USER MANUAL

WHEEL-MOUNTED PORTABLE COMPRESSOR \ 110 CFM

D110PKUW

KUBOTA DIESEL ENGINE

TIER 4 FINAL

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DOCUMENT INFORMATION

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CONTACT INFORMATION

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RECORD KEEPING

Record the model and serial number of the compressor for future reference when contacting the factory for service or parts.

Model Number: _____

Serial Number: _____

DISCLAIMER

Although this manual is checked for conformity with the machines described, we cannot guarantee that all errors will be excluded. Necessary corrections will be made in future editions of this manual. This manual is subject to change without notice.

REVISION HISTORY

#	DATE	SECTION(S)	DESCRIPTION
00	2018-09-20		Released for publication
01	2019-01-31	8.4, 8.5	Updated Recommended Spare Parts list and Service Kit
		8.13	Updated Air Filter Assembly Recommended Spare Parts list
02	2021-09-02		Updated photo on the front cover to white

Sullivan-Palatek D110PKU Air Compressor WARRANTY

Sullivan-Palatek warrants its new D110PKU air compressor to be free from defects in material and workmanship, subject to the following provisions:

Warranty Registration: To validate the warranty for each product the purchaser shall complete and return the Warranty Registration Form within 30 days of delivery to the first user or rental.

Warranty Period: The warranty period for applicable Sullivan-Palatek products is as follows (subject to the Exclusions and Limitations noted below):

Air Ends, Stator and Rotor Assembly: the first to expire; 30 months from shipment by Sullivan-Palatek or 24 months from delivery to the first user.

Remainder of New Air Compressor Machines: the first to expire; 18 months from shipment by Sullivan-Palatek or 12 months from delivery to the first user.

Parts, Accessories and Attachments Sold Separately From Machines, Excluding Warranty Replacement Parts and Hand Tools: the first to expire; 6 months from shipment by Sullivan-Palatek or 3 months from delivery to the first user.

Warranty Replacement Parts: remainder of the original warranty period of the replaced part.

Sullivan-Palatek's Obligations: Sullivan-Palatek's exclusive obligations under its warranty are (i) to repair or replace any defective part at Sullivan-Palatek's option and subject to return of defective parts, and (ii) to pay the reasonable cost of making the repair or reinstalling the replacement part.

Purchaser's Responsibility: Purchaser shall (i) give Sullivan-Palatek written notice of any warrantable failure of any Sullivan-Palatek product within the applicable warranty period, (ii) make the product available for repair at a Sullivan-Palatek authorized repair facility, (iii) pay all costs of returning failed parts to Sullivan-Palatek, (iv) pay shipping costs for replacement parts, (v) pay reasonable travel expenses for field repairs performed at purchaser's request, and (vi) pay the costs of investigating performance complaints that are not covered by this warranty.

Exclusions and Limitations: Air end seals are not warranted. Engines, tires and batteries are not warranted by Sullivan-Palatek but are warranted only by the manufacturers of these components. Sullivan-Palatek has no obligation for product failures or defects resulting from overloading, misuse, neglect, accident, failure to comply with Sullivan-Palatek's product manual, or failure to install product improvements provided by Sullivan-Palatek. Use of attachments, accessories or service parts not supplied or recommended by Sullivan-Palatek may void the warranty of that product. Sullivan-Palatek has no obligation to pay costs of returning defective parts to Sullivan-Palatek or shipping replacement parts to purchaser.

THIS WARRANTY IS SULLIVAN-PALATEK'S ONLY WARRANTY OF ITS D110PKU AIR COMPRESSOR PRODUCTS AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. SULLIVAN-PALATEK HAS NO OBLIGATION UNDER THIS WARRANTY OR OTHERWISE (REGARDLESS OF THE FORM OF ACTION) FOR SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING WITHOUT LIMITATION LOST PROFITS OR LOST INCOME. THE TOTAL RESPONSIBILITY OF SULLIVAN-PALATEK FOR CLAIMS, LOSSES, LIABILITIES OR DAMAGES, WHETHER IN CONTRACT OR TORT ARISING OUT OF OR RELATED TO ITS PRODUCTS SHALL NOT EXCEED THE PURCHASE PRICE OF THE COVERED PRODUCT.

This warranty applies to all Sullivan-Palatek D110PKU air compressors shipped after April 1, 2016 unless expressly superseded by a later warranty.

08.17.18

ABOUT THIS MANUAL

I.1 SAFETY INSTRUCTIONS

Instructions for the safe operation and maintenance of the Sullivan-Palatek air compressor are located throughout this manual. These instructions are presented with different labels according to the level of risk involved, described as follows.

WARNING! ***is used when death or personal injury could occur if the instruction is not followed.***

CAUTION! **is used when damage to property could occur if the instruction is not followed.**

NOTE! *is used to inform the reader of installation, operation or maintenance information that is important but not hazardous.*

I.2 MANUAL ORGANIZATION

NOTE! *Anyone operating or servicing the Sullivan-Palatek air compressor should read this entire manual and be familiar with its information. The following is a quick guide to the contents in this manual:*

SECTION 1: SAFETY

This section contains important basic information regarding general safety precautions for maintaining and operating air compressors.

SECTION 2: SPECIFICATIONS

This section contains all the engineering information related to the specific air compressor such as application data, dimensional drawings and wiring diagrams.

SECTION 3: COMPONENT DESCRIPTION

This section contains information about how the different systems and components function within an air compressor.

SECTION 4: TRANSPORTING AND LOCATING

This section contains instructions and safety guidelines for transporting and locating a portable air compressor.

SECTION 5: OPERATION

This section contains an overview of general operating safety, initial start-up procedures, how to start and stop the air compressor, in addition to guidelines for operating under extreme conditions.

SECTION 6: MAINTENANCE

This section contains a maintenance schedule and step-by-step instructions for performing common maintenance procedures.

SECTION 7: TROUBLESHOOTING

This section contains symptoms, causes and remedies for common air compressor malfunctions.

SECTION 8: PARTS CATALOG

This section contains procedures for ordering parts, a list of recommended spare parts to keep on hand, and exploded assembly drawings with corresponding parts lists of all the parts on the air compressor.

I.3 SUPPLEMENTAL DOCUMENTS

For more detailed information on certain components or optional equipment specific to this compressor, supplemental documents are provided in addition to the standard compressor manual.

CONTENTS

1 SAFETY

TOPICS IN THIS SECTION:

CALIFORNIA
PROPOSITION 65 WARNING

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

1.1 GENERAL SAFETY

Safety is a prime consideration in the design and manufacture of the compressor. Ultimately, the responsibility for safe operation rests with the individuals who use and maintain the compressor. The following safety precautions are offered as a guide for the safe operation and maintenance of this machinery:

- Only trained and authorized personnel who have read and understand this user's manual should operate the air compressor. Failure to follow the instructions, procedures, and safety precautions in this manual will increase the possibility of accidents and injuries.
- Never start the air compressor unless it is safe to do so. Do not attempt to operate the air compressor with a known unsafe condition. If an unsafe condition exists or maintenance is required, tag the air compressor and render it inoperative by disconnecting the battery so others who may not know of the unsafe condition cannot attempt to operate it until the unsafe condition is corrected.
- Use and operate the air compressor only in full compliance with all pertinent Federal, State and Local codes or requirements including OSHA, EPA and other relevant agency requirements.
- Do not modify this compressor or install attachments without consulting the manufacturer.
- Known and potential hazards associated with the operating and servicing of portable air compressors are detailed in the following pages. Not all hazards can be anticipated and the operator of the equipment is ultimately responsible for identifying hazardous and dangerous conditions, avoiding dangerous operation and preventing accidents.

1.2 PRESSURE RELEASE

- Remove the pressure from air, oil, and cooling circuits before disconnecting pipes, fittings or related items. Pay attention to the possible residual pressure when you disconnect a device from a pressurized circuit.
- Do NOT try to detect pressure leaks with your hands. It is not always possible to identify a leak from a tiny hole. Use a piece of paper or wood to locate a suspected leakage. Wear safety glasses when detecting leaks.
- Oil, fuel, or compressed air can cause injuries. Fluid leaking under pressure has enough force to penetrate under the skin and cause serious bodily injuries.
- Do not open sump (receiver) oil filler cap when compressor is running and air system is pressurized. Shut down the compressor and bleed the sump (receiver) pressure to zero before removing the oil filler cap.
- Do not remove cooler cap while the engine is running, or immediately after the engine stops. Wait until the coolant temperature is below its boiling point, then loosen cap slowly to its stop to relieve any excess pressure. Make sure coolant is not boiling before removing cap completely, and protect yourself by wearing safety glasses.

1.3 FIRES AND EXPLOSION

1.3.1 FUEL & LIQUIDS

WARNING! ***Fire or explosion can result from spilled fuel, oil and other flammable liquids.***

- Refuel at a service station or from a fuel tank designed for the purpose. Ground the machine to mobile dispensers prior to refueling.
- Immediately clean up any spills or leaking fuel, battery electrolyte, oil, or anti-freeze solution.
- Keep sparks, flames, and other sources of ignition away and do not permit smoking in the vicinity when adding fuel, checking or adding electrolyte to batteries, checking or adding oil, or when refilling air line anti-icing systems with anti-freeze.
- Replace damaged fuel tanks or lines. Do not store or attempt to operate the compressor with any known leaks in the fuel system or oil lines.
- Do not permit liquids to accumulate in bottom of the compressor frame. Prevent contact with acoustical surfaces of the air compressor. Wipe down using an aqueous industrial cleaner or steam clean as required. If necessary, remove acoustical material, clean all surfaces and then replace acoustical material. Do not use flammable solvents for cleaning purposes.

- Anti-freeze compound used in airline anti-icing systems contains methanol, which is flammable. Use systems and refill with compound only in well-ventilated areas, away from heat, open flames, or sparks. Do not expose any part of these systems or the anti-freeze compound to temperatures above 150°F (65°C). Vapors from the anti-freeze compound are heavier than air. Do not store compound or discharge treated air in confined or unventilated area. Do not store containers or anti-freeze compound in direct sunlight.
- Store flammable liquids in suitable containers and cabinets, away from sources of sparks and heat.

1.3.2 BATTERIES AND WIRING

WARNING! ***Fire or explosion can result from electrical arcing from terminal, battery connections and improperly grounded equipment.***

- Do NOT check the battery charge by placing a metal object between the terminals. Use a voltmeter or a hydrometer.
- Do NOT charge a frozen battery. There is risk of explosion. If the battery is frozen, heat it up to at least 61°F (16°C).
- Do NOT charge a battery that is in excess of 113°F (45°C).
- Disconnect the grounded (negative) battery connection prior to attempting any repairs or cleaning inside the enclosure. Tag the ground cable with a warning not to reconnect until servicing is complete.
- Keep electrical wiring, battery terminals and other terminals in good condition. Replace any wiring that has cracked, cut, abraded, or otherwise degraded insulation. Replace terminals if worn, discolored or corroded. Keep all terminals clean and tight. Turn off battery charger before making or breaking connections to the battery. Wear a face shield whenever servicing or working on the battery.
- Keep tools and other grounded conductive objects away from exposed live electrical parts to avoid arcing, which might serve as a source of ignition.
- Always avoid electrical parts when washing the compressor.

1.3.3 COMBUSTIBLES

- Prior to welding or making weld repairs on the compressor, remove any acoustical material or other material that may be damaged by heat or that may support combustion. Remove and isolate negative battery cable.
- Do not operate compressor under low overhanging leaves or permit leaves and foliage to contact hot exhaust system surfaces when operating in forested areas.
- Do not expose dry grass, grass cuttings, oil, or any other flammable material to exhaust gases. Always keep the engine and muffler clean.
- Keep oily rags, trash, leaves, litter, or other combustibles out of and away from the compressor.
- Keep a suitable fully charged class BC or ABC fire extinguisher or extinguishers nearby when servicing and operating the compressor.

1.4 MOVING PARTS

- Make sure all personnel are clear of the compressor prior to starting, operating, or shutting off the compressor.
- Keep hands, arms, and other parts of the body, as well as clothing, away from belts, pulleys, and other moving parts.
- Wear snug fitting clothing and confine long hair when working around compressors or any machinery.
- Avoid slips and falls when working around the compressor. Keep hands, feet, floors, controls, and walking surfaces clean and free of oil, water, anti-freeze, or other liquids to minimize the possibility of slips or falls. Use extreme caution when ground is covered with ice or snow.
- Do not attempt to operate the compressor with the fan guard or other guards removed. Keep access doors closed except when repairing, adjusting or performing service, or when starting or stopping the compressor.
- Shut down engine before servicing, especially when adding fuel, oil, coolant, lubricants, airline anti-freeze compound, or battery electrolyte. The engine must also be shut down before making adjustments. Restart engine to check adjustment. If adjustment is incorrect, shut down the engine again, readjust, then restart engine to recheck the adjustment.

1.5 TOXIC AND IRRITATING SUBSTANCES

WARNING! ***Do not use air from this compressor for breathing air. Breathing unfiltered air from this compressor can result in serious injury or death.***

NOTE! *Under specific guidelines and in full compliance with OSHA Standards 29 CFR 1920 and any other federal, state, or local codes or regulations compressed air can be used for breathing air. Sullivan-Palatek does not provide equipment and instructions for this application and its products are not produced for this application or use.*

- Operate the compressor only in open or well-ventilated areas.
- Carbon monoxide will kill. If the machine is operated indoors, discharge the engine exhaust outdoors and be certain there are no exhaust system leaks that can discharge exhaust within the building.
- Locate the compressor so that exhaust will not be carried toward personnel, air intakes servicing personnel areas or toward the air intake of any other portable or stationary compressor.
- Fuel, oil, coolant, lubricant, and battery electrolyte used in the compressor are typical of the industry. Care should be taken to avoid accidental ingestion or skin or eye contact. In the event of ingestion or contact, seek medical treatment promptly. Do not induce vomiting if fuel is ingested. Wash with soap and water in the event of skin contact.
- Wear an acid-resistant apron and a face shield or goggles when servicing the battery. If electrolyte is spilled on skin or clothing, immediately flush and wash with large quantities of water.
- Do not use airline anti-icing systems in airlines supplying respirators or other breathing air utilization and equipment, and do not discharge air from these systems in unventilated or other confined areas.
- Wear goggles or a full face shield when adding anti-freeze compound to air line anti-icing systems. The anti-freeze compound used in airline anti-icing systems contains methanol and is toxic, harmful, or fatal if swallowed. Avoid contact with the skin or eyes and avoid breathing the fumes. If contact with eyes, wash eyes with large quantities of clean water for at least 15 minutes. Medical attention should be obtained immediately. If swallowed, induce vomiting by administering a tablespoon of salt in a glass of clean, warm water until vomit is clear, then administer two teaspoons of baking soda in a glass of clean water. Lay down and cover eyes to exclude light. Seek medical assistance.
- Do not store airline anti-icing system anti-freeze compound in operator's cabs or in unapproved containers.
- Do not mix different types of antifreeze. The mixture may cause a chemical reaction and release harmful substances.

1.6 HOT SURFACES, SHARP EDGES, SHARP CORNERS AND VACUUM

- Avoid contact with hot oil, hot coolant, hot surfaces, and sharp edges and corners.
- Keep all parts of the body away from all points of air discharge and away from hot exhaust gases.
- Wear personal protective equipment, including gloves, safety glasses and head covering when working in, on, or around the compressor.
- Keep a first aid kit available. Seek medical assistance promptly in case of injury. Do not ignore small cuts and burns–these may lead to infection.
- Keep all loose clothing and parts of the body away from engine and/or compressor intakes or air filter intakes.

1.7 ELECTRICAL SHOCK

- Keep the towing vehicle or equipment carrier, compressor hoses, tools, and all personnel at least 10 feet from power lines and buried cables. Greater separation from power lines may be prudent when working around high voltage. Contact the utility company for guidance.
- Keep all parts of the body, any hand-held tools, or other conductive objects away from exposed live parts of the compressor electrical system. Maintain dry footing, stand on insulating surfaces and do not contact any other portion of the compressor when making adjustments or repairs to exposed live parts of the electrical system.

1.8 ENTRAPMENT

- Make sure all personnel are out of compressor before closing and latching enclosure doors. Larger compressors can hold a man. If it is necessary to enter the enclosure to perform service or adjustments, secure the access door in the open position to avoid the possibility of others closing and latching the door and inform personnel before entering the enclosure.

2 SPECIFICATIONS

TOPICS IN THIS SECTION:

2.1 TECHNICAL DATA

D110PKU

COMPRESSOR	
Rated Delivery	110 cfm (3.11 m^3/min)
Maximum Pressure	110 psig (7.6 bar)
Working Pressure	100 psig (6.9 bar)
Minimum Separator Pressure	51 psig (3.5 bar)
Max. Sound Power Level	74 dBA
Safety Valve Opening Pressure	145 psig (10 bar)
Air Service Connector	¾" inches FNPT
Total Oil Capacity	1.7 gallons (6.5 L)
Total Volume of Receiver Tank	4 gallons (15 L)

ENGINE	
Type	Diesel
Engine Make	Kubota
Engine Model	D1105
Number of Cylinders	3
Horsepower @ Rated RPM	24.3 hp (18.1 kW)
Maximum Operating Speed	3000 RPM (0+50)
Minimum Operating Speed	1750 RPM
Engine Oil Sump Capacity	1 gallons (3.78 L)
Fuel Tank Capacity	6.3 gallons (23.8 L)
Cooling System Capacity	2 gallons (7.5 L)

WEIGHTS	
AXLE-MOUNTED	
Total weight ready for use	1237 lbs (561 kg)
Total authorized loaded weight	1653 lbs (750 kg)
SKID	
Total weight ready for use	1058 lbs (480 kg)

2.2 DIMENSIONS

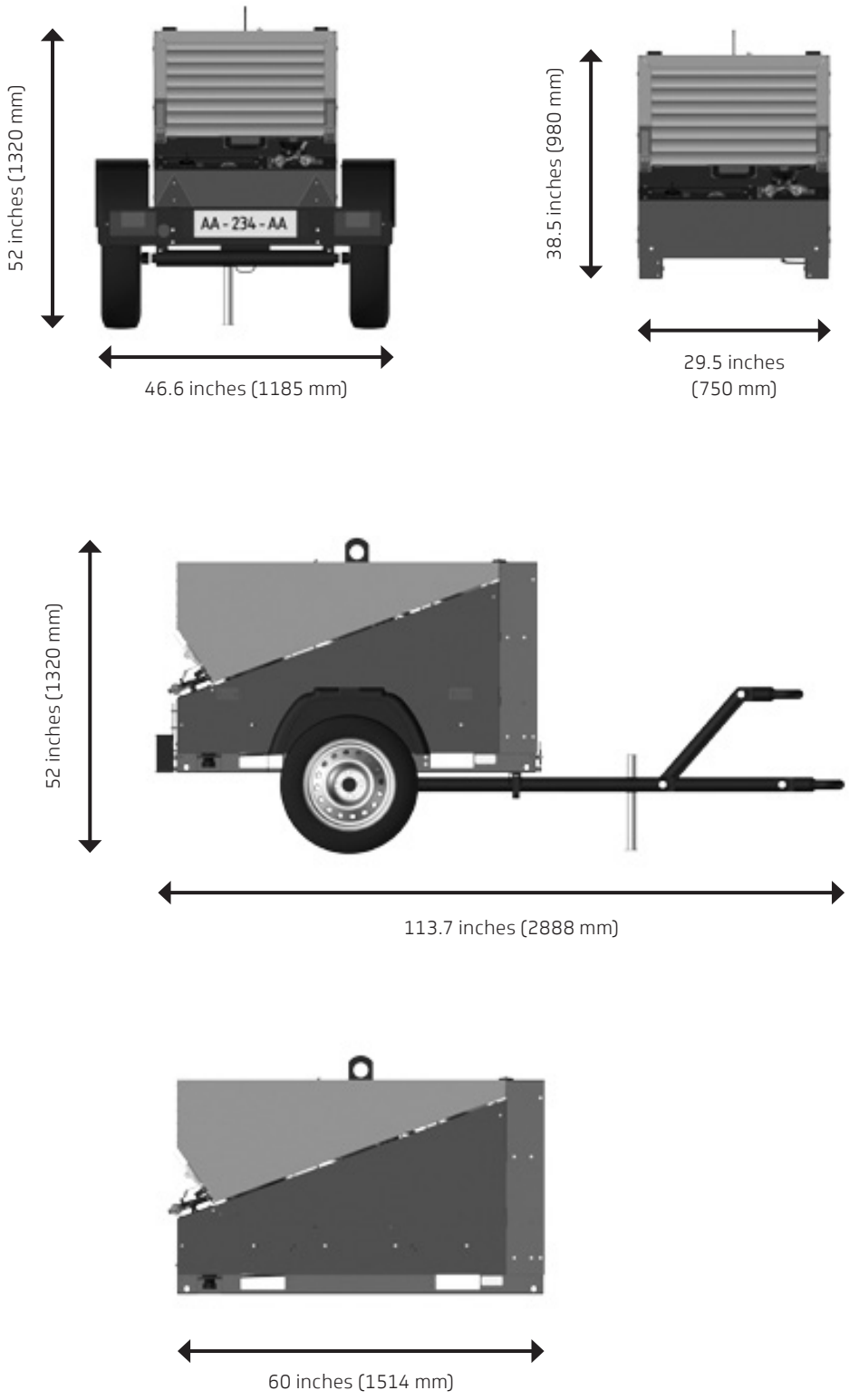


FIGURE 2-1. WHEEL-MOUNTED AND SKID-MOUNTED DIMENSIONS

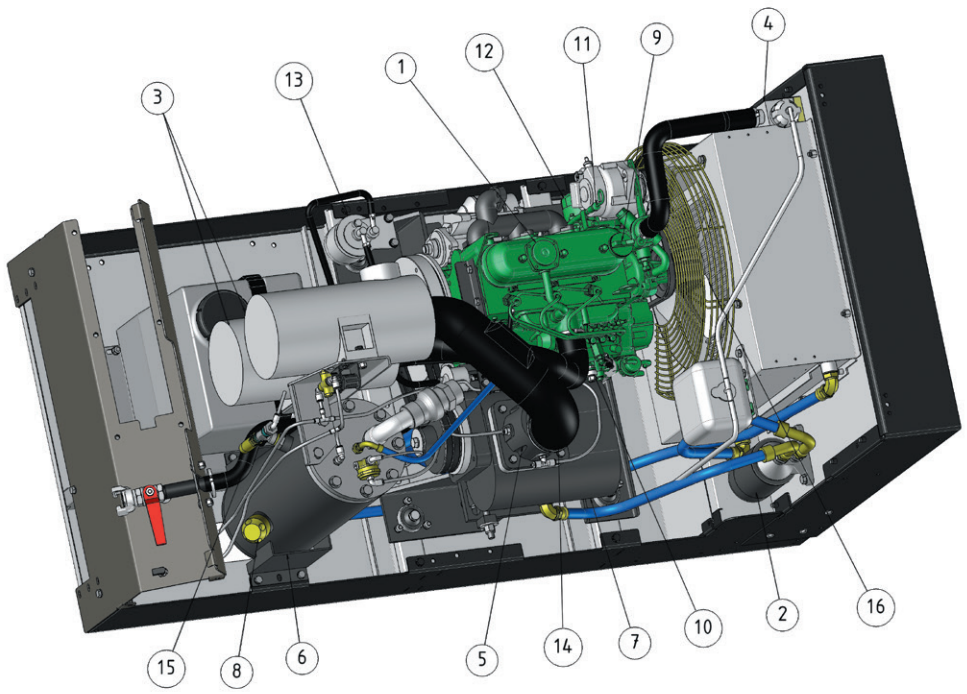
3 COMPONENT DESCRIPTION

TOPICS IN THIS SECTION:

3.1 COMPRESSOR PACKAGE

This package includes a diesel KUBOTA 3-cylinder engine (type D1105), an air end, a capacity control system, a compressor cooling system and a battery. Please refer to engine and battery usage manuals for more information.

The engine cooling system is comprised of a water radiator and an oil radiator for the air end. The fan, which is common to both radiators, is used to exhaust air and to maintain both engine and air end at the appropriate running temperature. The engine drives the air end via trapezoidal belts. The compressor's fuel tank has sufficient capacity for a full day's operation. The compressor includes safety devices for both running temperature and pressure.



#	COMPONENT	#	COMPONENT
1	Engine	9	Engine Oil Fill
2	Compressor Oil Filter	10	Engine Speed Cylinder
3	Air Filter compressor / motor	11	Engine Oil Dipstick
4	Cooler compressor / motor	12	Engine Oil Filter
5	Inlet Valve	13	Fuel Filter
6	Separator / Receiver Tank	14	Engine Stop Solenoid
7	Compressor / Air End	15	Safety Relief Valve
8	Compressor Oil Fill	16	Fan

FIGURE 3-1. D110PKU COMPRESSOR COMPONENTS

3.2 ENGINE SHUTDOWN PROTECTION

The Safety Relief Valve (**15**) is located on the Separator/Receiver Tank (**6**).

When a fault occurs the engine will shut down when one of three safety devices are triggered by the Engine Stop Solenoid (**14**). The battery charge lamp on the instrument panel then lights up to indicate a fault. These safety devices protect the engine and compressor against the risk of:

1. Engine oil pressure drop: pressure switch on the Engine (**1**)
2. Compressor overheating: temperature switch on the Air End (**7**)
3. Engine overheating: water temperature switch on the Engine (**1**)

3.3 COMPRESSOR COOLING

The compressor cooling and lubrication system is designed to provide adequate lubrication as well as maintain the proper operating temperature of the compressor.

The Fan (**16**) vents the heat coming from the compression of the air with the oil, which flows through the Cooler (**4**) and cooled due to the air issued from the Fan. (**16**)

When operating, the compressor fluid circulates from the Separator (**6**) to the Cooler (**4**). This circulation is caused by the pressure difference between the Separator (**6**) high pressure and the low pressure zone of the Air End (**7**) compressor unit. The fluid is then returned to the main Oil Filter (**2**) where it is filtered prior to re-injection into the compression chamber and bearings of the compressor unit.

3.4 SEPARATOR

The separator has four main functions:

1. Primary fluid separation system
2. Final fluid separation system
3. Fluid tank
4. Air reserve for the regulation

The compressed air/fluid mixture is then pushed into the separator, where it flows through the separator body. This change of direction slows down the air speed and creates larger droplets of fluid which fall to the bottom of the sump. The remaining oil contained in the air is separated in the separator cartridge and via gravity travels down to the sump where it is pushed by pressure difference in the dip tube that leads back to the air end suction. The separator is EC certified.

A calibrated port, located downstream from the separator, helps maintain a minimum receiver pressure of 51 psig (3.5 bar) under all conditions. This pressure is necessary for proper air/fluid separation and proper fluid circulation. A Pressure Relief Valve (**15**) located on the separator is set to open if the sump pressure exceeds 145 psig (10 bar).

3.5 COMPRESSOR FLUID

The compressor fluid (oil) has three main functions:

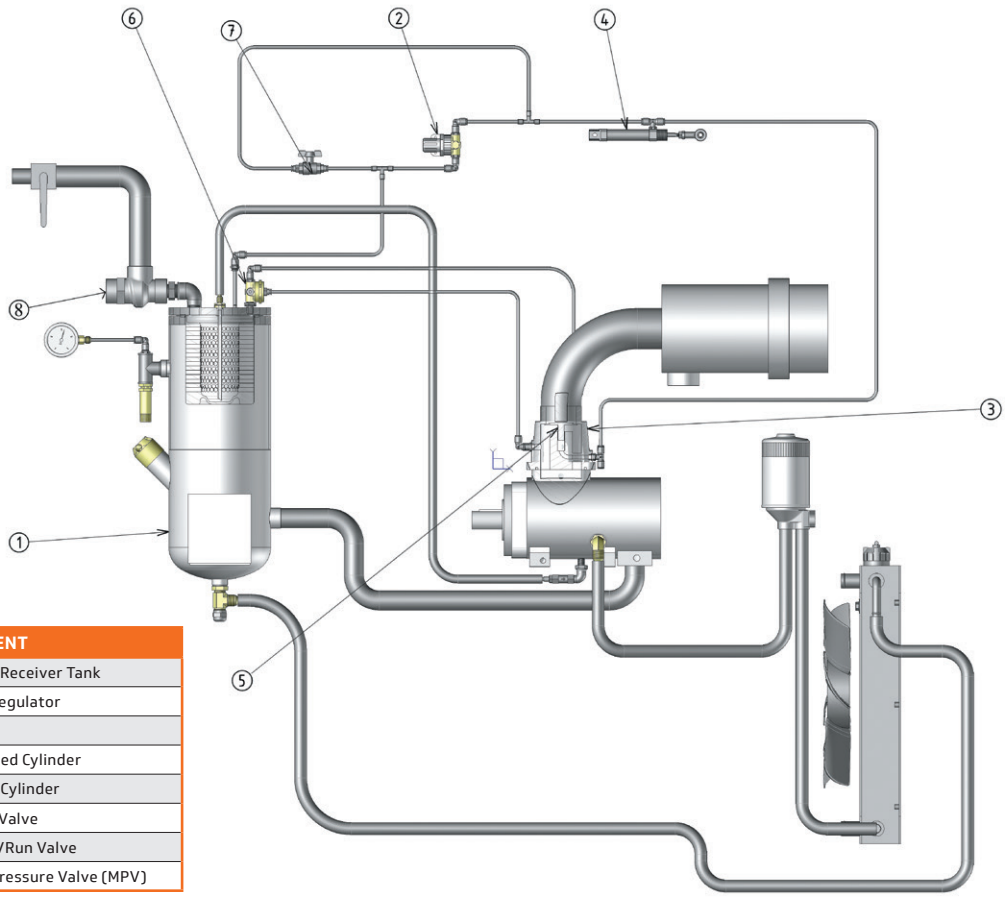
1. As a coolant it controls the rise of air temperature associated with the heat of compression;
2. It seals the leakage paths between the rotor and the stator, and also between the rotors themselves;
3. It acts as a lubricating film between the rotors allowing one rotor to directly drive the other, which is an idler.

3.6 CAPACITY CONTROL SYSTEM

The control system is designed to match air supply to air demand and to prevent excessive discharge pressure when the compressor is operating but air is not being used. Control of air delivery is accomplished both by inlet valve regulation and engine speed control as directed by the adjustable discharge pressure regulator valve(s). The following information explains the operation of the control from a condition of “no load” to a condition of “full capacity” at working pressure.

For the working pressure range of your machine, refer to applicable data in the specifications section. The inlet valve cylinder pressure chamber is pneumatically connected to the dry side of the receiver via the pressure regulator valve. When the separator pressure is below the set point of the regulator valve no pressure will exist in the inlet valve cylinder. Under these conditions, the inlet valve will remain wide open, causing the compressor to deliver full capacity. As the demand for air decreases, the receiver pressure will rise, and when this pressure level exceeds the set point of the pressure regulator valve, control signal pressure will be allowed to enter the inlet valve chamber which in turn will move the modulating piston and the valve plate to a closed condition, thereby throttling the incoming air. A separate throttle air cylinder controls engine speed.

The air cylinder is spring loaded in the full speed position when there is no air signal from the pressure regulator valve. Whenever less than full capacity is required, receiver pressure increases, thereby opening the pressure regulator, which allows a pressure signal to enter the throttle air cylinder and reduce the engine speed until it matches the air requirements from 100% down to 60%. From 60% down to 0% both engine speed reduction and inlet valve modulation act together to reduce air output.



#	COMPONENT
1	Separator/Receiver Tank
2	Pressure Regulator
3	Inlet Valve
4	Engine Speed Cylinder
5	Inlet Valve Cylinder
6	Blowdown Valve
7	Start-Stop/Run Valve
8	Minimum Pressure Valve (MPV)

FIGURE 3-1. CAPACITY CONTROL SYSTEM

3.6.1 REGULATOR VALVE (DISCHARGE PRESSURE)

The regulator valve is used to select the desired discharge pressure within the operating pressure range. Turning the regulator adjustment screw clockwise increases the unloaded pressure, and counter-clockwise reduces the unloaded pressure. Observe discharge pressure gauge on the instrument panel for compressor discharge pressure.

3.6.2 INLET VALVE

The inlet valve assembly is the heart of the control system, which regulates the amount of air entering the compressor. A separate air cylinder regulates engine speed. From full to approximately 60% capacity, the delivery is controlled by engine speed and a gradual closing of the inlet valve. When unloaded the inlet valve is closed to prevent atmospheric air from entering the compressor.

3.6.3 AUTOMATIC BLOWDOWN VALVE

The automatic blowdown valve relieves pressure in the system upon shutdown. It is closed when the compressor is in operation; however, at shutdown, the inlet valve closes, the unit becomes pressurized and sends a pressure pulse to open the normally closed blowdown valve.

3.6.4 START-STOP/RUN VALVE

The start-run valve is used to bypass the compressor pressure regulator valve. This results in reduced load and reduced engine speed at start-up. Once the engine is warmed up, the valve is moved to the **RUN** position. In the **START** position, the start-run valve is open. In the **RUN** position, it is closed.

3.6.5 MINIMUM PRESSURE VALVE

A minimum pressure valve is provided at the service air outlet (at the top of the separator). This valve serves to maintain a minimum discharge pressure of 65 to 80 psig in operation, which is required to assure proper oil flow to the air end. At normal operating pressure of 90 to the maximum rated pressure of the machine, this valve is wide open, effectively removing any restriction to airflow.

4 TRANSPORTING AND LOCATING

TOPICS IN THIS SECTION:

4.1 RECEIVING

Each compressor is operated and tested at the factory before shipment. This testing assures that the unit is operating properly and that the compressor will deliver its rated capacity. Regardless of the care taken at the factory, there is a possibility that adjustments may be altered or damage may occur during shipment. For this reason it is recommended that the unit be checked for proper operation and carefully inspected before it is put in service. The machine should be observed for any possible malfunction during the first few hours of operation.

NOTE! *Satisfactory performance of the compressor depends upon the operator's knowledge of the controls, instruments, and recommended operating procedures. Consequently, the preceding sections of this manual and also the entire Engine Operator's Manual should be read and understood before attempting to start and operate this machine.*

4.2 LIFTING

- Properly drain and dispose of any fluids in the containment cage before lifting.
- This compressor is provided with a lifting bail for routine lifting and loading onto trucks, oil platforms, or similar equipment. It is not intended for extended airlift such as via helicopter.
- Prior to lifting inspect the lifting bail and points of attachment for the following: cracked welds; cracked, bent, corroded or degraded members; loose bolts or nuts. **Do not lift machine if any of these items are found to be defective.**
- Make sure entire lifting, rigging, and supporting structure is in good condition and has a rated capacity of at least the net weight of the compressor plus an additional 10% allowance for the weight of snow, ice, mud, or stored tools and equipment. If you are unsure of the weight, then weigh the compressor before lifting.
- Make sure lifting hook has a functional safety latch, or equivalent, and is fully engaged before lifting compressor from the ground.
- Support the compressor by using slings under the main frame with appropriate spreader bars when airlifting the machine. Lift only in full compliance with OSHA Standards 29 CFR 1910 subpart N, and other applicable regulations.
- Do not attempt to lift in high winds.
- Keep all personnel out from under and away from the compressor when suspended.
- Lift compressor slowly and smoothly, without jerking. Tilting movements must be limited and rotation must be prevented.
- Lift compressor no higher than necessary, use guidelines and have spotters properly located.
- Do not leave suspended compressor unattended.
- Set compressor down only on level surfaces capable of supporting at least its net weight plus an additional 10% allowance for the weight of snow, ice, mud, or stored tools and equipment.
- If the compressor is provided with parking brakes, make sure they are set; and always block or chock both sides of all running wheels plus drawbar stabilizer leg before disengaging the lifting hook.

4.3 DRAWBARS AND BRAKE ACTUATORS

WARNING! ***Proper alignment and installation of mounting hardware is essential when installing the drawbars and actuators. Check nut threads and start attachment bolt by hand to prevent cross-threading. Failure to comply with this warning may cause property damage and serious bodily harm or death. Maintain torque within recommended ranges.***

4.3.1 RECOMMENDED TORQUE RANGES FOR DRAWBARS AND ACTUATORS

APPLICATION	SAE GRADE SCREW	TORQUE (LB-FT) DRY	TORQUE (LB-FT) LUBE
DRAWBAR	5/8 UNC G8	225	175
DRAWBAR	3/4 UNC G8	400	315
DRAWBAR	7/8 UNC G8	640	510
DRAWBAR	1 UNC G8	960	760
ACTUATOR ASSEMBLY (optional)	7/8 UNC G5	455	360

4.4 PREPARING TO TOW

- Properly drain and dispose of any fluids in the containment cage before towing.
- Before beginning to tow the compressor, test brake operation, including breakaway switch operation if provided.
- Damaged or worn towing components can result in separation of the compressor from the towing vehicle during towing. Inspect all towing components of both the compressor and towing vehicle for cracks, excessive wear or damage. Check for loose or damaged bolts, nuts or other fasteners. Replace or repair any damaged or worn parts before towing the compressor.
- The towing vehicle and its coupling device and points of attachment must be rated for towing the wet weight of the air compressor and the weight of stored tools, hose and other equipment plus parasitic accumulation such as mud, snow and ice.
- Always back the towing vehicle to the compressor and position it for coupling the compressor.
- The coupling device must be fully engaged, closed, locked and the safety latches are engaged.
- Use a lifting device such as a jack or chain hoist to lift or lower unit to avoid injury to yourself or others. Do not attempt to raise or lower drawbar by hand if the weight is more than can be safely handled.
- Avoid pinch and crushing injury. Keep hands and fingers clear of the coupling device and all other pinch points. Keep feet clear of drawbar in case it should slip.
- The towing restraint chains must be attached to the tow vehicle to support the drawbar in the event of accidental uncoupling. Cross chains under front of drawbar before passing them through points of attachment on towing vehicle. Pass each towing restraint chain through its point of attachment on the towing vehicle. Hook each chain to by passing the grab hook over, not through, a link.
- The coupling device must be free to move throughout the full range of travel while towing. Verify that other components, wires, chains and vehicle attachments do not interfere with or restrict motion of any part of the compressor.
- Make sure chain length, and if provided, brake and electrical interconnections have sufficient slack to prevent strain when turning and maneuvering. All chains and connections must be supported so they cannot drag or rub on road, terrain, or towing vehicle surfaces. Dragging or rubbing of this equipment will cause wear resulting in damage, and render this equipment inoperative.
- Fully retract front stabilizer screw jack. If a retractable caster wheel is provided, pull the lock pin, raise and fold the caster wheel, then make sure pin is re-engaged to secure caster wheel in full up and locked position with the wheel horizontal.
- Tires must be in good condition, the correct size and load range, and be inflated to the specified pressures. Do not change tire size or type.
- Wheel lug nuts must be tightened to the specified torque.
- If provided, make sure all stop, tail, directional, and clearance lights are operating properly and that lenses are clean and unbroken. Ensure that all reflectors and reflecting surfaces on the compressor are clean and functional.
- Make sure air delivery hoses are disconnected or fully retracted and secured on hose reels, if provided.
- Make sure all access doors and toolbox covers are closed and latched. If the compressor is large enough to hold a man, make sure all personnel are out before closing and latching access doors.
- Make sure parking brakes on towing vehicle are set and that wheels are chocked or blocked before releasing the compressor parking brakes, if provided.

4.5 TOWING

WARNING! ***Maintain proper torque on wheel lug nuts:***
SINGLE AXLE: 85 to 95 LB-FT
TWO AND THREE AXLE: 65 to 75 LB-FT
Failure to maintain lug tightness may result in a wheel loosening and leaving the compressor and causing injury or death or property damage.

- Non-braked compressors must be towed by a vehicle having a net weight at least 2 times higher than the total weight of the towed compressor ready for use.
- Observe and follow all local, state, and federal traffic laws. Note and adhere to speed limits and minimum highway speed.

- Do not exceed maximum towing speeds. Reduce speed accordingly, as dictated by posted signs, weather, road, or terrain conditions.
- Remember that portable air compressors may approach or exceed the weight of the towing vehicle. Maintain increased stopping distance accordingly.
- Grades in excess of 15° (27%) or any grade that would over-extend the towing or braking ability of the towing vehicle should be avoided.
- When towing the compressor, avoid potholes, rocks, rough terrain, obstructions and soft shoulders. Damage to the undercarriage and suspension can result.
- Do not permit any person to ride in or on the compressor while being towed. Serious injury can result.
- Make sure the area behind and under the compressor is clear of all persons, animals and obstructions prior to backing.
- Do not permit anyone to stand or ride on the drawbar, or to stand or walk between the compressor and the towing vehicle. Serious injury or death can result.

4.5.1 MAXIMUM RECOMMENDED TOWING SPEED ON SMOOTH, DRY ROADS

Single and two axle compressors: 55mph (89kmh)

WARNING! ***Failure to comply with maximum towing speed may cause property damage and serious bodily injury or death.***

4.6 PARKING OR LOCATING COMPRESSOR

- Park or locate compressor on level ground or across grade.
- Make sure compressor is parked or located on a firm surface that can support its weight.
- Park or locate compressor to cause the prevailing wind to direct the exhaust fumes and radiator heat away from the compressor air inlet openings and to prevent ingestion of dust and debris from the work site.
- Set parking brakes and disconnect breakaway switch cable and all other interconnecting electrical and break connections, if provided.
- Block or chock both sides of all wheels.
- Block or chock both sides of drawbar stabilizer leg or jack.
- Unhook chains and remove them from the points of attachment on the towing vehicle, then hook chains to each other on drawbar or wrap chains around the drawbar in order to keep them off the ground.
- If provided, lower front screw jack and rear stabilizer legs. Make sure the ground is firm and capable of supporting the weight of the compressor.
- If the compressor is provided with a swivel caster wheel, pull pin and lower caster wheel, then make sure pin is re-engaged to secure caster wheel in the full-down and locked position.
- Disconnect coupling device, keeping hands and fingers clear of all pinch points. Do not attempt to lift the drawbar of portable compressors by hand if the weight is more than you can safely handle - usually weights in excess of 50 pounds. Use a lifting device such as a jack or chain hoist to lift the drawbar to avoid injury to yourself or others.
- Keep feet clear of drawbar at all times to avoid crushing accidents in case it should slip from your hands or otherwise fall to the ground.

NOTE! *These guidelines also apply for locating and securing non-towed compressors (skid mounted and utility models). Obviously, reference to towing may not apply.*

5 OPERATION

TOPICS IN THIS SECTION:

5.1 GENERAL OPERATING SAFETY

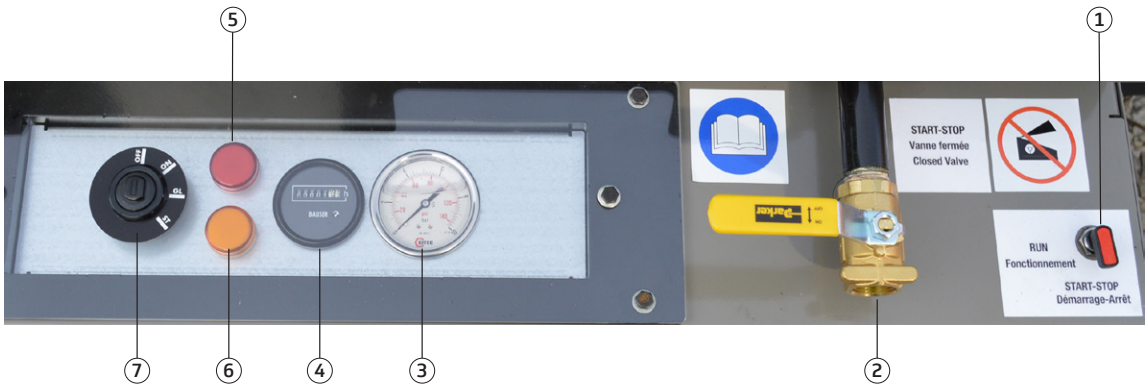
- Allow at least ten feet of unobstructed area in front of cooling air inlets and outlets to ensure good airflow.
- Do not start the engine by shorting the starter connections–the compressor could start and run.
- Do not wear headphones to listen to music or the radio when operating the compressor.
- If compressor is connected to a common header with one or more compressors, a check valve must be provided between each compressor and header.
- Check instruments periodically during operation. If readings are abnormal, refer to *Chapter 7 TROUBLESHOOTING on page 31*.
- Make sure that the correct type and viscosity of lubricating oils and fuel are used, especially in extreme ambient temperatures.
- Replace any faulty gauge immediately.
- Keep batteries fully charged and properly maintained.
- Keep control linkage clean and lightly lubricated.

5.2 PREPARING FOR INITIAL START-UP

1. Inspect the compressor, engine, and other assemblies for damage or loose connections which might have occurred during shipment. Detect and repair leaks immediately.
2. Check the engine's crankcase oil level. If required, add oil as recommended in the Engine Manual.
3. Check the radiator coolant level. Also, if the machine will be exposed to sub-freezing temperatures, check the specific gravity to ascertain the freezing point of the coolant. Be sure to tighten the radiator pressure cap securely after filling up.
4. Fill the fuel tank with fuel recommended in the Engine Manual. Do not use unapproved containers, e.g. buckets, bottles, or jars. Use fuel storage containers and approved dispensers.

WARNING! ***Never add gasoline to diesel fuel tank - serious damage to the engine will result.***

5. If necessary, add lubricating oil to the compressor sump. Refer to *6.3 Compressor Lubrication on page 25* for lubricating oil specifications.
6. Check battery posts and cable clamps to ensure proper contact. Connect positive cable and negative cable battery terminals. Turn ignition circuit breaker to **ON** position. Check gauge panel alternator light. If connections are secure light will be on. If not, the battery may need an initial charge to activate it. Check compressor air filter cleanliness if working in a very dusty environment. Pinch dust valve drain.
7. Make sure the separator pressure is 0.
8. During cold days, always follow the instructions given in the engine manual.
9. Check the separator oil level to make sure that it is at maximum oil level. The maximum level is determined by the filling hole and cannot be overfilled.



#	COMPONENT	#	COMPONENT
1	Start-Stop/Run Valve	5	Battery Charge Lamp
2	Service Valve	6	Preheating Lamp
3	Pressure Gauge	7	Key Ignition Switch
4	Hourmeter		

FIGURE 5-1. D110PKU INSTRUMENT PANEL

5.3 NORMAL STARTING

1. Inspect the compressor, engine, and other assemblies for damage or loose connections.
2. Check engine water, oil, fuel, and battery fluid levels. Check compressor receiver oil level.
3. Close Service Valve (**2**). Turn Start-Stop/Run Valve (**1**) to **START** position.
4. Turn the Key Ignition Switch (**7**) to the **ON** postion. The Battery Charge Lamp (**5**) will then illuminate. Security devices are stopped during the starting process.
5. Preheating. Hold Key Ignition Switch (**7**) in the **GL** postion until Preheating Lamp (**6**) goes out.
6. Turn the Key Ignition Switch (**7**) to the **ST** position to engage the starter. Then release as soon as the engine starts. (Glow plug preheating occurs during this phase.)
7. Allow the compressor to warm up for about 5 minutes. Turn the Start-Stop/Run Valve (**1**) to the **RUN** position to obtain a stabilized pressure between 90 to 100 psi.

NOTE! ***If the engine stops, do not attempt to restart with the oil receiver under pressure.***

5.4 USAGE

1. Check that the compressor Service Valve (**2**) is closed and connect the supply hose to the valve. Slowly open the Service Valve to purge any water present.
2. Shut the valve before connecting to any tools.
3. Slowly open the valve when ready for use.

WARNING! ***Never open the service valve quickly. Pressurize equipment slowly and safely.***

5.5 NORMAL STOPPING

1. Close Service Valve (**2**). Turn Start-Stop/Run Valve (**1**) to the **START-STOP** position.
2. Run engine at low idle for 1 to 2 minutes.
3. Open and close the Service Valve (**2**) to reduce pressure to approximately 70 psi.
4. Turn Key Ignition Switch (**7**) to **OFF**.
5. Check that the Pressure Gauge (**3**) is reduced to 0 psi after a few seconds.

5.6 EMERGENCY STOP

Turn Key Ignition Switch (**7**) to **OFF.**

5.7 LOW FUEL

If the engine has shut down because of low fuel, fuel will need to be added before the engine can be restarted. The following steps will need to be completed before attempting to restart the engine:

1. Turn the ignition switch to **OFF**.
2. Fill fuel tank with Ultra Low Sulfur Diesel fuel only.
3. Turn the ignition switch to **ON**.
4. Restart the engine. Follow procedures in *5.3 Normal Starting*.

5.8 OPERATING UNDER EXTREME CONDITIONS

Make sure that the correct type and viscosity of lubricating oils and fuel are used, especially in extreme ambient temperatures.

5.8.1 COLD WEATHER OPERATION

- Use the correct coolant anti-freeze solution and engine oil for the lowest possible temperature expected.
- When operating the compressor at ambient temperatures below 20°F, use lubricants suited for these conditions. Refer to *6.3 Compressor Lubrication on page 25* for lubricating oil specifications.
- Optional starting aids and component pre-starting warming devices are available for some models for cold weather starting.

WARNING! ***Do not inject ether starting fluid directly into air intake.***

5.8.2 HOT WEATHER OPERATION

- Keep the engine cooling system filled with clean coolant.
- Check the coolant level daily or before each shift.
- Keep the outside of the radiator and oil cooler clean.
- Locate the unit in a well-ventilated area.
- When operating in humid conditions, change the compressor oil more frequently.

5.8.3 DUSTY OR SANDY AREAS

- When possible, wet down the area surrounding the operating site to keep dust and blowing sand to a minimum.
- Inspect air filters before each operating shift or daily.
- Keep radiator and oil cooler clean. Check daily and wash or blow clean as needed.

WARNING! ***Check the compressor sump oil level only when the compressor is not operating and system is completely relieved of pressure. Open pressure relief valve to ensure relief of system air pressure when performing maintenance on compressor air/oil system. Failure to comply with this warning may cause property damage and serious bodily harm or death.***

5.9 PNEUMATIC TOOLS APPLICATION

WARNING! ***Compressed air can be dangerous. Serious injury or death can result from the improper selection, use or application of tools and attachments to this compressor.***

Never inject compressed air into a bodily orifice. Never direct compressed air at or toward a person or animal.

Do not breathe air produced by a portable air compressor.

- Install an appropriate flow-limiting valve between the compressor service air outlet and the shut-off (throttle) valve when an air hose exceeding 0.5-inch inside diameter is to be connected to the shut-off (throttle) valve. This is to reduce pressure in case of hose or connection failure, per OSHA Standard 29 CFR 1926.302 (as) (7).
- When a hose will be used to supply a manifold, install an appropriate flow-limiting valve between the manifold and each air hose exceeding 0.5-inch inside diameter that is to be connected to the manifold. This will reduce pressure in case of hose failure.

- Provide an appropriate flow-limiting valve for each additional 75 feet of hose in runs of air hose exceeding 0.5-inch inside diameter to reduce pressure in case of hose failure.
- Flow limiting valves are listed by pipe size and rated CFM. Select appropriate valves accordingly.
- Do not exceed manufacturer's rated safe operating pressures for these items.
- Secure all hose connections by wire, chain, or other suitable retaining devices to prevent tools or hose ends from being accidentally disconnected. Unrestrained disconnected hoses can flail around an cause injury or damage.
- Vent and release all internal pressure prior to opening any line, fitting, hose, valve, drain plug or connection. This includes components such as filters, line oilers and optional airline anti-icing systems.

WARNING! ***Serious injury can result from the direct discharge of compressed air. Do not allow personnel to be in line or front of the discharge opening of the service valve, hoses or tools or other points of compressed air discharge.***

Air gun cleaning devices must not be used and pressures above 30 psig (2 Bars). Always use an appropriate regulator to reduce pressure at the cleaning tool and always use with effective chip guarding and personal protective equipment per OSHA Standard 29 CFR 1910.242 (b).

WARNING! ***Serious injury or death may result from horseplay with air hoses and compressed air. HORSEPLAY - DO NOT DO IT, DO NOT ALLOW IT!***

5.10 JUMP-STARTING BATTERY

WARNING! ***Always wear an acid-resistant apron, face shield with goggles, and gloves when working with batteries! Batteries may contain hydrogen gas which is explosive and flammable! Keep flames, sparks and any other source of ignition away. Batteries also contain acid which is corrosive and poisonous. DO NOT allow battery acid to contact eyes, skin, or fabrics. Serious personal injury or property damage could result! Flush any contacted areas thoroughly with water immediately and seek medical attention.***

NOTE! *The following instructions are for single battery 12 VDC starting systems only. Make sure both compressor and starting vehicle have the ignition "OFF" before connecting the jumper cables.*

1. Remove all vent caps from the battery or batteries in the compressor. Do not permit dirt or foreign matter to enter the open cells.

CAUTION! **Remove vent caps on dead battery if the battery is a maintenance type and add distilled water if needed. This is not required if the battery is a maintenance-free type that is sealed.**

2. Check fluid level. If low bring to a proper level before attempting to jump-start.
3. Locate the starting vehicle beside the compressor, but do not permit metal-to-metal contact between the compressor and the starting vehicle. Set the parking brakes of the compressor (if provided) and the starting vehicle, or chock or block both sides of all wheels. Place the starting vehicle in park, turn off nonessential accessory electrical loads and start its engine.
4. Connect one end of the RED (positive) cable to the positive (+) terminal on the dead battery in the compressor. Make sure the other end of this cable does not touch any metal surface that would cause arcing!
5. Connect the other end of the RED (positive) cable to the positive (+) terminal on the good battery in the starting vehicle.
6. Connect one end of the BLACK (negative) cable to the negative (-) post on the good battery in the starting vehicle.
7. Connect the other end of the BLACK (negative) cable to an unpainted metal surface on the compressor engine with the dead battery.
8. Make sure all the jumper cable clips have a good connection (good clamping force) before attempting to start.
9. Start vehicle with the good battery first and let it run a few minutes. Then attempt to start the compressor with the dead battery.
10. If the compressor starts then allow it to warm up and then remove the jumper cables while keeping the compressor running. Make sure not to let the clips of the cables touch while either end of the cables are attached to one of the batteries. This would cause arcing.

11. Replace vent caps on battery if required.
12. If compressor engine starting motor will not crank after repeated attempts or the battery is still dead after running the compressor for over an hour (not taking charge), then the battery must be replaced.
13. Move starting vehicle away from compressor.

6 MAINTENANCE

TOPICS IN THIS SECTION:

6.1 MAINTENANCE

The maintenance procedures indicated in this manual are given for normal conditions of use. In difficult conditions, temperatures extremes, high hygrometry, atmospheric pollution, high elevation, etc. some maintenance must be performed more frequently and particular precautions must be taken.

6.1.1 MAINTENANCE SCHEDULE

D110PKU RECOMMENDED MAINTENANCE								
	FREQUENCY (HOURS)							
PROCEDURE	DAILY	50	100	200	400	600 or yearly	1200 or 2 yrs	REFERENCE
Check oil level (before starting)	x							*6.3.1*
Check radiator coolant level (before starting)	x							*6.8*
Check fuel supply (before starting)	x							
Check air filter elements (before starting)	x							*6.7*
Check fuel pre-filter (before starting)	x							
Check battery charge	x		x					
Check for fuel, oil air and water leaks	x							
Check compressor drive belt and fan belt tension (before starting)		x	x					*6.11*
Purge the fuel tank and circuit		x						
Check fuel pre-filter		x						
Check bolt torque		x						
Drain the sump		x						
Change the oil filter element		x		x	x			*6.5*
Change fuel filter element and pre-filter		x			x			
Check the control functioning (speed and pressure)		x						
Clean engine radiator and compressor cooler core			x					*6.8*
Clean separator dip tube mesh strainer			x					*6.6*
Lubricate hinge points			x					
Check tire pressure and tightness of wheel nuts			x					
Change air filter element (or as needed)				x				*6.7*
Check cooler hoses and hose clamps				x				*6.8*
Change separator oil and element (or as needed)						x		*6.6*
Change compressor drive belt and fan belt						x		*6.11*
Check max. speed and idle speed						x		
Change radiator coolant							x	*6.8*
Check valve clearance							x	
Check regulating system							x	
Clean fuel tank							x	
Replace fuel and lubricant ducts and fixing clamps							x	
Replace cooler hoses and hose clamps							x	

Prior to inspection or maintenance of the compressor always take the following precautions:

- Ensure it is located on a large level surface. Do NOT work on compressor if ONLY placed on a jack or a winch. Always use adapted wheel chocks or safety stands to support the compressor before servicing.
- Stop the compressor and remove the key before performing any periodic maintenance checks and cleaning.
- Disconnect the battery from the compressor before servicing. Place a “DO NOT USE!” label on the ignition key to prevent accidental starting.

- In order to prevent sparks from accidental short-circuiting, first disconnect the earth cable (-) from the battery and reconnect it last.
- Ensure that the engine, air end, oil, coolant, muffler and muffler housing are completely cooled down.
- Always use suitable tools and clamping devices. Make sure they are in good condition and that you know how to use them.
- After engine repair, reinstall all the protection devices and remove all repair tools that have been used.

CAUTION!

Use ONLY correct tools to rotate the engine by hand. Do not attempt to rotate the engine by pulling or prying on the cooling fan and the V-belt. This practice might result in serious injuries or early deterioration of the fan and the belt.

6.2 WEATHER-ALL™ COMPRESSOR LUBRICANT

All of Sullivan-Palatek's portable air compressors are initially filled with Sullivan-Palatek's WEATHER-ALL compressor fluid at factory. This custom-formulated, multi-viscosity 5W-20 lubricant is specifically designed for long life under severe, demanding conditions. Maximum protection against scuffing and wear to bearings and rotors, and wear-control for steel and brass parts when operating at maximum pressure ratings results in extended compressor life. Extensive testing has shown this fluid exhibits excellent resistance to foaming, oil oxidation and corrosion of yellow metals and limits rust of ferrous metals.

This synthesized hydrocarbon-based fluid provides quick water separation which enhances equipment protection in wet and humid service environments. It offers an excellent viscosity index of 180 as well as low pour point of -40°F.

Sullivan-Pallatek strongly advises the continued use of WEATHER-ALL to ensure optimal compressor performance, and lower equipment maintenance costs.

LUBRICANT SPECIFICATIONS			
ISO Viscosity Grade	32	Normal Service Life	1000 hours*
SAE Viscosity Grade	5W-20	Viscosity Index	180
Viscosity, cst. 210°F	50 SUS	Pour Point	-40°C / -40°F
Viscosity, cst. 100°F	170 SUS	Flash Point	199°C

NOTE!

These values are not intended for use in preparing specifications.

*Service life is only a guideline for typical oil life if temperature is the only variable to be considered. Many variables affect the oil life, i.e. environmental impact from various gases, dust and dirt, compressor short cycling, etc.

Sullivan-Palatek recommends oil sampling as the best guide for your fluid change interval. Changing fluid once a year my not be adequate or it can be excessive. For this reason an hourly service on lubricants is merely a guide. Please consult your factory-trained servicing distributor for questions concerning your lubricant life and Sullivan-Palatek's lubricant sampling program.

6.3 COMPRESSOR LUBRICATION

Change oil at least once a year, even if the normal oil change period in hours has not yet been reached.

CAUTION!

Never mix synthetic lubricants with hydrocarbon lubricants. Never mix synthetic lubricants manufactured from different base products. Severe damage to the compressor system may result.

Contamination of non-detergent mineral oils with traces of ATF, or detergent motor oils, may lead to problems such as foaming and plugging of filters, orifices, and lines. Lubricant manufacturers include a variety of additives in the blending process to enhance lubrication, product life and performance. Mixing different types or brands of lubricants is not recommended due to the possibility of a dilution of the additives or a reaction between additives of different types.

Environmental conditions in the area of compressor operation such as the presence of reactive gases or vapors in the air may lead to chemical changes and premature degradation of the lubricant. The useful life of synthetic lubricants may extend the normally recommended drain and replace period; however, the user is encouraged to closely monitor the lubricant condition and to participate in an oil analysis program with the fluid supplier (see *6.4 Oil Sample for Analysis on page 26*). When ambient conditions exceed those noted, or if conditions warrant use of "extended life" lubricants, contact Sullivan-Palatek for a recommendation.

6.3.1 CHECK

The oil level should be checked daily.

1. Shut down the compressor (or check before the compressor is turned on).

2. Wait two minutes after the compressor stops to allow the pressure to be relieved and the oil to settle.
3. Observe the oil level in the fluid sight glass. The fluid sight glass should be no more than ⅔ full.
4. While the compressor is running, the oil should be visible in the sight glass.

6.3.2 FILL

Before adding or changing compressor oil, completely relieve the sump of pressure. Venting the sump tank pressure relief valve will do this.

6.3.3 LEVEL

The proper oil level, when unit is shut down and oil has had time to settle, is across the center of the oil level sight glass. For oil sump capacity, see *2.1 Technical Data on page 8*.

WARNING! ***Compressor must be shut down and pressure completely relieved from system before checking fluid levels. Open pressure relief valve to ensure relief of system air pressure. Failure to comply with this warning may cause property damage and serious bodily harm or death.***

6.3.4 DRAIN

Always warm compressor thoroughly prior to changing the compressor oil. A drain valve is provided at the bottom of the sump tank. When changing the oil, make sure system is completely drained to reduce potential contamination. Oil is added at the fill plug on the side of the sump tank.

WARNING! ***Do not attempt to drain water, remove the oil level fill plug, or break any connection in the air or oil system until all the pressure has been relieved. Check by manually opening the sump pressure relief valve. Serious injury or death may result if this warning is not followed.***

6.4 OIL SAMPLE FOR ANALYSIS

The first oil sample should be drawn after the compressor has run for 2,000 hours or 3 months. Intervals for following oil samples will be determined by the analysis results.

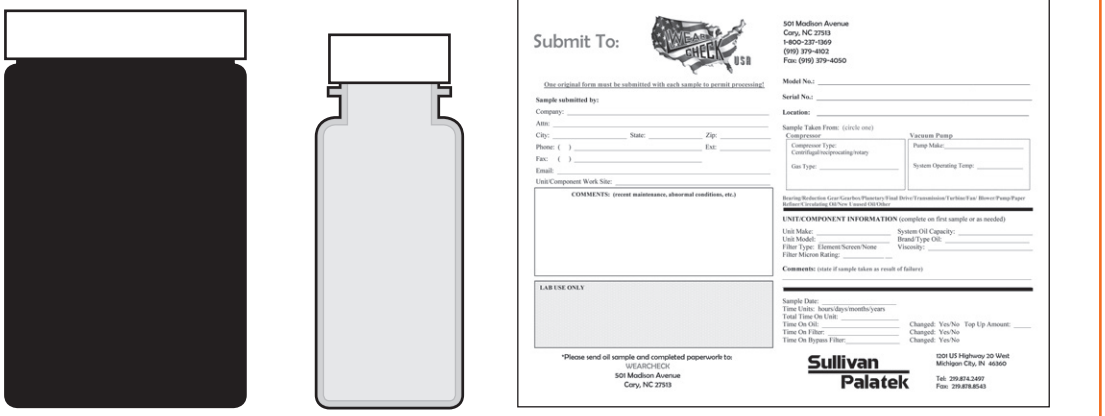


FIGURE 6-1. OIL ANALYSIS KIT (P/N K00031-005)

SAMPLE OIL FROM SUMP TANK

1. Run the compressor long enough to reach normal operating temperatures.
2. Turn compressor **OFF** and allow pressure to blow down to 0 psi.
3. Remove the drain plug from the end of the drain line at the bottom of the sump tank.
4. Open the drain valve and drain any water from the sump tank. Discard in an approved manner.
5. Fill the clear sample bottle (**2**) with oil. The sample bottle (**2**) must be at least one-third full.
6. Close the drain valve and replace the plug in the drain line.
7. Start the compressor according to *5.3 Normal Starting* procedures.
8. Check the oil level during operation. Add oil if necessary according to *6.3.2 Fill* procedures.

SUBMIT OIL SAMPLE

1. Fill out all the information on the oil sample form (**3**) provided with the oil analysis kit. Please make sure the form is completely and legibly filled out.
2. Place the oil sample bottle (**2**) inside the black canister and put the lid on.
3. Mail the sample with the form to:
   Wear Check
   501 Madison Avenue
   Cary, NC 27513

INTERPRET RESULTS

Once the sample is processed the laboratory will e-mail the results of the oil analysis to the sender of the sample. The analysis report includes customer unit information, sample data, spectrochemical analysis, physical properties, additional test results and analysis recommendations. If previous oil samples have been submitted for analysis, that information will also be on the report. Information to assist in understanding the analysis report is included on the front of the report.

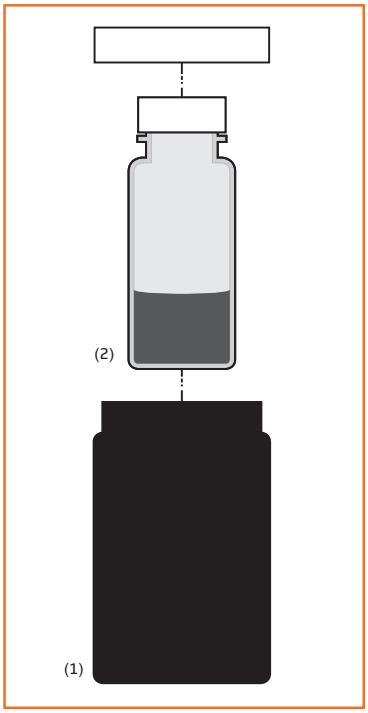


FIGURE 6-2. MAIL ANALYSIS KIT

6.5 COMPRESSOR OIL FILTER

Replace the oil filter element once after the first 50 hours of operation, then every 200 hours. Replace more frequently in extreme operation conditions such as high temperatures, low temperatures or high humidity.

6.5.1 INSPECTION

The compressor oil filter should be checked daily to make sure it has the proper element and it is properly installed and not leaking.

1. Shut down the compressor (or check before the compressor is turned on).
2. Wait two minutes after the compressor stops to allow the pressure to be relieved and the oil to settle.

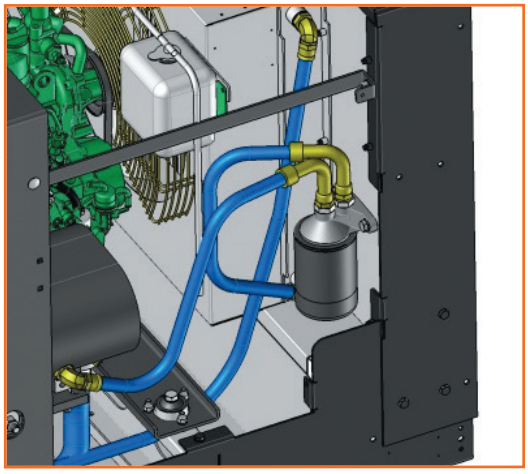


FIGURE 6-3. D110PKU OIL FILTER

6.5.2 REMOVAL

1. Before adding or changing compressor oil, completely relieve the sump of pressure. Venting the sump tank pressure relief valve will do this.
2. Place oil spill pan under filter.
3. Remove filter canister by unscrewing the disposable element and discarding used filter element.

6.5.3 INSTALLATION

1. Install a new element after slightly greasing the seal.
2. Check for leaks in operation.

6.6 AIR/OIL SEPARATOR

Replace the air/oil separator every 600 hours or annually.

CAUTION! **Make sure to stop the engine before changing the oil separator element. Let the engine cool down sufficiently–oil can be hot and cause burns.**

6.6.1 REMOVAL

1. Relieve sump pressure to zero pressure.
2. Loosen 8 screws on the separator lid.
3. Remove the lid carefully so not to damage the components and the dip tube attached to the cover.

6.6.2 INSTALLATION

1. Apply a thin layer of oil on the seals of the new element.
2. Replace the oil separator element and flush.
3. Screw 8 lid screws by hand and make sure to fasten the air filter bracket.
4. 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 element.

NOTE! *Keep the separator oil level at maximum. The maximum level is determined by the filling hole, so it cannot be overfilled (See Fig. 6-4).*

FIGURE 6-4. D110PKU OIL SEPARATOR

6.7 AIR FILTER

Check daily, every 10 hours of operation or on rent return.
Replace every 200 hours, or more frequently in dusty conditions.

CAUTION! **Since the air cleaner used on this engine is a dry type, never apply oil to it.**

6.7.1 CLEANING AND REMOVAL

1. Open the evacuator valve (not shown), located on bottom of Filter Cap (**3**) once a week under ordinary conditions, or daily when used in a dusty location. This will remove large particles of dust and dirt.
2. Wipe the inside of Air Filter Housing (**1**) with cloth if it is dirty or wet.
3. Avoid touching the Filter Element (**2**) except when replacing.
4. Remove dirty Filter Element and discard.

6.7.2 INSTALLATION

1. Replace the Filter Element (**2**) every 200 hours, or sooner if working in dirty or dusty environments.
2. Make sure the Filter Cap (**3**) is properly closed. If the filter envelope is not sealed, dust and dirt may be sucked in, reducing engine life, and resulting in engine or compressor failure.

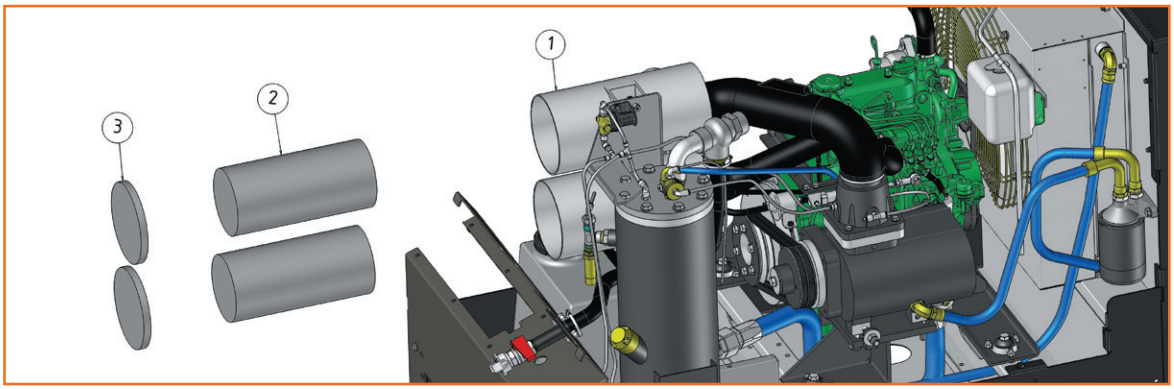


FIGURE 6-5. D110PKU AIR FILTER REPLACEMENT

6.8 RADIATOR

6.8.1 INSPECTION

1. Remove the radiator cap and check if engine coolant reaches the supply hole.
2. Check the level of coolant in expansion tank. If the level is below the "**LOW**" mark, add as needed. Do not overfill.
3. Close the cap firmly. If the cap is loose or improperly tightened coolant can flow out and the engine may overheat.
4. Periodically check the radiator hoses and the hose clamps. If a radiator hose is damaged or if the coolant leaks, it may cause overheating and serious burns.

6.8.2 FLUID DRAIN

1. Wear protective equipment such as rubber gloves when handling engine coolant –it contains toxic substances.
2. Before draining engine coolant, place a container under the body of the engine. Do not directly drain on floor, into a sewer or a source of water supply.
3. Always simultaneously open both drain valves and the radiator cap. If the radiator cap remains closed, it is not possible to drain the coolant completely.
4. Remove the overflow hose of the radiator pressure cap to drain the expansion tank.

6.8.3 CLEANING

1. Clean the core of the radiator and oil cooler (outside). Remove the dust between the fins and the water pipe with running water.

CAUTION! **Do not clean the coolers with tools such as painting knives or screwdrivers. They may damage the fins or the water manifold. It might also cause a fluid leakage and reduce cooler efficiency.**

2. Circulate a cleaning agent to clean the inside of the radiator system to remove scale sediments.

6.8.4 INSTALLATION

1. Fill cooler with fresh coolant.

WARNING! ***Do not mix different types of engine coolant. Such a mixture can initiate a chemical reaction generating harmful products. The coolant is extremely flammable and explosive under certain conditions. Keep away from flames and children.***
—In case of contact with skin or clothing, wash with water immediately.
—In case of ingestion, induce vomiting and seek medical treatment.

2. Do not overfill the expansion tank with coolant above the "**FULL**" level.
3. Close the radiator cap securely. An incorrectly closed cap or an opening between the plug and the seat may cause a leak.

6.9 ENGINE LUBRICATION

Refer to Engine Operator's Manual for recommended engine lubricating oil, service intervals and maintenance practices.

6.10 COMPRESSOR UNDERCARRIAGE

6.10.1 CLEANING

» Regularly clean all components with water.

» After the winter season, thoroughly clean galvanized parts with water.

6.10.2 MAINTENANCE

» Use a multi-purpose type grease (MKG) or multi-purpose type grease with molybdenum disulfide (MPGM) conforming to MIL-L-7866 for all parts except wheel bearings. Use wheel-bearing grease (WBG) for lubricating the wheel bearings.

» Torque the lug nuts after the first 65 miles.

» During shutdown or storage, ensure sufficient ventilation.

6.11 COMPRESSOR BELTS

Check the tension of the compressor drive belt and fan belts every 50 hours; Change belts at 600 hours or yearly.

1. Stop engine and remove the ignition key before checking the belt tension on the compressor.
2. The correct tension is flexion of 0.16-inch when applying 9 lbs. of pressure onto the middle of the belt.
3. If tension is inadequate, unscrew the bolts which fix the air end and adjust the belt tension nut on the side of the air end until the tension of the belt matches the acceptable limit.
4. Replace the belts if damaged. If the belt is loose or damaged it could result in overheating or insufficient load.

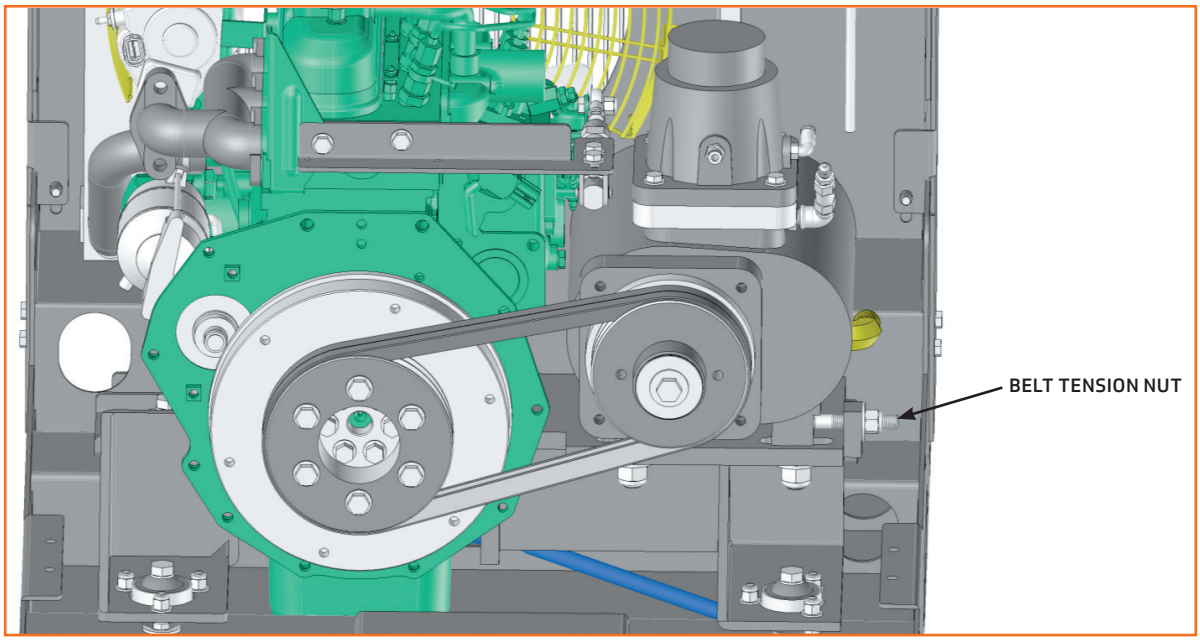


FIGURE 6-6. D110PKU COMPRESSOR DRIVE BELT

7 TROUBLESHOOTING

TOPICS IN THIS SECTION:

7.1 INTRODUCTION

This section contains instructions for troubleshooting the equipment following a malfunction. Each issue or problem is followed by a list of probable causes and suggested actions to be followed in order to eliminate the cause.

The actions listed should be performed in the order listed, although the order may be varied if the need is indicated by conditions under which the problem occurred. The action which can be performed in the least amount of time and with the removal or disassembly of the fewest parts should be performed first.

7.2 UNPLANNED SHUTDOWN / WILL NOT START

POSSIBLE CAUSE	ACTION
Low Fuel	Fill the machine with fuel and retest.
Water or contamination in fuel filter	Replace all fuel filters and drain the water from the fuel tank(s).
Improper fan belt tension	Adjust or replace the fan belt as needed.
Low battery voltage	Check the voltage and recharge or replace as necessary. If battery cables are loose, tighten cables. If battery cables are dirty, clean thoroughly.
Clogged air filter	Replace the air filter element.
Obstruction in radiator and/or oil cooler	Remove any external obstructions and clean the coolers.
Faulty engine stop solenoid	Check and replace if necessary.
Broken hoses or oil lines	Repair/Replace any broken hoses or oil lines.
Loose or broken wires	Repair/Replace any loose or broken wires.
Water temperature switch open	Check the engine coolant level. Add as needed. Clean the coolers. Check the fan belt tension. Adjust or replace as needed. Refer to Engine Manufacturer's manual.
High compressor discharge air temperature	Check compressor oil level. Add as needed. Clean the coolers and pressure check. Check the fan belt tension. Adjust or replace as needed. Change compressor oil and oil filter element. Clean oil cooler internally. Verify correct operation of thermal by-pass valve; Inspect and clean the thermal by-pass valve by removing valve from by-pass housing. Sediment particles can lodge in the valve-seating surface and prevent from closing, allowing hot oil to pass directly to the compressor without being cooled.
Engine oil pressure switch open	Check engine oil. Add as needed. Verify the engine oil pressure exceeds 12 psi with the engine running.

If none of the above caused the shutdown, restart the engine and observe the engine oil pressure, engine water temperature, and compressor discharge temperature and pressure gauges. If it is found that low engine oil pressure or high engine water temperature is causing the shutdown, refer to the Engine Manufacturer's manual.

7.3 DISCHARGE PRESSURE IS TOO LOW

POSSIBLE CAUSE	ACTION
Start/Run valve in the START position	Move the Start/Run valve to the RUN position and retest.
Too much air demand	Add additional compressor to handle the demand or decrease the air demand.
Service valve open	Close service valve and retest.
Service line leaks	Repair any leaks found and retest.
Compressor inlet air filter restricted	Replace the air filter and retest.
Regulator valve faulty or misadjusted	Properly adjust the regulator. Replace the regulator valve if necessary.
Engine speed too low	Readjust engine speed.
Defective cylinder	Readjust engine speed; check and replace cylinder if necessary.

7.4 DISCHARGE PRESSURE IS TOO HIGH OR RELIEF VALVE BLOWS

POSSIBLE CAUSE	ACTION
Discharge pressure gauge faulty	Replace the faulty gauge.
Regulator valve faulty or misadjusted	Properly adjust the regulator; replace the regulator if necessary.
Oil separator plugged	Replace the oil separator. Clean the scavenger tube.
Pressure relief valve faulty	Replace the faulty relief valve.
Compressor shaft seal leaking	Replace the compressor shaft seal and retest.
Ice or debris in control lines	Clean the control lines of debris. Thaw out the control lines to remove the ice buildup. Direct the lines so there is a low point to drain any condensate. Optional Heater Kit available; consult factory for information.

7.5 RELIEF VALVE BLOWS WITH THROTTLE LEVER IN IDLE POSITION

POSSIBLE CAUSE	ACTION
Regulator valve faulty or misadjusted	Properly adjust the regulator; replace the regulator if necessary
Control system leaks	Repair any leaks and retest.

7.6 PRESSURE DOES NOT BLOW DOWN AFTER SHUTDOWN

POSSIBLE CAUSE	ACTION
Automatic blowdown valve may be faulty	Check operation of the automatic blowdown valve. Replace if necessary.
Air line from inlet valve or sump to blowdown valve may be restricted	Verify the pilot signal is reaching the automatic blowdown valve. Verify the blowdown valve is plumbed correctly.

7.7 COMPRESSOR OIL LEVEL IS DECREASING EXCESSIVELY

POSSIBLE CAUSE	ACTION
Oil line leaking	Repair or replace any leaking lines and retest.
Oil cooler leaking	Repair or replace the leaking oil cooler and retest.
Compressor shaft seal leaking	Replace the compressor shaft seal and retest.
Oil in service line	See ***7.8 Oil In Service Line*** section.

7.8 OIL IN SERVICE LINE

POSSIBLE CAUSE	ACTION
Oil return line plugged or restricted	Remove the oil return line and clean.
Separator element plugged or damaged	Replace the separator element and change compressor oil.
Discharge pressure below 90 psi	The air demand maybe too great. Add compressors or decrease the demand. Adjust the discharge pressure above 90 psi. Check MPV operation, rebuild/replace as needed.
Fluid separator too full	Drain to correct level.

7.9 ENGINE DOES NOT ACCELERATE OR WILL NOT MAINTAIN FULL LOAD SPEED

POSSIBLE CAUSE	ACTION
Compressor discharge pressure too high	Adjust the pressure to the maximum operating pressure for the machine.
Engine idle speed set too low	Adjust the idle speed to the Sullivan-Palatek recommended RPM.
Operating above maximum altitude rating of engine	Refer to Engine Manufacturer's recommendation on maximum altitude.
Engine problem	Have an authorized engine repair facility inspect the engine.

7.10 SEPARATOR PLUGGING

POSSIBLE CAUSE	ACTION
Dirt and dust blockage in air inlet filters	Replace the air inlet filters.
Plugged compressor oil filter element	Replace the compressor oil and filter if necessary.

If the separator element has to be replaced frequently because it is plugging up, it is an indication that foreign material may be entering the compressor inlet or the compressor oil is breaking down. Compressor oil can break down prematurely for a number of reasons:

- Extreme operating temperature
- Failure to drain condensate from oil sump
- Using the incorrect type of oil
- Mixing different types of oil
- Prolonged operation at extreme ambient temperatures
- Foreign material, gases or vapors entering compressor inlet

7.11 ENGINE SPEED CONTROL LEVER DOES NOT MOVE TO IDLE POSITION WITH SERVICE VALVES CLOSED

POSSIBLE CAUSE	ACTION
Control system is blocked between the sump and inlet valve	Clean the control lines and retest.
Control system leaks between sump and inlet valve	Repair any leaks found and retest.
Engine governor speed control lever binding or throttle cylinder faulty	Inspect the control lever, lubricate or replace as needed.
Discharge pressure regulator faulty	Properly adjust the regulator; replace the regulator if necessary.

7.12 ENGINE SPEED CONTROL LEVER DOES NOT MOVE TO FULL SPEED WITH AIR DEMAND

POSSIBLE CAUSE	ACTION
Start/Run valve is positioned in **START** instead of **RUN**	Move the Start/Run valve to the **RUN** position.
Engine governor speed control lever binding or throttle cylinder faulty	Inspect the control lever; lubricate or replace as needed.
Control rod disconnected between the engine governor and cylinder	Reconnect the control rod and retest.
Discharge pressure regulator faulty or improperly set	Properly adjust the regulator; replace the regulator if necessary.

7.13 FULL LOAD SPEED CANNOT BE OBTAINED

POSSIBLE CAUSE	ACTION
Throttle cylinder rod to engine governor is incorrectly set or binding	Inspect cylinder rod to engine and adjust, lubricate, or replace as necessary.
Engine governor incorrectly set	Adjust the engine RPMs to the proper specifications.
Operating above maximum altitude rating of engine	Refer to Engine Manufacturer's recommendation on maximum altitude.

7.14 IDLE SPEED DIFFICULT TO SET AFTER FULL LOAD SPEED HAS BEEN SET

POSSIBLE CAUSE	ACTION
Engine governor linkage binding or incorrectly set	Inspect governor linkage and adjust, lubricate, or replace as necessary.
Engine governor idle speed control lever too long	Adjust the idle speed to the Sullivan-Palatek recommended RPM.

7.15 ENGINE STALLS WHEN AIR DEMAND IS LOW

POSSIBLE CAUSE	ACTION
Idle speed may be set too low	Adjust the idle speed to the Sullivan-Palatek recommended RPM.

7.16 COMPRESSOR OIL LEAKING IN CONTROL LINES/ORIFICES

POSSIBLE CAUSE	ACTION
Compressor oil level in sump tank too full	Check and adjust compressor oil as needed.
Diaphragm in recirculation valve ruptured	Inspect the diaphragm; rebuild/replace as needed.
Blowdown valve O-ring faulty	Inspect the blowdown valve; rebuild/replace as needed.
Inlet valve modulating piston ring faulty	Inspect the inlet valve; rebuild/replace as needed.
High compressor discharge temperature	Check compressor oil level. Add as needed. Clean the coolers and pressure check. Check the fan belt tension. Adjust or replace as needed. Change compressor oil and oil filter element. Clean oil cooler internally. Verify correct operation of thermal by-pass valve; Inspect and clean the thermal by-pass valve by removing valve from by-pass housing. Sediment particles can lodge in the valve-seating surface and prevent from closing, allowing hot oil to pass directly to the compressor without being cooled.

8 PARTS CATALOG

TOPICS IN THIS SECTION:

8.1 ORDERING PARTS

A list of recommended spare parts for this compressor is provided on the following page. These parts can be kept on hand to minimize downtime for the most common maintenance issues. A complete parts listing is included with exploded drawings for all the parts on the compressor.

Parts should be ordered from the nearest full-service distributor or factory-authorized compressor center. Only call the factory if parts cannot be obtained locally. Before calling to order parts, please have the model and serial number information available. This information can be found on the serial number plate located on the compressor.

NOTE! *Use the space provided on the inside cover of the manual to record the model and serial number of the compressor for future reference.*

8.1.1 CONTACT INFORMATION

For replacement parts and manuals contact:

Sullivan-Palatek, Inc.
1201 West US Highway 20
Michigan City, Indiana 46360

Phone: (219) 874-2497
Fax: (219) 872-5043
Toll Free: (800) 438-6203
www.sullivan-palatek.com

8.2 PARTS DRAWINGS

The parts drawings are exploded drawings of the various assemblies and sub-assemblies which make up this machine. Standard models and more popular options available are covered.

NOTE! *In referring to the rear, the front or to either side of the unit, always consider the drawbar end of the unit as the front. Standing at the rear of the unit facing the drawbar (front) will determine the right and left sides.*

8.3 FASTENERS

Both SAE/inch and ISO/metric hardware have been used in the design and assembly of these units. In the disassembly and reassembly of parts, extreme care must be taken to avoid damaging threads by the use of wrong fasteners.

8.4 RECOMMENDED SPARE PARTS

D110PKU

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0638	ELEMENT, SEPARATOR	1
2	01903000 0639	ELEMENT, COMPRESSOR OIL FILTER	2
3	01903000 0644	PRE-FILTER, FUEL	2
4	01903000 0645	ELEMENT, FUEL FILTER	2
5	01903000 1248	ELEMENT, AIR FILTER, PRIMARY	2
5	01900522 0157	ELEMENT, AIR FILTER, SECONDARY	2
6	01903000 0651	FILTER, ENGINE OIL	2
7	01903000 0648	REGULATOR, AIR PRESSURE	1
8	01903000 0669	PROBE, TEMPERATURE	1
9	01903000 0633	BELT	2
10	01903000 1659	REPAIR KIT, MINIMUM PRESSURE VALVE	1
11	01903000 1658	REPAIR KIT, INLET VALVE	1
12	00823062 0009	OIL, WEATHER-ALL, 5 GALLON PAIL	1

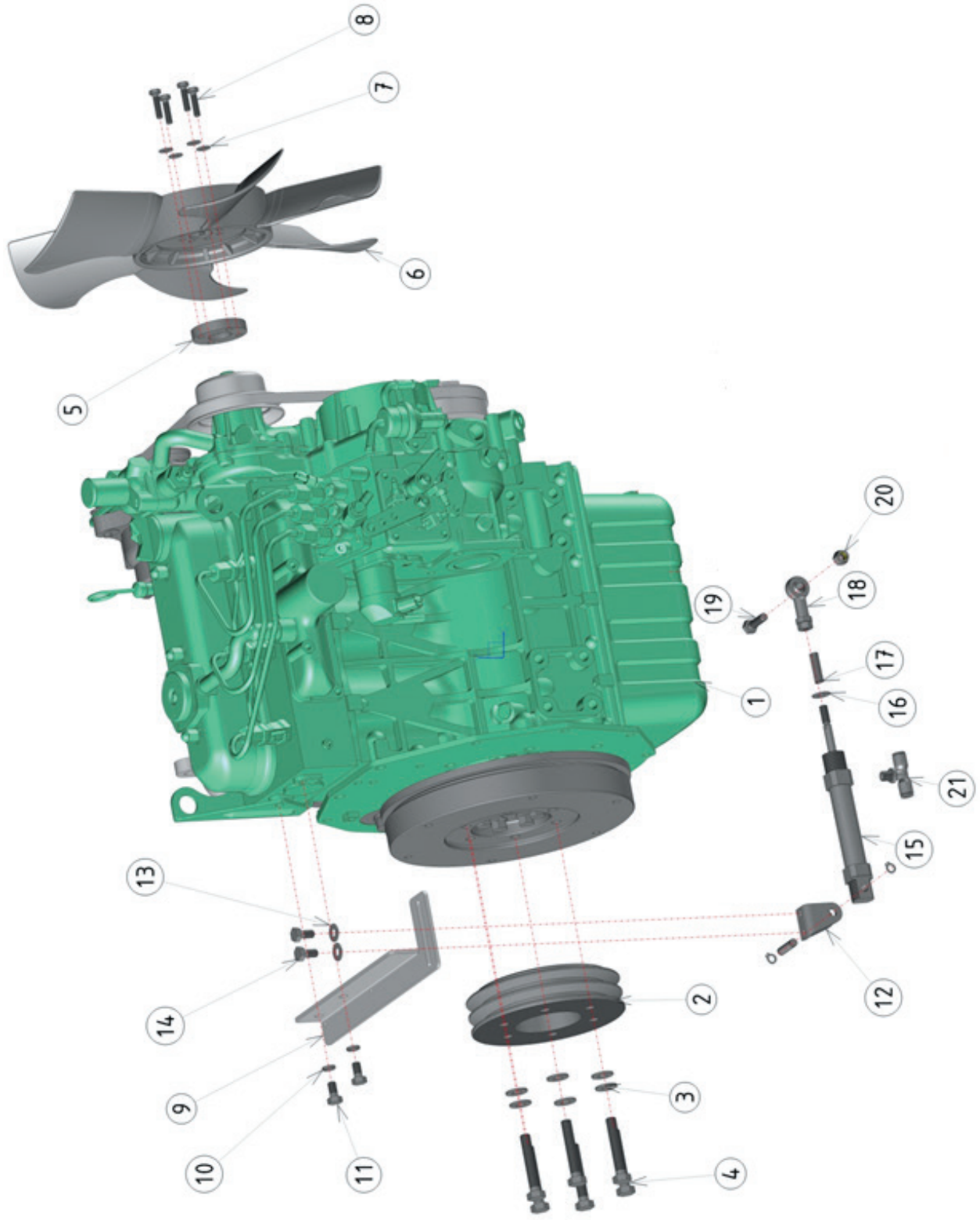
NOTE! *Use only service parts supplied or recommended by Sullivan-Palatek. Use of substitutes may void warranty. See* **WARRANTY** *for details.*

8.5 SERVICE KIT

A service kit is available for basic servicing of the compressor and engine. Buying a kit offers savings over buying individual parts. There is an annual kit for a year's worth of compressor and engine servicing.

DESCRIPTION	CONTENTS		PART NUMBER
SERVICE KIT, ANNUAL (WET)	1	ELEMENT, SEPARATOR	00717701 0169
	2	ELEMENT, COMPRESSOR OIL FILTER	
	1	PRE-FILTER, FUEL	
	2	ELEMENT, FUEL FILTER	
	4	ELEMENT, AIR FILTER, PRIMARY	
	4	ELEMENT, AIR FILTER, SECONDARY	
	4	FILTER, ENGINE OIL	
	1	FLUID, COMPRESSOR WEATHER-ALL (5 GALLON)	

8.6 ENGINE ASSEMBLY



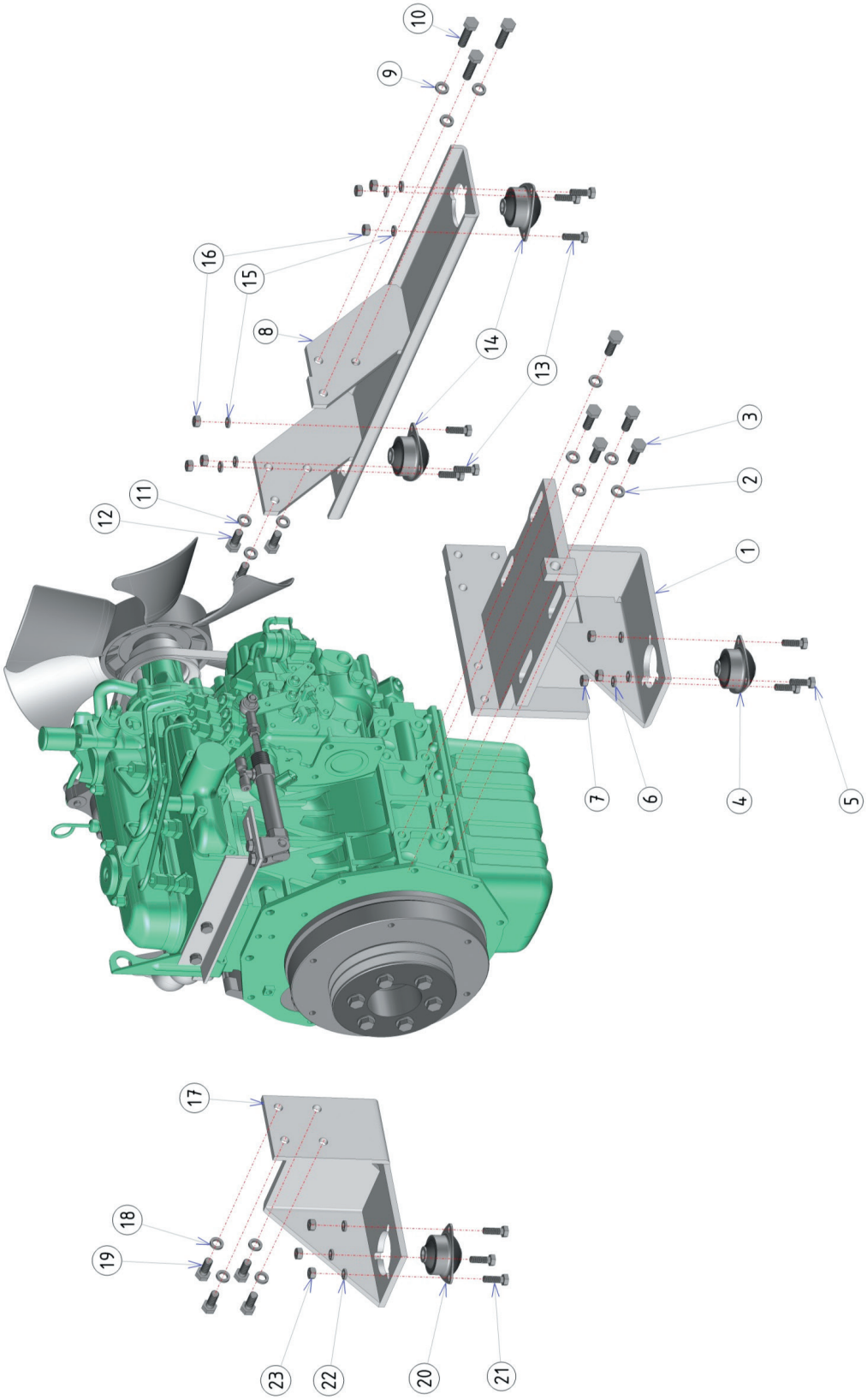
ENGINE ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 1578	ENGINE, D110	1
2	01903000 1579	PULLEY, ENGINE D110	1
3	01903000 0864	WASHER, FLAT M10	6
4	01903000 0865	SCREW HM10X60 THREAD 1,25	6
5	01903000 0658	SPACER, FAN	1
6	01903000 0659	FAN	1
7	01903000 0866	WASHER, FLAT M6	4
8	01903000 0867	SCREW HM6X25	4
9	01903000 0660	SUPPORT, CYLINDER	1
10	01903000 0868	WASHER, LOC M8	2
11	01903000 0869	SCREW HM8X16	2
12	01903000 0661	STRAP	1
13	01903000 0870	WASHER, FLAT M8	2
14	01903000 0869	SCREW HM8X16	2
15	01903000 0632	CYLINDER, SPEED	1
16	01903000 0873	WASHER	1
17	01903000 0662	SPRING, CYLINDER	1
18	01903000 0663	BALLJOINT, ROD END	1
19	01903000 0913	SCREW HM8X25	1
20	01903000 0871	SELF LOCKING NUT HM8 ZB	1
21	01903000 0874	TEE	1

RECOMMENDED SPARE PARTS

ITEM	PART NUMBER	DESCRIPTION	QTY
NS	01903000 0651	FILTER, ENGINE OIL (NOT SHOWN)	1

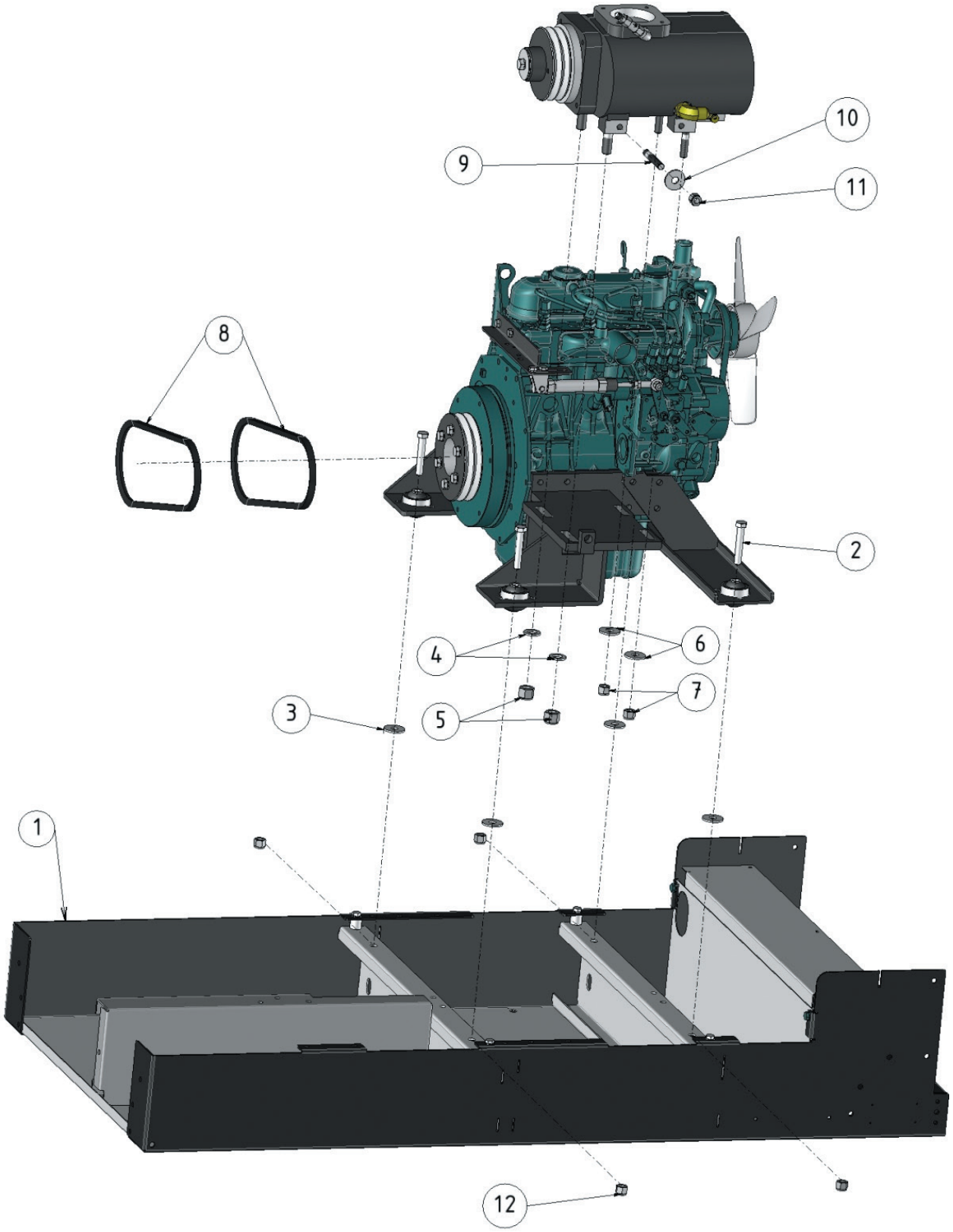
8.7 ENGINE MOUNTING ASSEMBLY



ENGINE MOUNTING ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0673	SUPPORT	1
2	01903000 0897	WASHER, LOCK M10	5
3	01903000 0905	SCREW HM10x30 THREAD 1,25	5
4	01903000 0675	ISOLATOR, VIBRATION	1
5	01903000 0913	SCREW HM8x25	3
6	01903000 0868	WASHER, LOC M8	3
7	01903000 0888	NUT HM8	3
8	01903000 0676	REAR SUPPORT	1
9	01903000 0897	WASHER, LOCK M10	3
10	01903000 0906	SCREW HM10x40 THREAD 1,25	3
11	01903000 0897	WASHER, LOCK M10	3
12	01903000 0903	SCREW HM10x25 THREAD 1,25	3
13	01903000 0913	SCREW HM8x25	6
14	01903000 0675	ISOLATOR, VIBRATION	2
15	01903000 0868	WASHER, LOC M8	6
16	01903000 0888	NUT HM8	6
17	01903000 0678	FRONT SUPPORT	1
18	01903000 0897	WASHER, LOCK M10	4
19	01903000 0903	SCREW HM10x25 THREAD 1,25	4
20	01903000 0675	ISOLATOR, VIBRATION	1
21	01903000 0913	SCREW HM8x25	3
22	01903000 0868	WASHER, LOC M8	3
23	01903000 0888	NUT HM8	3

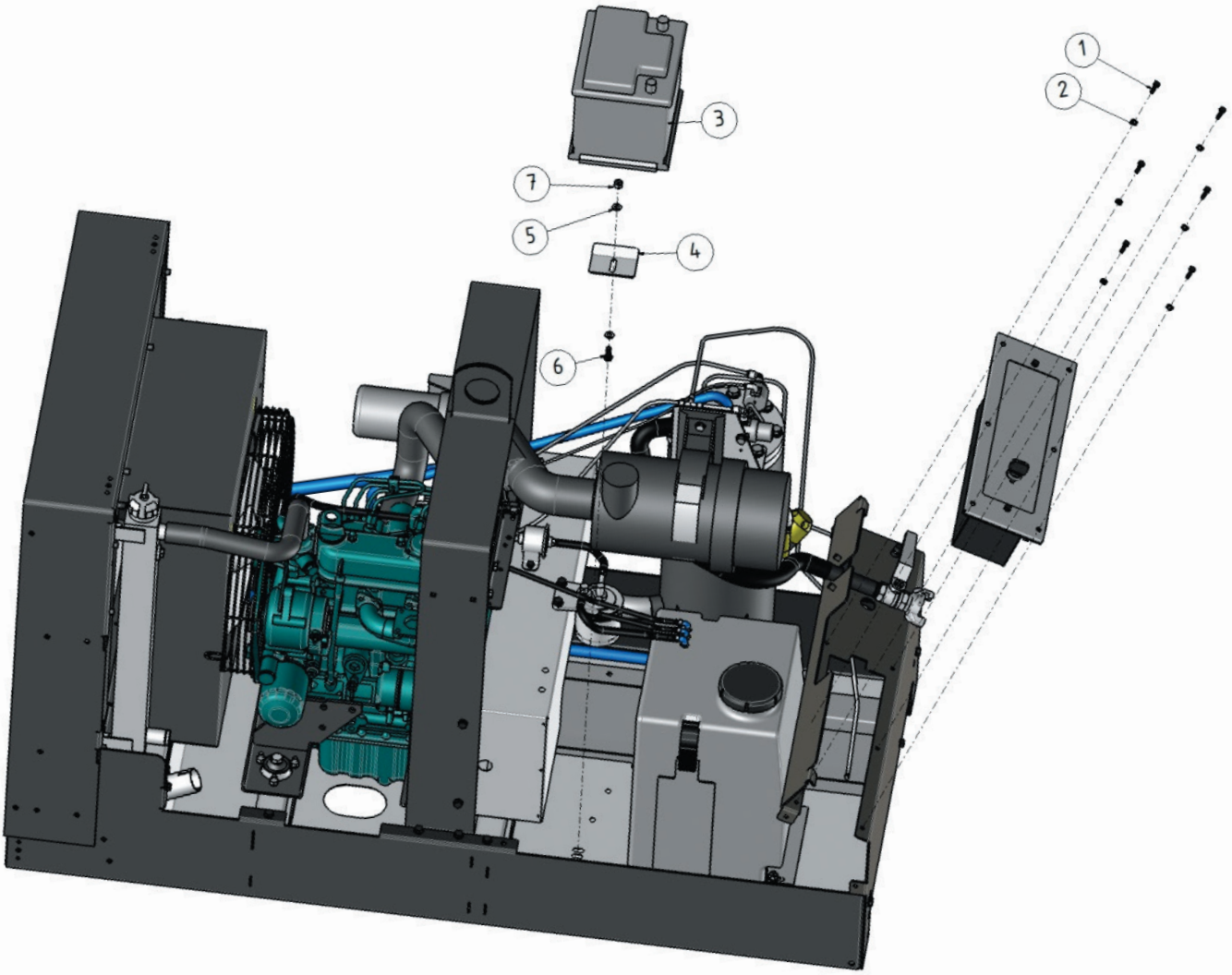
8.8 ENGINE TO FRAME ASSEMBLY



ENGINE TO FRAME ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0683	FRAME	1
2	01903000 0907	SCREW HM12x70	4
3	01903000 0896	WASHER L12 EP2,5	4
4	01903000 0898	WASHER PLATE M16	2
5	01903000 0883	SELF LOCKING NUT HM16	2
6	01903000 0896	WASHER L12 EP2,5	2
7	01903000 0882	SELF LOCKING NUT HM12	2
8	01903000 0633	BELT	2
9	01903000 0935	STUD	1
10	01903000 0896	WASHER L12 EP2,5	1
11	01903000 0882	SELF LOCKING NUT HM12	1
12	01903000 0936	NUT	4

8.9 BATTERY ASSEMBLY

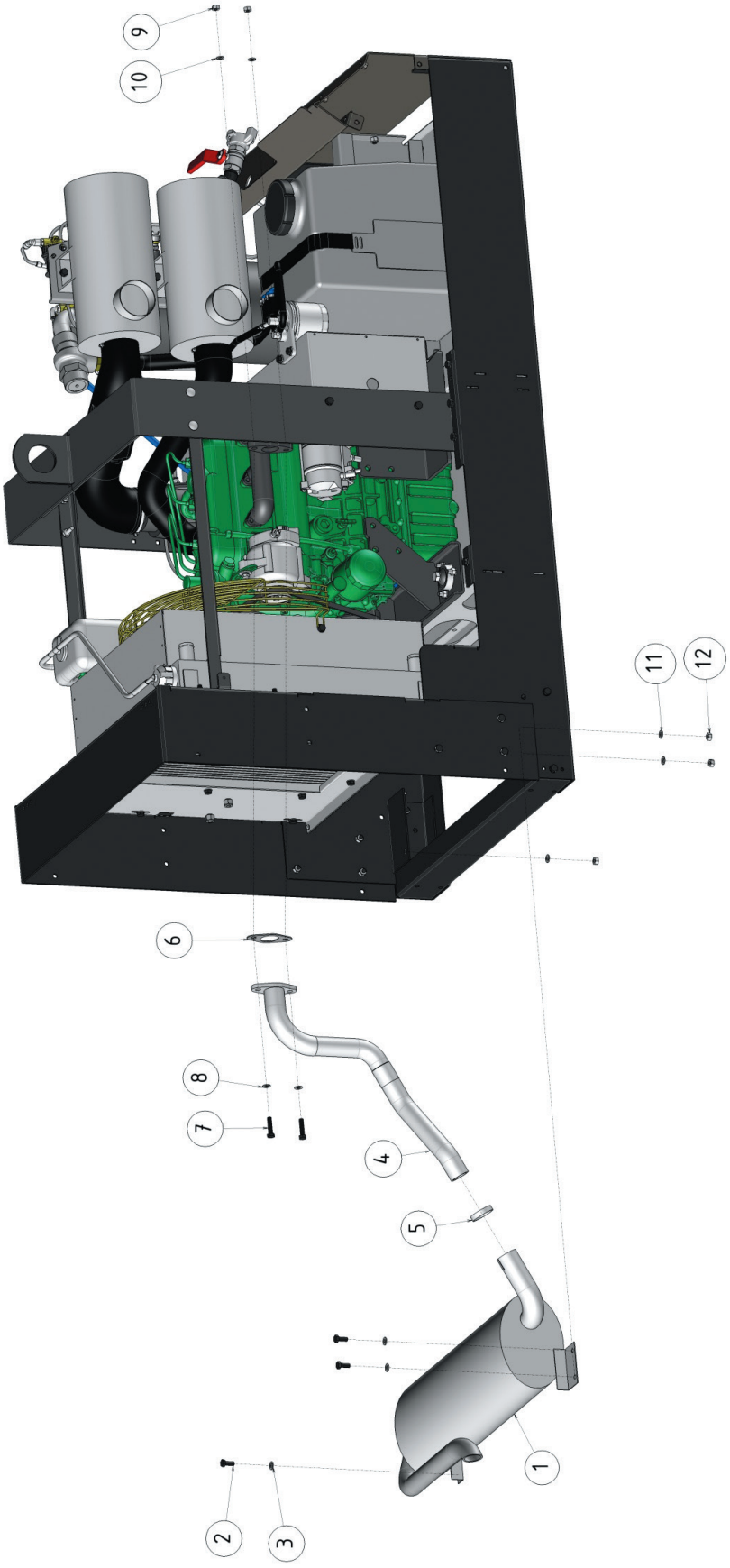


BATTERY ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0911	SCREW HM6X20	4
2	01903000 0866	WASHER, FLAT M6	4
*3	—	BATTERY	1
4	01903000 0747	BRACKET, HOLDOWN	1
5	01903000 0870	WASHER, FLAT M8	1
6	01903000 0912	SCREW HM8X20	1
7	01903000 0972	NUT	1
NS	01903000 0973	CABLE, BATTERY POS. (NOT SHOWN)	1
NS	01903000 0974	CABLE, BATTERY NEG. (NOT SHOWN)	1

**Batteries not available for purchase through Sullivan-Palatek.*

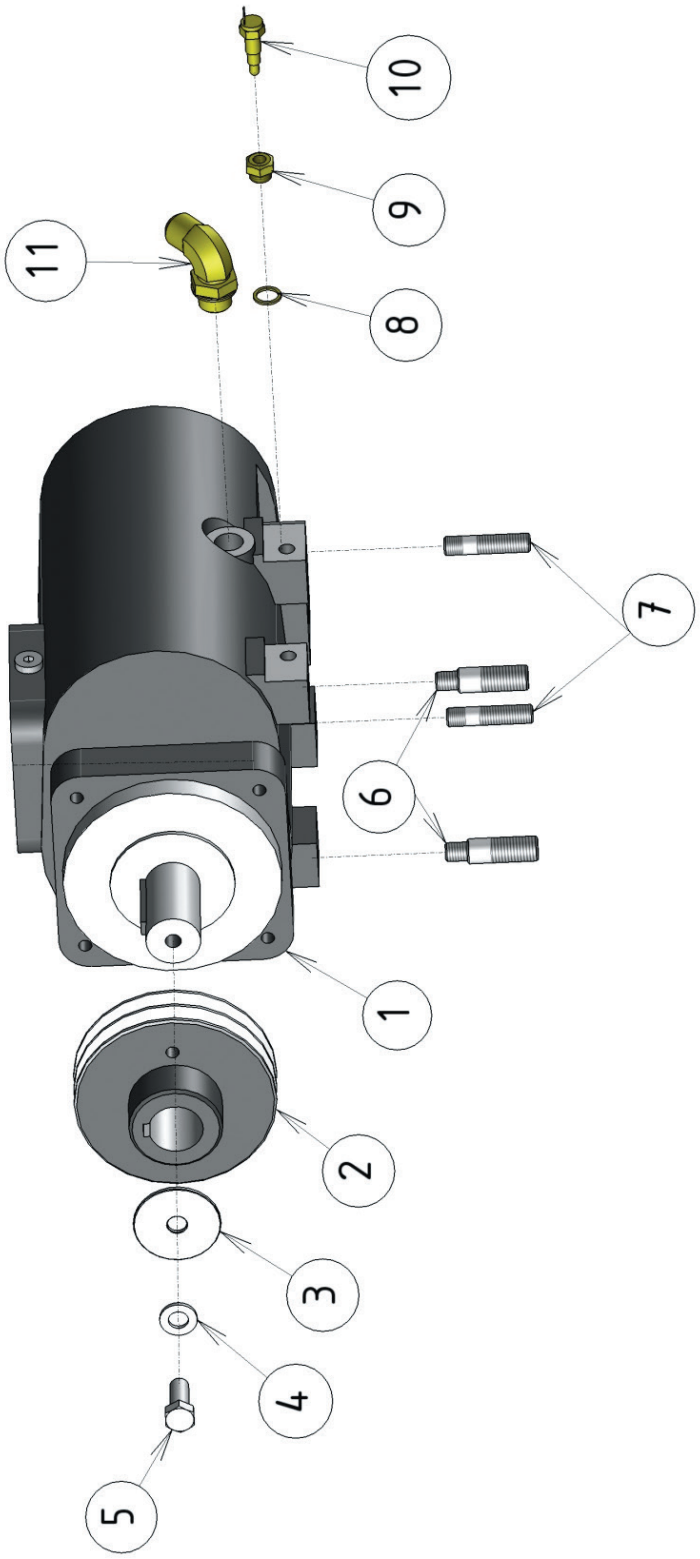
8.10 EXHAUST ASSEMBLY



EXHAUST ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0649	MUFFLER	1
2	01903000 0912	SCREW HM8X20	3
3	01903000 0870	WASHER, FLAT M8	3
4	01903000 0732	PIPE, MUFFLER INLET	1
5	01903000 0967	CLAMP, PIPE	1
6	01903000 0968	GASKET, EXHAUST PIPE	1
7	01903000 0917	SCREW HM8X35	2
8	01903000 0873	WASHER, LOC M8	2
9	01903000 0888	NUT HM8	2
10	01903000 0868	WASHER, LOC M8	2
11	01903000 0870	WASHER, FLAT M8	3
12	01903000 1590	NUT	3

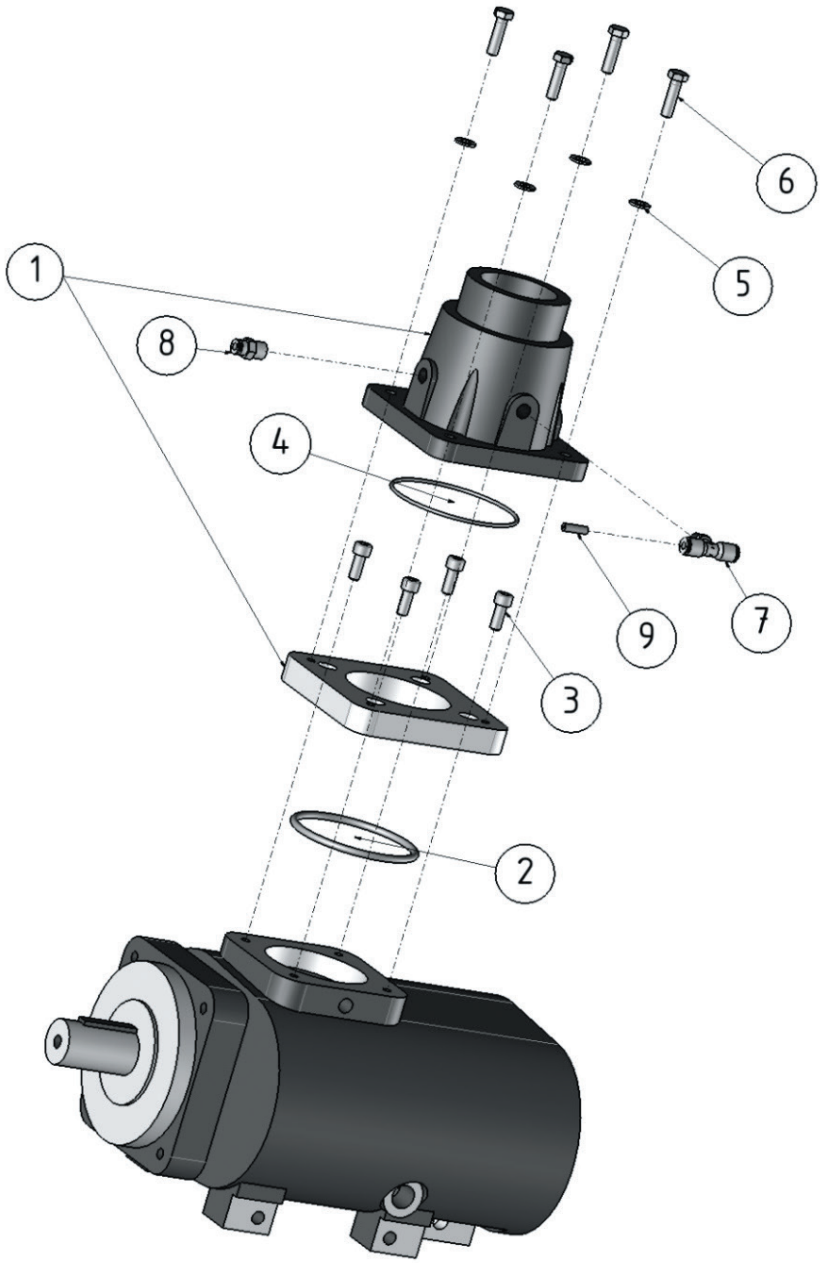
8.11 COMPRESSOR ASSEMBLY



COMPRESSOR ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0667	AIR END	1
2	01903000 0668	PULLEY	1
3	01903000 0878	WASHER	1
4	01903000 0879	WASHER, FLAT M12	1
5	01903000 0880	SCREW HM12X30	1
6	01903000 0928	BUSHING	2
7	01903000 0929	STUD, THREADED REDUCING	2
8	01903000 0930	WASHER, SEAL	1
9	01903000 0928	BUSHING	1
10	01903000 0669	PROBE, TEMPERATURE	1
11	01903000 0932	ELBOW, BSPP	1

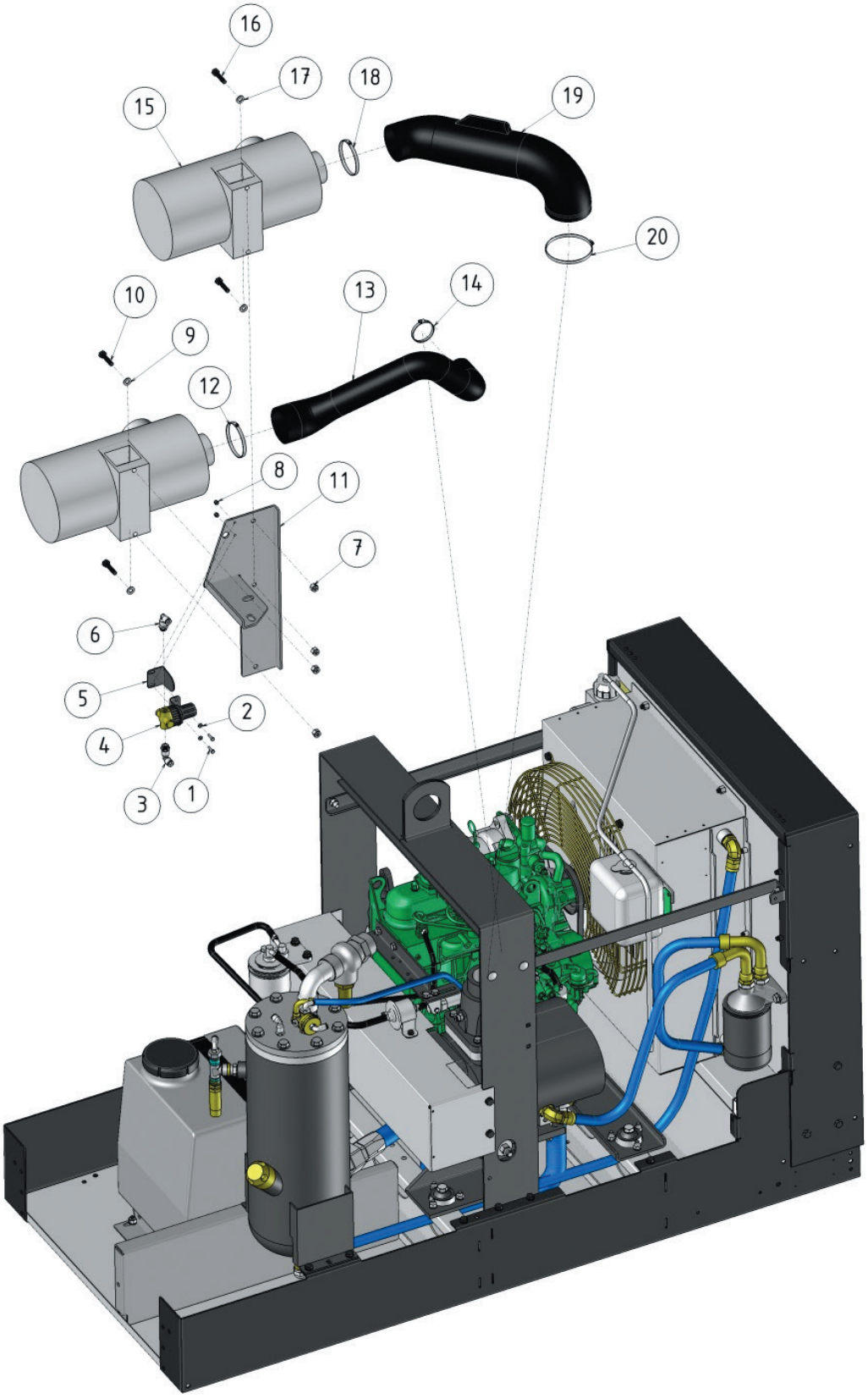
8.12 INLET VALVE ASSEMBLY



INLET VALVE ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0637	VALVE, INLET	1
2	01903000 0938	O-RING	1
3	01903000 0900	SCREW CHC M8X20	4
4	01903000 0939	O-RING	1
5	01903000 0870	WASHER, FLAT M8	4
6	01903000 0914	SCREW HM8X30	4
7	01903000 0874	TEE	1
8	01903000 0941	FITTING, STR TUBE	1
9	01903000 1581	ORIFICE	1

8.13 AIR FILTER ASSEMBLY



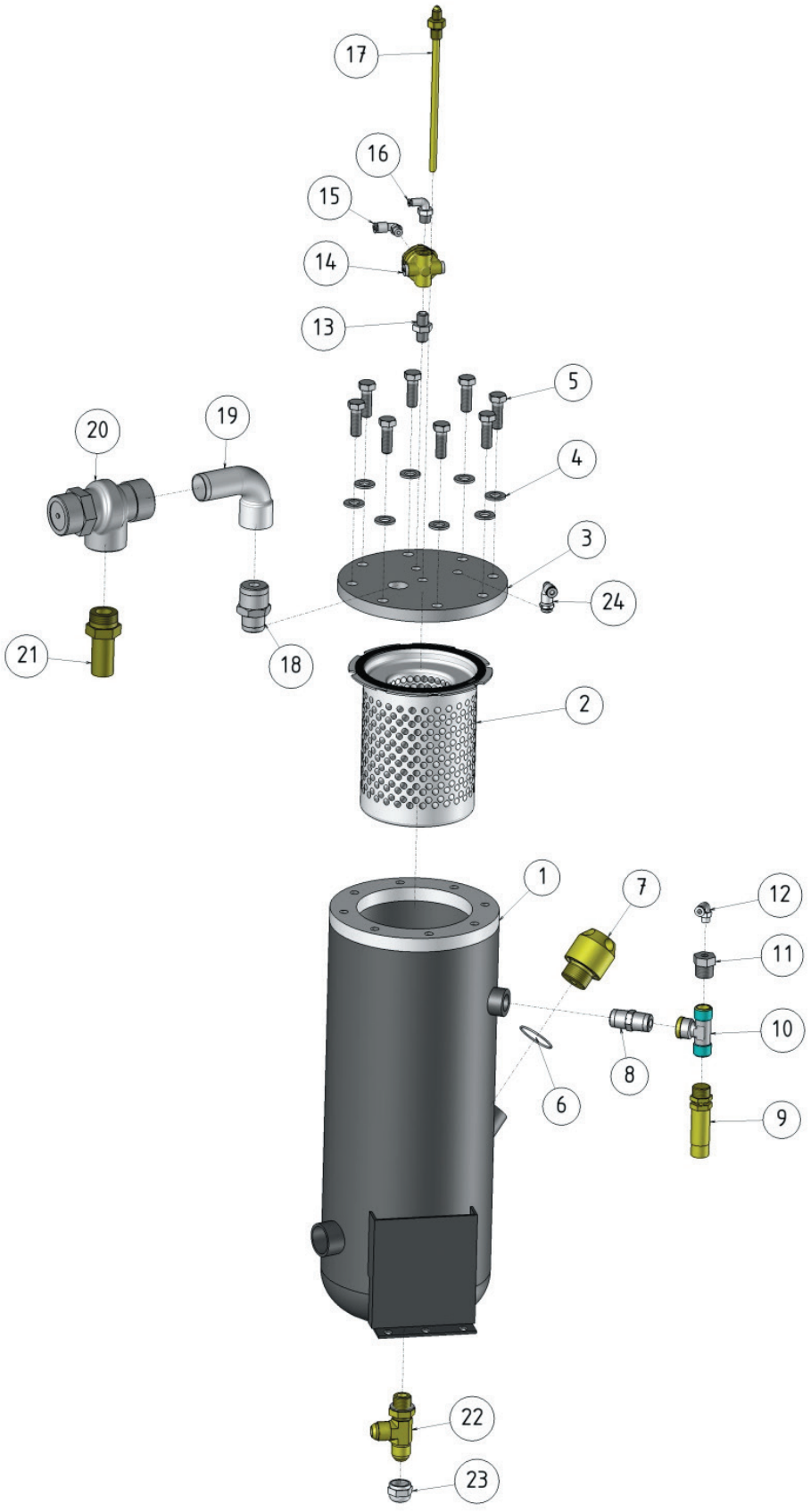
AIR FILTER ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0908	SCREW HM4X16	2
2	01903000 0894	WASHER, FLAT M4	2
3	01903000 0964	ELBOW, TUBE	1
4	01903000 0648	REGULATOR, AIR PRESSURE	1
5	01903000 0719	BRACKET, ANGLE	1
6	01903000 0964	ELBOW, TUBE	1
7	01903000 0871	SELF LOCKING NUT HM8 ZB	4
8	01903000 0884	SELF LOCKING NUT HM4	2
9	01903000 0870	WASHER, FLAT M8	2
10	01903000 0917	SCREW HM8X35	2
11	01903000 1592	BRACKET, AIR FLTR MTG	1
12	01903000 0961	CLAMP, BAND	1
13	01903000 1593	AIR HOSE	1
14	01903000 0960	CLAMP, BAND	1
15	01903000 1247	FILTER ASSEMBLY, AIR D90-110	2
16	01903000 0917	SCREW HM8X35	2
17	01903000 0870	WASHER, FLAT M8	2
18	01903000 0961	CLAMP, BAND	1
19	01903000 0720	AIR HOSE	1
20	01903000 0962	CLAMP, BAND	1

RECOMMENDED SPARE PARTS

ITEM	PART NUMBER	DESCRIPTION	QTY
NS	01903000 1248	ELEMENT, AIR FILTER PRIMARY (NOT SHOWN)	2
NS	01900522 0157	ELEMENT, AIR FILTER SECONDARY (NOT SHOWN)	2

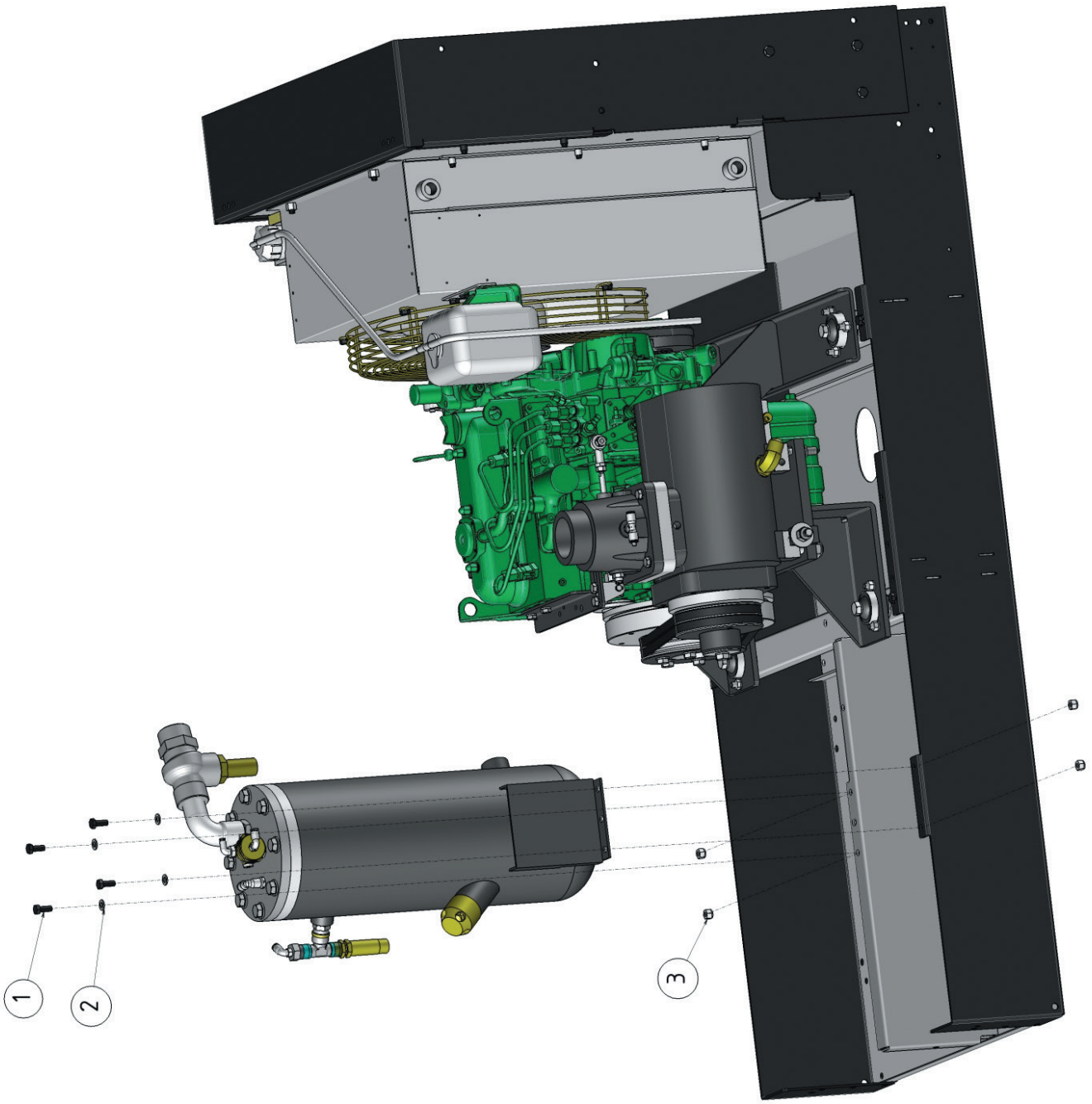
8.14 RECEIVER ASSEMBLY



RECEIVER ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 1604	TANK, SEPARATOR	1
2	01903000 0638	ELEMENT, SEPARATOR	1
3	N/A	TANK LID (INCLUDED WITH 01903000 1604)	1
4	01903000 0879	WASHER, FLAT M12	8
5	01903000 0880	SCREW HM12X30	8
6	01903000 0942	SEAL, OIL FILL	1
7	01903000 0698	CAP, OIL FILL	1
8	01903000 1595	NIPPLE	1
9	01903000 0699	VALVE	1
10	01903000 1596	TEE	1
11	01903000 1597	BUSHING	1
12	01903000 0940	ELBOW, TUBE	1
13	01903000 0933	NIPPLE	1
14	01903000 0700	VALVE, PILOT NC	1
15	01903000 0940	ELBOW, TUBE	1
16	01903000 0944	ELBOW	1
17	01903000 1599	TUBE, OIL PICK UP	1
18	01903000 1594	ADAPTER, HOSE	1
19	01903000 1600	ELBOW	1
20	01903000 1598	VALVE, MPV	1
21	01903000 1601	ADAPTER, HOSE	1
22	01903000 1602	TEE	1
23	01903000 1603	CAP, JIC	1
24	01903000 0964	ELBOW, TUBE	1

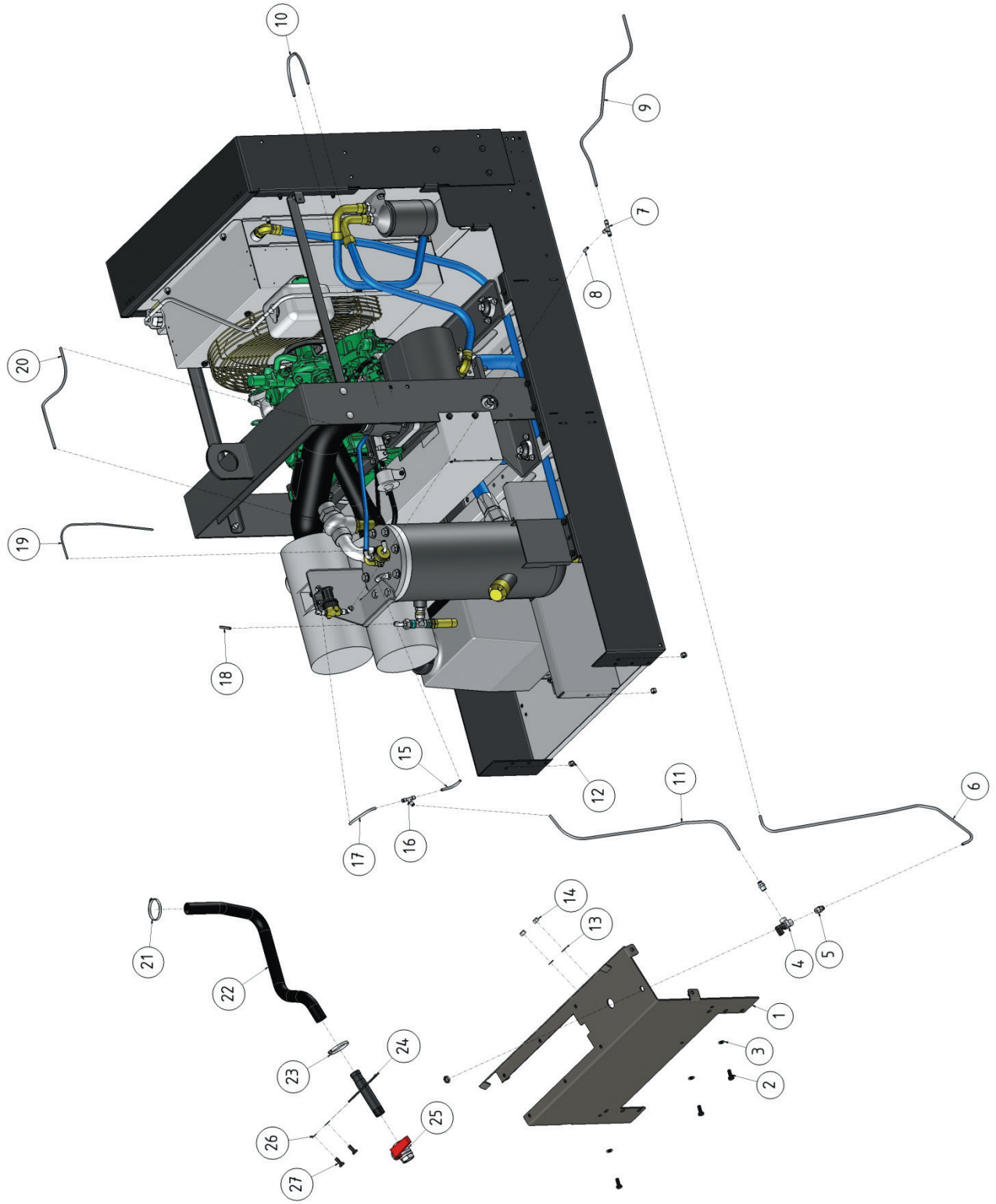
8.15 RECEIVER ASSEMBLY TO FRAME



RECEIVER ASSEMBLY TO FRAME

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0912	SCREW HM8X20	4
2	01903000 0870	WASHER, FLAT M8	4
3	01903000 0963	NUT	1

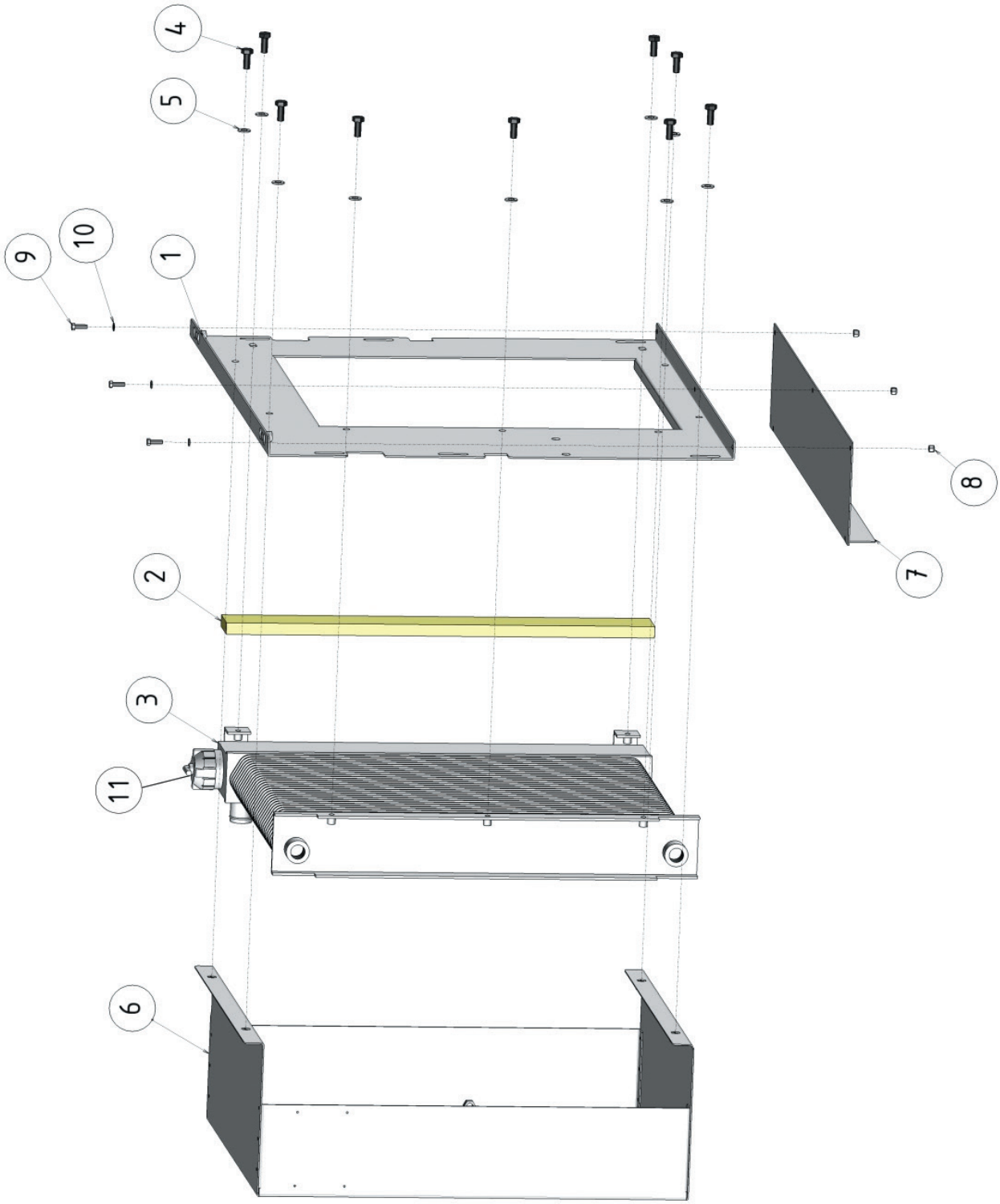
8.16 CONTROL TUBING ASSEMBLY



CONTROL TUBING ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0724	STAND	1
2	01903000 0912	SCREW HM8X20	3
3	01903000 0870	WASHER, FLAT M8	3
4	01903000 0983	VALVE, START/STOP/RUN	1
5	01903000 0941	FITTING, STR TUBE	2
6	01903000 0727-48	TUBING, 6MM OD	48"
7	01903000 1605	TEE	1
8	01903000 0727-10	TUBING, 6MM OD	10"
9	01903000 0727-16	TUBING, 6MM OD	16"
10	01903000 0727-18	TUBING, 6MM OD	18"
11	01903000 0727-28	TUBING, 6MM OD	28"
12	01903000 0871	SELF LOCKING NUT HM8 ZB	3
13	01903000 0870	WASHER, FLAT M8	2
14	01903000 0871	SELF LOCKING NUT HM8 ZB	2
15	01903000 0727-5	TUBING, 6MM OD	5"
16	01903000 1605	TEE	1
17	01903000 0727-6	TUBING, 6MM OD	6"
18	01903000 0727-40	TUBING, 6MM OD	40"
19	01903000 0728-30	TUBING, 4MM OD	30"
20	01903000 0727-18	TUBING, 6MM OD	18"
21	01903000 0937	CLAMP, HOSE	1
22	01903000 0726-26	HOSE, RUBBER	26"
23	01903000 0937	CLAMP, HOSE	1
24	01903000 0725	TUBE	1
25	00915786 0012	VALVE, .75 IN BALL VENTED	1
26	01903000 0870	WASHER, FLAT M8	2
27	01903000 0912	SCREW HM8X20	2

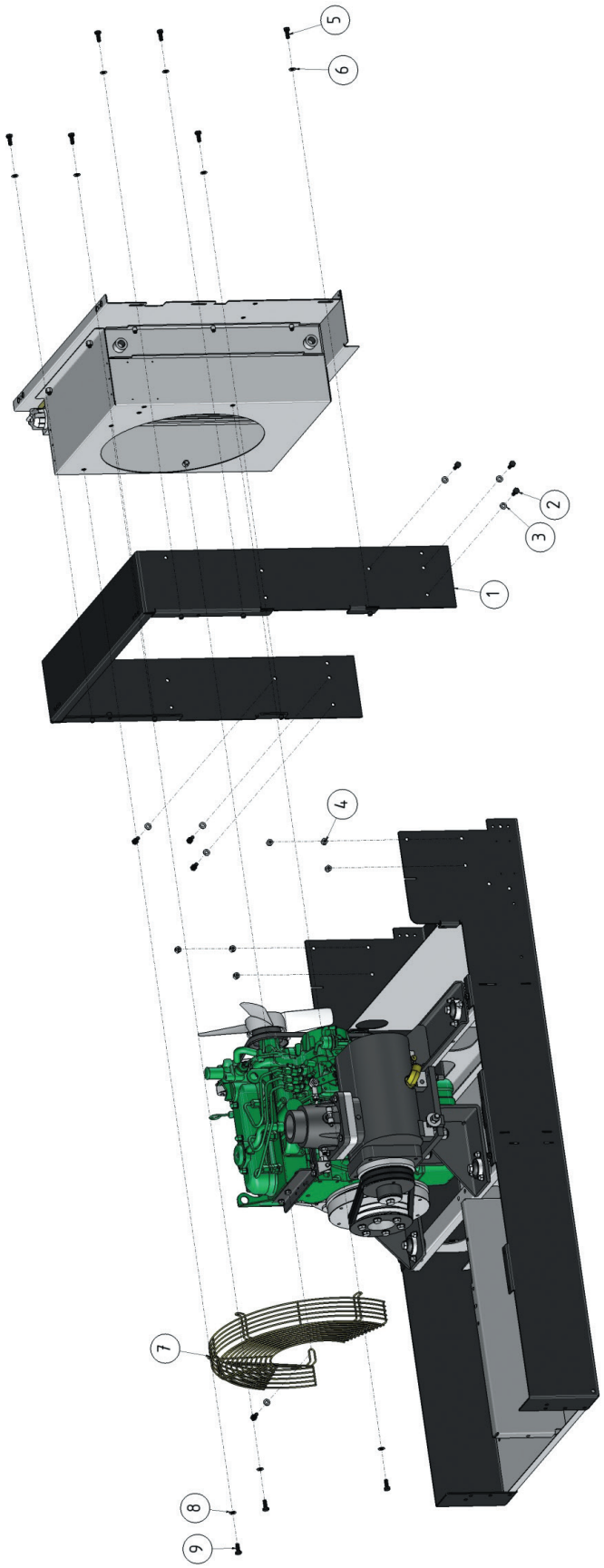
8.17 COOLING ASSEMBLY



COOLING ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0687	PANEL	1
2	01903000 0688	FOAM, OPEN CELL	1
3	01903000 1606	COOLER	1
4	01903000 0912	SCREW HM8X20	9
5	01903000 0870	WASHER, FLAT M8	9
6	01903000 0690	SHROUD, RADIATOR	1
7	01903000 0691	BRACKET, RADIATOR SUPPORT	1
8	01903000 0885	SELF LOCKING NUT HM5 CL8,8 ZB	3
9	01903000 0909	SCREW HM5X16	3
10	01903000 0895	WASHER, FLAT M5	3
11	01903000 1192	CAP, COOLER/RADIATOR	1

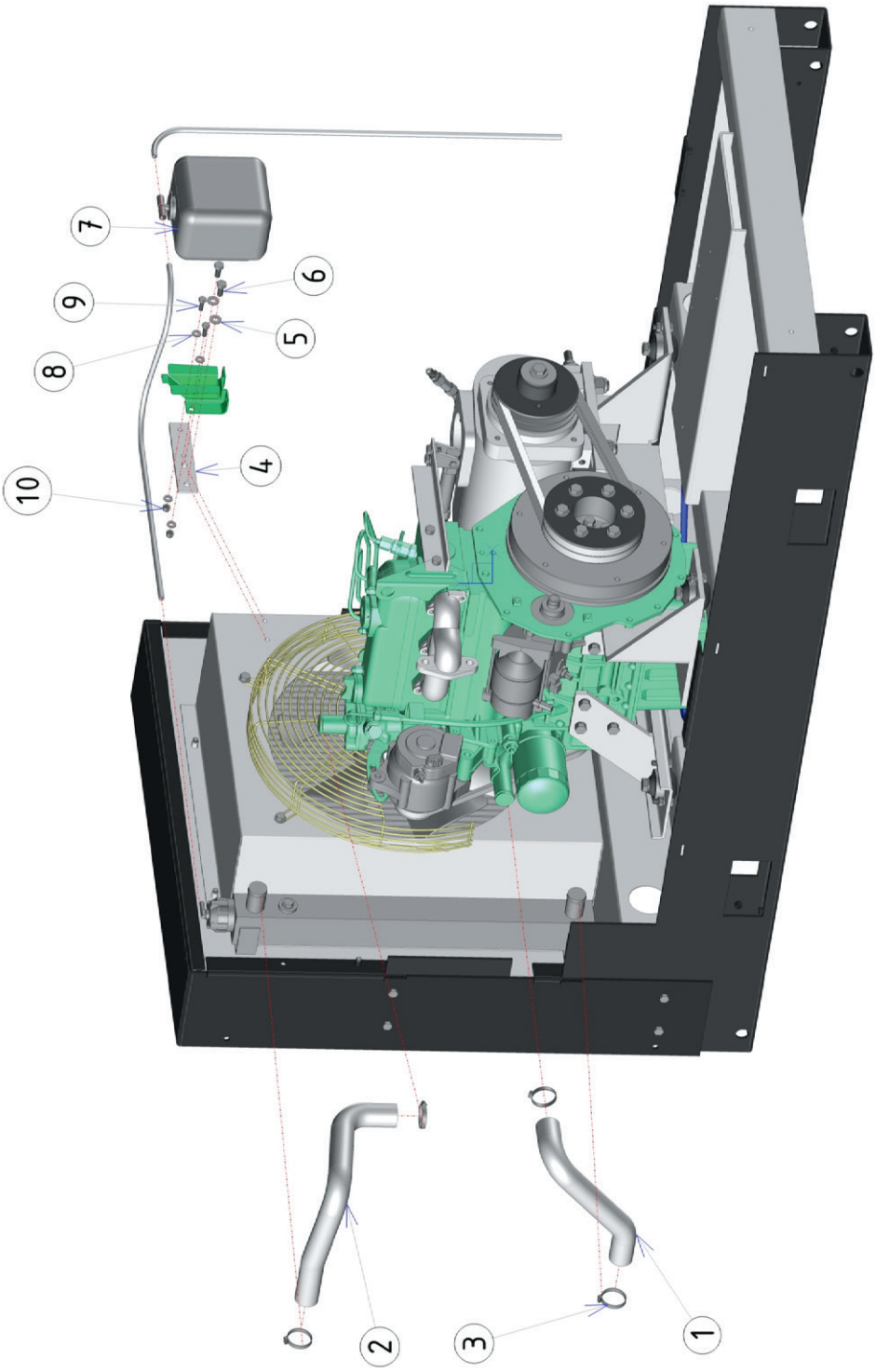
8.18 COOLING ASSEMBLY ATTACHMENT TO FRAME



COOLING ASSEMBLY ATTACHMENT TO FRAME

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0692	FRAME	1
2	01903000 0912	SCREW HM8X20	6
3	01903000 0870	WASHER, FLAT M8	6
4	01903000 0871	SELF LOCKING NUT HM8 ZB	6
5	01903000 0912	SCREW HM8X20	6
6	01903000 0870	WASHER, FLAT M8	6
7	01903000 0693	FAN GUARD, D90PKU	1
8	01903000 0870	WASHER, FLAT M8	4
9	01903000 0912	SCREW HM8X20	4

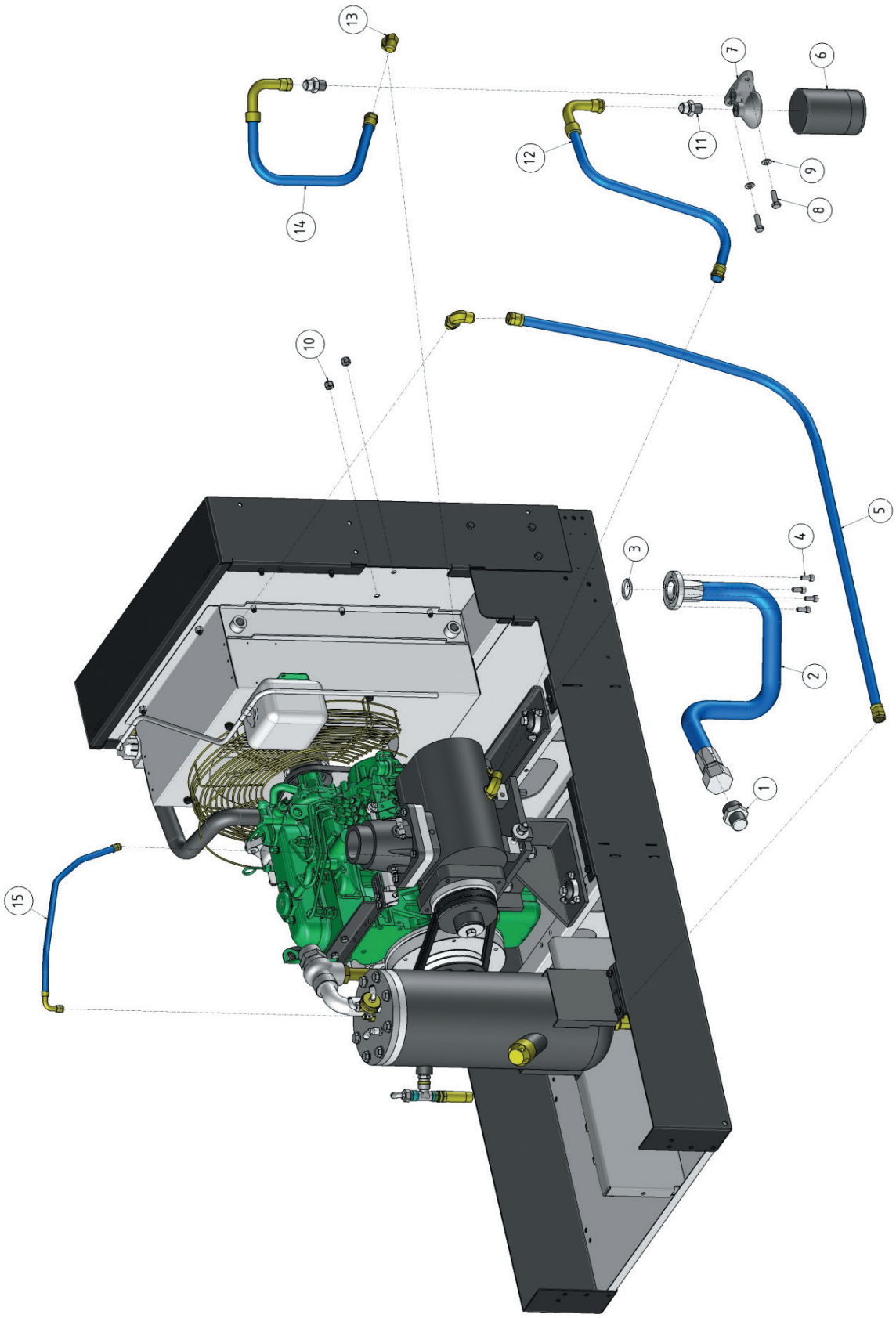
8.19 COOLING SYSTEM, HOSES AND RECOVERY TANK INSTALLATION



COOLING SYSTEM, HOSES AND RECOVERY TANK INSTALLATION

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0635	HOSE, LOWER RADIATOR	1
2	01903000 0636	HOSE, UPPER RADIATOR	1
3	01903000 0937	CLAMP, HOSE	4
4	01903000 0694	TANK SUPPORT	1
5	01903000 0870	WASHER, FLAT M8	2
6	01903000 0912	SCREW HM8x20	2
7	01903000 0695	EXPANSION TANK	1
8	01903000 0866	WASHER, FLAT M6	4
9	01903000 0911	SCREW HM6x20	2
10	01903000 0887	SELF LOCKING NUT HM6 CL8 Z B	2

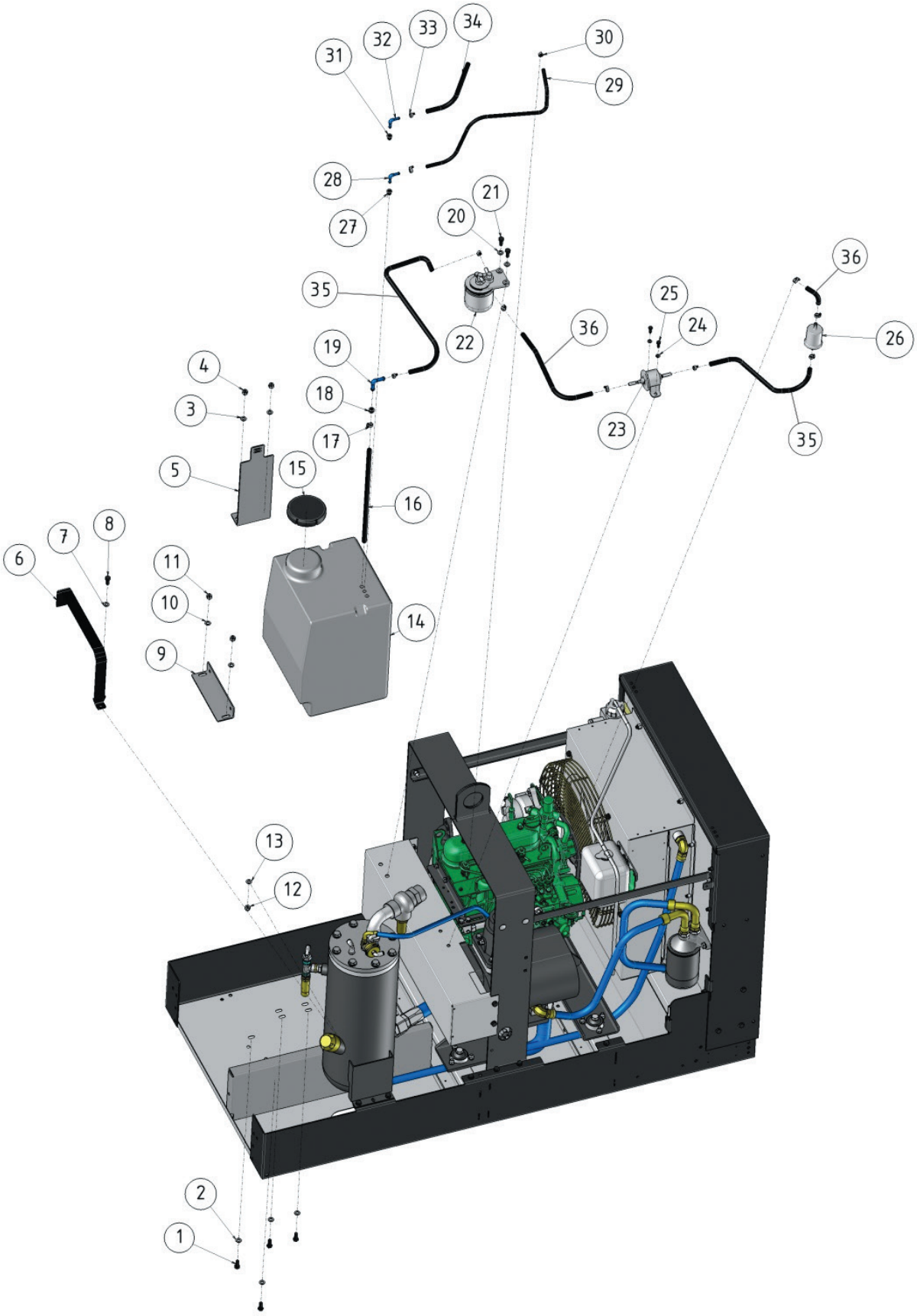
8.20 OIL FILTER AND DISCHARGE HOSE ASSEMBLY



OIL FILTER AND DISCHARGE HOSE ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0948	ADAPTER, HOSE	1
2	01903000 0640	HOSE (2)	1
3	01903000 0949	O-RING	1
4	01903000 0900	SCREW CHC M8X20	4
5	01903000 1585	HOSE	1
6	01903000 0639	ELEMENT, COMPRESSOR OIL FILTER	1
7	01903000 0705	FLANGE	1
8	01903000 0904	SCREW HM10X30 CL8,8 ZB	2
9	01903000 0864	WASHER, FLAT M10	2
10	01903000 0881	SELF LOCKING NUT HM10	2
11	01903000 0950	NIPPLE	2
12	01903000 1582	HOSE	1
13	01903000 0932	ELBOW, BSPP	2
14	01903000 1583	HOSE	1
15	01903000 1586	HOSE	1

8.21 FUEL TANK ASSEMBLY



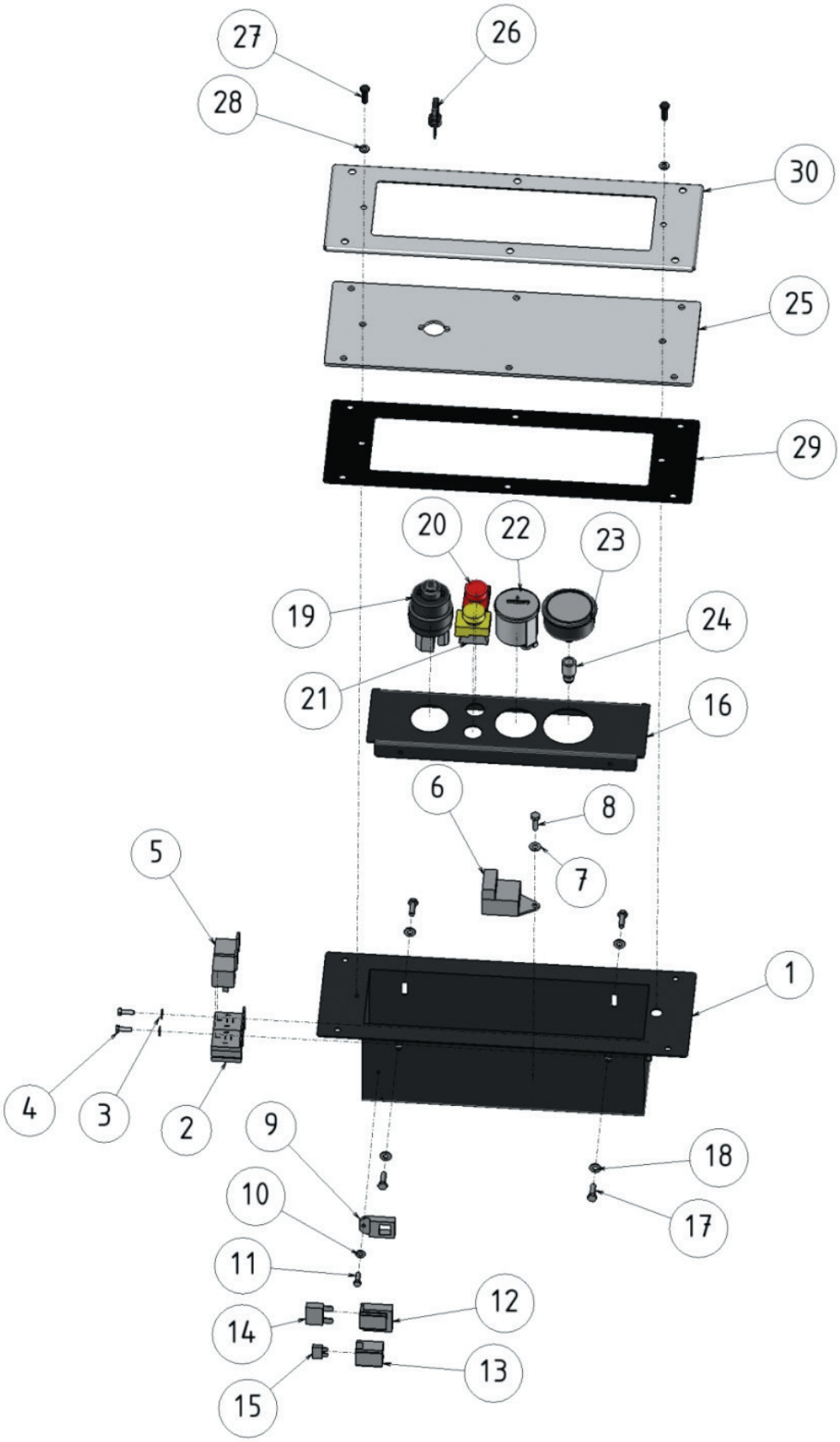
FUEL TANK ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0912	SCREW HM8X20	4
2	01903000 0870	WASHER, FLAT M8	4
3	01903000 0870	WASHER, FLAT M8	2
4	01903000 0963	NUT	2
5	01903000 0954	BRACKET, FUEL TANK	1
6	01903000 0956	STRAP, FUEL TANK	1
7	01903000 0870	WASHER, FLAT M8	1
8	01903000 0912	SCREW HM8X20	1
9	01903000 0955	BRACKET, ANGLE	1
10	01903000 0870	WASHER, FLAT M8	2
11	01903000 0871	SELF LOCKING NUT HM8 ZB	2
12	01903000 0871	SELF LOCKING NUT HM8 ZB	1
13	01903000 0870	WASHER, FLAT M8	1
14	01903000 0953	TANK, FUEL	1
15	01903000 0952	CAP, FUEL TANK	1
16	01903000 0957-15	HOSE, FUEL	15"
17	01903000 0958	CLAMP, HOSE	9
18	01903000 1607	CLAMP, HOSE	1
19	01903000 1609	ELBOW, TUBE	1
20	01903000 0870	WASHER, FLAT M8	2
21	01903000 0912	SCREW HM8X20	2
22	01903000 0712	FILTER ASSY, FUEL	1
23	01903000 0646	PUMP, FUEL	1
24	01903000 0866	WASHER, FLAT M6	2
25	01903000 1611	SCREW	2
26	01903000 0644	PRE-FILTER, FUEL	1
27	01903000 1607	CLAMP, HOSE	1
28	01903000 1610	ELBOW, TUBE	1
29	01903000 0959-30	HOSE, FUEL	30"
30	01903000 1618	CLAMP, HOSE	2
31	01903000 1607	CLAMP, HOSE	1
32	01903000 1610	ELBOW, TUBE	1
33	01903000 1618	CLAMP, HOSE	1
34	01903000 0957-16	HOSE, FUEL	16"
35	01903000 0957-24	HOSE, FUEL	24"
36	01903000 0957-18	HOSE, FUEL	18"

RECOMMENDED SPARE PARTS

ITEM	PART NUMBER	DESCRIPTION	QTY
NS	01903000 0645	ELEMENT, FUEL FILTER (NOT SHOWN)	1

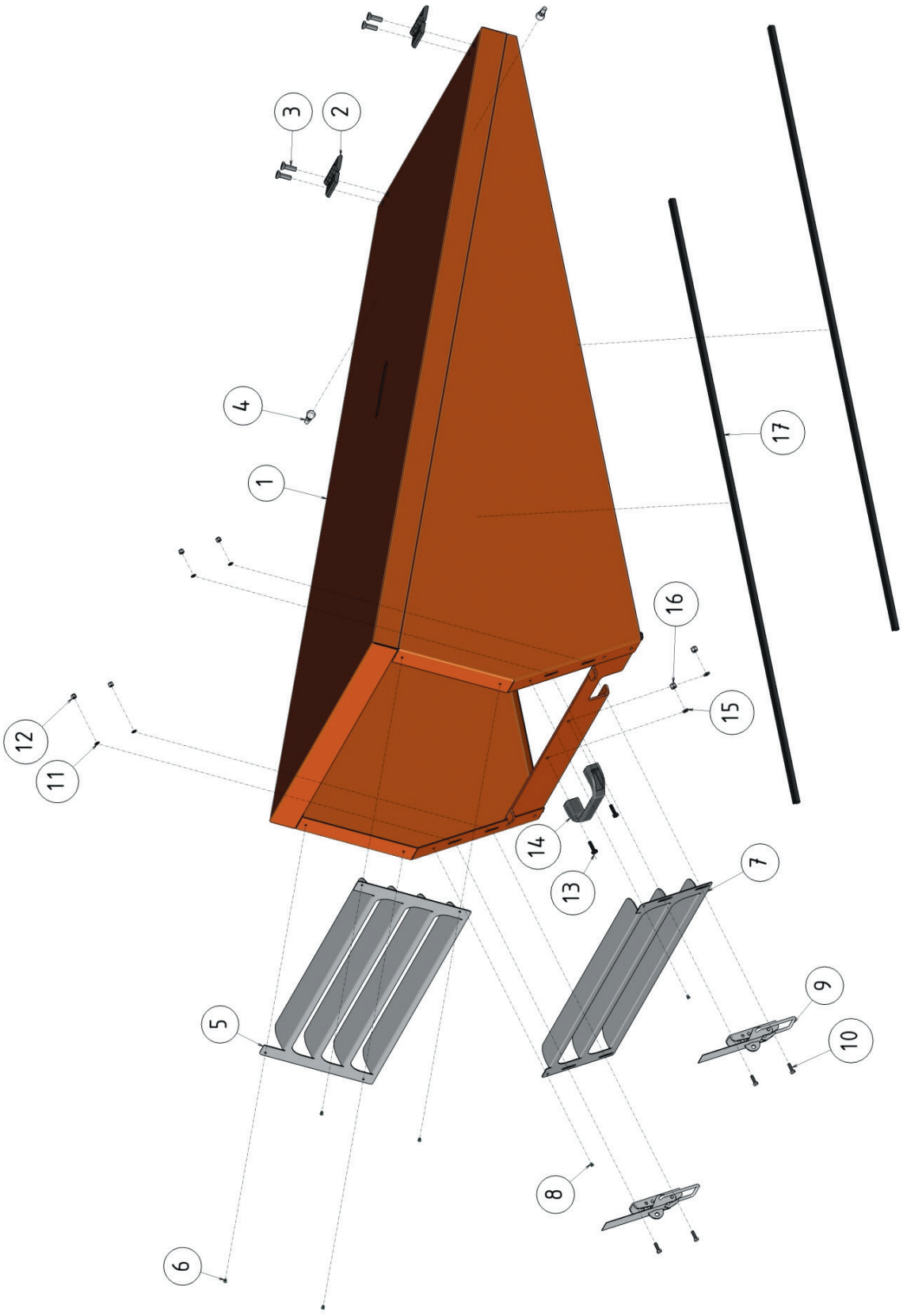
8.22 INSTRUMENT PANEL ASSEMBLY



INSTRUMENT PANEL ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0741	BOX, INSTRUMENT PANEL	1
2	CABLE HARNESS SUPPLY	RELAY SUPPORT	2
3	01903000 0895	WASHER, FLAT M5	2
4	01903000 0909	SCREW HM5X16	2
5	01903000 1638	SAFETY RELAY	2
6	01903000 1639	TIMER RELAY	1
7	01903000 0866	WASHER, FLAT M6	1
8	01903000 0911	SCREW HM6X20	1
9	CABLE HARNESS SUPPLY	FUSE HOLDER CLIP	1
10	01903000 0895	WASHER, FLAT M5	1
11	01903000 0909	SCREW HM5X16	1
12	CABLE HARNESS SUPPLY	FUSE HOLDER	1
13	CABLE HARNESS SUPPLY	FUSE HOLDER	1
14	CABLE HARNESS SUPPLY	FUSE	1
15	CABLE HARNESS SUPPLY	FUSE	1
16	01903000 0742	SUPPORT	1
17	01903000 0911	SCREW HM6X20	4
18	01903000 0866	WASHER, FLAT M6	4
19	01903000 1048	SWITCH, IGNITION	1
20	01903000 1049	LIGHT, RED INDICATOR	1
21	01903000 1051	LIGHT, ORANGE INDICATOR	1
22	01903000 0743	METER, HOUR	1
23	01903000 0744	GAUGE, AIR PRESSURE	1
24	01903000 0970	QUICK CONNECT	1
25	01903000 1045	COVER, PLEXIGLASS	1
26	01903000 1040	KEY, SWITCH	1
27	01903000 0867	SCREW HM6X25	2
28	01903000 0866	WASHER, FLAT M6	2
29	01903000 1046	SEAL, INSTRU PNL FOAM	1
30	01903000 1047	PLEXI REINFORCEMENT	1
NS	01903000 0746	CABLE HARNESS (NOT SHOWN)	1

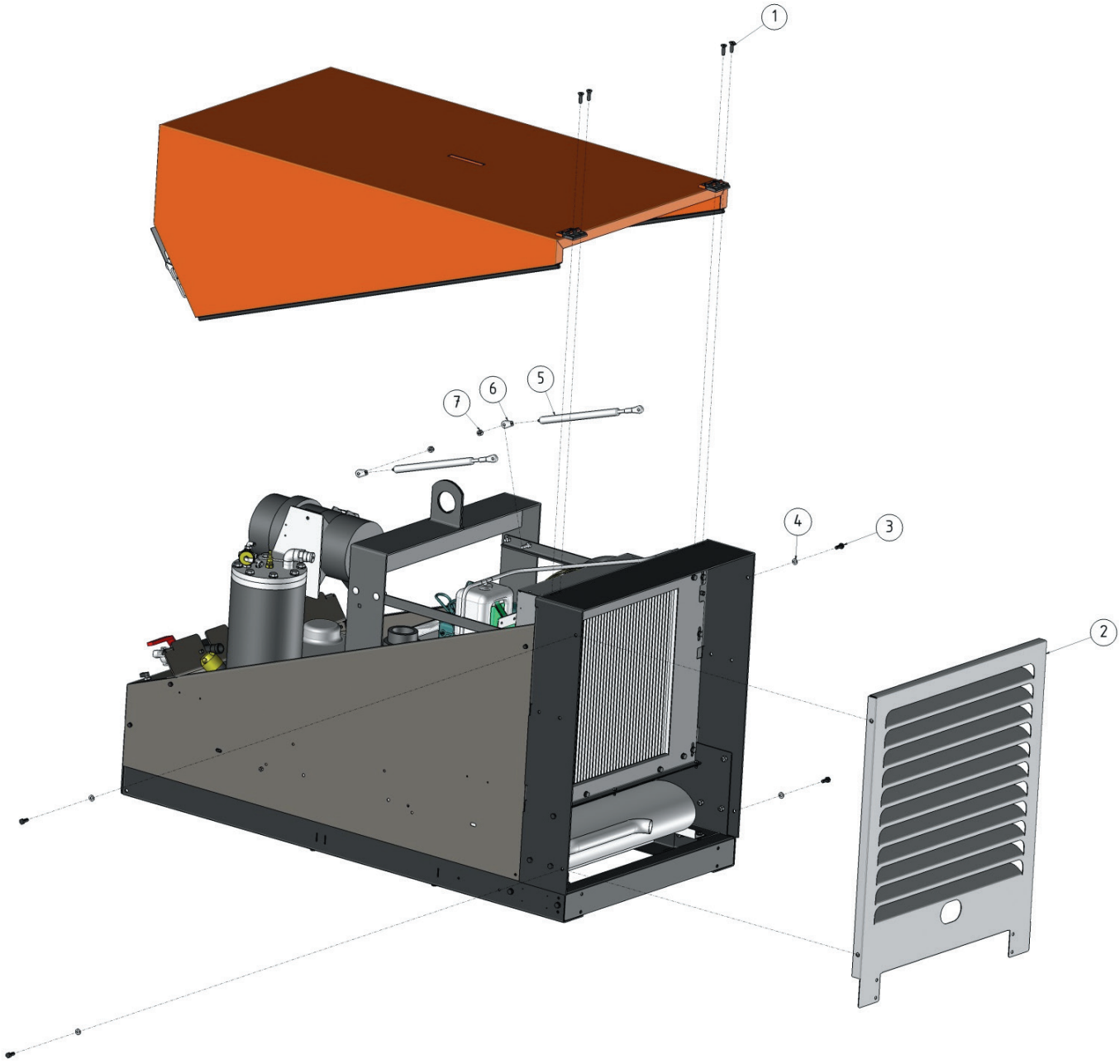
8.23 CANOPY ASSEMBLY



CANOPY ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 1587	HD,ORANGE	1
	01903000 1588	HD,GREEN	1
2	01903000 0750	HINGE	2
3	01903000 1640	SCREW	4
4	01903000 0751	JOINT, BALL	2
5	01903000 1641	GRATE	1
6	01903000 0891	RIVET Ø4 L16	4
7	01903000 1643	GRATE	1
8	01903000 0891	RIVET Ø4 L16	2
9	01903000 0754	LATCH, OVER CENTER CAM	2
10	01903000 0909	SCREW HM5X16	4
11	01903000 0866	WASHER, FLAT M6	2
12	01903000 0887	SELF LOCKING NUT HM6 CL8 Z B	2
13	01903000 0911	SCREW HM6X20	2
14	01903000 0755	HANDLE	1
15	01903000 0895	WASHER, FLAT M5	4
16	01903000 0885	SELF LOCKING NUT HM5 CL8,8 ZB	4
17	01903000 0756	FOAM, CLOSED CELL	2

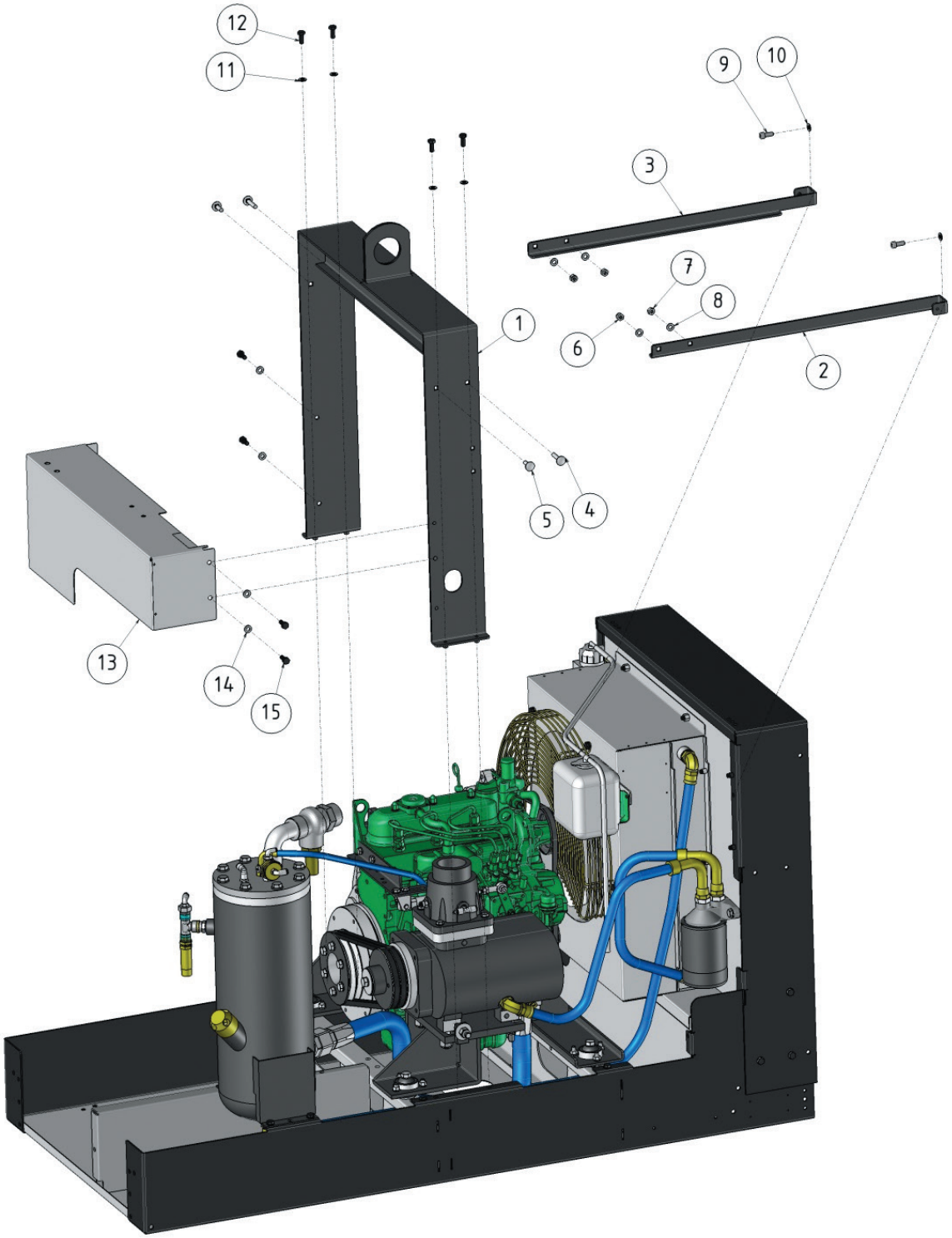
8.24 CANOPY INSTALLATION



CANOPY INSTALLATION

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 1640	SCREW	4
2	01903000 1644	GRATE	1
3	01903000 0912	SCREW HM8X20	4
4	01903000 0870	WASHER, FLAT M8	4
5	01903000 0759	SUPPORT, GAS SPRING	2
6	01903000 0760	RODEND, THREADED SWIVEL	2
7	01903000 0871	SELF-LOCKING NUT HM8 ZB	2

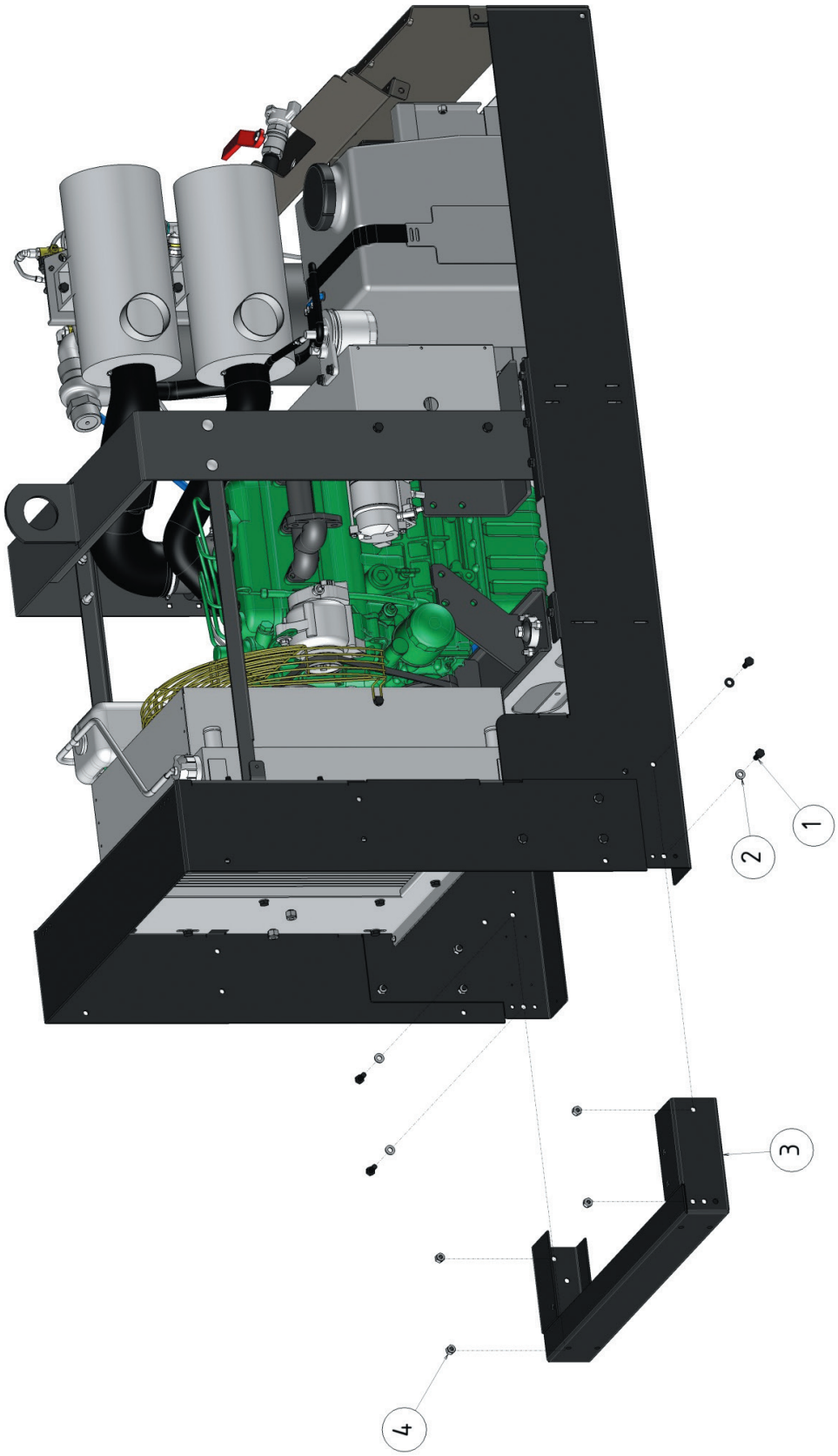
8.25 LIFTING BAIL ASSEMBLY



LIFTING BAIL ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0735	SUPPORT	1
2	01903000 0736	BRACE	1
3	01903000 0737	BRACE	1
4	01903000 0916	SCREW M8X40 DOME HEAD SQ COL	2
5	01903000 0915	SCREW M8X25 DOME HEAD SQ COL	2
6	01903000 0871	SELF LOCKING NUT HM8 ZB	2
7	01903000 0888	NUT HM8	2
8	01903000 0870	WASHER, FLAT M8	4
9	01903000 0900	SCREW CHC M8X20	2
10	01903000 0870	WASHER, FLAT M8	2
11	01903000 0870	WASHER, FLAT M8	4
12	01903000 0912	SCREW HM8X20	4
13	01903000 1645	GUARD, BELT	1
14	01903000 0870	WASHER, FLAT M8	4
15	01903000 0912	SCREW HM8X20	4

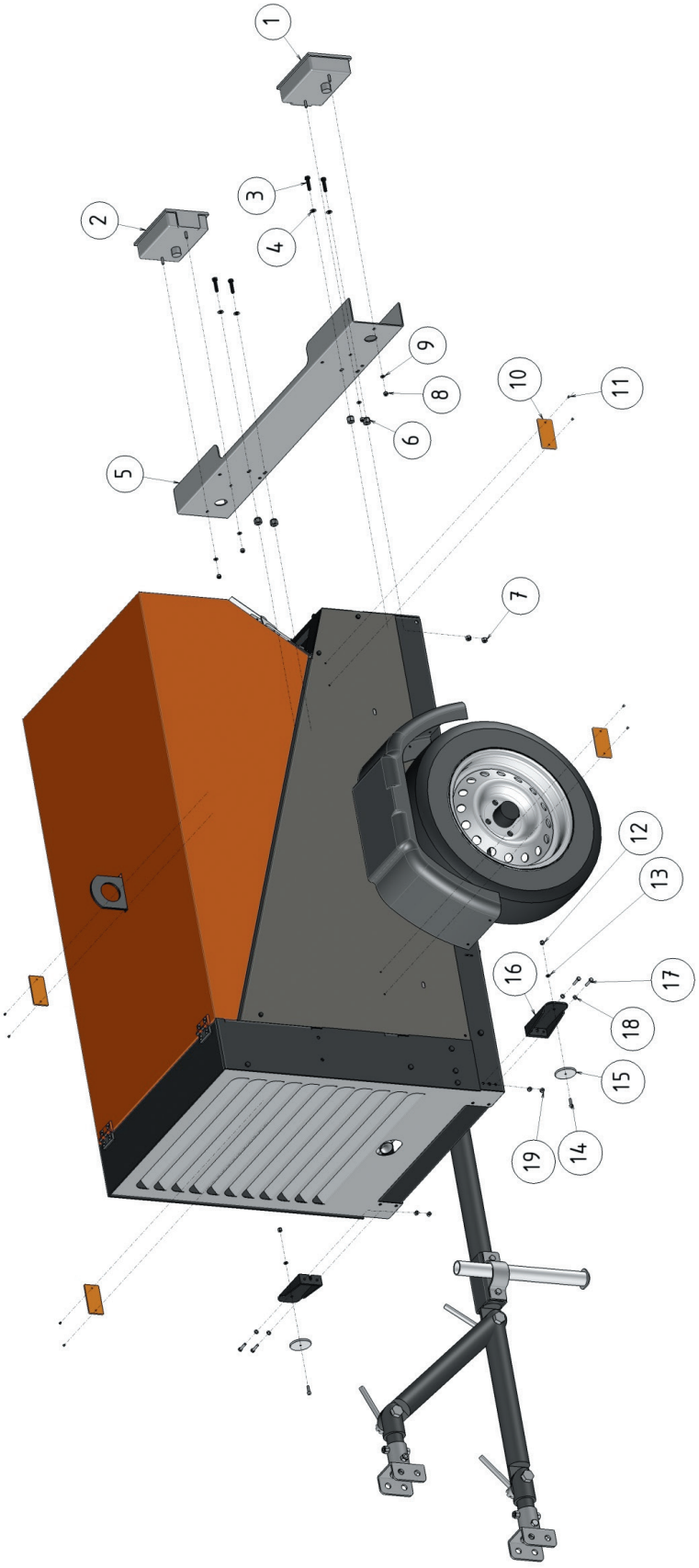
8.26 FRONT CROSSMEMBER ASSEMBLY



BUMPER ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0912	SCREW HM8X20	4
2	01903000 0870	WASHER, FLAT M8	4
3	01903000 0730	CROSSMEMBER, FRONT	1
4	01903000 0871	SELF LOCKING NUT HM8 ZB	4

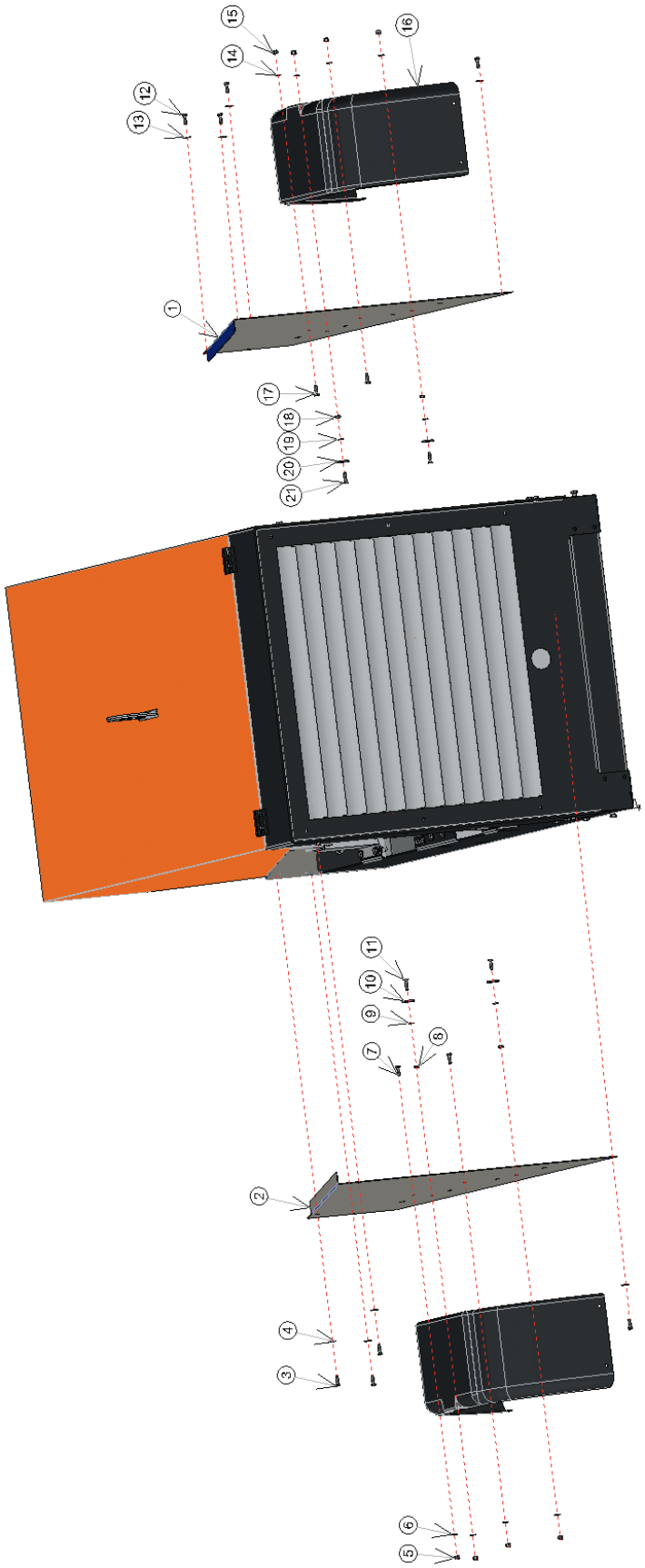
8.27 LIGHT PACKAGE



LIGHT PACKAGE

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0978	TAIL LIGHT, LEFT	1
2	01903000 0979	TAIL LIGHT, RIGHT	1
3	01903000 0917	SCREW HM8X35	4
4	01903000 0870	WASHER, FLAT M8	4
5	01903000 1648	BUMPER, REAR	1
6	01903000 0882	SELF LOCKING NUT HM12	4
7	01903000 0972	NUT	4
8	01903000 0887	SELF LOCKING NUT HM6 CL8 Z B	4
9	01903000 0895	WASHER, FLAT M5	4
10	01903000 0815	REFLECTOR, RED	4
11	01903000 0975	RIVET	8
12	01903000 0887	SELF LOCKING NUT HM6 CL8 Z B	2
13	01903000 0895	WASHER, FLAT M5	2
14	01903000 0899	SCREW CHC M6X20	2
15	01903000 0807	REFLECTOR	2
16	01903000 0819	SUPPORT	2
17	01903000 0899	SCREW CHC M6X20	4
18	01903000 0870	WASHER, FLAT M8	4
19	01903000 0887	SELF LOCKING NUT HM6 CL8 Z B	4
NS	01903000 0980	HARNESS, WIRE TAIL LIGHTS (NOT SHOWN)	1

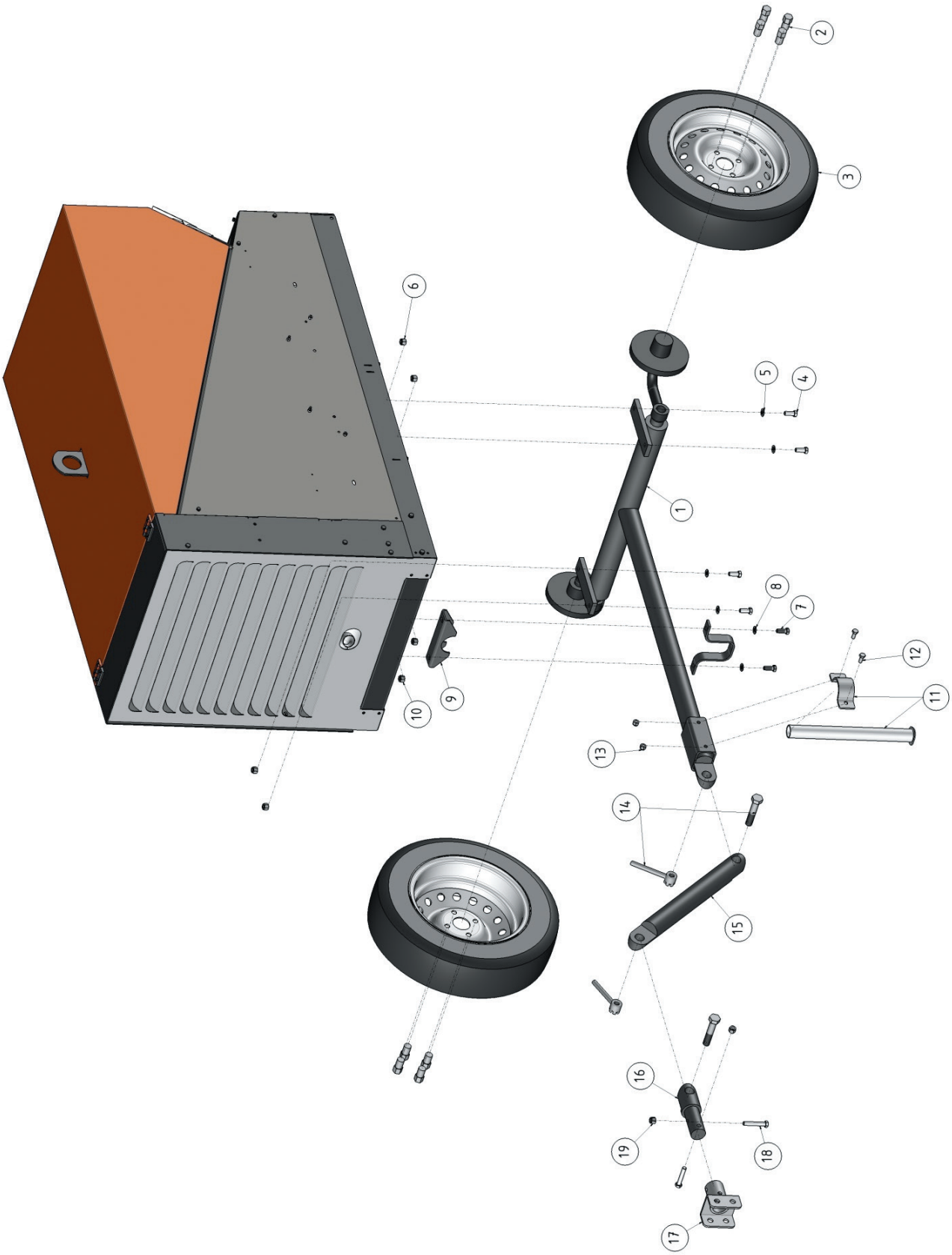
8.28 FENDER INSTALLATION



FENDER INSTALLATION

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 1649	PANEL, STREETSIDE	1
2	01903000 1650	PANEL, CURBSIDE	1
3	01903000 0911	SCREW HM6X20	4
4	01903000 0866	WASHER, FLAT M6	4
5	01903000 0887	SELF LOCKING NUT HM6 CL8 Z B	4
6	01903000 0866	WASHER, FLAT M6	4
7	01903000 0911	SCREW HM6X20	2
8	01903000 0887	SELF LOCKING NUT HM6 CL8 Z B	2
9	01903000 0866	WASHER, FLAT M6	2
10	01903000 0893	WASHER, FLAT L10	2
11	01903000 0901	SCREW FHC M6-25	2
12	01903000 0911	SCREW HM6X20	4
13	01903000 0866	WASHER, FLAT M6	4
14	01903000 0866	WASHER, FLAT M6	4
15	01903000 0887	SELF LOCKING NUT HM6 CL8 Z B	4
16	01903000 0812	FENDER	2
17	01903000 0911	SCREW HM6X20	2
18	01903000 0887	SELF LOCKING NUT HM6 CL8 Z B	2
19	01903000 0866	WASHER, FLAT M6	2
20	01903000 0893	WASHER, FLAT L10	2
21	01903000 0901	SCREW FHC M6-25	2

8.29 AXLE AND WHEEL ASSEMBLY



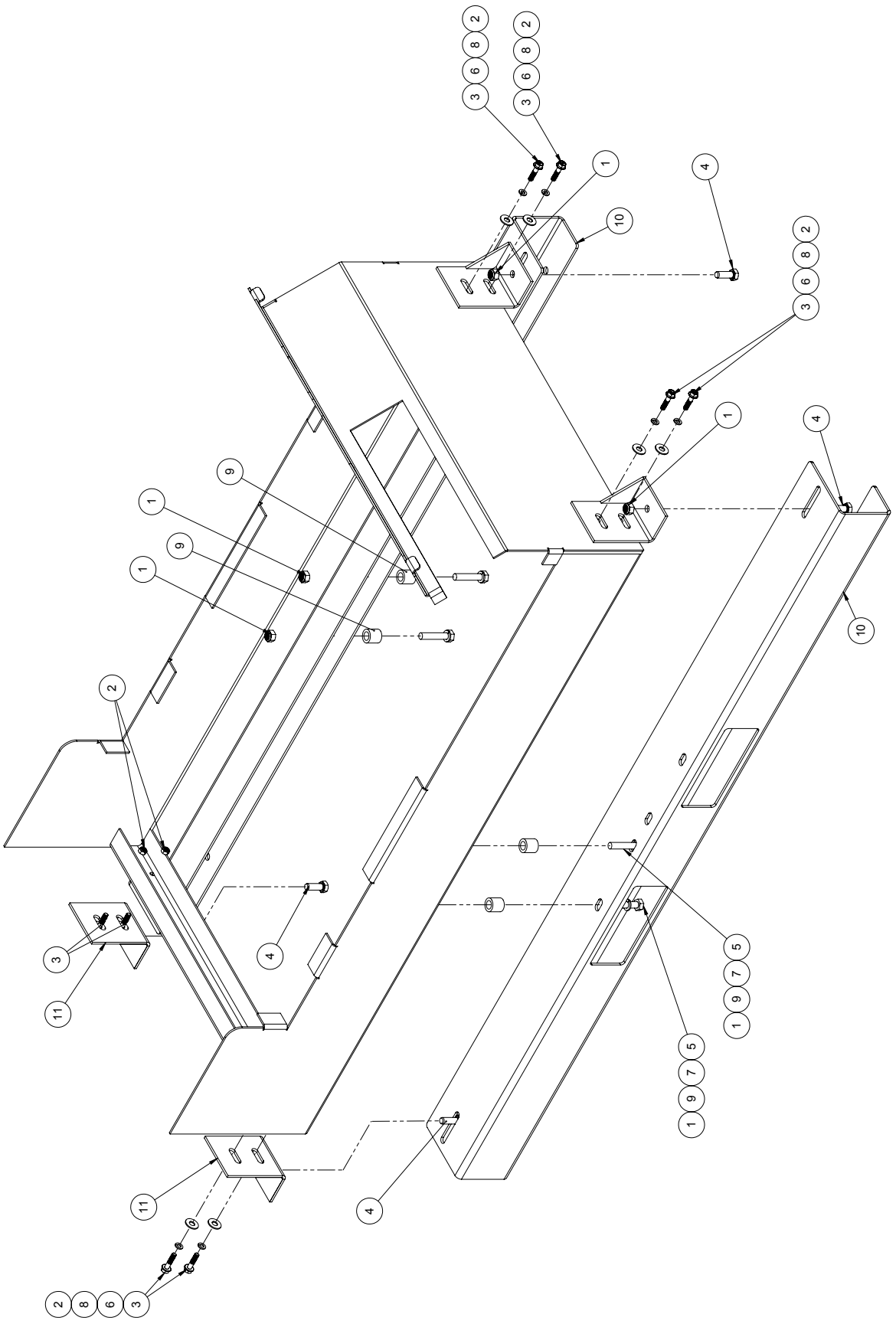
AXLE AND WHEEL ASSEMBLY

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01903000 0777	AXLE	1
2	01903000 0977	SCREW, WHEEL MOUNT	8
3	01903000 1660	WHEEL & TIRE ASSY	2
4	01903000 0880	SCREW HM12X30	4
5	01903000 0879	WASHER, FLAT M12	4
6	01903000 0882	SELF LOCKING NUT HM12	4
7	N/A	SCREW (INCLUDED WITH 01903000 0777)	2
8	N/A	WASHER (INCLUDED WITH 01903000 0777)	2
9	01903000 0790	SPARE: CENTRAL FASTENING FLANG	1
10	01903000 0882	SELF LOCKING NUT HM12	2
11	01903000 0778	STAND	1
12	N/A	SCREW (INCLUDED WITH 01903000 0778)	2
13	N/A	NUT (INCLUDED WITH 01903000 0778)	2
14	01903000 0791	SPARE: FASTENING HANDLE KIT	2
15	01903000 0789	SPARE: MOBILE TOWBAR NF	1
16	01903000 1651	SLEEVE, BALL ADAPTER	1
17	05018455 0021	HITCH, C-CHANNEL	1
18	01903000 0907	SCREW HM12X70	2
19	01903000 0882	SELF LOCKING NUT HM12	2

OPTIONS (NOT SHOWN)

PART NUMBER	DESCRIPTION
01903000 0779	JOCKEY WHEEL
01903000 0780	TOWING EYE 68 X 42
01903000 0781	TOWING EYE 45 X 31
01903000 0782	TOWING EYE DIN 40
01903000 0783	TOWING EYE 76 X 42
01903000 0784	COUPLING BALL

8.30 [OPTION] SKID ASSEMBLY



00717700 0380 SKID ASSEMBLY OPTION

ITEM	PART NUMBER	DESCRIPTION	QTY
1	00900493 0003	NUT,NYLOC M12X1.75 ZINC PLATED	8
2	00900493 0005	NUT,NYLOK M8 X 1.25 ZINC	8
3	00925012 0922	BOLT, M8-1.25 X 35MM FLANGED HEAD	8
4	00925012 1121	SCREW, HHCS M12-1.75 X 35MM	4
5	00925023 1126	BOLT, M12-1.75 X 60MM HEX HD GR 8.8	4
6	00925081 0080	LOCKWASHER,SPR,METRIC #8	8
7	00925081 0120	LOCKWASHER, SPR, METRIC #12	4
8	00900321 0004	WASHER, FLAT .375 ZINC PLATED	8
9	01901416 0423	SPACER 1.0 OD X .625 ID X 1.0 LG	4
10	01901520 0525	SUPPORT, FORK POCKET	2
11	01901520 0524	SUPPORT, FORK POCKET MOUNT	4

NOTES

NOTES

Sullivan Palatek

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