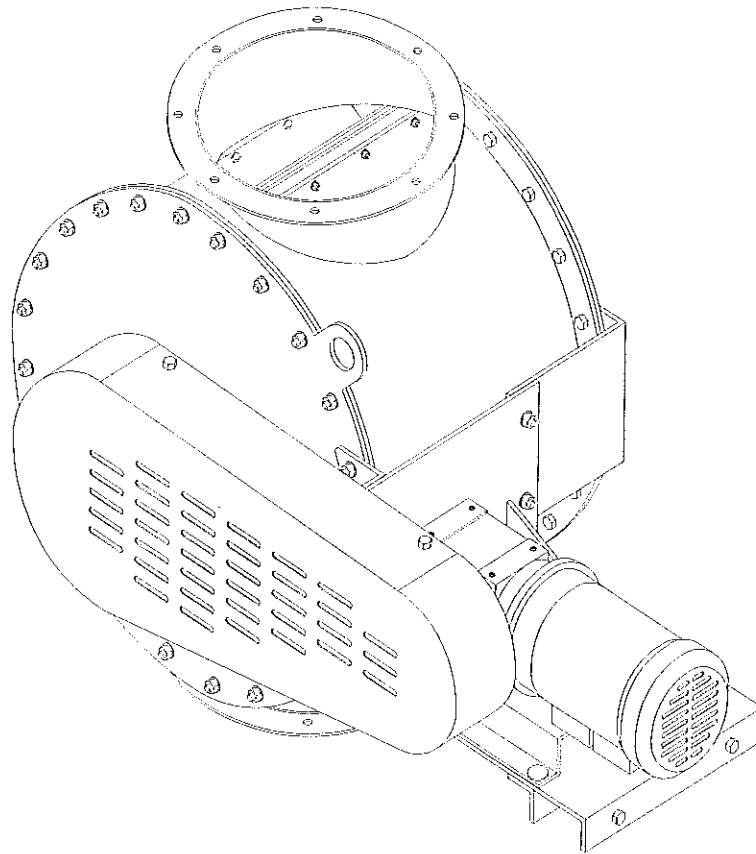


ENTERPRISES, INC.



**AIRLOCK
GENERAL INFORMATION**

INSTALLATION ■ OPERATION ■ MAINTENANCE

2013

Identifying the specific piece of equipment is important when making inquiries regarding installation, operation, maintenance, warranty or parts. A record for each piece of equipment is kept on file at S-M Enterprises, Inc. When contacting your dealer, please have the following information available.

Airlock Information

	ORDER #
	<input type="text"/>
	MANUFACTURE DATE
	<input type="text"/>
MODEL #	
<input type="text"/>	

This information may be obtained from the packing slip or the serial tag located on the gearbox mount of the airlock

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Introduction

Thank you for choosing an SM airlock. SM fabricated airlocks are designed to meter dry granular, pelletized or powdered material at a controlled rate into bin, hopper or screw conveyor. The airlock provides a partial seal from pressurized air entering and leaving the piece of equipment that it attaches to.

This manual is designed to assist you in the operation, safety and maintenance of our airlocks. All installers, operators and maintenance personnel are strongly encouraged to read this manual.

The standard airlock rubber seals are made from 1/8" neoprene rubber. Other types of seal material are also available upon request. Call factory with questions.

The standard airlock body is made from abrasion resistant steel for long life. Stainless steel is also available for use with oily products.

Inspecting and Verifying the Shipment

All of the components have been carefully inspected for quality and quantity prior to shipping and re-checked during the shipping process. The customer is responsible for verifying the condition of all the parts as they are received. If any visual damage exists, it will need to be reported to the shipping carrier and noted on the "Bill of Lading". The manufacturer's responsibility for damage ends with the acceptance of the shipping carrier. The manufacturer needs to be notified of damage if any replacement parts are needed.

This shipment also needs to be verified for proper quantity as listed on the packing list. Locate all the components listed on the packing list, checking them off as they are found. Notify S-M Enterprises, Inc if anything is missing or any damage is found.

AIRLOCK PART IDENTIFIER

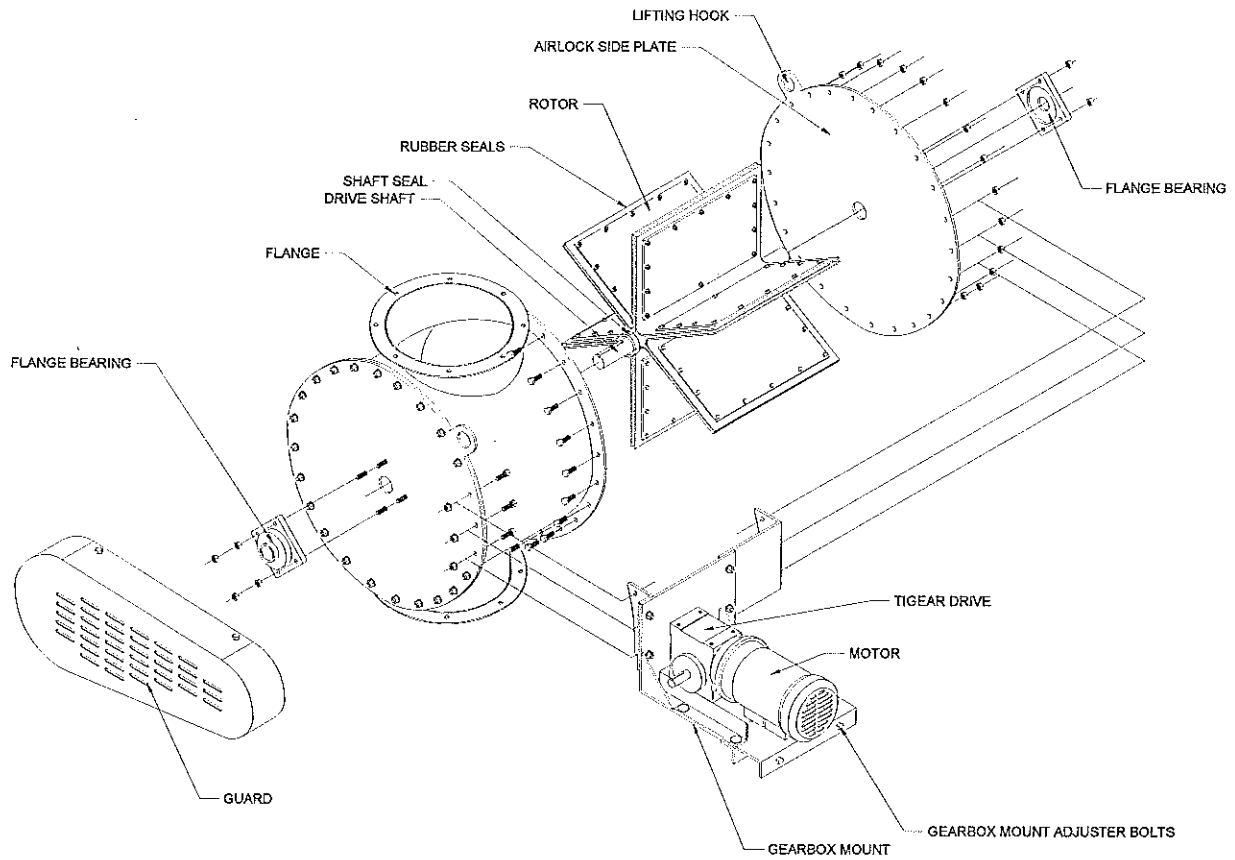


Figure 1

Safety Guidelines

It is important that this manual be read by the owner and operator. It contains important safety information that must be followed and understood to prevent serious injury or death. It is the responsibility of the owner/operator to inform anyone who is operating or working in the area of the equipment of these safety guidelines. Failure to read this manual and follow the safety guidelines is a misuse of the equipment and may lead to serious injury or death.



THIS IS A SAFETY ALERT SIGN. IT IS USED TO HELP IDENTIFY SAFETY HAZARDS THAT COULD INJURE OR KILL IF NOT AVOIDED.



DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING: Indicates an potentially hazardous situation which, if not avoided, will result in death or serious injury.



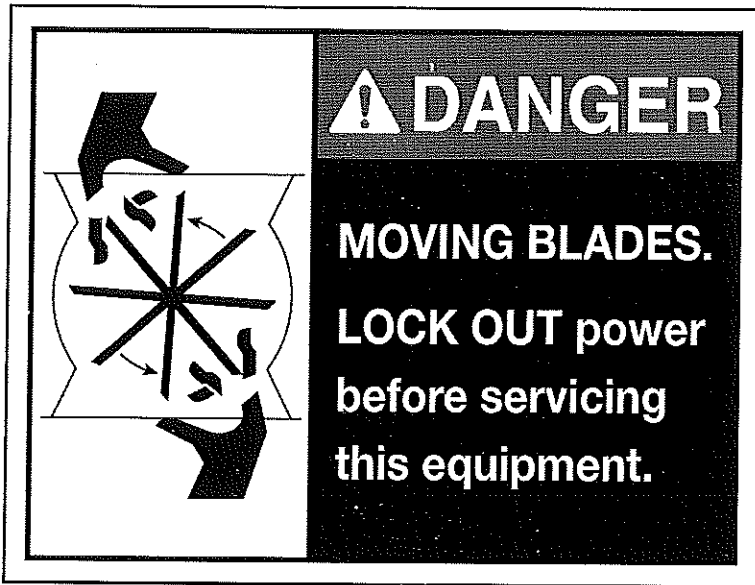
CAUTION: Indicates an potentially hazardous situation which, if not avoided, may result in minor to moderate injury.

Responsibilities

1. Airlocks shall not be operated unless all covers and/or guards for the unit are in place. If the airlock is to be opened for inspection, cleaning, maintenance or observation, all electrical power must be LOCKED OUT in such a manner that it cannot be restarted by anyone.
2. Do not attempt any maintenance or repairs of the equipment until power has been locked out.
3. Always operate equipment in accordance with these instructions and those contained on the caution labels affixed to the equipment.
4. Do not place hands, feet or any part of your body in the equipment.
5. Do not attempt field modification of equipment or components.
6. Never operate the airlock with an exposed inlet or outlet. If the airlock is to be installed over an open bin or truck load out system a guard with a safety grate must be installed to block access.

It is the responsibility of the owner/ operator to know what requirements, precautions and specific hazards exist and make these known to all personnel working with the equipment or in the area. Do not be limited to these safety rules.

Safety Decals



Tag 16



Tag 17

Safety decals have been placed on the valve. Do not remove, deface or paint over them. If any labels are missing or damaged in any way, contact S-M Enterprises, Inc. for replacements.

Safety decals should be read and understood by everyone.

See Figure 2 for location information.

AIRLOCK WARNING LABEL LOCATION

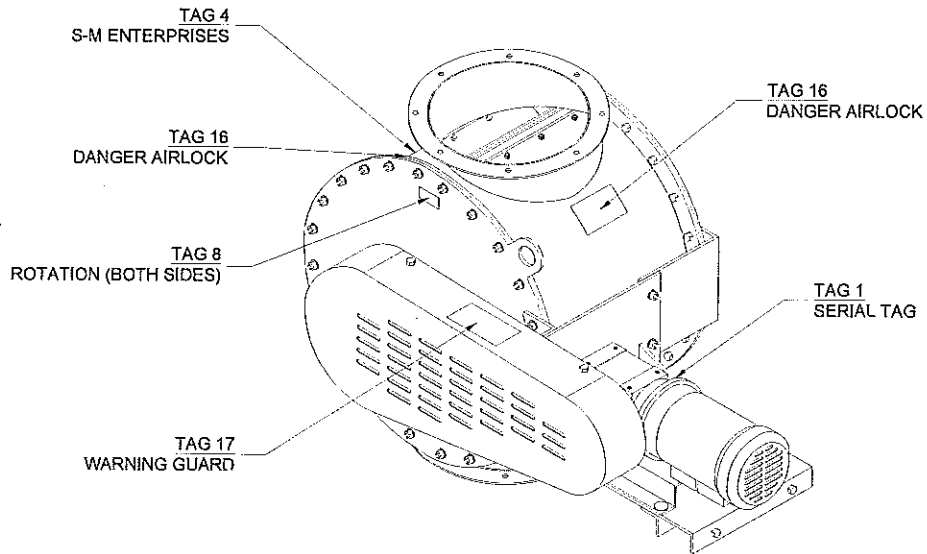


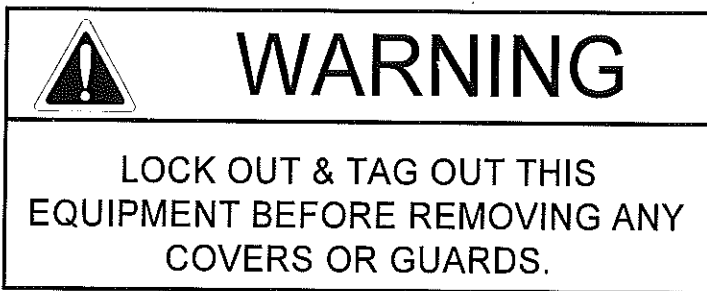
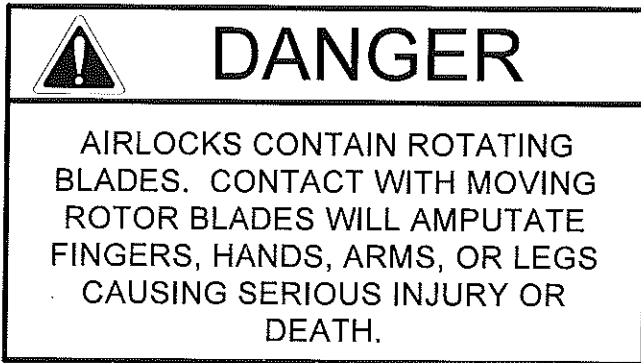
Figure 2

Electrical

Electrical must be done by a qualified electrician in accordance with all applicable electrical codes. Check local codes before installation.

A disconnect switch must be provided and located as close as possible to the airlock.

Installation



The airlock is shipped from the factory completely assembled with the exception of the motor. That will have to be installed onto the gearbox. The chain and sprockets have been properly aligned and tensioned.

The airlock is not designed to support the weight of extra components that may be attaching to it.

The airlock must be caulked or have a gasket around the top and bottom flanges.

If the airlock is to be installed over an open bin or truck load out system a guard with a safety grate must be installed to block access.

The gearbox has been factory filled with oil. It is still necessary to double check the oil before startup. See Appendix 1 for Dodge Tigear-2 reducer specifications.

Check that the drive chain is properly tensioned and lubricated. See Maintenance section of this manual.

Make sure that there are not any foreign objects in the airlock prior to starting.

Make sure all guards are properly secured on the airlock.

Jog motor and check that the rotation matches the rotation stickers on either side of the airlock.

Initial Startup


Make sure all guards are in place.


Start airlock and let it run for 10 minutes with no load. Listen for any excessive noises or any indications of mechanical problems.

Apply load to the airlock after running empty for 10 minutes. Take an amp reading on the motor and make sure that it does not exceed the motor rating as indicated by the nameplate on the motor.

Observe the first 1 hour of operation.

Maintenance

	DANGER
AIRLOCKS CONTAIN ROTATING BLADES. CONTACT WITH MOVING ROTOR BLADES WILL AMPUTATE FINGERS, HANDS, ARMS, OR LEGS CAUSING SERIOUS INJURY OR DEATH.	

	WARNING
LOCK OUT & TAG OUT THIS EQUIPMENT BEFORE REMOVING ANY COVERS OR GUARDS.	

Gearbox

The gearbox is factory filled with Dodge supplied synthetic oil. It is expected to last the life of the gearbox. Refer to Appendix 1 for Dodge Tigear-2 reducers.

Drive Chain and Sprockets

The drive chain tension should be checked after every 250 hours of use. New chains will loosen as joints seat themselves. Tension can also change with normal wear. To adjust chain tension first loosen gearbox bolts then tighten using the adjustable gearbox mount. Chain tension should be tight with a very slight amount slack. See Figure 3. Retighten gearbox mounting bolts.

Lubricate the chain with the adequate lubricant every 500 hours of operation.

Using a straight edge check the sprocket alignment every 500 hours. If they are not aligned loosen the set screws on the sprockets and move until they are straight with one another.

Bearings

The bearings must be inspected on a regular basis. Lube periodically. See bearing manufacturer recommendations. Appendix 2 is the most common bearing used by the factory.

Maintenance Cont.

Airlock Rubber Seals

Check the rubber seals every 250 hours of operation. If the seals are torn or wore they must be replaced. If the airlock starts to experience excessive air leakage trough the airlock the seals may need to be replaced.

To replace the seals the power must first be locked out. Disconnect the drive chain and remove the airlock chain sprocket. Remove non driven side plate and the rotor can be slide out. See Figure1. When ordering new seals from the factory it is also a good idea to order shaft seals and replace them as well.

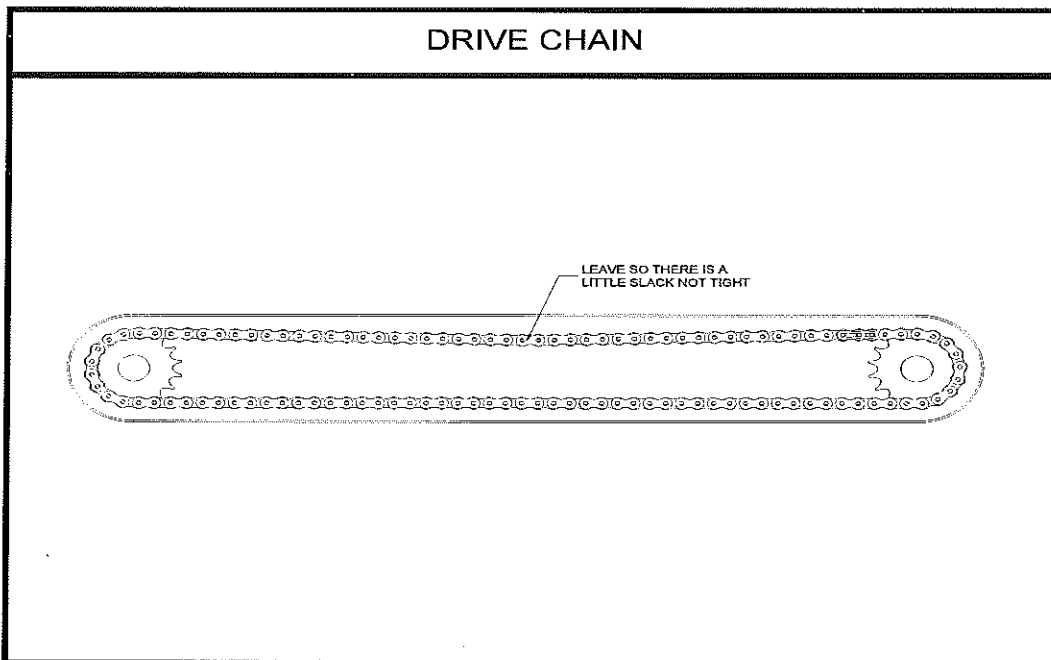


Figure 3

Trouble Shooting

Problem	Possible Cause	Solutions
rotor does not rotate	drive chain broken or has come off motor incorrectly wired wrong size starter motor bad motor too small foreign object in airlock bad gearbox	check and fix check to make sure that the motor is wired for the correct voltage check heater size check and replace check amps and consult factory check and removed disconnect drive chain and test
air leakage trough airlock	rubber wipers worn	replace
excessive noise	drive chain rubbing guard drive shaft rubbing guard bad bearing rotor slide over	check and reposition chain and sprockets check and reposition guard replace check and reposition rotor look for damage and repair

LIMITED WARRANTY

S-M Enterprises, Inc., hereinafter referred to as "S-M" warrants each S-M Enterprises product to be free from defects in material and workmanship, when used under normal use and service conditions, for a period of twelve (12) months commencing on the date of delivery of the complete product. The "defect" must be reported to S-M, or to S-M's representative within this 12 month warranty period.

THIS LIMITED WARRANTY IS MADE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF S-M. THE CUSTOMERS RIGHTS AND REMEDIES ARE GOVERNED EXCLUSIVELY BY THE TERMS AND CONDITIONS OF THIS LIMITED WARRANTY, AND CUSTOMER EXPRESSLY WAIVES FOR HIMSELF AND ANY PURCHASER, ANY CLAIM BASED UPON CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE.

S-M's obligation and sole remedy under this warranty is exclusively limited, at S-M's option, to either repair or replace any part or product found to be defective, within a reasonable time, providing that such part or product is returned to S-M factory in Moorhead, Minnesota, transportation charges prepaid, or to the selling dealer or distributors place of business from whom the purchase was made. The "defective" product or part may also be returned to the S-M's factory in Moorhead, Minnesota, transportation charges prepaid, for a full refund of the purchase price with respect to any failure of product due to defects in material or workmanship. All corrective work on S-M's product must be approved in writing by S-M prior to such repairs. No allowances will be made for corrective work that has been completed without this express approval. If S-M is unable to repair the equipment, S-M will, at its option: (a) replace the equipment, or (b) refund the purchase price. These remedies are the Buyer's exclusive remedies for breach of warranty. Any action for breach of warranty must be commenced within 15 months following delivery of the goods. S-M makes no warranties with respect to any equipment sold but not manufactured by S-M.

Improper lubrication, improper installation, deterioration by chemical action, and premature wear caused by the presence of abrasive materials do not constitute "defects".

THIS WARRANTY SHALL NOT RENDER S-M LIABLE FOR ANY CONSEQUENTIAL DAMAGES, INCLUDING AND WITHOUT LIMITATION, TO PERSONAL INJURY, EXPENSES OF REMOVING THE PRODUCTS, LOSS OR DAMAGE RESULTING TO THE EQUIPMENT OR STRUCTURE(S) IN WHICH THE S-M'S PRODUCTS HAVE BEEN INSTALLED, LOSS OF USE OF SUCH EQUIPMENT OR STRUCTURE; LOSS OF COMMODITY, OR LOSS OF PROFITS. IN NO EVENT SHALL SM BE LIABLE FOR MORE THAN THE PURCHASE PRICE OF THE EQUIPMENT IN THIS CONTRACT.

This warranty shall not apply to any S-M's products that have been altered, or repaired by anyone other than an authorized S-M's service representative, and any product that which has been subject to abuse, misuse, neglect, or accident, nor to any product which shall be found to have been installed or operated in accordance with the S-M's printed operators manual.

This warranty will be declared null and void immediately if the purchaser, a representative of the purchaser, or anyone else shall modify, install, or cause to be installed, replacement parts not sold, distributed, or approved by the S-M.

The equipment covered by this Agreement is capable of handling a wide variety of materials, including those that are flammable and/or explosive. As such, there may be a fire and explosion hazard. Fire and explosion detection and suppression systems vary depending on the materials being processed and handled. Thus, Buyer is solely responsible for and must determine what fire and explosion protection is necessary for its facility, including for the equipment covered by the agreement. Buyer must supply all necessary fire and explosion detection and suppression equipment or systems.

S-M is expert in the chemical and biological properties of the infinite number of materials that might be processed in or handled by the equipment covered by the Agreement. Before processing or handling any materials that are or can be flammable, explosive, toxic or otherwise hazardous, Buyer must perform a thorough process hazard analysis and risk assessment of its entire process, including contingency plans for dealing with processing errors and upset conditions.

Much of the equipment that S-M manufacturers can be fitted with a wide variety of options that could be used to reduce specific hazards created by the product which it handles, including, for example, explosion relief panels, electrically grounded components, the ability to maintain an inert atmosphere, and remote sampling and cleaning. Unless specifically set out the Agreement, the equipment quoted does not contain these available safety features. Buyer shall be solely responsible for knowing or determining the hazards of its product and its process and for contacting S-M to learn about the availability of these safety features.

This warranty shall not be extended to, tires, inner tubes, batteries, gearboxes, motors, electrical controls, filters, or any purchased component that carries its own manufacturers warranty; the warranty on these products will be limited to the published warranties of their respective manufacturers.

All claims under this warranty are to be made, in writing, within 15 days of the date of failure to; S-M Enterprises, Inc., 2310 26th Street South, Moorhead, Minnesota 56560. Failure to do so will result in customers claim being waived.

S-M is not responsible for installation of the product, and is not liable for any loss or damage attributed to improper installation. Customer acknowledges that it is knowledgeable concerning the goods purchased; that customer has reviewed the limited warranty; and that the remedies provided are adequate to customer. S-M is not responsible or liable for any claim of personal injury or death. S-M neither assumes or authorizes any person to assume for S-M any other liabilities in connection with the sale of its products. This warranty is subject to existing conditions of supply which may directly effect the ability of the manufacturer to obtain materials or manufacturer replacement parts.

Customer agrees to incorporate the terms of this limited warranty into subsequent sale or transfer of these goods to a third party such that the S-M's liability shall be expressed, limited to the terms and conditions of this limited warranty as well as the choice of law and choice of jurisdiction provisions of this agreement, If any party brings an action against S-M for other than those set forth in this limited warranty, customer agrees to defend S-M against for other than those set forth in this limited warranty, customer agrees to defend S-M against such claims at customers expense, including attorney's fees, and to indemnify and hold S-M harmless against any such claims or judgments thereon. In no event shall S-M's liability extend beyond the terms of the warranty provided to S-M's original customer.

Customer agrees that Customer's rights and responsibilities in regard to this transaction shall be governed by the law of the State of Minnesota, and shall be exclusive jurisdiction for bringing any disputes in regard to this transaction, which must be venued in District Court, Clay County, Minnesota.

This writing constitutes the entire representations of warranties, oral or written, express or implied, statutory or otherwise. This limited warranty may be modified only in writing, signed and notarized by S-M, at its home office in Moorhead, Minnesota.