

**5 Point Fabrication, LLC**  
**d/b/a GENMAC**

1680 Cornell Road  
Green Bay, WI 54313

**LIMITED WARRANTY**

5 Point Fabrication, LLC d/b/a GENMAC (“GENMAC”) warrants that the ordered machine will be constructed in accordance with normal GENMAC methods of manufacture and to the specifications set forth in the purchase order. GENMAC’s machine is warranted to be free of defects in material and workmanship for a period of twelve (12) months from the date of invoice (the “Warranty Period”), provided that GENMAC’s machine has been properly mounted and wired, properly lubricated and the machine has been properly maintained in accordance with the GENMAC maintenance manual, and further, provided, the machine has not been abused, misused, neglected, damaged accidentally or improperly operated, including the amount of pressure used. Wear due to highly abrasive or corrosive atmosphere shall not be considered a defect. Subject to the terms and conditions set forth herein, GENMAC agrees to replace, free of charge, any part or parts of the machine which fail through defect in material or workmanship within the Warranty Period. To invoke the warranty, customer shall, within the Warranty Period, provide GENMAC written notice of any alleged defect. Upon receipt of written notice of defect, GENMAC will, at its option, repair or replace the defective equipment or component. If GENMAC determines that the alleged defective equipment or component requires replacement, GENMAC will ship an identical or similar equipment or component to the customer and invoice customer for the same. After replacement equipment or components are installed on the machine, customer must return the alleged defective equipment or components to GENMAC for evaluation. Upon verification of defect, GENMAC will issue a full credit to customer covering the cost of the replacement equipment or components, but excluding labor, handling and shipping costs, which shall be the customer’s responsibility. Any equipment or components of GENMAC’s machine replaced under warranty shall have the same warranty as new equipment or components of GENMAC’s machine, but any such replacement does not extend the warranty of the original machine. No warranty is made with respect to: (1) consumable items within GENMAC’s machine, such as silicone grease, Teflon or other coatings, Teflon belts, sealing ribbons, cutting knives, etc.; (2) failures not reported to GENMAC within the Warranty Period; (3) failures or damage due to misapplication, lack of proper maintenance, abuse, improper installation, mounting, lubrication, wiring or abnormal conditions of temperature, moisture, dirt, or corrosive matter, etc.; (4) failures due to operation, either intentional or otherwise, above the rated capacities, or in an otherwise improper manner; (5) any component of the machine which has been altered by anyone other than an authorized representative of GENMAC; and (6) any component of the machine damaged without fault of GENMAC. GENMAC shall not be liable for any expenses incurred by the customer in an attempt to correct any allegedly defective machine or part thereof. Failure to make any payment of the sale price as it becomes due shall cancel this warranty and a re-commencement of payments shall not operate to reinstate the Warranty Period or expand the terms of this limited warranty or any other warranty imposed by operation of law. GENMAC assumes no responsibility for unauthorized repairs of its machine even though defective, or for the failure of the machine due to jamming or overload, improper refuse removal or improper tooling, even though unintentional. GENMAC is not liable for losses, damages or delays due to any defect, and customer’s rights under this Warranty shall be the customer’s only remedy.

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## IMPORTANT NOTICE

When wiring the leads to the electrical box, make sure to check the rotation of the cutting drum. When standing at the loading end of the machine, the drum should be turning towards you. If not, reverse the leads



SAFE T DECALS give instant warning that sharp blades are in operation alerting the operator as well as employees working near your slicer that a hazard exists. The SAFE T DECALS are made of a tough durable plastic designed to take the rigorous environment of food processing facilities. Adhesive mounted, SAFE T DECALS can be placed on any slicing machine in your processing line. Order SAFE T DECALS now to alert your employees of slicing machine hazards.

**IMPORTANT SAFETY FIRST**  
**READ THESE INSTRUCTIONS BEFORE INSTALLING,**  
**OPERATING, MAINTAINING OR CLEANING**  
**EQUIPMENT**

1. MARK A MINIMUM "SAFE AREA" AROUND THE MACHINE.
2. ONLY A LICENSED ELECTRICIAN SHOULD CONNECT MACHINE TO POWER SOURCE.
3. TEST SAFETY GUARDS BEFORE OPERATING MACHINE
4. ONLY AUTHORIZED TRAINED PERSONNEL SHOULD WORK WITH OR NEAR MACHINE.
5. MACHINE SHOULD BE UNDER POWER ONLY WHEN THE PRODUCT IS BEING PROCESSED.
6. IMPORTANT!! IF FOR ANY REASON, INCLUDING, BUT NOT LIMITED TO, IMPROPER PRODUCT FEED, BLOCKAGE, UNFORESEEN MALFUNCTION, ETC., OCCUR, FIRST PRIORITIES ARE TO:
  - A. TURN POWER OFF!
  - B. SEEK SUPERVISOR'S ASSISTANCE, AND
  - C. ASSURE SAFETY BEFORE RESTARTING.
7. WARNING DECALS ARE PLACED ON ALL GUARDS, REPLACE THEM WHEN WORN. DO NOT OPERATE THE MACHINE WITHOUT SAFETY DECALS IN PLACE.

**\* \* CLEAN UP AND MAINTENANCE CREWS \* \***

1. DISCONNECT ALL POWER TO MACHINE BEFORE MAINTENANCE OR CLEANING.
2. BLOCK CUTTING BLADES AND/OR MOVEABLE PARTS TO PREVENT MOVEMENT DURING MAINTENANCE OR CLEANING.
3. WEAR PROTECTIVE GLOVES. USE LONG HANDLED BRUSHES FOR CLEANING BLADES OR OTHER HAZARDOUS AREA.

**IF ASSISTANCE IS REQUIRED CONTACT**  
**MANUFACTURER BEFORE OPERATING THE EQUIPMENT**  
**REMEMBER THE SAFEST MACHINE IS ONLY AS SAFE AS YOU WANT**  
**IT TO BE !!**

PHONE: 920-458-2189 FAX: 920-458-8316

E-MAIL: [sales@genmac.com](mailto:sales@genmac.com)

## IMPORTANT NOTICE

Employ machine only for the purpose advertised by manufacturer.

Due to federal laws dealing with safety, GENMAC requires that operating and safety instructions related to this machine, be brought to the attention of any and all personnel who operates, maintains, cleans or supervises or manages its use.

If this machine is disposed of or used by any other concern, these instructions must accompany the machine and be brought to the attention of such concern.

GENMAC is to be promptly notified if the machine is sold or disposed of in any manner:

Phone: 920-458-2189

Fax: 920-458-8316

E-mail: [sales@genmac.com](mailto:sales@genmac.com)

Only parts or equipment manufactured by GENMAC, or authorized by GENMAC in writing, are to be employed on or with this machine.

## READ THIS IMPORTANT NOTICE WITH REGARD TO SAFETY

Product may contain foreign materials that can damage equipment and/or cause food contamination. As a precaution, operators must be alerted and metal detectors employed to check product before and subsequent to entering equipment.

Our engineering department is continually evaluating both new safety equipment and that employed in the field. Consequently, we require immediate notification in regard to any perceived hazards, and prior to any modifications, or if the machine is sold, loaned, transferred, or otherwise disposed of. That information will allow us to maintain accurate files and assure continued safe operation.

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Phone: 920-458-2189  
Fax: 920-458-8316  
E-mail: [sales@genmac.com](mailto:sales@genmac.com)

### YOUR ATTENTION PLEASE:

This notice or copy thereof must be brought to the attention of all personnel connected with the operation, maintenance, sales, and/or disposition of GENMAC Equipment. Attach to your permanent records for regular reference.

## WARNING

DO NOT CONNECT POWER OR OPERATE MACHINE WITHOUT VISUALLY CHECKING TO SEE THAT ALL MOVING PARTS ARE SECURED, AND ANY OBSTACLES ARE REMOVED FROM THE CUTTING AREAS.

DO NOT REMOVE AND/OR MODIFY ANY MACHINE COMPONENTS. ALL COMPONENTS SUCH AS GUARDS, PANELS, GAUGES, ETC. MUST BE IN PLACE AND FUNCTION PROPERLY BEFORE MACHINE IS PUT INTO OPERATION. ANY MALFUNCTION, OR MISSING COMPONENTS MUST BE BROUGHT TO THE ATTENTION OF THE MANUFACTURER IMMEDIATELY.

This safety notice should be prominently displayed in the work area, given to the supervisor and operation personnel in an effort for all employees to be concerned about safety precautions.

### GENMAC

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INSTALLATION  
MODEL 2501  
PNEUMATIC FEED HYDRAUFLAKER

The HYDRAUFLAKER Combination FLAKER and SLICER has been fully inspected and has been operated at the factory, prior to shipment.

It is necessary when receiving this machine, the crate and machine be checked for external damage in transit. If damage has occurred, make proper notation on the Bill of Lading, so that proper action can be taken with the freight company.

1. Remove all crating material and skids from machine, and recheck machine for possible shipping damage.
2. Move machine to proper location, with machine placed in a level position in the cross direction, and the feed side of the machine approximately one inch higher than the discharge side (cutting drum side). All four legs are to firmly contact the floor or support area.
3. Remove protective coating from blades, pusher, etc.
4. The pneumatic system of the HYDRAUFLAKER is a complete self contained, and regulated system. It is designed for years of trouble-free service. The HYDRAUFLAKER should be operated at approximately 80 PSI air pressure, 5 CFM air consumption, for proper performance. Air connection is made on the right hand side of the machine, on the filter/regulator.
5. Connect to proper supply line, voltage, phase, and cycle of machine, indicated on the electrical control box. The HYDRAUFLAKER must be properly fused through a disconnect box, and the machine properly grounded for safety. The motor, which is operating the HYDRAUFLAKER is connected through overload switches, which will give the motor ample protection. Upon connecting the machine to proper supply, it is absolutely essential that the direction of rotation of the motor is correct. The drum must revolve towards the feed pusher, or when facing the pulley side of the machine, the drum rotates in the counter-clockwise direction (facing motor shaft, motor operates counter-clockwise).
6. Operate the HYDRAUFLAKER to check the leveling of the machine. If properly leveled and supported, the cutting drum will revolve smoothly, without vibration. The pusher will feed towards the cutting drum, then automatic return and stop.

## OPERATING INSTRUCTIONS

The HYDRAUFLAKER is completely lubricated when leaving the factory. It is necessary that all bearings are greased, a minimum of once a week.

The motor, valves, and pneumatic cylinder are self-lubricated, and do not require any further attention. It is advisable after each day's operation, to thoroughly clean the machine, and cover the knives with vegetable oil. After each day's operation, the knives should be honed and retightened. The drive belts from the motor to the knife drum will require tightening after several days of operation. The tightness of these belts should be checked periodically, to maintain full cutting power at the cutting drum.

The HYDRAUFLAKER has one control station. This is an electrical push control box, located at the rear of the machine. The four control buttons are the black button, to start the machine, the red button, to stop the machine, the green button, to actuate the feed pusher, and the yellow button, for stopping the machine in mid cycle. If the pusher is to be retracted at any time during its forward feed, contact the yellow button. This will automatically retract the pusher from any position. The cutting drum will continue to turn.

The HYDRAUFLAKER as shipped to you, has 1/8" blade shims installed. For slice thickness change, it is necessary to remove the HFA-120-5 knives. Replace the HFA-113 slice thickness shims with the size required and refasten the knives firmly in position. When changing knives, or resetting knives for different slice thickness', it is imperative the machine be made electrically inoperative by disconnecting the disconnect switch.

In the cutting of frozen blocks of meat, a smoother operating will result, if the flat side of the frozen block is placed in the down position.

The operating sequence of the HYDRAUFLAKER is as follows:

1. Start machine by contacting start button (Black)
2. Push the frozen block of meat from loading table onto feed deck.
3. Contact pusher start button (Green)
4. Upon automatic return of block pusher, load successive blocks and repeat No. 3.

PRIOR TO EACH DAY'S CUTTING OPERATION, KNIVES SHOULD BE SCREWED FIRMLY IN POSITION. TORQUE WRENCH READY – 15 FT. – LBS.

#### HYDRAUFLAKER SLICE THICKNESS CONTROL

The HYDRAUFLAKER is equipped with (10) high ally special tempered blades, which are adjustable to cut frozen meat into slice thickness up to ¼" thick (these blades need to be coated with a mineral oil after the machine is cleaned.

The HYDRAUFLAKER is normally equipped at the factory with 1/8" shims in place.

Slice thickness can be changed as desired, by adding or removing appropriate shims (HFA-113 and/or HFA-113-2) or a combination of shims under each cutting blade up to a totally thickness of ¼". Do not exceed ¼" of shim height.

The following shims are furnished with the HYDRAUFLAKER:

(20) .032 Thick

(40) .125 Thick

#### FACTORY SHARPENING SERVICE IS RECOMMENDED TO ASSURE PROPER CUTTING ANGLES AND MAXIMUM BLADE LIFE.

Send used blades, clean, tightly packed, with purchase order included to: 1680 Cornell Road, Green Bay, WI 54313. Blades will be sharpened and returned. All unusable blades can be replaced upon request.

The blades need to be tightened with F-5 screws. When tightening F-5 screws, the operator needs to be careful not to tighten one screw completely before he had tightened the other, to a finger tight fit. If done incorrectly, you could build up stresses in the blade, which could lead to premature breakage at the bolt holes.

## MAINTENANCE

The filter-regulator has an automatic drain but should be checked for water every week. More if necessary, to assure proper operation of the cylinder and solenoid valve.

All grease type bearings should be greased each week, using a type of grease that is approved by the Food Industry (drum bearing fittings are located on the outside of the machine).

The cutting blades (HFA-120-5) are made of a special high alloy type steel and should be honed (by hand) regularly. Should blades require grinding, we suggest they be returned for factory regrinding. In factory regrinding, a minimum material is removed, and all cutting angles are maintained for maximum cutting efficiency. The blades should be coated with food grade mineral oil when not in use, or after wash down.

The V-Drive Belts are to be kept tensioned for full power cutting requirements.

The HYDRAUFLAKER can be washed down completely with steam or hot water. Strong detergents and close-up, high pressure spray should be avoided. Closely directed, high pressure spray can force water into certain areas (bearings, electricals, air brake, etc) leading to an increase in maintenance requirements.

All component parts are manufactured of quality materials, with top quality workmanship. Should there be any detailed information required pertaining to any of these parts, please contact GENMAC, 1680 Cornell Road, Green Bay, WI 54313, Phone Number 920-458-2189.

1. Motor does not operate or stops during operation.
  - a. Check fuses in disconnect box.
  - b. Check for low voltage.
  - c. Thermal overload elements have disconnected starter (RESET)
  - d. Check contacts on magnetic starter.
2. Cutting drum slows down.
  - a. Tighten V-Belts.
  - b. Check Blades; if dull, hone or sharpen.
  - c. Make sure meat blocks are frozen, and not too warm.
3. Drum does not stop, or stops too slow, when stop button is depressed.
  - a. Tighten V-Belts.
  - b. Check function of air brake.

4. Cylinder works erratically.
  - a. Solenoid valve is not working.
  - b. Mufflers are clogged.
  - c. Water in line.
  - d. Cylinder seal might need replacing.
5. Pusher does not move forward.
  - a. Push button (Green) is not contacting – check.
  - b. Flow control valve is shut-off turn counterclockwise.
  - c. Insufficient pneumatic pressure of air supply. Set at 80 to 90 PSI, with 5 cubic feet per minute air supply.
  - d. Relay does not energize to close normally, open contact – replace coil.
  - e. Pneumatic cylinder piston and rod packing worn – replace.
6. Pusher does not return.
  - a. Is reed switch operating properly?
  - b. Relay is not dropping down to close normally, closed contacts.
  - c. Is the center 4-way valve operating?
  - d. Could be piston packing need replacing.
  - e. Drain water from air filter.
7. HYDRAUFLAKER cuts to thick or to thin.
  - a. Replace shims (HFA-113) with shims of proper size.
  - b. Knives (HFA-120-5) dull – hone, sharpen, and/or replace.
8. HYDRAUFLAKER does not flake properly.
  - a. Replace shims (HFA-113) with one of proper size.
  - b. For best cutting results, frozen blocks should have temperature range throughout of plus 10 degrees F. to plus 20 degrees F. – temper properly.
  - c. Blades are dull – hone or sharpen.

## OPERATIONAL SEQUENCE OF HYDRAUFLAKER

1. Start button (Black) starts motor and energizes all electrical controls.
2. The cutting drum is driven by a 10 HP or 15 HP motor, Through 4 special high tensile strength V-Belts. The cutting drum rotates at a high speed of approximately 500 revolutions per minute. The cutting drum is mounted on two heavy duty self-aligning sealed bearings, which are lubricated with food grade grease.
3. Push button (Green) energizes the 4-Way Valve Solenoid and relay actuating air cylinder and moves block pusher toward cutting drum. At foremost position, the magnetic cylinder piston passes the reed switch on the cylinder, which de-energizes the relay, de-energizing the 4-Way Valve Solenoid and returns block pusher to rear of machine.
4. The batching button (Yellow) is used if you want to stop the pusher prior to completing its full forward motion. The pusher will return to the start position.
5. The forward speed of the pusher cylinder can be adjusted by the flow control valve located on the 4-Way Valve. Factory cycle time is set at 20 seconds (under no load) and should not be exceeded.
6. The electrical system is NEMA 4, completely enclosed. The magnetic starter switch relay, overload controls, wiring diagram, and terminal block, are in a waterproof enclosure box (See Wiring Diagram).
7. The stroke length of the cylinder can be shortened by moving the reed switch towards the rear of the cylinder. Factory setting allows the pusher plate to extend to  $\frac{1}{4}$  " away from stop tabs welded at the ends of the rails inside the machine. Do NOT adjust the reed switch to allow less than this  $\frac{1}{4}$  " gap from the slide stops.
8. To stop the machine completely, push the RED BUTTON, to Restart machine. The button needs to be manually pulled out.

## AIR BRAKE

The air brake is incorporated on the HYDRAUFLAKER to stop the cutting drum within 2 to 4 revolutions.

This device activates whenever the machine has stopped from pressing the RED stop button or opening the front or top guard.

In the event, the cutting drum rotates more than 2 to 4 revolutions, after the the RED stop button has been pressed; the following should be done.

1. Check the drive belts, to be sure they are good condition and tightened to the proper tension (per industry standard).
2. Check operation of the Air Brake and its associated components (4-way valve, lubricator, quick-exhaust valve, muffler).

To prolong the motor/air brake life: it is not recommended to start and stop the motor more than ten times per hour. Use the yellow batching button to stop pusher in the middle of a cutting cycle.

## SAFETY

A SAFETY MACHINE IS ONLY AS SAFE AS YOU WANT IT TO BE

### SAFETY GLASSES MUST BE WORN

The HYDRAUFLAKER is pneumatically operated. The characteristics of air operation can result in movement of mechanisms due to air leaking in the control valve. An airline also could fracture or become dislodged from a fitting, which would cause it to whip around out of control.

Warn operating personnel; airlines must be properly connected. Air pressure should not exceed 100 PSI. In the event of any blockage or malfunction, the first priority is to disconnect or shut off the primary air source before any attempt is made to remedy the problem.

Air is a compressible substance, therefore, somewhat erratic. But, if the movement of the cylinder is noticeably irregular, it may be due to insufficient air supply, pressure, improperly adjusted flow control, dirty exhaust silencers, water in the lines, malfunction of the valves, or leakage in the seals of the cylinder. The machine has a filter to prevent water from getting into the system but must be inspected periodically to ensure the "auto-drain" function is working. DO NOT introduce a lubricator into this system, as it is not needed, and will cause problems.

NOTE: The air system of the Hydraflaker does have a lubricator but it is plumbed downstream of the main air system and serves only to lubricate the air brake.

If at any time, questions arise regarding the operation or safety of the GENMAC HYDRAUFLAKER, call the manufacturer Toll Free at 1-888-243-6622.

### WARNING

The machine can be dangerous if improperly used. Keep hands out of slicing and discharge zones while the machine is in operation. Do not remove paneling except for cleaning or maintenance, and then only when power is disconnected. "CAUTION" safety decals should be in place on guards and loading aperture.



Instruct operation personnel about prudent safety measures before they employ the machine.

The operating decibels for this type of machine are approximately 85 to 90 dBA.

NOTE: Readings are dependent on the type of product being cut, and the temperature of the product, and the surrounding condition.

Readings are made from load end of the machine, 1 meter from machine at 1.6-meter height.

Tests were run in plant with some background noise from other machines. Product was Frozen Beef Hearts at 10 degrees F. An Edmont handheld sound level meter was used.

### SAFETY FEATURES

1. The HYDRAUFLAKER is equipped with a push-pull RED Mushroom Head Stop Button. This button needs to be manually pulled out after pushing the button for the machine to be restarted.
2. The machine is enclosed, except for two stainless access panels (25B-111 and 25C-116).
3. The drum area has a front plate (Poly) door (25B-106), and a top hood/cover (25-112). Both are electrically interlocked with two safety switches in series (P-623-014).
4. The motor is totally enclosed, and overload protected.
5. Machine has a NEMA 4X disconnect switch.
6. Machine has 24-volt control circuit.
7. Starters, Relay, Transformer, Terminal Blocks, etc., are touch proof and are UL Approved.
8. Drum bearings can be greased without the need to remove guards.
9. Operator Station is away from the cutting area, with full control of machine from that point.
10. Cutting drum is dynamically balanced, alleviating the need to bolt machine to the floor for stability.

GENERAL WASHING INSTRUCTIONS  
FOR  
HYDRAUFLAKER

DISCONNECT ALL POWER TO MACHINE BEFORE CLEANING

(Follow All Safety Instructions in Manual)

1. Open door and hood on Flaker, then take off blades (HFA-120-5) by removing bolts (F-5). Remove shims (HFA-113), if they are used.
2. Cutting drum can be rotated by hand, to clean out the pockets around the drum circumference.
3. Make sure you spray both sides of swing guard (25B-129-1), to clean off any meat or product residue.
4. Make sure to clean behind pusher plate.
5. After spraying the entire cutting area, you can spray the hoods and the rest of the machine.
6. When cleaning is finished, put the blades and shims back onto the drum and spray with mineral oil.

## AIR BRAKE TROUBLE SHOOTING

### HYDRAFLAKER

#### BRAKE DOES NOT DISENGAGE:

First, check to see if you are getting air to the brake, and have enough air pressure. If not, correct. If you do, go to No. 1.

1. Take the airline out of the brake. The brake should release, in addition, you should be able to rotate the drum. If the drum does not rotate, the problem is with the brake. The brake will need to be taken apart, to see what the problem is (see enclosed brake instructions). Necessary parts can be ordered from GENMAC.
2. If the brake releases, then the problem is either in the electric relay, located in the electrical enclosure, or the 4-way valve.
3. If the relay is energizing, and the brake is not released, then check the 4-way valve.  
Take the two mufflers off the 4-way valve, and see if the brake will work. If the brake works, purchase new mufflers. If not continue. The valve has a light, which will be on, if it is energized. It should be energized if the machine is on. If this light is not on, you can press the small yellow button, located on the valve, manually, to see if the valve will shift. If the valve shifts, and releases the brake, after you have moved this lever, you need a new valve.
4. If the brake disengages, but you hear rubbing noises, the compression springs might be broken (replace).

## CLEANING LUBRICATOR

The In-line Lubricator will provide long periods of uninterrupted service if both the air and oil supplies are kept clean. However, periodic cleaning may be required to assure proper operation. To remove and clean the lubricator.

1. Turn off machine
2. Turn lockout/tagout to off position
3. Disconnect lubricator from air supply



Caution: If pressure is released too quickly, oil may spray from the reservoir.

4. Remove lubricator from machine.
5. "Back Flush" lubricator to blow out any dirt or residue
6. Clean lubricator with warm water and household detergent or nothing stronger than good commercial grade solvent.
7. Make sure all moisture is removed by thoroughly blowing out the body with compressed air.
8. Reinstall lubricator and refill with oil.

GENERAL WASHING INSTRUCTIONS  
FOR  
HYDRAUFLAKER

DISCONNECT ALL POWER TO MACHINE BEFORE CLEANING

(Follow All Safety Instructions in Manual)

1. Open hoods on Flaker then take off blades (HFA-120-5) by removing bolts (F-5). Remove shims (HFA-113 and/or HFA-113-2), if they are used.
2. Cutting drum can be rotated by hand, to clean out the pockets around the drum circumference.
3. Make sure you spray both sides of swing guard to clean off any meat residue.
4. Make sure to clean behind pusher plate.
5. After spraying the entire cutting area, you can spray the hoods and the rest of the machine.
6. When cleaning is finished, put the blades and shims back onto the drum and spray with mineral oil.

		2501 HYDRAUFLAKER	
			QTY
START 2018	P-030-038	PILLOW BLOCK BRG	2
	P-330-005	THREAD INSERT	20
	F-5	BUTT HD SOC C/S	20
	P-420-001	1/2 X 2-1/4 CLEVIS PIN	4
	P-420-002	1/2 x 3 CLEVIS PIN	1
	P-222-001	GROMMET MATERIAL 4.65"	1
		HAIRPIN CLIP ( RUE CLIP )	5
		HEX HD C/S	4
		SAE FLAT WASHER	4
		LOCK WASHER	4
	P-510-003	DRUM SHEAVE	1
	P-510-001	MOTOR SHEAVE	1
	P-090-003	BUSHING FOR DRUM	1
*** CHOOSE 1 ***	P-090-004	MOTOR BUSHING-10 HP	1
*** CHOOSE 1 ***	P-090-006	MOTOR BUSHING -15 HP	1
	P-051-100	V-BELTS	4
	P-090-009	BRAKE BUSHING 2-1/2"	1
	P-135-003	AIR BRAKE	1
25A-321	P-626-001	DISCONNECT	1
	P-180-004	ENCLOSURE 25B-0126	1
	P-181-004	PANEL	1
25A-322	P-621-015	PUSH BUTTON STATION	1
	P-623-014	INTERLOCK SWITCH	2
	^	SAFETY SWITCH ACTUATOR	2
	^	SAFETY SWITCH CORD GRIP	2
		CORD GRIP	1
		SEALING RING	5
		CORD GRIP	1
		CONNECTOR	4
		CORD GRIP	5
*** CHOOSE 1 ***	P-370-071	10 HP MOTOR	1
*** CHOOSE 1 ***		15 HP MOTOR OPTIONAL	
	P-670-018	208/230/380/415/480-24	1
	P-670-019	TERMINAL COVER KIT FOR^	1
25B-228	P-180-016	JUNCTION BOX	1
	P-170-026	MAG PISTON CYLINDER	1
	P-690-041	FILT/REG/AUTO DRAIN	1
	P-230-003	GUAGE MTG. NUT	1

	P-230-002	PRESSURE GAUGE	1
	P-690-034	AIR VALVE W/CONNECT	3
	P-690-034	BLANKING CAP	2
	P-380-008	740 MUFFLER	6
	P-620-012	N.C. REED SWITCH	1
		1/4" MUFFLER	1
	P-450-001	QUICK EXHAUST	1
	P-690-039	IN LINE LUBRICATOR	1
for greasing bearings		COMP. FITTING - STRAIGHT	2
for greasing bearings		COMP. FITTING - ELBOW	2
		90 DEG ZERK 1/8" NPT male	2
		1/4" S. S. STREET ELBOW	2
		1/8 X 1/4 HEX NIPPLE	1
		STR CONNECTOR 1/4 X 1/4	1
		SWIVEL EL 1/4 X 1/8 NPT	1
		SWIVEL EL 3/8 X 1/4 NPT	1
		SWIVEL EL 1/4 X 1/4 NPT	2
	P-200-031	3/8" TUBE TEE	1
		3/8 X 1/2 SW. ELBOW	2
	16 GAUGE	10 CONDUCTOR CABLE	1
		CONDUIT BUSHING 1" x 3/4"	1
25A-4-2		DRUM SHAFT COVER upper	2
25A-5-2		DRUM SHAFT COVER lower	2
25A-230		TORQUE PIN FRAME PART	1
25A-234		TORQUE PIN FRAME PART	2
25B-131-2		PUSHER SLIDE L.H.	1
25B-131-3		PUSHER SLIDE R.H.	1
25A-127		HOLD DOWN KNOB	3
25A-140		BEARING SHOULDER	2
25A-150		PRONG BRACKET	1
25B-142		VALVE MTG BRKT	1
HFA-217-E		PUSHER DRIVE POINT	8
25A-303		CYL. MOUNTING	1
25A-6		LOCK SCREW	2
25A-8		LOCK KNOB	2
25A-301		CYL. SPACER BLOCK	2
31A-71		TORQUE PIN BRKT	1
31A-72		TORQUE PIN	1
25A-151		GREASE MOUNT	2
75A-674		MTG BRKT SAFETY SWITCH	2

25A-321		DISCONNECT MOD	1
25A-322		PUSH BUTTON MOD	1
25B-228		JUNCTION BOX PRINT	1
25B-106	REV: C	FRONT PLATE	1
25B-111-3	REV: A	L.H. PANEL	1
25B-128-1	REV: D	PUSHER	1
25B-129-1	REV: B	SWING DOOR	1
25C-112	REV: B	TOP COVER	1
25C-116	REV: C **	MOTOR PANEL-10 HP	1
25C-116-2	REV: C **	MOTOR PANEL-15 HP	1
25C-117 REV G	REV: G	BELT GUARD	1
25C-236	REV: B	BEARING COVER	1
25C-130-10-2		PUSHER MOUNTING	1
25A-141-3-1		CYLINDER BOSS	1
25C-235		FRAME ADAPTATION	1
25C-238	REV: A	MOTOR BASE - 10 HP	1
25C-242-1_5 POINT	REV A **	MOTOR BASE-15 HP	1
25R-200		MAIN FRAME	1
25R-201		LOAD TABLE & CHUTE	1
25R-B		ASSEMBLY PRINT	
3A-36		SPACERS - PLASTIC	20
HFA-113		.031 SHIM	20
HFA-113-2		.125 BLADE SHIM	40
HFA-120-5		BLADE	10
HFC-114-50		OPEN STAINLESS DRUM	1
		T HANDLE WRENCH 7/32"	1
		BLADE HONE # SJT-8	1



4

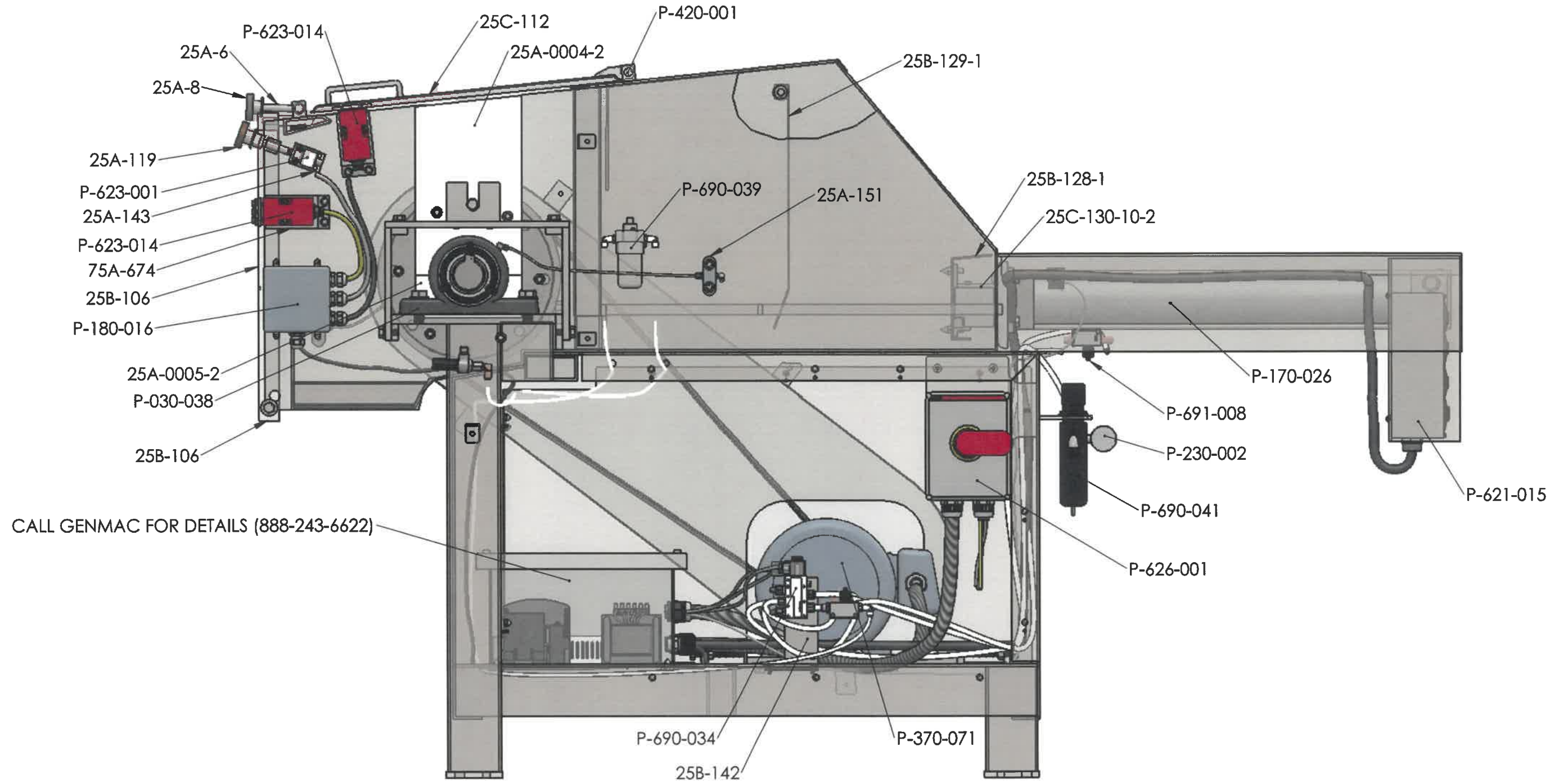
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PNEUMATIC BRAKE & GUARDS NOT SHOWN FOR CLARITY

UNLESS OTHERWISE SPECIFIED:		REFERENCE PART		 1680 Cornell Road, Green Bay, WI 54313 (920) 458-2189 www.genmac.com		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: $\pm 1/16"$ ANGULAR: MACH $\pm .5$ BEND $\pm 1$ TWO PLACE DECIMAL $\pm .030"$ THREE PLACE DECIMAL $\pm .015"$		INTERPRET GEOMETRIC TOLERANCING PER:				
<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GENMAC ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GENMAC IS PROHIBITED.		NAME	DATE	SIZE	DWG. NO.	REV
		B.VAN	5-5-20	<b>B</b>	<b>2501 PURCHASED PARTS</b>	
				SCALE: 1:24	MATERIAL: SEE DETAILS	WEIGHT:
						SHEET 1 OF 7

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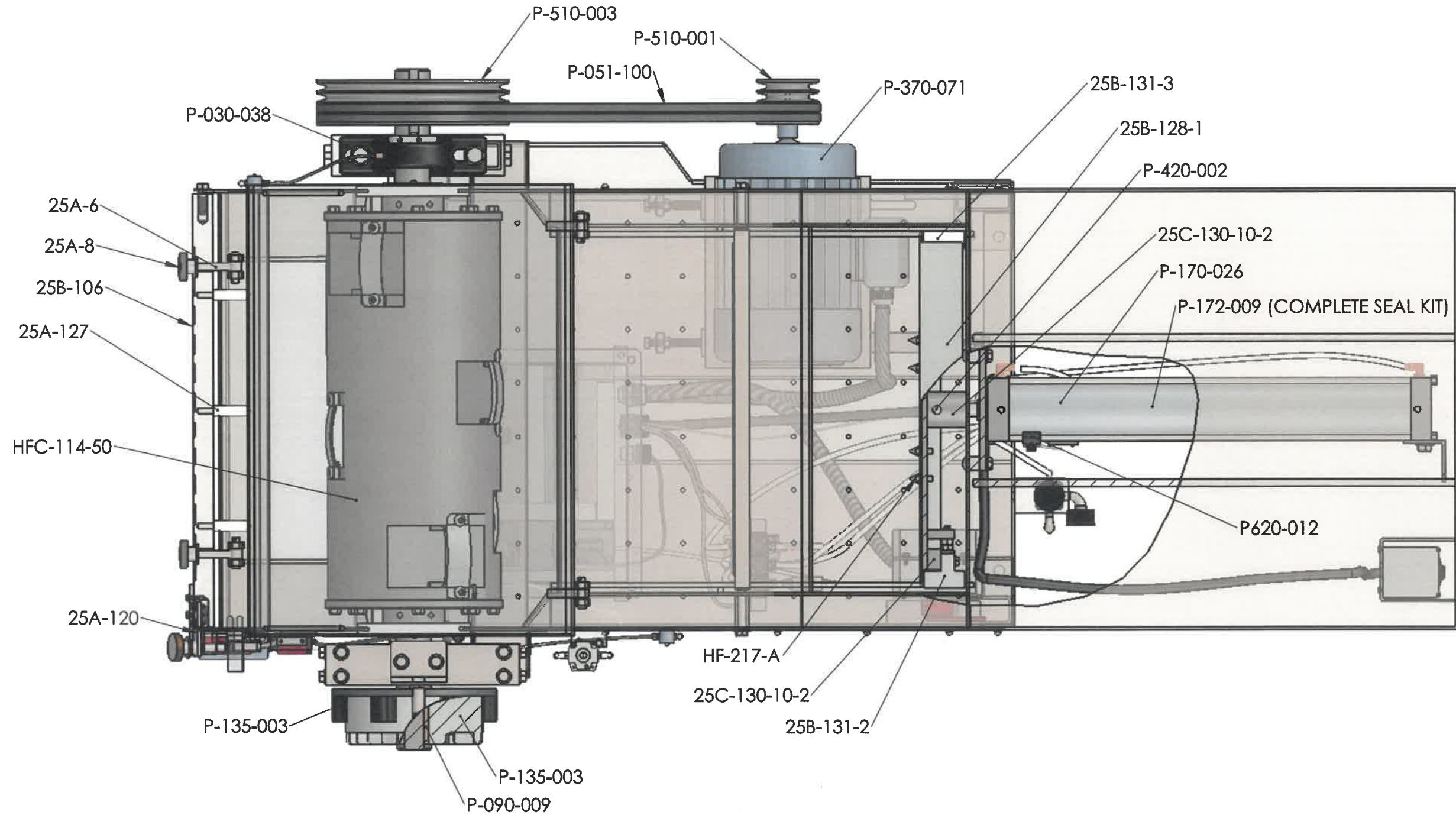
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BRAKE & BELT GUARDS NOT SHOWN FOR CLARITY

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16"$ ANGULAR: MACH $\pm .5$ BEND $\pm 1$ TWO PLACE DECIMAL $\pm .030"$ THREE PLACE DECIMAL $\pm .015"$	REFERENCE PART	 1680 Cornell Road, Green Bay, WI 54313 (920) 458-2189 www.genmac.com	TITLE: <b>2501 Hydraflaker Std.</b>			
	INTERPRET GEOMETRIC TOLERANCING PER:		SIZE <b>B</b>	DWG. NO. <b>2501 PURCHASED PARTS</b>	REV	
<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GENMAC ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GENMAC IS PROHIBITED.	NAME B.VAN	DATE 5-5-20	SCALE: 1:24	MATERIAL SEE DETAILS	WEIGHT:	SHEET 2 OF 7
	DRAWN	CHECKED	ENG APPR.	MFG APPR.	Q.A.	

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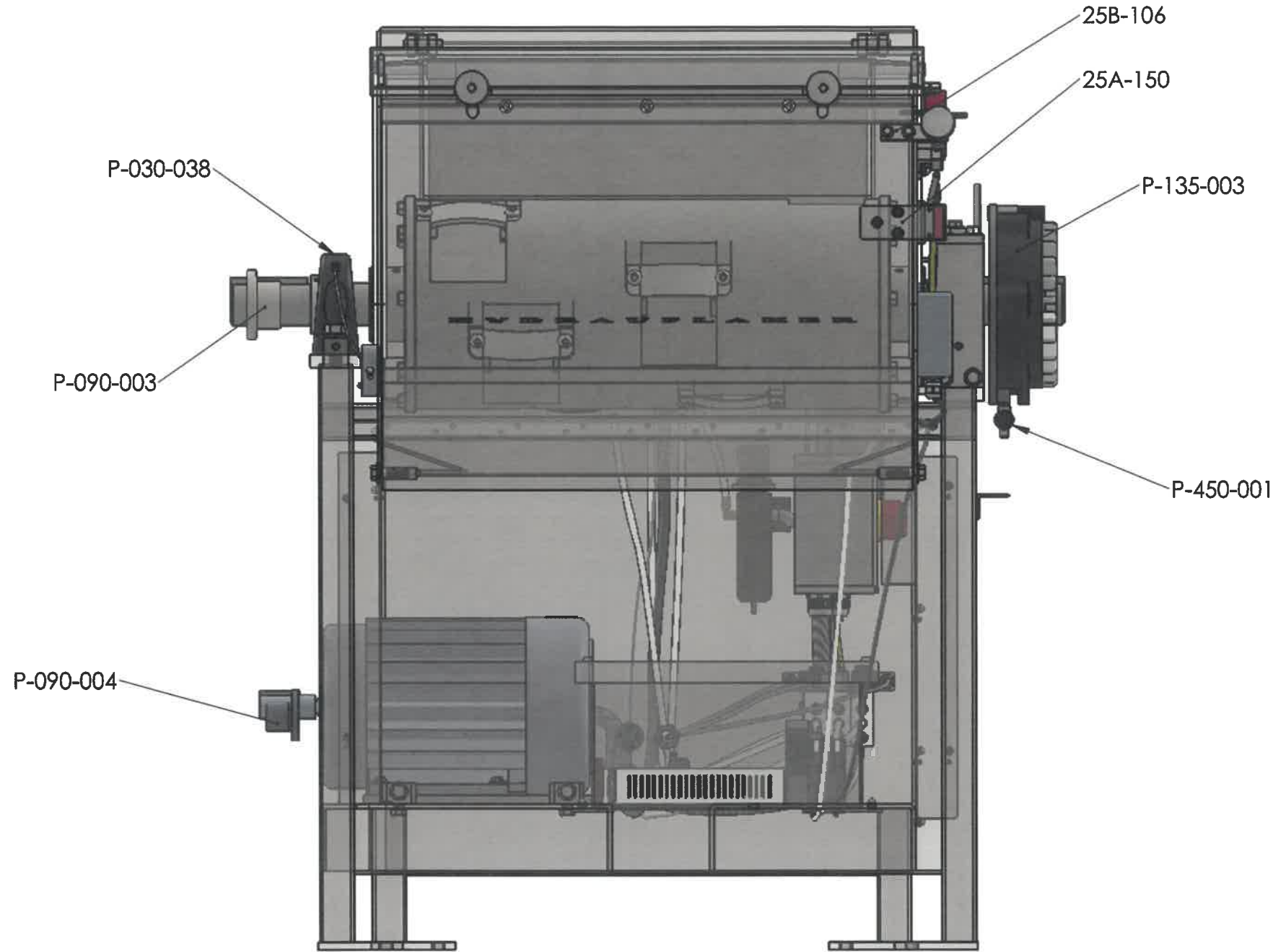
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PULLEYS BELTS AND GUARDS NOT SHOWN FOR CLARITY

UNLESS OTHERWISE SPECIFIED:		REFERENCE PART		 1680 Cornell Road, Green Bay, WI 54313 (920) 458-2189 www.genmac.com			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16"$ ANGULAR: MACH $\pm .5$ BEND $\pm 1$ TWO PLACE DECIMAL $\pm .030"$ THREE PLACE DECIMAL $\pm .015"$		INTERPRET GEOMETRIC TOLERANCING PER:				TITLE: <b>2501 Hydraflaker Std.</b>	
<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GENMAC ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GENMAC IS PROHIBITED.		NAME		SIZE	DWG. NO.	REV	
		B.VAN		<b>B</b>	<b>2501 PURCHASED PARTS</b>		
		DATE		SCALE:	MATERIAL	WEIGHT:	
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		MFG APPR.					SHEET 3 OF 7
Q.A.							

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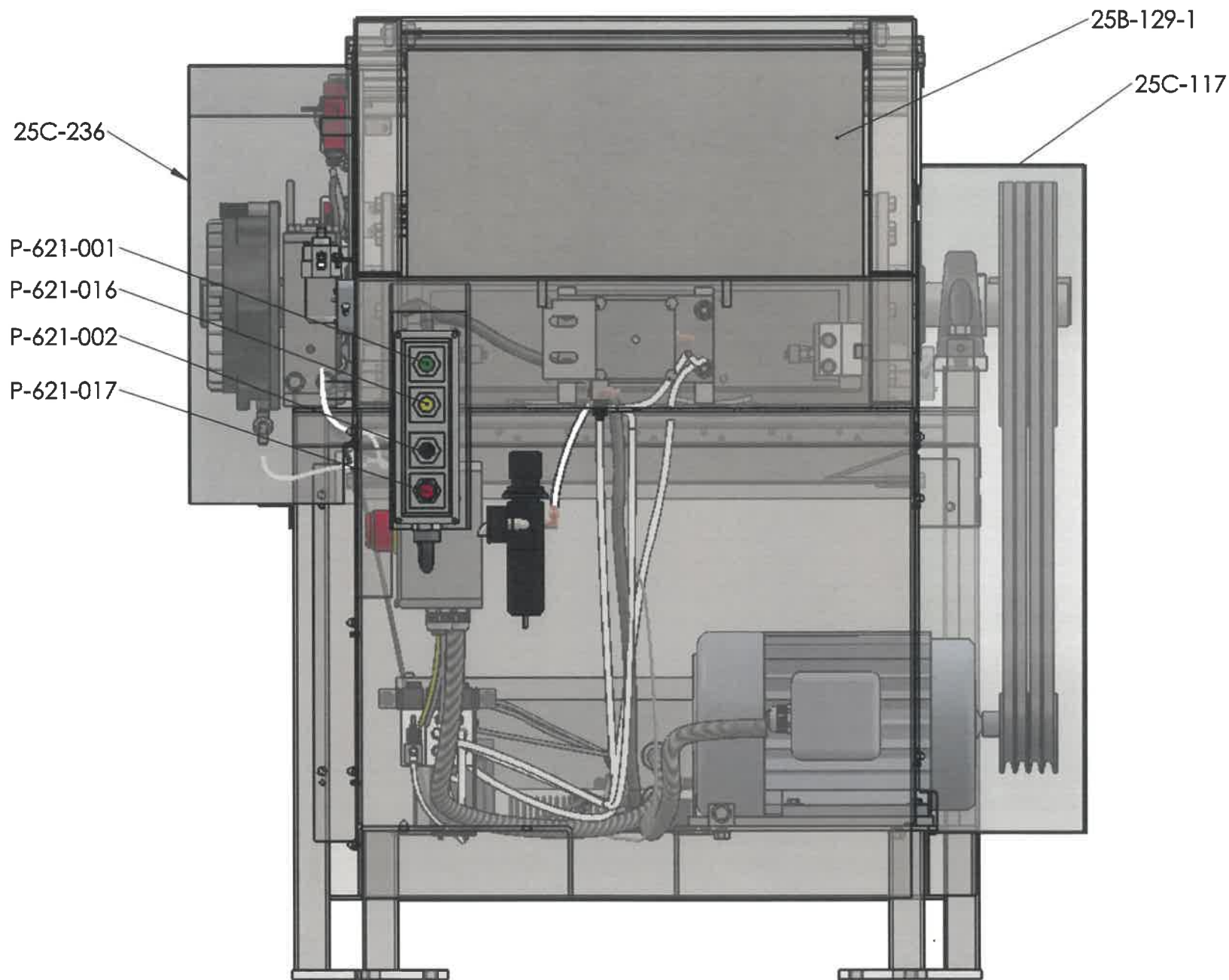
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UNLESS OTHERWISE SPECIFIED:		REFERENCE PART		 1680 Cornell Road, Green Bay, WI 54313 (920) 458-2189 www.genmac.com			
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16"$ ANGULAR: MACH $\pm .5$ BEND $\pm 1$ TWO PLACE DECIMAL $\pm .030"$ THREE PLACE DECIMAL $\pm .015"$		INTERPRET GEOMETRIC TOLERANCING PER:				TITLE: <b>2501 Hydraflaker Std.</b>	
<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GENMAC ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GENMAC IS PROHIBITED.		NAME	DATE	SIZE	DWG. NO.	REV	
		DRAWN	B.VAN	5-5-20	<b>B</b>	<b>2501 PURCHASED PARTS</b>	
		CHECKED					
		ENG APPR.					
		MFG APPR.		SCALE:	MATERIAL	WEIGHT:	
		Q.A.		1:24	SEE DETAILS	SHEET 4 OF 7	

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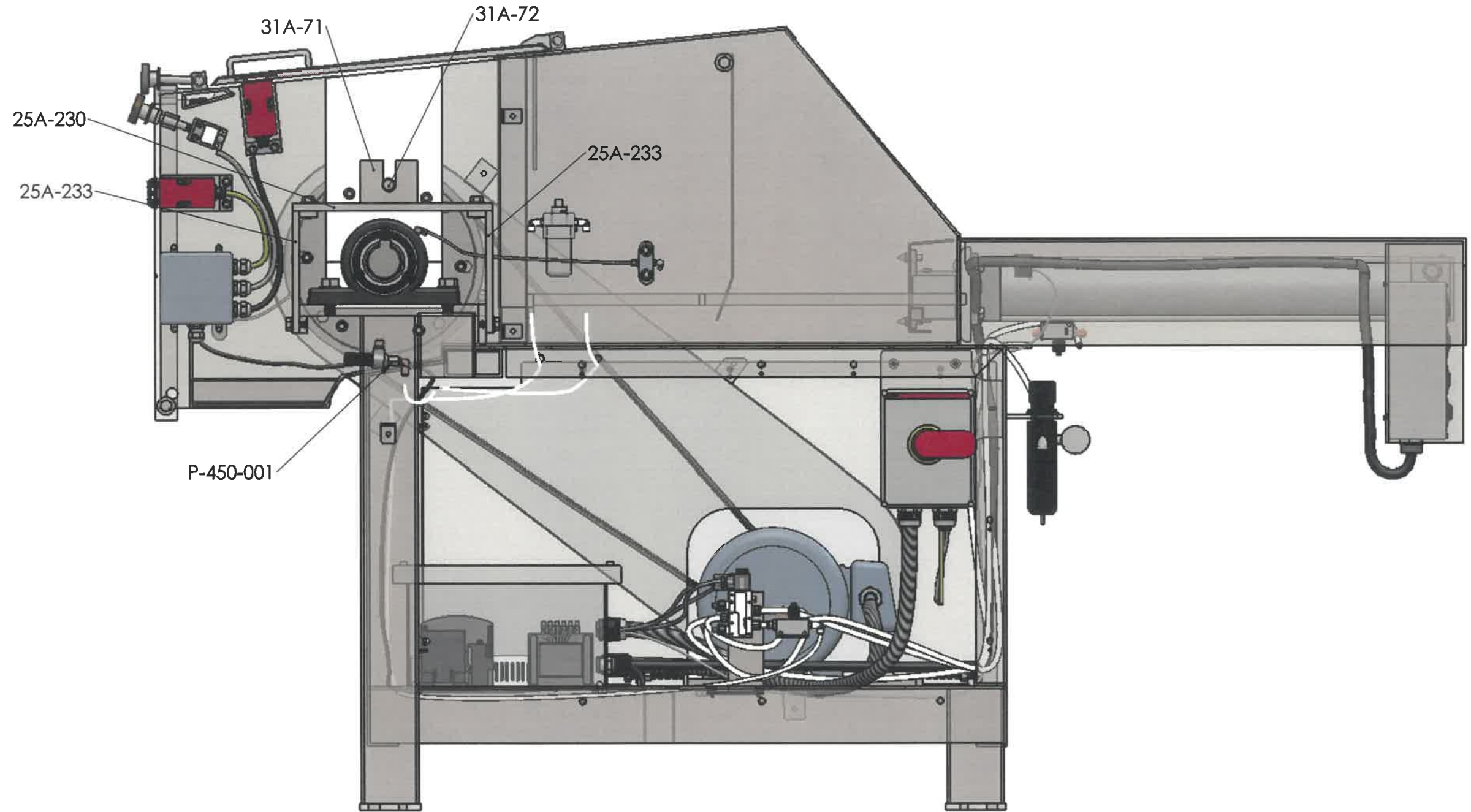
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GUARDS AND PNEUMATIC BRAKE NOT SHOWN FOR CLARITY

UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16"$ ANGULAR: MACH $\pm .5$ BEND $\pm 1$ TWO PLACE DECIMAL $\pm .030"$ THREE PLACE DECIMAL $\pm .015"$	REFERENCE PART		 1680 Cornell Road, Green Bay, WI 54313 (920) 458-2189 www.genmac.com	TITLE:  2501 Hydraflaker Std.			
	INTERPRET GEOMETRIC TOLERANCING PER:			SIZE <b>B</b>	DWG. NO. <b>2501 PURCHASED PARTS</b>	REV	
<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GENMAC ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GENMAC IS PROHIBITED.	DRAWN	NAME B.VAN	DATE 5-5-20	SCALE: 1:24	MATERIAL SEE DETAILS	WEIGHT:	SHEET 5 OF 7
	CHECKED						
	ENG APPR.						
	MFG APPR.						
	Q.A.						

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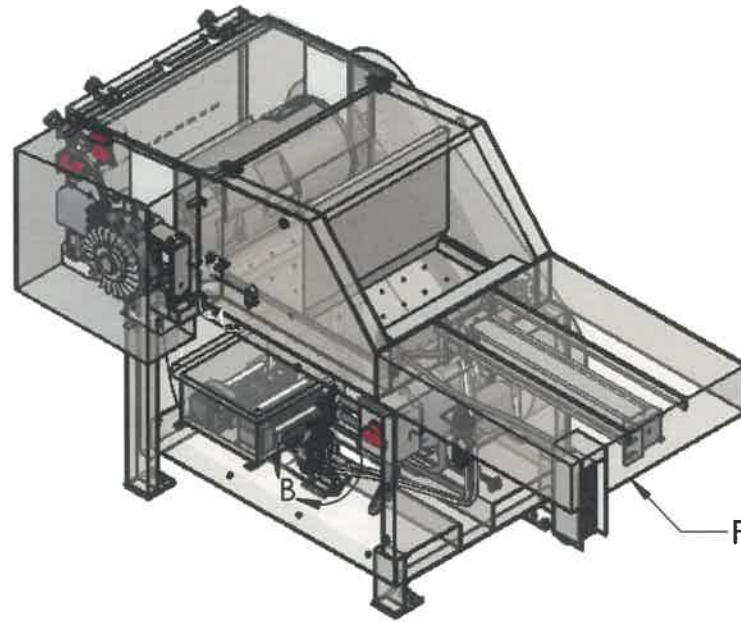
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1

BACK OF MACHINE



FRONT OF MACHINE

BACK OF MACHINE

DETAIL B  
SCALE 1 : 2

BRAKE

CYLINDER

MAIN

P-200-031

P-380-008

P-690-034

P-691-008

25B-142


FRONT OF MACHINE

B

B

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UNLESS OTHERWISE SPECIFIED:  DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16"$ ANGULAR: MACH $\pm .5$ BEND $\pm 1$ TWO PLACE DECIMAL $\pm .030"$ THREE PLACE DECIMAL $\pm .015"$	REFERENCE PART		 1680 Cornell Road, Green Bay, WI 54313 (920) 458-2189 www.genmac.com		TITLE:  2501 Hydraflaker Std.		
	INTERPRET GEOMETRIC TOLERANCING PER:					SIZE: <b>B</b>	DWG. NO. <b>2501 PURCHASED PARTS</b>
<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GENMAC ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GENMAC IS PROHIBITED.	DRAWN	NAME B.VAN	DATE 5-5-20	SCALE: 1:24	MATERIAL SEE DETAILS	WEIGHT:	SHEET 6 OF 7
	CHECKED						
	ENG APPR.						
	MFG APPR.						
	Q.A.						

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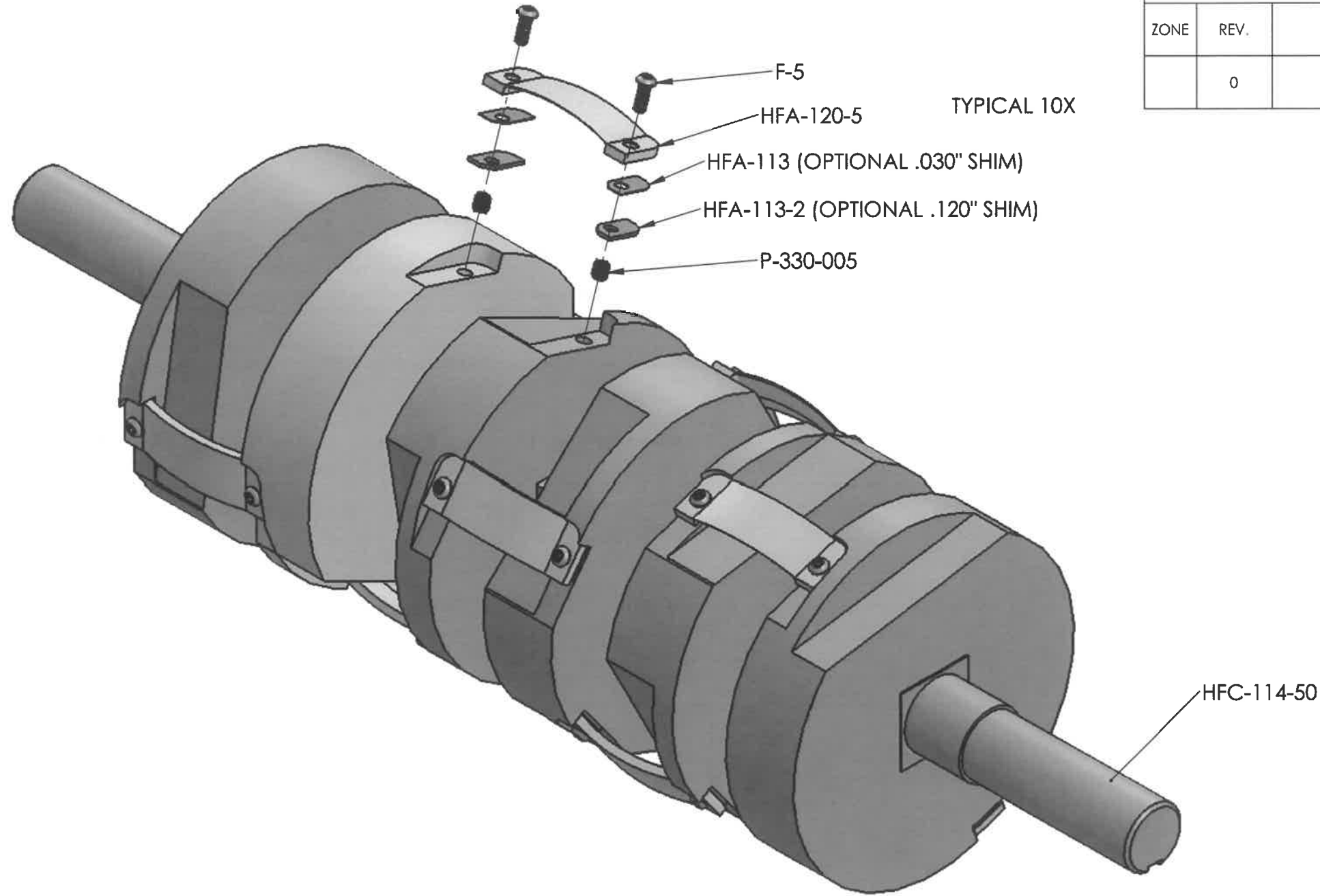
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	0	INITIAL RELEASE	5/6/2020	B.VAN



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/16"$ ANGULAR: MACH $\pm .5$ BEND $\pm 1$ TWO PLACE DECIMAL $\pm .030"$ THREE PLACE DECIMAL $\pm .015"$	REFERENCE PART		 1680 Cornell Road, Green Bay, WI 54313 (920) 458-2189 www.genmac.com		
	INTERPRET GEOMETRIC TOLERANCING PER:				TITLE: FLOW THRU DRUM
<b>PROPRIETARY AND CONFIDENTIAL</b> THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GENMAC ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GENMAC IS PROHIBITED.	NAME	DATE	SIZE	DWG. NO.	REV
	DRAWN		<b>B</b>	2501 PURCHASED PARTS	
	CHECKED		SCALE: 1:8	MATERIAL VARIOUS S.S.	WEIGHT:
	ENG APPR.				SHEET 7 OF 7
	MFG APPR.				
Q.A.					

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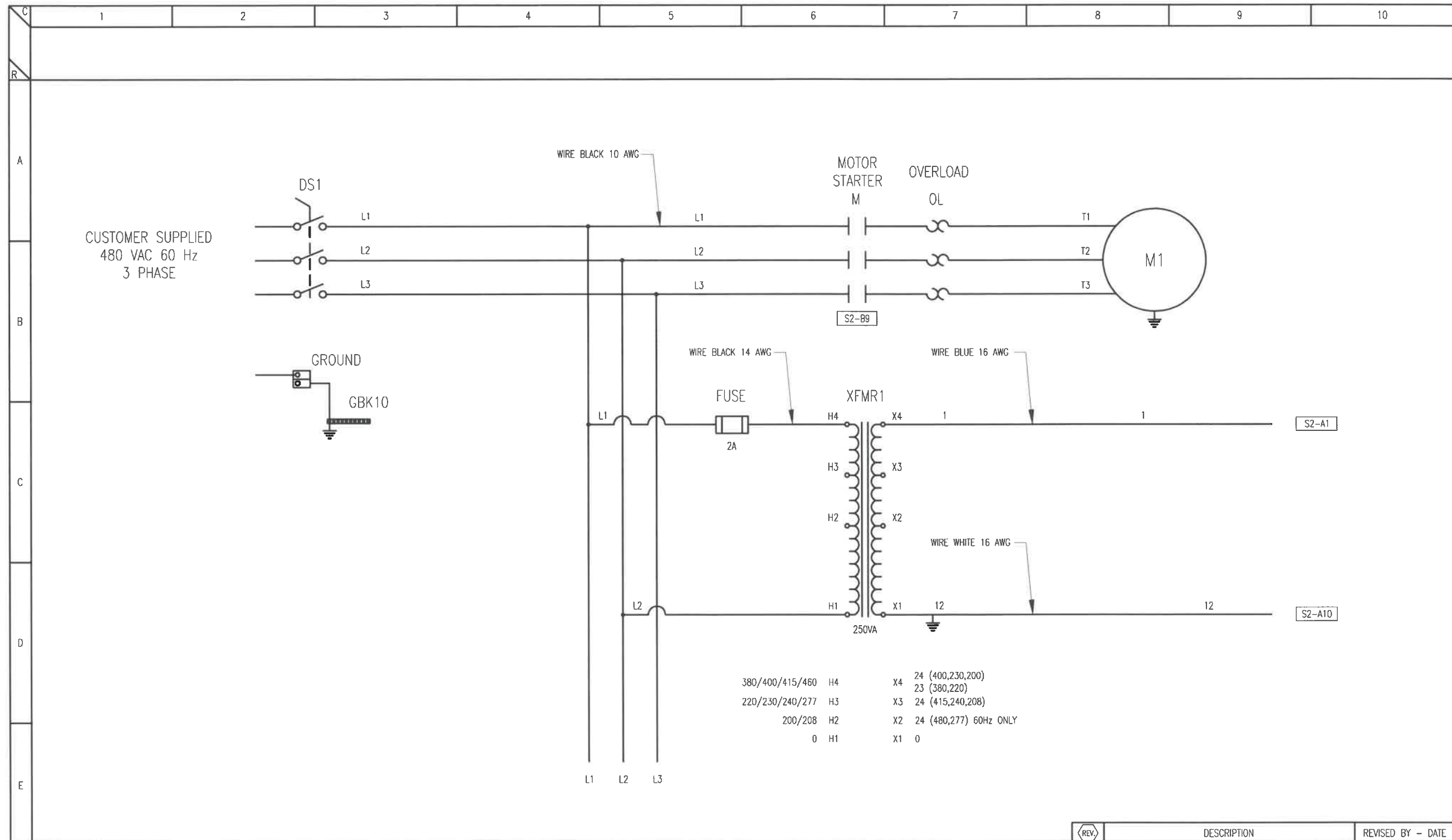
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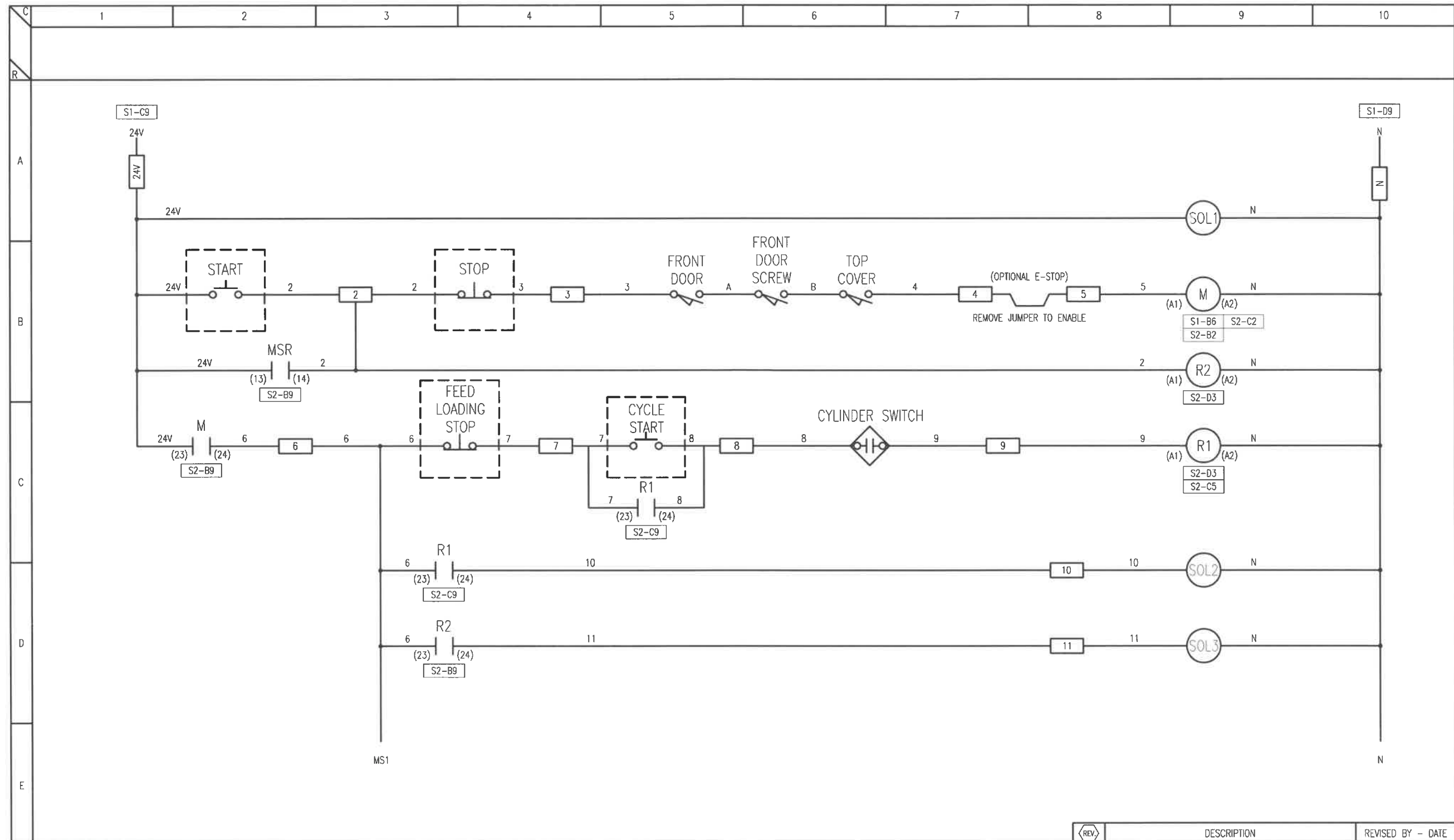
1680 CORNELL RD.  
GREEN BAY, WI 54313  
(920) 458-2189  
WWW.GENMAC.COM

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DRAWN BY	JSP	02/13/20
CHECKED BY	JSP	02/13/20
APPROVED BY	JSP	02/13/20

DESCRIPTION	INPUT POWER	REVISED BY - DATE
PROJECT NO.	FLAKER 2501	SIZE B SHEET 1 OF 3 REV. 0





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DRAWN BY	JSP	02/19/20
CHECKED BY	JSP	02/19/20
APPROVED BY	JSP	02/19/20

CIRCUIT DESCRIPTION

CONTROL CIRCUIT

PROJECT NO.

FLAKER 2501

SIZE B

SHEET

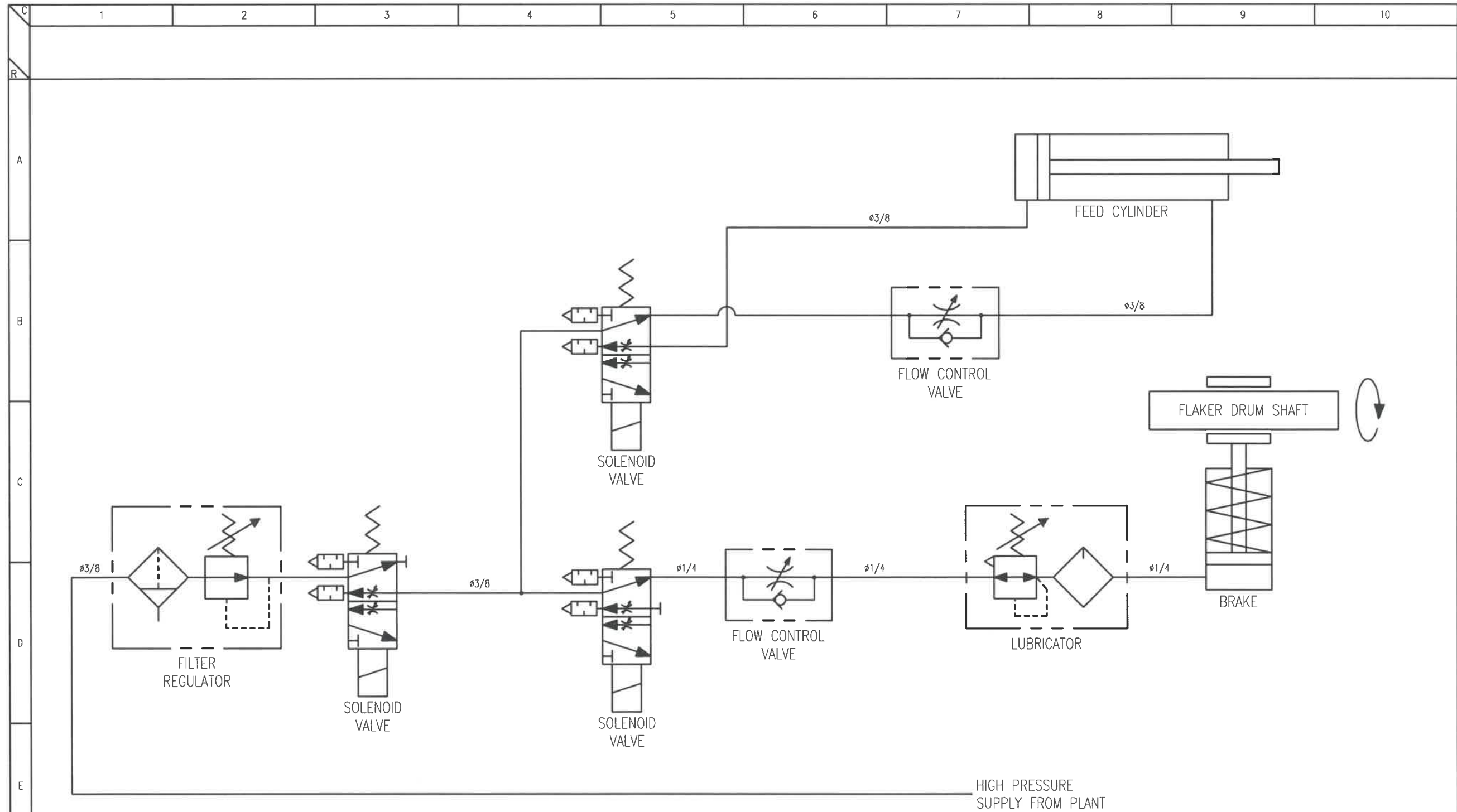
2 OF 3

REV. 0

REV

DESCRIPTION

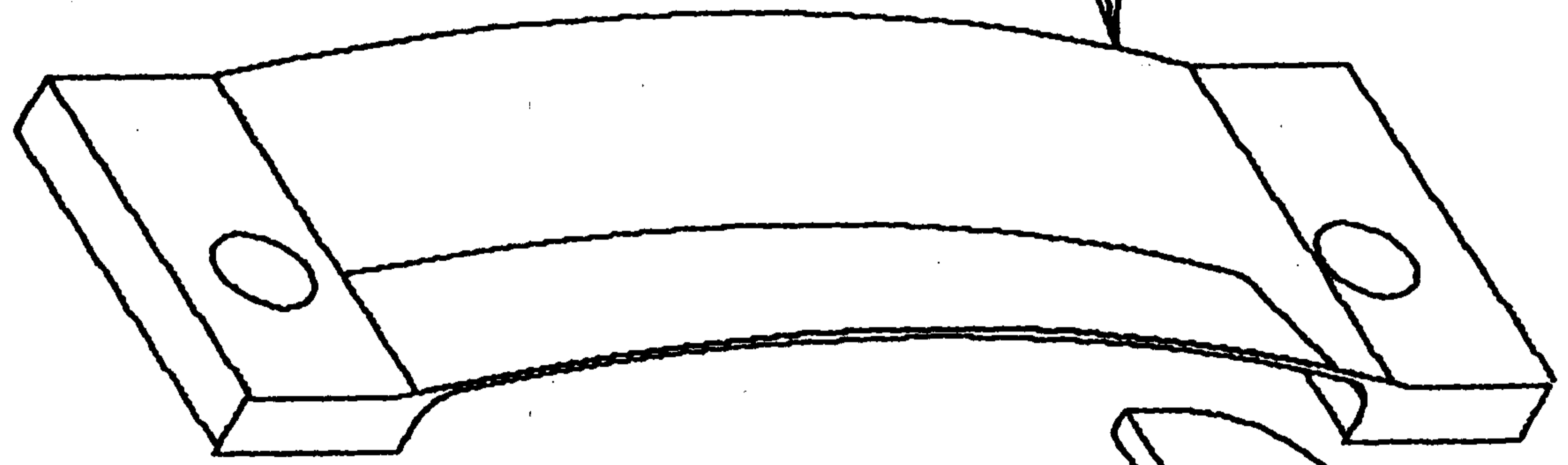
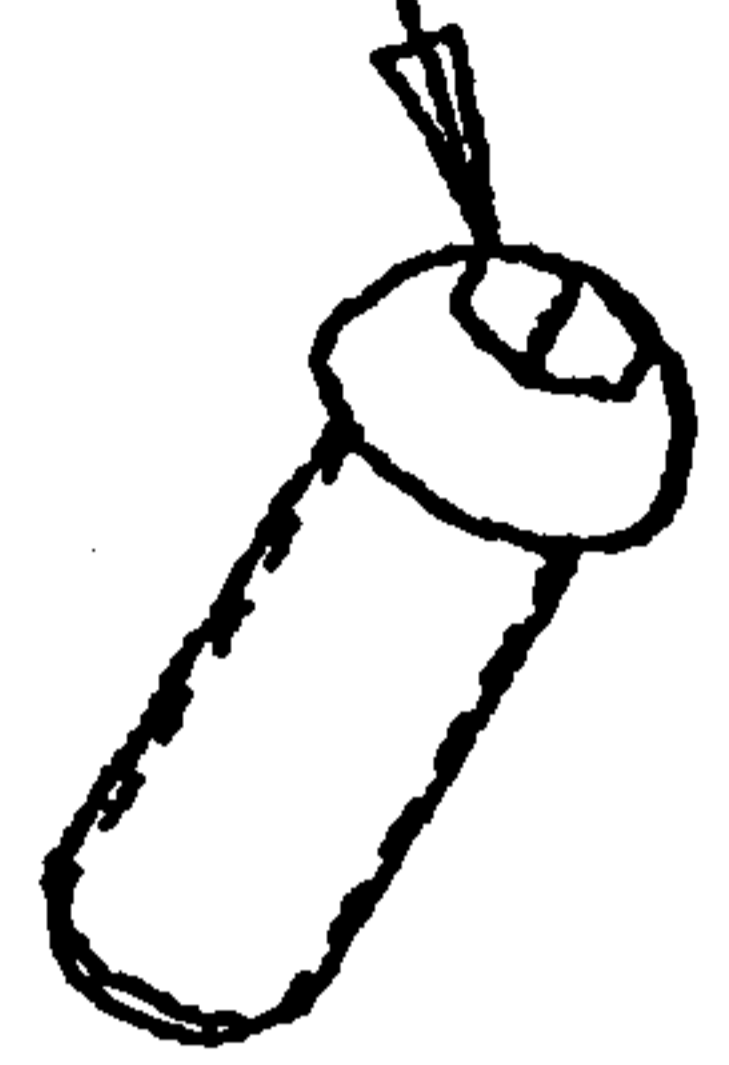
REVISED BY - DATE



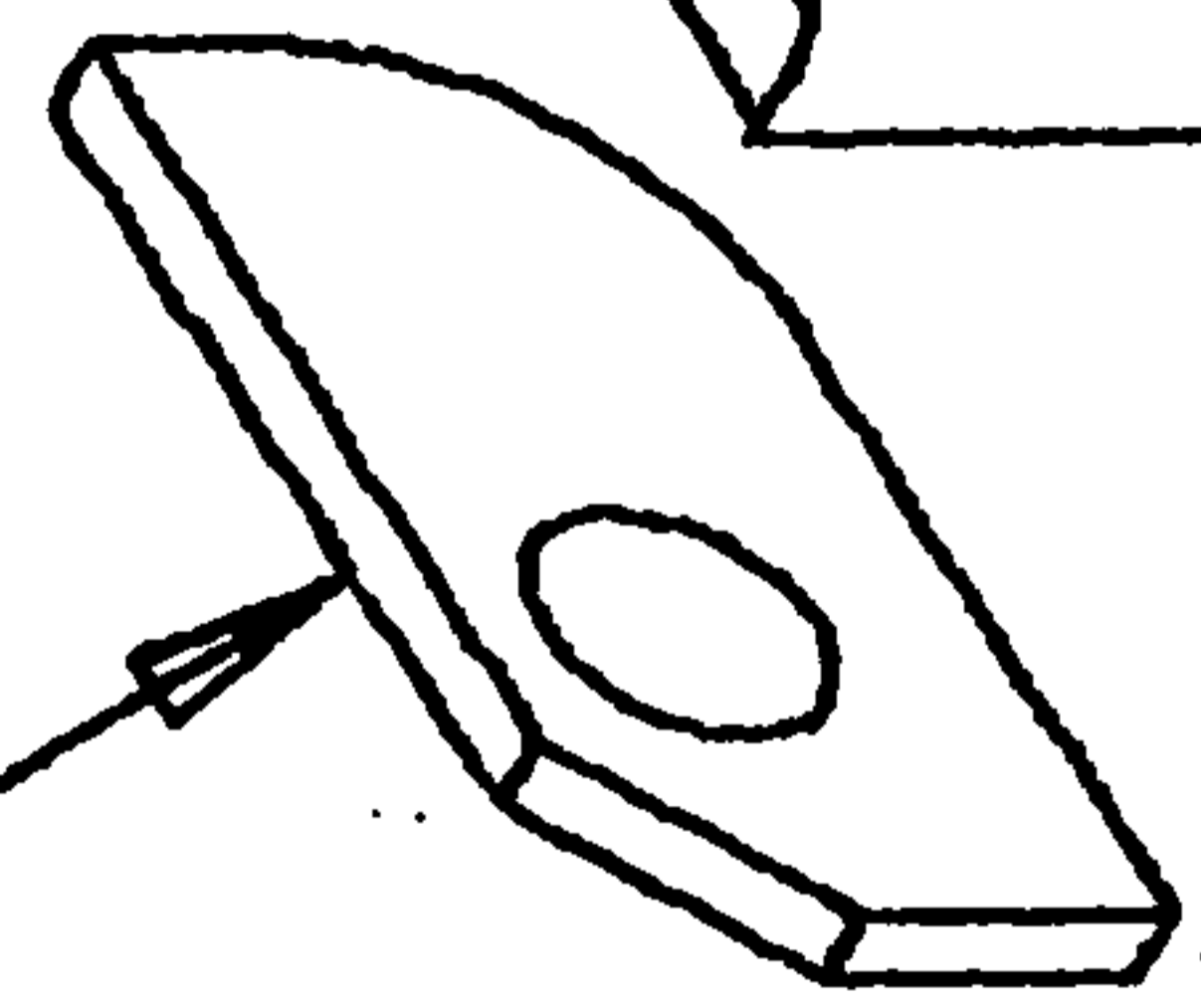
		1680 CORNELL RD. GREEN BAY, WI 54313 (920) 458-2189 WWW.GENMAC.COM		THIS DRAWING IS THE PROPERTY OF GENERAL MACHINE, GREEN BAY, WISCONSIN AND IS PROPRIETARY AND CONFIDENTIAL. AND MUST NOT BE DUPLICATED, USED, DIVULGED, REPRODUCED, COPIED, DISCLOSED OR APPROPRIATED IN WHOLE OR IN PART FOR ANY PURPOSE UNLESS EXPRESSLY AUTHORIZED BY GENERAL MACHINE. THIS SHEET MUST BE RETURNED PROMPTLY UPON REQUEST.		DRAWN BY JSP 02/19/20	PROJECT NO. FLAKER 2501	SIZE B	SHEET 3 OF 3	REV. 0
						CHECKED BY JSP 02/19/20	PROJECT NO. FLAKER 2501	SIZE B	SHEET 3 OF 3	REV. 0
HIGH PRESSURE SUPPLY FROM PLANT						APPROVED BY JSP 02/19/20	CIRCUIT DESCRIPTION PNEUMATIC LAYOUT	REVISIONS (REV)	DESCRIPTION	REVISED BY - DATE

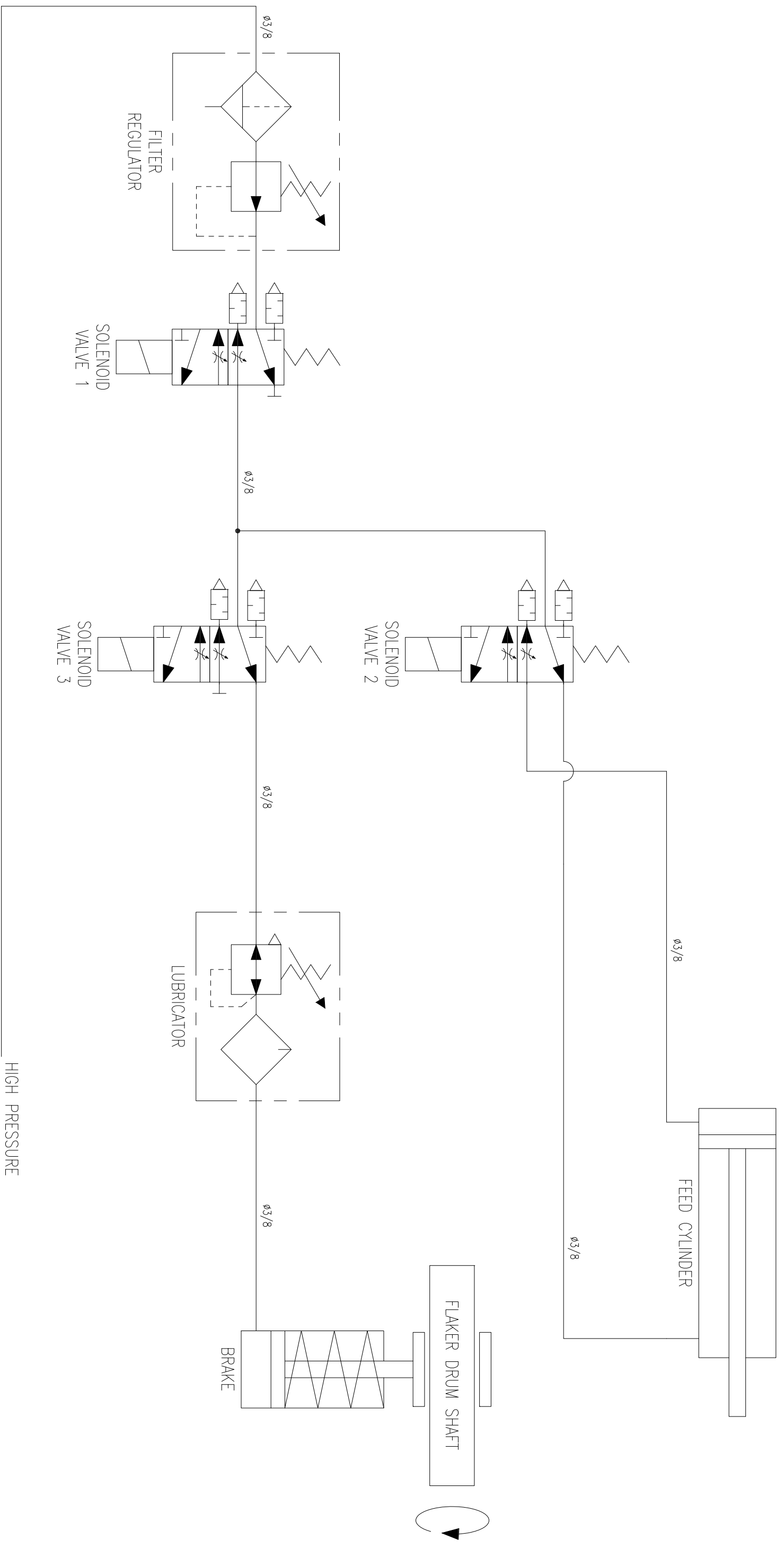
F-5 (SCREW)

HFA-120-5 (BLADE)




HFA-113 (SHIM)





HIGH PRESSURE  
SUPPLY FROM PLANT

		1680 CORNELL RD. GREEN BAY, WI 54313 (920) 458-2189 WWW.GENMAC.COM		THIS DRAWING IS THE PROPERTY OF GENERAL MACHINE, GREEN BAY, WISCONSIN AND IS PROPRIETARY AND CONFIDENTIAL, AND MUST NOT BE DUPLICATED, USED, DIVULGED, REPRODUCED, COPIED, DISCLOSED OR APPROPRIATED IN WHOLE OR IN PART FOR ANY PURPOSE UNLESS EXPRESSLY AUTHORIZED BY GENERAL MACHINE. THIS SHEET MUST BE RETURNED PROMPTLY UPON REQUEST.	
DRAWN BY	JSP	06/09/20	CIRCUIT DESCRIPTION	PNEUMATIC LAYOUT	
CHECKED BY	JSP	06/09/20	PROJECT NO.	HYDRAUFLAKER 2501	
APPROVED BY	JSP	06/09/20	DESCRIPTION	REVISED BY -	DATE
SIZE	B	SHEET	3 OF 3	REV.	0



## **Straight Bore Brake**




Models S-450, S-600, S800, S-1000,  
S-1200, S-1400, S-450A, S-600A,  
S-800A, and S-1000A



In accordance with Nexen's established policy of constant product improvement, the specifications contained in this manual are subject to change without notice. Technical data listed in this manual are based on the latest information available at the time of printing and are also subject to change without notice.

Technical Support: 800-843-7445  
(651) 484-5900

www.nexengroup.com

	<p style="text-align: center;"> <b>DANGER</b></p> <p>Read this manual carefully before installation and operation. Follow Nexen's instructions and integrate this unit into your system with care. This unit should be installed, operated and maintained by qualified personnel <b>ONLY</b>. Improper installation can damage your system, cause injury or death. Comply with all applicable codes.</p>	
---	---	---

This document is the original, non-translated, version.

Conformity Declaration: In accordance with Appendix II B of CE Machinery Directive (2006/42/EC):

A Declaration of Incorporation of Partly Completed Machinery evaluation for the applicable EU directives was carried out for this product in accordance with the Machinery Directive. The declaration of incorporation is set out in writing in a separate document and can be requested if required.

This machinery is incomplete and must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the applicable provisions of the Directive.

Nexen Group, Inc.  
560 Oak Grove Parkway  
Vadnais Heights, Minnesota 55127

**ISO 9001 Certified**


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## GENERAL SPECIFICATIONS


Specifications	
Torque	Up to 1130 Nm (10000 in-lbs)
Actuation Pressure	1 - 5.5 bar (14.5 - 80 psi)
Service Temperature	4.5 - 104 C (40 - 220 F)
Approximate Weight	Up to 50 kg (110 lbs)

## GENERAL SAFETY PRECAUTIONS




**CAUTION**

Some product assemblies can exceed 110 lbs. Use lifting aids and proper lifting techniques when installing, removing, or placing in service.




**CAUTION**

Use appropriate guarding for moving components. Failure to guard could result in serious bodily injury.




**CAUTION**

Watch for sharp features when installing and servicing this product. The parts have complex shapes and machined edges.




**CAUTION**

This product has possible pinch points. Care should be taken when interacting with this product.



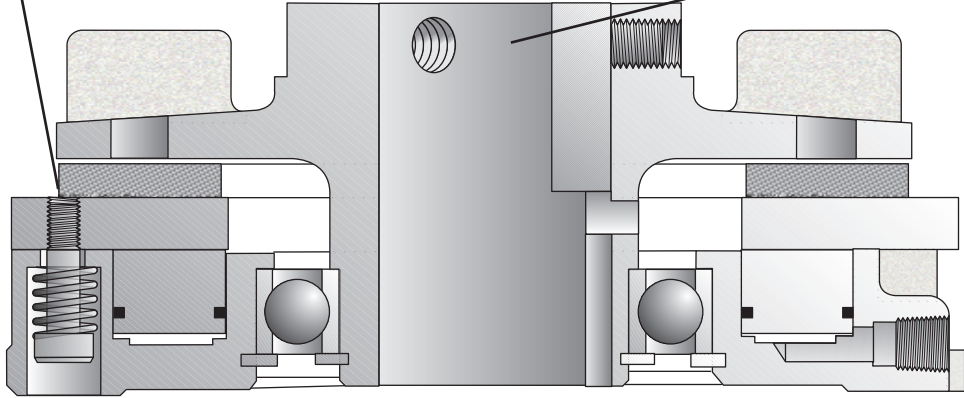
**WARNING**

Ensure proper guarding of the product is used. Nexen recommends the machine builder design guarding in compliance with OSHA 29 CFR 1910 "Occupational Safety and Health Hazards".



**WARNING**

This product is capable of emitting a spark if misused. Therefore it is not recommended for use in any explosive environment.



**CAUTION**

The temperature limits for this product line are 4.5-100 Degree Celsius (40-220 Degree F).

**CAUTION**

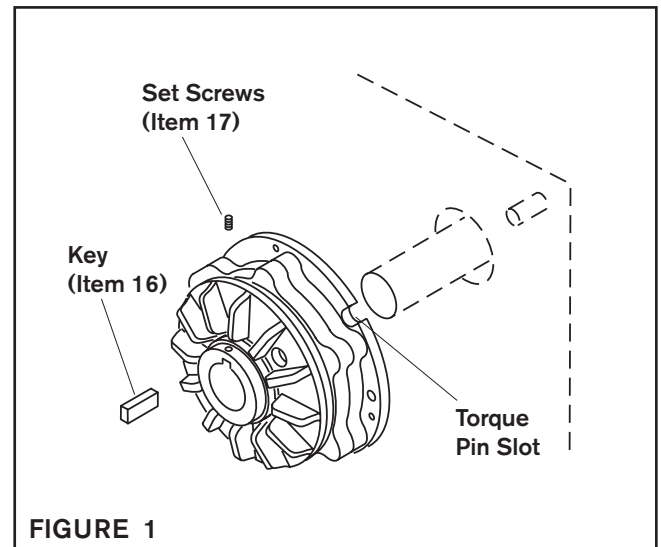
Use appropriate guarding for moving components. Failure to guard could result in serious bodily injury.



## INSTALLATION


**NOTE:** Refer to Figure 1.

1. Insert the Key (Item 16) into the shaft keyway.
2. Slide the brake over the Key and on the shaft.
3. Install and tighten the three Set Screws (Item 17).
4. Align the brake's air inlet to the six o'clock down position.
5. Using the four holes in the Air Chamber flange or a torque pin in the slot provided, secure the brake's Air Chamber (Item 4) to prevent brake rotation.

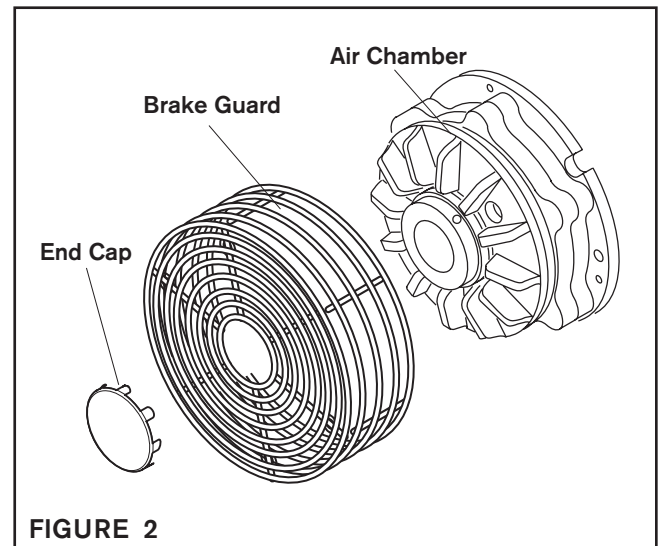


## BRAKE GUARD INSTALLATION

**NOTE:** Refer to Figure 2.

	<p><b>WARNING</b></p> <p>Ensure proper guarding of the product is used. Nexen recommends the machine builder design guarding in compliance with OSHA 29 CFR 1910 "Occupational Safety and Health Hazards".</p>
--	--

1. Align the mounting holes of the Brake Guard with the four tapped holes in the S-brake Air Chamber.
2. If the Brake Guard is shipped with an End Cap, place the End Cap over the front of the Brake Guard and bend the tabs around the Brake Guard to hold the End Cap in place.
3. Using the four Phillips Head Pan Screws, secure the Brake Guard to the Brake. Tighten to 35 in-lbs [4 Nm].
4. If additional clearance is required (S-1200/1400), secure standoffs to air chamber before tightening fastening screws.



## LUBRICATION

### NOTE

Note: Nexen pneumatically actuated devices require clean, pressure regulated air for maximum performance and life. All seals in Nexen pneumatically operated devices are lubricated for life, and do not require additional lubrication.


However, some customers prefer to use an air line lubricator, which injects oil into the pressurized air, forcing an oil mist into the air chamber. This is acceptable, but care must be taken to ensure once an air mist lubrication system is used, it is continually used over the life of the product as the oil mist may wash free the factory installed lubrication.

Locate the lubricator above and within ten feet of the product, and use low viscosity oil such as SAE-10.

Synthetic lubricants are not recommended.

Nexen product's bearings are shielded and pre-lubricated, and require no further lubrication.

## LUBRICATOR DRIP RATE SETTINGS

	<b>CAUTION</b>
These settings are for Nexen supplied lubricators. If you are not using a Nexen lubricator, calibration must follow the manufacturer's suggested procedure.	

1. Close and disconnect the air line from the unit.
2. Turn the Lubricator Adjustment Knob counterclockwise three complete turns.
3. Open the air line.


4. Close the air line to the unit when a drop of oil forms in the Lubricator Sight Gage.
5. Connect the air line to the unit.
6. Turn the Lubricator Adjustment Knob clockwise until closed.
7. Turn the Lubricator Adjustment Knob counterclockwise one-third turn.
8. Open the air line to the unit.

## AIR CONNECTIONS

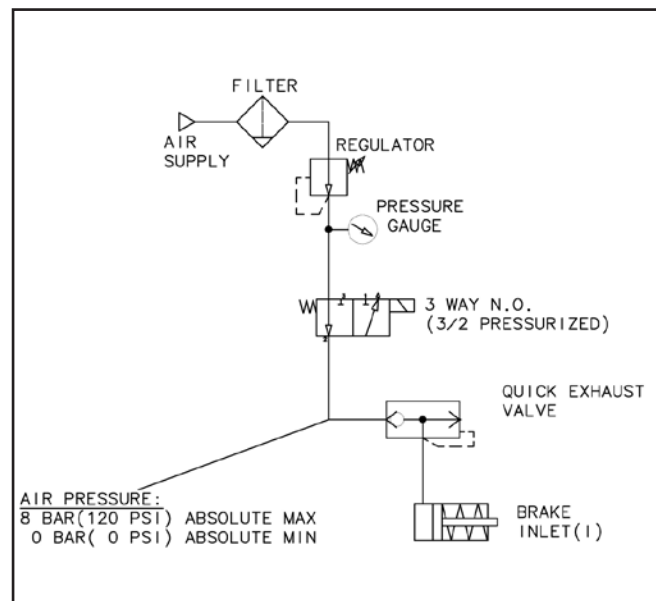
All Nexen pneumatically actuated devices require clean and dry air, which meet or exceeds ISO 8573.1:2001 Class 4.4.3 quality.

### Note

For quick response, Nexen recommends a quick exhaust valve and short air lines between the Control Valves and the unit. Align the air inlet ports to a down position to allow condensation to drain out of the air chambers of the product.

	<b>CAUTION</b>
Low air pressure will cause slippage and overheating. Excessive air pressure will cause abrupt starts and stops, reducing product life.	

The following is a common air supplied scheme used with this product. This is an example and not an all-inclusive list. All air circuits to be used with this product must be designed following EN983 guidelines.



## AUXILIARY COOLING AIR CONNECTIONS

**NOTE:** The auxiliary cooling option is not a standard feature. It is a passage through which compressed air can flow for increased thermal capacity. If you desire this feature or are replacing a brake that has this feature please contact Nexen at 800-843-7445.

**NOTE:** Do not use rigid pipe or tubing when making air line connections.

A 10-32 tapped hole in the piston plate allows auxiliary cooling of the brake's friction surface (see Figure 3). Auxiliary cooling increases the brake's thermal capacity approximately 0.1 HP<sub>t</sub> per 100 SCFH of cooling air over the brake's rated thermal horsepower at any RPM (see Table 1).

**EXAMPLE:** A S-1000 develops 1.0 HP<sub>t</sub> at 200 RPM. Referring to Table 1, 80 psi of cooling air increases the HP<sub>t</sub> 0.4 (400 SCFH/100 x 0.1). **RESULT:** Total HP<sub>t</sub> is 1.0+0.4=1.4 HP<sub>t</sub>.

**NOTE:** Use non-lubricated air tapped off the air line ahead of the lubricator.

Hose assembly part number is 857000.

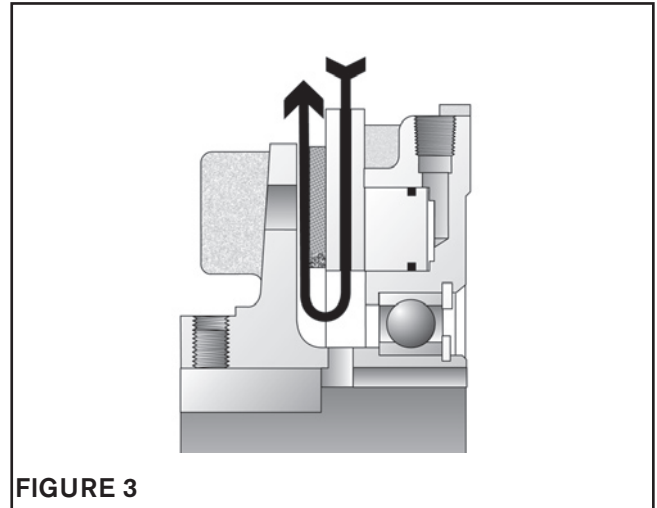


FIGURE 3

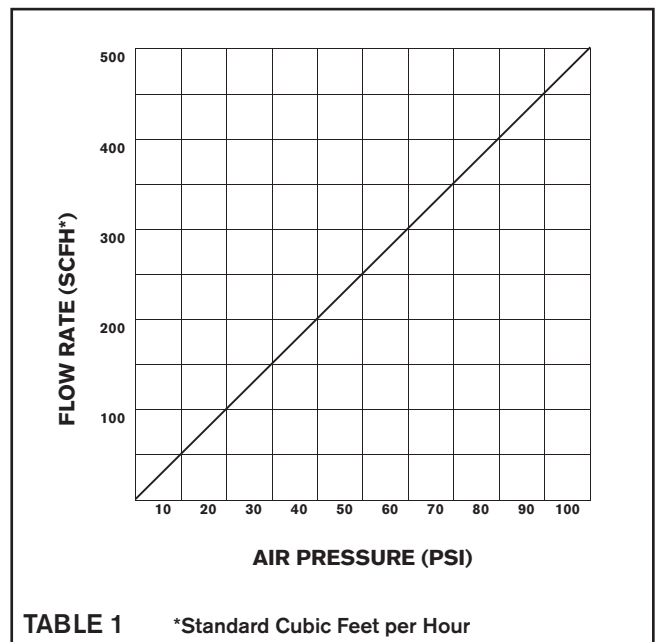


TABLE 1 \*Standard Cubic Feet per Hour

## OPERATION

	<b>WARNING</b>
	Never exceed maximum operating speeds listed for your product. (See Table 2).

	<b>CAUTION</b>
	Never exceed life of facing material. Facing life depends on the volume of material and the total energy over the life of the unit. Expected life (in hrs) can be found by: Time=Volume/(Power*Wear Rate).

	<b>WARNING</b>
	Ensure proper guarding of the product is used. Nexen recommends the machine builder design guarding in compliance with OSHA 29 CFR 1910 "Occupational Safety and Health Hazards".

	<b>CAUTION</b>
	The temperature limits for this product line are 4.5-100 Degree Celsius (40-220 Degree F).

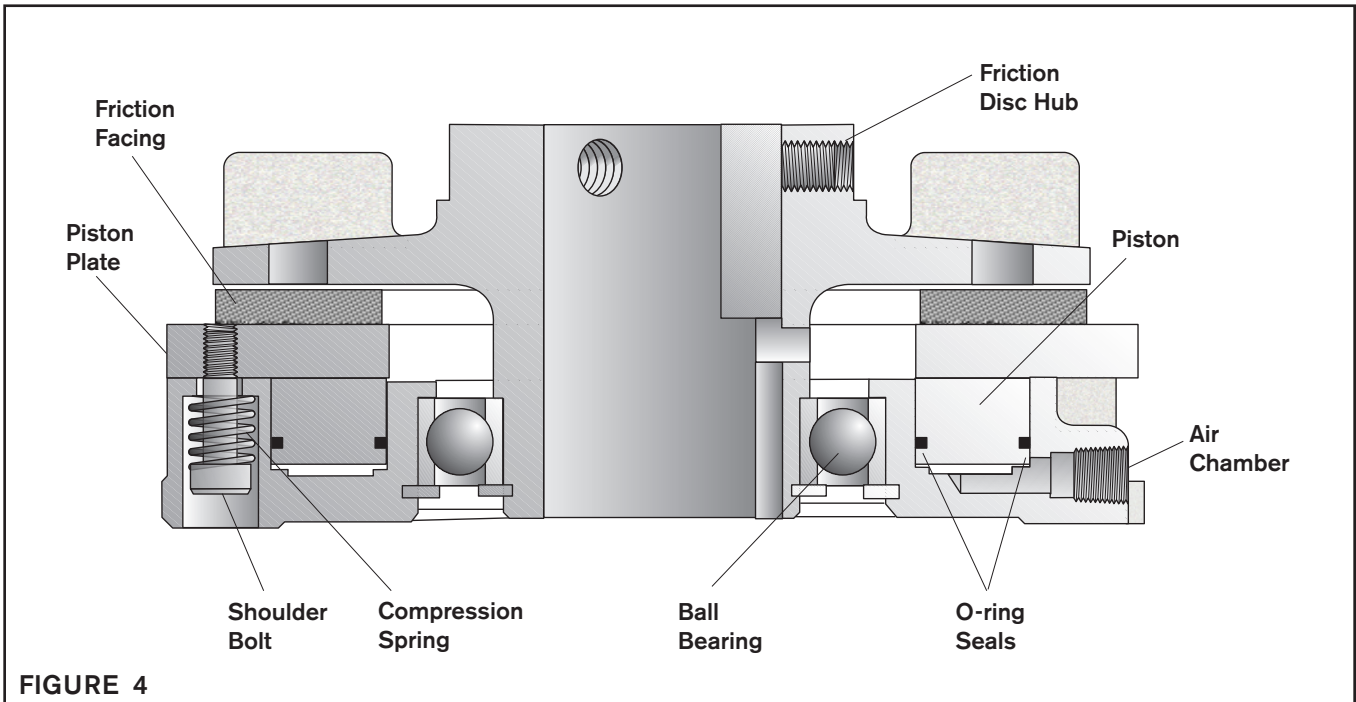
TABLE 2

Size	Max RPM
S-450 - S-1400	1800*
S-450A	4,500
S-600A	4,000
S-800A	3,500
S-1000A	3,000

\*Consult Nexen for high speed applications.

## TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
<b>Failure to engage</b>	Air not being exhausted due to a control valve malfunction	Replace the control valve.
	Internal contamination or corrosion	Align the exhaust port to the six o'clock down position to allow condensation to drain out of the exhaust port.
<b>Failure to disengage</b>	Broken Compression Springs	Replace the Compression Springs.
	Low or lack of air pressure	Check for control valve malfunction and replace it if necessary.
		Check for air leaks in the air lines and around the O-rings Seals. Replace the air lines or O-ring Seals if necessary.
Internal contamination or corrosion	Align the exhaust port to the six o'clock down position to allow condensation to drain out of the exhaust port.	
<b>Loss of torque</b>	Worn or dirty Friction Facings	Replace the Friction Facings.



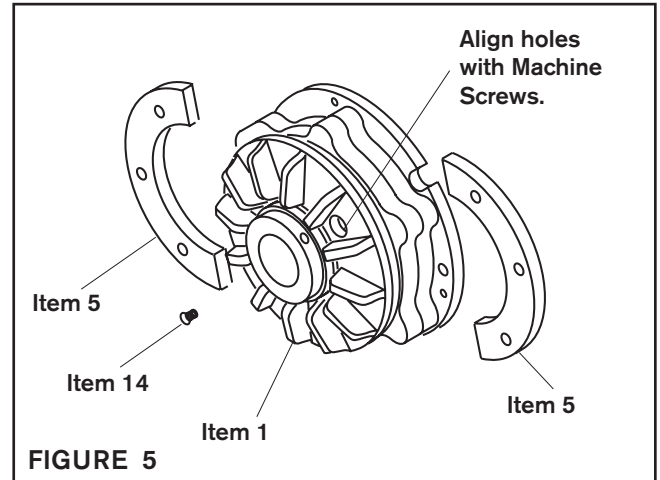
**FIGURE 4**

## PARTS REPLACEMENT

### FRICITION FACINGS

**NOTE: Refer to Figure 5.**

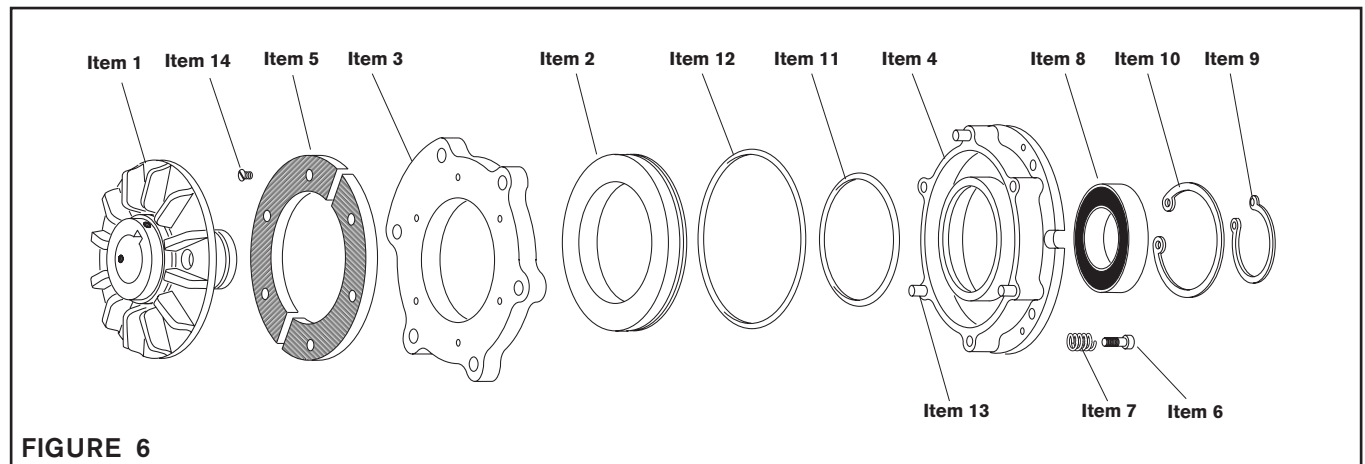
1. Align the holes in the Friction Disc Hub (Item 1) with the Machine Screws (Item 14) holding the split Friction Facing (Item 5).
2. Remove the old Machine Screws (Item 14).
3. Remove the old split Friction Facings (Item 5).
4. Install the new split Friction Facings (Item 5).
5. Secure the new split Friction Facings (Item 5) using the new Machine Screws with locking patch (Item 14).
6. Tighten the new Machine Screws to the recommended torque (See Table 3).



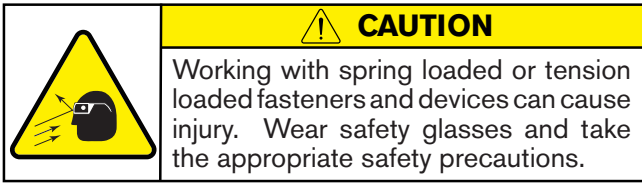
**TABLE 3**

Model	Tightening Torques
S-450	19 in-lb [2.1 Nm]
S-450A	
S-600	
S-600A	60 in-lb [6.8 Nm]
S-800	
S-800A	
S-1000	
S-1000A	72 in-lb [8.1 Nm]
S-1200	
S-1400	

### BEARING AND O-RING SEALS



See next page.



**NOTE: Refer to Figure 6.**

1. Remove the Retaining Ring (Item 9).
2. Press the Friction Disc Hub (Item 1) out of the Ball Bearing (Item 8).
3. Remove the Retaining Ring (Item 10).
4. Press the old Ball Bearing (Item 8) out of the Air Chamber (Item 4).
5. Alternately and evenly remove the three old Shoulder Bolts (Item 6) and Compression Springs (Item 7) (See Warning above).
6. Separate the Piston Plate (Item 3) and split Friction Facing (Item 5) from the Air Chamber (Item 4).
7. Remove Piston (Item 2) from Air Chamber (Item 4).
8. Remove the old O-ring Seals (Items 11 and 12) from the Piston (Item 2).
9. Clean the bearing bore of the Air Chamber (Item 4) with solvent to remove all old Loctite® residue.
10. Apply an adequate amount of Loctite® 680 to evenly coat the O.D. of the new Ball Bearing (Item 8) and press the new Ball Bearing into the Air Chamber (Item 4).
11. Reinstall the Retaining Ring (Item 10).
12. Clean the o-ring grooves of the Piston (Item 2) and o-ring contact surfaces of the Air Chamber (Item 4); then, lubricate the new O-ring Seals (Item 11 and 12) and the o-ring grooves and contact surfaces of the Piston and Air Chamber with a thin film of fresh o-ring lubricant.
13. Install the new O-ring Seals (Items 11 and 12) onto the Piston (Item 2).

**NOTE: Avoid pinching the O-ring Seals when assembling the Piston and Air Chamber.**

14. Slide the Piston (Item 2) into the Air Chamber (Item 4).

15. Align the pins on the Air Chamber (Item 4) with the holes in the Piston Plate (Item 3) and slide the Piston Plate and split Friction Facing (Item 5) onto the Air Chamber.
16. Clamp the Piston Plate (Item 3) and Air Chamber (Item 4) together with C-clamps.
17. Apply Loctite® 242 to the threads of the three new Shoulder Bolts (Item 6) and install the new Shoulder Bolts and new Compression Springs (Item 7).
18. Alternately and evenly tighten the three new Shoulder Bolts (Item 6) to the recommended torque (See Table 4).
19. Remove the C-clamps.
20. Supporting the inner race of the Ball Bearing (Item 8), press the Friction Disc Hub (Item 1) into the Ball Bearing.
21. Reinstall the Retaining Ring (Item 9).

**TABLE 4**

MODEL	BOLT SIZE	TIGHTENING TORQUES
S-450	0.190-24	46.0 in-lb. [5.2 Nm]
S-450A		
S-600	0.312-18	245.0 in-lb. [27.7 Nm]
S-600A		
S-800		
S-800A		
S-1000		
S-1000A	0.375-16	580.0 in-lb [65.5 Nm]
S-1200		
S-1400		

## REPLACEMENT PARTS LIST

The item or balloon number for all Nexen products is used for part identification on all product parts lists, product price lists, unit assembly drawings, bills of materials, and instruction manuals.

When ordering replacement parts, specify model designation, item number, part description, and quantity. Purchase replacement parts through your local Nexen Distributor.

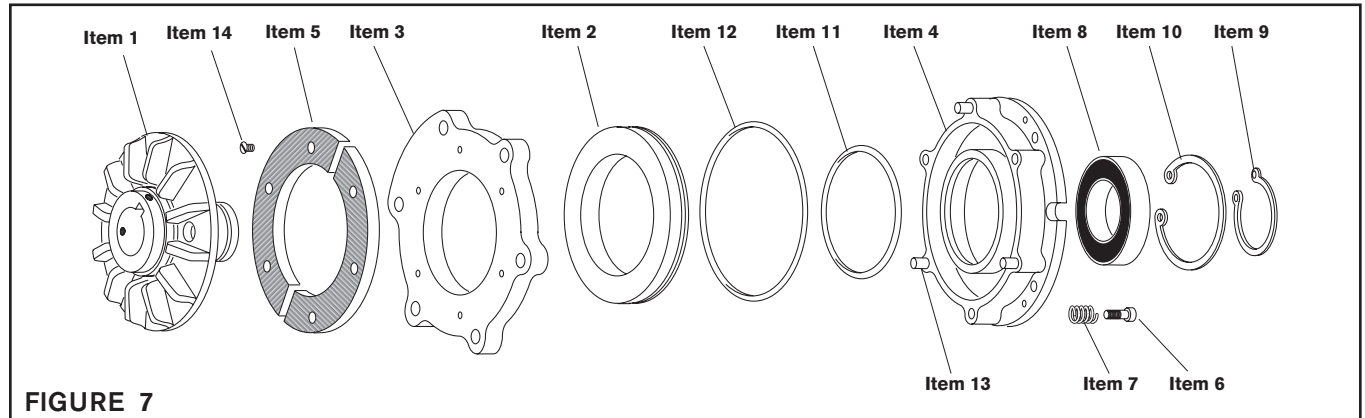


FIGURE 7

ITEM	DESCRIPTION	QTY
1	Friction Disc Hub	1
2	Piston	1
3	Piston Plate	1
4 <sup>3</sup>	Air Chamber	1
5 <sup>2</sup>	Friction Facing (split)	1
6 <sup>1</sup>	Shoulder Bolt	3
7 <sup>1</sup>	Compression Spring	3
8 <sup>1</sup>	Ball Bearing	1

ITEM	DESCRIPTION	QTY
9	Retaining Ring	1
10	Retaining Ring	1
11 <sup>1</sup>	O-ring Seal	1
12 <sup>1</sup>	O-ring Seal	1
13 <sup>3</sup>	Dowel Pin	3
14 <sup>2</sup>	Machine Screw	6 <sup>5</sup>
16	Key	1
17	Set Screw	3

<sup>1</sup> Denotes Repair Kit items.

<sup>2</sup> Denotes Facing Kit items.

<sup>3</sup> Order Air Chamber Assembly in place of the Air Chamber (Item 4) and Dowel Pin (Item 13) (See Table 5).

<sup>4</sup> There are 6 Friction Facing pieces in the size 1200 models.

<sup>5</sup> There are 8 machine screws in the size 1400 and 12 machine screws in the size 1200 models.

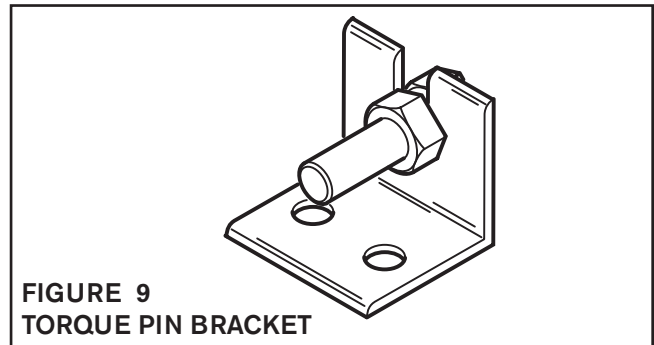
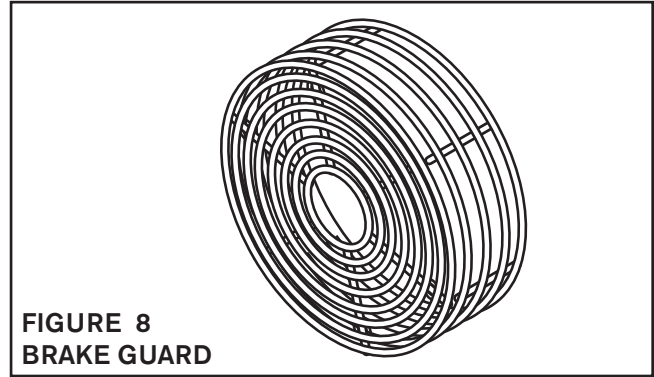
TABLE 5

Model	Air Chamber Assembly	
	Product Number	Product Number (Metric)
S-450	12232	8649
S-450-A		
S-600	12233	8650
S-600-A		
S-800	12234	8651
S-800-A		
S-1000	12235	8652
S-1000-A		

## ACCESSORIES

**TABLE 6  
PRODUCT NUMBERS**

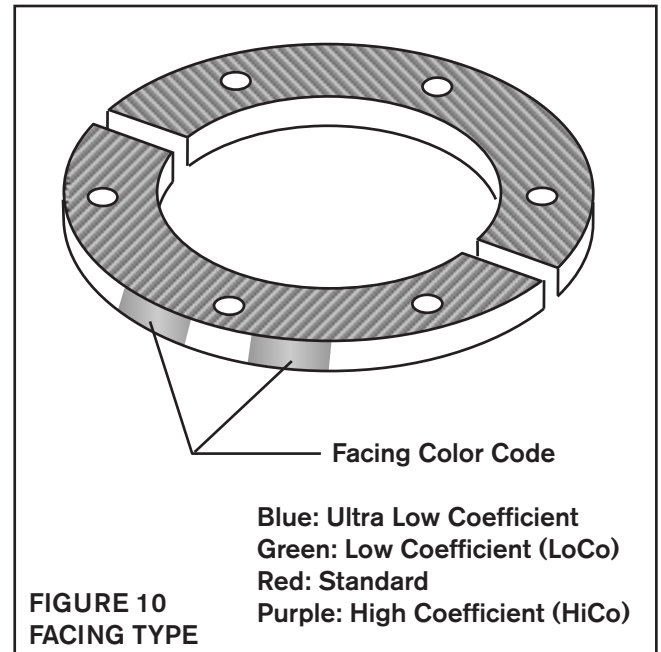
Model	Torque Pin Bracket	Brake Guard
S-450	819900	817700
S-450A		
S-600	821400	818300
S-600A		
S-800	823400	826300
S-800A		
S-1000	825500	828200
S-1000A		
S-1200	822515	822516
S-1400	822525	822526





## FACING AND REPAIR KITS

**NOTE:** Before ordering new friction facings, determine if your brake uses low coefficient (LoCo), standard or high coefficient (HiCo) friction facings (Consult the color code chart in Figure 10) Do not change friction facing type without consulting Nexen.



**TABLE 7  
PRODUCT NUMBERS**

Model	Ultra LoCo Facing Kit	LoCo Facing Kit	Standard Facing Kit	HiCo Facing Kit	Repair Kit	Seal Kit
S-450	818978	818972	818971	818974	818900	--
S-600	820579	820572	820571	820574	820500	--
S-800	827478	827472	827471	827474	827400	--
S-1000	827578	827572	827571	827574	827500	--
S-1200	--	822528	822511	822711	822512	822712
S-1400	--	822529	822521	822722	822522	822721
S-450-A	818978	818972	818971	818974	818903	--
S-600-A	820579	820572	820571	820574	820503	--
S-800-A	827478	827472	827471	827474	827402	--
S-1000-A	827578	827572	827571	827574	827502	--

**PRODUCT NUMBERS (METRIC MODELS)**

Model	Ultra LoCo Facing Kit	LoCo Facing Kit	Standard Facing Kit	HiCo Facing Kit	Repair Kit
S-450	818979	818976	818975	818977	818900
S-600	820580	820576	820575	820577	820500
S-800	827479	827476	827475	827477	827400
S-1000	827579	827576	827575	827577	827500
S-450-A	818979	818976	818975	818977	818903
S-600-A	820580	820576	820575	820574	820503
S-800-A	827479	827476	827475	827474	827402
S-1000-A	827579	827576	827575	827574	827502

**Note:** Order facing kit and repair kit for complete overhaul of metric unit.

## WARRANTY

### Warranties

Nexen warrants that the Products will (a) be free from any defects in material or workmanship for a period of 12 months from the date of shipment, and (b) will meet and perform in accordance with the specifications in any engineering drawing specifically for the Product that is in Nexen's current product catalogue, or that is accessible at the Nexen website, or that is attached to this Quotation and that specifically refers to this Quotation by its number, subject in all cases to any limitations and exclusions set out in the drawing. NEXEN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty applies only if: (a) the Product has been installed, used and maintained in accordance with any applicable Nexen installation or maintenance manual for the Product; (b) the alleged defect is not attributable to normal wear and tear; (c) the Product has not been altered, misused or used for purposes other than those for which it was intended; and (d) Buyer has given written notice of the alleged defect to Nexen, and delivered the allegedly defective Product to Nexen, within one year of the date of shipment.

### Exclusive Remedy

The exclusive remedy for the Buyer for any breach of any warranties provided in connection with this agreement will be, at the election of Nexen: (a) repair or replacement with new, serviceably used, or reconditioned parts or products; or (b) issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

### Agent's Authority

Buyer agrees that no agent, employee or representative of Nexen has authority to bind Nexen to any affirmation, representation, or warranty concerning the Products other than those warranties expressly set forth herein.

### Limitation on Nexen's Liability

TO THE EXTENT PERMITTED BY LAW NEXEN SHALL HAVE NO LIABILITY TO BUYER OR ANY OTHER PERSON FOR INCIDENTAL DAMAGES, SPECIAL DAMAGES, CONSEQUENTIAL DAMAGES OR OTHER DAMAGES OF ANY KIND OR NATURE WHATSOEVER, WHETHER ARISING OUT OF BREACH OF WARRANTY OR OTHER BREACH OF CONTRACT, NEGLIGENCE OR OTHER TORT, OR OTHERWISE, EVEN IF NEXEN SHALL HAVE BEEN ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH POTENTIAL LOSS OR DAMAGE. For all of the purposes hereof, the term "consequential damages" shall include lost profits, penalties, delay damages, liquidated damages or other damages and liabilities which Buyer shall be obligated to pay or which Buyer may incur based upon, related to or arising out of its contracts with its customers or other third parties. In no event shall Nexen be liable for any amount of damages in excess of amounts paid by Buyer for Products or services as to which a breach of contract has been determined to exist. The parties expressly agree that the price for the Products and the services was determined in consideration of the limitation on damages set forth herein and such limitation has been specifically bargained for and constitutes an agreed allocation of risk which shall survive the determination of any court of competent jurisdiction that any remedy herein fails of its essential purpose.

### Inspection

Buyer shall inspect all shipments of Products upon arrival and shall notify Nexen in writing, of any shortages or other failures to conform to these terms and conditions which are reasonably discoverable upon arrival without opening any carton or box in which the Products are contained. Such notice shall be sent within 14 days following arrival. All notifications shall be accompanied by packing slips, inspection reports and other documents necessary to support Buyer's claims. In addition to the foregoing obligations, in the event that Buyer receives Products that Buyer did not order, Buyer shall return the erroneously shipped Products to Nexen within thirty (30) days of the date of the invoice for such Products; Nexen will pay reasonable freight charges for the timely return of the erroneously shipped Products, and issue a credit to Buyer for the returned Products at the price Buyer paid for them, including any shipping expenses that Nexen charged Buyer. All shortages, overages and nonconformities not reported to Nexen as required by this section will be deemed waived.

### Limitation on Actions

No action, regardless of form, arising out of any transaction to which these terms and conditions are applicable may be brought by the Buyer more than one year after the cause of action has accrued.

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ISO 9001 Certified

## AIR BRAKE TROUBLE SHOOTING

### HYDRAUFLAKER

#### BRAKE DOES NOT DISENGAGE:

First, check to see if you are getting air to the brake, and have enough air pressure. If not, correct. If you do, go to No. 1.

1. Take the airline out of the brake. The brake should release, in addition, you should be able to rotate the drum. If the drum does not rotate, the problem is with the brake. The brake will need to be taken apart, to see what the problem is (see enclosed brake instructions). Necessary parts can be ordered from GENMAC.
2. If the brake releases, then the problem is either in the electric relay, located in the electrical enclosure, or the Rex Valve, located at the rear of the machine, underneath the loading table. To check the relay, the machine needs to be on. The Relay No. \_\_\_\_, has a tab located on its front side. When the relay is energized, which it should be when the machine is on, the tab will lean towards the outside edge of the relay. If the relay is not working, the tab will be away from the edge of the relay towards the center of the relay (replace relay if not working).
3. If the relay is energizing, and the brake is not released, then check the Rex Valve, at the rear of the machine, underneath the loading table (see drawing in manual). Take the two mufflers out of the Rex Valve, and see if the brake will work. If the brake works, purchase new mufflers. If not continue. The valve has a light, which will be on, if it is energized. It should be energized, if the machine is on. If this light is not on, you can move the small lever, located on the valve, manually, to see if the valve will shift. If the valve shifts, and releases the brake, after you have moved this lever, you need a new valve.
4. If the brake disengages, but you hear rubbing noises, the compression springs might be broken (replace).