VANAIR®

AIR POWER TO GO™

PRO Series

Reciprocating Compressor

INSTALLATION, OPERATION and MAINTENANCE MANUAL

NOTE

Read this manual before installing, operating or servicing this equipment. Failure to comply with the operation and maintenance instructions in this manual WILL VOID THE EQUIPMENT WARRANTY.

NOTE
Making unauthorized modifications to the compressor or system components WILL VOID THE WARRANTY!
Always inform Vanair Manufacturing, Inc., before beginning any changes.

NOTE
Use only Vanair Vanguard™ Premium Synthetic Oil and Genuine Vanair Parts. Inspect and replace damaged components before operation. Substituting non-Vanguard™ Oil or non-genuine Vanair filter components WILL VOID THE COMPRESSOR WARRANTY!

P/N 090041_r0
Effective Date: 5/12

Pro Series 2 YEAR WARRANTY

WARRANTY: Pro Series Compressors Power System®

Subject to the terms and conditions below, Vanair® Manufacturing Inc. warrants to the original end user that new Pro Series equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it was shipped from Vanair.

This statement of warranty is expressly in lieu of and disclaims all other express warranties, implied warranties of merchantability and fitness for a particular purchase and all other implied warranties which extend beyond the description on the face hereof. The warranty does not include incidental or consequential damages.

Within the warranty periods listed below, Vanair will repair or replace any warranted parts or components that fail due to defects in material or workmanship. Warranty will commence upon receipt of the Warranty Registration Card. If the Warranty Registration Card is not received within six (6) months, then warranty commencement date shall be thirty (30) days from the date of shipment from Vanair. Records of warranty adherence are the responsibility of end user.

When following the prescribed maintenance schedule, all major components are warranted for two (2) years. (NOTE: Engines are warrantied separately by the engine manufacturer.)

Consumable products such as filters and electrodes are not covered. This warranty does not cover damage caused by accident, misuse or negligence.

Any disassembly of major components must be approved by Vanair to preclude voiding of warranty. Any and all such claims for warranty consideration must be coordinated through the Warranty-Service Department at the address below. **Do not** return parts without prior authorization.

Warranty claims must be pre-approved, and are limited to the supply of replacement parts falling within the warranty period. Credit for labor required to refit replacement parts is NOT included. All warrantied parts are to be shipped PREPAID to Vanair. Replacement parts will be shipped back to the customer by Vanair via ground shipment. Cost to expedite delivery of replacement parts will be incurred by customer. Factory installed units will also include warranty on the installation for one year.

This warranty shall be void and Vanair shall have no responsibility to repair, replace or repay the purchase price of defective or damaged parts resulting from the use of or repair of replacement parts or fluids not of Vanair's manufacture or from buyer's failure to store, install, maintain and operate the equipment according to the recommendations contained in the manual.

All claims under the Warranty shall be made by contacting Vanair Warranty-Service Department.

VANAIR
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Register Your Warranty Online at www.vanair.com under the Support Tab!
Or Call: (800) 526-8817 • Fax: (219) 879-5800
Mail to: 10896 W 300 North • Michigan City, IN 46360

Effective May 2012

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SECTION 1: SAFETY

1.1 GENERAL INFORMATION

The products provided by Vanair Manufacturing, Inc., are designed and manufactured for safe operation and maintenance. But it is ultimately the responsibility of the users and maintainers for safe use of this equipment. Part of this responsibility is to read and be familiar with the contents of this manual before operation or performing maintenance actions.

⚠ WARNING

Identifies actions or conditions which will cause death, severe injury, or equipment damage or destructive malfunctions.

1.2 WARNINGS, CAUTIONS, AND NOTES

See information boxes at right column.

⚠ CAUTION

Identifies actions or conditions which will or can cause injuries, equipment damage or malfunctions.

1.3 SUMMARY OF WARNINGS, CAUTIONS, AND NOTES

These boxed inserts are placed throughout this manual in the sections where they apply. This subsection is a general summary of their contents.

NOTE

Additional information (or existing information) which should be brought to the attention of operators/maintainers affecting safety, operation, maintenance, or warranty requirements.

1.3.1 WARNINGS

- **DO NOT** EVER USE THIS COMPRESSOR AS A BREATHING AIR SOURCE. VANAIR MANUFACTURING INC., DISCLAIMS ANY AND ALL LIABILITIES FOR DAMAGE OR LOSS DUE TO FATALITIES, PERSONAL INJURIES RESULTING FROM THE USE OF A VANAIR COMPRESSOR TO SUPPLY BREATHING AIR.
- **DO NOT** perform any modifications to this equipment without prior factory approval.
- **DO NOT** operate the compressor or any of its systems if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source. Install a lock-out tag to identify the equipment as inoperable to other personnel.
- **DO NOT** attempt to service the equipment while it is operating.
- **DO NOT** use the compressor for purposes other than for which it is intended. High pressure air can cause serious and even fatal injuries.

⚠ WARNING

Any replacement parts should be purchased with the same specifications as the original equipment. Please contact the authorized dealer for replacement parts or specifications.

⚠ WARNING

Never weld, drill or change the air receiver in any way.

⚠ WARNING

Compressed air from the unit may contain hazardous fumes. Air produced by this compressor is not suitable for breathing purposes. Always use a respirator when spraying paint or chemicals, or when sandblasting. Always wear safety glasses or goggles when using compressed air.

⚠ WARNING

It is not practical or possible to warn about all the hazards associated with operating or maintaining this equipment. You must use your own good judgment.

- **DO NOT** operate the compressor outside of its specified pressure and speed ratings. (See *SECTION 3*, Specifications or refer to the equipment data plate.)
- **DO NOT** use flammable solvents or cleaners for cleaning the compressor or it parts.
- **DO NOT** operate the compressor in areas where flammable, toxic, or corrosive fumes, or other damaging substance can be ingested by the compressor intakes.
- **DO NOT** operate the compressor with any by-pass or other safety systems disconnected or rendered inoperative.
- Keep arms, hands, hair and other body parts, and loose clothing away from fans, drive shafts, and other moving parts.
- **DO NOT** operate the compressor with any guards removed or damaged, or other safety devices inoperative.
- **DO NOT** operate the compressor in enclosed or confined spaces where ventilation is restricted or closed-off.
- **DO NOT** install shut-off valves between the compressor and the compressor receiver tank (sump).
- Ensure that hoses connected to service valves are fitted with correctly sized and rated flow limiting devices which comply with applicable codes. Pressurized broken or disconnected hoses can whip causing injuries or damage.
- **DO NOT** use tools, hoses, or equipment that have maximum ratings below that of this compressor.
- Keep metal tools, and other conductive objects away from live electrical components.
- Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and been locked out to prevent accidental application.
- **DO NOT** assume that because the compressor is in a STOPPED condition that power has been removed.
- Use this compressor only to compress atmospheric air. Use of this equipment as a booster pump and/or to compress any other gaseous or aerosol substance constitutes improper use. It can also cause damage or injuries. Such misuse will also void the warranty.
- Install, operate, and maintain this equipment in full compliance with all applicable OSHA, other Federal, state, local codes, standards, and regulations.
- Before performing maintenance, or replacing parts, relieve the entire system pressure by opening a service valve which will vent all pressure to the atmosphere: remove all electrical power.

1.3.2 CAUTIONS

- Check all safety devices for proper operation on a routine basis.
- Ensure that no tools, rags, or other objects are left on compressor drive systems or near intakes.
- Keep the equipment clean when performing maintenance or service actions. Cover openings to prevent contamination.
- **DO NOT** operate the compressor if cooling air is not available (fan/cooler not operating) or if lubricant levels are below their specified minimum levels.
- Ensure all plugs, hoses, connectors, covers, and other parts removed for maintenance actions are replaced before applying power to the compressor.
- Avoid touching hot surfaces and components.
- Ensure that electrical wiring, terminals; hoses and fittings are kept in serviceable condition through routine inspections and maintenance. Replace any damaged or worn components.
- Wear appropriate protective (eye and hearing protection) equipment and clothing when operating or maintaining this equipment. DO NOT wear jewelry, loose clothing; and long hair should be restrained with headband or safety hat.

⚠ CAUTION

The air compressor motor and/or engine will get hot while in operation. Never touch the discharge tubing, engine, motor or compressor pump while in operation. The compressor operates automatically while the power is connected and turned on, or the engine is running.

1.4 SAFETY VALVE

This valve is factory installed to prevent over pressurizing of the air receiver. It is factory set at a specific limit for your particular model, and should never be tampered with.

Adjustment by user will automatically void the warranty.

⚠ WARNING

Do not remove, make adjustments to or substitute this valve.

SECTION 2: INSTALLATION/ OPERATION

2.1 GENERAL INSTRUCTIONS

Proper care, maintenance and lubrication ensures longevity. The compressor should always be level for proper lubrication. Do not over tighten foot bolts, as excessive vibration may occur. Use only in a clean, dry, and well-ventilated area.

The compressor has heat dissipation fins for proper cooling. Keep the fins and other parts that collect dust clean. Do not place rags or other materials on top of the compressor, as this obstructs cooling and can be a fire hazard.

⚠ CAUTION

Engine idle speed may need to be adjusted, even on a brand new unit, to compensate for differences in altitude. Please consult the engine manual.

2.2 BREAK-IN PROCEDURE

There is no break-in requirements for this model.

2.3 BEFORE OPERATING THE COMPRESSOR

1. Ensure all nuts and bolts are tightened.
2. Ensure that the quantity of oil is correct.
3. If the intake filters are dirty, clean or replace.
4. Always use Vanair® reciprocating oil (P/N 271856-1GAL).

⚠ CAUTION

Always check the oil level and quality before start-up. Do not add or change oil while the unit is running. Use only Vanair® reciprocating oil.

2.4 OPERATING THE COMPRESSOR

1. Check entire unit for damage.
2. Check compressor and engine oil level; fill or add if necessary.
3. Ensure gas tank is filled.
4. Read entire engine manual.

2.5 STARTING THE ENGINE

1. Move lever to the ON position. If engine is cold, move choke lever to the CLOSED position. If engine is warm, leave choke lever in OPEN position.

⚠ CAUTION

Extra care should be taken to avoid personal injuries with automatically controlled compressors.

2. Turn engine switch to ON position.
3. Pull starter grip lightly until you feel resistance, then pull briskly. Return starter grip gently - engine should start. If not, repeat process.
4. Once the engine starts running, slowly move the choke lever to the OPEN position
5. With the engine running properly, the compressor fills the air receiver with compressed air. When maximum pressure (set by the pilot valve control) is reached, the engine and compressor will slow down to idle speed and will return to full RPM when the cut-in pressure is reached. The unit will continue to cycle automatically until turned off.

SECTION 3: MAINTENANCE

3.1 GENERAL

Before performing any maintenane or adjustments to your air compressor, the following safety precautions should be taken:

1. Turn engine OFF; remove key.
2. Drain air receiver and air lines of any air pressure.

⚠ WARNING

DO NOT use tools, hoses, or equipment that have maximum ratings below that of this compressor.

3.2 FILLING COMPRESSOR WITH OIL

1. Remove the oil filler plug.
2. Slowly pour the proper oil into the pump crankcase.
3. Always keep oil level in the middle of the sight glass.

⚠ WARNING

REMOVE power when performing maintenance or repair actions.

3.3 ENGINE LUBRICATION

Check engine Owner's manual for lubrication and maintenance requirements.

⚠ WARNING

Keep metal tools, and other conductive objects away from live electrical components.

3.4 OIL CHANGES

Initial oil change is due at 100 hours.

1. Remove the oil drain plug. Allow oil to drain completely from unit.
2. Replace the oil drain plug.
3. Refill with the recommended oil to the proper level.

⚠ WARNING

DO NOT touch electrical wires, wire harnesses, terminals, or other components when power is applied to the compressor unit.

3.5 CHECKING BELT TENSION

Adjust belt(s) so that when pressure is applied at the center, there is approximately 1/2" slack. (Refer to ***Figure 3-1: Belt Tension***).

If the belt is installed too tightly, the engine might be overloaded. This will cause the engine to overheat. If the belt is installed too loosely, it will slip and excessive wear and vibration will occur.

⚠ WARNING

Before performing maintenance or repair operations on the compressor, ensure that all power has been removed and been locked out to prevent accidental application.

DO NOT assume that because the compressor is in a STOPPED condition that power has been removed.

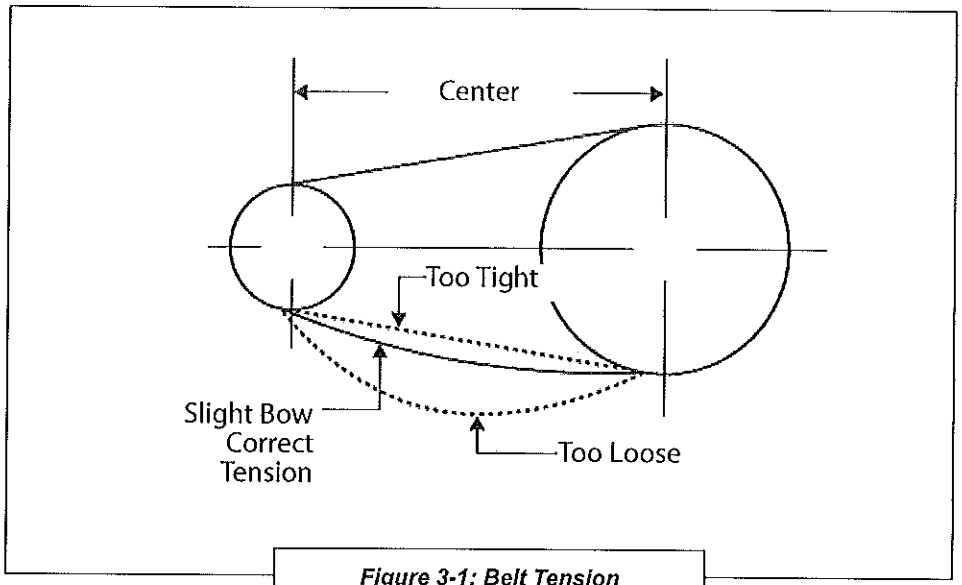

Figure 3-1: Belt Tension

3.6 INSTALLING NEW BELT

⚠ WARNING

Before performing maintenance, or replacing parts, relieve the entire system pressure by opening a service valve which will vent all pressure to the atmosphere: remove all electrical power.

1. Turn engine OFF; remove key.
2. Remove belt guard.
3. Loosen motor bolts and slide motor toward compressor head just enough to allow old belt to be removed.
4. Install proper replacement belt.
5. Slide motor away from compressor head to provide recommended tension as shown in ***Figure 3-1***.
6. Align belt, using a straight edge ruler against pulley's edge.
7. Fasten motor bolts.
8. Ensure motor and compressor pulleys are secure.
9. Re-install belt guard and reconnect power supply.
10. Belt tension should be checked after 20 hours of operation. Check tension monthly thereafter.

NOTE

Keep the equipment clean when performing maintenance or service actions. Cover openings to prevent contamination.

3.7 DAILY MAINTENANCE

NOTE

Wear appropriate protective (eye and hearing protection) equipment and clothing when operating or maintaining this equipment. DO NOT wear jewelry, loose clothing; and long hair should be restrained with headband or safety hat.

1. Check oil level.
2. Drain condensation from air receiver after each use.
3. Check for any unusual noise or vibration.
4. Be sure all nuts and bolts are tightened.

3.8 WEEKLY MAINTENANCE

1. Turn off power. Clean dust and foreign matter from cylinder head, motor, fan blades intercooler and air receiver.
2. Check air filter; replace if necessary.
3. Worn filters should be replaced.
4. Check V-belts for wear.

⚠ CAUTION

DO NOT mix oil types, weights, or brands. Mixing oil types can cause equipment damage or failure.

3.9 MONTHLY MAINTENANCE

1. Inspect unit for leaks.
2. Tighten joints if leaks are observed.
3. Check V-belts for proper tension.
4. Check that compressor pulley and motor sheave are aligned and securely fastened.
5. Pull ring on system pressure relief valves.
6. Inspect and change air filters, if necessary.

NOTE

When using compressed air to clean the components, the nozzle pressure should not exceed 15 psig.

3.10 QUARTERLY OR 300 HOURS (WHICHEVER COMES FIRST) MAINTENANCE

1. Inspect the air receiver for corrosion or other damage.
2. Change compressor oil.
3. Replace air filter (more often if compressor is used near paint spraying operations or in dusty environments).

NOTE

Vanair recommends removing both top and side housing panels to facilitate access to the compressor.

SECTION 4: TROUBLESHOOTING

4.1 GENERAL

This troubleshooting table has been compiled from operational and test data. It lists malfunctions/fault conditions, possible causes, and suggested corrective actions. While it is intended to be comprehensive, operators and maintainers can encounter malfunctions or problems not listed in this table.

It is good maintenance practice to apply the simplest solutions first after a problem has been identified. This can save time and extra disassembly work. Careful visual inspections of the equipment can also be useful in this regard.

⚠ WARNING

DO NOT operate the compressor or any of its systems if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source. Install a lock-out tag to identify the equipment as inoperable to other personnel.

⚠ WARNING

Before performing maintenance, or replacing parts, relieve the entire system pressure by opening a service valve which will vent all pressure to the atmosphere: remove all electrical power.

4.2 TROUBLESHOOTING GUIDE

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor will not start	Please refer to Manufacturer's manual (included)	Please refer to engine manual (included)
Low pressure	Safety valve leaks	Replace safety valve
	Drain cock open	Close drain cock
	Loose tubes or fittings	Tighten fittings
	Dirty or plugged air filter	Clean or replace, as necessary
	Defective unloader valve	Replace unloader valve

Continued on next page

4.2 TROUBLESHOOTING GUIDE (CONTINUED)

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor overheats	Clogged inlet filter	Clean or replace, as necessary
	Dirty compressor, head, cylinder, or intercooler	Clean with compressed air
	Operating pressure too high	Reduce operating pressure
	Low oil or incorrect oil being used	Drain and replace
	Compressor cycle too long - proper cycle is 50-60% on Stop/ Start operation and 75-80% on continuous operation	Allow for longer rest between cycles
Compressor loads and unloads or stops and starts excessively	Leaks in air system	Replace worn components as necessary
	Worn or loose drive belts	Tighten V-belts or replace
	Pilot valve or pressure switch differential adjusted too close	Make necessary adjustments
	Defective compressor valves	Replace valves
	Compressor too small for intended use	
Insufficient output Low discharge pressure	Clogged inlet filter	Clean or replace, as necessary
	Leaks in air lines, air valves, fittings, etc.	Replace worn components as necessary
	Drive belts slipping	Tension V-belts
	Drain valve left open	Close drain valve
	Defective pressure gauge	Replace pressure gauge
	Compressor incorrectly sized	
	Leaking head gasket	Replace head gasket
	Dirty or plugged inter cooler tubes	Remove and clean inter cooler tubes
	Unloader pilot or pressure switch adjusted too low, or defective	Make necessary adjustments
	Worn or defective compressor valves	Replace worn parts
	Worn piston, worn out rings	Replace worn parts
	Restrictive check valve	Clean check valve and replace if necessary

Continued on next page

4.2 TROUBLESHOOTING GUIDE (CONTINUED)

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Motor stalls	Faulty unloader/check valve	Replace unloader or check valve
	Valves incorrectly installed	Install valves correctly
	Drive belts too tight	Tension V-belts
Water in crankcase Oil Breaking up Oil gets dirty Rusty valves or cylinder	Cycle too short; compressor does not operate long enough to vaporize condensed moisture during compression	Allow for a longer operating cycle
	Compressor operating outside in cold conditions or inlet filter not protected against weather	Provide adequate protection against extreme weather conditions
	System pressure leaking back through check valve when compressor is stopped	Check / replace check valve if necessary
	Wrong oil being used	Drain and replace with proper oil
Excessive vibration	Loose compressor, motor, engine or guard	Tighten components
	Excessive discharge pressure	Reduce operating pressure
	Compressor not level	Level compressor
	Leg bolts tightened too tightly to floor	Loosen leg bolts
	Wrong oil being used	Drain and replace with proper oil
	Loose flywheel, drive pulley or drive belts	Tighten loose components and check belts
	Worn rods, wrist pin or main bearings	Check and replace worn parts
Compressor knocks	Compressor valves loose or broken	Check and replace worn or broken valves
	Inspect check valve; it may knock at low pressures	Remove and clean check valve
Compressor uses too much oil	Clogged inlet filter	Clean inlet filter or replace if necessary
	Wrong oil being used; wrong viscosity	Drain and replace oil
	Oil level too high	Fill compressor with oil to proper level

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4.2 TROUBLESHOOTING GUIDE (CONTINUED)

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor uses too much oil (continued)	Crankcase breather valve malfunction	Replace crankcase breather
	Compressor runs unloaded too long	Increase load or stop compressor when not needed (check for air/leaks)
	Compressor operating outside in cold conditions or inlet filter not protected against weather	Provide adequate protection against extreme weather conditions
	Worn piston rings	Replace piston rings
	Piston rings not seated	See instruction below
Piston rings not seated		Allow 100 hours of normal operation for new rings to seat
		Drain oil and refill with non-detergent ISO 68 oil or other approved oils

SECTION 5: REPLACEMENT PARTS LIST

5.1 PARTS ORDERING PROCEDURE

Part orders should be placed through the distributor from whom the unit was purchased. If, for any reason parts cannot be obtained in this manner, contact the factory directly at the address or phone numbers below.

When ordering parts, always indicate the **Serial Number** of the system. This can be obtained from the Bill of Lading for the machine package, or from the compressor unit serial number plate.

5.2 PRO LINE REPLACEMENT PARTS

Kohler Engine 9.5HP CH395		
Description	Vanair P/N	KIT #
Spark Plug:	272315	KIT1166
Fuel Filter (in Tank):	EN270163-01	
Air Filter Element:	EN270163-02	
Pre-Cleaner Air Filter:	EN270163-03	

PRO18 Twin Tank Compressor Parts		
Description	Vanair P/N	KIT #
Air filter Element:	272324	KIT1168
Reciprocating Oil:	271856-1GAL	
1X Belt A54:	272320	
VALVE, REPAIR KIT:	272328	
RING, REPAIR KIT:	272329	

Kohler Engine 14HP CH440		
Description	Vanair P/N	
Spark Plug:	EN270163-04	KIT1158
Fuel Filter (in Tank):	EN270163-01	
Air Filter Element:	EN270163-02	
Pre-Cleaner Air Filter:	EN270163-03	

PRO18 Compressor Parts		
Description	Vanair P/N	KIT #
Air filter Element:	272324	KIT1168
Reciprocating Oil:	271856-1GAL	
1X Belt A66:	272321	
VALVE, REPAIR KIT:	272328	
RING, REPAIR KIT:	272329	

Honda Engine 9.0HP GX270		
Description	Vanair P/N	
Spark Plug:	272316	KIT1167
Fuel Filter (in Tank):	272319	
Air Filter Element:	272317	
Pre-Cleaner Air Filter:	272318	

PRO35 Honda Compressor Parts		
Description	Vanair P/N	KIT #
Air filter Element:	272325	KIT1169
Reciprocating Oil:	271856-1GAL	
2X Belt A72:	272322	
VALVE, REPAIR KIT:	272330	
RING, REPAIR KIT:	272331	

Honda Engine 11HP GX340		
Description	Vanair P/N	
Spark Plug:	272316	KIT1167
Fuel Filter (in Tank):	272319	
Air Filter Element:	272317	
Pre-Cleaner Air Filter:	272318	

PRO35 Kohler Compressor Parts		
Description	Vanair P/N	KIT #
Air filter Element:	272325	KIT1169
Reciprocating Oil:	271856-1GAL	
2X Belt A72:	272322	
VALVE, REPAIR KIT:	272330	
RING, REPAIR KIT:	272331	

PRO18 & 35 Compressor Unload Parts	
Description	Vanair P/N
Unloader	272332
Unloading Elbow	272333
Unloading Tee	272334
Unloading Tube	272335
Cylinder Head	272336