



# OPERATION MANUAL

# Dropmaster

(Patented)

## MODEL DM12 OPERATION MANUAL

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### Table of Contents

I.	Introduction	page 2
II.	Safety Instructions	page 3
III.	Operations Procedures	page 4
IV.	Water Calculations Sheet	page 5
V.	Troubleshooting	page 6
VI.	Maintenance	page 7
VII.	Model Information – options/replacement parts	page 8
VIII.	Warranty	page 9 & 10
IX.	Maintenance information for Vapor Oil Pump	page 11-16

**\*KEEP THIS DOCUMENT FOR FUTURE REFERENCE\***

## **I. Introduction**

Thank you for purchasing the Dropmaster DM12. The Dropmaster was originally designed to remove excess water and odor from fire sprinkler systems prior to repairs and change outs. However, the Dropmaster DM12 can be used on numerous other applications such as boilers, heat exchangers, air handlers, chillers, and a variety of closed loop piping systems. This manual mostly details the Dropmaster being used on fire sprinkler systems; however the same basic principles can be applied to the aforementioned applications.

The Dropmaster DM12 is a rugged, durable tool built with components rated for continuous duty use. In certain applications, the Dropmaster is capable of 24/7 operation. By following the maintenance guidelines in this manual, your Dropmaster should provide years of service and significant return on investment.

Every Dropmaster goes through a rigorous series of quality control tests in our manufacturing facility. Our patented fail-safe vacuum system is set by our highly trained technicians to 10" Hg to ensure the system will not damage grooved couplers. The Dropmaster is built on a custom designed hand cart, with 10 inch pneumatic tires. This design allows the Dropmaster to fit easily through most standard doorways and maneuver around job sites. Each Dropmaster comes with 20-foot-long durable, high quality intake and discharge hoses. Replacement and custom length hoses, as well as replacement parts, can be order directly from Gecco Inc.

The Dropmaster DM12 has several safety features you should be aware of. The 3/4 horsepower, high torque – low amp motor has manual thermal overload protection. Additionally, each unit is supplied with a 20' GFI protected, 12-gauge power cord. **Extension cords should never be used with the Dropmaster.** The vacuum pump and drive motor feature metal safety guards that must be in place during operation. The Dropmaster DM12 has a newly redesigned noise suppression muffler system which has been factory tested below 80db.

Your Dropmaster DM12 should always be transported securely, in the upright position. An optional hitch mounted carrier can be purchased for the Dropmaster. The hitch mounted carrier makes transporting the unit easier and saves valuable space in your service vehicle.

The Dropmaster system works by drawing a regulated 10" Hg vacuum on fire sprinkler systems and process piping prior to making repairs and change outs. By eliminating excess water and odor, repairs and change outs can be made in a neat, clean and timely manner. By eliminating the need to use buckets and tarps, decreasing set up and clean up times, the Dropmaster can significantly reduce job time and increase profit. Your Dropmaster DM12 is safe to use with most antifreeze solutions and can be used for winterization of various piping systems.

**The team at Dropmaster prides themselves on their products and world class customer service. Please read this manual thoroughly before operating your new Dropmaster DM12. If you have questions or concerns regarding our product, please contact us and we will gladly direct you through the initial set up, use, and maintenance.**

## **II. Safety Instructions**

1. Read all instructions before operation. Retain instructions for your permanent records.
2. Disconnect power source before servicing or cleaning unit.
3. Do not permit unauthorized personnel to operate the unit at any time.
4. Do not pull alcohol or other combustible materials in the vacuum tank.
5. Never operate vacuum at pressures or speeds in excess of those recommended by manufacturer.
6. Some elements on the unit may be quite warm in normal operation. Do not touch or permit combustible materials to come in contact with these components.
7. Do not touch moving parts while the Dropmaster is in service.
8. Technician operating the Dropmaster should utilize eye and hearing protection at all times.
9. Unit should be operated in a clean and well-ventilated area.
10. The Dropmaster is to be used for siphoning water or non-combustible antifreeze from fire sprinkler systems, boilers, heat exchangers, chillers, or similar types of piping systems.
11. Use caution when transporting Dropmaster unit, make sure unit is properly secured in transporting vehicle. Transport unit in the upright position.
12. Please note separate safety instructions are enclosed for the vacuum pump used in the Dropmaster. This must be reviewed before operating Dropmaster.

### **III. Dropmaster Operating Procedures**

Before beginning, check the oil level in the reservoir, check for loose fittings, connections, and bolts, make sure barrel drain plug is in place, and check that the basket strainer is clean and free of debris and build up.

1. Follow normal procedure for shutting down and draining sprinkler system before connecting the Dropmaster.
2. Connect the Dropmaster to proper electrical source (120 v 20 amp) and turn unit on.
3. Check the Fire Department Connection to make certain tight-fitting caps are in place if above the alarm valve.
4. Close all outlets from the sprinkler system other than the one the Dropmaster will be connected to.
5. Connect the suction side of the Dropmaster with suction valve closed, to your choice of outlet and connect the discharge hose to a suitable drain.
6. Turn unit on and open suction valve, allow the Dropmaster to pull a vacuum on the system. Check vacuum gauge for proper reading of 10Hg. (Please note that the vacuum reading can be slightly affected by temperature and elevation)
7. Open an outlet (Inspector test drain, auxiliary drain or sprinkler outlet) on far side of system from where work is to occur. Allow the Dropmaster to remove any trapped water from the mains.
8. When water has been removed close the outlet that was opened in step 7.
9. Begin working. Always start at the farthest point and work back toward the unit.
10. If at any point the Dropmaster gets flooded see Trouble Shooting step #5.
11. Drain barrel daily.

#### IV. Water Calculations

***Please Note***

Utilize this worksheet to perform calculations at project site to determine residual water that will be captured by Dropmaster tank before placing Dropmaster in service.

1 Gallon of water = 8.344 lbs.

Pressure

Vacuum

1 psi = 2.036 inches H.G.

5 psi = 10.18 inches H.G.

10 psi = 20.36 inches H.G.

15 psi = 30.54 inches H.G.

#### Water in Pipes By Size

Pipe Size

Schedule 40

Schedule 10

1" per foot

.045

.049

1 ¼" per foot

.078

.085

1 ½" per foot

.106

.115

2" per foot

.174

.190

2 ½" per foot

.248

.283

3" per foot

.383

.433

4" per foot

.660

.740

6" per foot

1.501

1.649

## **V. Trouble Shooting**

### **1. IF NOT RUNNING:**

Verify GFI cord set is plugged into an active outlet—the indicator light will be on.

Make sure main electric switch is in the on position. Green electric motor should be operating.

### **2. IF NO VACUUM:**

Verify ½” tank drain plug is installed.

1” suction valve should be in closed position.

Vacuum gauge should indicate 10 hg vacuum. Note: vacuum reading can vary slightly depending on operating altitude and temperature.

Check for loose nuts on tank flanges and check barrel ring bolt. **Caution: do not over tighten barrel ring bolt since this can cause distortion of the ring and barrel lid.**

### **3. IF LOW OR NO VACUUM AT END OF SUCTION HOSE:**

Clean out 1” wye strainer—remove 3/8” plug and then remove large bushing and pull out strainer basket. Check for any blockages.

### **4. IF GAUGE READS 10” Hg AND THERE IS NO SUCTION ON END OF SUCTION HOSE:**

With 1” valve open reset anti flood device.

### **5. TO RESET ANTI-FLOOD DEVICE:**

Unplug unit and remove ½ drain plug from back of tank, remove all water from tank, lightly tap the tank and a “thud” should be heard. The anti flood is now reset. Replace ½” drain plug and proceed.

### **6. IF MOTOR IS NOT RUNNING:**

Motors are manual thermal overload protected.

Allow 30-40 minutes for unit to cool.

To reset/push rubber button until you hear a loud and distinct click

Use proper electrical supply (120v 20amp)

### **7. IF NO WATER DISCHARGE:**

Please call manufacturer.

## **VI. Maintenance**

### Daily:

- Check for any unusual noise, failure to build vacuum, overheating, vibration and correct before damage of a serious nature can develop.
- Check and add oil to vacuum pump reservoir, if necessary. The “U” shaped hose on the reservoir acts as a sight glass. Oil level should be  $\frac{3}{4}$  of the way up the hose.
- Flush and clean storage tank after daily use.
- Unit should be stored indoors in a clean, dry location.
- Check and clean strainer. Remove the strainer basket and it is free of debris or sludge. Replace the basket if needed.

### Weekly:

- Keep compressor clean for efficient operation.

### Monthly:

- Check and tighten all bolts as required. Check air connections and joints for leaks – tighten if necessary.

### As required:

- If vacuum level drops below 10”Hg it may be necessary to flush the vacuum head. Please follow the procedure found on page 13.



## VII. Model Information



Replacement parts as well as custom made hoses in lengths up to 100 feet can be ordered directly through Dropmaster.

An optional hitch mounted carrier for the Dropmaster DM12 is also available. The carrier works with any standard 2" receiver and features a set of fold down ramps for easy loading and transportation of your Dropmaster.

Dropmaster by Gecco Inc. is the industry leader in innovative, time saving tools. Please check our website, [www.Dropmaster.co](http://www.Dropmaster.co), for information on our other products.

## Dropmaster DM12 Features

- Designed and built for 24/7 operation, all of the Dropmaster's components are rated for continuous duty.
- Powered by a 3/4 hp, high torque, low amp motor.
- 1/3 hp discharge pump – capable of pumping 38gpm.
- Factory set, fail safe vacuum relief valve – maintains 10" Hg vacuum.
- 10" Pneumatic tires – easily rolls over most job site obstacles.
- 1" Suction and discharge hoses – allows set up virtually anywhere.
- Supplied with a 20' GFI protected 12 gauge power cord.
- Factory tested and approved for Uponor Pex type a.
- Can be used on all types of process piping including PVC and CPVC.
- Safe for use with most antifreeze solutions.
- Removes contaminants and debris from refrigeration lines.
- Can be used on a variety of closed loop piping systems.

## VIII. Warranty

Dropmaster warrants to the original purchaser thereof (the “Original Purchaser”) that the Dropmaster and parts thereof furnished by GECCO, Inc. – (“GECCO”) will, when properly installed, used operated and maintained by the Original Purchaser, be free from defects in material and workmanship for a period of *Ninety (90) Days* from the date of delivery to the Original Purchaser. Any Dropmaster that is found not to meet these standards by GECCO within this ninety-day period will, at GECCO’s sole option, be repaired or replaced without charge. Any defect or condition that has been caused by misuse, unauthorized use or modification, or abnormal conditions of operation or maintenance, will be repaired by GECCO or its designee at GECCO’s then current repair charges. In this case, upon the request of the Original Purchaser, GECCO will submit an estimate of the repair cost to the purchaser prior to making the repairs. Any defective Dropmaster or component thereof should be returned promptly to GECCO at the sole expense of the Original Purchaser. Any loss or damage during shipment of a defective Dropmaster or component thereof shall be at the Original Purchaser’s sole risk.

*The motor and compressor are warranted One Year (1) from the date of delivery from the manufacturer.*

Owner responsibility includes providing normal maintenance as required by Gecco, Inc. This warranty does not apply (1) if the pump(s) has been damaged due to improper use, neglect, accident, misuse, and exposure to extremities of dryness or humidity (2) if pump(s) has been serviced or modified by other than Gecco, Inc. authorized personnel.

No other warranty expressed or implied is given. The repair or replacement of the pump(s) is your exclusive remedy. Any implied warranty of merchantability or fitness is limited to the declaration of this written warranty. In no event shall Gecco, Inc. be liable for consequential or incidental damages. Some states do not allow the exclusion or limitation of this warranty so the above exclusions or limitations may not apply to you. This warranty gives you specific legal rights and you may have other rights, which vary, from state to state.

Discharge water pump has a ninety (90) day warranty.

This warranty does not cover product failure resulting from:

1. Normal wear.
2. User abuse, including immersing non-submersible products, dents or damage to barrel

**WARRANTY EXCLUSIONS.** EXCEPT AS EXPRESSLY PROVIDED HEREIN, GECCO MAKES NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED BY OPERATION OF LAW OR OTHERWISE WITH RESPECT TO THE DROPMASTER INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE SOLE AND EXCLUSIVE REMEDY OF THE ORIGINAL PURCHASER FOR BREACH OF GECCO OF ANY WARRANTY SET FORTH HEREIN SHALL BE LIMITED, AT GECCO'S SOLE ELECTION, OF THE REPAIR AND REPLACEMENT OF THE DROPMASTER OR ANY COMPONENT THEREOF. GECCO NEITHER ASSUMES, NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT, ANY ADDITIONAL LIABILITY OR RESPONSIBILITY IN CONNECTION WITH THE DROPMASTER AND NO AGENT, EMPLOYEE OR REPRESENTATIVE OF GECCO HAS THE RIGHT TO MODIFY OR EXPAND THE WARRANTIES SET FORTH HEREIN AND NO SUCH MODIFICATION OR EXPANSION SHOULD BE RELIED UPON BY THE ORIGINAL PURCHASER.

The warranty shall not apply to a Dropmaster unit or to any component thereof if it has been subjected to operations in excess of design limitations, negligent maintenance, abuse, or damage by alteration not expressly authorized in writing by GECCO.

**LIMITATION OF LIABILITY.** To the extent allowable under law, GECCO's liability for consequential and incidental damages is expressly disclaimed. GECCO's liability in all events is limited to and shall not exceed the purchase price of the Dropmaster.

We undertake no responsibility for work done or expense incurred in connection with repair or replacement except on specific authority. We accept no liability hereunder, whatsoever, for consequential damages of, or for the negligence of others. The foregoing warranties are exclusive and there are no warranties, which extend beyond the period set forth herein. These express warranties are in lieu of all other warranties whether written, oral or implied and GECCO, Inc. hereby expressly excludes the implied warranties of merchantability and fitness for a particular purpose.

**WARRANTY CLAIMS:**

All warranty claims shall be made to GECCO, Inc., **1-866-GECCO-00**, and shall be supported by satisfactory evidence in respect of conditions herein noted. For a warranty claim please call GECCO for further instructions. Any part which is determined to be defective in material or workmanship and returned to GECCO as instruction will be, as the exclusive remedy, repaired and replaced at GECCO's option.



**Maintenance Manual  
For  
Vapor Oil Pumps**

**Model – DM12**

**IMPORTANT  
READ BEFORE INSTALLATION  
OF THIS UNIT**

# INSTALLATION INSTRUCTIONS

## WIRING

All wiring for the installation of this unit should be done by a licensed electrician according to National and Local Electrical Regulations.

## SINGLE PHASE MOTOR UNITS

All single-phase motors are wired for proper direction of rotation. Unless otherwise requested motors are wired for low voltage service.

## VAPOR OIL PUMPS

Use a 10W-30 Oil for all Conde Vapor Oil Pumps. When starting new vapor oil pumps, fill oil reservoir above the fittings in which the wicks are inserted. This will give the Pump extra oil for the first two hours of operation.

When refilling, fill to just below oil wicks.

Capacities:

Model 3.....1 quart Maximum.

## VACUUM RELIEF VALVE

The vacuum relief valve is factory preset at 10in/hg, do not exceed.

## OPERATIONAL LIMITS

Max Vacuum (Continuous) 15IN/Hg

Max Vacuum (Intermittent) 25IN/Hg

## **FLUSHING INSTRUCTIONS FOR CONDE VAPOR OIL PUMPS**

It may be necessary to flush your Conde Vapor Oil Pump to remove any gum or varnish buildup inside the pump that causes the vanes to stick in their slots. This is a simple maintenance operation and should be one of the first steps when troubleshooting a loss of vacuum in the system.

1. Remove the longer oil tube, which goes from the reservoir to the vacuum.
2. Be sure the exhaust is directed away from the motor. Be careful to contain any mist or spray.
3. Use kerosene or diesel fuel fluid for flushing process. While the pump is running under vacuum, simply insert the tube into the cleaning fluid and allow the pump to draw the fluid in. Alternately let air into the tube with the cleaning fluid. It can take up to 4 ounces of cleaning fluid to clean the pump.
4. In the same manner draw in about 5 ounces of oil to complete the flushing process.
5. Replace the oil tube to its original location. The unit is now ready to return to service.

Note: Under certain circumstances it may be necessary to repeat the flushing procedure.

## INSTRUCTION OF DISASSEMBLY & ASSEMBLY

Disassembly:

Fig. A - Remove cooling fans

Fig. B - Remove dowel pins, cap screws, bearing cove & shins

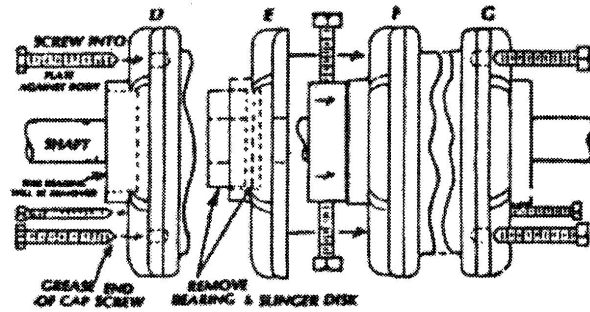
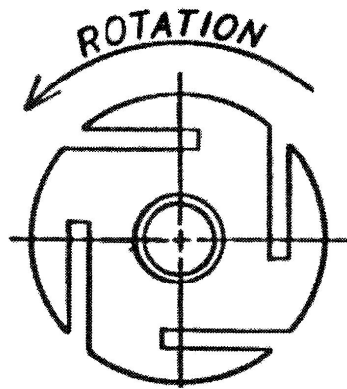
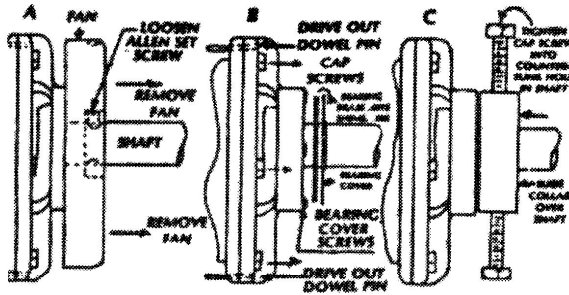
Fig. C - Slide collar over shaft and tighten screws securely.

Fig. D - Screw the bolts into the 3 threaded holes in the opposite side of the pump that the collar is on. Turn the bolts alternating (no more that 1 turn at a time) until endplate slides off the pump shaft.

Fig. E - Remove the bearings from the endplate. (This can be done easily since the bearing is a slip in the endplate.)

Fig. F - Put the plate just removed back in place without the bearings then slide the collar over the shaft and tighten.

Fig. G - Remove the opposite endplate using the 3 bolts as previously done.



## **ASSEMBLY**

1. Before assembly deburr all parts with a fine file. Determine correct rotor rotation (see drawing). Check the vane slots for free movement of vanes.
2. On model 2 Pumps start assembly with side of housing that has the dowel pin holes on the lift side of the housing. On model 3, start on side with dowel pin holes on the right. Note: dowel pin holes are always on the exhaust side of the pump.  
On oil lubricated pumps press the shaft seal in place and place the paper gasket in position on the housing. Install the endplate with the six hex screws and finger tighten. Drive the 2 dowel pins in place then tighten hex screws securely.
3. Insert rotor into housing according to rotor rotation and rotation arrows on the pump. (The pump must be assembled in the same position. This will align the rotor with the endplates and housing.)
4. Install the slinger over shaft. (green disk)
5. Press bearing on the shaft using a bearing installation tool or arbor press. **IMPORTANT**—press on the inner race of bearing only. Pressing on the plastic seal may cause damage to roller bearings.
6. Invert pump assembly and install the vanes into the slots.
7. Invert 2<sup>nd</sup> endplate as previously done but do not tighten screws and leave dowel pins out. Install bearing and slinger.
8. Apply downward pressure to rotor shaft so that the rotor bottoms out on the 1<sup>st</sup> endplate, while pressure is applied tighten hex screws evenly. Drive in dowel pins.
9. Shim the pump and install new bearing covers.

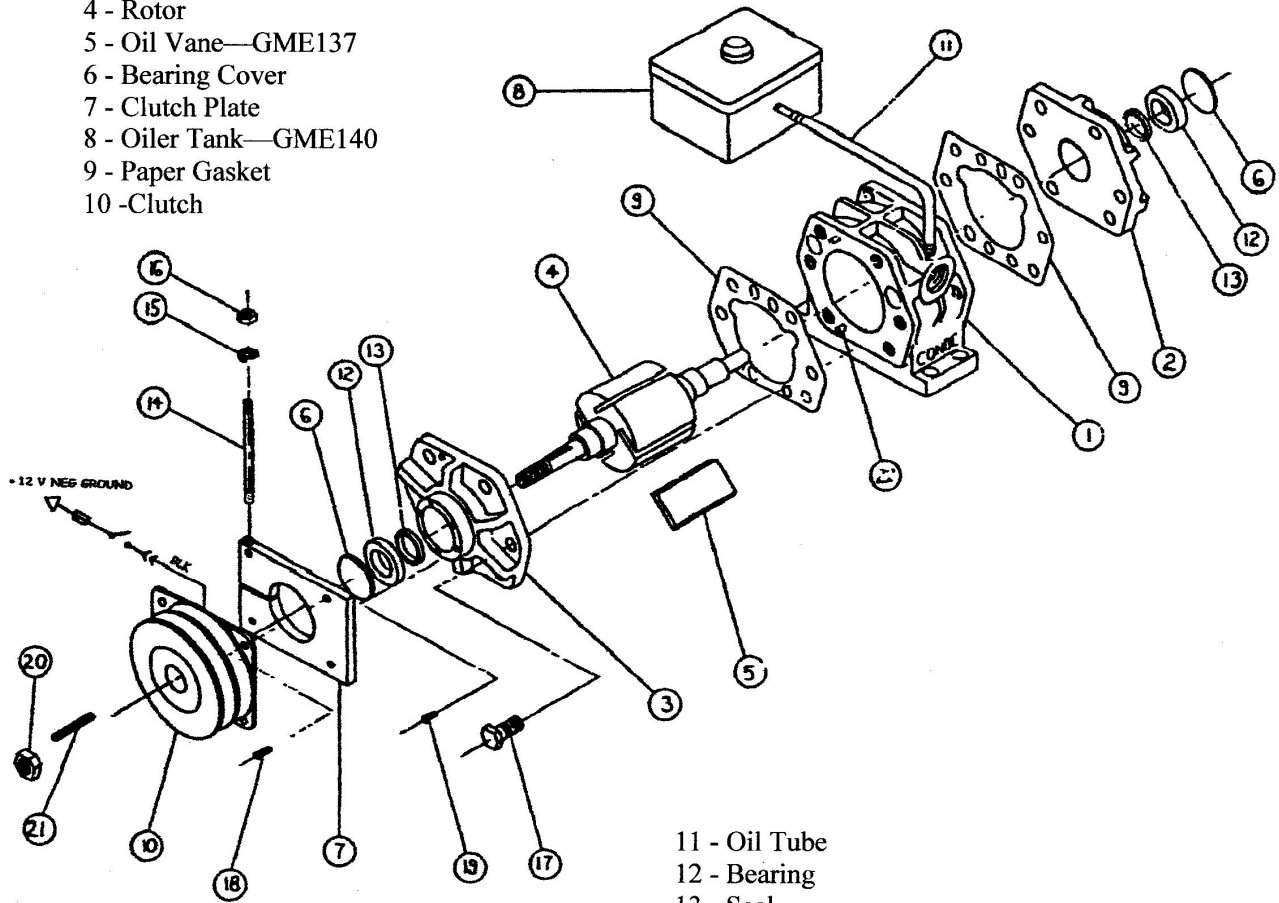
**IMPORTANT**—The pump should spin freely by hand when complete, if any binding is noticed repeat step 9.

10. Install cooling fans. Install all safety guards prior to starting unit.



## VAPOR OIL PUMP PARTS

- 1 - Pump Housing
- 2 - CW Endplate
- 3 - CCW Endplate
- 4 - Rotor
- 5 - Oil Vane—GME137
- 6 - Bearing Cover
- 7 - Clutch Plate
- 8 - Oiler Tank—GME140
- 9 - Paper Gasket
- 10 - Clutch



- 11 - Oil Tube
- 12 - Bearing
- 13 - Seal
- 14 - Clutch Stud
- 15 - Lock Washer
- 16 - Lock Nut
- 17 - Hex Screw
- 18 - Mounting Plate Screw
- 19 - Bearing Cover Screw
- 20 - Clutch Nut or Screw
- 21 - Key
- 22 - Dowel Pin—GME154
- 23.- Repair Kit—GME155 (Model 3 Vapor Oil)