



Bulk Weigher

Installation and Operation Manual

PNEG-2143

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PNEG-2143

All information, illustrations, photos and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Contents

Chapter 1 Safety	4
Safety Guidelines	4
Cautionary Symbol Definitions	5
Safety Cautions	6
Safety Sign-Off Sheet	9
Chapter 2 Installation Instructions	10
Bulk Weigher Installation	10
Hydraulic System Arrangement	14
Electrical System Arrangement	16
Bulk Weigher Vent Connection Options	17
Chapter 3 Operation and Maintenance	18
Operation	18
Maintenance	18
Chapter 4 Troubleshooting	19
Gate Malfunctions	19
Chapter 5 Bulk Weigher Parts Information	20
Gate Cylinders	20
Series 2H Heavy Duty Hydraulic Cylinder Parts	21
Series 2H Heavy Duty Hydraulic Cylinder Parts Descriptions	22
Cast Iron Test Weights	33
Manual Test Weight Lift Assembly 500#	37
Manual Test Weight Lift Assembly 1000#	38
Manual Test Weight Lift Assembly 2000#	39
Hydraulic Test Weight Lift Assembly 1000#	40
Chapter 6 Hydraulic Power Unit	41
Start-Up	41
Hydraulic Maintenance	41
Hydraulic Power Unit Schematic Drawings with Parts List	42
Chapter 7 Hydraulic Power Unit Parts Information	51
Pressure Compensating Piston Pump	51
Return Filter	53
Suction Strainer	58
Fluid Level and Temperature Switches	60
Chapter 8 Appendix A	62
Sampler Control Gate Orientation	62
Chapter 9 Appendix B - Hydraulic System Schematics	63
Hydraulic Schematic 5 HP Pressure Component 1W (532396)	64
Hydraulic Schematic 5 HP Pressure Compound Trim (534257)	65
Hydraulic Schematic 7.5 HP Pressure Compound 1W (532377)	66
Hydraulic Schematic 7.5 HP Pressure Compound Trim (732392)	67
Chapter 10 Appendix C - Electrical System Schematics	68
Electrical Schematic Preassembled BW DWI/JAG 120V (531190-120)	69
Electrical Schematic Preassembled BW DWI/JAG 220V (531190-220)	70
Electrical Schematic Conventional BW DWI/JAG (531191)	71
MasterWeigh/Jaguar I/O Field Wiring (531192)	72
BP Electrical Schematics Trim Standard (526746)	73
BC Electrical Schematic Standard (526776)	74
CD2000 to CD4000 I/O Field Wiring Schematics (528116)	75
Chapter 11 Warranty	77

Safety Guidelines

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in **SERIOUS INJURY** or **DEATH**.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

ST-0001-3

Cautionary Symbol Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.



This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury.**



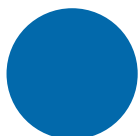
This symbol is used to address practices not related to personal injury.



This symbol indicates a general hazard.



This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

1. Safety

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection



Respiratory Protection



Foot Protection



Hearing Protection



Head Protection



Fall Protection



Hand Protection



- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

Follow Safety Instructions

- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.



ST-0002-1

Maintain Equipment and Work Area

- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.



ST-0003-1

Stay Clear of Hoisted Equipment

- Always use proper lifting or hoisting equipment when assembling or disassembling equipment.
- Do not walk or stand under hoisted equipment.
- Always use sturdy and stable supports when needed for installation. Not following these safety precautions creates the risk of falling equipment, which could crush personnel and cause serious injury or death.



ST-0047-1

Sharp Edge Hazard

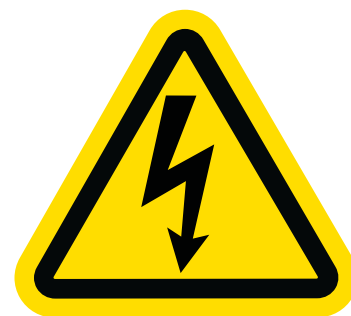
- This product has sharp edges, which can cause serious injury.
- To avoid injury, handle sharp edges with caution and always use proper protective clothing and equipment



ST-0036-2

Install and Operate Electrical Equipment Properly

- Electrical controls must be installed by a qualified electrician and must meet the standards set by applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe).
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Make sure all equipment is properly grounded.



ST-0027-4

1. Safety

Stay Clear of Moving Parts

- Stay clear - machine can start without warning.
- Entanglement in gate will cause serious injury.
- Keep all shields and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.



ST-0070-1

Fall Hazard

- Ladders, stairways and platforms are for use by competent and trained personnel only. Do not allow children or other unauthorized persons to have access to the equipment.
- Access to the equipment must be restricted by the use of security fencing and lockable gates.
- Lower sections of ladders must be fitted with a lockable safety gate to prevent unauthorized access.
- Make sure that hot surfaces have had adequate time to cool before working on or in the equipment.
- Lock out and tag out power supplies and fuel supplies to all equipment.
- Do not attach lifting equipment to ladders or platforms.
- Do not go outside of the safety rails provided on elevated platforms.
- Do not work at heights during high winds, rain, snow, or ice storms.



ST-0056-1

2. Installation Instructions

Bulk Weigher 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 InterSystems). See Bulk Weigher venting options drawing [on Page 17](#).
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 14](#).
5. Run conduit and wiring from the I/O box location to the valve solenoids, limit switches, and bindicators as shown on Bulk Weigher 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 16](#).
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:

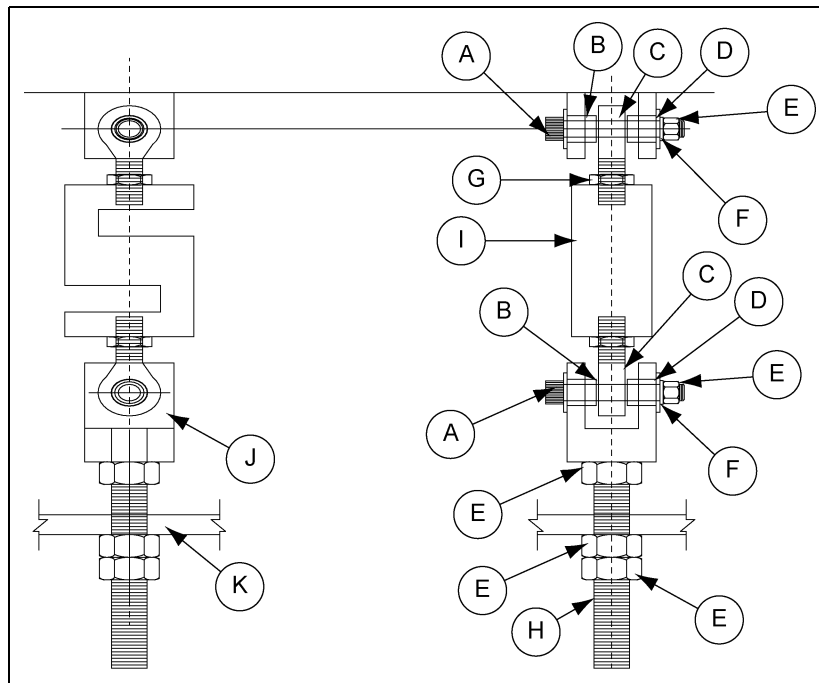


Figure 2A Load Cell Assembly

Ref #	Description
A	Stripper Bolt
B	Collar Bushing Four (4) Per Load Cell
C	Rod End Bearing
D	Flat Washers Two (2) Required Per Cell
E	Hex Nut
F	Lock Washer

Ref #	Description
G	Jam Nut
H	Threaded Rod
I	Load Cell
J	Clevis
K	Top of Weigh Hopper Load Cell Flange

2. Installation Instructions

- 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. (See [Figure 2A on Page 10.](#))
- Gently lower the weigh hopper until the load cells are supporting it.
- Run each load cell cable to the J-box.

NOTE: 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 as shown in [Figure 2B.](#)

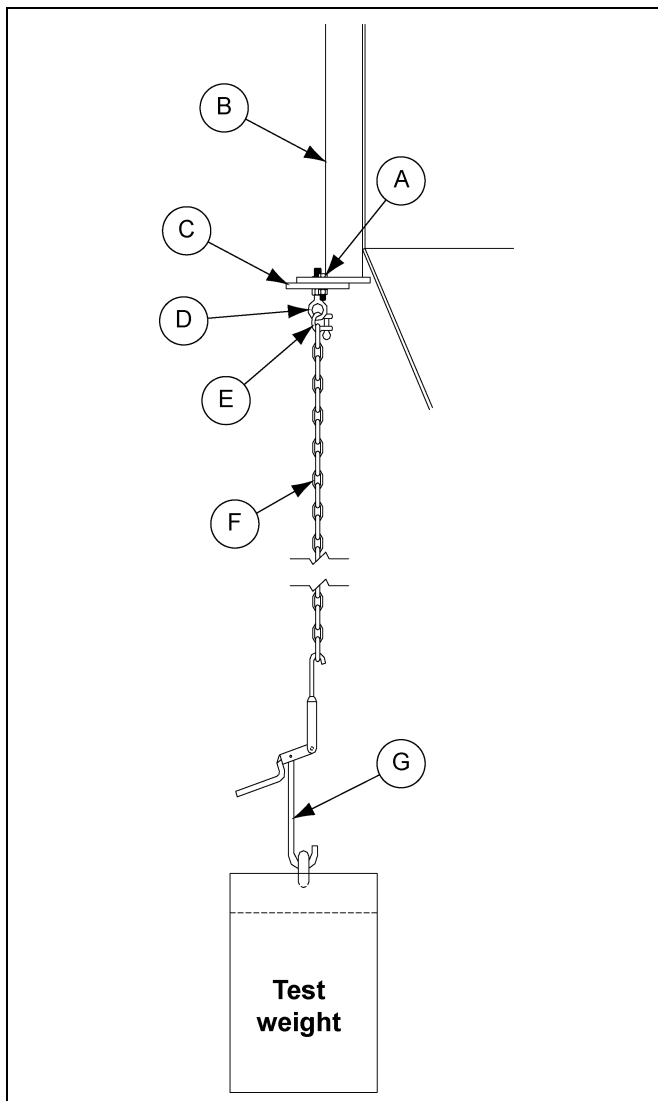


Figure 2B Test Weight Lift Assembly

Ref #	Description
A	Two (2) 1/2" bolts x 2" long required with nuts and lock washers for mounting the test weight adjustment plate.
B	Weigh Hopper Channel
C	Slotted test weight adjustment plate (523867). Adjust plate so the chain hangs clear of obstacles.
D	5/8 x 4" Long Forged Eye Bolt (35899). One nut on each side of adjustment plate.
E	3/8" Chain Shackle (35173)
F	1/4" Chain Long (35174). Use only enough chain so it will hang almost taught when the rest weight is down.
G	Chain Tightener (36916)

2. Installation Instructions

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 load cell terminal detail as shown in [Figure 2C on Page 13](#).
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. Bulk Weigher is now ready for operation.

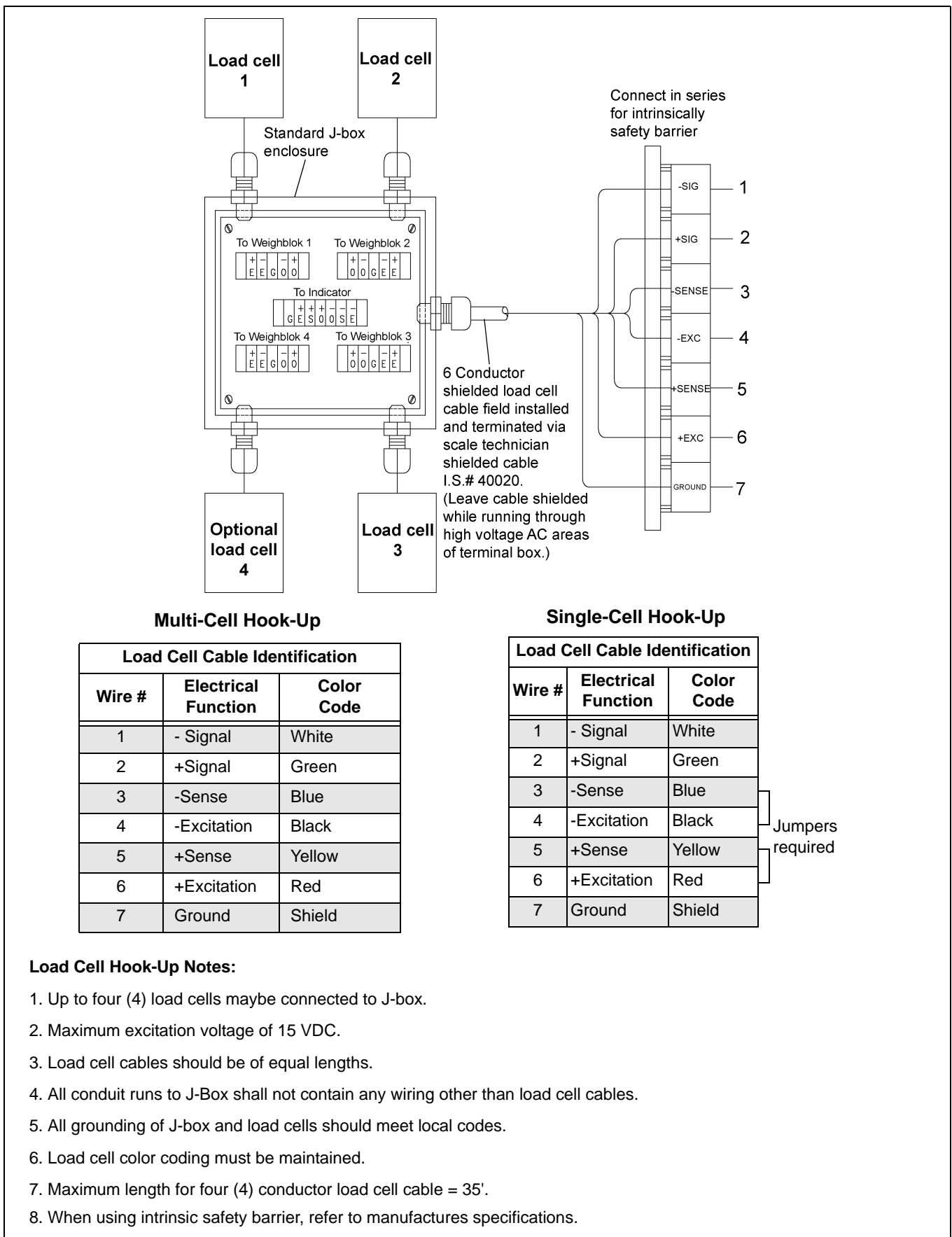


Figure 2C Load Cell Termination Details

2. Installation Instructions

Hydraulic System Arrangement

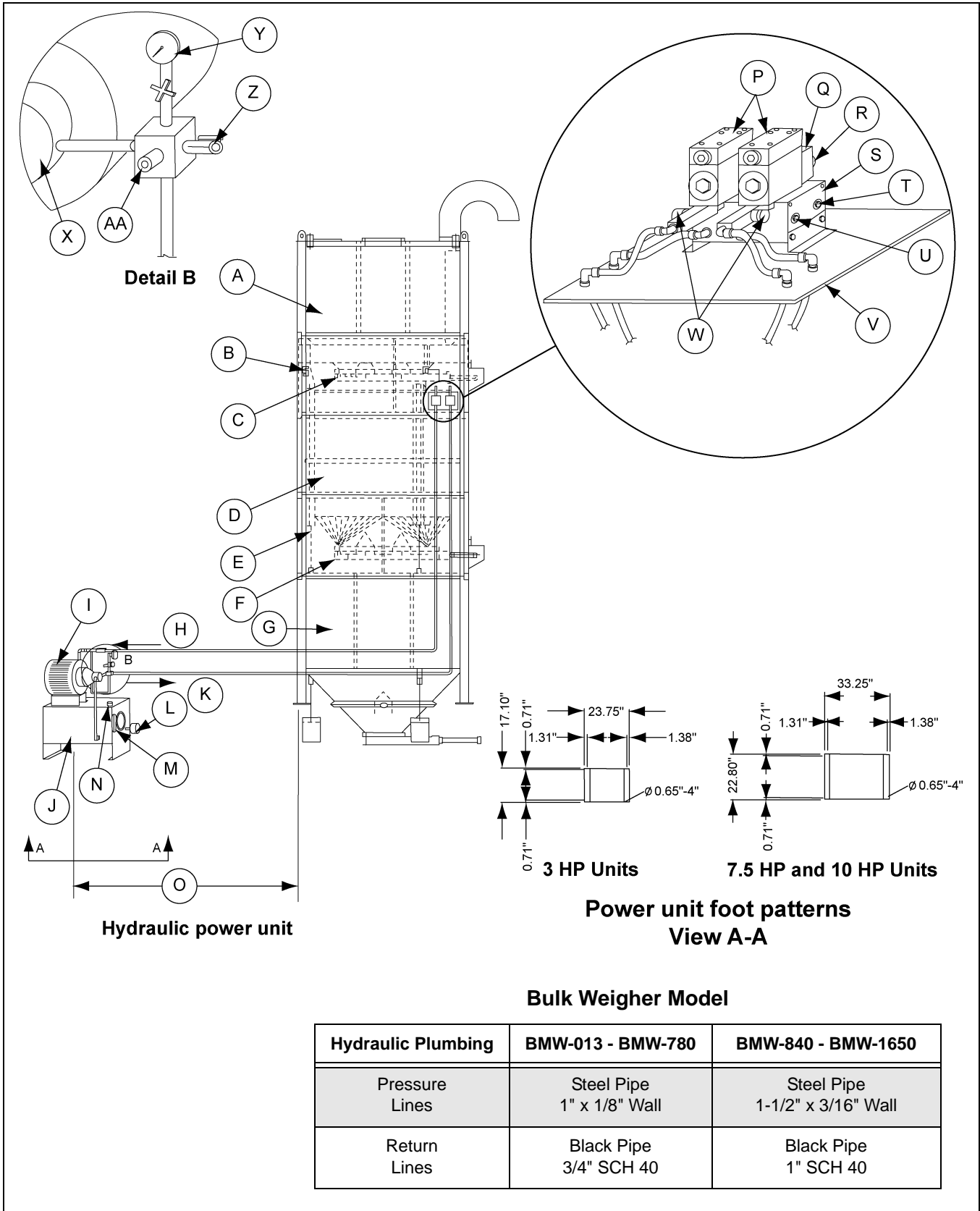


Figure 2D Hydraulic System Arrangement

Hydraulic System Arrangement

Ref #	Description
A	Upper Garner
B	See Load Cell Assembly Detail (See Page 10.)
C	Feed (Fill) Gate
D	Weigh Hopper
E	See Test Weight Lift Assembly Detail
F	Discharge (Empty) Gate
G	Lower Garner
H	Tank Return Side
I	Motor
J	Oil Tank
K	Pressure Side
L	Heater
M	Level/Temp Gauge
N	Filter/Breather Cap
O	50' Maximum
P	Hydraulic Valves
Q	Solenoids
R	Manual Override Button
S	Valve Manifold
T	Tank Return Line to Return Filter Side of Power Unit
U	Pressure Line From Pump Side of Power Unit
V	Skin Sheets
W	Flow Adjustment Knobs
X	Pump
Y	Pressure Gauge
Z	Shut Off Valve
AA	Pressure Relief Valve

2. Installation Instructions

Electrical System Arrangement

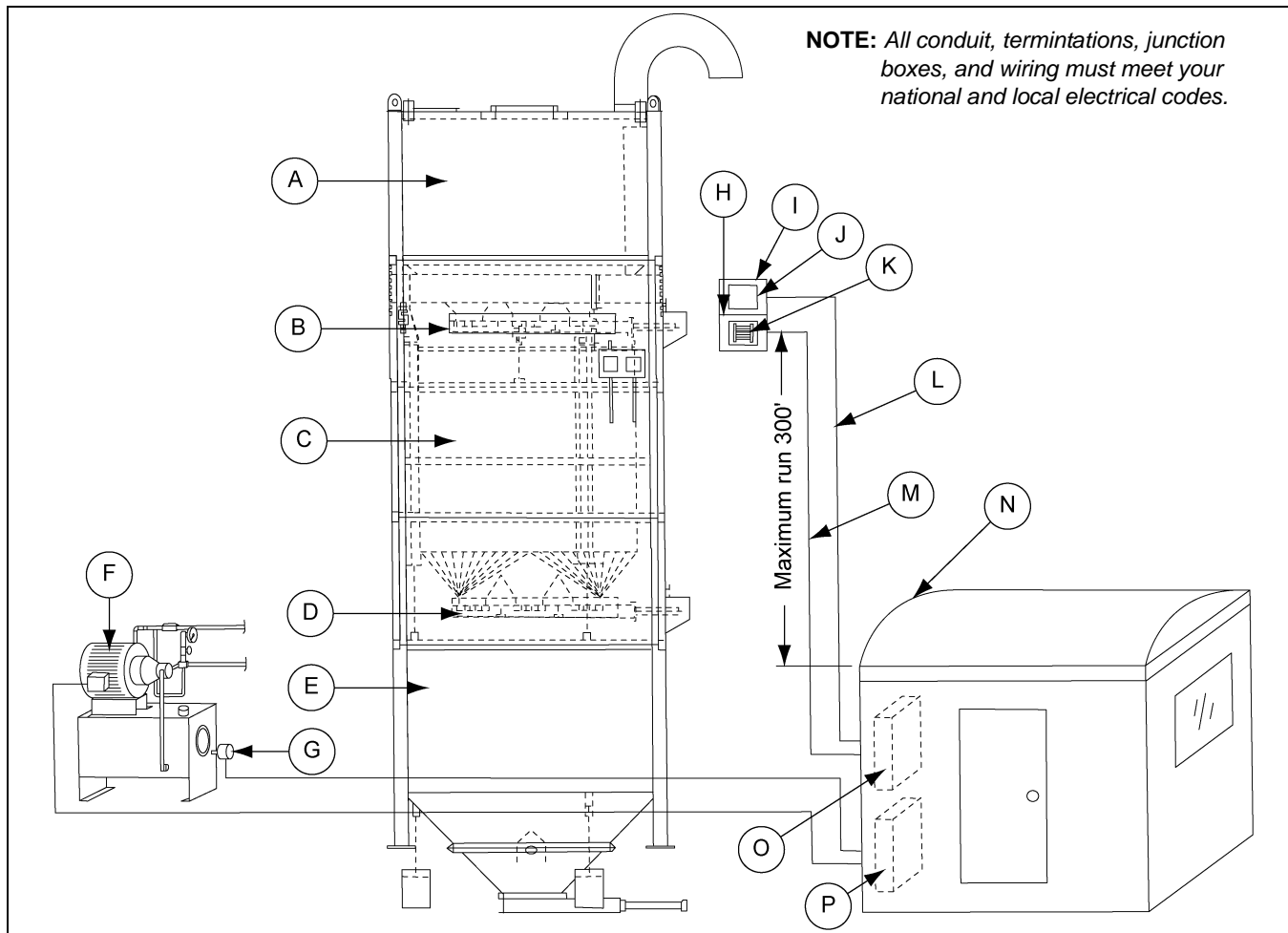


Figure 2E Electrical System Arrangement

Ref #	Description
A	Upper Garner
B	Feed (Fill) Gate
C	Weigh Hopper
D	Discharge (Empty) Gate
E	Lower Garner
F	Motor
G	Heater
H	Shield plate in box separates load cell summing board from control wiring
I	Bulk Weigher terminal box premounted on scale
J	Load Cell Summing Board
K	Bulk Weigher Wiring Terminal Blocks
L	Multi conductor shielded load cell home run cable, use separate conduit.
M	Control Wiring from Scale to I/O Box
N	Control Building or Office
O	Bulk Weigher I/O Box
P	Power Unit Motor and Heater Control (by others)

Bulk Weigher Vent Connection Options

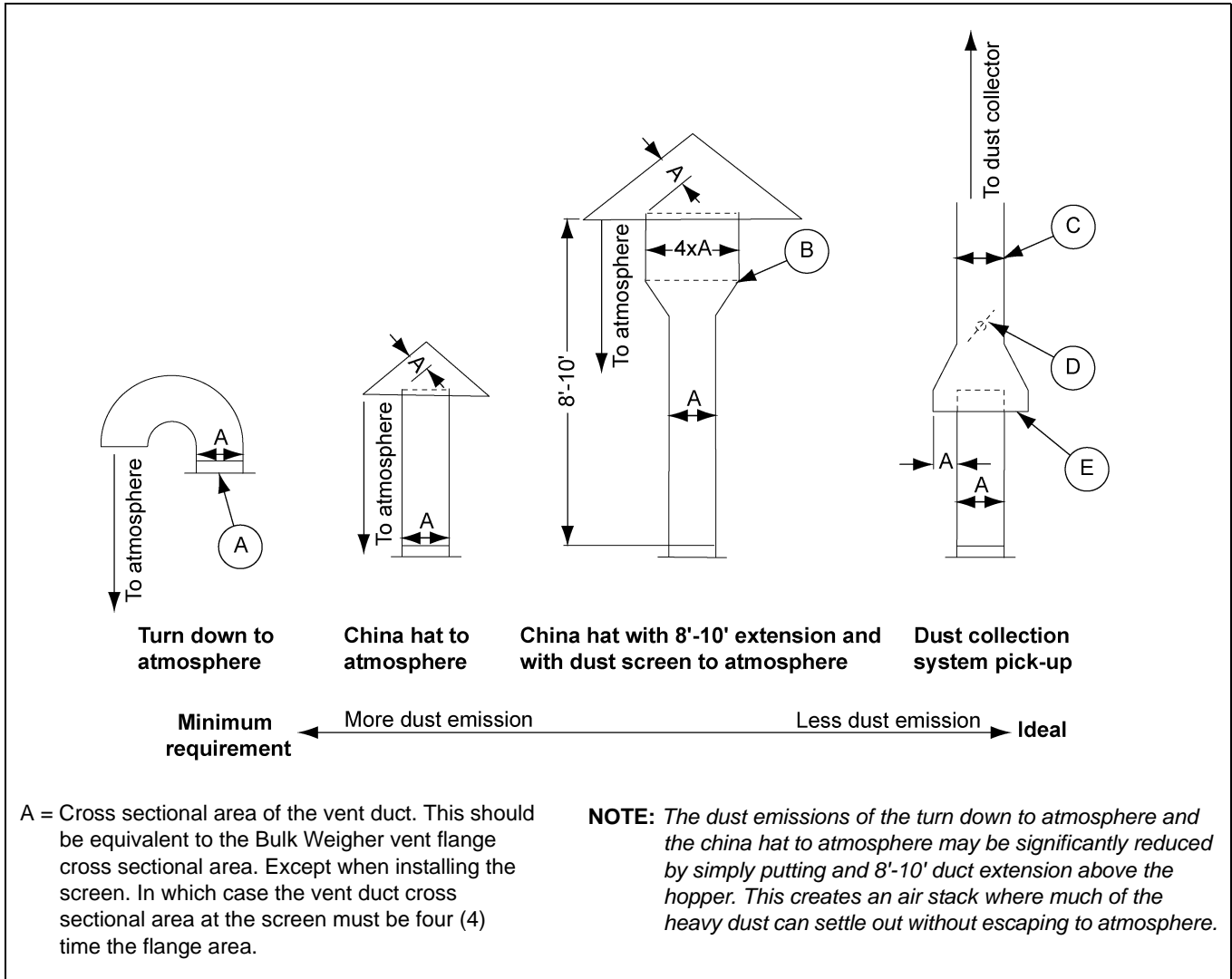


Figure 2F Electrical System Arrangement

Ref #	Description
A	Bulk Weigher top vent flange
B	Screen: 20 Mesh with 0.025" diameter wire. (Screen may need to be cleaned occasionally, so china hat should be hinged or be removable.)
C	Size according to dust collection system requirements
D	Adjustable damper: Close damper and then adjust it until dust is eliminated while Bulk Weigher is cycling.
E	Do not connect the vent directly to a vacuum. Use a hood to draw from atmosphere while the Bulk Weigher is idle.

3. Operation and Maintenance

Operation

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

Maintenance

Upon Receipt of Shipment

If the hydraulic system and the power unit will not be operated for more than three (3) months from delivery date then do the following in order to avoid damage to the hydraulic components:

1. 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.
2. Rotate the shaft on the electric motor every 90 days.
3. All of the cylinders are to be in their retracted position and then filled with oil and the ports plugged.
4. 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.
5. Keep all components inside dry. (Do not cover with plastic to seal, this will have a tendency to attract moisture.)

Every Six (6) Months

1. Check all of the hydraulic (or air) components for leaks.
2. Check the hydraulic oil quality. (See hydraulic manual.)
3. 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 (12) Months

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

Gate Malfunctions

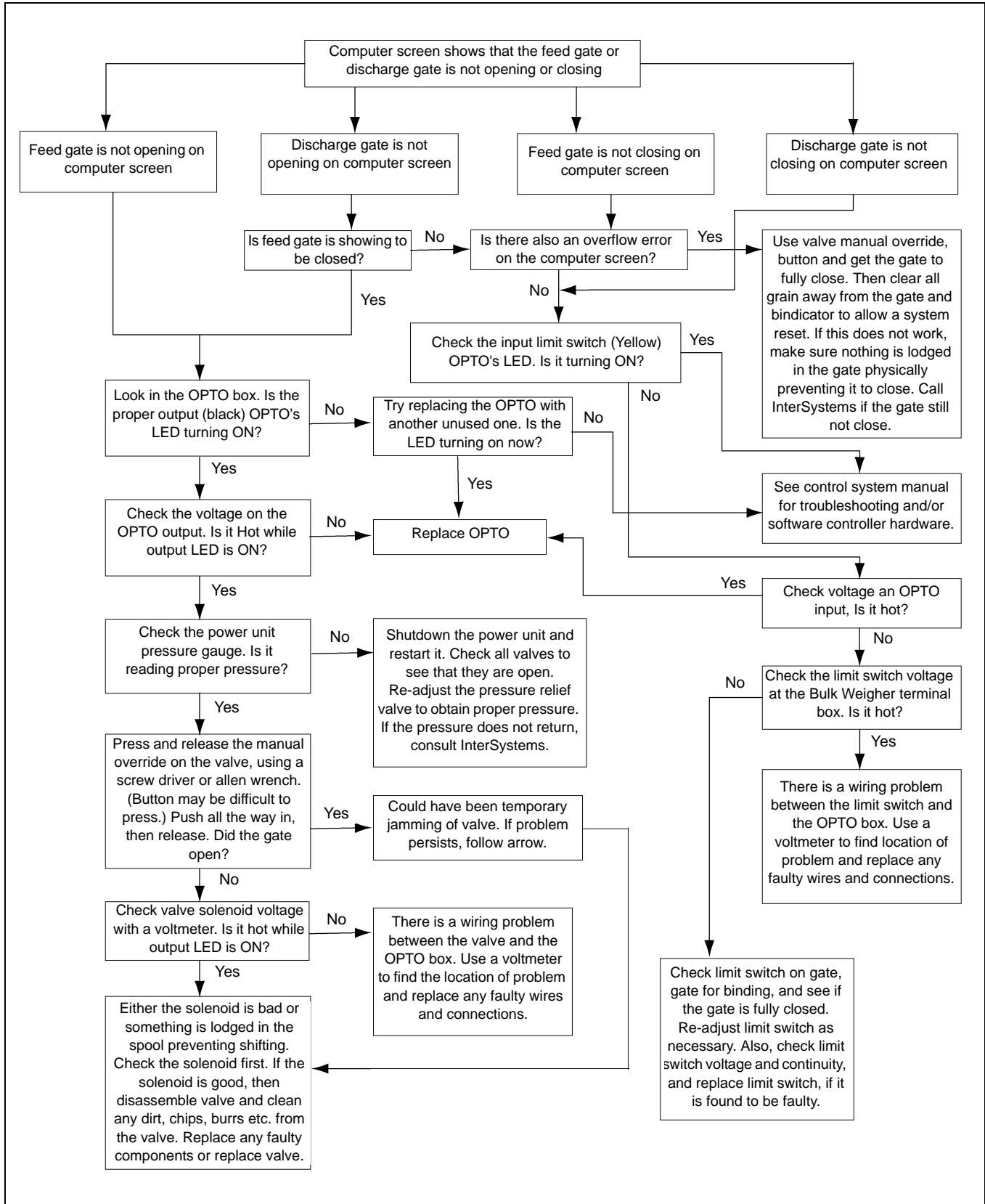


Figure 4A Troubleshooting Guide

5. Bulk Weigher Parts Information

Gate Cylinders

Parker Series 2H Heavy Duty Hydraulic Cylinder

Series 2H cylinders set the standard for performance, durability, and trouble free operation. Parker superior design, the use of high quality materials and stringent manufacturing practices provide all customers with long cylinder service life and reduced operating costs. Design features such as the “Jewel” rod gland, hard chrome plated piston rods, and stepped cushions provide increased machine productivity through reduced downtime, faster cycle times, and improved system efficiency. Every Parker cylinder is individually tested before leaving our plant to assure proper performance and leak free operation. All Parker Cylinder products carry an eighteen month warranty.

Select Parker Series 2H cylinder for your hydraulic cylinder requirements. Parker Series 2H will provide the value and performance you need for all of your industrial hydraulic application demands.

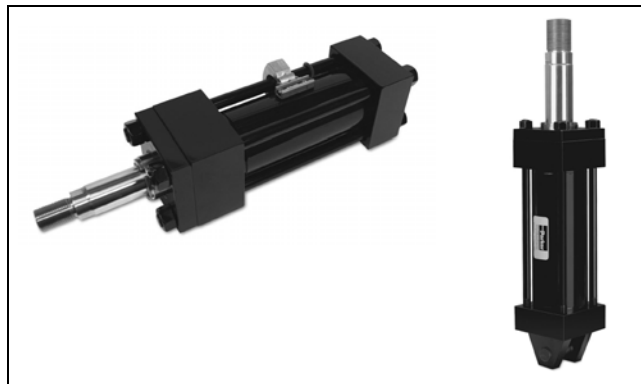


Figure 5A Hydraulic Cylinder

Standard Specifications

- Heavy Duty Service - ANSI/(NFPA) T3.6.7R3 - 2009 Specifications and Mounting Dimension Standards
- Standard Construction - Square Head - Tie Rod Design
- Nominal Pressure - 3000 psi¹
- Standard Fluid – Hydraulic Oil
- Standard Temperature - -10°F to +165°F²
- Bore Diameters - 1.50" through 6.00" (Larger sizes available)
- Piston Rod Diameter - 0.625" through 4.000"
- Mounting Styles - 18 standard styles at various application ratings
- Strokes - Available in any practical stroke length
- Cushions – Optional at either end or both ends of stroke. “Float Check” at cap end.
- Rod Ends – Four Standard Choices – Specials to Order

NOTE: Series 2H Hydraulic Cylinders fully meet ANSI/(NFPA) T3.6.7R3 - 2009 Specifications and Mounting Dimension Standards for Square Head Industrial Fluid Power Cylinders.

¹ If hydraulic operating pressure exceeds 3000 PSI, send application data for engineering evaluation and recommendation.

² Refer to the for higher temperature service.

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

Series 2H Heavy Duty Hydraulic Cylinder Parts

The inside story on why series 2H is your best choice in heavy duty hydraulic cylinders.

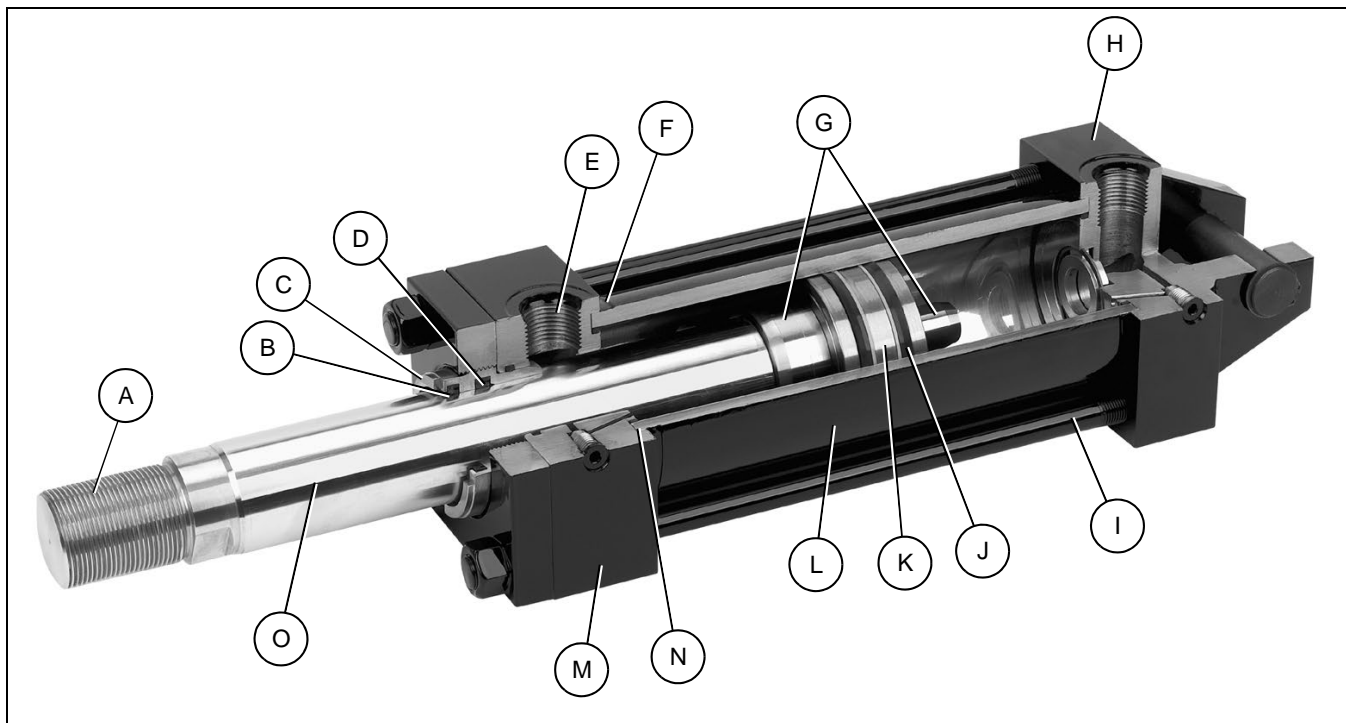


Figure 5B Hydraulic Cylinder Internal View

Ref #	Description
A	Piston Rod Stud
B	Secondary Seal
C	“Jewel” Rod Gland Assembly
D	Primary Seal
E	Ports
F	Align-A-Groove
G	Adjustable Floating Stepped Cushions
H	Steel Cap
I	High Strength Tie Rods
J	Lipseal™ Piston
K	One-Piece Nodular Iron Piston
L	Cylinder Body
M	Steel Head
N	End Seals
O	Piston Rod

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

5. Bulk Weigher Parts Information

Series 2H Heavy Duty Hydraulic Cylinder Parts Descriptions

Piston Rod Stud (A)

Furnished on 2.000" diameter rods and smaller when standard style #4 rod end threads are required. Studs have rolled threads and are made from high strength steel. Anaerobic adhesive is used to permanently lock the stud to the piston rod.

Secondary Seal (B)

Double-Service Wiperseal™ wiper clean any oil film adhering to the rod on the extend stroke and cleans the rod on the return stroke.

“Jewel” Rod Gland Assembly (C)

Externally removable without cylinder disassembly. Long bearing surface is inboard of the seals, 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.

Primary Seal (D)

TS-2000 rod seal is a proven leakproof design - completely self-compensating and self-relieving to withstand variations and conform to mechanical deflection that may occur.

Ports (E)

SAE O-ring ports are standard.

Optional Ports

Ports - NPTF ports are optional at no extra charge. Oversize NPTF and SAE ports are available at extra charge.

Align-A-Groove (F)

A 3/16" wide surface machined at each end of the cylinder body. Makes precise mounting quick and easy.

Adjustable Floating Stepped Cushions (G)

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.

Steel Cap (H)

Bored and grooved to provide concentricity for mating parts.

High Strength Tie Rods (I)

Made from 100,000 PSI minimum yield steel with rolled threads for added strength.

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

Lipseal™ Piston (J)

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 washer prevents extrusion.

One-Piece Nodular Iron Piston (K)

The wide piston surface contacting cylinder bore reduces bearing loads. Anaerobic adhesive is used to permanently lock and seal the piston to the rod.

Cylinder Body (L)

Heavy-wall steel tubing, honed to a micro finish bore.

Steel Head (M)

Bored and grooved to provide concentricity for mating parts.

End Seals (N)

Pressure-actuated cylinder body-to-head and cap O-rings.

Piston Rod (O)

Medium carbon steel, induction case-hardened, hard chrome-plated and polished to 10 RMS finish. Piston rods are made from 85,000 to 100,000 PSI minimum yield material in 0.625" through 4.000" diameters. Larger diameters vary between 57,000 and 90,000 PSI minimum material, depending on rod diameter.

Optional High Temperature Gland

Dual filled PTFE rod seals and filled PTFE wiper seal are energized with fluorocarbon O-rings to maintain consistent contact with the piston rod. Excellent sealing performance produce dry rod on extend stroke with rod scraping to clean rod on retract. Combine with Spring Loaded PTFE Piston Seals for cylinder heat resistance to 400° F. Refer to seal specification on Operating Fluids and Temperature Range.

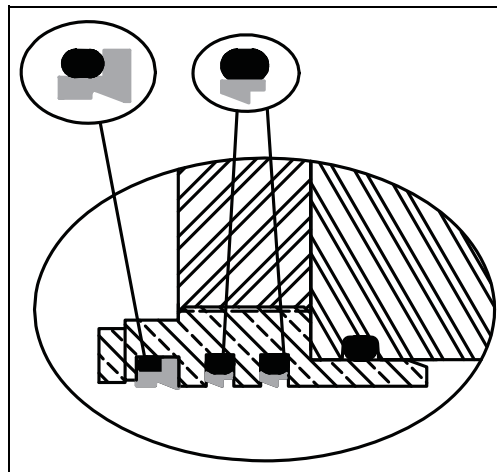


Figure 5C

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

5. Bulk Weigher Parts Information

Optional Pistons

Step cut iron piston rings are optional at no extra charge.

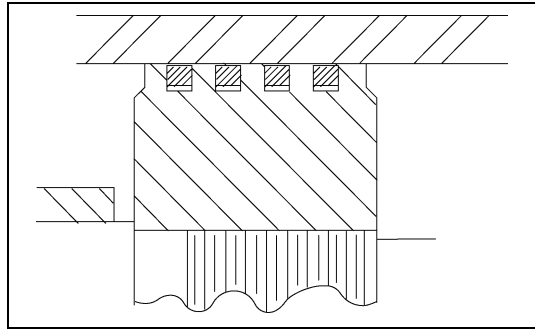


Figure 5D

High Load Piston - Optional at extra charge. Includes wear rings and bronze-filled PTFE seals. Two (2) wear rings serve as bearings which deform radially under side-loading, enabling the load to be spread over a larger area and reduce unit loading. Bronze-filled PTFE seals are designed for extrusion-free, leak-proof service and longer cylinder life than the lipseal type piston.

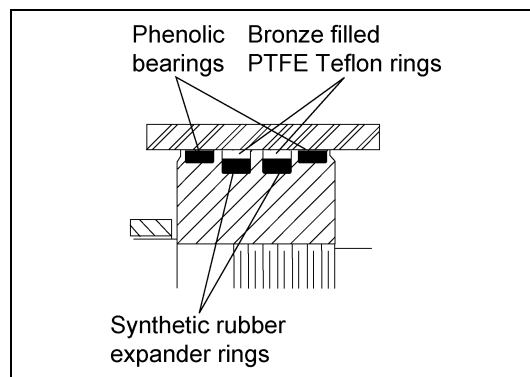


Figure 5E

Spring Loaded PTFE Piston Seals - Optional filled PTFE piston Lipseals utilize an internal stainless steel spring to energize both the dynamic and static sealing lips to optimize seal performance throughout the operating temperature range. Non-metallic piston wear ring in 1.50"-6.00" bores (bronze in 7.00" and 8.00" bore 3H) reduces possibility of damaging piston which can score expensive tubing. Combine with High Temperature Gland for cylinder heat resistance to 400°F. Refer to seal specification on Operating Fluids and Temperature Range.

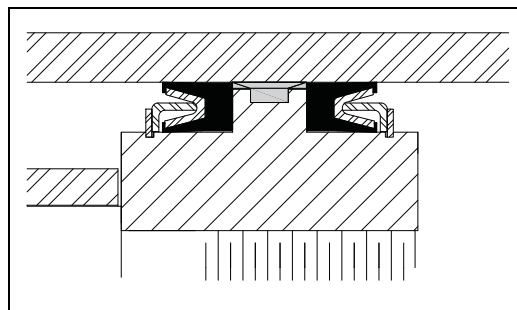


Figure 5F

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

Parker's 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 area 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 (3) pressure pulses coinciding with the steps. The deceleration cushion plunger curves shape comes very close to being theoretical, with the exception of the last 1/2" 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.

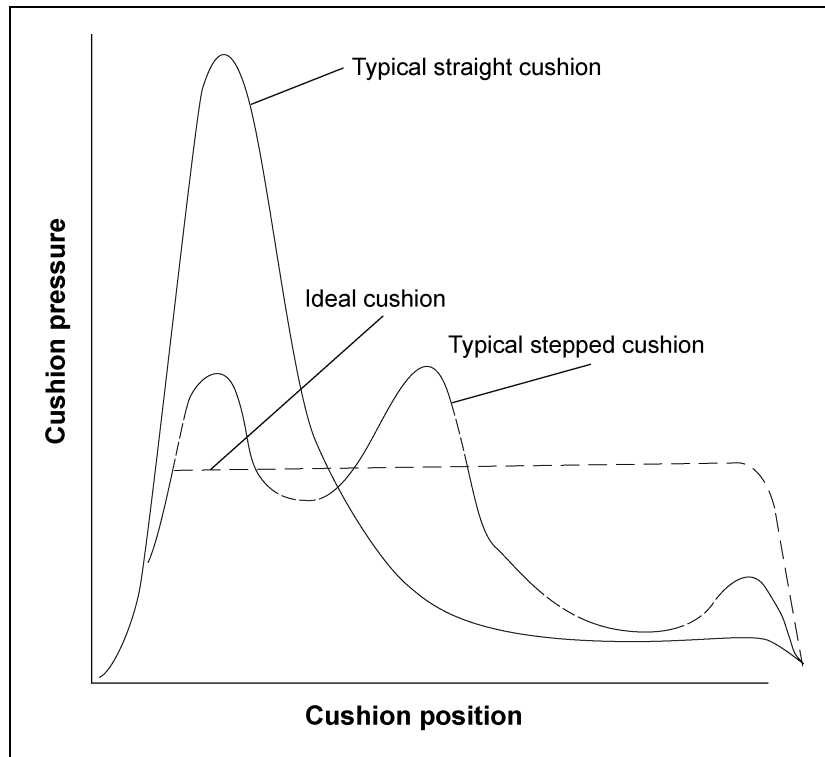


Figure 5G *Cushion Performance*

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

5. Bulk Weigher Parts Information

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, DE, JJ, and HH. In these styles it is located on side number 3.
- c. On 6.00" bore and larger cylinders 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. On 1.50" - 5.00" bore cylinders a slotted sleeve design is used in place of the check valve.
- e. 1.50" - 2.50" bore cylinders use a cartridge style needle valve.

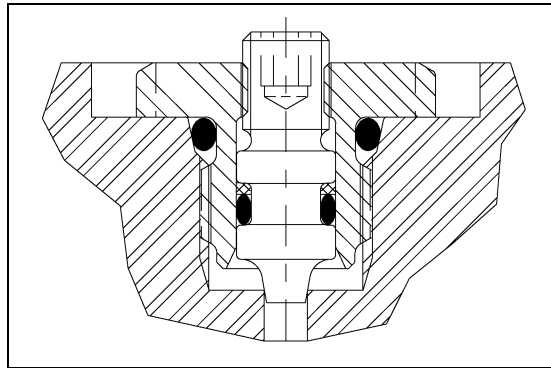


Figure 5H

2. When a cushion is specified at the cap end:

- a. A stepped cushion spear is provided on the piston rod.
- b. A "float check" self-centering bushing is provided which incorporates a large flow 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, DE, JJ, and HH. In these styles it is located on side number 3.

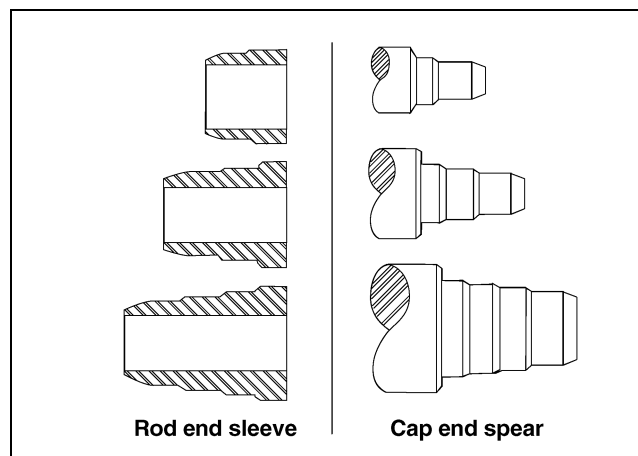


Figure 5I Stepped Cushions

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

Rectangular Flange and Head Mountings - 1-1/2" to 6" Bore Sizes

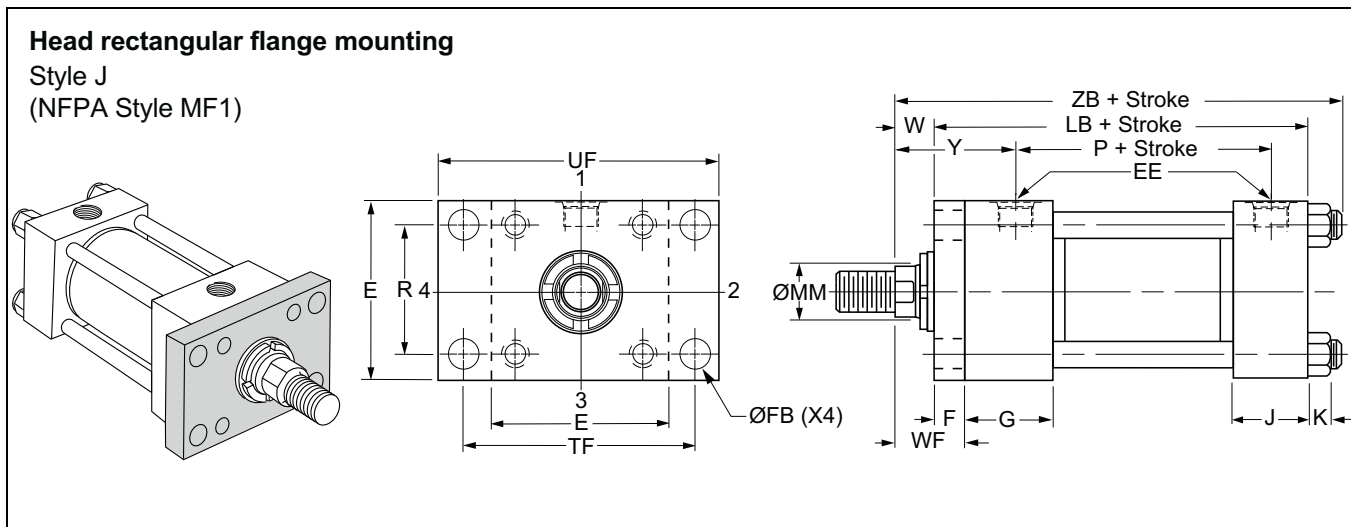


Figure 5J Head Rectangular Flange Mounting - Style J

Style J – Dimensional and Mounting Data

Bore Ø	E	EE		F	FB Ø	G	J	K	R	TF	UF	Add Stroke	
		NPTF ¹	SAE ²									LB	P
1.50	2.50	1/2	10	0.38	0.44	1.75	1.50	0.38	1.63	3.44	4.25	5.00	2.88
2.00	3.00	1/2	10	0.63	0.56	1.75	1.50	0.44	2.05	4.13	5.13	5.25	2.88
2.50	3.50	1/2	10	0.63	0.56	1.75	1.50	0.44	2.55	4.63	5.63	5.38	3.00
3.25	4.50	3/4	12	0.75	0.69	2.00	1.75	0.56	3.25	5.88	7.13	6.25	3.50
4.00	5.00	3/4	12	0.88	0.69	2.00	1.75	0.56	3.82	6.38	7.63	6.63	3.75
5.00	6.50	3/4	12	0.88	0.94	2.00	1.75	0.81	4.95	8.19	9.75	7.13	4.25
6.00	7.50	1	16	1.00	1.06	2.25	2.25	0.88	5.73	9.44	11.25	8.38	4.88

¹ NPTF ports are available at no extra charge.

² SAE straight thread ports are standard and are indicated by port number.

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

5. Bulk Weigher Parts Information

Style J – Dimensional and Mounting Data

Bore Ø	Rod No.	MM Rod Ø	W	WF	Y	Add Stroke
						ZB Maximum
1.50	1 (std.)	0.625	0.63	1.00	2.00	6.25
	2	1.000	1.00	1.38	2.38	6.63
2.00	1 (std.)	1.000	0.75	1.38	2.38	6.69
	2	1.375	1.00	1.63	2.63	6.94
2.50	1 (std.)	1.000	0.75	1.38	2.38	6.81
	2	1.750	1.25	1.88	2.88	7.31
	3	1.375	1.00	1.63	2.63	7.06
3.25	1 (std.)	1.375	0.88	1.63	2.75	7.94
	2	2.000	1.25	2.00	3.13	8.31
	3	1.750	1.13	1.88	3.00	8.19
4.00	1 (std.)	1.750	1.00	1.88	3.00	8.50
	2	2.500	1.38	2.25	3.38	8.88
	3	2.000	1.13	2.00	3.13	8.63
5.00	1 (std.)	2.000	1.13	2.00	3.13	9.38
	2	3.500	1.38	2.25	3.38	9.63
	3	2.500	1.38	2.25	3.38	9.63
	4	3.000	1.38	2.25	3.38	9.63
6.00	1 (std.)	2.500	1.25	2.25	3.50	10.81
	2	4.000	1.25	2.25	3.50	10.81
	3	3.000	1.25	2.25	3.50	10.81
	4	3.500	1.25	2.25	3.50	10.81

Style J – Maximum Operating Pressure/2H

Bore Ø	Maximum PSI Push ³			
	Rod Code			
	1	2	3	4
1.50	1500	1000	-	-
2.00	2000	1200	-	-
2.50	2000	1100	1500	-
3.25	1800	1300	1400	-
4.00	1800	1300	1700	-
5.00	1300	800	1200	1000
6.00	1200	800	1000	900

Style J – Maximum Operating Pressure/2HD

Bore Ø	Maximum PSI Push ³			
	Rod Code			
	1	2	3	4
1.50	1400	1000	-	-
2.00	2000	1200	-	-
2.50	700	1000	700	-
3.25	800	600	800	-
4.00	1000	700	1000	-
5.00	850	800	850	450
6.00	650	400	650	400

³ Maximum Pressure Rating – Push Application.

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

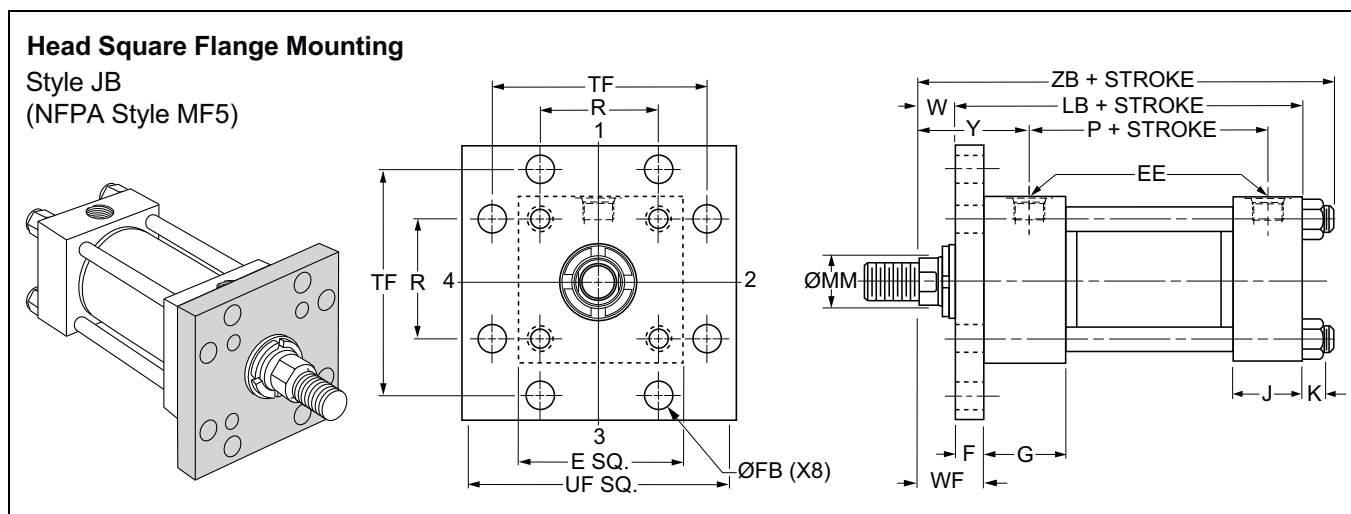


Figure 5K Head Square Flange Mounting - Style JB

Style JB – Dimensional and Mounting Data

Bore Ø	E	EE		F	FB Ø	G	J	K	R	TF	UF	Add Stroke	
		NPTF ¹	SAE ²									LB	P
1.50	2.50	1/2	10	0.38	0.44	1.75	1.50	0.38	1.63	3.44	4.25	5.00	2.88
2.00	3.00	1/2	10	0.63	0.56	1.75	1.50	0.44	2.05	4.13	5.13	5.25	2.88
2.50	3.50	1/2	10	0.63	0.56	1.75	1.50	0.44	2.55	4.63	5.63	5.38	3.00
3.25	4.50	3/4	12	0.75	0.69	2.00	1.75	0.56	3.25	5.88	7.13	6.25	3.50
4.00	5.00	3/4	12	0.88	0.69	2.00	1.75	0.56	3.82	6.38	7.63	6.63	3.75
5.00	6.50	3/4	12	0.88	0.94	2.00	1.75	0.81	4.95	8.19	9.75	7.13	4.25
6.00	7.50	1	16	1.00	1.06	2.25	2.25	0.88	5.73	9.44	11.25	8.38	4.88

¹ NPTF ports are available at no extra charge.

² SAE straight thread ports are standard and are indicated by port number.

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

5. Bulk Weigher Parts Information

Style JB – Dimensional and Mounting Data

Bore Ø	Rod No.	MM Rod Ø	W	WF	Y	Add Stroke
						ZB Maximum
1.50	1 (std.)	0.625	0.63	1.00	2.00	6.25
	2	1.000	1.00	1.38	2.38	6.63
2.00	1 (std.)	1.000	0.75	1.38	2.38	6.69
	2	1.375	1.00	1.63	2.63	6.94
2.50	1 (std.)	1.000	0.75	1.38	2.38	6.81
	2	1.750	1.25	1.88	2.88	7.31
	3	1.375	1.00	1.63	2.63	7.06
3.25	1 (std.)	1.375	0.88	1.63	2.75	7.94
	2	2.000	1.25	2.00	3.13	8.31
	3	1.750	1.13	1.88	3.00	8.19
4.00	1 (std.)	1.750	1.00	1.88	3.00	8.50
	2	2.500	1.38	2.25	3.38	8.88
	3	2.000	1.13	2.00	3.13	8.63
5.00	1 (std.)	2.000	1.13	2.00	3.13	9.38
	2	3.500	1.38	2.25	3.38	9.63
	3	2.500	1.38	2.25	3.38	9.63
	4	3.000	1.38	2.25	3.38	9.63
6.00	1 (std.)	2.500	1.25	2.25	3.50	10.81
	2	4.000	1.25	2.25	3.50	10.81
	3	3.000	1.25	2.25	3.50	10.81
	4	3.500	1.25	2.25	3.50	10.81

Style JB – Maximum Operating Pressure/2H

Bore Ø	Maximum PSI Push ³			
	Rod Code			
	1	2	3	4
1.50	3000	3000	-	-
2.00	3000	3000	-	-
2.50	3000	3000	3000	-
3.25	3000	3000	3000	-
4.00	3000	3000	3000	-
5.00	3000	3000	3000	3000
6.00	3000	2700	3000	2700

Style JB – Maximum Operating Pressure/2HD

Bore Ø	Maximum PSI Push ³			
	Rod Code			
	1	2	3	4
1.50	3000	3000	-	-
2.00	3000	3000	-	-
2.50	3000	3000	3000	-
3.25	3000	3000	3000	-
4.00	3000	3000	3000	-
5.00	2500	2300	2500	1800
6.00	2000	1600	2000	1600

³ Maximum Pressure Rating – Push Application.

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

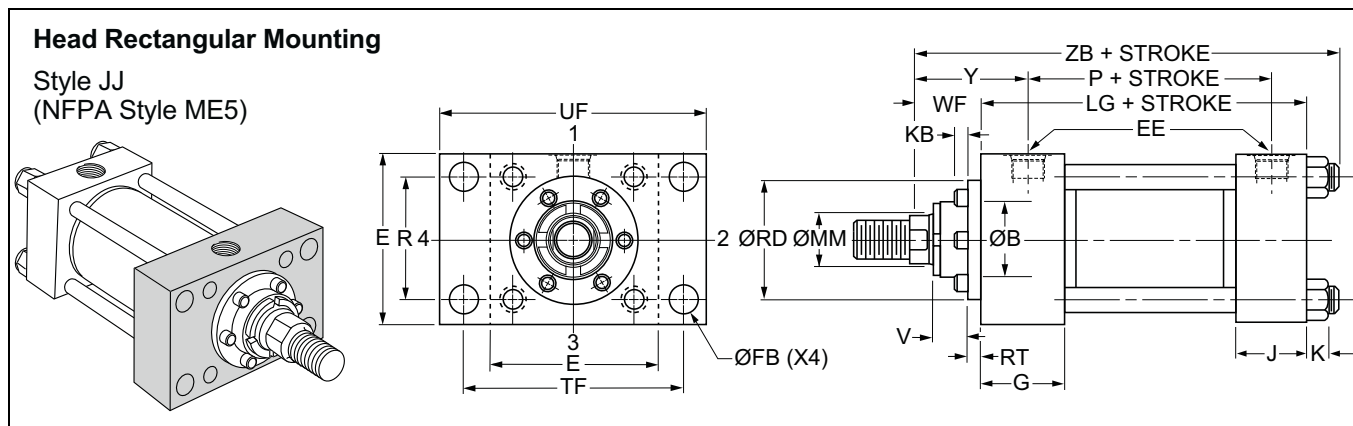


Figure 5L Head Rectangular Mounting - Style JJ

Style JJ – Dimensional and Mounting Data

Bore Ø	E	EE		FB Ø	G	J	K	R	TF	UF	Add Stroke	
		NPTF ¹	SAE ²								LG	P
1.50	2.50	1/2	10	0.44	1.75	1.50	0.38	1.63	3.44	4.25	4.63	2.88
2.00	3.00	1/2	10	0.56	1.75	1.50	0.44	2.05	4.13	5.13	4.63	2.88
2.50	3.50	1/2	10	0.56	1.75	1.50	0.44	2.55	4.63	5.63	4.75	3.00
3.25	4.50	3/4	12	0.69	2.00	1.75	0.56	3.25	5.88	7.13	5.50	3.50
4.00	5.00	3/4	12	0.69	2.00	1.75	0.56	3.82	6.38	7.63	5.75	3.75
5.00	6.50	3/4	12	0.94	2.00	1.75	0.81	4.95	8.19	9.75	6.25	4.25
6.00	7.50	1	16	1.06	2.25	2.25	0.88	5.73	9.44	11.25	7.38	4.88

¹ NPTF ports are available at no extra charge.

² SAE straight thread ports are standard and are indicated by port number.

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

5. Bulk Weigher Parts Information

Style JJ – Dimensional and Mounting Data

Bore Ø	Rod No.	MM Rod Ø	B Ø +.000 -.002	KB	RD Ø	RT	V	WF	Y	Add Stroke
										ZB Maximum
1.50	1 (std.)	0.625	1.124	-	2.13	0.38	0.25	1.00	2.00	6.25
	2	1.000	1.499	-	2.50	0.38	0.50	1.38	2.38	6.63
2.00	1 (std.)	1.000	1.499	-	2.50	0.38	0.50	1.38	2.38	6.69
	2	1.375	1.999	0.25	3.00	0.38	0.63	1.63	2.63	6.94
2.50	1 (std.)	1.000	1.499	-	2.50	0.38	0.50	1.38	2.38	6.81
	2	1.750	2.374	0.25	3.50	0.38	0.75	1.88	2.88	7.31
	3	1.375	1.999	0.25	3.00	0.38	0.63	1.63	2.63	7.06
3.25	1 (std.)	1.375	1.999	0.25	3.00	0.38	0.63	1.63	2.75	7.94
	2	2.000	2.624	0.13	4.00	0.63	0.50	2.00	3.13	8.31
	3	1.750	2.374	0.25	3.50	0.38	0.75	1.88	3.00	8.19
4.00	1 (std.)	1.750	2.374	0.25	3.50	0.38	0.75	1.88	3.00	8.50
	2	2.500	3.124	0.25	4.50	0.63	0.63	2.25	3.38	8.88
	3	2.000	2.624	0.13	4.00	0.63	0.50	2.00	3.13	8.63
5.00	1 (std.)	2.000	2.624	0.13	4.00	0.63	0.50	2.00	3.13	9.38
	2	3.500	4.249	0.25	5.75	0.63	0.63	2.25	3.38	9.63
	3	2.500	3.124	0.25	4.50	0.63	0.63	2.25	3.38	9.63
	4	3.000	3.749	0.25	5.25	0.63	0.63	2.25	3.38	9.63
6.00	1 (std.)	2.500	3.124	0.25	4.50	0.63	0.63	2.25	3.50	10.81
	2	4.000	4.749	0.25	6.50	0.75	0.50	2.25	3.50	10.81
	3	3.000	3.749	0.25	5.25	0.63	0.63	2.25	3.50	10.81
	4	3.500	4.249	0.25	5.75	0.63	0.63	2.25	3.50	10.81

NOTE: For additional information - Call your local Parker Fluidpower Motion and Control Distributor.

Cast Iron Test Weights

Grip Handle and Nesting Slab Weights

Our cast iron weights undergo a special phosphatizing 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 tolerance 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 (TAMP) for pricing or additional information.

NIST Class F

Optional

Weight	Part #	Width	Length	Height	Slot Width	Slot Depth*	Price	Traceable Certificate
3,000 lb	12872	20-3/4" (527.1 mm)	20-3/4" (527.1 mm)	29 (736.6 mm)	3-1/2" (88.9 mm)	2-3/4" (69.9 mm)	Consult	Consult
2,500 lb	12854	20-3/4" (527.1 mm)	20-3/4" (527.1 mm)	24-3/4" (628.65 mm)	3-31/32" (100.8 mm)	2-3/4" (69.9 mm)	Consult	Consult
2,000 lb	12868	20-3/4" (527.05 mm)	20-3/4" (527.05 mm)	19-1/2" (495.3 mm)	3-1/2" (88.9 mm)	2-3/4" (69.9 mm)	Consult	Consult
1,500 lb	12864	15-1/8" (384.2 mm)	15-1/8" (384.2 mm)	26-7/8" (682.6 mm)	2-1/2" (63.5 mm)	2-1/4" (57.2 mm)	Consult	Consult
1,250 lb	12858	15" (381.0 mm)	15" (381.0 mm)	23-3/4" (603.3 mm)	2-1/2" (63.5 mm)	2-1/4" (57.2 mm)	Consult	Consult
1,000 lb	12850	15" (381.0 mm)	15-1/2" (393.7 mm)	18-11/16" (474.7 mm)	2-3/4" (69.9 mm)	2-29/32" (73.8 mm)	Consult	Consult
500 lb	12844	11-1/2" (292.1 mm)	12" (304.8 mm)	15-3/4" (400.1 mm)	2-1/2" (63.5 mm)	1-29/32" (48.4 mm)	Consult	Consult
250 lb	12892	9-3/4" (247.65 mm)	9-3/4" (247.65 mm)	12" (304.8 mm)	2-1/2" (63.5 mm)	2" (50.8 mm)	Consult	Consult
200 lb	12890	9-3/4" (247.65 mm)	9-3/4" (247.65 mm)	10 (254 mm)	2-1/2" (63.5 mm)	2" (50.8 mm)	Consult	Consult
100 lb	12862	9-1/8" (231.8 mm)	7" (177.8 mm)	7-7/8" (200.0 mm)	4-1/2" (114.3 mm)	1-1/2" (38.1 mm)	Consult	Consult
50 lb	12839	7-29/32" (200.8 mm)	5-1/2" (139.7 mm)	6-9/16" (166.7 mm)	4-1/2" (114.3 mm)	1-21/32" (42.1 mm)	Consult	Consult
30 lb	12878	8-1/4" (209.6 mm)	4-29/32" (124.6 mm)	4-1/2" (114.3 mm)	4-15/32" (113.5 mm)	31/32" (24.6 mm)	Consult	Consult
25 lb	12833	6-1/2" (165.1 mm)	4-1/2" (114.3 mm)	4-15/16" (125.4 mm)	3-5/8" (92.1 mm)	31/32" (24.6 mm)	Consult	Consult
20 lb	12870	5-3/4" (146.1 mm)	4-15/32" (113.5 mm)	5-3/32" (129.4 mm)	3-31/32" (100.8 mm)	1-5/32" (29.4 mm)	Consult	Consult

5. Bulk Weigher Parts Information

ASTM Class 7

Optional

Weight	Part #	Width	Length	Height	Price	Traceable Certificate
10 lb	12828	5" (127.0 mm)	3-1/4" (82.6 mm)	4-1/32" (102.4 mm)	Consult	Consult
5 lb	12823	4" (101.6 mm)	2-9/16" (65.1 mm)	3-7/32" (81.8 mm)	Consult	Consult
2 lb	12874	3" (76.2 mm)	2-1/8" (54.0 mm)	1-3/4" (44.5 mm)	Consult	Consult
1 lb	12876	2-1/2" (63.5 mm)	1-11/16" (42.9 mm)	1-13/32" (35.7 mm)	Consult	Consult

Nesting Slab NIST Class F

Optional

Weight	Part #	Width	Length	Height	Slot Width	Slot Depth*	Price	Traceable Certificate
2,500 lb	12860	42" (1066.8 mm)	30" (762 mm)	8-1/4" (209.5 mm)	2" (50.8 mm)	2-1/4" (57.15 mm)	Consult	Consult
1,000 lb	34563	29-1/2" (749.3 mm)	19-1/2" (495.3 mm)	7-1/4" (184.15 mm)	2" (50.8 mm)	2-1/4" (57.15 mm)	Consult	Consult

* Slot depth refers to distance between lifting bars and castings

Additional Accessories

Part #	Description	Price
36092	Statement of Accuracy	Consult
25836	Serial number	Consult

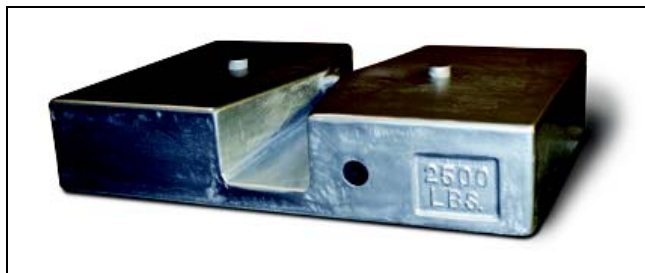


Figure 5M Nesting Slab (12860)



Figure 5N Grip Handle

Grip Handle Weights

NIST Class F

Optional

Weight	Part #	Width	Length	Height	Slot Width	Slot Depth*	Price	Traceable Certificate
1,000 kg	12801	20-1/2" (520.7 mm)	20-1/2" (520.7 mm)	22" (558.8 mm)	3-1/2" (88.9 mm)	2-3/4" (69.85 mm)	Consult	Consult
500 kg	12797	15-1/8" (384.2 mm)	15-1/8" (384.2 mm)	20-3/4" (527 mm)	2-1/2" (63.5 mm)	2" (50.8 mm)	Consult	Consult
250 kg	12782	11-1/2" (292.1 mm)	12-1/2" (317.5 mm)	20-1/2" (520.7 mm)	2-1/2" (63.5 mm)	1-7/8" (47.6 mm)	Consult	Consult
200 kg	12793	11-1/2" (292.1 mm)	12" (304.8 mm)	14-1/4" (362 mm)	2-1/2" (63.5 mm)	1-7/8" (47.6 mm)	Consult	Consult
100 kg	12817	9-7/8" (250.8 mm)	9-7/8" (250.8 mm)	11" (279.4 mm)	2-1/2" (63.5 mm)	2" (50.8 mm)	Consult	Consult
50 kg	12803	9-7/32" (234.2 mm)	7" (177.8 mm)	8-13/16" (223.8 mm)	4-15/32" (113.5 mm)	1-29/32" (48.4 mm)	Consult	Consult
35 kg	12805	7-7/8" (200.0 mm)	5-1/2" (139.7 mm)	9-15/32" (252.4 mm)	4-15/32" (113.5 mm)	1-1/16" (27.0 mm)	Consult	Consult
25 kg	12775	7-21/32" (194.5 mm)	5-1/2" (139.7 mm)	7-3/32" (180.2 mm)	4-7/16" (112.7 mm)	1-13/16" (46.0 mm)	Consult	Consult
20 kg	12771	7-5/8" (193.7 mm)	5-19/32" (142.1 mm)	5-29/32" (150.0 mm)	4-5/8" (117.5 mm)	1-19/32" (40.5 mm)	Consult	Consult
10 kg	12767	6" (152.4 mm)	4-1/2" (114.3 mm)	5" (127.0 mm)	3-3/4" (95.3 mm)	1-1/16" (27.0 mm)	Consult	Consult

ASTM Class 7

Optional

Weight	Part #	Width	Length	Height	Price	Traceable Certificate
5 kg	12786	5-15/32" (138.9 mm)	3-13/32" (86.5 mm)	4-1/8" (104.8 mm)	Consult	Consult
2 kg	12809	3-31/32" (100.8 mm)	2-9/16" (65.1 mm)	2-13/16" (71.4 mm)	Consult	Consult
1 kg	12813	3" (76.2 mm)	2-1/8" (54.0 mm)	1-27/32" (46.8 mm)	Consult	Consult
500 g	12815	2-1/2" (63.5 mm)	1-5/8" (41.3 mm)	1-17/32" (38.9 mm)	Consult	Consult

5. Bulk Weigher Parts Information

OIML Class M1

Optional

Weight	Part #	Width	Length	Height	Slot Width	Slot Depth*	Price	Traceable Certificate
500 kg	156304	15-1/8" (384.2 mm)	15-1/8" (384.2 mm)	20-3/4" (527 mm)	2-1/2" (63.5 mm)	2" (50.8 mm)	Consult	Consult
250 kg	156305	15-1/8" (384.2 mm)	15-1/8" (384.2 mm)	20-3/4" (527 mm)	2-1/2" (63.5 mm)	1-7/8" (47.6 mm)	Consult	Consult
100 kg	156306	15-1/8" (384.2 mm)	15-1/8" (384.2 mm)	20-3/4" (527 mm)	2-1/2" (63.5 mm)	2" (50.8 mm)	Consult	Consult
50 kg	105417	9-7/32" (234.2 mm)	7" (177.8 mm)	8-13/16" (223.8 mm)	4-15/32" (113.5 mm)	1-29/32" (48.4 mm)	Consult	Consult
20 kg	105416	7-5/8" (193.7 mm)	5-19/32" (142.1 mm)	5-29/32" (150.0 mm)	4-5/8" (117.5 mm)	1-19/32" (40.5 mm)	Consult	Consult
10 kg	105415	6" (152.4 mm)	4-1/2" (114.3 mm)	5" (127.0 mm)	3-3/4" (95.3 mm)	1-1/16" (27.0 mm)	Consult	Consult
5 kg	105414	5-15/32" (138.9 mm)	3-13/32" (86.5 mm)	4-1/8" (104.8 mm)	-	-	Consult	Consult

* Slot depth refers to distance between lifting bars and castings

Additional Accessories

Part #	Description	Price
36092	Statement of Accuracy	Consult
25836	Serial Number	Consult



Figure 50 Grip Handle

Manual Test Weight Lift Assembly 500#

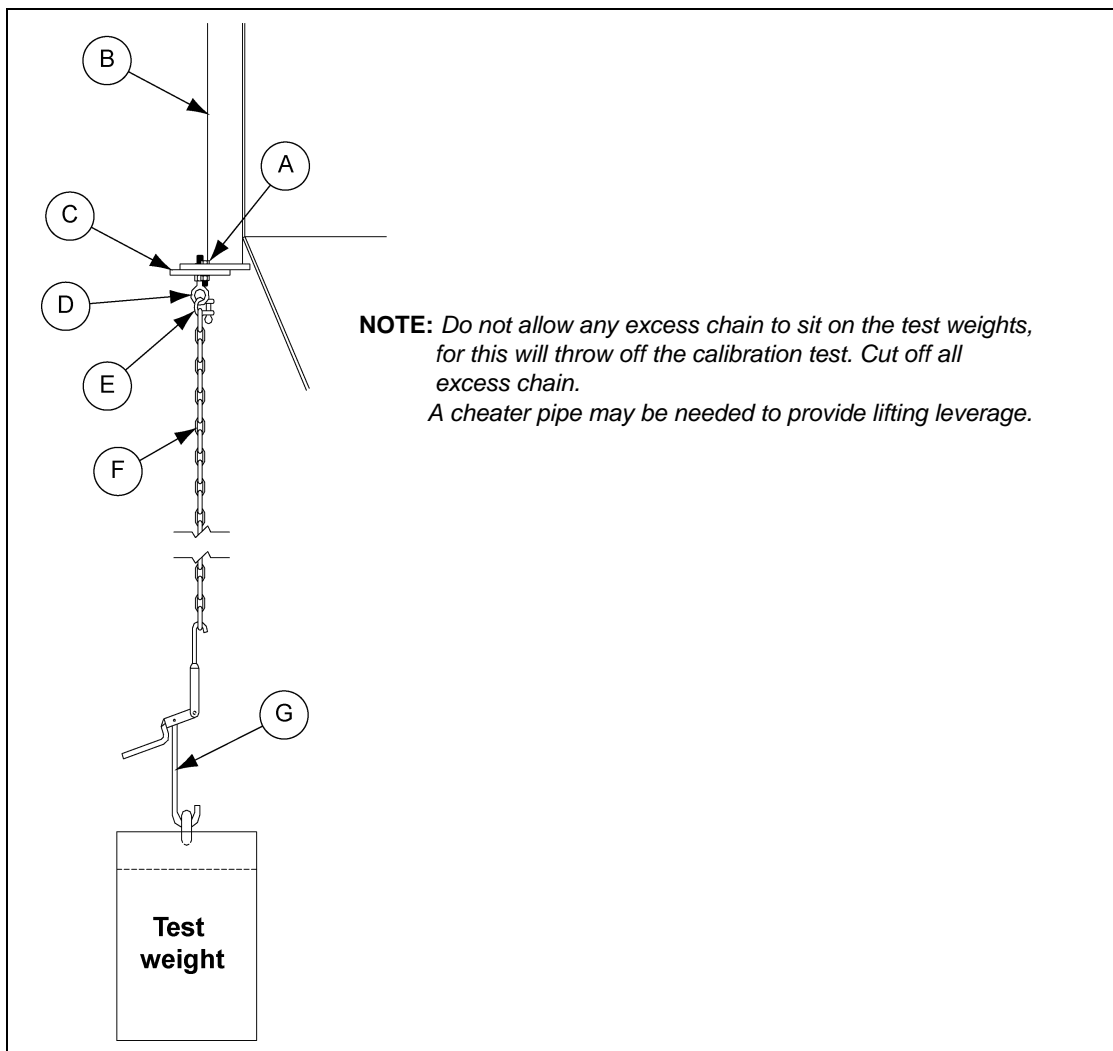


Figure 5P

Ref #	Description
A	Two (2) 1/2" bolts x 2" long required with nuts and lock washers for mounting the test weight adjustment plate.
B	Weigh Hopper Channel
C	Slotted Test Weight Adjustment Plate. Adjust plate so the chain hangs clear of obstacles. (Not required on some scale models.)
D	5/8" x 4" Long Forged Eye Bolt (35899). One nut on each side of adjustment plate. (Not required on some scale models.)
E	3/8" Chain Shackle (35173)
F	1/4" Chain Long (35174). Use only enough chain so it will hang almost taught when the test weight is down.
G	Chain Tightener (36916)

5. Bulk Weigher Parts Information

Manual Test Weight Lift Assembly 1000#

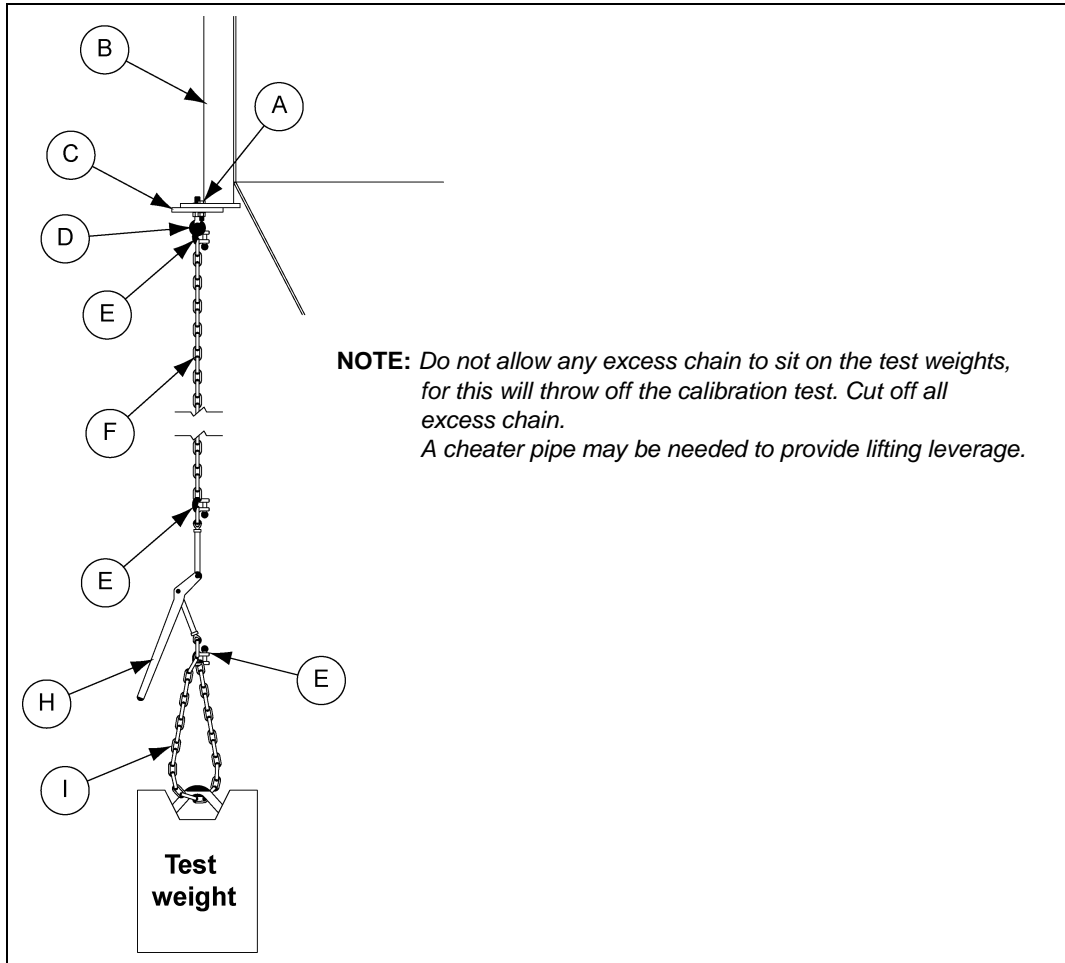


Figure 5Q

Ref #	Description
A	Two (2) 1/2" bolts x 2" long required with nuts and lock washers for mounting the test weight adjustment plate.
B	Weigh Hopper Channel
C	Slotted Test Weight Adjustment Plate. Adjust plate so the chain hangs clear of obstacles. (Not required on some scale models.)
D	5/8" x 4" Long Forged Eye Bolt (35899). One nut on each side of adjustment plate. (Not required on some scale models.)
E	3/8" Chain Shackle (35173)
F	1/4" Chain Long (35174). Use only enough chain so it will hang almost taught when the test weight is down.
H	3/8" Load Binder (528401) (Hooks are provided which may be used in place of shackles.)
I	1/4" Chain 2' Long (35174). Use as much as necessary to achieve the desired height of the load binder.

Manual Test Weight Lift Assembly 2000#

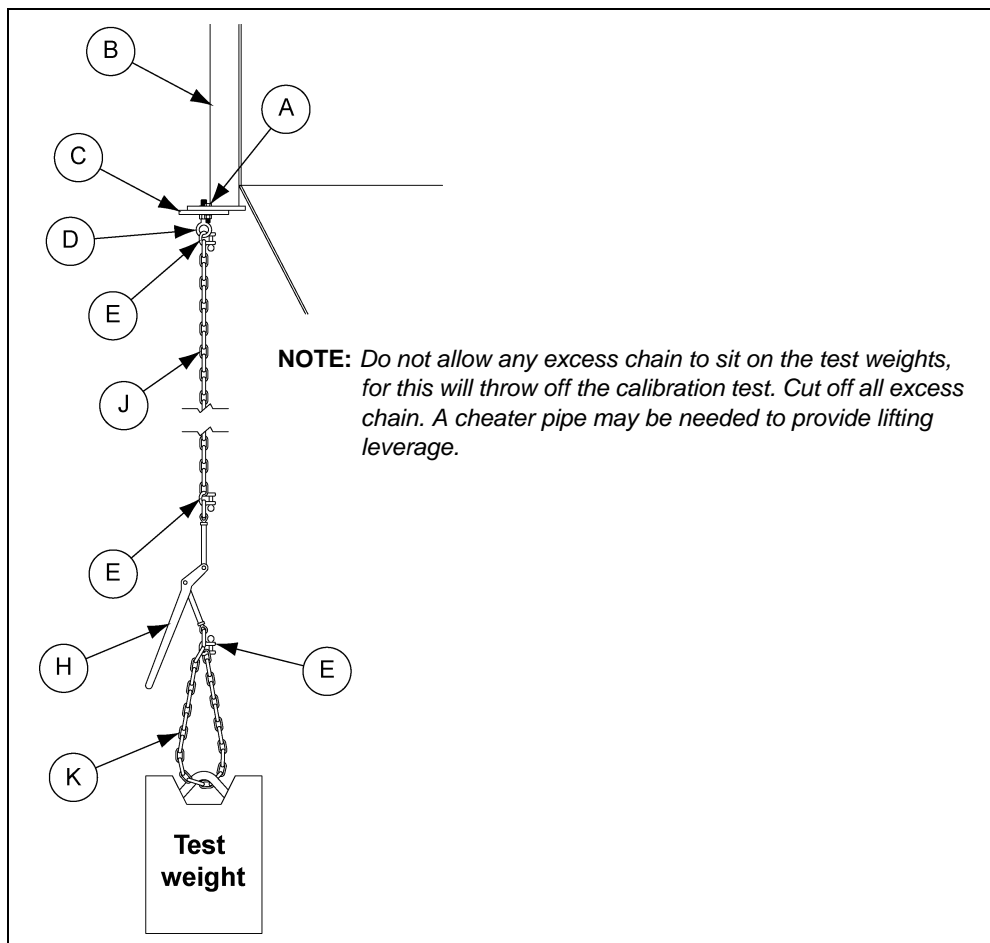


Figure 5R

Ref #	Description
A	Two (2) 1/2" bolts x 2" long required with nuts and lock washers for mounting the test weight adjustment plate.
B	Weigh Hopper Channel
C	Slotted Test Weight Adjustment Plate. Adjust plate so the chain hangs clear of obstacles. (Not required on some scale models.)
D	5/8" x 4" Long Forged Eye Bolt (35899). One nut on each side of adjustment plate. (Not required on some scale models.)
E	3/8" Chain Shackle (35173)
H	3/8" Load Binder (528401) (Hooks are provided which may be used in place of shackles.)
J	3/8" Chain (58400). Use only enough chain so it will hang almost taught when the test weight is down.
K	3/8" Chain 2' Long (528400). Use as much as necessary to achieve the desired height of the load binder.

5. Bulk Weigher Parts Information

Hydraulic Test Weight Lift Assembly 1000#

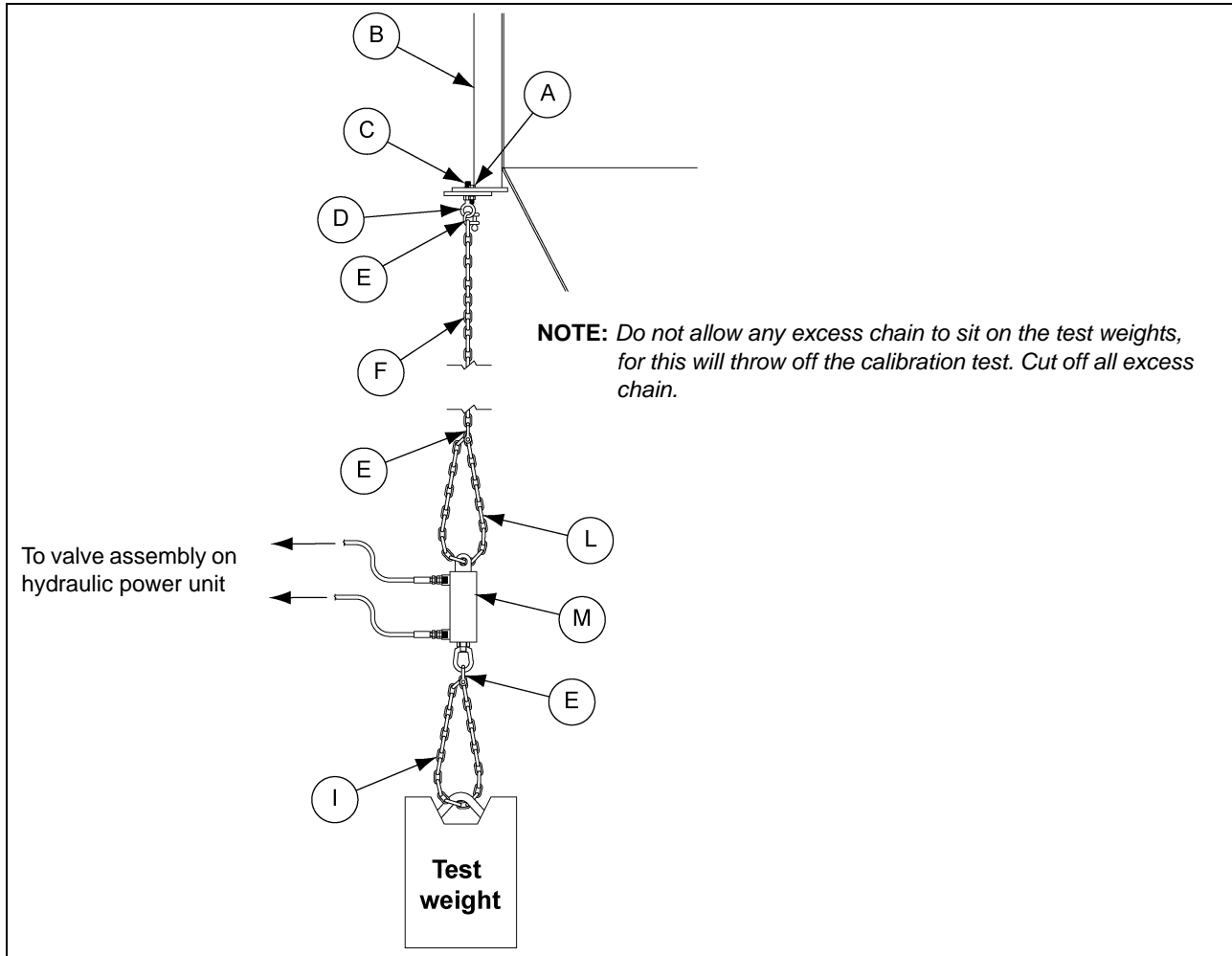


Figure 5S

Ref #	Description
A	Two (2) 1/2" bolts x 2" long required with nuts and lock washers for mounting the test weight adjustment plate.
B	Weigh Hopper Channel
C	Slotted Test Weight Adjustment Plate. Adjust plate so the chain hangs clear of obstacles. (Not required on some scale models.)
D	5/8" x 4" Long forged eye bolt (35899) one nut on each side of adjustment plate. (Not required on some scale models.)
E	3/8" Chain shackle (35173)
F	1/4" Chain Long (35174). Use only enough chain so it will hang almost taught when the test weight is down.
I	1/4" Chain 2' Long (35174). Use as much as necessary to achieve the desired height of the cylinder.
L	1/4" Chain 1' Long (35174)
M	Hydraulic Cylinder Test Weight Lift Assembly (511094)

Start-Up

1. Plumb the hydraulics (see hydraulic schematic in index A and Hydraulic System Arrangement [on Page 14](#).)
2. Wire the motor to a motor starter on a separate breaker from the control wiring. (See hydraulic power unit schematic for power requirements [on Page 63](#).)
3. Wire the heater. (See hydraulic power unit schematic for power requirements [on Page 63](#).) Dial temperature setting to 70°F.
4. Fill the power unit with oil. (ISO 32 or comparable arctic blend for extremely cold areas.)
5. 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.
6. Check motor rotation. Quickly turn motor ON and OFF and verify the rotation is as indicated by the arrow on the pump. (Remove plastic cover on coupler to view rotation.)
7. 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.
8. 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.
9. 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.
10. 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 (6) Months

1. 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 IS.)

2. 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.)

6. Hydraulic Power Unit

Hydraulic Power Unit Schematic Drawings with Parts List

Hydraulic Power Unit 5 HP TEFC PSR/COMP (532295)

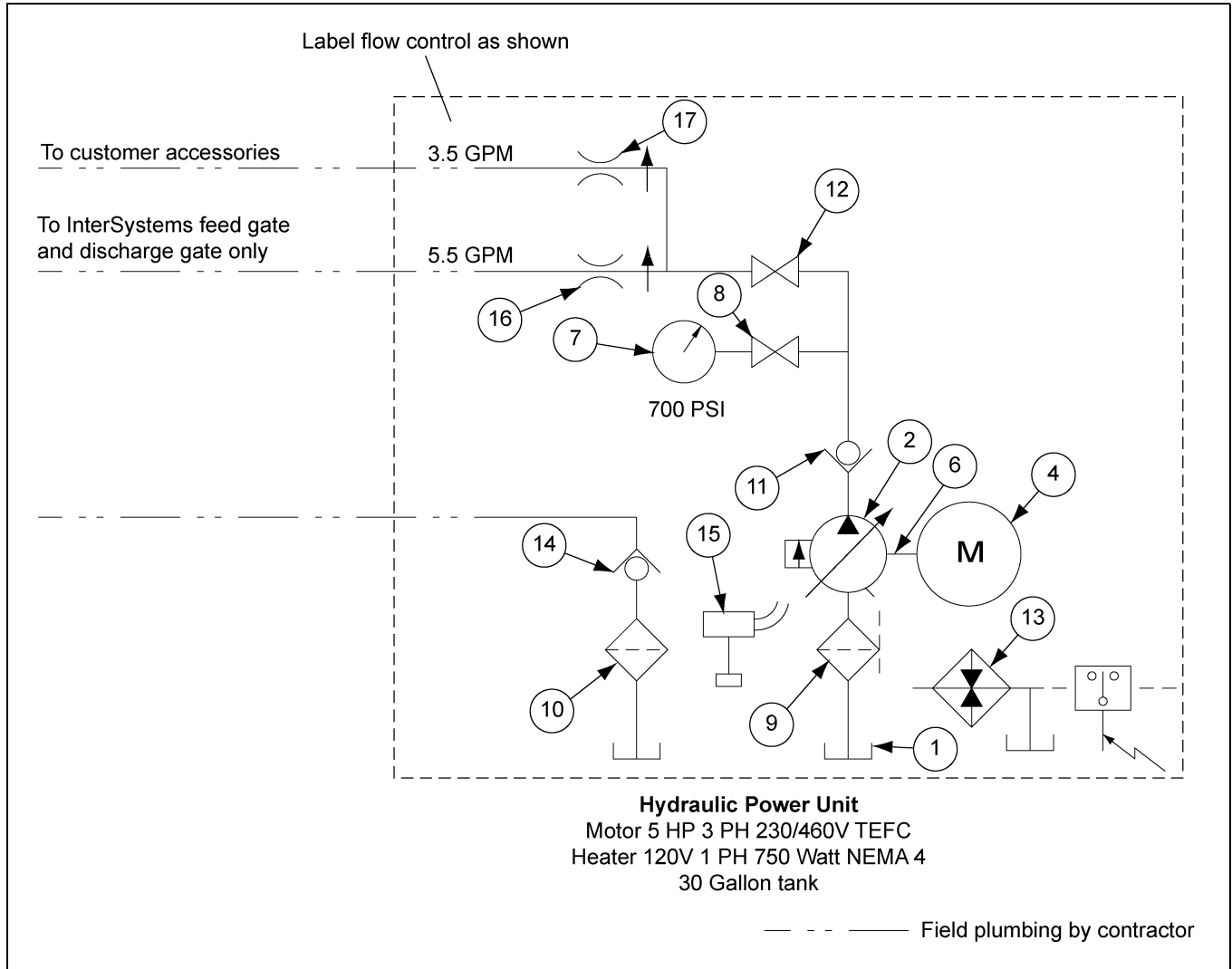


Figure 6A

Hydraulic Power Unit 5 HP TEFC PSR/COMP (532295) Parts List

Ref #	Part #	Description	Qty
1	10030-REV B	Reservoir, 30 Gallon with Site Glass and Thermostat - Vescor	1
2	PVP2320R	Pump, Variable Volume Piston - Parker	1
3	254199	Pump/Motor Adapter (Not Shown)	1
4	130328	Motor, 5 HP TEFC 230/460V, 3 PH 1750 RPM 184TC Frame	1
5	5131	Base Plate, Motor (Not Shown)	1
6	LO95	Coupling - Lovejoy	1
7	25.900-2000	Gauge, Span Pressure 0-2000 PSI	1
8	MV400-S	Shut Off Valve - Parker	1
9	P20-1-1/4-100RV3	Suction Strainer - Flo-Ezy	1
10	15CN110QM250B1B1-1	Filter, Microglass Element - Parker** (Not Shown)	1
11	DT750MOMF-05	Check Valve (Pressure) - Parker	1
12	VP500CS-8	Ball Valve - Parker	1
13	BCS13J1-W2	Heater, 750 Watt, 110V, 1 PH, Nema 4 - Watlow	1
14	C800S	Check Valve (Return) - Parker	1
15	B40033AFD2B705	Switch, Low Level/High Temp (70° C) - Adv. Tech.	1
16	FR101F6006P	Flow Control Pressure Comp., 5.5 GPM - Parker	1
17	FR101F4006P	Flow Control Pressure Comp., 3.5 GPM - Parker	1
18		Lable NOTE: Do not mix hydraulic oil. (Not Shown)	1

*Pump volume set at 9.5 GPM preset to 700 PSI

**Filter replacement element - parker # 932612Q (IS# 543019)

NOTE: Power unit to be test run, pressure relief to be set at 700 PSI, pump rotation to be highly visibly marked and one certificate of testing sent with power unit and one certificate of testing sent to InterSystems, inc.

NOTE: Substitution to any component listed with part number must be approved by InterSystems, Inc.

6. Hydraulic Power Unit

Hydraulic Power Unit 5 HP IIG PSR/COMP (532304)

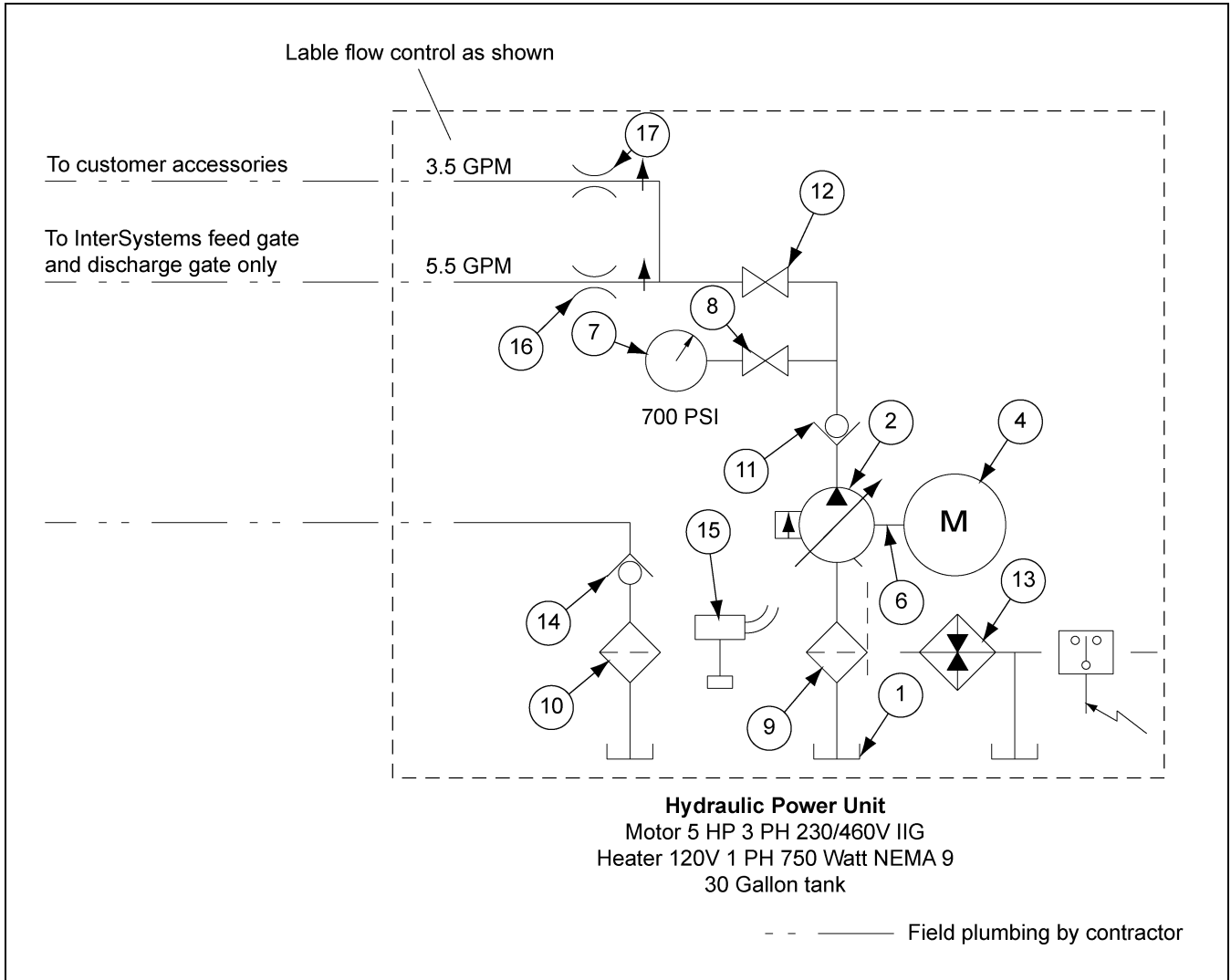


Figure 6B

Hydraulic Power Unit 5 HP IIG PSR/COMP (532304) Parts List

Ref #	Part #	Description	Qty
1	10030-REV B	Reservoir, 30 Gallon with Site Glass and Thermostat - Vescor	1
2	PVP2320R	Pump, Variable Volume Piston - Parker	1
3	1952	Pump/Motor Adapter (Not Shown)	1
4	C365	Motor, 5 HP IIG 230/460V, 3 PH 1750 RPM 184TC Frame	1
5	5135	Base Plate, Motor (Not Shown)	1
6	LO95	Coupling - Lovejoy	1
7	Q810	Gauge, Span Pressure 0-2000 PSI	1
8	MV400-S	Shut Off Valve - Parker	1
9	P20-1-1/4-100RV3	Suction Strainer - Flo-Ezy	1
10	15CN110QM250B1B1-1	Filter, Microglass Element - Parker**	1
11	DT750MOMF-05	Check Valve (Pressure) - Parker	1
12	VP500CS-8	Ball Valve - Parker	1
13	BCS13J1-E/W2	Heater, 750 Watt, 110V, 1 PH, Nema 7/4 - Watlow	1
14	C800S	Check Valve (Return) - Parker	1
15	B40033AFD2B705	Switch, Low Level/High Temp (70° C) IIG - Flotect	1
16	EDSC171	Enclosure IIG (For Switch)	1
17	DSD957	Cover Enclosure	1
18	FR101F6006P	Flow Control Pressure Comp., 5.5 GPM - Parker	1
19	FR101F4006P	Flow Control Pressure Comp., 3.5 GPM - Parker	1
20		Lable NOTE: Do not mix hydraulic oil. (Not Shown)	1

*Pump volume set at 9.5 GPM preset to 700 PSI

**Filter replacement element - parker # 932612Q (IS# 543019)

NOTE: Power unit to be test run, pressure relief to be set at 700 PSI, pump rotation to be highly visibly marked and one certificate of testing sent with power unit and one certificate of testing sent to InterSystems, inc.

NOTE: Substitution to any component listed with part number must be approved by InterSystems, Inc.

6. Hydraulic Power Unit

Hydraulic Power Unit 7.5 HP TEFC PSR/COMP (532303)

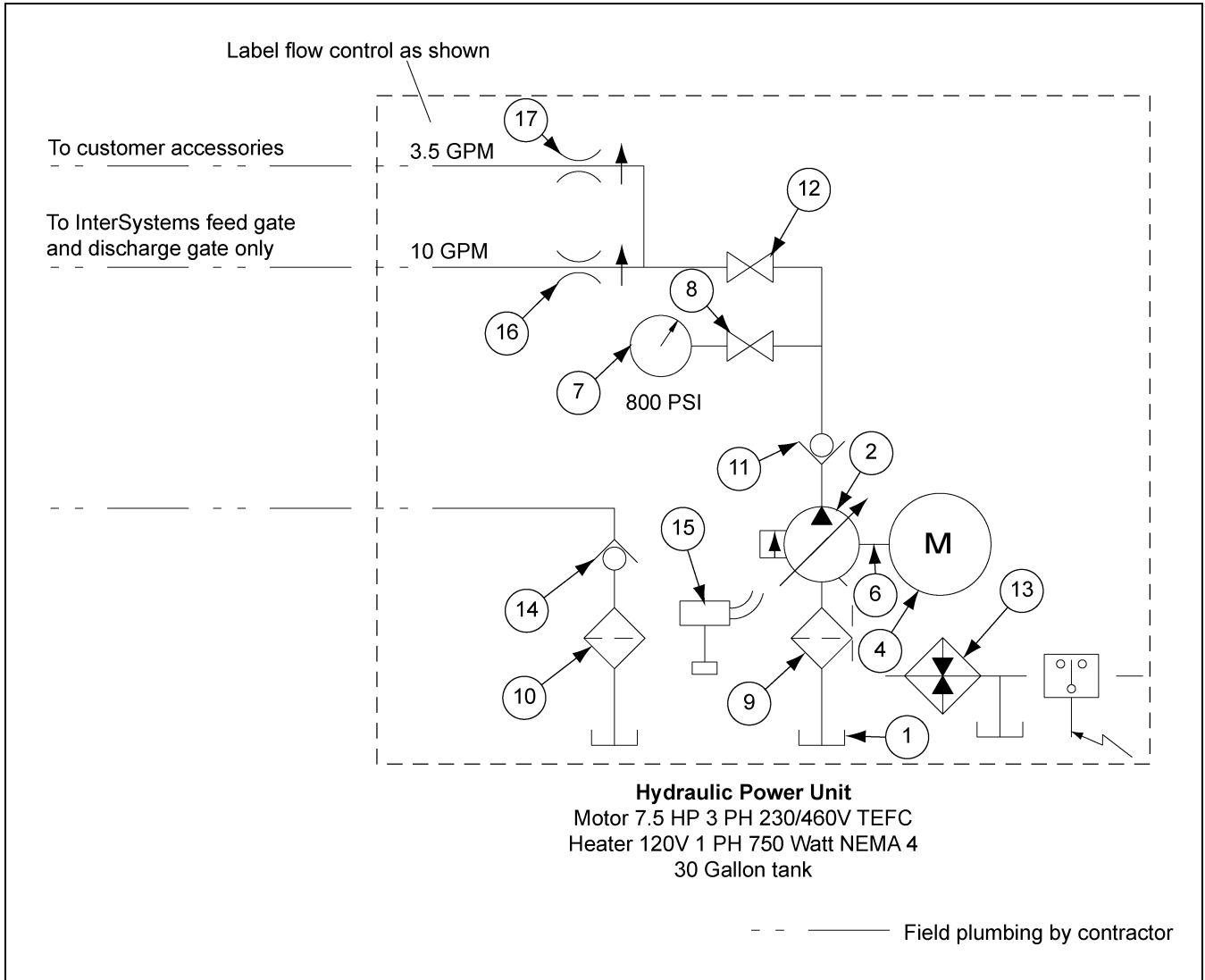


Figure 6C

Hydraulic Power Unit 7.5 HP TEFC PSR/COMP (532303) Parts List

Ref #	Part #	Description	Qty
1	10030-REV B	Reservoir, 30 Gallon with Site Glass and Thermostat - Vescor	1
2	PVP3320R	Pump, Variable Volume Piston - Parker	1
3	254299	Pump/Motor Adapter (Not Shown)	1
4	PEEEW7.5-18-213TC	Motor, 7.5 HP TEFC 230/460V, 3 PH 1750 RPM 213TC Frame	1
5	5131	Base Plate, Motor (Not Shown)	1
6	L-100	Coupling - Lovejoy	1
7	PFQ810	Gauge, Span Pressure 0-2000 PSI	1
8	MV400-S	Shut Off Valve - Parker	1
9	P20-1-1/4-100RV3	Suction Strainer - Flo-Ezy	1
10	15CN110QEEM2KN124	Filter, Microglass Element - Parker**	1
11	DT750MOMF-05	Check Valve (Pressure) - Parker	1
12	VP500CS-8	Ball Valve - Parker	1
13	BCS13J1-W2	Heater, 750 Watt, 110V, 1 PH, Nema 4 - Watlow	1
14	C800S	Check Valve (Return) - Parker	1
15	B40033AFDB705	Switch, Low Level/High Temp (70° C) - Adv. Tech.	1
16	PCK800S-10.0	Flow Control Pressure Comp., 10 GPM - Parker	1
17	FR101F4006P	Flow Control Pressure Comp., 3.5 GPM - Parker	1
18		Lable NOTE: Do not mix hydraulic oil. (Not Shown)	1

*Pump volume set at 14.0 GPM preset to 800 PSI

**Filter replacement element - parker # 932612Q (IS# 543019)

NOTE: Power unit to be test run, pressure relief to be set at 800 PSI, pump rotation to be highly visibly marked and one certificate of testing sent with power unit and one certificate of testing sent to InterSystems, inc.

NOTE: Substitution to any component listed with part number must be approved by InterSystems, Inc.

6. Hydraulic Power Unit

Hydraulic Power Unit 7.5 HP IIG PSR/COMP (532305)

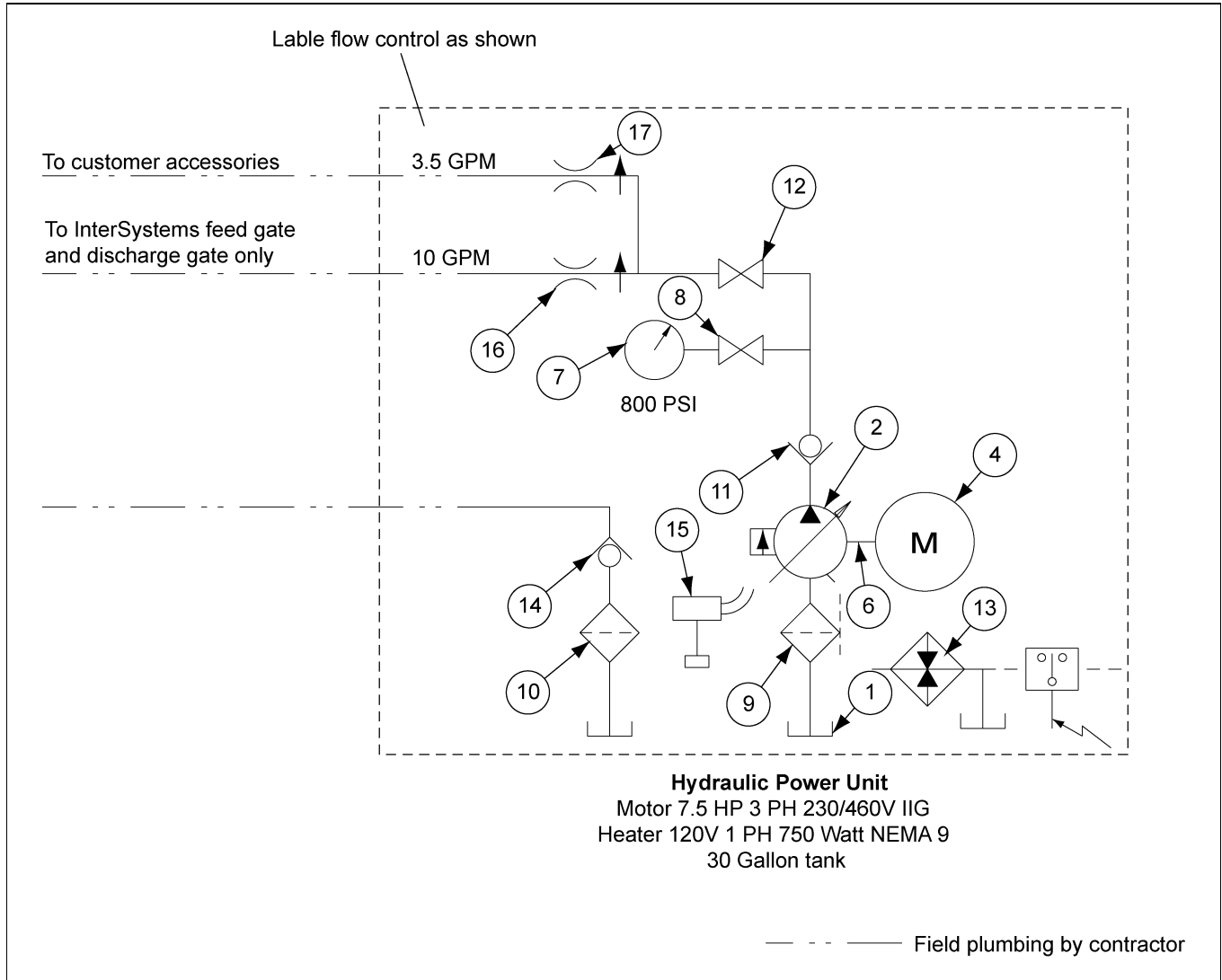


Figure 6D

Hydraulic Power Unit 7.5 HP IIG PSR/COMP (532305) Parts List

Ref #	Part #	Description	Qty
1	10030-REV B	Reservoir, 30 Gallon with Site Glass and Thermostat - Vescor	1
2	PVP3320R	Pump, Variable Volume Piston - Parker	1
3	254299	Pump/Motor Adapter (Not Shown)	1
4	158157	Motor, 7.5 HP IIG 230/460V, 3 PH 1750 RPM 213TC Frame	1
5	5135	Base Plate, Motor (Not Shown)	1
6	L-110	Coupling - Lovejoy	1
7	25.900-2000	Gauge, Span Pressure 0-2000 PSI	1
8	MV400-S	Shut Off Valve - Parker	1
9	P20-1-1/4-100RV3	Suction Strainer - Flo-Ezy	1
10	15CN110QM250B1B1-1	Filter, Microglass Element - Parker**	1
11	DT750MOMF-05	Check Valve (Pressure) - Parker	1
12	VP500CS-8	Ball Valve - Parker	1
13	BCS13J1-E/W2	Heater, 750 Watt, 110V, 1 PH, Nema 9 - Watlow	1
14	C800S	Check Valve (Return) - Parker	1
15	B40033BFD2B704	Switch, Low Level/High Temp (70° C) - Adv. Tech.	1
16	PPCCK600S10.0	Flow Control Pressure Comp., 10 GPM - Parker	1
17	FR101F4006P	Flow Control Pressure Comp., 3.5 GPM - Parker	1
18	EDSC171	Conduit Box, IIG, Low Level/High Temp Switch	1
19	DSD957	Cover, Conduit Box, IIG, Low Level/High Temp Switch	1
20		Lable NOTE: Do not mix hydraulic oil. (Not Shown)	1

*Pump volume set at 14.0 GPM preset to 800 PSI

**Filter replacement element - parker # 932612Q (IS# 543019)

NOTE: Power unit to be test run, pressure relief to be set at 800 PSI, pump rotation to be highly visibly marked and one certificate of testing sent with power unit and one certificate of testing sent to InterSystems, inc.

NOTE: Substitution to any component listed with part number must be approved by InterSystems, Inc.

6. Hydraulic Power Unit

Auto Lift Kit Hydraulic Power Unit (IIG) (532300)

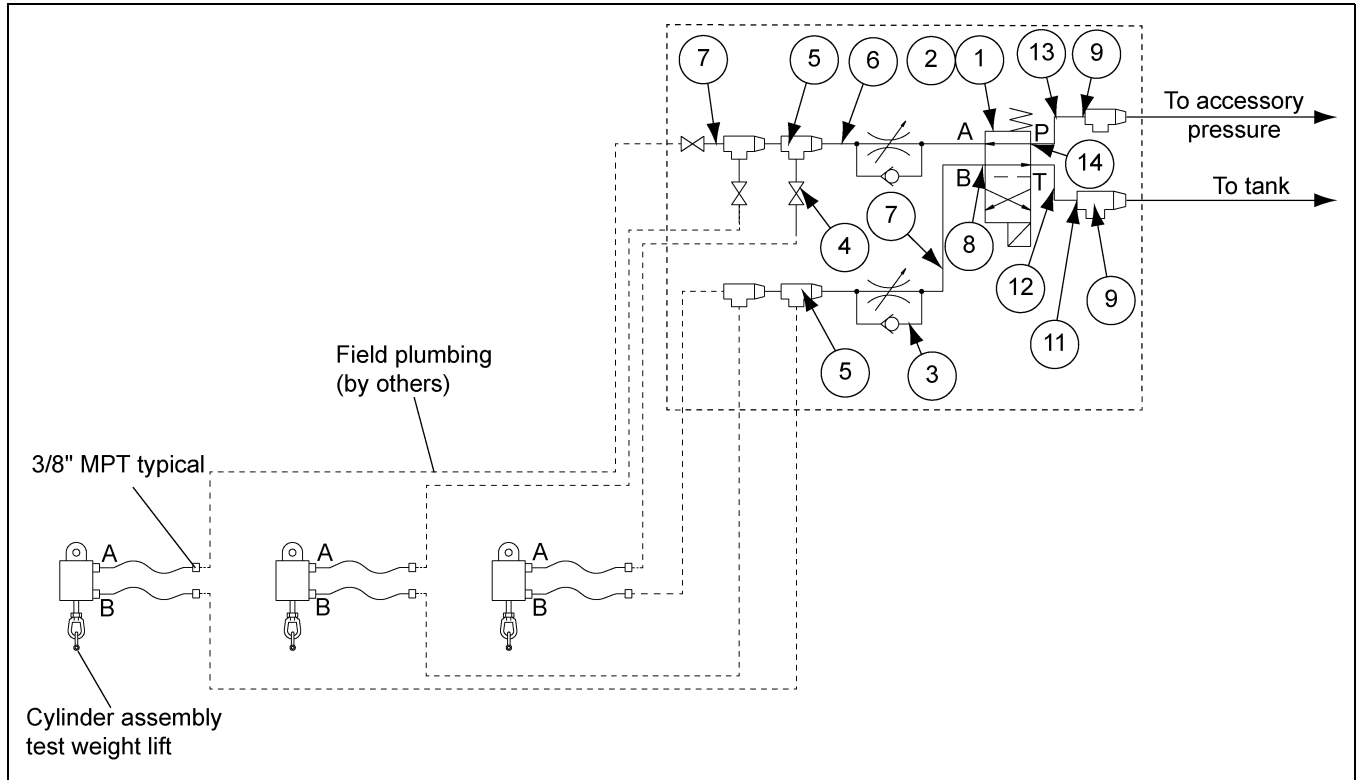


Figure 6E

Auto Lift Kit Hydraulic Power Unit (IIG) (532300) Parts List

Ref #	Part #	Description	Qty
1	* DIVW20BNYCFC	Valve, Hydraulic 2 Position DO3 120V Hazard Location - Parker	1
2	AD03SPS6P	Sub-plate, Side Ports - Daman	1
3	F600-S	Valve, Adjustment Flow Control - Parker	2
4	V500CS-6	Valve, Ball 2000 PSI	3
5	3/8 MRO-S	Tee, Male Run 3/8" - Parker	5
6		Nipple, Black Pipe 3/8" x 3" LG	1
7		Nipple, Black Pipe 3/8" Close	4
8	3/8-CDS	Elbow, 90° 3/8" MPT x 3/8" FPT - Parker	1
9	6-6 VTX-S	Elbow, 45° 3/8" MPT x 3/8" MJIC - Parker	1
10	1/2 MRO-S	Tee, Male Run 1/2" - Parker	1
11	6-8 CTX-S	Elbow, 90° 1/2" MPT x 3/8" Male JIC - Parker	1
12	K4210106-6-6-6-10	Hose, Hydraulic 3/8" MPT x 3/8" FJIC - 10" Long	1
13	K4310606-6-6-6-14	Hose, Hydraulic 3/8" FJIC x 3/8" FJIC - 14" Long	1
14	6-6 CTX-S	Elbow, 90° 3/8" MPT x 3/8" MJIC - Parker	1
15	BK-209	Bolt Kit, DO3 Hydraulic Valve - Parker	1

* Valve not designed for IIG application, but is approved for grain dust application.

Pressure Compensating Piston Pump

Performance Information

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

Features

1. High Strength Cast-Iron Housing for Reliability and Quiet Operation
2. Optional Inlet/Outlet Locations for Ease of Installation
3. Replaceable Bronze Port Plate
4. Replaceable Piston Slipper Plate
5. Thru-Shaft Capability SAE AA, A and B Pilots Offered
6. Low Noise Levels
7. Fast Response Times
8. Metric Pilot Shaft and Ports Available

Controls

1. Pressure Compensation
2. Remote Pressure Compensation
3. Load Sensing
4. Torque (Power) Limiting
5. Adjustable Maximum Volume Stop
6. Low Pressure Standby

Schematic Symbol

(Basic Pump)

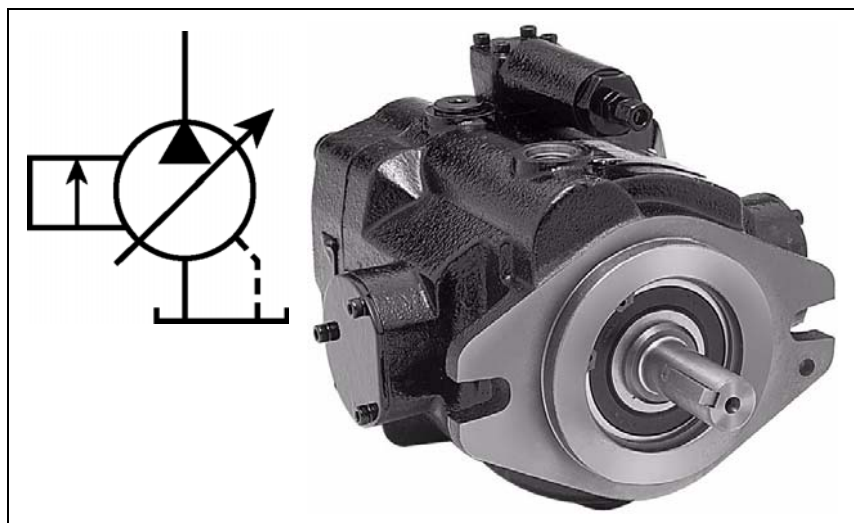


Figure 7A

7. Hydraulic Power Unit Parts Information

Specifications

Pressure Ratings

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

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

Speed Ratings : 600 to 3000 RPM

Operating Temperature Range :

Housing Material : Cast-Iron

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

Mounting : SAE "B" or Metric 2-Bolt Flange Mount

Installation Data : Refer to 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 ³ /rev)	Pump Delivery @ 21 Bar (300 PSI) in LPM (GPM)		Input Power A 1800 RPM, Maximum Displacement and 248 bar (3600 PSI)
		1200 RPM	1800 RPM	
PVP23	23.0 (1.4)	28.0 (7.4)	42.0 (11.1)	19.7 kw (26.5 HP)
PVP33	33.0 (2.0)	39.4 (10.4)	59.0 (15.6)	27.2 kw (36.5 HP)

Return Filter

Filter Service

When servicing a filter, use the following procedure:

1. Stop the system's power unit.
2. Relieve pressure in filter line.
3. Rotate bowl counterclockwise and remove.
4. Remove element from housing. Discard all disposable elements. These elements are not cleanable.
5. Place new, clean element in housing, centering it on location in the head.
6. Inspect bowl seal and replace if necessary.
7. Replace bowl. Rotate clockwise and hand tighten.

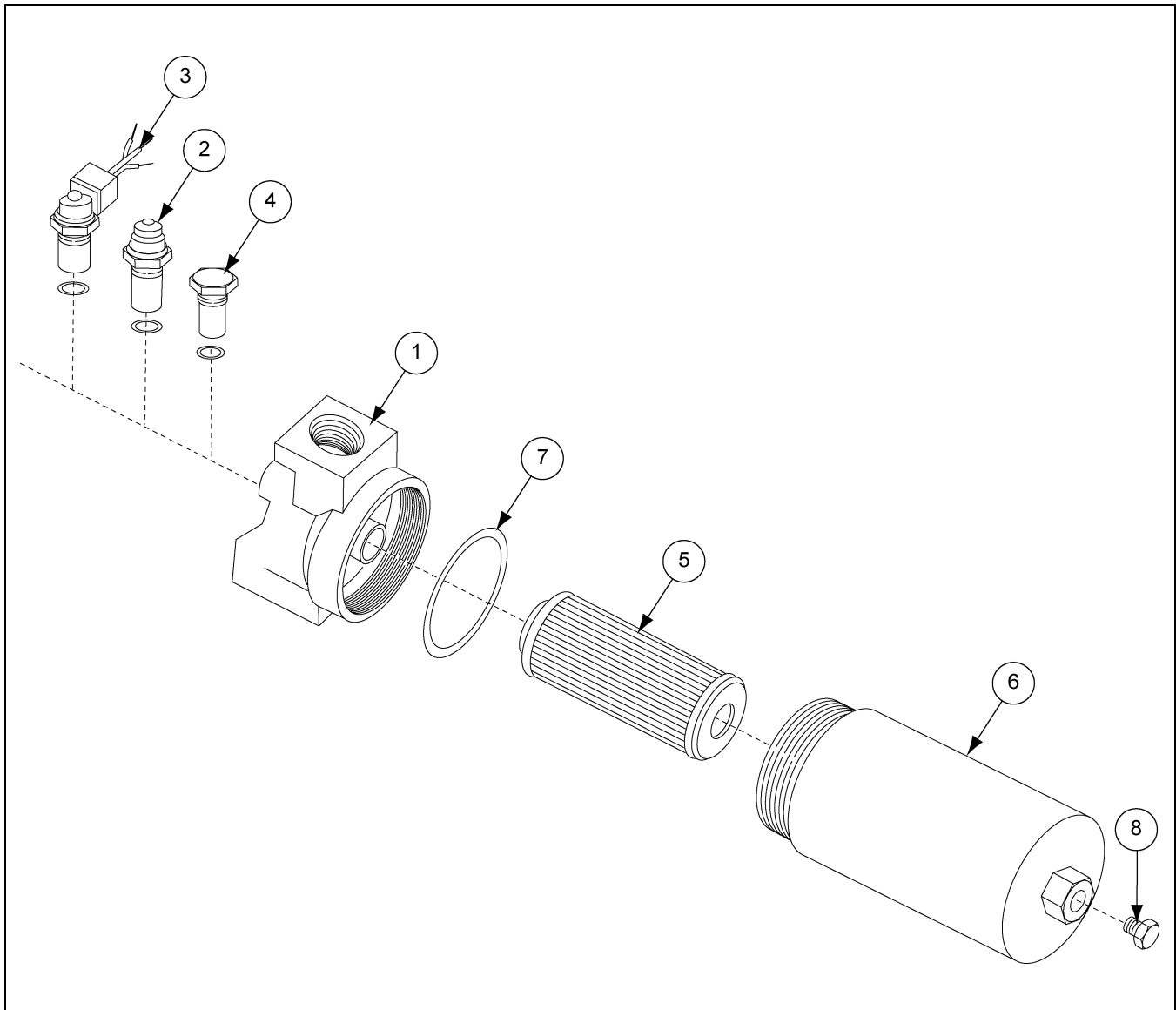


Figure 7B

7. Hydraulic Power Unit Parts Information

Parts List

Index	15CN	40CN	80CN	Description
1				Head
	929385	N/A	N/A	3/4" NPT with Bypass or Indicator
	929398	N/A	N/A	3/4" NPT no Bypass or Indicator
	929383	N/A	N/A	SAE-12 with Bypass or Indicator
	929396	N/A	N/A	SAE-12 no Bypass or Indicator
	929384	929547	N/A	1" NPT with Bypass or Indicator
	929397	929555	N/A	1" NPT no Bypass or Indicator
	929382	929545	N/A	SAE-16 with Bypass or Indicator
	929395	929553	N/A	SAE-16 no Bypass or Indicator
	N/A	929546	929633	1-1/2" NPT with Bypass or Indicator
	N/A	929554	929637	1-1/2" NPT no Bypass or Indicator
	N/A	929544	929645	SAE-24 with Bypass or Indicator
	N/A	929552	929649	SAE-24 no Bypass or Indicator
	N/A	N/A	929635	2" NPT with Bypass or Indicator
	N/A	N/A	929639	2" NPT no Bypass or Indicator
	N/A	N/A	929647	SAE-32 with Bypass or Indicator
	N/A	N/A	929651	SAE-32 no Bypass or Indicator
	N/A	N/A	929656	Flange Face, SAE 2" with Bypass or Indicator
	N/A	N/A	929660	Flange Face, SAE 2" no Bypass or Indicator
				Indicator Bypass Assemblies
				*Consult Factory for no Bypass Assemblies
2	932031	932038	932038	M2-Visual Auto Reset/25 PSI
	931706	932039	932039	M2-Visual Auto Reset/50 PSI
3	929962	930036	930036	E-Electrical/25 PSI with Conduit Connection
	929972	930038	930038	E-Electrical/50 PSI with Conduit Connection
	929963	930040	930040	E1-Electrical/25 PSI with Wire Leads
	929973	930042	930042	E1-Electrical/50 PSI with Wire Leads
	929964	930052	930052	E2-Electrical/25 PSI with Din Connection
	929974	930054	930054	E2-Electrical/50 PSI with Din Connection
	929965	930048	930048	E3-Electrical/25 PSI with 3-Pin Connection
	929975	930050	930050	E3-Electrical/50 PSI with 3-Pin Connection
4	930521	929846	929846	No Indicator/25 PSI Bypass
	930523	929848	929848	No Indicator/50 PSI Bypass
5				Element (See model code page)
6				Bowl
	929281	933359	933396	Single Length without Drain
	929282	933360	933397	Double Length without Drain
	932052	933361	933398	Single Length with Drain
	932056	933362	933399	Double Length with Drain
7				Bowl Seal
	N72143	N72240	N72246	Buna N (Nitrile)
	V72143	V72240	V72246	Viton
8				Drain Plug - SAE-4
	921088	921088	921088	Buna N (Nitrile)
	928882	928882	928882	Viton

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



Maximum absolute system pressure must not exceed filters 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, 208 - 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 28 VDC. 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)

7. Hydraulic Power Unit Parts Information

Tolerances (all models)

To one decimal place - 23mm

- 009

To two decimal places - 15mm

- 006

To Three decimal places - 04mm

- 0015

Linear measure millimeter inch

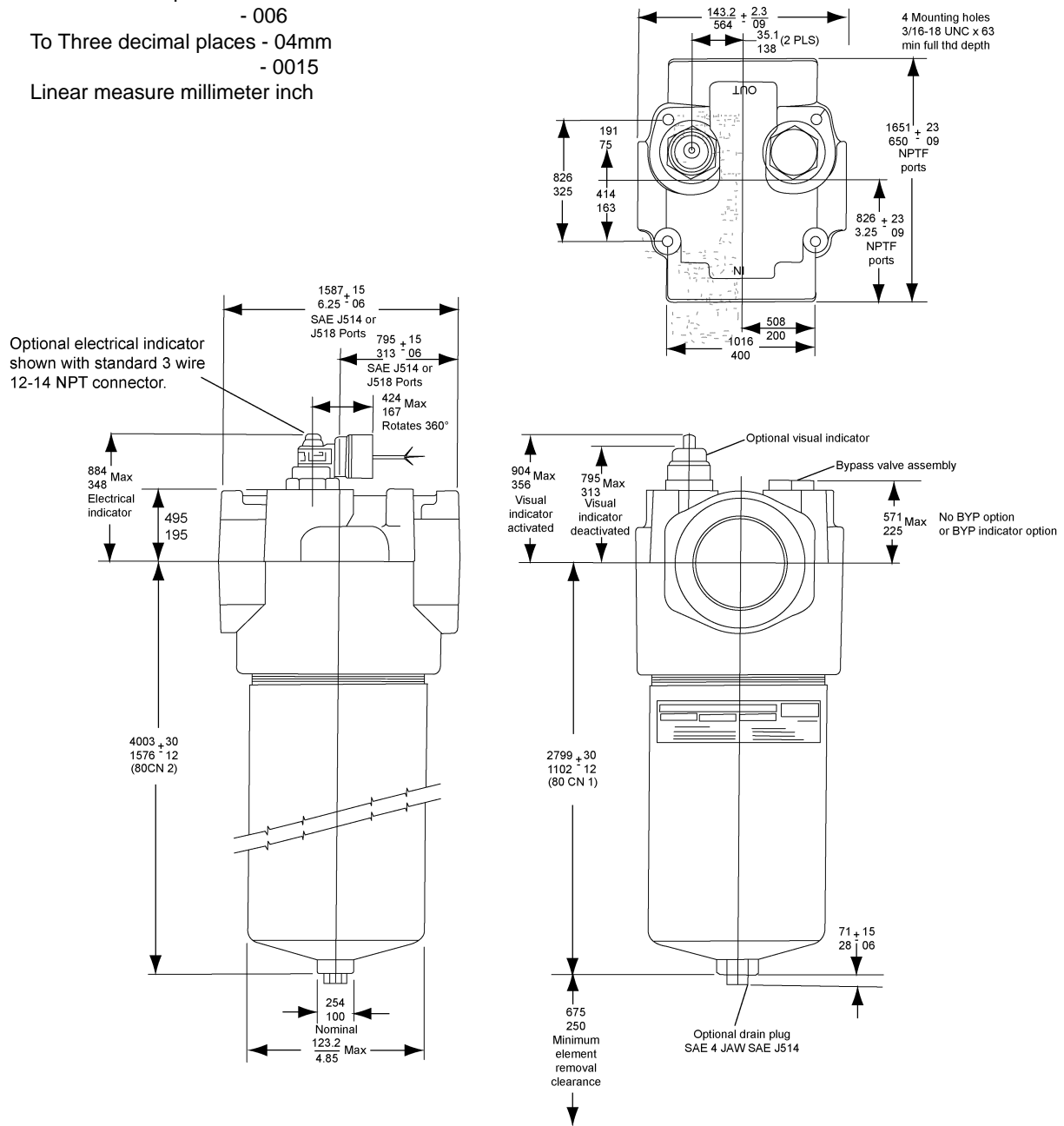


Figure 7C

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
	15 CN	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 (with 1/2" NPT conduit connection and wire leads)
E1	Electrical (with 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.

7. Hydraulic Power Unit Parts Information

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

Sump Strainers – Nylon Connector

How to Order

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

P	-	50	-	2	-	Nipple	-	100	-	RV-3
Style	-	GPM	-	NPT	-	Connection (Spell out NIP- PLE if wanted)	-	MESH	-	Valve (Omit if not wanted)

Style	GPM (Flow Capacity)	NPT (Pipe size)	Connection (Not or Nipple)	Mesh (Screen size)	Valve (Optional)
P (std. Nyl-End)	2	1/8, 1/4, 3/8, 1/2	Nut Only	30	RV-3 (3-psi bypass)
	3	1/4			
PASS (S.S. Nyl-End)	3	3/8, 1/2, 3/4	Nut or Nipple (to get nipple you must specify it)	60	RV-5 5-psi bypass)
	5	3/4, 1, 1-1/4	Nut no symbol		
	10	3/4, 1, 1-1/4	Nipple Style (see chart on Page 59.)	100	
	20	3/4, 1, 1-1/4			
	30	1-1/2 and 2			
	50	1-1/2 and 2	Nipple Only	200	
	50	2-1/2			
75	2-1/2				
100	3	Nut or Nipple (to get nipple you must specify it)			
150	3				

(Pressure drop through a clean element will not exceed 0.2 psi (0.4-in. Hg) at rated flow of 150 SSU 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 are 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 always a stocked item.)

Nut Style

GPM Rating	Screen Area (Sq. Inches)	NPT (Pipe Size)	Overall Dimensions	
			Diameter	Length
2	30	1/8, 1/4, 3/8, 1/2	1-5/8	4-3/16
3	35	1/4, 3/8, 1/2, 3/4	2-1/4	2-11/16
5	50	3/4, 1, 1-1/4	3-3/16	3-1/2
10	110	3/4, 1, 1-1/4	3-3/16	5-3/4
20	145	3/4, 1, 1-1/4	3-3/16	7-3/8
30	260	1-1/2, 2	4-3/16	9-3/4
50	280	1-1/2, 2	4-3/16	9-3/4
75	350	2-1/2, 3	5-3/16	12-1/2
100	450	2-1/2, 3	5-3/16	12-1/2
150	675	3	5-3/16	17-3/4

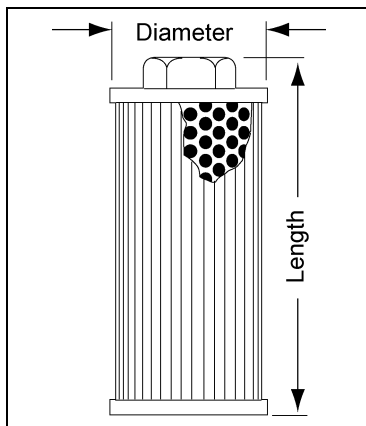


Figure 7D Nut Style

Nipple Style

GPM Rating	Screen Area (Sq. Inches)	NPT (Pipe Size)	Overall Dimensions	
			Diameter	Length
3	35	3/8, 1/2, 3/4	2-1/4	3-3/4
5	50	1	3	3-13/16
10	110	1	3	6-1/16
20	145	1	3	7-11/16
30	260	1-1/2	4-3/16	11-3/8
30	260	2	4-3/16	11-3/8
50	280	1-1/2	4-3/16	11-3/8
50	280	2	4-3/16	11-3/8
50*	280	2-1/2	4-3/16	9-15/16
75	350	2-1/2, 3	5-3/16	13-3/4
100	450	2-1/2, 3	5-3/16	13-3/4
150	675	3	5-3/16	19

* No hex between nipple and strainer on this part.

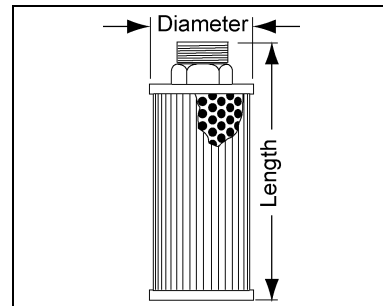


Figure 7E Nipple Style

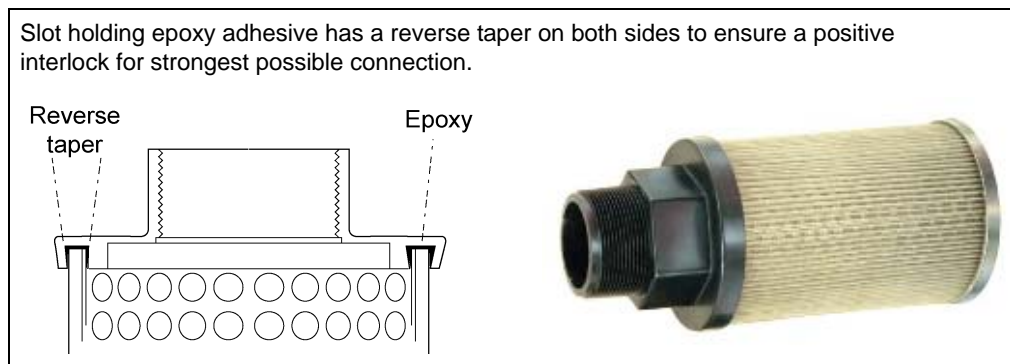


Figure 7F

Fluid Level and Temperature Switches

ACT4000 Series 120 VA Switch

Description:

Heavy Duty, Combination Level and Temperature Switch monitors both liquid level and temperature. It can be wired to operate electric components such as valves, motor start/stop switches, alarms, warning lights and programmable logic circuits.

Features:

- Invert float to change Level switch function N.O. to N.C. or vice versa in the field .
- 24" long, 18 gauge, 600 volt wires
- Heavy duty float, solid Nylon, compatible with hydraulic oil, phosphate esters and additives.
- Hex I.D. float eliminates sticking like round I.D. floats.
- Metal stem, 1/4" NPT threads, large 9/16" wrench flats
- Electrical load ratings,
 - Level switch 120 VA, SPST
 - AC Maximums, Switching voltage 250
 - Switching current 3.0 amps.
 - Temperature switch 6.0 Amps at 120 VAC on N.O. and N.C.
 - 1.0 Amps at 120 VAC on SPDT
- Self heating of temperature switch when closed changes switch opening point up to 10°C.
- All electrical specifications at 68°F and resistive load.
- Derate electrical limits with increase in temperature and inductive loads (relays, motors and solenoid valves).
- Surge or voltage spike protection required for inductive load or premature switch failure will occur.

Ordering Information:

1/4" NPT Male, Part Numbers:

B40033BFD2M7**, Normally open, 6 amp. temp. switch
B40033BFD2M8**, Normally closed, 6 amp. temp. switch
B40033BFB2M6**, SPDT, 1 amp. temp. switch

1/4" NPT Female, Part Numbers:

B40043BFD2M7**, Normally open, 6 amp. temp. switch
B40043BFD2M8**, Normally closed, 6 amp. temp. switch
B40043BFB2M6**, SPDT, 1 amp. temp. switch

** Specify temperature switch trip point in degrees centigrade, note 60°C = 140°F.

NOTE: *Specify temperature set point in 5°C increments (5°C-100°C).*

Normally **OPEN** temperature switch will close on rising temperature at **, specified trip point.

Normally **CLOSED** temperature switch will open on rising temperature at **, specified trip point.

7. Hydraulic Power Unit Parts Information

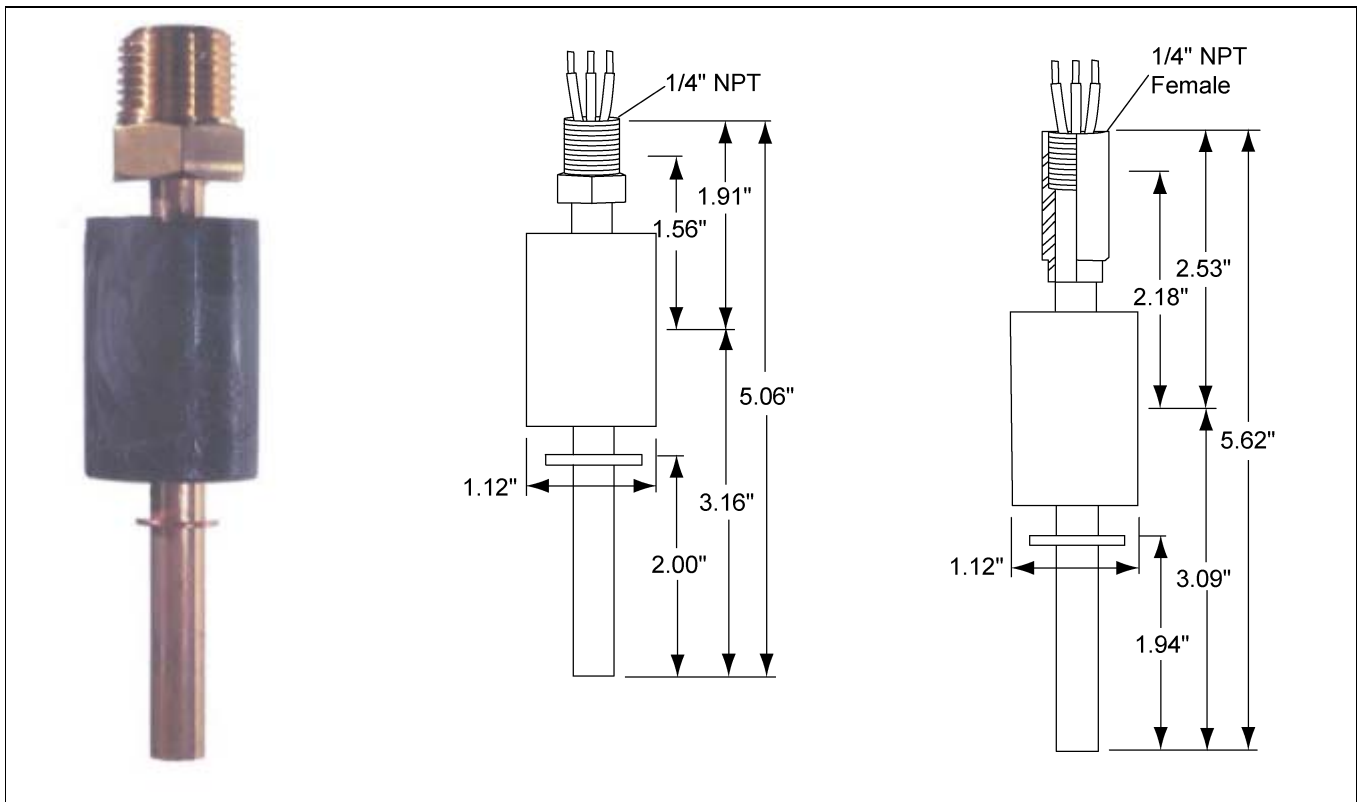


Figure 7G

Low level/high temp switch wiring schematic level switch normally closed operation temperature switch normally open to close at set point.

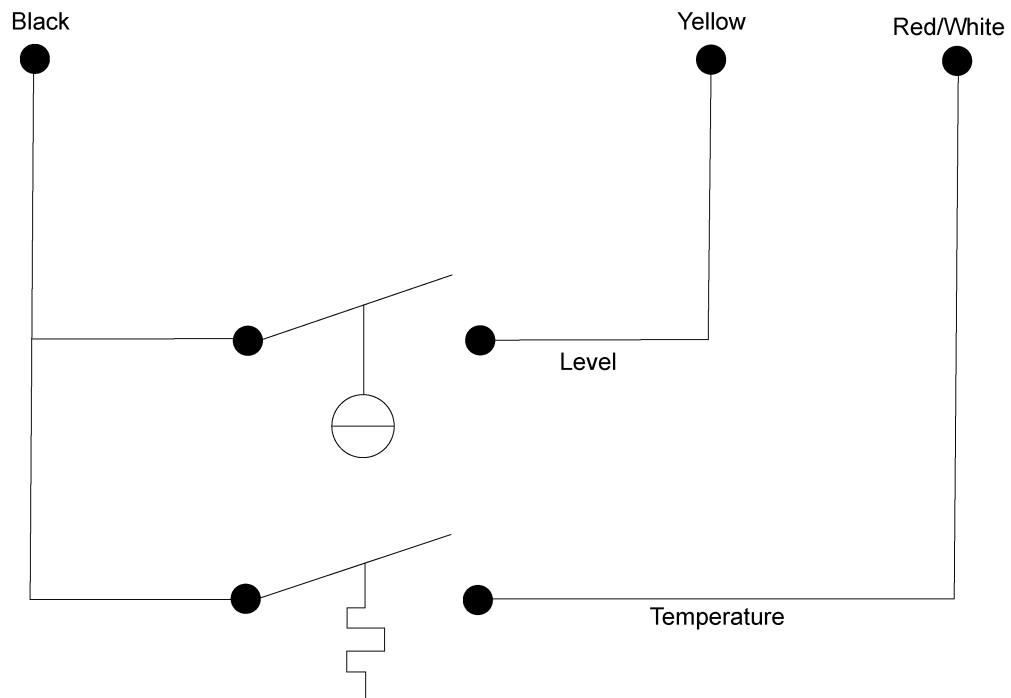
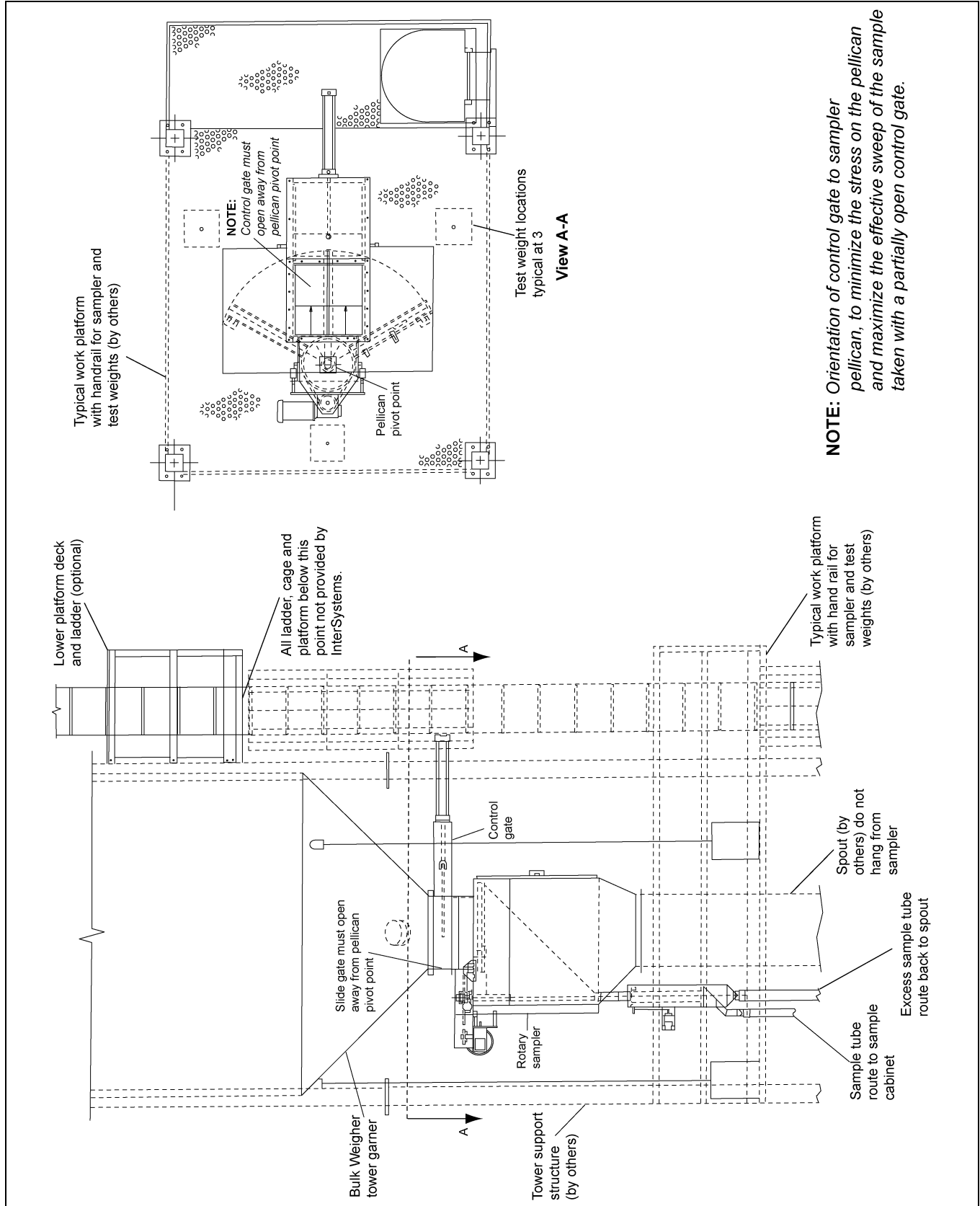


Figure 7H

Sampler Control Gate Orientation



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.

Figure 8A

Hydraulic System Schematics

Please note that the following drawings are use on standard configurations as listed below. For Custom Bulk Weigher, refer to the certified drawings sent with the system. On a factory assembled Bulk Weigher 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 Hydraulic Power 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 Hydraulic Power 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 Hydraulic Power 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 Hydraulic Power Unit CompuWeigh
Controller (CD2000 or CD3000)
(*Dual solenoid on feed gate*)
- Refer to : 532392 HYD SCHEM 7.5HP PRSR COMP. TRIM

Hydraulic Schematic 5 HP Pressure Component 1W (532396)

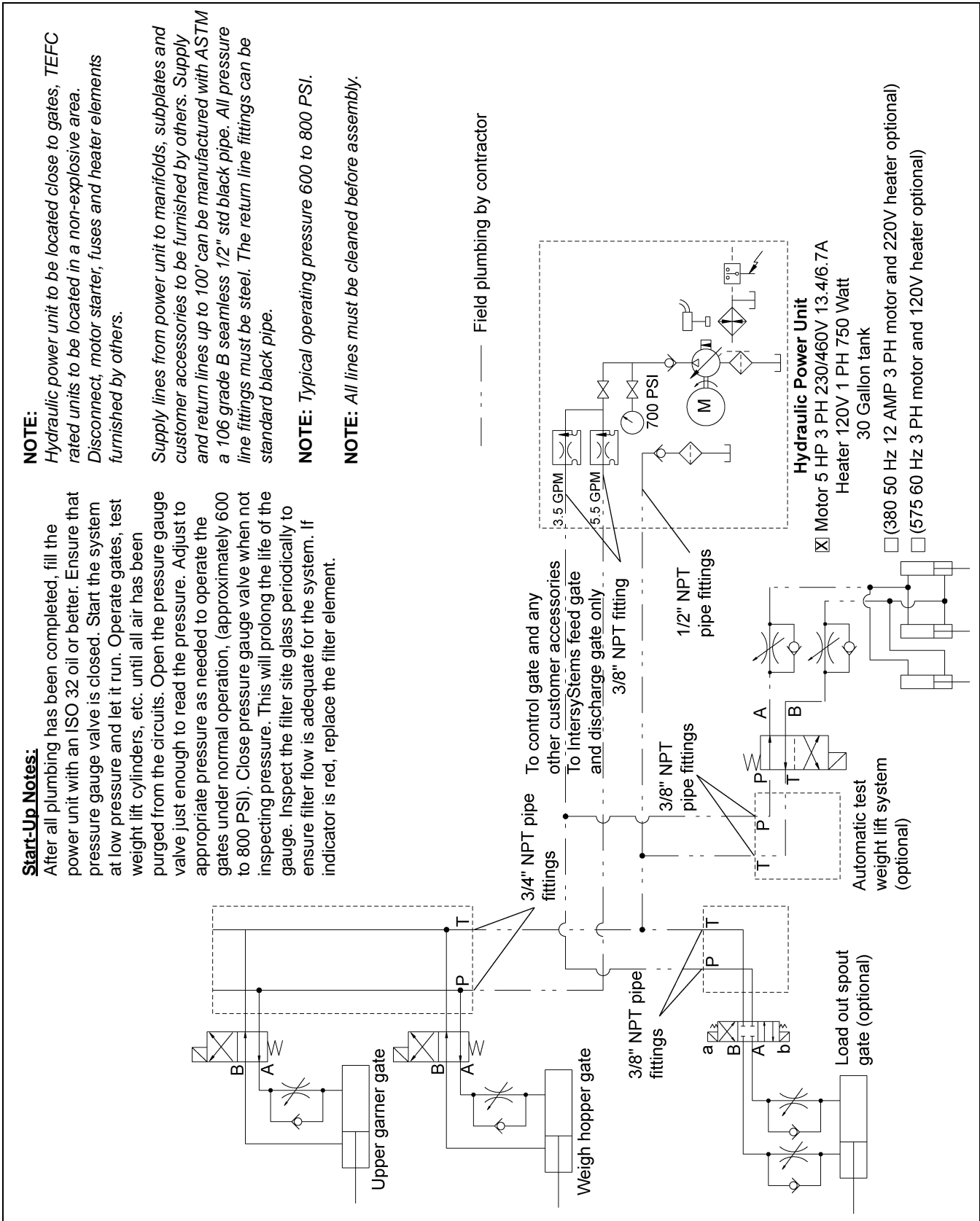


Figure 9A

Hydraulic Schematic 5 HP Pressure Compound Trim (534257)

Start-Up Notes:

After all plumbing has been completed, fill the power unit with an ISO 32 oil or better. Ensure that pressure gauge valve is closed. Start the system at low pressure and let it run. Operate gates, test weight lift cylinders, etc. until all air has been purged from the circuits. Open the pressure gauge valve just enough to read the pressure. Adjust to appropriate pressure as needed to operate the gates under normal operation, (approximately 600 to 800 PSI). Close pressure gauge valve when not inspecting pressure. This will prolong the life of the gauge. Inspect the filter site glass periodically to ensure filter flow is adequate for the system. If indicator is red, replace the filter element.

NOTE:

Hydraulic power unit to be located close to gates, TEFC rated units to be located in a non-explosive area. Disconnect, motor starter, fuses and heater elements furnished by others.

Supply lines from power unit to manifolds, subplates and customer accessories to be furnished by others. Supply and return lines up to 100' can be manufactured with ASTM a 106 grade B seamless 1/2" standard black pipe. All pressure line fittings must be steel. The return line fittings can be standard black pipe.

NOTE: Typical operating pressure 600 to 800 PSI.

NOTE: All lines must be cleaned before assembly.

Field plumbing by contractor

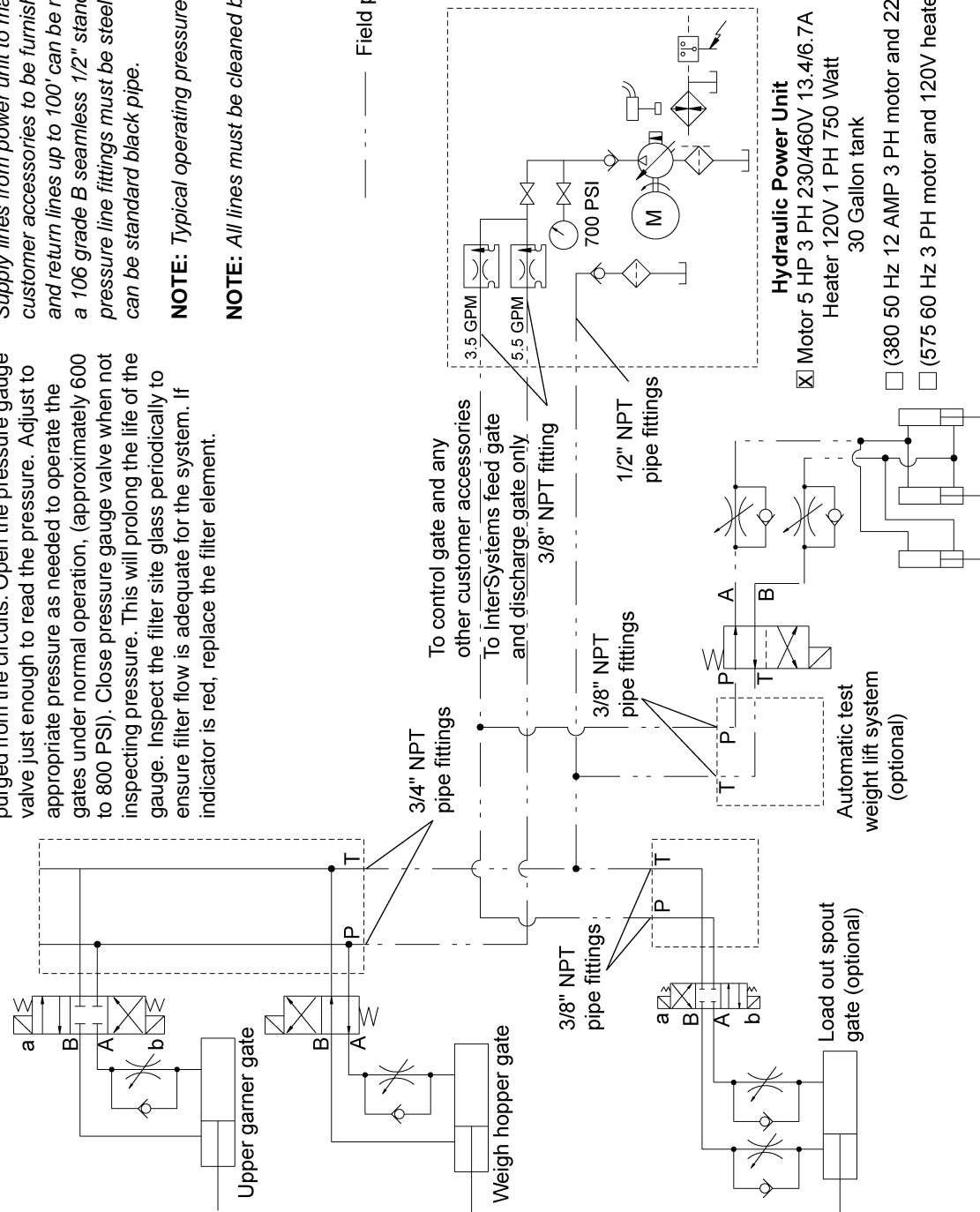


Figure 9B

Hydraulic Schematic 7.5 HP Pressure Compound 1W (532377)

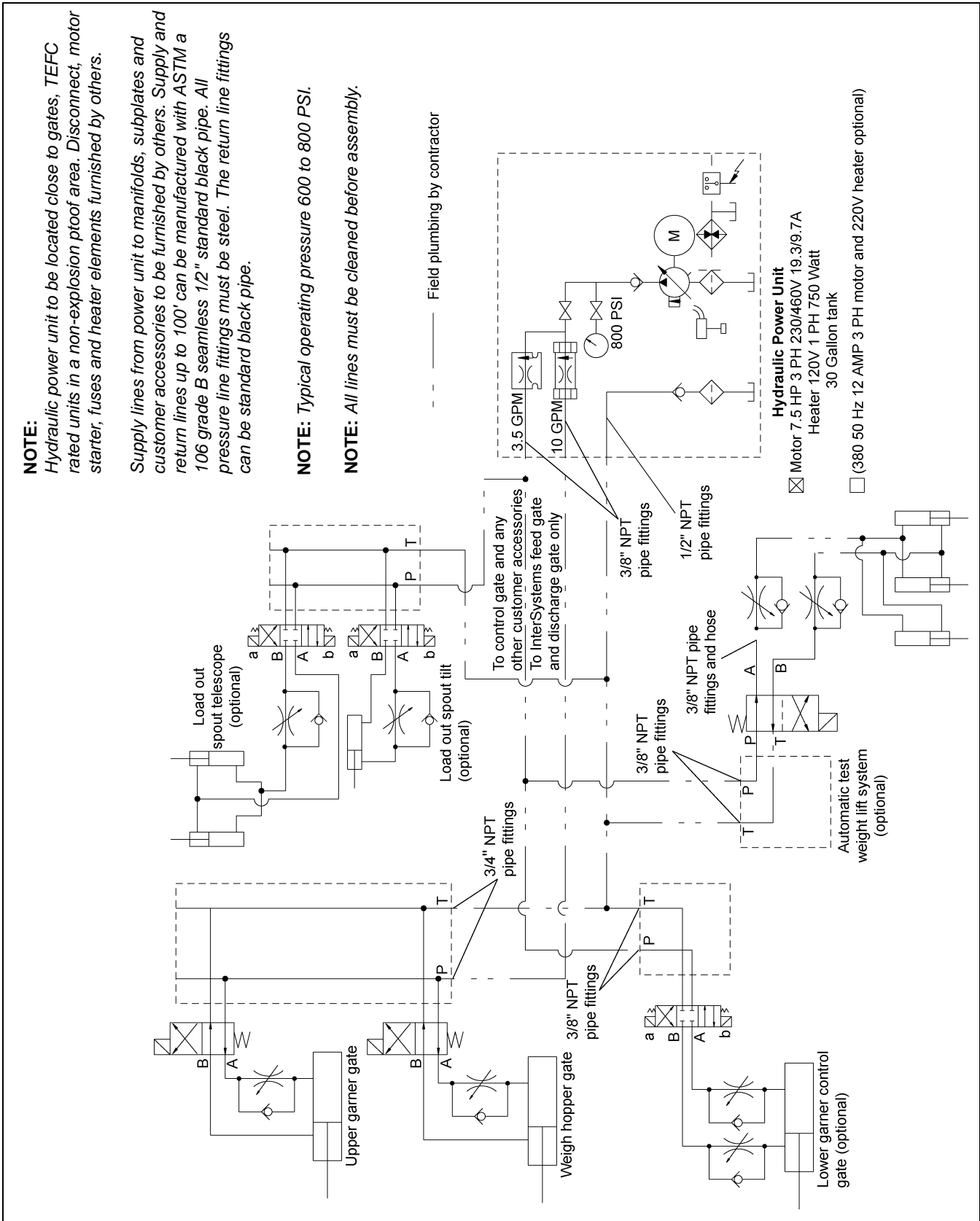


Figure 9C

Hydraulic Schematic 7.5 HP Pressure Compound Trim (732392)

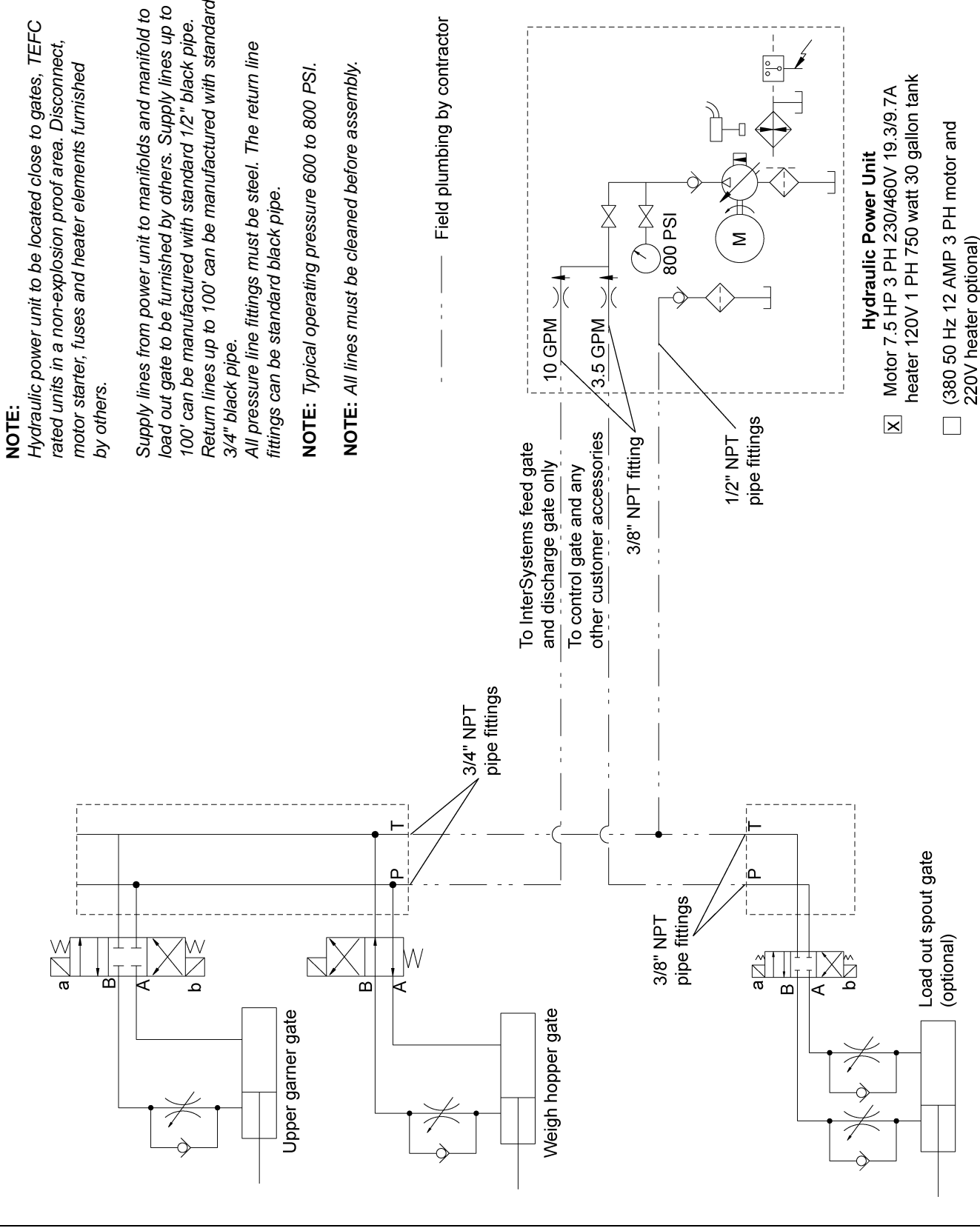


Figure 9D

Electrical System Schematics

Please note that the following drawings are use on standard configurations as listed below. For Custom Bulk Weigher refer to the certified drawings sent with the system. On a factory assembled Bulk Weigher 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 Electrical Schematics Convensional 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 (2) limit switches on the feed gate and has a single limit switch on the discharge gate.

Refer to : 526746 BP Electrical Schematics Trim Standard
528116 CD2000 I/O Field Wiring Schematics

If your system has : CompuWeigh (CD2000 of CD3000) (*Dual solenoid on feed gate*) and was field assembled and has two (2) limit switches on the feed gate and has a single limit switch on the discharge gate.

Refer to : 526775 BC Electrical Schematics Trim Standard
528116 CD2000 I/O Field Wiring Schematics

Electrical Schematic Preassembled BW DWI/JAG 220V (531190-220)

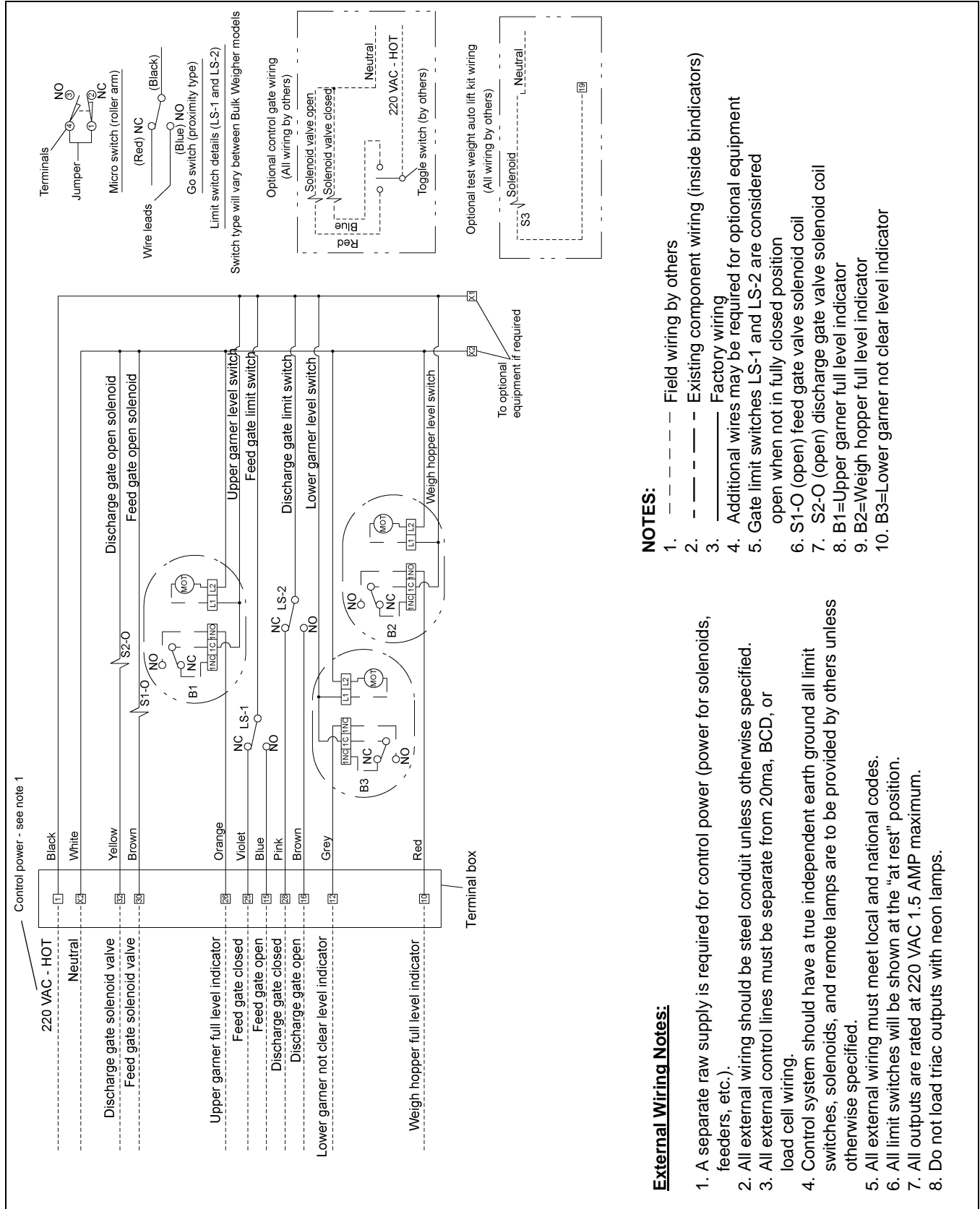


Figure 10B

MasterWeigh/Jaguar I/O Field Wiring (531192)

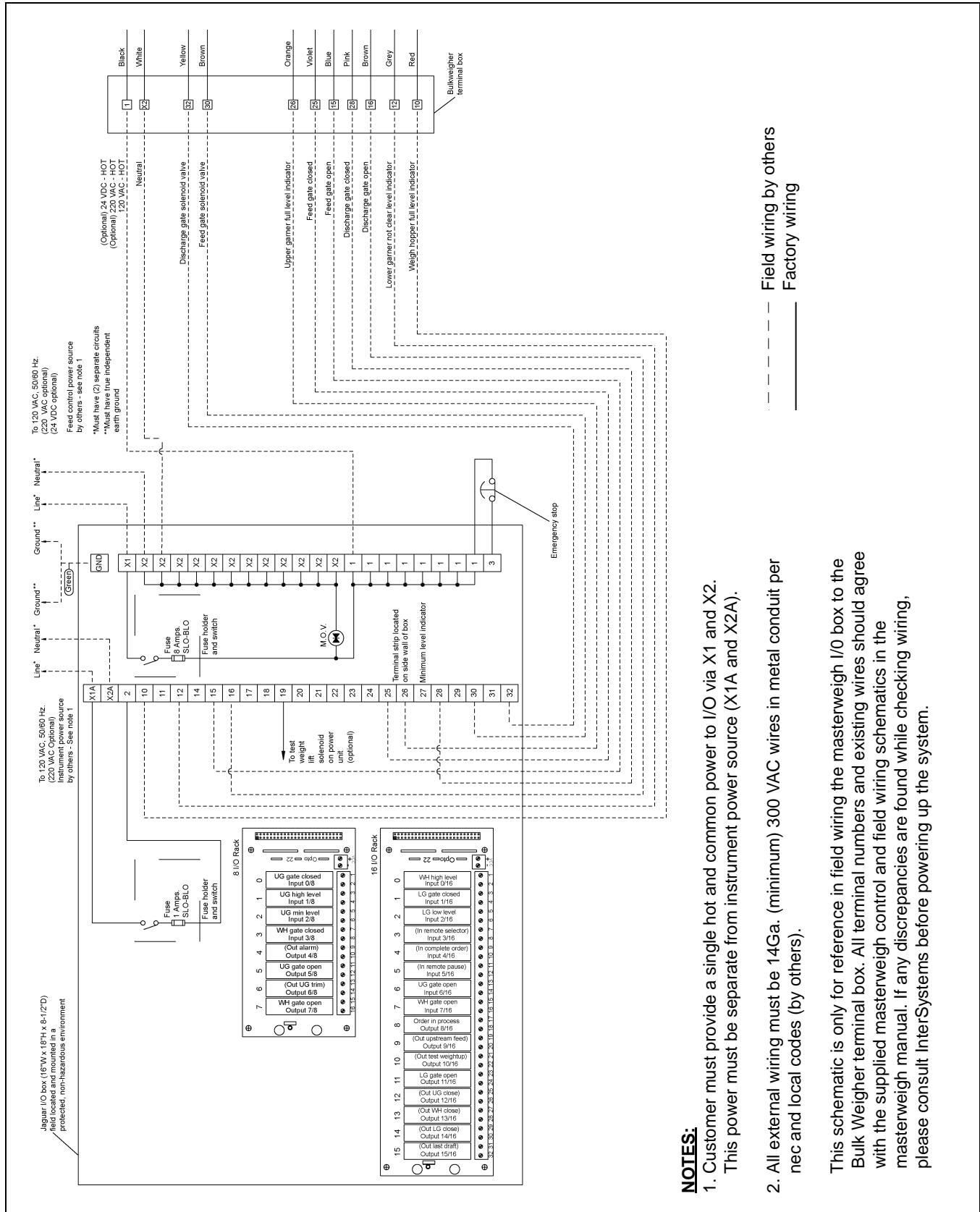
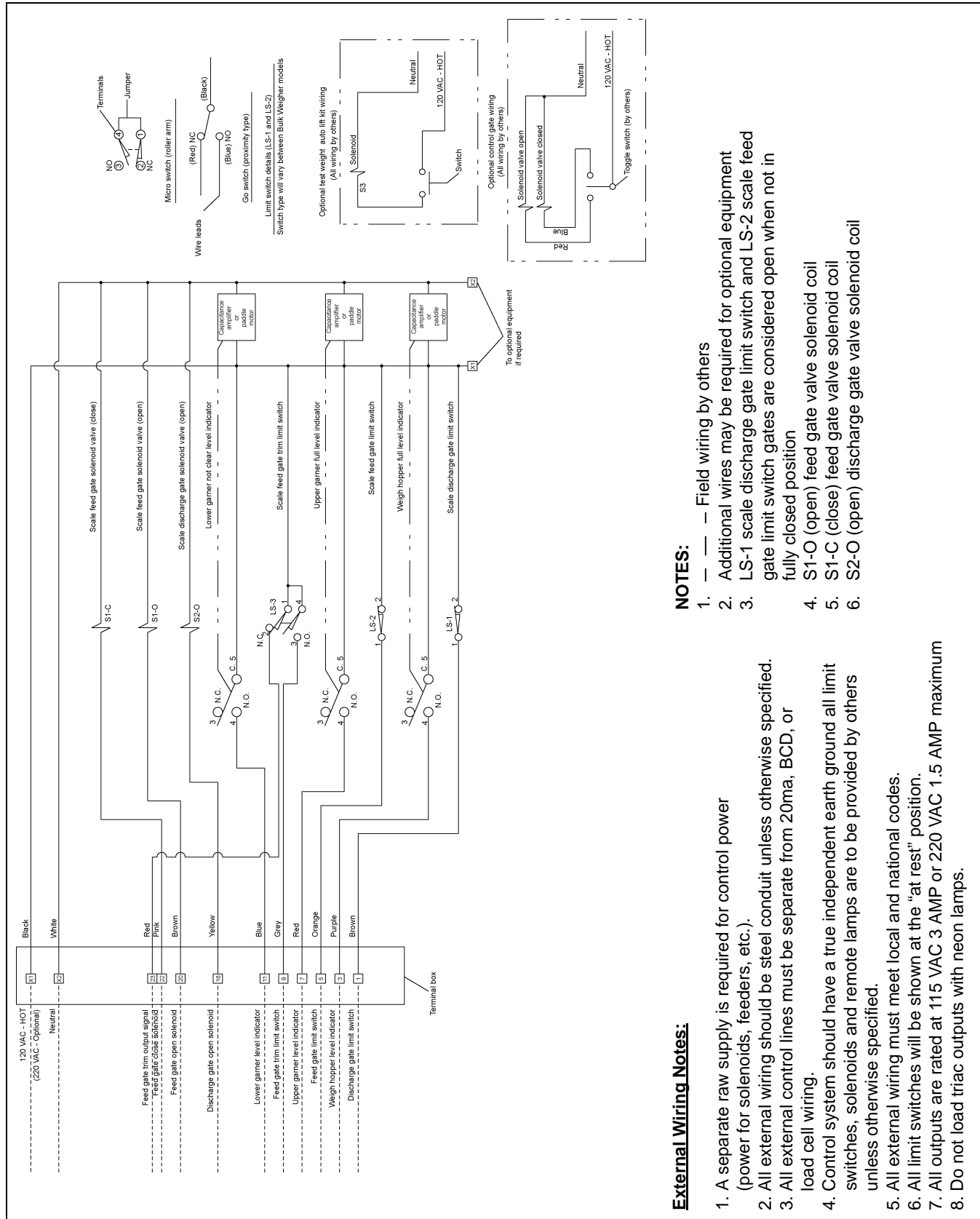


Figure 10D

BP Electrical Schematics Trim Standard (526746)



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 control lines must be separate from 20ma, BCD, 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 limit switches will be shown at the "at rest" position.
7. All outputs are rated at 115 VAC 3 AMP or 220 VAC 1.5 AMP maximum
8. Do not load triac outputs with neon lamps.

NOTES:

1. — — — Field wiring by others
2. Additional wires may be required for optional equipment
3. 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
4. S1-O (open) feed gate valve solenoid coil
5. S1-C (close) feed gate valve solenoid coil
6. S2-O (open) discharge gate valve solenoid coil

Figure 10E

BC Electrical Schematic Standard (526776)

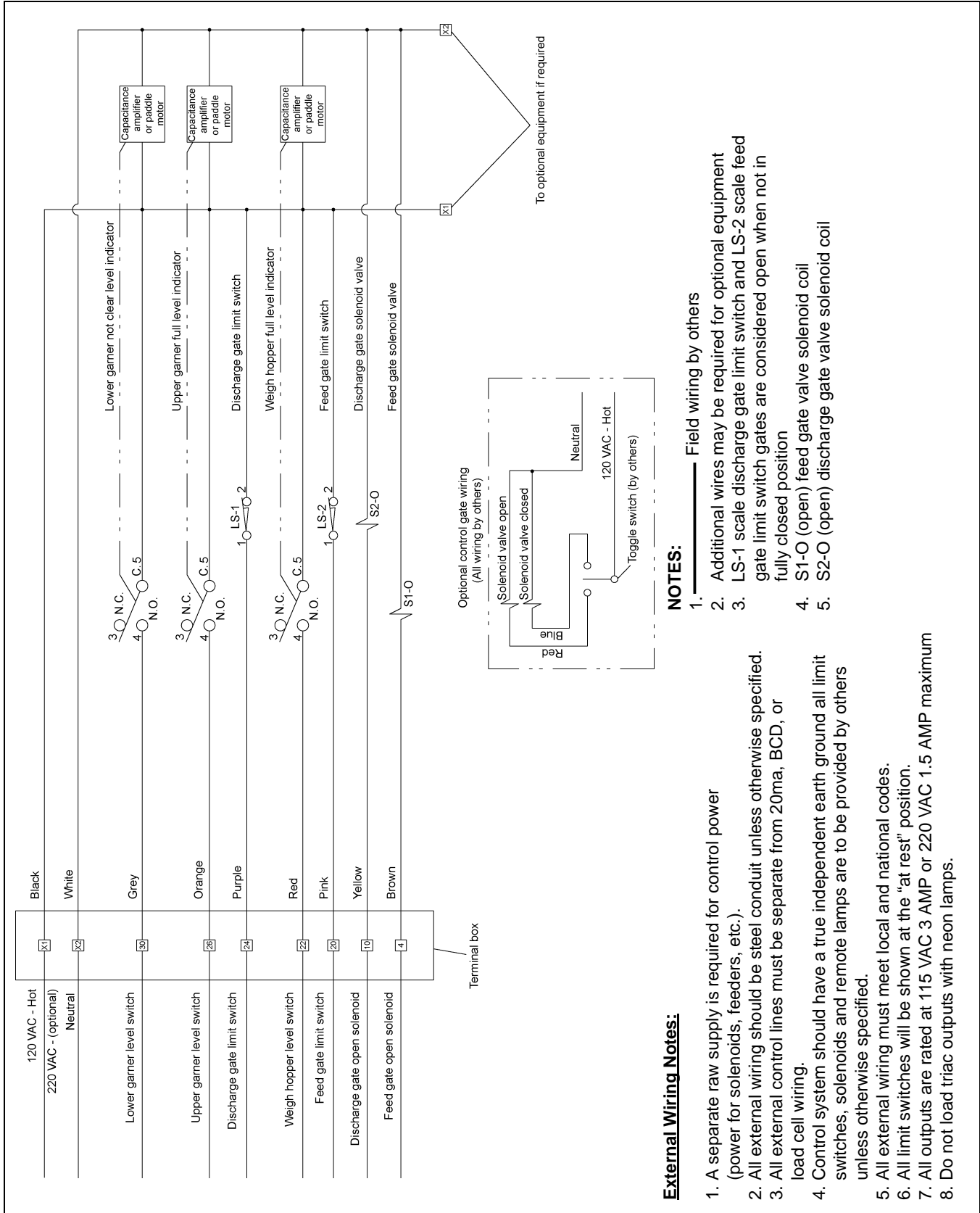


Figure 10F

CD2000 to CD4000 I/O Field Wiring Schematics (528116)

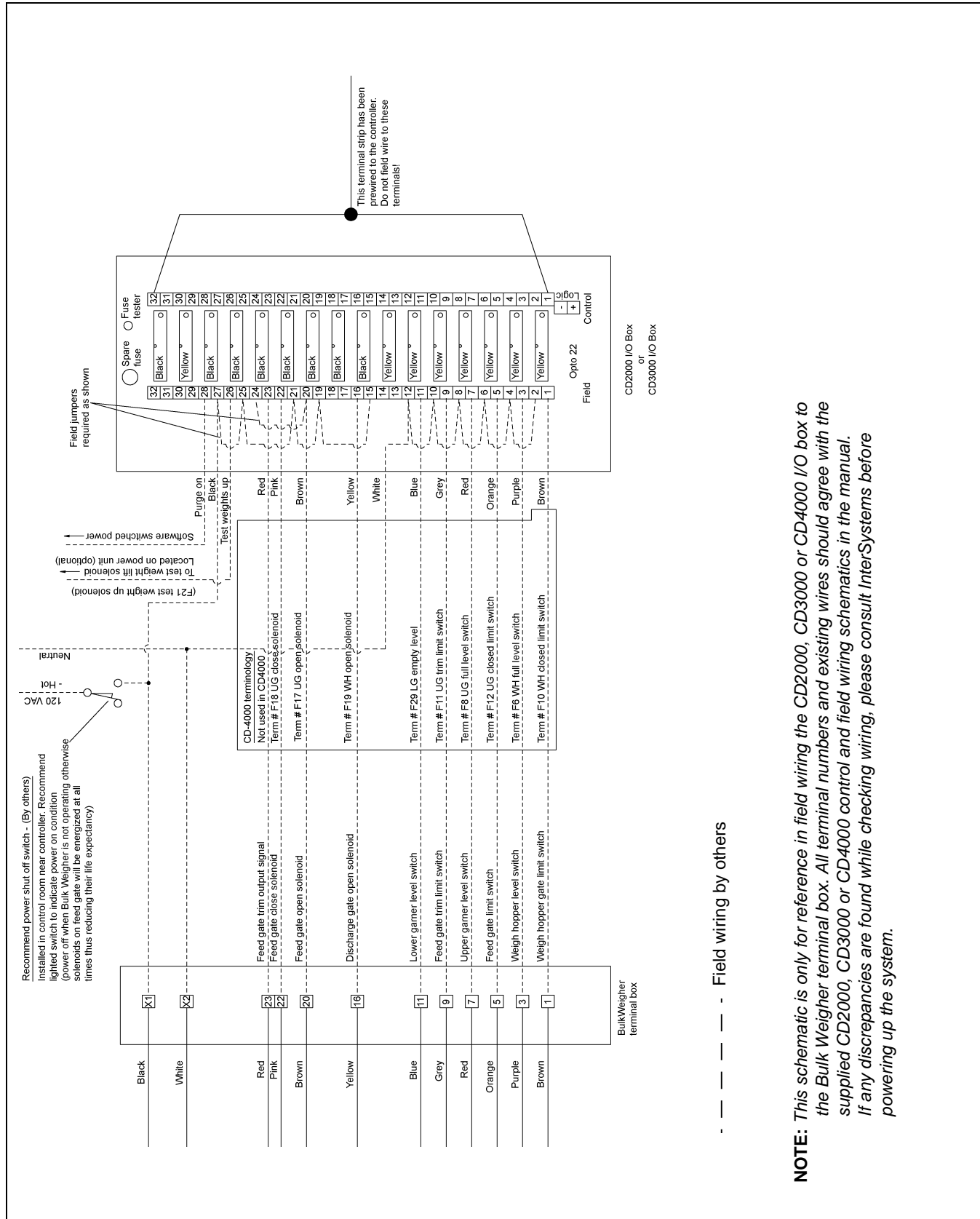


Figure 10G

NOTES

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