FORM NO. 43010

TORO®

MODEL NO. 41150-20101 & UP

OPERATOR'S INSTRUCTIONS

PA-17 SPREADER

Keep this Operators Manual, the Vehicle Operators Manual, the Engine Manual and all other Accessory Manuals in the plastic tube behind the operator seat.

It is very important that all persons operating this equipment have easy access to these instructions and safety information at all times!

The installation of accessories on the TORO Vehicle other than those designed and sold for that express purpose by TORO, may adversely affect the performance and safety characteristics of the Vehicle.

RECOGNIZE SAFETY INFORMATION

This safety-alert symbol is used to call attention to a dangerous situation, which could result in serious injury or death to the operator, a passenger or a bystander.

Follow recommended precautions and safe operating practices.

It is important to always replace any lost or damaged safety-alert and informational decals on the vehicle and accessories immediately.

INSTALLING AND USING ATTACHMENTS:

Always read the operating instructions that are included with the accessories BEFORE actually operating the unit. Carefully read and follow any "set-up" instructions that are given.

The addition of accessories, with their added weight and bulk will make the vehicle somewhat less stable. When turning or driving on slopes, always SLOW the vehicle before making a turn, and then SLOWLY turn the vehicle to prevent loss of control and possibly upset the vehicle.

DO NOT OVERLOAD THE VEHICLE. Maximum load limits are shown on decals used on all accessories . . . do not exceed these limits.

Failure to position loads carefully can result in their shifting or tipping over suddenly, causing the vehicle to upset.

Distribute loads evenly, keeping them low so as to prevent the vehicle from becoming top-heavy. When loading the cargo bed, have heavy loads to the front of the rear axle. Heavy loads in back of the rear axle can raise the front wheels clear of the ground, causing a loss of steering control and making the vehicle unstable.

FOLLOW SAFETY INSTRUCTIONS

This Manual is provided as a guide for the safe operation and proper maintenance of this equipment. However, the operator's personal safety, as well as those persons in the work area, will depend on the careful actions and good judgement of the operator

Carefully read the Vehicle's Operators Manual BEFORE attempting to operate the Vehicle and/or any of the Accessories.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

DRIVE SAFELY

Always SLOW the vehicle when approaching, and while making, a turn.

Always SLOW the vehicle when driving in unfamiliar areas or over rough terrain.

Always SLOW the vehicle when changing the direction of travel or preparing to stop.

DO NOT make sudden or sharp turns or change direction of travel, on an incline, ramp, grade, slope or similar surface.

Adjust the vehicle speed to allow for existing conditions such as wet, slick surfaces, low visibility, etc.

Drive the vehicle UP and DOWN the face of the slopes, inclines or grades whenever possible. DO NOT drive ACROSS the face if at all possible. There is a risk of upsetting the vehicle, which can result in serious injury or death.

Be especially careful when driving a heavily loaded vehicle down an incline or slope. SLOW the vehicle with the Vehicle Drive Control Lever. In case of the need for an emergency stop, use the foot brake.

spreader controls

Familiarize yourself with the controls and recommended operating procedures, before actually operating the Spreader.

CLUTCH CONTROL HANDLE is the ON/OFF control for the Spreader. Push the Handle DOWN to engage the Agitator and Spreader Spout mechanisms. Pull the Handle UP toward the operator, to disengage the mechanisms and stop the Agitator and Spreader Spout action.

FLOW CONTROL HANDLE: Opens and closes the regulator disc in the Hopper opening, to start or stop the flow of material. Pull the Handle forward, toward the operator, to open the regulator disc. Push the Handle back, away from the operator, to close the regulator disc.

FLOW REGULATOR: Determines the rate of material flow. The highest number setting (7) indicates the largest opening, increasing the flow of material. The lowest number setting (1) indicates the smallest opening, decreasing the flow of material.

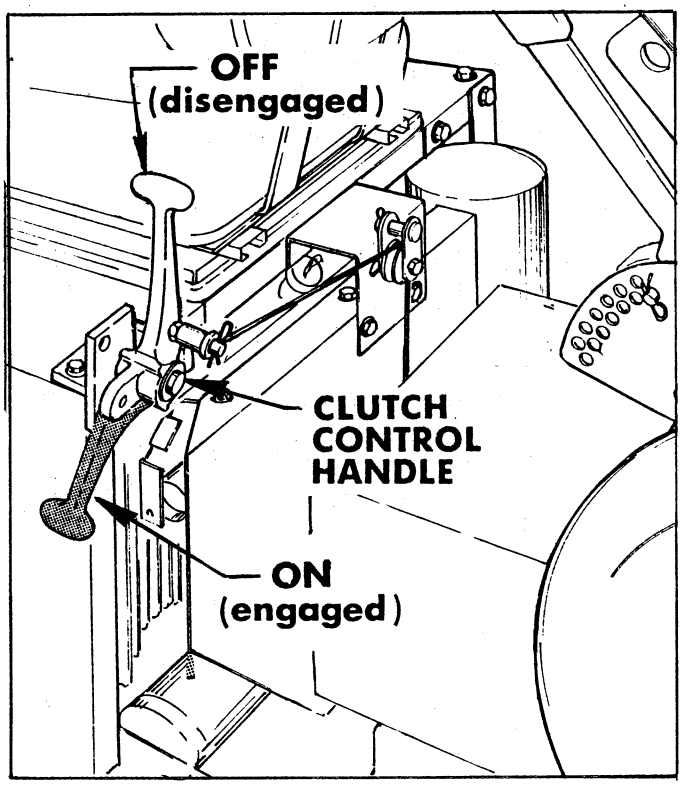


FIG. 1

SPOUT ARC SETTING

The decal on the Spreader indicates the operating arc of the Spreader Spout.

(-) or MIN = Spout arc of 38°

(+) or MAX = Spout arc of 58°

To adjust the Spout arc, DISENGAGE THE CLUTCH CONTROL HANDLE AND SWITCH OFF THE VEHICLE'S ENGINE!

- Turn the Spreader Sprocket by hand until the arc adjuster appears in the opening. See FIG. 2.
- Using the wrench furnished, loosen the two locking nuts on each side of the adjuster.
- Insert the opposite end of the wrench into the opening and turn the arc adjuster to the desired spreading width.
- Tighten the locking nuts.

The following table gives suggested spread widths and Spout arc settings for different materials:

MATERIAL	SPREAD WIDTH	SPOUT ARC SETTING
Granulated	40 ft. (12m)	+ (Max)
Prilled	40 ft. (12m)	+ (Max)
Powder	20 ft. (6m)	(Midway)
Urea	32 ft. (10m)	+ (Max)

The Spreader Unit includes two Spouts. The smaller Spout is recommended for the spreading of sand. The longer nylon Spout is recommended for spreading fertilizer.

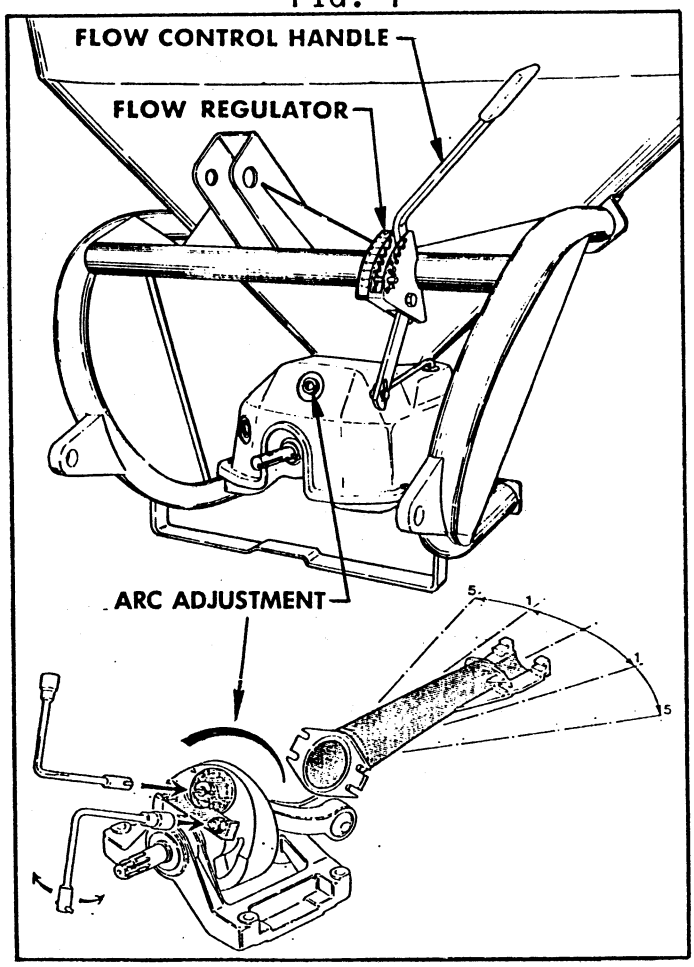


FIG. 2

spreader operation

SPREADER CALIBRATION:

To calibrate the HAHN Spreader you must determine the desired rate of the material being applied (in pounds per acre), as specified by the material manufacturer.

To achieve this application rate, first establish the following:

- Spread width in feet, for the material being applied. NOTE: This width will vary according to density of material and the Spout arc setting.

- Flow rate of material from the Hopper, in pounds per minute. This will depend on the particle size of the material and the position of the Flow Regulator setting.

- Desired working speed of the Vehicle in miles per hour. The HAHN Spreader is designed to operate most effectively with the Vehicle's engine at full, or nearly full RPM.

⚠ CAUTION! Operate the Vehicle at a slow ground speed to prevent machine tip-over. A full load in the Hopper changes the center of gravity. NEVER EXCEED THE MAXIMUM LOAD OF 1000 POUNDS!

After determining the above factors, use the following formula to calculate the application rate for the Flow Regulator setting being used.

$$\frac{\text{lbs/min} \times 495}{\text{spread width (ft)} \times \text{mph}} = \text{lbs/acre}$$

EXAMPLE: With a flow rate of 106 lbs/min, a spread width of 50 feet and a ground speed of 3.5 mph...the Spreader application rate is:

$$\frac{106 \text{ lbs/min} \times 495}{50 \text{ feet} \times 3.5 \text{ mph}} = 300 \text{ lbs/acre}$$

See the Flow Regulator Setting Chart on page 4.

TAKE MACHINE TO WORK SITE:

- Set the Flow Regulator at the setting previously determined. Position Spout at arc setting indicated.

- Close the regulator disc, using the Flow Control Handle.

- Fill the Hopper...just prior to actual operation.

CAUTION: Read the instructions on chemical container carefully and completely. Never exceed the maximum rate of application recommended by the chemical manufacturer. DO NOT EXCEED THE MAXIMUM LOAD OF 1000 POUNDS.

- Start the engine and engage the Clutch Control Handle. Select the gear and as the Vehicle begins to move, open the regulator disc.

NOTE: Always close the regulator disc when stopping the Vehicle. Disengage the Agitator and Spreader Spout mechanism when disc is to be closed for any length of time, to prevent pulverizing of the material in the Hopper.

- Maintain forward speed and working width used in calibration.

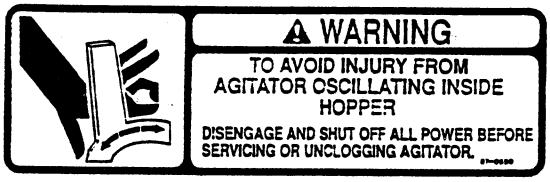
WHEN JOB IS COMPLETED

- Close regulator disc, using the Flow Control Handle.

- Operate Spreader slowly, while spraying water inside the Hopper.

- Open the regulator disc and spray the agitator and regulating plate.

- Spray the outside surfaces of the Spreader.



safety tips

BEFORE SERVICING OR ADJUSTING THIS MACHINE:
Disengage all power.
⚠ Shut off the Vehicle engine.
Wait until all moving parts have stopped
Keep hands, feet and clothing away from all power-driven parts.

⚠ Read instructions on chemical container thoroughly. Never exceed the maximum load of 1000 pounds!

⚠ Keep all nuts, bolts and other fasteners tightened securely

⚠ Keep all shields in place.

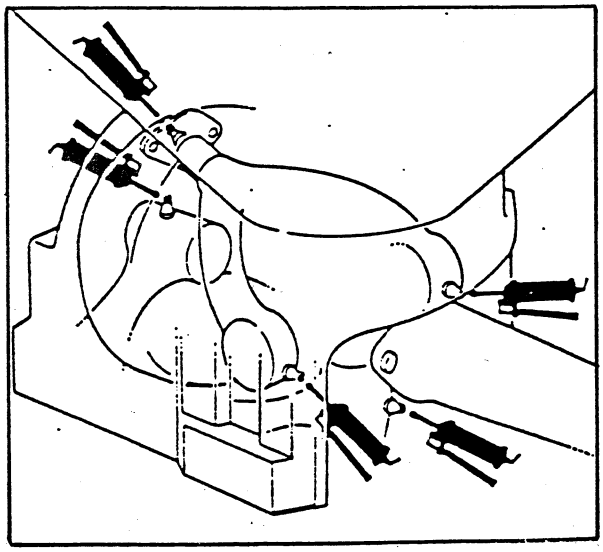
⚠ Disengage the Clutch Control Handle and set the Parking Brake BEFORE leaving the operator's position.

⚠ Make certain everyone is clear of the machine BEFORE starting the machine or moving the Vehicle.

USE THE FOLLOWING CHART AS A GUIDELINE ONLY, TO DETERMINE A FLOW REGULATOR SETTING TO APPROXIMATE THE APPLICATION RATE DESIRED. Due to weather conditions and variances in density, moisture content and particle size . . . flow rates will not always be the same as those shown. Use the chart to establish a Flow Regulator setting to use as a starting point for actual calibration.

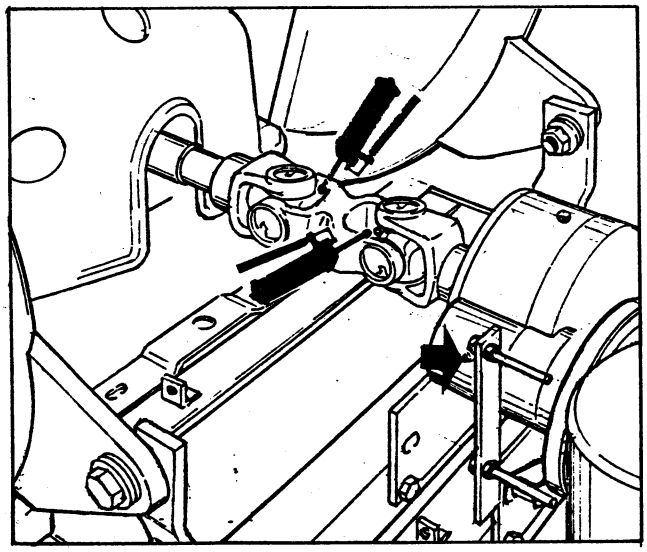
FERTILIZER TYPE	PTO SPEED (RPM)	SPREADING WIDTH (IN FEET)	MPH	APPROXIMATE APPLICATION RATE IN LBS. PER ACRE FLOW REGULATOR SETTING						
				1	2	3	4	5	6	7
COARSE GRAIN	540	60	2.5	43	195	490	872	1336	1778	2168
			3.5	29	130	326	581	889	1185	1446
			5.0	21	97	245	436	668	889	1084
			6.0	17	78	196	349	533	710	866
			7.5	14	64	162	290	445	592	723
MEDIUM GRAIN	540	50	2.5	48	227	570	992	1459	1959	2496
			3.5	32	152	379	662	972	1306	1664
			5.0	24	113	284	496	729	980	1247
			6.0	19	91	227	388	583	783	998
			7.5	16	76	189	330	486	592	723
FINE GRAIN	540	40	2.5	57	336	735	1211	1745	2279	2738
			3.5	38	223	490	807	1164	1519	1825
			5.0	29	168	368	601	872	1140	1369
			6.0	22	134	294	483	697	912	1096
			7.5	19	112	245	403	581	759	913

lubrication



AFTER EVERY 10 HOURS OF OPERATION.

Use a hand grease gun with a good grade of general purpose grease to lubricate through the five (5) fittings on the Spreader unit.



AFTER THE INITIAL RUN-IN PERIOD (APPROXIMATELY 5 HOURS):

- Grease the two (2) fittings in the "U"-Joint Assembly. Grease after every 250 hours thereafter.
- Remove the plug and check to see that there is oil visible in the Gear Multiplier unit. If necessary, add Lubriplate #5555 or the equivalent.