



DPC 150

Care and Use Instructions



Serial Number _____

Date Manufactured _____

TEEMARK MANUFACTURING WARRANTY – TERMS OF SALE

Only the following conditions apply and shall be binding on the Seller regardless of any conditions contained in your inquiry or order. If the conditions stated herein are in any way unacceptable to you, please notify us at once; otherwise the following conditions will become the only conditions applicable to this transaction regardless of any conflicting terms or conditions contained in your inquiry or order.

1. **CONTRACT.** No order or quotation is binding on Seller and no contract is formed until Seller's formal acknowledgement of the order on Seller's own form is sent to Buyer. Any special terms or conditions noted on the face of Seller's quotation on which this order is based is incorporated herein by reference and made a part hereof as though specifically set forth herein.
2. **DELIVERY.** Without prejudice to any of Buyer's other rights hereunder, title and risk of loss shall fall to buyer on delivery of goods hereunder by Seller to carrier regardless of who bears the cost of freight. Seller shall not be liable for any delays in or failures of delivery due to acts of God or public authority, labor disturbances, accidents, fires, floods, extreme weather conditions, failure of and delays by carriers, shortages of materials, delays of a supplier due to causes beyond its control, or any other causes beyond the control of the Seller. Seller shall notify Buyer of any such delays as soon as it becomes apparent. In no event shall Seller be liable for consequential or special damage arising out of a delay in or failure of delivery.
3. **LIMITED WARRANTIES.** All goods sold hereunder are warranted to be free from defects in material and workmanship and/or to conform to applicable specifications, drawings, blueprints and/or samples. Seller's sole obligation under these warranties shall be to issue credit, repair or replace any item or part thereof which is proved to be other than as warranted. Seller shall have the sole right to determine whether such parts shall be repaired or replaced or whether credit shall be issued. No allowances shall be made for any labor charges of Buyer for replacement of parts, adjustments or repairs, or any other work unless advance, written authorization for such charges is given by Seller. In no event shall Seller be liable for collateral, consequential or contingent damages. If goods are claimed to be other than as warranted, Seller, upon notice promptly given, will either examine the goods at the Buyer's site or issue shipping instructions for return to Seller (transportation costs prepaid by Buyer), and if any goods are proved to be other than warranted, transportation costs (cheapest way) to and from Seller's plant will be borne by Seller and reimbursement or credit will be made for amounts so expended by Buyer. Every such claim for breach of the warranties herein contained shall be deemed to be Waived by the Buyer unless made in writing within 90 DAYS from the date of shipment of the goods to which such claims relates. These warranties shall not extend to any goods or parts thereof which have been subjected to misuse or neglect, damaged by accident, rendered defective by reason of improper installation or used for other than the express purpose for which it was designed and built, or by the performance of repairs or alterations outside of Seller's plant, except when performed under seller's specific authority. These warranties shall not apply to any goods or parts thereof furnished by Buyer or acquired from others at Buyer's request and/or to Buyer's specifications. In no event shall the Seller be liable for contingent or consequential damages. **This warranty is in lieu of all other warranties.**
4. **CHANGES IN SPECIFICATIONS OR DESIGN.** Should Buyer request that changes be made in the specifications or design relating to any goods, delivery dates and schedules shall be revised accordingly, if necessary, and an equitable adjustment, upward or downward, be made in price so far as warranted.
5. **TERMINATION, REDUCTION IN QUANTITY, RESCHEDULING DELIVERY.** In the event Buyer desires to terminate any part or all of the work to be done hereunder, reduce the quantity of goods ordered, or reschedule the delivery of any goods, fair compensation shall be made to the Seller. Seller shall recover without duplication the contract price for articles which have been completed, the actual costs incurred by Seller which are properly allocable or apportionable under recognized commercial accounting practices to terminated work (including cost of discharging liabilities) plus a reasonable profit, the increased cost incurred by Seller by reason of a revision in the delivery schedule.

6. **BUYER'S PROPERTY.** Any patterns, equipment or materials furnished by Buyer shall be used only in the production of goods ordered by Buyer and not otherwise, unless by Buyer's written consent. Seller agrees to exercise reasonable care with respect to such property while in its possession and control, but shall not be responsible for loss or damage occurring without its fault or negligence or for ordinary wear and tear. When, for two (2) consecutive years, no orders are received from the Buyer for a particular product, any tooling or equipment, whether owned by Buyer or Seller, required for producing such product, as well as any inventory of such product, may be destroyed by seller without notice to buyer or liability to Seller.
7. **PATENT INFRINGEMENT.** Seller shall defend and save harmless the Buyer from any claim that any product or article sold to the Buyer hereunder in and of itself infringes any United States letters patent by reason of its sale provided Seller is notified in writing within ten (10) days after such claim is made against the buyer and provided further that seller is permitted to defend the same in Buyer's name if action brought. If the product or articles sold to the buyer hereunder is manufactured by the Seller according to a design or specification furnished by the Buyer, the Buyer will defend and save harmless the Seller from any claim of infringement of any letters patent.
8. **PATENT AND DATA RIGHTS.** Seller will comply with all applicable federal, state and local laws, provided however, that the Seller will not be bound by Armed Services Procurement Regulation 9-202, Rights in Data: Defense procurement Circular #24, or any other regulation requiring the Seller to provide Technical data, either limited or unlimited, to any representative of the federal government or agency thereof, unless affirmatively and specifically agreed to in writing by the Seller.
9. **PROPRIETARY DESIGN.** Unless the design for the goods shall have been furnished by the Buyer to the Seller and used by the Seller in manufacturing the goods, the design of the products supplied to the Buyer are proprietary. The Buyer agrees not to reproduce these products or their design for his own use or for resale, except where necessary for maintenance of said goods.
10. **BUYER SPECIFIED SOURCES.** Where Buyer supplies parts and/or materials to be used in connection with the work to be performed and materials to be furnished by the Seller, subcontract work of any kind is performed for Seller by a source specified or selected by Buyer, Buyer assumes, and Seller is correspondingly relieved from all responsibility where the merchandise supplied by Seller is other than as warranted and where the reason therefore is due to the work performed by the source so specified or selected by Buyer or parts supplied by Buyer. Buyer further agrees that in such instances Buyer will defend, at no cost to Seller, every suit which shall be brought against Seller by reason of the defects in such parts supplied by Buyer or operations so subcontracted at Buyer's request.
11. **TAXES.** Sales and use taxes, payable by Buyer, which are presently or may hereafter be imposed by any taxing authority, are not included in the sales price; any direct or excise tax, payable by Seller, which may hereafter be imposed by any taxing authority, upon the manufacture, sale or delivery of products covered by this order, or any increase in rate of any such tax now in force, shall be added to the sale price. If not collected at time of payment of sale price, Buyer will hold Seller harmless.
12. **APPLICABLE LAW.** This contract shall be governed by the law of the State of Minnesota. The invalidity of any one clause or portion of this contract shall have no effect on the validity of any other section or portion thereof. Failure at any time of Seller to enforce any provision of this contract, or to exercise an option hereunder, or to require performance by Buyer of an provision hereof, shall in no way be construed as a waiver nor in any way affect the right of Seller to thereafter enforce each and every provision. A waiver by Seller of a term or condition hereof shall not be deemed a waiver of any other term or condition hereof or as a future waiver thereof. Sites of the contract shall be deemed Seller's corporate offices.
13. **PREVAILING TERMS.** Seller's standard terms of sale shall supplement and compliment Buyer's terms and conditions of sale, and both shall form the contract. However, if there is a conflict on content, interpretation, construction, or on any other points, between Buyer's and Seller's terms and conditions of sale, Seller hereby expressly rejects such conflicting terms and/or conditions of Buyer, and Seller's terms and conditions shall prevail and Buyer's acceptance of Seller's terms and conditions as set forth herein.

Your TeeMark Drum Crusher has been thoroughly tested before it leaves the factory. Then it is partially disassembled to secure it for shipping. Several loose parts are shipped inside the crusher or attached to the proper parts.

DRUM CRUSHER INSTALLATION

1. Tools required to install a TeeMark Drum Crusher.
2. Forklift, 9/16" wrench, 3/4" wrench, 1" wrench, hammer, pry bar, chain and hook to raise the cylinder.
3. Using the hammer and pry bar, remove the panels from the crate. Locate the four lag bolts that attach the crusher to the crate. Using the 9/16" wrench remove the lag bolts.
4. The drum crusher has fork pockets built into the frame for transporting. Move the drum crusher to the desired location with the forklift. Anchoring to the floor is at the customer discretion. If you desire to anchor to the crusher, use the four holes provided in the fork pockets for this purpose.
5. After locating the drum crusher to the desired position, open the door and locate the four 1/2" hex head bolt supplied. These bolts are provided to attach the cylinder to the frame. The cylinder is shipped in the lowered position; locate the eye hood on the top of the cylinder. Using the chain and hook, attach the top of the cylinder to one of the forks on the forklift. You will need to use the 1" wrench to loosen the hydraulic lines; this will enable them to rotate. Slowly raise the cylinder until it comes in contact with the frame inside the drum crusher. You will have to orientate the mounting base with the crusher frame to align the holes, and hydraulic lines. Attach the cylinder to the frame; be sure the four bolts are tight. Remove the forklift and chains. Realign the hydraulic hoses and tighten them.
6. Have the electrician wire to the drum crusher in accordance with local codes.
7. After the crusher has been set into place and wired, check the oil level in the sight glass located on the tank attached to the rear of the machine. Oil should be visible to within 3/4 of the top of the glass.
8. Start the hydraulic motor by pulling out the e-stop button on the motor starter enclosure. Check for signs of leaks in the hydraulic lines. If you find leaks you may need to tighten the fittings. Once you are sure there are no leaks, you are ready to operate the machine. Refer to the operating instructions in this manual.
9. You may experience some noise for the first couple of cycles, as there may be air in the system. Cycling the drum crusher several times will work the air out of the system.

INITIAL START UP

WIRING

Connect wiring to drum crusher in accordance with local and national electrical codes (see attached wiring diagram)

HYDRAULIC FLUID

Check the hydraulic fluid level. Oil should be at a level that is visible in the temperature sight gauge throughout the complete ram cycle. When adding oil, use a premium grade antiwear hydraulic oil, 150 viscosity grade 32, (Mobile #DTE24 or equal). This is the same antiwear hydraulic fluid that is typically used in farm tractors and dump trucks. It should be available in auto supply store. The unit holds approximately 8 gallons of hydraulic oil.

PUMP ROTATION

The motor fan should turn in a clockwise rotation as viewed from the rear for proper pump rotation. Jog electric motor to observe rotation and correct if necessary. Single phase units have proper rotation preset at the factory.

INITIAL CYCLE

Start the unit. The pump should prime within one minute. Do not run the pump longer if it does not prime.

Cycle the unit several times to bleed air from the hydraulic lines. It may be necessary to break the fittings at the top of the cylinder to bleed air from the lines if the motion is not smooth after 10-20 cycles.

Recheck the fluid reservoir and fill to top of gauge with the ram retracted.

VALVE SETTINGS

The pressure relief valve and squeeze (detent) pressure have been preset at the factory for optimum performance. **DO NOT INCREASE THESE SETTINGS** as this will exceed the capacity of the equipment and cause damage. Lowering the squeeze valve detent pressure below the factory setting of 3000 psi is permissible (see detent adjustment instructions)

FILTER CARTRIDGE

Change the filter cartridge after the first 100 hours of operation.

OPERATING INSTRUCTIONS

DRUM CRUSHING

CAUTION

To avoid spills, drums should have all liquids drained from them before crushing.

Drums that have contained volatiles should only be crushed in the explosion proof electric models.

Drums that contain material that ignite or explode under pressure should **never** be crushed.

1. Place the drum in the center of the drum crusher. It is not necessary to remove the bungs from the drums because the piercer will puncture the drum top and vent the air inside the drum as it is crushed. Open top drums crush straighter when placed in the crusher with the open end down.
2. Close and latch the door. A door interlock prevents the crusher from operating with the door open.
3. Start the hydraulic pump
 - a. Electric models: pull the emergency stop button.
 - b. Gasoline or diesel engine models: start engine
4. To start the crushing cycle pull both valve handles toward you until they lock onto position. These handles are located above the door on the door latch side.
5. The ram will crush the drum and automatically return to the up position at the end of the cycle. As the drum is crushed, hydraulic pressure increases. When the maximum pressure is reached, the left valve handle will snap back. At this point the ram begins to retract. When the ram is fully retracted in the up position, the right valve handle will snap back. The cycle can be manually over-ridden at any time by operating the appropriate valve handle.

If the valve handles are not returning automatically or if they return too soon, see the detent adjustment instructions.

6. When both handles have returned, open the door and remove crushed drum. It is not necessary to turn off the engine or electric powered hydraulic pumps between cycles.

IN-DRUM COMPACTION – OPTIONAL FEATURE FOR THE DPC 150

CAUTION

It is the operator's responsibility for the safe operation of the machine.

The operator should be fully aware of the properties of the materials being compacted inside the drums. Take care not to mix incompatible material that may react unfavorably.

Volatiles should only be compacted in the explosion proof electric models. Materials that ignite or explode under pressure should **never** be compacted.

1. To remove the crushing head, remove the four bolts that hold the crushing head into the ram and slide the crushing head from the smaller compaction head.
2. Carefully place the drum in the center of the crusher over the drum centering disc on the drum centering pallet. The centering disc not only holds the drum in place, it protects the bottom bead of the drum from damage during compaction. Some models have more than one centering disc. Be sure you are using the proper one.
3. Add the material to be compacted
4. Close and latch the door. A door interlock prevents the crusher from operating with the door open.
5. Start the hydraulic pump.
 - a. Electric models: Pull out the emergency stop button.
 - b. Gasoline and Diesel engine models: Start the engine
6. To start the compaction cycle pull both valve handles toward you until they lock onto position. These handles are located above the door on the door latch side.
7. A force gauge is provided which indicates the compaction force being applied to the drum contents. It is not desirable to use the full ram force during compaction as you might deform the drum the suggested ram force for compaction is: Model DPC60/500lbs, DPC85/350lbs, and DPC150/200lbs.

Continued on next page...

The operator can reduce the compaction force in two ways:

- a. Manually override the valve when the desired force is reached by returning the left valve handle to its neutral position (push the handle toward the valve). This will shift the valve to automatically retract the ram.
- b. Reduce the pressure setting on the automatic cycle valve. To do this change the detent adjustment located at the top rear of the valve behind the left handle (see detent adjustment instructions). Reduce the pressure by turning the adjusting bolt counter-clockwise. Cycle the valve until it returns at the desired pressure. Then tighten the lock nut.

CAUTION

The valve is preset at the factory to 60,000 pounds of force or 3000 psi. This is maximum design capacity of the components and should NOT be exceeded.

8. The ram automatically return to the up position at the end of the cycle. As the material is compacted within the drum, the hydraulic pressure increases. When the preset pressure is reached, the left valve handle will snap back. At this point the ram begins to retract. When the ram is fully retracted in the up position, the right valve handle will snap back. The cycle can be manually overridden at any time by operating the appropriate valve handle.

If the valve handles are not returning automatically or if they return too soon, see the detent adjustment instructions.

9. More material can be added and compacted over and over until the drum is full.

It is not necessary to turn off the engine or electric powered hydraulic pumps between cycles.

10. Remove the packed drum by lifting the drum centering pallet out with a fork lift. Once outside the crusher, the drum can be handled by conventional drum handling equipment.

RECOMMENED PERIODIC MAINTENACNE

1. Change the filter element after the first 100 hours of operation and then every 500 hours after that; more often if your system is in an extremely dirty atmosphere.
2. Grease motor bearing to manufacturer's recommendations.
3. Change the hydraulic oil completely every 5000 hours of operation or after 5 years.
4. Remember your system is only as good as you maintenance.

MINOR TROUBLE SHOOTING

NOISY PUMP

1. Suction line blocked. Disassemble and clean.
2. Air entering suction side of pump. Check all joints and pump air shaft.
3. Low oil level
4. Pump badly worn, loose parts in pump case.
5. Suction line restricted
6. Pump high speed cut out adjusted to low.

LACK OF SYSTEM PRESSURE

1. Bad pump
2. Hydraulic component stuck in open position. Relief, 4-way, ect.
3. Coupling between pump and motor separated.
4. Line breakage

PUMP NOT DELIVERING OIL

1. Block suction
2. Air leak in suction lice causing pump to lose prime
3. Pump rotation in wrong direction

ERRATIC MOTION IN CYLINDER

1. Air entrapped in oil due to excessive agitation. Oil will be cloudy in appearance.
2. Detent setting in auto cycle valve not working or adjusted too high.
Note: check motor amperage draw against nameplate. If it is too high, the problem is in system, eg. Relief valve set too high or pump or motor failing

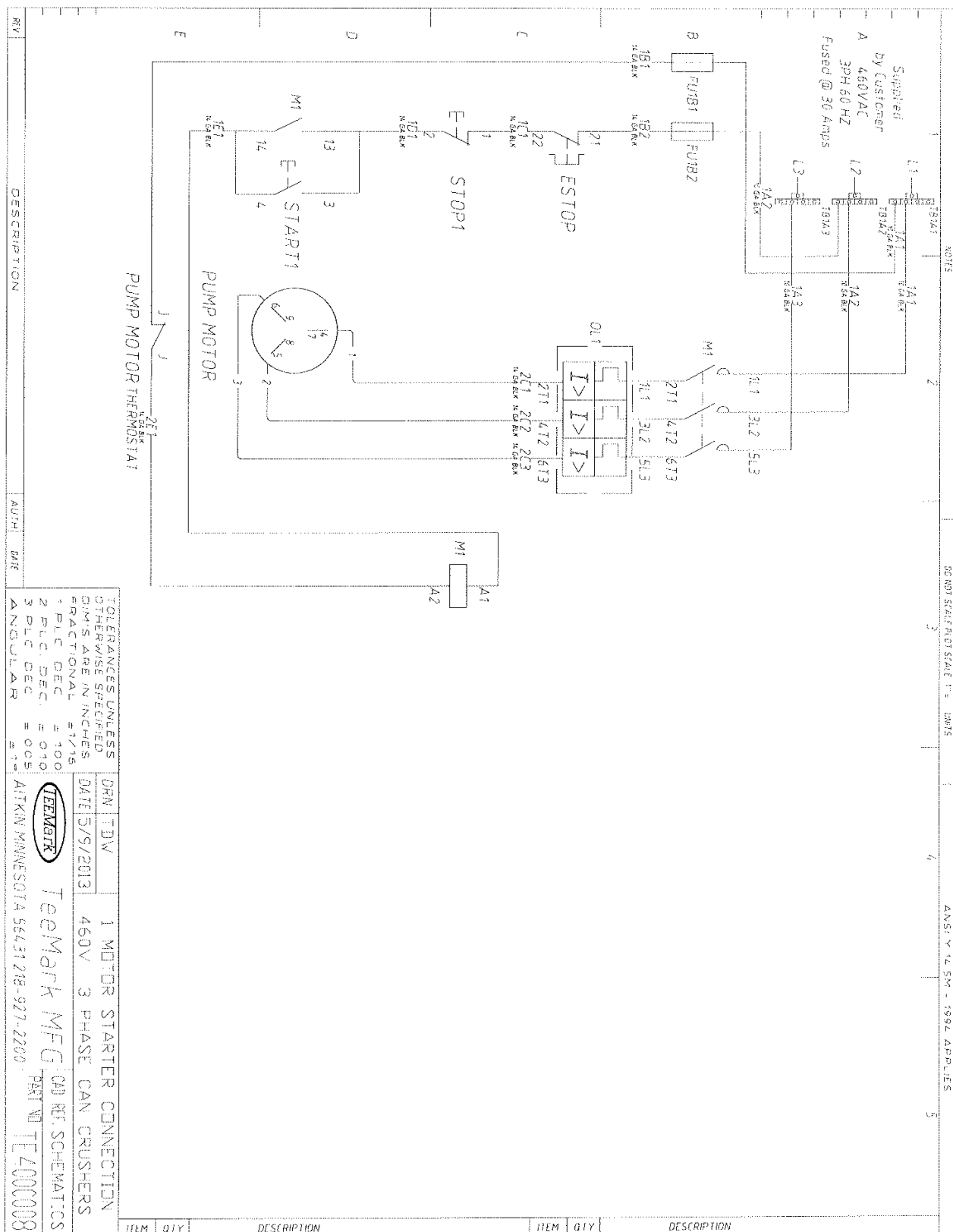
RESERVOIR TEMPERATUR EXCESSIVE (Over 140 Deg. F)

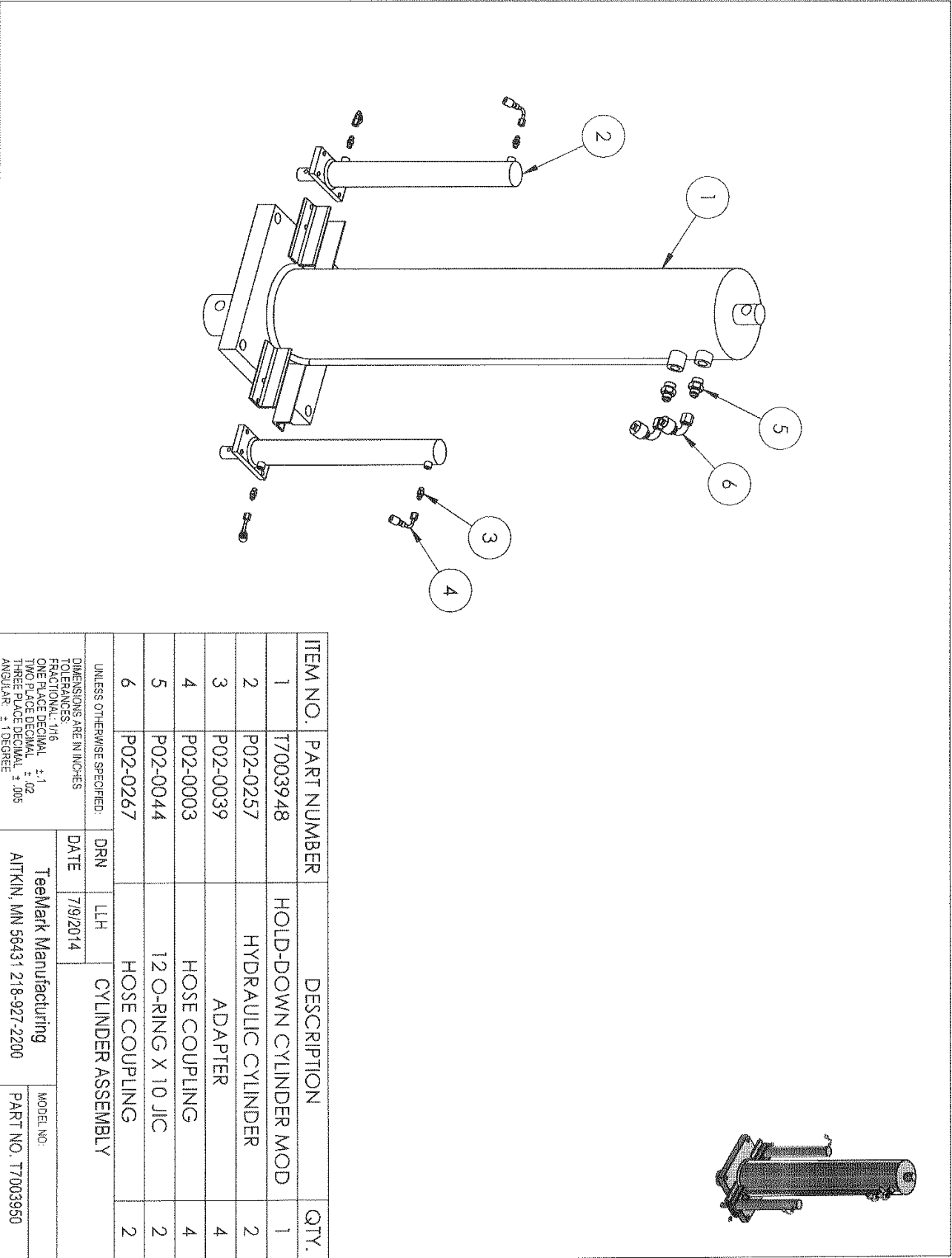
1. Relief valve set too high.
2. Detent setting in auto cycle valve not working or adjusted too high

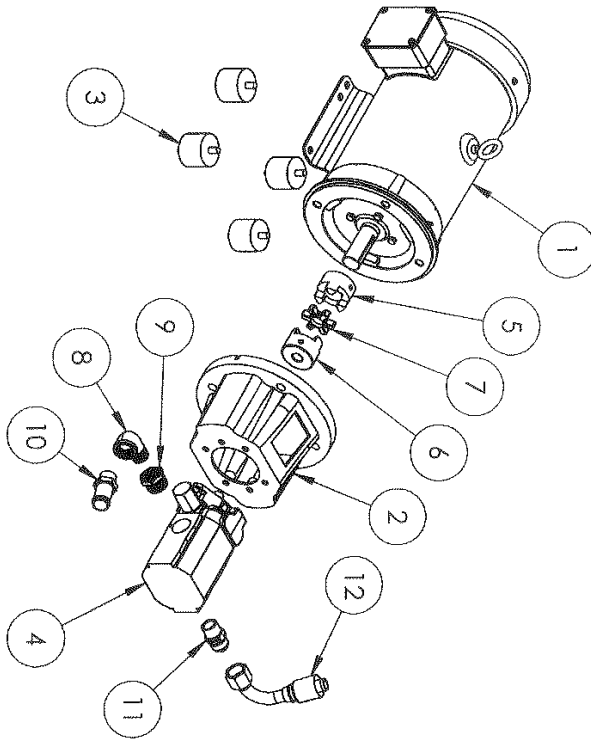
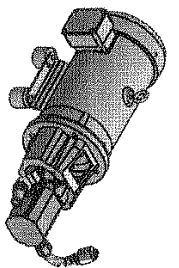
NOTE: Check motor amperage draw against nameplate. If it is too high, the problem is in system, eg. Relief valve set too high or pump or motor failing.

AUTOMATIC CRUSHER CYCLE NOT WORKING PROPERLY

1. If the crusher stalls during operation or the valve handles are not returning during the cycle or if they return too soon, see the detent adjustment instructions.







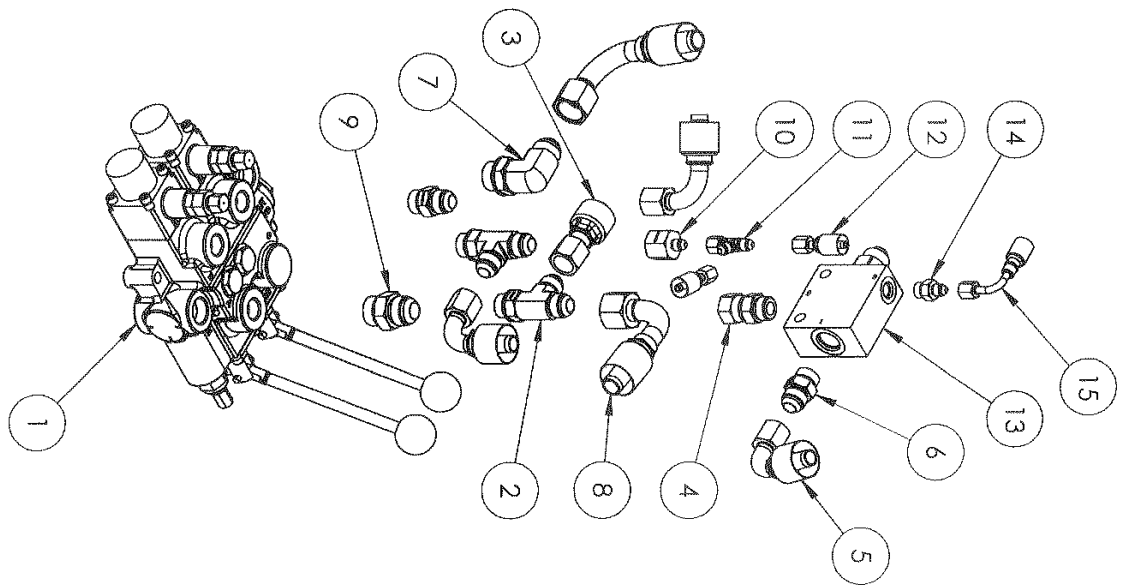
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	P06-0082	MOTOR	1
2	P02-0254	PUMP MOTOR ADAPTER	1
3	P07-0366	VIBRATION DAMPENING MOUNT	4
4	P02-0086	PUMP	1
5	P04-0032	COUPLING HUB	1
6	P04-0024	COUPLING HUB	1
7	P04-0028	COUPLING SPIDER INSERT	1
8	P02-0262	STREET ELBOW	1
9	P02-0261	PIPE BUSHING	1
10	P02-0263	BARB FITTING	1
11	P02-0264	ADAPTER	1
12	P02-0008	COUPLING	1

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL: $\pm 1/16$
 ONE PLACE DECIMAL: $\pm .1$
 TWO PLACE DECIMAL: $\pm .02$
 THREE PLACE DECIMAL: $\pm .005$
 ANGULAR: ± 1 DEGREE

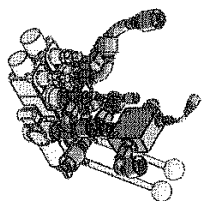
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		7/9/2014	

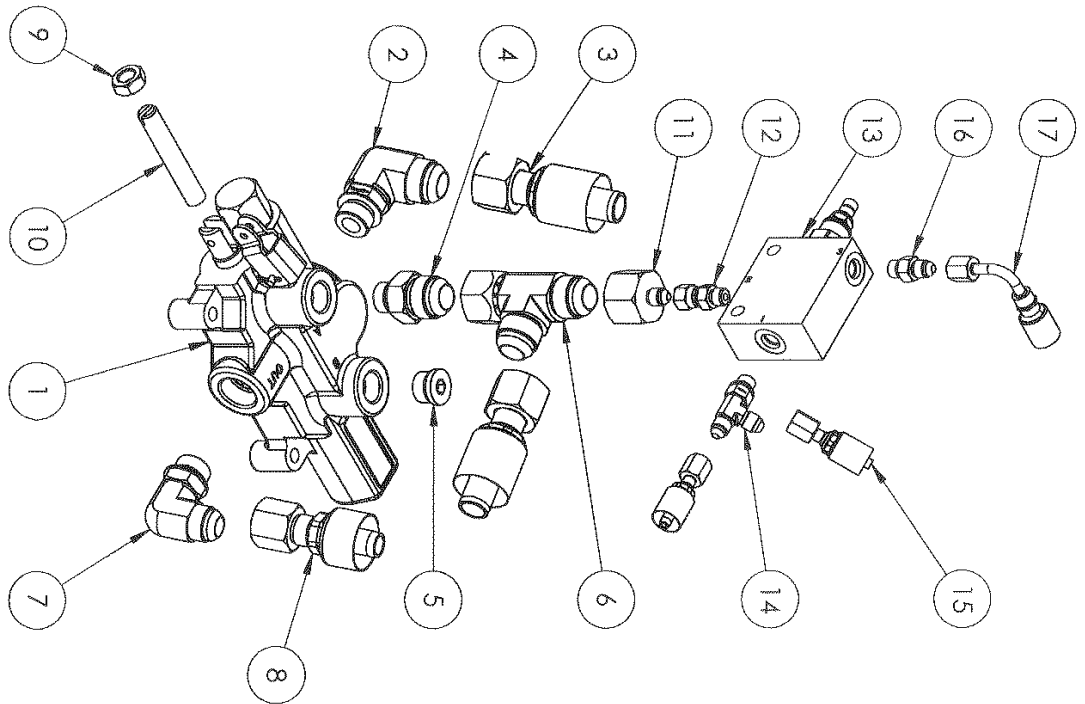
TeeMark Manufacturing
 AITKIN, MN 56431 218-927-2200

PART NO. T7003941

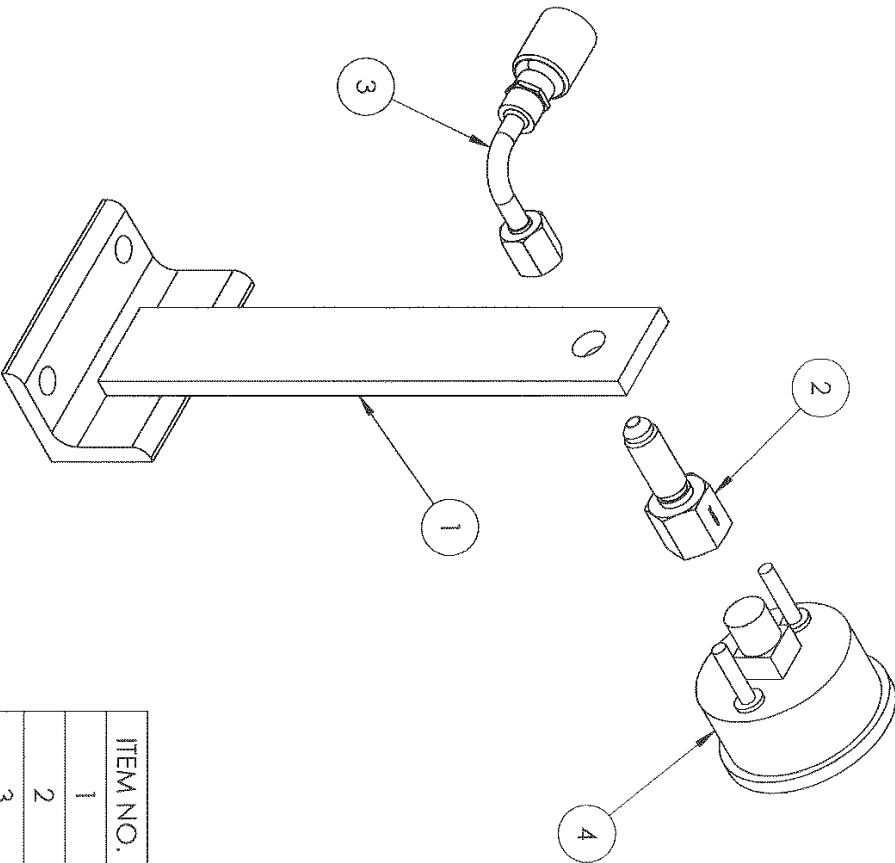


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	P02-0080	AUTOCYCLE VALVE	1
2	P02-0265	TEE ADAPTER	2
3	P02-0136	HOSE COUPLING	1
4	P02-0266	SWIVEL ADAPTER	1
5	P02-0267	HOSE COUPLING	3
6	P02-0043	ADAPTER	2
7	P02-0271	ELBOW	1
8	P02-0008	COUPLING	2
9	P02-0047	ADAPTER	1
10	P02-0268	ADAPTER	1
11	P02-0269	RUN SWIVEL TEE	1
12	P02-0004	HOSE COUPLING	2
13	P02-0251	COUNTERBALANCE VALVE	1
14	P02-0270	ADAPTER	1
15	P02-0003	HOSE COUPLING	1
UNLESS OTHERWISE SPECIFIED:			
DIMENSIONS ARE IN INCHES			
TOLERANCES:			
FRACTIONAL: 1/16			
ONE PLACE DECIMAL: ± .1			
TWO PLACE DECIMAL: ± .02			
THREE PLACE DECIMAL: ± .005			
ANGULAR: ± 1 DEGREE			
AUTOCYCLE HYDRAULIC ASS'Y			
DRN		LLH	AUTOCYCLE HYDRAULIC ASS'Y
DATE		7/8/2014	
TeeMark Manufacturing			MODEL NO:
AITKIN, MN 56431 218-927-2200			PART NO. 17003943





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	P02-0085	INTERLOCK VALVE	1
2	P02-0272	ELBOW	1
3	P02-0007	HOSE COUPLING	2
4	P02-0279	ADAPTER	1
5	P02-0056	8 O-RING PLUG	1
6	P02-0280	SWIVEL RUN TEE	1
7	P02-0065	10 O-RING X 10 JIC ELBOW	1
8	P02-0136	HOSE COUPLING	1
9	NUT		1
10	T9001814	MODIFIED BOLT	1
11	P02-0281	ADAPTER	1
12	P02-0283	ADAPTER	1
13	P02-0260	PRESSURE REDUCER VALVE	1
14	P02-0284	RUN TEE	1
15	P02-0004	HOSE COUPLING	2
16	P02-0039	ADAPTER	1
17	P02-0003	HOSE COUPLING	1
INTERLOCK HYDRAULIC ASSY			
UNLESS OTHERWISE SPECIFIED:			
DIMENSIONS ARE IN INCHES			
TOLERANCES:			
FRACTIONAL: 1/16			
ONE PLACE DECIMAL: ±.1			
TWO PLACE DECIMAL: ±.02			
THREE PLACE DECIMAL: ±.005			
ANGULAR: ±1 DEGREE			
Teemark Manufacturing		MODEL NO:	
AITKIN, MN 56431 218-927-2200		PART NO. T7003944	
DRN	LLH		
DATE	7/8/2014		



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	T7003935	GAUGE BRACKET	1
2	P02-0259	ADAPTER	1
3	P02-0003	HOSE COUPLING	1
4	P02-0258	GAUGE	1

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:

FRACTIONAL: 1/16

ONE PLACE DECIMAL ±.1

TWO PLACE DECIMAL ±.02

THREE PLACE DECIMAL ±.005

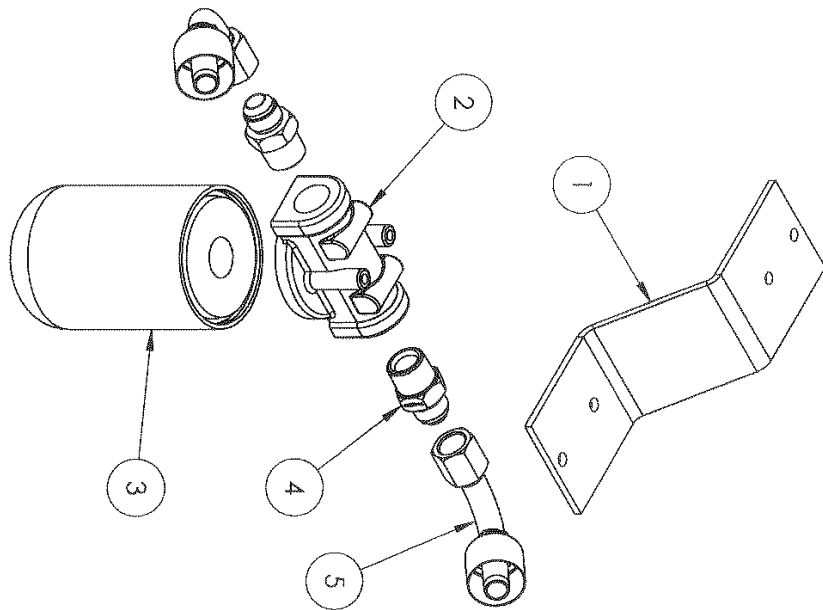
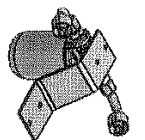
ANGULAR: ± 1 DEGREE

Teemark Manufacturing

AITKIN, MN 56431 218-927-2200

MODEL NO:

PART NO. T7003945



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	T7003940	SMALL FILTER BRACKET	1
2	P02-0126	SCREW ON VALVE	1
3	P02-0081	OIL FILTER	1
4	P02-0273	ADAPTER	2
5	P02-0267	HOSE COUPLING	2
UNLESS OTHERWISE SPECIFIED:			
DIMENSIONS ARE IN INCHES			
TOLERANCES			
FRACTIONAL 1/16			
ONE PLACE DECIMAL ±.1			
TWO PLACE DECIMAL ±.02			
THREE PLACE DECIMAL ±.005			
ANGULAR ± 1 DEGREE			
DATE		DRN	LLH
7/8/2014		FILTER ASSEMBLY	
TeeMark Manufacturing			MODEL NO.
AITKIN, MN 56431 218-927-2200			PART NO. T7003946

ADJUSTING THE MAIN CONTROL VALVE DETENT PRESSURE SETTINGS

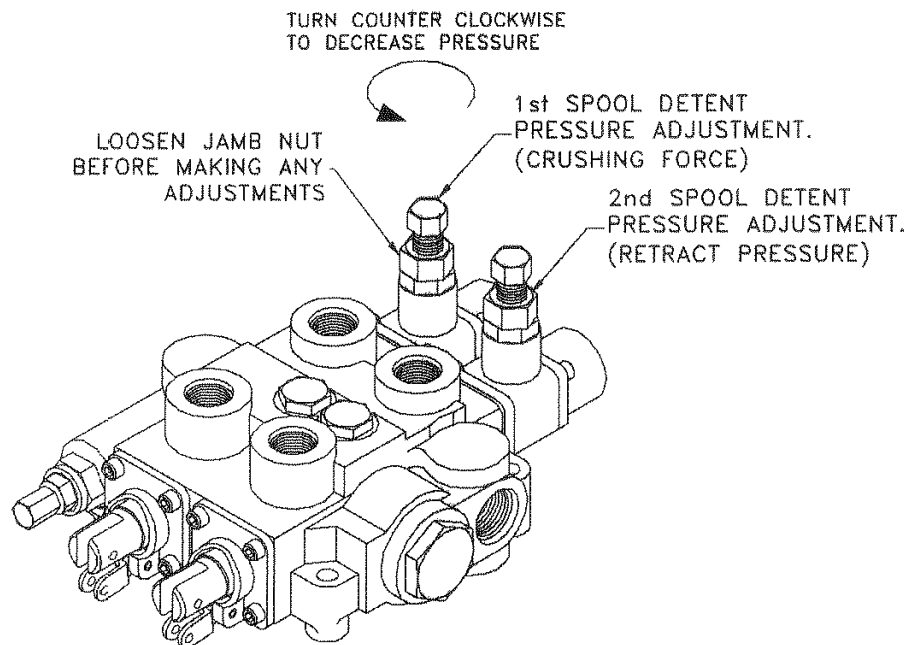
The Main Hydraulic Control Valve detent settings are preset at the factory. Certain field conditions and machine usage may require detent adjustments.

Refer to valve manufacturers trouble shooting guide included in this manual for possible conditions that would call for detent readjustment..

DETENT CONDITIONS THAT AFFECT CRUSHER PERFORMANCE

Note: Make adjustments in 1/8 turn increments

Crushing Platen will not retract and motor <u>does not</u> bog down.	Both valve spools are tripping simultaneously. Increase detent pressure on 2nd valve spool.
Crushing Platen will not retract and motor <u>does</u> bog down.	Decrease detent pressure on 1st valve spool.
Incomplete crushing of can or drum.	Increase detent pressure on 1st valve spool.
Motor bogs down when cylinder is fully retracted.	Decrease detent pressure on 2nd valve spool.



GENERAL SAFETY PRECAUTIONS FOR HYDRAULIC VALVES

1) ALL HYDRAULIC VALVES MUST BE PROPERLY INSTALLED INTO THE HYDRAULIC SYSTEM TO PREVENT PERSONAL INJURY AND/OR PROPERTY DAMAGE. FURTHER, THE IMPROPER SERVICING OF A VALVE MAY RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE. PLEASE READ AND UNDERSTAND ALL CATALOG AND SERVICE INFORMATION BEFORE STARTING. AS WITH ALL MECHANICAL WORK THE PROPER TOOLS, KNOWLEDGE, AND SAFETY EQUIPMENT ARE REQUIRED. ALWAYS WEAR SAFETY GLASSES.

2) MAKE SURE ALL PRESSURE HAS BEEN RELIEVED IN THE HYDRAULIC LINES BEFORE INSTALLING OR SERVICING A HYDRAULIC VALVE.



WARNING: ESCAPING HYDRAULIC FLUID UNDER PRESSURE CAN HAVE SUFFICIENT FORCE TO PENETRATE SKIN, CAUSING SERIOUS PERSONAL INJURY. DO NOT USE YOUR HAND TO CHECK FOR HYDRAULIC LEAKS.

3) BEFORE INSTALLING OR SERVICING A HYDRAULIC COMPONENT MAKE SURE ALL WEIGHT HAS BEEN REMOVED FROM THE CYLINDERS OR MOTORS BEFORE DISCONNECTING HYDRAULIC LINES.

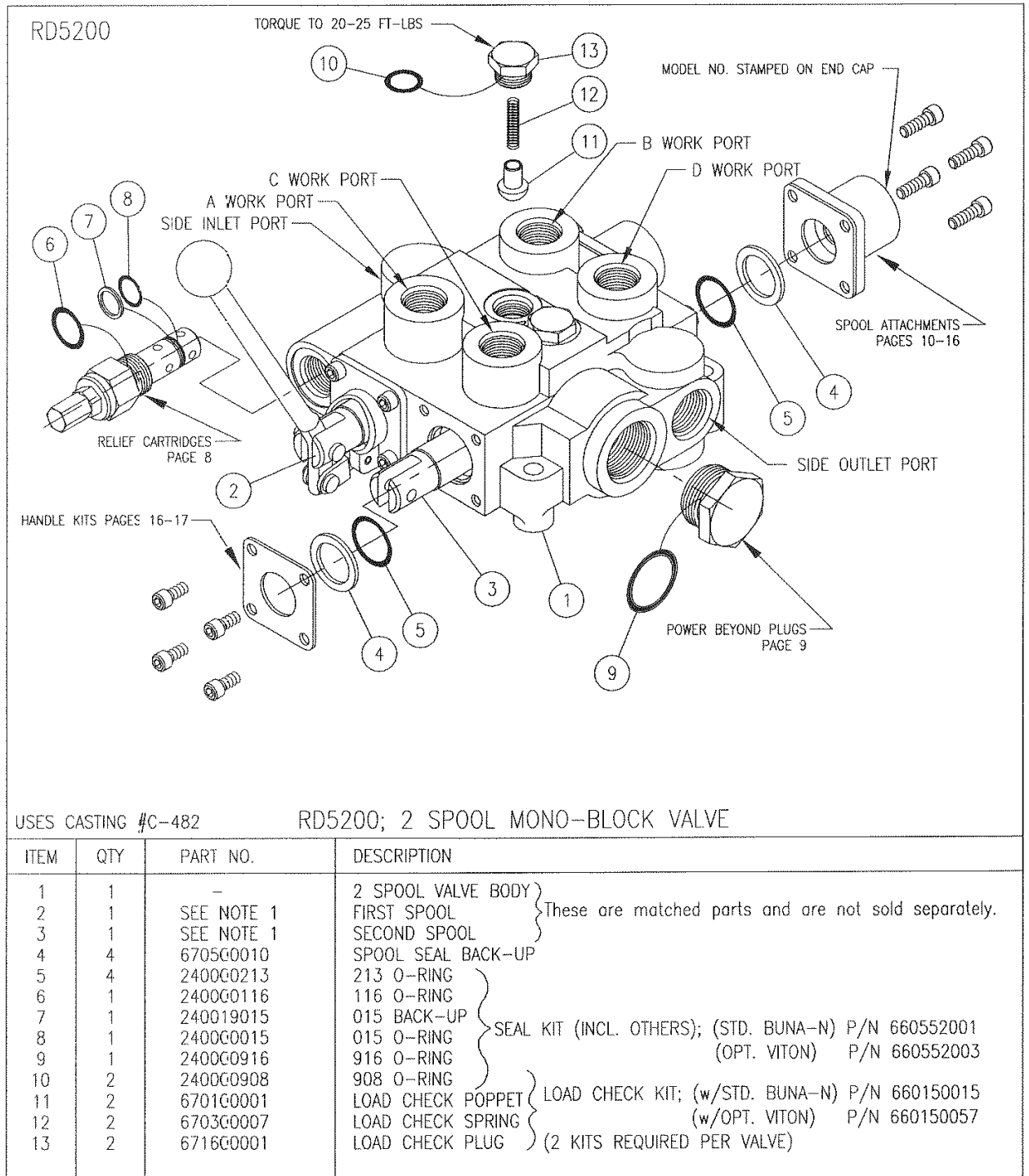


WARNING: DISCONNECTING THE HYDRAULIC LINES WHILE THE CYLINDER OR MOTOR IS UNDER LOAD MAY RESULT IN THE UNEXPECTED RAPID MOVEMENT OF MACHINE RESULTING IN SERIOUS PERSONAL INJURY.

4) DO NOT EXCEED THE OPERATING SPECIFICATIONS FOR PRESSURE, FLOW OR TEMPERATURE. ALL HYDRAULIC SYSTEMS REQUIRE A MEANS TO LIMIT THE MAXIMUM PRESSURE. THIS REQUIRES EITHER A PRESSURE RELIEF VALVE IN THE SYSTEM OR A PUMP THAT HAS PRESSURE COMPENSATION.

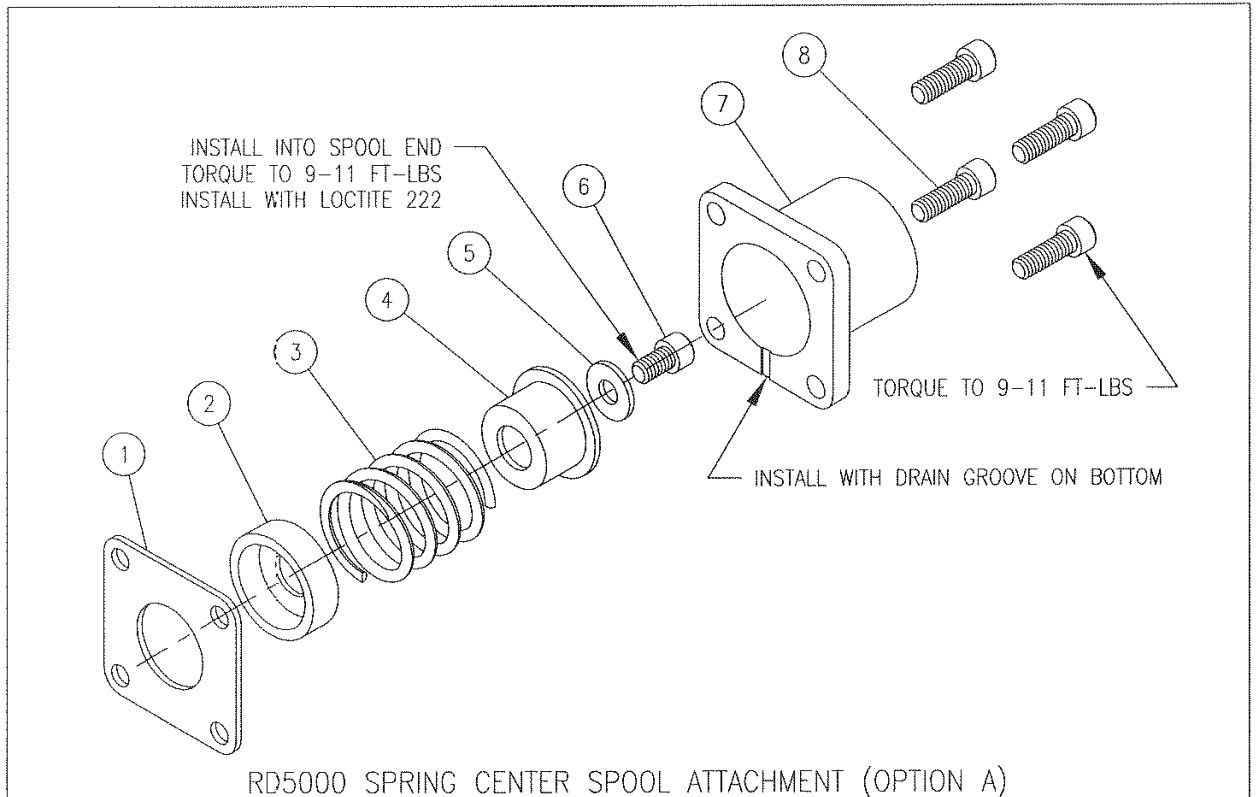


WARNING: OVERPRESSURE MAY CAUSE SUDDEN AND UNEXPECTED FAILURE OF A COMPONENT IN THE HYDRAULIC SYSTEM RESULTING IN SERIOUS PERSONAL INJURY. ALWAYS USE A GAUGE WHEN ADJUSTING A RELIEF VALVE.



NOTES:

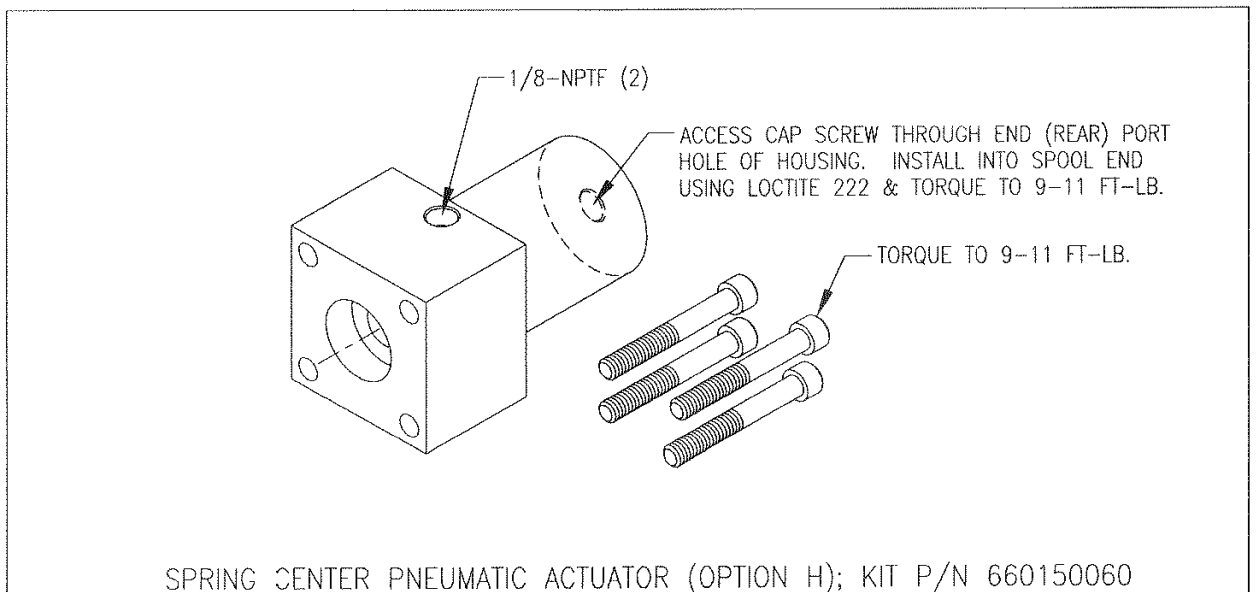
1. SEE SPOOL IDENTIFICATION CHART ON PAGE 7.
2. VALVES WITH 3-WAY SPOOLS INSTALLED WILL HAVE THE 'A' AND/OR 'C' WORK PORT PLUGGED.

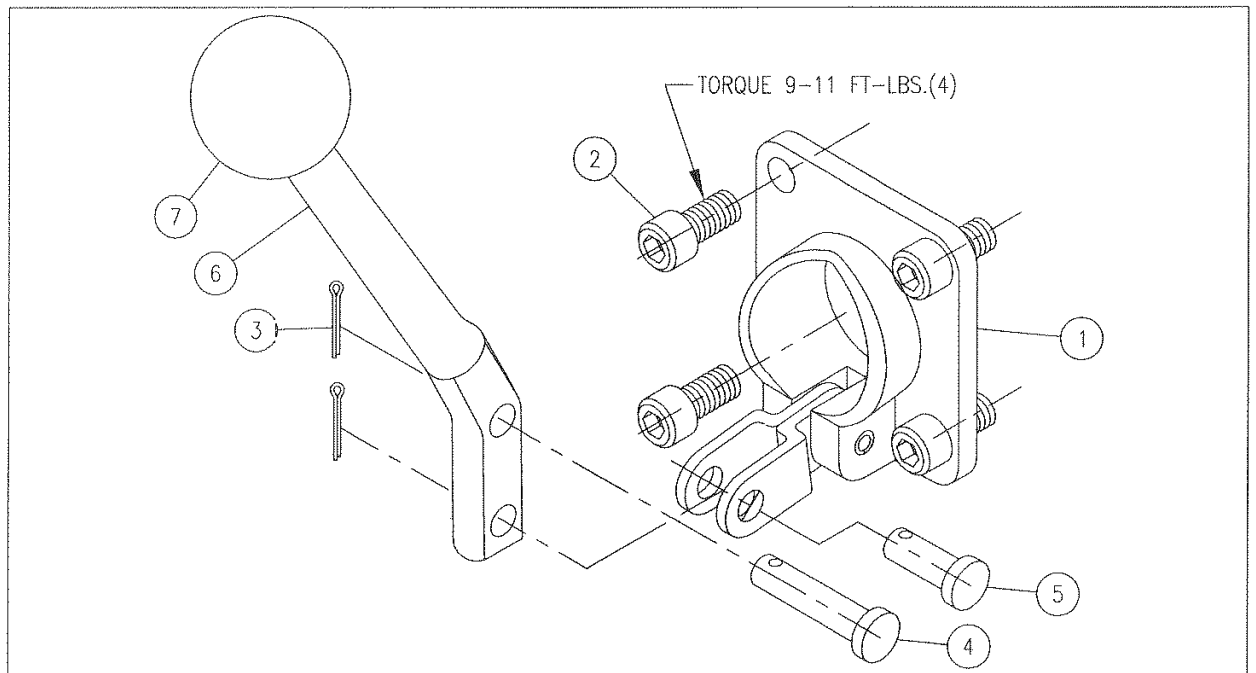


ITEM	QTY	PART NO.	DESCRIPTION
1	1	6705G0003	RETAINER PLATE
2	1	6714G0001	STOP CUP (INNER)
3	1	6703G0001	CENTERING SPRING *
4	1	6714G0011	STOP CUP (OUTER)
5	1	6705G0004	WASHER
6	1	1700G3007	SOCKET HEAD CAP SCREW
7	1	6705G0005	END CAP
8	4	1700G3008	SOCKET HEAD CAP SCREW

SPRING CENTER KIT; P/N 660150001

*STANDARD CENTERING SPRING CAN BE REPLACED WITH MEDIUM HEAVY SPRING P/N 670300047, OR HEAVY SPRING P/N 670300043.





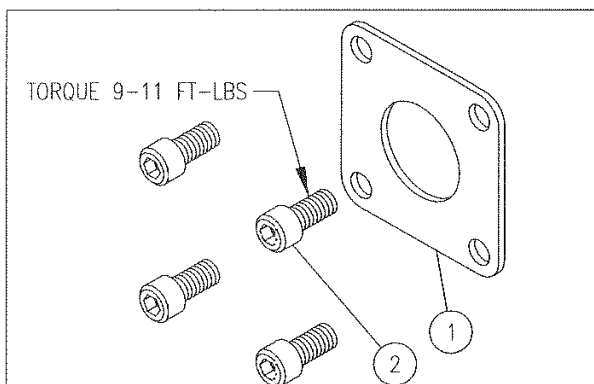
RD5000; COMPLETE HANDLE KIT (OPTION 1) & LESS HANDLE ONLY (OPTION 2)

ITEM	QTY	PART NO.	DESCRIPTION
1	1	660350001	CLEVIS SUB-ASSY
2	4	170003017	CAP SCREW
3	2	220001512	COTTER PIN
4	1	671700002	CLEVIS PIN
5	1	671700001	CLEVIS PIN
6	1	670400001	HANDLE
7	1	670400002	KNOB

LESS HANDLE ONLY KIT;
OPTION 2 (ITEMS 1-5)
P/N 660150090

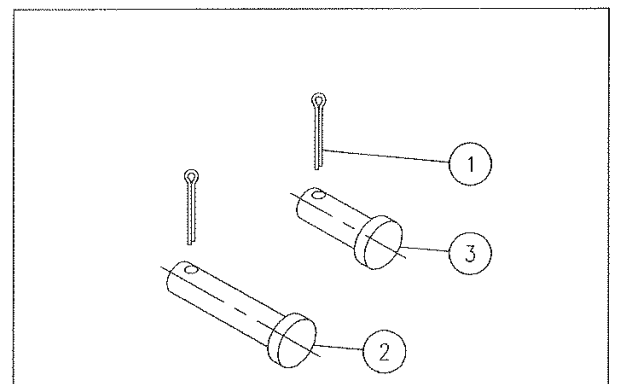
HANDLE KIT;
P/N 660150004

COMPLETE HANDLE KIT;
OPTION 1 (ITEMS 1-7)
P/N 660150039



RD5000; LESS COMPLETE HANDLE
(OPTION 3); P/N 660150091

ITEM	QTY	PART NO.	DESCRIPTION
1	1	670500003	RETAINER PLATE
2	4	170003017	CAP SCREW



PIN KIT; P/N 660150022

ITEM	QTY	PART NO.	DESCRIPTION
1	2	220001512	COTTER PIN
2	1	671700002	CLEVIS PIN, LONG
3	1	671700001	CLEVIS PIN