



Air Operated 50:1 Grease Pump Kit

Fits Drums 110-132 Lb.

Owner's Manual



! WARNING: Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item #58079

READ & SAVE THESE INSTRUCTIONS

Thank you very much for choosing a Roughneck™ product!

For future reference, please complete the owner's record below:

Serial Number/Lot Date Code: _____

Purchase Date: _____

Save the receipt, warranty, and this manual. It is important that you read the entire manual to become familiar with this product before you begin using it.

This pump kit is designed for certain applications only. Northern Tool and Equipment is not responsible for issues arising from modification or improper use of this product such as an application for which it was not designed. We strongly recommend that this product not be modified and/or used for any application other than that for which it was designed.

For technical questions, please call **1-800-222-5381**.

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Intended Use

The Roughneck Air Operated 50:1 Grease Pump Kit is designed for transferring grease. Compressed, air-operated, reciprocating pumps are designed for high pressure greasing. The pump kit applies to all types of grease (up to NLGI-2 consistency). The pumps can be supplied as separate components or as a complete system with all the elements necessary for installation. The pump can be assembled on mobile units as well as fixed positions.

Packaging Contents

Part No.	Description	Quantity
1701502	Grease pump	1
1708001	Drum trolley	1
1709004	Drum cover	1
1709014	Follower plate	2
1762213	1/4"x13' connection hose	1
1785702	Z-swivel	1
1785700	Grease control valve	1

Technical Specifications

Compression ratio	50:1
Operating pressure (psi)	70-115
Air inlet pressure (psi)	115
Max. fluid pressure (psi)	5800
Max. free flow rate (min)	1.76lbs
Air consumption(min)	@115psi/4.3CFM
Tube Diameter (inch)	1.18
Suction tube length (inch)	29-1/8"
Suitable for drum (lb.)	1/4" quick plug/1/4" NPT female
Air inlet connection (inch)	Male 1/4"
Oil delivery connection	1/4" Male
Noise level (dB)	82

Drum Cover and Follower Plate List

Drum Cover	Diameter (in.)	Flower Plate	Diameter (in.)	Drum Application (lb.)
1709004	15.2"	1709014	14.6"	110-132

Drum Trolley List

Item No.	Drum Capacity (lb.)
1708001	44-132

Important Safety Information

⚠WARNING

- Read and understand all instructions. Failure to follow all instructions may result in serious injury or property damage.
- The warnings, cautions, and instructions in this manual cannot cover all possible conditions or situations that could occur. Exercise common sense and caution when using this tool. Always be aware of the environment and ensure that the tool is used in a safe and responsible manner.
- Do not allow persons to operate or assemble the product until they have read this manual and have developed a thorough understanding of how it works.
- Do not modify this product in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the product. There are specific applications for which the product was designed.
- Use the right tool for the job. DO NOT attempt to force small equipment to do the work of larger industrial equipment. There are certain applications for which this equipment was designed. This product will be safer and do a better job at the capacity for which it was intended. DO NOT use this equipment for a purpose for which it was not intended.
- Industrial or commercial applications must follow OSHA requirements.

⚠WARNING

WORK AREA SAFETY

- Inspect the work area before each use. Keep work area clean, dry, free of clutter, and well-lit. Cluttered, wet, or dark work areas can result in injury. Using the product in confined work areas may put you dangerously close to cutting tools and rotating parts.
- Do not use the product where there is a risk of causing a fire or an explosion; e.g., in the presence of flammable liquids, gases, or dust. The product can create sparks, which may ignite the flammable liquids, gases, or dust.
- Do not allow the product to come into contact with an electrical source. The tool is not insulated and contact will cause electrical shock.
- Keep children and bystanders away from the work area while operating the tool. Do not allow children to handle the product.
- Be aware of all power lines, electrical circuits, water pipes, and other mechanical hazards in your work area. Some of these hazards may be hidden from your view and may cause personal injury and/or property damage if contacted.

⚠️WARNING

PERSONAL SAFETY

- Stay alert, watch what you are doing, and use common sense when operating the tool. Do not use the tool while you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating the tool may result in serious personal injury.
- Dress properly. Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts. Air vents on the tool often cover moving parts and should be avoided.
- Wear the proper personal protective equipment when necessary. Use ANSI Z87.1 compliant safety goggles (not safety glasses) with side shields, or when needed, a face shield. Use a dust mask in dusty work conditions. Also use non-skid safety shoes, hardhat, gloves, dust collection systems, and hearing protection when appropriate. This applies to all persons in the work area.
- Do not overreach. Keep proper footing and balance at all times.
- Remove keys or wrenches before connecting the tool to an air supply, power supply, or turning on the tool. A wrench or key that is left attached to a rotating part of the tool may cause personal injury.
- Secure the work with clamps or a vise instead of your hand when practical. This safety precaution allows for proper tool operation using both hands.

⚠️CAUTION

PUMP KIT USE AND CARE

- Do not force the pump kit. Products are safer and do a better job when used in the manner for which they are designed. Plan your work, and use the correct product for the job.
- Check for damaged parts before each use. Carefully check that the product will operate properly and perform its intended function. Replace damaged or worn parts immediately. Never operate the product with a damaged part.
- Do not use a product with a malfunctioning switch. Any power tool that cannot be controlled with the power switch is dangerous and must be repaired by an authorized service representative before using.
- Disconnect the power/air supply from the product and place the switch in the locked or off position before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.
- Store the pump kit when it is not in use. Store it in a dry, secure place out of the reach of children. Inspect the tool for good working condition prior to storage and before re-use.
- Use only accessories that are recommended by the manufacturer for use with your product. Accessories that may be suitable for one product may create a risk of injury when used with another tool. Never use an accessory that has a lower operating speed or operating pressure than the tool itself.
- Keep guards in place and in working order. Never operate the product without the guards in place.
- Do not leave the tool running unattended.

Specific Operation Warnings

⚠WARNING

- To prevent serious injury or property damage, read and understand owner's manual before operating.
- Wear ANSI Z87.1 compliant goggles and other protective gear while operating.
- Wear an adiabatic glove when operating pump.
- Do not exceed the maximum working air pressure of 115 PSI.
- Never point the dispenser at people or animals.
- Do not use the pump near open flames. Do not smoke during this operation.
- When not in use, disconnect the air supply air to the pump.
- Inspect before each use; check that all connections are tight and secure.
- Never use if parts are damaged or broken; replace damaged or broken parts before operating.
- Use only original parts when repairing the pump.
- Always disconnect the air supply after use so that oil can't leak out in case one of the pump's components should break.
- The compressed air must be filtered to avoid dust and moisture into pump.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the Technical Data section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents, or fluids containing such solvents in pressurized aluminum equipment. Such use could result in a chemical reaction, with the possibility of explosion.
- Disconnect air hose and relieve air pressure before servicing.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not lift or move pressurized equipment.
- Always dispose of oil and other liquids according to local waste authority guidelines.
- Not for use by or around children.

⚠WARNING

SKIN INJECTION HAZARD

- Fluid from the dispensing valve, leaks, or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation or blood poisoning. Fluid splashed in the eyes or on the skin can also cause serious injury. If a fluid injection injury occurs, GET IMMEDIATE SURGICAL TREATMENT. Do not treat as a simple cut.
- Do not point the dispensing valve at anyone or at any part of the body.
- Do not put your hand or fingers over the end of the dispensing valve.

- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Use only extensions and no-drip tips which are designed for use with your dispensing valve.
- Do not use a low pressure flexible nozzle with this equipment.
- Follow the Pressure Relief Procedure if the dispensing valve clogs before you clean, check or service the equipment.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.
- Do not repair high pressure couplings; you must replace the entire hose.

⚠WARNING

MOVING PARTS HAZARD

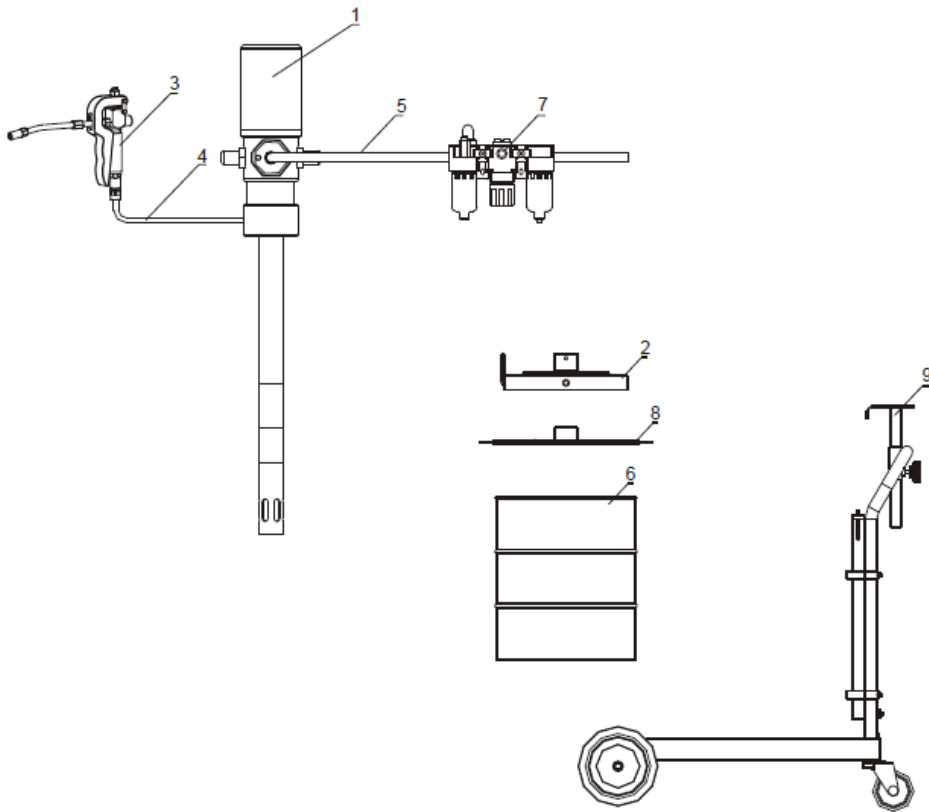
- Moving parts can pinch or amputate fingers.
- Do not operate the pump with the air motor plates removed.
- Keep clear of all moving parts when starting or operating the pump.
- Before servicing the equipment, follow the Pressure Relief Procedure to prevent the equipment from starting unexpectedly.

⚠WARNING

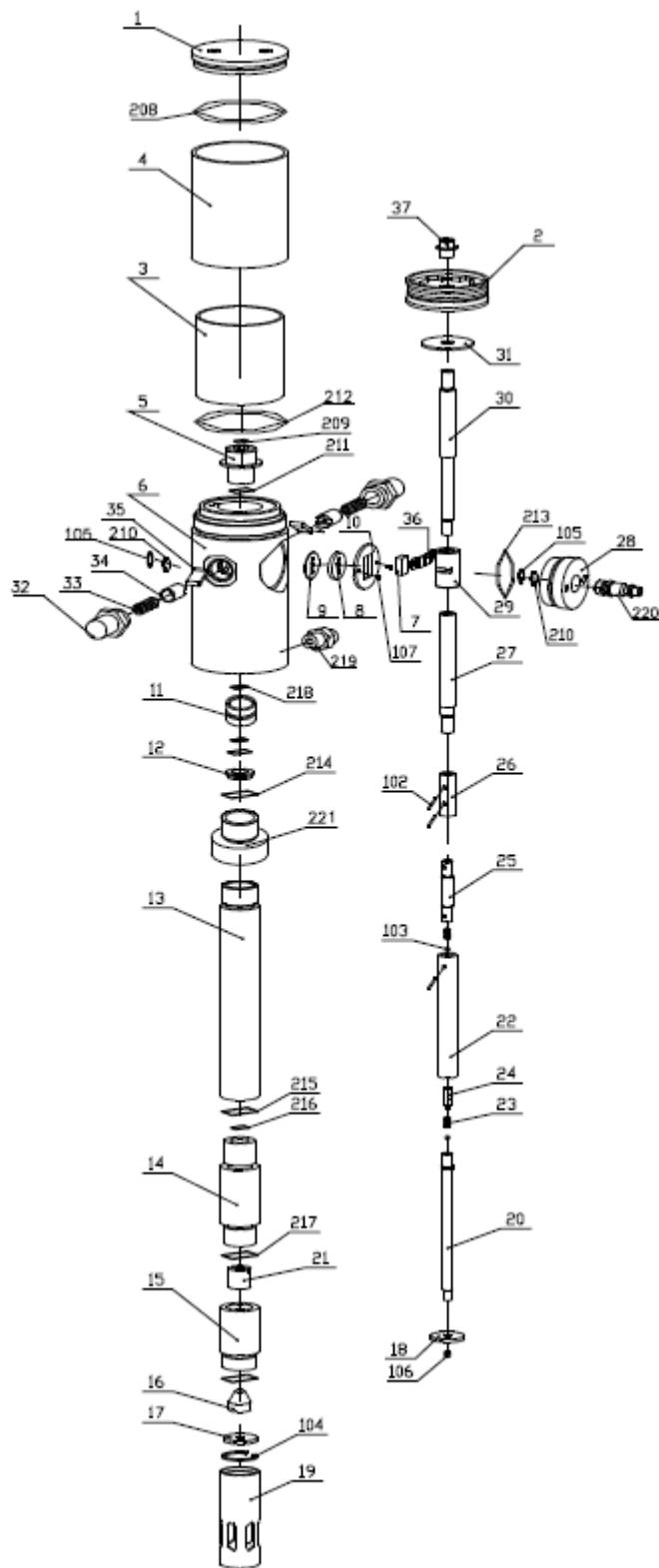
FIRE AND EXPLOSION HAZARD

- Improper grounding, poor ventilation, open flames, or sparks can cause a hazardous condition and result in a fire or explosion and serious injury.
- Ground the equipment and the object being lubricated.
- If there is any static sparking or you feel an electric shock while using this equipment, stop dispensing immediately. Do not use the equipment until you identify and correct the problem.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvents or the fluid dispensed.
- Keep the dispensing area free of debris, including solvent, rags, and gasoline.
- Do not smoke in the dispensing area.

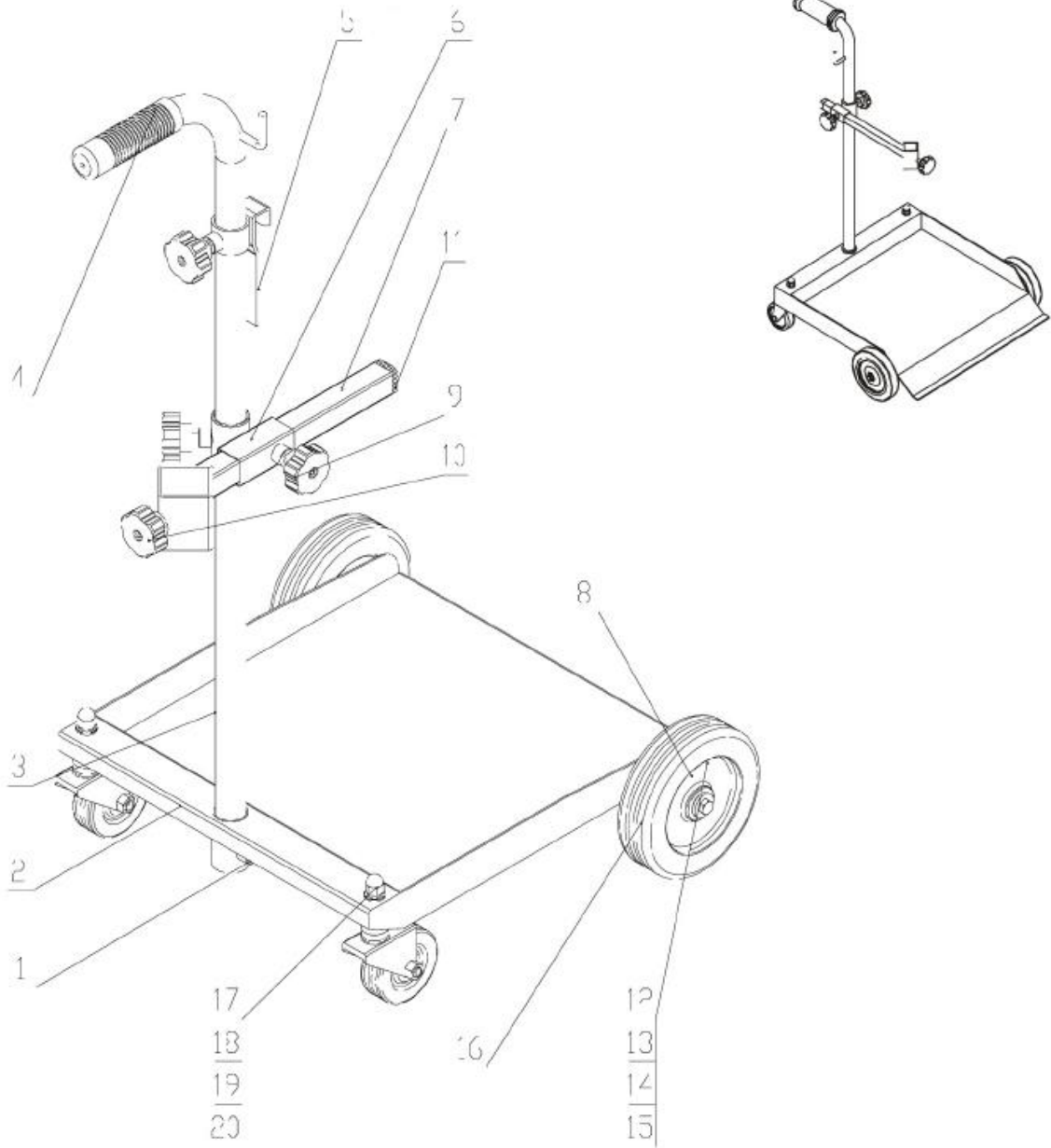
Main Parts of Product



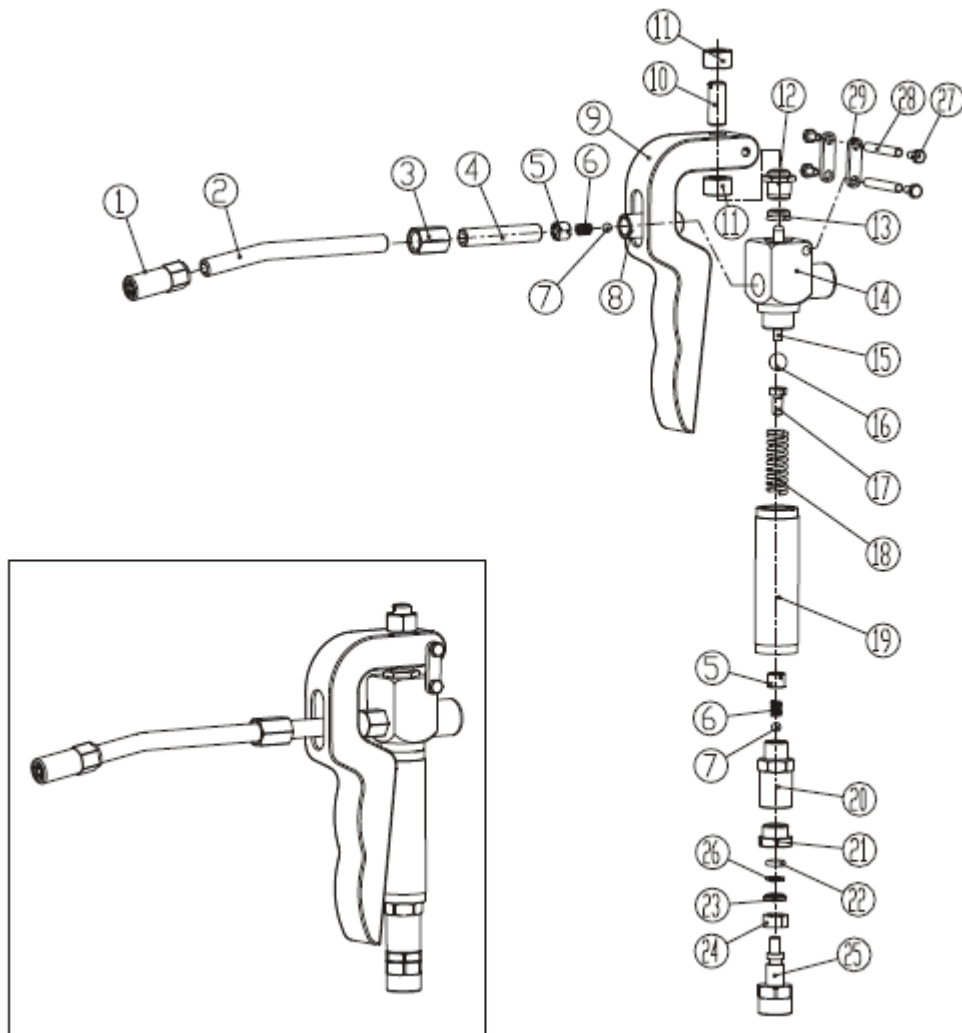
50:1 SERIES GREASE PUMP EXPLODED VIEW



Trolley



Grease Control Valve Exploded View



Assembly Instructions

⚠WARNING

- Do not exceed the maximum working air pressure of 115 PSI.
- The compressed air must be filtered to avoid dust and moisture into pump.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces.

⚠WARNING

FIRE AND EXPLOSION HAZARD

- Improper grounding, poor ventilation, open flames, or sparks can cause a hazardous condition and result in a fire or explosion and serious injury.
- Ground the equipment and the object being lubricated.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvents or the fluid dispensed.

PUMP INSTALLATION

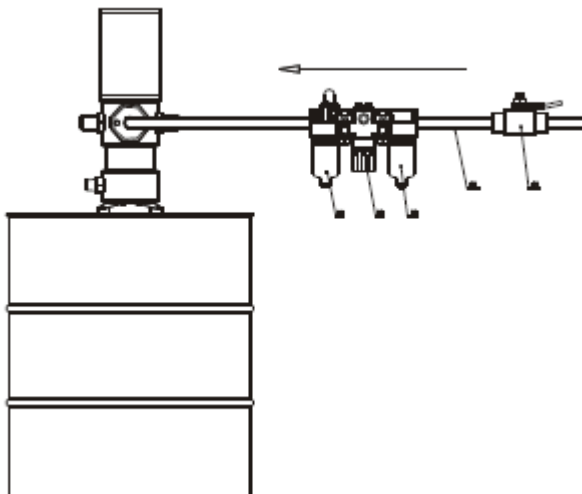
- When the pump is applied to a high viscosity grease, or used in low temperature, a grease follower plate is recommended to avoid air pockets and to get the most out of your grease.
- The follower plate, which is pulled towards the bottom of the drum by suction pressure produced by the air operated pump, compresses the grease, preventing the formation of air pockets which may cause a blockage in delivery. The follower plate will always keep the grease clean to preserve its characteristics and also enable the grease to be collected from the bottom of the drum to avoid waste.
- Loosen the bung adaptor or wall bracket adaptor star nut. Slide the bung adaptor off of the suction tube.
- Carefully slide the pump through the bung adaptor and the follower plate. Tighten the star nut firmly in order to attach the pump.

CONNECTING THE AIR INLET LINE

- Air inlet connection is 1/4" quick coupling (or 1/4" NPT female) in all versions.
- Compressed air connection (to be supplied by the customer) should be done using the correct tubes.
- A compressed air treatment unit (filter and regulator) is recommended to be attached to the pump. In order to improve the efficiency of the pump, the installation of a lubricator is also recommended.

CONNECTING THE REGULATOR

- The lubricator (I) must be placed as close as possible to the air inlet, followed by the pressure regulator (II), and finally, the filter (III). In the case of pumps not installed on a wall support it is very important to equip the pump's air inlet with an adaptor for quick coupling and the air inlet hose with a quick connector.



CONNECTING THE GREASE DISCHARGE

1. The Grease discharge outlet is a 1/4" G thread. Connect the outlet to the high pressure hose (according to DIN-SAE norms) through the corresponding adaptor and terminal.
2. Ensure the gun (or corresponding valve) is closed.
3. Slowly open the pump's compressed air inlet valve. The pump will start to function, filling the feed circuit with grease. Maintain pressure on the gun until the grease start to flow out. The pump is now ready for its usual function.

PUMP OPERATION

- If the pump has already been primed and the compressed air feed is connected to the appropriate work pressure level (70-115psi), the pump will start automatically when the nozzle or gun situated at the end of the grease delivery circuit is opened.
- To stop the pump, simply close the nozzle or disconnect the air inlet line.

Before Each Use

⚠WARNING

- Wear ANSI Z87.1 compliant goggles and other protective gear while operating.
- Inspect before each use; check that all connections are tight and secure.
- Never use if parts are damaged or broken; replace damaged or broken parts before operating.
- DO NOT try to mend it with tape or any other device. A repaired hose cannot safely contain the high pressure fluid.
- The compressed air must be filtered to avoid dust and moisture into pump.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the Technical Data section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents, or fluids containing such solvents in pressurized aluminum equipment. Such use could result in a chemical reaction, with the possibility of explosion.
- Disconnect air hose and relieve air pressure before servicing.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces.

Operating Instructions

⚠WARNING

- Wear ANSI Z87.1 compliant goggles and other protective gear while operating.
- Wear an adiabatic glove when operating pump.
- Do not exceed the maximum working air pressure of 115 PSI.
- Never point the dispenser at people or animals.
- Do not use the pump near open flames. Do not smoke during this operation.
- When not in use, disconnect the air supply air to the pump.
- The compressed air must be filtered to avoid dust and moisture into pump.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the Technical Data section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents, or fluids containing such solvents in pressurized aluminum equipment. Such use could result in a

chemical reaction, with the possibility of explosion.

- Do not lift or move pressurized equipment.

⚠️WARNING

SKIN INJECTION HAZARD

- Fluid from the dispensing valve, leaks, or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation or blood poisoning. Fluid splashed in the eyes or on the skin can also cause serious injury. If a fluid injection injury occurs, GET IMMEDIATE SURGICAL TREATMENT. Do not treat as a simple cut.
- Do not point the dispensing valve at anyone or at any part of the body.
- Do not put your hand or fingers over the end of the dispensing valve.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Use only extensions and no-drip tips which are designed for use with your dispensing valve.
- Do not use a low pressure flexible nozzle with this equipment.
- Follow the Pressure Relief Procedure if the dispensing valve clogs before you clean, check or service the equipment.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.
- Do not repair high pressure couplings; you must replace the entire hose.

⚠️WARNING

MOVING PARTS HAZARD

- Moving parts can pinch or amputate fingers.
- Do not operate the pump with the air motor plates removed.
- Keep clear of all moving parts when starting or operating the pump.
- Before servicing the equipment, follow the Pressure Relief Procedure to prevent the equipment from starting unexpectedly.

⚠️WARNING

FIRE AND EXPLOSION HAZARD

- Improper grounding, poor ventilation, open flames, or sparks can cause a hazardous condition and result in a fire or explosion and serious injury.
- Ground the equipment and the object being lubricated.
- If there is any static sparking or you feel an electric shock while using this equipment, stop dispensing immediately. Do not use the equipment until you identify and correct the problem.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvents or the fluid dispensed.

- Keep the dispensing area free of debris, including solvent, rags, and gasoline.
- Do not smoke in the dispensing area.

PUMP OPERATION

If the pump has already been primed and the compressed air feed is connected to the appropriate work pressure level (70-115 PSI), the pump will start automatically when the nozzle or gun situated at the end of the grease delivery circuit is opened. To stop the pump, simply close the nozzle or disconnect the air inlet line.

GREASE CONTROL VALVE OPERATION

1. Connect the control handle to the lubricant supply line (1/4 NPT male thread required).
2. Open the manual tip.
3. Squeeze control handle trigger. When the required amount of product has been dispensed, release the trigger to stop delivery. Close the manual tip.

Pressure Relief Procedure

To reduce the risk of serious bodily injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, always follow this procedure whenever you shut off the pump, when checking or servicing any part of the spray/dispensing system, when installing, cleaning, or changing the spray tips/nozzles, or whenever you stop spraying/dispensing.

- Shut off the air to the pump.
- Point the outlet of grease gun to a container and trigger the grease gun to relieve pressure.

Grease Pump Control Valve Operation

⚠WARNING

- Never point the dispenser at people or animals.
- Connect the control handle to the lubricant supply line (1/4 BSP or 1/4 NPT male thread required).
- Open the manual tip.
- Squeeze the control handle trigger. When the required amount of product has been dispensed, release the trigger to stop delivery. Close the manual tip.

After Each Use

⚠WARNING

- When not in use, disconnect the air supply air to the pump.
- Always disconnect the air supply after use so that oil can't leak out in case one of the pump's components should break.
- Disconnect air hose and relieve air pressure before servicing.
- Always dispose of oil and other liquids according to local waste authority guidelines.

- Let in 50 grams of Vaseline oil or other lubricator from the air inlet hole.
- Turn on the pump for several minutes until moving parts are fully lubricated. Do this weekly.

- For the pumps that are attached with compressed air treatment equipment, empty the water retained in the reservoir of the filter-purger frequently.
- For the pumps that are attached with a lubricator, pay close attention to the lubricator's grease level and refill with NLGL-2 conditions when necessary.

Maintenance

⚠WARNING

- Disconnect air hose and relieve air pressure before servicing.

Handling and storage of the pump do not require any special procedures. The dust in compressed air can slow down or even block the motor cylinder. The following steps may prevent this from happening:

- 1) Add 50 grams of appropriate lubricating oil to the air inlet hole weekly; operate the pump for several minutes after adding oil.
- 2) Turn on the pump for several minutes until the moving parts are fully lubricated. Repeat if necessary. Do this on a weekly basis.

For the pumps that are attached with compressed air treatment equipment, empty the water retained in the reservoir of the filter-purger frequently.

For the pumps that are attached with a lubricator, pay close attention to the lubricator's grease level and refill with NLGL-2 conditions when necessary.

Keep the pump in a dry and cool place out of the reach of children.

Cleaning the Pump:

Operate the pump and drain off the oil, then the pump could be applied to other kind of oil.

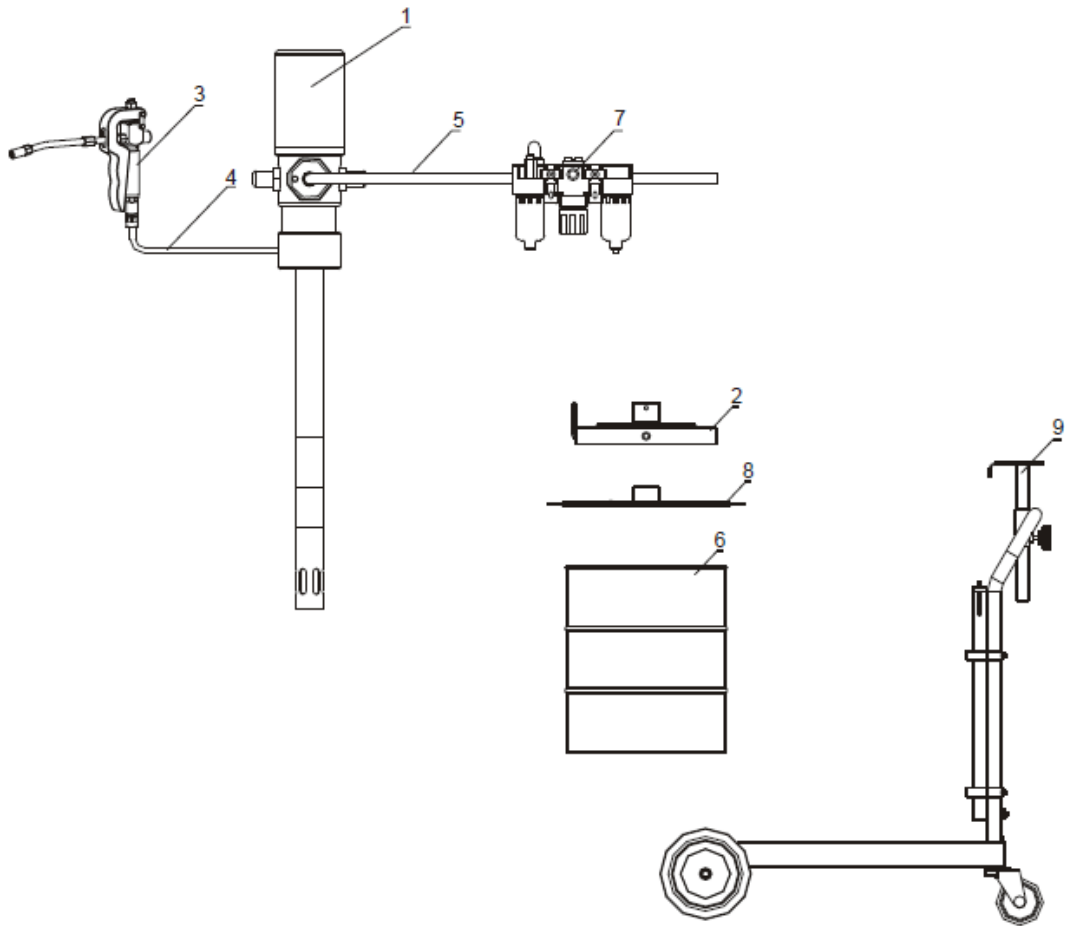
Troubleshooting

Problem	Possible Cause	Solution
The pump continues to operate after the gun trigger has been released.	The pump continues to operate after the gun trigger has been released.	1.Remove cover and take out pump and follower plate. Compact grease and fill the drum or substitute it for a full one. 2.Check and tighten connections. Repair the leak. 3.Disassemble and clean valves. Have them replaced if damaged.
Reduction of the grease delivery or reduced pressure in the grease delivery.	1. Air pockets are trapped in the grease drum. 2. Silencer (210) is dirtied. 3. There is a blockage at some point in the grease circuit. 4. Ball valve (103) closes incorrectly due to dirt or wearing. 5. Damaged O-ring (216).	1. Remove the cover and take out the pump and the follower. Plate. Compact the grease and fill the drum. 2. Clean or recharge silencer. 3. Use clean grease. 4. Have damaged parts replaced.

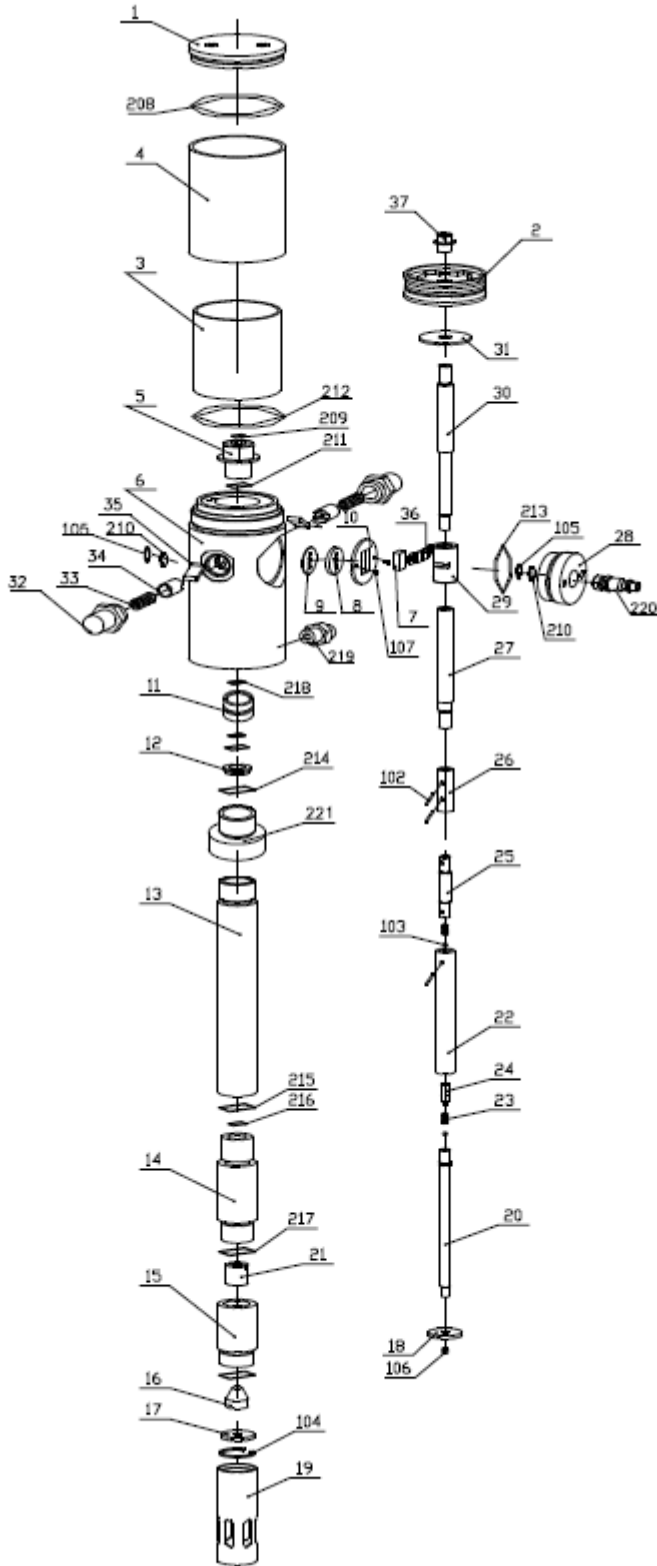
<p>Air loss through the air exhaust.</p>	<ol style="list-style-type: none"> 1.The sliding valve (7) does not close properly. 2.The press piece (36) is broken. 3.Damaged O-ring (208, 209, or 211). 4.Damaged piston (2). 5.Damaged washer(31). 6.Broken spring (33). 	<ol style="list-style-type: none"> 1.Disassemble and clean. Have damaged parts replaced. 2. Have damaged parts replaced.
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Parts Diagram

Kits List



50:1 SERIES GREASE PUMP EXPLODED VIEW



Parts List

Kit List

Part No.	Description	Quantity
1	Grease pump	1
2	Drum cover	1
3	Grease control valve	1
4	Hose with fitting	2
5	Air hose with quick coupling	1
7	Filter, pressure regulator and lubricator	Not included
8	Follower plate	1
9	Trolley	1

50:1 SERIES GREASE PUMP PARTS LIST

Part No.	Description	Quantity	Part No.	Description	Quantity
1	Air motor cover	1	34	Spring Seat	2
2	Piston	1	35	Trip shoe guide	2
3	Air motor shell inside	1	36	Press piece	1
4	Air motor shell outside	1	37	Nut	1
5	Bracket	1	102	Pin	3
6	Air control center	1	103	Ball	2
7	Slider	1	104	Circlip	1
8	Gasket	1	105	Small circlip	2
9	Soft gasket	1	106	Nut	1
10	Securing washer	1	107	Screw	2
11	Bracket	1	208	O-ring	2
12	Washer	1	209	O-ring	2
13	Connect tube	1	210	Silencer	2
14	Piston shell	1	211	O-ring	1
15	Valve seat	1	212	O-ring	1
16	Taper washer	1	213	O-ring	1
17	Filter	1	214	O-ring	1

Part No.	Description	Quantity	Part No.	Description	Quantity
18	Shovel washer	1	215	O-ring	1
19	Suction tube	1	216	O-ring	1
20	Shovel rod	1	217	O-ring	1
21	Valve	1	218	OD-ring	2
22	Piston	1	219	Outlet	1
23	Spring	2	220	Quick coupling	1
24	Spring seat	1	221	Connector	1
25	Connect shaft	1			
26	Connect shell	1			
27	Middle shaft	1			
28	Air center cover	1			
29	Slider shell	1			
30	Piston shaft	1			
31	Washer	2			
32	Spring shell	2			
33	Spring	2			

Trolley Parts List

Part No.	Description	Quantity
1	Screw	1
2	Trolley top	1
3	Handle	1
4	Handle cover	1
5	Drum support	1
6	Adjustable cover	1
7	Adjustable pole	1
8	Hexagon bolt	2
9	Handle wheel	3
10	Accessory	1
11	Blocker	1
12	M6 Bolt	2
13	Washer	2
14	M8 Bolt	2
15	Washer	2
16	Wheel	2
17	Swiveling wheel	2
18	Acorn nut	2
19	Washer	2
20	Washer	2

Grease Control Valve Exploded View and Parts List

Part No.	Description	Quantity
1	4-jaw grease fitting	1
2	Rigid delivery pipe	1
3	Hexad tie-in	1
4	Take-over tube	1
5	Adjust bolt	2
6	Spring	2
7	Steel ball	2
8	Unilateralism valve	1
9	Wrench	1
10	Adjust bolt	1
11	Nut	2
12	Guide	1
13	Gasket	1
14	Gun seat	1
15	Rod	1
16	Steel ball	1
17	Set	1
18	Spring	1
19	Handle	1
20	Valve seat	1
21	Nut	1
22	O-ring	1
23	Block ring	1
24	Axis tile	1
25	Axes	1
26	Liner ring	1
27	Hexad bolt	2
28	Join pipe	1
29	Join piece	1

Replacement Parts

- For replacement parts and technical questions, please call Customer Service at **1-800-222-5381**.
- Not all product components are available for replacement. The illustrations provided are a convenient reference to the location and position of parts in the assembly sequence.
- When ordering parts, the following information will be required: item description, item model number, item serial number/item lot date code, and the replacement part reference number.
- The distributor reserves the rights to make design changes and improvements to product lines and manuals without notice.

Limited Warranty

Northern Tool and Equipment Company, Inc. ("We" or "Us") warrants to the original purchaser only ("You" or "Your") that the Roughneck product purchased will be free from material defects in both materials and workmanship, normal wear and tear excepted, for a period of **one year** from date of purchase. The foregoing warranty is valid only if the installation and use of the product is strictly in accordance with product instructions. There are no other warranties, express or implied, including the warranty of merchantability or fitness for a particular purpose. If the product does not comply with this limited warranty, Your sole and exclusive remedy is that We will, at our sole option and within a commercially reasonable time, either replace the product or product component without charge to You or refund the purchase price (less shipping). This limited warranty is not transferable.

Limitations on the Warranty

This limited warranty does not cover: (a) normal wear and tear; (b) damage through abuse, neglect, misuse, or as a result of any accident or in any other manner; (c) damage from misapplication, overloading, or improper installation; (d) improper maintenance and repair; and (e) product alteration in any manner by anyone other than Us, with the sole exception of alterations made pursuant to product instructions and in a workmanlike manner.

Obligations of Purchaser

You must retain Your product purchase receipt to verify date of purchase and that You are the original purchaser. To make a warranty claim, contact Us at 1-800-222-5381, identify the product by make and model number, and follow the claim instructions that will be provided. The product and the purchase receipt must be provided to Us in order to process Your warranty claim. Any returned product that is replaced or refunded by Us becomes our property. You will be responsible for return shipping costs or costs related to Your return visit to a retail store.

Remedy Limits

Product replacement or a refund of the purchase price is Your sole remedy under this limited warranty or any other warranty related to the product. We shall not be liable for: service or labor charges or damage to Your property incurred in removing or replacing the product; any damages, including, without limitation, damages to tangible personal property or personal injury, related to Your improper use, installation, or maintenance of the product or product component; or any indirect, incidental or consequential damages of any kind for any reason.

Assumption of Risk

You acknowledge and agree that any use of the product for any purpose other than the specified use(s) stated in the product instructions is at Your own risk.

Governing Law

This limited warranty gives You specific legal rights, and You also may have other rights which vary from state to state. Some states do not allow limitations or exclusions on implied warranties or incidental or consequential damages, so the above limitations may not apply to You. This limited warranty is governed by the laws of the State of Minnesota, without regard to rules pertaining to conflicts of law. The state courts located in Dakota County, Minnesota shall have exclusive jurisdiction for any disputes relating to this warranty.



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