



A DIVISION OF CLARKE-GRAVELY CORPORATION

To continue its program of quality and design improvement, the manufacturer reserves the right to change specifications, design or prices without notice and without incurring obligation.

## OPERATING INSTRUCTIONS and PARTS LIST

### 15368E1 Commercial Sprayer

#### INTRODUCTION

Your Gravely Sprayer is designed to provide dependable efficient power spraying. Proper operation and maintenance will insure long satisfactory service. Become familiar with the sprayer operation and maintenance and keep this manual in a safe, convenient place for future reference. To insure correct parts service be sure to use the part order number and description when ordering any repair parts.

#### OPERATION

The two piston pump is shipped without lubricating oil in the cam housing reservoir. Operation without a full level of oil will damage the pump. Remove the oil fill plug and fill the reservoir to the level of the filling hole with a lubricating oil with a viscosity equivalent to Grade SAE-30 for normal service or higher viscosity for severe service.

The sprayer is attached to the Gravely tractor by means of the Quick Hitch Pin at the front of the tractor. Connect the universal joint drive shaft of the sprayer to the tractor PTO at the same time the Quick Hitch Pin is inserted into the receiver on the sprayer. Secure the sprayer to the tractor with a flat washer and a "Klik Pin" on the end of the Quick Hitch Pin. Raise and lock the sprayer parking stand and attachment is complete.

Before initially running the sprayer fill the tank with clean water. Do NOT run the pump dry for any extended period of time. Extended operation after the tank is empty or before adding water could seriously damage the internal parts of the pump because of the heat produced by friction. It is always better to have the tank at least half full of water before adding the chemical to avoid possible damage to the sprayer components by an undiluted chemical concentrate.

Set the operating pressure of the pump by adjusting the tee handle of the relief valve — tighten to increase pressure, loosen to decrease pressure. Limit the operating pressure to 500 psi. Higher pressures will cause pump strain and abnormal pump "noise". The adjustable cam of the pump is assembled at the "B" setting. This provides a pump capacity of 2 GPM at 600 RPM, 3 GPM at 900 RPM, and 4 GPM at 1200 RPM. The maximum efficient capacity of the pump is in the 3 to 4 GPM range. Operation at higher RPM's without changing the cam setting will result in poor performance due to severe pump cavitation.

The adjustable pattern handgun provides versatile application of the chemical mixture. Turning the vinyl hand grip clockwise shuts the gun off completely and the relief valve by-passes the total output of the pump back to the tank. Turning the grip counterclockwise changes the spray pattern from a wide cone to a straight stream with a variety of intermediate settings. The handgun performance chart gives the output and operating characteristics of the handgun. The standard tip orifice is a D-5 size. As indicated on the chart, other size tips are available. Standard Spraying Systems TeeJet tips can also be used with this handgun.

Follow the chemical manufacturers recommendations for mixing and rates of application carefully. Judge the area sprayed by a tank full (20 gallons) of spray material carefully to avoid over or under application rates.

Do not use the sprayer for pumping petroleum products, strong acids, paints, or other thick materials with a heavy viscosity.

5032 HANDGUN PERFORMANCE						
GPM (gallons per minute), Spray Angle And Distance With Various Orifices At Various Pressures (lbs. per sq. inch)						
Orifice Disc No.	Press.	Wide Angle Spray			Straight Stream	
		Angle	GPM	Throw in feet	GPM	Throw in feet
D-2	40 lbs.	20°	.29	10	.30	32
	100 lbs.	25°	.45	10	.47	33
	200 lbs.	20°	.64	10	.66	34
	300 lbs.	19°	.78	10.5	.81	35
	400 lbs.	17°	.90	10.5	.94	35
500 lbs.	16°	1.0	10.5	1.05	35	
D-4	40 lbs.	22°	.60	10	.61	36
	100 lbs.	26°	.92	10	.94	36
	200 lbs.	24°	1.3	10.5	1.3	37
	300 lbs.	20°	1.6	10.5	1.6	38
	400 lbs.	20°	1.8	11	1.9	39
500 lbs.	20°	2.0	11	2.1	39	
D-5	40 lbs.	29°	.90	10	.94	39
	100 lbs.	32°	1.4	10	1.5	40
	200 lbs.	30°	2.0	10.5	2.1	41
	300 lbs.	27°	2.5	10.5	2.7	42
	400 lbs.	26°	2.8	11	3.0	43
500 lbs.	26°	3.1	11	3.3	43	
D-6	40 lbs.	38°	1.2	10	1.3	44
	100 lbs.	41°	1.9	10	2.0	45
	200 lbs.	38°	2.7	10.5	2.9	46
	300 lbs.	35°	3.3	11	3.5	47
	400 lbs.	33°	3.8	11	4.1	48
500 lbs.	32°	4.2	11	4.5	48	

#### MAINTENANCE

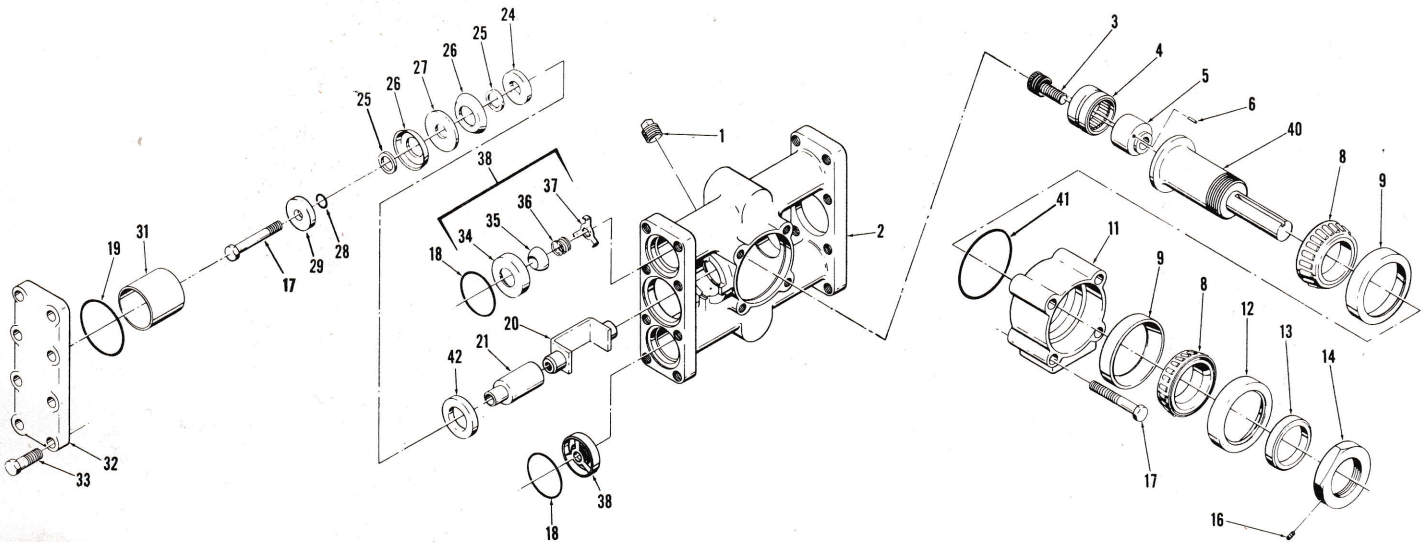
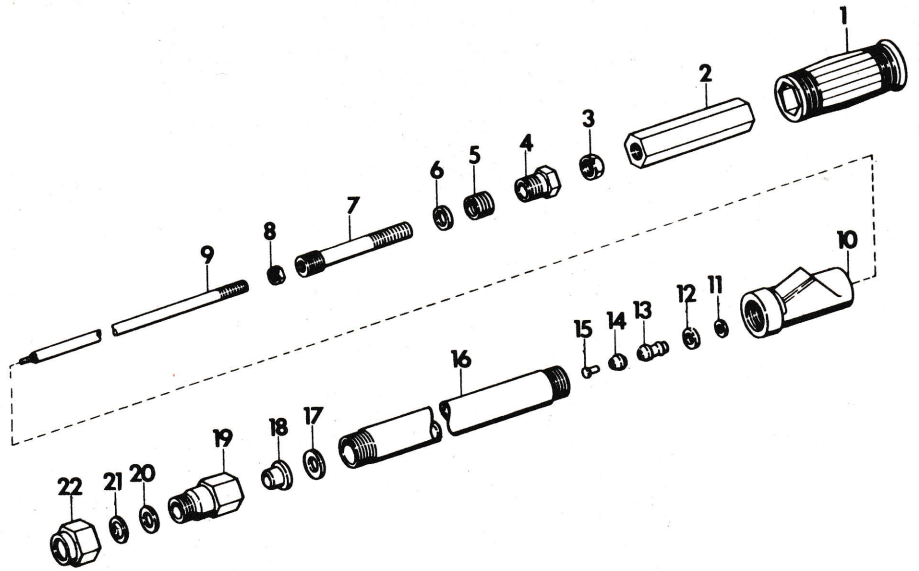
Most spray materials are highly corrosive. The most important aspect of long dependable service from the sprayer is a thorough cleaning immediately following each use. In addition, the residue of one type of chemical could cause an undesirable effect when a different chemical is used for a different purpose.

The most effective cleaning method is to pump several rinses of clean water through the tank, pump, hose and boom. A neutralizing agent such as a solution of Nutra-Sol, detergent or household



## HANDGUN PARTS LIST

Ref.	Part No.	Quan.	Description
1	6075P1	1	Handle grip
2	6057P1	1	Handle insert
3	124925	1	3/8 hex jam nut
4	6058P1	1	Packing screw
5	6069P1	1	Packing
6	6070P1	1	Packing washer
7	6064P1	1	Collar stud
8	120367	1	1/4 hex nut
9	6065P1	1	Stem
10	6059P1	1	Inlet body
11	446161	1	7/32 flat washer
12	6071P1	1	Seat plate
13	6067P1	1	Core body
14	6068P1	1	Core
15	6073P1	1	Rivet
16	6066P1	1	Tubing
17	6072P1	1	Gasket
18	6060P1	1	Guide sleeve
19	6061P1	1	Spray housing
20	6074P1	1	Tip gasket
21	6048P1	1	Orifice, D-6
NS	6049P1		Orifice, D-4
NS	6050P1		Orifice, D-2
22	6062P1	1	Cap
NS	6047P1		TeeJet tip



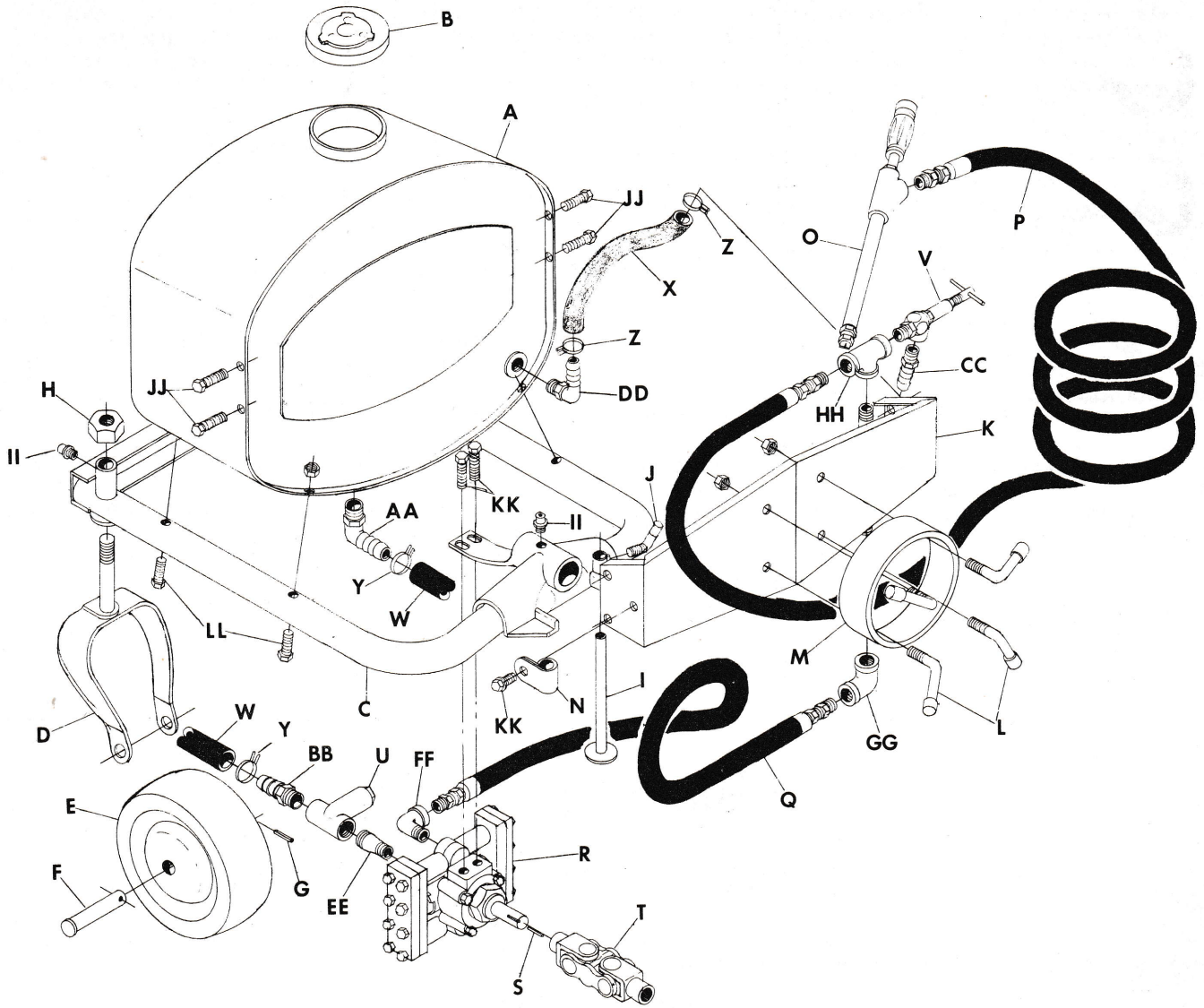
## PARTS LIST PART NO. 17003A1 TWO PISTON PUMP

Ref.	Part No.	Quan.	Description
1	17117P1	1	Oil fill vent plug
2	17019P1	1	Pump body, gray iron
3	138242	1	Cam locking screw
4	17020P1	1	Cam roller bearing
5	17021P1	1	Cam
6	17022P1	1	Cam dowel pin
8	17023P1	2	Shaft bearing cone
9	17024P1	2	Shaft bearing cup
11	17025P1	1	Hub, aluminum (assembled inverted)
12	17026P1	1	Hub shaft seal
13	17027P1	1	Shaft bearing collar
14	17028P1	1	Shaft bearing adjusting nut
16	17119P1	1	Bearing nut set screw
17	180087	6	Cap screw, 5/16" - 18 x 2", H.H.
18	17029P1	4	Valve seat O-ring seal (-216)
19	17123P1	2	Cylinder sleeve O-ring seal (-220)
20	17030P1	1	Cam bearing yoke
21	17031P1	2	Plunger
24	17032P1	2	Packing cup bottom follower
25	17033P1	4	Packing cup spacer sleeve
26	17034P1	4	Packing cup
27	17035P1	2	Packing cup backing washer
28	17036P1	2	Plunger bolt O-ring seal (-011)
29	17037P1	2	Packing cup top follower
31	17038P1	2	Cylinder sleeve
32	17039P1	2	Cylinder head, gray iron

33	180079	16	Cap screw, 5/16" - 18 x 1", H.H.
34	17040P1	4	*Capsule valve seat
35	17041P1	4	*Capsule valve
36	17042P1	4	*Capsule valve spring
37	17043P1	4	*Capsule valve guide
38	17044A1	4	Capsule valve assembly (Each assembly includes 1 each of parts marked *)
40	17045P1	1	Shaft, 5/8" extension
41	17046P1	1	Hub O-ring seal (-035)
42	17047P1	2	Plunger seal

## REPAIR KITS

17118A1	1	Cam and bearing assembly. Consists of (1) 17020P1, (1) 17021P1, and (1) 17022P1; (Ref. 4, 5, and 6)
17120A1	1	Hub, shaft and bearing assembly. Consists of (2) 17023P1, (2) 17024P1, (1) 17025P1, (1) 17026P1, (1) 17027P1, (1) 17028P1, (1) 17119P1, (1) 17045P1, and (1) 17046P1; (Ref. 8, 9, 11, 12, 13, 14, 16, 40, and 41)
17121A1	1	Packing cup repair kit. Consists of (2) 17032P1, (2) 17033P1, (4) 17034P1, (2) 17035P1, (2) 17036P1, and (2) 17037P1; (Ref. 24, 25, 26, 27, 28, and 29)
17122A1	1	Cylinder sleeve and O-ring kit. Consists of (2) 17123P1 and (2) 17038P1; (Ref. 19 and 31)



**PARTS LIST  
GRAVELY SPRAYER NO. 15368A1**

Ref.	Part No.	Quan.	Description
A	17054P1	1	Tank, 20 gallon
B	15991P1	1	Filler cap
C	15992P1	1	Basic frame
D	15993P1	2	Caster yoke
E	15994P1	2	Wheel
F	15995P1	2	Clevis pin, 5/8" x 4 3/4"
G	15996P1	2	Roll pin, 5/32" x 1 1/4"
H	426897	2	Lock nut, 3/4"
I	15997P1	1	Parking stand
J	13457P1	1	Stand lock handle
K	15998P1	1	Hose rack panel
L	15999P1	4	L screw, 3/8"
M	17000P1	1	Hose spool
N	17001P1	1	Handgun holder
O	10354A1	1	Handgun, brass, 1/4", D-5 tip
P	6026P1	1	High pressure hose assembly, 1/4" 800 psi x 15 ft., 1/4" male NPT swedged swivel both ends
Q	17002P1	1	High pressure hose assembly, 3/8" 800 psi x 18", 1/2" male NPT swedged fitting, 3/8" male NPT swedged swivel
S	17003A1	1	2 piston pump, cast iron, 3 GPM
T	17004P1	1	Square key, 3/16" x 1"
U	17005A1	1	Double joint coupler
	17006A1	1	Strainer, aluminum, 3/4", 50 mesh SS screen (Includes parts marked *)
	17049P1	1	*Strainer body, aluminum, 3/4"
	17050P1	1	*Strainer screen, 50 mesh SS

	17051P1	1	*Cap gasket, asbestos
	17052P1	1	*Strainer cap, aluminum
	17053P1	1	*Pipe plug, aluminum, 1/4"
V	17007P1	1	Relief valve, brass, 700 lb., 1/4"
W	17008P1	1	B-9 suction hose, 3/4" x 8 1/2"
X	17009P1	1	B-96 plastic by-pass hose, 1/2" x 8 1/2"
Y	17010P1	2	Hose clamp, 3/4"
Z	17011P1	2	Hose clamp, 1/2"
AA	17012P1	1	Nylon ell hose insert, 3/4" x 3/4"
BB	17013P1	1	Nylon hose insert, 3/4" x 3/4"
CC	17014P1	1	Nylon hose insert, 1/4" MNPT x 1/2" barb
DD	17015P1	1	Nylon ell hose insert, 3/8" MNPT x 1/2" barb
EE	17016P1	1	Reducing nipple, 3/4" x 1/2"
FF	108686	1	Street ell, 1/2"
GG	17017P1	1	Elbow, 3/8"
HH	17018P1	1	Pipe tee, 1/4" x 1/4" x 3/8"
II	9411027	3	Grease fitting
JJ	180020	4	Hex flanged lock screw, 1/4" x 3/4"
	9419454	4	Hex flanged lock nut, 1/4"
KK	180075	3	Hex flanged lock screw, 5/16" x 5/8"
LL	180089	4	Hex screw, 5/16" x 2 1/4"
	9419455	5	Hex flanged lock nut, 5/16"
	120377	4	Hex nut, 3/8"
	102894	2	Set screw, 3/8" x 1/2"
<b>REPAIR KIT</b>			
	17115A1	1	By-pass hose & fittings kit. Consists of (1) 17009P1 (Ref. X), (1) 17014P1 (Ref. CC), and (1) 17015P1 (Ref. DD)



ammonia as recommended by the chemical manufacturer can assist in removal of a persistent chemical. Avoid getting chemical on the engine and other external parts of the unit in order to preserve the finish. Remove any external spray material deposits when cleaning and flushing the unit. A coat of wax applied to the exterior will protect the paint and make clean-up easier.

When the unit is thoroughly cleaned drain the tank and suction hose by removing the strainer cap. Running the pump a few seconds will assist in draining the handgun and hose. Running dry for more than momentarily could cause damage to the pump.

In the event of inefficient operation or malfunction check the following:

1. Clean the line strainer after each use or more often if necessary. A plugged strainer or suction line will restrict the flow of the liquid to the pump and cause it to perform poorly. Always use clean water and keep the strainer screen clean and in place. Sandy or gritty liquids will damage the pump components.

2. Operating too slow will reduce the output of the pump and no pressure increase will result when the relief valve is tightened. A D-5 or D-4 handgun tip will require more gallonage than the pump is producing at low RPM to maintain a higher pressure. Excessive tightening of the relief valve also forces the pump to by-pass at pressures greater than the maximum 500 psi when the handgun is shut off.

3. Check the handgun for any obstructions, especially the tip. If the tip requires cleaning, remove the cap, tip, and tip gasket. The

tip should be cleaned with a toothpick or similar object. Avoid nails, wires, etc. that could damage the tip opening. The tip is hardened stainless steel to provide maximum wear resistance. Inspect and replace the tip when it is worn to insure satisfactory spraying performance.

## LUBRICATION

Maintain the oil in the pump reservoir to the level of the filling hole. Change the pump oil every 25 hours of operation. A suction bulb works well for removing the oil from the reservoir. Use an oil with a viscosity equivalent to Grade SAE-30 for normal service or higher for severe service.

Grease the three grease fittings of the sprayer (1 on each caster wheel pivot and 1 on the quick hitch casting) as needed with a general purpose grease. Oil the caster wheel axles occasionally.

## STORAGE

The sprayer should always be cleaned and drained before storage. If the unit is subjected to low temperatures any water left to freeze in the system could cause extensive damage. The whole sprayer, tank, pump, handgun, etc. must be completely drained and dry or protected by a 50% solution of permanent type anti-freeze with a rust inhibitor and water.

# Warranty

Products manufactured by Gravely are warranted to be free from defective material and workmanship for a period of one year from date of purchase, under normal use by a homeowner, and for a period of ninety (90) days from date of purchase, when used for commercial purposes.

Any defective part manufactured by Gravely will be replaced without charge provided such part is certified as defective by the manufacturer or by the manufacturer's expressly authorized representative.

### IMPORTANT PROVISIONS

This warranty is not subject to change or modification by field representatives or Gravely dealers. Any warranty other than the warranty expressly stated above will not be binding upon the manufacturer.

Certain components carry separate warranties by the manufacturer of such components. Defective components are subject to their manufacturer's warranties, and any claims, work, or return of parts must be through an authorized Gravely dealer. Service costs for the transporting of a unit to and from the dealer are the responsibilities of the customer, and when such service is performed by the dealer, the dealer will charge the customer the usual rate for such service.

It is the customer's responsibility to mail the "Warranty Card" to the manufacturer within fourteen (14) days after date of purchase to ensure prompt handling of any warranty claim by the dealer or the manufacturer.



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