We at KEM Equipment Inc. would like to congratulate you on your decision to recommend the Supercharged LSA Marine engine to your valued customer.

The Kodiak 6.2L LSA Supercharged Marine fuel system, once properly set up, will give your customer many years of trouble free service.

The Fuel System Installation Instructions need to be read and followed prior to start up and operation of the 6.2L Supercharged Marine Engine. Failure to follow these instructions during set up of the Fuel System may result in a catastrophic failure of the Engine and may also void the Engine warranty.

Below are some specific installation procedures and guidelines that need to be followed very closely to complete the installation of the fuel system for the 6.2L Supercharged LSA Marine engine.

If you are unsure of, or need assistance with these instructions, feel free to call KEM Equipment at 503-692-5012

**WARNING:** Gasoline is highly flammable and under pressure. It should not be exposed to open flame, sparks, or hot engine components. Allow the engine to cool to ambient temperature prior to performing fuel system modifications or fuel system maintenance.

**WARNING: FOLLOW INSTRUCTIONS**  Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment. Failure to follow instructions can cause personal injury and/or property damage.
Plumbing: The fuel supply pick up tube, fuel lines, and fittings shall be no smaller than ½” inside diameter between the fuel tank and Aero Motive high-pressure fuel pump. The fuel pump must also have the supplied serviceable 100 Micron filter installed on the inlet side of the fuel pump.

When using an auxiliary engine such as an outboard motor, never plumb or tee into the main engine fuel system. The auxiliary engine shall have its own fuel pick up tube and fuel filter/water separator from the fuel tank. Plumbing into the main engine fuel supply will cause damage to the engine and fuel pump system.

Fuel pump placement: The Aero Motive fuel pump must be placed as close to the fuel tank as possible. A 30” Maximum distance from the fuel tank outlet to the fuel pump inlet shall not be exceeded.

The fuel pump must also be placed as low to the bottom of the fuel tank as possible. Using the lowest point on the bottom of the fuel tank, mount the fuel pump at a Maximum vertical distance of 12” from the bottom of the fuel tank. Check for any laws and/or restrictions that may apply.

The Racor fuel/water separator should NEVER be placed on the outlet side of the high-pressure fuel pump. The fuel filter/water separator shall also be mounted within a Maximum distance of 12” vertical from the bottom of the fuel tank.

Hoses: Use only USCG Approved fuel lines. Check for any laws and/or restrictions that may apply. Check when routing the fuel lines that they are not laying over, or rubbing against any sharp edges.

Fittings: When choosing fittings, the use of a 90° full flow design is preferable over the restricted tight 90° fittings.

Setting the fuel pressure: After all the fuel plumbing is complete, set the Initial fuel pressure by cycling the ignition switch (key on/engine off) and adjust the setscrew on the regulator until you are in the 65-psi range. This may take a few cycles of the key switch for the fuel to fill the fuel lines, filter, and fuel rail. Check to make sure there are no fuel leaks at all of the connections, tighten as necessary.

Once the vessel is in the water with the engine running at idle, you can now fine-tune the fuel pressure to the target 65-psi Minimum, 67-psi Maximum pressure. After the fuel pressure has been set, tighten the lock nut down on the fuel pressure regulator, and double check for any fuel leaks in the fuel system.

Once the fuel pressure has been confirmed under a sea trials situation and the fuel pressure is within the Minimum/Maximum setting described above, tamper proof the fuel regulator adjustment screw. Tamper proof by using a small amount of tamper proof compound, or an oil-based paint marker on the setscrew, locknut, and body of the regulator.
WARNING: FOLLOW ALL SAFETY PRECAUTIONS AND REGULATIONS
Anyone involved in operation of equipment shall be familiar with the information in the warnings, cautions and notes. These safety precautions are mandatory and used to augment formal safety (U.S. Coast Guard) regulations. Anyone operating this equipment should become thoroughly familiar with details of operation of the equipment. Such knowledge, constantly and properly practiced is the only method for ensuring safety as well as reliable and economical equipment. In any boating situation, common sense and logic rule the waterways.

WARNING: ELECTRICAL SHOCK HAZARD
The ignition system can cause severe shock if proper precautions are not taken.

WARNING: OVERSPEED PROTECTION
The engine is equipped with an overspeed shutdown mode to protect against damage to the engine with possible personal injury, loss of life, or property damage. The overspeed shutdown is totally independent of the operators control system. An over temperature or overpressure shutdown mode is also present for safety, as appropriate.

WARNING: PROPER USE
Any unauthorized modifications to or use of this engine outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the engine. Any such unauthorized modifications: (i) constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage, and (ii) invalidate product certifications or listings.

CAUTION: BATTERY CHARGING
To prevent damage to a control system that uses an alternator or battery-charging device, make sure the charging device is turned off before disconnecting the battery from the system.
CAUTION: ELECTROSTATIC DISCHARGE
Electronic controls contain static-sensitive parts. Observe the following precautions to prevent damage to these parts. Discharge body static before handling the control (with power to the control turned off, contact a grounded surface and maintain contact while handling the control). Avoid all plastic, vinyl, and Styrofoam (except antistatic versions) around printed circuit boards. Do not touch the components or conductors on a printed circuit board with your hands or with conductive devices.

WARNING: indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION: indicates a potentially hazardous situation, which, if not avoided, could result in damage to engine or property.

NOTE: provides other helpful information that does not fall under the warning or caution categories.
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INTRODUCTION

Please read and follow any and all specific **warnings, cautions** and **notes** that are contained in this manual.

KEM Equipment, Inc. is pleased that you have selected a **Kodiak** engine for your requirements. KEM Equipment, Inc. takes great pride in our tradition of quality products produced from the GM Powertrain line of marine gasoline fuel engines.

KEM Equipment, Inc./ Kodiak Marine reserves the right to request any pertinent Maintenance information of your engine prior to authorization of warranties. Overall safety and equipment reliability depend on continuous observation of sound operating practices. Always observe required scheduled maintenance activities as outlined. Never attempt to correct problems or repairs for which you are not qualified. At the end of this manual, you will find a list of qualified Kodiak marine service dealers to assist you in your area.

⚠ Always STOP the engine before refueling.
Always STOP the engine prior to any inspection / check or repair work.
Always maintain proper ventilation when working around gas or oil.
Always run the bilge blower for a minimum of 10 minutes prior to starting the engine.
Do not stand close or hover over the engine prior to starting.
Ensure all safety guards are in place prior to starting the engine.

All KEM Equipment, Inc. engines are inspected and tested before leaving the factory. However, certain checks should be made before placing the engine into regular service.

Please read the initial start-up inspection requirements in the Maintenance section of this manual.

KEM Equipment Inc. reserves the right to discontinue models or accessories at any time or to change specifications or designs without notice and without incurring obligation.
How to Use this Manual

This manual contains instructions on the safe operation and preventive maintenance of your Kodiak marine engine. We urge you to read this manual prior to start up of the engine.

The Table of Contents permits you to quickly open the manual to any section. KEM Equipment, Inc. engines are built with a variety of standard and/or optional components to suit a broad range of customer requirements. This manual does not identify equipment as standard or optional. All the equipment described in this manual may or may not be found on your engine.

The description and specifications contained in this manual were in effect at the time of publication. KEM Equipment, Inc. reserves the right to discontinue models at any time, or to change specifications or design without notice and without incurring obligation.

ENGINE IDENTIFICATION

Model Identification
An identification placard is affixed to the engine. The label contains the engine family number and a model, which identifies the engine from other KEM engines. The engine model number and serial number are required when seeking information concerning the engine and/or ordering replacement service parts.

MODEL: This is the part number for the engine, this number should be recorded for ease of obtaining information or parts for this engine.

SERIAL NUMBER: This number identifies each individual engine. This number should also be recorded for the ease of obtaining information or parts for this engine.
Component Identification
Parts and Service

Replacement parts can be obtained through your local Kodiak engine dealer. Kodiak dealers are equipped to perform major and minor repairs. The dealer personnel are anxious to see that all of your maintenance and service needs are quickly and courteously completed. Please contact KEM Equipment Inc., Kodiak Marine regarding any favorable or unfavorable experiences with our service dealers.

The engine model number and serial number will be required when seeking information and/or ordering parts.

Technical support for Kodiak Marine engines can be obtained by contacting KEM Equipment Inc. 503-692-5012

Service Literature

By contacting our Parts Department you can purchase parts and Service manuals for Kodiak Marine engines. 503-692-5012
MALFUNCTION INDICATOR LIGHT

NOTE: A Check Engine or MIL light must be installed. If the Check Engine light is illuminated, it will remain on until the problem is corrected and the engine has gone through three consecutive warm up cycles, or if the light has been cleared by a service technician with a scan tool. A warm up cycle is a starting temperature close to ambient increasing to operating temperature.

There are two lights on the dash to indicate engine related problems. The operator is responsible to scan for illuminated bulbs during the course of engine operation. The first indicator is the Malfunction Indicator Light (MIL). The MIL conveys to the operator that a fault exists that is related to the engine’s control system. When this light is illuminated a fault code has been set that requires immediate attention or engine component damage could conceivably occur. Please stop operation of engine as soon as safely possible. Request that a technician inspect the fault code setting, he or she will connect a scan tool to determine the cause of the MIL illuminating, repair the problem and clear the codes. The MIL related codes are caused by sensor output and/or conditions that adversely affect the operational output of the engine. Some of the components that can cause problems are: crank sensor, cam sensor, fuel injectors, regulators, ignition system and Manifold Air Pressure (MAP) sensor.

The second indicator is the Check Engine light. This bulb will illuminate when a non-emissions related issue occurs. Items that can cause these codes are high or low - oil pressure and coolant temperature and various power relays operation, system voltage etc. The lighting of this fault indicator would indicate to the operator that the gauges for oil pressure and coolant temperature should be checked immediately and action taken to eliminate engine damage. There are safeties in the calibration that will turn off the engine if the sensor output is out of the normal range (low oil pressure when the engine is at rated speed for instance). If the engine should turn off for no apparent reason check this lamp. Similar to the MIL, the fault code will have to be read and cleared before continuing vehicle operation (after repairing the root problem).
STARTING THE ENGINE

Prior to starting the engine the following must be performed.
1. Check engine oil level.
2. Check for fuel leaks.
3. Run bilge blower for a minimum of 10 minutes.
4. Run bilge pump to remove any excess water, follow and repair any leaks.

⚠️ WARNING: The bilge can accumulate explosive fumes. The bilge blower will evacuate the fumes. The bilge blower must be run for a minimum of 10 minutes prior to cranking the engine.

⚠️ WARNING: All internal combustion engines give off various fumes and gases while running. Do not start or run the engine in a closed or poorly ventilated area where exhaust gases may accumulate. Avoid breathing these gases as they may contain poisonous carbon monoxide and other gases, which can endanger your health or life if inhaled steadily for a few minutes.

⚠️ CAUTION: If the engine stalls or falters during starting, wait 3 to 4 seconds before reengaging the starter. This will prevent possible damage to the starter or the engine. Do NOT operate the starter for periods longer than 5-8 seconds at a time. An interval of at least 1- minute should be observed between cranking periods to protect the starter from overheating.

⚠️ CAUTION: The bilge should be checked for excess water prior to starting the engine. Excess water can cause premature starter failure and damage to other engine components.

If the engine is equipped with a stern or jet drive it must be in neutral prior to starting the engine. Starting the engine with the drive engaged imposes unnecessary strain on the battery, starter, and driven components.
STOPPING THE ENGINE

⚠️ WARNING: The engine may continue to run after ignition is turned off, turn the ignition switch immediately to ON and allow the engine to idle until it has cooled enough to stop.

⚠️ WARNING: Avoid injury when checking a hot engine. Allow the engine to cool down before removing the heat exchanger cap.

⚠️ CAUTION: Before restarting the engine ensure that both the coolant system and the engine oil level have been checked and re-filled if necessary.

Normal Conditions

Following normal operating conditions, lower the engine speed to idle, pushing the throttle cable in on mechanical systems or with electronic systems return to idle. Put the drive in neutral. Run the engine for a few minutes at idle to allow the coolant system to cool down before turning the ignition switch to the off position.
MAINTENANCE INSTRUCTIONS

**CAUTION:** Neglecting proper maintenance can cause premature component failures.

Initial Start Up Maintenance
The initial start-up checks must be made before putting the engine into service. Please refer to the Maintenance Schedule on page 33 and perform the initial start-up operations in the sequence shown in column 1.

**Routine Maintenance**
Routine maintenance provides the best solution for making sure that the engine is ready when you are. The following are some routine service points:

- Keep the fuel tank filled. A full tank of fuel reduces the possibility of condensation forming in the fuel tank and moisture entering the fuel system.
- Make frequent checks for engine oil and coolant leaks.
- Repair any oil or coolant leaks.
- Check battery condition and cables frequently.
- Keep the engine air filter and/or spark arrestor clean.
- Monitor engine coolant temperature.
- Monitor engine oil pressure.
- Check voltmeter and charging system.
- Monitor fuel pressure.

**Scheduled Preventive Maintenance**
Refer to the Maintenance Schedule on page 33 to ensure that all of the maintenance items listed are checked and replaced at the recommended hours.

**Engine Oil Level Check**

**CAUTION:** Do not operate the engine with the oil level below the bottom of the dipstick or ‘Add’ mark on the dipstick, or above the top or ‘Full’ mark on the dipstick.

The engine oil level should be checked daily. It is recommended that the oil be checked just before the engine is started for the first time for the day. The oil level should be between the ‘ADD’ and the ‘FULL’ marks on the dipstick.
Adding Engine Oil

It is normal to add some oil in the period of time between oil changes. The amount will vary with the severity of operation. When adding or replacing engine oil, be sure the oil meets or exceeds the recommended specification.

CHANGING OIL AND FILTER

**NOTE:** Use only Mobil 1 5W-30 full synthetic or equivalent motor oil. When changing the oil and filter.

Under normal operating conditions, the engine oil and filter must be changed every 100 hours or every 12 months whichever occurs first. Use of a premium quality oil and filters is recommended. The oil and filter should be changed more often if the engine is operating in severe conditions, such as dirty areas, or during cold weather. No oil additives or break-in oil are recommended.

Engine Oil Quality

**NOTE:** To achieve proper engine performance and durability, it is important that you use only engine lubricating oils of the correct type in your engine. Quality oil also provides maximum efficiency for crankcase ventilation systems, which reduces pollution.

Engine Oil

Mobil 1 5W-30 full synthetic or equivalent synthetic motor oil must be used in the supercharged marine engine. Motor oils meeting ILSAC (International Lubricant Standardization & Approval Committee) **GF-5 standards.** The **GM spec** for this oil is **GM 4718M OR GM6094M.** Motor oils meeting this spec receive the API (American Petroleum Institute) **Starburst** and the **Dexos 1** symbols.
Oil Filter

NOTE: Ensure the old filter gasket is removed prior to installing the new filter

The Kodiak GM Powertrain engines use an AC Delco (or equivalent) oil filter as original equipment. An equivalent oil filter must be used when servicing the engine. See the Engine Specification on page 32 for the recommended oil filter for your engine. The filter protects your engine from harmful, abrasive, or sludgy particles without blocking the flow of oil to vital engine parts. To replace the filter, use a proper filter wrench to remove the filter. Clean the filter-mounting base and lightly coat the gasket surface of the new filter with engine oil. Hand tighten the filter until the gasket contacts the base, then tighten another ½ turn. Fill the engine with the correct amount of oil, run the engine and check for oil leaks at the drain plug and filter gasket. Tighten as necessary to stop any oil leakage.

ENGINE FLAME ARRESTOR

CAUTION: Service the flame arrestor more frequently under severely dusty or dirty conditions.

Your flame arrestor filters air entering the engine induction system and acts as a silencer. Air that contains dirt and grit produces an abrasive fuel mixture and can cause severe damage to the cylinder walls and piston rings. Damage to the cylinder walls and piston rings will cause high oil consumption and short engine life. A restricted or dirty flame arrestor will also cause a rich fuel mixture. Therefore it is extremely important that the flame arrestor be serviced at the recommended intervals.

1. Clean screen by washing with solvent.
2. Blow dry or allow to drip dry prior to installation
3. Remove all dust and foreign matter from spark arrestor
4. Make sure the flame arrestor is seated properly on the throttle body and secured with the proper clamp when reinstalling.
COOLING SYSTEM

WARNING: Never remove the heat exchanger cap under any condition while the engine is operating. Failure to follow these instructions could result in damage to the cooling system, engine, or cause personal injury.

CAUTION: DO NOT add coolant to any engine that has become overheated until the engine cools. Adding coolant to an extremely hot engine can result in a cracked block or cylinder head.

Coolant Level

CAUTION: DO NOT mix DEX-COOL (pink/orange colored) with traditional (green) ethylene glycol. Refer to the mixture chart on the container for additional antifreeze protection information. DO NOT use alcohol or methanol antifreeze, or mix them with the specified coolant. Plain water may be used in an emergency (except in freezing temperatures), but replace it with the specified coolant as quickly as possible to avoid damage to the system.

KEM Equipment and General Motors recommends the use of DEX-COOL only. Do not use alcohol or methanol antifreeze, or mix them with specified coolant. Plain water may be used in an emergency, but replace it with the specified coolant as quickly as possible to avoid damage to the system. Do not let the engine run hot with only water acting as the primary coolant.

Check the coolant level of the heat exchanger daily and only when the engine is cool. Generally a good time to do this is just prior to starting the engine for the first time each day.

Heat Exchanger
1. Check the coolant level in the heat exchanger daily (prior to operation)
2. Make sure the coolant level is within ¾ to 1 ½ inches below the filler neck seat
3. Check the condition of the rubber seal on the coolant filler cap
4. Make sure the rubber seal is clean and free of any dirt particles.
5. Make sure the filler neck is clean then replace cap.
6. Check all hoses and connections for leaks.
7. Check all hoses and belts for cracks, frayed points, or spongy areas (replace as necessary).
Serpentine Belt

Some GM Powertrain engines utilize serpentine belts on the front of the engine. This type of belt system incorporates a belt-tensioning device that keeps the belt adjusted to the proper tension. No manual adjustments are necessary. This belt should be checked routinely for cracks or ‘checking’ on the groove side of the belt. If cracks or ‘checking’ are apparent the belt must be changed.
FUEL INJECTION SYSTEM

**CAUTION:** Failure to change the fuel system filter as recommended can result in premature failure of fuel injection system components.

**WARNING:** Use extreme care when changing the fuel filter. Gasoline is highly flammable and under pressure. It should not be exposed to open flame, sparks, or hot engine components. Allow the engine to cool to ambient temperature prior to changing fuel filters.

**WARNING:** Fuel is under HIGH pressure, consult an equipment dealer before servicing fuel system.

**WARNING:** The bilge can accumulate explosive fumes. The bilge blower will evacuate the fumes. The bilge blower must be run for a minimum of 10 minutes prior to cranking the engine.
FUEL PUMP SYSTEM ASSEMBLY

Fuel filter

The Fuel filter is used in the fuel supply line to the engine. This helps the prevention of contaminates from plugging the fuel injectors. The fuel filter is located in the supply line between the fuel tank, fuel pump and the engine. This filter protects the fuel injectors from debris in the fuel tank. Drain water from primary filter as needed. This filter must be changed every 500 hours or every 6 months which ever occurs first.

Fuel Pressure Regulator

The LSA supercharged engine is supplied with a fuel pressure regulator to provide a constant pressure to the fuel rail and injectors. The fuel pressure must be set to between 65-67 psi before running the engine. Contact KEM Equipment or your service dealer if you are unsure of setting the fuel pressure.
FUEL RECOMMENDATION

**WARNING:** Use extreme care when changing the fuel filter. Gasoline is highly flammable and under pressure. It should not be exposed to open flame, sparks, or hot engine components. Allow the engine to cool to ambient temperature prior to changing fuel filters.

**WARNING:** The bilge can accumulate explosive fumes. The bilge blower will evacuate the fumes. The bilge blower must be run for a minimum of 10 minutes prior to cranking the engine.

**Fuel Type**
Unleaded Premium 92 octane fuel is highly recommended.

**Fuel Quality Changes**

**NOTE:** Sudden changes in fuel quality, including geographical regions may effect engine operation.

**Power Loss At Higher Elevations**

Fuel injected engines will lose 3.5% power for every 1000 feet the engine is operated above sea level. All fuel injection systems installed by KEM Equipment, Inc. are equipped with a “manifold absolute pressure sensor” (MAP Sensor). The MAP sensor senses barometric pressure and automatically corrects the fuel system calibration for changes in altitude. This means the air/fuel mixture will always be optimized, regardless of elevation (or barometric pressure); however, the engine will still lose 3.5% power for every 1000 ft. increase in elevation. All engines will experience power loss when operated at elevations above sea level, unless they are turbocharged or supercharged. Turbochargers and superchargers are mechanical pumps that put extra air into the engine to make up for the lower air density at higher elevations.
IGNITION SYSTEM

**WARNING:** High voltage ignition system. Electrical shock hazard.

**WARNING:** The bilge can accumulate explosive fumes. The bilge fan will evacuate the fumes. The bilge pump must be run for a minimum of 10 minutes prior to cranking the engine.

Type of Ignition System

This engine is equipped with a distributor-less coil near plug ignition system

Spark plugs

**CAUTION:** Always use the recommended spark plug for your engine. Hotter or colder plugs, or similar plugs that are not exact equivalents to the recommended plugs, can cause permanent engine damage, reduce the engines useful life, and cause many other problems such as hard starting, spark knock and run-on, premature failure of catalyst and exhaust emissions may occur.

Spark plugs should be replaced at the recommended intervals as described in the Maintenance Schedule on page 32. Use only the recommended spark plugs or an equivalent as described in the General Specifications. The spark plug gap should be adjusted as recommended in the General Specifications page 33.
STORAGE (Lay-Up)-One Month

**CAUTION:** Make sure the water side of heat exchanger is drained when ambient temperature is below 32 Degrees F.

1. Start the engine
2. Treat upper cylinders by spraying recommended engine oil (SAE 10), or equivalent into the air intake for about two minutes.
3. Open throttle for a short burst of speed.
4. Shutoff engine.
5. Allow engine to stop while spraying recommended engine oil into air intake.
6. Leave spark plugs in holes or seal with suitable threaded plugs.
7. Cover all openings into the engine with dust proof cap or shields.
8. Check coolant protection fluid level.

Storage (Lay-Up) – For Indefinite Period

**CAUTION:** Make sure the water side of heat exchanger is drained when ambient temperature is below 32 Degrees F.

1. Drain crankcase completely.
2. Refill with recommended engine oil, (SAE 10) or equivalent.
3. With engine running treat upper cylinders by spraying recommended engine oil into air intake for about two minutes.
4. Run engine until completely out of gasoline.
5. Restart and run on unleaded gasoline for at least 10 minutes.
6. Open throttle for a short burst of speed.
7. Shut off engine.
8. Allow engine to stop while spraying recommended engine oil into air intake.
9. Check coolant protection.
10. Disconnect and remove battery.
11. Leave spark plugs in holes or seal with suitable threaded metal plugs.
12. Seal all openings in engine and accessories with Non-Hydroscopic Adhesive Tape.
The following inspections shall be performed on your engine at the indicated intervals or more if needed. These inspections ensure that your engine will continue to perform at a level it was designed to. Make sure that all inspections are performed at their assigned intervals.

100 Hour Inspection

**WARNING:** Make sure key is not in ignition and no electrical equipment is energized prior to any engine check or operation. Do not energize engine prior to performing the following steps.

1. Open engine hatch cover and let compartment air out for ten minutes or more.
2. Make sure that no electrical equipment is energized.
3. Change engine oil and filter.
4. Check coolant level. Make sure fluids are at the proper level.
5. Check for oil, coolant, and fuel leaks. Correct any leaks prior to proceeding further.
6. Check charge and fluid level of battery. Inspect connections for corrosion, and clean as necessary.
7. Clean crankcase vent system.
8. Check air cleaner. Make sure that it is cleaned or replaced as necessary.
9. Inspect the exterior of the heat exchanger. Clean if necessary.
10. Check serpentine belt for wear.
11. Check for loose bolts, nuts, or any loose pieces.
12. Start the bilge blower. Let the blower run for 10 minutes.
13. Close engine cover.

400-Hour Inspection

Perform the following inspection on your engine at the 400-hour interval.

**WARNING:** Make sure key is not in ignition and no electrical equipment is energized prior to any engine check or operation. Do not energize engine prior to performing the following steps.

1. Open engine hatch cover and let compartment air out for ten minutes or more.
2. Make sure that no electrical equipment is energized.
3. Change engine oil and filter.
4. Check coolant level. Make sure fluids are at the proper levels.
5. Check for oil, coolant, and fuel leaks. Correct any leaks prior to proceeding further.
6. Check charge and fluid level of battery. Inspect connections for corrosion, and clean as necessary.
7. Clean crankcase vent system PCV valve.
8. Check air cleaner Make sure that it is cleaned replaced as necessary.
9. Inspect the exterior of the heat exchanger clean if necessary.
10. Check alternator
11. Lubricate throttle linkage.
12. Remove and replace fuel filter.
13. Remove, clean, adjust, test, and/or replace spark plugs.
14. Check for loose bolts, nuts, or any loose pieces.
15. Start the bilge blower, let the blower run for 10 minutes.

800 Hour Inspection

Perform the following inspection at 800-hour interval.

**WARNING:** Make sure key is not in ignition and no electrical equipment is energized prior to any engine check or operation. Do not energize engine prior to performing the following steps.

1. Open engine hatch cover and let compartment air out for ten minutes or more.
2. Make sure that no electrical equipment is energized.
3. Change engine oil and filter.
4. Check for oil, coolant, and fuel leaks. Correct any leaks prior to proceeding further.
5. Check charge and fluid level of battery. Inspect connections for corrosion, and clean as necessary.
6. Clean crankcase vent system replace PCV valve.
7. Check air cleaner Make sure that it is cleaned replaced as necessary.
8. Inspect the exterior of the heat exchanger clean if necessary.
9. Check alternator belt adjust if necessary.
10. Lubricate throttle linkage.
11. Remove and replace fuel filter.
12. Remove, clean, adjust, test, and/or replace spark plugs.
13. Remove and replace PCV valve.
14. Drain and replace coolant in cooling system.
15. Check for loose bolts, nuts, or any loose pieces.
16. Start the bilge blower, Let the blower run for 10 minutes.
17. Close engine cover.
TROUBLESHOOTING

**WARNING:** The bilge can accumulate explosive fumes. The bilge Blower will evacuate the fumes. The bilge Blower must be run for a minimum of 10 minutes prior to cranking the engine.

The largest percentage of all malfunctioning equipment will be due to simple or small problems. Most operating troubles that might be encountered with a new or well-maintained unit will be of a minor nature. Consequently, if you experience any problems starting or operating your engine, look for a simple cause rather than failure of a major component. The following list should cover the most common problems.

- Loose or corroded battery connections are more common than battery failure.
- Loose ignition wire connection – more common than distributor, coil or ignition.
- Severe weather conditions – temps below 32° - can cause condensation on the inside of the engine.
- Operating conditions (load changes)
- Change of periodic servicing
- Change of grade or purity of fuel. Contaminated fuel will often foul the engine.
- Change of operator.

Engine troubles that develop as a result of normal use and wear usually give plenty of advance notice / warning. These problems usually develop as a result of neglected periodic maintenance. Whenever engine performance appears less than normal in any area, you should consult with your KODIAK dealer immediately. Do not wait for a problem to develop. Careful attention to periodic/regular maintenance will prevent most problems. Refer to the periodic maintenance section for checklists.
DIAGNOSIS

**WARNING:** Make sure there are no fuel leaks before going any further. Clean up any spills and always work in a well-ventilated area.

**WARNING:** To avoid any electrical injuries always replace any broken wires before proceeding.

**WARNING:** The bilge can accumulate explosive fumes. The bilge blower will evacuate the fumes. The bilge blower must be run for a minimum of 10 minutes prior to cranking the engine.

**Engine Does Not Crank**

Check all fuses and relays
Check electrical leads – something may be loose or disconnected.
Check battery cables – adjust any loose connections and clean any corrosion.
Check battery charge
Refer to Pre-Operational checklist for further checks.

**Engine Will Crank Intermittently**

If you have to turn the key to START several times, check the ignition switch for loose, corroded, disconnected or broken wires. Tighten or replace as necessary.

**When The Engine Makes A Stuttering Or Chattering Noise.**

Check the battery cables for loose connections
Check battery charge – charge if necessary
Check the starter motor and solenoid switch for loose or disconnected wires.
Check ground connections for loose, corroded, disconnect or broken wires.

If all electrical connections have been checked for loose connections, corrosion, broken wires and disconnected wires and after you have reviewed and performed the Operational Instructions, contact your service dealer.
Engine Cranks But Does Not Start

⚠️ CAUTION: Failure to change the fuel system filter as recommended can result in premature failure of fuel injection system components.

⚠️ WARNING: Use extreme care when changing the fuel filter. Gasoline is highly flammable and under pressure. It should not be exposed to open flame, sparks, or hot engine components. Allow the engine to cool to ambient temperature prior to changing fuel filters.

⚠️ WARNING: Fuel is under HIGH pressure, consult equipment dealer before servicing fuel system.

⚠️ WARNING: The bilge can accumulate explosive fumes. The bilge Blower will evacuate the fumes. The bilge Blower must be run for a minimum of 10 minutes prior to cranking the engine.

1. Check fuel pressure
2. Check fuel tank level
3. Check for signs of a fuel leaks
4. Check the fuel supply.
5. Check fuel supply valve – the valve should be open.
6. Check fuel lines.

Inspect for crimped, kinks, blockage or any disconnected lines.
Inspect for any leakage (leaks may allow air in the lines blocking fuel flow.)
Follow and repair any leaks before continuing.
Contact your service dealer for more advanced diagnosis
Check fuel pressure (service dealer)
Clean up any fuel spills or leaks prior to attempting to start the engine.
Engine Runs Hot

⚠️ **WARNING:** Never remove the radiator cap under any condition while the engine is operating. Failure to follow these instructions could result in damage to the cooling system, engine, or cause personal injury.

⚠️ **WARNING:** The bilge can accumulate explosive fumes. The bilge fan will evacuate the fumes. The bilge pump must be run for a minimum of 10 minutes prior to cranking the engine.

⚠️ **CAUTION:** DO NOT add coolant to any engine that has become overheated until the engine cools. Adding coolant to an extremely hot engine can result in a cracked block or cylinder head.

The following items may cause the engine to overheat.
- Low coolant level
- Loose or broken belt
- Inoperative thermostat
- Inoperative water pump – seawater or circulation or sand trap
- Clogged inlet strainer – seawater or circulation from jet drive
- Clogged heat exchanger tube(s)
- Low oil level

If you perform the Pre-Operational and Operation Procedures as outlined, you will find that these items are subsequently checked on a regular basis. The habit of performing the Pre-Operational and Operational procedures is your best method of ensuring all steps are followed periodically.
### SPECIFICATIONS

#### QUICK REFERENCE GUIDE

<table>
<thead>
<tr>
<th>Engine</th>
<th>6.2L</th>
</tr>
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<tbody>
<tr>
<td>ENGINE OIL</td>
<td>MOBIL 1 5W-30</td>
</tr>
<tr>
<td>OIL FILTER (REMOTE MOUNT)</td>
<td>PF-2</td>
</tr>
<tr>
<td>IN-LINE FUEL FILTER</td>
<td>KM10122</td>
</tr>
<tr>
<td>WATER SEPARATOR</td>
<td>3120R-RAC-32</td>
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<tr>
<td>SPARK ARRESTER</td>
<td>N7600ESV38</td>
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<td>SPARK PLUGS</td>
<td>11610259</td>
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<td>SPARK PLUG GAP</td>
<td>.040</td>
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<tr>
<td>FUEL PUMP</td>
<td>1824270300-7</td>
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<tr>
<td>FUEL PRESSURE REGULATOR</td>
<td>1544270200-5</td>
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<tr>
<td>MAIN BELT</td>
<td>25-060685</td>
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<tr>
<td>SUPER CHARGER BELT</td>
<td>12628026</td>
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#### GENERAL ENGINE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Engine</th>
<th>6.2L</th>
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<tbody>
<tr>
<td>TYPE</td>
<td>V-8</td>
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<tr>
<td>DISPLACEMENT</td>
<td>376 CID</td>
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<tr>
<td>VALVE CONFIGURATION</td>
<td>OVERHEAD ROLLER ROCKERS</td>
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<td>VALVE LIFTERS</td>
<td>HYDRAULIC ROLLER</td>
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<tr>
<td>BORE X STROKE INCHES</td>
<td>103.25 X 92MM</td>
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<tr>
<td>INTAKE MANIFOLD</td>
<td>CAST ALUMINUM</td>
</tr>
<tr>
<td>FIRING ORDER</td>
<td>1-8-7-2-6-5-4-3</td>
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<tr>
<td>SUPERCHARGER</td>
<td>1.9L/rev</td>
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<tr>
<td>OIL CAPACITY W/REMOTE FILTER</td>
<td>7.5 QTS</td>
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<tr>
<td>COOLANT CAPACITY (MAIN)</td>
<td>4 GAL</td>
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<tr>
<td>COOLANT CAPACITY (INTERCOOLER)</td>
<td>2 QTS</td>
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<tr>
<td>FUEL TYPE PREMIUM</td>
<td>92 OCTANE (Highly Recommended)</td>
</tr>
<tr>
<td>ENGINE ROTATION</td>
<td>CCW</td>
</tr>
</tbody>
</table>

#### FUEL PRESSURE

**MEASURED AT THE INJECTOR RAIL**

| 6.2L SUPERCHARGED | 65-67 PSI |
## MAINTENANCE SCHEDULE

<table>
<thead>
<tr>
<th>CHECK POINTS</th>
<th>SERVICE INTERVAL</th>
<th>EVERY 25 HOURS</th>
<th>EVERY 50 HOURS</th>
<th>EVERY 75 HOURS</th>
<th>EVERY 100 HOURS</th>
<th>EVERY 150 HOURS</th>
<th>EVERY 200 HOURS</th>
<th>EVERY 300 HOURS</th>
<th>EVERY 400 HOURS</th>
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<tr>
<td><strong>GENERAL MAINTENANCE</strong></td>
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<td>Inspect engine for fluid leaks</td>
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<tr>
<td>Check engine oil</td>
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<tr>
<td>Replace engine oil and filter</td>
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<tr>
<td>Inspect accessory drive belts</td>
<td>X</td>
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<tr>
<td>Inspect ECM isolation mounts for cracks and wear; replace as necessary</td>
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<td>Inspect throttle control function</td>
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<tr>
<td>Check for MIL at key on. If MIL remains illuminated after starting (it is indicating a fault), refer to page 13</td>
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<td>Check engine compression</td>
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<td><strong>ENGINE COOLANT</strong></td>
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<td>Check engine coolant level</td>
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<td>Replace coolant</td>
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<tr>
<td>Inspect coolant hoses for leaks, cracks, swelling, or deterioration. Check serpentine belts</td>
<td>X</td>
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<td><strong>ENGINE ELECTRICAL SYSTEM</strong></td>
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<td>Inspect battery for case damage and corroded cables</td>
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<tr>
<td>Inspect electrical and ignition system</td>
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<td>Replace spark plugs</td>
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<td><strong>FUEL SYSTEM</strong></td>
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<tr>
<td>Replace fuel/water separator filter</td>
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<td>Service Dealer</td>
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<td>Check fuel pressure</td>
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<tr>
<td>Inspect all fuel hoses and fittings for leaks</td>
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<tr>
<td><strong>AIR INTAKE</strong></td>
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<tr>
<td>Check for leaks in air intake and filtration system</td>
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<tr>
<td>Inspect spark arrestor element</td>
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<td>Clean flame arrestor element</td>
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<tr>
<td>Inspect throttle body for loose bolts or vacuum leaks</td>
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<tr>
<td><strong>ENGINE EXHAUST SYSTEM</strong></td>
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<td>Inspect engine for exhaust leaks</td>
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<tr>
<td>Inspect exhaust system for cracks, leaks, gaskets, and loose bolts</td>
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</tbody>
</table>
KODIAK MARINE ENGINE WARRANTY
1 YEAR LIMITED PARTS WARRANTY
“SUPERCHARGED ENGINES”

• Kodiak Marine dealer. This limited warranty applies to the first retail purchaser and each subsequent owner during the applicable warranty time period.

• Kodiak Marine will repair or replace, at its option, any part that is proven to be defective in material or workmanship under normal use during the applicable warranty time period. Warranty repairs and replacements will be made without charge for parts. Anything replaced under warranty becomes property of Kodiak Marine. All parts replaced under warranty will be considered as part of the original product and any warranty on those parts will expire coincidentally with the original product warranty.

• The warranty shall commence after receipt of a properly completed Warranty Registration at the factory, on the date of the first retail purchase and extends to original and subsequent purchasers. However, in no event shall the duration of this warranty exceed one (1) year or 100 hours, whichever occurs first, measured from the original retail sale date. All subsequent purchasers must inform Kodiak in writing and with a payment of $100.00 transfer fee to continue the warranty. If Kodiak does not receive notification and payment within 15 days of the resale the warranty will be null and void.

• Warranty service must be requested by calling Kodiak Marine to be directed to your closest authorized service center to deliver the product for inspection. A properly completed warranty registration must be on file with KEM. You must take your Kodiak Marine Inboard Engine and proof of the original purchase date, at your expense; to any a designated authorized Kodiak Marine service facility during the dealer’s normal business hours. If you are unable to obtain warranty service, or are dissatisfied with the warranty service you receive, take the following steps: First, contact the manager or owner of the dealership involved; normally this should resolve the problem. However, if you should require further assistance, write or call Kodiak Marine:

Kodiak Marine
10800 SW Herman Rd.
Tualatin, OR 97062
503-692-5012

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Warranty Registration Card

The Federal Boat Safety Act of 1971 requires: that registration of marine products sold in the United States be maintained by the manufacturer and dealers of those products. It is important that KEM Equipment receives your Warranty Registration/Sea trial form properly completed for warranty purposes, and to comply with federal regulation. This registration also enables us to contact you, if it should become necessary, to change or improve the product for your protection.

Warranty Registration must be received within 10 days after date of purchase by the first owner. Non-compliance may void all warranties. Please read the Limited Warranty document that is included with your engine registration papers and in this manual. This document explains your warranty coverage. Please note that no warranty repairs are to be performed without prior authorization from the Kodiak Marine Distributor in your area. Contact your KODIAK MARINE dealer directly for any required warranty repairs. If you have concerns with, or need further assistance with a warranty claim or a warranty repair, Contact KEM Equipment 503-692-5012.
EXCLUSIONS:

This warranty does not extend to the following:
• Conditions caused by lack of routine maintenance (as outlined in the operator’s manual)
• Conditions caused by the use of an impeller or impellers that do not allow the inboard engine to run in its recommended full throttle RPM range
• Labor and freight
• Operation inconsistent with the recommended operation/duty cycle (as outlined in the operator’s manual)
• Parts affected or damaged by an accident and/or collision
• Normal wear and tear
• Fuel contamination and water entering engine through the fuel intake, air intake, or exhaust system
• Operation with fuels, oils, additives and lubricants which are not suitable for use in the product
• Use in an application for which the inboard engine was not designed, such as racing or competitive use or any other misuse or neglect
• Incorporation of unsuitable attachments or parts
• The unauthorized alteration, improper installation and/or rigging, or any causes other than defects in material or workmanship
• Corrosion to electrical components, corrosion due to electrolysis, water born foreign chemicals, improper service, or corrosion caused by damage or abuse
• Reimbursement for towing charges, in and out of water charges, or technician travel time
• Growth of marine organisms on motor surfaces, external or internal
• Carburetor after the first five (5) hours of operation. Fuel, air and float adjustments are part of the installation.

Disclaimer of consequential damage and limitation of implies warranties:
Kodiak Marine DISCLAIMS ANY LIABILITY FOR LOSS OF TIME OR USE OF THE INBOARD, REVENUE, OR THE EQUIPMENT IN, WHICH THE INBOARD IS INSTALLED, TRANSPORTATION, COMMERCIAL LOSS, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGE. ANY IMPLIED WARRANTIES ARE LIMITED TO THE DURATION OF THIS WRITTEN LIMITED WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary state to state.
DIAGNOSTIC ERROR CODES

WARNING: Fire, Shock, and Burn Danger: When performing any diagnostics or service work use caution. This system has extreme fuel pressures and a high voltage ignition.

CAUTION: Electronic controls contain static-sensitive parts. Observe the following precautions to prevent damage to these parts. Discharge body static before handling the control (with power to the control turned off, contact a grounded surface and maintain contact while handling the control). Avoid all plastic, vinyl, and Styrofoam (except antistatic versions) around printed circuit boards. Do not touch the components or conductors on a printed circuit board with your hands or with conductive devices.

Powertrain On Board Diagnostic (OBD) System Check

Verify that none of the following preliminary inspections/tests reveal the cause of the vessel concern before beginning diagnosis:

Ensure that the battery is fully charged.

Ensure that the battery cables are clean and tight.

Inspect for any open fuses. Refer to Engine Controls Schematics.

Ensure that the grounds are clean, tight, and in the correct location.

Inspect the easily accessible systems or the visible system components for obvious damage or conditions that could cause the concern. This would include checking to ensure that all connections/connectors are fully seated and secured.

Inspect for aftermarket devices that could affect the operation of the system.

Refer to Checking Aftermarket Accessories. Search for applicable service bulletins. If the preceding inspections/tests resolve the concern, go to Diagnostic Repair Verification.
Install a scan tool. Verify that the scan tool powers up.
If the scan tool does not power up, refer to *Scan Tool Does Not Power Up.*
Ignition ON, Engine OFF, verify communication with all of the control modules on the vehicle.
If the scan tool does not communicate with one or more of the expected control modules, refer to *Scan Tool Does Not Communicate with CAN Device.*
Verify that SPN 65559 is not set.
If SPN 65559 is set, refer to *SPN 65559.*
Attempt to start the engine. Verify that the engine cranks.
If the engine does not crank, refer to *SPN 66001* or *SPN 66002* (if equipped). If the vehicle is not equipped with an ECM controlled starter relay, repair the starting system.

Attempt to start the engine. Verify the engine starts and idles.
If the engine does not start and idle, refer to *Engine Cranks But Does Not Run.*
**Important:** Do not clear any SPNs unless instructed to do so by a diagnostic procedure.
Use the appropriate scan tool selections to obtain SPNs from each of the vehicle modules. Verify there are no SPNs reported from any module.
If any SPNs are present, refer to *Diagnostic Trouble Code (DTC) List* and diagnose any current SPNs in the following order:

Any of the following: 630, 65580, 65581, or 65582.
SPN 627.
Component level SPNs.. System level SPNs.
Any remaining SPNs.
If none of the previous tests or inspections addresses the concern, refer to *Symptoms - Engine Controls.*

**SPN 94**
**SPN Descriptors**
*SPN 94 FMI 3:* Fuel Pressure Sensor Voltage Above Normal or Shorted High
*SPN 94 FMI 4:* Fuel Pressure Sensor Voltage Below Normal or Shorted Low
*SPN 94 FMI 15:* Fuel Pressure Data Valid But Above Normal Range-Least Severe Level
*SPN 94 FMI 17:* Fuel Pressure Data Valid But Below Normal Range-Least Severe Level

**SPN 98**
**SPN Descriptor**
*SPN 98 FMI 17:* Oil Level Switch Signal Data Valid But Below Normal Range-Least Severe Level
**SPN 100**

SPN Descriptors

**SPN 100 FMI 3:** Engine Oil Pressure (EOP) Sensor Circuit Voltage Above Normal or Shorted High

**SPN 100 FMI 4:** Engine Oil Pressure (EOP) Sensor Circuit Voltage Below Normal or Shorted Low

**SPN 100 FMI 17:** Engine Oil Pressure (EOP) Sensor Data Valid But Below Normal Range Least Severe Level

**SPN 105**

SPN Descriptors

**SPN 105 FMI 3:** Manifold Air Temperature (MAT) Sensor Circuit Voltage Above Normal or Shorted High

**SPN 105 FMI 4:** Manifold Air Temperature (MAT) Sensor Circuit Voltage Below Normal or Shorted Low

**SPN 106**

SPN Descriptors

**SPN 106 FMI 0:** Manifold Absolute Pressure (MAP) Sensor Circuit Voltage Data Valid But Above Normal

**SPN 106 FMI 1:** Manifold Absolute Pressure (MAP) Sensor Circuit Voltage Data Valid But Below Normal

**SPN 106 FMI 3:** Manifold Absolute Pressure (MAP) Sensor Circuit Voltage Above Normal or Shorted High

**SPN 106 FMI 4:** Manifold Absolute Pressure (MAP) Sensor Circuit Voltage Below Normal or Shorted Low

**SPN 108**

SPN Descriptors

**SPN 108 FMI 2:** Barometric Pressure (BARO) Sensor Voltage Data Erratic, Intermittent or Incorrect

**SPN 108 FMI 3:** Barometric Pressure (BARO) Sensor Voltage Above Normal or Shorted High

**SPN 108 FMI 4:** Barometric Pressure (BARO) Sensor Voltage Below Normal or Shorted Low

**SPN 108 FMI 10:** Barometric Pressure (BARO) Sensor Abnormal Rate of Change

**SPN 110**

SPN Descriptors

**SPN 110 FMI 3:** Engine Coolant Temperature (ECT) Sensor Circuit Voltage Above Normal or Shorted High

**SPN 110 FMI 4:** Engine Coolant Temperature (ECT) Sensor Circuit Voltage Below Normal or Shorted Low

**SPN 110 FMI 15:** Engine Coolant Temperature (ECT) Sensor Circuit Voltage Data Valid But Above Normal Range Least Severe Level
SPN 627
SPN Descriptor
SPN 627 FMI 15: System Voltage Data Valid But Above Normal Range-Least Severe Level
SPN 627 FMI 17: System Voltage Data Valid But Below Normal Range-Least Severe Level

SPN 630, 65580, 65581, or 65582
SPN Descriptors
SPN 630 FMI 13: Cal Memory Out of Calibration
SPN 65580 FMI 12: CPU Bad Intelligent Device or Component
SPN 65581 FMI 12: MHC Failure Bad Intelligent Device or Component
SPN 65582 FMI 12: NV RAM Failure Data Erratic, Intermittent or Incorrect

SPN 636
SPN Descriptors
SPN 636 FMI 2: Crankshaft Position (CKP) Sensor Circuit Data Erratic, Intermittent or Incorrect
SPN 636 FMI 8: Crankshaft Position (CKP) Sensor Signal Abnormal Frequency or Pulse Width

SPN 651, 652, 653, 654, 655, 656, 657, or 658
SPN Descriptors
SPN 651 FMI 3: Fuel Injector 1 Voltage Above Normal or Shorted High
SPN 651 FMI 5: Fuel Injector 1 Current Below Normal or Open Circuit
SPN 652 FMI 3: Fuel Injector 2 Voltage Above Normal or Shorted High
SPN 652 FMI 5: Fuel Injector 2 Current Below Normal or Open Circuit
SPN 653 FMI 3: Fuel Injector 3 Voltage Above Normal or Shorted High
SPN 653 FMI 5: Fuel Injector 3 Current Below Normal or Open Circuit
SPN 654 FMI 3: Fuel Injector 4 Voltage Above Normal or Shorted High
SPN 654 FMI 5: Fuel Injector 4 Current Below Normal or Open Circuit
SPN 655 FMI 3: Fuel Injector 5 Voltage Above Normal or Shorted High
SPN 655 FMI 5: Fuel Injector 5 Current Below Normal or Open Circuit
SPN 656 FMI 3: Fuel Injector 6 Voltage Above Normal or Shorted High
SPN 656 FMI 5: Fuel Injector 6 Current Below Normal or Open Circuit
SPN 657 FMI 3: Fuel Injector 7 Voltage Above Normal or Shorted High
SPN 657 FMI 5: Fuel Injector 7 Current Below Normal or Open Circuit
SPN 658 FMI 3: Fuel Injector 8 Voltage Above Normal or Shorted High
SPN 658 FMI 5: Fuel Injector 8 Current Below Normal or Open Circuit

SPN 3563
SPN Descriptors
SPN 3563 FMI 0: Supercharger Inlet Pressure (SCIP) Sensor Circuit Data Valid but Above Normal
SPN 3563 FMI 1: Supercharger Inlet Pressure (SCIP) Sensor Circuit Data Valid but Below Normal
SPN 3563 FMI 2: Supercharger Inlet Pressure (SCIP) Sensor Circuit Data Erratic, Intermittent, or Incorrect
SPN 3563 FMI 3: Supercharger Inlet Pressure (SCIP) Sensor Circuit Voltage Above Normal or Shorted High
SPN 3563 FMI 4: Supercharger Inlet Pressure (SCIP) Sensor Circuit Voltage Below Normal or Shorted Low

SPN 65541, 65542, 65543, 65544, 65545, 65546, 65547, or 65548

SPN Descriptors
SPN 65541 FMI 4: Ignition Coil 1 Voltage Below Normal or Shorted Low
SPN 65541 FMI 5: Ignition Coil 1 Current Below Normal or Open Circuit
SPN 65542 FMI 4: Ignition Coil 2 Voltage Below Normal or Shorted Low
SPN 65542 FMI 5: Ignition Coil 2 Current Below Normal or Open Circuit
SPN 65543 FMI 4: Ignition Coil 3 Voltage Below Normal or Shorted Low
SPN 65543 FMI 5: Ignition Coil 3 Current Below Normal or Open Circuit
SPN 65544 FMI 4: Ignition Coil 4 Voltage Below Normal or Shorted Low
SPN 65544 FMI 5: Ignition Coil 4 Current Below Normal or Open Circuit
SPN 65545 FMI 4: Ignition Coil 5 Voltage Below Normal or Shorted Low
SPN 65545 FMI 5: Ignition Coil 5 Current Below Normal or Open Circuit
SPN 65546 FMI 4: Ignition Coil 6 Voltage Below Normal or Shorted Low
SPN 65546 FMI 5: Ignition Coil 6 Current Below Normal or Open Circuit
SPN 65547 FMI 4: Ignition Coil 7 Voltage Below Normal or Shorted Low
SPN 65547 FMI 5: Ignition Coil 7 Current Below Normal or Open Circuit
SPN 65548 FMI 4: Ignition Coil 8 Voltage Below Normal or Shorted Low
SPN 65548 FMI 5: Ignition Coil 8 Current Below Normal or Open Circuit

SPN 65550, 65551, or 65552

SPN Descriptor
SPN 65550 FMI 2: Knock Sensor (KS) Circuit Data Erratic, Intermittent or Incorrect
SPN 65551 FMI 2: Knock Sensor (KS) Bank 1 Circuit Data Erratic, Intermittent or Incorrect
SPN 65552 FMI 2: Knock Sensor (KS) Bank 2 Circuit Data Erratic, Intermittent or Incorrect

SPN 65559

SPN Descriptors
SPN 65559 FMI 11: CAN Bus Hardware Fault Root Cause Unknown

SPN 65560

SPN Descriptors
SPN 65560 FMI 9: CAN Bus Governor Command Abnormal Update Rate

SPN 65565 or 65566

SPN Descriptors
SPN 65565 FMI 0: Fuel Trim Bank 1 Data Valid But Above Normal
SPN 65565 FMI 1: Fuel Trim Bank 1 Data Valid But Below Normal
SPN 65566 FMI 0: Fuel Trim Bank 2 Data Valid But Above Normal
SPN 65566 FMI 1: Fuel Trim Bank 2 Data Valid But Below Normal

SPN 65570

SPN Descriptors
SPN 65570 FMI 2: Cam Phaser W Data Erratic, Intermittent, or Incorrect
SPN 65570 FMI 4: Cam Phaser W Voltage Below Normal or Shorted Low
SPN 65570 FMI 5: Cam Phaser W Short High or Open
SPN 65570 FMI 7: Cam Phaser W Accuracy Mechanical System Not Responding or Out of Adjustment
SPN 65590, 65591, 65592, 65593, 65594, 65595, 65596, 65597, 65598, or 65599

SPN Descriptors
SPN 65590 FMI 7: Misfire Mechanical System Not Responding or Out of Adjustment
SPN 65591 FMI 7: Misfire Cylinder 1 Mechanical System Not Responding or Out of Adjustment
SPN 65592 FMI 7: Misfire Cylinder 2 Mechanical System Not Responding or Out of Adjustment
SPN 65593 FMI 7: Misfire Cylinder 3 Mechanical System Not Responding or Out of Adjustment
SPN 65594 FMI 7: Misfire Cylinder 4 Mechanical System Not Responding or Out of Adjustment
SPN 65595 FMI 7: Misfire Cylinder 5 Mechanical System Not Responding or Out of Adjustment
SPN 65596 FMI 7: Misfire Cylinder 6 Mechanical System Not Responding or Out of Adjustment
SPN 65597 FMI 7: Misfire Cylinder 7 Mechanical System Not Responding or Out of Adjustment
SPN 65598 FMI 7: Misfire Cylinder 8 Mechanical System Not Responding or Out of Adjustment
SPN 65599 FMI 7: Misfire Random Mechanical System Not Responding or Out of Adjustment

SPN 65601, 65602, or 65610

SPN Descriptors
SPN 65601 FMI 2: Throttle Position (TP) Sensor 2 Data Erratic, Intermittent or Incorrect
SPN 65602 FMI 2: Throttle Position (TP) Sensor 1 Data Erratic, Intermittent or Incorrect
SPN 65610 FMI 2: Throttle Position (TP) Sensor 1 and 2 Data Erratic, Intermittent or Incorrect

SPN 65604, 65605, or 65613

SPN Descriptors
SPN 65604 FMI 2: Pedal Position (PP) Sensor 2 Data Erratic, Intermittent or Incorrect
SPN 65604 FMI 12: Pedal Position (PP) Sensor 2 Bad Intelligent Device or Component
SPN 65605 FMI 2: Pedal Position (PP) Sensor 1 Data Erratic, Intermittent or Incorrect
SPN 65605 FMI 12: Pedal Position (PP) Sensor 1 Bad Intelligent Device or Component
SPN 65613 FMI 2: Pedal Position (PP) Sensor 1 and 2 Data Erratic, Intermittent or Incorrect
SPN 65615, 65616, or 65618

SPN Descriptors

SPN 65615 FMI 7: Electronic Throttle Control (ETC) Actuation Fault Mechanical System Not Responding or Out of Adjustment
SPN 65616 FMI 12: Electronic Throttle Control (ETC) Process Fault Bad Intelligent Device or Component
SPN 65618 FMI 7: Electronic Throttle Control (ETC) Return Fault Mechanical System Not Responding or Out of Adjustment

SPN 65620 or 65621

SPN Descriptors

SPN 65620 FMI 4: 5 Volt Reference A Circuit Voltage Below Normal or Shorted Low
SPN 65621 FMI 4: 5 Volt Reference B Circuit Voltage Below Normal or Shorted Low

SPN 65673 or 65674

SPN Descriptors

SPN 65673 FMI 15: Catalytic Converter A Temperature Sensor Data Valid But Above Normal Range-Least Severe Level
SPN 65674 FMI 15: Catalytic Converter B Temperature Sensor Data Valid But Above Normal Range-Least Severe Level

SPN 65690

SPN Descriptors

SPN 65690 FMI 3: Variable Governor Control Voltage Above Normal or Shorted High
SPN 65690 FMI 4: Variable Governor Control Voltage Below Normal or Shorted Low

SPN 65701 or 65702

SPN Descriptors

SPN 65701 FMI 31: General Warning Sensor 1 Not Available
SPN 65702 FMI 31: General Warning Sensor 2 Not Available

SPN 65710

SPN Descriptors

SPN 65710 FMI 31: Emergency Stop Warning Not Available

SPN 65723

SPN Descriptors
SPN 65723 FMI 2: Camshaft Position (CMP) Sensor Circuit Data Erratic, Intermittent or Incorrect
SPN 65723 FMI 7: Camshaft Position (CMP) Sensor Mechanical System Not Responding or Out of Adjustment
SPN 65723 FMI 8: Camshaft Position (CMP) Sensor Signal Abnormal Frequency or Pulse Width

SPN 66001
SPN Descriptor
SPN 66001 FMI 3: Starter Relay Low Side Driver Voltage Above Normal or Shorted High
SPN 66001 FMI 5: Starter Relay Low Side Driver Current Below Normal or Open Circuit

SPN 66002
SPN Descriptor
SPN 66002 FMI 4: Starter Relay High Side Driver Voltage Below Normal or Shorted Low
SPN 66002 FMI 5: Starter Relay High Side Driver Current Below Normal or Open Circuit

SPN 66003
SPN Descriptor
SPN 66003 FMI 3: Malfunction Indicator Lamp (MIL) Driver Voltage Above Normal or Shorted High
SPN 66003 FMI 5: Malfunction Indicator Lamp (MIL) Driver Current Below Normal or Open Circuit

SPN 66004
SPN Descriptor
SPN 66004 FMI 3: Service Vehicle Soon Lamp (SVS) Voltage Above Normal or Shorted High
SPN 66004 FMI 5: Service Vehicle Soon Lamp (SVS) Current Below Normal or Open Circuit

SPN 66005
SPN Descriptor
SPN 66005 FMI 3: Governor Status Lamp (GSL) Voltage Above Normal or Shorted High
SPN 66005 FMI 5: Governor Status Lamp (GSL) Current Below Normal or Open Circuit

SPN 66006
SPN Descriptor
SPN 66006 FMI 3: DTC Lamp 3 Voltage Above Normal or Shorted High
SPN 66006 FMI 5: DTC Lamp 3 Current Below Normal or Open Circuit

SPN 66010
SPN Descriptor
SPN 66010 FMI 3: Slow Mode Lamp Voltage Above Normal or Shorted High
SPN 66010 FMI 5: Slow Mode Lamp Current Below Normal or Open Circuit

SPN 66013 or 66014

SPN Descriptor

SPN 66013 FMI 3: Powertrain Relay Voltage Above Normal or Shorted High
SPN 66013 FMI 5: Powertrain Relay Current Below Normal or Open Circuit

SPN 66014 FMI 4: Powertrain Relay Contact Voltage Below Normal or Shorted Low

SPN 66017

SPN Descriptors

SPN 66017 FMI 4: Fuel Pump Relay 1 Voltage Below Normal or Shorted Low
SPN 66017 FMI 5: Fuel Pump Relay 1 Current Below Normal or Open Circuit

SPN 66018

SPN Descriptor

SPN 66018 FMI 3: Tachometer Voltage Above Normal or Shorted High
SPN 66018 FMI 5: Tachometer Current Below Normal or Open Circuit

SPN 66030

SPN Descriptor

SPN 66030 FMI 3: Intercooler Relay Voltage Above Normal or Shorted High
SPN 66030 FMI 5: Intercooler Relay Voltage Below Normal or Shorted Low

SPN 66035

SPN Descriptor

SPN 66035 FMI 0: Supercharger Boost Control Solenoid Data Valid but Above Normal
SPN 66035 FMI 3: Supercharger Boost Control Solenoid Data Valid but Below Normal
SPN 66035 FMI 5: Supercharger Boost Control Solenoid Current Below Normal or Open Circuit
SPN 66035 FMI 7: Supercharger Boost Control Solenoid Mechanical System Not Responding or Out of Adjustment

United States
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Chinook
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