MINNICH

A-1C DOWEL DRILL
OPERATOR/SERVICE MANUAL

MINNICH MANUFACTURING

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NOTICE

It is Minnich's policy to constantly strive to improve our products. The information, specifications, and illustrations in this publication are based on the information in effect at the same time as approval for printing and publishing. Minnich therefore reserves the right to make changes in design and improvements whenever it is believed the efficiency of the machine which has been shipped or curring any obligation to incorporate such improvements in any machine which has been shipped or is in service. It is recommended that users contact Minnich or a Minnich Dealer for latest revisions.

NOTICE

See engine manual for information pertaining to the engine.

NOTICE

If there are any questions regarding the machine or its application which are not covered in this manual or in other literature accompanying this unit, please contact your Minnich Dealer or Minnich Manufacturing at 419-903-0010 or sales@minnich-mfg.com

⚠ WARNING

CALIFORNIA PROPOSITION 65

Engine exhaust and some of its constituents, and some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to the Sate of California to cause cancer, birth defects and other reproductive harm. Some examples of these chemicals are:

Lead from lead-based paints.
Crystalline silica from bricks.
Arsenic and chromium from chemically treated lumbar.

Your risk from these exposures caries, depending on how often you do this type of work. To reduce your exposure to these chemicals: ALWAYS work in a well ventilated area, and work with improved safety equipment, such as dust masks that are specifically designed to filter out microscopic particles.

⚠ WARNING

SILICOSIS WARNING
Grinding/cutting/drilling of masonry, concrete,-metal and other materials with silica in their composition may give off dust or mist containing crystalline silica.
Silica is a basic components of sand, quarts, brick clay, granite and numerous other minerals and rocks. Repeated and/or substantial inhalation of airborne crystalline silica can cause serious or fatal respirator disease, including silicosis. In addition, California and some authorities have listed repairable crystalline silica as a substance known to cause cancer. When cutting such materials, always follow the respiratory precautions mentioned above.

⚠ WARNING

RESPIRATORY HAZARDS

Grinding/cutting/drilling of masonry, concrete,metal and fumes containing chemicals known to cause serious or fatal injury or illness, such as respiratory disease, cancer, birth defects or other reproduction harm, if you are unfamiliar with the risks associated with the particular process and/or material being cut or the composition of the tool being used, review the material safety data sheet and/or consult your employer, the material manufacturer/supplier, governmental agencies such as OSHA and NIOSH and other sources on hazardous materials. California and some other authorities, for instance, have published lists of substances known to cause cancer, reproductive toxicity or other harmful effects.

Control dust, mist and fumes at the source where possible. In this regard use good work practices and follow the recommendations of the manufactures of suppliers, OSHA/NIOSH, and occupational and trade associations. Water should be used for dust suppression when wet cutting is feasible. When the hazards from inhalation of dust, mist and fumes cannot be eliminated, the operator and any bystanders should always wear a respirator approved by OSHA/NIOSH for the materials being used.

Do not operate or service the equipment before reading the entire manual. Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the safety messages and operating instructions could result in injury to yourself and others.

This operation manual has been developed to provide complete instruction for the safe and efficient operation. Refer to the engine manufactures instructions for data relative to its safe operation. Before using, ensure that the operating individual has read and understood all instructions in the manual. The surrounding environment and you, could be damaged if you do not follow instructions.

SAFETY MESSAGES

The four safety messages shown below will inform you about potential hazards that could injure you or others. The safety messages specifically address the level of exposure to the operator and are preceded by one of four words: DANGER, WARNING, CAUTION or NOTICE.

⚠ DANGER

Indicates a hazardous situation which, if not avoided, WILL result in DEATH or SERIOUS INJURY

⚠ WARNING

Indicates a hazardous situation which, if not avoided, COULD result in DEATH or SERIOUS INJURY

⚠ CAUTION

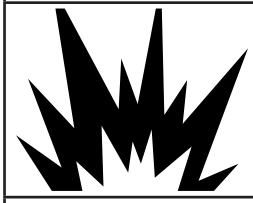
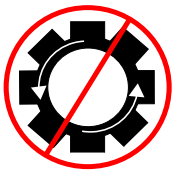
Indicates a hazardous situation which, if not avoided, COULD result in MINOR or MODERATE INJURY

NOTICE

Addresses practices not related to personal injury

SAFETY SYMBOLS

Potential hazards associated with the operation of this equipment will be referenced with hazards symbols which may appear throughout this manual in conjunction with safety messages.

SYMBOL	SAFETY HAZARD
	Respiratory Hazard
	Explosive fuel hazards
	Burn hazard
	Factory Settings

⚠ WARNING

DO NOT USE TOOL IF IT IS IN NEED OF SERVICE!

⚠ CAUTION

Δ NEVER operate this equipment without proper protective clothing, shatter proof glasses, respirator protection, hearing protection, steel-toes boots and other protective devices required by the job or city and state regulations.

Δ Never operate this equipment when not feeling well due to fatigue, illness or when under medication.

Δ NEVER operate this equipment under the influence of drugs or alcohol.

Δ ALWAYS check the equipment for loosened threads or bolts before starting.

Δ NEVER operate around corrosive chemicals or water containing toxic substances. These fluids could create serious health and environmental hazards. Contact local authorities for assistance.

Δ DO NOT use the equipment for any purpose other than its intended purpose or applications.

NOTICE

Δ This equipment should only be operated by trained and qualified personnel 18 years of age and older.

Δ This equipment is for industrial use only. Whenever necessary, replace nameplate, operation and safety decals when they become difficult to read.

Δ Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modifications will void all warranties. Any modification which it could lead to change in the original characteristics of the machine should be made only by the manufacturer who shall confirm that the machine is in comfortability with appropriate safety regulations.

Δ Never use accessories or attachments that are not recommended by Minnich for the equipment. Damage to the equipment and/or injury to user may result.

Δ Always know the location of the nearest fire extinguisher.

Δ ALWAYS know the location of the nearest first aid kit.

Δ ALWAYS know the location of the nearest phone or keep a phone on the job site. Also, know the phone numbers of the nearest ambulance, doctor and fire department. This information will be invaluable in the case of an emergency.

⚠ DANGER

Δ NEVER operate the equipment in an explosive atmosphere, near combustible materials, or near flammable or low flash point fluids. An explosion or fire could result causing severe bodily harm or even death.

⚠ WARNING

Δ NEVER disconnect any emergency or safety devices. These devises are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these will void all warranties.

Δ NEVER operate equipment with the covers or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury. Wear clothing that will not likely become caught in the equipment or snag on any moving parts.

⚠ CAUTION

Δ ALWAYS be sure the operator is familiar with the proper safety precautions and operating techniques before using.

Δ NEVER leave the machine unattended. Turn off when unattended

- Δ DO NOT expose vibrator to rain.
- Δ DO NOT use vibrator motor in damp or wet locations without proper electrical circuits.
- Δ DO NOT immerse the motor part in concrete.
- Δ ALWAYS keep clear of rotating or moving parts while operating.
- Δ NEVER leave the machine unattended while running
- Δ ALWAYS disconnect the motor from the power source when not in use, before servicing, and when changing flexible shafting and vibrator heads.

- Δ Allow the machine to cool before servicing. Contact with hot components can cause serious burns.

- Δ Before Each use, ALWAYS check the motor to make certain that there are no damaged parts and that all parts function properly. If any damage or malfunctioning parts are found, have them repaired or replaced by an authorized service facility.

NOTICE

- Δ ALWAYS secure forms. Make sure the form work is well made and braced to withstand the stresses made by vibration.
- Δ ALWAYS keep vibrator motor clean for better and safer operation.
- Δ ALWAYS store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of reach of children and unauthorized personnel.
- Δ Use only factory authorized replacement parts.
- Δ Store idle vibrator motor. When not in use, motor should be stored in a dry, safe storage area.

ENVIRONMENTAL SAFETY/DECOMMISSIONING

NOTICE

- Δ DO NOT pour waste or oil directly into the ground, down a drain or into any water source.
- Δ Contact you country department of Public Works or recycling agency in your area and arrange for proper disposal of any electrical components, waste or oil associated with this equipment.

- Δ When the life cycle of this equipment is over, remove battery (if equip) and bring to appropriate facility for lead reclamation. Use safety precautions when handling batteries that contain sulfuric acid.
- Δ When the life cycle of this equipment is over, it is recommended that the unit frame and all other metal parts be sent to a recycling center.

  Metal recycling involves the collection of metal from discarded products and its trans formation into raw materials to use in many Manufacturing a new product.

  Recyclers and manufactures alike promote the process of recycling center promotes energy cost savings.

NOTICE

Decommissioning is a controlled process used to safely retire a piece of equipment that is no longer serviceable. If the equipment poses an unacceptable and unrepairable safety risk due to wear or damage or is no longer cost effective to maintain (beyond life-cycle reliability) and is to be decommissioned (demolition and dismantlement), be sure to follow rules below.

- Δ ALWAYS observe all applicable compulsory regulations relevant to environmental protection, especially fuel storage, the handling of hazardous substances, and the wearing of protective clothing and equipment. Instruct the user as a necessary, or, as the user, request this information and training.

- ALWAYS Dispose of hazardous waste properly. Examples of potentially hazardous waste include used motor oil, fuel, and fuel filters.
- DO NOT use food or plastic containers to dispose hazardous waste.
- DO NOT pour waste or oil directly onto the ground, down or drain or into any waste source.

NOTICE

- ALWAYS keep the machine in proper running condition.
- ALWAYS become familiar with the components of the machine before operation.
- Fix damage to machine and replace any broken parts immediately.
- ALWAYS store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.
- NEVER lubricate components or attempt service on a running machine

⚠ CAUTION

- NEVER tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result in operation in speed ranges above the maximum allowability.

BEFORE CONNECTING THE AIR COMPRESSOR:

⚠ CAUTION

- Install the drill steel and bits into the drill motors and close the latch retainers and rod guides.
- Make sure that the air compressor is set at an operating pressure of not more than 120 PSIG (8Bar)
- Make sure air line is cleaned out and is of the proper size and pressure rating for the drill unit.
- Make sure the lubricator is filled with proper lubricant. See Minnich recommended lubricant below.
- Make sure all controls are in the “off” position and the lift lever (if so equipped) is in the “up” position.
- Make sure all lock pins are in their locked position.

⚠ WARNING

- NEVER attempt to loosen any compressed air hose that is pressurized.
- KEEP AWAY from all hot or spark generating objects, do not smoke when handling fuel.
- So as to facilitate shipment, new or repaired units are not lubricated before delivery to customers.
- DO NOT use hydrocarbons and especially do not use fuel oil for lubricating purposes.
- DO NOT OPERATE MACHINE WITHOUT GUARDS AND COVERS IN PLACE
- ALWAYS disconnect the air supply before changing steel or dismantling the tool for service or repair. For maximum safety we advise the installation of a shut-off valve at the end of the air line.
- NEVER operate the engine with heat shields or guards removed.
- DO NOT remove the engine oil drain plug while the engine is hot. Hot oil will gush out of the engine crankcase and severely scald any persons in the general area of the machine.

NOTICE

- Δ CLEAR AIR SUPPLY LINE: Before connecting vibrator, clear the compressed air supply line of possible impurities, contaminants and water.
- Δ LUBRICATE: Every day or every four hours of continuous service, pour a ½ teaspoon of non-detergent oil into the quick release coupling. NOTE: An optional oiler/strainer is available.

CONNECT/START

NOTICE

If the vibration intensity drops, check that the filters are not clogged or that hoses are not kinked.

STORAGE

NOTICE

To properly store unit after use, hang the vibrator with the head up and set the handle (variable control assembly) in the open position to permit the discharge of possible impurities, contaminants and water.

PLACEMENT AND CONSOLIDATION

NOTICE

The force exerted by an internal concrete vibrator is controlled by the weight and the speed at which the eccentric rotates. The centrifugal force exerted can be arrived at by various combinations of weight (size of eccentric weight) and the speed at which the weight rotates. For years the most favorable working speed for a vibrator was considered to be around 10,200 RPM (VPM) and consequently this figure is used in many vibrator comparisons. More recently, the optimum speed for compaction has been accepted as being between 7500 and 9000 RPM.

PERSONAL SAFETY

- Δ Stay alert, watch what you are doing, and use common sense when operating the machine.
- Δ DO NOT use the tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury or death.
- Δ Dress properly. DO NOT wear loose clothing or jewelry. Tie up long hair. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelery, or long hair can be caught in moving parts.
- Δ DO NOT overreach. Keep proper footing and balance at all times. Proper footing and balance enables better control in unexpected situations.

SERVICE

- Δ Tool service must be preformed only by qualified repair personnel. Service or maintained preformed by unqualified personnel could result in injury or death
- Δ When servicing a tool, use only identical replacement parts. Use of unauthorized parts may create a risk of injury or death.

NOTICE

To find the latest revision of this publication, visit our website at: www.minnich-mfg.com

NOTICE

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

NOTICE

Specifications and part numbers are subject to change without notice.

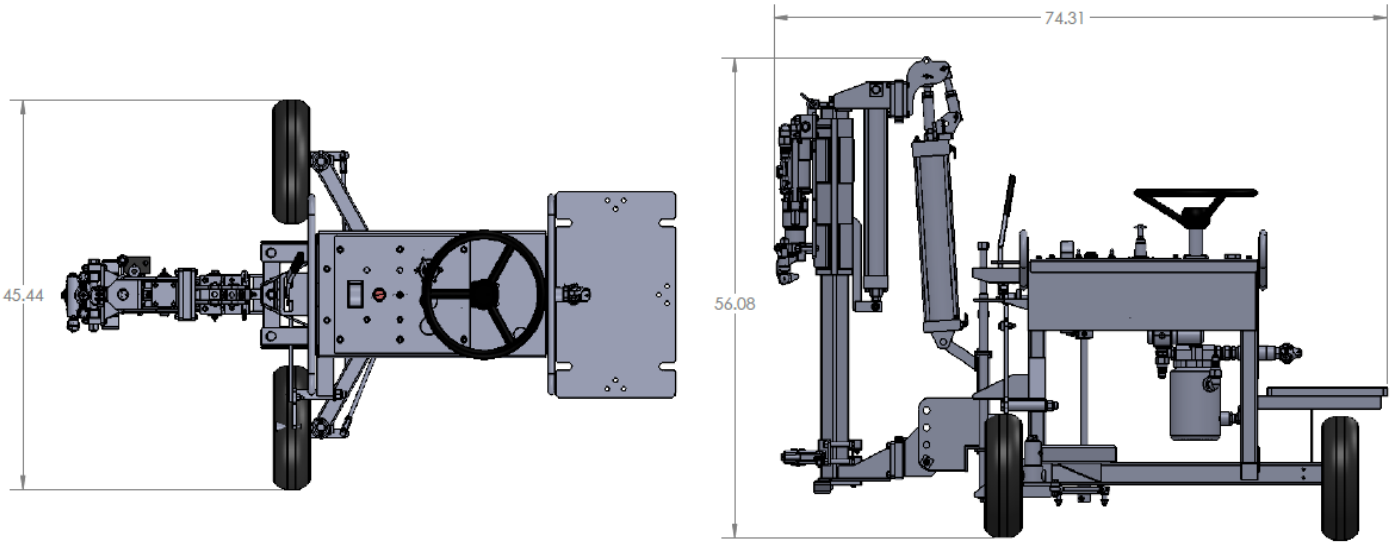
TOOL USE AND CARE

1. Only qualified persons should operate the machine. Make sure you operate and service your machine according to the instructions listed in this manual.
2. When positioning the machine for drilling, always face the drill. DO NOT operate with your back to the machine. Facing the machine during positioning allows the operator to have better control of the machine.
3. DO NOT force the machine. Use the correct machine for your application. The correct machine will do the job better and safer at the rate for which it is designed.
4. DO NOT use the machine if the switch does not turn it on or off. Any machine that cannot be controlled with the switch is dangerous and must be re-paired.
5. Disconnect the machine from the pow-er source before making any adjustments, changing acces-sories or storing the machine. Such preventative safety measures reduce the risk of starting the machine accidentally.
6. Store machines out of reach of children and other untrained persons. Machines are dangerous in the hands of untrained users.
7. Maintain machines with care and keep them clean. Properly maintained ma-chines are less like-ly to bind and are easier to control.
8. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the machines operation. If dam-aged, have the machine serviced before using. Many accidents are caused by poorly maintained tools.
9. Use only accessories that are recommended by the manufacturer for your model. Accessories that may be suitable for one machine may become hazardous when used on another.

SERVICE

1. DO NOT run the drill unit while you make adjustments and repairs unless the procedure is approved.
2. Escaping fluid and air under pressure can have sufficient force to penetrate skin causing serious personal injury.
3. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, tubes and hoses are not damaged.
4. DO NOT use your hand to search for leaks. Instead, use a piece of card-board or wood.
5. Tool service must be performed only by qual-ified repair personnel. Service or maintenance performed by unqualified personnel could result in injury or death.
6. When servicing a tool, use only identical replacement parts. Use of unauthorized parts increase injury risk.

A-1C SINGLE DRILL, ON SLAB UNIT



THREE POSITION DRILLING WITH 48" UNIT: HORIZONTAL, VERTICAL AND 35° STITCH
URETHANE FILLED TIRES
3-1 SKEW DRILLING STANDARD
ADJUSTABLE DRILL HEIGHT AND DEPTH
DUST COLLECTION IS AVAILABLE

MODEL	A-1C-48	A-1C-36	A-1C-30	A-1C-24
Drill Steel Shank	.875" x 4.25" (2.22cm x 10.79cm)	.875" x 4.25" (2.22cm x 10.79cm)	.875" x 3.25" (2.22cm x 8.26cm)	.875" x 3.25" (2.22cm x 8.26cm)
Drill Steel Length (Under Collar)	24" (61.0cm)	12" (30.5cm)	12" (30.5cm)	9" (22.9cm)
Drill Bit Diameter	.625" - 2.5" (15.9mm - 63.5mm)	.625" - 2.5" (15.9mm - 63.5mm)	.625" - 1.625" (15.9mm - 41.3mm)	.625" - 1.00" (15.9mm - 25.4mm)
Maximum Drill Depth*	18" (45.7cm)	10" (25.4cm)	10" (25.4cm)	7" (17.8cm)
Drill Distance from Top of Slab	1.5" x 11.75" (3.8cm x 29.8cm)	1.5" x 11.75" (3.8cm x 29.8cm)	1.5" x 11.75" (3.8cm x 29.8cm)	1.5" x 11.75" (3.8cm x 29.8cm)
Minimum Cutout Width	48" (121.9cm)	36" (91.4cm)	30" (76.2cm)	24" (61.0cm)
SCFM Required	92.2 (2.61 m³/min)	92.2 (2.61 m³/min)	75 (2.12 m³/min)	36 (1.02 m³/min)
PSIG Required	90 (6.2bar)	90 (6.2bar)	90 (6.2bar)	90 (6.2bar)
Weight	700lbs (317.5kg)	665lbs (301.6kg)	630lbs (285.8kg)	605lbs (274.4kg)

SPECIFICATIONS SHOWN ARE STANDARD. VARIATIONS TO THE STANDARD ARE AVAILABLE.
*BASED ON 2 PIECE STEEL AND BITS. WHIRLYBITS SHOULD BE 1" (2.5CM) LONGER FOR MAXIMUM DRILLING DEPTH.

PNEUMATIC CONNECTION:

- An approved air disconnect is required to be installed in accordance to all Local and National Codes.

ENVIRONMENTAL:

- +5°C to +40°C (+41°F to +104°F)
- 50% Rh at +40°C (+104°F), (90% Rh at +20°C (+68°F))
- Altitude – 1000m (3280ft) above mean sea level
- Unit is to be disposed according to all Local and National Regulations

TRANSPORTATION AND STORAGE:

- -25°C to +55°C for 24 hours (-13°F to +131°F)

INGRESS PROTECTION:

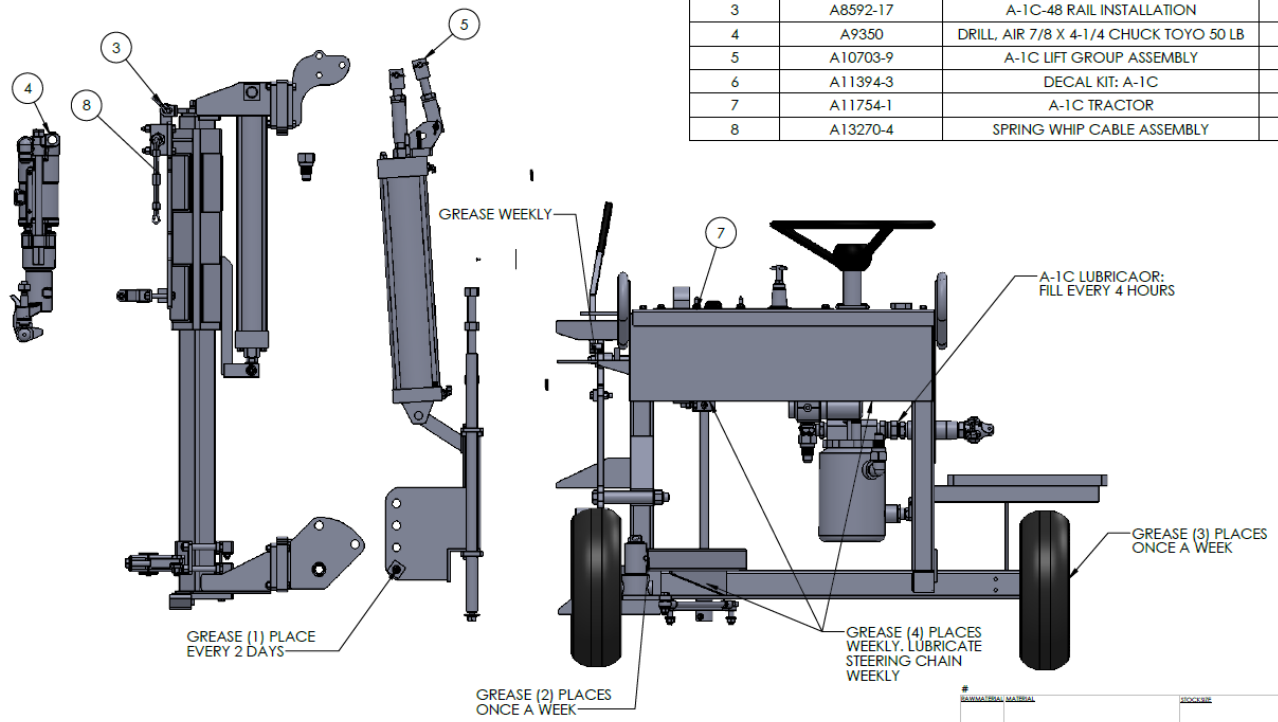
- Protection level IP2X is provided

SOUND:

- System operates at sound levels about 85dBA and 85dBC. Hearing protection is required.

A-1C MAINTENANCE & LURICATION CHART

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	708-4	SERIAL TAG	1
2	6262-1	SCREW, DRIVE HD RD. #4 X 1/4"	2
3	A8592-17	A-1C-48 RAIL INSTALLATION	1
4	A9350	DRILL, AIR 7/8 X 4-1/4 CHUCK TOYO 50 LB	1
5	A10703-9	A-1C LIFT GROUP ASSEMBLY	1
6	A11394-3	DECAL KIT: A-1C	1
7	A11754-1	A-1C TRACTOR	1
8	A13270-4	SPRING WHIP CABLE ASSEMBLY	1



NOT SHOWN:
A11394-3 DECAL KIT A-1C

MINNICH MFG. CO., INC.
DO NOT SCALE DRAWING
TITLE: A-1C DRILL
DRAWING NUMBER: A11755-9
DRAWN BY: RJ
ORIG DATE: 09/25/2018

NOTICE

All safety labels on Minnich Manufacturing units have been carefully placed so they can be easily seen at all times. There are several different types of labels on the units. Always keep these warnings free of dirt, concrete, or anything else that restricts visibility. Never remove the labels for any reason. If the label on your machine become worn or in any way difficult to read, call our parts department for replacements.

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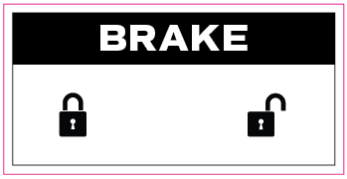
B

C



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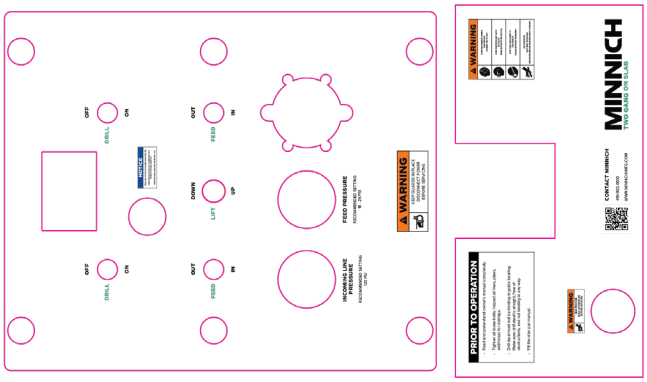

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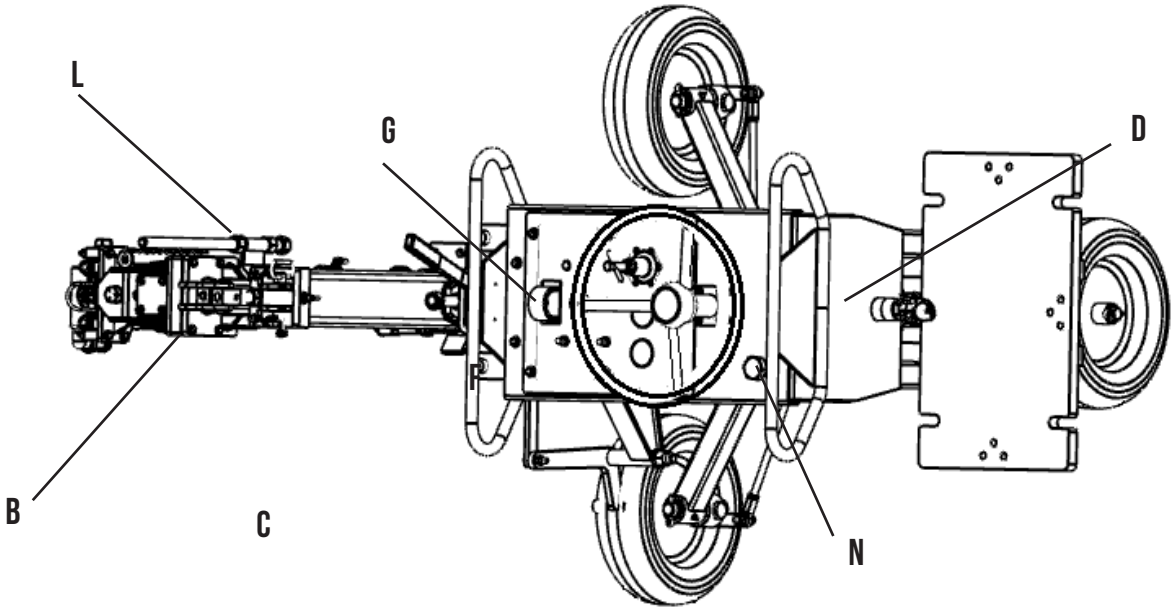
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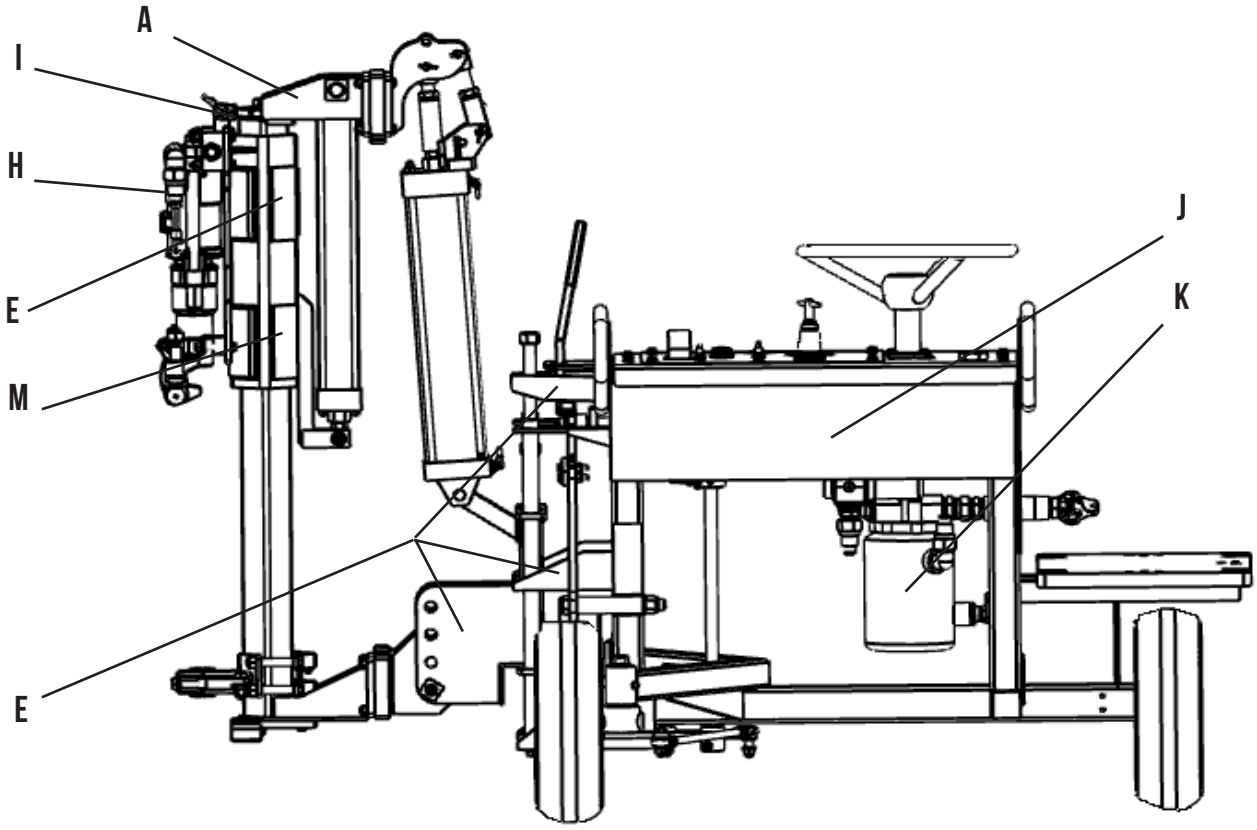
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PRESSURE REGULATOR

OPERATION

A regulator is used in a compressed air system to maintain nearly constant outlet pressure despite changes in the inlet air pressure and changes in downstream flow requirements. Outlet pressure is controlled by the adjusting screw (1). clockwise rotation increases and counter- clockwise rotation decreases outlet pressure setting. When the adjustment (1) is rotated fully counter- clockwise, no force is applied to the regulating spring (2), and the valve (6) is held closed by the valve spring (7). clockwise rotation of the adjustment (1) compresses the regulating spring (2) which applies a downward force on top of the diaphragm (4). The diaphragm (4) and valve pin (5) move downward forcing valve (6) off its seat (10) which allows air to flow through the regulator to the downstream system. Outlet pressure increases in the downstream system and sensing chamber (9) and applies an upward force on bottom of the diaphragm (4). The diaphragm (4), valve pin (5); and valve (6) move upward, compressing the regulator spring (2). Upward movement stops when the forces below the diaphragm balance the forces above the diaphragm. When there is no downstream flow demand, the balance of forces occurs with the valve (6) closed. When there is downstream flow demand, the balance of forces occurs when the valve opens sufficiently to compensate for demand, thus maintaining the desired outlet pressure. RELIEVING TYPE REGULATORS. With relieving regulators, outlet pressure can be reduced even though the system is deadended. When the adjustment (1) is turned counterclockwise, the force on the regulating spring (2) is reduced, and air pressure in the sensing chamber (9) moves the diaphragm (4) upward. This upward movement opens the relief passage (8) in the diaphragm and allows air to escape from the outlet side of the regulator through the relief passage (8) and vent (3) to atmosphere. As the outlet air pressure decreases to the reduced pressure setting, the diaphragm moves downward and closes the relief passage. The diaphragm will likewise move upward in a response to an increase in outlet pressure above the regulator setting, allowing air to escape to the atmosphere as described above. However, the flow capacity of the relief passage is limited, and depending upon the source of the overpressure condition, the outlet pressure might increase to a point significantly higher than the regulator setting. For this reason, the relief feature of a regulator must not be relied upon as an overpressure safety device. See WARNING note below.

⚠ WARNING

THESE REGULATORS ARE INTENDED FOR USE IN INDUSTRIAL COMPRESSED AIR SYSTEMS ONLY. DO NOT USE THESE REGULATORS WHERE PRESSURE OR TEMPERATURE CAN EXCEED RATED OPERATING CONDITIONS. SEE SPECIFICATIONS.

MAINTENANCE

The regulator can be disassembled for servicing without removal from pipe line. to disassemble, shut off the inlet air and reduce pressure in inlet and outlet lines to zero. Turn adjusting screw (1) counterclockwise until all load is removed from regulating spring (7 or 7a): Remove bonnet screws (4), bonnet (3), upper springrest (5), spring (7), and diaphragm assembly (8). The intermediate springrest (6) and compound spring (7a) are used only on 3/4" (19mm) and 1" (25.4mm) models with 5 to 125 PSI (0.34 to 8.62 Bar) adjustment range. Unscrew and remove bottom plug (16), O-ring (15) and valve spring (14). Pull valve assembly (11) together with O-ring (12) out of body. Do not remove valve seat (10) unless replacement is necessary. Remove O-ring (9) using a hook shaped tool, taking care not to damage O-ring seating surfaces or valve seat. Clean parts using warm water and soap. Dry thoroughly. Inspect each part carefully. Replace any parts which are damaged. At reassembly, apply a wipe coat of silicone base grease to O-rings (9, 12, 15), to stem and body of valve assembly (11), and to center bore in bottom plug (16). Apply a light even coat of light grease to full length of threads and tip of adjusting screw (1). Tighten valve seat (10), if previously removed, to 80-100 inch-pounds torque (9-11.3 N-m) (1/4", 3/8" and 1/2" sizes) (6.35mm, 9.53mm, and 12.77mm sizes) or 25-30 foot-pounds torque (33.9-40.7 N-m) (3/4" and 1" sizes) (19mm and 25.4mm sizes). Tighten bottom plug (16) snugly by hand. Tighten bonnet screws (4) to 20-30 inch-pounds torque (2.3-3.4 N-m) (1/4", 3/8" and 1/2" sizes) (6.35mm, 9.53mm, and 12.77mm sizes) or 50-60 inch-pounds torque (5.6-6.8 N-m) (3/4" and 1" sizes) (19mm and 25.4mm sizes).

⚠ WARNING

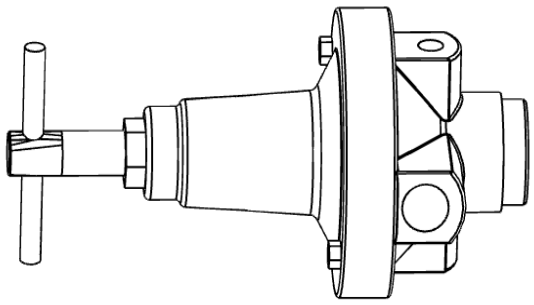
IF OUTLET PRESSURES IN EXCESS OF THE REGULATOR PRESSURE SETTING COULD CAUSE DOWNSTREAM EQUIPMENT TO RUPTURE OR MALFUNCTION, INSTALL A PRESSURE RELIEF DEVICE DOWNSTREAM OF THE REGULATOR. THE RELIEF PRESSURE AND FLOW CAPACITY OF THE RELIEF DEVICE MUST SATISFY SYSTEM REQUIREMENTS.

⚠ WARNING

BEFORE USING WITH FLUIDS OTHER THAN AIR, FOR NON-INDUSTRIAL APPLICATIONS, OR FOR LIFE SUPPORT SYSTEMS, CONSULT C.A. NORGREN CO

ADJUSTMENT

1. Before turning on system air pressure, turn regulator adjustment counterclockwise until all load is removed from regulating spring.
2. Turn on system air pressure.
3. Turn regulator adjustment clockwise until the desired outlet pressure is reached.
4.To avoid minor readjustment after making a change in pressure setting, always approach the desired pressure from a lower pressure. When reducing from a higher to a lower setting, first reduce to some pressure less than the desired, then bring up to the desired point.
5. Tighten jam out to lock pressure setting.



UNLOADING THE UNIT

If you're A-1C unit is on a truck bed or other plat-form and needs to be lifted into position, use the

FILLING LUBRICATOR

⚠ WARNING

Prior to filling the lubricator, be sure there is no air pressure in the unit. Failure to relieve air pressure will result in the fill plug exploding from the lubricator, which may result in injury.
Remove fill plug and fill with lubricant until sight gauge is full. Replace fill plug. Lubricator should be filled every two hours of use for an A-1C. See Recommended Lubricants chart on page XX for acceptable lubricants.

MACHINE INSPECTION

⚠ CAUTION

Prior to each use, it is imperative to inspect the machine all over to ensure excellent condition for the safety of the operator and to prevent damage to the equipment.

- Check all drill bed bolts and tighten as necessary on a daily basis. Tighten all other bolts at least once weekly. Refer maintenance diagram on page 5-1.
- Grease fittings around drill bed daily. Grease all other fittings at least once a week. Refer maintenance diagram on page 5-1.
- Verify that all lock pins are in their locked position.
- Make sure all controls are in the "off" position and the lift lever is in the "up" position.
- Check that the air line is cleaned out and is the proper size and pressure rating.
- Ensure the air compressor is set at an operating pressure of not more than 120 PSI (8.27bar).
- Install drill steel and bits into the drill motors and close the latch retainers and rod guides.

AIR COMPRESSOR CONNECTION

- Connect the air line to the drill in accordance with hose connection instructions in the compressor manual.
- Start the compressor according to manufacturer's instructions.

POSITION MACHINE FOR DRILLING

- Position the drill unit where the first set of holes is to be drilled, keeping the drill unit back from the edge of the slab slightly. Set the brake.
- With the lift lock still engaged, charge the lift cylinder by toggling the lift lever up and down.
- With the lift valve in the "up" position and after making sure that there are no obstructions in the path of the drill bed, remove the lift lock pin.
- Using the lift lever, lower the drill bed into drilling position.

HEIGHT ADJUSTMENT

To check the drilling height, measure from the top of the slab to the center of the drill steel. If necessary, loosen the locknuts and use the ad-justing screws to raise or lower the drill bed into the proper drilling height. After height is properly adjusted, re-tighten the locknuts. Verify the drill bed is parallel with the slab that is to be drilled into. If necessary, loosen the locknut on the lift cylinder and turn the adjusting screw right to raise the bed or left to lower the bed until the bed is parallel with the slab. Re-tighten locknuts after complete.

DEPTH ADJUSTMENT

⚠ CAUTION

Physical motion is going to occur, stand clear of the drill unit.
To set the drill depth, remove all of the rail locking pins and feed the drill bit into the face of the slab without turning on the drills by turning on Feed 1 and the feed switch. Repeat for Feed 2, when applicable. Measure the distance between the drill stop rod and the drill stop pad. Adjust the stop bolt so that the distance between the stop pad and the stop bolt equals the drill depth.

DRILL TEST HOLE

Refer to operating instructions to drill the first set of holes. After the first set of holes, measure the height and depth of the hole to ensure proper alignment.

1. Make sure the lubricator is full. See recommended lubricants on page 3-1. A-1C series units should be filled every two hours.

2. Use a 3/4" (19mm) hose to supply air to the drill unit for A-1C series units.

3. Install the drill steel and bit into the drill.

4. Make sure the air compressor is on.

5. Position the drill where the first hole is to be drilled and set the brake.

6. Remove the rail locking pin.

7. Lower the rail to the horizontal drilling position.

8. Make sure the rub strip is against the slab.

9. Using the feed control valve, feed the bit against the slab.

10. Using the drill control valve, feed the bit against the slab.

11. With the drill valve turned on and the feed switch turned on, the slider and drill will move and the drill will turn on. When the feed switch is turned off, the slider is retracted from the hole and the drill will turn off automatically. If it does not, turn the drill switch off.

12. Once the hole is drilled, disengage the brake and move the unit to the next hole location, en-gage the brake, and repeat steps 8-11 as necessary.

13. There is a low-level oil indicator, this must be "green" in order for the hammers to operate. If the indicator is "red", please fill oil reservoir with proper rock drill oil.

PRIOR TO OPERATION

⚠ WARNING

Wear proper safety equipment as the following hazards may be present during operation:
- Flying Debris: During drilling, chips may be ejected.
- Dust: Concrete dust will be emitted from the hole.
- Loud Noise: The air compressor and drill unit will create loud noise levels.
- Pinch Points: Keep clear of all moving parts.

This is not an all inclusive list. Be aware of your surroundings and use any and all precautionary measures available.

OPERATOR POSITION

⚠ WARNING

Failure to follow the instructions below may result in serious injury.
The operator should always stand in a safe location with good visibility where controls can be easily reached. The operator should always stand in a location so he/she is following the machine. Never lead the machine with your back towards it. Refer to the diagram below for proper operating positions.

DRILLING

- Place the feed levers in the "in" position to move the bits against the face of the slab.
- Place the drill levers in the "on" position to turn on the drill motors.
- When drill motors reach the required depth, place the feed lever in the "out" position.
- When the drill steel is clear of the hole, place the drill lever in the "off" position.
- Release the brake, position the drill for the next set of holes, reset the brake, and repeat the process until all holes are drilled.

MOVING THE UNIT

Move the unit by pushing or pulling to the desired position. Be sure the operator is standing in a safe location. See diagram below.
TURNING THE UNIT
Turn the unit by rotating the steering wheel clock-wise or counterclockwise.

PROBLEM: DRILL DOES NOT RUN

CAUSE	REMEDY
DRILL NOT GETTING AIR	1. On Multi Drill units, switch airline with drill that is working properly. If drill now runs check the air control valve. If the valve works, check the drill. 2. Check clave on air compressor and drill unit to be certain they are completely open 3. Check compressor. It should have 100SCFM (47.20m^3/sec.) per drill and 110PSI (7.6 BAR) at drill manifold when drilling with large drills. 4. Make certain all fittings are connected properly and not leaking.
COUPLING OR HOSE OBSTRUCTION	Remove Obstruction
FAILURE IN THE ELECTRICAL CIRCUIT	Check switches, connections, coils, ground & voltage. If the power unit (backhoes, grader, ETC.) is being jump started, check the AMPS & voltage being jump supplied to coils from the battery, it may be too low.
FAILURE OF DRILL SOLENOID VALUE (MULTI DRILL UNITS WITH REMOTE ELECTRICAL CONTROLS)	Check valve - you should be able to feel the solenoid move when it is actuated. Make sure you have current to the solenoid coil. Replace the dolenoid if there is no movement.
MECHANICAL FAILURE OF DRILL	Disassemble the drill & inspect for damaged parts.

⚠ WARNING

DO NOT hit drill slider to retract the bit from the hole. This will damage the drill slider.

⚠ WARNING

Always disconnect the air supply before changing steel or dismantling the tool for service or repair. For maximum safety we advise the installation of a shut-off valve at the end of the air line.

PROBLEM: DRILL RUNS SLOW OR DOES NOT DRILL EFFECTIVELY

CAUSE	REMEDY
NOT ENOUGH AIR REACHING DRILL. IT SHOULD HAVE 100SCFM (47.2DM^3/SEC.) PER DRILL AND 110 PSI (7.6 BAR)	On Multi Drill units. Turn off one or two drills. If the remaining drills pick up speed, check the air compressor.
RESTRICTION IN AIR LINE	A foreign object in the air line or possibly a reduction in the air line caused by a reducer fitting.
TOO SMALL AIR LINE	Following are supply line sizes for drilling: A-1 Single Drill 3/4" (19mm) A-2 Two Drills 1-1/4" (38.75mm) A-3& A-4 Three & four drills 1-1/2" (38.1mm) A-5 Five Drills 2" (50.8mm)
AIR PRESSURE TO CYLINDER "FEEDING" DRILL INTO CONCRETE NOT ADJUSTED PROPERLY	Excessive pressure can cause drill to "bind up" in the hole. Pressure that is too low will not "feed" the drill into the concrete. The air pressure required varies with the drill model. Horizontal- all units with large drills use 22-26 PSI (1.5-1.8 bar). Drill units using the 15LB (6.8kg) class drill will use 16-20 PSI (1.1-1.4 Bar). Vertical - all drill units use 5-6 PSI (0.34-0.41 Bar). With the correct air pressure, the drill steel should have a slight rattle.
INSUFFICIENT AIR FLOW TO KEEP HOLE BLOWN CLEAN	Check for obstruction in the blow tube in the drill.
LUBRICATOR PUTTING OUT TOO MUCH OIL TO DRILL	If you notice more than a light film of oil on the air deflector on the bottom of the drill adjust the lubricator, make certain you are using the type of oil called for in the operation and maintenance manual.
MECHANICAL BLINDING OF DRILL CARRIER	Make sure the eight bearing pads are adjusted correctly. The square tube that the drill carrier slides on must be free of rust so that the carrier slides freely, drill steel must not be binding in the guide bearing.
BENT DRILL STEEL, WORN DRILL BIT OR DRILLING INTO REBAR	Replace the drill steel or bit. If drilling into rebar, move the drill.
USING 3 1/4" (8.25CM) SHANK DRILL STEEL IN 4 1/4" (10.8CM) SHANK CHUCK DRILL	The drill steel will rotate but it will not allow the drill piston to hammer properly, replace it with the correct 4 1/4" (10.8cm) drill steel.

STEP 1 Be sure lubricator is full. See recommended oils below.

STEP 2 Make sure slab wheels are square against face of slab.

STEP 3 Using feed control valve, feed bit against slab.

STEP 4 Using drill control valve, turn drill on and drill until the drill slider is against the stop clamp, which should be set for the required depth of hole.

STEP 5 Once drill slider is against the stop clamp, leave the drill on and use the feed control valve to retract the drill from the hole. Note: If bit will not retract from hole, feed drill back into hole and retract drill again.

Minnich Mfg. Recommended Rock Drill Oil

RENEWABLE LUBRICANTS

Bio-Rock Drill™ Oil 15W50

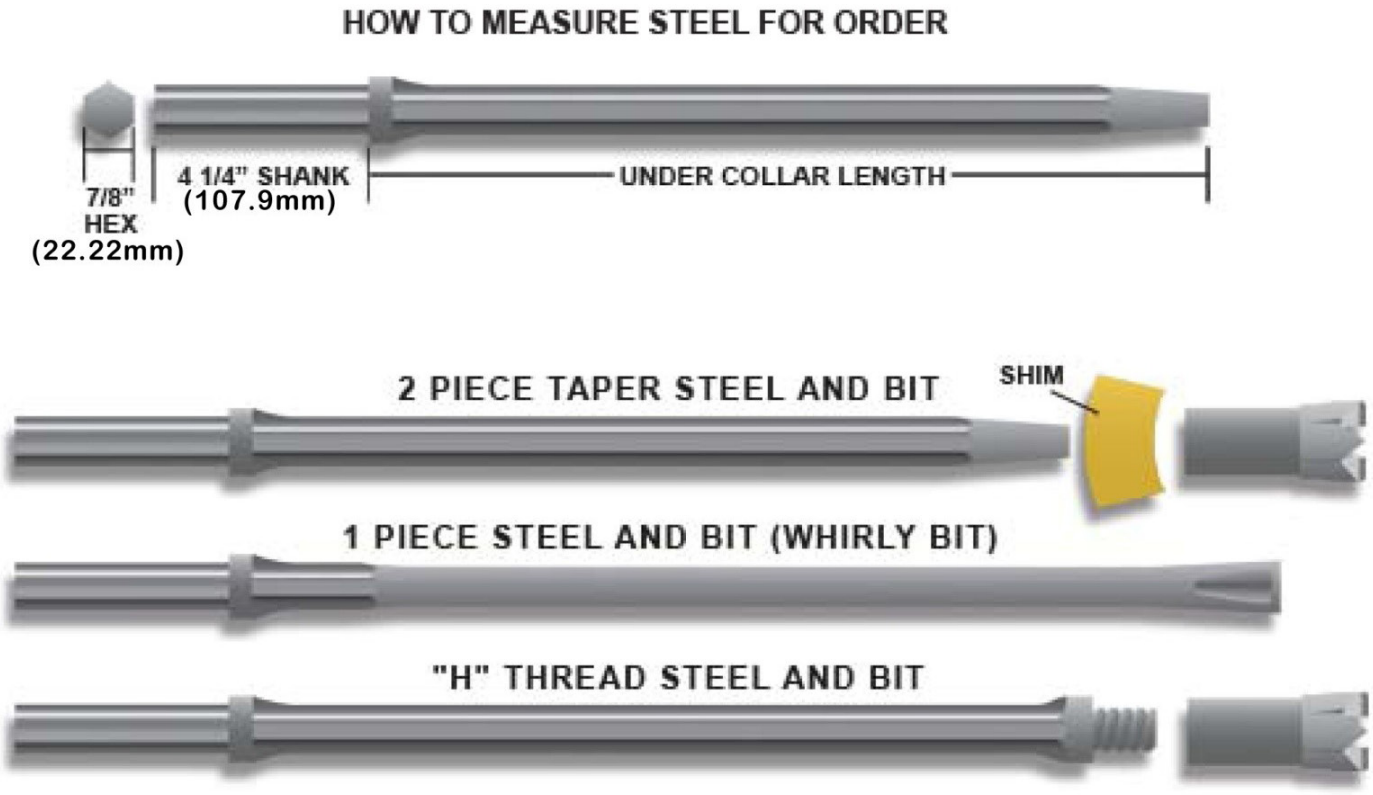
RENEWABLE LUBRICANTS

Bio-Rock Drill™ Oil 15W50

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

USDA CERTIFIED BIOBASED PRODUCT

NSF



WARRANTY POLICY

All drill steel and bits sold to customer are intended for use in drilling concrete. It is not capable of drilling through steel mesh, rebar or dowel bars. Use in these applications will void all warranties and dramatically shorten bit life. Bit life is also affected by the sharpness of the bit, type of aggregate and condition of concrete. Minnich Manufacturing's drill steel and bit warranty is limited to the warranty provided by the supplier. All warranty claims must be submitted to Minnich for evaluation and sent to the supplier for authorization.

GENERAL NOTES

1. 2" (50.8mm) diameter maximum bit for hydraulic drills.
2. 2 1/2" (63.5mm) diameter maximum bit for pneumatic drills.
3. 5/8" (16mm) diameter is the smallest hole diameter.
4. Cutting speed varies from 15 to 30 seconds for a 6" (152.4mm) deep hole, de pending on bit diameter and aggregate.
5. On average you can get 180 holes, 9" (228.6mm) deep per bit.
6. On average you can get 600 holes, 9" (228.6mm) deep per drill steel.
7. Removable bits are carbide and cannot be re-sharpened.
8. Whirly bit steel can be re-sharpened twice.

1 PIECE STEEL & BIT (WHIRLY BIT)

PART NUMBER	HOLE DIAMETER	SHANK SIZE	UC LENGTH
005367-12.00	5/8" (15.9mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)
005367-24.00	5/8" (15.9mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)
004209-12.00	3/4" (19.1mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)
004209-24.00	3/4" (19.1mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)
004541-12.00	7/8" (22.2mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)
004541-24.00	7/8" (22.2mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)
004745-12.00	1" (25.4mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)
004745-24.00	1" (25.4mm)	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)

ALL 4 1/4" (107.9MM) SHANKS CAN BE CUT TO A 3 1/4" (82.55MM) SHANKS

TAPERED STEEL

PART NUMBER	SHANK SIZE	UC LENGTH	NOTES
003749-12.00	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)	For 1" (2.54cm) Bits ONLY 003747-1.000
003749 -24.00	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)	
004116-12.00	7/8" x 4 1/4" (22.2mm x 107.9mm)	12" (30.5cm)	For 1 1/8" (2.86cm) & Larger Bits ONLY
004116 -24.00	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)	

TAPERED BITS

PART NUMBER	SHANK SIZE	UC LENGTH	NOTES
003747-1.000	1" (2.54cm)	003839-00000	Use 003749-12.00 or 003749-24.00 Steel ONLY
003747-1.120	1 1/8" (2.86cm)	003901-00000	
003747-1.180	1 3/16" (3.01cm)	003901-00000	
003747-1.250	1 1/4" (3.18cm)	003901-00000	
003747-1.310	1 5/16" (3.34cm)	003901-00000	
003747-1.370	1 3/8" (3.49cm)	003901-00000	
003747-1.430	1 7/16" (3.65cm)	003901-00000	
003747-1.500	1 1/2" (3.81cm)	003901-00000	Use 004116-12.00 or 004116-24.00 Steel ONLY
003747-1.560	1 9/16" (3.97cm)	003901-00000	
003747-1.620	1 5/8" (4.13cm)	003901-00000	
003747-1.750	1 3/4" (4.45cm)	003901-00000	
003747-1.810	1 13/16" (4.60cm)	003901-00000	
003747-1.880	1 7/8" (4.76cm)	003901-00000	
003747-2.000	2" (5.08cm)	003901-00000	

ALL 4 1/4" (107.9MM) SHANKS CAN BE CUT TO A 3 1/4" (82.55MM) SHANKS

"H" THREAD STEEL

PART NUMBER	SHANK SIZE	UC LENGTH
005061-24.00	7/8" x 4 1/4" (22.2mm x 107.9mm)	24" (61.0cm)
05061B-24.00	1" x 4 1/4" (25.4mm x 107.9mm)	24" (61.0cm)

"H" THREAD BITS

PART NUMBER	HOLE DIAMETER	NOTES
005140-1.370	1 3/8" (3.49cm)	
005140-1.500	1 1/2" (3.81cm)	
005140-1.620	1 5/8" (4.13cm)	
005140-1.750	1 3/4" (4.45cm)	
005140-1.870	1 7/8" (4.76cm)	
005140-2.000	2" (5.08cm)	
005140-2.250	2 1/4" (5.72cm)	
005140-2.500	2 1/2" (6.35cm)	Multiple use bit

ALL 4 1/4" (107.9MM) SHANKS CAN BE CUT TO 3 1/4" (82.55MM) SHANKS

USAGE CALCULATION

The calculations below are nominal and could vary depending on the hardness of the concrete, aggregates used and the possibility of bits hitting steel reinforcement.

Whirly Bit, Taper Bit and "H" Thread Bit
(B)Bit=180 holes x 9" (22.86cm)
B=1620" (4114.8cm)
Number of bits needed = (number of holes x hole depth)/1620"

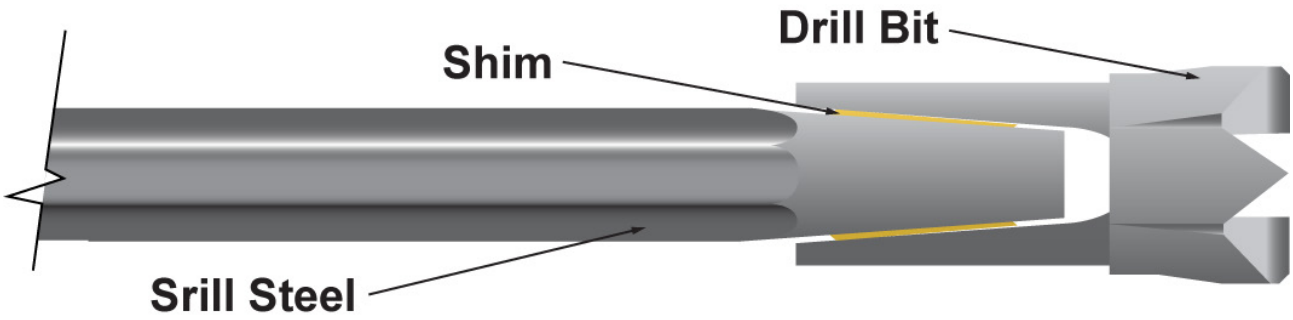
Taper Steel and "H" Thread Steel
(S)Steel=600 holes x 9" (22.86cm)
S=5400" (13716cm)
Number of steels needed = (number of holes x hole depth)/5400"

Example:
Need 50,000 Holes 12" (30.48cm) Deep for the job.

(50,000 x 12)/1620 = 371 Bits
(50,000 x 12)/5400 = 112 Steels

DRILL BIT INSTALLATION

1. Check to see that the hole through the center of the drill steel is not blocked, if so remove the object.
2. Clean the tapered end of the drill steel and the inside of the drill bit with a non-oily cleaner, making sure not to leave any oily residue.
3. Make sure a brass shim is in the drill bit. If not, carefully roll a new one and slide it into the bit making sure that the ends do not overlap.
4. Put the drill bit on the tapered end of the drill steel and tap it on a firm surface to seat the bit.

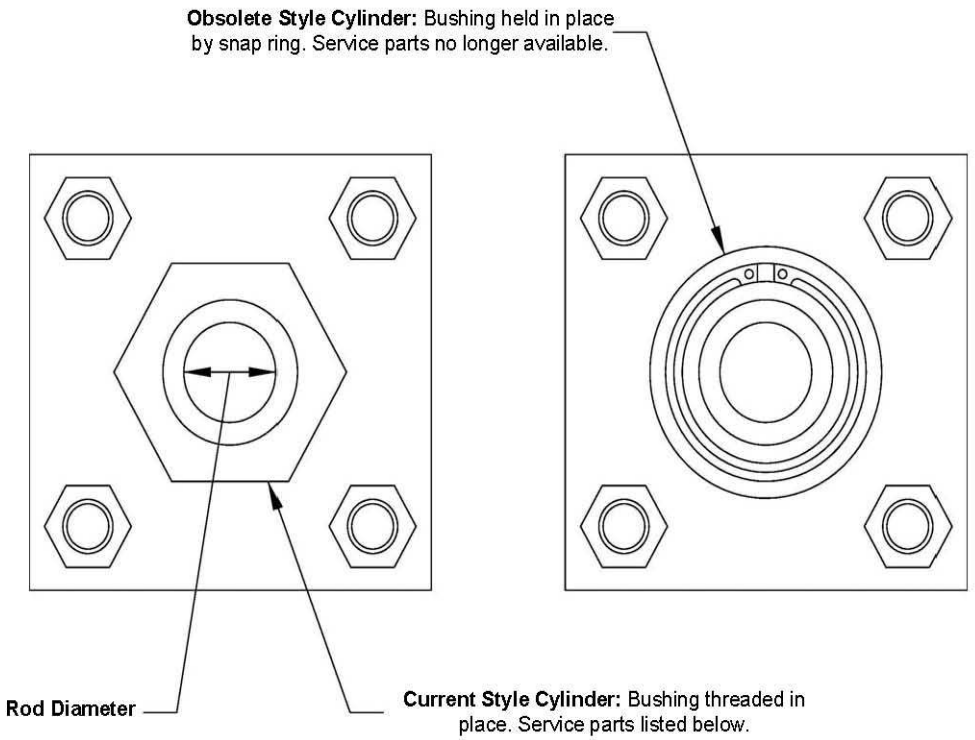


DRILL BIT REMOVAL

1. Swing latch so that drill steel can be removed from drill.
2. Pull drill steel out of drill.
3. Using two hammers, place one hammer on bottom side of bit. Using other hammer, strike the bit on the topside. Rotate drill steel 1/4 turn and strike top of bit again. Repeat procedure until bit comes off.

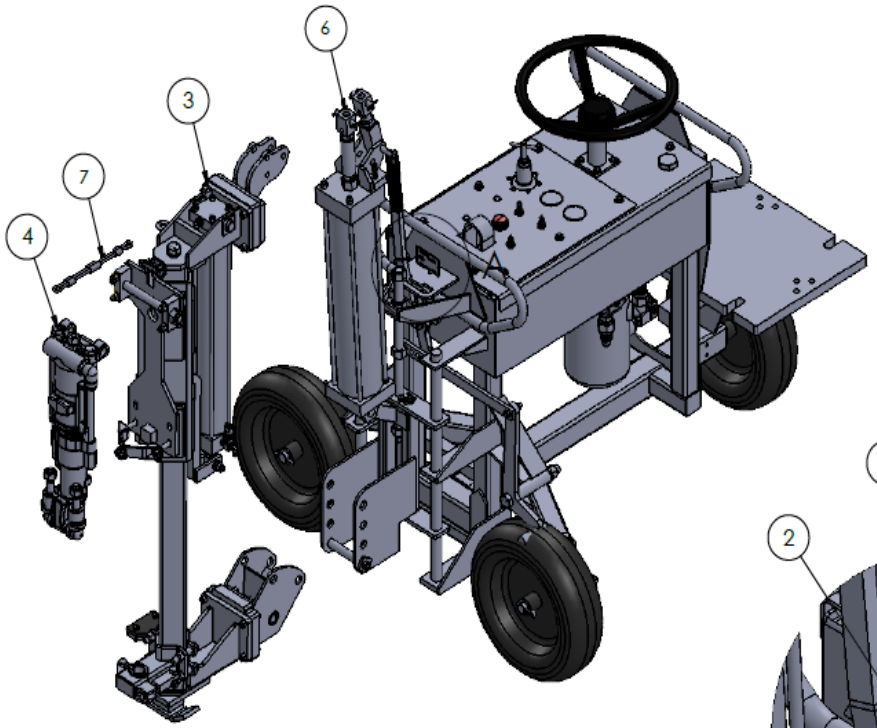
⚠ CAUTION

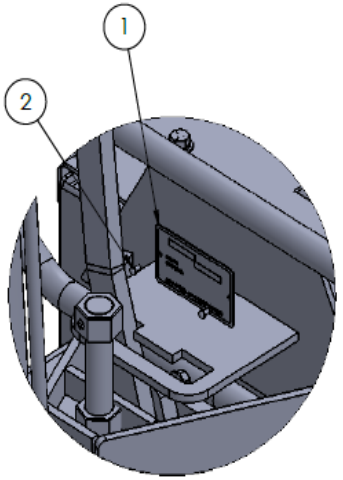
Bit may pop off of drill steel with some force.



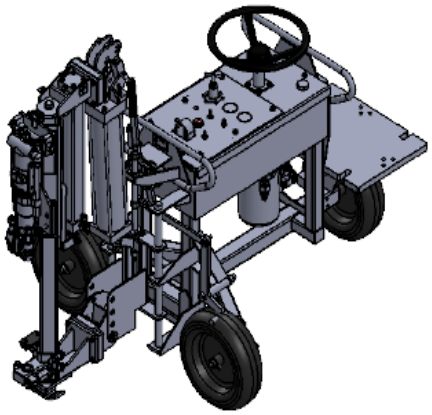
	OVERSIZE ROD CYLINDERS (FEED)		STANDARD ROD CYLINDERS	
	ROD DIAMETER	SERVICE KIT PART #	ROD DIAMETER	
1.50" (3.81 cm) Bore			5/8" (1.59 cm)	A12899-1.500
2.50" (6.35 cm) Bore	1" (2.54 cm)	A12895-2.500	5/8" (1.59 cm)	A12899-2.500
3.25" (8.26 cm) Bore	1 3/8" (3.49 cm)	A12895.3.250	1" (2.54 cm)	A12899-3.250
4.00" (10.16 cm) Bore			1" (2.54 cm)	A12899-4.000
5.00" (12.70 cm) Bore			1" (2.54 cm)	A12899-5.000
6.00" (15.24 cm) Bore			1 3/8" (3.49 cm)	A12899-6.000
7.00" (17.78 cm) Bore			1 3/8" (3.49 cm)	A12899-7.000

ITEM NO.	PART NUMBER	DESCRIPTION
1	708-4	SERIAL TAG
2	6262-1	SCREW, DRIVE HD RD. #4 X 1/4"
3	A8592-17	A-1C-48 RAIL INSTALLATION
4	A9350	DRILL, AIR 7/8 X 4-1/4 CHUCK TOYO 50 LB
5	A11394-3	DECAL, KIT FOR: A-1C-30
6	A11754-3	A-1C TRACTOR
7	A13270-4	SPRING WHIP CABLE ASSEMBLY





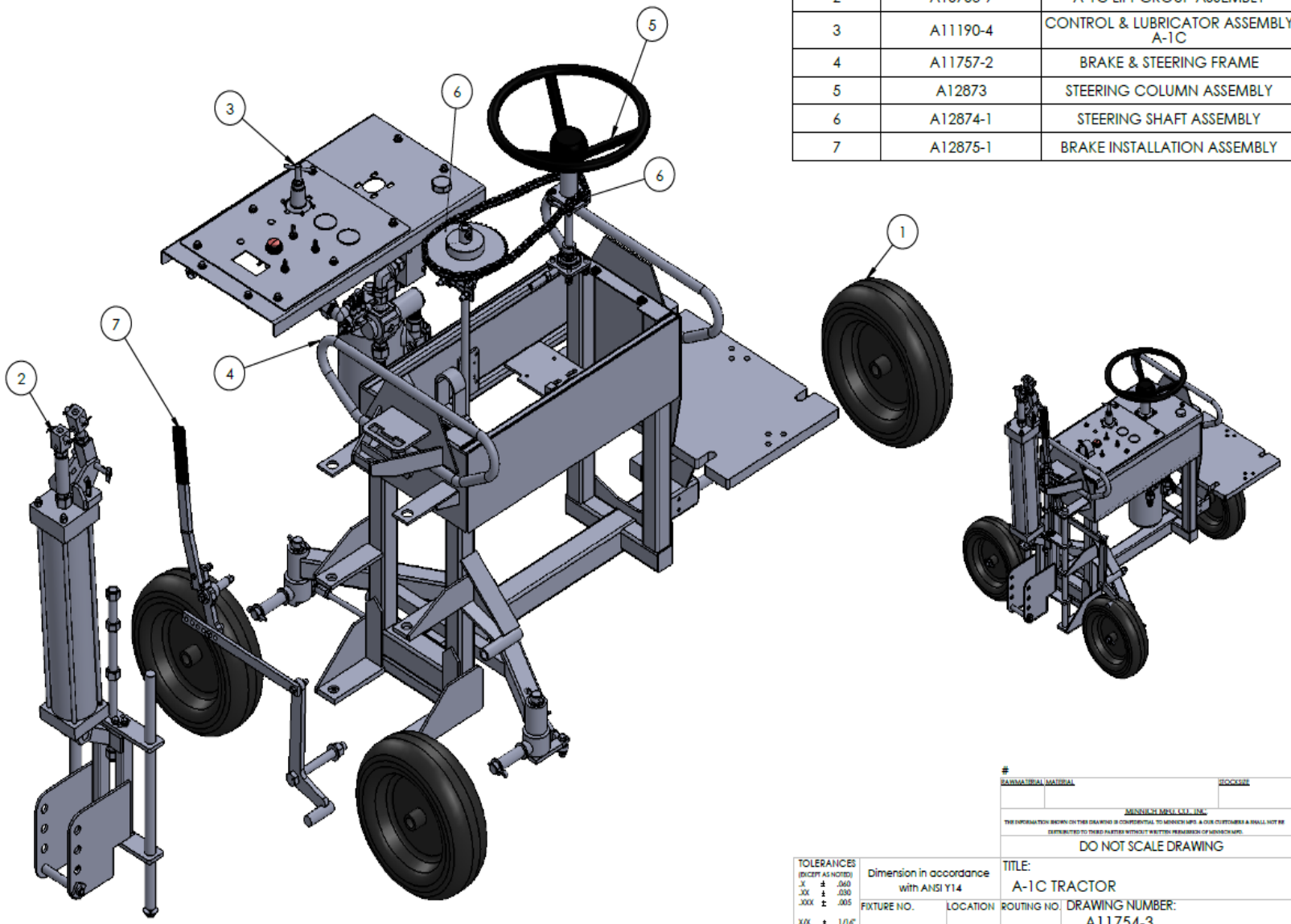
DETAIL A
SCALE 1 : 3



NOT SHOWN:
A11394-3 DECAL KIT: A-1C

RAW MATERIAL/MATERIAL	STOCK SIZE		
MINNICH MFG. CO., INC.		DRAWN BY: RJ	
THE INFORMATION SHOWN ON THIS DRAWING IS CONFIDENTIAL TO MINNICH MFG. & OUR CUSTOMERS & SHALL NOT BE DISTRIBUTED TO THIRD PARTIES WITHOUT WRITTEN PERMISSION OF MINNICH MFG.		CHECKED BY: AEB	
DO NOT SCALE DRAWING		APPROVED BY:	
TOLERANCES (EXCEPT AS NOTED) .X ± .060 .XX ± .030 .XXX ± .005 X/X ± 1/16" < ± 1°	Dimension in accordance with ANSI Y14	TITLE: DRILL, A-1C	ORIG DATE: 09/23/2020
FIXTURE NO.	LOCATION	ROUTING NO.	DRAWING NUMBER: A11755-18 / REV. LEVEL: -

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	A11191-2B WAS A11190-2B	06/19/2019	RJ



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	7565	WHEEL	3
2	A10703-9	A-1C LIFT GROUP ASSEMBLY	1
3	A11190-4	CONTROL & LUBRICATOR ASSEMBLY A-1C	1
4	A11757-2	BRAKE & STEERING FRAME	1
5	A12873	STEERING COLUMN ASSEMBLY	1
6	A12874-1	STEERING SHAFT ASSEMBLY	1
7	A12875-1	BRAKE INSTALLATION ASSEMBLY	1

#

RAW MATERIAL/ MATERIAL | STOCK SIZE

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DRAWN BY: RJ

DO NOT SCALE DRAWING

CHECKED BY:

APPROVED BY:

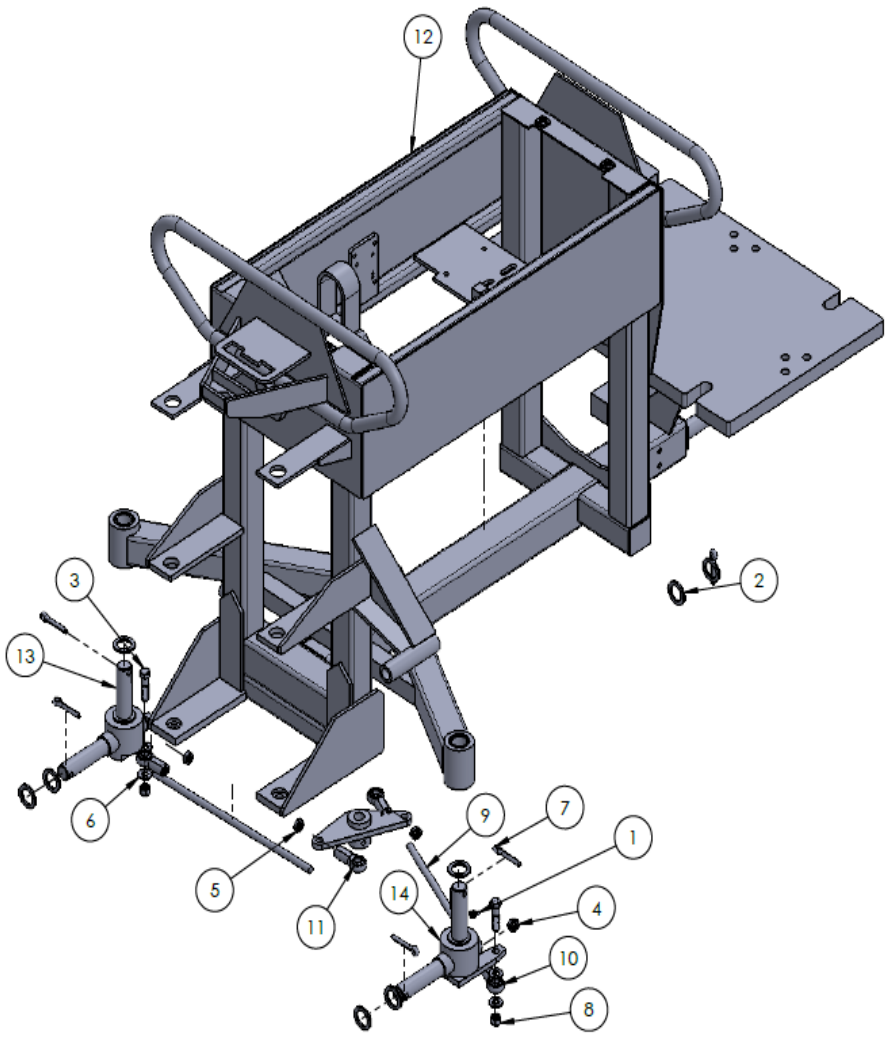
TOLERANCES (EXCEPT AS NOTED)
.X ± .060
.XX ± .030
.XXX ± .005
X/X ± 1/16"
< ± 1°

Dimension in accordance with ANSI Y14

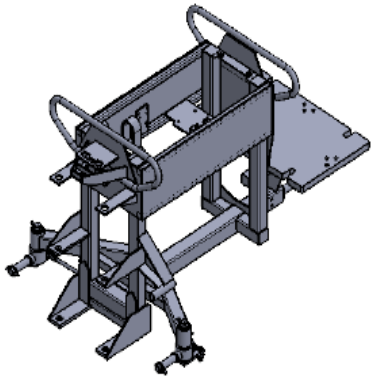
TITLE: A-1C TRACTOR

ORIG DATE: 09/18/2018

FIXTURE NO. | LOCATION | ROUTING NO | DRAWING NUMBER: A11754-3 | REV. LEVEL A



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	798	GREASE FITTING	2
2	4675-1	AXLE WASHER	10
3	6039-1.75	HEX BOLT 7/16-14 X 1.75 GR.5	2
4	6087	7/16-20 HEX NUT	2
5	6087-LH	7/16-20 LH HEX NUT	2
6	6110	FLAT WASHER 7/16"	4
7	6180-1.50	5/16 X 1-1/2 COTTER PIN	5
8	6405	LOCKNUT 7/16-14	2
9	8253	TIE ROD	2
10	8280	SPHERICAL ROD END	2
11	8280-1	ROD EYE	2
12	A11750-2	FRAME WELDMENT	1
13	A13510	RH STEERING KNUCKLE WELDMENT	1
14	A13510-1	LH STEERING KNUCKLE WELDMENT	1



RAW MATERIAL/ MATERIAL | PROCESS

MINNICH MFG. CO., INC.

DRAWN BY: RJ

DO NOT SCALE DRAWING

CHECKED BY: AEB(2/19/20)

APPROVED BY:

TOLERANCES (EXCEPT AS NOTED)
.X ± .060
.XX ± .030
.XXX ± .005
X/X ± 1/16"
< ± 1°

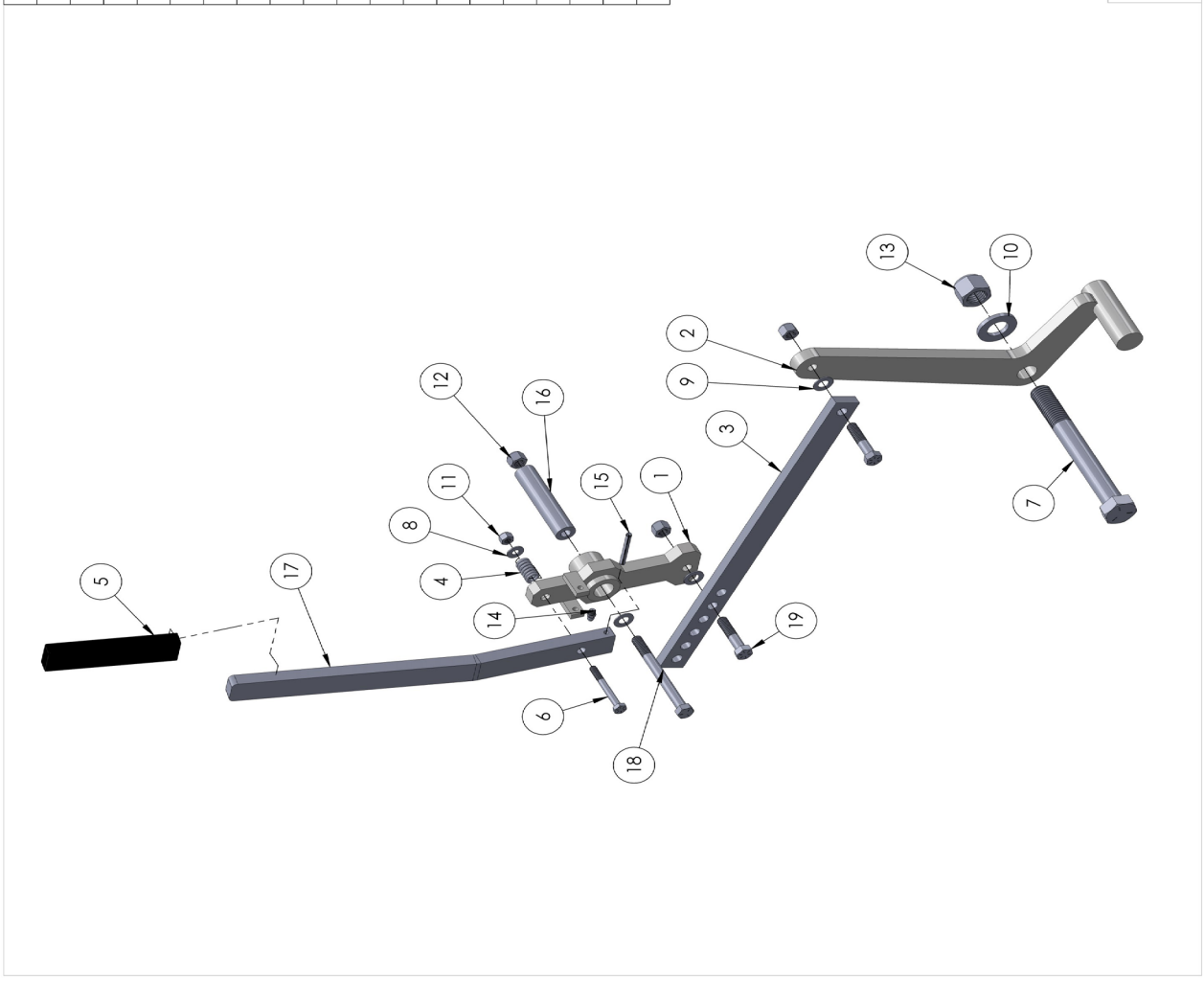
Dimension in accordance with ANSI Y14

TITLE: BRAKE & STEERING FRAME

ORIG DATE: 09/18/2018

FIXTURE NO. | LOCATION | ROUTING NO. | DRAWING NUMBER: A11757-2 | REV. LEVEL -

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	7245-1	BRAKE ARM WELDMENT	1
2	8366	BRAKE ARM WELDMENT	1
3	12004	BRAKE BAR	1
4	2893	COMPRESSION SPRING	1
5	3016-44-1	HANDLE - GRIP	1
6	6036-2.25	HHCS, 1/4-20 X 2.25 GR.5	1
7	6043-6.50	HHCS, 3/4-10 X 6.50 GR.5	1
8	6104	1/4 USS FLAT WASHER	1
9	6108	3/8" FLAT WASHER	3
10	6117	3/4" FLAT WASHER	1
11	6402	1/4-20" LOCKNUT	1
12	6404	LOCKNUT 3/8"	3
13	6409	LOCKNUT, 3/4-10 NYLOCK	1
14	6483-8	FITTING, LUB 1/4-28 TAPER STRAIGHT	1
15	6534-1.75	PIN, SPRING 3/16 X 1-3/4	1
16	7235-2	MOUNTING SHAFT	1
17	7246	BRAKE HANDLE BAR	1
18	6038-4.00	HHSC, 3/8-16 X 4.00 GR.5	1
19	6038-1.75	H.H.C.S. 3/8"-16 X 1.75	2



#	RAW MATERIAL (MATERIAL)	STOCK SIZE

MINNICH MFG. CO., INC.

THE INFORMATION SHOWN ON THIS DRAWING IS CONFIDENTIAL TO MINNICH MFG. & OUR CUSTOMERS & SHALL NOT BE DISTRIBUTED TO THIRD PARTIES WITHOUT WRITTEN PERMISSION OF MINNICH MFG.

DRAWN BY: RJ
CHECKED BY:
DO NOT SCALE DRAWING
APPROVED BY:

TOLERANCES (EXCEPT AS NOTED)	
X	± .060
XX	± .030
XXX	± .005
X/X	± 1/16°
<	± 1°

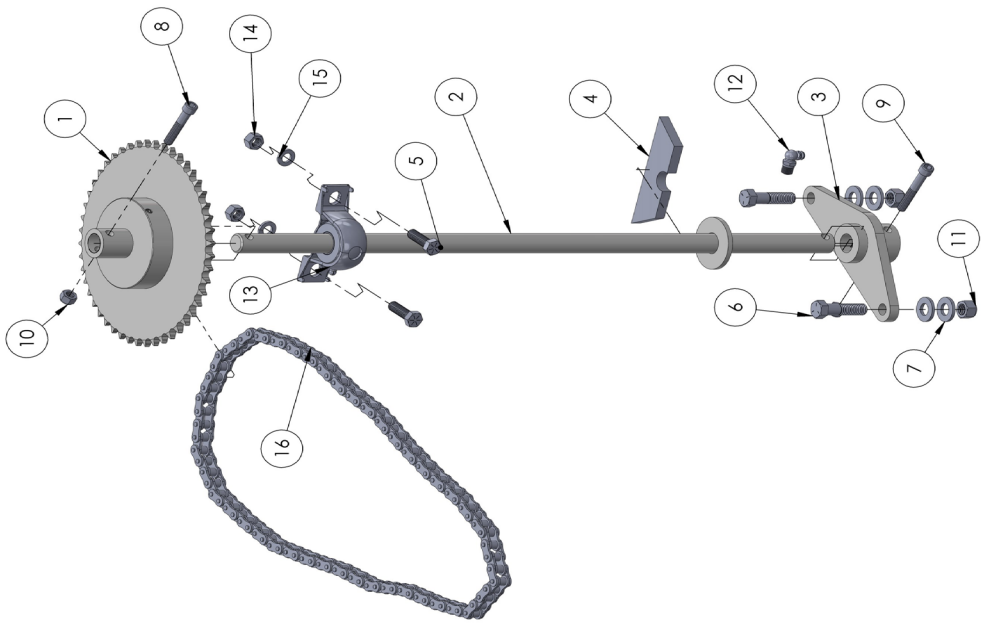
Dimension in accordance with ANSI Y14

TITLE: BRAKE INSTALLATION ASSEMBLY

ORIG DATE: 09/17/2018

FIXTURE NO. | LOCATION | ROUTING NO: DRAWING NUMBER: A12875-1 | REV: LEVEL -

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	11749	SPROCKET WELDMENT	1
2	8322-1	STEERING SHAFT WELDMENT	1
3	8264-1	STEERING WELDMENT LEVER	1
4	8429	STEERING STOP	1
5	6038-1.25	HHCS 3/8" X 1.25" G5	2
6	6039-1.75	HEX BOLT 7/16-14 X 1.75 GR.5	2
7	6110	FLAT WASHER 7/16"	4
8	6215-1.75	SHCS, 5/16-18 X 1-3/4	1
9	6215-2.00	SHCS, 5/16-18 X 2.00	1
10	6403	LOCKNUT 5/16"18	2
11	6405	LOCKNUT 7/16-14	2
12	6483-5	FITTING, LUB 1/8 NPT 90 DEGREE	1
13	8336-1	PILLOW BLOCK BEARING	1
14	6072	HEX NUT 3/8-16 GR 5	2
15	6149	LOCK WASHER 3/8	2
16	5477-1	ROLLER CHAIN	1



RAW MATERIAL MATERIAL — STOCKSIZE

MINNICH MFG. CO., INC.
THE INFORMATION SHOWN ON THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY TO MINNICH MFG. CO. & ITS CUSTOMERS & SHALL NOT BE DISTRIBUTED TO THIRD PARTIES WITHOUT WRITTEN PERMISSION OF MINNICH MFG.

DRAWN BY: RJ
CHECKED BY:
APPROVED BY:

DO NOT SCALE DRAWING

TOLERANCES (EXCEPT AS NOTED)
X ± .060
.XX ± .030
.XXX ± .005
X/X ± 1/16°
< ± 1°

Dimension in accordance with ANSI Y14

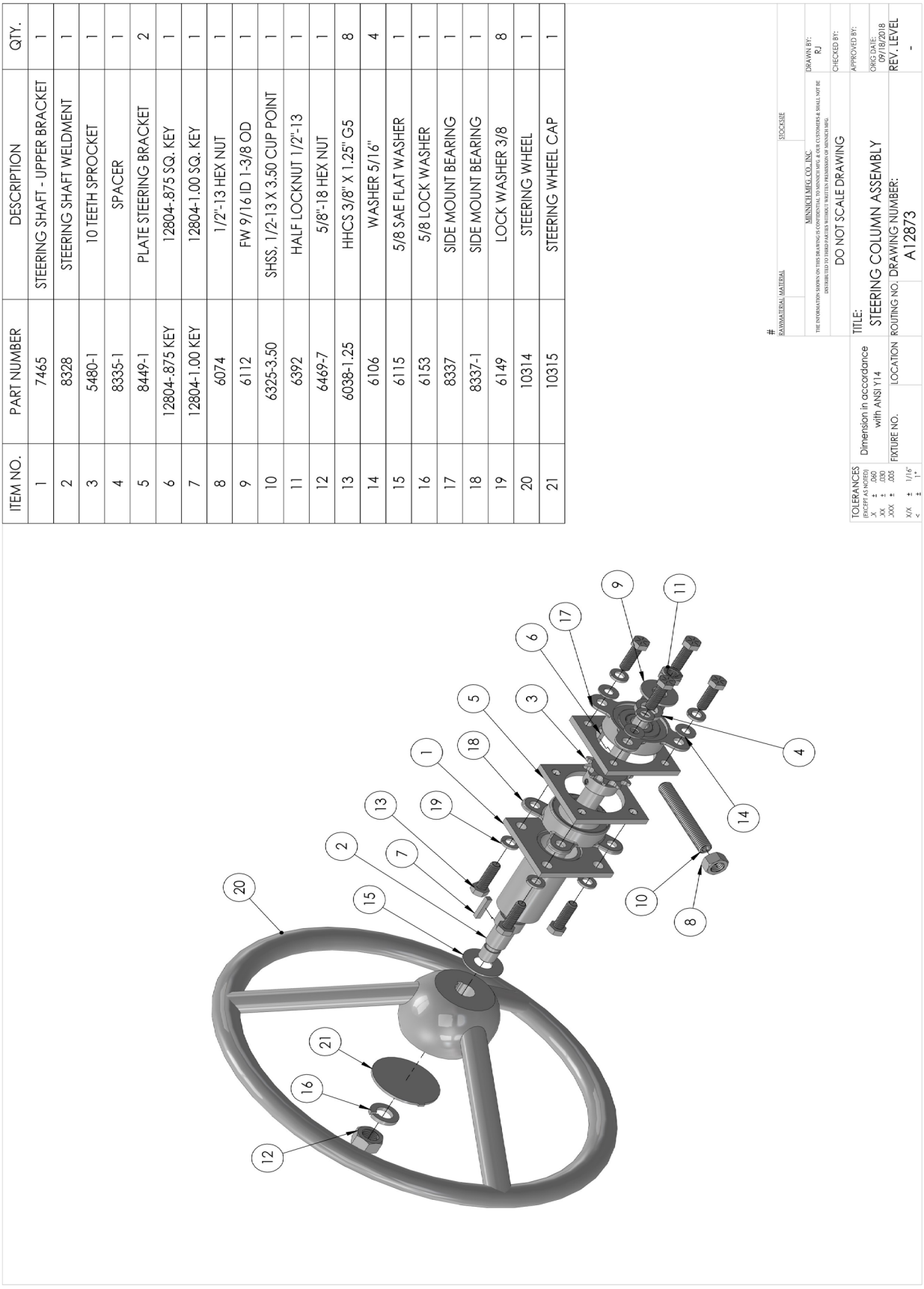
TITLE: STEERING SHAFT ASSEMBLY

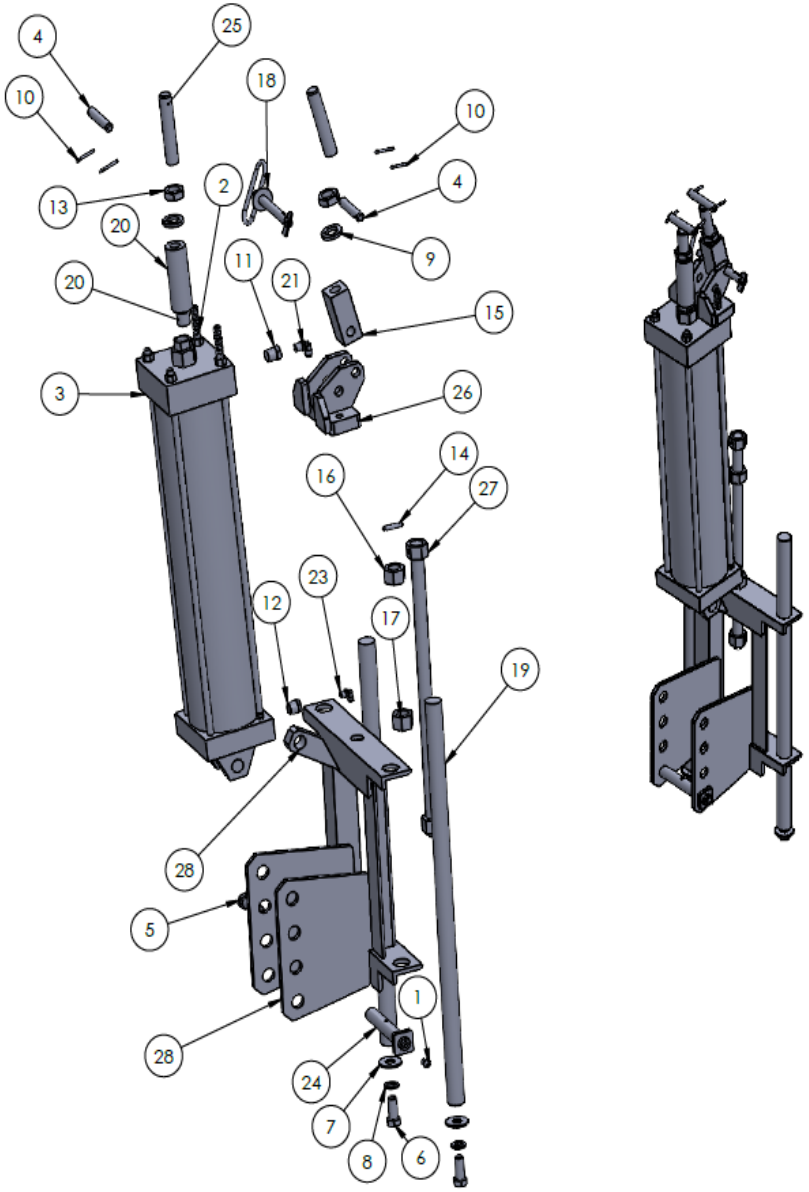
ORIG. DATE: 08/17/2018

FIXTURE NO. LOCATION ROUTING NO: DRAWING NUMBER: A12874-1

REV.: LEVEL -

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	7465	STEERING SHAFT - UPPER BRACKET	1
2	8328	STEERING SHAFT WELDMENT	1
3	5480-1	10 TEETH SPROCKET	1
4	8335-1	SPACER	1
5	8449-1	PLATE STEERING BRACKET	2
6	12804-.875 KEY	12804-.875 SQ. KEY	1
7	12804-1.00 KEY	12804-1.00 SQ. KEY	1
8	6074	1/2"-13 HEX NUT	1
9	6112	FW 9/16 ID 1-3/8 OD	1
10	6325-3.50	SHSS, 1/2-13 X 3.50 CUP POINT	1
11	6392	HALF LOCKNUT 1/2"-13	1
12	6469-7	5/8"-18 HEX NUT	1
13	6038-1.25	HHCS 3/8" X 1.25" G5	8
14	6106	WASHER 5/16"	4
15	6115	5/8 SAE FLAT WASHER	1
16	6153	5/8 LOCK WASHER	1
17	8337	SIDE MOUNT BEARING	1
18	8337-1	SIDE MOUNT BEARING	1
19	6149	LOCK WASHER 3/8	8
20	10314	STEERING WHEEL	1
21	10315	STEERING WHEEL CAP	1





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	798	GREASE FITTING	1
2	4612-51	STUD	2
3	5664	DOUBLE ACTING AIR CYLINDER	1
4	5775	PIN	2
5	6040-1.00	HHCS, 1/2-13 X 1.00" GR.5	1
6	6040-1.25	HHCS, 1/2-13 X 1-1/4 GR.5	2
7	6112	FW 9/16 ID 1-3/8 OD	3
8	6151	1/2" LOCK WASHER	3
9	6155	3/4" LOCK WASHER	2
10	6174-1.00	COTTER PIN 1/8" X 1"	4
11	6296-1	BUSHING, REDUCER PIPE 06-04	1
12	6296-15	BUSHING, REDUCER PIPE 06-02	1
13	6470-8	NUT, HEX JAM 3/4-10	2
14	6535-1.25	PIN, SPRING 1/4 X 1-1/4	1
15	6824-6	TIE ROD	1
16	7132	NUT, COIL STYLE THREAD	1
17	7132-1	COATED NUT, COIL STYLE THREAD	1
18	7264	PIN, TENSION LOCK TOGGLE	1
19	7489-1	HIGHT ADJUSTMENT SHAFT	2
20	8351-3	ANCHOR TUBE	1
21	10829-10	1/4 NPT PIPE	1
22	10829-11	FITTING, MALE ELBOW 1/4 TUBE TO 3/8 MALE NPT	2
23	10829-5	FITTING, MALE ELBOW 5/32 TUBE TO 1/8" MALE NPT	1
24	A5542-4	HANGER PIN WELDMENT	1
25	A5941-1	ADJUSTMENT SCREW WELDMENT	2
26	A7958-1	RETAINER BAR WELDMENT	1
27	A7960-1	ADJUSTMENT ROD WELDMENT	1
28	A8238-4	LIFT & CYLINDER ANCHOR	1

RAW MATERIAL/MATERIAL | STOCK SIZE

MINNICH MFG. CO., INC.

DRAWN BY: RJ

DO NOT SCALE DRAWING

CHECKED BY: AEB

APPROVED BY:

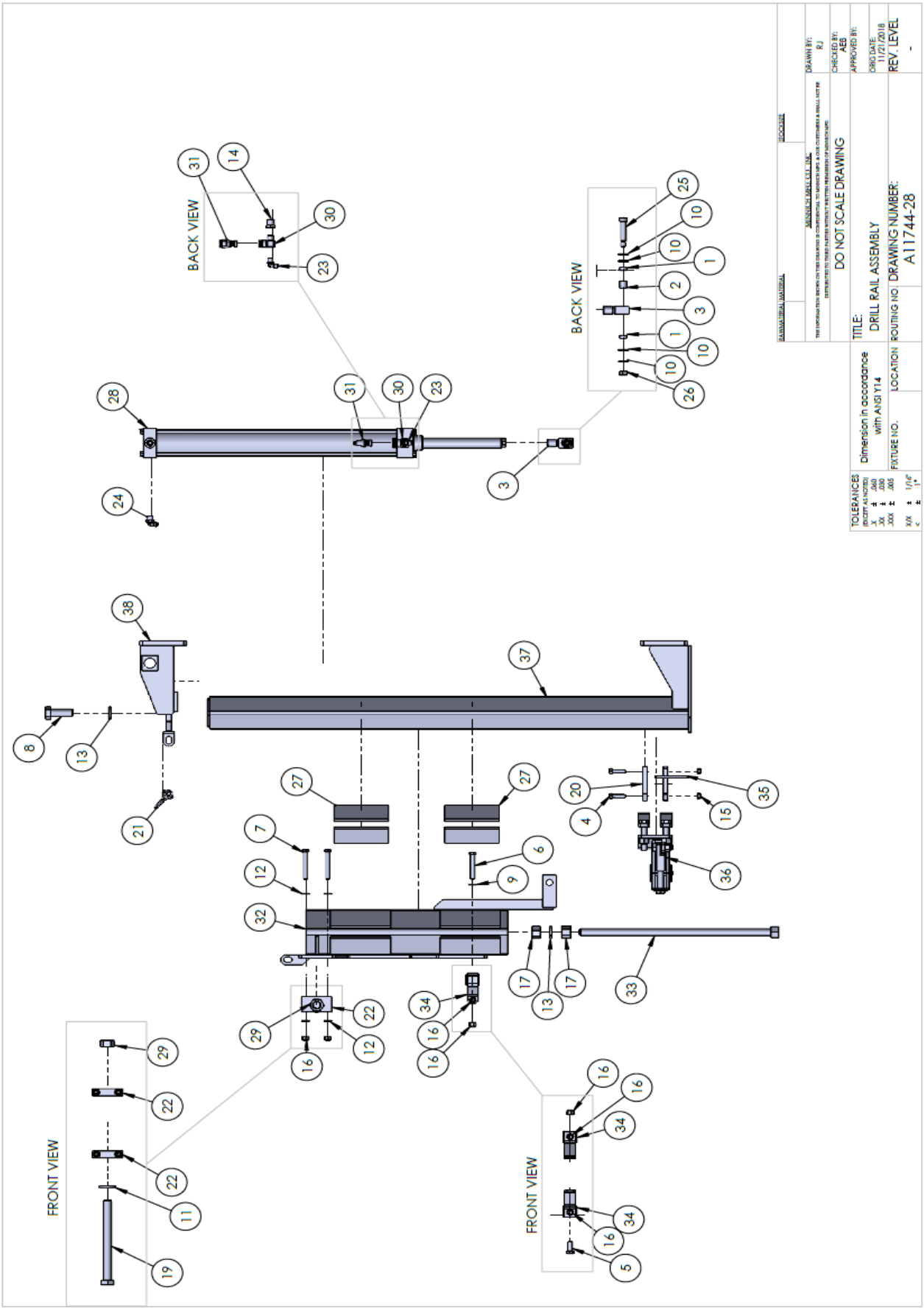
TOLERANCES (EXCEPT AS NOTED)
.X ± .060
.XX ± .030
.XXX ± .005
X/X ± 1/16°
< ± 1°

Dimension in accordance with ANSI Y14

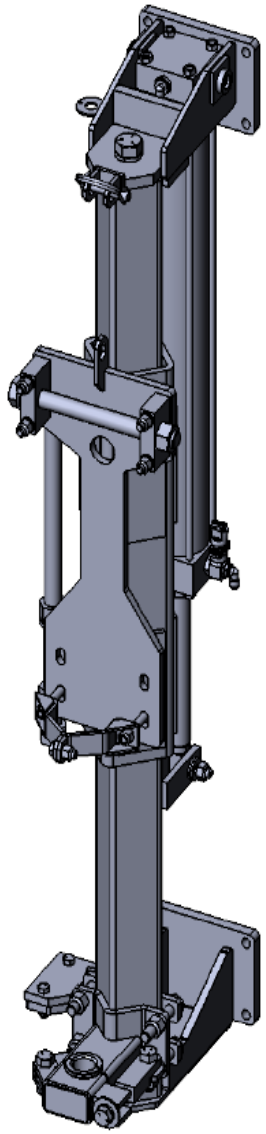
TITLE: A-2C LIFT GROUP INSTALLATION

ORIG DATE: 10/02/2018

FIXTURE NO. | LOCATION | ROUTING NO | DRAWING NUMBER: A11753-2 | REV. LEVEL A


BACK VIEW
BACK VIEW
FRONT VIEW
FRONT VIEW
TITLE:
DRILL RAIL ASSEMBLY
DO NOT SCALE DRAWING
DRAWING NUMBER:
A11744-28
REV. LEVEL
-
DRAWN BY:
RJ
CHECKED BY:
AES
APPROVED BY:
ORG DATE:
11/21/2018
Dimension in accordance with ANSI Y14
TOLERANCES
FIXTURE NO.
LOCATION
ROUTING NO.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	004242-00001	SPRING BUSHING	2
2	004242-00002	SPRING BUSHING	1
3	004988-00006	END - CYLINDER	1
4	6037-1.25	HHCS 5/16-18 X 1-1/4 LONG	2
5	6038-1.000	HHCS, 3/8"-16 X 1.00 GR.5	1
6	006038-2.500	CAP SCREW 3/8"-16	2
7	006038-2.750	HHCS, 3/8-16 X 2.75 GR.5	4
8	006043-2.000	HHCS, 3/4-10 X 2.00 GR.5	1
9	006106-00000	WASHER 5/16"	2
10	006110-00000	FLAT WASHER 7/16"	4
11	006117-00000	3/4" FLAT WASHER	1
12	006149-00000	LOCK WASHER 3/8"	8
13	006155-00000	3/4" LOCK WASHER	2
14	006296-00001	BUSHING, REDUCER PIPE 06-04	1
15	6403	LOCKNUT 5/16"18	2
16	6404	LOCKNUT 3/8"	7
17	7132-1	COATED NUT, COIL STYLE THREAD	2
18	7282*	CHAIN	7.5"
19	7667-8.00	3/4-16 BOLT	1
20	8419-1	STOP PAD	1
21	8479	TAB LOCK PIN	1
22	10066-3	BRACKER - DRILL HANDLE	2
23	10829-10	1/4 NPT PIPE	1
24	10829-11	FITTING, MALE ELBOW 1/4 TUBE TO 3/8 MALE NPT	1
25	11472-50	SOC HD SHOULDER BOLT M10	1
26	11497	LOCKNUT M10	1
27	11739	BEARING - DRILL CARRIER	8
28	11740-20	2.50 x 20in STROKE CYLINDER	1
29	12300	NUT, 3/4"-16, TORQUE LOCKNUT	1
30	13261	AIR POSITION SENSOR	1
31	13262	AIR POSITION SENSOR	1
32	A8399-38	DRILL CARRIER WELD'T (20") TOYO/TOKU	1
33	A8422-1	ADJUSTING BOLT WELDMENT	1
34	A9383	FRONT MTG. CLAMP WELD'T	2
35	A9754	STOP WELDMENT	1
36	A9776-19	DRILL SUPPORT ASSEMBLY	1
37	A11291	RAIL TUBE (FOR 18" HOLES)	1
38	A11732	RAIL END WELDMENT	1

*NOT SHOWN

These dia and tolerances are for holes drilled with drilling machines such as mills or lathes, drill presses, or watterjet operations. The following are standard tolerances for general machine work and apply in all cases except where greater or lesser accuracy is required by design and noted.	Drilled Hole Size	Tolerance
	.0135 THRU .125	+.004/-.001
	.1260 THRU .250	+.005/-.001
	.2510 THRU .500	+.006/-.001
	.5010 THRU .750	+.008/-.001
	.7510 THRU 1.00	+.010/-.001
	1.001 THRU 2.00	+.012/-.001

TOLERANCES (EXCEPT AS NOTED)
.X ± .060
.XX ± .030
.XXX ± .005
X/X ± 1/16°
< ± 1°

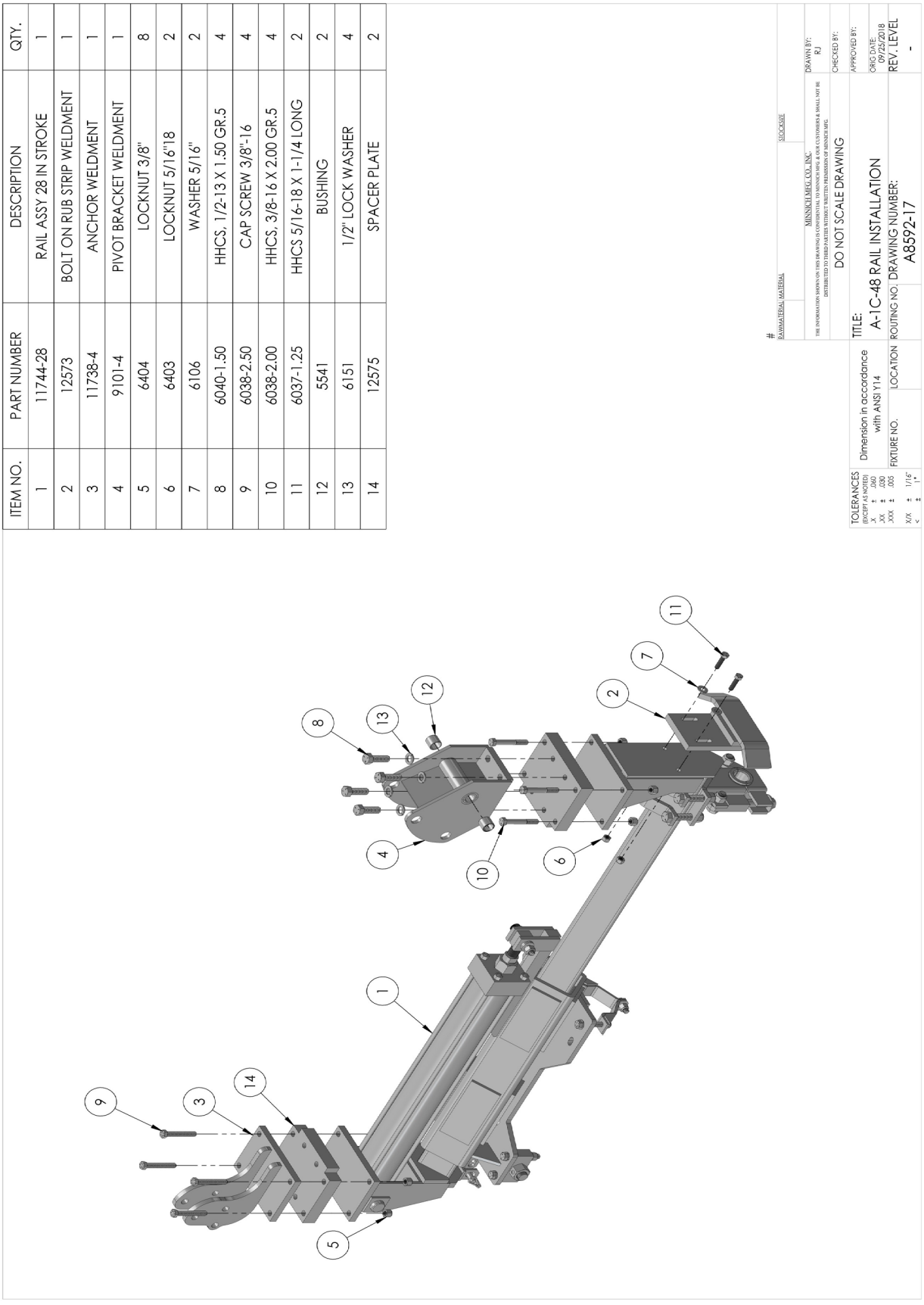
Dimension in accordance with ANSI Y14

RAW MATERIAL/ MATERIAL | STOCK SIZE

MINNICH MFG. CO., INC.
THE INFORMATION SHOWN ON THIS DRAWING IS CONFIDENTIAL TO MINNICH MFG. & OUR CUSTOMERS & SHALL NOT BE DISTRIBUTED TO THIRD PARTIES WITHOUT WRITTEN PERMISSION OF MINNICH MFG.

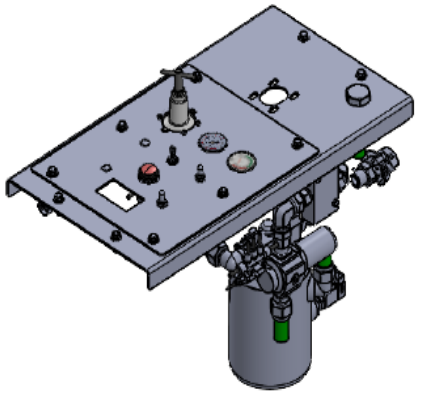
DRAWN BY: RJ
DO NOT SCALE DRAWING
CHECKED BY: AEB
APPROVED BY:
TITLE: DRILL RAIL ASSEMBLY
ORIG DATE: 11/21/2018
FIXTURE NO. | LOCATION | ROUTING NO | DRAWING NUMBER: A11744-28 | REV. LEVEL -

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	11744-28	RAIL ASSY 28 IN STROKE	1
2	12573	BOLT ON RUB STRIP WELDMENT	1
3	11738-4	ANCHOR WELDMENT	1
4	9101-4	PIVOT BRACKET WELDMENT	1
5	6404	LOCKNUT 3/8"	8
6	6403	LOCKNUT 5/16"18	2
7	6106	WASHER 5/16"	2
8	6040-1.50	HHCS, 1/2-13 X 1.50 GR.5	4
9	6038-2.50	CAP SCREW 3/8"-16	4
10	6038-2.00	HHCS, 3/8-16 X 2.00 GR.5	4
11	6037-1.25	HHCS 5/16-18 X 1-1/4 LONG	2
12	5541	BUSHING	2
13	6151	1/2" LOCK WASHER	4
14	12575	SPACER PLATE	2



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	1811	COUPLING - HOSE 2 PRONG/MALE PIPE	2
2	2880	AIR REGULATOR	1
3	3820	SAFETY PIN & LANYARD	1
4	3997	HOSE, 3/4 ID. 250 PSI	160"
5	4955	IN-LINE FILTER	1
6	5856	PLUG - AIR HOSE COUPLING	1
7	6007-19	CONNECTOR, 37 DEG MALE/PIPE 08-12	1
8	6007-23	3/4" NPT FLARED PIPE	1
9	6007-26	CONNECTOR, 37 DEG MALE/PIPE 16-16	1
10	6019-24	90 DEG. ELBOW W/ 37 DEG. FLARE	1
11	6021-16	ELBOW 45 DEG	1
12	6023-8	ELBOW, 90 DEG/37 DEG MALE/ FEM SWLV 12-12	1
13	6032-6	END HOSE 37 DEG. SWIV/BARDED 12	6
14	6036-1.00	HHCS 1/4-20 X 1"	2
15	6036-2.00	HEX BOLT 1/4-20 X 2	2
16	6037-1.25	HHCS 5/16-18 X 1-1/4 LONG	10
17	6104	1/4 USS FLAT WASHER	2
18	6106	WASHER 5/16"	10
19	6143	#6 LOCK WASHER	6
20	6144	LOCK WASHER #8	2
21	6147	LOCKWASHER 1/4	2
22	6148	LOCKWASHER 5/16	10
23	6255-2.00	RHMS, #6-32 X 2.00 SLOTTED	6
24	6256-1.50	RHMS, #8-32 X 1-1/2 SLOTTED	2
25	6296-1	BUSHING, REDUCER PIPE 06-04	2
26	6295-10	BUSHING, REDUCER PIPE 16-12	1
27	6296-16	BUSHING, REDUCER PIPE 04-02	1
28	6402	1/4-20" LOCKNUT	2
29	6471-4	PLUG, PIPE HEX SOC 1/2	1
30	6652	NUT, HEX #6-32 NC THREAD	6
31	6653	HEXNUT 8-32	2
32	6721-0.75	SCREW, MS #12-24 X 3/4 FILLISTER SLOTTED	4
33	7059	AIR PRESSURE GAUGE (0-160 PSI)	1
34	7059-1	AIR PRESSURE GAUGE (0-60 PSI)	1
35	8972	WHITE PLASTIC PLUG	2
36	9626-10	AIR REGULATOR - PRESET 96 PSI	1
37	10793-1	CAGE NUT, 5/16-18	6
38	10825-3	FITTING, 5/32 TUBE TO MALE 1/8 NPT	4
39	10825-7	FITTING, 1/4 TUBE TO 1/8 MALE NPT	7
40	10825-8	1/4 TUBE TO MALE FITTING	2
41	10829-5	FITTING, MALE ELBOW 5/32 TUBE TO 1/8" MALE NPT	10
42	10829-10	1/4 NPT PIPE	3
43	10836-2	STRAIGHT FEMALE CONNECTOR	1
44	10836-7	FITTING, STRAIGHT FEMALE CONNECTOR 1/4 TUBE TO 1/4 NPT	2
45	10839-1	UNION FITTING	4
46	10839-3	FITTING, 1/4 UNION TUBE TO TUBE	2
47	10841-1	FITTING, 5/32 TUBE TO 5/32 TUBE TEE	1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
48	10842-1	FITTING, 5/32 Y-TUBE TO TUBE	2
49	10842-2	FITTING, 1/4 Y-TUBE TO TUBE	1
50	10844-1	FITTING, MULTIPLE TEE W/MOUNTING HOLES	1
51	10861	5/32" NYLON TUBING	700"
52	10863	1/4" NYLON TUBING	700"
53	10872-1	1/2" EXPANDABLE SLEEVING	200"
54	10917	2 POSITION VALVE TOGGLE	2
55	10920	AIR VALVE - CONTROL DRILL SINGLE	1
56	11163-10	SWIVEL NUT ADAPTER	1
57	11163-12	ADAPTER, SWIVEL NUT 1-11-1/2 TO 1-5/16-12	1
58	11198	TOGGLE SWITCH COVER	2
59	11214-3	PANEL	1
60	11527	AIR VALVE - FEED	1
61	11553	PILOTED AIR VALVE	1
62	11771	UNIVERSAL BUSHING	1
63	12135	BREATHER VENT	3
64	13265	VALVE	1
65	13594	HORIZONTAL FLOAT VALVE	1
66	13595	VISUAL PRESSURE INDICATOR	1
67	A7350-13	LUBRICATOR WELDMENT	1
68	A13254	VALVE MOUNT WELDMENT	1
69	A13621	CONTROL PANEL WELDMENT	1



RAW MATERIAL: MATERIAL — STOCK SIZE

MINNICH MFG. CO., INC.

DRAWN BY: RJ

DO NOT SCALE DRAWING

CHECKED BY:

APPROVED BY:

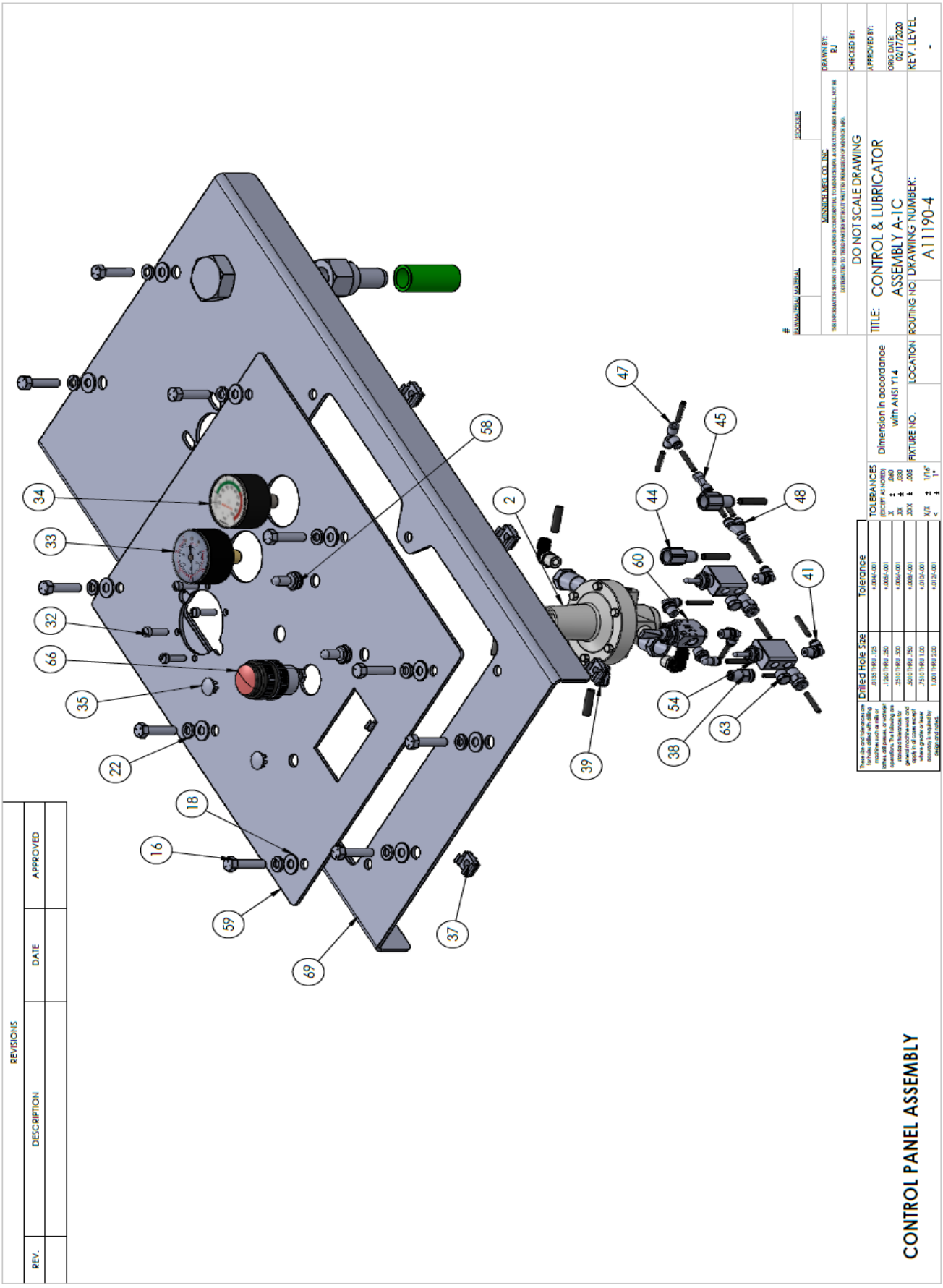
TOLERANCES (EXCEPT AS NOTED): X ± .060; XX ± .030; XXX ± .005; X/X ± 1/16"; < ± 1°

Dimension in accordance with ANSI Y14

TITLE: CONTROL & LUBRICATOR ASSEMBLY A-1C

ORIG DATE: 02/17/2020

FIXTURE NO. | LOCATION | ROUTING NO. | DRAWING NUMBER: A11190-4 | REV. LEVEL -


REVISIONS
REV.
DESCRIPTION
DATE
APPROVED
CONTROL PANEL ASSEMBLY
TITLE: CONTROL & LUBRICATOR ASSEMBLY A-1C
DO NOT SCALE DRAWING
DRAWN BY: RJ
CHECKED BY:
APPROVED BY:
ORIG DATE: 02/17/2020
REV. LEVEL -
DRAWING NUMBER: A11190-4
ROUTING NO.
LOCATION
FIXTURE NO.
Dimension in accordance with ANSI Y14
TOLERANCES
Drilled Hole Size
Tolerance
2
16
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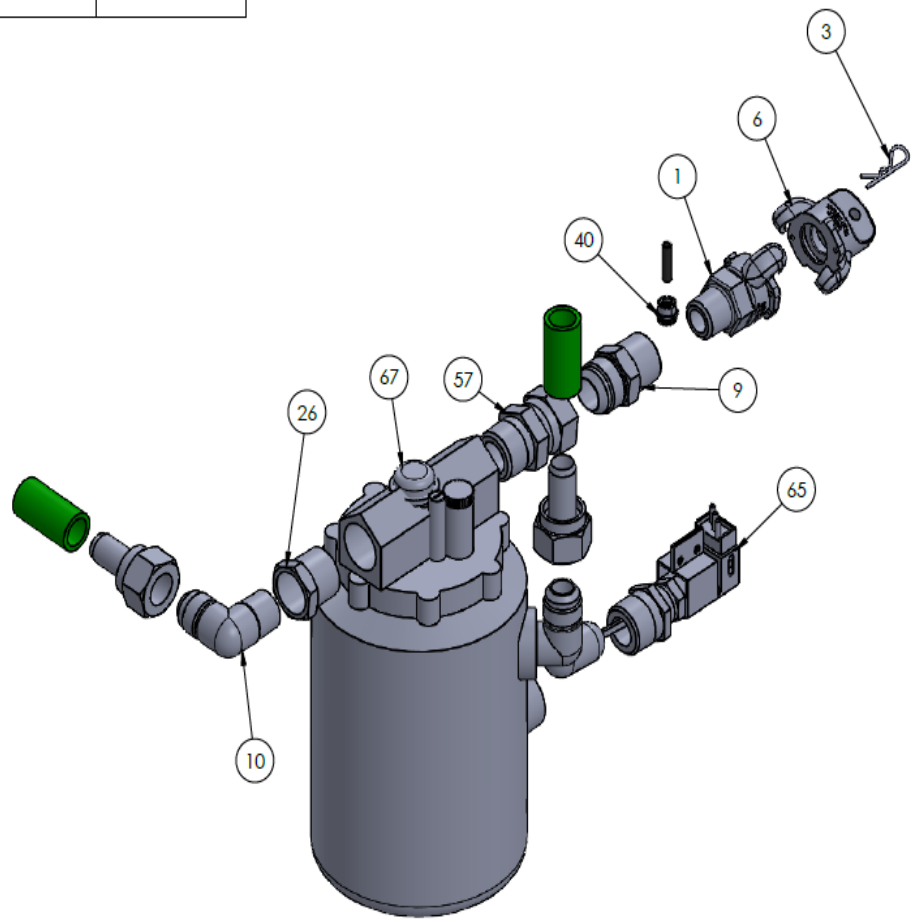
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



LUBRICATOR ASSEMBLY

These size and tolerances are for holes drilled with drilling machines such as mills or lathes, drill presses, or waterjet operations. The following are standard tolerances for general machine work and apply in all cases except where greater or lesser accuracy is required by design and noted.	Drilled Hole Size	Tolerance
	.0135 THRU .125	+.004/-.001
	.1260 THRU .250	+.005/-.001
	.2510 THRU .500	+.006/-.001
	.5010 THRU .750	+.008/-.001
	.7510 THRU 1.00	+.010/-.001
	1.001 THRU 2.00	+.012/-.001

TOLERANCES (EXCEPT AS NOTED)		
X	±	.060
.XX	±	.030
.XXX	±	.005
X/X	±	1/16"
<	±	1°

Dimension in accordance with ANSI Y14

#			
RAW MATERIAL	MATERIAL	STOCK SIZE	

MINNICH MFG. CO., INC.

DRAWN BY: RJ

DO NOT SCALE DRAWING

CHECKED BY:

APPROVED BY:

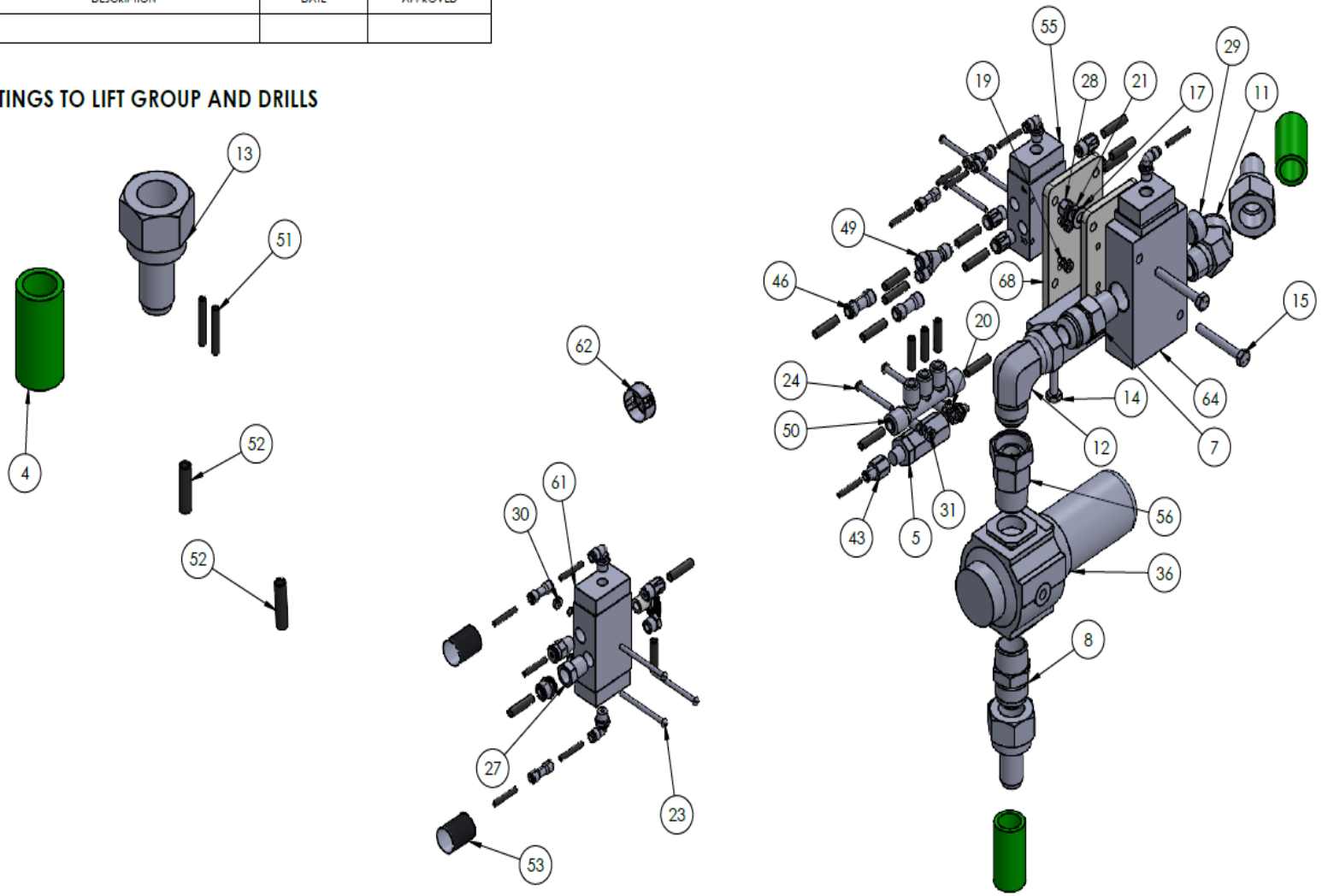
TITLE: CONTROL & LUBRICATOR ASSEMBLY A-1C

ORIG DATE: 02/17/2020

FIXTURE NO.	LOCATION	ROUTING NO.	DRAWING NUMBER:	REV. LEVEL
			A11190-4	-

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED

FITTINGS TO LIFT GROUP AND DRILLS



VALVE ASSEMBLY

These size and tolerances are for holes drilled with drilling machines such as mills or lathes, drill presses, or waterjet operations. The following are standard tolerances for general machine work and apply in all cases except where greater or lesser accuracy is required by design and noted.	Drilled Hole Size	Tolerance
	.0135 THRU .125	+.004/-.001
	.1260 THRU .250	+.005/-.001
	.2510 THRU .500	+.006/-.001
	.5010 THRU .750	+.008/-.001
	.7510 THRU 1.00	+.010/-.001
	1.001 THRU 2.00	+.012/-.001

TOLERANCES (EXCEPT AS NOTED)
.X ± .060
.XX ± .030
.XXX ± .005
X/X ± 1/16"
< ± 1°

Dimension in accordance with ANSI Y14

RAW MATERIAL MATERIAL | STOCK SIZE

MINNICH MFG. CO., INC.

DRAWN BY: RJ

DO NOT SCALE DRAWING

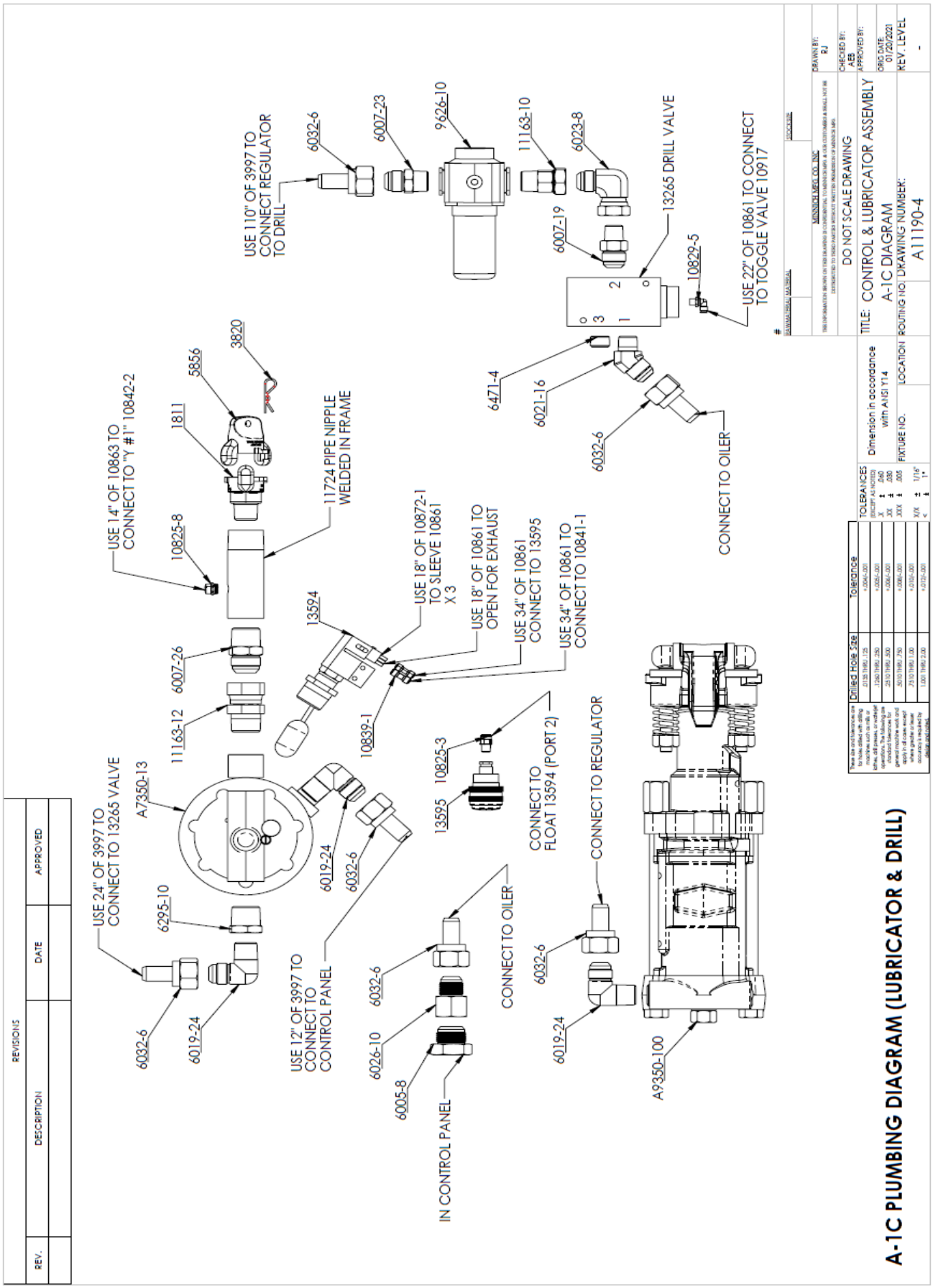
CHECKED BY:

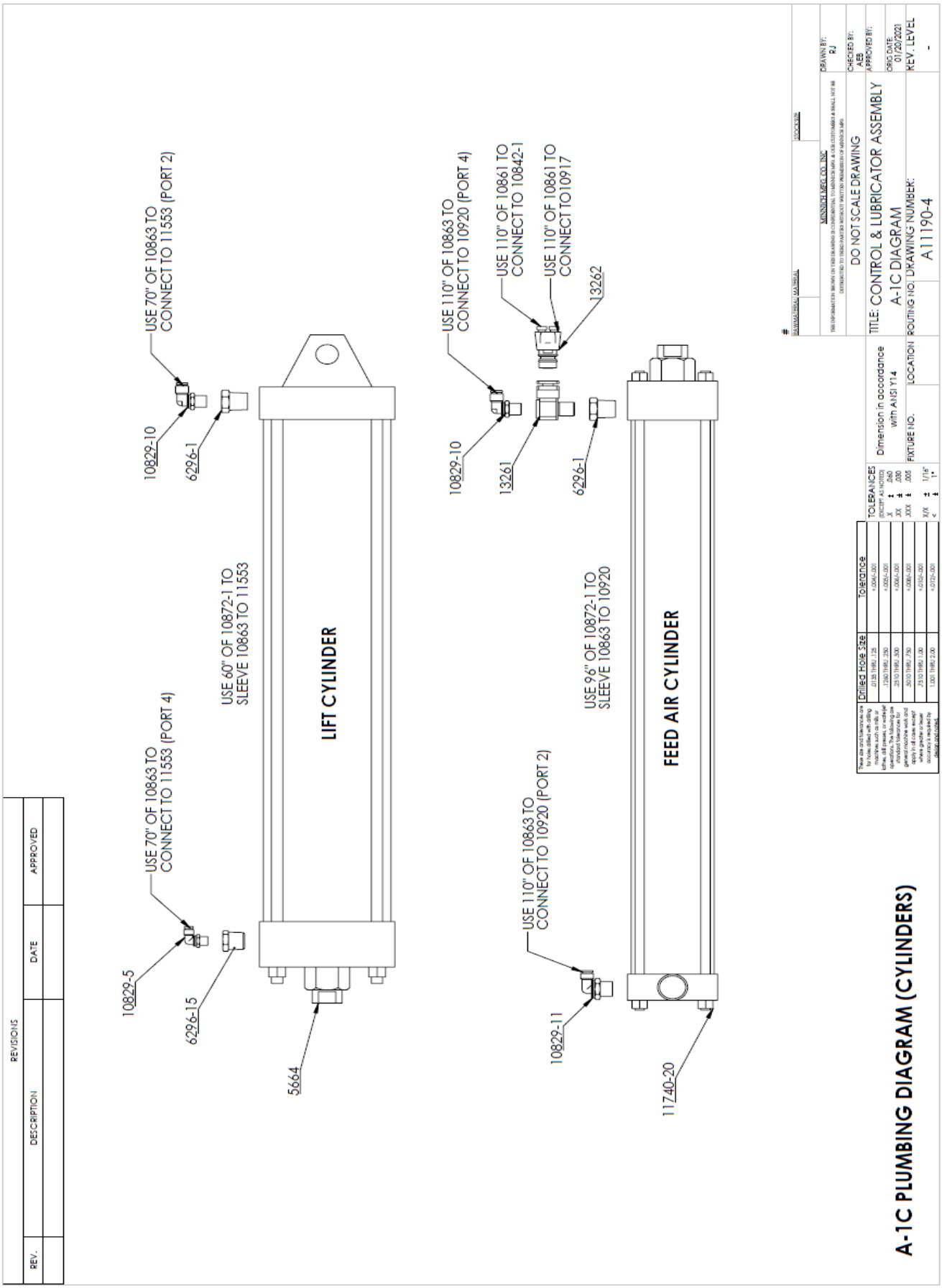
APPROVED BY:

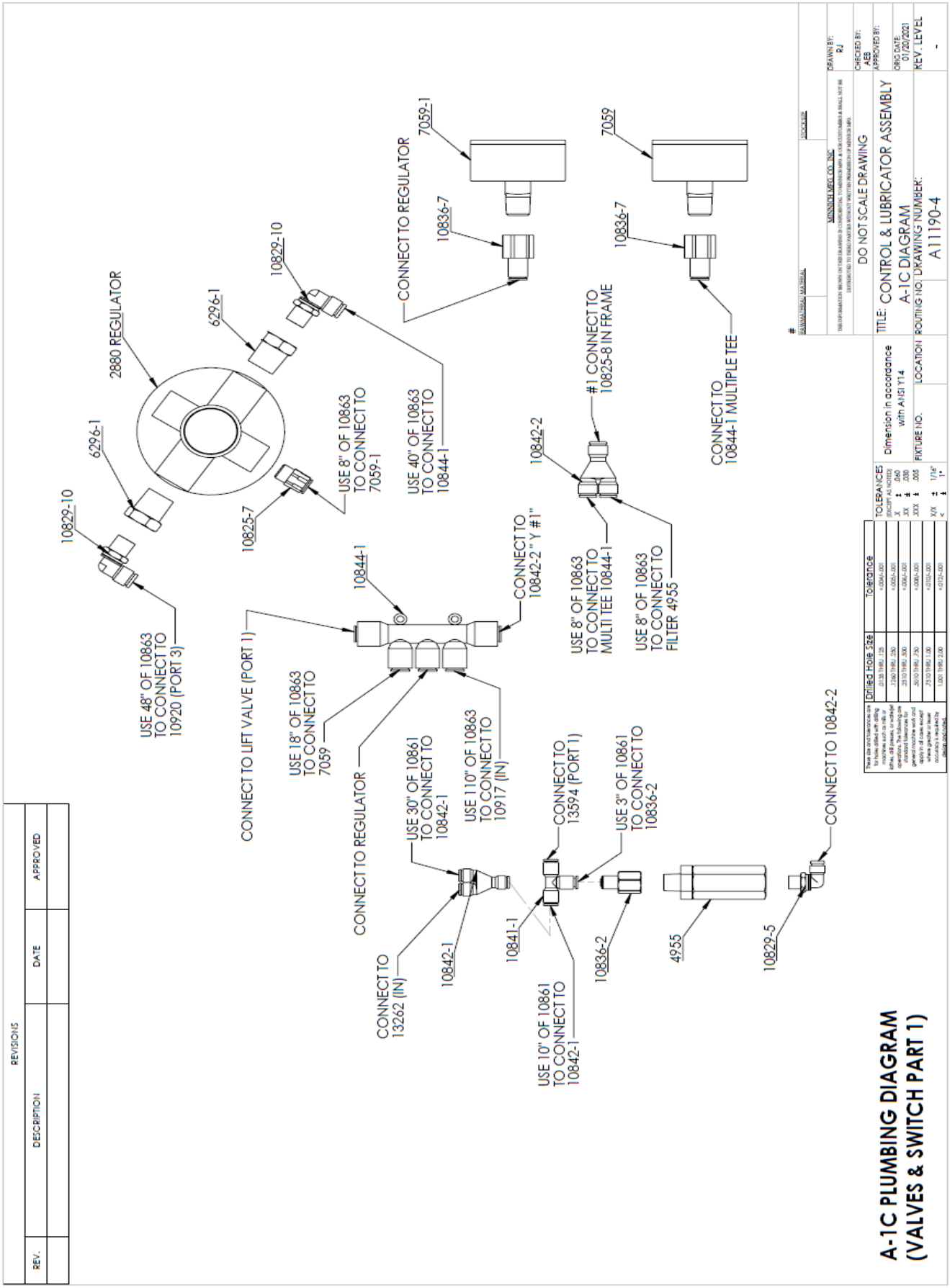
TITLE: CONTROL & LUBRICATOR ASSEMBLY A-1C

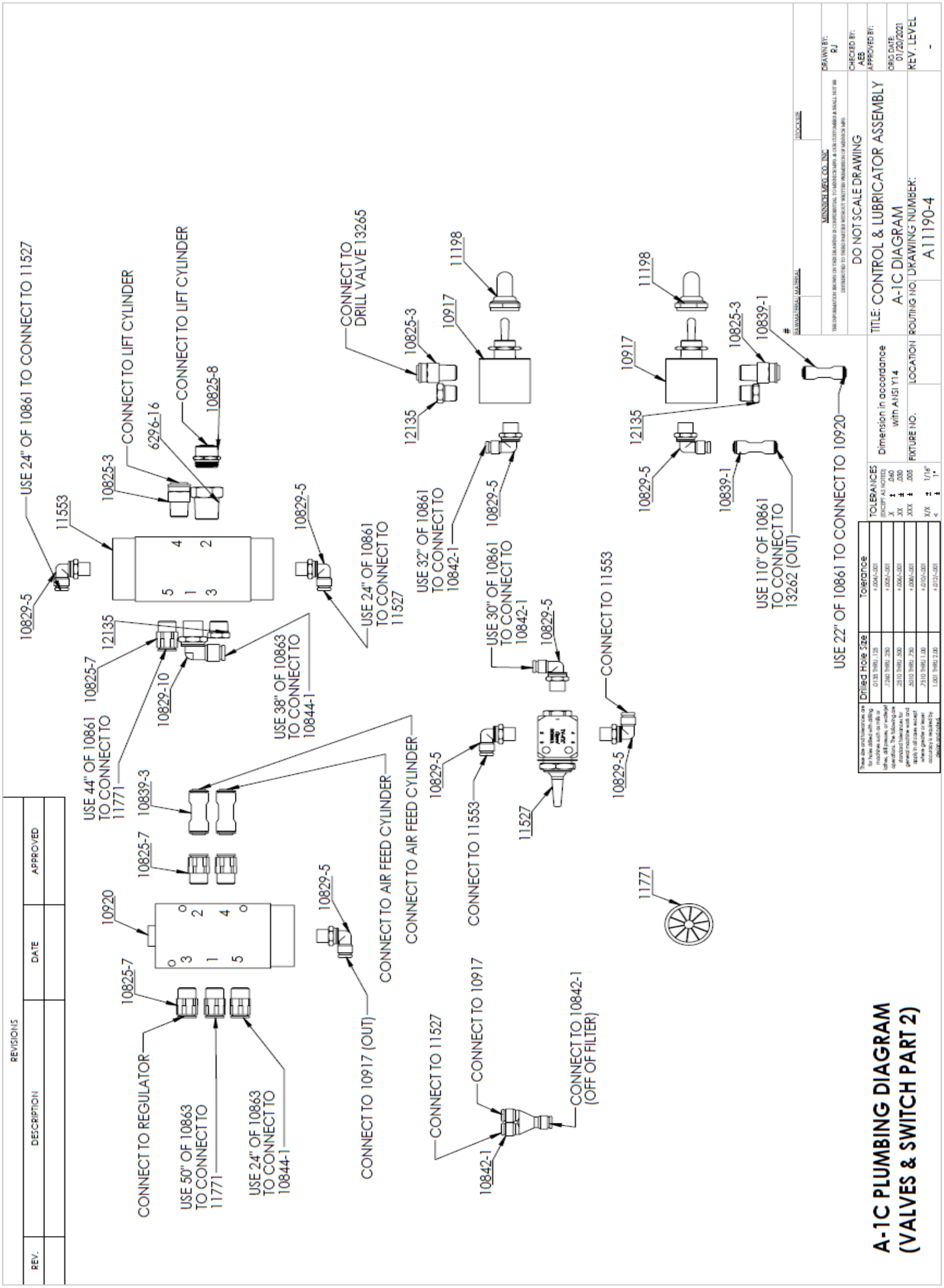
ORIG DATE: 02/17/2020

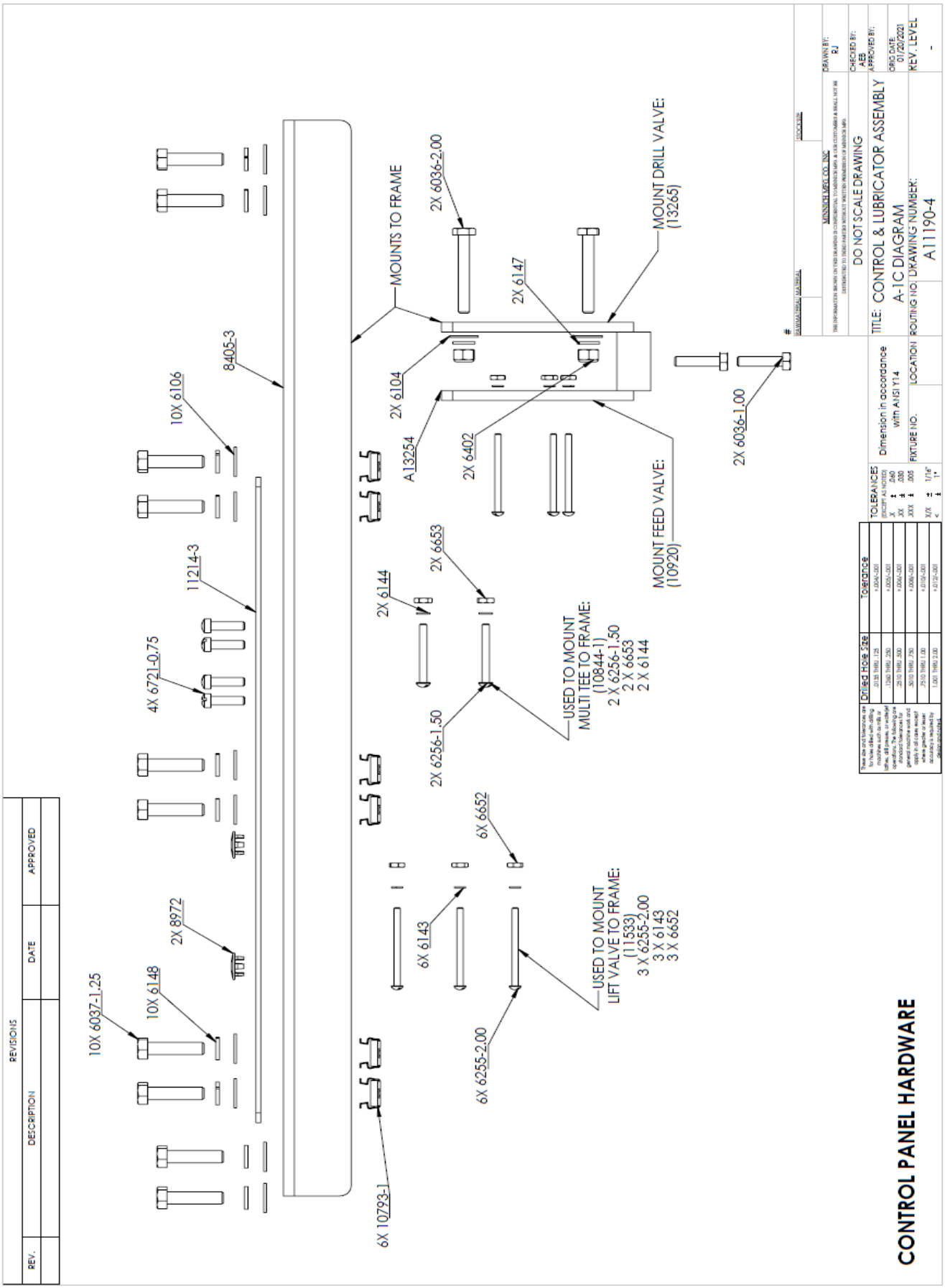
FIXTURE NO. | LOCATION | ROUTING NO. | DRAWING NUMBER: A11190-4 | REV. LEVEL -


A-1C PLUMBING DIAGRAM (LUBRICATOR & DRILL)
USE 24" OF 3997 TO CONNECT TO 13265 VALVE
USE 14" OF 10863 TO CONNECT TO "Y #1" 10842-2
USE 110" OF 3997 TO CONNECT REGULATOR TO DRILL
11724 PIPE NIPPLE WELDED IN FRAME
USE 18" OF 10872-1 TO SLEEVE 10861 X 3
USE 18" OF 10861 TO OPEN FOR EXHAUST
USE 34" OF 10861 CONNECT TO 13595
USE 34" OF 10861 TO CONNECT TO 10841-1
USE 22" OF 10861 TO CONNECT TO TOGGLE VALVE 10917
USE 12" OF 3997 TO CONNECT TO CONTROL PANEL
CONNECT TO OILER
CONNECT TO FLOAT 13594 (PORT 2)
CONNECT TO REGULATOR
IN CONTROL PANEL
13265 DRILL VALVE
A7350-13
A9350-100
6032-6
6019-24
6295-10
6026-10
6005-8
11163-12
6007-26
10825-8
1811
5856
3820
13594
10839-1
13595
10825-3
6007-23
9626-10
11163-10
6023-8
6007-19
10829-5
6471-4
6021-16
REVISIONS
REV.
DESCRIPTION
DATE
APPROVED
TOLERANCES:
Dimension in accordance with ANSI Y14
FIXTURE NO.
LOCATION
TITLE: CONTROL & LUBRICATOR ASSEMBLY
A-1C DIAGRAM
DO NOT SCALE DRAWING
ROUTING NO: DRAWING NUMBER:
A11190-4
DRAWN BY: RJ
CHECKED BY: AEB
APPROVED BY:
ORIG. DATE: 01/20/2021
REV. LEVEL
-

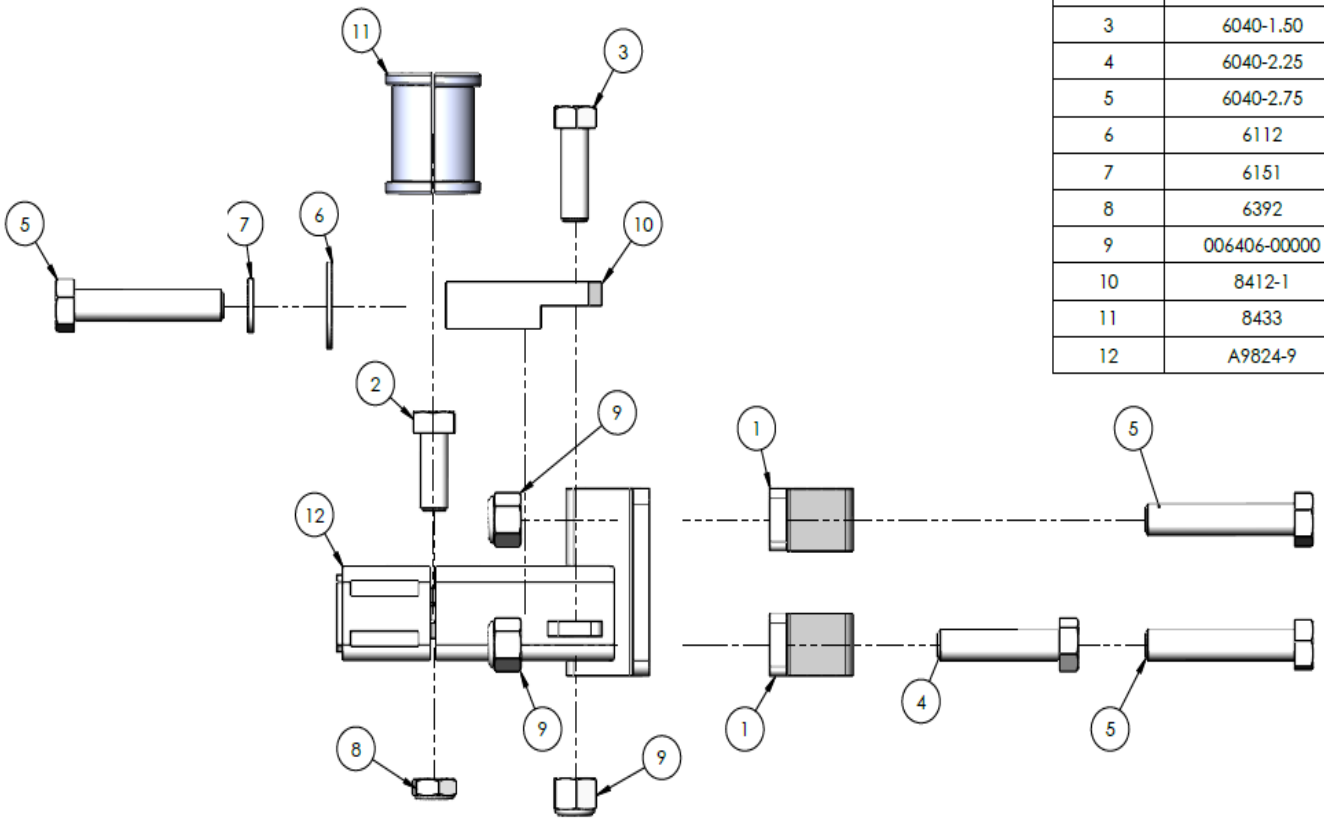

USE 70" OF 10863 TO CONNECT TO 11553 (PORT 2)
10829-10
6296-1
USE 60" OF 10872-1 TO SLEEVE 10863 TO 11553
LIFT CYLINDER
USE 70" OF 10863 TO CONNECT TO 11553 (PORT 4)
10829-5
6296-15
5664
USE 110" OF 10863 TO CONNECT TO 10920 (PORT 4)
USE 110" OF 10861 TO CONNECT TO 10842-1
USE 110" OF 10861 TO CONNECT TO 10917
13262
10829-10
13261
6296-1
USE 96" OF 10872-1 TO SLEEVE 10863 TO 10920
FEED AIR CYLINDER
USE 110" OF 10863 TO CONNECT TO 10920 (PORT 2)
10829-11
11740-20
REVISIONS
REV.
DESCRIPTION
DATE
APPROVED
A-1C PLUMBING DIAGRAM (CYLINDERS)
Tolerance
Drilled Hole Size
TOLERANCES
Dimension in accordance with ANSI Y14
TITLE: CONTROL & LUBRICATOR ASSEMBLY
A-1C DIAGRAM
DO NOT SCALE DRAWING
FIXTURE NO.
LOCATION
ROUTING NO/ DRAWING NUMBER:
A11190-4
DRAWN BY: RJ
CHECKED BY: AEB
APPROVED BY:
ORIG DATE: 01/20/2021
REV. LEVEL
-


A-1C PLUMBING DIAGRAM
(VALVES & SWITCH PART 1)
TITLE: CONTROL & LUBRICATOR ASSEMBLY
A-1C DIAGRAM
DRAWING NUMBER:
A11190-4
DO NOT SCALE DRAWING
REVISIONS
REV.
DESCRIPTION
DATE
APPROVED
2880 REGULATOR
6296-1
10829-10
10825-7
USE 48" OF 10863 TO CONNECT TO 10920 (PORT 3)
USE 8" OF 10863 TO CONNECT TO 7059-1
USE 40" OF 10863 TO CONNECT TO 10844-1
CONNECT TO REGULATOR
7059-1
10836-7
CONNECT TO LIFT VALVE (PORT 1)
10844-1
CONNECT TO 10842-2 " Y #1"
10842-2
#1 CONNECT TO 10825-8 IN FRAME
7059
USE 18" OF 10863 TO CONNECT TO 7059
USE 8" OF 10863 TO CONNECT TO MULTI TEE 10844-1
USE 8" OF 10863 TO CONNECT TO FILTER 4955
CONNECT TO 10844-1 MULTIPLE TEE
CONNECT TO REGULATOR
USE 30" OF 10861 TO CONNECT TO 10842-1
USE 110" OF 10863 TO CONNECT TO 10917 (IN)
CONNECT TO 13594 (PORT 1)
USE 3" OF 10861 TO CONNECT TO 10836-2
CONNECT TO 13262 (IN)
10842-1
10841-1
10836-2
4955
10829-5
CONNECT TO 10842-2
USE 10" OF 10861 TO CONNECT TO 10842-1
Dimension in accordance with ANSI Y14
TOLERANCES
Drilled Hole Size
Tolerance
FIXTURE NO.
LOCATION
ROUTING NO.
DRAWING NUMBER:
A11190-4
DRAWN BY: RJ
CHECKED BY: AEB
APPROVED BY:
ORIG. DATE: 01/20/2021
REV. LEVEL: -

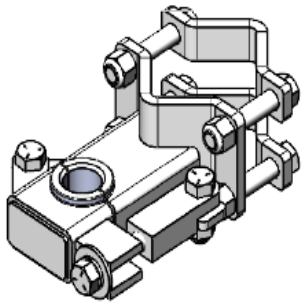

A-1C PLUMBING DIAGRAM
(VALVES & SWITCH PART 2)
USE 24" OF 10861 TO CONNECT TO 11527
10829-5
11553
10825-3
6296-16
CONNECT TO LIFT CYLINDER
CONNECT TO LIFT CYLINDER
10825-8
CONNECT TO DRILL VALVE 13265
10825-3
10917
11198
12135
12135
10825-7
10829-10
USE 38" OF 10863 TO CONNECT TO 10844-1
USE 24" OF 10861 TO CONNECT TO 11527
10829-5
USE 32" OF 10861 TO CONNECT TO 10842-1
10829-5
USE 30" OF 10861 TO CONNECT TO 10842-1
10829-5
CONNECT TO 11553
10829-5
11527
USE 44" OF 10861 TO CONNECT TO 11771
10839-3
10825-7
CONNECT TO AIR FEED CYLINDER
CONNECT TO AIR FEED CYLINDER
10829-5
CONNECT TO 11553
11771
10920
10825-7
10829-5
CONNECT TO REGULATOR
USE 50" OF 10863 TO CONNECT TO 11771
USE 24" OF 10863 TO CONNECT TO 10844-1
CONNECT TO 10917 (OUT)
CONNECT TO 11527
CONNECT TO 10917
CONNECT TO 10842-1 (OFF OF FILTER)
10842-1
11198
10917
10825-3
10839-1
12135
10829-5
10839-1
USE 110" OF 10861 TO CONNECT TO 13262 (OUT)
USE 22" OF 10861 TO CONNECT TO 10920
REVISIONS
REV.
DESCRIPTION
DATE
APPROVED
MINNICH MFG. CO., INC.
DO NOT SCALE DRAWING
TITLE: CONTROL & LUBRICATOR ASSEMBLY
A-1C DIAGRAM
DRAWING NUMBER:
A11190-4
DRAWN BY:
RJ
CHECKED BY:
AEB
APPROVED BY:
ORIG DATE:
01/20/2021
REV. LEVEL
-
Dimension in accordance with ANSI Y14
TOLERANCES
Drilled Hole Size
Tolerance
FIXTURE NO.
LOCATION
ROUTING NO.


CONTROL PANEL HARDWARE
REVISIONS
REV.
DESCRIPTION
DATE
APPROVED
10X 6037-1.25
10X 6148
2X 8972
6X 10793-1
4X 6721-0.75
11214-3
10X 6106
8405-3
MOUNTS TO FRAME
2X 6036-2.00
2X 6104
A13254
2X 6147
2X 6402
MOUNT DRILL VALVE:
(13265)
MOUNT FEED VALVE:
(10920)
2X 6036-1.00
2X 6144
2X 6653
2X 6256-1.50
USED TO MOUNT
MULTI TEE TO FRAME:
(10844-1)
2 X 6256-1.50
2 X 6653
2 X 6144
6X 6652
6X 6143
6X 6255-2.00
USED TO MOUNT
LIFT VALVE TO FRAME:
(11533)
3 X 6255-2.00
3 X 6143
3 X 6652
Dimension in accordance with ANSI Y14
TOLERANCES
Drilled Hole Size
Tolerance
FIXTURE NO.
LOCATION
ROUTING NO.
DRAWING NUMBER:
A11190-4
TITLE: CONTROL & LUBRICATOR ASSEMBLY
A-1C DIAGRAM
DO NOT SCALE DRAWING
DRAWN BY: RJ
CHECKED BY: AEB
APPROVED BY:
ORIG. DATE: 01/20/2021
REV. LEVEL
-

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	REMOVED (1) 6040-1.50 AND (1) 6406; ADDED (1) 6040-1.25 AND (1) 6392	9/30/2021	AEB



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	2844	RAIL CLAMP	2
2	6040-1.25	HHCS, 1/2-13 X 1-1/4 GR.5	1
3	6040-1.50	HHCS, 1/2-13 X 1.50 GR.5	1
4	6040-2.25	HHCS, 1/2-13 X 2.25 GR.5	1
5	6040-2.75	HHCS, 1/2-13 X 2.75 GR.5	4
6	6112	FW 9/16 ID 1-3/8 OD	1
7	6151	1/2" LOCK WASHER	1
8	6392	HALF LOCKNUT 1/2"-13	1
9	006406-00000	1/2-13 LOCK NUT	5
10	8412-1	RETAINER	1
11	8433	BEARING - DRILL SUPPORT	1
12	A9824-9	SUPPORT WELDM'T - DRILL ROD	1



0A8458-00000 KIT CONSISTS OF THE FOLLOWING WITH *

*008433-00000 SPLIT BEARING - USED FOR ALL BITS 1-1/8" (28.6MM) & LARGER
*008433-00001 SPLIT BEARING - USED FOR ALL 1" (25.4MM) & 1-1/16" (17.0MM) BITS
*008433-00002 SPLIT BEARING - USED FOR ALL 7/8" (22.2MM) DIA. BITS
*008433-00003 SPLIT BEARING - USED FOR ALL 3/4" (19.1MM) DIA. BITS
*008433-00004 SPLIT BEARING - USED FOR ALL 5/8" (15.9MM) DIA. BITS
*008433-00005 SPLIT BEARING - USED FOR ALL 1" (25.4MM) HEX STEEL BITS

RAW MATERIAL/ MATERIAL | STOCK SIZE

MINNICH MFG. CO., INC.
THIS INFORMATION SHOWN ON THIS DRAWING IS CONFIDENTIAL TO MINNICH MFG. & OUR CUSTOMERS & SHALL NOT BE DISTRIBUTED TO THIRD PARTIES WITHOUT WRITTEN PERMISSION OF MINNICH MFG.

DRAWN BY: RJ
DO NOT SCALE DRAWING
CHECKED BY: AEB
APPROVED BY:
ORIG DATE: 07/24/2018

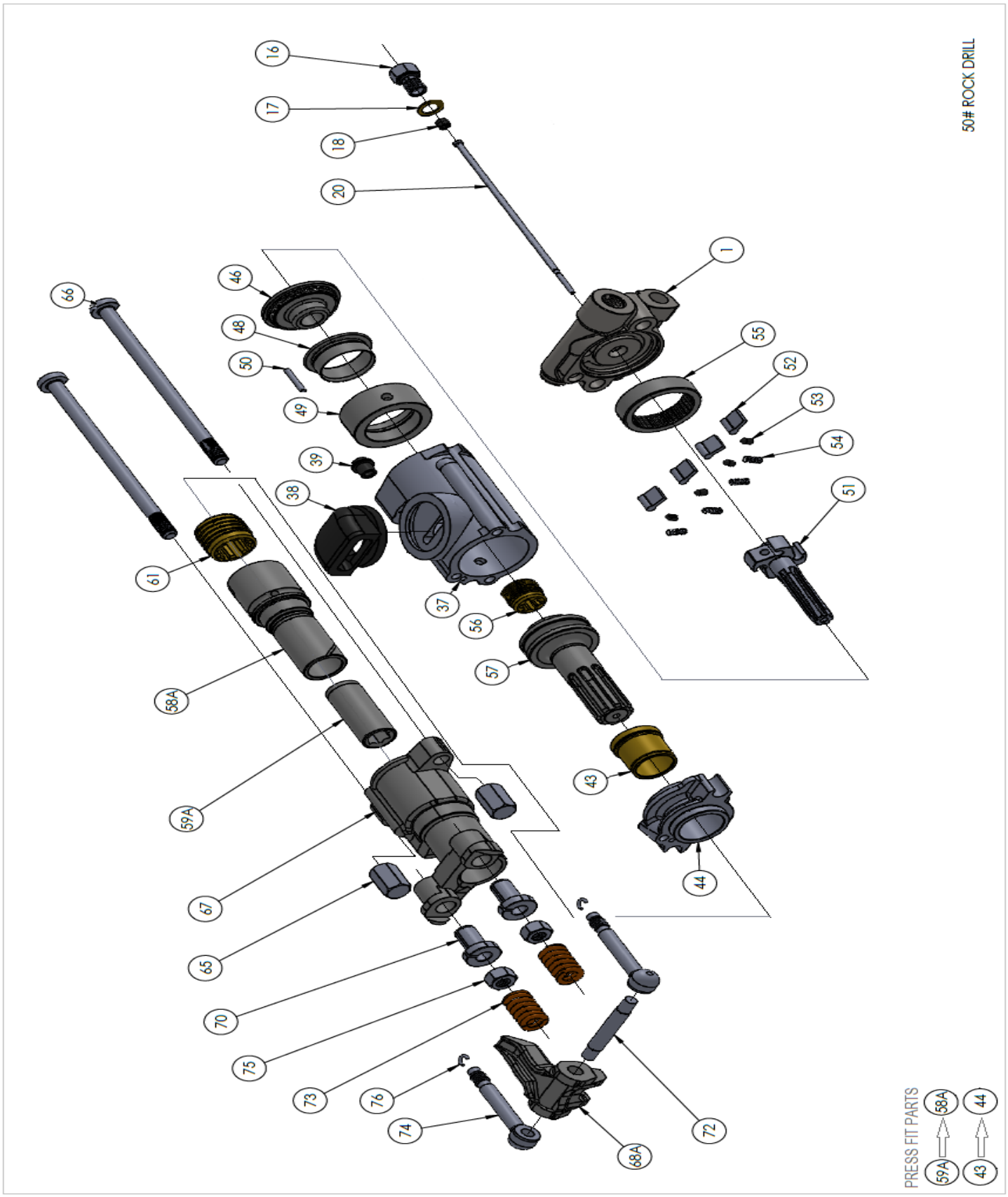
TOLERANCES (EXCEPT AS NOTED)
.X ± .060
.XX ± .030
.XXX ± .005
X/X ± 1/16"
< ± 1°

Dimension in accordance with ANSI Y14

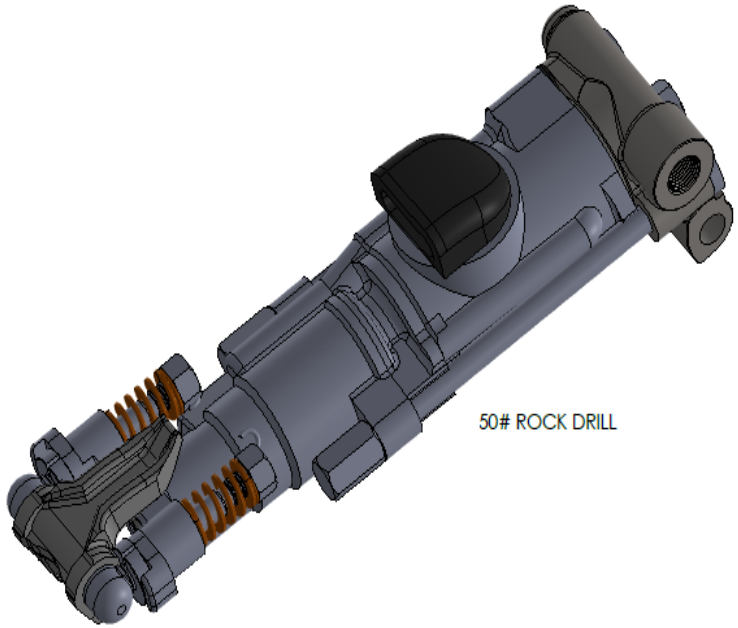
TITLE: DRILL SUPPORT ASSEMBLY

FIXTURE NO. | LOCATION | ROUTING NO | DRAWING NUMBER: A9776-19 | REV. LEVEL A

50# (23KG) ROCK DRILL
0A9350-00000



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	009350-00001	BACKHEAD	1
16	009350-00016	BLOW TUBE GLAND	1
17	009350-00017	TUBE GLAND GASKET	1
18	009350-00018	GLAND GASKET	1
20	009350-00020	BLOW TUBE	1
37	009350-00037	CYLINDER	1
39	009350-00038	EXHAUST DEFLECTOR	1
39	009350-00039	CYLINDER GASKET	1
43	009350-00043	BUSHING	1
44	009350-00044	CENTER WASHER	1
46	009350-00046	VALVE CHEST COVER	1
48	009350-00048	AUTOMATIC VALVE	1
49	009350-00049	VALVE CHEST	1
50	009350-00050	VALVE DOWEL PIN	1
51	009350-00051	RIFLE BAR	1
52	009350-00052	ROTATION PAWL	4
53	009350-00053	ROTATION PLUNGER	4
54	009350-00054	PAWL SPRING	4
55	009350-00055	RATCHET RING	1
56	009350-00056	RIFLE NUT	1
57	009350-00057	PISTON	1
58A	009350-0058A	ROTATION SLEEVE 7/8" X 4-1/4"	1
59A	009350-0059A	SLEEVE BUSHING 7/8" X 4-1/4"	1
61	009350-00061	SLEEVE NUT	1
65	009350-00065	SIDE ROD NUT	2
66	009350-00066	SIDE ROD	2
67	009350-00067	FRONTHEAD	1
68A	009350-0068A	STEEL RETAINER 7/8" X 4-1/4"	1
70	009350-00070	FRONTHEAD BUSHING	2
72	009350-00072	STEEL RETAINER PIN	1
73	009350-00073	STEEL RETAINER SPRING	2
74	009350-00074	STEEL RETAINER BOLT	2
75	009350-00075	STEEL RETAINER NUT	2
76	009350-00076	RETAINER BOLT LOCK CLIP	2



50# ROCK DRILL

Lubricator (007330-00000)

Warning: DO NOT place plastic bowl unit in service without metal bowl guard installed. Plastic bowl units are sold only with metal bowl guards. To minimize the danger of flying fragments in the event of plastic bowl failure, the metal bowl guards should not be removed. If the unit is in service without the metal bowl guard installed, manufacturer's warranties are void, and the manufacturer assumes no responsibility for any resulting loss.

If unit has been in service and does not have a metal bowl guard, order one and install before placing back in service.

CAUTION: Certain compressor oils, chemicals, household cleaners, solvents, paints and fumes will attack plastic bowls and can cause bowl failure. Do not use near these materials. When bowl becomes dirty replace bowl or wipe only with a clean, dry cloth. Reinstall metal bowl guard or buy and install a metal bowl guard. Immediately replace any crazed, cracked, damaged or deteriorated plastic bowl with a metal bowl or a new plastic bowl and a metal bowl guard.

WE CANNOT POSSIBLY LIST ALL HARMFUL SUBSTANCES. CHECK WITH A MOBAY CHEMICAL OR GENERAL ELECTRIC

OFFICE FOR FURTHER INFORMATION ON POLYCARBONATE PLASTIC.

Except as otherwise specified by the manufacturer, this product is specifically designed for compressed air service, and used with any other fluid (liquid or gas) is a misapplication. For example, use with or injection of certain hazardous liquids or gases in the system (such as alcohol or liquid petroleum gas) could be harmful to the unit or result in a combustible condition or hazardous external leakage. Manufacturers warranties are void in the event of misapplication, and manufacturer assumes no responsibility for any resulting loss. Before using with fluids other than air, or for non-industrial applications, or for life support systems consult manufacturer for written approval.

INSTALLATION

1. Refer to warning above.
2. Install as close as possible to the equipment requiring lubrication.
3. Install the unit with the air flowing through the body in the direction indicated by the arrow.
4. Install the same pipe-size unit as the pipeline in use. Avoid using fittings, couplings, etc., that restrict the airflow or baffle the oil out of the air at the lubricator outlet.
5. The lubricator may be filled under pressure by slowly removing the fill plug and pouring oil into the bowl through the fill tube. The tank may be taken off after the fill plug is removed. Do not replace the fill plug until the tank is secured in place. NOTE: As the fill plug is removed, the air pressure in the tank will be released.
6. Use only clean non-detergent oil. SAE 10 or lighter is usually best.
7. The rate of oil delivery can be controlled counterclockwise for more and clockwise for less delivery. This lubricator delivers all of the oil downstream that passes through the sight dome. The oil delivery rate will change automatically to deliver more oil during higher air flows and less oil for air flows lower than that at which the original setting was made.
8. Maximum pressure and temperature ratings for metal tanks are 200 psig (14 bar) and 175F (79C)

Specifications

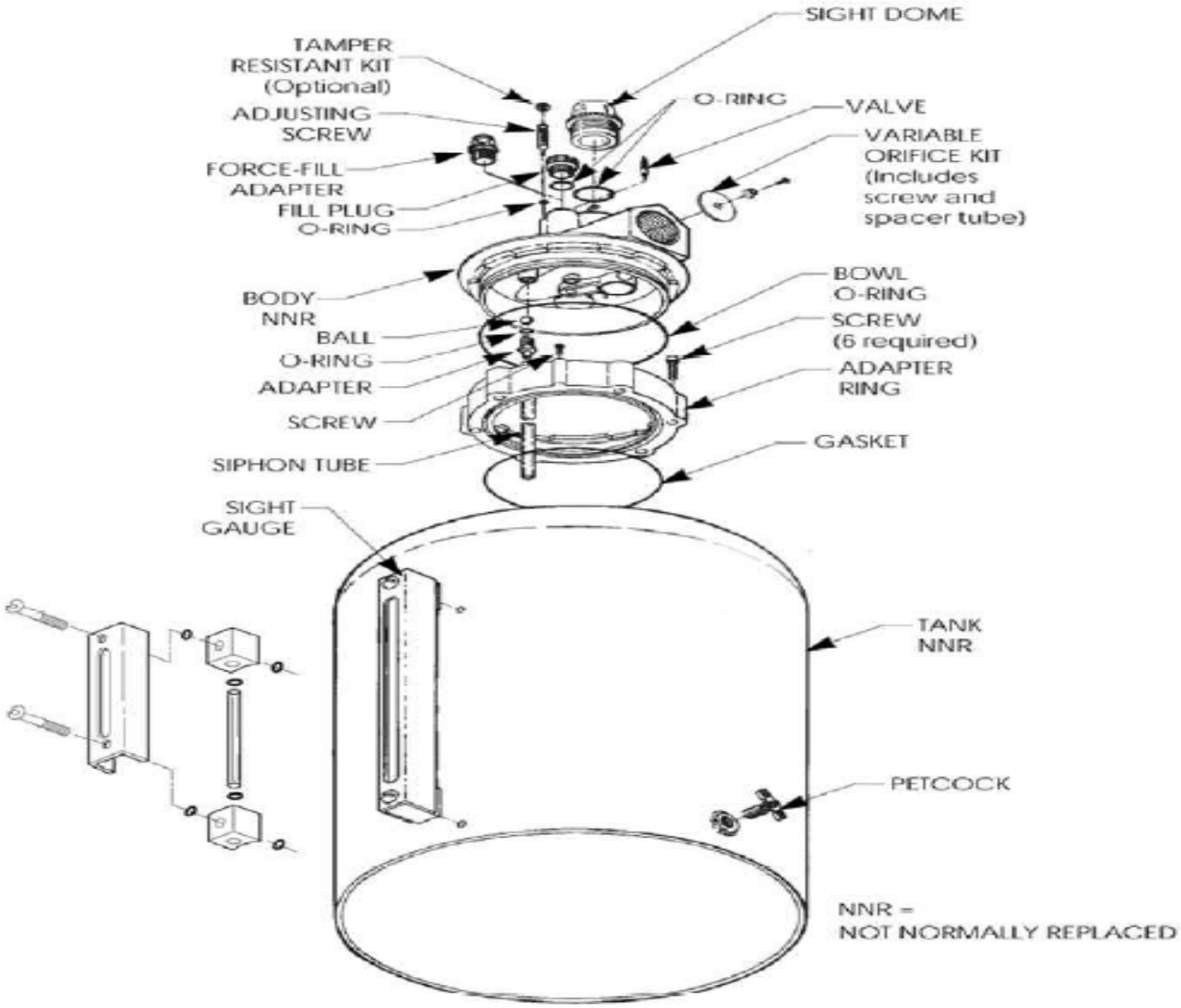
Flow Capacity*	374 SCFM (176.4 dm3/s)
Maximum Supply Pressure	200 PSIG (13.8 bar)
Operating Temperature	32° to 150°F (0° to 65.5°C)
Port Size	NPT / BSPP-G 1
Weight	16.1 lb.(7.3 kg)

* Inlet pressure 120 PSIG (8.3 bar). Pressure drop 5 PSID (0.3 bar).

MAINTENANCE

1. Given clean operating conditions, this unit should be trouble-free. Contaminants from dirty oil may collect on the siphon tube inlet filter, requiring the filter to be cleaned by tapping on a hard surface and blowing off with an air blow gun. Drain off any contaminants which collect in the bottom of the bowl.
2. IF THE OIL DELIVERY RATE DROPS, shut off the air supply to the lubricator and reduce the pressure in the unit to zero. Remove the Flow-Guide® variable orifice screw and clean its air passage with a small wire. Check the bore that the screw fits into for contaminants and clean, if necessary. Be sure that the passageway from the sight dome cavity into the Flow-Guide® variable orifice post is open. Remove the adjusting screw and clean the needle and the seat in the body. Inspect and clean the passage from the needle seat down into the adaptor.
3. Drain off any contaminants which collect in the bottom of the bowl.
4. Lubricate o-rings with Parker O-Lube before assembly.
5. Clean plastic bowl with a clean, dry cloth only.

0A3843-00020 Rebuild Kit (Includes all parts except tank, body and sight gauge kit)
003843-00017 Sight Gauge kit for 007330-00000 (not included in 0A3843-00020)
003843-00005 Sight Dome Kit (included in 0A3843-00020)



Supplier warrants to Customer that the Services shall be provided in a workmanlike manner and that the Goods shall be free from defects in material and workmanship at the date of shipment from Supplier's facility. This warranty shall not run to any person other than Customer.
All claims under this warranty must be made in writing and delivered to Supplier prior to the expiration of one (1) year after the Goods have been delivered (or, if applicable, within one (1) year after the Services have been performed) or be forever barred. Supplier will repair or replace Goods or parts recognized and acknowledged by Supplier as being defective at the time of delivery without charge. However, Supplier will bill Customer for Goods and/or Services not covered by the warranty, including travel expenses incurred while performing warranty service calls. EQUIPMENT, COMPONENTS OR OTHER GOODS FURNISHED THAT ARE NOT MANUFACTURED BY SUPPLIER ARE ONLY COVERED TO THE EXTENT OF THE ORIGINAL MANUFACTURER'S WARRANTY, WHICH MAY VARY FROM THE ABOVE. Further, the above warranty shall not apply to any hardware or software that has been repaired or altered without Supplier's written permission by anyone other than Supplier's personnel. The foregoing states the sole and exclusive remedy for any breach of warranty or for any other claim based on any defect in, or nonperformance of, the Goods or Services, whether based upon contract, warranty, negligence, tort (including strict liability) or otherwise.
NO EXPRESS WARRANTIES AND NO IMPLIED WARRANTIES, WHETHER OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR WEAR CAPACITY, OR OTHERWISE, SHALL APPLY TO THE GOODS AND SERVICES. SUPPLIER SPECIFICALLY DISCLAIMS AND EXCLUDES ALL OTHER EXPRESS AND IMPLIED WARRANTIES. NO WAIVER, ALTERATION, ADDITION OR MODIFICATION OF THE FOREGOING SHALL BE VALID UNLESS MADE IN WRITING AND SIGNED BY AN EXECUTIVE OFFICER OF SUPPLIER. IN NO EVENT WILL SUPPLIER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

WHAT IS NOT COVERED

This Limited Warranty does not cover any damage, deterioration or malfunction resulting from normal wear or tear, or any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This Limited Warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Minnich to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product.

WHAT IS COVERED

This limited warranty ("Limited Warranty") covers manufacturing defects in materials and workmanship of a product.

WHO IS COVERED:

Only the original purchaser of this product is covered under this Limited Warranty. This Limited Warranty is not transferable to subsequent purchasers or owners of this product. The product must have been purchased directly from Minnich or from an authorized Minnich reseller.

ORDER VIA INTERNET!

Order Online:
https://www.minnich-mfg.com/login

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- Order Parts
- Print specific information
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Contact us at:
419-903-0010

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(419-903-0010)

NOTICE

All orders are treated as Standard Orders and will ship the same day if received prior to 3PM EST