

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Diaphragm Pumps

Description

These diaphragm pumps are high capacity, self-priming (to 25 ft. lift), portable units. 3354-96, 3357-96, and 3358-96 are gasoline engine driven, 3355-96 is electric motor driven, 3356-96 is pneumatic motor driven. Shipped completely assembled (except for handle). The pumps are used for operation with fluids mixed with abrasive solids such as sand, silt, mud, sludge and waste. Not for use with pumping cement or mortar. Handles liquids from 40° to 180° F (4 to 82° C). Pump is capable of handling solids up to 3/8" diameter. For use with water and other nonflammable fluids compatible with pump component materials.

Unpacking

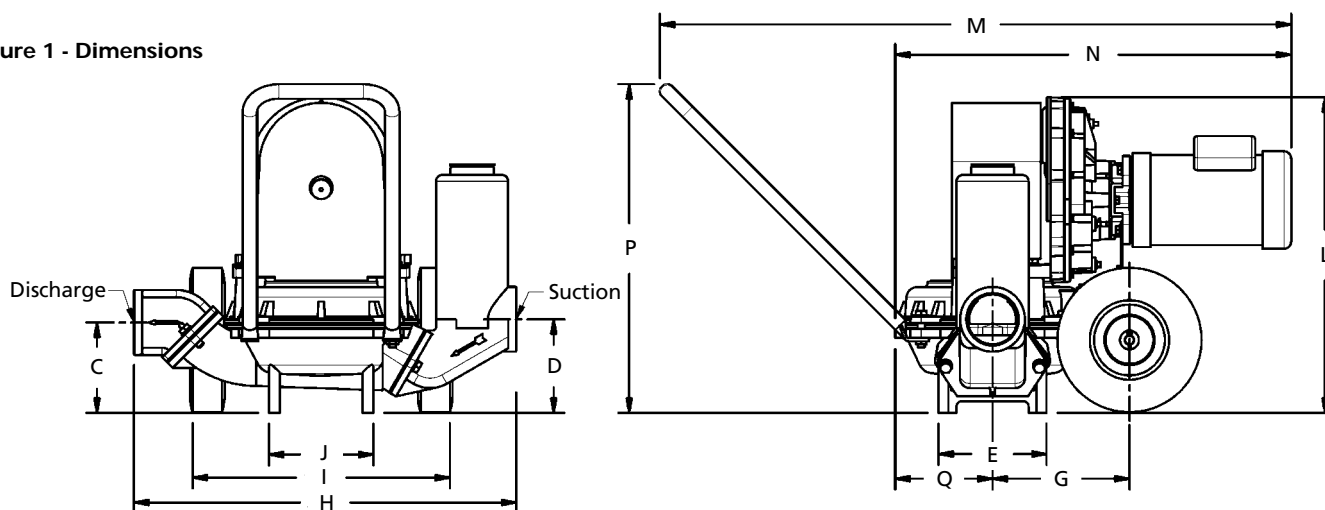
After unpacking the unit inspect carefully for any damage that may have occurred during transit. Check for loose, missing or damaged parts.

Specifications

DRIVER						PUMP					
Model	HP	Type	Power Supply	Frame	RPM	Material	Diaphragm	Flapper Check Valves	Gear Box	Bearings	Ship Weight (Lbs.)
3354-96	3½	B&S	—	—	1800 to 3600	Aluminum	Nylon/Neoprene	Polyurethane	Oil bath	Needle	171
3357-96	5½	B&S Intek	—	—	1800 to 3600	Aluminum	Nylon/Neoprene	Polyurethane	Oil bath	Needle	181
3358-96	5½	Honda GX	—	—	1800 to 3900	Aluminum	Nylon/Neoprene	Polyurethane	Oil bath	Needle	182
3356-96	1¾	Pneumatic motor	65cfm @ 100 psi	56C	300 to 3000	Aluminum	Nylon/Neoprene	Polyurethane	Oil bath	Needle	151
3355-96	1½	Electric motor	115/230 VAC @ 60 Hz	56C	1725	Aluminum	Nylon/Neoprene	Polyurethane	Oil bath	Needle	186

NOTE: Driver data is subject to change without notice, see label on driver for actual specifications.

Figure 1 - Dimensions



Dimensions (Inches)

Model	Suc*	Dis*	C	D	E	G	H	I	J	L	M†	N†	P	Q
3354-96, 3357-96, 3358-96	3"	3"	6¼	6½	7½	9½	26½	17⅞	7¼	21⅞	42	25⅝	22¾	6¾
3356-96	3	3	6¼	6½	7½	9½	26½	17⅞	7¼	21⅞	37¼	20⅞	22¾	6¾
3355-96	3	3	6¼	6½	7½	9½	26½	17⅞	7¼	21⅞	43¾	27½	22¾	6¾

NOTE: All dimensions have a tolerance of ±1/8".

(*) Standard NPT (female) pipe thread.

(†) This dimension may vary due to driver manufacturer's specifications.

Diaphragm Pumps

Performance Chart

Static Discharge Head in feet	Pump Driven @ 60 Strokes/Min.*					Pump Driven @ 40 Strokes/Min.**				
	GPH of Water Height of Pump Above Water					GPH of Water Height of Pump Above Water				
	5 ft.	10 ft.	15 ft.	20 ft.	25 ft.	5 ft.	10 ft.	15 ft.	20 ft.	25 ft.
0 ft.	5280 gph	5220	4500	3840	3540	3520 gph	3480	3000	2560	2360
5	4560	4500	4380	3480	3420	3040	3000	2920	2320	2280
10	4320	4260	4200	3360	3300	2880	2840	2800	2240	2200
15	4140	3960	3480	3060	2940	2760	2640	2320	2040	1960
20	3480	3360	3180	2940	2700	2320	2240	2120	1960	1800
25	3120	3000	2700	2460	2400	2080	2000	1800	1640	1600

(*) Input of 2750 RPM, gasoline engine or air motor drive.

(**) Input of 1750 RPM, electric motor drive.

NOTE: Performance based on using reinforced hose for suction and discharge. Performance greatly reduced by using collapsible hose on discharge.

Specific Safety Information for Gasoline Engine Driven Pump

- Carefully read the instruction manuals supplied by the engine manufacturer, before attempting to assemble, disassemble or operate the engine or any other part. The "Warning" and "Caution" statements in this manual signal potentially hazardous conditions to the operator or equipment. Know when these conditions can exist. Take necessary steps to protect personnel as well as equipment.

⚠ WARNING

Gasoline is a highly combustible fuel.

Use it with care! The improper use, handling and/or storage of gasoline can be dangerous. Help prevent accidents by following these safety rules:

- Use gasoline only as a fuel, never as a cleaning fluid.
- Always use an approved container to hold or store gasoline. Never store gasoline in familiar containers such as milk gallons or soda pop bottles.
- Never store gasoline near a heater or an open flame.
- When storing or using gasoline make sure container is out of reach of children.
- Never add gasoline to a running or

hot engine. Spilled gasoline on a hot engine may cause a fire or an explosion. Fill gasoline tank out-of-doors and wipe up any spills.

- Have a fire extinguisher nearby. Be sure extinguisher is in operating condition – check the pressure gauge or indicator. Be familiar with its proper use. Consult the local fire department for the correct type of extinguisher for your application. Extinguishers rated ABC by the National Fire Protection Association are appropriate for all applications.
- On permanent installations be sure all fuel supplies have a positive shut-off valve. Fuel lines must be of steel piping, adequately secured and free from leaks. Do not use copper piping on flexible lines as copper becomes hardened and brittle and will break. Use black pipe on natural gas or gaseous fuels, but not on gasoline or diesel fuels. Piping at the engine should be a suitable flexible line that is compatible with the fluid.

IMPORTANT: Positively no smoking at all!

- Check engine oil, fuel levels and gear box oil levels before initial start up each day. Stay away from moving parts. Because of the danger of becoming caught in moving parts,

avoid loose jackets, shirts, sleeves and ties. Make sure all nuts and bolts are secure. Keep power shields and guards in place. If adjustment **MUST** be made while the unit is running, use extreme caution around hot manifolds, moving parts, etc.

- Do not work with this equipment when mentally or physically fatigued.
- Be careful not to touch the exterior of the engine, especially the muffler and the area around it. It is hot enough to be painful or cause injury.
- To prevent accidental starting always remove the spark plug, or disconnect and ground the spark plug wire before working on the engine or the equipment driven by the engine.
- DO NOT RUN THE ENGINE IN AN ENCLOSED AREA!!** Exhaust gases contain carbon monoxide which is an odorless and deadly gas that will cause death if breathed too long. If equipment is located in an enclosed area with an exhaust line to the outside, regularly check the exhaust system for leaks. Be sure the area is well ventilated.
- If the gas engine is equipped with a spark arrestor screen in the muffler, it should be inspected for wear periodically, and replaced when necessary.

Models 3354-96, 3355-96, 3356-96, 3357-96 and 3358-96

Specific Safety Information for Electric Motor Driven Pump

1. This unit is not waterproof and is not intended to be used in potentially wet locations. The motor is designed to be used in a clean dry location with access to an adequate supply of cooling air. Ambient temperature around the motor should not exceed 104°F (40°C). For outdoor installations, motor must be protected by a cover that does not block airflow to and around the motor. This unit is not weatherproof nor is it able to be submersed in water.

2. When wiring an electrically driven pump, follow all electrical and safety codes, as well as the most recent United States National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

⚠ WARNING *Risk of electrical shock! Never connect the green (or green and yellow) wire to a live terminal.*

3. To reduce the risk of electric shock, the motor must be securely and adequately grounded! This can be accomplished by either: 1) Inserting plug (portable) directly into a properly installed and grounded 3-prong grounding-type receptacle (as shown in Figure 2); 2) Permanently wiring the unit with a grounded, metal raceway system; 3) Using a separate ground wire connected to the bare metal of the motor frame; 4) Other suitable means. The green (or green and yellow) conductor in the cord is the grounding wire. The motor must be securely and adequately grounded for your protection against shock hazards!

Where a 2-prong wall receptacle is encountered, it must be replaced with a properly grounded 3-prong receptacle installed in accordance

with the National Electrical Code and local codes and ordinances.

To ensure a proper ground, the grounding means must be tested by a qualified electrician. Use only 3-wire extension cords that have 3-prong, grounding-type plugs, and 3-pole receptacles that accept the equipment plug.

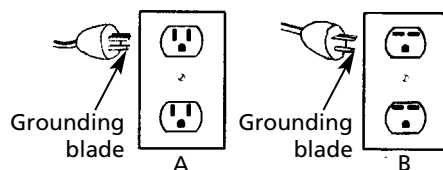


Figure 2 - Grounding Methods

4. All wiring should be performed by a qualified electrician.

⚠ WARNING *An incorrect connection may cause an electric short, produce an electrical shock or burn out the pump motor, resulting in property damage and/or personal injury.*

5. Protect electrical cord from sharp objects, hot surfaces, oil, and chemicals. Avoid kinking the cord. Replace or repair damaged or worn cords immediately.
6. Provide safety shields on all moving and electrical parts to prevent personal injury.
7. Keep fingers and foreign objects away from ventilation and other openings. Do not insert any objects into the motor.
8. Use wire of adequate size to minimize voltage drop at the motor.
9. Disconnect power before servicing a motor or its load. If the power disconnect is out-of-sight, lock it in the open position and tag it to prevent unexpected application of power.
10. Do not touch an operating motor. Modern motors are designed to operate at high temperatures.

General Safety Information (All Units)

1. Know the pump application, limitations, and potential hazards.

⚠ WARNING *Do not use to pump flammable or explosive fluids such as gasoline, fuel oil, or kerosene, etc. Do not use in flammable and/or explosive atmospheres. Pump should only be used with liquids compatible with pump component materials. Failure to follow this warning can result in personal injury and/or property damage.*

2. Make certain that the power source conforms to the requirements of your equipment.
3. Provide adequate protection and guarding around moving parts.
4. Disconnect power before servicing.
5. Release all pressure within the system before servicing any component.
6. Drain all liquids from the system before servicing.
7. Secure the discharge line before starting the pump. An unsecured discharge line will whip, possibly causing personal injury and/or property damage.
8. Check hoses for weak or worn condition before each use, making certain that all connections are secure.
9. Periodically inspect pump and system components. Perform routine maintenance as required (See Maintenance section).
10. Provide a means of pressure relief for pumps whose discharge line can be shut off or obstructed.
11. **Personal Safety:**
 - a. Wear safety glasses at all times when working with pumps.
 - b. Wear a face shield and proper apparel when pumping hazardous chemicals.
 - c. Keep work area clean,

Diaphragm Pumps

General Safety Information (Continued)

- uncluttered, and properly lighted – replace all unused tools and equipment.
- d. Keep visitors at a safe distance from the work area.
- e. Make workshop child proof – with padlocks, master switches, and by removing starter keys.
- 12. For Air Drive units follow Safety Information in instruction sheet supplied with air motor.

Assembly

1. Remove the two hex nuts (Ref. No. 13) on the front of the pump. Place handle (Ref. No. 37) on bolts (Ref. No. 11) and replace nuts.
2. Place pump on a level surface. Fill pump gear box with gear oil before the pump is operated. Gear oil must meet requirements of API GL-5 and military specification MIL-L-2105B. Remove gear box housing fill plug (Ref. No. 40). Remove level plug (Ref. No. 43). Pour gear oil into gear box slowly until oil comes out of level plug.

IMPORTANT: Warranty on this unit is void unless the gear box is lubricated with appropriate gear oil listed above.

Installation

NOTE: In any installation where property damage can occur by pumps not operating due to power outages, discharge line freezing or any other reason, a backup system(s) and/or warning system(s) should be used.

1. Place the pump on a level, solid foundation, locating it as close to the liquid as possible, making the suction line as short and direct as possible.
2. Install pipe nipples (Ref. No. 75) so the smoother side of pipe end faces the suction and discharge hose.

⚠ CAUTION

Maximum discharge head is 25 feet or 10.9 psi. Operation over this head or pressure will cause pump to stall and/or gearbox damage. Use only rigid hoses.

3. Attach suction piping to the suction inlet (Ref. No. 30) and discharge piping to the discharge outlet (Ref. No. 28). The suction line should be positioned such that there is a continual upward slope from the fluid source to the pump. Avoid using loops or sections of pipe or fittings which might permit air to become trapped.

NOTE: If hose is used, be sure to use reinforced hose on both the suction and discharge. DO NOT USE canvas or similar collapsible materials. NEVER USE LESS THAN 3-INCH PIPE OR HOSE. Suction line must be airtight so that air cannot leak in and destroy priming vacuum. On a permanent installation where piping is used, always connect a piece of flexible hose between pump and piping so pump is free to move slightly.

4. It is advisable to use a strainer (Ref. No. 76) on the inlet end of the suction hose or pipe. A proper sized strainer is supplied with this unit and should be used at all times to prevent damage. Keep the strainer clean. If possible, suspend it to keep it from becoming clogged with muck, roots, debris or leaves. It is best to keep hose free of kinks as they will restrict flow and add excess loading to pump and gearing.
5. GASOLINE ENGINE UNITS: Follow all instructions in the engine manual before starting the engine. Fill engine with oil, gasoline, etc.

AIR MOTOR UNITS: Follow all instructions in the air motor manual before starting unit.

ELECTRIC MOTOR UNITS:

It is strongly recommended that this unit is plugged into a G.F.I. (Ground Fault Interrupter) circuit. Consult your

local electrician for installation and availability.

6. Input RPM (to pump) – Input RPM must be between 1750 and 2750 RPM. Final pump speed will be 40 strokes/ min. with a 1750 RPM input and 60 strokes/min. with a 2750 RPM input.

IMPORTANT: Do not exceed (60) strokes per minute with the diaphragm pump.

Operation

IMPORTANT: Operate the diaphragm pump in an upright position only.

1. This diaphragm pump is capable of priming “dry” up to fifteen feet; it will prime much faster when it is filled with clean water through priming plug (Ref. No. 35). Primed, it can lift to 25 feet.
2. Activate unit following engine or air motor manual or turning unit on if electrical.

⚠ CAUTION

Do not control discharge capacity with a valve or similar device.

CLEARING JAM-UP

If large solids or an accumulation of sand or other sediment becomes lodged in the pump well (Ref. No. 29) preventing the plunger arm (Ref. No. 23) from making a full stroke, the pump will either stall or the crank (Ref. No. 21) will slip on the output shaft (Ref. No. 47). The pump is designed to react this way to prevent severe internal damage. If such a jam-up does occur, the pump should be thoroughly cleaned as described in “If Pump Stalls.” Refer to parts list and illustration for parts identification.

⚠ CAUTION

If pump has stopped or stalled for any unknown reason, clean out pump cavity thoroughly. Failure to comply with the “Caution” could result in damage to crank (Ref. No. 21) plunger arm (Ref. No. 23) or other parts of assembly.

Models 3354-96, 3355-96, 3356-96, 3357-96 and 3358-96

Operation (Continued)

1. IF PUMP STALLS:

- Remove handle (Ref. No. 37).
- Remove four bolts (2 Ref. No. 9, and 2 Ref. No. 11).
- Clean obstruction and all debris from pump well (Ref. No. 29).
- Reassemble pump in reverse order of disassembly and return to service.

2. IF PLUNGER (REF. NO. 23) SEIZES and gear box output shaft (Ref. No. 47) turns in crank (Ref. No. 21):

- Remove sheet metal guard (Ref. No. 16) by loosening hand knob screws (Ref. No. 15).
- Disassemble pump and clean as described in steps (a) through (d) listed for stalled engine jam-up.
- Torque the crank lockcrew (Ref.

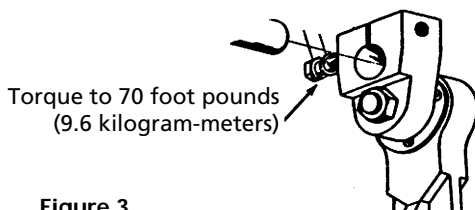


Figure 3

No. 11) to 70 foot pounds with an appropriate torque wrench (See Figure 8).

- Reassemble the pump in reverse order of disassembly and return to service.

⚠ WARNING *Pump jamming with an over-torqued lock screw may cause internal damage. Under torquing may allow the output shaft to spin and wear parts necessitating replacement.*

Maintenance

⚠ WARNING *Make certain that unit is disconnected from power source before attempting to service or remove any component.*

- Check gear box oil level every 20 hours of operation or at least once a week; more often if any leakage is detected around the gear box.

Change gearbox oil after the first 40 hours of operation. Fill to the oil level plug. Change gearbox oil every 350 hours of operation.

- The plunger bearing (Ref. No. 19) must be greased (any automotive grease) after every 8 hours of use. This is done by rotating plunger bearing to the 12 o'clock position. At this point grease fitting will be visible through hole in guard (Ref. No. 16). Bearing may be cleaned and kept well lubricated by pumping grease slowly into fitting until new grease oozes out between bearing and journal.
- During freezing weather, be sure to drain the pump when it is not running. Remove discharge hose and tip unit towards discharge side.
- Keep pump clean. After use with liquids containing foreign materials, flush with clean water.

REPLACEMENT OF FLAPPER VALVES (REF. NO. 32)

- Remove two bolts (Ref. No. 14) and remove suction priming chamber (Ref. No. 30). Replace flapper (Ref. No. 32) on flapper pin to locate on priming chamber (Ref. No. 30).
- Remove two bolts (Ref. No. 14) and remove discharge plate (Ref. No. 28). Replace flapper valve on flapper pin to locate valve on pump well (Ref. No. 29).

REPLACEMENT OF DIAPHRAGM (REF. NO. 24)

- Remove sheet metal guard (Ref. No. 16) by loosening hand knob screws (Ref. No. 15).
- Rotate pump until plunger arm (Ref. No. 23) is in the down position.
- Remove handle (Ref. No. 37).

- Remove pump well (Ref. No. 29) by removing screws, (two of Ref. No. 11 in front and two of Ref. No. 9 in back).

- Remove diaphragm (Ref. No. 24) by removing three nuts (Ref. No. 13) from bolts (Ref. No. 26).

- Replace diaphragm and reverse steps 1 through 5 for reassembly.

GEAR BOX OVERHAULING

A completely assembled gear box is available as a replacement part (Ref. No. 84 or 85). A gear box overhaul kit is available as a replacement part (Ref. No. 86 or 87) it contains all bearings, shafts, gears, and seals in gear box assembly.

DISASSEMBLY

- Remove diaphragm (Ref. No. 24) as described in "Replacement of Diaphragm."
- Remove crank (Ref. No. 21) by removing machine screw (Ref. No. 11). Use screwdriver in slot of crank to release clamp on output shaft (Ref. No. 47).
- Drain oil from gear box by removing drain plug (Ref. No. 43).
- Remove driver (Ref. Nos. 72, 73, 74/77) from adapter (Ref. No. 64) by removing four bolts (Ref. No. 63) for electric/air motor, four bolts and two bolts (Ref. No. 62) from engine mount bracket (Ref. No. 66) for gas driver models. Slide driver back from adapter until driver shaft disengages pinion (Ref. No. 60).
- Remove adapter by removing four bolts (Ref. No. 65) and adapter bracket (Ref. No. 70) by removing two bolts (Ref. No. 65).
- Remove gear box from pump base (Ref. No. 27) by removing four bolts (Ref. No. 14).
- Remove pinion/bearing assembly (Ref. Nos. 57, 58, 60) by pulling

Diaphragm Pumps

Maintenance (Continued)

straight out. Use a slide hammer puller gripping in pinion groove.

8. Remove twelve bolts (Ref. No. 41) holding gear box halves (Ref. Nos. 38 & 39) together.
 9. Carefully separate gearbox halves.
 10. Remove gasket (Ref. No. 48).
 11. Remove output shaft/bearing assembly (Ref. No. 45, 46, 47, 49, 50 & 55) and idler pinion/bearing assembly (Ref. No. 46, 51, 52, 53, 54).
 12. Remove output shaft oil seal (Ref. No. 56)
- NOTE:** Pinion/bearing (Ref. No. 82 or 83), idler pinion/bearing (Ref. No. 80), and output shaft/bearing (Ref. No. 81) assemblies are available as replacement parts pre-assembled.
13. Remove bearings (Ref. No. 57, 58) from ends of pinion shaft (Ref. No. 60).
 14. Remove bearings (Ref. No. 46, 51) from ends of idler pinion shaft (Ref. No. 53).
 15. Remove internal spur gear (Ref. No. 52) and key (Ref. No. 54) from idler pinion shaft.
 16. Remove retaining ring (Ref. No. 50) and bearings (Ref. No. 45, 46) from ends of output shaft (Ref. No. 47).
 17. Remove output gear (Ref. No. 49) and key (Ref. No. 55) from output shaft.

REASSEMBLY

1. Assemble pinion/bearing assembly, idler pinion/bearing assembly, and output shaft/bearing assembly.
2. Install output shaft oil seal into gear box output half. Lubricate lip seal.
3. Slide output shaft through lip seal. Start output bearing in bore in gear box output half. Position idler pinion bearing assembly in its bore in output half. Simultaneously press both assemblies into output half.
4. Install gasket on output half.
5. Position gear box input half; align shaft bearings with bearing bores. Press gear box halves together, align pins in output half with pin bore in input half.
6. Secure halves together with twelve bolts.
7. Slide pinion/bearing assembly into bore in gear box input half. Rotate pinion during installation to make sure gear teeth align with internal spur gear teeth.
8. Install O-ring (Ref. No. 59) on outside of pinion bearing.
9. Reassemble gear box to pump base with four bolts.
10. Reassemble adapter to gear box with four bolts.
11. Reassemble adapter bracket to wheel bracket (Ref. No. 8) with two bolts, and to adapter with two bolts (Ref. No. 62) gas engine driver only.
12. Align driver shaft key (Ref. No. 61) with keyway in pinion. Slide driver into pinion, secure with four bolts electric/air motor or four bolts and two bolts gas engine.
13. Reassemble crank to output shaft as described under "Operation."
14. Replace diaphragm as described under "Replacement of Diaphragm."
15. Fill gear box with oil as described under "Assembly."
16. Pump should be checked daily, weekly, monthly, for proper operation.

NOTE: Only qualified service personnel should attempt to repair this unit. Improper repair and/or assembly can cause pump damage, driver damage, and/or an electrical shock hazard depending on model.

Models 3354-96, 3355-96, 3356-96, 3357-96 and 3358-96

Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
Pump will not prime or retain prime after operating	<ol style="list-style-type: none"> 1. Air leak in suction line 2. Defective flapper valves 3. Clogged foot valve or strainer 4. No liquid in suction line 5. Material jammed in pump well 	<ol style="list-style-type: none"> 1. Repair or replace 2. Replace 3. Clean or replace 4. Fill suction line & pump with liquid 5. Clean (See Maintenance)
Flow rate is slow	<ol style="list-style-type: none"> 1. Incorrect driver speed 2. Piping is fouled or damaged 3. Clogged pump 4. Discharge line restricted or undersized 5. Collapsible disc hose 6. Too many bends 7. Lines too long 	<ol style="list-style-type: none"> 1. Increase speed (See Specifications) 2. Clean or replace 3. Clean 4. Flush out piping or replace 5. Replace with rigid or non-collapsible hose 6. Straighten hose 7. Shorten
Pump runs but no fluid	<ol style="list-style-type: none"> 1. Faulty suction piping 2. Pump located too far from fluid source 3. Gate valve closed 4. Clogged strainer 5. Discharge height too great 	<ol style="list-style-type: none"> 1. Replace 2. Place closer 3. Open 4. Clean or replace 5. Lower the height
Pump starts and stops pumping	<ol style="list-style-type: none"> 1. Leak in suction line 2. Leak in foot valve 3. Diaphragm has a crack or hole 4. Defective or clogged flapper valves 	<ol style="list-style-type: none"> 1. Repair 2. Repair or replace 3. Replace 4. Clean or replace
Excessive noise while pump in operation	<ol style="list-style-type: none"> 1. Pump not secured to firm foundation 2. Restricted suction line 	<ol style="list-style-type: none"> 1. Secure properly 2. Clean or correct
Water can be seen on top of diaphragm	<ol style="list-style-type: none"> 1. Diaphragm has crack or hole 2. Screw loose holding diaphragm 	<ol style="list-style-type: none"> 1. Replace 2. Tighten
Pump stalls repeatedly or stops for no apparent reason	<ol style="list-style-type: none"> 1. Discharge height over 25 feet of head 2. Material jammed in pump well 	<ol style="list-style-type: none"> 1. Lower height (See Specifications) 2. Clean out pump well (See Operation & Maintenance)

For Repair Parts, call 1-800-323-0620

24 hours a day – 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

Address parts correspondence to:

Grainger Parts
P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

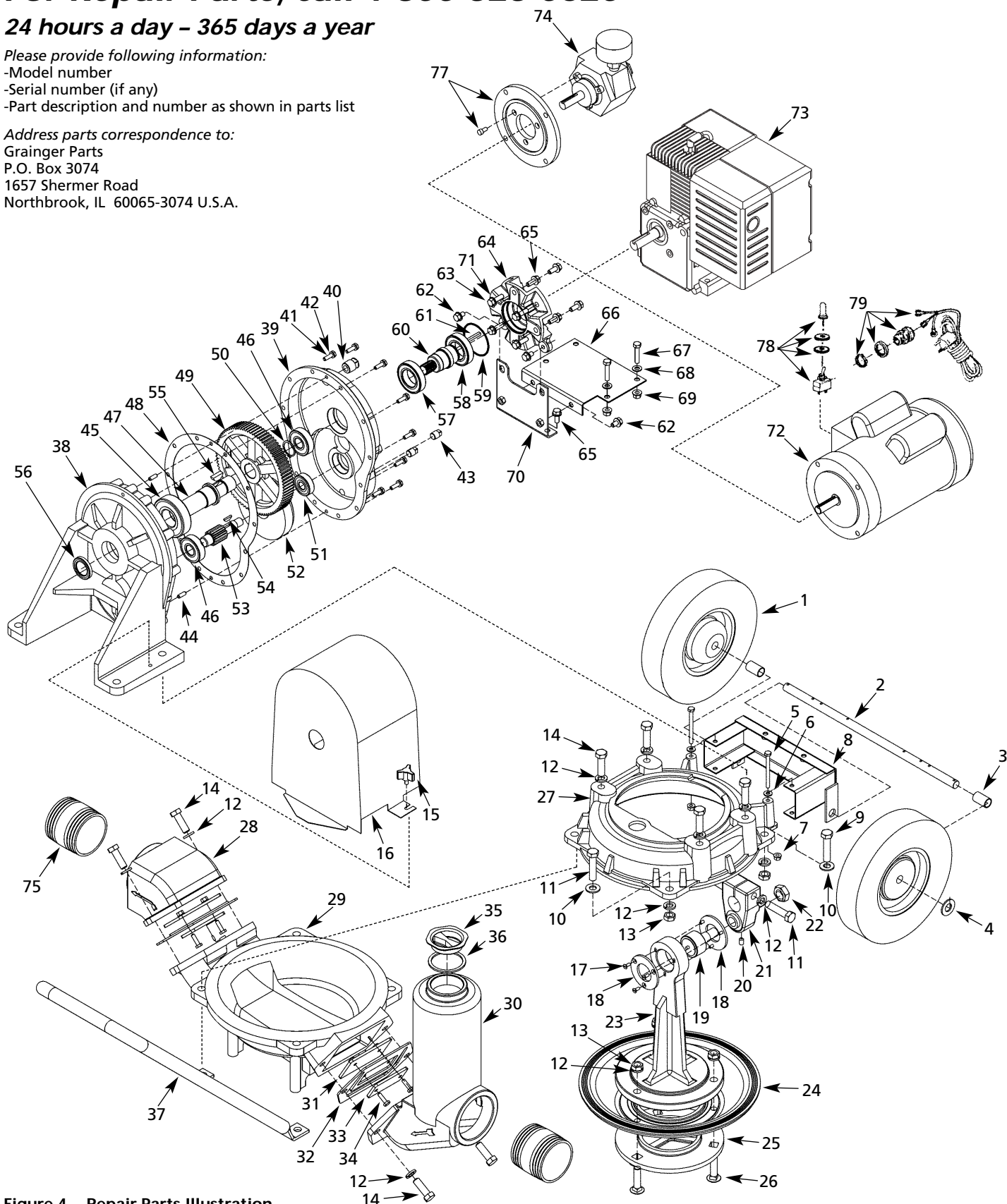


Figure 4— Repair Parts Illustration

Models 3354-96, 3355-96, 3356-96, 3357-96 and 3358-96

Repair Parts List

Ref. No.	Description	Part Number	Qty.
1	Wheel	1663-000-00	2
2	Axle	2166-000-00	1
3	Wheel spacer	3354-105-00	2
4	Collar and screw assembly	1173-000-90	2
5	1/4"-20 UNC x 2-1/2" Hex head bolt	*	2
6	1/4" SAE washer	*	2
7	1/4"-20 UNC Flange nut	*	2
8	Wheel bracket	3354-101-00	1
9	1/2"-13 UNC x 2-1/4" Hex head cap screw	*	2
10	1/2" SAE washer	*	4
11	1/2"-13 UNC x 2-3/4" Hex head cap screw	*	3
12	1/2" Split lockwasher	*	9
13	1/2"-13 UNC Hex nut	*	9
14	1/2"-13 UNC x 1-1/2" Hex head cap screw	*	8
15	1/4"-20 UNC x 1/2" Plastic knob w/stud	*	2
16	Plunger guard	3354-103-00	1
17	#10-32 UNF x 1/2" Flat head mach screw	*	3
18	Bearing retainer	2136-000-00	2
19	Plunger bearing	2138-000-00	1
20	5/16"-18 UNC x 1/2" Socket set screw	*	1
21	Crank	2140-000-01	1
22	3/4"-16 UNF Locknut	*	1
23	Plunger arm	2134-000-01	1
24	Diaphragm	2132-000-00	1
25	Diaphragm retainer	2133-000-00	1
26	1/2"-13 UNC x 2" Carriage bolt	*	3
27	Pump base	3354-001-01	1
28	Discharge plate	2131-000-01	1
29	Pump well	2120-000-01	1
30	Suction priming chamber	2123-000-01	1
31	Flapper weight top	2127-000-01	2
32	Flapper valve	2126-001-00	2
33	Flapper weight bottom	2128-000-01	2
34	1/4"-20 UNC x 1/2" Hex head cap screw	*	4
35	Priming plug	2124-000-00	1
36	‡ Priming plug gasket	2125-000-00	1
37	‡ Handle	2152-000-00	1
38	‡ Gear box output half	3354-090-01	1
39	‡ Gear box input half	3354-091-01	1
40	‡ 1/2" NPT Pipe plug	*	1
41	‡ 1/4-20 UNC x 7/8" Hex head cap screw	*	12
42	‡ 1/4" SAE washer	*	12
43	‡ 1/4" NPT Pipe plug	*	2
44	‡ 1/4" x 3/4" Dowel pin	*	2
45	‡ Output Ball Bearing 35x80x21 open 6307	*	1
46	‡ Ball bearing 20x52x15 open 6304	*	2
47	‡ Output shaft	3354-140-00	1

(*) Standard hardware item, available locally.

(‡) Available in kit form (see "Assemblies and Repair Kits" section)

Diaphragm Pumps

Repair Parts List (Cont.)

Ref. No.	Description	Part Number	Qty.
48	‡ Gasket	3354-300-00	1
49	‡ Output gear	3354-120-00	1
50	‡ 1-1/8" External retaining ring	*	1
51	‡ Idler ball bearing 15x42x13 open 6302	*	1
52	‡ Internal spur gear	2149-000-00	1
53	‡ Idler pinion shaft	3354-121-00	1
54	‡ Woodruf key #406 1/8" x 3/4" diameter	*	1
55	‡ Woodruf key #1008 5/16x1" diameter	*	1
56	‡ Oil seal	2148-000-00	1
57	‡ Ball bearing 35x62x14 open 6007	*	1
58	‡ Ball bearing 35x62x14 sealed 6007	*	1
59	‡ O-ring #143 Buna N	*	1
60	‡ Input pinion (gasoline engine driver)	3354-122-00	1
	Input pinion (electric/air driver)	3354-123-00	1
61	3/16" x 3/16" x 1-3/8" Key	*	1
62	5/16"-18 UNC x 1/2" Hex head flange screw (gasoline engine driver only)	*	4
63	5/16"-24 UNF x 1" Hex head flange screw (gasoline engine driver)	*	4
	3/8"-16 UNC x 1-1/4" Hex head cap screw (electric/air driver)	*	4
64	Adapter (gasoline engine driver)	3354-093-01	1
	Adapter (electric/air driver)	3354-092-01	1
65	5/16"-18 UNC x 3/4" Hex head flange screw	*	6
66	Engine mount bracket	3354-104-00	1
67	5/16"-18 UNC x 1-1/2" Hex head cap screw	*	4
68	5/16" SAE washer	*	4
69	5/16"-18 UNC Hex nut	*	4
70	Adapter bracket	3354-100-00	1
71	3/8" Lock washer (electric/air driver only)	*	4
72	Electric motor	1626-092-00	1
73	3½ HP B&S engine	1632-031-00	1
	5½ HP B&S engine	1639-014-00	
	5½ HP Honda engine	1639-017-00	
74	Air motor	1639-037-00	1
75	3" NPT Pipe nipple	1696-045-00	2
76	3" NPT Strainer	1680-000-00	1
Assemblies and Repair Kits			
77	Air motor to 56C adapter includes mounting screws	3353-031-00	1
78	Switch assembly, includes switch and mounting hardware	3350-351-90	1
79	Cord assembly, includes cord and mounting hardware	3350-352-90	1
80	Idler pinion/bearing assembly (Includes Ref. Nos. 46, 51, 53 & 54)	3354-197-90	1
81	Output shaft/bearing assembly (Includes Ref. Nos. 45, 46, 47, 49, 50 & 55)	3354-198-90	1
82	Input pinion/bearing assembly (includes Ref. Nos. 57, 58 & 60) For use with Gas engine	3354-195-90	1
83	Input pinion/bearing assembly (includes Ref. Nos. 57, 58 & 60) For use with Electric motor or Air motor	3354-196-90	1
84	Gear box overhaul kit for Gas engine models (includes Ref Nos. 45 to 60)	3354-400-90	1
85	Gear box overhaul kit for electric/air motor models (includes Ref Nos. 45 to 60)	3354-401-90	1
86	Assembled gear box for Gas engine models (includes Ref Nos. 38 to 60)	3354-402-90	1
87	Assembled gear box for Electric/Air models (includes Ref Nos. 38 to 60)	3354-403-90	1

(*) Standard hardware item, available locally.

(‡) Available in kit form (see "Assemblies and Repair Kits" section)

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