

# OLIN ENGINEERING, INC

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# OPERATOR MANUAL

## ALL CA MODELS



CONCRETE - GROUT - SHOTCRETE



# OLIN ENGINEERING, INC.

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714-897-1230 • FAX 714-892-9268

Congratulations on the purchase of your new OLINPUMP.

You can feel confident in your decision to own one of our products.

Every care has been taken during each stage of manufacture to ensure a long and trouble-free working life.

Like all construction equipment, concrete pumps required maintenance from time to time. We have put together the following to help you take care of your OLINPUMP, and to operate it in a safe manner.

Thank you,

OLIN ENGINEERING, INC.

**PLEASE NOTE: FOR ALL SERVICE, WARRANTY QUESTIONS, OPERATION INQUIRES AND REPLACEMENT PARTS, YOU MUST CONTACT YOUR SELLING DISTRIBUTOR.**



GROUT • SHOTCRETE • CONCRETE • REFRACTORY • PRESSURE GROUTING  
AND SPECIAL APPLICATION PUMPS



# OLINPUMP

## BALL VALVE

### OPERATIONS MANUAL

THIS MANUAL MUST BE READ AND FULLY  
UNDERSTOOD BEFORE OPERATING THIS  
EQUIPMENT.

## INTRODUCTION

OLINPUMPS are designed with the upmost attention toward dependability and easy maintenance. Close attention to the information and instructions in this manual will ensure a minimum of maintenance and maximum productivity and safety during operation.

Prior to pump start-up, the operator must thoroughly familiarize himself with the material contained herein in order that the pump be operated in a safe manner.

For safe operation of this equipment, the qualifications for, and the conduct of, the operator should be as follows:

## ELIGIBILITY

1. The operator must have read and fully understand the "safety" manual provided by the manufacturer, and taken part in all "safety" training programs provided by his employer.
2. The operator must have taken part in the concrete pump operators training programs provided by "THE AMERICAN CONCRETE PUMPING ASSOCIATION" and have received a certificate of completion.
3. Equipment should be operated only by experienced operators, or a trainee under the direct supervision of an experienced operator, and no unauthorized person should be permitted to assist or remain in the immediate vicinity of the equipment while it is in operation or during the performance of any maintenance, inspection, cleaning, repair or make-ready operation.
4. Equipment should not be operated by individuals who cannot read and understand the signs, notices and operating instructions that are part of the equipment (in the language in which printed).
5. Equipment should not be operated by anyone under the age of 18 years.
6. Equipment should not be operated by anyone with seriously defective eyesight or hearing, and physical or mental impairment (such as epilepsy, heart disease, or progressive neuro-muscular deterioration), and that this is verified by a physical examination at least annually.
7. Equipment should not be operated while the operator is eating, reading, or is more than six (6) feet in distance from the controls.
8. Equipment should not be operated by an operator who has asked to be relieved because he feels physically or mentally unfit.
9. Equipment should not be operated at any new site, or at the start of a new shift, until a visual inspection is made of the condition of the equipment and the concrete delivery system.

10. Equipment should have a sign-off sheet attached to the equipment where the operator can report any damage, defect, problems or accidents to the next shift operator and work supervisor.
11. The operator of the equipment must not be under the influence of alcohol or drugs when operating the equipment.
12. Remote cable and/or radio are provided for the use of the "hose man" only, the pump operator must be no more than six (6) feet from the pump during its operation.

#### BEFORE WORKING ON PUMP:

1. REMOVE KEYS TO ENSURE THAT THE PUMP CANNOT BE STARTED.
2. DISCONNECT BATTERY CABLE.

## **BALL VALVE MODELS ONLY**

### **SAFETY PRECAUTIONS**

Head, eye and ear protection must be worn at all times during operation.

Any personnel assigned to repair, troubleshoot, or operate the equipment must first be thoroughly familiar with the operation instruction manual. The operator's safety and the safety of others is, at all times, of the utmost importance. To work safely, the operator must understand the job he does.

During operation, repair, or troubleshooting, problems may arise that seem singular, but may be due to several causes. The information in the manual should assist in finding these causes. If more information is needed, please consult your local distributor or the factory.

1. Never place any body parts or other objects in the hopper of the pump while the engine is running.
2. Never work on any part of the pump or engine while the engine is running. The operator should take the time to stop the power system for his protection.
3. Hydraulic oil systems can be dangerous. The operator should know the circuit he is repairing  
—it may have very high pressure and injury could occur. The operator should stop the entire pump, and engine, and allow sufficient time for the oil pressure to drop to zero. He should check the system pressure gauge(s). Caution must be used when opening the circuits or components. Pressurized oil can cause severe injury.
4. The operator should never open any part of the material delivery system without stopping the pump, releasing the pre-charge from the surge chamber, and opening the 'Delivery System Pressure Release Valve'. CAUTION: high pressure may still be present in the manifold.

Note: For optimum performance, attention should be given to the pump positioning. The tongue end of the pump should sit level, or slightly lower, during pumping operations.

Note: Before operating the pump, you will need to fit a nitrogen bottle\* into the rack and connect the surge chamber hose. Nitrogen is used to pre-charge the SURGE CHAMBER. To add nitrogen to the SURGE CHAMBER, slowly open, then close the valve on top of the bottle and read the SURGE CHAMBER pressure on the gauge fitted to the line running to the SURGE CHAMBER. NEVER leave the valve open. To drain nitrogen from the SURGE CHAMBER, slowly open the “bleed-off” valve on the valve stem, and recheck the SURGE CHAMBER pressure.

SURGE CHAMBER pre-charge (i.e., the pressure showing on the gauge when the pump is not in operation) may require adjusting as hose length increases, concrete becomes drier, or pumping output changes. PRE-CHARGE MUST NEVER EXCEED 300 P.S.I. AVERAGE PRE-CHARGE IS 100-150 P.S.I.  
DO NOT ADD NITROGEN TO THE “SURGE CHAMBER” WHEN IT IS NOT FITTED TO THE PUMP. ALWAYS BLEED ALL NITROGEN AND DISCONNECT THE HOSE FROM THE “SURGE CHAMBER” BEFORE REMOVING IT FROM THE PUMP.

\*not supplied by OLIN

## FOR USE WITH BALL VALVE MODELS ONLY

### 1. PRE START-UP

Choose the correct concrete delivery system for the type of mix that is to be pumped. Set up the concrete delivery system avoiding tight bends, sharp objects and extremely rough surfaces. Make sure all clamps are locked closed and safety pins are fitted. Put enough water or priming slurry (a mixture of water and bentonite clay, or sand and cement mortar) in the hopper. Make sure surge chamber contains adequate pre-charge (100 P.S.I. is a good starting point.)

### 2. START-UP

Start the engine and let run at low speed, until the engine has warmed up. Increase the engine speed to full governed RPM. Set the output volume to at least 50%. The Auto/Manual switch must be in "auto" position. Switch the PANEL/OFF/REMOTE switch to PANEL position before concrete enters the hopper. Once the desired slump has reached the delivery system end, adjust the volume setting to the desired output, and set the surge chamber pressure as required to smooth out the delivery system. If remote ON/OFF control is to be used, you may now switch the PANEL/OFF/REMOTE switch to REMOTE.

### 3. CLEARING BLOCKAGES

First, determine if the blockage is before the discharge balls or after them. Before, will show no pressure reading on the Surge Chamber gauge in excess of the pre-charge. If this is the case, shut down engine, release all pre-charge from the Surge Chamber. Open the Delivery System Pressure Release Valve, disconnect coupling and swing away Valve to access the interior of Discharge Manifold. Wash out completely until Balls are free to move about. If pump will still not cycle, shut down engine, open and swing away Discharge Manifold, and washout Intake Manifolds and Hopper until thoroughly clean. Reconnect the Manifold, Surge Chamber and Pressure Release Valve. Recharge the surge chamber, and continue pumping.

### 4. BLOCKAGE IN DELIVERY SYSTEM

If blockage is in the delivery system, release all pressure from the Surge Chamber. Open 'Delivery System Pressure Release Valve', making sure concrete exits out the bottom. Locate blockage and carefully open system to remove blockage. Never assume that all pressure has been released. Clear blockage and close system. Immediately return to the pump, re-charge the surge chamber, close 'Pressure Release Valve', and resume pumping.

CAUTION: Do not hammer, or use a chisel on the inside or outside of the surge chamber, as damage to chrome surface will result.

## 5. STANDING TIME

If pump is stopped and material left in delivery system, stroke the pump at least once on each cylinder occasionally so as not to allow material to set. Repeat as often as required. Mix material in hopper with shovel before stroking each time. DO NOT ALLOW MATERIAL TO SIT IN THE PUMP OR DELIVERY SYSTEM FOR MORE THAN 10 MINUTES WITHOUT STROKING, OR AT ALL IF MATERIAL IS HOT.

## 6. WASHOUT

Pump remaining material from hopper. Fill hopper with water and pump out system at a moderate speed. Pump at least two more hoppers full of water through the system at MAXIMUM pumping speed. Remove the reducer and discharge elbow and clean out any material remaining in the manifold.

## 7. CLEANING YOUR PUMP

At the end of each job, after washing out pump and system, remove 4" coupling between Discharge Manifold and Delivery System Pressure Release Valve. Swing Valve away to the side, and inspect the interiors of both the discharge manifold and Pressure Release Valve, for any 'build-up' of concrete fines. Clean as necessary to ensure proper operation on next job. NOTE; Pressure Release Valve MUST occasionally(at least every 2-3 weeks) be disassembled, cleaned, and re-lubricated with grease to ensure proper, smooth operation. When re-assembling, be sure to tighten 'stem bolt' and nut adequately to ensure full closure of Valve, but still have relatively easy rotation/movement of handle.

At the end of each day clean your pump thoroughly, checking for leaks and noting its general condition. REPAIR OR REPLACE ALL WORN OR DAMAGED PARTS AT THIS TIME. DO NOT OPERATE THE PUMP WITH WORN, DAMAGED, OR UNSAFE PARTS. At this time, also check engine oil level (water level on water cooled engines). Check oil level in piston box, oil should be half-way up the chrome rods. Any water entering the piston box will settle to the bottom after pump sits for at least 24 hours, drain this accumulated water weekly, before start-up on Monday morning. Add vegetable-based oil if necessary to the piston box. Water may also be used, although it is not recommended. Oil level in surge chamber should also be checked weekly. Release pressure, remove pipe bushing, and use a dipstick or suitable substitute. Be sure to work dipstick through "guide" portion of piston, in order to get an accurate reading. About 3" of oil should be present.

NOTE: Never use acid, hammer, or chipping gun near chrome material cylinders, surge chamber cylinder, or hydraulic cylinder rods. Severe damage may be incurred, causing downtime and repair expense.

## FOR USE WITH BALL VALVE PUMPS ONLY

### GENERAL MAINTENANCE MODELS 5 40, 5 45 ,5 65, 5 85

#### 1. REPLACING BALLS AND SEATS

##### A. Intake

Remove hopper screen.

Remove the six(6) hopper hold down bolts from hopper base.

Swing hopper to the side and remove seats and balls.

Clean all surfaces with a putty knife making sure they are free from slurry scale.

Remove any material build up from ball check area and inspect ball stop weldment for excessive wear.

Fit new balls, install new seats, making sure O' rings are in place.

Re-bolt hopper into place, and refit screen.

##### B. Discharge

Remove surge chamber.

Remove the six (6) discharge manifold hold down bolts.

Swing open the discharge manifold.

Remove the balls and seats, NOTING their position.

Inspect ball stop bolts for wear, replace if necessary.

Fit new balls and seats.

Rebolt manifold.

Clean surge chamber gasket groove, and mating face, and refit surge chamber.

#### 2. REPLACING SURGE CHAMBER O' RING

Open air bleed valve and release air from surge chamber.

Remove air supply line and remove surge chamber.

Remove bushing in top of chamber and drain oil.

Remove the two (2) stop bolts from open end of the chamber and gently tap out the piston, using a suitable rod through the fill port in top of the chamber.

Clean O' ring groove and inside of the chamber thoroughly.

Fit new O' ring to piston and refit piston into chamber, after coating surface with oil or grease.

**CAUTION:** Do not damage O' ring when installing.

Refit stop bolts (use a non-permanent Loctite if desired) and refill the chamber with one (1) quart of hydraulic oil.- do not tighten bolts to a point of deforming the cylinder diameter.

### 3. REPLACING MATERIAL CYLINDERS SEALS (Poly Paks)

Remove piston box cover, and remove drain plug from bottom of piston box.

Manually stroke one material piston, using the STROKE switch on the control panel, all the way

towards the front of the pump. AUTO/MANUAL switch must first be switched to MANUAL.

Remove the four (4) Allen head bolts and remove the two (2) halves of the clamp.

Take out the coupler and material piston. Remove the old poly paks, and clean the grooves in the piston. Fit new poly paks with the lips facing away from each other.

Refit the piston into the material cylinder using oil or grease to lubricate the poly paks and the inside of the material cylinder.

Before installing clamp halves, make sure all surfaces are clean of dirt and/or burrs which may prevent proper tightening.

Refit the clamp halves and tighten the four (4) bolts in a repetitive pattern to ensure tightness.

Replace the other side using the same method.

Refit drain plug, and refill the piston box, with clean oil until the level is half-way up the chrome rods.

Refit the piston box cover, tighten wing nut.

### 4. CHANGING THE HYDRAULIC OIL FILTER

Change at 50 hours on a new machine, then every 100 hours thereafter.

Remove the bolts on top of the filter housing and lift out the old filter element.

Fit new filter element and refit the lid.

CAUTION: Make sure O' ring is in place, do not over tighten the bolts.

### 5. ENGINE SERVICE

Follow the service program supplied by the engine manufacturer.

### PERIODIC MAINTENANCE

After the first 250 hours, and every 500 hours thereafter, it is recommended that the hydraulic oil be changed.

NOTE: Trailer wiring color code (if fitted).

Brown.....Ground

Blue.....Electric brakes

Red.....Tail lights

Yellow.....Left turn and stop light

Green.....Right turn and stop light

## *ELECTRICAL TROUBLESHOOTING FOR BALL VALVE MODELS*

SPECIAL NOTE: Disconnect stroke counter, and radio remote (if installed) before carrying out the following checks.

PROBLEM: Pump will not cycle.

1. Check all wire connections.
2. Check the fuse located on the Pump Control Board, hereafter referred to as the PCB.

### USE A TEST LIGHT FOR THE FOLLOWING STEPS

3. If the fuse is "OK", with the engine ignition switch turned ON, (you do not have to have the engine running) check that power is being supplied to terminal # 10 on the PCB connector strip. If there is NO power, then you may have to replace the ignition switch, however to get the pump cycling you can "hot wire" from the positive terminal of the battery to terminal # 10 on the PCB connector strip.
4. Check for power at center terminal of the ON/OFF/REMOTE switch, if none, replace the PCB.
5. Check for power at bottom terminal of the ON/OFF/REMOTE switch, if none, then replace the switch.
6. Check for power at center terminal of the AUTO/MANUAL switch, if none, then replace the PCB.
7. Check for power at top and bottom terminals of the AUTO/MANUAL switch, if none at either terminal, then replace the switch.
8. Check for power at the center terminal of the STROKE/STROKE switch, if none, then replace the PCB.
9. Check for power at the top and bottom terminals of the STROKE/STROKE switch, if none, then replace it.

If Pump cycles in MANUAL, but will not cycle in AUTO, go to the next section, if the pump still does not cycle at all, then proceed to step 6 in the following section.

PROBLEM: Pump will not cycle in auto.

1. Remove the “wash box” lid, hold it upside down.
2. With the ignition switch in the ON position, (you do not have to have the engine running) the ON/OFF/REMOTE switch in the ON position, AUTO/MANUAL switch in the AUTO position, check to see if the *green* lights are lit on both “shifting sensors”. If *green* lights are not lit, then check terminal # 7 on the PCB. If power is OK then replace the appropriate sensor cable. If both *green* lights are lit, then, using a metal object to test the shifting sensors, touch the metal object to the face of the shifting sensors one at a time, checking to see if the *yellow* light is lit on the shifting sensor *when* the metal object is touched to the face of the shifting sensor. If one or both lights fail to light, then replace the shifting sensor that does *not* light-up.
3. If the *yellow* light does *not* go out when the metal object is removed from the face of the shifting sensor face, then replace the sensor.
4. If lights are working correctly check to see if the relay (marked RH2LB on the PCB) is *latching* from side to side as the metal object is moved from the face of one sensor to the other. (Points are *making* and *breaking* contact). If not, then replace the cycling relay (marked RH2LB on the PCB board).
5. If relay is OK, then check for power at terminals # 2 and 3. If no power at either one, then replace the PCB.
6. Using a test light, check for power at the Directional valve coil wires (located inside the terminal box), on top of directional valve. If no power, then replace the cable from the PCB to the Directional valve. If OK, then check that the coils are being actuated when power is supplied to them. If a coil is *not* being actuated, then replace the D03 valve.

## *HYDRAULIC TROUBLESHOOTING FOR BALL VALVE MODELS*

PROBLEM: Pump will not build hydraulic pressure.

1. Check the hydraulic oil level, add oil if necessary.
2. Start the engine and set R.P.M. to at least half throttle.
3. Set hydraulic pump output to at least 50%. And switch to "PANEL" and "AUTO".
4. Using a small diameter tool, push in on the flush mounted detent pin located at the rear of dump valve stem. If pump cycles, replace coil. If not then....
5. Push in on the Directional valve (overrides on the D03 coil ends). If no pressure is developed, then push in on the opposite button. If still no pressure then.....
6. Remove the hydraulic pump and check the pump *drive* spline and pump input shaft. Replace as required. If pump drive and input shaft is OK then....
7. Have the hydraulic pump checked out by an Authorized service center.

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## **MILLENIUM SERIES 3**

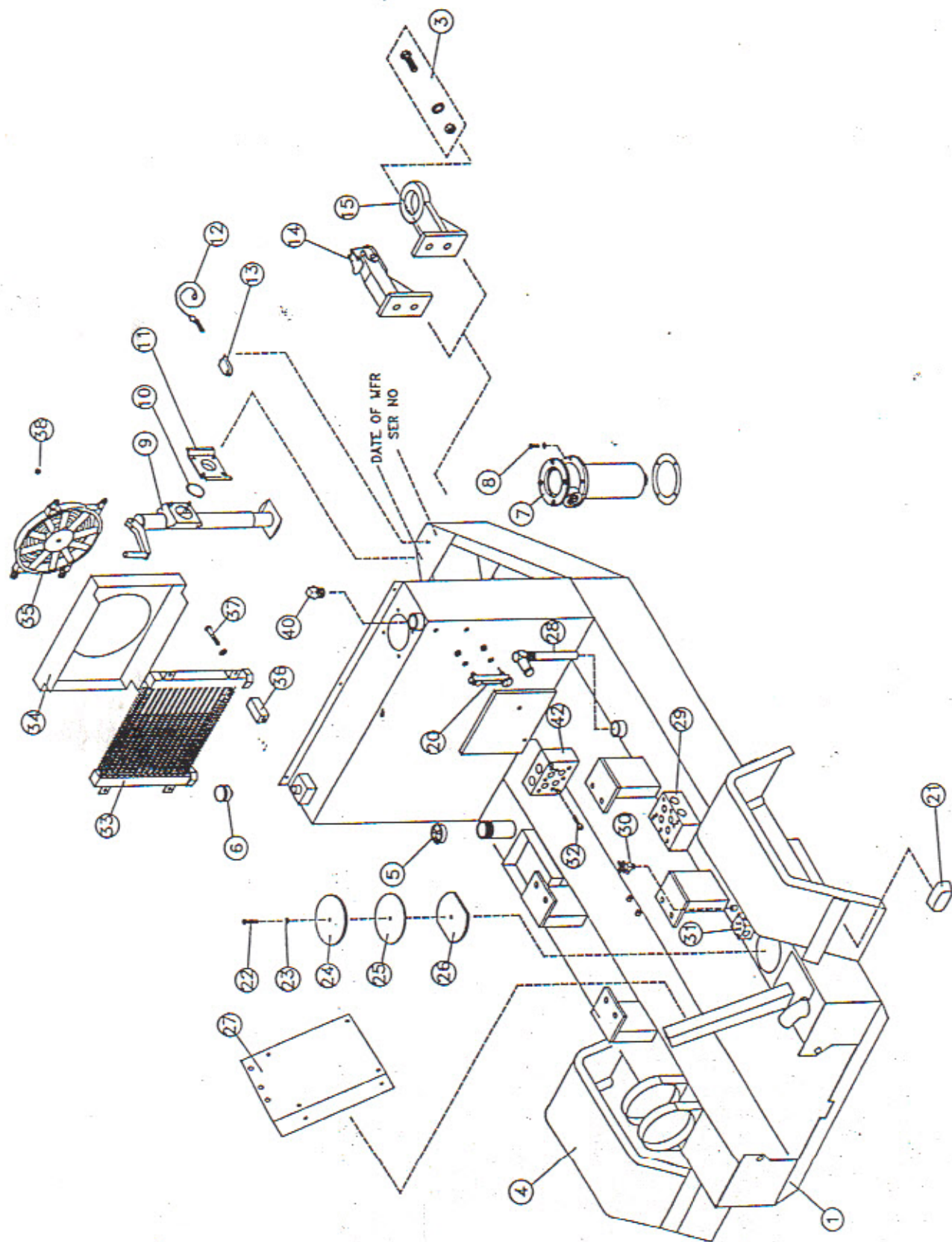
### **PARTS LIST**

### **ALL 'CA' MODELS**

**ALWAYS SPECIFY MODEL, DATE OF  
MANUFACTURE, & PRODUCT I D No  
WHEN ORDERING PARTS**



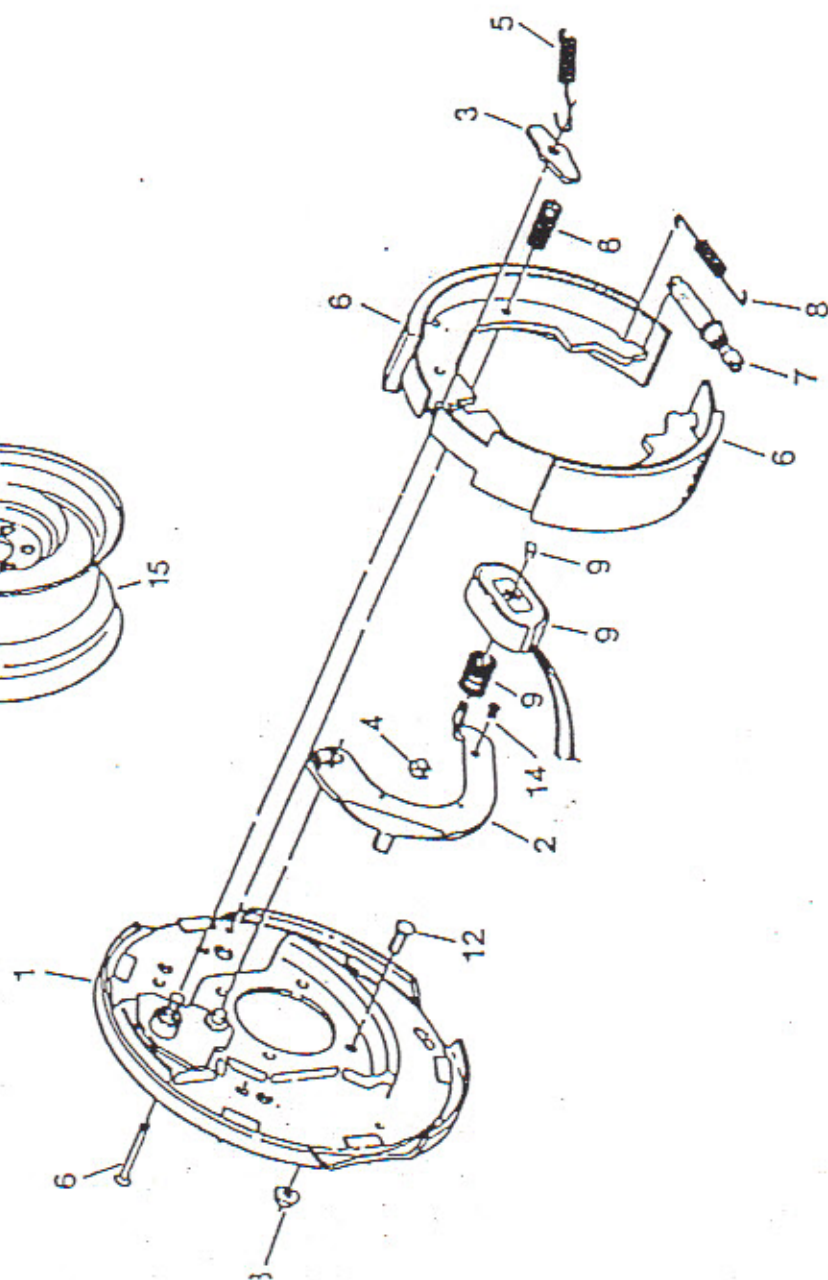
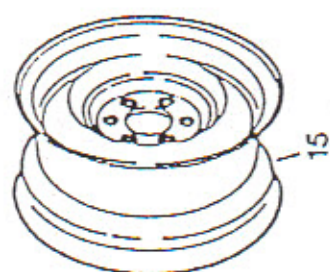
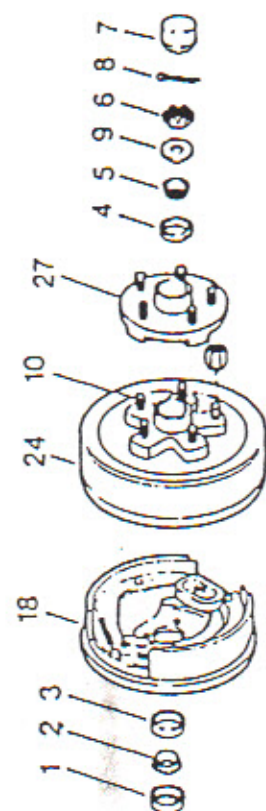
**GROUT – SHOTCRETE – CONCRETE – PRESSURE GROUTING  
AND SPECIAL APPLICATION PUMPS**



## PARTS LIST: MODELS 5 75CA/5 100CA

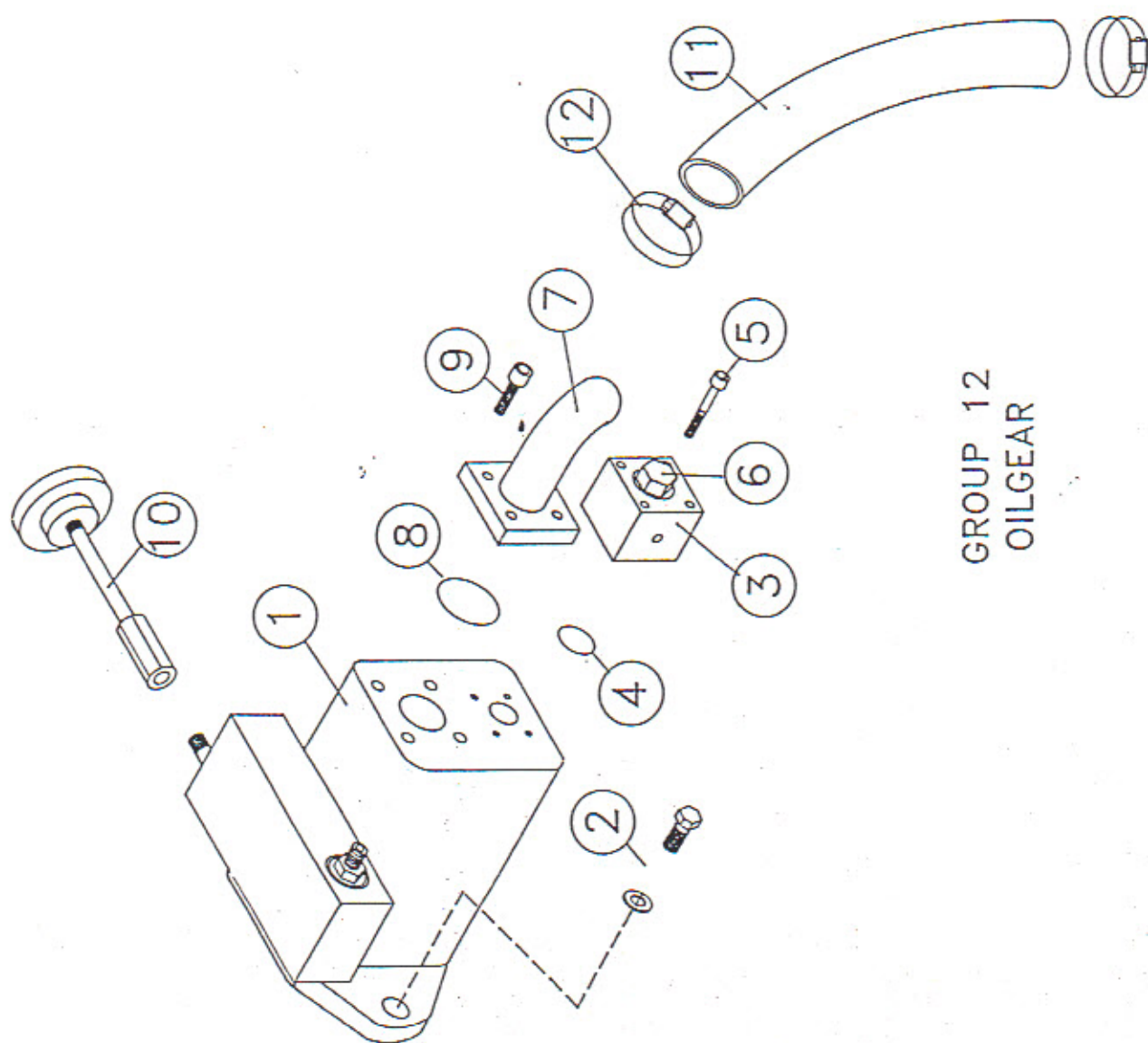
GROUP 1

[illegible]



GROUP 05

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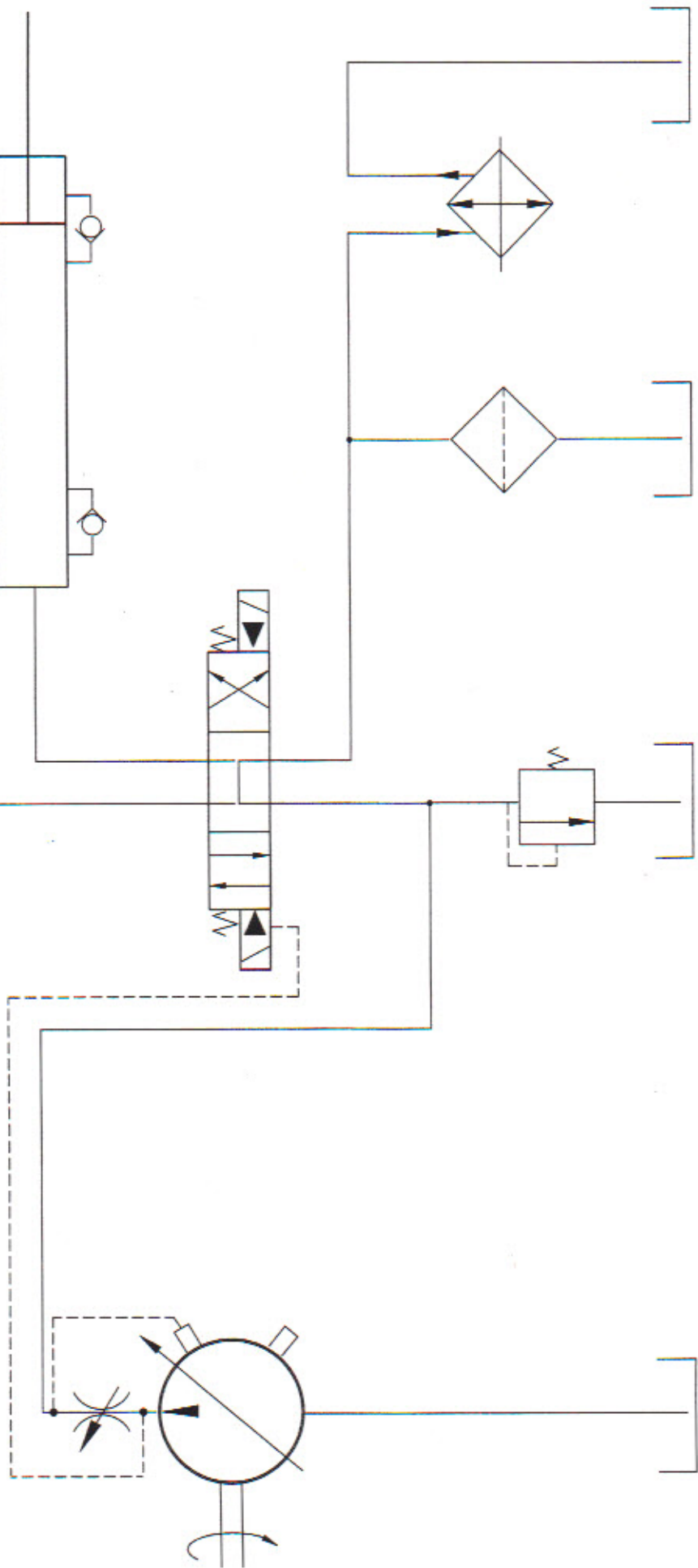


GROUP 12  
OILGEAR

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HYDRAULIC SCHEMATIC  
OPEN LOOP BALL VALVE

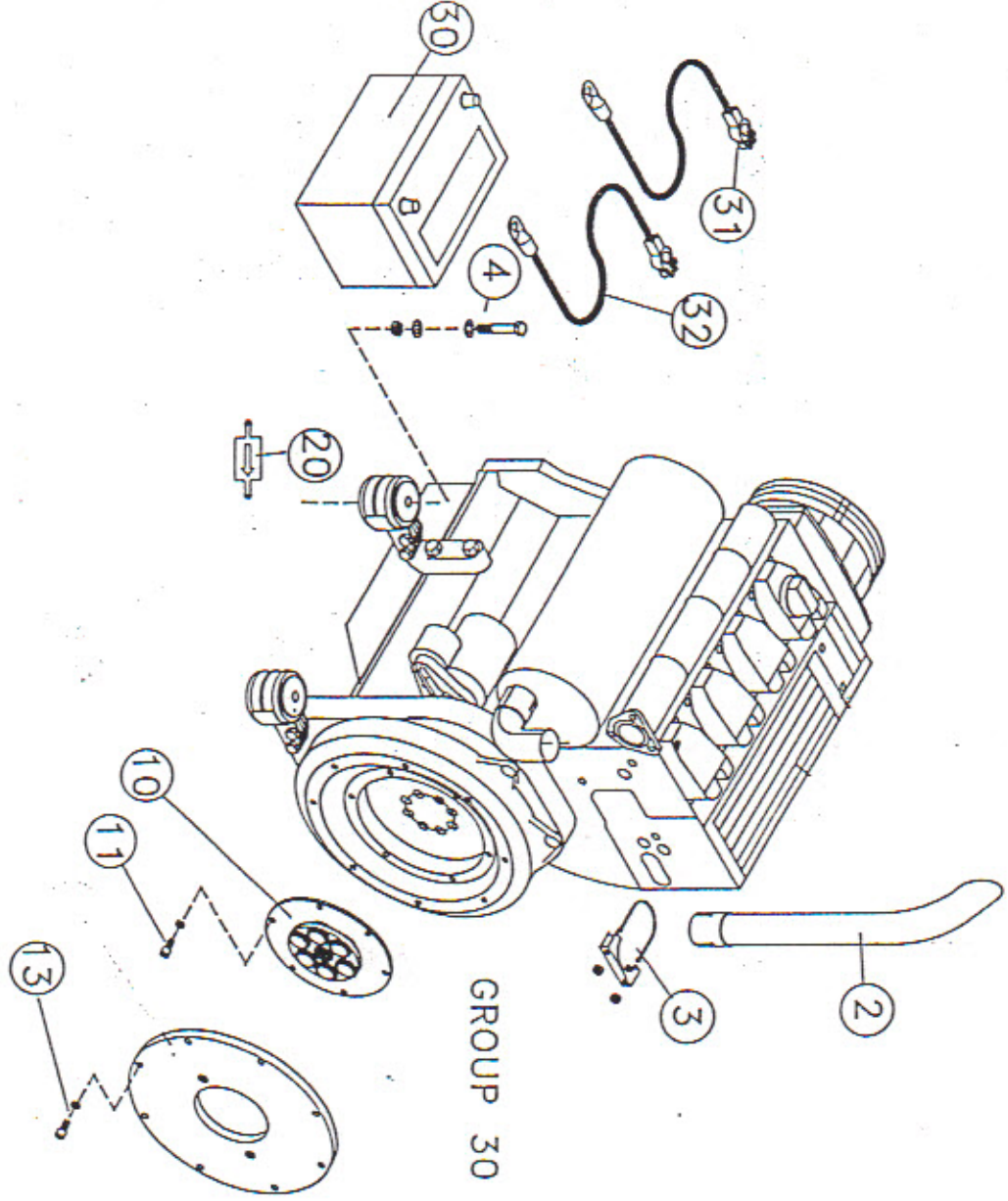
The diagram illustrates a hydraulic system for an open loop ball valve. It features a pump at the bottom left, connected to a 4/3-way directional control valve in the center. The pump's output line includes a check valve and a pressure relief valve. The directional control valve has four ports: two for the ball valve's chambers and two for the main hydraulic lines. The ball valve is represented by a vertical cylinder with a horizontal ball. The main hydraulic lines are connected to two actuators at the top, each consisting of a cylinder and a piston. The system is designed to allow the ball valve to be opened or closed by directing flow to either side of the ball valve's chamber.



## PARTS LIST: MODELS 5 75CA/5 100CA

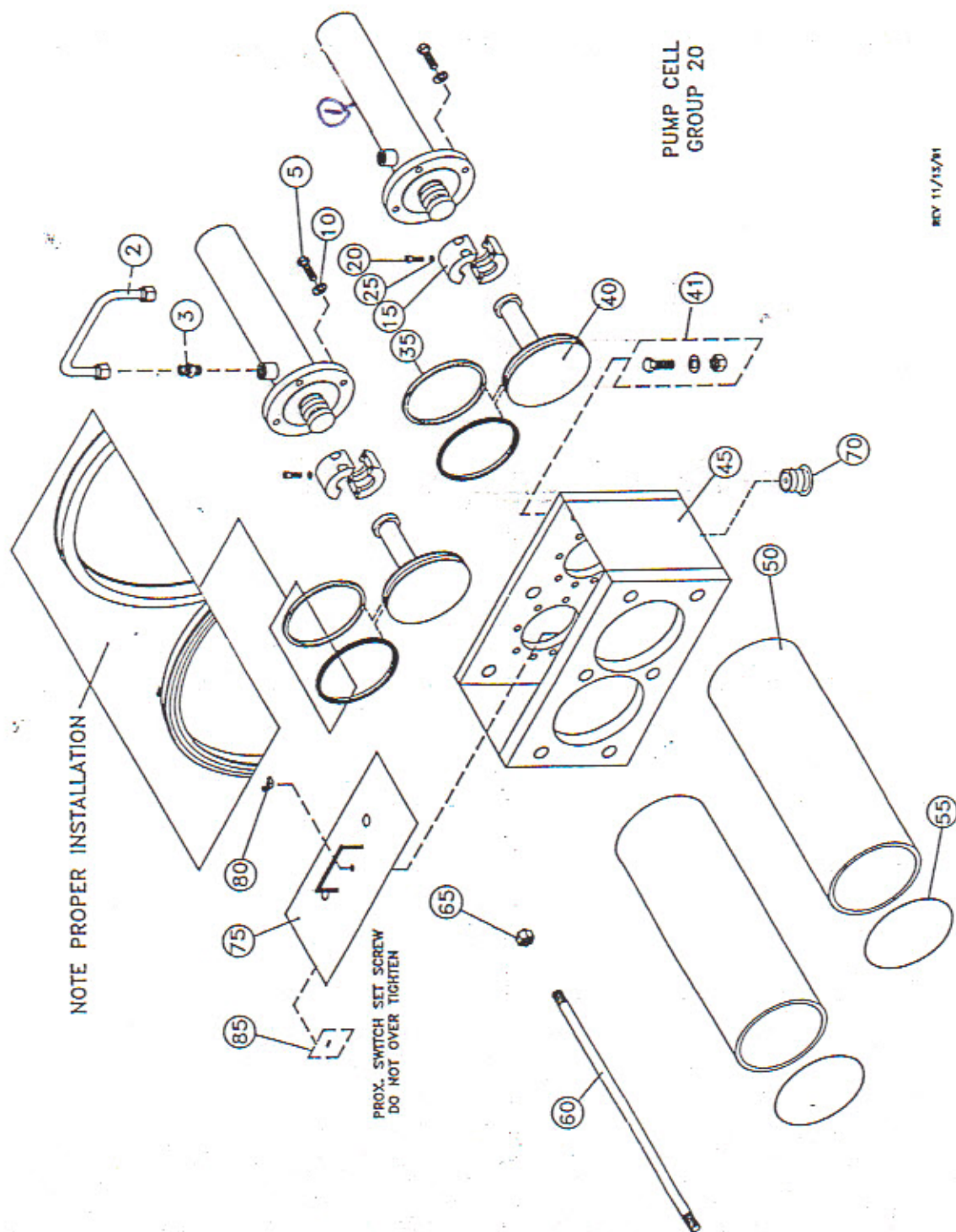
### GROUP 13

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GROUP 30

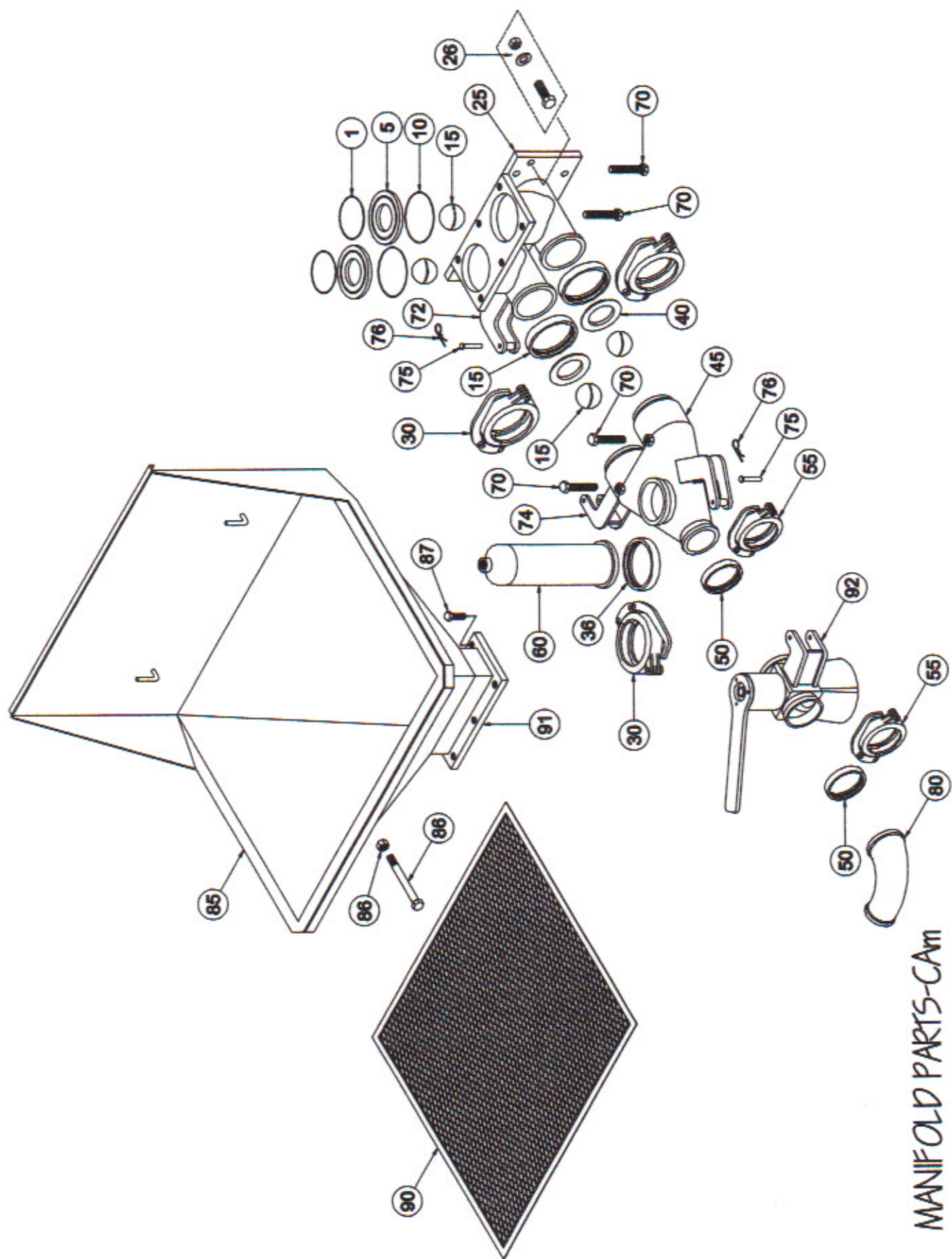
ITEM #	PART #	DESCRIPTION	# REQ	FOR MODEL (S)
	30263	ENGINE	1	5 75CA
	30265	ENGINE	1	5 100CA
	30062	EXHURST FLANGE	1	5 75ca
	30067-1	EXHURST ADAPTER	1	5 75CA
	30067-2	EXHURST FLANGE	1	5 100CA
	30067-3	EXHURST ADAPTER	1	5 100CA
	30065	MUFFLER ASSEMBLY	1	ALL MODELS
	30068	MUFFLER MOUNTING BRACKET	2	ALL MODELS
	30066	HEAT SHIELD COMPLETE WITH MOUNTING BRACKETS	1	ALL MODELS
4	30100	BOLT, WASHER & NUT	4	ALL MODELS
	30191	THROTTLE CABLE	1	ALL MODELS
	30192	CABLE PIVOT	1	ALL MODELS
	30196	CABLE HUB KIT	1	ALL MODELS
	30194	THROTTLE ARM	1	ALL MODELS
	30199	LINEAR THROTTLE ACTUATOR	1	ALL MODELS WHEN INSTALLED
	30198-1A	THROTTLE ARM FOR LINEAR ACTUATOR	1	ALL MODELS WHEN INSTALLED
	30198-3	MOUNT FOR LINEAR ACTUATOR	1	ALL MODELS WHEN INSTALLED
10	30201	PUMP DRIVE/MOUNT ASSEMBLY	1	5 75CA
	30202	PUMP DRIVE/MOUNT ASSEMBLY	1	5 100CA
11	30280	BOLT & WASHER	8	ALL MODELS
13	30340	BOLT & WASHER	8	ALL MODELS
	99505	FUEL FILTER, ELEMENT	1	ALL MODELS
30	30671	BATTERY	1	ALL MODELS
31	30700	POSITIVE CABLE	1	ALL MODELS
32	30730	NEGATIVE CABLE	1	ALL MODELS
	30770	BATTERY HOLD-DOWN	1	ALL MODELS
	30081	AIR CLEANER	1	ALL MODELS
	30081-1	AIR CLEANER ELEMENT	1	ALL MODELS
	30081-3	MOUNTING BAND	1	ALL MODELS
	30081-4	HUMP HOSE	1	ALL MODELS
	30081-5	CLAMP	1	ALL MODELS
	30081-6	MOUNTING BRACKET WELDMENT	1	ALL MODELS



## PARTS LIST, MODELS

5 75/5 100/5 140  
5 170CA

ITEM #	PART #	DESCRIPTION	# REQ	FOR MODEL (S)
1	20005	HYD CYLINDER, 3.5 X 24	2	5 75CA
	20006	HYD CYLINDER, 3.5 X 36	2	5 100CA
	20010	HYD CYLINDER, 3.5 X 54	2	5 140/5 170CA
2	70125	CYL LOOP HOSE	1	ALL
3	73720	STRAIGHT FITTING	2	ALL
5	20020	BOLT	8	ALL
15	20060	COUPLER CLAMP	2	ALL EXCEPT 5 140/5
	20060E	COUPLER CLAMP, LONG	2	5 140/5 170CA
20	20080	SHCS, CLAMP	8	ALL
25	20100	HIGH COLLER L/W	8	ALL
35	20122	POLY PAK, 8"	4	ALL
40	20142	PISTON, 8"	2	ALL
	20110	COUPLER	2	ALL
41	20160	BOLT, WASHER, NUT	2	ALL
45	20180-2	WASHBOX WELDMENT	1	ALL
50	20203	MAT'L CYL, 8 X 26	2	5 75CA
	20205	MAT'L CYL, 8 X 38	2	5 100CA
	20209	MAT'L CYL, 8 X 56	2	5 140/5 170CA
55	20230	O'RING, CYL	2	ALL
	20230-M	O'RING, CYL MILLENNIUM MANIFOLD	2	ALL
60	20241	TIE ROD	6	5 75CA
	20242	TIE ROD	6	5 100CA
	20250	TIE ROD, GR 8	6	5 140/5 170CA
65	20260	NUT	6	ALL EXCEPT 5 140/5
	20350	NUT, FINE THD, GR 8	6	5 140/5 170CA
70	20280	DRAIN PLUG	1	ALL
75	20310	WASH BOX COVER	1	ALL EXCEPT 5 140/5
	20311	WASH BOX COVER	1	5 140/5 170CA
85	20370	SHCS, SENSOR	2	ALL



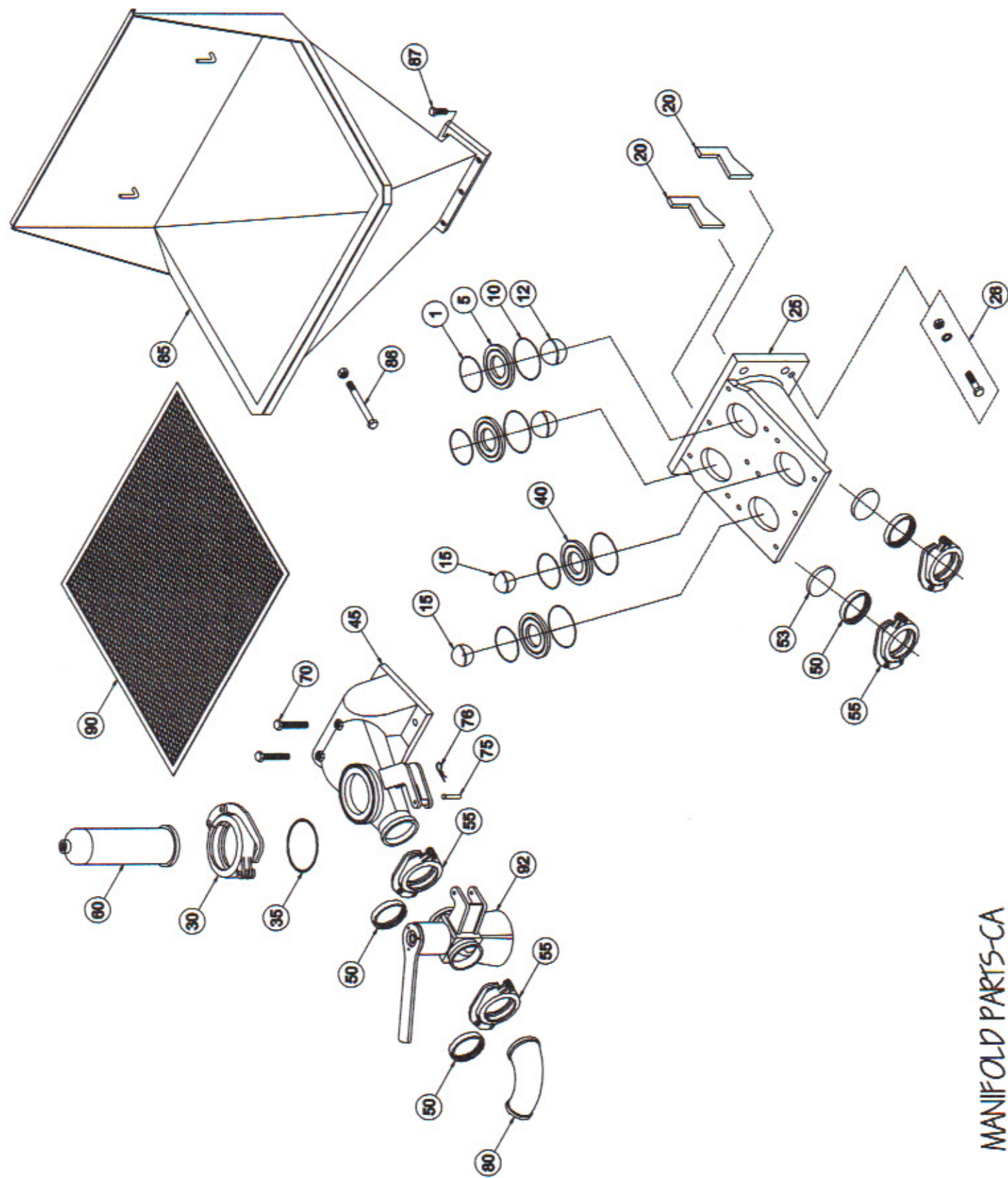
MANIFOLD PARTS-CAM

## PARTS LIST: MODELS

## ALL MILLENNIUM

## GROUP 15

ITEM #	PART #	DESCRIPTION	# REQ	FOR MODEL (S)
1	25001	SEAT O'RING, SMALL	2	ALL
5	25020	SEAT, INTAKE	2	5 25 THRU 5 50
5	25023	SEAT, INTAKE	2	5 65 THRU 5 170CAm
10	25040	SEAT O'RING, LARGE	2	ALL
15	25060	BALL, 4"	4	5 25 THRU 5 50
15	25061	BALL, 4-1/2"	2	5 65 THRU 5 170CAm
15	25060	BALL, 4"	2	5 65 THRU 5 170CAm
25	25100	MANIFOLD, INTAKE 5"	1	5 25 THRU 5 45
25	25099	MANIFOLD, INTAKE 6"	1	5 50
25	25101	MANIFOLD, INTAKE 7"	1	5 65, 5 85, 5 110
25	25102	MANIFOLD, INTAKE 8"	1	5 75 THRU 5 170CAm
26	25120	BOLT, WASHER & NUT	2	ALL
30	25140	COUPLING, 5"	2	ALL
30	25130	COUPLING, 6" OLIN	1	ALL
35	25160	GASKET, 5" FLANGED OLIN	2	ALL
36	25170	GASKET, HALF O'RING TYPE	1	ALL
40	25021	SEAT, DISCHARGE	2	ALL
45	25200	MANIFOLD, DISCHARGE 5" SURGE CH	1	5 25 THRU 5 45 EARLY
45	25200-1	MANIFOLD, DISCHARGE 6" SURGE CH	1	ALL
50	25220	GASKET, 4" HD	1	ALL
55	25240	COUPLING, 4" HD	1	ALL
60	25260	SURGE CHAMBER 5"	1	5 25 THRU 5 45 EARLY
60	25270	SURGE CHAMBER 6"	1	ALL
70	25080	STOP BOLT	4	ALL
72	25202-2	HINGE WELDMENT, INTAKE	1	ALL
74	25203	HINGE WELDMENT, DISCHARGE	1	ALL
75	25340	HINGE PIN	1	ALL
76	25340-1	CLIP, HINGE PIN	1	ALL
80	25360	DISCHARGE ELBOW, 4" X 3" HD	1	ALL
85	40001-2	HOPPER	1	5 25 THRU 5 110
85	40001	HOPPER, CA	1	5 75 THRU 5 170CAm
86	40120	HINGE BOLT & NUT	1	ALL
87	40100	BOLT, HOPPER	6	ALL
90	40020	SCREEN	1	5 25 THRU 5 110
90	40021	SCREEN, CA	1	5 75 THRU 5 170CAm
91	40001-1	BASE PLATE, HOPPER	1	ALL
92	81000	DEL SYS PRESSURE RELEASE VALVE	1	ALL
			0	

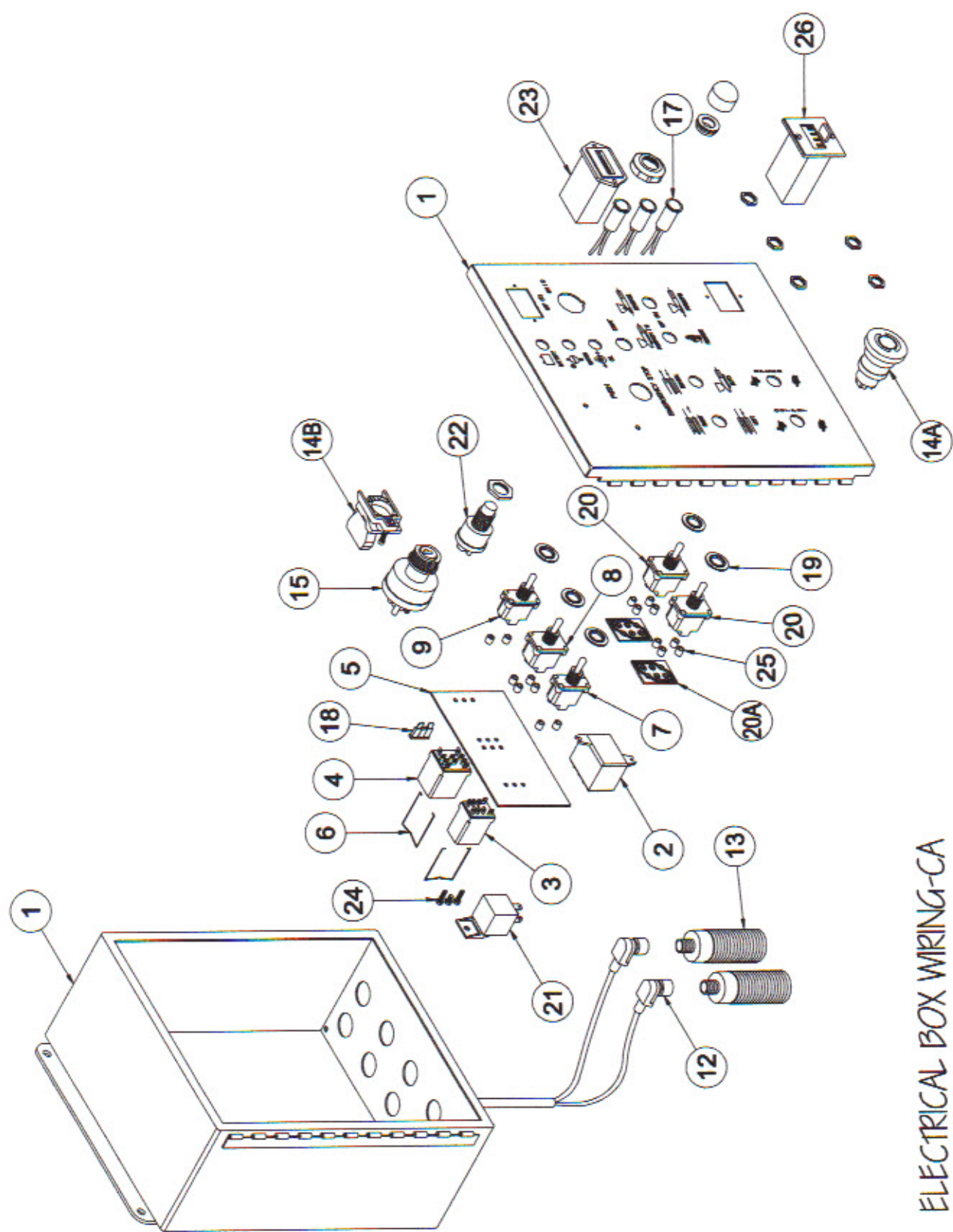


MANIFOLD PARTS-CA

## PARTS LIST: MODELS ALL 'CA' OTHER THAN MILLENIUM

GROUP 15

ITEM #	PART #	DESCRIPTION	# REQ	FOR MODEL (S)
1	25001	SEAT O'RING, SMALL	4	ALL
5	25023	SEAT, INTAKE	2	ALL
10	25040	SEAT O'RING, LARGE	4	ALL
12	25064	BALL, 5"	4	ALL
15	25061	BALL, 4-1/2"	2	ALL
20	25180	BALL STOP, INTAKE (WELD-IN)	2	ALL
25	25105	MANIFOLD, INTAKE	1	ALL
26	25120	BOLT, WASHER & NUT	2	ALL
30	25130	COUPLING, 6" OLIN	1	ALL
36	25170	GASKET, HALF O'RING	1	ALL
40	25020	SEAT, DISCHARGE	2	ALL
45	25201	MANIFOLD, DISCHARGE	1	ALL
50	25220	GASKET, 4" HD	4	ALL
53	25210	CLEANOUT PORT PLATE	2	ALL
55	25240	COUPLING, 4" HD	4	ALL
60	25270	SURGE CHAMBER 6"	1	ALL
70	25080	STOP BOLT	2	ALL
72	25202-2	HINGE WELDMENT, INTAKE	1	ALL
74	25203	HINGE WELDMENT, DISCHARGE	1	ALL
75	25340	HINGE PIN	1	ALL
76	25340-1	CLIP, HINGE PIN	1	ALL
80	25360	DISCHARGE ELBOW, 4" X 3" HD	1	ALL
85	40005	HOPPER, CA	1	EARLY
85	40005-2	HOPPER, CA LARGE CAPACITY	1	ALL
86	40120	HINGE BOLT & NUT	1	ALL
87	40100	BOLT, HOPPER	6	ALL
90	40020	SCREEN	1	EARLY
90	40021	SCREEN, CA	1	ALL
91	40005-1	BASE PLATE, HOPPER	1	ALL
92	81000	DEL SYS PRESSURE RELEASE VALVE	1	ALL
			0	



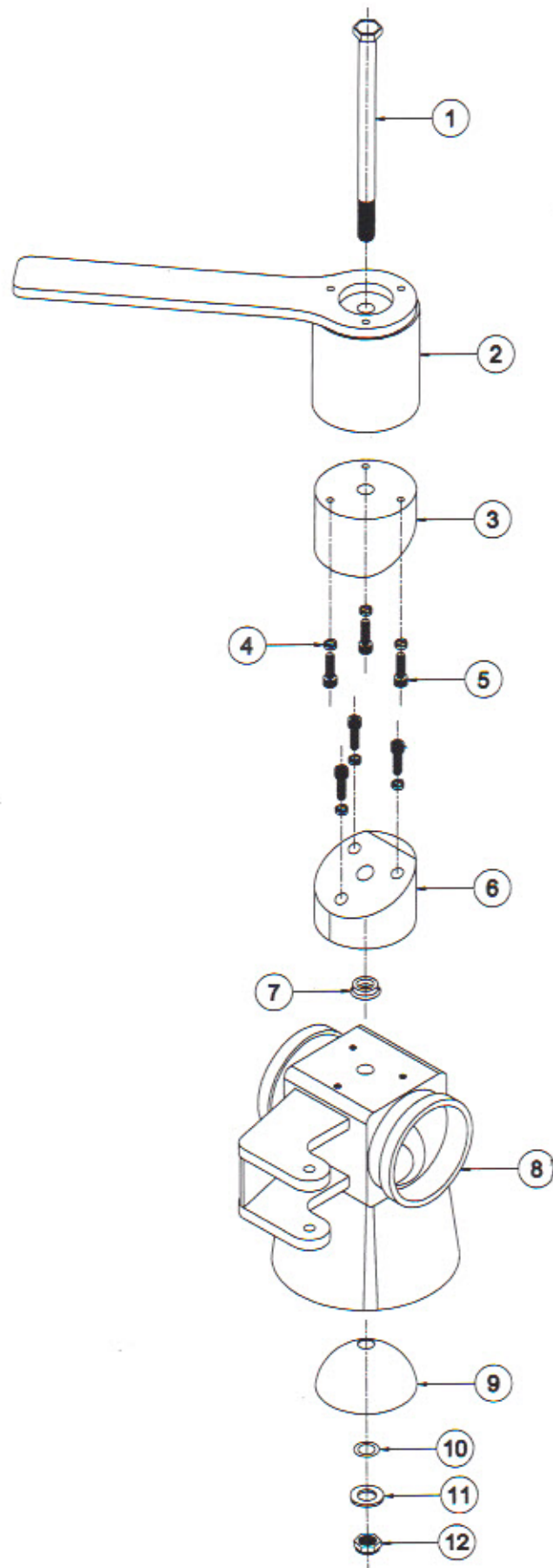
ELECTRICAL BOX WIRING-CA

## PARTS LIST: MODELS

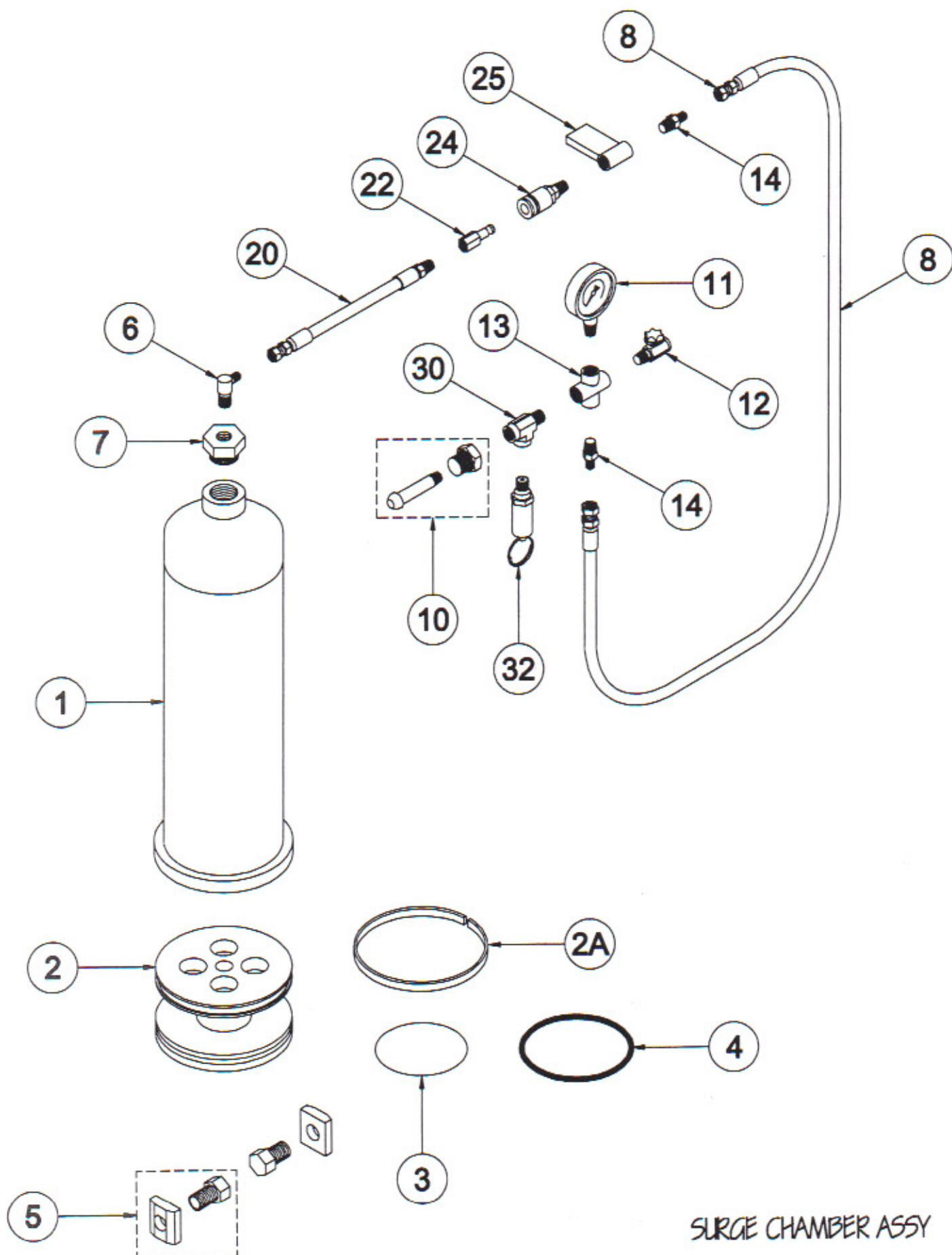
ALL 'CA'

GROUP 20

ITEM #	PART #	DESCRIPTION	# REQ	FOR MODEL (S)
1	15001-1	CONTROL BOX ONLY	1	ALL
1	15004	CONTROL BOX COMPLETE	1	ALL
2	15041	RELAY RH4	3	ALL
3	15045	RELAY RH2L CYCLING	1	ALL
4	15040	RELAY RH2 REMOTE	1	ALL EARLY
5	15036	CIRCUIT BOARD	1	ALL
6	15046	CLIP, RELAY	3	ALL
7	15020	SWITCH, STROKE	1	ALL
8	15025	SWITCH, AUTO/MANUAL	1	ALL
9	15030	SWITCH, PANEL/OFF/REMOTE	1	ALL
12	15101	CABLE, PROXIMITY SWITCH	2	ALL
12	15100	SWITCH, PROXIMITY	2	ALL
14	15395	E-STOP SWITCH COMPLETE	1	ALL
14A	15396	CONTACT, E-STOP	1	ALL
14B	15397	BUTTON, E-STOP	1	ALL
15	15005	SWITCH, KEY	1	ALL
16	15032	SWITCH, VIBRATOR	1	ALL
17	15010	LIGHT, RED	1	ALL
	15011	LIGHT, GREEN	1	ALL
	15012	LIGHT, BLUE	1	ALL
18	15039	FUSE, 20A, PLUG IN	1	ALL
19	15007	WASHER, SEALING	1/SWITCH	ALL
20	15262	SWITCH, OUTPUT	1	ALL
20	15262	SWITCH, OUTPUT	1	ALL
20A	15263	CIRCUIT BOARD, SWITCH	1/SWITCH	ALL
21	15398	RELAY, E-STOP	1	ALL
22	15006	SWITCH, PUSH BUTTON	1	ALL
23	15016	HOURLMETER	1	ALL
24	15402-1	SCREW, SWITCH, LONG		ALL
25	15402-2	SPACER, SWITCH SCREW		ALL
	15402	SCREW W/SPACER		ALL
	15400	BUSHING, CABLE, W/NUT (MEDIUM)		ALL
	15401	BUSHING, CABLE, W/NUT (LARGE)		ALL
	15403	PLUG, BLACK CLIP-IN (SMALL)		ALL
	15404	PLUG, BLACK CLIP-IN (MED)		ALL
	15405	PLUG, BLACK CLIP-IN (LARGE)		ALL
26	15500	STROKE COUNTER		ALL
			0	







## GROUP 35

[illegible]

The diagram illustrates the electrical wiring for a vehicle, showing the following components and connections:

- Battery:** A 12V battery is connected to the main power lines.
- Key Switch:** A circular key switch with positions for ACC, START, and IGN. It is connected to the battery and the hourmeter.
- Hourmeter:** A rectangular component connected to the ACC line of the key switch and ground.
- Coolant Level Switch:** A switch connected to the battery and ground, with a label "COOLANT LEVEL SWITCH".
- Fan:** A component connected to the battery and ground, with a label "FAN".
- Sensors:** Various sensors are connected to the system, including PROX, BLUE, BROWN, and ORANGE.
- Connector Base Radio:** A rectangular component connected to the system, with a label "CONNECTOR BASE RADIO".
- Volume Control IF Fitted:** A component connected to the system, with a label "TO VOLUME CONTROL IF FITTED".

The diagram includes a detailed wiring harness with various colored wires (RED, WHITE, BLACK, BLUE, BROWN, ORANGE, GREEN, YELLOW) and terminal numbers (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14). It also shows a "PB OR BR" (Push Button or Brake) connection to ground.

2) TERMINALS 10, 12 ON RELAY ARE NOT USED.

CONTROL BOX WIRING	
TO ENGINE-4 VALVE MODELS	
N/A	
N/A	
05-29-08	SEAR NONE

THE FOLLOWING PAGE CONTAINS  
A LIST OF THE STANDARDIZED  
SAFETY LABELS POSTED ON YOUR  
PUMP AT THE TIME OF MANUFACTURE  
OR REFURBISHMENT.  
USE IT TO ORDER REPLACEMENTS  
FROM OLINPUMP  
OR  
YOUR OLIN DEALER.

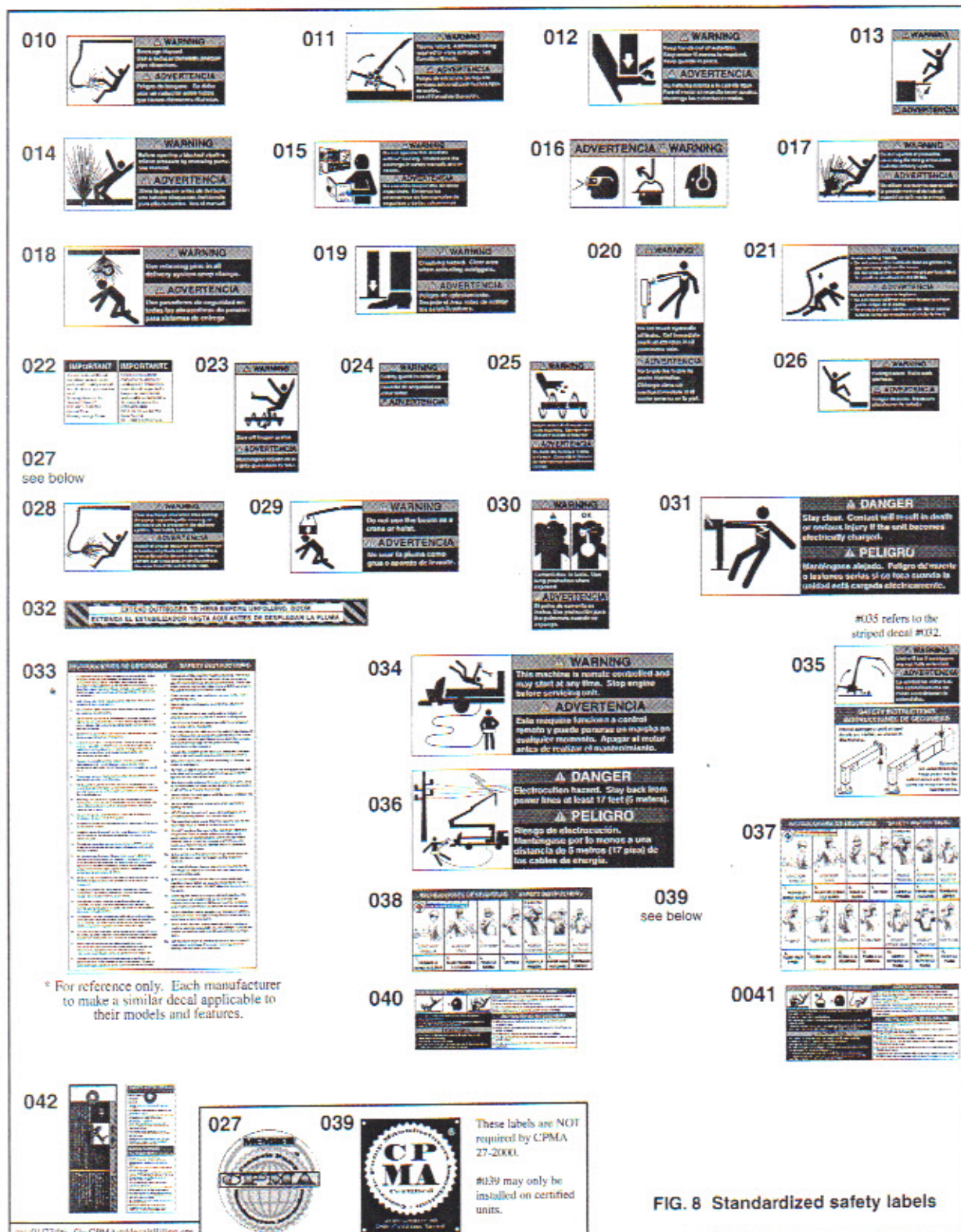


FIG. 8 Standardized safety labels

# **STABILITY CALCULATION FOR OLIN TRAILER MOUNTED PUMPS**

**BECAUSE WEIGHTS AND DIMENSIONS VARY BETWEEN DIFFERENT MODELS AND MODEL YEARS AND DUE TO AVAILABLE OPTIONS AND CUSTOMER MODIFICATIONS, THE FOLLOWING FORMULA WILL ALLOW YOU TO CALCULATE YOUR MACHINE'S CENTER OF GRAVITY. A TRUCK WHEEL SCALE OR FREIGHT SCALE AND A MEASURING DEVICE WILL BE NECESSARY.**

**THIS WORKS ON SINGLE OR TANDEM AXLE UNITS.**

- 1. WEIGH EACH TIRE OF EACH AXLE, ONE AT A TIME, TO FIND THE TOTAL WEIGHT ON EACH AXLE.**
- 2. MEASURE FORWARD FROM THE CENTER OF EACH SPINDLE OF EACH AXLE TO THE FORWARDMOST POINT OF THE PUMP.**
- 3. WEIGH THE JACK STAND ON THE TONGUE OF THE PUMP, AND MEASURE THE DISTANCE OF IT'S CENTER TO THE SAME POINT AT THE FRONT.**
- 4. MULTIPLY THE WEIGHT OF EACH AXLE BY IT'S CORRESPONDING DISTANCE FROM THE POINT UP FRONT. WE'LL CALL THIS TOTAL M1 FOR A SINGLE OR REAR AXLE, AND M2 FOR THE SECOND AXLE IF EQUIPPED.**
- 5. MULTIPLY THE JACK'S WEIGHT BY IT'S RELATIVE DISTANCE. WE'LL CALL THIS TOTAL M3.**
- 6. ADD THESE 2 OR 3 TOTALS TOGETHER ( $M1+M2+M3$ ), AND DIVIDE THAT TOTAL BY THE WEIGHT OF THE PUMP ITSELF (AXLE WEIGHT PLUS JACK WEIGHT). THE RESULTING NUMBER IS THE CENTER OF GRAVITY (MASS) IN WHATEVER UNIT OF MEASURE YOU USED, FROM THE POINT AT THE FRONT OF THE PUMP.**

**EXAMPLE:**

**MODEL 5 45**

**WEIGHT ON AXLE=3930 LBS, DISTANCE=100"**

**WEIGHT ON JACKSTAND=230 LBS, DISTANCE=22"**

$$M1=3930 \times 100=393,000$$

$$M3=230 \times 22=5,060$$

$$M1+M3=398,060$$

$$3930+230=4,160, \text{ TOTAL PUMP WEIGHT}$$

$$398,060/4,160=95.7$$

**THE CTR OF GRAVITY IS 95.7" BACK FROM THE POINT AT  
THE FRONT OF THE PUMP.**

