hydraulic system. Ensure that the hydraulic reservoir in the tractor is filled to the required specifications. 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's hydraulic system.

2. Gas Engine Drive

   - Check the air filter and ducting to the carburetor.
   - Check the crankcase oil, and the engine components.

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

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

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

6. Check all chains, sprockets, belts and pulleys for proper adjustment and tension. Adjust as required.

7. Ensure that all bearings turn freely.

8. Inspect the gearbox for alignment and lubrication.

9. Check the electrical clutches for proper operation.

10. Make sure that all guards and shields are in place.

11. Check the ground drive tire pressure. Inflate to 30 psi.

CAUTION

1. Read and understand the Operator’s Manual before operating the Applicator.

2. Read and follow all the chemical manufacturer's safety precautions before attempting to use.

3. Do not allow riders on any part of the Applicator components or the tractor driver's compartment.

4. Keep all shields in place during operation.

5. Keep hands, feet, clothing and hair away from moving and rotating parts.

6. Stop the engine, remove the ignition key, set the park brake, disengage hydraulics and wait for all moving parts to stop before servicing, adjusting, repairing, refilling or unplugging.

7. Block the Applicator up securely before working underneath the unit.

8. Review all safety instructions annually.
4.3 CONTROLS

4.3.1 ELECTRIC CLUTCH CONTROL BOX

This switch box powers 3 clutches; the normal rate clutch, the auxiliary clutch, and the optional alternate rate clutch. This switch box also features the air pressure alarm light.

Normal Rate Clutch

This clutch drives both metering rollers at the calibration chart rate. Switching off this clutch stops product metering instantly.

Alternate Rate Clutch

This clutch also drives both metering rollers, but not at the calibration chart rates. This clutch is used to switch to an alternate broadcasting rate instantly while travelling in the field.

Auxiliary Clutch

This secondary clutch is used to shut off the right hand metering roller. This 1/2 shut off feature is used to minimize overlapping in your field.

Pressure Alarm Light

The Alarm light alerts the operator to a Low or High air manifold pressure. This light is activated by the air pressure gauge. Do not apply granular pesticides when the pressure alarm light is on.

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Fig. 2 SWITCH BOX (FRONT VIEW)

Fig. 3

Fig. 4

Fig. 5

The following are items shown in photos above:

A. Clutch Switch Box
B. Air Pressure Alarm Light
C. Auxiliary Switch
D. Normal Rate and Alternate Rate Switch
E. Battery Power Leads
F. Quick Connector Female Half (Brylite Connector)
G. Quick Connector Male Half (Brylite Connector)
H. Implement Harness
I. Air Pressure Gauge Leads
J. Clutch Connectors
4.3.2 CLUTCH CONTROL BOX INSTALLATION

1. Mount the switch box inside the cab. This box should be mounted within the operators normal view area and at hand's reach.

2. Route the wire harness out through the back of the cab.

3. Connect the two wire harness halves: Control box harness to Applicator harness.

4. Route the Applicator harness to the Applicator.

5. Fasten the 3 air pressure gauge leads to the 3 screws on the back of the gauge as shown.

6. Fasten the electric clutch connectors.

7. Route the Battery Power Leads to the tractor or truck battery.

   The black lead must be connected to the negative (-) battery pole.

   The white lead must be connected to the positive (+) battery pole.

   The electric clutches require 12 volts. Some tractors have two 6 volt batteries.

   To connect the power leads in such cases, examine the tractor batteries. Connect the white lead to the battery post which feeds power to the engine starter. Connect the black lead to the battery post which grounds to the tractor chassis or engine.

8. Switch on the normal rate and auxiliary clutches. The green switch lights should glow. Turn the ground drive wheel; both metering rollers must turn.

9. Switch off the auxiliary clutch switch. Turn the ground drive wheel. The right hand metering roller must not turn. Refer to page 20 for the alternate rate clutch installation.

10. Switch on the optional alternate rate clutch and the auxiliary clutch; the green and amber lights should glow. Turn the ground drive wheel; both metering rollers should turn through the alternate rate clutch.

11. Check the Pressure Alarm light. The red alarm light will glow if the Normal or Alternate rate clutch is switched on.

    Check the high and low contacts by turning them against the gauge needle with a 1/16 inch Hex wrench.

12. AIR GAUGE CONTACT ADJUSTMENT

    Low pressure contact set at 19 inches
    High pressure contact set at 23 inches

    These settings are general, and are recommended for granular pesticide broadcasting within Valmar's recommended applicator usage. Refer to the next page.

4.3.3 CLUTCH OPERATION

Full width broadcast of pesticide at the Calibration chart rate; The "auxiliary" and the "normal" green switch lights must glow.

1/2 width broadcast of pesticide at the Calibration chart rate; The "normal" green switch light only must glow.

Full width broadcast of pesticide at the alternate rate; The "auxiliary green light and the "alternate" amber lights must glow.

1/2 width broadcast of pesticide at the alternate rate; The "alternate" amber light only must glow.
AIR PRESSURE GAUGE

The air pressure gauge is used to monitor the fan speed. The PT 240 and the TM 240 applicators require approximately 20 inches of air pressure.

At higher field speeds and heavier broadcast rates, a higher air manifold pressure will be required.

<table>
<thead>
<tr>
<th>General Operating Guideline</th>
<th>Air Manifold Pressure</th>
<th>Field Speed</th>
<th>Maximum Broadcast Rate</th>
</tr>
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<tbody>
<tr>
<td>PT 240</td>
<td>20 inches</td>
<td>7 mph</td>
<td>20 lbs./Acre</td>
</tr>
<tr>
<td>TM 240</td>
<td>20 inches</td>
<td>7 mph</td>
<td>20 lbs./Acre</td>
</tr>
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</table>

If operating beyond these guidelines consult your dealer for recommended Air Manifold pressures.

![Fig. 7 FRONT OF GAUGE](image1)

![Fig. 8 BACK OF GAUGE](image2)
4.4 OPERATING THE PT 240 HYDRAULIC FAN DRIVE

IMPORTANT

Always exercise extreme care and cleanliness when connecting and operating a hydraulics system. Contaminants introduced into the system due to carelessness can cause rapid wear of internal components and possible system failure.

---

CAUTION

Exercise extreme care when working around a high-pressure hydraulic system. Wear hand and eye protection when searching for suspected leaks.

If a high-pressure concentrated stream of hydraulic fluid should pierce the skin, seek medical attention immediately as infection and toxic reaction could develop.

The following items should be noted:

a. Use only couplers that match your hydraulic system.

b. Hoses must have a minimum rating of 2500 psi continuous duty.

c. Keep the hydraulic system clean. Repair any hydraulic leak.

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4.4.1 HYDRAULIC FAN DRIVE

Before attempting to operate this fan drive, you must understand what type of hydraulic system your tractor has. There are two basic systems; Open Center and Closed Center. Of these two, there are several variations which have different operating characteristics. Read through your tractor operator's manual for details and consult your Tractor dealer if you have any questions.

Fig. 9 FAN DRIVE SYSTEM

A Hydraulic Motor
B Flow Control Valve
C Bypass Line Shut Off Valve
D Check Valve

To operate this drive system, your tractor must produce a minimum oil flow of 53 liters per minute (14 U.S. gpm) at 10300 kPa (1500 psi).

For optimum motor life, run the new motor for approximately one hour at 30% of the rated pressure before applying the full load.

The tractor hydraulic system oil should be at operating temperature before attempting to make fan speed adjustments. The tractor engine should be set at field working speed.
Closed Center Tractor Hydraulic System; Tractors With An Adjustable Flow Control Valve

1. The bypass line shut off valve must be set in the closed position.
2. Set the Valmar flow control valve at the maximum setting of "10". At "10", the bypass port is shut off completely. All the tractor oil will flow through the motor.
3. Set the tractor flow control valve at a low flow rate. Engage the valve. Increase the fan speed gradually until the manifold air pressure gauge reads approximately 20 inches.

Open Center Tractor Hydraulic System With An Adjustable Flow Control Valve

1. Set the bypass line valve in the open position.
2. Set the Valmar flow control valve at the maximum setting of "10". At "10" the bypass port is shut off completely. All the tractor oil will flow through the motor.
3. Set the tractor flow control valve at a low flow rate. Engage the valve. Increase the fan speed gradually until the manifold air pressure gauge reads approximately 20 inches.
4. Your fan may surge. To eliminate this problem, slowly decrease the Valmar flow control valve setting below "10" until the fan surging stops. Then re-adjust the fan speed using the tractor flow control valve.

Closed Center Tractor Hydraulic System; Tractor Without An Adjustable Flow Control Valve

1. The bypass line shut off valve must be set in the closed position.
2. Set the Valmar flow control valve at the number "3" setting.
3. Engage the tractor flow control valve. Gradually increase the motor speed by adjusting the Valmar flow control valve to higher settings. The air manifold pressure gauge should read approximately 20 inches.

Open Center Tractor Hydraulic System Without An Adjustable Flow Control Valve

1. Set the bypass line valve in the open position.
2. Set the Valmar flow control valve at a minimum setting of "0". At this setting, all the tractor oil is bypassing the motor.
3. Engage the tractor flow control valve. Slowly increase the fan speed by turning the Valmar flow control valve lever to higher settings. Increase until the manifold air pressure gauge reads approximately 20 inches.
4.4.2 HYDRAULIC SYSTEM OPERATION  PT 240

The Following Examples Show How the Valmar Hydraulic System Operates

EXAMPLE 1
HYDRAULIC COMPONENTS
- Pressure Compensated
- Adjustable Flow
- Control Valve
- Bypass Line
- Shut Off Valve
- Motor Return Line
- 4.5 Cubic Inch Motor
- Check Valve
- Return Hose To Tractor
- High Pressure Hose From Tractor

EXAMPLE 2
FAN OPERATION
OPEN CENTRE TRACTOR
- Surplus Oil Bypasses The Motor Through This Line If The Valmar Flow Control Is Not Set At "10"
- Return Hose To Tractor
- High Pressure Hose From Tractor

EXAMPLE 3
FAN OPERATION
CLOSED CENTRE TRACTOR
- No Oil Flowing Through The Bypass Line
- Bypass Valve Must Be Closed
- Return Hose To Tractor
- High Pressure Hose From Tractor

EXAMPLE 4
OIL FLOW SHUT OFF
FROM THE TRACTOR
OPEN AND CLOSED CENTRE TRACTOR SYSTEMS
- Reverse Flow Through The Check Valve
- The Oil Circulates From The Motor Return Line Through The Reverse Side Of The Check Valve and Back Into The Flow Control Valve. This Gradual Stop Protects The Motor Against An Extremely High Pressure Which Would Occur If The Fan Could Not Free Wheel To Stop.

EXAMPLE 5
RETURN HOSE UNCOUPLED
WHILE THE FAN IS RUNNING
OPEN AND CLOSED CENTRE TRACTOR SYSTEMS
- The Entire System Will Be Pressurized Up To The Tractor Relief Valve Opening Pressure. This High Pressure Can Damage The Hydraulic Motor Seals.

EXAMPLE 6
OIL FLOWING THROUGH
WRONG HOSE
OPEN AND CLOSED CENTRE TRACTOR SYSTEMS
- The High Pressure Oil Is Flowing Through The Wrong Hose. The Oil Will Flow Through The Reverse Side Of The Check Valve And Directly Back To The Tractor.
- High Pressure From Tractor
GAS ENGINE SAFETY

1. Store gasoline only in a Safety Standards approved container. Do not use discarded polyethylene jugs, glass bottles or tins, even if these have threaded tops or caps.

2. Do not handle gasoline or fill the fuel tank near an open flame or a spark source.

3. Do not smoke or have a lighted cigarette near when handling gasoline.

4. Do not attempt to fill up the fuel tank when the engine is running or is still hot after being shut down. Wait until it cools off sufficiently.

5. Refuel slowly to avoid spilling gasoline. Use a proper funnel to avoid the possibility of spilled gasoline causing a fire.

6. Keep a multipurpose dry chemical fire extinguisher on hand and know how to use it. Check the extinguisher according to the manufacturer’s instructions.

7. Never operate the engine in an enclosed non-ventilated area, unless the fumes are piped outside.

8. Never make adjustments to machinery that the engine is driving without first removing the ignition cable from the spark plug. Turning the drives by hand when adjusting or cleaning might start the engine and then the machinery causing serious personal injury.

Refer to the Honda engine operator’s manual for correct maintenance of engine.

Mounting the engine:

The gas engine drive is standard on the TM240 and optional on the PT240. Care must be taken to ensure proper installation of the engine.

1. Install the V-belt sheaves onto the fan shaft and the engine. The 11 hp drive uses a 5 1/4 inch sheave on the engine and a 4 3/4 inch sheave on the fan.

Important

Refer to Centrifugal Clutch installation in this section before installing engine to engine mount.

2. Slide the engine mount into the tubing on the side of the hopper.

3. Bolt the engine onto the engine mount and install the V-belt.

4. Apply tension to the V-belt and align the belt sheaves. Lock the sheaves in place. The tubings are locked in place by turning in the two 3/4 inch bolts. The V-belt should be tightened to deflect approximate 1/2 inch when a 5 pound (2.3 kg) force is applied at the midpoint of the belt span.

Figure 10

Centrifugal Clutch

The centrifugal clutch is secured to the engine output shaft using Loctite 609. Should clutch require servicing (e.g. bearing replacement), do not remove clutch assembly from engine output shaft. This is to prevent breaking the Loctite seal between clutch and shaft.

Replace clutch assembly if clutches are worn or entire unit is damaged.

Centrifugal Clutch Installation

1. Clean engine crankshaft and inside of clutch using cleaning solvent or chlorinated solvent. Wipe dry using a clean towel, Figure 8-26.

2. Apply evenly Loctite 609 (supplied) to inside and outside surfaces where clutch mounts to crankshaft. Use 1/2 of tube for crankshaft and other
half of tube for inside of pulley. Do not fill keyway. Figure 11: Centrifugal Clutch Installation to Engine.

3. Install Clutch to engine. Position belt groove away from engine. Fit clutch against the shoulder of the crankshaft.

![Centrifugal Clutch Installation to Engine](image)

**Figure 11: Centrifugal Clutch Installation to Engine**

**NOTE**

Use 3/8 NF bolt (supplied) for 11 hp engine.

4. Wipe off excess Loctite at the exposed ends of crankshaft. Install washer (Part No. 08.5326) to crankshaft and secure with 3/8 bolt. The washer is a retainer only and does not need to secure the clutch. Do not loctite the washer.

5. Cure Loctite for 6 hours at room temperature of 68 - 70°F (20 - 21°C) before operating or allow 24 hours at 50°F (10°C) before operating.

**Bearing Replacement**

The bearing can be replaced without complete removal of clutch from the engine. This leaves the Loctite connection of clutch to engine intact.

This is done by removing the small snap ring (5) securing the bearing (3) to the clutch rotor and hub (1), Figure 12: Centrifugal Clutch. Pull the drum w/pulley (4) completely off the clutch rotor and hub.

The bearing can be pressed out from the drum after a large snap ring (2) is removed.

![Bearing Replacement](image)

**Figure 10**

**NOTE**

When pressing on the new bearing, make sure the press force is never transferred through the balls of the bearing.

Reinstall the components in reverse order of removal. The bearing and drum assembly should be pressed onto the hub through the inner race.

**Centrifugal Clutch Removal and Installation**

Clutch removal from the engine is by:

1. Remove retaining bolt and washer from end of crankshaft.

2. Heat the Loctite securing the clutch to the shaft to 350 to 400°F. Direct heat to the connection point. Be careful not to overheat the engine crankshaft as this may weaken it.

**NOTE**

Use a puller to remove clutch from engine.

3. Remove clutch from engine while hot.

Reinstall clutch as follows:

1. Check the bearing seals for heat damage and replace if necessary.

2. Remove completely the old Loctite from both surfaces.

3. Install clutch. Refer to Centrifugal Clutch Installation in the Assembly and Installation section of the manual.
The PTO fan drive system is designed for 540 RPM and 1000 RPM Power Take Off shafts. The standard drive shaft has a 1 3/8 inch diameter 6 spline hub for 540 RPM PTO shafts. A 1 3/8 inch diameter 21 spline hub is available from your dealer for 1000 RPM PTO shafts.

### 4.6.1 INSTALLATION

1. Position the unit on top of the implement hitch beams so that the tapering edges of the mounting plate are flush with the taper of the hitch beam.

2. Drill two 13 mm (1/2 in.) diameter holes on each side down through the mounting plate and the hitch beam.

3. Use the (7/16 in.) x (5 1/2 in.) long bolts, washers, lock washers and nuts to retain the PTO drive on the hitch beams.

4. Install the belt over the gear box pulley and the fan pulley, adjust the belt idler to provide 13 mm (1/2 in.) of deflection when a 2.3 kg (5 lbs) force is applied at the mid-point of the vertical belt span.

   For a 540 rpm tractor PTO, set the V-belt over the larger gearbox sheave and smaller fan sheave.

   For a 1000 rpm tractor PTO, set the V-belt over the smaller gearbox sheave and larger fan sheave.

5. Position the belt shield and fasten in place with the two rubber latches.
6. Adjust the tractor drawbar so that there is a distance of 406 mm (16 in.) from the centre of the hitchpin hole to the end of the PTO shaft.

![Fig. 15 DRAWBAR / SHAFT DIMENSIONS](image)

7. Remove the PTO transport bracket and lower the shaft to the working position.

8. Slide the splined end of the PTO coupling onto the tractor PTO output shaft.

9. Depress the coupling locking pin and engage in the groove in the end of the PTO output shaft. Pull the PTO shaft firmly to ensure the lockpin is engaged.

4.6.2 PTO SAFETY SHIELD MAINTENANCE

It is important that the shield components rotate freely over the PTO shaft. Lubricating both shield bearings and periodic cleaning will ensure safe operation of the rotating shields.

DISASSEMBLY, CLEANING AND LUBRICATING

1. Press the cone down and release the collar catches with a screwdriver.

2. Spread the collar bearing and remove from the tube. Clean the collar and the yoke bearing groove. After cleaning thoroughly, apply a good coat of grease to the bearing groove.

3. Fit the collar bearing into the groove and the tube ensuring that the collar catches are centered over the matching holes. The tube and bearing must rotate freely in the bearing groove.

4. Fasten the cone by lining up the cone grease fitting over the grease filling hole on the collar bearing. Make sure that all catches are fastened and that the shield turns freely over the shaft.

![Fig. 16 SAFETY SHIELD COMPONENTS](image)

PTO LUBRICATION

Follow these recommended lubrication intervals for a safe functioning PTO fan drive system. After a storage period or an interval when the system is not used, grease the drive shaft before operating.

![Fig. 17 PTO LUBRICATION SCHEDULE](image)

PTO GEAR BOX MAINTENANCE

When the optional PTO drive is used, it is necessary to periodically check the oil level.

![Fig. 18 PTO GEARBOX](image)

Every 50 hours, remove the oil level plug on the side of the gearbox. If oil seeps out or fills the threads, the oil level is correct. If not, add through the vent and fill cap. Use only 85W140 gear oil, MIL 2105B.
The alternate rate system is used to make instantaneous rate changes while broadcasting. Alternate rates should only be used under specific instructions from the Pesticide Company representative. Consult your local representative.

Refer to the separate Pull Type 240 and Truck Mount 240 diagrams and alternate rate sprocket charts.

Fig. 19 TM 240

4. Bolt the 15 tooth or 30 tooth sprocket to the new clutch.
5. Slide the clutch onto the shaft as shown in the diagrams.
6. Slide the locking collar onto the shaft but do not lock against the clutch.
7. Install the roller chain over the two alternate rate sprockets.
8. Line up the two sprockets and lock the alternate rate sprocket onto the gearbox input shaft.
9. Set the open gap between the alternate rate clutch magnet and the contact plate to about 1/32 inch. Now lock the clutch collar against the clutch.
10. Anchor the new clutch to the air manifold with the self tapping screw and chain.
11. Connect the clutch to the extra connector on the implement harness.
12. Switch on the alternate rate clutch. The amber switch light should glow and the clutch halves should instantly lock together.
13. If the clutch has not locked, check the open clutch gap, the harness connections and the harness wires.
14. Turn the clutch control switch off and measure the open clutch gap. Readjust the gap if more than 1/32 inch.
15. The electrical clutches are designed to slip at approximately 90 ft-lbs of torque. If the clutch slips, check the entire drive system for misalignments or damaged components. This metering system should rotate without applying excessive force.

<table>
<thead>
<tr>
<th>Percent Change</th>
<th>Sprocket Size (No. 40)</th>
<th>Sprocket Size (No. 40)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PT 240</td>
<td>TM 240</td>
</tr>
<tr>
<td>+10%</td>
<td>27 Teeth</td>
<td>27 Teeth</td>
</tr>
<tr>
<td>+15%</td>
<td>26 Teeth</td>
<td>26 Teeth</td>
</tr>
<tr>
<td>+20%</td>
<td>25 Teeth</td>
<td>25 Teeth</td>
</tr>
<tr>
<td>+25%</td>
<td>24 Teeth</td>
<td>24 Teeth</td>
</tr>
<tr>
<td>+30%</td>
<td>23 Teeth</td>
<td>23 Teeth</td>
</tr>
<tr>
<td>+35%</td>
<td>22 Teeth</td>
<td>22 Teeth</td>
</tr>
<tr>
<td>+40%</td>
<td>21 Teeth</td>
<td>21 Teeth</td>
</tr>
<tr>
<td>+45%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+50%</td>
<td>20 Teeth</td>
<td>20 Teeth</td>
</tr>
<tr>
<td>-10%</td>
<td>33 Teeth</td>
<td>33 Teeth</td>
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<tr>
<td>-15%</td>
<td>35 Teeth</td>
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<tr>
<td>-20%</td>
<td>38 Teeth</td>
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<tr>
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<td>40 Teeth</td>
<td>40 Teeth</td>
</tr>
<tr>
<td>-30%</td>
<td>43 Teeth</td>
<td>43 Teeth</td>
</tr>
<tr>
<td>-35%</td>
<td>46 Teeth</td>
<td>46 Teeth</td>
</tr>
<tr>
<td>-40%</td>
<td>50 Teeth</td>
<td>50 Teeth</td>
</tr>
<tr>
<td>-45%</td>
<td>55 Teeth</td>
<td>55 Teeth</td>
</tr>
<tr>
<td>-50%</td>
<td>60 Teeth</td>
<td>60 Teeth</td>
</tr>
</tbody>
</table>

1. A 3/4 inch bore sprocket hub is included in the kit. Weld the alternate rate sprocket to this hub and slide onto the gearbox input shaft next to the normal rate sprocket.
2. Sand off any paint from the clutch shaft end and file down all burrs and nicks.
3. Insert the woodruff key into the shaft keyway.
4.8 GROUND DRIVE SETTING

4.8.1 PT 240

The PT 240 has four drive ratios at the ground drive assembly. These drive ratios are changed by unlocking the telescoping tubes and shifting the roller chain over the sprockets. The bottom dual sprocket is secured to the wheel axle with a hitch pin clip. Remove the clip and adjust this sprocket as required to attain the correct ratio.

Fig. 21

4.8.2 TM 240

The TM 240 has 3 standard ground drive ratios. The 3 ratios; Low, Medium and High are changed by unlocking the telescoping tube and shifting the roller chain over the specified sprockets. The bottom dual sprocket is secured to the wheel axle with a hitch pin clip. Remove this clip and adjust the sprocket as required to attain the correct drive ratios.

Fig. 22
4.9 GEARBOX SETTING

Nine gear combinations are available through the gearbox by making five idler gear ratio adjustments in range B and four in range A. Adjust the gearbox as follows:

1. Unlock the idler gear shift lever and disengage the gear.
2. Shift the range lever to the A or B range.
3. Engage the idler gear lever into a numbered ratio slot.
4. Use the S-shaped clip to lock the idler gear lever into the chosen slot.

![Gearbox Adjustment](image)

Fig. 23 ADJUSTMENTS ON THE GEARBOX

4.10 APPLICATION RATE CHART

Refer to this chart to determine what gearbox setting and ground drive ratio will be required for the material being applied. This chart provides general reference, calibrate your applicator according to your special requirements.

4.10.1 TM 240

NOTE

To convert to kilograms per hectare, multiply the Chart rates by 1.12.
# Product Flow Rate Chart in lbs/acre

**Valmar 160, 240, 320, 2420, 3220, 4400**

**Gearbox Setting**

<table>
<thead>
<tr>
<th>PESTICIDE</th>
<th>NO. 1</th>
<th>NO. 2</th>
<th>NO. 3</th>
<th>NO. 4</th>
<th>NO. 5</th>
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<tbody>
<tr>
<td></td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Ambush 1%</td>
<td>1.6</td>
<td>1.7</td>
<td>2.0</td>
<td>2.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Edge</td>
<td>1.8</td>
<td>2.0</td>
<td>2.3</td>
<td>2.5</td>
<td>2.8</td>
</tr>
<tr>
<td>Sonalan</td>
<td>1.9</td>
<td>2.1</td>
<td>2.4</td>
<td>2.6</td>
<td>2.9</td>
</tr>
<tr>
<td>Avadex, Fargo, Buckle, Advance 10G, RoNeet 10G, Treeflan TR10, Fortress</td>
<td>2.0</td>
<td>2.2</td>
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<tr>
<td>Triflurex 10G</td>
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<td>2.5</td>
<td>2.8</td>
<td>3.0</td>
<td>3.4</td>
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<tr>
<td>Rival 10G, Dual 25G, Ramrod 20, Trifluralin 10G, Counter 15G</td>
<td>2.4</td>
<td>2.6</td>
<td>2.9</td>
<td>3.2</td>
<td>3.5</td>
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<tr>
<td>Disyston 15%, Dipel 10G, Eptam 10G, Lorsban 15G</td>
<td>2.5</td>
<td>2.7</td>
<td>3.0</td>
<td>3.3</td>
<td>3.7</td>
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<tr>
<td>Lasso II, Eradicane 25G</td>
<td>2.6</td>
<td>2.8</td>
<td>3.2</td>
<td>3.5</td>
<td>3.9</td>
</tr>
<tr>
<td>Dyfonate 20G, Phorate 20G, Thimet 20G</td>
<td>3.2</td>
<td>3.5</td>
<td>3.9</td>
<td>4.3</td>
<td>4.7</td>
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<tr>
<td>Treeflan QR5, Heritage</td>
<td>4.1</td>
<td>4.5</td>
<td>5.1</td>
<td>5.6</td>
<td>6.2</td>
</tr>
</tbody>
</table>

**Input Ratio**

- **1/2 Low Ratio**
  - 48 T
  - 60 T
- **Low Ratio**
  - 30 T
  - 15 T

**Note:** USE THIS CHART AS A GUIDE ONLY, CALIBRATE YOUR APPLICATOR.
### Product Flow Rate Chart in lbs/acre

Valmar 160, 240, 320, 2420, 3220, 4400

<table>
<thead>
<tr>
<th>PESTICIDE</th>
<th>NO. 1</th>
<th>NO. 2</th>
<th>NO. 3</th>
<th>NO. 4</th>
<th>NO. 5</th>
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<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Ambush 1%</td>
<td>6.4</td>
<td>7.0</td>
<td>7.8</td>
<td>8.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Edge</td>
<td>7.4</td>
<td>8.1</td>
<td>9.1</td>
<td>10.0</td>
<td>11.1</td>
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<td>7.8</td>
<td>8.5</td>
<td>9.5</td>
<td>10.5</td>
<td>11.7</td>
</tr>
</tbody>
</table>

#### Avadex, Fargo, Buckle, Advance 10G, RoNeet 10G, Treflan TR10, Fortress
- **Triflurex 10G**
  - 8.2  8.9  10.0  11.0  12.2  13.6  15.0  16.8  18.4
  - 9.4  10.3  11.6  12.7  14.2  15.7  17.3  19.5  21.2
- **Disyston 15%, Dipel 10G, Eptam 10G, Lorsban 15G**
  - 9.9  10.8  12.2  13.4  14.9  16.5  18.2  20.4  22.3
- **Lasso II, Eradicane 25G**
  - 10.4  11.4  12.8  14.1  15.6  17.3  19.1  21.5  23.4
- **Dyfonate 20G, Phorate 20G, Thimet 20G**
  - 12.7  13.8  15.5  17.1  19.0  21.1  23.2  26.1  28.5
- **Treflan QRS, Heritage**
  - 16.5  18.0  20.3  22.3  24.8  27.5  30.3  34.0  37.1

<table>
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<tr>
<th>PESTICIDE</th>
<th>NO. 1</th>
<th>NO. 2</th>
<th>NO. 3</th>
<th>NO. 4</th>
<th>NO. 5</th>
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<tr>
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<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Ambush 1%</td>
<td>12.8</td>
<td>13.9</td>
<td>15.7</td>
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<td>19.2</td>
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<tr>
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<td>18.2</td>
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<td>22.2</td>
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<td>16.9</td>
<td>19.1</td>
<td>21.0</td>
<td>23.3</td>
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</table>

#### Avadex, Fargo, Buckle, Advance 10G, RoNeet 10G, Treflan TR10, Fortress
- **Triflurex 10G**
  - 16.3  17.8  20.0  22.0  24.5  27.2  29.9  33.6  36.7
  - 18.0  19.6  22.1  24.3  27.0  30.0  33.0  37.1  40.5
- **Disyston 15%, Dipel 10G, Eptam 10G, Lorsban 15G**
  - 18.9  20.6  23.2  25.5  28.3  31.5  34.6  38.9  42.5
- **Lasso II, Eradicane 25G**
  - 19.8  21.6  24.3  26.8  29.7  33.0  36.4  40.9  44.6
- **Dyfonate 20G, Phorate 20G, Thimet 20G**
  - 20.8  22.7  25.6  28.1  31.2  34.7  38.2  42.9  46.8
- **Treflan QRS, Heritage**
  - 25.3  27.6  31.1  34.2  38.0  42.2  46.4  52.2  56.9

<table>
<thead>
<tr>
<th>PESTICIDE</th>
<th>NO. 1</th>
<th>NO. 2</th>
<th>NO. 3</th>
<th>NO. 4</th>
<th>NO. 5</th>
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<tr>
<td></td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Ambush 1%</td>
<td>33.0</td>
<td>36.0</td>
<td>40.5</td>
<td>44.6</td>
<td>49.5</td>
</tr>
</tbody>
</table>

#### INPUT RATIO

**MEDIUM RATIO**
- 30 T

**HIGH RATIO**
- 15 T

---

*USE THIS CHART AS A GUIDE ONLY, CALIBRATE YOUR APPLICATOR.*
## Product Flow Rate Chart in lbs/acre

**Model:** PT240, TM240  
**Gearbox Setting**  
28 Groove solid roller, 1/8 in. gap

<table>
<thead>
<tr>
<th>SEED</th>
<th>GEARBOX SETTING</th>
<th>Ground Drive Sprocket Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.1</td>
<td>No.2</td>
</tr>
<tr>
<td>Orchard Grass</td>
<td>B 8</td>
<td>A 0.8</td>
</tr>
<tr>
<td>Creeping Red Fescue, Kentucky Bluegrass</td>
<td>1.1</td>
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</tr>
<tr>
<td>Annual Rye Grass</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Crested Wheat Grass</td>
<td>1.6</td>
<td>1.7</td>
</tr>
<tr>
<td>Reed Canary Grass</td>
<td>1.8</td>
<td>2.0</td>
</tr>
<tr>
<td>Timothy</td>
<td>2.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Canola (rapeseed), Flax, Alsike Clover</td>
<td>2.8</td>
<td>3.1</td>
</tr>
<tr>
<td>Crown Millet</td>
<td>2.8</td>
<td>3.1</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>3.0</td>
<td>3.2</td>
</tr>
<tr>
<td>Siberian Millet</td>
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<td>3.5</td>
</tr>
<tr>
<td>Red Clover</td>
<td>3.5</td>
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</tr>
<tr>
<td>Canary Seed, Yellow Mustard</td>
<td>3.6</td>
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</tr>
<tr>
<td>Sudan Grass (Sorghum)</td>
<td>4.8</td>
<td>5.3</td>
</tr>
</tbody>
</table>

**Ground Drive Sprocket Ratio**

- **1/2 Low Ratio**
  - **PT240**
    - Use 15 tooth gear at wheel driving the 60 tooth gear
  - **TM240**
    - Use 12 tooth gear at wheel driving the 48 tooth gear

<table>
<thead>
<tr>
<th>Low Ratio</th>
<th>Use 15 tooth gear at wheel driving the 30 tooth gear</th>
</tr>
</thead>
<tbody>
<tr>
<td>30T</td>
<td>15T</td>
</tr>
</tbody>
</table>

**Calibration**

- Set Calibration bar gap 1/4".

**Note**

USE THIS CHART AS A GUIDE ONLY. CALIBRATE YOUR APPLICATOR.
# Product Flow Rate Chart in lbs/acre

**Model:** PT240, TM240  
**28 Groove solid roller, 1/8 in. gap**

<table>
<thead>
<tr>
<th>SEED</th>
<th>GEARBOX SETTING</th>
<th>Ground Drive Sprocket Ratio</th>
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<td></td>
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<td></td>
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<td>A</td>
</tr>
<tr>
<td>Cropped Grass</td>
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<tr>
<td>Creeping Red Fescue, Kentucky Bluegrass</td>
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</tr>
<tr>
<td>Annual Rye Grass</td>
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<td>Crested Wheat Grass</td>
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</tr>
<tr>
<td>Reed Canary Grass</td>
<td>7.3</td>
<td>7.9</td>
</tr>
<tr>
<td>Timothy</td>
<td>8.9</td>
<td>9.7</td>
</tr>
<tr>
<td>Canary (rapeseed), Flax, Alpine Clover</td>
<td>11.2</td>
<td>12.2</td>
</tr>
<tr>
<td>Crown Millet</td>
<td>11.3</td>
<td>12.3</td>
</tr>
<tr>
<td>Allfalfa</td>
<td>11.9</td>
<td>12.9</td>
</tr>
<tr>
<td>Siberian Millet</td>
<td>12.7</td>
<td>13.9</td>
</tr>
<tr>
<td>Red Clover</td>
<td>14.1</td>
<td>15.4</td>
</tr>
<tr>
<td>Canary Seed, Yellow Mustard</td>
<td>14.4</td>
<td>15.7</td>
</tr>
<tr>
<td>Sudan Grass (Sorghum) Set Calibration bar gap 1/4&quot;</td>
<td>19.0</td>
<td>21.0</td>
</tr>
</tbody>
</table>

| Orchard Grass                    | 6.0 | 6.6 | 7.4 | 8.0 | 9.0 | 10.0 | 11.0 | 12.4 | 13.6 |
| Creeping Red Fescue, Kentucky Bluegrass | 8.8 | 9.6 | 10.8 | 11.8 | 13.2 | 14.6 | 16.0 | 18.2 | 19.8 |
| Annual Rye Grass                 | 11.6 | 12.8 | 14.2 | 16.6 | 17.4 | 19.2 | 21.2 | 24.0 | 26.2 |
| Crested Wheat Grass              | 12.4 | 13.4 | 15.8 | 16.6 | 18.4 | 20.4 | 22.4 | 25.4 | 27.6 |
| Reed Canary Grass                | 14.6 | 15.8 | 17.8 | 19.6 | 21.8 | 24.2 | 26.2 | 30.0 | 32.8 |
| Timothy                          | 17.8 | 19.4 | 21.8 | 24.0 | 26.6 | 29.4 | 32.4 | 36.8 | 40.0 |
| Canary (rapeseed), Flax, Alpine Clover | 22.4 | 24.4 | 27.4 | 30.0 | 33.4 | 37.0 | 40.8 | 46.0 | 50.0 |
| Crown Millet                     | 22.6 | 24.6 | 27.8 | 30.4 | 33.8 | 37.4 | 41.2 | 46.6 | 50.8 |
| Allfalfa                         | 23.8 | 25.8 | 29.0 | 31.8 | 35.4 | 39.3 | 43.2 | 48.8 | 53.2 |
| Siberian Millet                  | 25.4 | 27.8 | 31.2 | 34.2 | 38.0 | 42.2 | 46.4 | 52.4 | 57.0 |
| Red Clover                       | 28.2 | 30.8 | 34.6 | 36.0 | 42.2 | 46.8 | 51.4 | 58.2 | 63.4 |
| Canary Seed, Yellow Mustard      | 28.8 | 31.4 | 35.2 | 36.8 | 43.0 | 47.8 | 52.4 | 59.4 | 64.6 |
| Sudan Grass (Sorghum) Set Calibration bar gap 1/4" | 38.0 | 42.0 | 48.0 | 52.0 | 58.0 | 64.0 | 72.0 | 80.8 | 88.0 |

**USE THIS CHART AS A GUIDE ONLY. CALIBRATE YOUR APPLICATOR.**
4.11 MACHINE CALIBRATION
4.11.1 GENERAL CALIBRATION

Factors that will affect the metering rate are product particle size, field working conditions and atmospheric conditions. Changes in the product particle size, shape or density will alter the metering rate. Extreme field working conditions can affect the ground drive traction. Hot and humid weather can lead to product caking on the metering rollers and reduce the application rate. Calibration of your Applicator will be necessary if any of these conditions occur. Any appreciable rate change will be detected and the Applicator setting can be adjusted accordingly.

<table>
<thead>
<tr>
<th>MATERIAL TO BE APPLIED</th>
<th>Calibration Chart in Lbs/Acre</th>
<th>DRIVE GEAR RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. 1</td>
<td>No. 2</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>1/2 LOW RATIO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>x 1/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(PT 240 ONLY)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOW RATIO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>x 1/2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEDIUM RATIO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>x .67 x .73 x .82 x .9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CALIBRATION WEIGHT</td>
<td></td>
</tr>
<tr>
<td>HIGH RATIO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>x 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 24 CALIBRATION CHART

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**Diagram:**

- **PT 240**
  - 1ST Clutch
  - 40T Roller
  - 15 Chain Link Gear
  - 30T Gearbox
  - Dual 1ST/30T
  - 60T-1/2 Low
  - 4.80-16-6-8 Wheel (1200 Revolutions Per Mile)

- **TM 240**
  - 15 Link Chain gear
  - 30T Clutch
  - 30T Gearbox
  - 40T Roller
  - 1ST Gearbox
  - 30T Gearbox
  - 2ST Gearbox
  - 78-14 Wheel

---
1. Run the fan at operating speed to clear the system of product and moisture.

2. Check the metering rollers. The calibration plate gap must be 3 mm (1/8 inch).

3. Check the ground drive tire pressure. The pressure should be approximately 30 psi.

4. Mark one of the metering rollers to count the roller revolutions during the calibration.

5. Pour one bag of product into the side of the hopper with the marked roller.

6. With the fan running; turn the ground drive tire until product is falling across the entire roller. The product must feed through the bottom of the metering roller, not the top.

7. Shut off the fan; tie cotton calibration bags over the 12 deflectors through which the metered product will flow.

Calibration bags are available from Valmar Airflow Inc.

8. Turn the ground drive tire and count the metering roller revolutions. The metering roller must be turned exactly 19.5 revolutions for a PT 240 and TM 240.

9. Weigh the product collected in the 12 bags. This total weight x 2 = the application rate in pounds per acre in Medium ground drive Ratio with the gearbox set in B-3. Refer to the blank calibration chart on the previous page.

10. To calculate the remainder of the Medium Ratio rates, multiply the rate by the amounts shown in the gearbox settings.

11. Dividing the Medium Ratio rates by 4 will yield the 1/2 Low Ratio rates.

12. Dividing the Medium Ratio rates by 2 will yield the Low Ratio rates.

13. Multiplying the Medium Ratio rates by 2 will yield the High Ratio rates.

Fig. 25 CALIBRATION PLATE GAP ADJUSTMENT