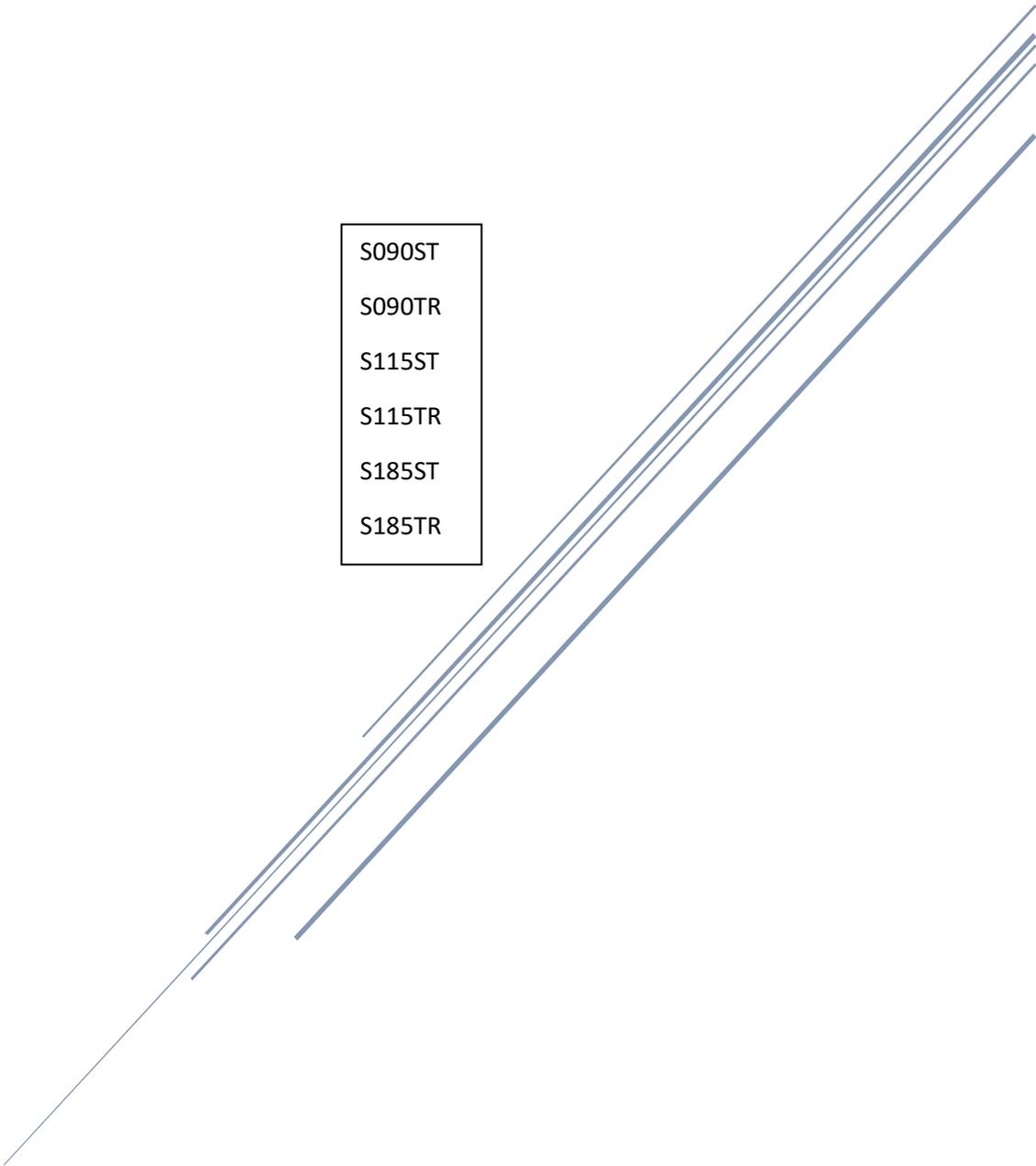


ROTARY TOW BEHIND

REV010322

- S090ST
- S090TR
- S115ST
- S115TR
- S185ST
- S185TR



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SAFETY INFORMATION

This manual contains very important information. This manual provides for information to promote SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help understand this information, observe the following:

- DANGER:** “Danger” indicates and imminently hazardous situation which, if not avoided, **will** result in death or serious injury.
- WARNING:** “Warning” indicates a potentially hazardous situation which if not avoided, **could** result in death or serious injury.
- CAUTION:** “Caution” indicates a potentially hazardous situation which, if not avoided, **may** result in minor or moderate injury.
- NOTICE:** “Notice” indicates important information, that if not followed, may cause damage to equipment.

CALIFORNIA PROPOSITION 65

WARNING: This product or its power cord may contain chemicals known to the state of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

1. Allow only trained, authorized persons who have read and understood these operating instructions to use this equipment. Failure to follow the instructions, procedures and safety precautions in this manual can result in accidents and injuries.
2. NEVER start or operate the compressor under unsafe conditions. Tag the compressor, disconnect, and lock out all power to it to prevent accidental start-up until the condition is corrected.
3. Install, use, and operate the compressor only in full compliance with all pertinent OSHA regulations and all applicable Federal, State & Local codes, standards, and regulations.
4. NEVER modify the compressor or controls in any way.
5. Keep a first aid kit in a convenient place. Seek medical assistance promptly in case of injury. Avoid infection by treating any small cuts and burns promptly.



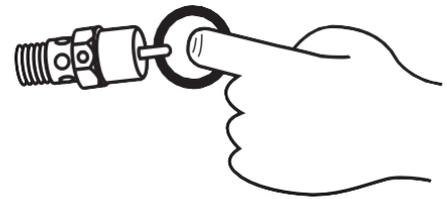
DANGER: Failure to follow instructions and safety guidelines in this manual can result in serious injury or death. Ensure that all users of this product read and understand this manual. Store the manual near the compressor for ease of reference. If the manual becomes damaged or illegible contact the manufacturer for a replacement.

BREATHABLE AIR

1. **NEVER** use air from this compressor for breathable air except in full compliance with OSHA Standards 29 CFR 1910 and any other Federal, State or Local codes or regulations.
2. **DO NOT** use airline anti-icer systems in air lines supplying respirators or other equipment used to produce breathable air. **DO NOT** discharge air from these systems in unventilated or other confined areas.



DANGER: Death or serious injury can result from inhaling compressed air without using proper safety equipment. See OSHA standards on safety.



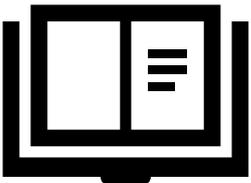
Pressurized Components

This equipment is supplied with an ASME designed and rated pressure vessel protected by an ASME rated relief valve. Pull the ring before each use to ensure the valve is functional. **DO NOT** attempt to open the valve while the machine is under pressure. See figure on the right.

CAUTION: DO NOT PULL WITH PRESSURE IN SYSTEM

Personal Protective Equipment

Be sure all operators and others around the compressor and its controls comply with all applicable OSHA, Federal, State and Local regulations, codes, and standards relating to personal protective equipment. Including respiratory protective equipment, protection for the extremities, protective clothing, protective shields and barriers, electrical protective equipment, and personal hearing protective equipment.



Read all manuals and information supplied for this unit carefully. Be thoroughly familiar with all inspection and operation guidelines. Only persons that have read and understand this manual should operate the compressor.

The engine can produce high noise levels. Prolonged exposure to noise levels above 85 dBA is hazardous to hearing. Always wear ear protection when operating or working around the unit.



Road Safety

We provide you with all the documents necessary to obtain the registration certificate.

NON-BRAKED COMPRESSORS must be towed by a vehicle having a net weight at least two times greater than the total weight of the towed compressor.

This weight is the total authorized loaded weight (fill in for future reference) = _____ lbs.
Towable weight is generally specified in the registration certificate of a van or a truck. If in doubt, you should contact the manufacturer of the towing vehicle.



YOU MUST REQUEST A VEHICLE REGISTRATION CERTIFICATE FROM A LOCAL AUTHORITY.

NHTSA Notification Statement

If you believe that your vehicle has a defect that could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) and the manufacturer.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or the manufacturer.

To contact NHTSA, you may either call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY:1-800-424-9153), go to <http://www.safercar.gov>; or write to:

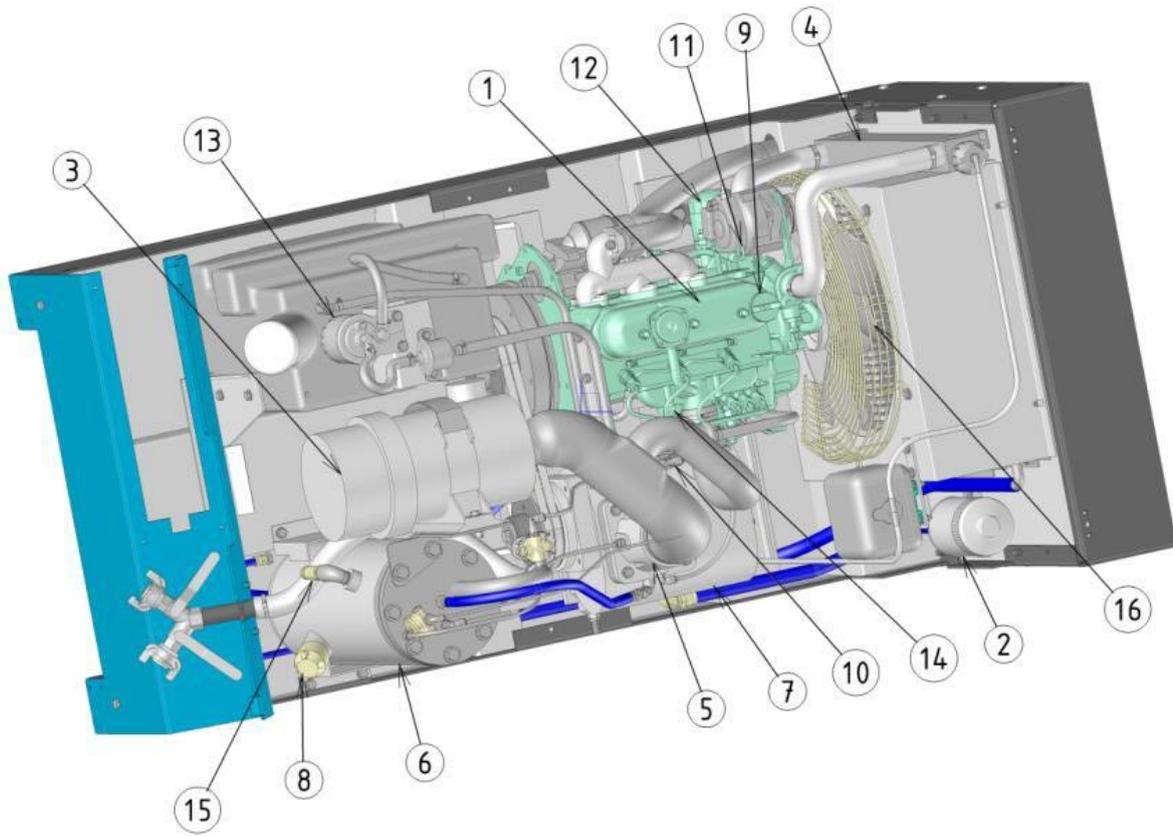
Administrator

NHTSA

**1200 New Jersey Avenue SE
Washington,
DC 20590**

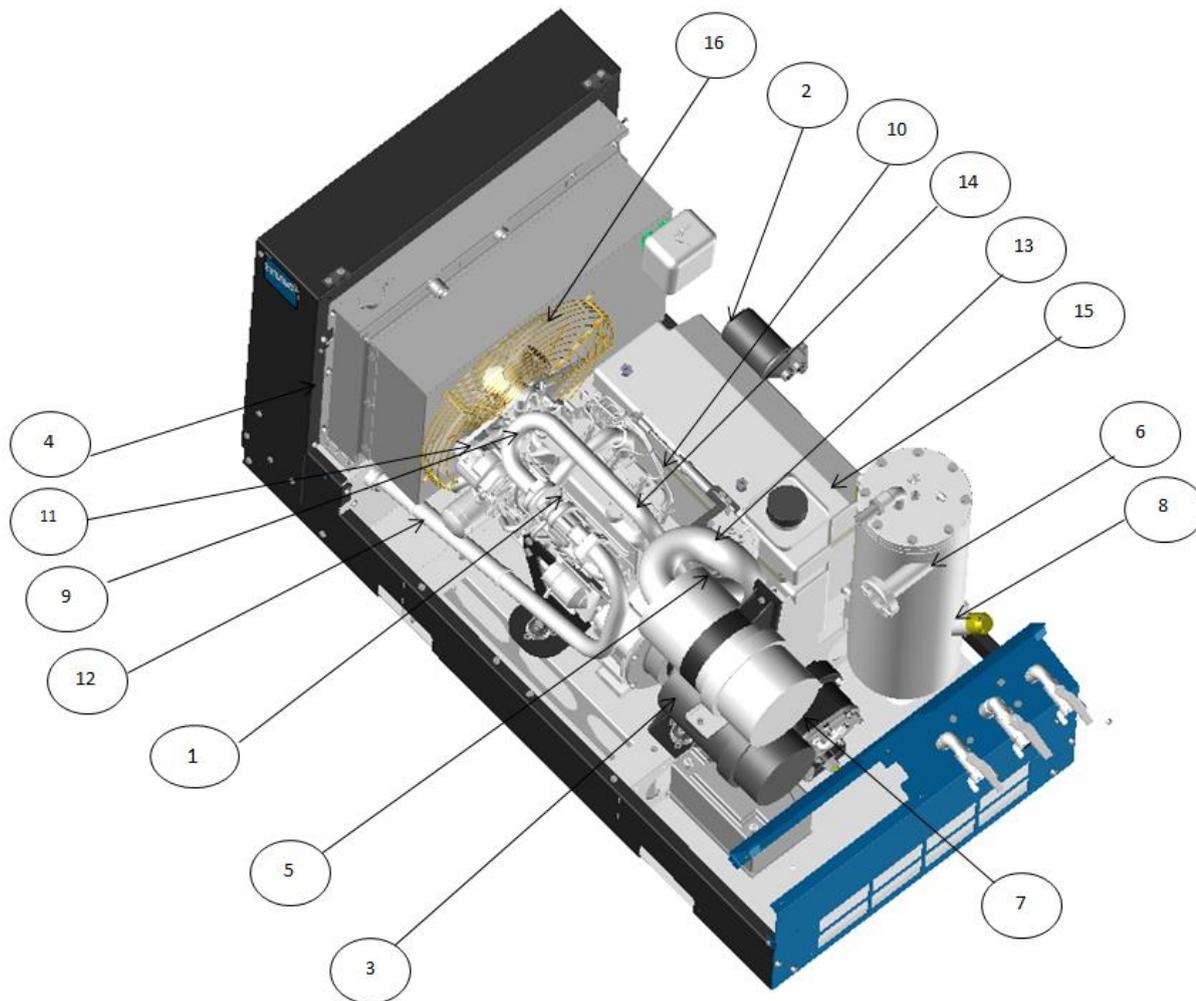
You can also obtain other information about motor vehicle safety from <http://www.safercar.gov>

Nomenclature S090, S115(ST/TR)



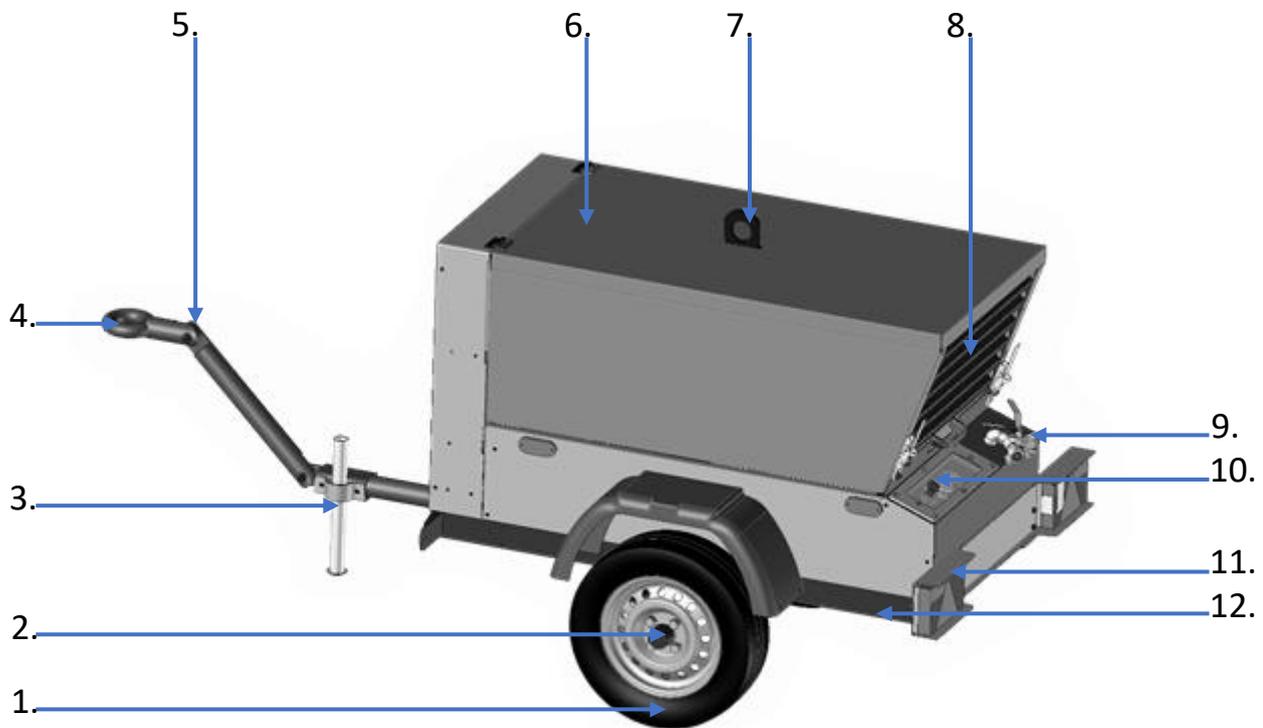
1. ENGINE	2. COMPRESSOR OIL FILTER
3. AIR FILTER / ENGINE	4. COOLING LIQUID / ENGINE
5. INLET VALVE	6. SEPARATOR
7. AIR END	8. COMPRESSOR OIL FILL
9. ENGINE OIL FILL	10. MOTOR SPEED CONTROL CYLINDER
11. ENGINE OIL DIPSTICK	12. OIL FILTER
13. FUEL FILTER	14. STOP SOLENOID
15. SAFTEY VALVE	16. FAN

Nomenclature S185(ST/TR)



1. ENGINE	2. COMPRESSOR OIL FILTER
3. AIR FILTER / ENGINE	4. COOLING LIQUID / ENGINE
5. INLET VALVE	6. SEPARATOR
7. AIR END	8. COMPRESSOR OIL FILL
9. ENGINE OIL FILL	10. MOTOR SPEED CONTROL
11. ENGINE OIL DIPSTICK	12. OIL FILTER
13. FUEL FILTER	14. EXHAUST DOWN PIPE
15. SAFETY VALVE	16. FAN
17. CONTROLLER	18. PARTICLE FILTER

Nomenclature S090, S115, S185 (ST/TR)



1. TIRES	2. AXLE
3. TRAILER STAND LEG	4. HITCH MOUNT
5. ADJUSTABLE DRAW BAR	6. COVER
7. VERTICAL LIFTING POINT	8. COMPRESSOR LOUVERS
9. AIR LINE CONNECTION	10. CONTROL PANEL
11. TAILLIGHTS	12. TRAILER FRAME

Installation

Area

1. The compressor must be operated only in a clean, dry, and well-lit area. Be sure the area can maintain a temperature range between 35°F - 110° F.

CAUTION: If ambient temperature drops below 32°F, be sure to protect safety/relief valves and drain valves from freezing. NEVER operate compressor with temperatures below 15°F or above 125°F.



2. Allow sufficient space around the compressor for maintenance access and adequate airflow
3. DO NOT operate the compressor with a tarp, blanket or cover surrounding the machine.
4. The location must allow for adequate, unobstructed airflow for cooling and for the combustion of air in the engine.

Exhaust

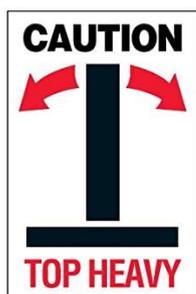
1. Never attempt to attach ductwork to the muffler system to allow for installation inside an enclosure. Attaching any form of ductwork to the muffler system can cause heat buildup and increased exhaust back pressure resulting in possible exhaust leakage and damage to the compressor.
2. Place the unit so that exhaust fumes will not be directed towards people or towards air intakes.
3. Keep a properly charged fire extinguisher rated “ABC” nearby, and be familiar with its use.
4. Provide and use battery operated or battery backup style carbon monoxide alarms in any structure that is in close proximity to a running compressor.
5. NEVER run a combustion powered air compressor inside any enclosed or semi enclosed spaces, including but not limited to homes, garages, basements, sheds, boxes, enclosed truck beds, shipping containers, RVs, or boats. These spaces can trap poisonous gasses even if you run a fan or open windows. If you start to feel sick, dizzy, or weak while using the compressor, shut off the engine and get to fresh air RIGHT AWAY. Seek medical attention. You may have carbon monoxide poisoning.



DANGER: Death or serious injury can result from asphyxiation. Running engines produce carbon monoxide (CO), a colorless, odorless poisonous gas. CO generated by the engine can rapidly accumulate even in areas that appear to be well ventilated. This CO accumulation can result in dangerous and FATAL concentrations within minutes.

Lifting and Movement/Forklift

1. Make sure lift operators stay aware while moving the compressor.
2. Be sure to uncrate the compressor prior to movement. Uncrating the compressor will allow a visual reference for the balance of the unit.
3. Be sure the load is secure and well balanced before moving the compressor.
4. Make sure the forks are fully engaged and level prior to lifting or moving the unit.
5. Keep the unit/load as low as possible while moving and refrain from quick changes in direction.
6. For all other forklift safety standards/regulations please reference OSHA 1910.178- Powered industrial trucks.

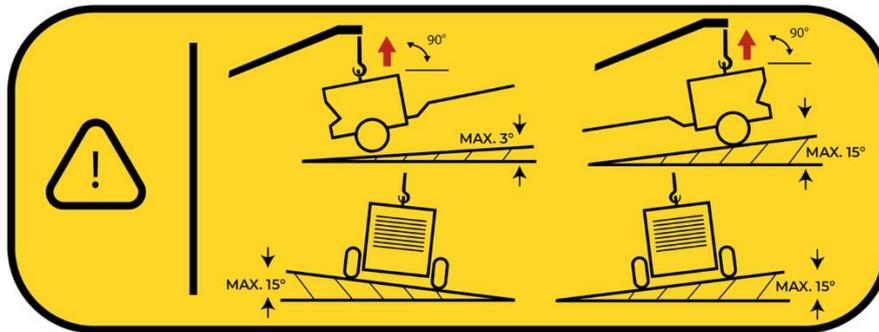


CAUTION: Compressors, especially vertical units, are exceptionally top heavy. Take care when moving and do not make fast or sudden moves during transport.



General Lifting Information

1. Carefully inspect all lifting equipment and ensure it is in good condition. The rated capacity of lifting equipment must exceed compressor weight. **NEVER** lift with under sized or damaged equipment.
2. If using lifting equipment, ensure all lifting points are in good condition and tighten any loose nuts or bolts before lifting. Verify that there are no cracks in the welding points of the slings, of the attachment points or any other components used for lifting,
3. Ensure the lifting capacity of the equipment is not exceeded by the weight of the combined items being lifted.
4. A sling **MUST** be used when moving the compressor with a helicopter or other airborne equipment. Be sure to follow OSHA standards 1910 subpart N.
5. Use guide ropes or equivalent to prevent twisting or swinging of the compressor while it is in the air and **NEVER** attempt to lift the unit in high winds. Keep the compressor as low to the ground as possible.
6. Keep everyone away from the compressor when it is lifted. **DO NOT** allow anyone under the compressor while it is being lifted.
7. **DO NOT** use bolts or other hooks on individual components to move the compressor.
8. When moving and or placing the compressor ensure it is on or across a surface that can hold the combined weight of the compressor and the loading equipment.
9. **NEVER** store the compressor suspended by its lifting points.



WARNING: Do NOT operate the unit if damaged during shipping, handling or use. Damage may result in bursting and may cause injury to persons or property damage. If the unit is received with damage, please contact customer support as soon as possible.

Anchoring

To ensure proper and safe operation of the compressor the unit must be anchored to a flat, smooth surface. Compressors must be on ¼ inch (6.35mm) **MAXIMUM** thick rubber anti-vibration pads.

Truck Installation

You can install the compressor in a truck for convenience and portability. Be sure to follow these additional safety precautions:

1. Bolt the compressor to the truck bed with rubber isolator pads no more than ¼" (6.35mm) thick under the tank feet. Thicker padding will INCREASE vibration from the unit and greatly increase the chance of the tank cracking or other unit damage.
2. Portable compressors must be secured during transport to avoid unit damage.

Prior to Towing

1. Ensure the enclosure surrounding the unit is correctly closed and secured.
2. Make sure that the tires are in good condition, inflated to the correct pressure, and the lug nuts are tightened to the correct specification.
3. Verify that all signal lights function correctly, and the connection voltage is 12V.
4. Check the compressor is securely fastened to the trailer.
5. Verify the stand leg is raised and safely locked into position.
6. Make sure that the signal lights and/or reflectors are clean and not damaged.
7. Adjust the draw bar to the height of the towing vehicle and/or towing equipment so that the draw bar is as level as possible and correctly lock appropriate pins and levers in place.
8. Ensure the hitch ball is locked securely in place and the trailer cannot disconnect from the towing vehicle.
9. Connect signal cables and check the proper function of the lights.
10. Hook the safety chains to the towing equipment.
11. Ensure chains and cables do not interfere with the movement of the compressor or drag along any surface.
12. DO NOT use this equipment to tow or move personnel.
13. DO NOT transport the unit with more than 4 gallons of fuel in it.
14. DO NOT operate the unit while it is in motion and DO NOT operate the unit while the compressor is being towed.

Electrical Safety

1. Follow all NEC and local codes for electrical wiring. Allow only authorized service personnel or certified electricians to install electrical components.
2. Ensure that incoming service has adequate ampere rating.
3. Do not use mixed wire sizes when wiring the unit.
4. The unit must be properly grounded. **DO NOT** connect ground to air or cooling lines.



DANGER: Be sure only trained and authorized personnel install and maintain this compressor in accordance with all applicable federal, local, and state codes, standards, and regulations. Follow all NEC (National Electric Code) standards especially those concerning equipment grounding conductors.

DANGER: Improperly grounded electrical components are shock hazards. Make sure all components are properly grounded to prevent death or serious injury.

Battery Component

Varied models of compressor are equipped with an electronic starter but require a customer supplied, 12V battery for operation. Be sure to follow safety steps and use proper procedures when setting up, connecting, and disconnecting the battery. Check with your batteries manufacturer for more details.

1. Always wear appropriate eye and skin protection while handling the battery.
2. Batteries can release explosive gasses. NEVER smoke or install a battery near sparks or other ignition sources.
3. Use a minimum of 6 AWG wire for battery cables.
4. Connect positive (+) cable to the start solenoid on the engine.
5. Connect negative (-) cable to one of the engine mounting bolts.
6. Connect the other end of the positive (+) cable to the positive (+) battery terminal.
7. Connect the other end of the negative (-) cable to the negative (-) battery terminal.
8. To disconnect the battery first remove the negative cable from the negative battery terminal, and then disconnect the positive cable from the positive battery terminal.



CAUTION: NEVER touch both battery terminals at the same time with hands or any non-insulated tools. Always follow proper sequence for connecting and disconnecting the battery. Failure to do so may result in serious injury.

Piping (Safety steps)

1. Install appropriate flow-limiting valves as necessary according to the pipe size(s) used and run lengths. This step will reduce pressure in case of hose failure, per OSHA Standard 29 CFR 1926.302(b)(7).
2. Flow-limiting valves are listed by pipe size and rated CFM. Select appropriate valves according to manufacturer's recommendations.
3. Use a flexible connector between the compressor tank and dryer/piping system to minimize noise, vibration, pump wear, and to prevent damage to the unit or piping system.
4. Install ASME code safety valves and equip the piping system with adequate condensate drains.

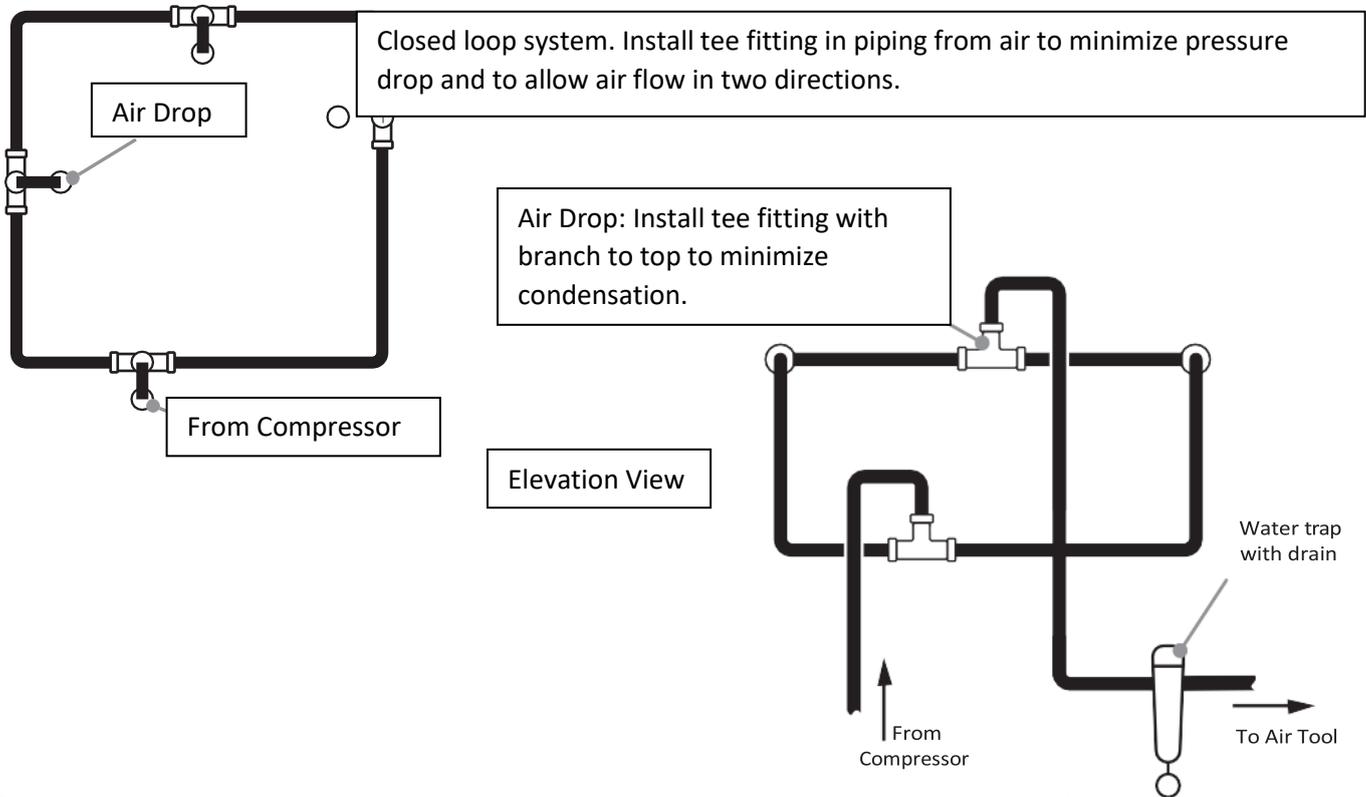


DANGER: NEVER install a shut off valve such as a glove or gate valve between the pump discharge and the air tank unless you have an ASME rated safety valve rated for the correct pressure installed in the line between the valve and the compressor pump.

5. Minimum pipe size for compressed air lines: (Pipe sizes are shown in inches)

CFM	25ft	50ft	100ft	250ft
20	3/4	3/4	3/4	1
40	3/4	3/4	1	1
60	3/4	1	1	1
100	1	1	1	1 - 1/4
125	1 - 1/4	1 1/2	1 - 1/4	1 - 1/2
160	1 - 1/4	1 - 1/2	2	2 - 1/2
200	1 - 1/2	2	2 - 1/2	2 - 3/4

- 6. Check the air systems daily for leaks. Daily check help to prevent any unnecessary load on the compressor and help to increase energy savings.
- 7. Examples of air systems:



- 8. Make sure any tube, pipe, fitting, or hose connected to the unit can withstand operating temperatures and retain pressure.
- 9. Never use reducers in discharge piping. Keep all piping and fittings the same size in the piping system.



WARNING: Never use plastic (PVC) pipe for compressed air. Serious injury or death could result. Piping MUST have a pressure rating of 200 PSI or greater.

Refueling

Internal combustion engines require fuel to operate. Although refueling the engine may seem like a menial task it can be hazardous if not done properly.

1. DO NOT touch the engine during use. Engines (especially the exhaust) will be hot. Allow time for the engine to cool down prior to refueling.
2. DO NOT refuel the unit while the engine is running.
3. DO NOT operate the compressor if any fuel has been spilt. Clean up any spilt fuel prior to starting the engine.
4. DO NOT operate or refuel near a pilot light or open flame.
5. DO NOT refuel the unit while smoking or operating a cellular device.

Storage

For long-term storage (6 months or longer) please consult the manufacturer for the proper procedure for storage of the compressor to ensure no issues develop during the storage period.

Tire Safety



Studies of tire safety show that maintaining proper tire pressure, observing tire and vehicle load limits

(not carrying more weight in your vehicle than your tires or vehicle can safely handle), avoiding road hazards, and inspecting tires for cuts, slashes, and other irregularities are the most important things you can do to avoid tire failure, such as tread separation or blowout and flat tires. These actions, along with other care and maintenance activities, can also:

- Improve vehicle handling
- Help protect you and others from avoidable breakdowns and accidents
- Improve fuel economy
- Increase the life of your tires.

This booklet presents a comprehensive overview of tire safety, including information on the following topics:

- Basic tire maintenance
- Uniform Tire Quality Grading System
- Fundamental characteristics of tires
- Tire safety tips.

Use this information to make tire safety a regular part of your vehicle maintenance routine.

Recognize that the time you spend is minimal compared with the inconvenience and safety consequences of a flat tire or other tire failure.

Safety First—Basic Tire Maintenance

Properly maintained tires improve the steering, stopping, traction, and load-carrying capability of your vehicle. Underinflated tires and overloaded

vehicles are a major cause of tire failure. Therefore, as mentioned above, to avoid flat tires and other types of tire failure, you should maintain proper tire pressure, observe tire and vehicle load limits, avoid road hazards, and regularly inspect your tires.

Finding Your Vehicle's Recommended Tire Pressure and Load Limits

Tire information placards and vehicle certification labels contain information on tires and load limits. These labels indicate the vehicle manufacturer's information including:

- Recommended tire size
- Recommended tire inflation pressure
- Vehicle capacity weight (VCW—the maximum occupant and cargo weight a vehicle is designed to carry)
- Front and rear gross axle weight ratings (GAWR—the maximum weight the axle systems are designed to carry).

Both placards and certification labels are permanently attached to the vehicle door edge, door post, glove-box door, or inside of the trunk lid. You can also find the recommended tire pressure and load limit for your vehicle in the vehicle owner's manual.

Understanding Tire Pressure and Load Limits

Tire inflation pressure is the level of air in the tire that provides it with load-carrying capacity and affects the overall performance of the vehicle. The tire inflation pressure is a number that indicates the amount of air pressure—measured in pounds per square inch (psi)—a tire

requires to be properly inflated. (You will also find this number on the vehicle information placard expressed in kilopascals (kPa), which is the metric measure used internationally.)

Manufacturers of passenger vehicles and light trucks determine this number based on the vehicle's design load limit, that is, the greatest amount of weight a vehicle can safely carry and the vehicle's tire size. The proper tire pressure for your vehicle is referred to as the "recommended cold inflation pressure." (As you will read below, it is difficult to obtain the recommended tire pressure if your tires are not cold.)

Because tires are designed to be used on more than one type of vehicle, tire manufacturers list the "maximum permissible inflation pressure" on the tire sidewall. This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

Remember, however, that the vehicle manufacturer, not the tire manufacturer, determines the correct

tire pressure for the tires on your vehicle.



Checking Tire Pressure

It is important to check your vehicle's tire pressure at least once a month for the following reasons:

- Most tires may naturally lose air over time.
- Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb when parking.
- With radial tires, it is usually not possible to determine underinflation by visual inspection.

For convenience, purchase a tire pressure gauge to keep in your vehicle. Gauges can be purchased at tire dealerships, auto supply stores, and other retail outlets.

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold. The term *cold* does not relate to the outside temperature. Rather, a *cold* tire is one that has not been driven on for at least three hours. When you drive, your tires get warmer, causing the air pressure within them to increase. Therefore, to get an accurate tire pressure reading, you must measure tire pressure when the tires are *cold* or compensate for the extra pressure in warm tires.

Steps for Maintaining Proper Tire Pressure

- Step 1:** Locate the recommended tire pressure on the vehicle's tire information placard, certification label, or in the owner's manual.
- Step 2:** Record the tire pressure of all tires.
- Step 3:** If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get to the correct pressure.



Step 4: If the tire pressure is too low, note the difference between the measured tire pressure and the correct tire pressure. These "missing" pounds of pressure are what you will need to add.

Step 5: At a service station, add the missing pounds of air pressure to each tire that is underinflated.

Step 6: Check all the tires to make sure they have the same air pressure (except in cases in which the front and rear tires are supposed to have different amounts of pressure).

If you have been driving your vehicle and think that a tire is underinflated, fill it to the recommended cold inflation pressure indicated on your vehicle's tire information placard or certification label. While your tire may still be slightly underinflated due to the extra pounds of pressure in the warm tire, it is safer to drive with air pressure that is slightly lower than the vehicle manufacturer's recommended cold inflation pressure than to drive with a significantly underinflated tire. Since this is a temporary fix, don't forget to recheck and adjust the tire's pressure when you can obtain a cold reading.

Tire Size

To maintain tire safety, purchase new tires that are the same size as the vehicle's original tires or another size recommended by the manufacturer. Look at the tire information placard, the owner's manual, or the sidewall of the tire you are replacing to find this information. If you have any doubt about the correct size to choose, consult with the tire dealer.

Tire Tread

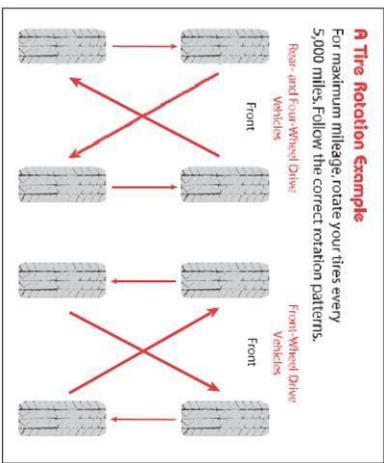
The tire tread provides the gripping action and traction that prevent your vehicle from slipping or sliding, especially when the road is wet or icy. In general, tires are not safe and should be replaced when the tread is worn down to 1/16 of an inch. Tires have built-in treadwear indicators that let you know when it is time to replace your tires. These indicators are raised sections spaced intermittently in the bottom of the tread grooves. When they appear "even" with the outside of the tread, it is time to replace your tires. Another method for checking tread depth is to place a penny in the tread with Lincoln's head upside down and facing you. If you can see the top of Lincoln's head, you are ready for new tires.

Tire Balance and Wheel Alignment

To avoid vibration or shaking of the vehicle when a tire rotates, the tire must be properly balanced. This balance is achieved by positioning weights on the wheel to counterbalance heavy spots on the wheel-and-tire assembly. A wheel alignment adjusts the angles of the wheels so that they are positioned correctly relative to the vehicle's frame. This adjustment maximizes the life of your tires and prevents your car from veering to the right or left when driving on a straight, level road. These adjustments require special equipment and should be performed by a qualified technician.

Tire Rotation

Rotating tires from front to back and from side to side can reduce irregular wear (for vehicles that have tires that are all the same size). Look in your owner's manual for information on how frequently the tires on your vehicle should be rotated and the best pattern for rotation.



Tire Repair

The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the sidewall should not be repaired. Tires must be removed from the rim to be properly inspected before being plugged and patched.

Uniform Tire Quality Grading System (UTQGS)

To help consumers compare a passenger car tire's treadwear rate, traction performance, and

temperature resistance, the federal government requires tire manufacturers to grade tires in these three areas. This grading system, known as the Uniform Tire Quality Grading System, provides guidelines for making relative comparisons when purchasing new tires. You also can use this information to inquire about the quality of tires placed on new vehicles.

Although this rating system is very helpful when buying new tires, it is not a safety rating or guarantee of how well a tire will perform or how long it will last. Other factors such as personal driving style, type of car, quality of the roads, and tire maintenance habits have a significant influence on your tire's performance and longevity.

Treadwear grades are an indication of a tire's relative wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire grade of 400 should wear twice as long as a tire grade of 200.

Traction grades are an indication of a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA", "A", "B", and "C".

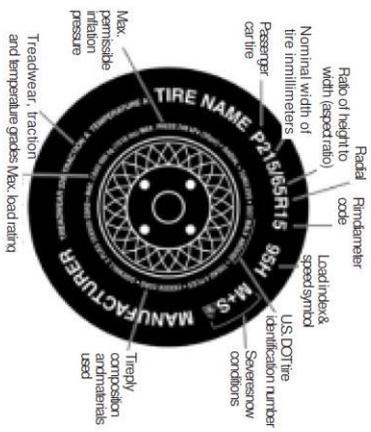
Temperature grades are an indication of a tire's resistance to heat. Sustained high temperature (for example, driving long distances in hot weather), can cause a tire to deteriorate, leading to blowouts and tread separation. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

Tire Fundamentals

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

Information on Passenger Vehicle Tires

Please refer to the diagram below.



P The "P" indicates the tire is for passenger vehicles.

Next number

This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

Next number

This two-digit number, known as the aspect ratio, gives the tire's ratio of height to width. Numbers of 70 or lower indicate a short sidewall for improved steering response and better overall handling on dry pavement.

R

The "R" stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years.

Next number

This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

Next number

This two- or three-digit number is the tire's load index. It is a measurement of how much weight each tire can support. You may find this information in your owner's manual. If not, contact a local tire dealer. Note: You may not find this information on all tires because it is not required by law.

M+S

The "M+S" or "MS" indicates that the tire has some mud and snow capability. Most radial tires have these markings; hence, they have some mud and snow capability.

Speed Rating

The speed rating denotes the speed at which a tire is designed to be driven for extended periods of time. The ratings range from 99 miles per hour (mph) to 186 mph. These ratings are listed below. Note: You may not find this information on all tires because it is not required by law.

Q	99 mph	H	130 mph
R	106 mph	V	149 mph
S	112 mph	W	168 mph*
T	118 mph	Y	186 mph*
U	124 mph		

* For tires with a maximum speed capability over 149 mph, tire manufacturers sometimes use the letters ZR. For those with a maximum speed capability over 186 mph, tire manufacturers always use the letters ZR.

U.S. DOT Tire Identification Number

This begins with the letters "DOT" and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year

the tire was built. For example, the numbers 3197 means the 31st week of 1997. The other numbers are marking codes used at the manufacturer's discretion. This information is used to contact consumers if a tire defect requires a recall.

Tire Ply Composition and Materials Used

The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight it can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

Maximum Load Rating

This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

Maximum Permissible Inflation Pressure

This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

UTQGS Information

Treadwear Number

This number indicates the tire's wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire graded 400 should last twice as long as a tire graded 200.

Traction Letter

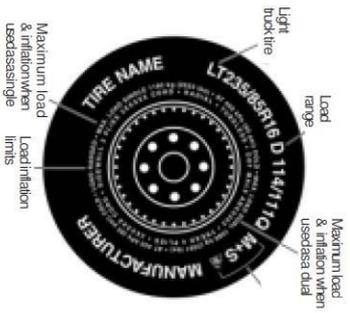
This letter indicates a tire's ability to stop on wet pavement. A higher grade tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA", "A", "B", and "C".

Temperature Letter

This letter indicates a tire's resistance to heat. The temperature grades for a tire that is inflated properly and not overloaded. Excessive speed, underinflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

Additional Information on Light Truck Tires

Please refer to diagram below.



Tires for light trucks have other markings besides those found on the sidewalls of passenger tires.

LT

The "LT" indicates the tire is for light trucks.

Max. Load Dual kg(lbs)

at kPa(psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a dual, that is, when four tires are put on each rear axle (a total of six or more tires on the vehicle).

Max. Load Single kg(lbs)

at kPa(psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a single.

Load Range

This information identifies the tire's load-carrying capability and its inflation limits.

Snow Tires

In some heavy snow areas, local governments may require true snow tires, those with very deep cut tread. These tires should only be used in pairs or placed on all four wheels. Make sure you purchase snow tires that are the same size and construction type as the other tires on your vehicle.

Tire Safety Tips

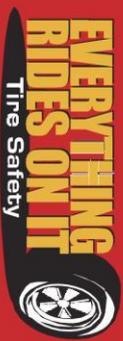
Preventing Tire Damage

- Slow down if you have to go over a pothole or other object in the road.
- Do not run over curbs or other foreign objects in the roadway, and try not to strike the curb when parking.

Tire Safety Checklist

- ✓ Check tire pressure regularly (at least once a month), including the spare.
- ✓ Inspect tires for uneven wear patterns on the tread, cracks, foreign objects, or other signs of wear or trauma.
- ✓ Remove bits of glass and other foreign objects wedged in the tread.
- ✓ Make sure your tire valves have valve caps.
- ✓ Check tire pressure before going on a long trip.
- ✓ Do not overload your vehicle. Check the tire information placard or owner's manual for the maximum recommended load for the vehicle.
- ✓ If you are towing a trailer, remember that some of the weight of the loaded trailer is transferred to the towing vehicle.

For more information, visit www.nhtsa.gov or call 1-888-327-4236

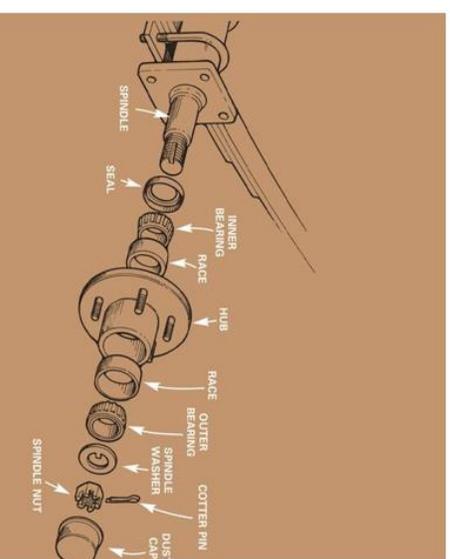


WHEEL BEARING MAINTENANCE

Wheel bearing maintenance should be performed every 20,000 miles of normal operation.

Dusty, dirty, or offroad/rough use can increase the need to perform maintenance at an increased interval.

TYPICAL TRAILER BEARING SET UP



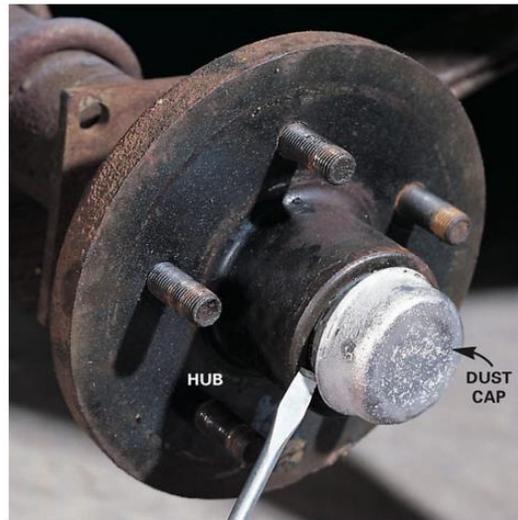
TOOLS AND MATERIALS NEEDED

- Large adjustable wrench
- Flat head screwdriver
- Hammer
- Jack
- Jack stands x2
- Needle nose pliers
- Lug nut wrench
- Bearing grease
- Brake cleaner
- Clean rag
- Kerosene
- Penetrating fluid
- Small pan
- Plastic bristle brush

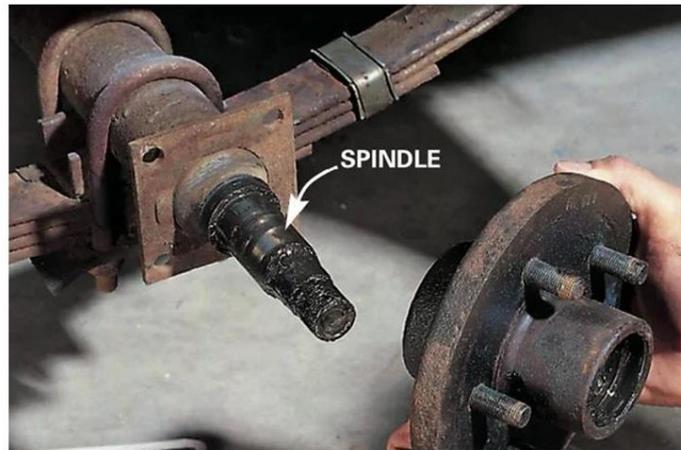
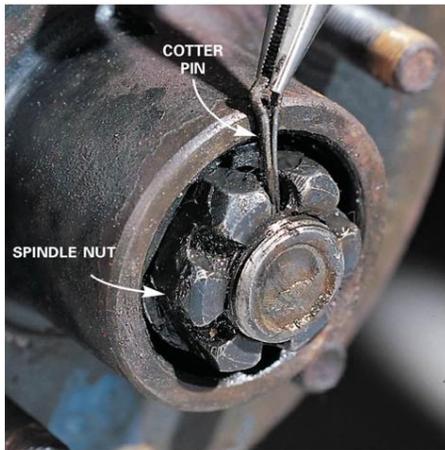
1. JACK UNIT AND REMOVE THE TIRE



2. REMOVE DUST CAP



3. REMOVE COTTER PIN FROM SPINDLE NUT



4. CAREFULLY REMOVE THE BEARING FROM THE HUB

To remove the bearing and the seal use a piece of wood and a hammer to tap around the outside edge of the bearing. If the seal is stuck or rusted use some penetrating fluid to loosen it. Replace the seal if it is damaged in anyway.



Soak the removable parts in kerosene

Clean the bearing, race, and seal with a bristle brush and some of the kerosene

Inspect for any signs of wear and replace them if needed

Once the items are clean, spray them with brake cleaner and set them aside to dry

Wipe down and clean the spindle as well, spray once brake cleaner once complete and allow to dry

PACK THE BEARING WITH GREASE



REASSEMBLE WHEEL HUB



When reinstalling the wheel hub, you must follow these steps to prevent bearing damage:

1. Tighten the wheel bearing nut until snug.
2. Back off wheel bearing hub $\frac{1}{4}$ turn.
3. Reinstall retaining pin.
4. Reinstall dust cover.
5. Install tires
6. Torque lug nuts to 90 ft-lbs

Technical Data

Compressor Model	S090	S115	S185
CFM	90	115	185
Max Pressure (PSI)	125	125	125
Working Pressure (PSI)	100	100	100
Minimum Separator Pressure (PSI)	50	50	65
Safety Valve Opening Pressure (PSI)	150	150	145
Compressor Oil			
Total Capacity (Gal)	4	4	9
Motor			
Maximum Operating Speed (RPM)	2850 (0+50)	3000 (0+50)	3000 (0+50)
Minimum Operating Speed (RPM)	1750	1750	1900
Engine Oil Sump Capacity (Gal)	1	1	1.75
Cooling System			
Coolant Amount (Gal)	2	2	2.15
Axle-Mounted Version			
Total Weight ready for use (lbs.)	1237	1237	1852
Total Authorized loaded weight (lbs.)	1654	1654	1874
Skid Version			
Total Weight Ready for Use (lbs.)	1058	1058	1411

- Compressor:** Asymmetric rotary with oil injection
- Engine:** **S090, S115:** KUBOTA water cooled, electric start, with indirect injection, diesel fueled 3-cylinder model# D1105
- S185:** KUBOTA water cooled, indirect injection, electric starter, diesel fuel circuit vent 4-cylinder turbo model# V1505
- Canopy:** Steel Chassis
- Trailer (Where Applicable):** Articulated ALKO drawbar with integral unit vibration absorption

Unit Specific Information (fill out for your records)

Engine Serial Number:	
Air End Serial Number:	
Separator Serial Number:	
Valve Serial Number:	
Trailer Serial Number:	
Road Authorization/Registration Number:	

Operation

Ensure all personnel that work around or operate the compressor have read this manual and are well versed in the operation of this machinery. NEVER allow untrained personnel to operate this unit. This unit ships with break in oil and should be ready to operate. Be sure to check oil and fuel level prior to starting.

Pre-Use Inspection

1. Verify the compressor is on flat/level surface.
2. Ensure there are no flammable items i.e., fuel cans or rags inside or within 25ft of the compressor.
3. Make sure the compressor used in an open and well-ventilated area.
4. Check that the compressor is not placed next to any obstacle to avoid recycling hot air and/or exhaust fumes.
5. Inspect in and around the compressor for any fluid leaks.
6. Verify fuel and fluid levels.
7. Close all covers on the compressor; the unit should never be run with any cover open.

Start Up

1. Close all outlet valves.
2. Turn the start valve to the START-STOP position.
3. Turn on the COM selector switch: the battery charge lamp should light up.
4. Hold in position until the PRE lamp light goes out.
5. Turn the key to engage the starter, then release the key as soon as the engine starts.
6. Allow the compressor to warm up for five minutes prior to moving the start valve to the RUN position

NOTE: When temperatures are lower than 40°F, DO NOT engage the starter for longer than 10 seconds before beginning start up procedures again from step 3.

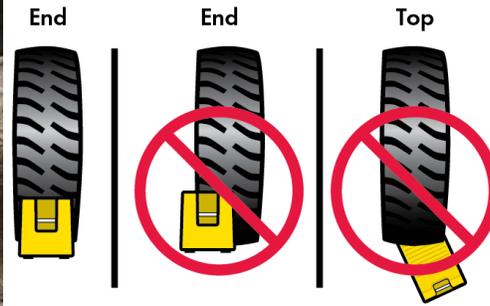
NOTE: Make sure to open air control valves SLOWLY to prevent lashing and damage to flexible air in lines installed on and in the compressor.

Shut Down

1. Close all air valves on the compressor.
2. Turn the START-STOP valve.
3. Allow the compressor to idle for one to two minutes to avoid a sudden stop.
4. Switch off the ignition.
5. Verify that the internal pressure is reduced to zero after 20 seconds.

Parking Compressor

1. **Unit wheels must be chocked if parked!** Chock all tires in both travel directions. ***DANGER! Failure to chock tires even on apparently flat surfaces may lead to severe compressor damage, severe personnel injury and/or death.*** See the images on the following pages for proper chocking procedures.



Place check in the center and square to tire.

Maintenance

NOTE: The operations and maintenance included in this section refer to use under normal conditions. In harsh or difficult conditions such as temperature extremes, particulate filled atmospheres, elevation differences, etc. You must perform some operations more frequently, and other precautions must be taken. Consult the manufacturer for the specific maintenance needs that apply to your application.



DANGER: NEVER remove lids, caps, and any other components while the compressor is working and/or under pressure. Stop the compressor and remove the ability for the compressor to start by removing the ignition key. Verify the unit has no stored pressure before servicing or inspecting.

Break In

The Compressor must be closely monitored during the break in period. The break in period refers to the first 50 hours of operation of the compressor. Namely the first 50 hours of actual run time. The following should be performed at the end of the break in period.

BREAK IN MAINTENANCE	
Compressor set	1. Check drive belt tension
	2. Purge fuel tank and fuel circuit
	3. Check fuel pre-filter
	4. Verify bolt torque on all bolts
Engine	1. Check and clean air filter
	2. Drain the sump
	3. Change the oil filter cartridge
	4. Change the fuel filter cartridge
	5. Check fan belt tension
	6. Verify check valve clearance
Compressor	1. Check and clean air filter
	2. Change oil filter
	3. Check control functions (speed and pressure)

DAILY	
	1. Check fuel tank level
	2. Check oil level (engine and compressor)
	3. Check radiator coolant level
	4. Check/drain dust drain on air filter
	5. Check fuel filter
	6. Clean and clean battery terminal connections
EVERY 100 HOURS	COMPRESSOR SET
	1. Purge the fuel tank and lines
	2. Check tightness of bolts on the unit and trailer
	ENGINE
	1. Check and/or replace air filter
	2. Check and/or replace oil filter
	3. Drain the sump
	4. Change the fuel filter cartridge
	COMPRESSOR
	1. Check and/or replace air filter
	2. Check all control functions (speed and pressure)
	3. Check and/or separator filters
EVERY 500 HOURS	ENGINE
	1. Change engine oil
	2. Change engine oil filter
EVERY 2000 HOURS	ENGINE
	1. Check regulating system
	2. Remove and clean fuel tank
	3. Drain and replace coolant
	COMPRESSOR
	1. Drain and replace compressor oil
	2. Replace compressor oil filter
	3. Replace separator filter
	TRAILER MAINTENANCE
100 MILES	1. Tighten wheel lugs
1500 MILES	1. Tire tread inspected
	2. Check wheel lug tightness
	3. Verify the unit is securely fashioned to the trailer
5000 MILES	1. Trailer braking system inspection/replace if worn
20000 MILES	1. Repack trailer bearings

*You may need to shorten maintenance periods in cases of excess use, hostile environments, or extreme travel conditions.

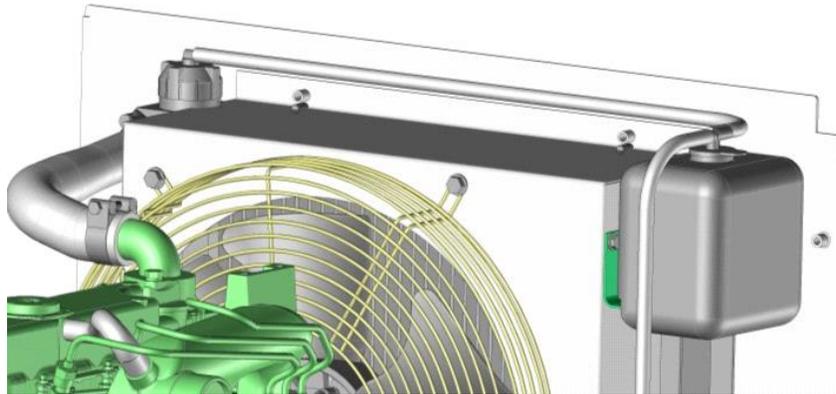
Recommended Products:

Engine Oil: Kubota SAE 10W-30, Dual Purpose #70000-10201

Compressor Oil: Airbase Synthetic Rotary Oil – OIL003

Coolant/Refrigerant: 50%/50% solution of antifreeze and water (or use prediluted)

Cooling System



1. If you must remove the cap for the radiator follow the instructions below and then carefully replace the cap securely.
2. If a coolant leak occurs immediately consult manufacturer.
3. DO NOT overfill the safety relief tank above the line marked "FULL".

Coolant System Guidelines

1. Always wear appropriate PPE such as rubber gloves, face shield, protective apron, etc., when handling coolant or refrigerant.
2. In any case of ingestion of coolant/refrigerant force regurgitation and immediately seek medical attention.
3. If contact with exposed skin or clothing occurs wash with water immediately.
4. DO NOT mix different types of coolant. Use only manufacturer approved items.
5. Keep coolant away from flames and small children.
6. Dispose of used coolant in accordance with local, state, and federal guidelines.
7. To drain coolant or refrigerant always be sure to open both drain valves and open the cooler cap. If you do not open the cap coolant will not drain correctly.
8. Remove the overflow hose from the radiator pressure cap to drain the expansion tank.

Coolant/Refrigerant Overheating

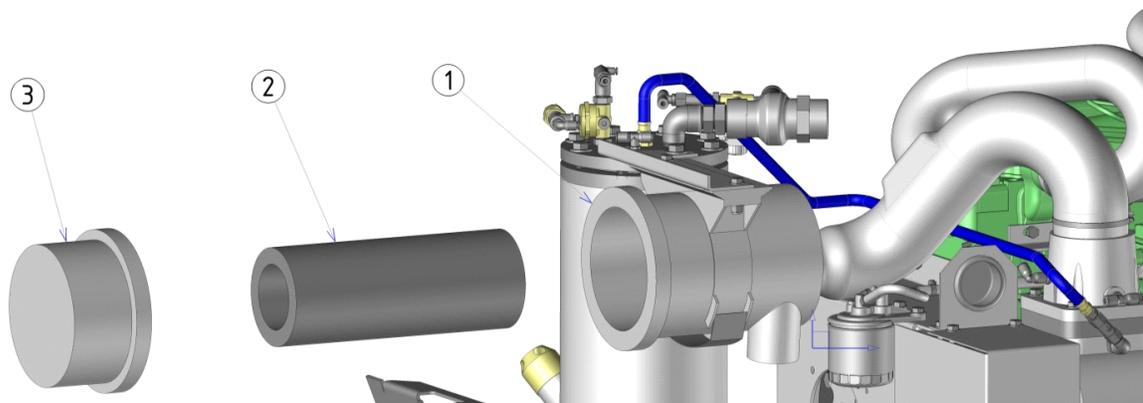
If the alarm light turns on due to coolant/refrigerant temperature or because coolant/refrigerant steam begins splashing from the overflow pipe. Turn off the load and operate the engine at idle for a minimum of five minutes to allow it too gradually cool. Then, stop the engine and inspect the following:

1. Leaks in the coolant system.
2. Pinched lines or obstructions to the coolant system itself.
3. That radiator fins and cooling fan blades are free from dust build up
4. Verify the tightness of the fan belt

Coolant System Cleaning

1. DO NOT clean the cooler with any hardened tools such as screwdrivers, paint scrapers, etc. These tools can damage the fins and lead to leakage.
2. Remove dust and build up by washing it with running water.

Air Filter

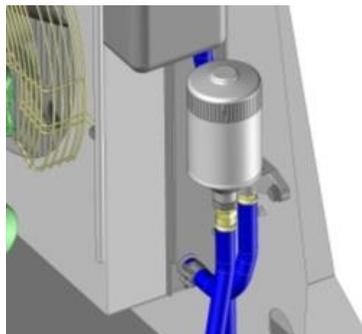


Since the air cleaner/filter used on this engine is a dry type, **DO NOT** apply oil to it.

- 1. Air Filter Housing**
- 2. Filter Element**
- 3. Air Filter Cover/Lid**

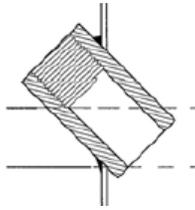
1. Open the evacuator valve once per week or daily in a dusty environment. Opening the valve will remove large particles of dust and dirt to exit the unit.
2. Wipe the of the air cleaner with a cloth if needed.
3. Avoid touching the element with your skin or with oily or dirty rags/towels.
4. Make sure the cover/lid is properly closed if it is not sealed correctly unfiltered particulates may enter the engine and cause damage to the unit.

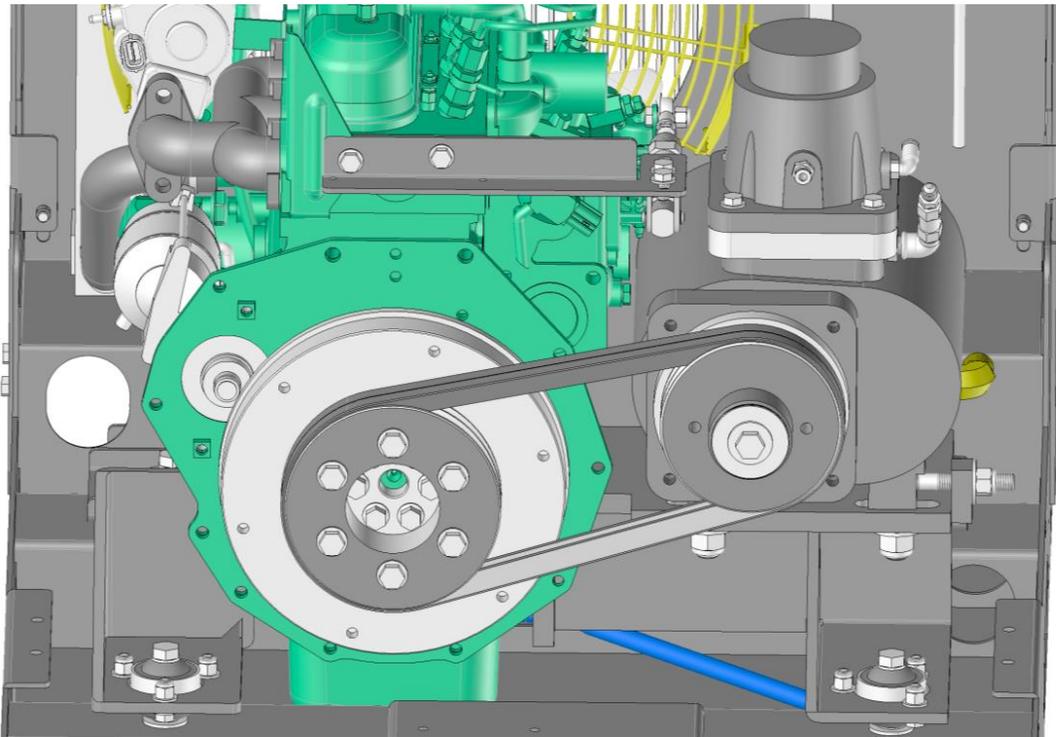
Compressor Oil Filter



1. Unscrew the disposable cartridge
2. Refit a new cartridge
3. Ensure to grease the seal of the new cartridge prior to installation.
4. **DO NOT** set the cartridge on a surface covered in dirt, dust or particulates because they may hinder the proper sealing of the new cartridge.

Oil Separator

	<p>To avoid injury:</p> <ul style="list-style-type: none"> - Make sure to stop the engine before changing the oil separator cartridge. - Let the engine cool down sufficiently, hot oil may lead to injury. - Check that the air system is not under pressure <ol style="list-style-type: none"> 1. Replace the oil separator cartridge flush. 2. Untighten the 8 screws of the separator lid. 3. Remove the lid carefully as to not damage the components and the dip tube attached to the cover. 4. Apply a thin layer of oil on the seals of the new cartridge. 5. Screw the 8 lid screws by hand and do not forget to fasten the air filter bracket. When the lid comes into contact with the surface of the gasket, tighten the screws with a torque wrench in order to avoid damaging the seals of the cartridge. <div style="text-align: center;">  <p>Maxi</p> <p>Mini</p> </div>
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Compressor Belts (S090 and S115 ONLY)

If the belts of the compressor are damaged, loose or worn it could result in overheating or decreased compressor output.

1. To avoid injury, ensure to stop compressor and remove the ignition key prior to inspecting/servicing compressor belts
2. Proper belt tension is 1/8" at 9lbs measured midway between the pulleys.
3. If the belt tension is incorrect, unscrew the bolts that secure the air end and tighten the deflection nut on the side of the air end until the belt tension is corrected and matches acceptable limits.
4. Replace damaged or worn belts.

Digital Controller (S185 ONLY)



ICON	DESCRIPTION
	<p>Stop / Reset Mode</p> <p>This button sets the controller on Stop / Reset Mode. This button erases all alarm's where the default is not already active. If the engine is running, this button launches the stop sequence.</p>
	<p>Automatic Mode</p> <p>This button sets the controller to Automatic Mode. This activates the engine speed regulation in relation to the pressure settings. This mode allows air outlet use. If the engine is ready to start, this button can launch the start sequence.</p>
	<p>Start / Manual Mode</p> <p>This button sets the controller to Start / Manual Mode. If engine is ready to start, this button can begin the start sequence. As long as manual mode is active, the outlet valve will be closed and pressure is unloaded.</p>
	<p>Menu and Navigation</p> <p>These buttons allow for navigation between different screen panels. You can go to instrumentation panels with a long push on one of these buttons.</p>
	<p>Engine Speed Button</p> <p>These buttons allow the setting of the engines speed, and only function in manual mode. In this mode the outlet valves are closed.</p>

S185(ST/TR)

QUICK START



Before using, be sure to read and observe the instructions in the safety and user manual.

CONTROLLER SWITCH ON :



Turn ON the key switch

Controller will be activated.

COMPRESSOR START:

Outlet valve is closed and the emergency stop not activated.



Push the start button

Compressor will start and will have a 30 sec preheating sequence.

Compressor will be automatic start mode initially.

Compressor will be ready to use as soon as the pressure begins to build.

COMPRESSOR STOP:

Do not use the emergency stop and do not double push the stop button, this will cause a sudden stop and may damage the unit.

Use the emergency stop only for emergency situations.



Push the stop button

This button activates the stop sequence, compressor will take around 20 second to completely stop.

Regeneration

This unit is equipped with particulate filtration and must have a regeneration cycle. Depending on the regeneration cycle detected by the engine controller unit some actions may not be available.

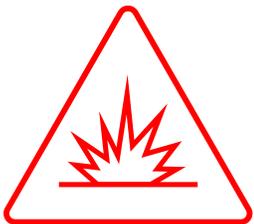
LEVEL	
Level 0	Regeneration not needed. Parked regeneration disabled
Level 1	Active regeneration is in progress Parked regeneration will activate if all conditions are go
Level 2	Active regeneration is on but is not enough. Parked regeneration must be activated.
Level 3	Active regeneration is disabled. Parked regeneration must be done. Outlet valve is closed and engine is unloaded.
Level 4	Active regeneration is disabled. Parked regeneration is disabled. Outlet valve is closed and engine is unloaded.
Level 5	Active regeneration is disabled. Parked regeneration is disabled. Outlet valve is closed and engine is unloaded. Regeneration is impossible, and the particle filter must be inspected by Kubota service.

From level 2 an information alarm will appear on the controller: “PARKED REGENERATION IS NECESSARY”.

If parked regeneration is not carried out the engine will go to level 3, where the compressor cannot be used as long as parked regeneration is not accomplished.

Parked Regeneration

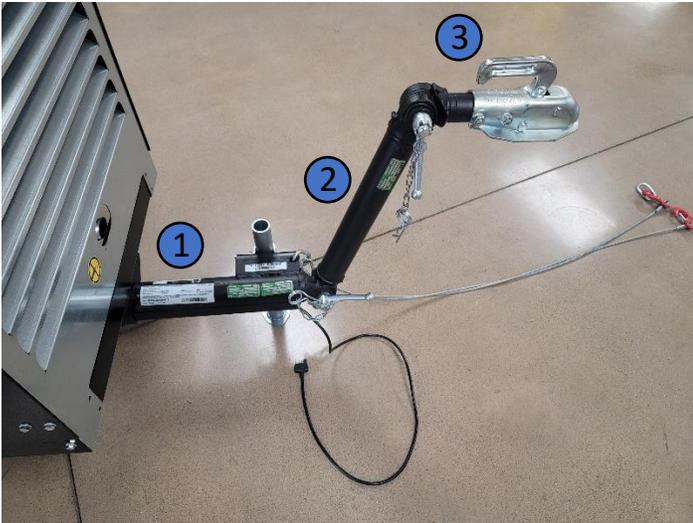
1. Check engine fuel level.
2. Start the engine.
3. After the engine starts, push the green button for manual mode.
4. Press the up and down icons simultaneously, and after a few seconds engine RPMs will increase.
5. Allow 20 minutes for the regeneration cycle to complete and the compressor will be ready to use.



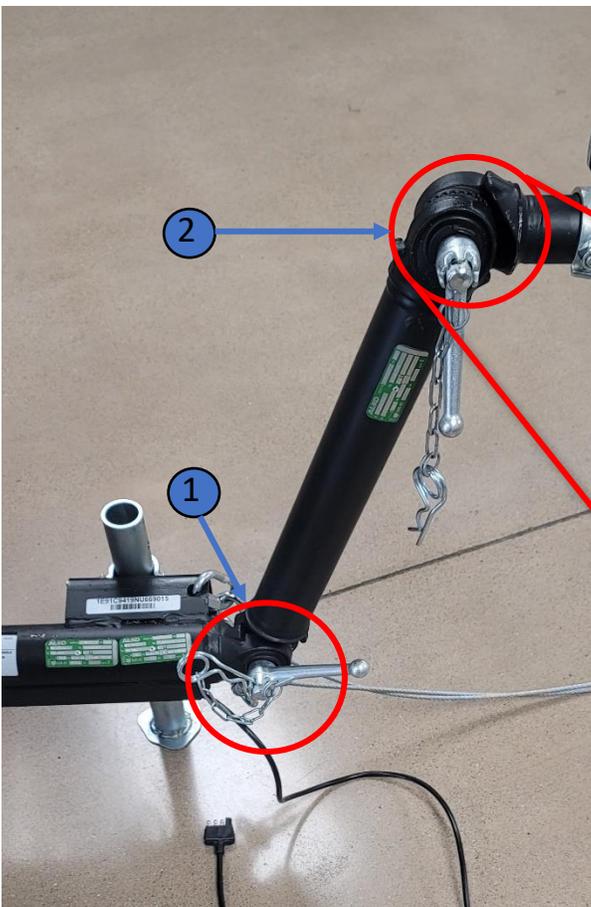
CAUTION! During parked regeneration, particle filter temperature will be higher than normal and may lead to severe burns and or fires. Please refer to the chapter on safety to avoid fire hazards.

Attaching Towable Unit/Trailer

This unit is equipped with a positional tow bar which allows it to be towed by a multitude of vehicles. This tow bar, although easy to use, can lead to a variety of issues if not installed correctly.



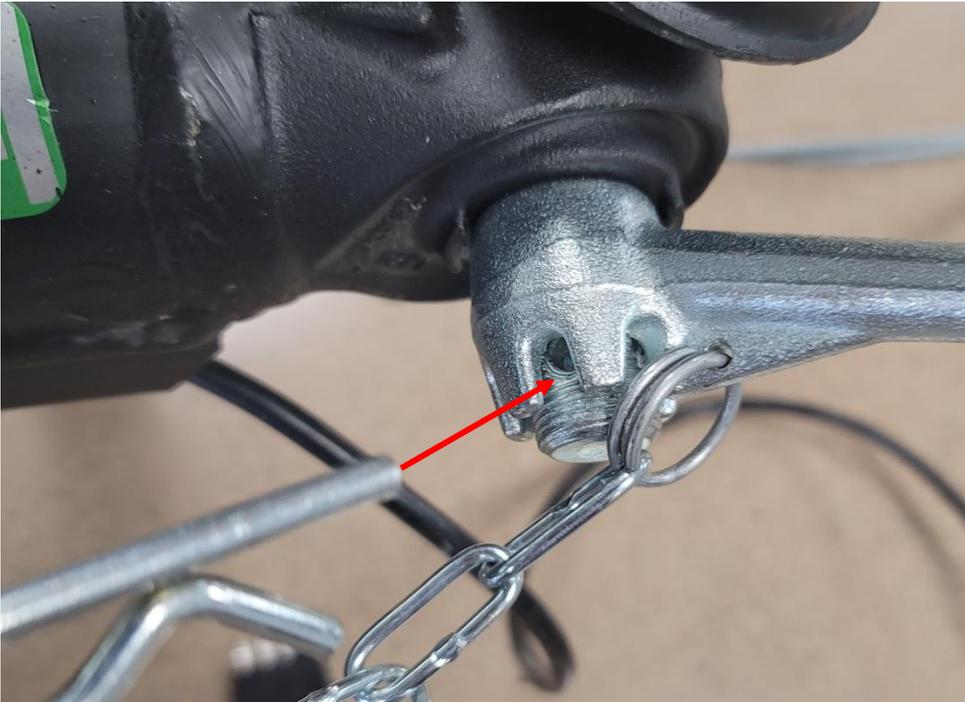
Ensure the hitch attachment, section three, is parallel with the trailer lead, section one, when installed. This will ensure the unit stays mounted on the hitch and undue stress is not placed on the trailer.



Height and angle can be adjusted at these two locations. They work by having locking teeth that press together at various positions to give you a perfect fit for your application. Begin by removing the cotter pin at each location. Once the pin is removed you may loosen and adjust by turning the handle counterclockwise far enough to allow the teeth to disengage and move without grinding against each other.



THIS TRAILER WILL ONLY EXCEPT A 2" BALL HITCH! DO NOT ATTEMPT TO USE ANY SIZE SMALLER!



Once the trailer arm is in the correct position, tighten the adjustment handles and replace the cotter pins. Ensure to firmly press the cotter pins in place, and verify they go into one of the holes in adjustment bolt, such as the one shown on the left.



DANGER! Adjustment arms must be tightened as much as possible to prevent tow arm slippage. Failure to fully tighten may result in damage to equipment and severe injury to personnel.

Once your trailer arm is in the correct position move the vehicle to the trailer. Place of the towing vehicle into the ball mount of the trailer arm hitch. As the ball settle into the socket of the arm you should hear an audible 'CLICK' as the ball lock engages on the trailer arm. As the mechanism breaks in, you must apply downward force to the trailer hitch mount to ensure proper connection.

YOU MUST CHECK TO MAKE SURE THE TRAILER IS SECURED TO THE HITCH MOUNT! FAILURE TO DO SO WILL LEAD TO SEVERE DAMAGE TO EQUIPMENT AND/OR SEVERE INJURY OR FATALITY OF INDIVIDUALS. To verify trailer is secured attempt to lift trailer arm off hitch. Trailer arm should not lift!





Once the trailer hitch is locked securely in the hitch mount, you will need to raise the trailer support leg to travel height. Begin by pulling the retaining wire off of the pin holding the leg in place (pin and retaining wire marked as 1 in the drawing). Slide out the pin. Pulling upward from the top of the leg, raise the leg to travel height, marked as figure 2. Replace the pin ensuring to use the retaining wire to lock the pin in place.

ONLY PULL UPWARD ON THE SUPPORT LEG, DO NOT ATTEMPT TO LIFT FROM THE BOTTOM! Shifts in the vehicle or trailer, hitch failure, or improper mounting may lead to severe injuries to personnel.

After the trailer support leg is locked into place, **YOU MUST** install the safety cables as shown. Safety cables should be installed straight and should not cross.

DO NOT MODIFY TRAILER SAFETY CABLES IN ANY WAY!

Cable attachment on the trailer side should be checked for frays, damage, and tightness prior to installation. Gloves should be worn when handling cables as the steel may become frayed an/or have sharp edges that may lead to injury if handled without proper safety equipment.



At this point you must attach the trailer power supply cable to the towing vehicle trailer power supply. This will power the trailer lights during towing and ensure safe operation of the trailer signaling devices.

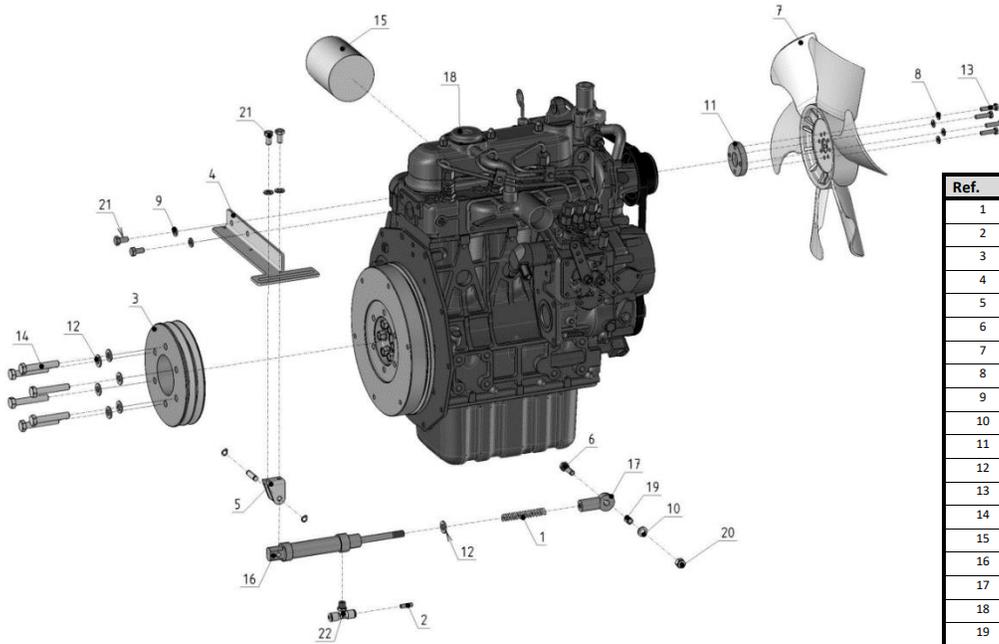


To detach trailer from towing vehicle, ensure trailer wheels are properly chocked (REF pg. 26), and on a flat and level surface. Lower the trailer support arm and lock it into place utilizing the supplied pin. Disconnect the trailer power supply and trailer safety cables. Firmly grasp the trailer release handle and pull upward. This will disconnect the trailer ball mount from the towing vehicle ball hitch.

In this view you can see the operation of the ball hitch locking mechanism. **Once again, the trailer hitch mount is designed for 2" hitch ball and will not function properly if undersized.**

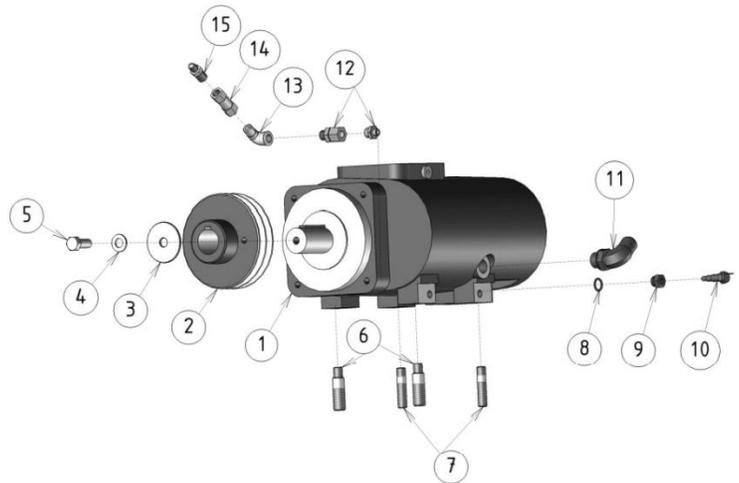


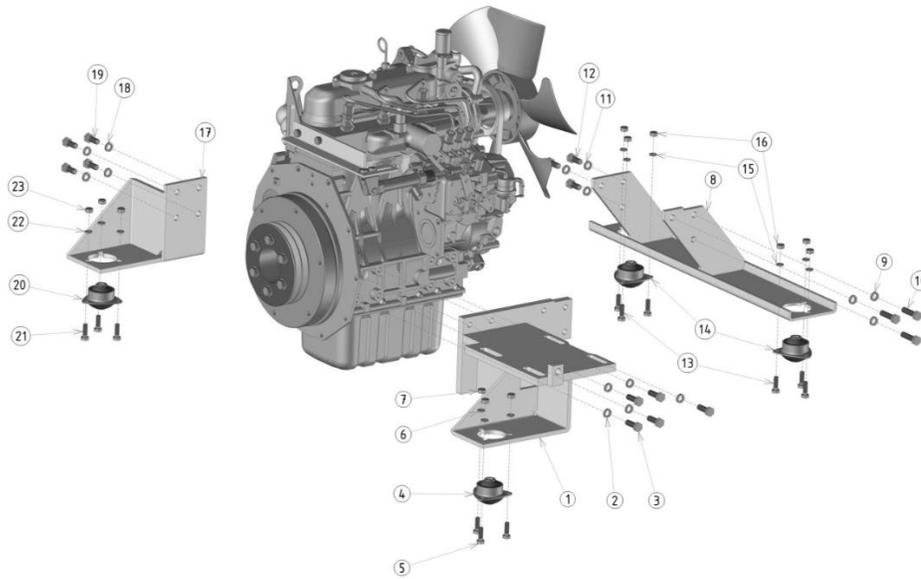
Detail Parts Explosion S090, S115



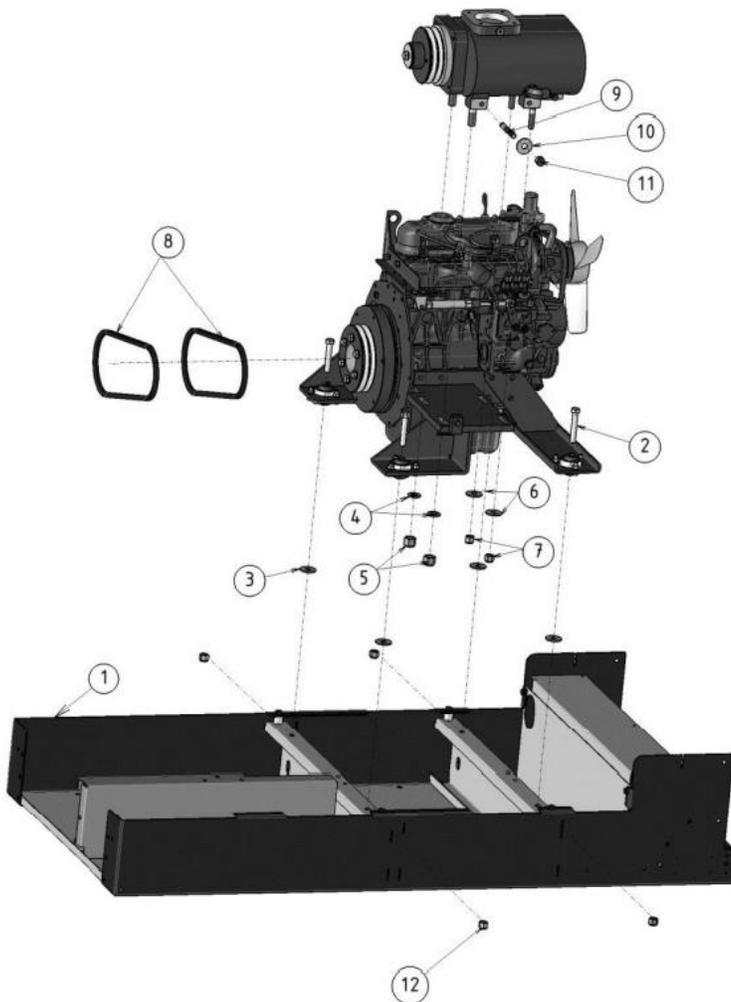
Ref.	Qty	Description
1	1	SPRING
2	1	PNEUMATIC LEAK
3	1	PULLEY
4	1	CYLINDERS SUPPORT
5	1	STRAPE
6	1	SCREW
7	1	FAN D1105
8	4	WASHER
9	2	WASHER
10	3	WASHER
11	1	SPACER, FAN
12	7	WASHER
13	4	SCREW
14	6	SCREW
15	1	ENGINE OIL FILTER
16	1	CYLINDER, SPEED Ø25 STOKO 50
17	1	TRINGLE ROD
18	1	ENGINE D1105 TIER 4
19	1	ORING
20	1	LOCKNUT
21	4	SCREW
22	1	TEE

Ref.	Qty	Description
1	1	Air end
2	1	Pulley
3	1	Washer
4	1	Washer
5	1	Screw
6	2	Stud
7	2	Stud
8	1	Seal
9	1	Reduction
10	1	Temperature probe
11	1	Elbow version
12	1	Nipple
13	1	Elbow
14	1	Non-return valve
15	1	Nipple

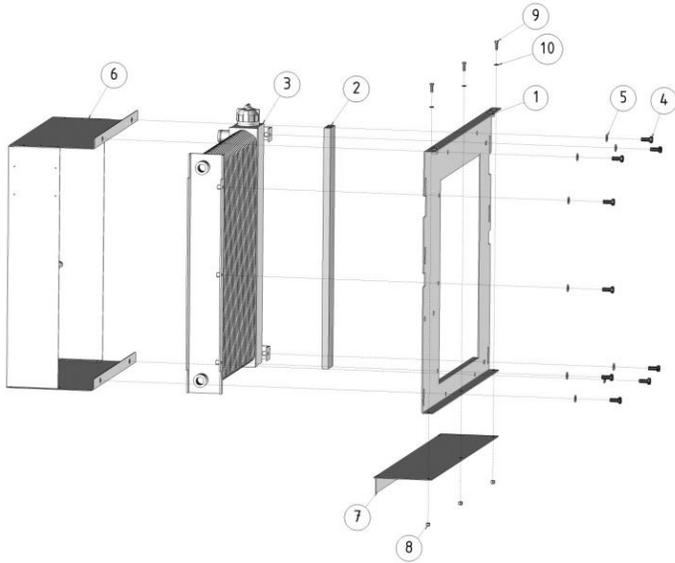




Ref.	Qty	Description
1	1	Air end support
2	5	Washer
3	5	Screw
4	1	Silent block
5	3	Screw
6	3	Washer
7	3	Nut
8	1	Rear support
9	3	Washer
10	3	Screw
11	3	Washer
12	3	Screw
13	6	Screw
14	2	Silent block
15	6	Washer
16	6	Nut
17	1	Front support
18	4	Washer
19	4	Screw
20	1	Silent block
21	3	Screw
22	3	Washer
23	3	Nut

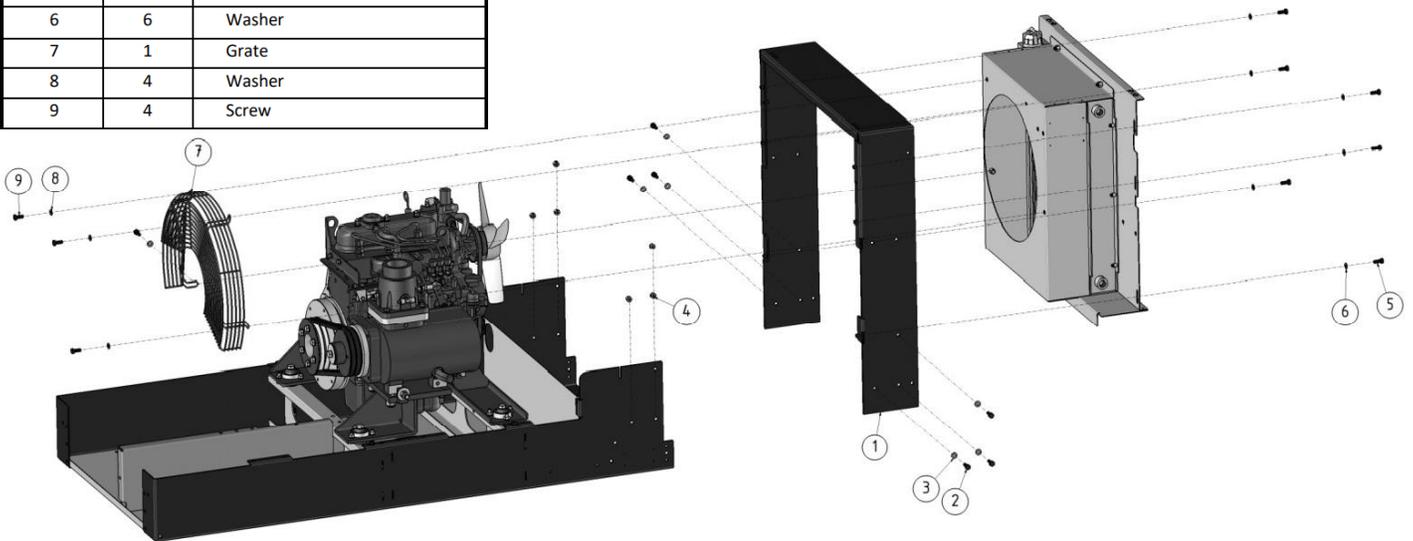


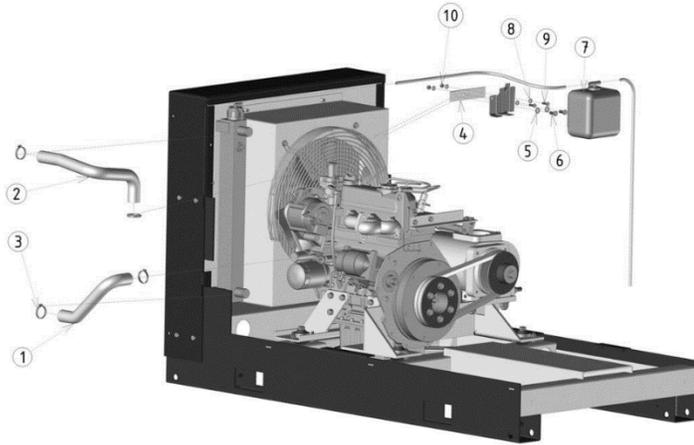
Ref.	Qty	Description
1	4	Frame assembled
2	4	Screw
3	4	Washer
4	2	Washer
5	2	Nut
6	2	Washer
7	2	Nut
8	2	Belt
9	1	Stud
10	1	Washer
11	1	Nut
12	4	Nut



Ref.	Qty	Description
1	1	Panel
2	1	Foam
3	1	Cooler
4	9	Screw
5	9	Washer
6	1	Hood
7	1	Case
8	3	Nut
9	3	Screw
10	3	Washer

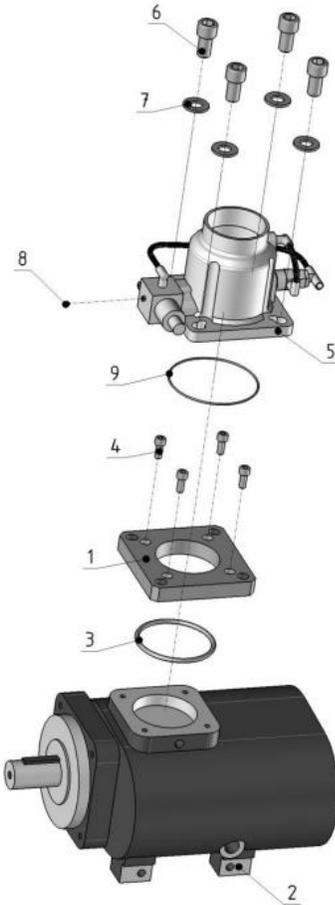
Ref.	Qty	Description
1	1	Frame
2	6	Screw
3	6	Washer
4	6	Nut
5	6	Screw
6	6	Washer
7	1	Grate
8	4	Washer
9	4	Screw





Ref.	Qty	Description
1	1	Low level hose
2	1	High level hose
3	4	Collar
4	1	Tank support
5	2	Washer
6	2	Screw
7	1	Expansion tank
8	4	Washer
9	2	Screw
10	2	Nut

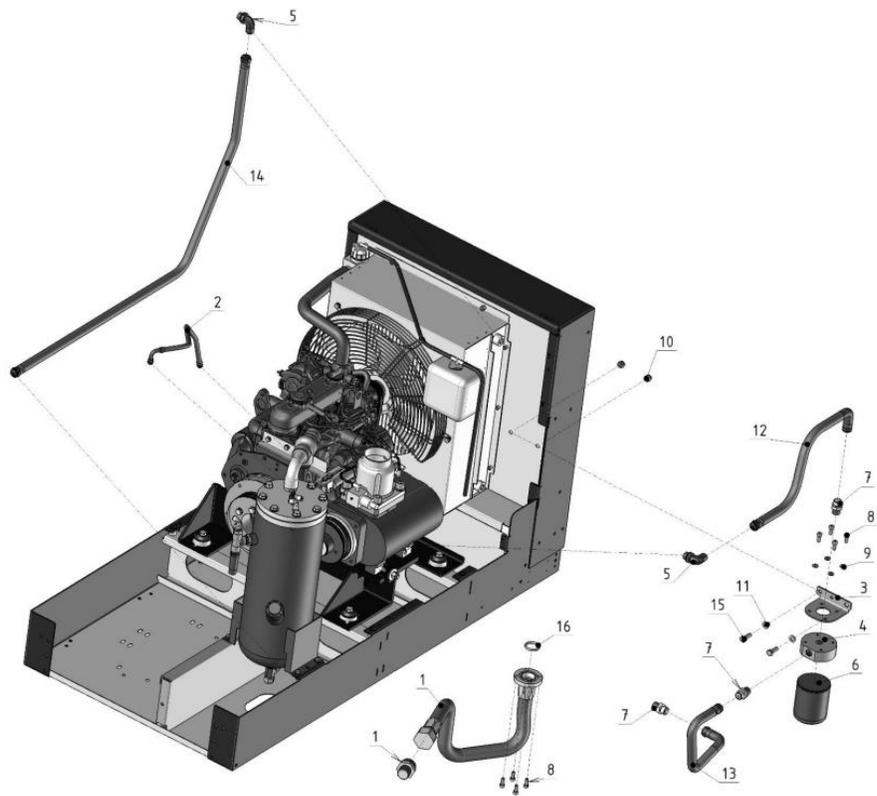
Ref.	Qty	Description
1	1	BRACE
2	1	AIR END
3	1	SEAL
4	4	SCREW
5	1	INLET VALVE
6	4	SCREW
7	4	WASHER
8	1	UNF 10-32 PLUG
9	1	SEAL

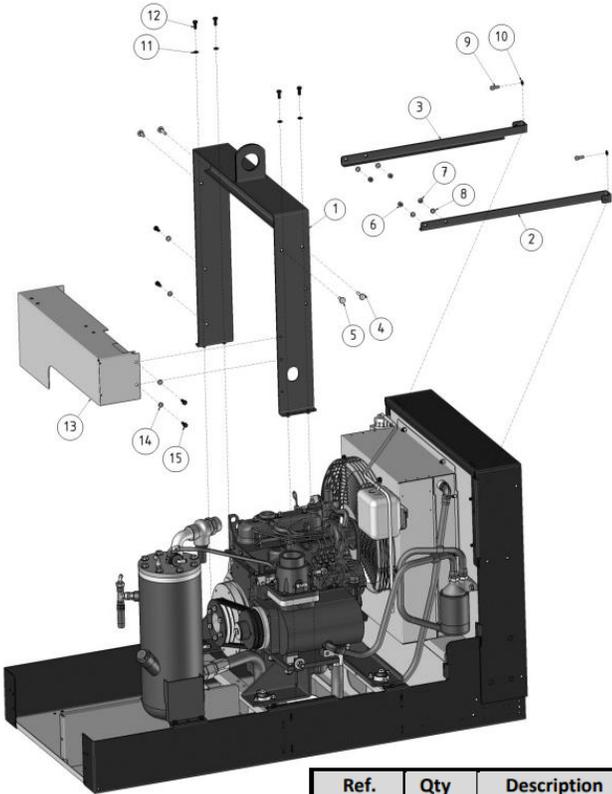




Ref.	Qty	Description
1	8	Washer
2	8	Screw
3	1	DIP TUBE
4	1	SEPARATOR PLUG
5	1	SLEEVE
6	1	SEPARATOR US
7	1	SEPARATOR ELEMENT
8	1	TE
9	1	ELBOW
10	1	PLUG F JIC 7/8
11	1	O-RING 37,3 x 3,6
12	1	ELBOW
13	2	UNION
14	1	SAFETY VALVES D10

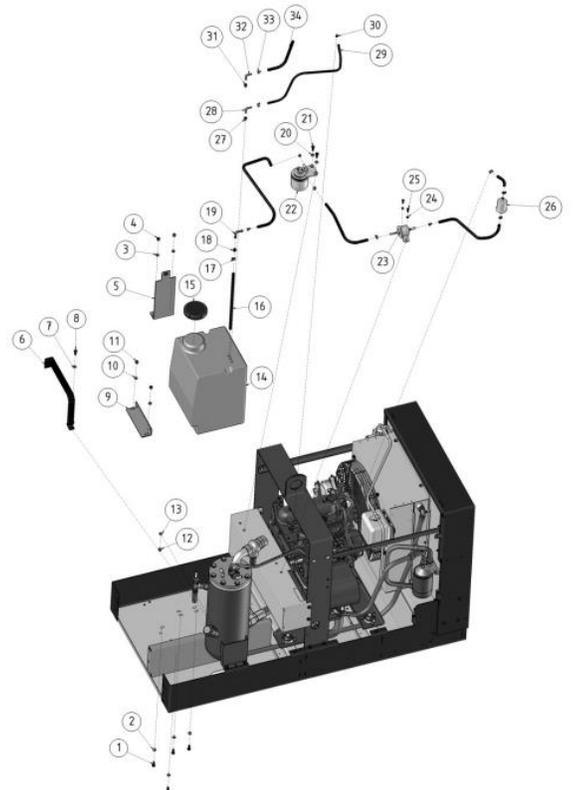
Ref.	Qty	Description
1	1	OIL AIR HOSE
2	1	HYDRAULIC HOSE, RETURN OIL
3	1	SUPPORT OIL FILTER
4	1	FLANGE
5	2	ELBOW
6	1	COMPRESSOR OIL FILTER
7	3	NIPPLE
8	8	SCREW
9	4	WASHER
10	2	LOCKNUT
11	2	WASHER
12	1	OIL HOSE
13	1	OIL HOSE
14	1	HYDRAULIC HOSE
15	2	SCREW
16	1	ORING

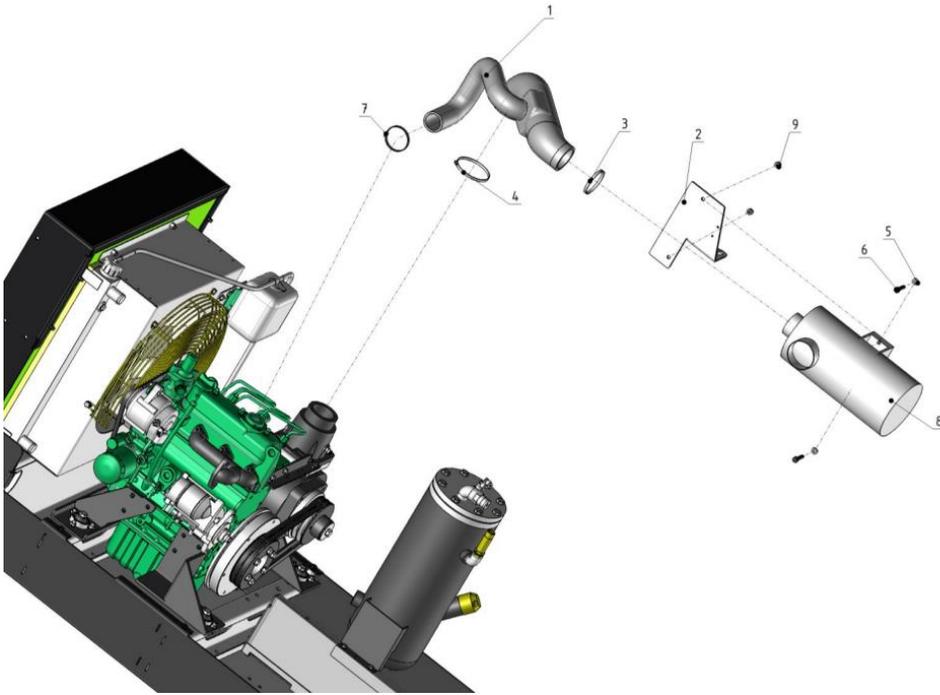




Ref.	Qty	Description
1	1	Support
2	1	Brace
3	1	Brace
4	2	Screw
5	2	Screw
6	2	Nut
7	2	Nut
8	4	Washer
9	2	Screw
10	2	Washer
11	4	Washer
12	4	Screw
13	1	Protection
14	4	Washer
15	4	Screw

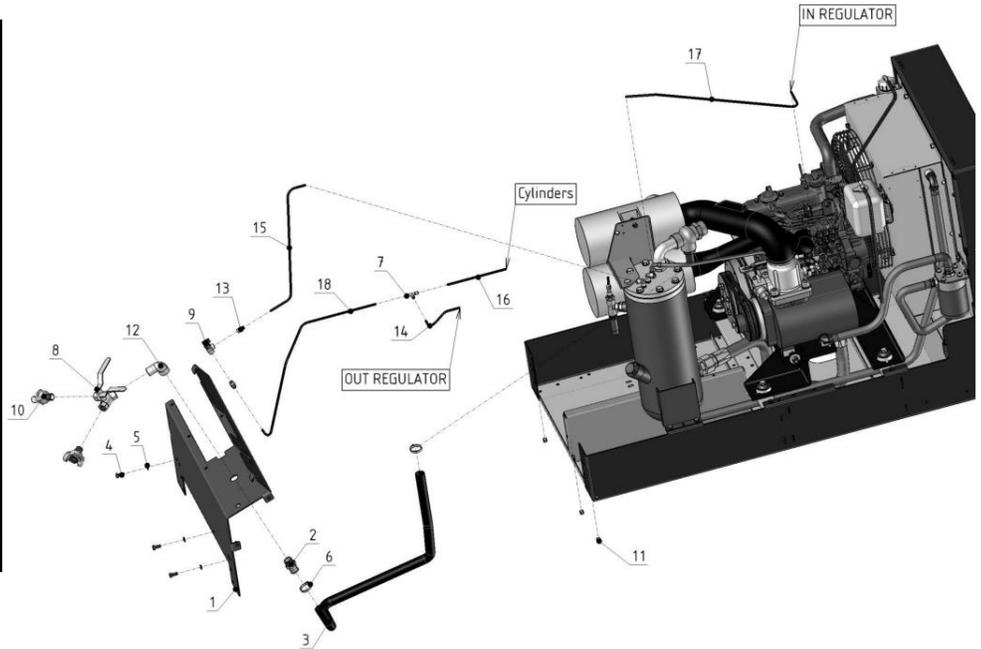
Ref.	Qty	Description
1	4	Screw
2	4	Washer
3	2	Washer
4	2	Nut
5	1	Square
6	1	Strap
7	1	Washer
8	1	Screw
9	1	Square
10	2	Washer
11	2	Nut
12	1	Nut
13	1	Washer
14	1	Fuel tank
15	1	Cap
16	-	Pipe
17	9	Collar
18	1	Clamping
19	1	Union
20	2	Washer
21	2	Screw
22	1	Assembled filter
-	-	Spare filter
23	1	Pump
24	2	Washer
25	2	Screw
26	1	Prefilter
27	1	Clamping
28	1	Union
29	-	Pipe
30	2	Collar
31	1	Clamping
32	1	Union
33	1	Collar
34	-	Pipe

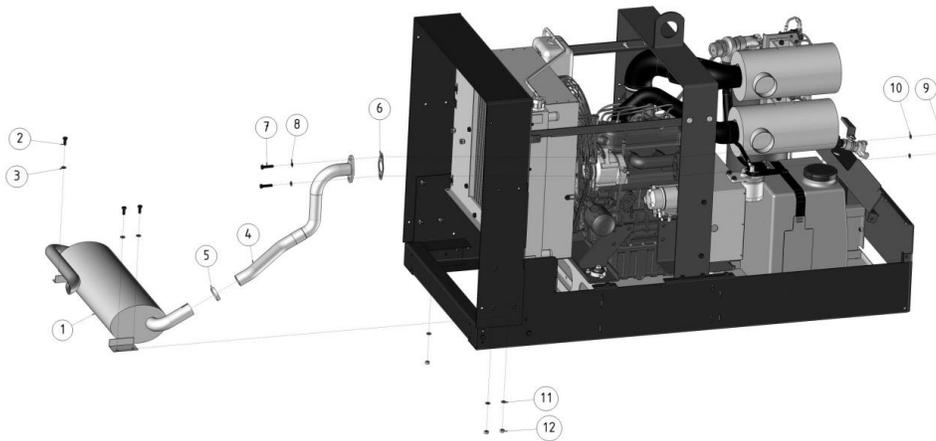




Ref.	Part number	Qty
1	AIR HOSE	1
2	SUPPORT AIR END	1
3	COLLAR	1
4	COLLAR	1
5	WASHER	2
6	SCREW	2
7	COLLAR	1
8	AIR FILTER	1
9	LOCKNUT	2

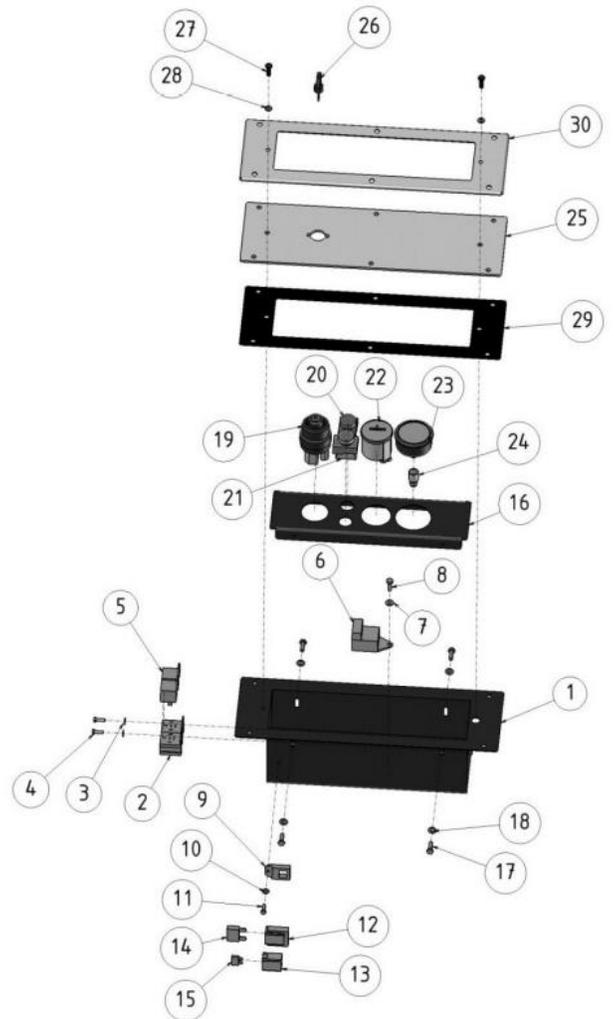
Ref.	Qty	Description
1	1	STAND
2	1	SLEEVE
3	1	HOSE
4	3	SCREW
5	3	WASHER
6	2	COLLAR
7	1	TEE
8	1	GATE
9	1	VALVE, START-STOP / RUN
10	2	COUPLING GASKET
11	3	LOCKNUT
12	1	ELBOW 90D MF 3/4 GALVA
13	2	UNION
14	1	HOSE
15	1	HOSE
16	1	HOSE
17	1	HOSE
18	1	HOSE



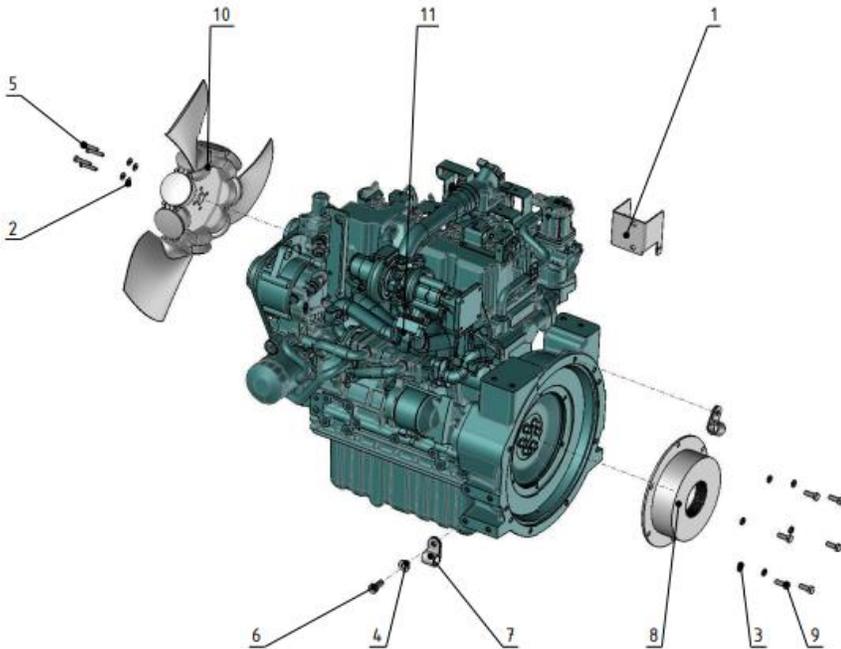


Ref.	Part number	Qty	Description
1	MAC2AP03397	1	Silencer
2	MAC2AS02487	3	Screw
3	MAC2AS02536	3	Washer
4	MAC2AP03216	1	Delivery pipe
5	MAC2AS02477	1	Collar
6	MAC2AS03238	1	Seal
7	MAC2AS02539	2	Screw
8	MAC2AS02496	2	Washer
9	MAC2AS02531	2	Nut
10	MAC2AS02532	2	Washer
11	MAC2AS02536	3	Washer
12	MAC2AS04027	3	Nut

Ref.	Qty	Description
1	1	Controller case
2	2	Relay support
3	2	Washer
4	2	Screw
5	2	Safety relay
6	1	Timer relay
7	1	Washer
8	1	Screw
9	1	Fuse holder clip
10	1	Washer
11	1	Screw
12	1	Fuse holder
13	1	Fuse holder
14	1	Fuse
15	1	Fuse
16	1	Support
17	4	Screw
18	4	Washer
19	1	Switch
20	1	Red Indicator
21	1	Orange Indicator
22	1	Hour counter
23	1	Manometer
24	1	Quick Connect
25	1	Protection
26	1	Switch key
27	2	Screw
28	2	Washer
-	1	Cable harness
29	1	Seal
30	1	Plexi reinforcement



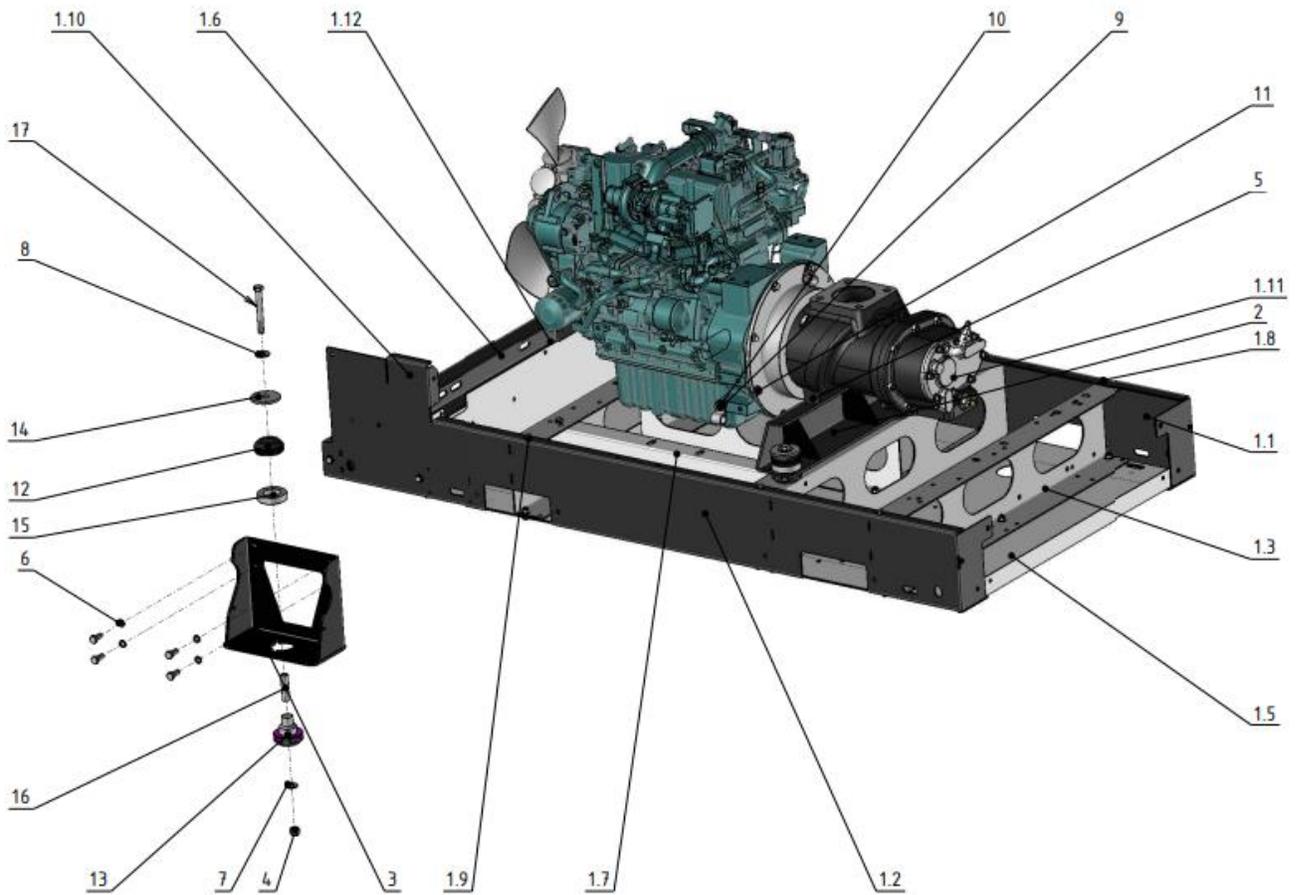
Detail Parts Explosion S185



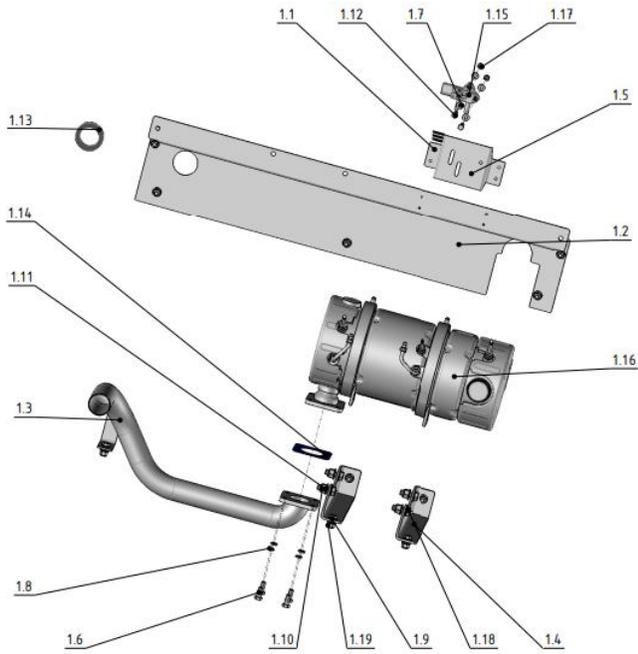
REF#	QTY	PART
1	1	Fixing
2	4	Washer
3	6	Washer
4	1	Washer
5	4	Screw
6	1	Screw
7	2	Collar
8	1	Coupling
9	6	Screw
10	1	Fan
11	1	Engine

REF#	QTY	PART
1	1	Engine Bell
2	1	Temp. Probe
3	1	Check Valve
4	1	Nipple
5	1	Elbow
6	6	Screw
7	6	Washer
8	1	Air End
9	1	Hub Coupling
10	1	Union
11	1	Nipple MF
12	1	Nipple

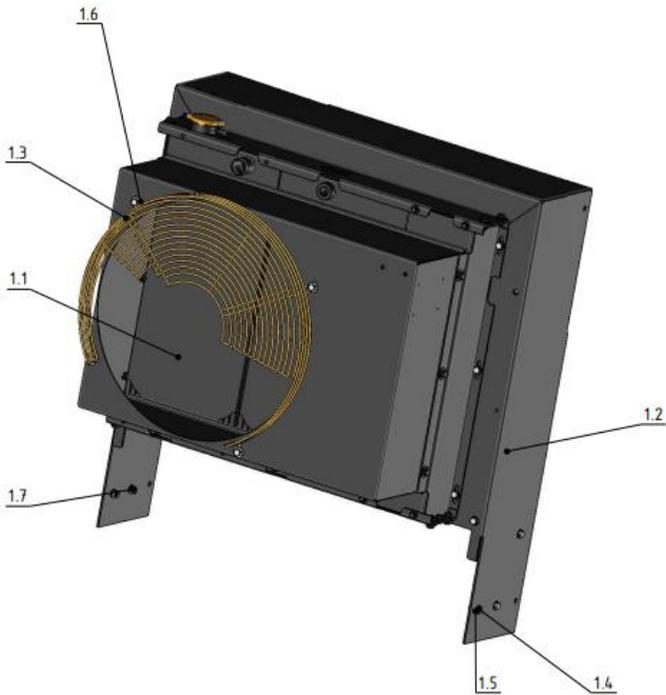




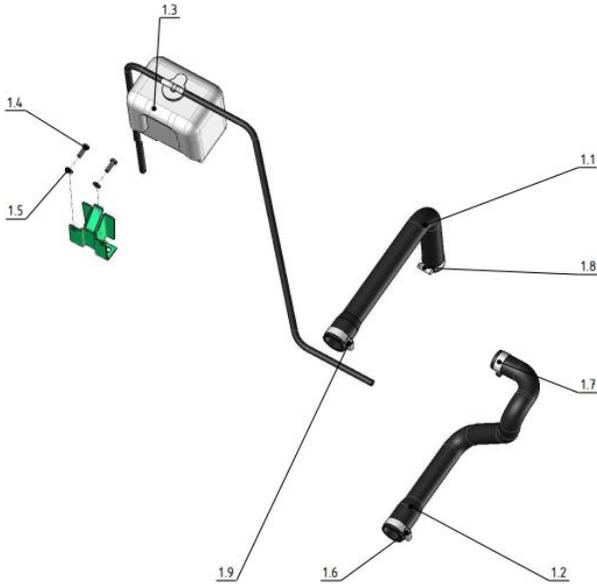
REF#	QTY	PART	REF#	QTY	PART
1	1	Bottom Frame	4	4	Prevailing Torque Hex Nut
1.1	1	Tank Chassis Side Pc	5	2	Screw
1.2	1	Engine Chassis Side Pc	6	8	Washer
1.3	3	Travel	7	6	Washer
1.4	1	Bottom Sheet	8	6	Washer
1.5	1	Bottom Sheet	9	8	Washer
1.6	1	Trave	10	8	Screw
1.7	2	Engine Fixing	11	8	Screw
1.8	37	Screw	12	4	Silent Block
1.9	73	Washer	13	4	Silent Block
1.10	2	Insert	14	4	Washer
1.11	2	Insert	15	4	Silent Block-Adaptor Ring
1.12	37	Prevailing Torque Hex Nut	16	4	Silent Block-Spacer
2	1	Engine Support	17	4	Screw
3	2	Engine Support	-	-	



REF#	QTY	PART
1.1	4	Rivet
1.2	1	Exhaust Protection
1.3	1	DPF Outlet
1.4	2	Fixing
1.5	1	Fixing
1.6	14	Screw
1.7	4	Washer
1.8	4	Washer
1.9	20	Washer
1.10	4	Prevailing Torque Hex Nut
1.11	8	Washer
1.12	2	Screw
1.13	1	Seal
1.14	1	Seal
1.15	1	Connector
1.16	1	Particle Filter
1.17	2	Prevailing Torque Hex Nut
1.18	4	Screw
1.19	10	Prevailing Torque Hex Nut

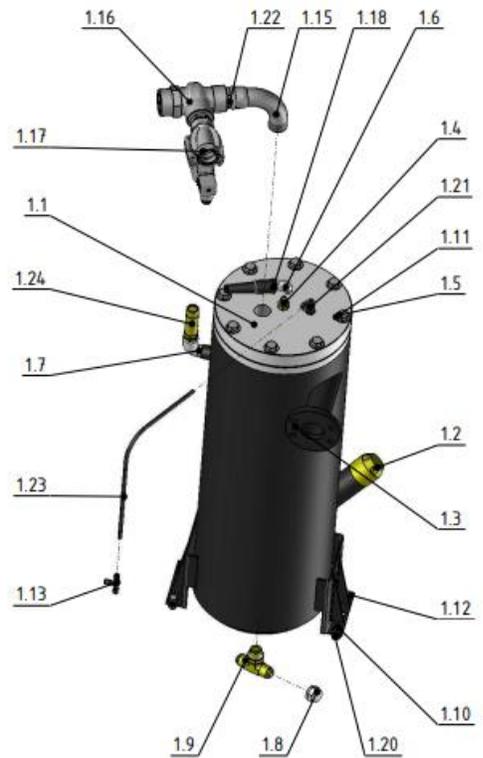


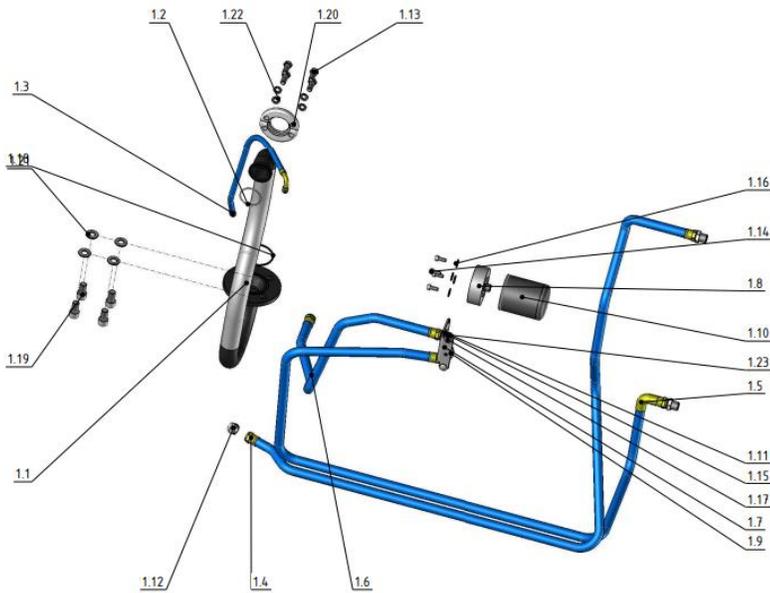
REF#	QTY	PART
1.1	1	Radiator
1.2	1	Frame
1.3	1	Grate
1.4	18	Screw
1.5	25	Washer
1.6	4	washer
1.7	11	Prevailing Torque Hex Nut



REF#	QTY	PART
1.1	1	Air Hose
1.2	1	Lower Radiator Hose
1.3	1	Expansion Tank Kit
1.4	2	Screw
1.5	2	Washer
1.6	1	Hose Clamp
1.7	1	Hose Clamp
1.8	1	Hose Clamp
1.9	1	Hose Clamp

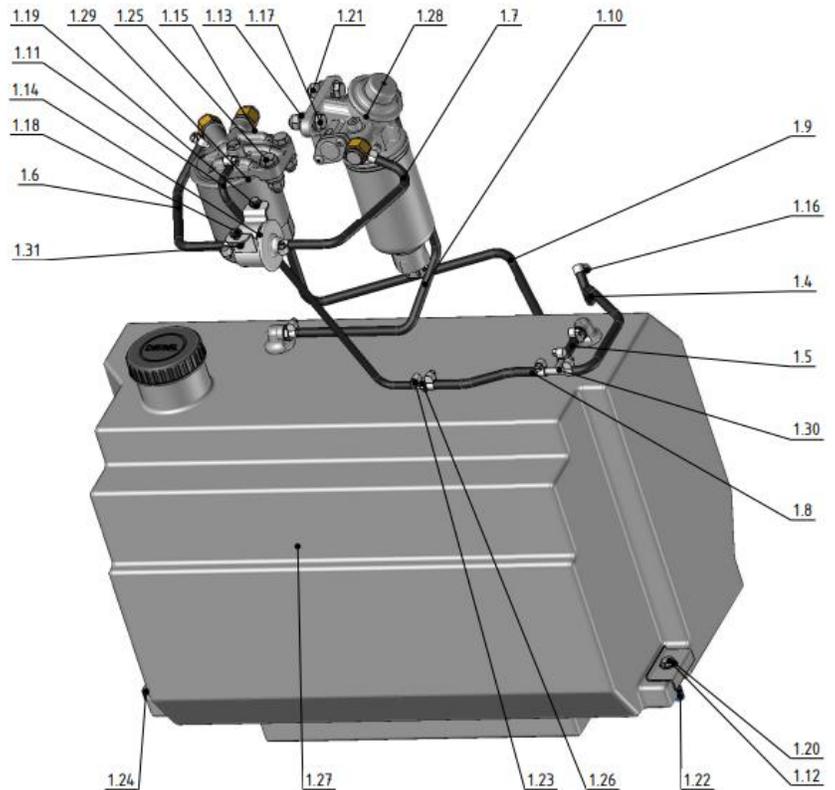
REF#	QTY	PART
1.1	1	Cover
1.2	1	Separator Plug
1.3	1	Separator Tank
1.4	1	Dip tube
1.5	8	Screw
1.6	1	Elbow
1.7	1	Elbow
1.8	1	Plug
1.9	1	Tee
1.10	6	Screw
1.11	8	Washer
1.12	12	Washer
1.13	1	Tee
1.14	1	Separator Element
1.15	1	Elbow
1.16	1	Minimum Pressure Valve
1.17	1	Solenoid Control Valve
1.18	1	Pressure Transmitter
1.19	1	O-ring
1.20	6	Prevailing Torque Hex Nut
1.21	1	Union
1.22	2	Nipple
1.23	1	Hose 4x6
1.24	1	Safety Valves

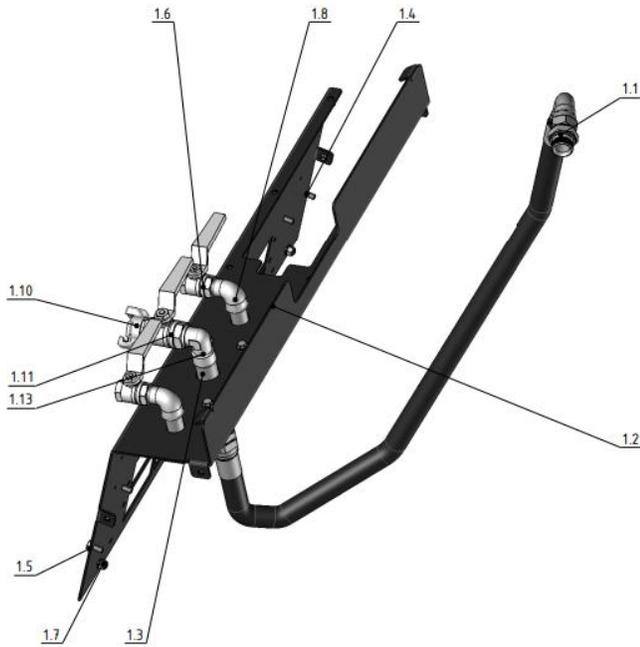




REF#	QTY	PART
1.1	1	Hose Air Oil
1.2	1	O-Ring
1.3	1	Hydraulic hose, Oil Return
1.4	1	Hydraulic Hose Separator-> Radiator
1.5	1	Hose Radiator->Filter
1.6	1	Hose Filter->Air End
1.7	1	Oil Filter Support
1.8	1	Flange
1.9	1	Elbow
1.10	1	Compressor Oil Filter
1.11	3	Nipple
1.12	1	Plug
1.13	4	Screw
1.14	4	Screw
1.15	2	Washer
1.16	4	Washer
1.17	2	Screw
1.18	1	O-ring
1.19	4	Screw
1.20	2	Fastening Flange
1.21	4	Washer
1.22	4	Washer
1.23	2	Prevailing Torque Hex Nut

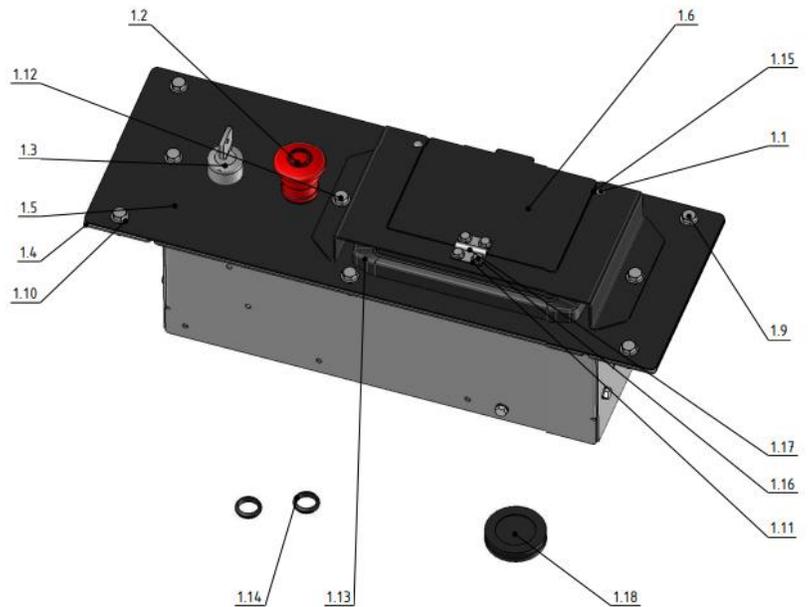
REF#	QTY	PART
1.4	1	Fuel Line
1.5	1	Fuel Line
1.6	1	Fuel Line
1.7	1	Fuel Line
1.8	1	Fuel Line
1.9	1	Fuel Line
1.10	1	Fuel Line
1.11	1	Fuel Line
1.12	2	Screw
1.13	8	Washer
1.14	1	Fuel Pump
1.15	1	Hose Clamp
1.16	13	Hose Clamp
1.17	2	Screw
1.18	2	Screw
1.19	4	Washer
1.20	2	Washer
1.21	4	Prevailing Torque Hex Nut
1.22	2	Insert
1.23	2	Hose Clamp
1.24	2	Mounting Bracket
1.25	2	Screw
1.26	1	Union
1.27	1	Tank
1.28	1	Filter STG 5
1.29	1	Filter G0 STG5
1.30	1	Tee
1.31	2	Prevailing Torque Hex Nut

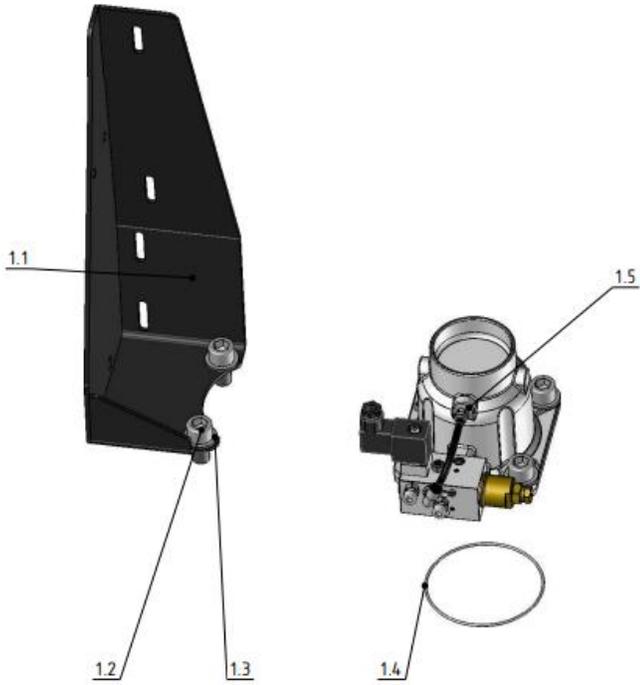




REF#	QTY	PART
1.1	1	Hydraulic Hose
1.2	1	Stand
1.3	1	Distributor
1.4	10	Screw
1.5	16	Washer
1.6	2	Valve
1.7	6	Prevailing Torque Hex Nut
1.8	2	Elbow
1.10	1	Quick Coupling
1.11	1	Valve
1.12	1	Pipe
1.13	1	Elbow

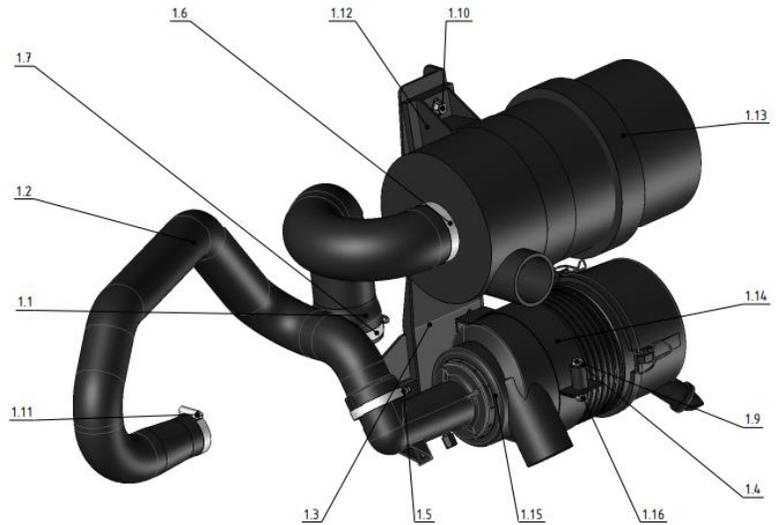
REF#	QTY	PART
1.1	2	Rivet
1.2	1	Emergency Stop
1.3	1	Key Contactor
1.4	1	Dashboard Box
1.5	1	Component Support
1.6	1	Carter
1.7	1	Panel Waterproof Gasket
1.8	4	Prevailing Torque Hex Nut
1.9	7	Screw
1.10	9	Washer
1.11	8	Washer
1.12	2	Screw
1.13	1	Controller
1.14	3	Grommet
1.15	2	Washer
1.16	4	Screw
1.17	1	Hinge
1.18	1	Grommet

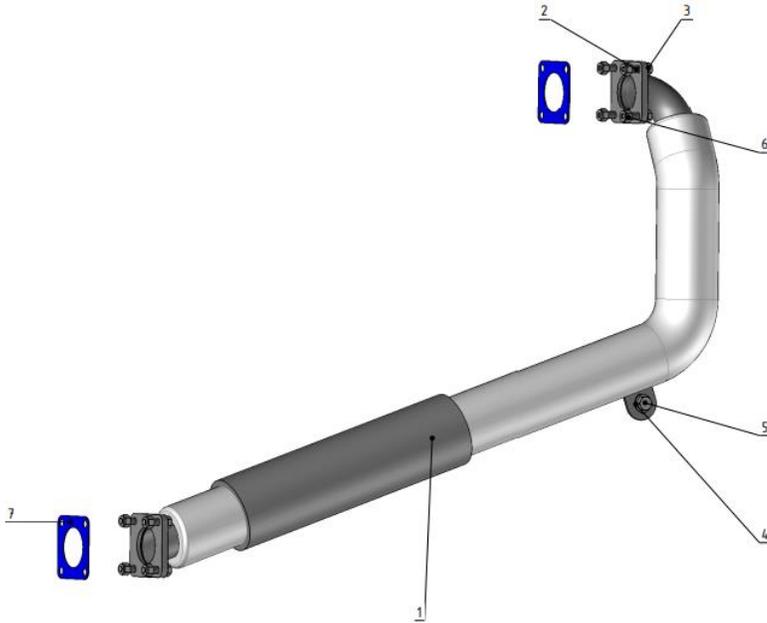




REF#	QTY	PART
1.1	1	Support
1.2	4	Screw
1.3	4	Washer
1.4	1	O-ring
1.5	1	Inlet Valve

REF#	QTY	PART
1.1	1	Air Hose
1.2	1	Air Hose
1.3	1	Support
1.4	1	Screw
1.5	1	Hose Clamp
1.6	1	Hose Clamp
1.7	1	Hose Clamp
1.8	2	Screw
1.9	10	Washer
1.10	2	screw
1.11	1	Hose Clamp
1.12	1	Air Filter Clamp
1.13	1	Air Filter
1.14	1	Air Filter Clamp
1.15	1	Air Filter
1.16	5	Prevailing Torque Hex Nut





REF#	QTY	PART
1	1	Exhaust Downpipe
2	8	Screw
3	8	Washer
4	1	Washer
5	1	Screw
6	8	Prevailing Torque Hex Nut
7	2	Seal

Troubleshooting

SYMPTOM	PROBABLE CAUSE	REMEDY
1. Compressor will not start.	1. No fuel 2. Clogged fuel filter 3. Low battery voltage 4. Clogged air filter 5. Engine problems may have developed 6. Defective electrical safety 7. Blown fuse un wiring harness 8. Faulty electro-stop	Check fuel level and add fuel if necessary. Replace the filter cartridge and the secondary pre-filter. a. Check the voltage and recharge or replace if necessary. b. Loose battery cable, tighten cables. c. Dirty battery cables, clean thoroughly. Clean or replace the element. Refer to engine operators manual. Check and replace if necessary. Check continuity and replace if necessary. Check and replace if necessary.
2. Compressor shuts down with air demand present.	1. No fuel 2. Compressor discharge temperature switch is open 3. Extreme cold weather.	Check the level and add fuel if necessary. a. Cooling air flow is insufficient. Clean cooler and check for proper ventilation b. Low fluid sump level. Add fluid. c. Compressor fluid so dirty: change fluid. d. Fluid filter clogged: change cartridge. e. Defective discharge temperature switch. Check for a short or open circuit to the engine fuel rack solenoid should this check out normal; it is possible that the temperature switch is defective. Set the started valve on START-STOP position and let it run for 5 minutes.
3. Compressor will not build up full discharge pressure.	1. Air demand is too great. 2. Dirty air filter. 3. Pressure regulator out of adjustment. 4. Started valve on START-STOP position	Check service lines for leaks or open valves. Check the element and change or clean element if required. Adjust regulator. Turn the started valve to RUN position.
4. Improper unloading with excessive pressure build-up causing pressure safety to open.	1. Pressure regulating valve is set too high. 2. Inlet valve jammed. 3. Restriction in the control system. 4. Clogged regulating jet. 5. Defective pressure regulating valve. 6. Defective cylinder.	Readjust. Free or replace valve. Check all control lines and components. Ice and other contaminants could cause restrictions. Check and replace if necessary. Check and replace if necessary. Check and replace if necessary.

<p>5. Insufficient air delivery.</p>	<p>1. Clogged air filter 2. Clogged air/fluid separator. 3. Defective pressure regulator 4. Engine speed too low 5. Leak in control system causing loss of pressure signal. 6. Defective cylinder 7. Started valve on START-STOP position</p>	<p>Clean or replace. Replace separator element and also change compressor fluid and fluid filter at this time. Adjust or repair. Readjust engine speed Check all control lines. Check and replace if necessary. Turn the started valve to RUN position.</p>
<p>6. Excessive compressor fluid consumption</p>	<p>1. Clogged return line. 2. Leaks in lubrication system. 3. Separator element damaged or not functioning properly. 4. Fluid separator too full.</p>	<p>Clean return line orifice. Check all pipes, connections and components. Change separator element. Drain to correct level.</p>
<p>7. Overheating of the compressor</p>	<p>1. Engine belts too loose or broken. 2. Central part of the oil cooler clogged with dirt. 3. Oil cooler pipes (internal) clogged. 4. Low oil level in the separator. 5. Oil filter clogged. 6. Oil discharge line clogged. 7. Recycling of hot air.</p>	<p>Retighten or replace. Clean it thoroughly. Clean it thoroughly. Refill. Replace the cartridge. Clean the hole and the pipe. Check hood lock and seal ing of partitions.</p>
<p>8. Overheating of the engine</p>	<p>1. Fan belt loose or broken. 2. Central part of the radiator clogged with dirt. 3 Water level too low. 4 Oil level too low. 5 Defective water pump. 6. Cooler clogged. 7. Defective engine thermostat.</p>	<p>Retighten or replace. Clean it thoroughly. Refill. Refill. Replace. Clean it thoroughly. Replace.</p>
<p>9- Braking / the handbrake efficiency too low</p>	<p>1. Incorrect adjustment. 2. Brake pads need to be run in. 3. Brake pads damaged / dirty. 4. Significant losses by friction.</p>	<p>Contact the after-sales service. The brake is getting stronger after a few braking - break-in period. Contact the after-sales service. Lubricate the brake cable.</p>
<p>10- The reverse is difficult or blocked</p>	<p>1. Rigid brake system. 2. The lever of inertia brakes in the wheel brake got stuck.</p>	<p>Contact the after-sales service.</p>
<p>11-Overheating of the brakes in forward gear.</p>	<p>1. Incorrect adjustment. 2. The braking system does not start properly in forward gear. 3 Reversing lever blocked. 4. Support of pushrod bent. 5 Dirty wheel brake. 6 Bent traction or Bowden cable. 7 Return spring loose or damaged 8 Corrosion in a brake drum.</p>	<p>Contact the after-sales service. Release the handbrake and check the mobility of the transmission. Release the handbrake and check the mobility of the transmission. Contact the after-sales service. Clean the wheel brake. Contact the after-sales service. Contact the after-sales service. Contact the after-sales service.</p>

Warranty Statement

The manufacturer makes the following warranty statement:

1. **THAT EACH ROTARY SCREW AIR COMPRESSOR PUMP WILL BE FREE FROM DEFECTS IN MATERIAL, WORKMANSHIP, AND PARTS FOR 10 YEARS FROM THE DATE OF PURCHASE.** Manufacturer is not responsible for downtime during warranty service. If downtime is necessary, a redundant unit will be at the Purchaser's discretion and expense. This warranty applies to rotary screw rotors and bearings only. The electric motor carries a five-year warranty and a two-year warranty on the rest of the compressor unit. The screw compressor **MUST** have used Airbase synthetic lubricant exclusively, which must be purchased from manufacturer (Mixing different brands of oil will void this warranty and cause the rotors to varnish). All air filters, oil filters, and oil separator filters must be purchased from manufacturer and the screw compressor must use Airbase synthetic rotary screw oil, purchased exclusively from manufacturer, for this warranty to apply.

The original Purchaser must comply with the following requirements each year:

- a. Purchase an oil sample kit for oil analysis by manufacturer
- b. Oil sample kit contains 20 oil sample containers. One (1) oil sample will be sent for analysis by manufacturer to oil analysis laboratory every six (6) months so oil can be tested twice yearly.
- c. Oil samples are obtained by draining 4 oz. of oil into container then mailing sample container to laboratory address provided in oil sample kit.
- d. The laboratory will perform an oil analysis then email a report to the manufacturer.
- e. Provide annual proof of purchase for oil/filter service kit.
- f. Always maintain proper oil level in unit. If the unit runs out of oil, this warranty is null and void.

Failure of the original purchaser to comply with any of the above conditions pertaining to oil analysis with void the complete unit warranty. The Purchaser must arrange a full detailed maintenance schedule with manufacturer once a year with the total service completed quarterly, outlining each air filter, oil filter and oil change with the total hours on the unit after each maintenance was performed. Failure to comply in full with this warranty and fully comply with the manual herein will void this warranty.

Exclusions to this warranty also include all normal wear and tear items, including, but not limited to the bearings, rotors, valves, belts, shaft seal and load/unload solenoids.

2. **GENERAL PROVISIONS:** The manufacturer is not responsible for downtime during warranty service. If downtime is necessary, it is the Purchaser's discretion and obligation (at Purchaser's expense) to have a redundant compressor. Warranty repairs shall not include freight costs. If necessary, the Purchaser is responsible for returning unit and/or applicable part(s) to manufacturer. Services such as OIL CHANGES, FILTER REPLACEMENTS, GASKET TIGHTENING TO CORRECT OIL SEEPAGE or DRIVE BELT TIGHTENING and VALVE CLEANING are excluded and not covered under warranty. Further exclusions include failure to fully and completely follow the guidelines set forth in the manual. Of specific note is where a product is used where granite and/or concrete work is performed, or conditions are dusty and the product is required to be housed in a separate room from the adverse conditions where the product has access to fresh air intake.

Parts shipped for warranty repairs shall include only ground freight charges for the first 90 days of the warranty period. Thereafter the owner is responsible for all freight charges of parts shipped for warranty. Any and all express shipping charges of warranty parts shall be at the owner's expense. Standard technical assistance is provided at no charge during and after the standard warranty period.

Standard warranty- Purchaser has no obligation to maintain warranty status, warranty will expire one year from date of delivery. Please see available options to extend your warranty.

All warranties are nontransferable. The Oil Purchase Program is effective as of January 1, 2011.

3. **The manufacturer offers this extensive warranty to the original purchaser of our trailers. The warranty starts from the point of sale ship date of the unit.** The manufacturer warrants the trailer main frame to the original licensed owner to be free from defects in material and workmanship with the following conditions: This **LIMITED WARRANTY** does not cover the tires, wheels(see section 5), suspension, paint/finish, lights, wiring or any other features outside of the trailer weldment, the correct operation of the tow bar, and/or the ball hitch mount and the Limited Warranty is determined by the following criteria: one year, to the original owner and is non-transferable, limited to the first accident or overloading. This warranty also **DOES NOT** cover:
 - a. Products operated in excess of rated capabilities
 - b. Misuse, abuse, or accidents
 - c. Trailers that have been altered, modified, or repaired in any manner not authorized by the manufacturer.

4. **The manufacturer warrants that each new product to be free from defects in material and workmanship for a period of one year from the date of delivery to the original purchaser except as noted below:**
 - a. New products which have been operated in excess of rated capabilities.
 - b. Misuse, abuse, or accidents.
 - c. Items that have been pinched (air, electrical, or hose lines).
 - d. Any modifications or repairs not authorized by the manufacturer.
 - e. Second hand or used equipment.
 - f. Wear items such as tires, suspension, bearings, and trailer stand leg.
 - g. Products that have not properly been maintained.

In no way shall the manufacturer be held liable for consequential damages such as rentals of substitute vehicles, loss of profits, downtime, or other commercial losses. This warranty covers shipment of trailer or parts to dealer or authorized repair center and shall include ground freight charges only for the first 90 days of the warranty period.

5. **This Tire Limited warranty** is offered by the compressor manufacturer for a period of 60 days from the delivery of the unit. The manufacturer’s obligation under this warranty is to repair or replace, at no cost to the end user, any warrantable part proven defective within the time limit of this warranty. The warranty on tires and wheels is limited to defects in their manufacturer and **WILL NOT** cover incidentals such as but not limited to:
 - a. Puncture from foreign materials. (nails, rocks, glass, screws, etc.)
 - b. Rupture from overfill.
 - c. Rupture or damage from use off road
 - d. Damage from improper mounting and or overloading
 - e. Damage from under inflation.
 - f. Damage incurred during accidents.

6. **Kubota Engine America Corporation limited warranty on industrial engines and replacement parts. Kubota engines have a limited engine and powertrain warranty as stated below:**

To register your Kubota Engine please download the myKubota app from:

Android: <https://play.google.com/store/apps/details?id=com.kubotausa.mykubota>

IOS: <https://apps.apple.com/us/app/mykubota/id1434354490>

Once in the app you will be prompted to scan the QR code located

on the top of your Kubota Engine:



KUBOTA ENGINE AMERICA CORPORATION LIMITED WARRANTY ON INDUSTRIAL ENGINES AND REPLACEMENT PARTS EFFECTIVE JANUARY 1, 2009 OUR WARRANTY TO YOU: We warrant to you, the original purchaser, that all parts (except those referred to below) of your new Kubota industrial engine and replacement parts purchased from an Authorized Kubota Industrial Engine Distributor or OEM Distributor in the United States and Canada will be free from defects in materials or workmanship during the following periods.

1. Industrial Engines for 2 years or 2,000 hours, whichever occurs first.
2. Industrial Engines Major Component Warranty (MCW), 3 years or 3000 hours, whichever occurs first, parts only.
 MCW covers cylinder block, cylinder head, crankshaft, camshaft, gears, pistons, rods, flywheel, flywheel housing, oil pump, pulleys, governor, intake manifold, oil pan, ignition distributor. MCW does not cover rings, bearings, water pump, any electrical component, valve train components, accessory parts, seals, gaskets, carburetors, exhaust manifold, hoses, all fuel system components, muffler, any filters, radiator, fan, belts, thermostat, spark plugs, fuel transfer pumps.
3. Replacement parts for 1 year.

WHAT WE WILL DO

We will, at our option, repair or replace any part covered by this warranty which becomes defective, malfunctions or otherwise fails to conform with this warranty under normal use and service during the term of the warranty at no charge for parts or labor. (Parts only for MCW)

WHAT YOU MUST DO TO OBTAIN WARRANTY SERVICE

In order to obtain warranty repairs, you must deliver the product, together with proof of purchase, to an Authorized Kubota Industrial Engine Distributor or Dealer at your expense. The names and addresses of such Authorized Kubota Industrial Engine Distributors can be found on the internet at www.kubotaengine.com, by calling 1- 800-532-9808 or by contacting:

Kubota Engine America Corporation 505 Schelter Road Lincolnshire, IL 60069

WHAT THE WARRANTY DOES NOT COVER

This warranty does not cover:

1. Damage, malfunctions or failures resulting from accidents, abuse, misuse, modifications, alteration, improper servicing, or lack of performance of required maintenance service.
2. Normal maintenance services or replacement of maintenance items such as light bulbs, preheater plugs, indicator and resistant coils, filter elements, lubricants, oils, spark plugs, coolant, or belts.
3. Installation of replacement parts, unless originally installed by an Authorized Kubota Industrial Engine Distributor or Dealer.
4. Non-genuine Kubota parts.
5. Any engines damaged by use of ether or any starting aid, or greater than a 50/50% solution of antifreeze and water.
6. Injection nozzle wear or any engine damage caused by injection nozzle wear or sticking.
7. Damage caused by water entering the engine due to any cause.
8. Used Products.
9. Any damage caused by overheating that is not a direct result of a defect in materials or workmanship.
10. Any Engine not application reviewed.

APPLICATION REVIEW PROCESS: The Kubota Engine America (KEA) application review process is intended to assist the OEM with engine installation to optimize functionality/performance within the OEM’s equipment in order to maintain durability, customer satisfaction, and reduce warranty failures and expenses. Kubota cannot anticipate all potential failures and issues that may occur with the engine or product in the field during an application review. Therefore, machine durability testing by the OEM either in a test facility and/or in the field is critical to further reduce the potential for field failures.

The amount of time spent by KEA on an application review is significantly less than the amount of time spent by the OEM's design engineers on the application. Because of this, the KEA application review is intended to identify issues that are within the scope of the application review testing performed and in some cases recommend possible solutions. The KEA application review should never take the place of proper design and testing of the finished product by the OEM.

The KEA application review does not in any way express or imply any additional warranty coverage other than what is stated in Kubota's Limited Warranty Agreement. Kubota and its subsidiary companies are not responsible for (including, but not limited to): failures resulting from any components that are not manufactured by Kubota, misrepresented or incorrect information provided from an OEM, any changes made without KEA's knowledge, any decision by the OEM not to follow KEA's recommendations, or any application related problems or deficiencies that may arise that were not found by KEA's limited application review or the OEM's durability testing.

THIS IS THE ONLY EXPRESS WARRANTY ON OUR PRODUCTS

We neither assume nor authorize anyone to assume for us any other express warranty. The Kubota Distributor/ Dealer has no authority to make any representation or promise on behalf of Kubota Engine America Corporation or to modify the terms or limitations of this warranty in any way.

LIMITATIONS ON OUR RESPONSIBILITY WITH RESPECT TO PRODUCTS PURCHASED AND USED FOR PERSONAL, FAMILY OR HOUSEHOLD USE.

Our responsibility is to repair or replace defective parts as stated above. We will not be responsible for any other expenses, losses or inconvenience which you may sustain as a result of the purchase, use, malfunction or defective condition of our products. ANY IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE PERIOD SET FORTH ABOVE AND IN NO EVENT WILL WE BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

LIMITATIONS ON OUR RESPONSIBILITY WITH RESPECT TO PRODUCTS USED FOR RENTAL OR FOR COMMERCIAL, INDUSTRIAL OR AGRICULTURAL PURPOSES.

This warranty is in lieu of all other warranties, express or implied, and of any other obligations or liability on our part. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. Our responsibility for any and all losses and damages resulting from any cause whatsoever, including our negligence, alleged damage or defective goods, whether such defects are discoverable or latent, shall be limited to the repair or replacement of defective parts as stated above. IN NO EVENT WILL WE BE LIABLE FOR LOSS OF USE, LOSS OF PROFITS, LOSS OF OR DAMAGE TO OTHER PROPERTY, INCONVENIENCE, COMMERCIAL LOSS, OR OTHER SPECIAL, INC

