

SAFETY  
INSTALLATION  
OPERATION  
MAINTENANCE



M A N U A L

# Bulk Weigher

**No. 522474**

9575 N. 109<sup>th</sup> Ave.  
Omaha, Nebraska 68142  
(402) 330-1500  
[www.intersystems.net](http://www.intersystems.net)



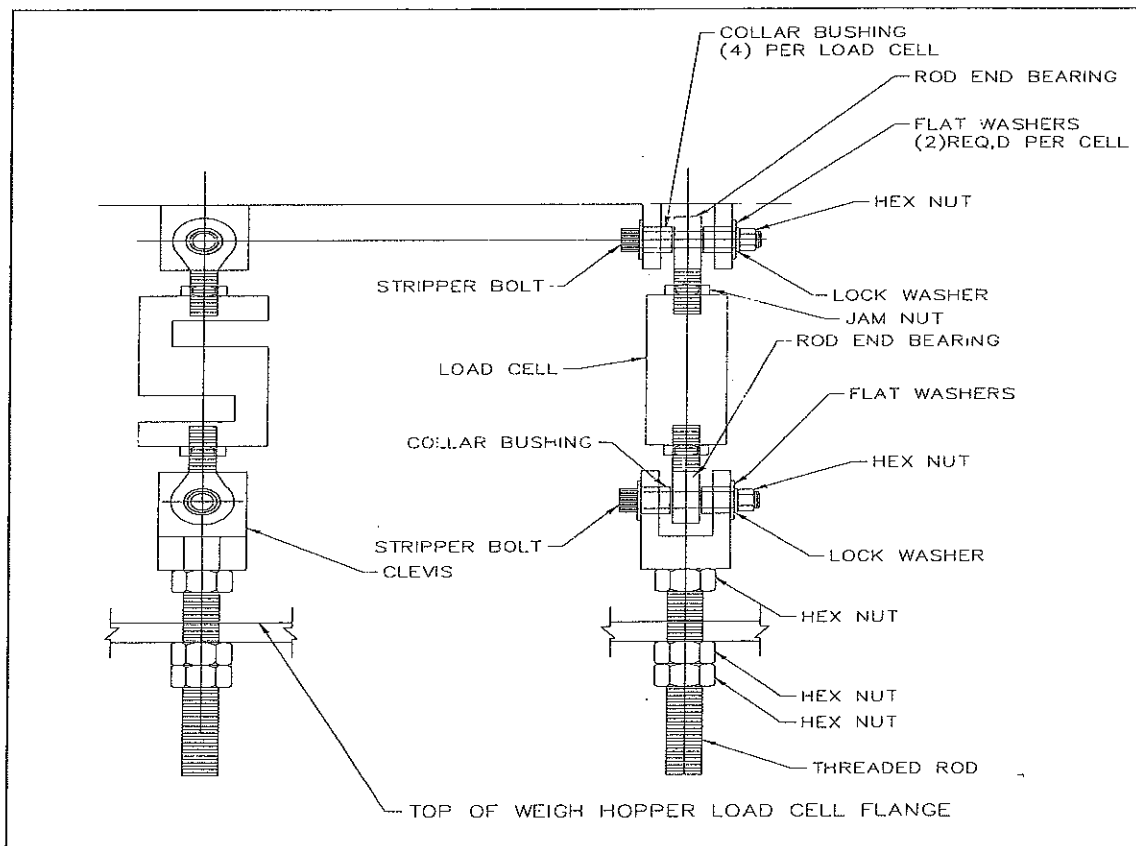
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# **Installation**

# BULKWEIGHER INSTALLATION

1. All welding to tower structures and hoppers must be completed, before installing the load cells.
2. Install hoppers and structure according to the hopper general arrangement drawing. This includes skirting, venting, structure, test weights, etc. (If crane weights are necessary consult with *IS*) See Bulkweigher Venting Options DWG on page 7.
3. Locate the power units as close to the hopper gates as feasible. This will minimize the necessary plumbing and will reduce the line pressure drops.
4. Run the hydraulic plumbing from the power unit to the gate valves according to hydraulic schematic. See Hydraulic System Arrangement drawing on page 5.
5. Run conduit and wiring from the I/O box location to the valve solenoids, limit switches, and indicators as shown on bulkweigher electrical schematic and the field wiring schematic. (Power should not be applied to coils until the controller is operational.) Strain relief connection is required into all the I/O boxes and terminal boxes. See Electrical System Arrangement drawing on page 6.
6. Mount the load cell J-box near the load cells.
7. Mount I/O box near the computer control in the control room.
8. Run a separate conduit from the J-box to the I/O box location.
9. Install the load cells as follows:



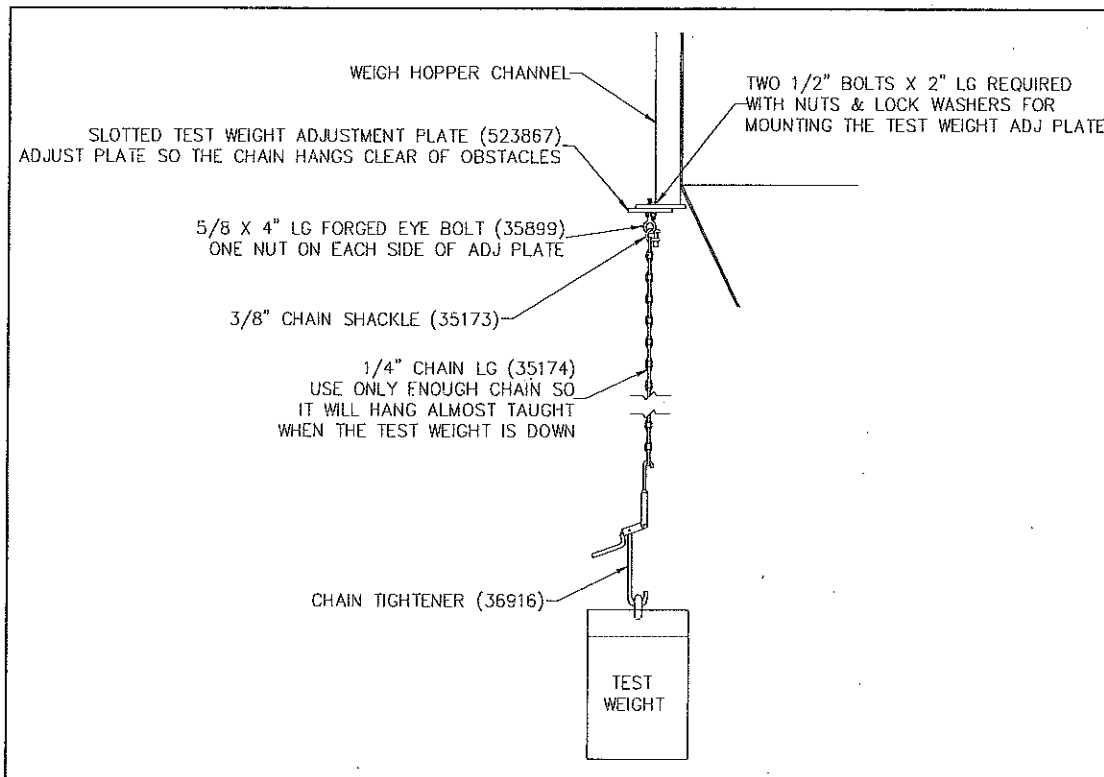
## LOAD CELL ASSEMBLY

- Hoist up the weigh hopper (keeping it level and properly aligned with the load cells) using a convenient lifting mechanism. Lift only high enough to install the load cells and avoid over stretching the flex connectors.

- Install the load cell with the hardware as shown in the LOAD CELL ASSEMBLY drawing on page 2.
- Gently lower the weigh hopper until the load cells are supporting it.
- Run each load cell cable to the J-box. Do not cut off the excess cable, and do not terminate the cable ends at this time.
- Pull the home run load cell cable from the J-box to the digital indicator. Do not terminate the cable ends at this time.

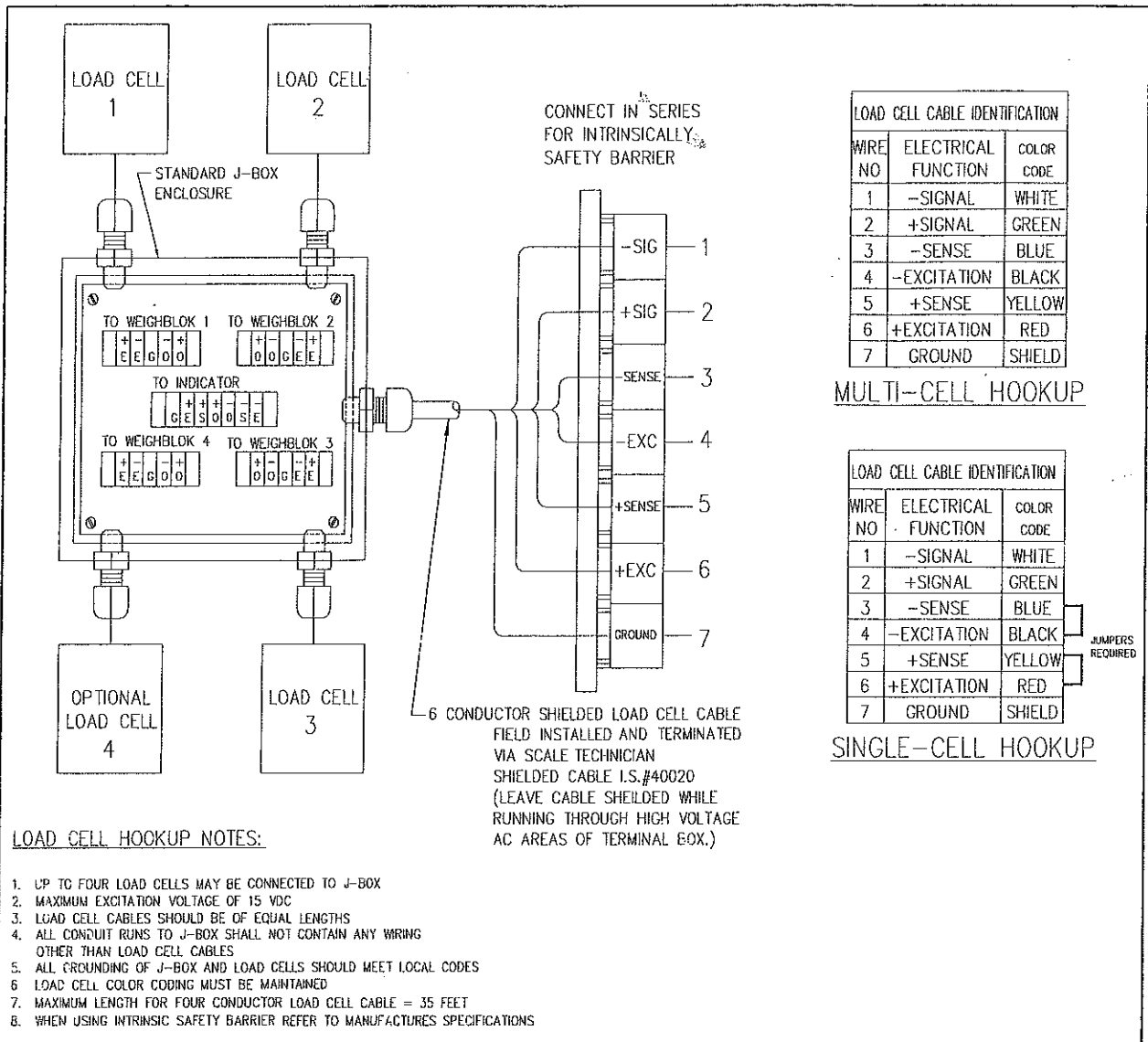
10. Hook up the safety chains. The hopper must be free to settle, with the chains still loose, but if a load cell breaks minimum hopper fall is desired. So, let the safety chains hang loose, but not too loose.

11. Hook up the test weight chains and the test weight lifters according to the TEST WEIGHT LIFT ASSEMBLY drawing below.



**TEST WEIGHT LIFT ASSEMBLY**

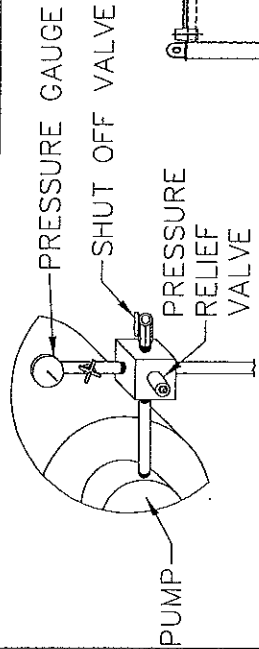
12. Test the hydraulic system and manually operate the gates with the appropriate opto toggle switches. Toggle each gate opto one at a time to make sure each gate functions properly. Refer to the power unit manual prior to performing this test.
13. Have a scale technician terminate the load cells to the summing board in the J-box. Do not cut off any of the excess cable, for each cable must remain the same length. The scale technician should then terminate the home run load cell cable to the other side of the summing board inside the J-box. (Refer to the following LOAD CELL TERMINATION DETAIL drawing.)



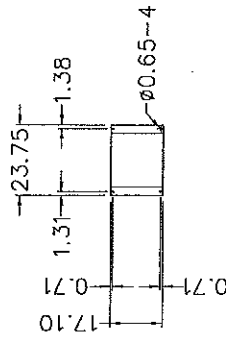
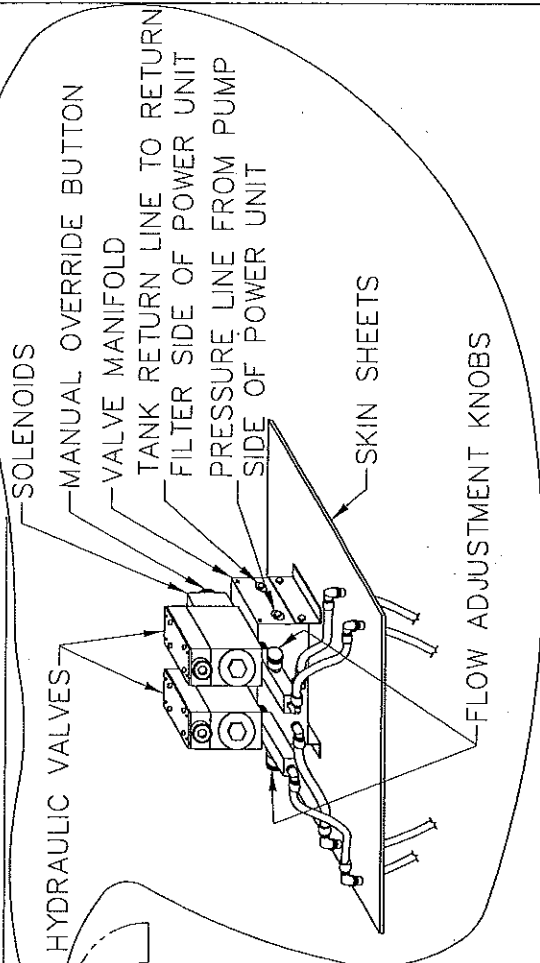
### LOAD CELL TERMINATION DETAILS

14. Have the scale technician terminate the other end of the home run load cell cable to the digital scale indicator. (Refer to the digital indicator manual for the termination details.)
15. Have the scale technician calibrate and test the scale according to the instructions in the digital indicator manual.
16. Connect the ticket printer, monitor, keyboard, mouse, power cord, and the I/O box cable to the back of the computer.
17. Turn on the power.
18. Your bulkweigher is now ready for operation.

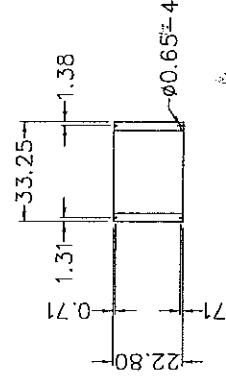
# HYDRAULIC SYSTEM ARRANGEMENT



DETAIL B



3HP UNITS

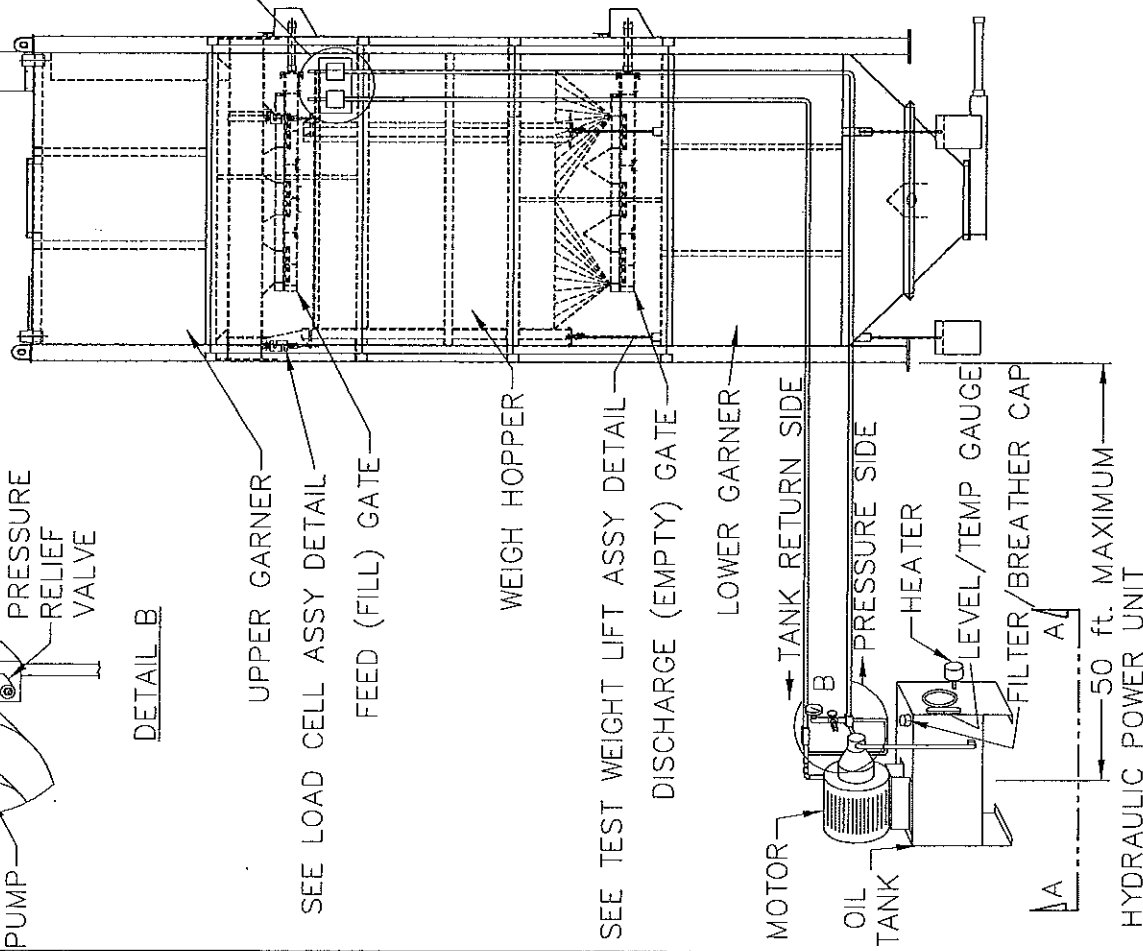


7.5HP & 10HP UNITS

POWER UNIT FOOT PATTERNS  
VIEW A-A

BULKWEIGHER MODEL

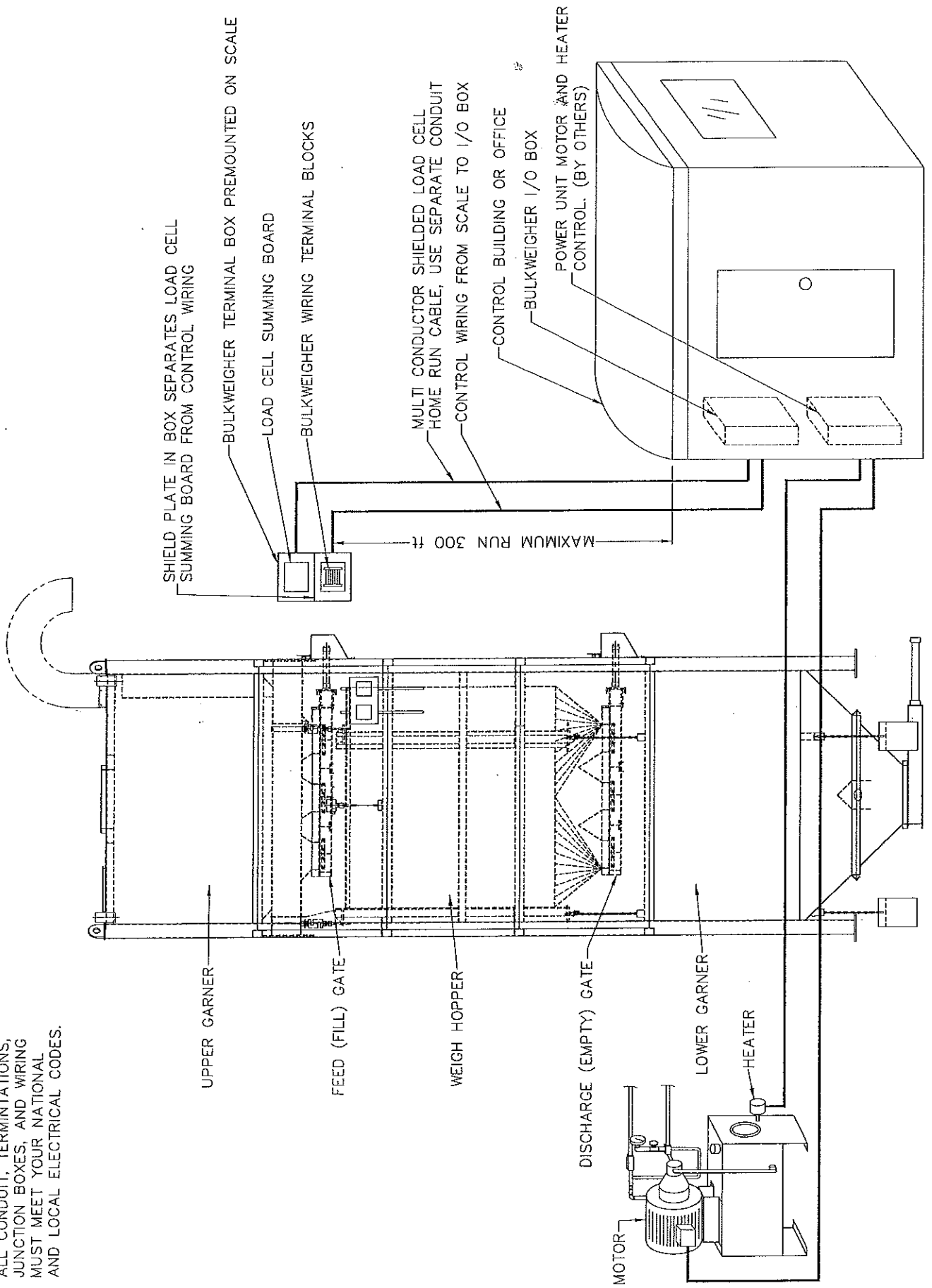
HYD PLUMBING	BMW-013 → BMW-780	BMW-840 → BMW-1650
PRESSURE LINES	STEEL PIPE 1" x 1/8" WALL	STEEL PIPE 1-1/2" x 3/16" WALL
RETURN LINES	BLACK PIPE 3/4" SCH 40	BLACK PIPE 1" SCH 40





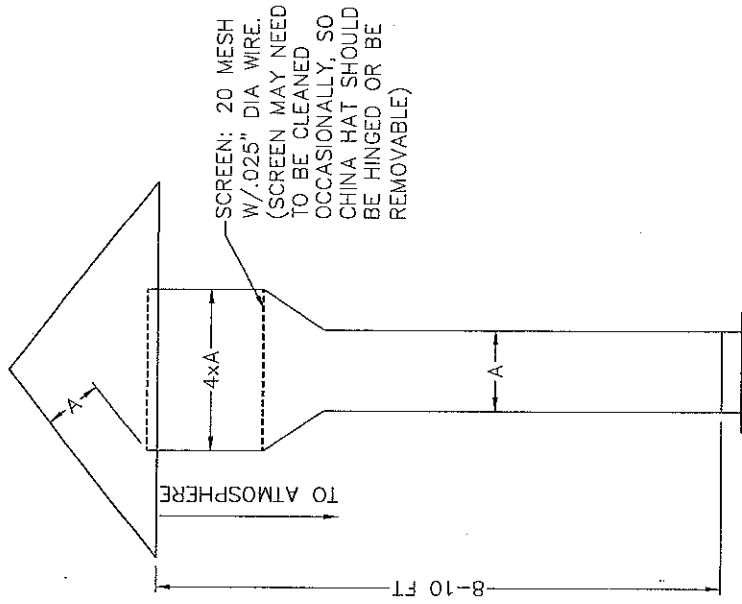
# ELECTRICAL SYSTEM ARRANGEMENT

NOTE: ALL CONDUIT, TERMINATIONS, JUNCTION BOXES, AND WIRING MUST MEET YOUR NATIONAL AND LOCAL ELECTRICAL CODES.

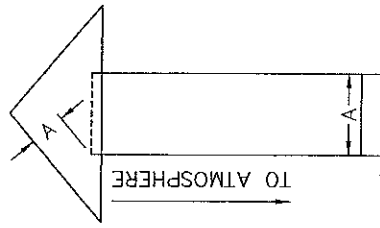


# BULKWEIGHER VENT CONNECTION OPTIONS

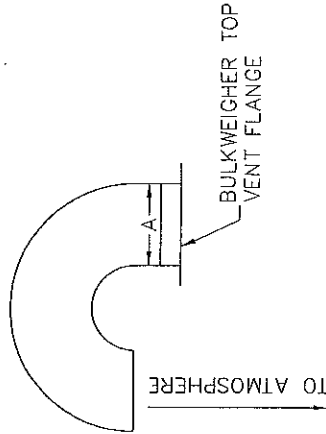
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CHINA HAT WITH 8-10FT EXTENSION AND WITH DUST SCREEN TO ATMOSPHERE



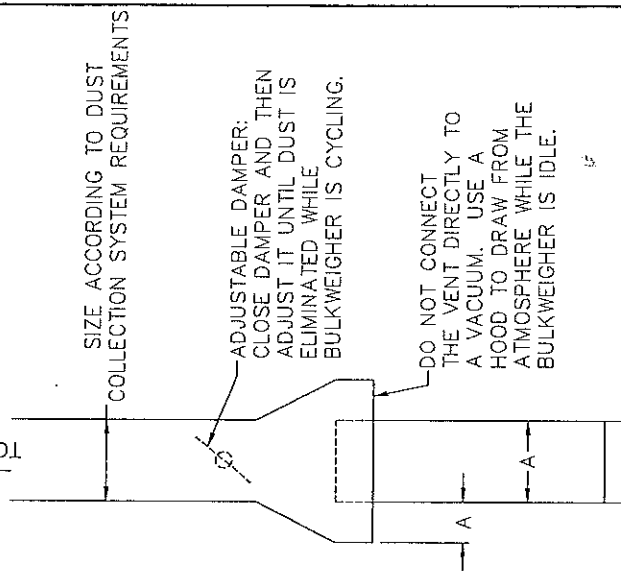
CHINA HAT TO ATMOSPHERE



TURN DOWN TO ATMOSPHERE

MINIMUM REQUIREMENT → MORE DUST EMISSION

A = CROSS SECTIONAL AREA OF THE VENT DUCT. THIS SHOULD BE EQUIVALENT TO THE BULKWEIGHER VENT FLANGE CROSS SECTIONAL AREA. EXCEPT WHEN INSTALLING THE SCREEN, IN WHICH CASE THE VENT DUCT CROSS SECTIONAL AREA AT THE SCREEN MUST BE FOUR TIME THE FLANGE AREA.



DUST COLLECTION SYSTEM PICK-UP

LESS DUST EMISSION → IDEAL

NOTE: THE DUST EMISSIONS OF THE TURN DOWN TO ATMOSPHERE & THE CHINA HAT TO ATMOSPHERE MAY BE SIGNIFICANTLY REDUCED BY SIMPLY PUTTING AND 8-10 FT DUCT EXTENSION ABOVE THE HOPPER. THIS CREATES AN AIR STACK WHERE MUCH OF THE HEAVY DUST CAN SETTLE OUT WITHOUT ESCAPING TO ATMOSPHERE.

QTY	DESCRIPTION or MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>			
TYPE	U/M	EA	PRODUCT CODE
P/AI CODE			FAMILY CODE
CUSTOMER		CUSTOMER P.O.	ORDER NO.
TOLERANCES		GTY REQ'D	
UNLESS OTHERWISE SPECIFIED		INTERSYSTEMS™	
THIS DRAFT IS PRELIMINARY		13330 I St. Omaha, Ne. 68137	
UNLESS OTHERWISE SPECIFIED		402-330-1500	
DESCRIPTION			
BULKWEIGHER VENTING OPTIONS DWG			
DATE	BY	ITEM NUMBER	REV.
2/97	JKS	530846	
SCALE	NO. OF SHEETS	ACAD FILE	
10	L	530846	
		SHEET	OF
		1	1

# **OPERATION & MAINTENANCE**

# **BULKWEIGHER OPERATION INSTRUCTIONS**

1. Have all scale operators trained on the material handling processes in your plant, and on the bulkweigher controller operation. See the bulkweigher control system (i.e. One Weigh) manual for the controller operation instructions.

## **BULKWEIGHER MAINTENANCE**

### **UPON RECEIPT OF SHIPMENT**

IF THE HYDRAULIC SYSTEM AND THE POWER UNIT WILL NOT BE OPERATED FOR MORE THAN THREE MONTHS FROM DELIVERY DATE THEN DO THE FOLLOWING IN ORDER TO AVOID DAMAGE TO THE HYDRAULIC COMPONENTS:

- Fill the valves with oil after plugging all of the ports except for the one used for filling, then plug it after the valves have been filled.
- Rotate the shaft on the electric motor every 90 days.
- All of the cylinders are to be in their retracted position and then filled with oil and the ports plugged.
- The tank needs to be filled to the top with oil after reaching the final destination to keep the inside of the tank from rusting.
- Keep all components inside dry. (Do not cover with plastic to seal, this will have a tendency to attract moisture.)

### **EVERY SIX MONTHS**

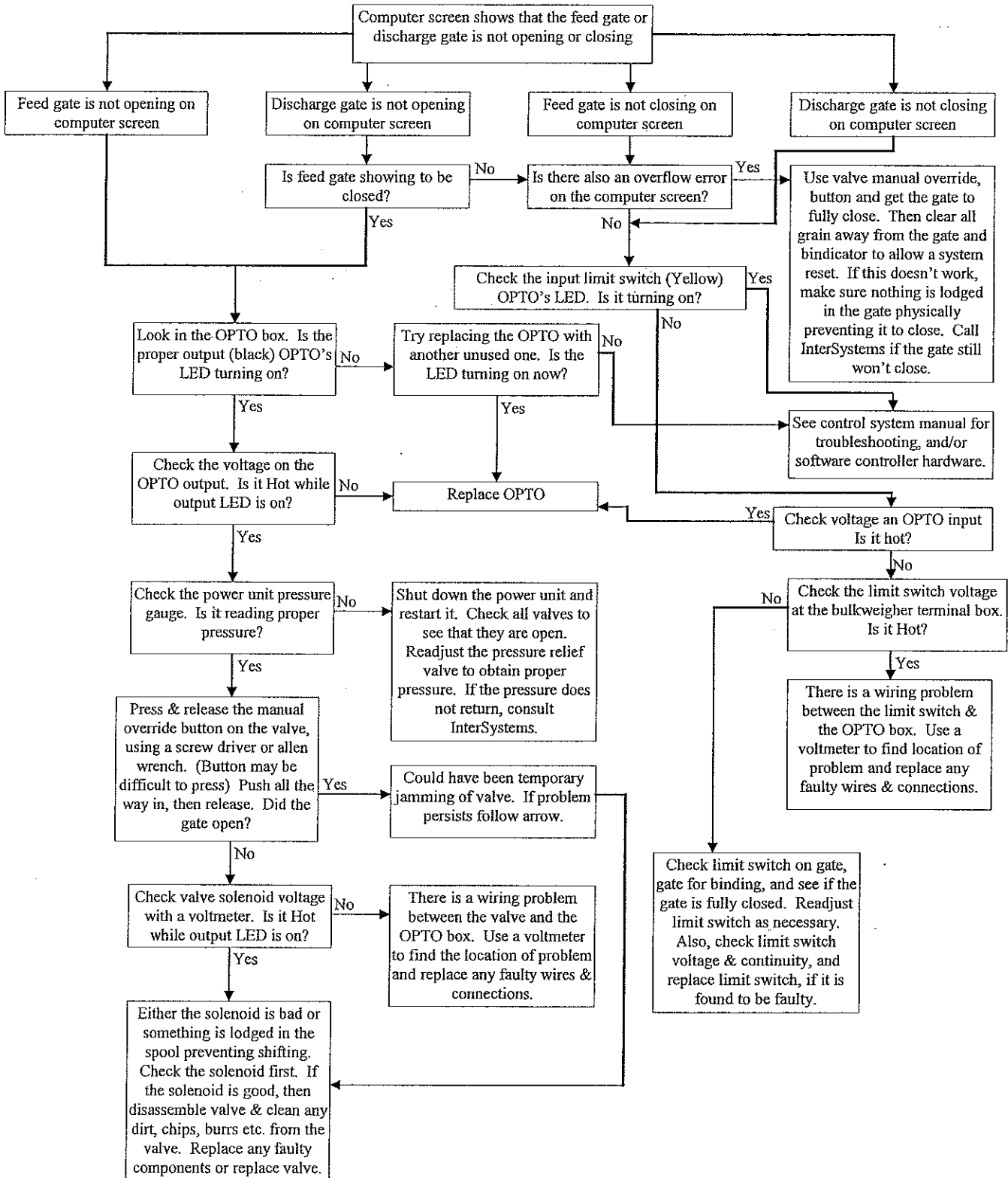
- Check all of the hydraulic (or air) components for leaks.
- Check the hydraulic oil quality (see hydraulic manual.)
- Check the following components for corrosion and make sure the housings are water tight: valves, material level indicators, limit switches, and load cells.

### **EVERY TWELVE MONTHS**

- Check the lining and walls of the hopper for high wear areas. Replace or add liners where necessary.
- Check the conduit, terminal boxes, and wiring for corrosion, bad wires, and or other damage.
- Check the safety chain assemblies and the test weight chain for any damage.
- Get the test weight certification renewed.
- Check the welds on the scale for any cracks or damage.
- Check the bolts and fittings for damage and function.
- Check the paint quality and identify any areas of corrosion. Repaint as necessary.

# **TROUBLE SHOOTING**

## GATE MALFUNCTIONS TROUBLESHOOTING GUIDE



# **BULKWEIGHER PARTS INFORMATION**

# **GATE CYLINDERS**

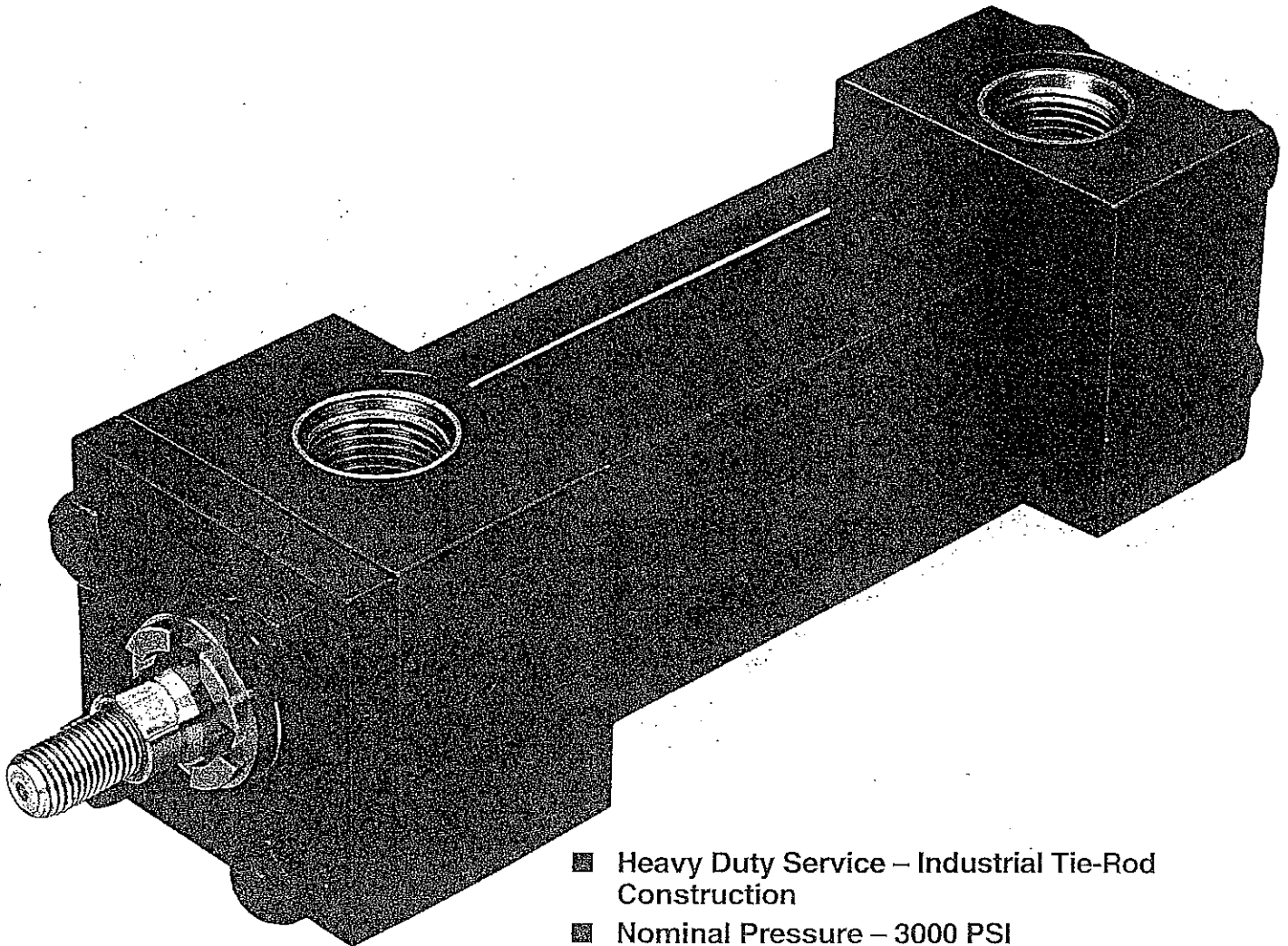


# Parker Heavy Duty Hydraulic Cylinders

## Series 2H

Exclusive with the Parker Stepped Cushion for increased performance and productivity

- Faster cycle time
- Reduced hydraulic shock
- Reduced machine noise
- Lower machine maintenance



- Heavy Duty Service – Industrial Tie-Rod Construction
- Nominal Pressure – 3000 PSI
- Standard Bore Sizes – 1-1/2" through 6"
- Piston Rod Diameters – 5/8" through 4"
- 18 Standard Mounting Styles

Cylinder Division  
500 So. Wolf Road  
Des Plaines, IL 60016  
708/298-2400

Regional Plants  
■ Santa Fe Springs, CA  
310/698-0985  
■ Enfield, CT  
203/749-2215  
■ Atlanta, GA

■ Goodland, IN  
219/297-3182  
■ Plymouth, MI  
313/455-1700  
■ Hillsborough, NC (Accum)  
919/732-6183

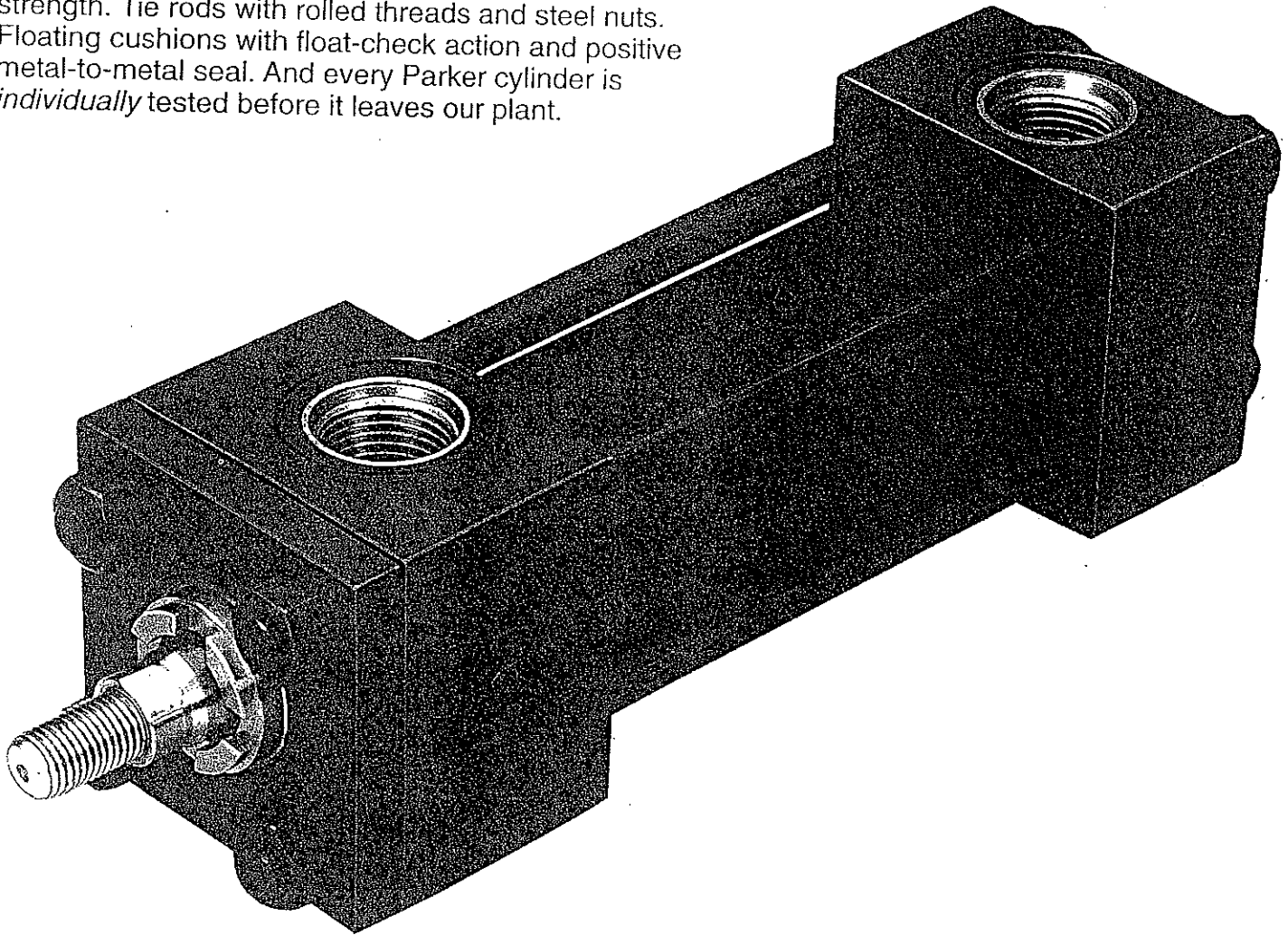
■ Hillsborough, NC  
919/732-9371  
■ Akron, OH  
216/253-4500  
■ Portland, OR  
503/285-0884

■ Owen Sound, Ont. Can.  
519/371-2662  
■ Toronto, Ont. Can.  
416/255-4567  
■ Lachine, Quebec, Can.  
514/831-2908

  
Motion & Control

# The heavy-duty hydraulic cylinder with features only Parker can promise – and deliver!

Series 2H cylinders keep on performing like you expect from Parker — producing more power per pound, more power per dollar — over millions of trouble-free cycles. Everything you need for reliable 3,000 psi performance. Patented “Jewel” rod gland for longer life and lower operating costs. Chrome-plated, case hardened piston rods. Rod end studs of high yield-strength steel, with rolled threads for added strength. Tie rods with rolled threads and steel nuts. Floating cushions with float-check action and positive metal-to-metal seal. And every Parker cylinder is *individually* tested before it leaves our plant.



---

For additional information – call your local  
Parker Fluidpower Motion & Control Distributor.

# The exclusive "Jewel" gland gives you longer cylinder life, better performance and lower costs.

An extra-long inboard bearing surface insures lubrication from within the cylinder. Oilboard of the bearing surface are two hydraulic seals. The TS-2000 and Wipacseal. The sealed TS-2000 offers complete self-compensating and self-aligning. It adjusts to mechanical deflections or any pressure variation from near-zero raised operating pressure. The result is positive, no-leak sealing regardless of conditions.

The Wipacseal does double duty. On the advance stroke, it acts as a secondary pressure seal. On the return, it wipes away any dirt on the rod. This means less wear on bearing surfaces and fine parts. Longer life for working parts. And, less loss of fluid. Plus you can replace a "Jewel" gland without removing the tie rods the retainer. Just a few twists with a spanner wrench does the trick.

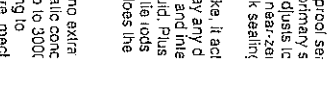
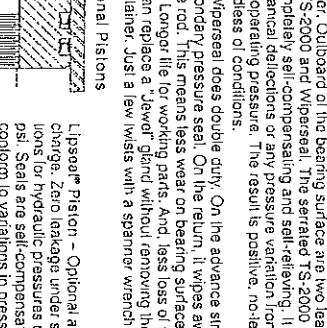
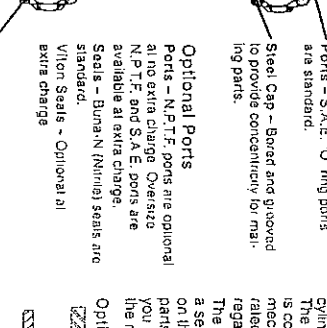
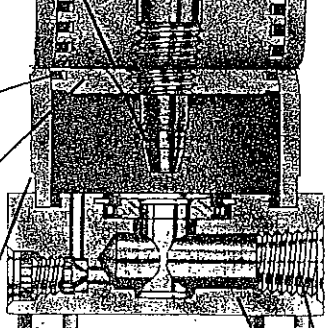
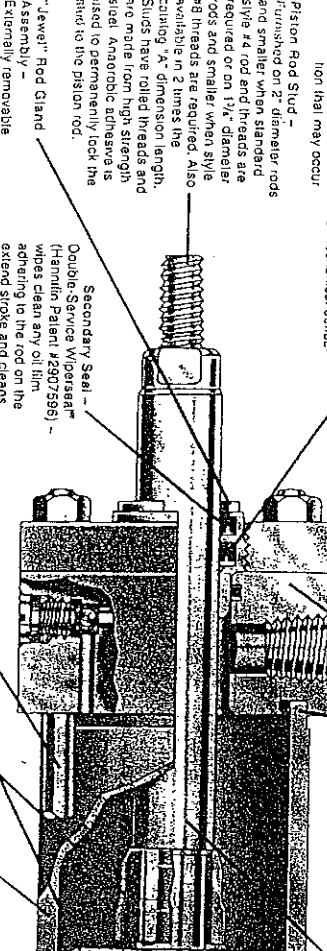
**Hi Load Piston** - Optional at extra cost. Includes wear rings and bronze-filled tie seals. Two wear rings serve as bearing which deform radially under side-oscillating load to be spread over a larger area and reduce unit loading. Bronze-filled tie seals are designed to conform to variations in pressure, mechanical deflection and wear. Back-up washers prevent extrusion.

**Nut Retained Piston** - Optional at extra cost. Includes wear rings and bronze-filled tie seals. Two wear rings serve as bearing which deform radially under side-oscillating load to be spread over a larger area and reduce unit loading. Bronze-filled tie seals are designed to conform to variations in pressure, mechanical deflection and wear. Back-up washers prevent extrusion.

**Optional Pistons**

**Lipseal® Piston** - Optional at no extra charge. Zero leakage under static conditions for hydraulic pressures up to 3000 psi. Seals are self-compensating to conform to variations in pressure, mechanical deflection and wear. Back-up washers prevent extrusion.

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**Primary Seal** - New TS-2000 Rod Seal is a proven leakproof design completely self-compensating and self-aligning to withstand vibrations and conform to mechanical deflection that may occur.

**Piston Rod Stud** - Furnished on 2" diameter rods and smaller when standard style #4 rod end threads are required or on 1 1/2" diameter rods and smaller when style #8 threads are required. Also available in 2 times the catalog "A" dimension length. Studs have rolled threads and are made from high strength steel. Anaerobic adhesives are used to permanently lock the stud to the piston rod.

**"Jewel" Rod Gland Assembly** - Externally removable disassembly. Long bearing surface is inboard of the seal; assuring positive lubrication from within the cylinder. An "O" ring is used as a seal between gland and head, and also serves as a prevailing torque-type lock.

**Secondary Seal** - Double Service Wipacseal (Patent #2907595) - wiper clean any oil film adhering to the rod on the extend stroke and cleans the rod on the return stroke.

**Stepped Cushions** - Sleeve Design - Spiral Design

**High Strength Tie Rods** - Made from 100,000 psi minimum yield steel with rolled threads for added strength.

**Adjustable Floating Stepped Cushions** - For maximum performance - economical and flexible for even the most demanding applications - provides superior performance in reducing shock. Cushions are optional and can be supplied at head end, cap end, or both ends without change in envelope or mounting dimensions.

**The Cylinder Body** - Heavy-wall steel lubricating, hard to a micro finish bore.

**End Seals** - Pressure-actuated "O" rings. Steel Head - Bored and ground to provide concentricity for mating parts. Ports - S.A.E. "O" ring ports are standard. End Seals - Pressure-actuated "O" rings. Ports - S.A.E. "O" ring ports are standard.

**Optional Ports** - Ports - N.P.T.F. ports are optional at an extra charge. Overstroke N.P.T.F. and S.A.E. ports are available at extra charge. Seals - Buna-N (Nitril) seals are standard.

**Steel Cap** - Bored and ground to provide concentricity for mating parts.

**Alloy Steel Tie Rod Nuts** - Align-A-Groove - (Patent #3043639) - A 1/8" wide surface machined at each end of the cylinder body. Makes precise mounting quick and easy.

**One-Piece Fine Grained Cast Iron Piston** - The wide piston surface contacting cylinder bore reduces bearing loads, and a long thread engagement with rod provides greater shock absorption. Anaerobic adhesive is used to permanently lock and seal the piston to the rod.

**Step Out from Piston Rings** - standard

**Step Out from Piston Rings** - standard

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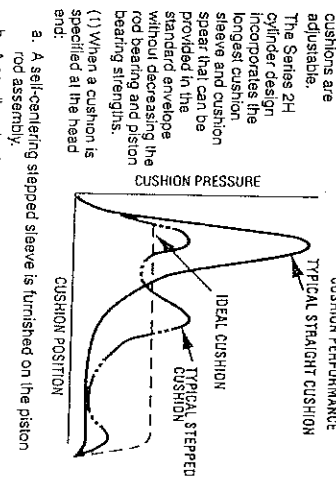
## Parker's New, Exclusive Stepped floating cushions combine the best features of known cushion technology.

Deceleration devices or built-in "cushions" are optional and can be supplied at head end, cap end, or both ends without change in envelope or mounting dimensions. Parker cylinder cushions are a stepped design and combine the best features of known cushion technology.

Standard straight or tapered cushions have been used in industrial cylinders over a very broad range of applications. Parker research has found that both designs have their limitations.

As a result, Parker has taken a new approach in cushioning of industrial hydraulic cylinders and for specific load and velocity conditions have been able to obtain deceleration curves that come very close to the ideal. The success lies in a stepped sleeve or spear concept where the steps are calculated to approximate theoretical orifice areas curves.

In the cushion performance chart, pressure traces show the results of typical orifice flow conditions. Tests of a three-step sleeve or spear show three pressure pulses coinciding with the steps. The deceleration cushion plunger curves shape comes very close to being theoretical, with the exception of the last 1/4 inch of



travel. This is a constant shape in order to have some flexibility in application. The stepped cushion design shows reduced pressure peaks for most load and speed conditions, with comparable reduction of objectionable stopping forces being transmitted to the load and the support structure.

All Parker Hannifin cushions are adjustable.

The Series 2H cylinder design incorporates the longest cushion sleeve and cushion spear that can be provided in the standard envelope without decreasing the rod bearing and piston bearing strengths.

(1) When a cushion is specified at the head end:

a. A self-centering stepped sleeve is furnished on the piston rod assembly.

b. A needle valve is provided that is flush with the side of the

head even when wide open. It may be identified by the fact that it is socket-keyed. It is located on side number 2, in all mounting styles except D, DB, DD, JJ, HH and E. In these styles it is located on side number 3.

c. On 2 1/2" bore and larger cylinders (except for 2 1/2" bore with code 2 rod), a springless check valve is provided that is also flush with the side of the head and is mounted adjacent to the needle valve except on mounting style C, where it is mounted opposite the needle valve. It may be identified by the fact that it is slotted.

d. The check and needle valves are interchangeable in the head.

e. On 1 1/2" - 2" bore cylinders and 2 1/2" bore code 2 rod cylinders a stored sleeve design is used in place of the check valve.

(2) When a cushion is specified at the cap end:

a. A cushion stepped spear is provided on the piston rod.

b. A "float check" self-centering bushing is provided which incorporates a large low check valve for fast "out-stroke" action.

c. A socket-keyed needle valve is provided that is flush with the side of the cap when wide open. It is located on side number 2 in all mounting styles except D, DB, DD, JJ, HH and E. In these styles it is located on side number 3.

Cyl. Rod Bore Dia. In.	Rod No.	Head	Cushion Length - inch	
			In.	Head
1 1/2	1	1 1/2	1 1/2	1 1/2
1 1/2	2	1 1/2	1 1/2	1 1/2
2	1	1 1/2	1 1/2	1 1/2
2	2	1 1/2	1 1/2	1 1/2
2 1/2	1	1 1/2	1 1/2	1 1/2
2 1/2	2	1 1/2	1 1/2	1 1/2
3 1/2	1	1 1/2	1 1/2	1 1/2
3 1/2	2	1 1/2	1 1/2	1 1/2

Cyl. Rod Bore Dia. In.	Rod No.	Head	Cushion Length - inch	
			In.	Head
1 1/2	1	1 1/2	1 1/2	1 1/2
1 1/2	2	1 1/2	1 1/2	1 1/2
2	1	1 1/2	1 1/2	1 1/2
2	2	1 1/2	1 1/2	1 1/2
2 1/2	1	1 1/2	1 1/2	1 1/2
2 1/2	2	1 1/2	1 1/2	1 1/2
3 1/2	1	1 1/2	1 1/2	1 1/2
3 1/2	2	1 1/2	1 1/2	1 1/2

For additional information - call your local Parker Fluidpower Motion & Control Distributor.

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Tucson, Arizona  
Wichita, Kansas

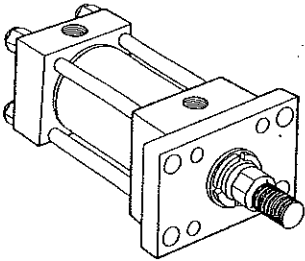
**Overseas Div. Offices**  
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Tampa, Florida  
Tucson, Arizona  
Wichita, Kansas

**MOORE & CO.**

Rectangular Flange  
and Head Mountings  
1½" to 6" Bore Sizes

# Series 2H Heavy Duty Hydraulic Cylinders

Head Rectangular  
Flange Mounting  
Style J  
(NFFPA Style MF1)

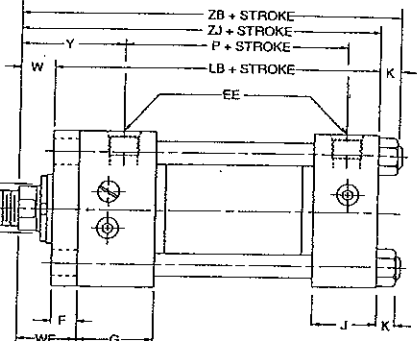
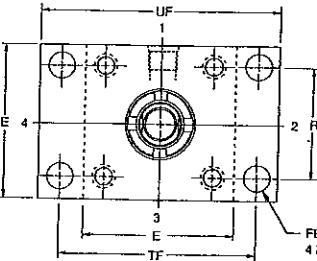


For Style "J" Mount

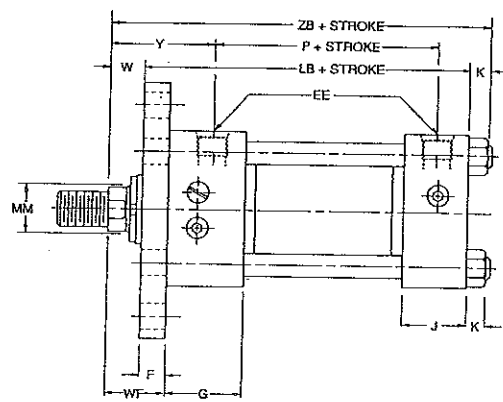
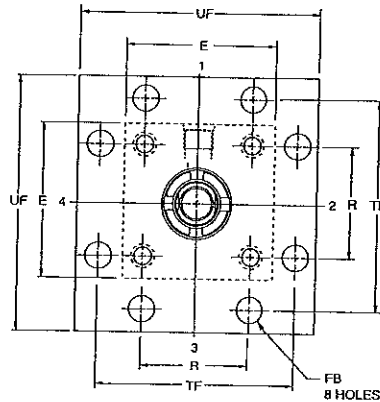
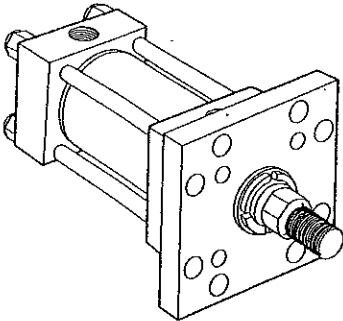
Bore Size	Max. PSI — Push*				
	Rod Code				
	1	2	3	4	5
1½	2500	1500	—	—	—
2	2500	1500	—	—	—
2½	2500	1500	1900	—	—
3½	2500	1500	2100	—	—
4	2500	1500	1800	—	—
5	2200	750	1650	1200	—
6	1800	750	1450	1100	—

\*Maximum pressure rating — push application.

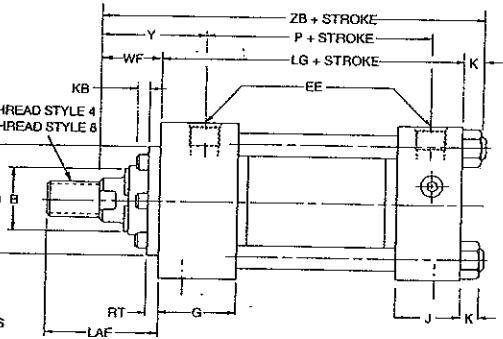
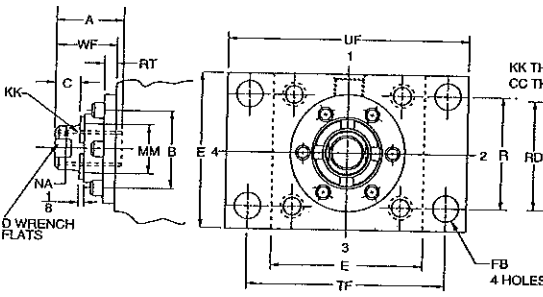
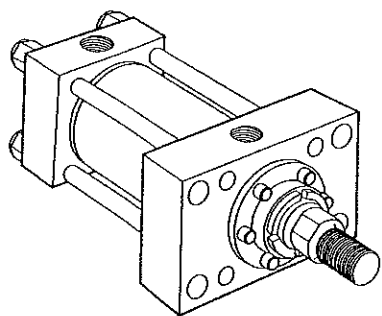
For pressures exceeding those shown use mounting styles JB or JJ.



Head Square Flange Mounting  
Style JB  
(NFFPA Style MF5)

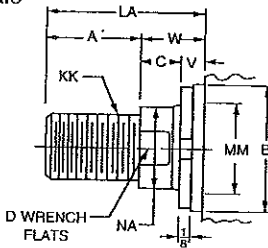


Head Rectangular Mounting  
Style JJ  
(NFFPA Style ME5)

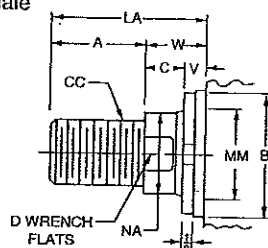


Rod End Dimensions — see table 2

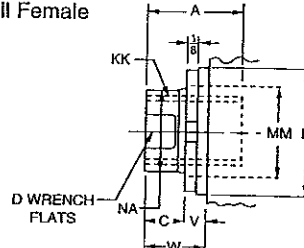
Thread Style 4  
(NFFPA Style SM)  
Small Male



Thread Style 8  
(NFFPA Style IM)  
Intermediate Male



Thread Style 9  
(NFFPA Style SF)  
Small Female



"Special" Thread Style 3

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for CC or KK, A and LA. If otherwise special, furnish dimensioned sketch.

A high strength rod end stud is supplied on thread style 4 through 2" diameter rods and on thread style 8 through 1½" diameter rods. Larger sizes or special rod ends are cut threads. Style 4 rod ends are recommended where the workpiece is secured against the rod shoulder.

When the workpiece is not shouldered, style 4 rod ends are recommended through 2" piston rod diameters and style 8 rod ends are recommended on larger diameters. Use style 9 for applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied.

For additional information — call your local  
Parker Fluidpower Motion & Control Distributor.

# Series 2H Heavy Duty Hydraulic Cylinders

Rectangular Flange  
and Head Mountings  
1½" to 6" Bore Sizes

Table 1—Envelope and Mounting Dimensions

Bore	E	EE		F	FB	G	J	K	R	TF	UF	Add Stroke		
		NPTF $\ominus$	SAE $\star$									LB	LG	P
1½	2½	½	10	¾	7/16	1¾	1½	¾	1.63	37/16	4¼	5	45/8	27/8
2	3	½	10	5/8	9/16	1¾	1½	7/16	2.05	41/8	51/8	5¼	45/8	27/8
2½	3½	½	10	5/8	9/16	1¾	1½	7/16	2.55	45/8	55/8	53/8	43/4	3
3¼	4½	¾	12	¾	11/16	2	1¾	9/16	3.25	57/8	71/8	6¼	5½	3½
4	5	¾	12	7/8	11/16	2	1¾	9/16	3.82	63/8	75/8	65/8	5¾	3¾
5	6½	¾	12	7/8	15/16	2	1¾	13/16	4.95	83/16	99/4	71/8	6¼	4¼
6	7½	1	16	1	11/16	2¼	2¼	7/8	5.73	97/16	11¼	83/8	73/8	47/8

\* SAE straight thread ports are standard and are indicated by port number.  
 $\ominus$  NPTF ports are available at no extra charge.

Table 3 —  
Envelope and  
Mounting  
Dimensions

Table 2—Rod Dimensions

Bore	Rod No.	Rod Dia. MM	Thread		Rod Extensions and Pilot Dimensions													Add Stroke	
			Style 8 CC	Style 4 & 9 KK	A	+0.000 -0.002 B	C	D	KB	LA	LAF	NA	V	W	RD	RT	WF		Y
1½	1(Std.)	5/8	1/2-20	7/16-20	¾	1.124	¾	½	0	13/8	1¾	9/16	¼	5/8	21/8	¾	1	2	6
	2	1	7/8-14	¾-16	11/8	1.499	½	7/8	0	21/8	2½	15/16	½	1	21/2	¾	13/8	23/8	63/8
2	1(Std.)	1	7/8-14	¾-16	11/8	1.499	½	7/8	0	17/8	2½	15/16	¼	¾	21/2	¾	13/8	23/8	67/16
	2	13/8	11/4-12	1-14	15/8	1.999	5/8	11/8	¼	25/8	3¼	15/16	¾	1	3	¾	15/8	25/8	611/16
2½	1(Std.)	1	7/8-14	¾-16	11/8	1.499	½	7/8	0	17/8	2½	15/16	¼	¾	21/2	¾	13/8	23/8	69/16
	2	13/4	11/2-12	11/4-12	2	2.374	¾	11/2	¼	31/4	37/8	111/16	½	11/4	3½	¾	17/8	27/8	71/16
	3	13/8	11/4-12	1-14	15/8	1.999	5/8	11/8	¼	25/8	3¼	15/16	¾	1	3	¾	15/8	25/8	613/16
3¼	1(Std.)	13/8	11/4-12	1-14	15/8	1.999	5/8	11/8	¼	21/2	3¼	15/16	¼	7/8	3	¾	15/8	23/4	711/16
	2	2	13/4-12	11/2-12	2¼	2.624	7/8	111/16	1/8	3½	4¼	115/16	¾	11/4	4	5/8	2	31/8	81/16
	3	13/4	11/2-12	11/4-12	2	2.374	¾	11/2	¼	31/8	37/8	111/16	¾	11/8	3½	¾	17/8	3	715/16
4	1(Std.)	13/4	11/2-12	11/4-12	2	2.374	¾	11/2	¼	3	37/8	111/16	¼	1	3½	¾	17/8	3	83/16
	2	2½	21/4-12	17/8-12	3	3.124	1	21/16	¼	43/8	5¼	23/8	¾	13/8	4½	5/8	2¼	33/8	89/16
	3	2	13/4-12	11/2-12	2¼	2.624	7/8	111/16	1/8	33/8	4¼	115/16	¼	11/8	4	5/8	2	31/8	85/16
5	1(Std.)	2	13/4-12	11/2-12	2¼	2.624	7/8	111/16	1/8	33/8	4¼	115/16	¼	11/8	4	5/8	2	31/8	91/16
	2	3½	31/4-12	2½-12	3½	4.249	1	3	¼	47/8	5¾	33/8	¾	13/8	5¾	5/8	2¼	33/8	95/16
	3	2½	21/4-12	17/8-12	3	3.124	1	21/16	¼	43/8	5¼	23/8	¾	13/8	4½	5/8	2¼	33/8	95/16
	4	3	23/4-12	21/4-12	3½	3.749	1	25/8	¼	47/8	5¾	27/8	¾	13/8	5¼	5/8	2¼	33/8	95/16
6	1(Std.)	2½	21/4-12	17/8-12	3	3.124	1	21/16	¼	41/4	5¼	23/8	¼	11/4	4½	5/8	2¼	31/2	101/2
	2	4	3¾-12	3-12	4	4.749	1	33/8	¼	5¼	6¼	37/8	¼	11/4	6½	¾	2¼	31/2	101/2
	3	3	23/4-12	21/4-12	3½	3.749	1	25/8	¼	43/4	5¾	27/8	¼	11/4	5¼	5/8	2¼	31/2	101/2
	4	3½	31/4-12	2½-12	3½	4.249	1	3	¼	43/4	5¾	33/8	¼	11/4	5¾	5/8	2¼	31/2	101/2

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# **TEST WEIGHTS**

# Cast Iron Test Weights

Our cast iron weights undergo a special phosphating process in which the metal is thoroughly cleaned and mildly etched to allow better finish adhesion. The weights are then coated with a layer of chip-resistant paint which conforms to NIST Handbook 105-1 standards. This two-step process provides the weights with a long-lasting finish that greatly reduces the possibility of corrosion.

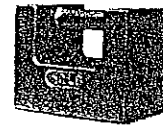
Our solid cast iron test weights are sealed to class F tolerances and specifications listed in the NIST Handbook 105-1. All weights are traceable to NIST. Traceable and Weight Calibration Certificates are available at an additional cost.

If you are in need of a unique weight, for example, an unusual tolerance, material or shape, we will be happy to assist you. Please call us at 800-357-8627 (TMAP) for pricing or additional information.

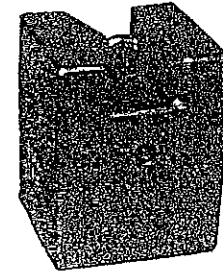
## Grip Handle and Heavy Capacity Weights

Avoirdupois and Metric, Class F

AVOIRDUPOIS GRIP HANDLE						
WEIGHT	Width	Length	Height	Slot Length	Slot Depth	Part #
20lb	4 1/2"	5 5/8"	5"	3 5/8"	1 5/8"	12870
25lb	4 3/8"	6 5/8"	4 15/16"	3 5/8"	2 1/2"	12833
30lb	4 15/16"	8 1/8"	4 1/4"	4 1/4"	2 3/16"	12878
50lb	5 5/8"	7 7/8"	6 3/8"	4 1/2"	3 5/16"	12839
100lb	7"	9"	8 1/8"	4 1/2"	3 3/8"	12862

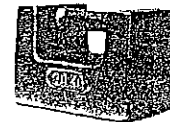


AVOIRDUPOIS HEAVY CAPACITY						
WEIGHT	Width	Length	Height	Slot Length	Slot Depth	Part#
200lb	9 3/4"	9 3/4"	10"	9 3/4"	2"	12890
250lb	9 3/4"	9 3/4"	12"	9 3/4"	2"	12892
500lb	11 3/4"	11 3/4"	15 3/4"	12 1/2"	1 3/4"	12844
1000lb	15"	15 1/2"	19"	15 1/2"	2 1/2"	12850
1250lb	15 1/8"	15 1/8"	23 1/2"	15 1/8"	2 1/4"	12858
1500lb	15 1/8"	15 1/8"	27 3/4"	15 1/8"	2 1/2"	12864
2000lb	20 1/2"	20 3/4"	20 1/4"	20 3/4"	2 1/2"	12868
2500lb	20 3/4"	20 1/4"	25"	20 3/4"	2 3/4"	12854
3000lb	20 1/2"	20 3/4"	30 1/4"	20 3/4"	2"	12872
Nesting slab weight:						
2500lb	42"	30"	8 1/4"	30"	2 1/4"	12860



ALL WEIGHTS ARE TRACEABLE TO NIST

METRIC GRIP HANDLE						
WEIGHT	Width	Length	Height	Slot Length	Slot Depth	Part #
10kg	4 1/2"	6"	4 15/16"	3 5/8"	2 5/8"	12767
20kg	5 1/2"	8"	5 7/8"	4 1/2"	2 7/8"	12771
25kg	5 3/8"	8"	7"	4 1/2"	3 1/4"	12775
35kg	5 9/16"	7 7/8"	9 1/8"	4 1/4"	3"	12805
50kg	7"	9"	8 7/8"	5"	3 7/16"	12803

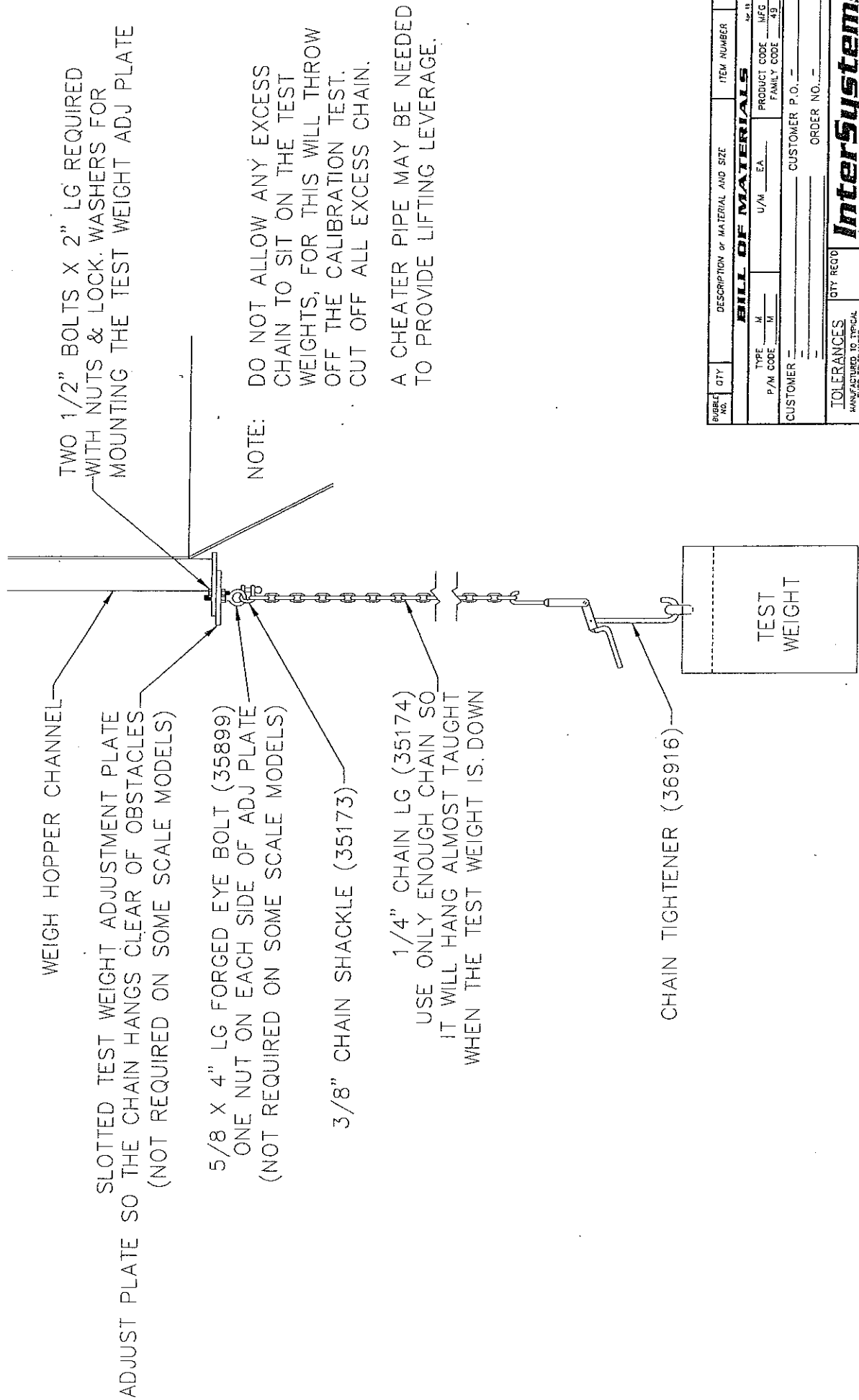


METRIC HEAVY CAPACITY						
WEIGHT	Width	Length	Height	Slot Length	Slot Depth	Part #
100kg	9 7/8"	9 7/8"	11"	9 7/8"	2"	12817
200kg	11 5/8"	12 1/4"	15 3/4"	12 1/4"	2"	12793
250kg	11 5/8"	12 1/8"	17 1/4"	12 1/8"	1 1/2"	12782
500kg	15 1/8"	15 1/8"	20 3/4"	15 1/8"	2"	12797
1000kg	20 1/2"	20 1/2"	22"	20 1/2"	2 1/2"	12801





REVISIONS		528428
REV	DATE	DESCRIPTION

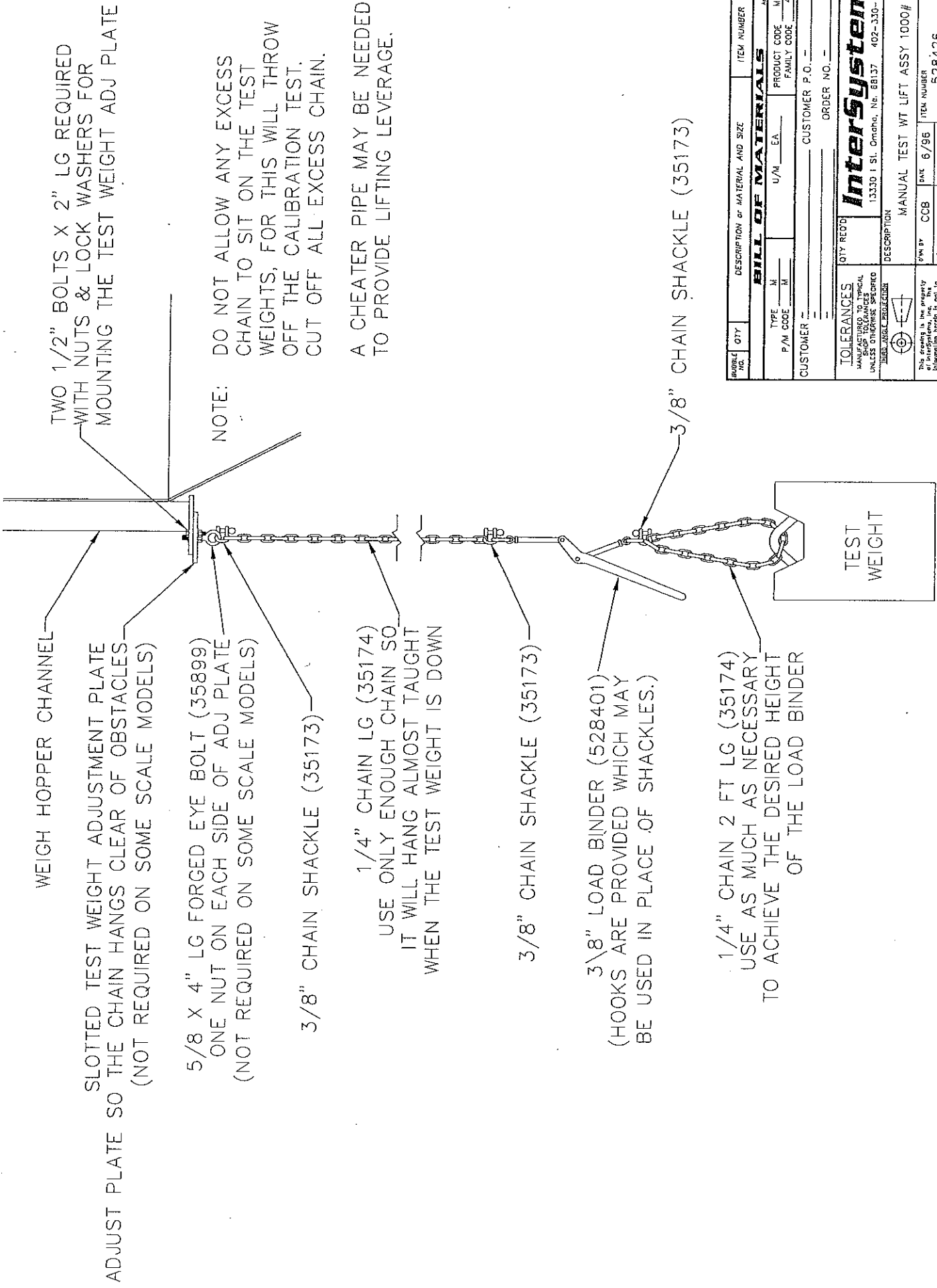


NOTE: DO NOT ALLOW ANY EXCESS CHAIN TO SIT ON THE TEST WEIGHTS, FOR THIS WILL THROW OFF THE CALIBRATION TEST. CUT OFF ALL EXCESS CHAIN.

A CHEATER PIPE MAY BE NEEDED TO PROVIDE LIFTING LEVERAGE.

SUBSET	QTY	DESCRIPTION or MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>				
P/M CODE	M	U/M	EA	PRODUCT CODE
	M			MFG
				FAMILY CODE
				49
CUSTOMER		CUSTOMER P.O. _____		
		ORDER NO. _____		
TOLERANCES		QTY REQD		
HANDS CURED TO SPECIAL UNLESS OTHERWISE SPECIFIED		DATE		
TUBED ANGLE PROTECTION		6/96		
		MANUAL TEST WT LIFT ASSY 500#		
<small>We warrant to the property information herein is not to be used for any other purpose or authorized by the manufacturer. Training or records are not to be made without permission.</small>		REV. 528428		
		ACAD FILE 528428		
		SHEET 1 OF 1		

**InterSystems**  
13330 | St. Omaha, Ne. 68137 402-330-1500



WEIGH HOPPER CHANNEL  
 SLOTTED TEST WEIGHT ADJUSTMENT PLATE  
 ADJUST PLATE SO THE CHAIN HANGS CLEAR OF OBSTACLES  
 (NOT REQUIRED ON SOME SCALE MODELS)

5/8 X 4" LG FORGED EYE BOLT (35899)  
 ONE NUT ON EACH SIDE OF ADJ PLATE  
 (NOT REQUIRED ON SOME SCALE MODELS)

3/8" CHAIN SHACKLE (35173)

1/4" CHAIN LG (35174)  
 USE ONLY ENOUGH CHAIN SO  
 IT WILL HANG ALMOST TAUGHT  
 WHEN THE TEST WEIGHT IS DOWN

3/8" CHAIN SHACKLE (35173)

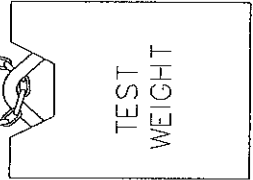
3/8" LOAD BINDER (528401)  
 (HOOKS ARE PROVIDED WHICH MAY  
 BE USED IN PLACE OF SHACKLES.)

1/4" CHAIN 2 FT LG (35174)  
 USE AS MUCH AS NECESSARY  
 TO ACHIEVE THE DESIRED HEIGHT  
 OF THE LOAD BINDER

TWO 1/2" BOLTS X 2" LG REQUIRED  
 WITH NUTS & LOCK WASHERS FOR  
 MOUNTING THE TEST WEIGHT ADJ PLATE

NOTE:  
 DO NOT ALLOW ANY EXCESS  
 CHAIN TO SIT ON THE TEST  
 WEIGHTS, FOR THIS WILL THROW  
 OFF THE CALIBRATION TEST.  
 CUT OFF ALL EXCESS CHAIN.

A CHEATER PIPE MAY BE NEEDED  
 TO PROVIDE LIFTING LEVERAGE.



3/8" CHAIN SHACKLE (35173)

SHACKLE NO.	QTY	DESCRIPTION or MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>				
P/M CODE	M	U/M	EA	AP 18 37 000
TYPE	M			PRODUCT CODE MFG
				FAMILY CODE 49
CUSTOMER		CUSTOMER P.O. _____ ORDER NO. _____		
<b>TOLERANCES</b> UNLESS OTHERWISE SPECIFIED				
<b>INTERSYSTEMS</b> 13330 I St. Omaha, Ne. 68137 402-330-1500				
MANUAL TEST WT LIFT ASSY 1000#				
QTY REQD	CCB	RATE	ITEM NUMBER	REV.
			528426	
			ACAD FILE	
			528426	
			DRAWING	
			SHEET	
			A	
			OF	

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WEIGH HOPPER CHANNEL

SLOTTED TEST WEIGHT ADJUSTMENT PLATE  
ADJUST PLATE SO THE CHAIN HANGS CLEAR OF OBSTACLES  
(NOT REQUIRED ON SOME SCALE MODELS)

5/8 X 4" LG FORGED EYE BOLT (358899)  
ONE NUT ON EACH SIDE OF ADJ PLATE  
(NOT REQUIRED ON SOME SCALE MODELS)

3/8" CHAIN SHACKLE (35173)

3/8" CHAIN (58400)  
USE ONLY ENOUGH CHAIN SO  
IT WILL HANG ALMOST TAUGHT  
WHEN THE TEST WEIGHT IS DOWN

3/8" CHAIN SHACKLE (35173)

3/8" LOAD BINDER (528401)  
(HOOKS ARE PROVIDED WHICH MAY  
BE USED IN PLACE OF SHACKLES.)

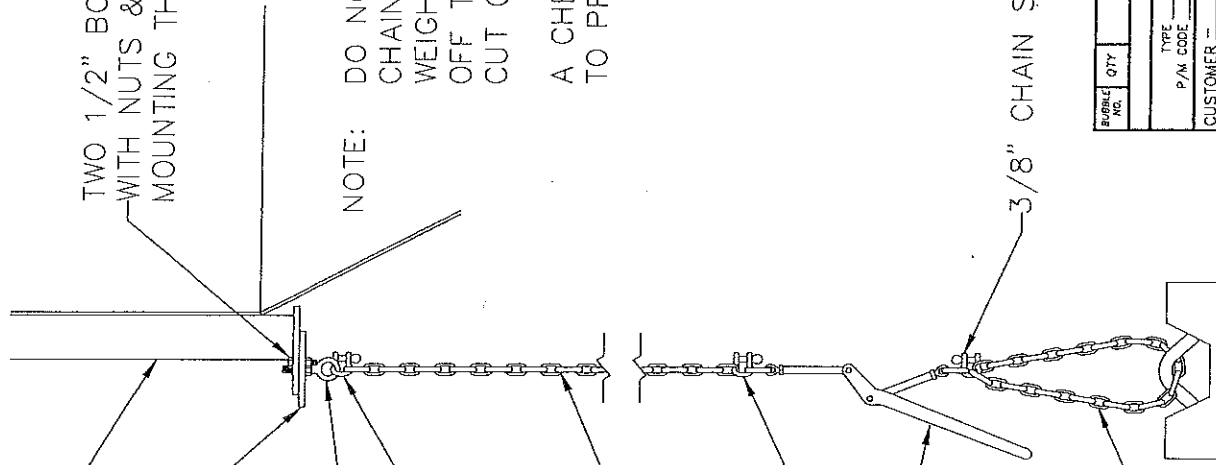
3/8" CHAIN 2 FT LG (528400)  
USE AS MUCH AS NECESSARY  
TO ACHIEVE THE DESIRED HEIGHT  
OF THE LOAD BINDER

TEST  
WEIGHT

NOTE:  
DO NOT ALLOW ANY EXCESS  
CHAIN TO SIT ON THE TEST  
WEIGHTS, FOR THIS WILL THROW  
OFF THE CALIBRATION TEST.  
CUT OFF ALL EXCESS CHAIN.

A CHEATER PIPE MAY BE NEEDED  
TO PROVIDE LIFTING LEVERAGE.

TWO 1/2" BOLTS X 2" LG REQUIRED  
WITH NUTS & LOCK WASHERS FOR  
MOUNTING THE TEST WEIGHT ADJ PLATE



BUBBLE NO.	QTY	DESCRIPTION OF MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>				
TYPE	M	U/M	EA	NO IS ST LBS
P/M CODE	M			PRODUCT CODE MFC
				FAMILY CODE 49
CUSTOMER		CUSTOMER P.O. #		
TOLERANCES		ORDER NO. #		
MANUFACTURED TO TYPICAL UNLESS OTHERWISE SPECIFIED		13330   St. Omens, Nc. 68137 402-330-1500		
MATERIAL SPECIFICATION		MANUAL TEST WT LIFT ASSY 2000#		
<p>The drawing is the property of InterSystems Inc. and is to be used only for the information herein. It is not to be used for other purposes. Drawings or calls are not to be made without permission.</p>		<p>DATE 6/98</p> <p>ITEM NUMBER 528427</p> <p>SCALE 8</p> <p>DRAWING NUMBER A</p> <p>SHEET 1 OF 1</p>		

REV	DATE	DESCRIPTION	BY
-----	------	-------------	----

WEIGH HOPPER CHANNEL

TWO 1/2" BOLTS X 2" LG REQUIRED WITH NUTS & LOCK WASHERS FOR MOUNTING THE TEST WEIGHT ADJ PLATE

SLOTTED TEST WEIGHT ADJUSTMENT PLATE ADJUST PLATE SO THE CHAIN HANGS CLEAR OF OBSTACLES (NOT REQUIRED ON SOME SCALE MODELS)

5/8 X .4" LG FORGED EYE BOLT (358899) ONE NUT ON EACH SIDE OF ADJ PLATE (NOT REQUIRED ON SOME SCALE MODELS)

NOTE: DO NOT ALLOW ANY EXCESS CHAIN TO SIT ON THE TEST WEIGHTS, FOR THIS WILL THROW OFF THE CALIBRATION TEST. CUT OFF ALL EXCESS CHAIN.

3/8" CHAIN SHACKLE (35173)

1/4" CHAIN LG (35174) USE ONLY ENOUGH CHAIN SO IT WILL HANG ALMOST TAUGHT WHEN THE TEST WEIGHT IS DOWN

3/8" CHAIN SHACKLE (35173)

1/4" CHAIN 1 FT LG (35174)


TO VALVE ASSEMBLY ON HYD POWER UNIT

HYD CYL TEST WT LIFT ASSY (511094)

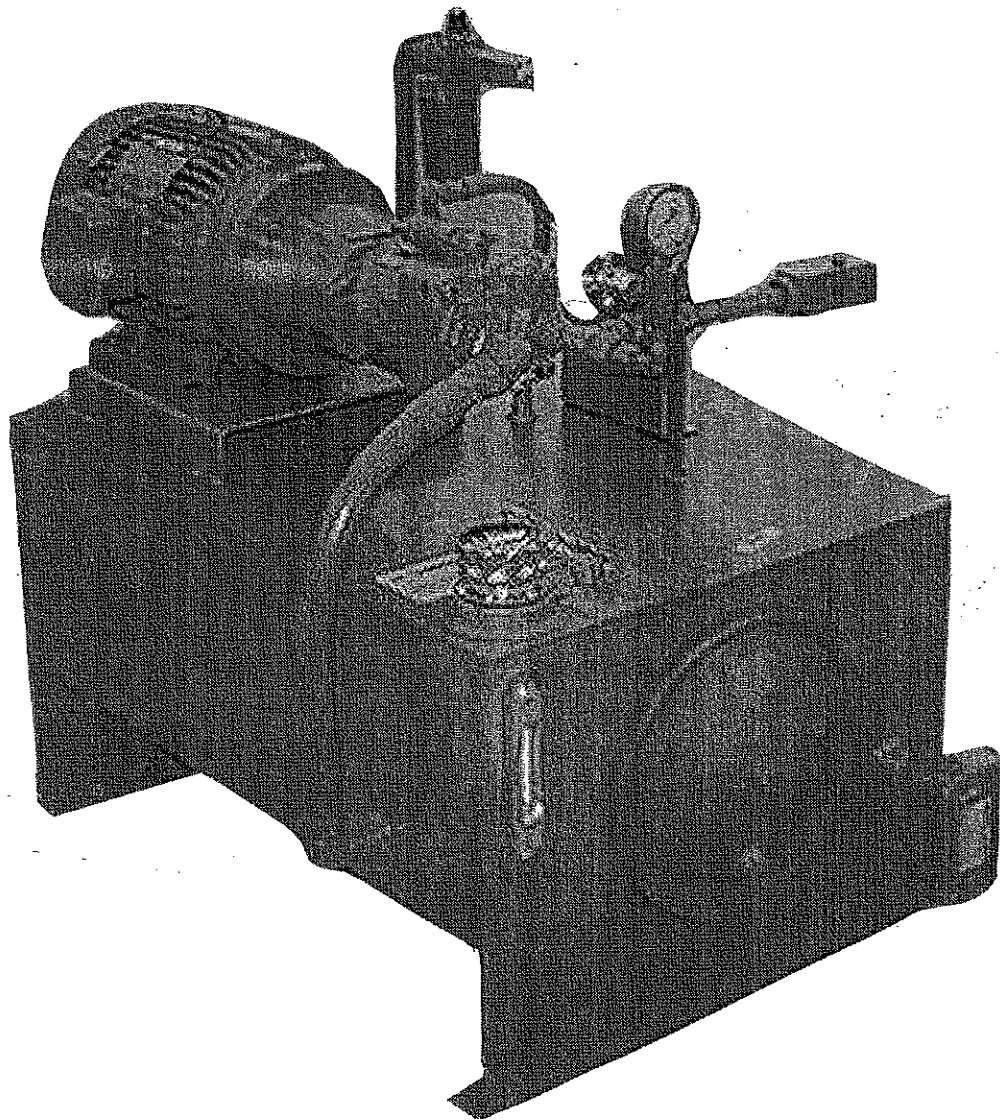
3/8" CHAIN SHACKLE (35173)

1/4" CHAIN 2 FT LG (35174) USE AS MUCH AS NECESSARY TO ACHIEVE THE DESIRED HEIGHT OF THE CYLINDER

TEST WEIGHT

ITEM NO.	QTY	DESCRIPTION OR MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>				
TYPE	M	U/M	EA	PRODUCT CODE
P/M CODE	M			FAMILY CODE
CUSTOMER				49
CUSTOMER P.O.				
ORDER NO.				
TOLERANCES		QTY REQD		
MANUFACTURED TO TYPICAL UNLESS OTHERWISE SPECIFIED				
TWO ANGLE PROJECTION				
				
<small>This drawing is the property of InterSystems, Inc. and is not to be used or copied without the written consent of InterSystems, Inc. Drawings or copies are not to be made without permission.</small>				
REV. BY		DATE	ITEM NUMBER	REV.
CCB		8/96	528576	
DWC BY				
SCALE		DRAWING NUMBER	ACAD FILE	SHEET
8		A	528576	1 OF 1
<b>InterSystems</b> 13330 I St, Omaha, NE 68137 402-330-1500				
DESCRIPTION: HYD TEST WT LIFT ASSY 1000#				

# HYDRAULIC POWER UNIT



# START UP - HYDRAULIC POWER UNIT

1. Plumb the hydraulics (see hydraulic schematic in index A & Hydraulic System Arrangement on page 3).
2. Wire the motor to a motor starter on a separate breaker from the control wiring (see Hydraulic Power Unit Schematic for Power requirements).
3. Wire the heater (see Hydraulic Power Unit Schematic for Power req.). Dial temperature setting to 70° F.
1. Fill the power unit with oil (ISO 32 or comparable arctic blend for extremely cold areas).
2. FOR UNIT WITH PRESSURE COMPENSATING PUMP FILL THE PUMP CASE WITH OIL (use the same oil as you put in the tank). Failure to do this may result in premature pump failure.
3. Check motor rotation. Quickly turn motor on & off and verify the rotation is as indicated by the arrow on the pump (remove plastic cover on coupler to view rotation).
4. Power unit pressure has been factory set, to 150-200 psi. After oil has been circulated through the system you will adjust the pressure to between 700-900 psi. Pressure can be changed by screwing in or out the pressure relief valve cartridge (see Relief Valve Parts Information). For units with pressure compensating pump the adjustment is done on the hex nut on top side of the pump.
5. Make sure the ball valve is in open position so oil can flow through the system. Also make sure all the flow control valves are screwed out all the way to allow maximum flow.
6. Start up the power unit. Manually operate gates by pushing manual override on the end on the solenoid valves. This will start the oil circulating through the system. You may need to adjust the pressure in order to get the gates cylinders to move.
7. Check for leaks in fittings and bleed off air by loosening a fitting high in the system. (Recheck oil level and fill as required.)

## HYDRAULIC MAINTENANCE

### EVERY SIX MONTHS

- Check the hydraulic oil quality. Make sure it does not have a milky appearance from water contamination and does not contain particle contaminants such as rust.  
(If particle contaminants are found replace the oil and check again after one month of operation. If contaminants are found again then check the hydraulic pump and hydraulic cylinders for faulty seals and check the tank and pipes for rusting. Replace all of the rusting components and faulty seals.)  
(If water contamination is found, check all pipes and fittings, and check the tank for water leaks. Make sure the cap was on the tank filler tightly. Replace any components which are faulty and refill the entire system with oil. If water is found again after a month of operation, consult /S.)
- Check hydraulic components for leaks. (i.e. cylinders, valves, hoses, fittings, pump, etc.)  
(If leaks are found, repair or replace component(s) which are faulty.)

**HYDRAULIC  
POWER UNIT  
SCHEMATIC  
DRAWINGS  
WITH PARTS  
LIST**

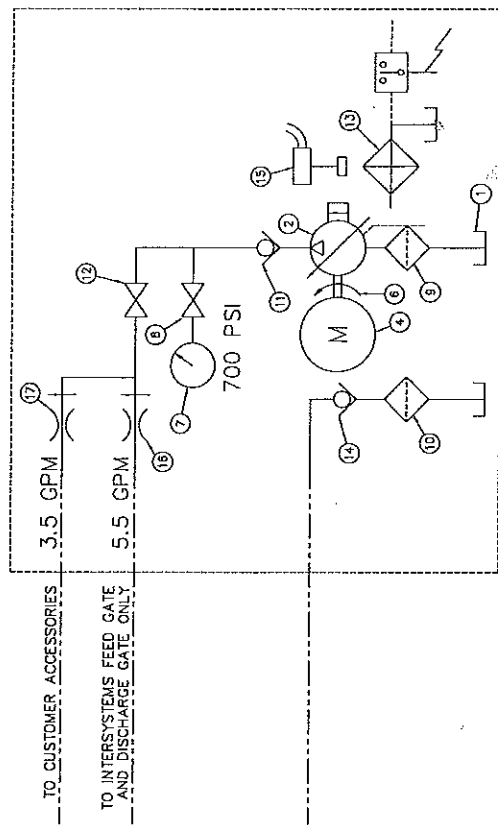
REV	DATE	DESCRIPTION	BY

532295

HYDRAULIC POWER UNIT CONSISTING OF:

ITEM QTY	PART NO.	DESCRIPTION
1	10030-REV B	RESERVOIR, 30 GALLON W/SITE GLASS & THERM. - VESCOR
2	PVP2320R	PUMP, VARIABLE VOLUME PISTON - PARKER
3	1952	PUMP / MOTOR ADAPTER
4	130328	MOTOR, 5 HP TEFC 230/460V, 3PH 1750 RPM 184TC FRAME
5	5135	BASE PLATE, MOTOR
6	L095	COUPLING - LOVEJOY
7	25.900-2000	GAUGE, SPAN PFESSURE 0-2000 PSI
8	MV400-S	SHUT OFF VALVE - PARKER
9	P20-1-1/4-100RV3	SUCTION STRAINER - FLO-EZY
10	15CN110QM250B1B1-1	FILTER, MICROGLASS ELEMENT - PARKER**
11	D1750MOMF-05	CHECK VALVE (PRESSURE) - PARKER
12	VP500CS-8	BALL VALVE - PARKER
13	BCS13J1-W21	HEATER, 750 WATT, 110V, 1PH, NEMA 4 - WATLOW
14	C800S	CHECK VALVE (RETURN) - PARKER
15	B4030N-70-CNO	SWITCH, LOW LEVEL / HIGH TEMP (70°C) - ADV. TECH.
16	FR101F6006P	FLOW CONTROL PRESSURE COMP., 5.5 GPM - PARKER
17	FR101F4006P	FLOW CONTROL PRESSURE COMP., 3.5 GPM - PARKER
18		TABLE, NOTICE: "DO NOT MIX HYDRAULIC OIL"

\*PUMP VOLUME SET AT 9.5 GPM PRESET TO 700 PSI  
 \*\*FILTER REPLACEMENT ELEMENT - PARKER NO. 932612Q



HYDRAULIC POWER UNIT  
 MOTOR 5HP 3PH 230/460V TEFC  
 HEATER 120V 1PH 750 WATT NEMA 4  
 30 GALLON TANK

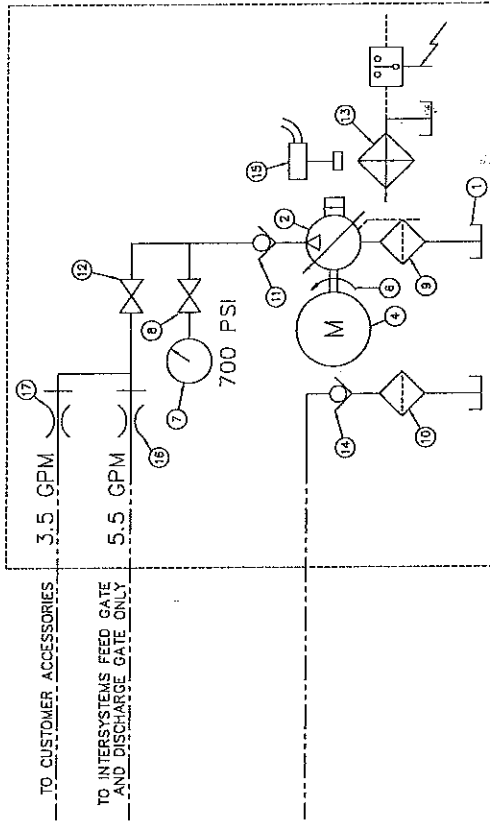
----- FIELD PLUMBING  
 BY CONTRACTOR

QUANTITY	DESCRIPTION OF MATERIAL AND SIZE	ITEM NUMBER	REV. UNITS
<b>BILL OF MATERIALS</b>			
TYPE	U/M	EA.	PRODUCT CODE
SOURCE	P		FAMILY CODE
CUSTOMER		CUSTOMER P.O. NO.	
		ORDER NO.	
<b>InterSystems</b> 133201 St. Dennis, N.E. 68137 402-330-1500			
REV. NO.	REV. DATE	REV. NO.	REV. DATE
532295	6/98	532295	
1	L	1	OF

NOTE: POWER UNIT TO BE TEST RUN, PRESSURE RELIEF TO BE SET AT 700 PSI, PUMP ROTATION TO BE HIGHLY VISIBLY MARKED AND ONE (1) CERTIFICATE OF TESTING SENT WITH POWER UNIT AND ONE (1) CERTIFICATE OF TESTING SENT TO INTERSYSTEMS, INC.  
**SUBSTITUTION TO ANY COMPONENT LISTED WITH PART NUMBER MUST BE APPROVED BY INTERSYSTEMS, INC.**



REV	DATE	DESCRIPTION	BY
			532304



HYDRAULIC POWER UNIT  
 MOTOR 5HP 3PH 230/460V IIG  
 HEATER 120V 1PH 750 WATT NEMA 9  
 30 GALLON TANK

----- FIELD PLUMBING  
 BY CONTRACTOR

HYDRAULIC POWER UNIT CONSISTING OF:

ITEM	QTY	PART NO.	DESCRIPTION
1	1	10030-REV B	RESERVOIR, 30 GALLON W/SITE GLASS & THERM. - VESCOR
2	1	PVP2320R	PUMP, VARIABLE VOLUME PISTON - PARKER
3	1	1952	PUMP / MOTOR ADAPTER
4	1	158366	MOTOR, 5 HP IIG 230/460V, 3PH 1750 RPM 184TC FRAME
5	1	5135	BASE PLATE, MOTOR
6	1	LO95	COUPLING - LOVEJOY
7	1	25.900-2000	GAUGE, SPAN PFEASURE 0-2000 PSI
8	1	MV400-S	SHUT OFF VALVE - PARKER
9	1	P20-1-1/4-100RV3	SUCTION STRAINER - FLO-EZY
10	1	15CN110QM250B1B1-1	FILTER, MICROGLASS ELEMENT - PARKER**
11	1	D1750MOMF-05	CHECK VALVE (PRESSURE) - PARKER
12	1	VP500CS-8	BALL VALVE - PARKER
13	1	BCS13J1-E/W21	HEATER, 750 WATT, 110V, 1PH, NEMA 9 - WATLOW
14	1	C800S	CHECK VALVE (RETURN) - PARKER
15	1	L6EPB-B-S-3-A	SWITCH, LOW LEVEL / HIGH TEMP (70°C) IIG - FLOTECT
16	1	FR101F6006P	FLOW CONTROL PRESSURE COMP., 5.5 GPM - PARKER
17	1	FR101F4006P	FLOW CONTROL PRESSURE COMP., 3.5 GPM - PARKER
18	1		LABE, NOTICE: "DO NOT MIX HYDRAULIC OIL"

\*PUMP VOLUME SET AT 9.5 GPM PRESET TO 700 PSI

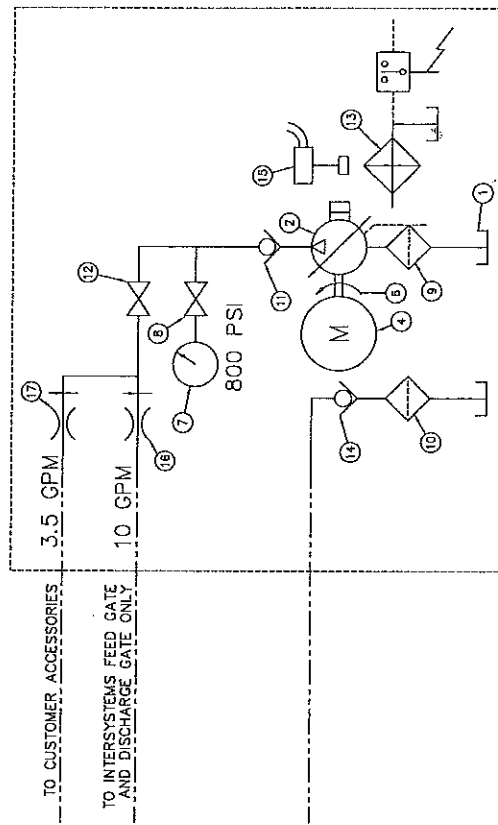
\*\*FILTER REPLACEMENT ELEMENT - PARKER NO. 932612Q

NOTE: POWER UNIT TO BE TEST RUN, PRESSURE RELIEF TO BE SET AT 700 PSI, PUMP ROTATION TO BE HIGHLY VISIBLY MARKED AND ONE (1) CERTIFICATE OF TESTING SENT WITH POWER UNIT AND ONE (1) CERTIFICATE OF TESTING SENT TO INTERSYSTEMS, INC.

**SUBSTITUTION TO ANY COMPONENT LISTED WITH PART NUMBER MUST BE APPROVED BY INTERSYSTEMS, INC.**

MODEL NO.	QTY	DESCRIPTION OF MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>				
TYPE SOURCE	M	1/4" EA	PRODUCT CODE PUR	48
CUSTOMER			FAMILY CODE	48
		CUSTOMER P.O. NO.	ORDER NO.	
<b>InterSystems</b> 13330 J St, Omaha, Ne. 68137 402-330-1500 HYD POWER UNIT 5 HP IIG PSR/COMP				
DATE	REV	DATE	REV	REV.
6/88	CBW	6/88	532304	532304
REV	REV	REV	REV	REV
1	L	1	L	1
				SHEET OF

REV	DATE	REVISIONS	DESCRIPTION
		532303	



HYDRAULIC POWER UNIT  
 MOTOR 7.5HP 3PH 230/460V TEFC  
 HEATER 120V 1PH 750 WATT NEMA 4  
 30 GALLON TANK

----- FIELD PLUMBING  
 BY CONTRACTOR

HYDRAULIC POWER UNIT CONSISTING OF:

ITEM	QTY	PART NO.	DESCRIPTION
1	1	10030-REV B	RESERVOIR, 30 GALLON W/SITE GLASS & THERM. - VESCOR
2	1	PVP3320R	PUMP, VARIABLE VOLUME PISTON - PARKER
3	1	1952	PUMP / MOTOR ADAPTER
4	1	150165	MOTOR, 7.5 HP TEFC 230/460V, 3PH 1750 RPM 213TC FRAME
5	1	5131	BASE PLATE, MOTOR
6	1	L095	COUPLING -- LOVEJOY
7	1	25.900-2000	GAUGE, SPAN PFESSURE 0-2000 PSI
8	1	MV400-S	SHUT OFF VALVE - PARKER
9	1	P20-1-1/4-100RV3	SUCTION STRAINER - FLO-EZY
10	1	15CN110QM250B1B1-1	FILTER, MICROGLASS ELEMENT - PARKER**
11	1	DT750MOMF-05	CHECK VALVE (PRESSURE) - PARKER
12	1	VP500CS-8	BALL VALVE - PARKER
13	1	BCS13J1-W21	HEATER, 750 WATT, 110V, 1PH, NEMA 4 - WATLOW
14	1	C800S	CHECK VALVE (RETURN) - PARKER
15	1	B4030N-70-CNO	SWITCH, LOW LEVEL / HIGH TEMP (70°C) - ADV. TECH.
16	1	PPCCK600S10.0	FLOW CONTROL PRESSURE COMP., 10 GPM - PARKER
17	1	FR101F4006P	FLOW CONTROL PRESSURE COMP., 3.5 GPM - PARKER
18	1		LABLE, NOTICE: "DO NOT MIX HYDRAULIC OIL"

\*PUMP VOLUME SET AT 14.0 GPM PRESET TO 800 PSI

\*\*FILTER REPLACEMENT ELEMENT - PARKER NO. 932612Q

NOTE: POWER UNIT TO BE TEST RUN, PRESSURE RELIEF TO BE SET AT 800 PSI, PUMP ROTATION TO BE HIGHLY VISIBLY MARKED AND ONE (1) CERTIFICATE OF TESTING SENT WITH POWER UNIT AND ONE (1) CERTIFICATE OF TESTING SENT TO INTERSYSTEMS, INC.  
**SUBSTITUTION TO ANY COMPONENT LISTED WITH PART NUMBER MUST BE APPROVED BY INTERSYSTEMS, INC.**

FORM NO.	QTY	DESCRIPTION & MATERIAL AND SIZE	ITEM NUMBER	DTL. UNITS
		<b>BILL OF MATERIALS</b>		
		TYPE M U/A GA	PRODUCT CODE RLR	DATE 9/98
		SOURCE P	FAMILY CODE 49	REV. 532303
		CUSTOMER	CUSTOMER P.O. NO.	SCALE 1 L OF
			ORDER NO.	
<b>TOLERANCES</b>		<b>InterSystems</b>		
UNLESS OTHERWISE SPECIFIED		13331 St. Onions, No. 58137 402-530-1500		
FINISH UNLESS OTHERWISE SPECIFIED		HYD POWER UNIT 7.5 HP TEFC PSR/COMP		
DIMENSIONS TO FACE UNLESS OTHERWISE SPECIFIED		DATE 9/98		
DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		REV. 532303		
DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED		SCALE 1 L OF		

REV	DATE	REVISIONS	5.32.305
		DESCRIPTION	BY

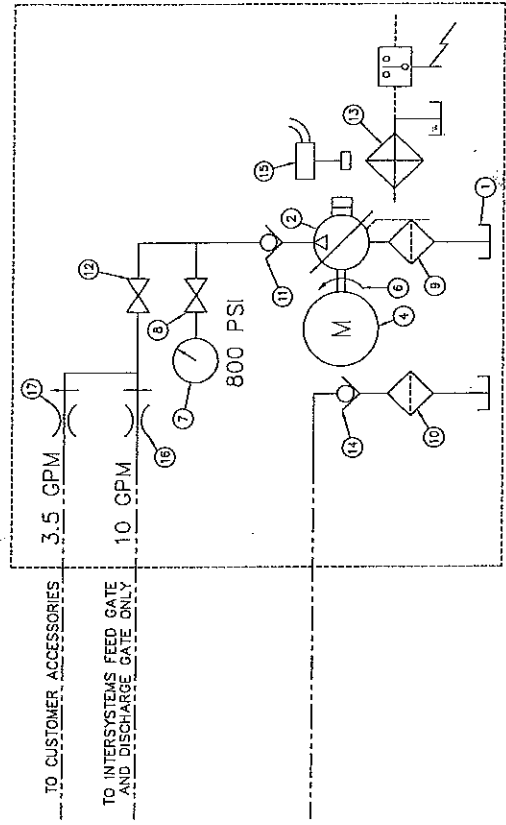
HYDRAULIC POWER UNIT CONSISTING OF:

ITEM QTY	PART NO.	DESCRIPTION
1	10030-REV B	RESERVOIR, 30 GALLON W/SITE GLASS & THERM. - VESCOR
2	PVP3320R	PUMP, VARIABLE VOLUME PISTON - PARKER
3	1952	PUMP / MOTOR ADAPTER
4	158157	MOTOR, 7.5 HP IIG 230/460V, 3PH 1750 RPM 213TC FRAME
5	5131	BASE PLATE, MOTOR
6	L095	COUPLING - LOVEJOY
7	25.900-2000	GAUGE, SPAN PFESSURE 0-2000 PSI
8	MV400-S	SHUT OFF VALVE - PARKER
9	P20-1-1/4-100RV3	SUCTION STRAINER - FLO-EZY
10	15CN110QM250B1B1-1	FILTER, MICROGLASS ELEMENT - PARKER**
11	DT750MOMF-05	CHECK VALVE (PRESSURE) - PARKER
12	VP500CS-8	BALL VALVE - PARKER
13	BCS13J1-E/W21	HEATER, 750 WATT, 110V, 1PH, NEMA 9 - WATLOW
14	C800S	CHECK VALVE (RETURN) - PARKER
15	L6EPB-B-S-3-A	SWITCH, LOW LEVEL / HIGH TEMP (70°C) IIG - FLOTECT
16	PPCCK600S10.0	FLOW CONTROL PRESSURE COMP., 10 GPM - PARKER
17	FR101F4006P	FLOW CONTROL PRESSURE COMP., 3.5 GPM - PARKER
18		LABE, NOTICE: "DO NOT MIX HYDRAULIC OIL"

\*PUMP VOLUME SET AT 14.0 GPM PRESET TO 800 PSI

\*\*FILTER REPLACEMENT ELEMENT - PARKER NO. 932612Q

NOTE: POWER UNIT TO BE TEST RUN, PRESSURE RELIEF TO BE SET AT 800 PSI, PUMP ROTATION TO BE HIGHLY VISIBLY MARKED AND ONE (1) CERTIFICATE OF TESTING SENT WITH POWER UNIT AND ONE (1) CERTIFICATE OF TESTING SENT TO INTERSYSTEMS, INC.  
**SUBSTITUTION TO ANY COMPONENT LISTED WITH PART NUMBER MUST BE APPROVED BY INTERSYSTEMS, INC.**



HYDRAULIC POWER UNIT  
 MOTOR 7.5HP 3PH 230/460V IIG  
 HEATER 120V 1PH 750 WATT NEMA 9  
 30 GALLON TANK

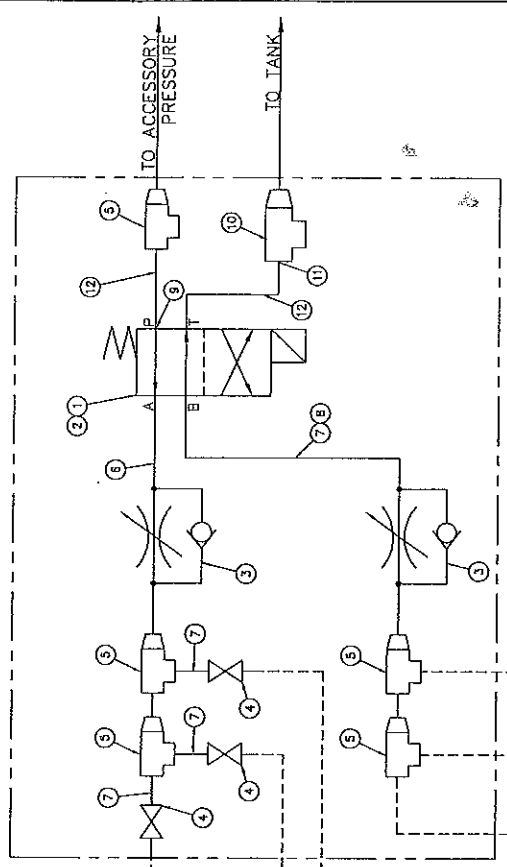
----- FIELD PLUMBING  
 BY CONTRACTOR

QUANTITY	DESCRIPTION OF MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>			
TYPE	U/A	EA	PLUR
SOURCE	P		43
CUSTOMER	CUSTOMER P.O. NO. _____ ORDER NO. _____		
TOLERANCES			
UNLESS OTHERWISE SPECIFIED			
FRACTIONS TO BE DECIMALS			
DIMENSIONS TO BE IN UNLESS OTHERWISE SPECIFIED			
THIS DRAWING IS THE PROPERTY OF INTERSYSTEMS, INC. IT IS TO BE USED FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED BY THE DRAWING NUMBER. IT IS TO BE KEPT IN THE OFFICE OF THE ARCHITECT OR ENGINEER.			
DATE	BY	REV.	
8/98	CSW	532305	
1	L	532305	
			OF

REV	DATE	DESCRIPTION	532300
BY			

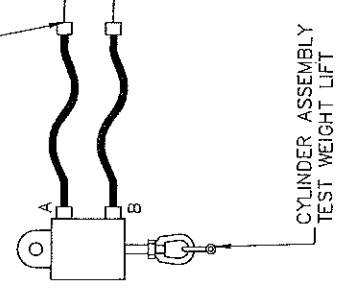
AUTOMATIC TEST WEIGHT LIFT KIT CONSISTING OF:

EMI QTY	PART NO.	DESCRIPTION
1	DIVW20BNYCFC	VALVE, HYDRAULIC 2 POS DO3 120V IIG - PARKER
2	AD03SPS6P	SUB-PLATE, SIDE PORTS - DAMAN
3	F600-S	VALVE, ADJ FLOW CONTROL - PARKER
4	V500CS-6	VALVE, BALL 2000 PSI
5	3/8 MRO-S	TEE, MALE RUN 3/8 - PARKER
6		NIPPLE, BLACK PIPE 3/8 x 3 LG
7		NIPPLE, BLACK PIPE 3/8 CLOSE
8	3/8-CDS	ELBOW, 90° STREET 3/8 - PARKER
9	6-6 FTX-S	CONNECTOR, STRAIGHT 3/8 MPT x 3/8 MJC - PARKER
0	1/2 MRO-S	TEE, MALE RUN 1/2 - PARKER
1	6-8 CTX-S	ELBOW, 90° 1/2 MPT x 3/8 MALE JIC - PARKER
2	K4210106-6-6-6-8	HOSE, HYD 3/8 MPT x 3/8 FEMALE JIC
3	BK-209	BOLT KIT, DO3 HYD VALVE - PARKER



FIELD PLUMBING (BY OTHERS)

3/8 MPT TYP.



QTY	DESCRIPTION or MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>			
TYPE	U/A	EA	PRODUCT CODE
SOURCE			FAULTY CODE
CUSTOMER		CUSTOMER P.O. NO.	
		ORDER NO.	
<b>InterSystems</b> 13330 E. Omaha, Ne. 68137 402-330-1500			
QTY REQ'D	DESCRIPTION	REV	REV
	AUTO LIFT KIT HYD POWER UNIT (IIG)	B/68	532300
REV BY	SCALE	REV	REV
CBW	1	532300	532300
SCALE			

**HYDRAULIC  
POWER UNIT  
PARTS  
INFORMATION**

**PRESSURE  
COMPENSATING  
PISTON PUMP**

### Performance Information

Series PVP 23/33 Pressure Compensated, Variable Volume, Piston Pumps

#### Features

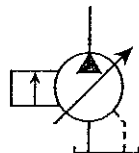
- High Strength Cast-Iron Housing for Reliability and Quiet Operation
- Vickers Porting Interchange
- Optional Inlet/Outlet Locations for Ease of Installation
- Replaceable Bronze Port Plate
- Replaceable Piston Slipper Plate
- Thru-Shaft Capability SAE A, AA and B Pilots Offered
- Low Noise Levels
- Fast Response Times
- Metric Pilot Shaft and Ports Available

#### Controls

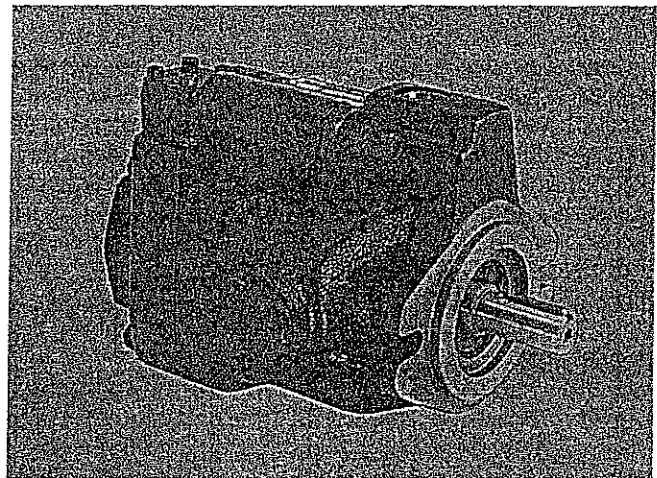
- Pressure Compensation
- Remote Pressure Compensation
- Load Sensing
- Torque (Horsepower) Limiting
- Adjustable Maximum Volume Stop
- Low Pressure Standby

#### Schematic Symbol

(Basic Pump)



Consult your Parker Representatives on applications requiring higher than rated pressure, over-speed conditions, indirect drive, fluids other than mineral base fluid, and operation at temperatures above 160°F (71°C).



#### Specifications

##### Pressure Ratings

Outlet Port: 3600 PSI (248 bar) Continuous (P1)  
4500 PSI (310 bar) Peak (P3)

Inlet Port: 25 PSI (1.72 bar) Maximum  
5 In. Hg. Minimum @ 1800 RPM  
(See inlet chart for other speeds)

Speed Ratings: 600-3000 RPM

Operating Temperature Range: - 40°F to 160°F  
(- 40°C to 71°C)

Housing Material: Cast-Iron

Filtration: Maintain SAE Class 4,  
ISO 16/13,  
ISO 18/15 Maximum

Mounting: SAE "B" 2-Bolt Flange Mount

Installation Data: See page 56 of this catalog for specific recommendations pertaining to system cleanliness, fluids, start-up, inlet conditions, shaft alignment, drain line restrictions and other important factors relative to the proper installation and use of these pumps.

#### Quick Reference Data Chart

Pump Model	Displacement cc/rev (in <sup>3</sup> /rev)	Pump Delivery @ 300 PSI (21 bar) in GPM (LPM)		*Approx. Noise Levels dB(A) @ Full Flow 1800 RPM (1200 RPM)					Horsepower At 1800 RPM, Max. Displacement & 3600 PSI
		1200 RPM	1800 RPM	500 PSI	1000 PSI	2000 PSI	3000 PSI	3600 PSI	
				(34 bar)	(69 bar)	(138 bar)	(207 bar)	(248 bar)	
PVP23	23 (1.4)	7.4 (28.0)	11.1 (42.0)	74 (69)	75 (70)	77 (75)	80 (75)	68 (63)	20.5
PVP33	33 (2.0)	10.4 (39.4)	15.6 (59.0)	4 (69)	75 (70)	77 (75)	80 (75)	69 (65)	28.5

\* Since many variables such as mounting, tank style, plant layout, etc., effect noise levels, it cannot be assumed that the above readings will be equal to those in the field. The above values are for guidance in selecting the proper pump. Noise levels are A-weighted, mean sound pressure levels at 1 meter from the pump, measured and recorded in accordance with applicable ISO and NFPA standards.

#### Special Installation or Fluids

# **RETURN FILTER**



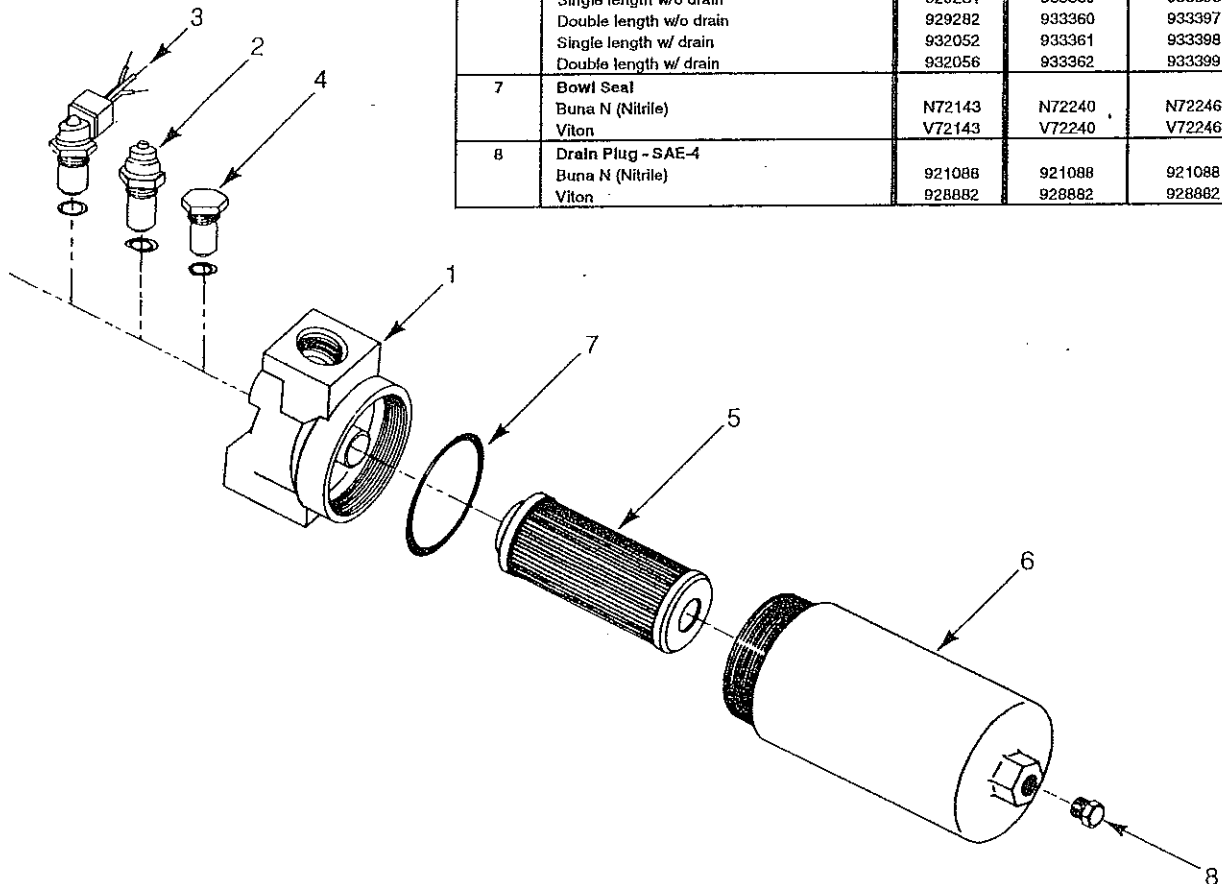
### Filter Service

When servicing a filter, use the following procedure:

- A. Stop the system's power unit.
- B. Relieve pressure in filter line.
- C. Rotate bowl counter-clockwise and remove.
- D. Remove element from housing. Discard all disposable elements. These elements are not cleanable.
- E. Place new, clean element in housing, centering it on location in the head.
- F. Inspect bowl seal and replace if necessary.
- G. Replace bowl. Rotate clockwise and hand tighten.

### Parts List

Index	Description	15CN	40CN	80CN	
1	Head				
	3/4" NPT w/ bypass or indicator	929385	N/A	N/A	
	3/4" NPT no bypass or indicator	929398	N/A	N/A	
	SAE-12 w/ bypass or indicator	929383	N/A	N/A	
	SAE-12 no bypass or indicator	929396	N/A	N/A	
	1" NPT w/ bypass or indicator	929384	929547	N/A	
	1" NPT no bypass or indicator	929397	929555	N/A	
	SAE-16 w/ bypass or indicator	929382	929545	N/A	
	SAE-16 no bypass or indicator	929395	929553	N/A	
	1 1/2" NPT w/ bypass or indicator	N/A	929546	929633	
	1 1/2" NPT no bypass or indicator	N/A	929554	929637	
	SAE-24 w/ bypass or indicator	N/A	929544	929645	
	SAE-24 no bypass or indicator	N/A	929552	929649	
	2" NPT w/ bypass or indicator	N/A	N/A	929635	
	2" NPT no bypass or indicator	N/A	N/A	929639	
	SAE-32 w/ bypass or indicator	N/A	N/A	929647	
SAE-32 no bypass or indicator	N/A	N/A	929651		
Flange face, SAE 2" w/ bypass or indicator	N/A	N/A	929656		
Flange face, SAE 2" no bypass or indicator	N/A	N/A	929660		
2	Indicator/Bypass Assemblies				
	*consult factory for no bypass assemblies				
	M2-Visual auto reset/ 25 psi	932031	932038	932038	
	M2-Visual auto reset/ 50 psi	931706	932039	932039	
	3	E-Electrical/ 25 psi with conduit connection	929962	930036	930036
		E-Electrical/ 50 psi with conduit connection	929972	930038	930038
		E1-Electrical/ 25 psi with wire leads	929963	930040	930040
	E1-Electrical/ 50 psi with wire leads	929973	930042	930042	
	E2-Electrical/ 25 psi with DIN connection	929964	930052	930052	
	E2-Electrical/ 50 psi with DIN connection	929974	930054	930054	
E3-Electrical/ 25 psi with 3-pin connection	929965	930048	930048		
E3-Electrical/ 50 psi with 3-pin connection	929975	930050	930050		
4	No indicator/ 25 psi bypass	930521	929846	929846	
	No indicator/ 50 psi bypass	930523	929848	929848	
5	Element (see model code page)				
6	Bowl				
	Single length w/o drain	929281	933359	933396	
	Double length w/o drain	929282	933360	933397	
	Single length w/ drain	932052	933361	933398	
Double length w/ drain	932056	933362	933399		
7	Bowl Seal				
	Buna N (Nitrile)	N72143	N72240	N72246	
Viton	V72143	V72240	V72246		
8	Drain Plug - SAE-4				
	Buna N (Nitrile)	921088	921088	921088	
Viton	928882	928882	928882		



# Medium Pressure Filters

CN Series

## Installation and Specification Data Model 80CN

### Specifications:

Maximum Allowable Operating Pressure (MAOP): 800 psi (55 bar)

Design Safety Factor: 2.5:1

Rated Fatigue Pressure: 550 psi (38 bar) Per NFPA/T3.10.5.1-category 2/90

**Warning:** Maximum absolute system pressure must not exceed filter's rated fatigue pressure (RFP) of 550 psi if the system frequently cycles between 0 and RFP. Also, limitations on fittings may restrict operating

pressure to less than rated static pressure (RSP) of 800 psi. Refer to SAE J1065, Table 2 for fitting recommendations. Please consult Parker Filter Division if you have questions about your application.

### Operating Temperatures:

Buna N (Nitrile) — -40°F to 225°F (-40°C to 107°C)

Viton — -15°F to 275°F (-26°C to 135°C)

### Element Collapse Rating:

10C—150 psi (10 bar)  
03B, 10B, 20B—150 psi (10 bar)

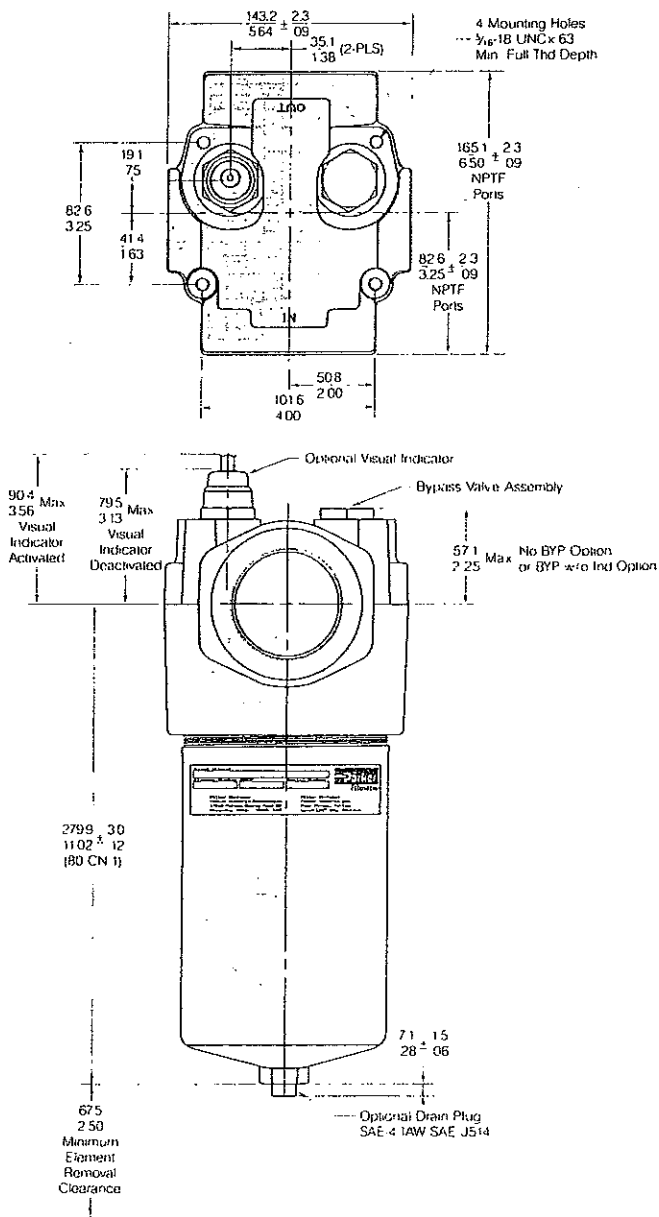
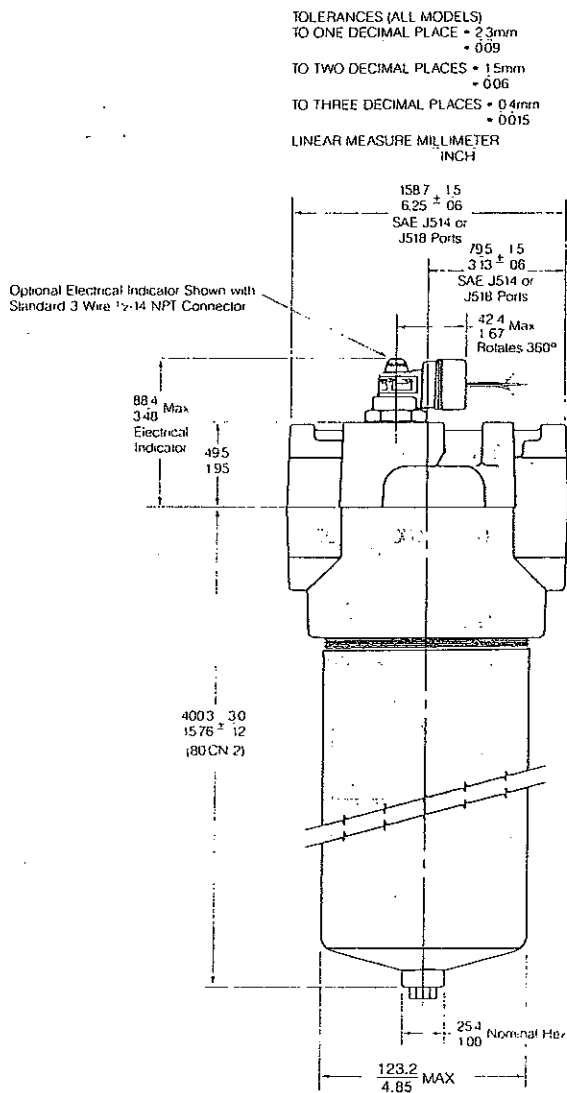
Visual Indicator (optional): Differential pressure type.

Electrical Indicator (optional): Electrical Switch rated 5A at 125/250 VAC, 7A resistive and 3A inductive at 28VDC. Color coding: White (N.C.), Red (N.O.), Black (common).

Filter Housing: Aluminum.

### Weights (approximate):

80CN-1	12.4 lb. (5.62 kg)
80CN-2	15.2 lb. (6.89 kg)



# Medium Pressure Filters

CN Series

## HOW TO ORDER:

Select the desired symbol (in the correct position) to construct a model code.

Example:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
	15CN	1	10Q	M2	25	B1B1	1	(Assigned By Parker)

BOX 1: Seals	
Symbol	Description
None	Buna N (nitrile)
E8	EPR
F3	Viton

BOX 2: Model	
Symbol	Description
15CN	In-line filter
40CN	In-line filter
80CN	In-line filter

BOX 3: Housing Length	
Symbol	Description
1	Single
2	Double

BOX 4: Media Core	
Symbol	Description
10C	Cellulose
20Q	Microglass II
10Q	Microglass II
05Q	Microglass II
02Q	Microglass II
WR	Water removal

BOX 5: Indicator Options	
Symbol	Description
M2	Visual auto reset
E	Electrical (w/ 1/2" NPT conduit connection and wire leads)
E1	Electrical (w/ 12" leads only)
E2	Electrical (DIN 43650 Hirschman style connection)
E3	Electrical (ANSI/B93.55M 3-pin Brad Harrison style connection)
P	No indicator (use when filter model is equipped with a bypass valve)
N	No indicator (use with no bypass option)

BOX 6: Bypass and Indicator Setting	
Symbol	Pressure Setting
25	25 psi (1.7 bar) setting
50	50 psi (3.4 bar) setting

If "no bypass" option (-11) and an indicator is selected, above symbols (25,50) denote indicator setting

BOX 7: Ports		
Model	Symbol	Description
15CN	B1B1	3/4"NPT
15CN	C1C1	1"NPT
15CN	M4M4	SAE-12 straight thread
15CN	N4N4	SAE-16 straight thread
40CN	C1C1	1"NPT
40CN	E1E1	1 1/2"NPT
40CN	N4N4	SAE-16 straight thread
40CN	P4P4	SAE-24 straight thread
80CN	E1E1	1 1/2"NPT
80CN	F1F1	2"NPT
80CN	P4P4	SAE-24 straight thread
80CN	R4R4	SAE-32 straight thread
80CN	Y9Y9	Flange face, SAE 2"

BOX 8: Options	
Symbol	Description
1	None
11	No bypass
19	Drain port on bowl
21	No bypass and drain port

**BOX 9: Design Number**  
Applied to filter assembly by Parker Filter Division. Use the full filter model code, including the design number when ordering replacement parts, elements and cartridges.

## Replacement Element Part Numbers (Viton)

Media	15CN-1	15CN-2	40CN-1	40CN-2	80CN-1	80CN-2
20Q	930369Q	930370Q	930100Q	930119Q	929903Q	929927Q
10Q	932612Q	932618Q	932651Q	932655Q	932661Q	932667Q
05Q	932611Q	932617Q	932650Q	932654Q	932660Q	932666Q
02Q	932610Q	932616Q	932649Q	932653Q	932659Q	932665Q
10C	925385	925394	930096	930115	929912	929936
WR	N/A	N/A	931412	931414	931416	931418

# **SUCTION STRAINER**

## HOW TO ORDER

Select the desired specifications from the ordering table and build an ordering code number, as shown in this example:

P - 50 - 2 - NIPPLE - 100 - RV-3  
 STYLE - GPM - NPT - CONNECTION - MESH - VALVE  
(spell out NIPPLE if wanted) (omit if not wanted)

STYLE	GPM (Flow Capacity)	NPT (Pipe Size)	CONNECTION (Nut or Nipple)	MESH (Screen size)	VALVE (Optional)
P (std. Nyl-End)	3	3/8	Nut or Nipple (to get nipple you must specify it)	30 (.022-in.)	RV-3 (3-psi bypass)
	3	1/2			
	3	3/4			
PASS (S.S. Nyl-End)	5	3/4	no symbol (nut)	60 (.010-in.)	RV-5 (5-psi bypass)
	5	1			
	10	1	(nipple N/A)	100 (.005-in.)	
	20	1-1/4			
	30	1-1/2			
	50	1-1/2	Nipple Only	200 (.0029-in.)	
30	2	Nut or Nipple (to get nipple you must specify it)			
50	2				
75	2-1/2				
100	3				

(Pressure drop through a clean element will not exceed 0.2 psi (0.4-in. Hg) at rated flow of 150 SUS viscosity fluid.)

## NYLON CONNECTOR TYPE

"Nyl-End" sump strainers (Style P) are made with the same selection of stainless steel elements as the standard all-metal units. They differ in that the connector end pieces are molded in a single piece of glass-reinforced nylon resin. Pleated stainless elements are epoxy-bonded in place.

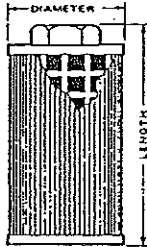
They're as serviceable as all-metal units, but they cost 12 to 50 percent less, depending on size.

## ALL-STAINLESS CONSTRUCTION

All-stainless-steel sump strainers with nylon connectors (Style PASS) are available in the same wide variety of sizes and element mesh sizes as the standard Nyl-End units. For excellent resistance to oxidation and corrosion. (Not a stocked item.)

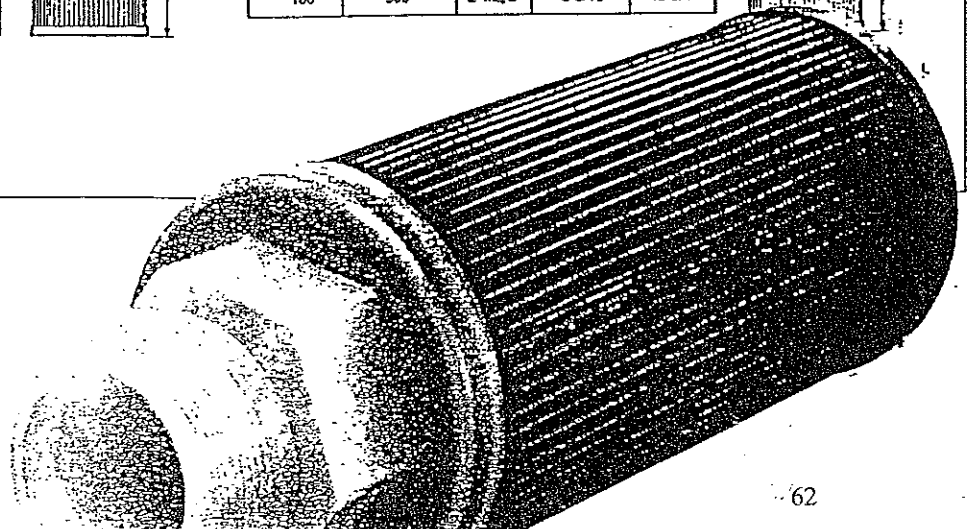
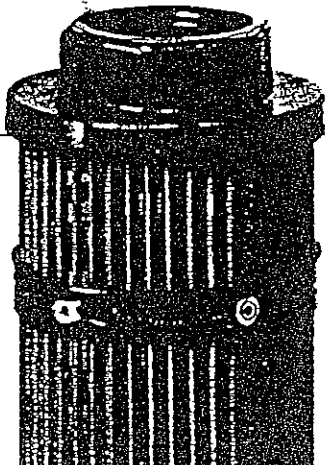
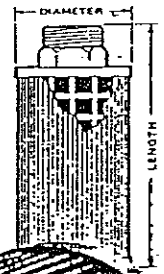
### NUT STYLE

GPM RATING	SCREEN AREA (Sq. Inches)	NPT (Pipe Size)	OVERALL DIMENSIONS	
			Diameter	Length
3	40	3/8 & 1/2	2-1/4	2-11/16
5	62	3/4	3-3/16	3-1/2
10	125	1	3-3/16	5-3/4
20	162	1-1/4	3-3/16	7-3/8
30	310	1-1/2 & 2	4-3/16	9-1/8
50	340	1-1/2 & 2	4-3/16	9-3/4
75	400	2-1/2	5-1/16	12-1/2
100	500	3	5-1/16	12-1/2



### NIPPLE STYLE

GPM RATING	SCREEN AREA (Sq. Inches)	NPT (Pipe Size)	OVERALL DIMENSIONS	
			Diameter	Length
3	40	1/2, 3/8, 3/4	2-1/8	3-3/4
30	310	2	4-3/16	10-5/8
50	340	2 & 2-1/2	4-3/16	11-1/4
75	400	2-1/2	5-3/16	13-3/4
100	500	2-1/2, 3	5-3/16	13-3/4



**TANK SWITCH  
LOW LEVEL /  
HIGH TEMP**

# LEVEL and TEMPERATURE SWITCH

# ACT 4000 SERIES

## OPERATION

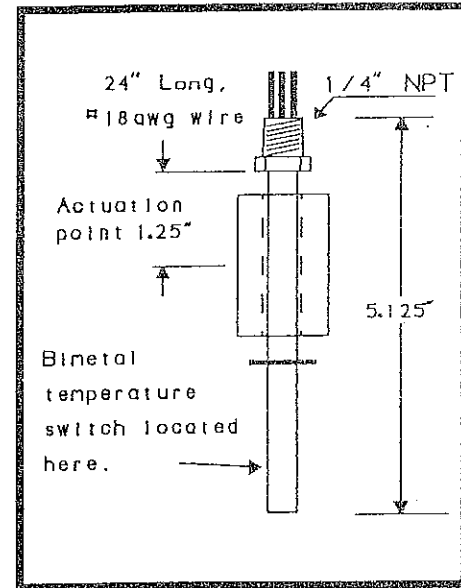
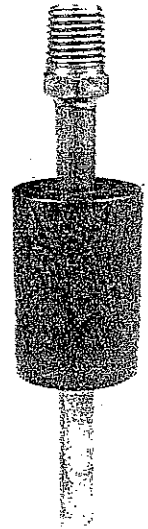
- The ACT 4000 series uniquely monitors fluid levels and temperatures in applications such as hydraulic oil, and machine coolants.
- A rugged bimetal temperature switch will either open or close at a pre-set temperature that fits your application requirements.
- The hermetically sealed reed switch monitors float movement providing a control signal to operate pumps or industrial loads.
- Field adjustable float switch ( N.O. or N.C. ) eliminates the need to stock several separate control units.

## OPTIONS

- Multiple switches on a single stem monitor several levels and temperature set points.
- Mounting fittings, splash shields, and longer electrical wires can be provided to make installations easier.
- Pump control relays, annunciators, and indicator light packages available.

## ORDERING INFORMATION

Choose a base part number, then add the three additional criteria to obtain a complete part number. A common hydraulic reservoir switch is part number B4030N-60-CR-N.C. This means the temperature switch will close on rising temperature at 60<sup>o</sup>C, and the level switch will be closed with the float against the bottom retaining ring.



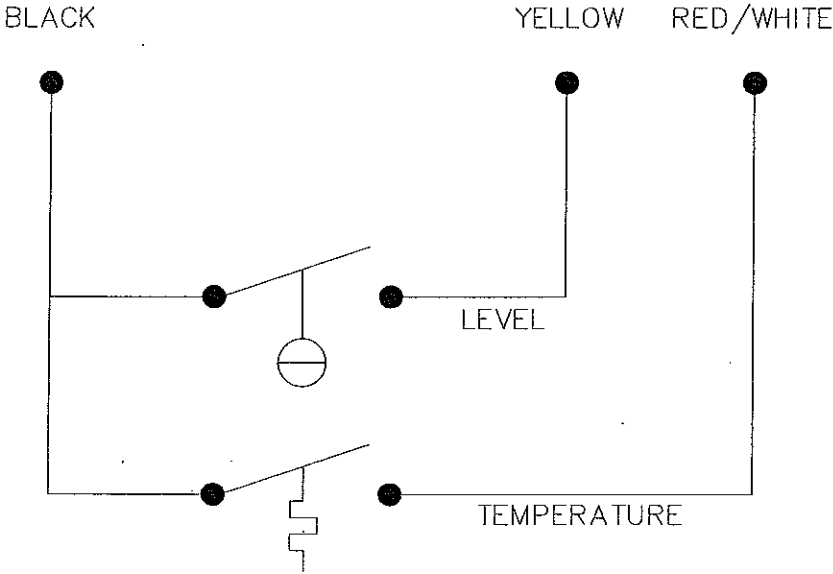
BASE PART NUMBER	*TEMPERATURE SWITCH Set point + Operation 5 <sup>o</sup> Increments	**FLOAT SWITCH + Operation	CONSTRUCTION MATERIALS	DELIVERY
B4030N	0 - 150 <sup>o</sup> C Range	Open = C Close = CR N.O. or N.C.	Brass stem and nylon float 1.18" dia.	3 to 30 DAYS

\*Specify temperature set point, and switch operation either open or close on rising temperature.

\*\* Select level switch operation with float against lower retaining ring.

Electrical rating is 6 amps @ 120vac for the temperature switch, and 100 watts for the level switch.

LOW LEVEL/HIGH TEMP SWITCH WIRING SCHEMATIC  
LEVEL SWITCH NORMALLY CLOSED OPERATION  
TEMPERATURE SWITCH NORMALLY OPEN TO CLOSE  
AT SET POINT





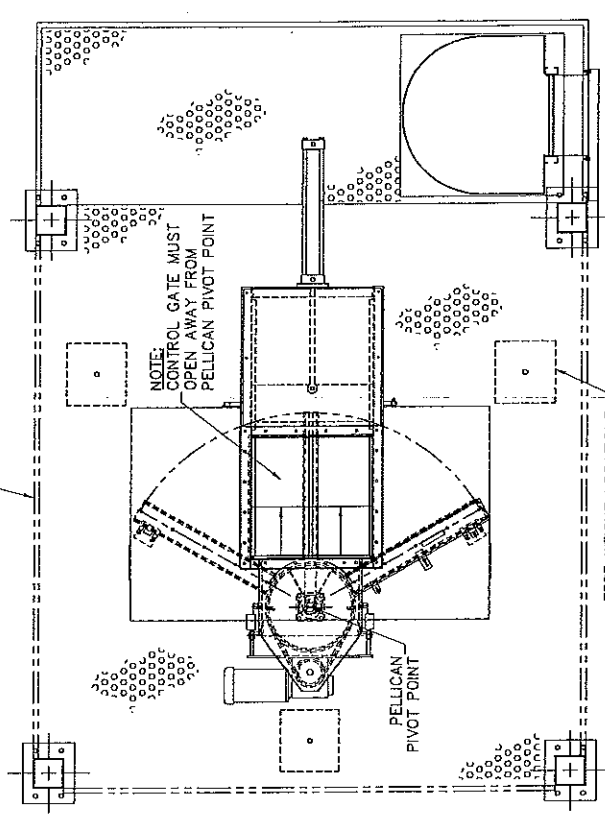
# **APPENDIX A**

# **REFERENCE DRAWINGS**

**SAMPLER  
CONTROL GATE  
ORIENTATION**

REV	DATE	DESCRIPTION	BY

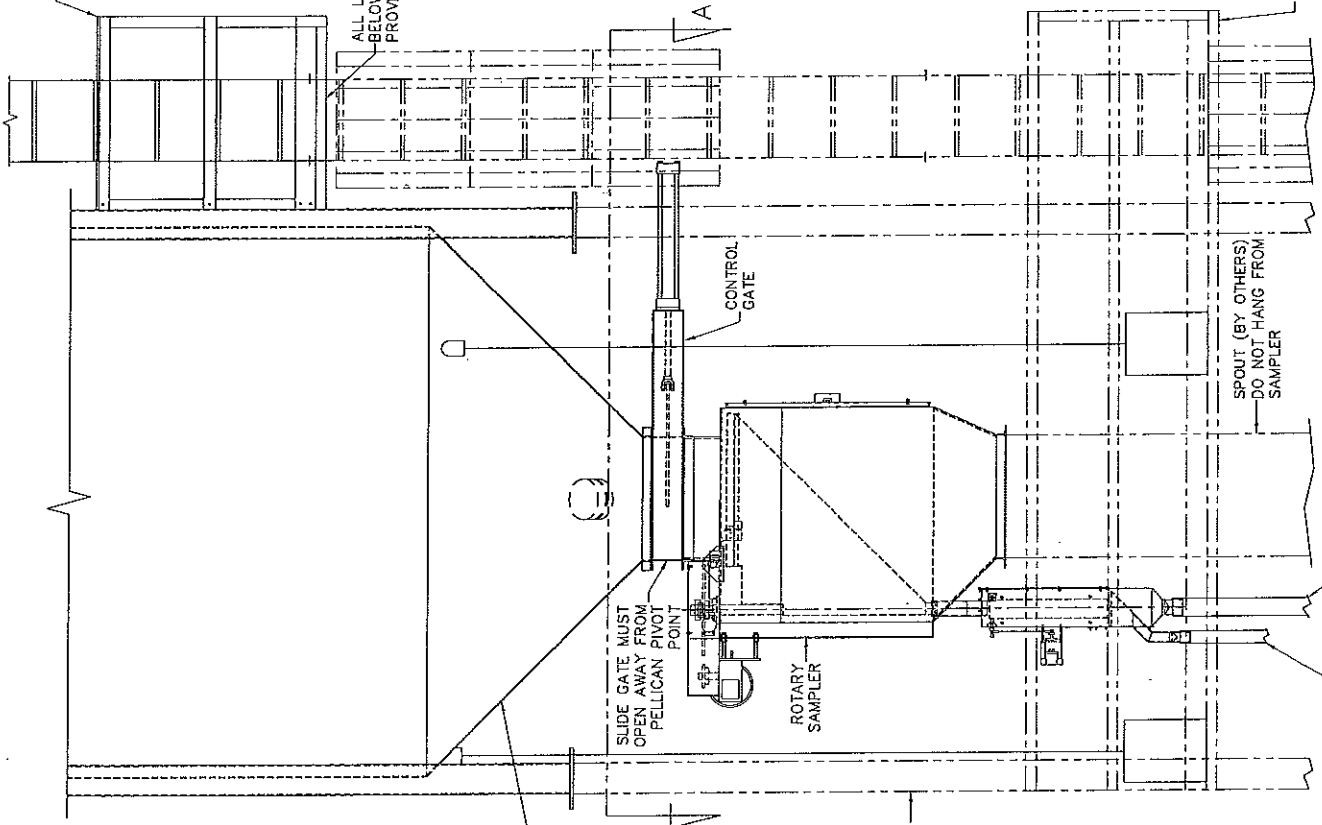
TYPICAL WORK PLATFORM WITH HAND RAIL FOR SAMPLER AND TEST WEIGHTS. (BY OTHERS)



NOTE ORIENTATION OF CONTROL GATE TO SAMPLER PELLICAN, TO MINIMIZE THE STRESS ON THE PELLICAN AND MAXIMIZE THE EFFECTIVE SWEEP OF THE SAMPLE TAKEN WITH A PARTIALLY OPEN CONTROL GATE

LOWER PLATFORM DECK & LADDER (OPTIONAL)

ALL LADDER, CAGE & PLATFORM BELOW THIS POINT NOT PROVIDED BY INTERSYSTEMS



TYPICAL WORK PLATFORM WITH HAND RAIL FOR SAMPLER AND TEST WEIGHTS (BY OTHERS)

BUBBLE NO.	QTY	DESCRIPTION or MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>				
Feb 19 88 4306				
TYPE	M	U/M	EA	PRODUCT CODE MFC
SOURCE	M			FAMILY CODE 48
CUSTOMER		CUSTOMER P.O. NO. _____ ORDER NO. _____		
<b>TOLERANCES</b>				
UNLESS OTHERWISE SPECIFIED				
MATERIALS SHALL BE TO THE TOLERANCES SHOWN UNLESS OTHERWISE SPECIFIED				
<b>FIELD ANGLE INDICATION</b>				
This drawing is the property of InterSystems, Inc. The information herein is not to be used, copied, or disseminated by any other party without the written permission of InterSystems, Inc.				
QTY REQD		DESCRIPTION		
		SAMPLER AND CONTROL GATE ORIENTATION		
DWG NO	CBW	DATE	2/99	ITEM NUMBER
				SAMPLER-GATE
DWG BY				ACAD FILE SAMPLER-GATE
SCALE	20	DRAWING NUMBER	A	SHEET
				1 OF 1

**InterSystems**  
13330 I St. Omaha, Ne. 68137 402-330-1500

# HYDRAULIC SYSTEM SCHEMATICS

Please note that the following drawings are use on standard configurations as listed below. For Custom Bulkweigher refer to the certified drawings sent with the system. On a factory assembled Bulkweigher a set of drawings can be found in the electrical termination box.

If your system has: **5 hp** Motor on Hydraulic Power Unit  
Pressure Compensating Pump on Hyd Pwr Unit  
MasterWeigh, Century, or OneWeigh Controller  
*(Single solenoid on feed gate)*

Refer to: 532396 HYD SCHEM 5HP PRSR COMP. 1W

If your system has: **5 hp** Motor on Hydraulic Power Unit  
Pressure Compensating Pump on Hyd Pwr Unit  
CompuWeigh Controller (CD2000 or CD3000)  
*(Dual solenoid on feed gate)*

Refer to: 534257 HYD SCHEM 5HP PRSR COMP. TRIM

If your system has: **7.5 hp** Motor on Hydraulic Power Unit  
Pressure Compensating Pump on Hyd Pwr Unit  
MasterWeigh, Century, or OneWeigh Controller  
*(Single solenoid on feed gate)*

Refer to: 532377 HYD SCHEM 7.5HP PRSR COMP. 1W

If your system has: **7.5 hp** Motor on Hydraulic Power Unit  
Pressure Compensating Pump on Hyd Pwr Unit  
CompuWeigh Controller (CD2000 or CD3000)  
*(Dual solenoid on feed gate)*

Refer to: 532392 HYD SCHEM 7.5HP PRSR COMP. TRIM

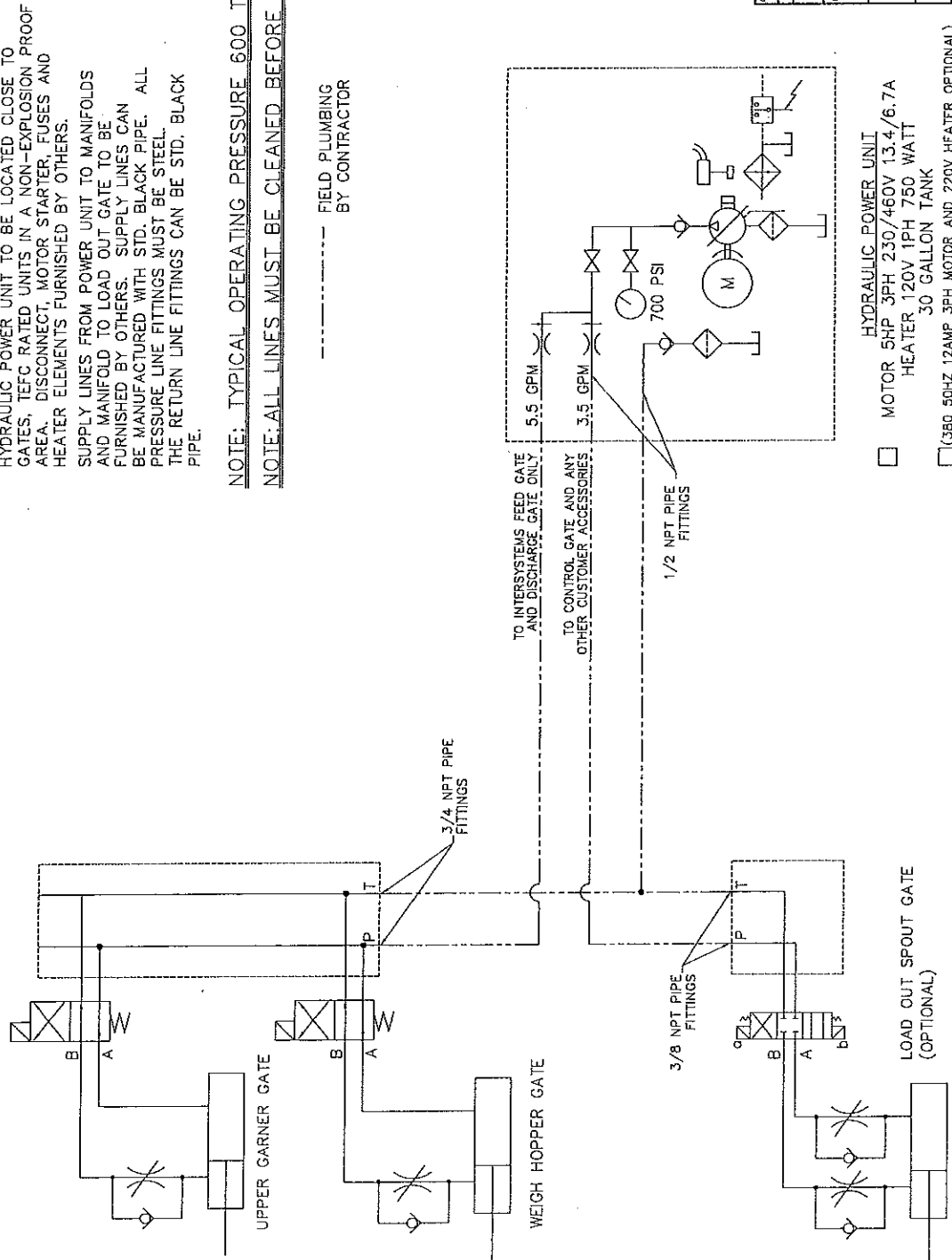
REV	DATE	DESCRIPTION	BY

532396

**NOTE:**  
 HYDRAULIC POWER UNIT TO BE LOCATED CLOSE TO GATES, TEFC RATED UNITS IN A NON-EXPLOSION PROOF AREA. DISCONNECT, MOTOR STARTER, FUSES AND HEATER ELEMENTS FURNISHED BY OTHERS.  
 SUPPLY LINES FROM POWER UNIT TO MANIFOLDS AND MANIFOLD TO LOAD OUT GATE TO BE FURNISHED BY OTHERS. SUPPLY LINES CAN BE MANUFACTURED WITH STD. BLACK PIPE. ALL PRESSURE LINE FITTINGS MUST BE STEEL. THE RETURN LINE FITTINGS CAN BE STD. BLACK PIPE.

**NOTE: TYPICAL OPERATING PRESSURE 600 TO 800 PSI**  
**NOTE: ALL LINES MUST BE CLEANED BEFORE ASSEMBLY**

----- FIELD PLUMBING BY CONTRACTOR



- HYDRAULIC POWER UNIT
- MOTOR 5HP 3PH 230/460V 13.4/6.7A  
HEATER 120V 1PH 750 WATT  
30 GALLON TANK
- (380 50HZ 12AMP 3PH MOTOR AND 220V HEATER OPTIONAL)

QTY	DESCRIPTION & MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>			
TYPE	M	EA	13330 I St. Omaha, Ne. 68137
SOURCE	M	EA	402-330-1500
CUSTOMER	CUSTOMER P.O. _____ ORDER NO. _____		
<b>TOLERANCES</b>			
UNLESS OTHERWISE SPECIFIED			
FRACTIONS DECIMALS			
1/16 0.0625			
1/8 0.125			
3/16 0.1875			
1/4 0.25			
5/16 0.3125			
3/8 0.375			
7/16 0.4375			
1/2 0.5			
5/8 0.625			
3/4 0.75			
7/8 0.875			
1 1.0			
1 1/8 1.125			
1 1/4 1.25			
1 3/8 1.375			
1 1/2 1.5			
1 5/8 1.625			
1 3/4 1.75			
1 7/8 1.875			
2 2.0			
2 1/8 2.125			
2 1/4 2.25			
2 3/8 2.375			
2 1/2 2.5			
2 5/8 2.625			
2 3/4 2.75			
2 7/8 2.875			
3 3.0			
3 1/8 3.125			
3 1/4 3.25			
3 3/8 3.375			
3 1/2 3.5			
3 5/8 3.625			
3 3/4 3.75			
3 7/8 3.875			
4 4.0			
4 1/8 4.125			
4 1/4 4.25			
4 3/8 4.375			
4 1/2 4.5			
4 5/8 4.625			
4 3/4 4.75			
4 7/8 4.875			
5 5.0			
5 1/8 5.125			
5 1/4 5.25			
5 3/8 5.375			
5 1/2 5.5			
5 5/8 5.625			
5 3/4 5.75			
5 7/8 5.875			
6 6.0			
6 1/8 6.125			
6 1/4 6.25			
6 3/8 6.375			
6 1/2 6.5			
6 5/8 6.625			
6 3/4 6.75			
6 7/8 6.875			
7 7.0			
7 1/8 7.125			
7 1/4 7.25			
7 3/8 7.375			
7 1/2 7.5			
7 5/8 7.625			
7 3/4 7.75			
7 7/8 7.875			
8 8.0			
8 1/8 8.125			
8 1/4 8.25			
8 3/8 8.375			
8 1/2 8.5			
8 5/8 8.625			
8 3/4 8.75			
8 7/8 8.875			
9 9.0			
9 1/8 9.125			
9 1/4 9.25			
9 3/8 9.375			
9 1/2 9.5			
9 5/8 9.625			
9 3/4 9.75			
9 7/8 9.875			
10 10.0			
10 1/8 10.125			
10 1/4 10.25			
10 3/8 10.375			
10 1/2 10.5			
10 5/8 10.625			
10 3/4 10.75			
10 7/8 10.875			
11 11.0			
11 1/8 11.125			
11 1/4 11.25			
11 3/8 11.375			
11 1/2 11.5			
11 5/8 11.625			
11 3/4 11.75			
11 7/8 11.875			
12 12.0			
12 1/8 12.125			
12 1/4 12.25			
12 3/8 12.375			
12 1/2 12.5			
12 5/8 12.625			
12 3/4 12.75			
12 7/8 12.875			
13 13.0			
13 1/8 13.125			
13 1/4 13.25			
13 3/8 13.375			
13 1/2 13.5			
13 5/8 13.625			
13 3/4 13.75			
13 7/8 13.875			
14 14.0			
14 1/8 14.125			
14 1/4 14.25			
14 3/8 14.375			
14 1/2 14.5			
14 5/8 14.625			
14 3/4 14.75			
14 7/8 14.875			
15 15.0			
15 1/8 15.125			
15 1/4 15.25			
15 3/8 15.375			
15 1/2 15.5			
15 5/8 15.625			
15 3/4 15.75			
15 7/8 15.875			
16 16.0			
16 1/8 16.125			
16 1/4 16.25			
16 3/8 16.375			
16 1/2 16.5			
16 5/8 16.625			
16 3/4 16.75			
16 7/8 16.875			
17 17.0			
17 1/8 17.125			
17 1/4 17.25			
17 3/8 17.375			
17 1/2 17.5			
17 5/8 17.625			
17 3/4 17.75			
17 7/8 17.875			
18 18.0			
18 1/8 18.125			
18 1/4 18.25			
18 3/8 18.375			
18 1/2 18.5			
18 5/8 18.625			
18 3/4 18.75			
18 7/8 18.875			
19 19.0			
19 1/8 19.125			
19 1/4 19.25			
19 3/8 19.375			
19 1/2 19.5			
19 5/8 19.625			
19 3/4 19.75			
19 7/8 19.875			
20 20.0			

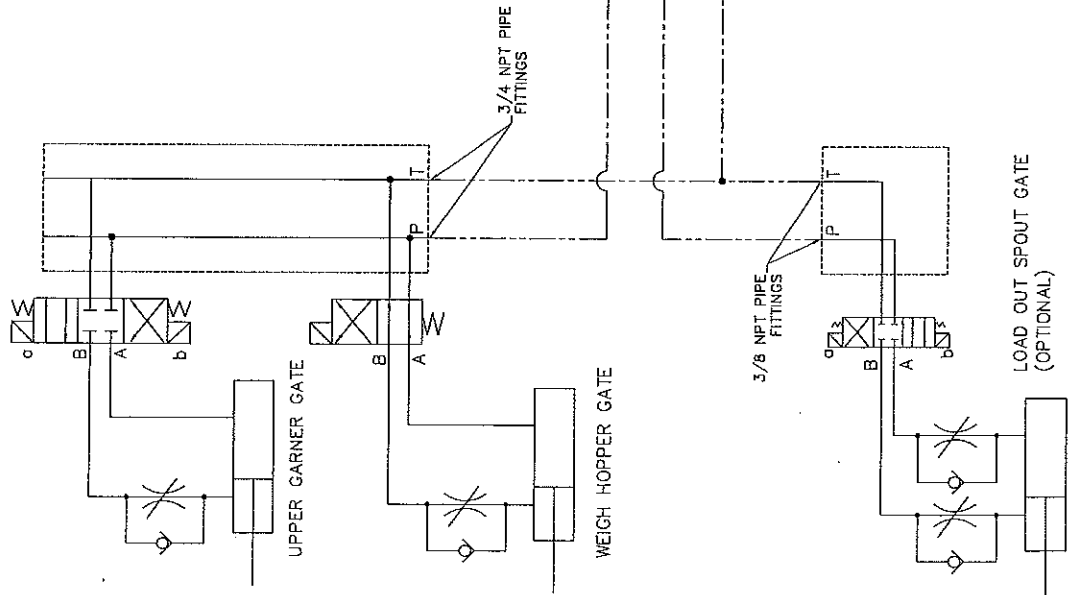
**InterSystems™**  
 13330 I St. Omaha, Ne. 68137 402-330-1500  
 HYD SCHEM SHP PRSR COMP. 1W  
 DATE: 1/98  
 DRAWN BY: CSW  
 CHECKED BY: [blank]  
 SCALE: 1  
 SHEET: 1 OF 1

REV	DATE	DESCRIPTION	BY
REVISIONS			534257

**NOTE:**  
 HYDRAULIC POWER UNIT TO BE LOCATED CLOSE TO GATES, TEFC RATED UNITS IN A NON-EXPLOSION PROOF AREA. DISCONNECT, MOTOR STARTER, FUSES AND HEATER ELEMENTS FURNISHED BY OTHERS.  
 SUPPLY LINES FROM POWER UNIT TO MANIFOLDS AND MANIFOLD TO LOAD OUT GATE TO BE FURNISHED BY OTHERS. SUPPLY LINES CAN BE MANUFACTURED WITH STD. BLACK PIPE. ALL PRESSURE LINE FITTINGS MUST BE STEEL. THE RETURN LINE FITTINGS CAN BE STD. BLACK PIPE.

**NOTE: TYPICAL OPERATING PRESSURE 600 TO 800 PSI**  
**NOTE: ALL LINES MUST BE CLEANED BEFORE ASSEMBLY**

----- FIELD PLUMBING BY CONTRACTOR



- HYDRAULIC POWER UNIT**
- MOTOR 5HP 3PH 230/460V 13.4/6.7A
  - HEATER 120V 1PH 750 WATT
  - 30 GALLON TANK
  - (380 50HZ 12AMP 3PH MOTOR AND 220V HEATER OPTIONAL)

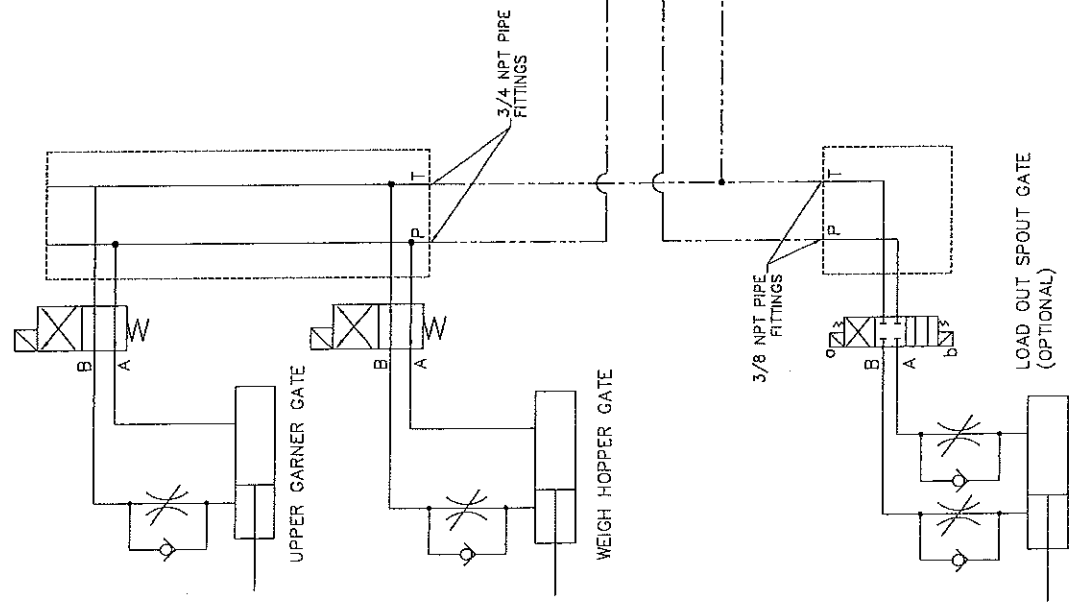
QTY	DESCRIPTION or MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>			
TYPE	M	EA.	
SOURCE	1/4	EA.	
CUSTOMER	CUSTOMER P.O. #		
	ORDER NO.		
<b>InterSystems</b>			
13330 S. St. Omaha, Ne. 68137 402-330-1500			
DESCRIPTION: HYD SCHEM 5HP PRSR COMP. TRIM			
DATE	3/89	ITEM NUMBER	534257
SCALE	1	ASSEMBLY	L
REV.		REV.	
		534257	
		1	2

REV	DATE	DESCRIPTION	REV
			532377

**NOTE:**  
 HYDRAULIC POWER UNIT TO BE LOCATED CLOSE TO GATES, TERC RATED UNITS IN A NON-EXPLOSION PROOF AREA. DISCONNECT, MOTOR STARTER, FUSES AND HEATER ELEMENTS FURNISHED BY OTHERS.  
 SUPPLY LINES FROM POWER UNIT TO MANIFOLDS AND MANIFOLD TO LOAD OUT GATE TO BE FURNISHED BY OTHERS. SUPPLY LINES CAN BE MANUFACTURED WITH STD. BLACK PIPE. ALL PRESSURE LINE FITTINGS MUST BE STEEL. THE RETURN LINE FITTINGS CAN BE STD. BLACK PIPE.

**NOTE:** TYPICAL OPERATING PRESSURE 600 TO 800 PSI  
**NOTE:** ALL LINES MUST BE CLEANED BEFORE ASSEMBLY

----- FIELD PLUMBING BY CONTRACTOR



- HYDRAULIC POWER UNIT
- MOTOR 7.5HP 3PH 230/460V 19.3/9.7A
  - HEATER 120V 1PH 750 WATT
  - 30 GALLON TANK
  - (380 50HZ 12AMP 3PH MOTOR AND 220V HEATER OPTIONAL)

QUANTITY	DESCRIPTION OF MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>			
TYPE	M	EA	1
SOURCE	M	EA	1
CUSTOMER	CUSTOMER P.O. NO. _____ ORDER NO. _____		
<b>InterSystems</b> 13330 J. St. Omaha, Ne. 68137 402-330-1500 HYD SCHEM 7.5HP PRSR COMP. 1W			
REV	DATE	REV	DATE
1	11/78	1	11/78
2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	

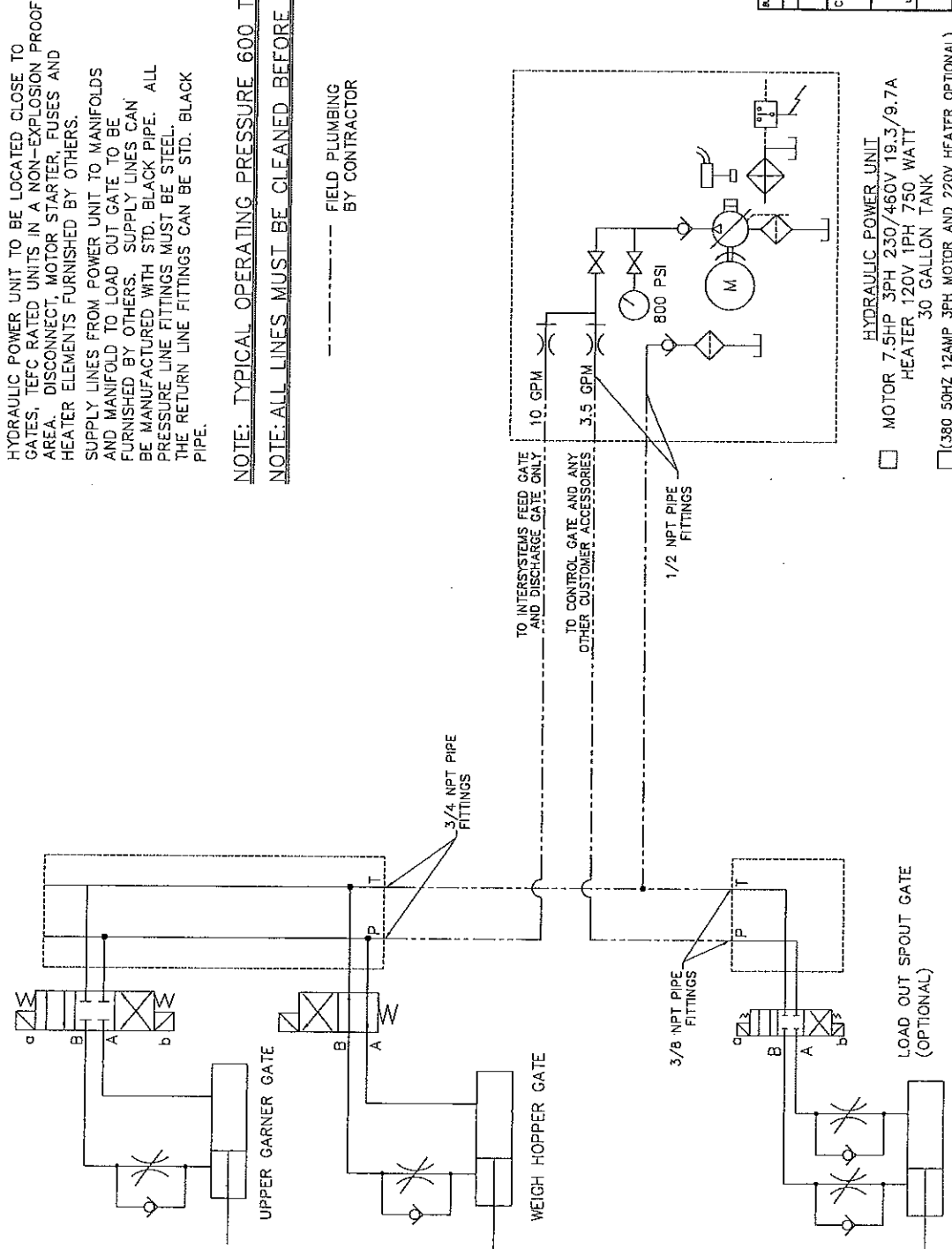
REV	DATE	DESCRIPTION	BY
532392			

**NOTE:**  
 HYDRAULIC POWER UNIT TO BE LOCATED CLOSE TO GATES. TFC RATED UNITS IN A NON-EXPLOSION PROOF AREA. DISCONNECT, MOTOR STARTER, FUSES AND HEATER ELEMENTS FURNISHED BY OTHERS.  
 SUPPLY LINES FROM POWER UNIT TO MANIFOLDS AND MANIFOLD TO LOAD OUT GATE TO BE FURNISHED BY OTHERS. SUPPLY LINES CAN BE MANUFACTURED WITH STD. BLACK PIPE. ALL PRESSURE LINE FITTINGS MUST BE STEEL. THE RETURN LINE FITTINGS CAN BE STD. BLACK PIPE.

**NOTE: TYPICAL OPERATING PRESSURE 600 TO 800 PSI**

**NOTE: ALL LINES MUST BE CLEANED BEFORE ASSEMBLY**

----- FIELD PLUMBING BY CONTRACTOR



- HYDRAULIC POWER UNIT
- MOTOR 7.5HP 3PH 230/460V 19.3/9.7A  
HEATER 120V 1PH 750 WATT  
30 GALLON TANK
  - (380 50HZ 12AMP 3PH MOTOR AND 220V HEATER OPTIONAL)

ITEM NO.	QTY	DESCRIPTION OR MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>				
TYPE	U	EA	PRODUCT CODE	MFG
SOURCE	M	EA	FAMILY CODE	FR
CUSTOMER		CUSTOMER P.O. #		
ORDER NO.		ORDER NO.		
<b>InterSystems</b>				
13300 I St. Omaha, Ne. 68137 402-330-1500				
GT RECD	DATE	REV	DATE	REV
	12/98	532392	12/98	532392
REV	DATE	REV	DATE	REV
1	12/98	1	12/98	1
SCALE	1	SCALE	1	SCALE
SHEET	L	SHEET	L	SHEET
OF	1	OF	1	OF



# ELECTRICAL SYSTEM SCHEMATICS

Please note that the following drawings are use on standard configurations as listed below. For Custom Bulkweigher refer to the certified drawings sent with the system. On a factory assembled Bulkweigher a set of drawings can be found in the electrical termination box.

If your system has: MasterWeigh, Millennium, Century, or OneWeigh Controller  
(*Single solenoid on feed gate*)  
and was **factory assembled**  
and has single limit switches on the feed gate  
and has a single limit switch on the discharge gate

Refer to: 531190 ELEC SCHEM PREASSEMBLED BW DWI/JAG  
531192 MASTERWEIGH / JAGUAR I/O FIELD WIRING

If your system has: MasterWeigh, Millennium, Century, or OneWeigh Controller  
(*Single solenoid on feed gate*)  
and was **field assembled**  
and has single limit switches on the feed gate  
and has a single limit switch on the discharge gate

Refer to: 531191 ELEC SCHEM CONVENTIONAL BW DWI/JAG  
531192 MASTERWEIGH / JAGUAR I/O FIELD WIRING

If your system has: CompuWeigh (CD2000 of CD3000)  
(*Dual solenoid on feed gate*)  
and was **factory assembled**  
and has two limit switches on the feed gate  
and has a single limit switch on the discharge gate

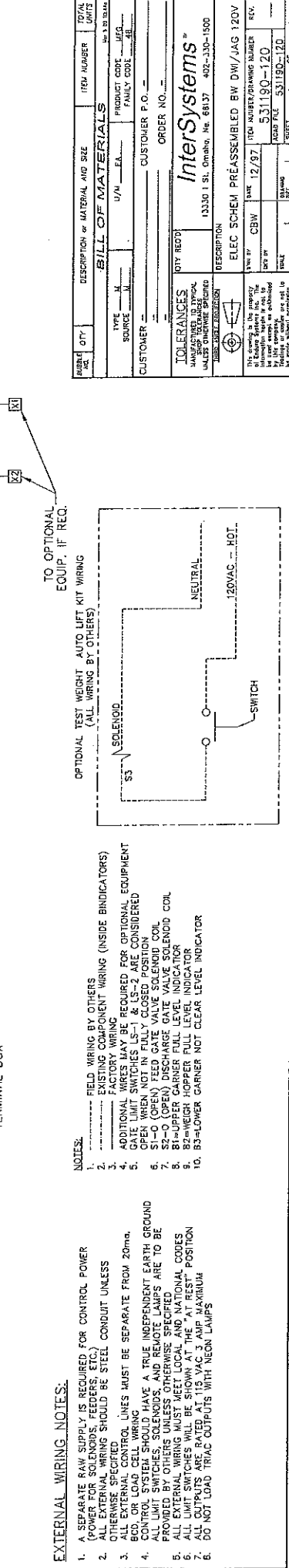
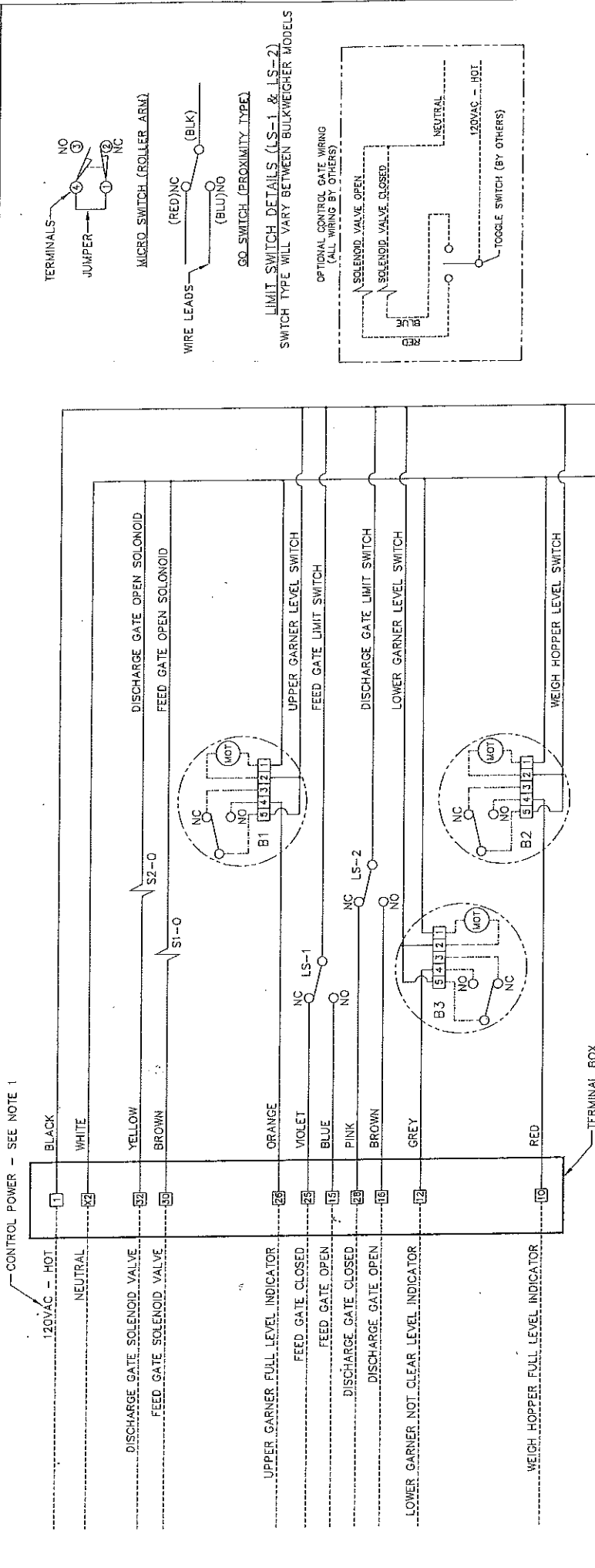
Refer to: 526746 BP ELEC SCHEM TRIM STD  
528116 CD2000 I/O FIELD WIRING SCHEM

If your system has: CompuWeigh (CD2000 of CD3000)  
(*Dual solenoid on feed gate*)  
and was **field assembled**  
and has two limit switches on the feed gate  
and has a single limit switch on the discharge gate

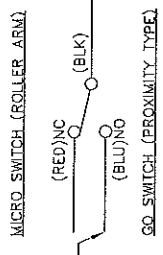
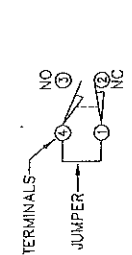
Refer to: 526775 BC ELEC SCHEM TRIM STD  
528116 CD2000 I/O FIELD WIRING SCHEM



REV	DATE	DESCRIPTION	BY
		REVISIONS	
		531190-120	

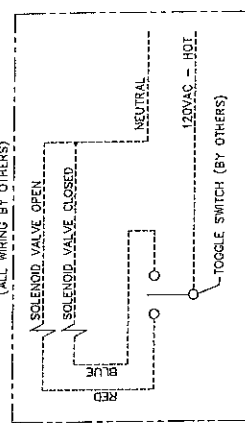


CONTROL POWER - SEE NOTE 1



LIMIT SWITCH DETAILS (LS-1 & LS-2)  
SWITCH TYPE WILL VARY BETWEEN BULKWEIGHTER MODELS

OPTIONAL CONTROL GATE WIRING  
(FOR ALL WIRING BY OTHERS)



**EXTERNAL WIRING NOTES:**

1. SEPARATE RAW SUPPLY IS REQUIRED FOR CONTROL POWER (POWER FOR SOLENOIDS, FEEDERS, ETC.)
2. ALL EXTERNAL WIRING SHOULD BE STEEL CONDUIT UNLESS OTHERWISE SPECIFIED
3. ALL EXTERNAL CONTROL LINES MUST BE SEPARATE FROM 20ma, 800 OR LOAD CELL WIRING
4. ALL LIMIT SWITCHES SOLENOIDS AND RELAYS ARE TO BE PROVIDED BY OTHERS UNLESS OTHERWISE SPECIFIED
5. ALL EXTERNAL WIRING MUST MEET LOCAL AND NATIONAL CODES
6. ALL LIMIT SWITCHES WILL BE SHOWN AT THE "AT REST" POSITION
7. ALL OUTPUTS ARE RATED AT 115 VAC 3 AMP MAXIMUM
8. DO NOT LOAD TRIAC OUTPUTS WITH NEON LAMPS

**NOTES:**

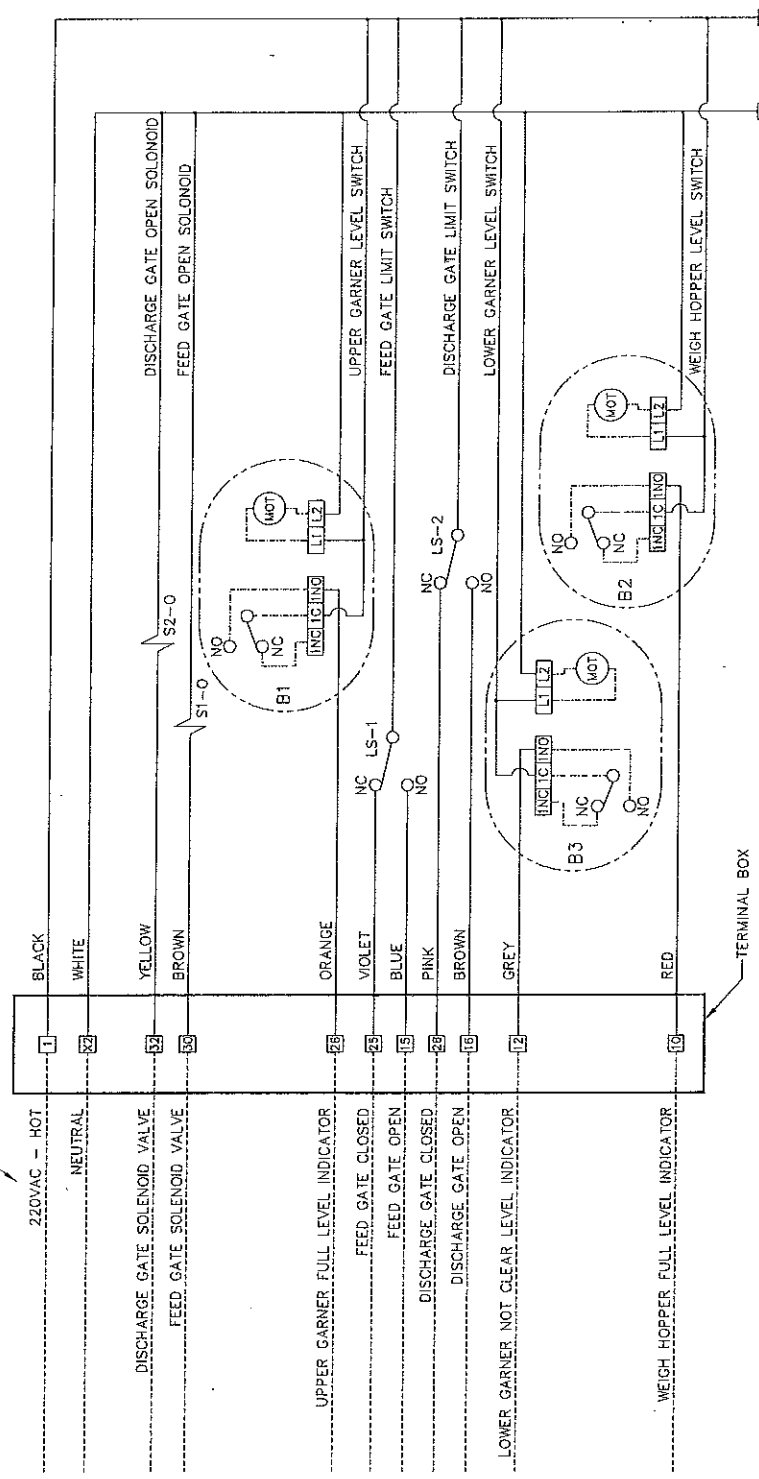
1. FIELD WIRING BY OTHERS
2. EXISTING COMPONENT WIRING (INSIDE INDICATORS)
3. FACTORY WIRING
4. ADDITIONAL SWITCHES LS-1 & LS-2 ARE CONSIDERED OPEN WHEN NOT FIELD WIRING
5. S1-O (OPEN) FEED GATE VALVE SOLENOID COIL
6. S2-O (OPEN) DISCHARGE GATE VALVE SOLENOID COIL
7. B1=UPPER GARNER FULL LEVEL INDICATOR
8. B2=WEIGH HOPPER FULL LEVEL INDICATOR
9. B3=LOWER GARNER NOT CLEAR LEVEL INDICATOR
10. B3=LOWER GARNER NOT CLEAR LEVEL INDICATOR

TO OPTIONAL EQUIP. IF REQ.  
(ALL WIRING BY OTHERS)

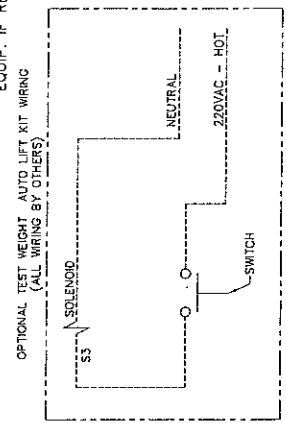
QTY	DESCRIPTION	ITEM NUMBER	TOTAL QTY'S
BILL OF MATERIALS			
TYPE	M	U/M	EA
SOURCE	M		LEG
CUSTOMER			FAMILY CODE
			48
			48
ORDER NO.		CUSTOMER P.O.	
InterSystems			
13330 1 St, Omaha, Ne, 68137 402-330-1500			
ELEC SCHEM PREASSEMBLED BY DWI/JAG 120V			
DATE	12/97	ITEM NUMBER/DRAWING NUMBER	531190-120
REV			
FILE		ACAD FILE	531190-120
SHEET			

REV.	DATE	DESCRIPTION	REV.	DATE	DESCRIPTION
531190-220					

CONTROL POWER - SEE NOTE 1



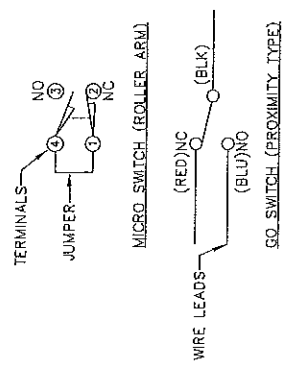
TO OPTIONAL EQUIP. IF REQ.



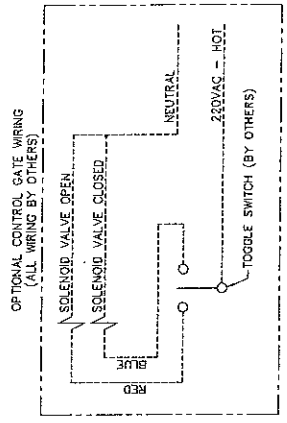
- NOTES:
- FIELD WIRING BY OTHERS
  - EXISTING COMPONENT WIRING (INSIDE INDICATORS)
  - FACTORY WIRING
  - ADDITIONAL WIRES MAY BE REQUIRED FOR OPTIONAL EQUIPMENT
  - GATE LIMIT SWITCHES LS-1 & LS-2 ARE CONSIDERED OPEN WHEN NOT IN FULLY CLOSED POSITION
  - S1-0 (OPEN) FEED GATE VALVE SOLENOID COIL
  - S2-0 (OPEN) DISCHARGE GATE VALVE SOLENOID COIL
  - B1=UPPER GARNER FULL LEVEL INDICATOR
  - B2=WEIGH HOPPER FULL LEVEL INDICATOR
  - B3=LOWER GARNER NOT CLEAR LEVEL INDICATOR

EXTERNAL WIRING NOTES:

- A SEPARATE RAW SUPPLY IS REQUIRED FOR CONTROL POWER (POWER FOR SOLENOIDS, FEEDERS, ETC.)
- OTHERWISE SPECIFIED WIRING SHOULD BE STEEL CONDUIT UNLESS OTHERWISE SPECIFIED
- ALL EXTERNAL CONTROL LINES MUST BE SEPARATE FROM 20ma, BCD, OR LOAD CELL WIRING
- CONTROL SYSTEM SHOULD HAVE A TRUE INDEPENDENT EARTH GROUND
- ALL LIMIT SWITCHES, SOLENOIDS, AND REMOTE LAMPS ARE TO BE PROVIDED WITH WIRING UNLESS OTHERWISE SPECIFIED
- ALL WIRING SHOULD BE IDENTIFIED BY COLOR AND ALPHABETICAL CODES
- ALL LIMIT SWITCHES WILL BE SHOWN AT THE "AT REST" POSITION
- ALL OUTPUTS ARE RATED AT 220 VAC 1.5 AMP MAXIMUM
- DO NOT LOAD TRIAC OUTPUTS WITH NEON LAMPS



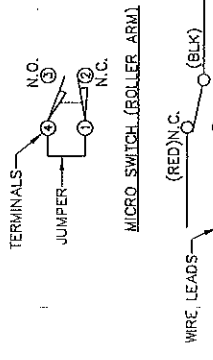
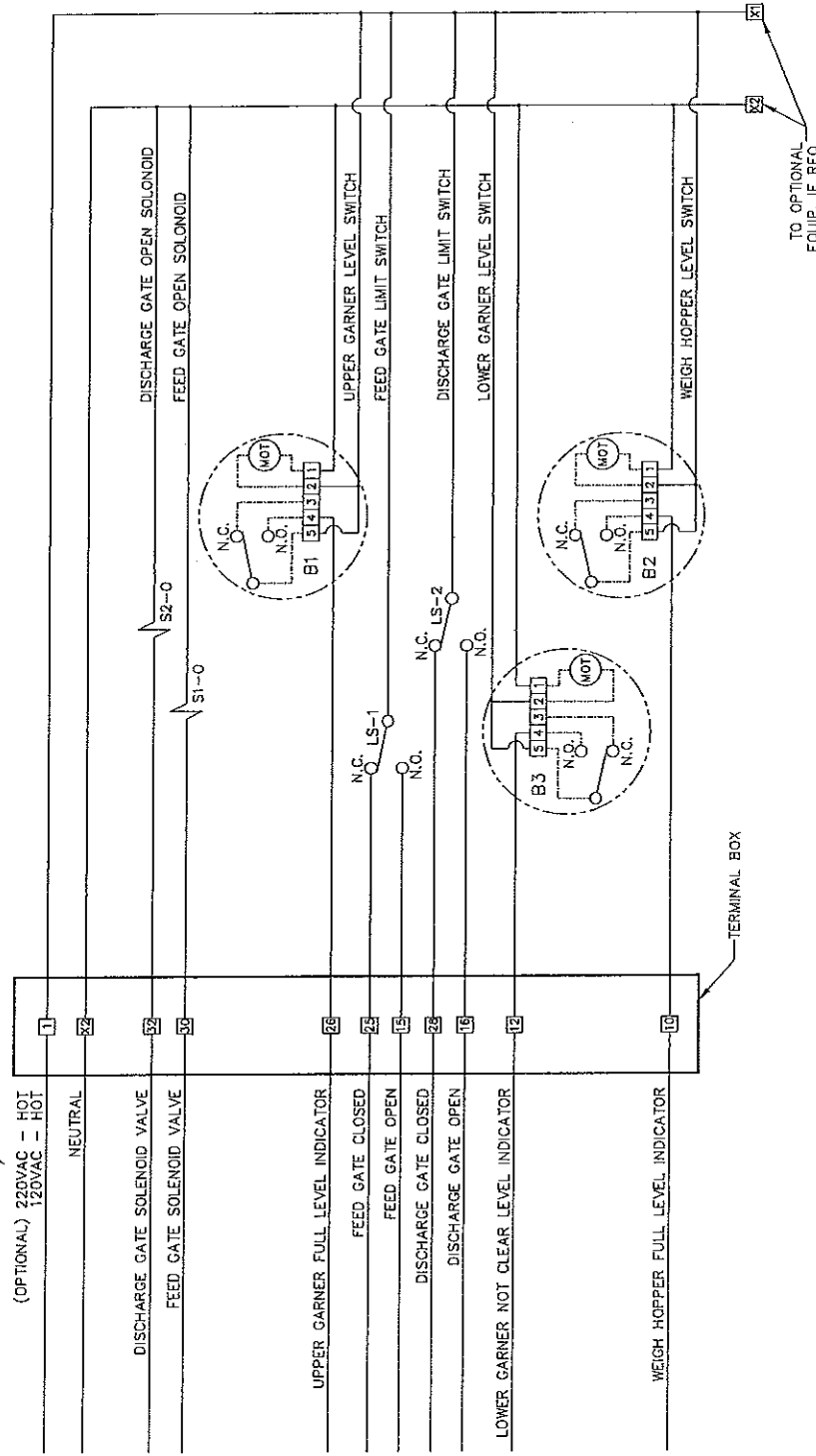
LIMIT SWITCH DETAILS (LS-1 & LS-2)  
SWITCH TYPE WILL VARY BETWEEN BULKWEIGHER MODELS



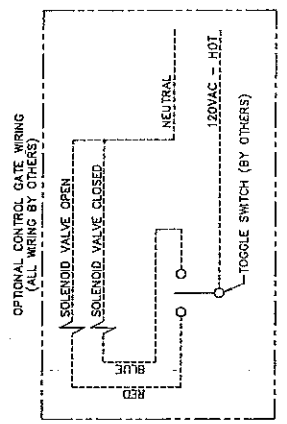
QTY	DESCRIPTION OF MATERIAL AND SIZE	ITEM NUMBER	TOTAL QUANTITY
<b>BILL OF MATERIALS</b>			
TYPE	U/V	EA.	PRODUCT CODE
SOURCE			FAMILY CODE
CUSTOMER			ORDER NO.
TOLERANCES			
UNLESS OTHERWISE SPECIFIED			
DIMENSIONS IN MILLIMETERS			
13350 I St. Omaha, Ne. 68137 402-330-1500			
ELEC SCHEM PREASSEMBLED BW DW/JAG 220V			
REV.	DATE	BY	REV.
531190-220	12/97	CBW	531190-220
TOTAL			531190-220
			1 SHEET

REV	DATE	DESCRIPTION	BY

531191



LIMIT SWITCH DETAILS (LS-1 & LS-2)  
SWITCH TYPE WILL VARY BETWEEN BULKWEIGHER MODELS



MARK	QTY	DESCRIPTION w/ MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>				
TYPE	N	U/W	EA	PRODUCT CODE
SOURCE	B			FAMILY CODE
CUSTOMER			CUSTOMER P.O. NO.	ORDER NO.
<b>InterSystems</b>				
13350 I St. Omaha, NE 68137 402-330-1500				
ELEC SCHEM CONVENTIONAL BW DW/JAG				
REV	DATE	BY	CHKD	APPD
531191	12/97	CRW		
531191				
531191				

- EXTERNAL WIRING NOTES:**
- A SEPARATE RAW SUPPLY IS REQUIRED FOR CONTROL POWER (POWER FOR SOLENOIDS, FEEDERS, ETC.)
  - ALL EXTERNAL WIRING SHOULD BE STEEL CONDUIT UNLESS OTHERWISE SPECIFIED
  - ALL EXTERNAL CONTROL LINES MUST BE SEPARATE FROM 20ma. CONTROL SYSTEMS WIRING.
  - ALL LIMIT SWITCHES, SOLENOIDS, AND REMOTE LAMPS ARE TO BE PROVIDED BY OTHERS UNLESS OTHERWISE SPECIFIED
  - ALL EXTERNAL WIRING MUST MEET LOCAL AND NATIONAL CODES
  - ALL LIMIT SWITCHES WILL BE SHOWN AT THE "AT REST" POSITION
  - ALL OUTPUTS ARE RATED AT 115 VAC 3 AMP OR 220 VAC 1.5 AMP
  - DO NOT LOAD TRIAC OUTPUTS WITH NEON LAMPS
- NOTES:**
- FIELD WIRING BY OTHERS
  - EXISTING COMPONENT WIRING (INSIDE BINDING) IS TO REMAIN UNLESS OTHERWISE SPECIFIED
  - LIMIT SWITCH MAY BE ROLLER ARM TYPE OR PROXIMITY TYPE SEE DETAIL FOR WIRING
  - ADDITIONAL WIRES MAY BE REQUIRED FOR OPTIONAL EQUIPMENT
  - GATE LIMIT SWITCHES LS-1 & LS-2 ARE CONSIDERED OPEN WHEN NOT IN FULLY CLOSED POSITION
  - SP-0 (OPEN) DISCHARGE GATE VALVE SOLENOID COIL
  - B1=UPPER GARNER FULL LEVEL INDICATOR
  - B2=WEIGH HOPPER FULL LEVEL INDICATOR
  - B3=LOWER GARNER NOT CLEAR LEVEL INDICATOR

REV	DATE	DESCRIPTION	BY
A	3/89	ADDED JAG PWR WIRING I/O LABELS	CBW

REV	DATE	DESCRIPTION	BY
531192			

TO 120VAC, 50/60 HZ.  
(220VAC OPTIONAL)  
INSTRUMENT POWER SOURCE  
BY OTHERS - SEE NOTE 1

TO 120VAC, 50/60 HZ.  
(220VAC OPTIONAL)  
FEED CONTROL POWER SOURCE  
BY OTHERS - SEE NOTE 1

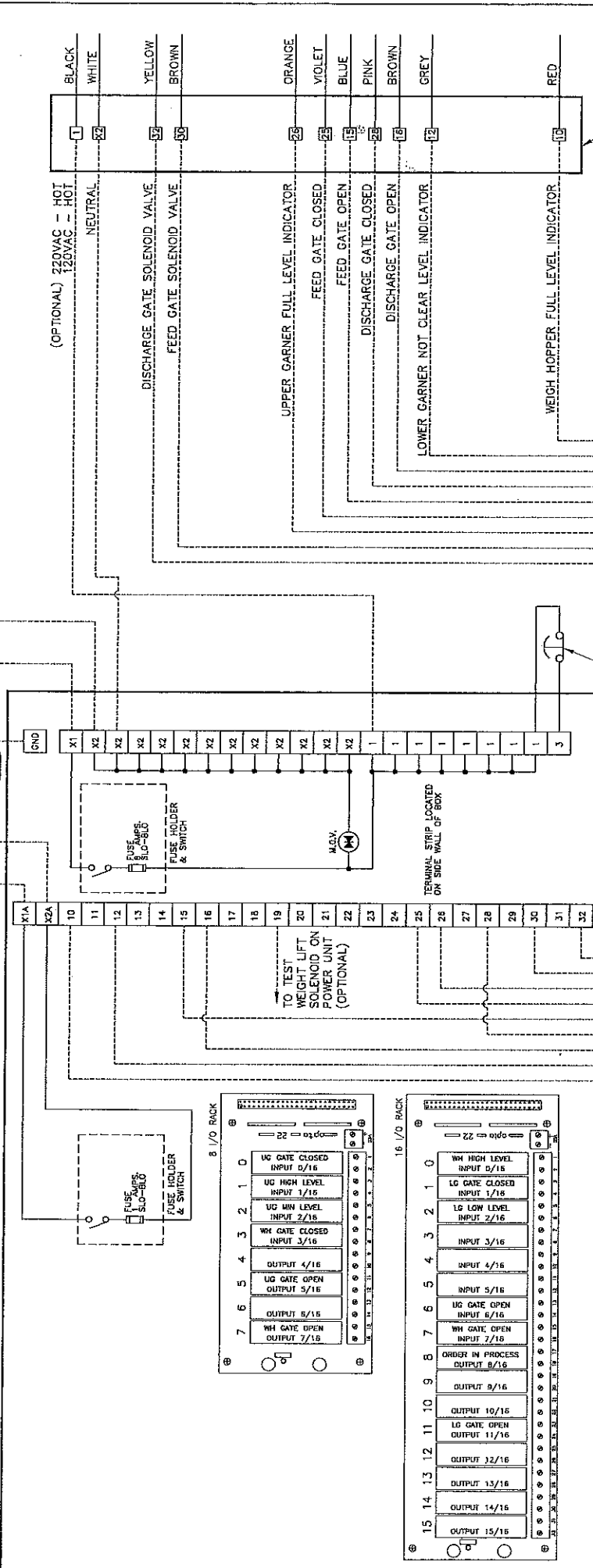
TO 120VAC, 50/60 HZ.  
(220VAC OPTIONAL)  
FEED CONTROL POWER SOURCE  
BY OTHERS - SEE NOTE 1

TO 120VAC, 50/60 HZ.  
(220VAC OPTIONAL)  
FEED CONTROL POWER SOURCE  
BY OTHERS - SEE NOTE 1

TO 120VAC, 50/60 HZ.  
(220VAC OPTIONAL)  
FEED CONTROL POWER SOURCE  
BY OTHERS - SEE NOTE 1

TO 120VAC, 50/60 HZ.  
(220VAC OPTIONAL)  
FEED CONTROL POWER SOURCE  
BY OTHERS - SEE NOTE 1

TO 120VAC, 50/60 HZ.  
(220VAC OPTIONAL)  
FEED CONTROL POWER SOURCE  
BY OTHERS - SEE NOTE 1



QTY	DESCRIPTION OF MATERIAL AND SIZE	ITEM NUMBER	TOTAL UNITS
<b>BILL OF MATERIALS</b>			
TYPE	U/4	EA	PRICE
SOURCE	M	EA	FAMILY CODE
CUSTOMER P.O. NO. _____ ORDER NO. _____			

QTY REQD	DESCRIPTION	ITEM NUMBER	REV.
1	MASTERWEIGH / JAGUAR I/O FIELD WIRING	531192	A

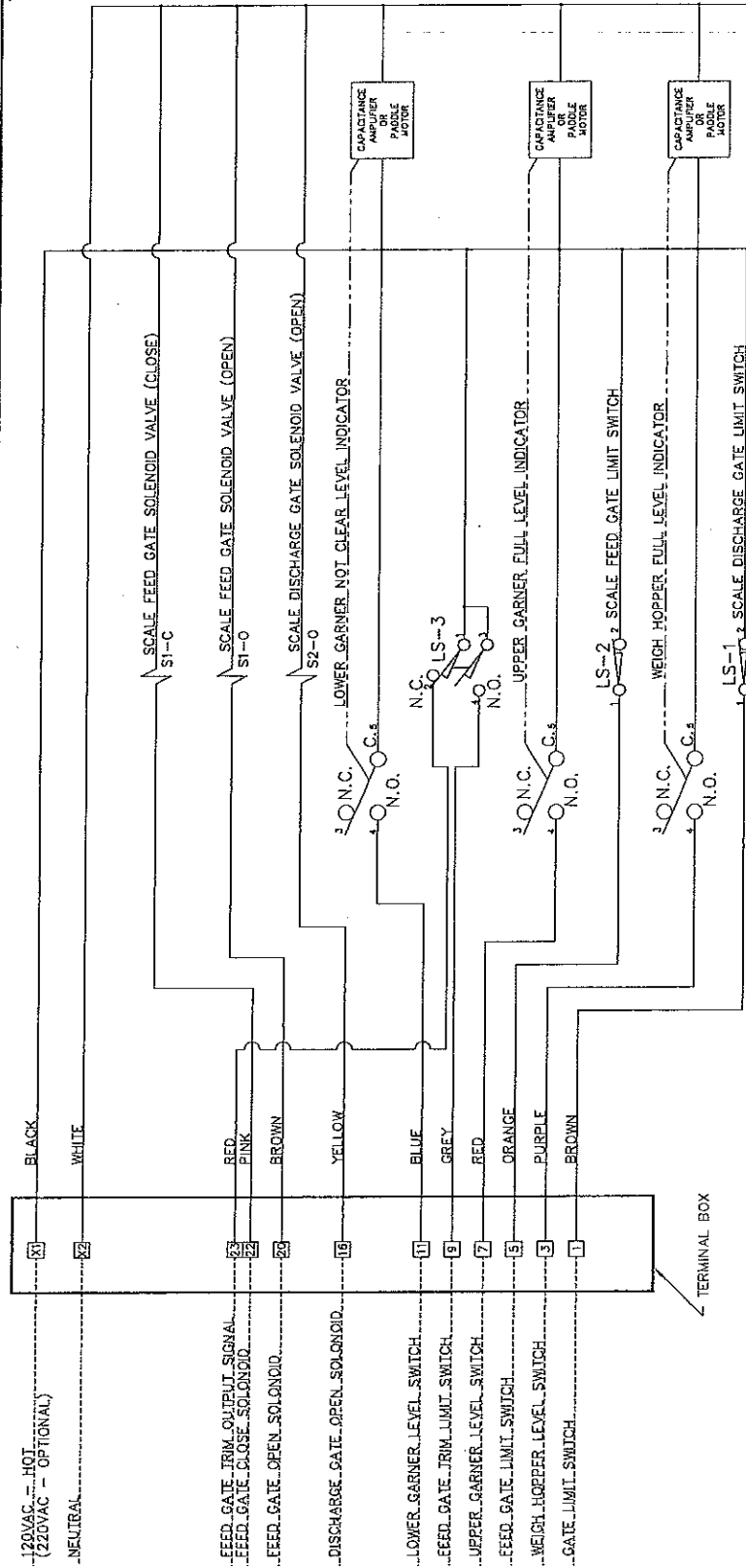
QTY REQD	DESCRIPTION	ITEM NUMBER	REV.
1	MASTERWEIGH / JAGUAR I/O FIELD WIRING	531192	A

QTY REQD	DESCRIPTION	ITEM NUMBER	REV.
1	MASTERWEIGH / JAGUAR I/O FIELD WIRING	531192	A

**NOTES:**  
 1. CUSTOMER MUST PROVIDE A SINGLE HOT AND COMMON POWER TO I/O VIA X1 & X2. THIS POWER MUST BE SEPARATE FROM INSTRUMENT POWER SOURCE (X1A & X2A).  
 2. ALL EXTERNAL WIRING MUST BE 14GA. (MIN.) 300 VAC WIRES IN METAL CONDUIT PER NEC & LOCAL CODES (BY OTHERS).  
 THIS SCHEMATIC IS ONLY FOR REFERENCE IN FIELD WIRING THE MASTERWEIGH I/O BOX TO THE BULKWEIGHER TERMINAL BOX. ALL TERMINAL NUMBERS AND EXISTING WIRES SHOULD AGREE WITH THE SUPPLIED MASTERWEIGH CONTROL & FIELD WIRING SCHEMATICS IN THE MASTERWEIGH MANUAL. IF ANY DISCREPANCIES ARE FOUND WHILE CHECKING WIRING, PLEASE CONSULT INTERSYSTEMS BEFORE POWERING UP THE SYSTEM.

FIELD WIRING BY OTHERS  
 FACTORY WIRING

REV	DATE	REVISIONS	BY
		526746	



OPTIONAL CONTROL GATE WIRING  
(ALL WIRING BY OTHERS)

TO OPTIONAL EQUIPMENT IF REQUIRED

BILL OF MATERIALS		ITEM NUMBER	DESCRIPTION or MATERIAL AND SIZE	QTY	TOTAL UNITS
TYPE	M	U/N	EA		
P/A CODE	M				
CUSTOMER			CUSTOMER P.O. NO.		
TOLERANCES		GTY REQS			
UNLESS OTHERWISE SPECIFIED		13330   St. Omaha, Ne. 68137 402-330-1500			
INTERSYSTEMS		BP ELEC SCHEM TRIM STD			
DATE	7/95	ITEM NUMBER	526746	REV	
DWG BY	JKS	DWG FILE	526746		
CHK BY		SCALE	L	SHEET	5

120VAC - HOT  
(220VAC - OPTIONAL)

NEUTRAL

RED  
PINK  
BROWN  
YELLOW  
BLUE  
GREY  
RED  
ORANGE  
PURPLE  
BROWN

TERMINAL BOX

SCALE\_FEED\_GATE\_SOLENOID\_VALVE (CLOSE) S1-C

SCALE\_FEED\_GATE\_SOLENOID\_VALVE (OPEN) S1-O

SCALE\_DISCHARGE\_GATE\_SOLENOID\_VALVE (OPEN) S2-O

LOWER\_GARNER\_NOT\_CLEAR\_LEVEL\_INDICATOR

UPPER\_GARNER\_FULL\_LEVEL\_INDICATOR

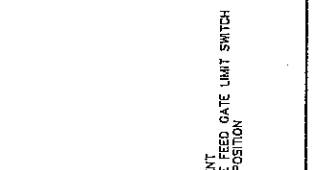
WEIGH\_HOPPER\_FULL\_LEVEL\_INDICATOR

SCALE\_DISCHARGE\_GATE\_LIMIT\_SWITCH

CAPACITANCE AMPLIFIER OR PADDLE MOTOR

CAPACITANCE AMPLIFIER OR PADDLE MOTOR

CAPACITANCE AMPLIFIER OR PADDLE MOTOR

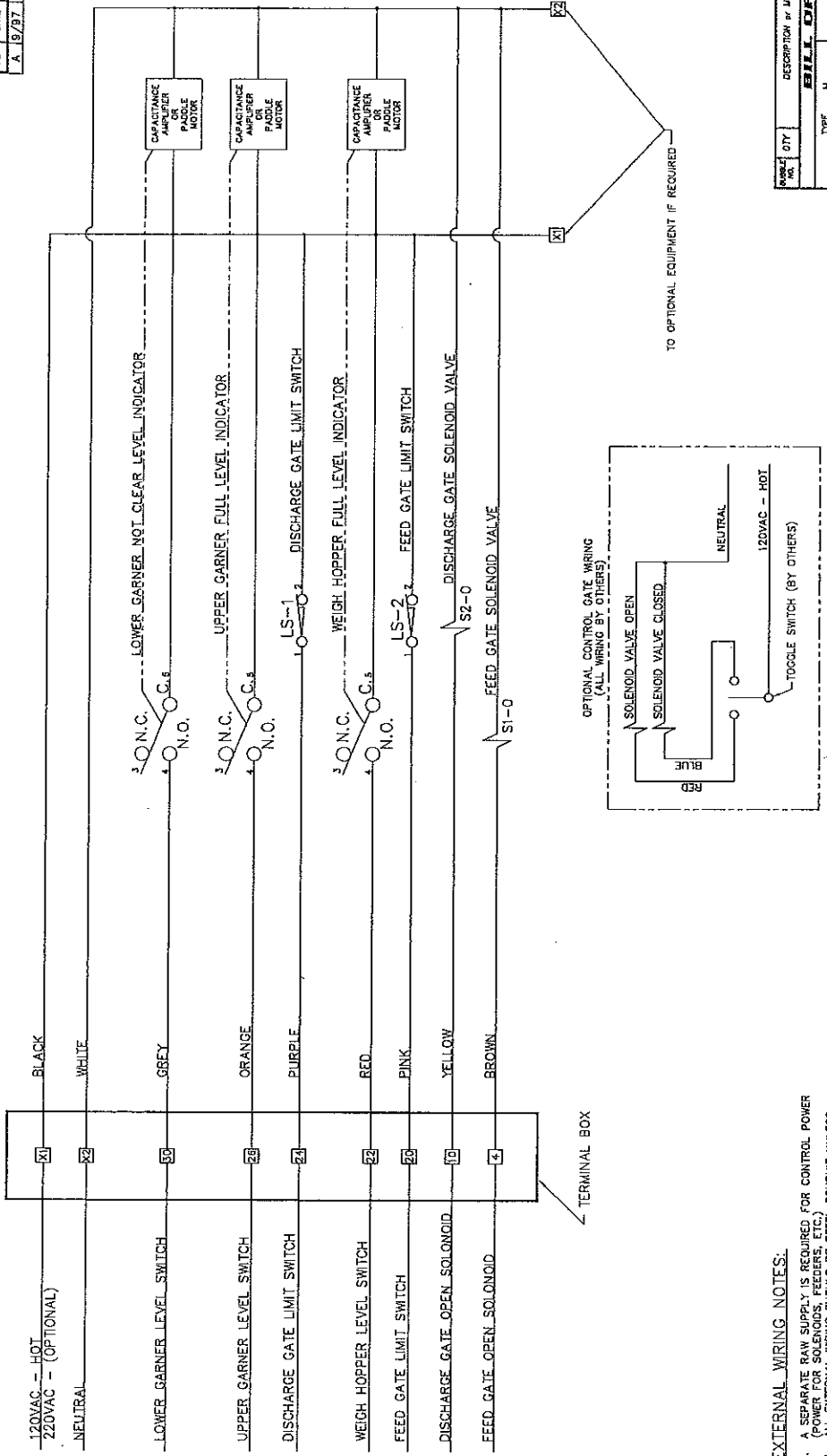


- NOTES:
- FIELD WIRING BY OTHERS
  - ADDITIONAL WIRES MAY BE REQUIRED FOR OPTIONAL EQUIPMENT
  - LS-1 SCALE DISCHARGE GATE LIMIT SWITCH AND LS-2 SCALE FEED GATE LIMIT SWITCH GATES ARE CONSIDERED OPEN WHEN NOT IN FULLY CLOSED POSITION
  - LS-1 (CLOSE) FEED GATE VALVE SOLENOID COIL
  - LS-2 (CLOSE) FEED GATE VALVE SOLENOID COIL
  - LS-1 (OPEN) DISCHARGE GATE VALVE SOLENOID COIL

- EXTERNAL WIRING NOTES:
- A SEPARATE RAW SUPPLY IS REQUIRED FOR CONTROL POWER (POWER FOR SOLENOIDS, FEEDERS, ETC.)
  - ALL EXTERNAL WIRING SHOULD BE STEEL CONDUIT UNLESS OTHERWISE SPECIFIED
  - RED, ORANGE, AND PURPLE WIRE MUST BE SEPARATE FROM 20ma, ETC. OR LOAD CONTROL WIRES
  - CONTROL SYSTEM SHOULD HAVE A TRUE INDEPENDENT EARTH GROUND
  - ALL LIMIT SWITCHES, SOLENOIDS, AND REMOTE LAMPS ARE TO BE PROVIDED BY OTHERS UNLESS OTHERWISE SPECIFIED
  - ALL EXTERNAL WIRING MUST MEET LOCAL AND NATIONAL CODES
  - ALL LIMIT SWITCHES WILL BE SHOWN AT THE "AT REST" POSITION
  - ALL WIRING IS RATED AT 115 VAC 3 AMP OR 220 VAC 1.5 AMP
  - DO NOT LOAD TRIAC OUTPUTS WITH NEON LAMPS

REV	DATE	DESCRIPTION	BY
A	19/97	20T026, 22T020, 26T022, 28T024	CRW

REVISIONS 526776



QTY	DESCRIPTION OF MATERIAL AND SIZE	ITEM NUMBER	SCALE
	<b>BILL OF MATERIALS</b>		UNITS
	TYPE U/W FA	PRODUCT CODE	REV
	P/M CODE	FAMILY CODE	DATE
CUSTOMER =		CUSTOMER P.O. =	ORDER NO. =
TOLERANCES		EC ELEC SCHEM STD	
UNLESS OTHERWISE SPECIFIED		13330 1 St. Omaha, NE 68137 402-330-1500	
INTERPRETATION		InterSystems	
QTY REQD	DATE	DATE	DATE
	7/95	526776	526776
	JKS	SCALE	SCALE
	1	1	1

TO OPTIONAL EQUIPMENT IF REQUIRED

NOTES:

1. FIELD WIRING BY OTHERS
2. ADDITIONAL WIRING MAY BE REQUIRED FOR OPTIONAL EQUIPMENT
3. LS-1 SCALE DISCHARGE GATE LIMIT SWITCH AND LS-2 SCALE FEED GATE LIMIT SWITCH
4. S1-0 (OPEN) FEED GATE VALVE SOLENOID COIL FULLY CLOSED POSITION
5. S2-0 (OPEN) DISCHARGE GATE VALVE SOLENOID COIL

**EXTERNAL WIRING NOTES:**

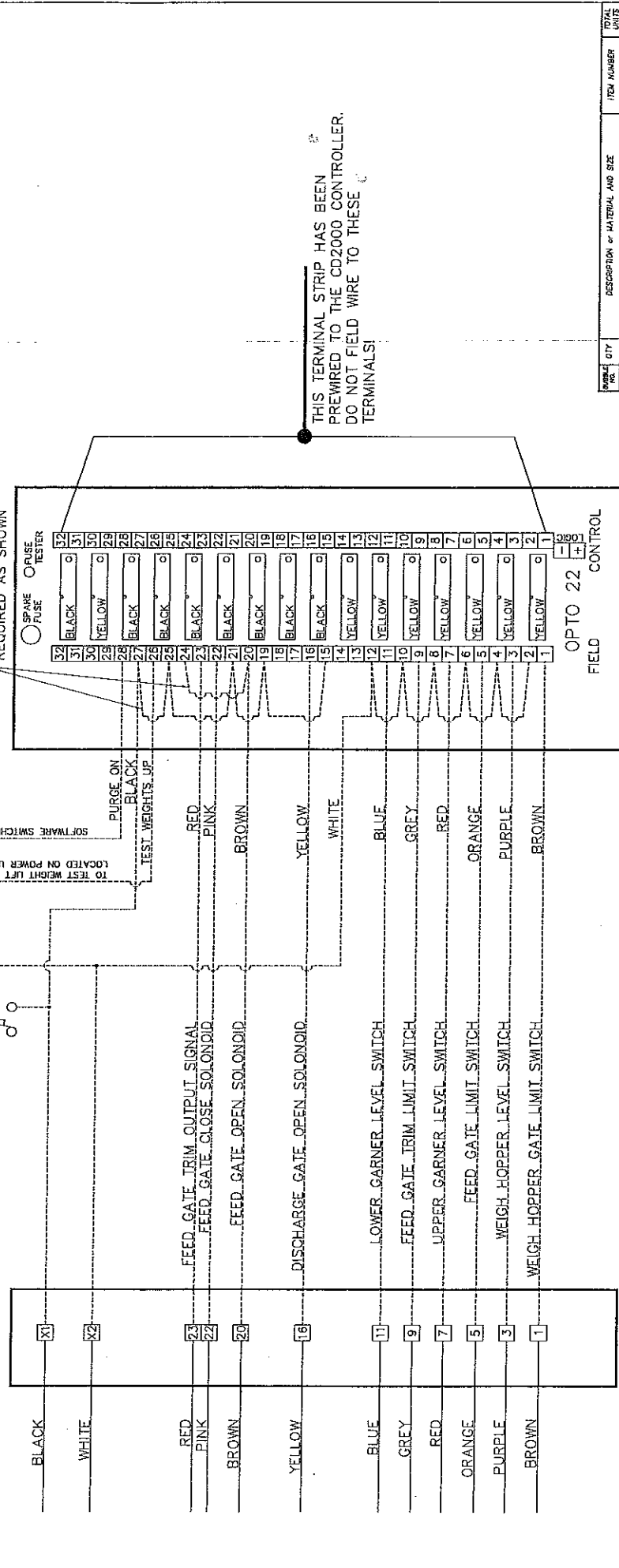
1. A SEPARATE RAW SUPPLY IS REQUIRED FOR CONTROL POWER (POWER FOR SOLENOIDS, FEEDERS, ETC.)
2. ALL EXTERNAL WIRING SHOULD BE STEEL CONDUIT UNLESS OTHERWISE SPECIFIED.
3. ALL EXTERNAL WIRING SHOULD BE SEPARATE FROM 20ma, BOD, OR LOAD CELL WIRING.
4. CONTROL SYSTEM SHOULD HAVE A TRUE INDEPENDENT EARTH GROUND. ALL LIMIT SWITCHES, SOLENOIDS, AND REMOTE LAMPS ARE TO BE PROVIDED BY OTHERS UNLESS OTHERWISE SPECIFIED.
5. ALL EXTERNAL WIRING MUST MEET LOCAL AND NATIONAL CODES.
6. ALL WIRING MUST BE SHOWN AT THE TEST POSITION.
7. ALL OUTPUTS ARE RATED AT 115 VAC 3 AMP OR 230 VAC 1.5 AMP MAXIMUM.
8. DO NOT LOAD TRIAC OUTPUTS WITH NEON LAMPS.



REV	DATE	DESCRIPTION	REVISED BY
A	10/88	ADDED NOTE FOR PWR SHUT OFF	CBW

REVISIONS	528116
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RECOMMEND POWER SHUT OFF SWITCH - (BY OTHERS) INSTALLED IN CONTROL ROOM NEAR CD2000 CONTROLLER. RECOMMEND LIGHTED SWITCH TO INDICATE POWER ON CONDITION (POWER OFF WHEN BULKWEIGHER IS NOT OPERATING OTHERWISE SOLENOIDS ON FEED GATE WILL BE ENERGIZED AT ALL TIMES THUS REDUCING THEIR LIFE EXPECTANCY)



THIS TERMINAL STRIP HAS BEEN PREWIRED TO THE CD2000 CONTROLLER. DO NOT FIELD WIRE TO THESE TERMINALS!

QUANTITY	DESCRIPTION OF MATERIAL AND SIZE	ITEM NUMBER	DUPLICATE UNITS
1	BILL OF MATERIALS	CD2000 I/O FIELD WIRING SCHEM	1
TYPE	U/M	EA.	PRODUCT CODE
0			13300
SOURCE	M		FIELD CODE
			08
CUSTOMER	CUSTOMER P.O. NO.		
	ORDER NO.		
TOLERANCES			
UNLESS OTHERWISE SPECIFIED			
FRACTIONS TO BE DECIMALS			
DIMENSIONS TO BE IN UNLESS OTHERWISE SPECIFIED			
THE DRAWING IS THE PROPERTY OF INTERSYSTEMS INC. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFIC TO WHICH IT IS ISSUED. IT IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF INTERSYSTEMS INC.			
DATE	BY	ITEM NUMBER	REV.
1/98	AKS	528116	A
DATE	BY	ITEM NUMBER	REV.
1/98	AKS	528116	A

CD2000 I/O BOX

BULKWEIGHER TERMINAL BOX

FIELD WIRING BY OTHERS

NOTE: THIS SCHEMATIC IS ONLY FOR REFERENCE IN FIELD WIRING THE CD2000 I/O BOX TO THE BULKWEIGHER TERMINAL BOX. ALL TERMINAL NUMBERS AND EXISTING WIRES SHOULD AGREE WITH THE SUPPLIED CD2000 CONTROL & FIELD WIRING SCHEMATICS IN THE CD2000 MANUAL. IF ANY DISCREPANCIES ARE FOUND WHILE CHECKING WIRING, PLEASE CONSULT INTERSYSTEMS BEFORE POWERING UP THE SYSTEM.

