

# GRAVELY

## 20-Gallon Sprayer

### Operating Instructions

March 11, 1966

#### ATTACHING

The Sprayer is attached by four bolts to the front of the Gravelly Tractor. To attach, loosen the two adjusting handles on the Sprayer Tank Stands until they are the approximate height necessary to attach the Sprayer to the Tractor. After Sprayer is attached, BE SURE TO RAISE STANDS TO FULL HEIGHT AND LOCK IN PLACE FIRMLY WITH ADJUSTING HANDLES.

The Sprayer is shipped with these items in the Tank: The High Pressure Hose, Gun, Three discs for the Nozzle (one in the Gun), and a TEE-JET.

For shipment, the Pressure Relief Valve Assembly is turned up to lie almost flush with the Tank. To assemble, grasp the Pressure Relief Valve (The TEE Head Valve) and pull the assembly down until the Pressure Relief Hose can be assembled to the Nipple under the Valve assembly. Tighten Clamps firmly, but do not cut into the Hose.

The High Pressure Hose has a male end and a female end with a swivel fitting. The male end of the Hose is inserted into the Gun, and tightened with a wrench. Do NOT overtighten. The female end is attached to the Tee next to the Pressure Chamber. Tighten, but do not overtighten, with a wrench. (See illus. "A").

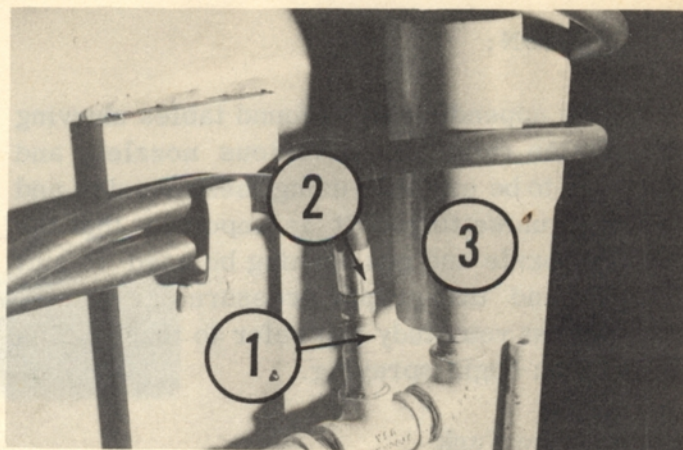


ILLUSTRATION "A"

1. 6037 Reducing Nipple
2. Female Swivel Fitting
3. 6029 Air Chamber

The Gun already contains one nozzle. Use it, or if you need to change nozzles for the application, simply unscrew the cap on the nozzle end of the Gun. The Disc will drop out. Replace with correct nozzle or TEE-JET (which gives a fan type pattern closely resembling the pattern given by a boom, and reassemble.

CAUTION: When using the TEE-JET, the Gun is attached to the Tank with the Tank Gun Clamp, and the two orifices in the TEE JET must be parallel with the ground. (See illus. "B"). The unit is now ready to operate.

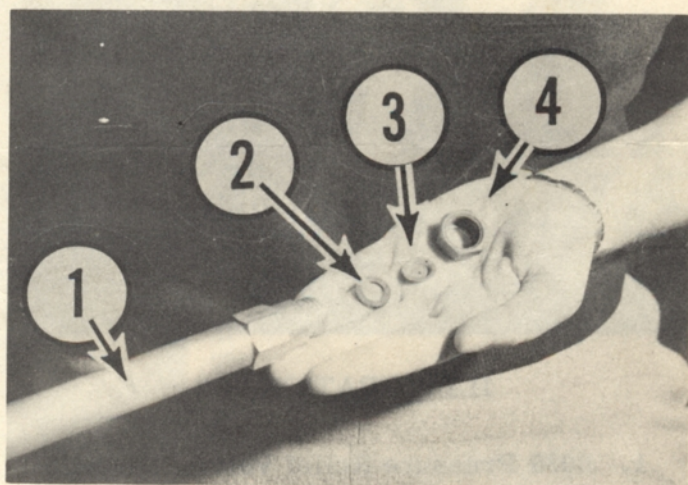


ILLUSTRATION "B"

1. 6032 Gun
  2. Rubber Washer
  3. 6048 Disc, Orifice D-6 ; 6049 Disc, Orifice D-4; 6060 Disc, Orifice D-2
- (Note: Smallest orifice D-2, largest D-6)



## OPERATION:

In the appendix will be found tables showing application rates of the various nozzles, and patterns to be expected using these nozzles and various gun settings. It is important that the proper nozzle and gun opening be used to suit the job, and that proper pressures are used. We suggest you study and refer to these tables before you begin spraying.

### Loading the Tank

Remove the Lid and fill the Tank with the solution of your choice. The Gravely Sprayer will spray any commercial spray material that is recommended for home or farm use, including whitewash. Read directions on the package carefully, and take precautions as recommended by the manufacturer. Before loading Tank, always check strainer for cleanliness. Do not be disturbed if you occasionally find a small amount of spill coming from the vent in the cap... the vent must be open for efficient operation, and any spill you obtain will be negligible.

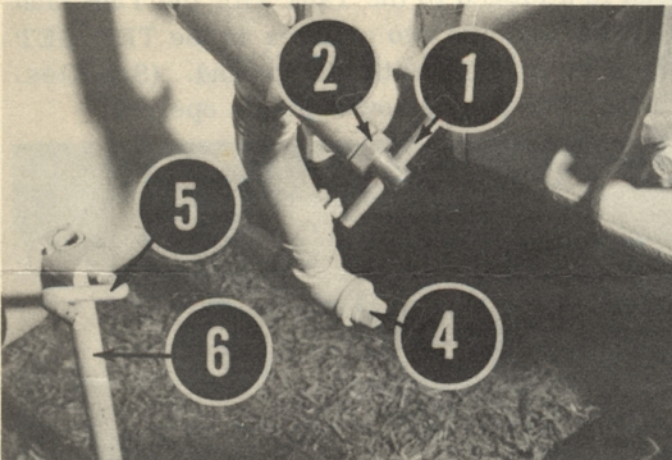


ILLUSTRATION "C"

1. 6035 Pressure Relief Valve, T handle
2. 6035 Pressure Relief Valve, Locknut
4. 702-P Drain Plug
5. A-482-3 Sprayer Stand Adj. Handle
6. 6027 Sprayer Tank Stand

### Operating Sprayer

Loosen Lock Nut on Pressure Relief Valve and turn in (to the right, or clockwise) until resistance is met. See illus. "C". Close Gun by turning handle completely clockwise, until resistance is met.

Start Tractor engine with Sprayer attachment out of gear. Set throttle at NOT MORE than half-throttle, IN LOW GEAR.

Put Sprayer Attachment in gear by operating Tractor Attachment Clutch.

### Setting Pressure

This sprayer is equipped with a 300 psi max. pressure relief valve. By screwing the pressure relief valve tee handle all the way in, the 300 psi will be obtained. The pressure can be lowered to suit the application by unscrewing the pressure relief valve tee handle until the proper spray pattern is obtained.

After pressure is established, tighten Lock Nut to hold the setting.

### Using the Gun

You are now ready to begin spraying. The large handle on the Gun controls the shape of the spray pattern. By turning the handle, you can obtain a cone-shaped spray or a jet-shaped spray pattern. Adjust to suit your job. (See Illus. "D")

As we mentioned before, the Nozzles control the application rate in combination with the pressure. The Nozzles also determine the "throw" of the spray, with the larger orifices giving greater distance and a more concentrated pattern. For example, if you wish to spray a fruit tree of some height, you would use the Disc with the largest orifice, pressure as recommended from the table, and the Gun adjusted to give the jet-type spray, which would allow you to reach the greatest distance with the spray.



NOTE: Increase of Tractor Power above half-throttle serves no useful purpose. The efficiency of the pump is such that half-throttle or less will give proper pressure.

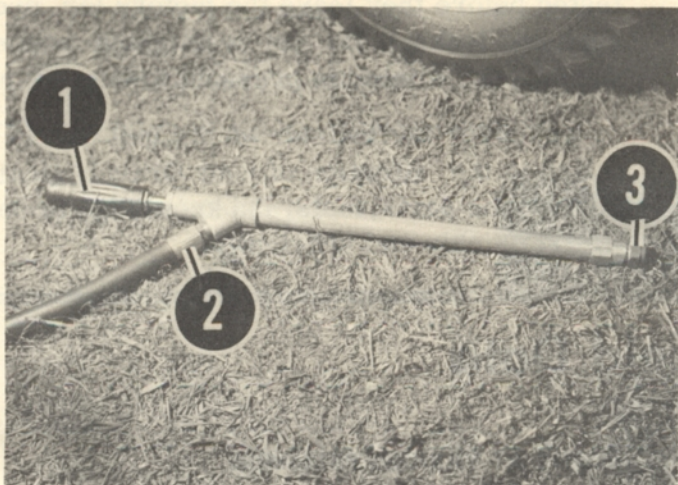


ILLUSTRATION "D"

1. Handle
2. Male Fitting
3. 6032 Gun, Cap

CAUTIONS: Sprays are generally poisonous. Take manufacturer's recommended safety procedures at all times, both in handling, spraying, and protection of bystanders, particularly children and animals.

Do not allow children to operate spraying equipment at any time, and do not leave equipment so children can operate it accidentally or mischievously, or so they have access to the poisonous materials.

#### AFTER SPRAYING:

Drain all material from tank. Remove the Plug from the Tee fitting to which the Pressure Relief Hose is attached. If you wish to save the materials, it can be drained into a suitable container. (See Illus. "C").

After the Tank has been drained, replace Drain Plug, and put from 5 to 10 gallons of clean water in the tank. Start Sprayer attachment again and begin spraying. Using the Gun, you can clean the outside of the tank, and by putting it down inside the tank, you can wash down the sides of the tank conveniently.

Continue flushing, refilling if necessary,

until Tank and Gun are clean. Then remove Drain Plug again, drain and replace. It is wise to clean Strainer at this time, to be ready for the next spraying application. To clean Strainer, remove wing nut from top and lift out. Then reverse flush--that is, hold under faucet or hose, and flush it with clean water from the inside out. (See Illus. "E").

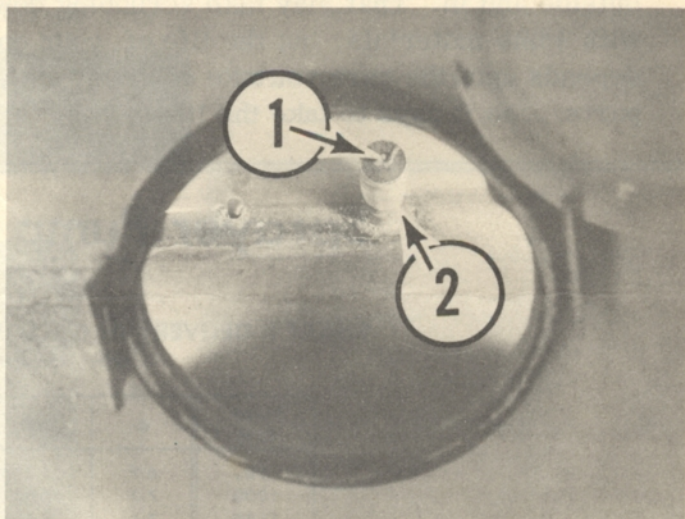


ILLUSTRATION "E"

1. L-819-F Wing Nut
2. 6030 Strainer

#### DRAIN PUMP IF DANGER OF FREEZING

In fall and winter months, when you anticipate that a freeze may occur, always drain Tank, connections and Pump.

To drain: Remove Drain Plug from Tee, remove Clamp from Pump end of Pump to Tank Hose and hold down to drain. (Some Sprayers have the hose replaced by pipe and fittings. For these, remove Drain Plug from Tee at same location.) Loosen Lock Nut from Pressure Relief Valve, and back out (turn counter-clockwise) about five to ten turns.

Next, LOOSEN, BUT DO NOT REMOVE, Pump Caps. Loosen the bolts ONLY UNTIL CAP WILL COME OUT ABOUT 1/8". Both caps should be treated in this way. After draining is completed, replace Caps, all connections and plugs.

#### LUBRICATION

No lubrication is required of any kind.



## Hints for Easier Operation

Be sure orifices in Discs and Tee Jet are kept clean, and that Strainer is kept clean. If these become clogged, the sprayer will not produce a spray from the Gun.

If you are using a corrosive or abrasive spray, be sure to get all of the unit clean, both outside and in. That may take scrubbing down with some materials, but the life of your unit depends upon the care you take of the operating parts... so it pays to take the little extra time

required to really get it clean when corrosive or abrasive types of spray solutions are used.

If you develop a leak in the plumbing, try to tighten slightly. If this does not stop the leak, replace the offending parts. (All Sprayers are tested before they leave the factory for pressure and leaks.) Do not overtighten connections... use minimum pressure to seat firmly.

Any other malfunction of the unit should be called to the attention of your Gravely Dealer who has the parts, tools, and knowledge to service it quickly and efficiently.

## Sprayer Pump Yield Data

CHART I: DELIVERY IN GALLONS PER MINUTE AT VARIOUS PRESSURES

(Pressures: Pounds per Square Inch)

PUMP RPM	0	100	150	200	250	300
900	6.9	5.2	4.2	4.1	4.0	3.8
1000	7.2	5.6	4.8	4.8	4.8	4.3
1100	7.6	6.5	5.5	5.5	5.5	5.3
1200	8.1	7.1	6.3	6.3	6.3	6.2
1300	8.7	7.8	7.1	7.1	7.1	6.7

## Condensed Sprayer Jet-Gun Data

CHART II: CONDENSED SPRAYER JET GUN DATA

(All Four Orifices Supplied with Sprayer)

Orifice	STREAM			CONE SPRAY		
	Maximum Horizontal Throw*	Maximum Vertical Throw*	GPM	Maximum Horizontal Throw*	Angle of Spray	GPM
D-2	35	24	.94	10.5	17°	.90
D-4	39	30	1.90	11	20°	1.80
D-6	48	34	4.10	11	33°	3.80

\*Measured in feet.

Note: All ratings are taken at maximum 400 psi.

T-JET: T-jet gives fan spread of approximately 8 to 10 feet, and yields of from .47 to 1.64 gpm, depending on pressures, which can be set from 25 psi to a recommended maximum of 300 psi. Recommended angle of gun mounting is 40° to 60°.

## PUMP SPECIFICATIONS

**Gravely Pump:** Two-Cylinder, opposed Piston. Positive displacement type. Bore 1.5 inches; stroke, .57 inch; displacement, 2 cubic inches. Chrome-plated Bore, replaceable Cylinder Sleeve. Connecting Rod with large roller bearing permanently lubricated. Aluminum Piston and Follower Plate with leather Piston Cup. Crankshaft direct-driven, mounted on two large ball bearings; lubricated from tractor system. Valves and Valve Seat of long-wearing, corrosion-proof Delrin. Pump Body and Cylinder Heads of cast iron.

Maximum operating pressure, 300 psi; maximum 1300 rpm.

Pump will handle continuously all types of spray material including whitewash.

# GRAVELY

TRACTOR DIVISION  
**Studebaker**  
CORPORATION

Gravely Lane, Dunbar, West Virginia 25064