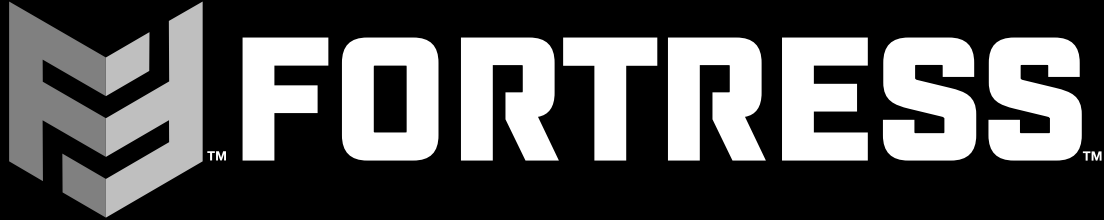


# Owner's Manual & Safety Instructions

**Save This Manual** Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

23e



## **HIGH PERFORMANCE SERIES** AIR COMPRESSOR

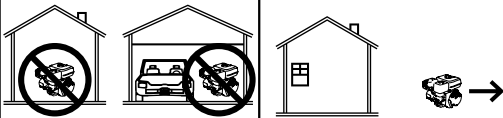
# 30 GALLON TRUCK BED AIR COMPRESSOR



### **⚠ DANGER**

Using an engine indoors  
**CAN KILL YOU IN MINUTES.**

Engine exhaust contains carbon monoxide.  
This is a poison you cannot see or smell.



**NEVER** use inside  
a home or garage,  
**EVEN IF** doors and  
windows are open.

Only use **OUTSIDE**  
and far away from  
windows, doors,  
and vents.

Visit our website at: <http://www.harborfreight.com>  
Email our technical support at: [productsupport@harborfreight.com](mailto:productsupport@harborfreight.com)

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

Copyright© 2022 by Harbor Freight Tools®. All rights reserved.  
No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein.  
Tools required for assembly and service may not be included.

### **⚠ WARNING**

**Read this material before using this product.  
Failure to do so can result in serious injury.  
SAVE THIS MANUAL.**

# Table of Contents

Safety .....	2	Maintenance .....	17
Installation .....	2	Parts List and Diagram .....	22
Specifications .....	6	Warranty .....	24
Operation.....	13		

SAFETY



INSTALLATION

OPERATION

MAINTENANCE

WARNING SYMBOLS AND DEFINITIONS	
	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	Addresses practices not related to personal injury.

# IMPORTANT SAFETY INFORMATION

## General Safety Warnings



**WARNING** Read all safety warnings and instructions.

*Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.*

**Save all warnings and instructions for future reference.**

The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

## Set Up Precautions

1. **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
2. **Do not operate the Compressor in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Gasoline-powered engines may ignite the dust or fumes.
3. **Keep children and bystanders away from an operating compressor.**
4. Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
5. Have multiple ABC class fire extinguishers nearby.
6. Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.
7. Set up and use only on a flat, level, well-ventilated surface.
8. Use only lubricants and fuel recommended in the engine manual or in the Specifications chart of this manual.
9. Wear ANSI-approved safety glasses, hearing protection, and NIOSH-approved dust mask/respirator under a full face shield along with steel-toed work boots during use.
10. Do not overreach. Keep proper footing and balance at all times. This enables better control of the equipment in unexpected situations.
11. Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.


## Engine Precautions

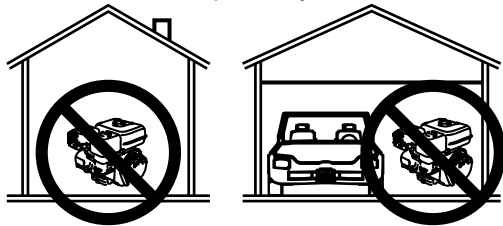
Follow engine precautions and instructions in the included engine instruction manual.

## Personal Safety

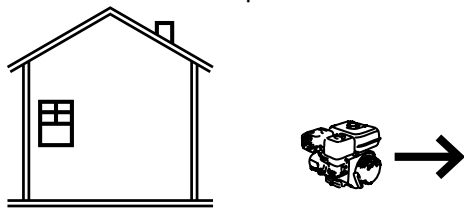
1. **Stay alert, watch what you are doing and use common sense when operating this compressor. Do not use this compressor while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating a compressor may result in serious personal injury.
2. **Use personal protective equipment. Always wear ANSI-approved eye protection during setup and use.**
3. **Prevent unintentional starting. Ensure the switch is in the off-position before moving the compressor.**

# Operating Precautions

1.  **CARBON MONOXIDE HAZARD**  
**Using an engine indoors CAN KILL YOU IN MINUTES.**  
Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a home or garage, EVEN IF doors and windows are open.



Only use OUTSIDE and far away from windows, doors, and vents.

2. Keep children away from the equipment, especially while it is operating.
3. Fire Hazard! Do not fill gas tank while Compressor engine is running. Do not operate if gasoline has been spilled. Clean spilled gasoline before starting engine. Do not operate near pilot light or open flame.
4. Do not touch Compressor engine during use. Let engine cool down after use.
  - a. **Do not use the compressor if the switch does not turn it on and off.** Any compressor that cannot be controlled with the switch is dangerous and must be repaired.
  - b. **Store an idle compressor out of the reach of children and do not allow persons unfamiliar with the compressor or these instructions to operate it.** A compressor is dangerous in the hands of untrained users.
5. Never store fuel or other flammable materials near the Compressor engine.
6. Only use a suitable means of transport and lifting devices with sufficient weight bearing capacity when transporting the Compressor.
7. Secure the Compressor on transport vehicles to prevent the tool from rolling, slipping, and tilting.
8. Use only accessories that are recommended by Harbor Freight Tools for your model. Accessories that may be suitable for one piece of equipment may become hazardous when used on another piece of equipment.
9. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
10. Do not cover the engine or equipment during operation.
11. **Maintain the compressor. Keep the compressor clean for better and safer performance. Follow instructions for lubricating and changing accessories. Keep dry, clean and free from oil and grease. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the compressor's operation. If damaged, have the compressor repaired before use.** Many accidents are caused by a poorly maintained compressor.
12. **Use the compressor in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the compressor for operations different from those intended could result in a hazardous situation.
13. Do not operate the equipment with known leaks in the engine's fuel system.
14. When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a bottom-ventilated, covered, metal container.
15. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
16. Before use, check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the equipment's operation. **If damaged, have the equipment serviced before using.** Many accidents are caused by poorly maintained equipment.
17. Use the correct equipment for the application. Do not modify the equipment and do not use the equipment for a purpose for which it is not intended.

# Service Precautions

Have your compressor serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the compressor is maintained.

1. **Before service, maintenance, or cleaning:**
  - a. Turn the engine switch to its "OFF" position.
  - b. Allow the engine to completely cool.
  - c. Then, remove the spark plug cap from the spark plug.
2. Keep all safety guards in place and in proper working order. Safety guards include muffler, air cleaner, mechanical guards, and heat shields, among other guards.
3. **Do not alter or adjust any part of the equipment or its engine that is sealed by the manufacturer or distributor. Only a qualified service technician may adjust parts that may increase or decrease governed engine speed.**
4. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during service.
5. Maintain labels and nameplates on the equipment. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
6. Store equipment out of the reach of children.
7. Follow scheduled engine and equipment maintenance.

## Air Compressor Safety Warnings

1. **Risk of fire or explosion - do not spray flammable liquid in a confined area or towards a hot surface. Spray area must be well-ventilated. Do not smoke while spraying or spray where spark or flame is present. Arcing parts - keep compressor at least 20 feet away from explosive vapors, such as when spraying with a spray gun.**
2. **Risk of bursting - do not adjust regulator higher than marked maximum pressure of attachment.**
3. **Risk of injury - do not direct air stream at people or animals.**
4. **Do not use to supply breathing air.**
5. **Keep compressor well-ventilated. Do not cover compressor during use.**
6. **Add correct amount of compressor oil before first use and every use. Operating with the incorrect amount of oil causes permanent damage and voids warranty. To prevent damage, do not use with overfilled or low oil.**
7. Drain Tank daily and after use. Internal rust causes tank failure and explosion.
8. Do not remove the valve cover or adjust internal components.
9. Compressor head gets hot during operation. Do not touch it or allow children nearby during or immediately following operation.
10. Do not use the air hose to move the compressor.
11. Release the pressure in the storage tank before moving.
12. The use of accessories or attachments not recommended by the manufacturer may result in a risk of injury to persons.
13. All air line components, including hoses, pipe, connectors, filters, etc., must be rated for a minimum working pressure of 175 PSI, or 150% of the maximum system pressure, whichever is greater.
14. Industrial applications must follow OSHA guidelines.
15. Maintain labels and nameplates on the compressor. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
16. This product is not a toy. Keep it out of reach of children.
17. Operate unit on level surface. Check oil level daily and fill to marked level if needed.
18. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the engine's magneto or recoil starter.






**SAVE THESE INSTRUCTIONS.**

# Symbol Definitions

SAFETY

<b>PSI</b>	Pounds per square inch of pressure
<b>CFM</b>	Cubic Feet per Minute flow
<b>SCFM</b>	Cubic Feet per Minute flow at standard conditions
<b>NPT</b>	National pipe thread, tapered
<b>NPS</b>	National pipe thread, straight

<b>RPM</b>	Revolutions Per Minute
<b>HP</b>	Horsepower
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.
	WARNING marking concerning Risk of Respiratory Injury. Operate engine OUTSIDE and far away from windows, doors, and vents.
	WARNING marking concerning Risk of Explosion.

INSTALLATION

OPERATION

MAINTENANCE



## Specifications

Pump	Two stage, V-style	
Air Outlet Size	1/2" NPT(F)	
Air Pressure	Shut-off	175 PSI
	Restart	145 PSI
Air Tank Capacity	30 Gallons	
Air Flow Capacity	Up to 24 CFM @ 90 PSI Up to 25 CFM @ 40 PSI	
Pump Oil Capacity	28.7 oz. (0.85L)	
Oil Type	SAE 30 non-detergent Air Compressor Oil	
Required Rotation viewed from PTO (power takeoff - the output shaft)	Counterclockwise	
Engine speed (non-idle)	3250 ± 50 RPM	

Note: Engine specifications are found in the engine manual supplied with this equipment.



## Installation

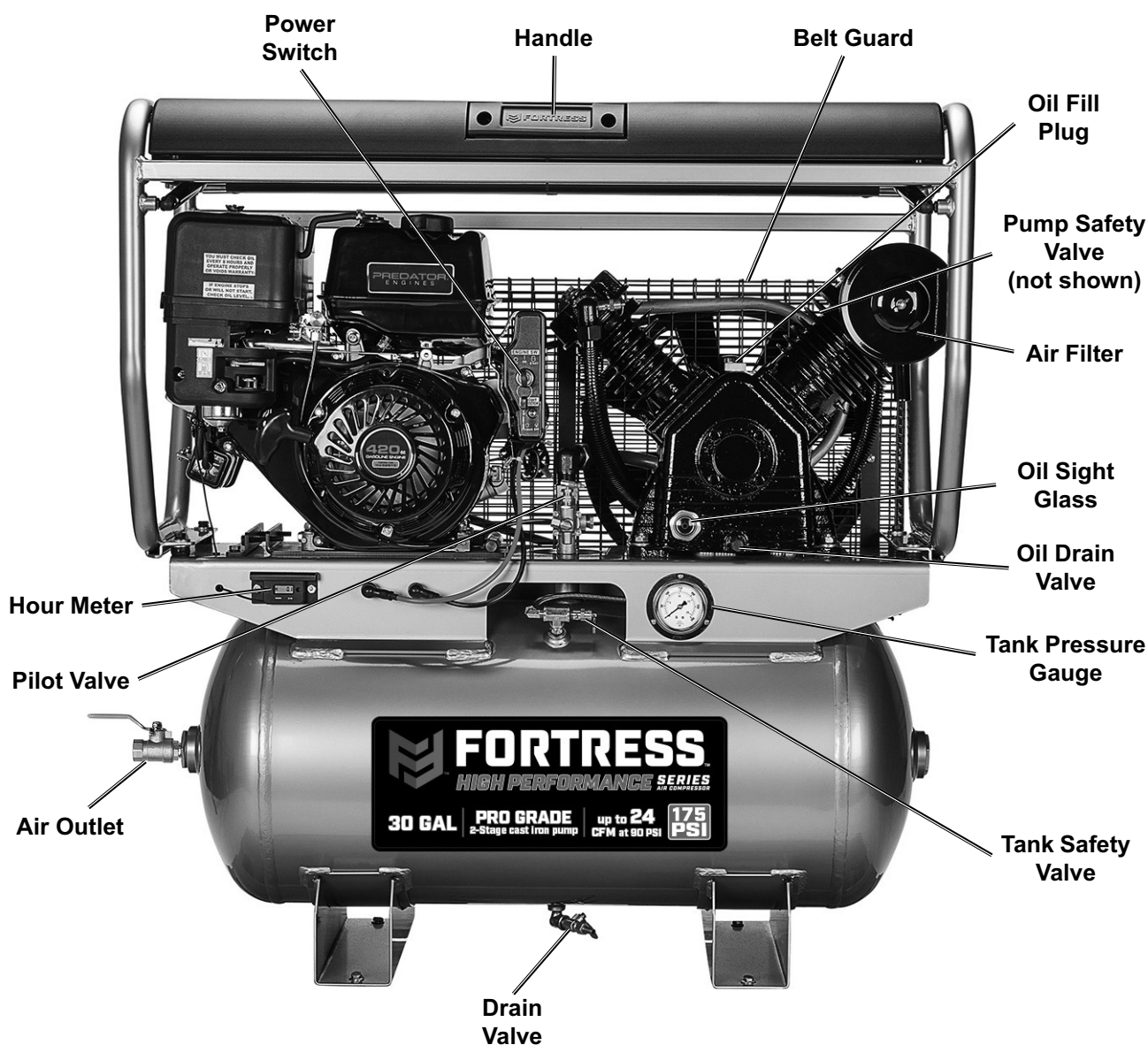


Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

The emission control system for this Compressor's Engine is warranted for standards set by the U.S. Environmental Protection Agency. For warranty information, refer to the engine manual.

**Note:** For additional information regarding the parts listed in the following pages, refer to the Assembly Diagram near the end of this manual.

## Functions



SAFETY

INSTALLATION

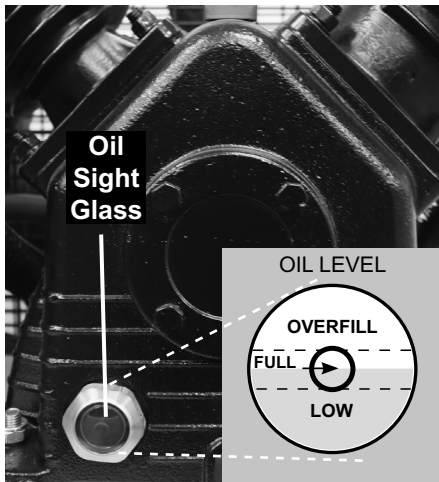
OPERATION

MAINTENANCE



**Belt Guard** - Encloses the pulleys and drive belts. Protects the user from the moving parts and allows the pulley to direct cooling air to the Air Pump.

**Oil Sight Glass** - Shows proper level of the oil. Oil level should be at center of Sight Glass.



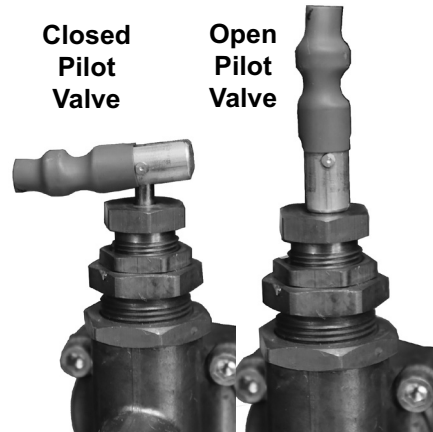
**Drain Valve** - Allows moisture to be removed from tank to prevent corrosion.

**Safety Valve** - Automatically releases air if Air Tank pressure exceeds the preset maximum. In an emergency, the ring can be pulled to relieve tank air pressure. There is a Safety Valve on the pump and another on the tank.

**Air Tank** - Air pressurized by the Pump is stored for use.

**Tank Pressure Gauge** - Displays the air pressure in the tank.

**Pilot Valve** - Open the Pilot Valve before starting the engine. It relieves resistance on the engine to make starting possible. Rotate the pin so it is vertical to open it. Once the engine is running, close the Pilot Valve so the Compressor can build up pressure.



# Mounting to Truck Bed

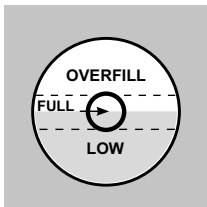
1. Before mounting, if needed, reinforce the area with plywood or steel plating.
2. Vibration isolation pads (sold separately) can be added between the Compressor's feet and mounting surface to dampen the impact of vibration.
3. With assistance, move compressor to truck bed location and mark the floor of truck bed through the holes in the compressor's feet. Check for any hidden wiring or cables and adjust the location for the holes as needed. Then, temporarily set compressor aside.
4. Drill four 1/2" diameter holes through truck bed and any reinforcing materials. Set compressor back in place, and align foot holes with the pre-drilled holes. Use four 1/2" diameter bolts, flat washers and lock washers (sold separately) to secure compressor in place.

# Checking the Oil

1. Check the oil level before operation. Fill the Pump Crankcase with SAE 30W, non-detergent, Air Compressor Oil (sold separately).

**IMPORTANT: Running the Air Compressor with no oil or low oil will cause damage to the equipment and void the warranty.**

2. The oil level should be at the center of the "full" level on the Oil Sight Glass, as shown in the illustration. Add oil as needed to maintain this level. Do not let the oil level go below the center dot (LOW as shown below) and do not overfill the oil so that it is above the center dot (OVERFILL as shown below).



3. To add oil:
  - a. Remove the Oil Fill Plug.
  - b. Using a funnel to avoid spills, pour enough oil into the Pump Crankcase to reach the "full" level in the Oil Sight Glass.
  - c. Replace the Oil Fill Plug.

## Cold Weather Operation

**Premium** quality 30-weight, non-detergent air compressor oil (sold separately) is recommended for use with this compressor. Start compressor in heated area if outdoor temperatures drop below 32° F. If this is not practical, drain out the old pump oil and use L-PAB100-150 Non-detergent Air Compressor Oil in the pump crankcase instead whenever the compressor's temperature will fall below 40°. Do not use multi-viscosity oil (such as 10W-30), they leave carbon deposits on pump components and lead to accelerated failure. Heavy operation may require heavier viscosity oil.

4. If uncertain which oil to use for this compressor, call Harbor Freight Tools customer service at 1-888-866-5797 for assistance.
5. **Change the compressor oil after the first 20 hours of use to remove any debris.**

**CAUTION! TO PREVENT INJURY FROM BURNS: Do not add or change the oil while the compressor is in operation. Allow the compressor to cool before replacing oil.**

## Installing Air Outlet Valve

---

1. Install the included ball valve onto end of tank for the air outlet. Use thread sealer on the valve threads.

## Breaking in the Compressor

---

1. Turn Engine off.
2. Open ball valve on tank.
3. Check all fluid levels in engine and pump.
4. Start engine following the General Operating Instructions.
5. Let the unit run for 30 minutes.  
Air will expel freely through the Coupler.
6. Turn Engine OFF.
7. Close ball valve.

## Air Connection Setup

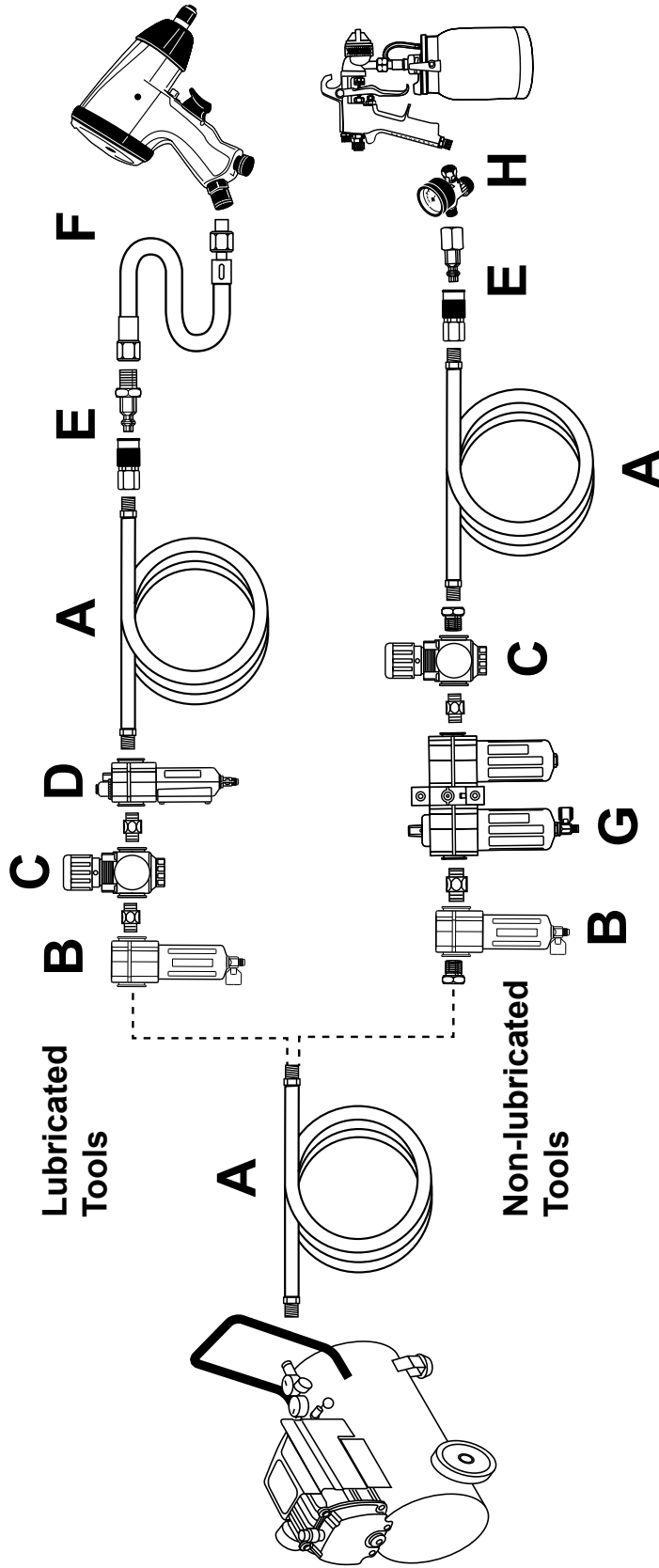
---

1. Connect a regulator valve, an inline shut off valve and a 1/2" NPT air hose to the Quick Coupler (all sold separately). The air hose must be long enough to reach the work area with enough extra length to allow free movement while working.
2. Depending on the tool that will be used with this compressor, incorporate additional components, such as an in-line oiler, a filter, or a dryer (all sold separately), as shown in Figure A on page 12. Consult air tool's manual for needed accessories.

**Note:** An in-line shutoff ball valve is an important safety device because it controls the air supply even if the air hose is ruptured. The shutoff valve should be a ball valve because it can be closed quickly.



Figure A: Portable Air Supply Setup



Description	Function
A Air Hose	Connects air to tool
B Filter	Prevents dirt and condensation from damaging tool or workpiece
C Regulator	Adjusts air pressure to tool
D Lubricator (optional)	For air tool lubrication
E Coupler and Plug	Provides quick connection and release
F Leader Hose (optional)	Increases coupler life
G Air Cleaner / Dryer (optional)	Prevents water vapor from damaging workpiece
H Air Adjusting Valve (optional)	For fine tuning airflow at tool

## Operating Instructions



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

## Using the Compressor

Inspect Compressor, engine, pump and equipment looking for damaged, loose, and missing parts before set up and starting. If any problems are found, do not use equipment until fixed properly.

**Note:** At the beginning of the day's first use of the Air Compressor, check for air leaks by applying soapy water to connections while the Air Compressor is pumping and after pressure cut-out. Look for air bubbles. If air bubbles are present at connections, tighten connections. Do not use the air compressor unless all connections are air tight. The extra air leaking out will cause the compressor to operate too often, increasing wear on the compressor.

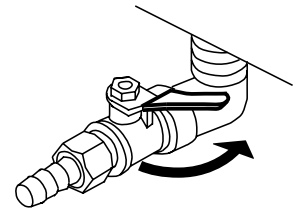
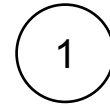
### Before starting the Compressor:



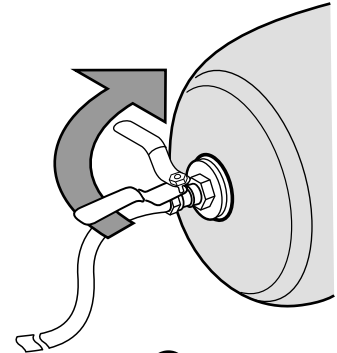
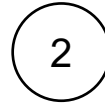
- a. Follow the Set Up Instructions in the equipment manual to prepare the equipment.
- b. Follow the Set Up Instructions in the Engine manual to prepare the engine.
- c. Inspect all components of the setup. Make sure all nuts and bolts are tight.
- d. Fill the Engine with the proper amount and type of both fuel and oil.
- e. Fill the Compressor Pump with compressor oil following the Maintenance Instructions in this manual.

### To Start and Use the Compressor

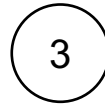
1. Close Drain Valve by turning handle so that it is perpendicular to valve.



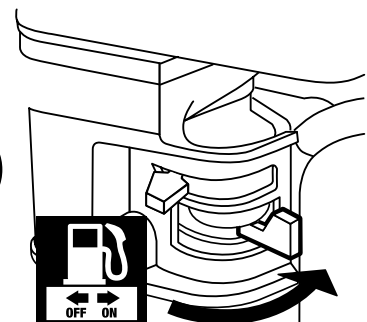
2. Close the in-line Shutoff Valve between compressor and air hose.



3. Open Pilot Valve by rotating it to vertical position.

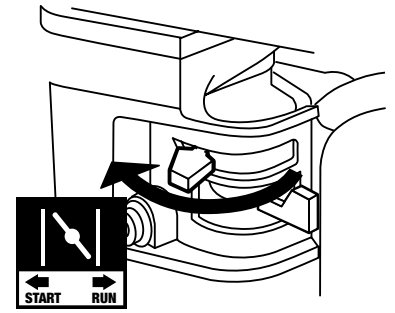


4. Open Fuel Valve.



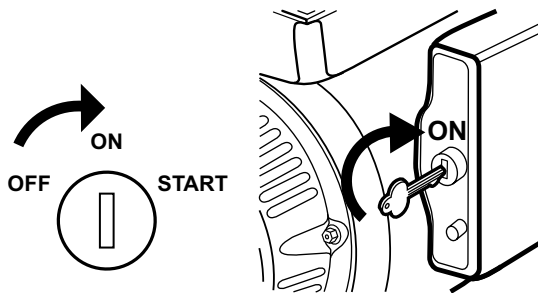
5. To start a cold engine, move Choke to the START (start/closed) position.  
To restart a warm engine, leave Choke in the RUN position.  
If engine does not start, try choke half-way between RUN and START position.

5

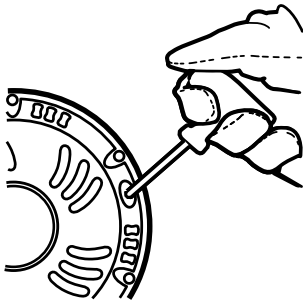


## 6. For MANUAL START

- a. Turn Engine Switch to ON.



- b. Grip Starter Handle of Engine loosely and pull it slowly several times to allow gasoline to flow into Engine's carburetor. Then pull Starter Handle gently until resistance is felt. Allow Cable to retract fully and then pull it quickly. Repeat until the engine starts. Note: Do not let Starter Handle snap back against the engine. Hold it as it recoils so it doesn't hit the engine.



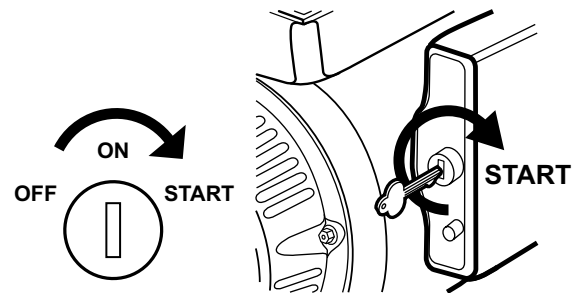
## For ELECTRIC START

Place a **fully charged**, lead-acid **12 volt, 300 CCA, 36 Ah** battery (not included) in a stable, flat location near the compressor; OR connect compressor directly into vehicle system.

**WARNING:** Wiring into vehicle system should be performed by a qualified technician.

- a. Pull off cable boots from terminals on front of compressor platform.
- a. Attach positive cable from positive battery terminal to Positive Terminal (+) on compressor. Attach negative cable from negative terminal of battery to Negative Terminal (-) on compressor. Connect cables securely to prevent disconnection and short circuits. Coat terminals and cable ends with a corrosion-preventive coating.
- b. Reinstall cable boots.
- c. Turn Engine Switch to START.

**Note:** To prolong starter life, use short starting cycles (5 seconds maximum). Then wait one minute before attempting to start again.

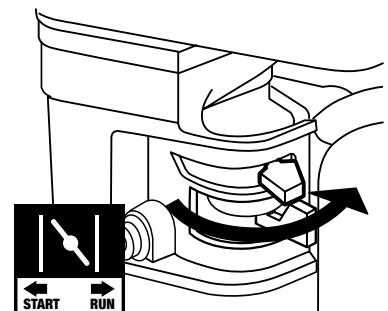


**Note:** If engine does not start, check engine oil. Engine will not start with low or no engine oil.

7. Allow Engine to run for several seconds. Then, if Choke lever is in START position, move Choke Lever very slowly to its RUN position.

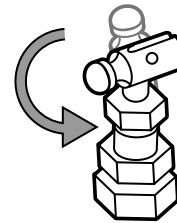
**Note:** Moving the Choke Lever too fast could kill the engine.

7



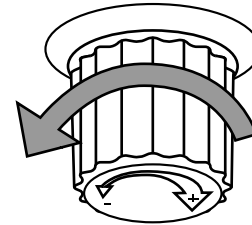
8. Close Pilot Valve by rotating it to a horizontal position.

8



9. When the Gas Engine is started and running, the compressor Pump starts compressing air into the Air Tank. Open the in-line Shut Off Valve and adjust the Pressure Regulator (sold separately) so that the air output is enough to properly power the tool, but the output will not exceed the tool's maximum air pressure at any time. Turn the knob clockwise to increase the pressure and counterclockwise to decrease pressure. Adjust the pressure gradually, while checking the air output gauge to set the pressure.

9



**IMPORTANT:** Allow engine to run for five minutes with no load after each start-up so that the engine can stabilize.

**Maintenance Break-in Period:**

Breaking-in the engine will help to ensure proper equipment and engine operation. The **maintenance** break-in period will last about 20 hours of use. After this period, change the engine oil.

Under normal operating conditions, subsequent maintenance follows the schedule explained in the MAINTENANCE AND SERVICING section.

**Note:** When maximum tank pressure is reached, the compressor automatically disengages, and the engine RPM drops down to idle speed. The engine remains at idle until Air Tank pressure falls to a preset level. The Gas Engine will then accelerate and air pressure once again begins to build up in the Air Tank.

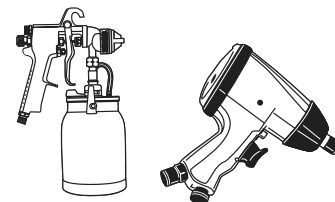
**Note:** As long as the engine is running, the operation of the Air Compressor is automatic, controlled by an internal pressure switch.

**IMPORTANT:** The internal pressure switch is not user adjustable; **do not make changes to the air pressure settings of the internal pressure switch.** Any change to the automatic pressure levels may cause excess pressure to accumulate, causing a hazardous situation.

**Note: Depressurization** - If it is necessary to quickly *depressurize* the Compressor, turn OFF the engine. Then, pull on the ring on the tank Safety Valve to release stored air pressure.

10. Use the air tool as needed.

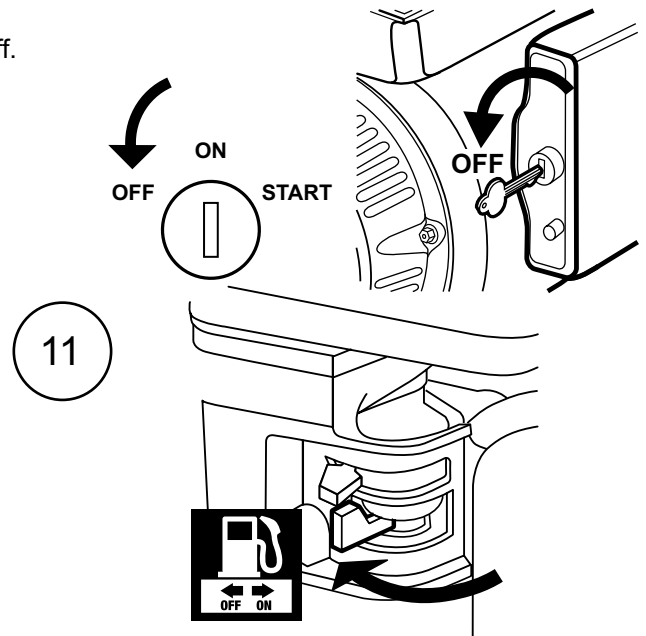
10



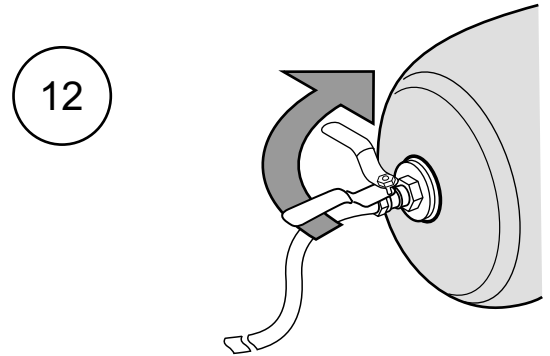
11. After the job is complete, turn OFF the engine.  
To stop the engine in an emergency, turn Engine Switch off.

Under normal conditions, use the following procedure:

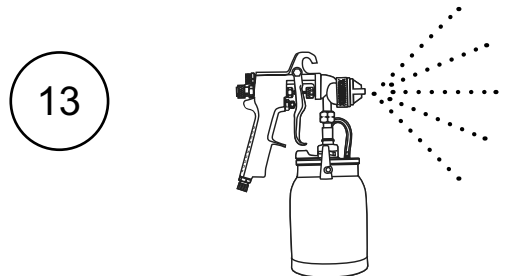
- Turn Engine Switch off.
- Close Fuel Valve.



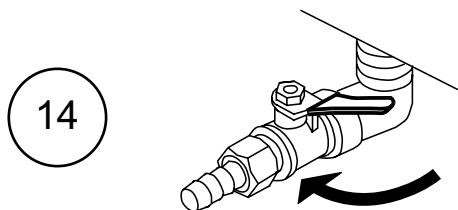
12. Close the in-line Shut Off Valve.



13. Bleed air from tool then disconnect tool.



14. Open Drain Valve at bottom of Tank, to release any built-up moisture and internal tank pressure.



15. Clean, then store the Air Compressor inside a garage or another area that provides protection from the elements.

## Emergency Depressurization

If it is necessary to quickly *depressurize* the Compressor, turn the Power Switch OFF.  
Then pull the ring on the Safety Valve to quickly release stored air pressure.



## Maintenance and Servicing



Procedures not specifically explained in this manual must be performed only by a qualified technician.

### **WARNING**

#### **TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:**

Turn the Power Switch of the equipment to its “OFF” position, release tank air pressure, wait for the engine to cool, and disconnect the spark plug cap before performing any inspection, maintenance, or cleaning procedures.

#### **TO PREVENT SERIOUS INJURY FROM COMPRESSOR FAILURE:**

Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.

**CAUTION! TO PREVENT INJURY FROM BURNS:** Do not add or change the oil while the compressor is in operation. Allow the compressor to cool before replacing oil.

## Cleaning, Maintenance, and Lubrication

- BEFORE EACH USE**, inspect the general condition of the air compressor. Check for:
  - loose hardware,
  - misalignment or binding of moving parts,
  - damaged belts,
  - cracked or broken parts,
  - damaged electrical wiring, and
  - any other condition that may affect its safe operation.
- AFTER USE**, wipe external surfaces of the compressor with a clean cloth.

## Compressor Pump Oil Maintenance

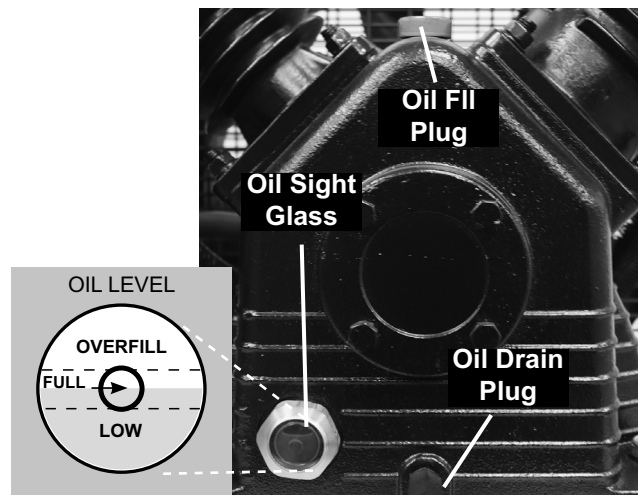
Check oil periodically for clarity. Replace oil if it appears milky or if debris is present, or every 6 months, or 100 hours of runtime, whichever comes first. In harsh environments such as high heat or high humidity, replace the oil more frequently.

**Change compressor oil after first 20 hours of use to remove any debris.**

## Changing Oil

**CAUTION! TO PREVENT INJURY FROM BURNS:** Do not add or change the oil while the compressor is in operation. Allow the compressor to cool before replacing oil.

1. Place a container under Oil Drain Plug.
2. Remove Oil Fill Plug to allow air flow into the Pump.
3. Remove Oil Drain Plug, allowing the oil to drain into the container.
4. When the oil is completely drained from the Pump, replace Oil Drain Plug.
5. Fill the Pump with new compressor oil to the FULL level on Oil Sight Glass.
6. Replace and tighten Oil Fill Plug.
7. Discard old oil according to local, state and federal regulations.



## Draining Moisture from the Tank

The Drain Valve is located under the Tank. It must be used daily to release all trapped air and moisture from the Tank. Doing this will eliminate condensation and prevent tank corrosion.

1. Turn Power Switch off.
2. Place a collection pan under Drain Valve.
3. Open Drain Valve by turning handle parallel to drain axis.
4. When all the pressure and moisture is released, close Drain Valve.

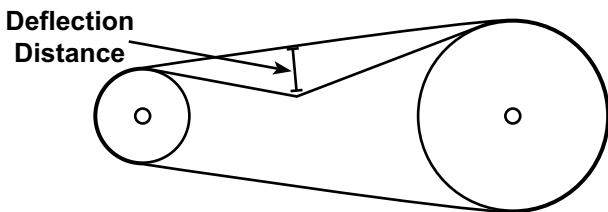
## Air Filter Maintenance

Check the Air Filter weekly to see if it needs cleaning or replacement. If working in dirty environments, you may need to replace filter more often. To replace Air Filter:

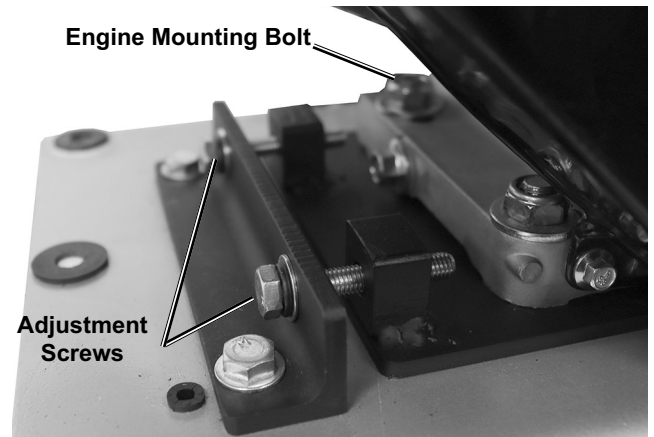
1. Unthread Wing Nut holding Air Filter Assembly in place.
2. Remove cover and Air Filter.
3. Check Filter for accumulated dirt.
4. To prevent injury from dust and debris, wear ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and heavy-duty work gloves. In a well-ventilated area away from bystanders, use pressurized air (no more than 15 PSI) to blow dust out of the Filter.
5. Replace the clean Filter, then replace the Cover and secure with Wing Nut.
6. Install new Air Filter if it is too dirty to be cleaned.

## Adjusting Belt Tension

1. Remove Belt Guard Cover and set it aside.
2. Press on the center of the longest span on each belt with moderate finger pressure (4-4.5 lb.). Then measure the deflection distance, the distance that the belt moved. The belt should deflect anywhere from 1/2" to 1".



3. **If either belt deflects too much**, tighten belts by loosening the four Engine Mounting Bolts and turning the Adjustment Screws *clockwise* to shift engine away from other pulley. Turn both Adjustment Screws an equal amount. Retighten Engine Mounting Bolts and retest tension. If either belt is too long to be properly tensioned, both belts must be replaced.



4. **If either belt deflects too little**, loosen belts by loosening the four Engine Mounting Bolts and turning the Adjustment Screws *counterclockwise* to shift the engine toward the other pulley. Turn both Adjustment Screws an equal amount. Retighten Engine Mounting Bolts and retest tension.
5. Replace belt cover before use.

# Maintenance Schedule

Following are general guidelines for maintenance checks of the Air Compressor.

**Note:** The environment in which the compressor is used, and the frequency of use will affect how often you will need to check the Air Compressor components and perform maintenance procedures.

## Daily:

- a. Check oil level.
- b. Check for oil leaks.
- c. Make sure all nuts and bolts are tight.
- d. Drain moisture from air tank.
- e. Check for abnormal noise or vibration.
- f. Check for air leaks.\*
- g. Inspect belts.
- h. Wipe off any oil or dirt from the compressor.\*\*

## Weekly:

- a. Inspect Air Filter.
- b. Inspect Oil Breather.

## Monthly:

- a. Inspect Pressure Relief Valve.
- b. Inspect vibration isolation pads (if installed).

\* To check for air leaks, apply soapy water to joints while the Air Compressor is pressurized. Look for air bubbles.

\*\* To clean the compressor surface, wipe with a damp cloth, using a mild detergent or mild solvent.



# Troubleshooting

SAFETY

INSTALLATION

OPERATION

MAINTENANCE

Problem	Possible Causes	Likely Solutions
Engine will not start  (Note: See engine manual for engine specific issues.)	COMPRESSOR SPECIFIC: 1. Pilot Valve closed. 2. Tank already pressurized.	COMPRESSOR SPECIFIC: 1. Open pilot valve before start procedure, close after unit is running. 2. Turn engine on. Compressor will turn on as needed when pressure reaches preset level.
Compressor overheats	1. Incorrect lubrication or not enough lubrication. 2. Worn parts.	1. Lubricate using recommended oil or grease according to directions. 2. Have qualified technician inspect internal mechanism and replace parts as needed.
Severe air leakage	1. Poor air outlet seal. 2. Loose cylinder/cylinder head. 3. Damaged valve or housing. 4. Dirty, worn or damaged valve.	1. Tighten or re-attach using thread seal tape. 2. Tighten cylinder/cylinder head assembly. If cylinder/cylinder head cannot tighten properly, internal parts may be misaligned. 3. Replace damaged components. 4. Clean or replace valve assembly.
Unit stalls	1. Low engine idle. 2. Severely clogged air filter. 3. Improper lubrication. 4. Defective pilot/unloader valve.	1. Qualified technician should increase idle to 2,000±100 RPM by adjusting pressure switch. 2. Replace air filter. 3. Check for proper oil level. 4. Replace pilot valve.
Excessive noise	1. Loose drive pulley or flywheel. 2. Misaligned pulleys. 3. Lack of oil in crankcase. 4. Worn connecting rod. 5. Worn wrist pin bushing. 6. Worn bearings. 7. Loose belts.	1. Loose pulleys are a common cause of “knocking”. Tighten appropriate bolts. 2. Align pulleys with straightedge and secure in place. 3. Check for proper oil level. 4. Replace connecting rod. 5. Remove piston assembly and replace necessary parts. 6. Replace bearings and oil. 7. Check for proper belt tension.
Oil in the discharge air	1. Wrong type of oil or low-quality oil. 2. Overheating. 3. Restricted intake air. 4. Worn piston rings. 5. Excessive moisture in the tank.	1. Change oil. Check oil recommendations under Maintenance section of this manual. 2. See above Excessive Noise section. 3. Clean or replace air filter. 4. Replace piston rings. 5. Drain moisture from the tank daily.
Low discharge pressure	1. Air leaks. 2. Leaking valves. 3. Restricted air intake. 4. Blown gaskets. 5. Slipping belts.	1. Listen for escaping air. Apply soap solution to all fittings and connections. Bubbles will appear at points of leakage. Tighten or replace leaking fittings or connections. 2. Remove head and inspect for valve breakage, weak valves, scored valve plate, etc. Replace defective parts and reassemble. Replace head gasket each time the head is removed. 3. Clean or replace air filter element. 4. Replace if gaskets proven faulty on inspection. 5. Tighten Belts (See Maintenance.)



**Follow all safety precautions whenever diagnosing or servicing the equipment or engine.**

## PLEASE READ THE FOLLOWING CAREFULLY

---

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

SAFETY

INSTALLATION

OPERATION

MAINTENANCE

**Record Product's Serial Number Here:** \_\_\_\_\_

**Note:** If product has no serial number, record month and year of purchase instead.

**Note:** Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts. Specify UPC 193175467782 when ordering parts.

**Parts List**

SAFETY

INSTALLATION

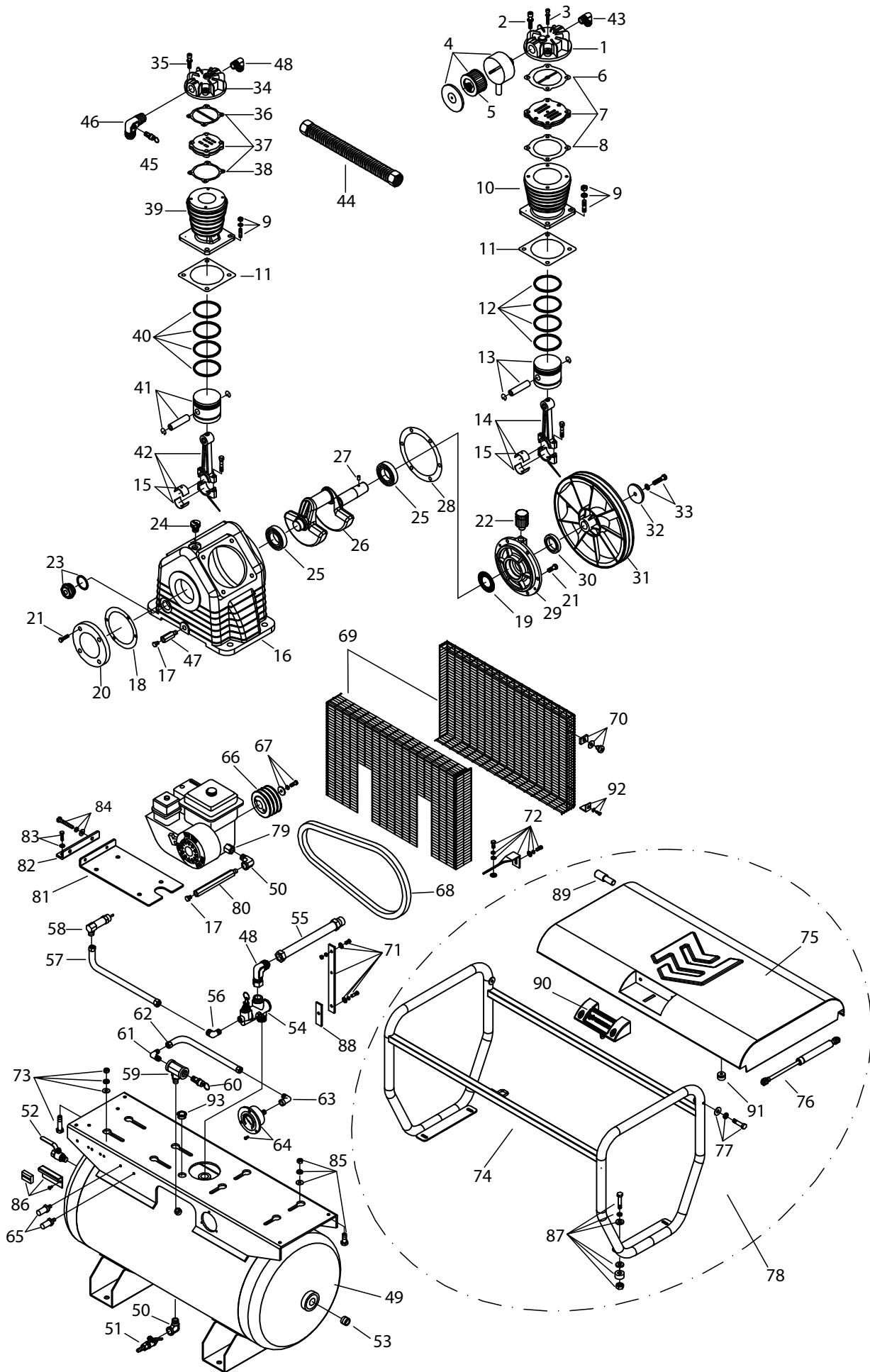
OPERATION

MAINTENANCE

Part	Description	Qty
1	Cylinder Head	1
2	Socket Head Bolt Set	4
3	Socket Head Bolt Set	1
4	Air Filter Set	1
5	Air Filter Element	1
6	Cylinder Head Gasket	1
7	Valve Assembly	1
8	Valve Seat Gasket	1
9	Double Head Screw Set	8
10	Cylinder	1
11	Cylinder Gasket	2
12	Piston Ring Set	1
13	Piston Set	1
14	Rod Set	1
15	Rod Bushing (2)	2
16	Crankcase	1
17	Oil Drain Plug	1
18	Front Bearing Seat Gasket	1
19	Oil Mesh	1
20	Front Bearing Seat	1
21	Hex Bolt	10
22	Oil Breather	1
23	Oil Sight Gauge Set	1
24	Oil Fill Plug	1
25	Bearing	2
26	Crankshaft & Balancer	1
27	Pulley Key	1
28	Rear Bearing Seat Gasket	1
29	Rear Bearing Seat	1
30	Oil Seal	1
31	Pulley	1
32	Plate Washer	1
33	Hex Bolt Set	1
34	Cylinder Head	1
35	Socket Head Bolt Set	4
36	Cylinder Head Gasket	1
37	Valve Assembly	1
38	Valve Seat Gasket	1
39	Cylinder	1
40	Piston Ring Set	1
41	Piston Set	1
42	Rod Set	1
43	Exhaust Elbow	1
44	Exhaust Tube Set	1
45	Safety Valve	1
46	Exhaust Elbow	1
47	Oil Drain Tube	1

Part	Description	Qty
48	Exhaust Elbow	1
49	Air Tank	1
50	Elbow	2
51	Drain Valve	1
52	Shut Off Valve	1
53	Plug	1
54	Unloading Valve	1
55	Exhaust Tube	1
56	Elbow	1
57	Idling Tube	1
58	Idling Device	1
59	Three Way Pipe	1
60	Safety Valve	1
61	Elbow	1
62	Gauge Tube	1
63	Elbow	1
64	Pressure Gauge Set	1
65	Terminal Set	1
66	Pulley	1
67	Hex Bolt Set	1
68	V-Belt	2
69	Belt Guard Set	1
70	Belt Guard Screw Set (9)	1
71	Belt Guard Bracket Set (3)	1
72	Body Bracket Set	1
73	Engine Bolt Set	1
74	Frame	1
75	Frame Cover Set	1
76	Gas Strut	2
77	Mandrel Bolt Set (2)	2
78	Frame Assembly	1
79	Oil Drain Tube Short	1
80	Oil Drain Tube Long	1
81	Engine Seat Plate	1
82	Adjusting Bracket	1
83	Fixed Bolt Set	2
84	Adjust Bolt Set	2
85	Body Bolt Set	1
86	Timer Seat Set	1
87	Frame Bolt Set	4
88	Rubber Pad	3
89	Cover Mandrel	2
90	Grip Set	1
91	Cover Pad Set (2)	1
92	Side Bracket Set (2)	1
93	Grommet	1

# Assembly Diagram



SAFETY

INSTALLATION

OPERATION

MAINTENANCE

## Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.



26677 Agoura Road • Calabasas, CA 91302 • 1-888-866-5797



# Owner's Manual & Safety Instructions

**Save This Manual** Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

23g

## PREDATOR<sup>®</sup> ENGINES

# 420cc Horizontal Engine



### ⚠ DANGER

Using an engine indoors  
CAN KILL YOU IN MINUTES.

Engine exhaust contains carbon monoxide.  
This is a poison you cannot see or smell.



NEVER use inside  
a home or garage,  
EVEN IF doors and  
windows are open.



Only use OUTSIDE  
and far away from  
windows, doors,  
and vents.

Visit our website at: <http://www.harborfreight.com>  
Email our engine support at: [predator@harborfreight.com](mailto:predator@harborfreight.com)

ENGINE FOR 59373

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

Copyright© 2021 by Harbor Freight Tools®. All rights reserved.  
No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein.  
Tools required for assembly and service may not be included.

### ⚠ WARNING

Read this material before using this product.  
Failure to do so can result in serious injury.  
SAVE THIS MANUAL.

## Table of Contents

Specifications .....	2	Maintenance .....	14
Safety .....	3	Troubleshooting .....	18
Setup .....	6	Warranties .....	22
Operation .....	8	Parts List and Diagram .....	20






### Specifications

Displacement		420cc
Engine Type		Horizontal Single Cylinder 4 stroke OHV EPA phase III compliant
Cooling System		Forced air cooled
Fuel	Type	87+ octane stabilizer treated unleaded gasoline
	Capacity	1.7 Gallon
Engine Oil	Type SAE	10W-30 above 32° F 5W-30 at 32° F or below
	Capacity	1.16 Quart
Run Time @ 50% Load with full tank		3 hr.
Sound Level at 22 feet		108 dB
Bore x Stroke		90 mm x 66 mm
Compression Ratio		8.1:1
Rotation viewed from PTO (power takeoff - the output shaft)		Counterclockwise
Shaft	Shaft	1" x 3.48"
	Keyway	1/4" (6.35 mm)
	End Tapped	3/8" - 24
Spark Plug	Type	NHSP® / Torch® F7TC
	Gap	0.0275" - 0.0314"
Valve Clearance	Intake	0.0039" - 0.0059"
	Exhaust	0.0039" - 0.0059"
Speed	Idle	1,800 ± 50 RPM




# PREDATOR<sup>®</sup>




## E N G I N E S

## WARNING SYMBOLS AND DEFINITIONS

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	Addresses practices not related to personal injury.

## Symbol Definitions

Symbol	Property or Statement
<b>RPM</b>	Revolutions Per Minute
<b>HP</b>	Horsepower
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.
	Read the manual before set-up and/or use.
	WARNING marking concerning Risk of Hearing Loss. Wear hearing protection.

Symbol	Property or Statement
	WARNING marking concerning Risk of Respiratory Injury. Operate engine OUTSIDE and far away from windows, doors, and vents.
	WARNING marking concerning Risk of Fire while handling fuel. Do not smoke while handling fuel.
	WARNING marking concerning Risk of Fire. Do not refuel while operating. Keep flammable objects away from engine.

## Safety Warnings



**WARNING! Read all instructions.**

**Failure to follow all instructions listed below may result in fire, serious injury and/or DEATH.**


The warnings and precautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

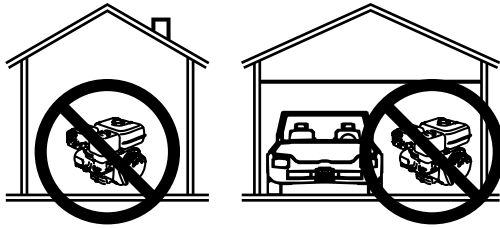
**SAVE THESE INSTRUCTIONS**

# Set up Precautions

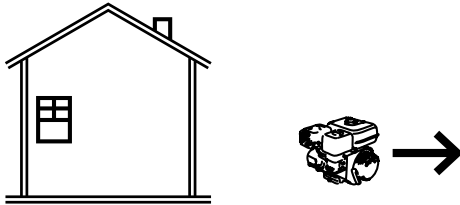
1. Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
2. Have multiple ABC class fire extinguishers nearby.
3. Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.
4. Set up and use only on a flat, level, well-ventilated surface.
5. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during set up.
6. Use only lubricants and fuel recommended in the Specifications chart of this manual.

# Operating Precautions

1.  **CARBON MONOXIDE HAZARD**  
**Using an engine indoors CAN KILL YOU IN MINUTES.**  
Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a home or garage, EVEN IF doors and windows are open.



Only use OUTSIDE and far away from windows, doors, and vents.

2. Keep children away from the equipment, especially while it is operating.
3. Keep all spectators at least six feet from the Engine during operation.
4. Fire Hazard! Do not fill gas tank while engine is running. Do not operate if gasoline has been spilled. Clean spilled gasoline before starting engine. Do not operate near pilot light or open flame.
5. Do not touch engine during use. Let engine cool down after use.
6. Never store fuel or other flammable materials near the engine.
7. Only use a suitable means of transport and lifting devices with sufficient weight bearing capacity when transporting the Engine.
8. Secure the Engine on transport vehicles to prevent the tool from rolling, slipping, and tilting.
9. Industrial applications must follow OSHA requirements.

10. Do not leave the equipment unattended when it is running. Turn off the equipment (and remove safety keys, if available) before leaving the work area.
11. Engine can produce high noise levels. Prolonged exposure to noise levels above 85 dBA is hazardous to hearing. Always wear ear protection when operating or working around the gas engine while it is operating.
12. Wear ANSI-approved safety glasses, hearing protection, and NIOSH-approved dust mask/respirator under a full face shield along with steel-toed work boots during use.
13. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to a heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the engine's magneto or recoil starter.
14. Use only accessories that are recommended by Harbor Freight Tools for your model. Accessories that may be suitable for one piece of equipment may become hazardous when used on another piece of equipment.
15. Do not operate in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Gasoline-powered engines may ignite the dust or fumes.
16. Stay alert, watch what you are doing and use common sense when operating this piece of equipment. Do not use this piece of equipment while tired or under the influence of drugs, alcohol or medication.
17. Do not overreach. Keep proper footing and balance at all times. This enables better control of the equipment in unexpected situations.
18. Use this equipment with both hands only. Using equipment with only one hand can easily result in loss of control.
19. Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.

## Operating Precautions (continued)

20. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
21. Do not cover the engine or equipment during operation.
22. Keep the equipment, engine, and surrounding area clean at all times.
23. Do not refill the fuel tank while the engine is running or hot.
24. Use the equipment, accessories, etc., in accordance with these instructions and in the manner intended for the particular type of equipment, taking into account the working conditions and the work to be performed. Use of the equipment for operations different from those intended could result in a hazardous situation.
25. Do not operate the equipment with known leaks in the engine's fuel system.
26. When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a bottom-ventilated, covered, metal container.
27. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
28. Before use, check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the equipment's operation. **If damaged, have the equipment serviced before using.** Many accidents are caused by poorly maintained equipment.
29. Use the correct equipment for the application. Do not modify the equipment and do not use the equipment for a purpose for which it is not intended.

## Service Precautions

1. **Before service, maintenance, or cleaning:**
    - a. Turn the engine switch to its "OFF" position.
    - b. Allow the engine to completely cool.
    - c. Then, remove the spark plug cap from the spark plug.
  2. Keep all safety guards in place and in proper working order. Safety guards include muffler, air cleaner, mechanical guards, and heat shields, among other guards.
  3. **Do not alter or adjust any part of the equipment or its engine that is sealed by the manufacturer or distributor. Only a qualified service technician may adjust parts that may increase or decrease governed engine speed.**
  4. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during service.
  5. Maintain labels and nameplates on the equipment. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
  6. Have the equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained. Do not attempt any service or maintenance procedures not explained in this manual or any procedures that you are uncertain about your ability to perform safely or correctly.
  7. Store equipment out of the reach of children.
  8. Follow scheduled engine and equipment maintenance.
- Refueling:**
1. Do not refill the fuel tank while the engine is running or hot.
  2. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
  3. Do not fill fuel tank to the top. Leave a little room for the fuel to expand as needed.
  4. Refuel in a well-ventilated area only.
  5. Wipe up any spilled fuel and allow excess to evaporate before starting engine. **To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.**



**SAVE THESE INSTRUCTIONS.**

## Set Up



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

### ⚠️ WARNING

#### TO PREVENT SERIOUS INJURY:

Operate only with proper spark arrestor installed.

Operation of this equipment may create sparks that can start fires around dry vegetation.

A spark arrestor may be required.

The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

At high altitudes, the engine's carburetor, governor (if so equipped), and any other parts that control the fuel-air ratio will need to be adjusted by a qualified mechanic to allow efficient high-altitude use and to prevent damage to the engine and any other devices used with this product.

The emission control system for this Engine is warranted for standards set by the U.S. Environmental Protection Agency and by the California Air Resources Board (also known as CARB). For warranty information, refer to the last pages of this manual.

**WARNING! DO NOT INSTALL THIS ENGINE ON A VEHICLE. NOT FOR HIGHWAY USE. FOLLOW ALL APPLICABLE LAWS FOR INSTALLATION AND USE.**

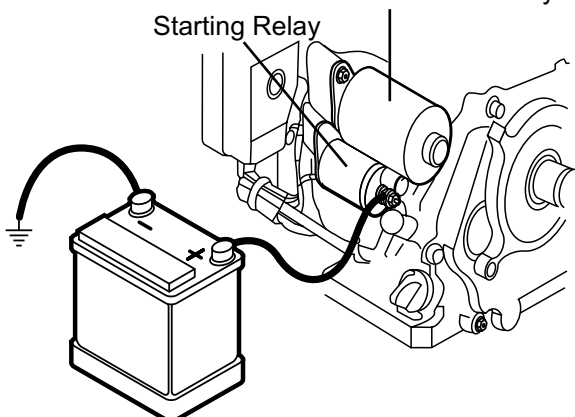
**WARNING! TO PREVENT SERIOUS INJURY: If you do not connect a battery to the positive battery cable, wrap its terminal securely with electrical tape (sold separately).**

## Battery Setup Instructions

1. Place a **fully charged, lead-acid 12 volt, 300 CCA, 36 Ah** battery (not included) in a stable, flat location near the engine.
2. Only use cables sized to match their length according to the following chart:

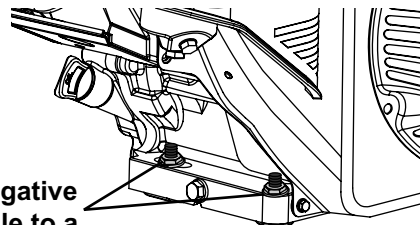
Cable Gauge (lower gauge numbers mean thicker cables)	Maximum Cable Length
6	5'
4	7'
2	12'

Motor Starter Assembly



3. Attach the positive cable from the positive battery terminal to the Positive Terminal on the starter solenoid (**uncovered terminal**), shown above. Connect cable securely to prevent disconnection and short circuits.

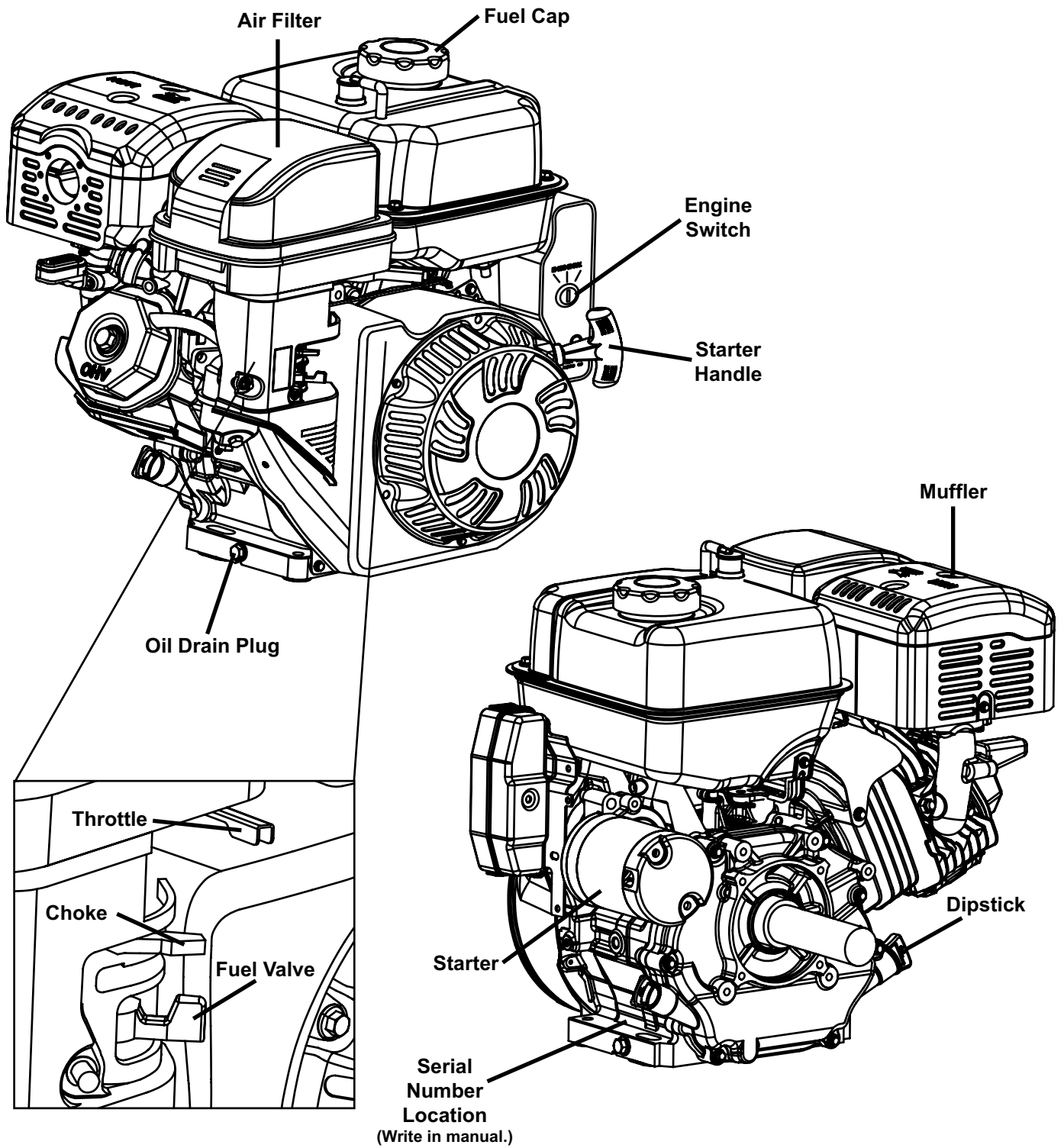
4. Attach the negative cable to the negative battery terminal.
5. Connect the negative cable securely to one of the engine **mounting bolts**, as shown in the diagram below. Connect cable securely to prevent disconnection and short circuits.



Connect Negative Battery Cable to a Mounting Bolt

6. Coat the terminals and cable ends with a corrosion-preventive coating.

# Engine Controls



SAFETY

SETUP

OPERATION

MAINTENANCE



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

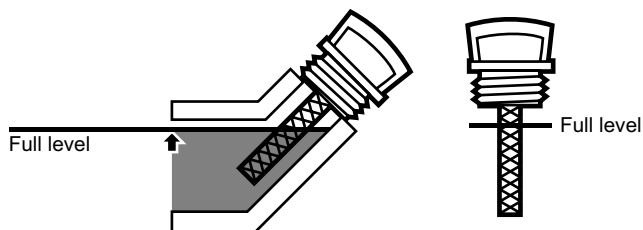
## Pre-Start Checks

Inspect engine and equipment looking for damaged, loose, and missing parts before set up and starting. If any problems are found, do not use equipment until fixed properly.

### Checking and Filling Engine Oil

**NOTICE:** Your Warranty is VOID if the engine's crankcase is not properly filled with oil before each use. Before each use, check the oil level. Engine will not start with low or no engine oil.

1. Make sure the engine is stopped and is level.
2. Close the Fuel Valve.
3. Clean the top of the Dipstick and the area around it. Remove the Dipstick by turning it counterclockwise, and wipe it off with a clean, lint free rag.



5. If the oil level is at or below the low mark add the appropriate type of oil until the oil level is at the proper level. SAE 10W-30 oil is recommended for general use. (The SAE Viscosity Grade chart on page 15 in the Maintenance section shows other viscosities to use in different average temperatures.)
6. Thread the dipstick back in clockwise.

**NOTICE:** Do not run the engine with too little oil. Engine will shut off if engine oil level is too low.

4. Reinsert the Dipstick without threading it in and remove it to check the oil level. The oil level should be up to the full level as shown above.

# PREDATOR<sup>®</sup>

## ENGINES



## Checking and Filling Fuel



### **⚠️ WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:**

Fill the fuel tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

1. Clean the Fuel Cap and the area around it.
2. Unscrew and remove the Fuel Cap.
3. If needed, fill the Fuel Tank to about 1 inch under the fill neck with 87 octane or higher unleaded gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use.

**Note:** Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol.

**Note:** Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting engine performance and/or causing damage.

4. Then replace the Fuel Cap.
5. Wipe up any spilled fuel and allow excess to evaporate before starting engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

## Starting the Engine

### Before Starting the Engine



**Before starting the engine:**

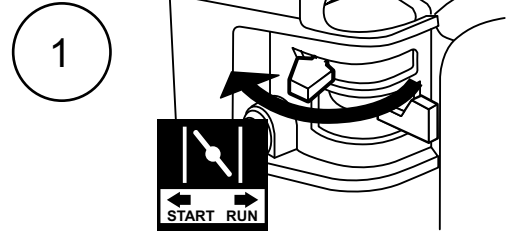
- a. Follow the Set Up Instructions in the equipment manual to prepare the equipment.
- b. Inspect the equipment and engine.
- c. Fill the engine with the proper amount and type of both stabilizer-treated unleaded gasoline and oil.
- d. Read the Equipment Operation section in the equipment manual.

**PREDATOR**  
E N G I N E S

# Manual Start

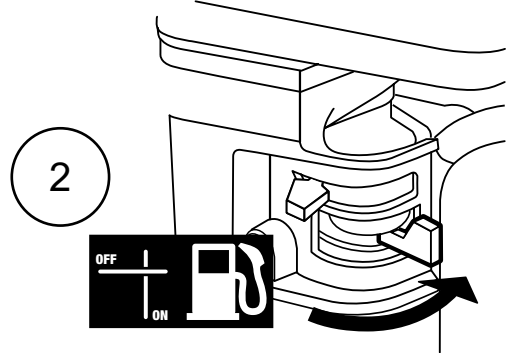
SAFETY

1. To start a cold engine, move the Choke Lever to the START position.  
To restart a warm engine, leave the Choke Lever in the RUN position.



SETUP

2. Open the Fuel Valve.



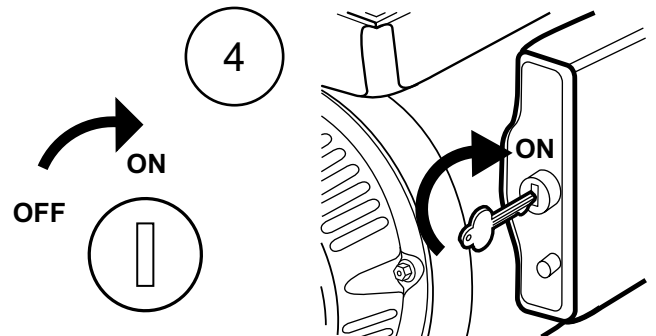
3. Slide the Throttle or Speed Control Lever to 1/3 away from the SLOW position (the "turtle").

**Note:** Some tools have a Speed Control Lever located elsewhere on the tool which functions the same as the Throttle. Use the Speed Control Lever in place of the Throttle when the tool is so equipped.



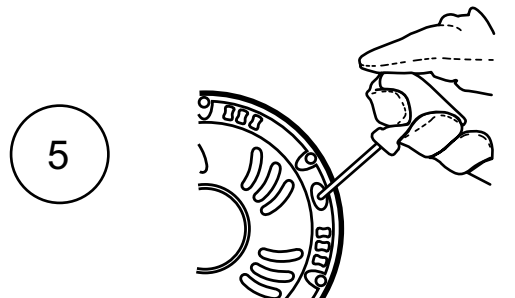
OPERATION

4. Turn the Engine Switch on.



**Note:** If engine does not start, check engine oil level. Engine will not start with low or no engine oil.

5. Grip the Starter Handle of the Engine loosely and pull it slowly several times to allow the gasoline to flow into the Engine's carburetor. Then pull the Starter Handle gently until resistance is felt. Allow Cable to retract fully and then pull it quickly. Repeat until the engine starts.



**Note:** Do not let the Starter Handle snap back against the engine. Hold it as it recoils so it doesn't hit the engine.

MAINTENANCE

6. Allow the Engine to run for several seconds. Then, if the Choke Lever is in the START position, move the Choke Lever very slowly to its RUN position.

**Note:** Moving the Choke Lever too fast could stall the engine.

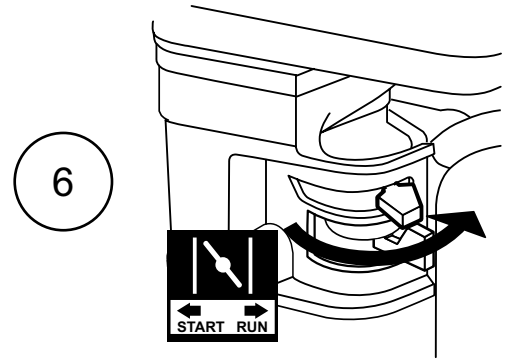
**IMPORTANT:** Allow the engine to run at no load for five minutes with no load after each start-up so that the engine can stabilize.

7. Adjust the Throttle as needed.

8. **Break-in Period:**

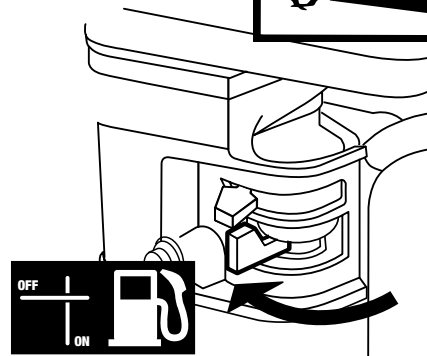
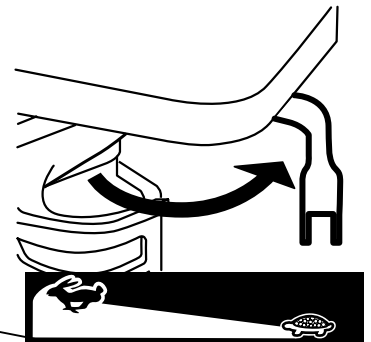
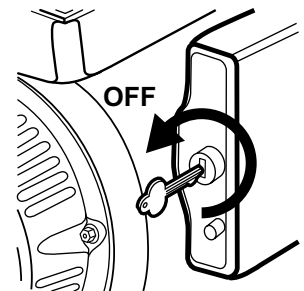
- a. Breaking-in the engine will help to ensure proper equipment and engine operation.
- b. The operational break-in period will last about 3 hours of use. During this period:
  - Do not apply a heavy load to the equipment.
  - Do not operate the engine at its maximum speed.
- c. The maintenance break-in period will last about 20 hours of use. After this period:
  - Change the engine oil.

Under normal operating conditions subsequent maintenance follows the schedule explained in the MAINTENANCE AND SERVICING section.



## Stopping the Engine

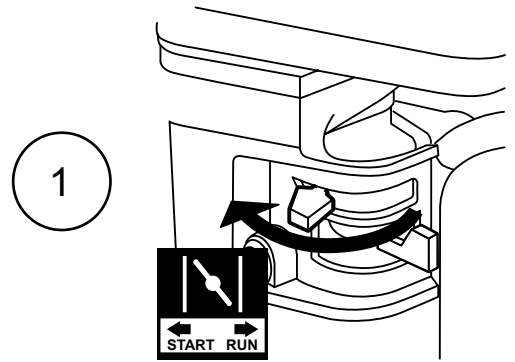
1. To stop the engine in an emergency, turn the Engine Switch off.
2. Under normal conditions, use the following procedure:
  - a. Slide the Throttle or Speed Control Lever to SLOW (the "turtle").
  - b. Turn the Engine Switch off.
  - c. Close the Fuel Valve.



# Electric Start (if equipped)

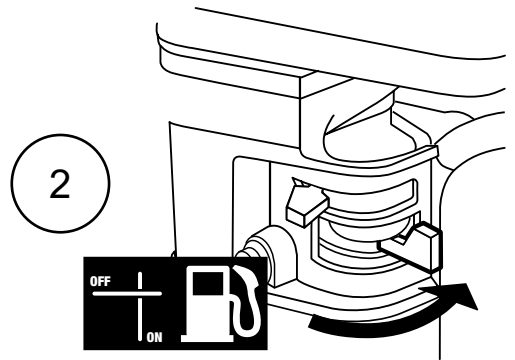
SAFETY

1. To start a cold engine, move the Choke Lever to the START position.  
To restart a warm engine, leave the Choke Lever in the RUN position.  
If engine does not start, try choke half-way between RUN and START position.



SETUP

2. Open the Fuel Valve.



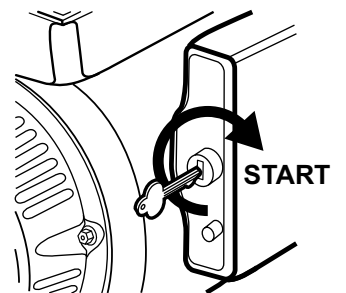
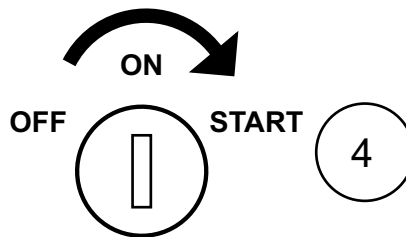
OPERATION

3. Slide the Throttle or Speed Control Lever to 1/3 away from the SLOW position (the "turtle").  
**Note:** Some tools have a Speed Control Lever located elsewhere on the tool which functions the same as the Throttle. Use the Speed Control Lever in place of the Throttle when the tool is so equipped.



MAINTENANCE

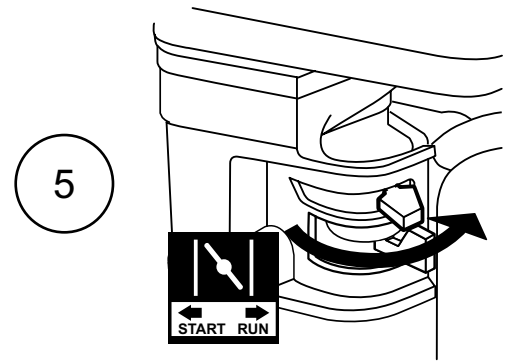
4. Turn the Engine Switch to START.



**Note:** If engine does not start, check engine oil level. Engine will not start with low or no engine oil.

5. Allow the Engine to run for several seconds. Then, if the Choke Lever is in the START position, move the Choke Lever very slowly to its RUN position.

**Note:** Moving the START Lever too fast could stall the engine.



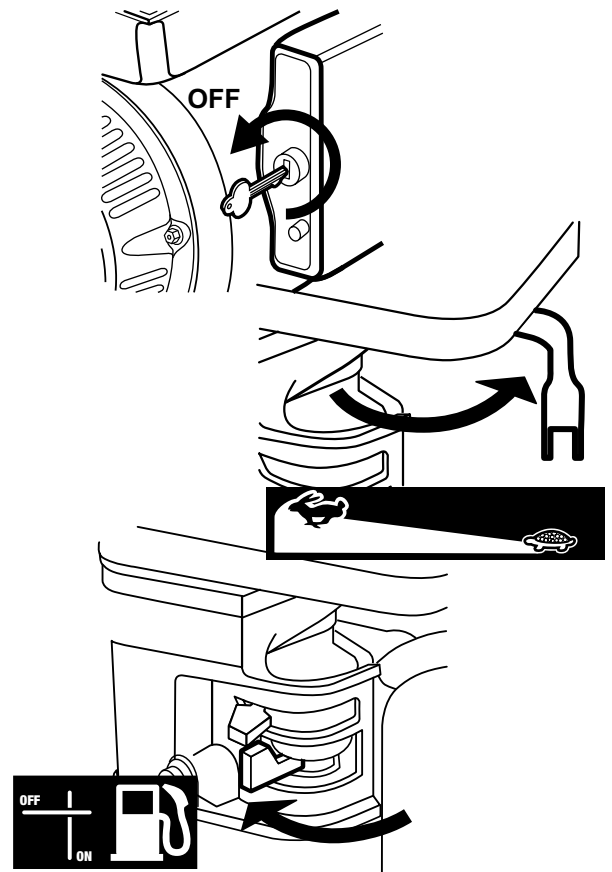
**IMPORTANT:** Allow the engine to run at no load for five minutes with no load after each start-up so that the engine can stabilize.

6. Adjust the Throttle as needed.
7. **Break-in Period:**
  - a. Breaking-in the engine will help to ensure proper equipment and engine operation.
  - b. The operational break-in period will last about 3 hours of use. During this period:
    - Do not apply a heavy load to the equipment.
    - Do not operate the engine at its maximum speed.
  - c. The maintenance break-in period will last about 20 hours of use. After this period:
    - Change the engine oil.

Under normal operating conditions subsequent maintenance follows the schedule explained in the MAINTENANCE AND SERVICING section.

## Stopping the Engine

1. To stop the engine in an emergency, turn the Engine Switch off.
2. Under normal conditions, use the following procedure:
  - a. Slide the Throttle or Speed Control Lever to SLOW (the "turtle").
  - b. Turn the Engine Switch off.
  - c. Close the Fuel Valve.



**⚠ WARNING**

**TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING:**

Turn the Power Switch of the equipment to its “OFF” position, wait for the engine to cool, and disconnect the spark plug cap before performing any inspection, maintenance, or cleaning procedures.

**TO PREVENT SERIOUS INJURY FROM EQUIPMENT FAILURE:**

Do not use damaged equipment. If abnormal noise, vibration, or excess smoking occurs, have the problem corrected before further use.

Follow all service instructions in this manual. The engine may fail critically if not serviced properly.



Many maintenance procedures, including any not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts about your ability to safely service the equipment or engine, have a qualified technician service the equipment instead.

**Cleaning, Maintenance, and Lubrication Schedule**

**Note:** This maintenance schedule is intended solely as a general guide. If performance decreases or if equipment operates unusually, check systems immediately. The maintenance needs of each piece of equipment will differ depending on factors such as duty cycle, temperature, air quality, fuel quality, and other factors.

**Note:** The following procedures are in addition to the regular checks and maintenance explained as part of the regular operation of the engine and equipment.

Procedure	Before Each Use	Monthly or every 20 hr. of use	Every 3 mo. or 50 hr. of use	Every 6 mo. or 100 hr. of use	Yearly or every 300 hr. of use	Every 2 Years
Brush off outside of engine	✓	✓	✓	✓	✓	✓
Check engine oil level	✓	✓	✓	✓	✓	✓
Check air cleaner	✓		✓	✓	✓	✓
Check deposit cup	✓			✓	✓	✓
Change engine oil		✓		✓	✓	✓
Clean/replace air cleaner			✓*	✓	✓	✓
Check and clean spark plug				✓	✓	✓
1. Check/adjust idle speed 2. Check/adjust valve clearance 3. Clean fuel tank, strainer and carburetor 4. Clean carbon build-up from combustion chamber					✓**	✓**
Replace fuel line if necessary						✓**

\*Service more frequently when used in dusty areas.

\*\*These items should be serviced by a qualified technician.

## Checking and Filling Fuel



### **⚠️WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:**

Fill the fuel tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

1. Clean the Fuel Cap and the area around it.
2. Unscrew and remove the Fuel Cap.
3. If needed, fill the Fuel Tank to about 1 inch under the fill neck with 87 octane or higher unleaded gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use.

**Note:** Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol.

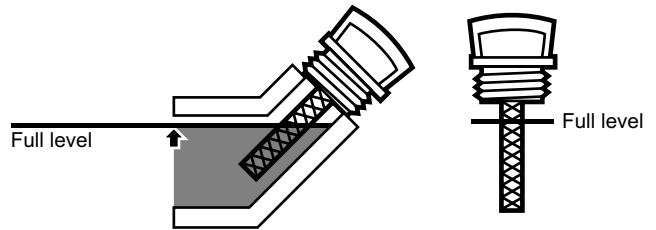
**Note:** Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting engine performance and/or causing damage.

4. Then replace the Fuel Cap.
5. Wipe up any spilled fuel and allow excess to evaporate before starting engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

## Engine Oil Change

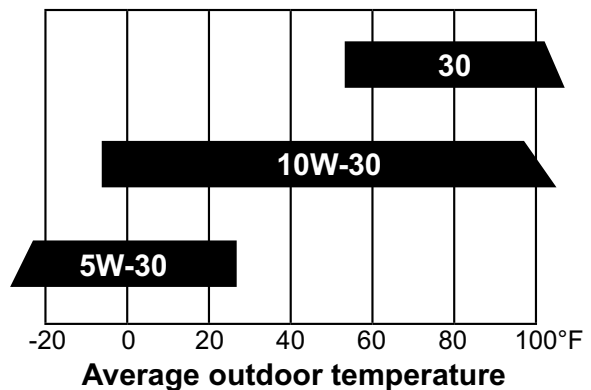
**⚠️CAUTION!** Oil is very hot during operation and can cause burns. Wait for engine to cool before changing oil.

1. Make sure the engine is stopped and is level.
2. Close the Fuel Valve.
3. Place a drain pan (not included) underneath the crankcase's drain plug.
4. Remove the drain plug and, if possible, tilt the crankcase slightly to help drain the oil out. Recycle used oil.
5. Replace the drain plug and tighten it.
6. Clean the top of the Dipstick and the area around it. Remove the Dipstick by turning it counterclockwise, and wipe it off with a clean, lint free rag.



7. Add the appropriate type of oil until the oil level is at the full level. SAE 10W-30 oil is recommended for general use. The SAE Viscosity Grade chart shows other viscosities to use in different average temperatures.

### SAE Viscosity Grades



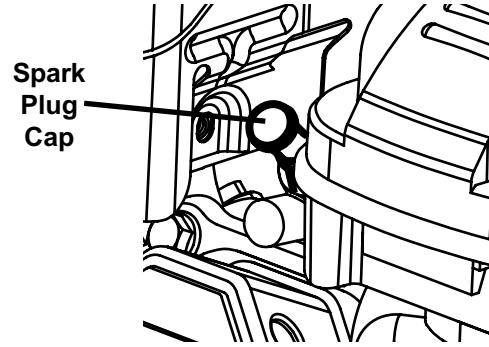
8. Thread the dipstick back in clockwise.

**NOTICE:** Do not run the engine with too little oil. Engine will not start with low or no engine oil.

### Air Filter Element Maintenance

1. Remove the air filter cover and the air filter elements and check for dirt. Clean as described below.
2. **Cleaning:**
  - For “paper” filter elements:  
To prevent injury from dust and debris, wear ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and heavy-duty work gloves. In a well-ventilated area away from bystanders, use pressurized air to blow dust out of the air filter.
  - For foam filter elements:  
Wash the element in warm water and mild detergent several times. Rinse. Squeeze out excess water and allow it to dry completely. Soak the filter in lightweight oil briefly, then squeeze out the excess oil.
3. Install the cleaned filter. Secure the Air Cleaner Cover before use.

### Spark Plug Maintenance



1. Disconnect spark plug cap from end of plug. Clean out debris from around spark plug.
2. Using a spark plug wrench, remove the spark plug.
3. Inspect the spark plug:  
If the electrode is oily, clean it using a clean, dry rag. If the electrode has deposits on it, polish it using emery paper. If the white insulator is cracked or chipped, the spark plug needs to be replaced. Use only NHSP®/Torch® F7TC spark plug.

**NOTICE:** Using an incorrect spark plug may damage the engine.

4. When installing a new spark plug, adjust the plug's gap to the specification on the Technical Specifications chart. Do not pry against the electrode, the spark plug can be damaged.
5. Install the new spark plug or the cleaned spark plug into the engine. Gasket-style: Finger-tighten until the gasket contacts the cylinder head, then tighten about 1/2 to 2/3 turn more.  
Non-gasket-style: Finger-tighten until the plug contacts the head, then tighten about 1/16 turn more.

**NOTICE:** Tighten the spark plug properly. If loose, the spark plug will cause the engine to overheat. If overtightened, the threads in the engine block will be damaged.

6. Apply dielectric spark plug boot protector (not included) to the end of the spark plug and reattach the wire securely.



# Storage

When the equipment is to remain idle for longer than 20 days, prepare the Engine for storage as follows:

## 1. CLEANING:

Wait for Engine to cool, then clean Engine with dry cloth. **NOTICE: Do not clean using water.** The water will gradually enter the Engine and cause rust damage. Apply a thin coat of rust preventive oil to all metal parts.

## 2. FUEL:

To protect the fuel tank during storage, fill the tank with gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use. Refer to "Checking and Filling Fuel" on page 9.



### **⚠️ WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:**

Fill tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

## 3. LUBRICATION:

- Change engine oil.
- Clean out area around spark plug.  
Remove spark plug and pour one tablespoon of engine oil into cylinder through spark plug hole.
- Replace spark plug, but leave spark plug cap disconnected.

- Pull Starter Handle to distribute oil in cylinder. Stop after one or two revolutions when you feel the piston start the compression stroke (when you start to feel resistance).

## 4. BATTERY:

Disconnect battery cables (if equipped). Recharge batteries monthly while in storage.

## 5. STORAGE AREA:

Cover and store in a dry, level, well-ventilated area out of reach of children. Storage area should also be away from ignition sources, such as water heaters, clothes dryers, and furnaces.

**NOTICE:** During extended storage periods the Engine must be started every 3 months and allowed to run for 15–20 minutes or the Warranty is VOID.

## 6. AFTER STORAGE:

Before starting the Engine during or after storage, keep in mind that untreated gasoline will deteriorate quickly. Drain the fuel tank and change to fresh fuel if untreated gasoline has been sitting for a month, if treated gasoline has been sitting beyond the fuel stabilizer's recommended time period, or if the Engine does not start.

# PREDATOR<sup>®</sup>

## ENGINES

# Troubleshooting

SAFETY

SETUP

OPERATION

MAINTENANCE

Problem	Possible Causes	Probable Solutions
Engine will not start	<b>FUEL RELATED:</b> <ol style="list-style-type: none"> <li>No fuel in tank or fuel valve closed.</li> <li>Choke not in START position, cold engine.</li> <li>Gasoline with more than 10% ethanol used. (E15, E20, E85, etc.)</li> <li>Low quality or deteriorated, old gasoline.</li> <li>Carburetor not primed.</li> <li>Dirty fuel passageways.</li> <li>Carburetor needle stuck. Fuel can be smelled in the air.</li> <li>Too much fuel in chamber. This can be caused by the carburetor needle sticking.</li> <li>Clogged Fuel Filter.</li> </ol>	<b>FUEL RELATED:</b> <ol style="list-style-type: none"> <li>Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline and open fuel valve. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>Move Choke to START position.</li> <li>Clean out ethanol rich gasoline from fuel system. Replace components damaged by ethanol. Use fresh 87+ octane stabilizer-treated unleaded gasoline only. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>Use fresh 87+ octane stabilizer-treated unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>Pull on Starter Handle to prime.</li> <li>Clean out passageways using fuel additive. Heavy deposits may require further cleaning.</li> <li><b>Gently</b> tap side of carburetor float chamber with screwdriver handle.</li> <li>Turn Choke to RUN position. Remove spark plug and pull the start handle several times to air out the chamber. Reinstall spark plug and set Choke to START position.</li> <li>Replace Fuel Filter.</li> </ol>
	<b>IGNITION (SPARK) RELATED:</b> <ol style="list-style-type: none"> <li>Spark plug cap not connected securely.</li> <li>Spark plug electrode wet or dirty.</li> <li>Incorrect spark plug gap.</li> <li>Spark plug cap broken.</li> <li>Circuit breaker tripped.</li> <li>Incorrect spark timing or faulty ignition system.</li> </ol>	<b>IGNITION (SPARK) RELATED:</b> <ol style="list-style-type: none"> <li>Connect spark plug cap properly.</li> <li>Clean spark plug.</li> <li>Correct spark plug gap.</li> <li>Replace spark plug cap.</li> <li>Reset circuit breaker. Check wiring and starter motor if breaker continues to trip.</li> <li>Have qualified technician diagnose/repair ignition system.</li> </ol>
	<b>COMPRESSION RELATED:</b> <ol style="list-style-type: none"> <li>Cylinder not lubricated. Problem after long storage periods.</li> <li>Loose or broken spark plug. (Hissing noise will occur when trying to start.)</li> <li>Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.)</li> <li>Engine valves or tappets mis-adjusted or stuck.</li> </ol>	<b>COMPRESSION RELATED:</b> <ol style="list-style-type: none"> <li>Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again.</li> <li>Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3.</li> <li>Tighten head. If that does not remedy problem, replace head gasket.</li> <li>Have qualified technician adjust/repair valves and tappets.</li> </ol>
	<b>ENGINE OIL RELATED:</b> <ol style="list-style-type: none"> <li>Low engine oil.</li> <li>Engine mounted on slope, triggering low oil shutdown.</li> </ol>	<b>ENGINE OIL RELATED:</b> <ol style="list-style-type: none"> <li>Fill engine oil to proper level. Check engine oil before EVERY use.</li> <li>Operate engine on level surface. Check engine oil level.</li> </ol>



**Follow all safety precautions whenever diagnosing or servicing the equipment or engine.**

Problem	Possible Causes	Probable Solutions
Engine misfires	<ol style="list-style-type: none"> <li>1. Spark plug cap loose.</li> <li>2. Incorrect spark plug gap or damaged spark plug.</li> <li>3. Defective spark plug cap.</li> <li>4. Old or low quality gasoline.</li> <li>5. Incorrect compression.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check cap and wire connections.</li> <li>2. Re-gap or replace spark plug.</li> <li>3. Replace spark plug cap.</li> <li>4. Use only fresh 87+ octane stabilizer-treated unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>5. Diagnose and repair compression. (Use <b>Engine will not start: COMPRESSION RELATED</b> section.)</li> </ol>
Engine stops suddenly	<ol style="list-style-type: none"> <li>1. Fuel tank empty or full of impure or low quality gasoline.</li> <li>2. Low oil shutdown.</li> <li>3. Defective fuel tank cap creating vacuum, preventing proper fuel flow.</li> <li>4. Faulty magneto.</li> <li>5. Disconnected or improperly connected spark plug cap.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>2. Fill engine oil to proper level. Check engine oil before EVERY use.</li> <li>3. Test/replace fuel tank cap.</li> <li>4. Have qualified technician service magneto.</li> <li>5. Secure spark plug cap.</li> </ol>
Engine stops when under heavy load	<ol style="list-style-type: none"> <li>1. Dirty air filter</li> <li>2. Engine running cold.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean element.</li> <li>2. Allow engine to warm up prior to operating equipment.</li> </ol>
Engine knocks	<ol style="list-style-type: none"> <li>1. Old or low quality gasoline.</li> <li>2. Engine overloaded.</li> <li>3. Incorrect spark timing, deposit buildup, worn engine, or other mechanical problems.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>2. Do not exceed equipment's load rating.</li> <li>3. Have qualified technician diagnose and service engine.</li> </ol>
Engine backfires  After sudden impact, engine will run, but equipment will not operate	<ol style="list-style-type: none"> <li>1. Impure or low quality gasoline.</li> <li>2. Engine too cold.</li> <li>3. Intake valve stuck or overheated engine.</li> <li>4. Incorrect timing.</li> </ol> <p>Shaft key or other shear pin broken by impact to disconnect engine and limit damage.</p>	<ol style="list-style-type: none"> <li>1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>2. Use cold weather fuel and oil additives to prevent backfiring.</li> <li>3. Have qualified technician diagnose and service engine.</li> <li>4. Check engine timing.</li> </ol> <p>Have qualified technician check and replace broken shaft key or other shear pins.</p>



Follow all safety precautions whenever diagnosing or servicing the equipment or engine.

## PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

# Parts List and Diagram

## Parts List

Part	Description	Qty.
1	Bolt, Flange	6
2	Cover Comp. Head	1
3	Packing, Head Cover	1
4	Tube, Breather	1
5	Bolt, Flange 10×80	4
6	Rotator, Valve	2
7	Retainer, Valve Spring	2
8	Locker, Valve	4
9	Spring, Valve	2
10	Seat, Valve Spring	1
11	Seal, Valve Stem	1
12	Rocker Arm Assy., Exhaust	1
13	Rocker Arm Assy., Intake	1
14	Locker	4
15	Valve Rocker Shaft	2
16	Bolt, Stud	2
17	Spark Plug	1
18	Cylinder Head Comp	1
19	Gasket, Cylinder	1
20	Pin, Dowel	2
21	Valve Assy.	1
22	Push Rod	2
23	Lifter, Valve	2
24	Bolt, Drain Plug	2
25	Washer, Drain Plug 12mm	2
26	Oil Seal Ø35×Ø52×7	2
27	Crankcase	1
28	Cable Cleat	1
29	Bolt, Flange	1
30	Oil Level Switch	1
31	Bolt, Flange M6x12	2
32	Alert Unit, Oil	1
33	Bolt, Flange M6x12	1
34	Ring Set, Piston	1
35	Piston	1
36	Connecting Rod Assy.	1
37	Pin, Piston	1
38	Clip, Piston Pin	2
39	Crankshaft Assy.	1
40	Shaft Assy., Balancing	1
41	Camshaft Assy.	1
42	Ball Bearing 6202	2
43	Ball Bearing 6207	1
44	Dowel Pin Ø8×12	2
45	Governor Kit	1
46	Gasket, Crankcase Cover	1
47	Crankcase Cover	1
48	Cap Assy.	2
49	Bolt, Flange 8X40	7
50	Shroud	1
51	Bolt, Flange M6×12	1
52	Bolt, Stud	2
53	Packing, Carburetor	1
54	Insulator, Carburetor	1
55	Packing, Insulator	1
56	Carburetor Assy.	1
57	Packing, Air Cleaner	1

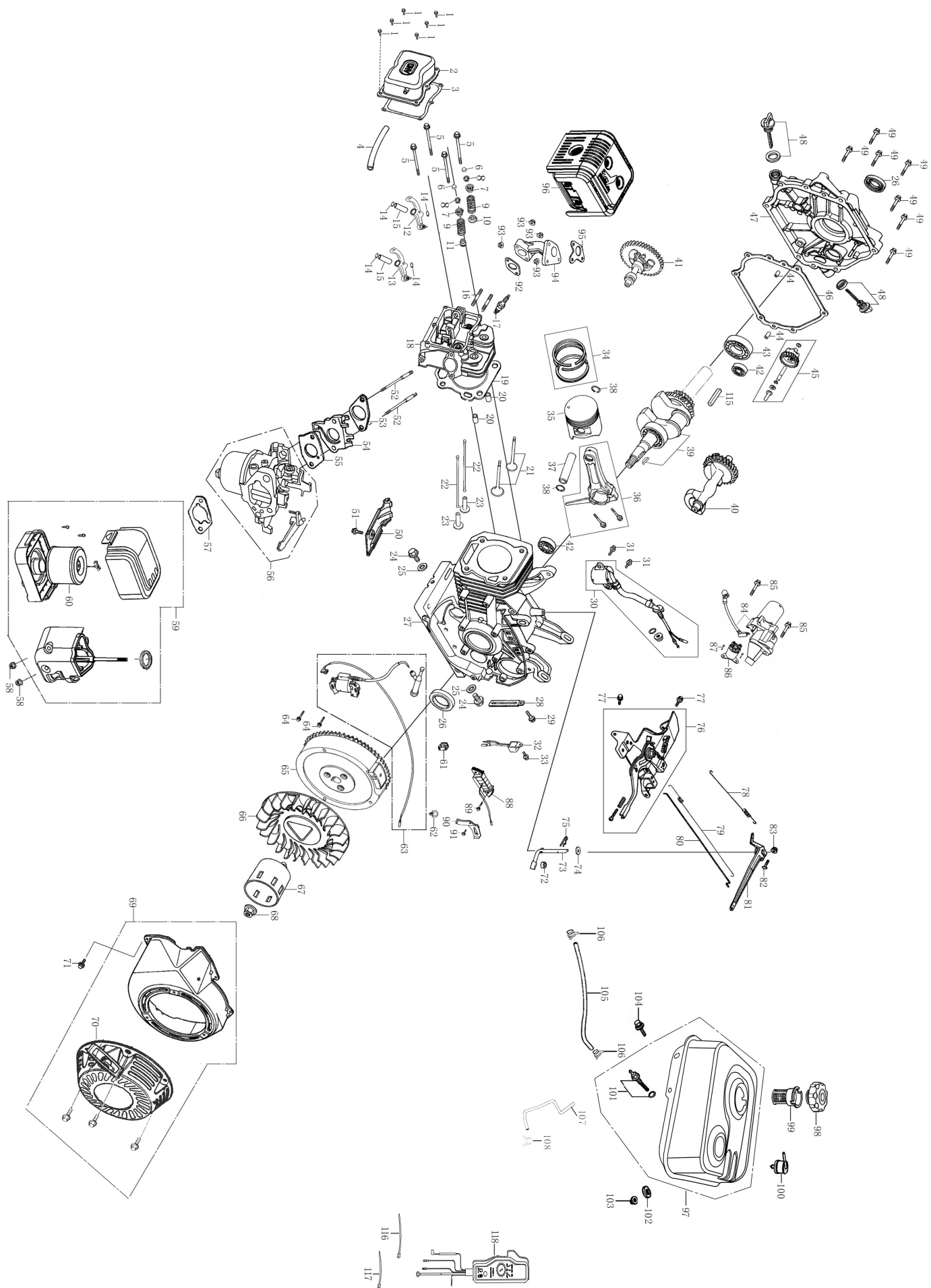
Part	Description	Qty.
58	Nut, Flange	2
59	Air Cleaner Assy.	1
60	Element, Air Cleaner Assy.	1
61	Grommet, Cord	1
62	Holder, Stop Switch	1
63	Coil Assy., Ignition	1
64	Bolt, Flange	2
65	Flywheel Comp. (Sel-Lamp)	1
66	Fan, Cooling	1
67	Pulley, Starter	1
68	Nut Special, M16	1
69	Recoil Starter Comp.	1
70	Starter Assy.	1
71	Bolt, Flange M6x12	5
72	Oil Seal Ø8×Ø14×4	1
73	Shaft, Governor Arm	1
74	Washer 8×16×1.2	1
75	Pin, Lock 10mm	1
76	Control Assy.	1
77	Bolt, Flange M6×12	2
78	Spring, Cable Return	1
79	Spring, Throttle Return	1
80	Rod, Governor	1
81	Arm, Governor	1
82	Bolt, Governor Arm	1
83	Nut, Flange M6	1
84	Starter Motor	1
85	Bolt, Flange	2
86	Contactory Assy.	1
87	Bolt Washer	2
88	Coil Assy., Charge	1
89	Bolt, Flange	2
90	Clamp, Cord	1
91	Bolt, Flange	1
92	Gasket, Ex., Pipe	1
93	Nut, Hex 8mm	5
94	Pipe, Comp., Ex.	1
95	Gasket, Ex., Pipe	1
96	Muffler Assy.	1
97	Fuel Tank	1
98	Cap Comp., Fuel Filler	1
99	Filter, Fuel Tank	1
100	Gas Valve, Fuel Tank	1
101	Joint Assy., Fuel Tank	1
102	Washer, Rubber	2
103	Nut, Flange	2
104	Bolt, Flange	2
105	Tube, Fuel	1
106	Pipe Clip	2
107	Pipe	1
108	Pipe Clip	1
115	Key	1
116	Tie, Cable	1
117	Tie, Cable	1
118	Box, Electric Starting Control	1
119	Carbon Canister and Hoses (Not Shown)	1

Record Product's Serial Number Here: \_\_\_\_\_

**Note:** If product has no serial number, record month and year of purchase instead.

**Note:** Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts. Specify UPC 193175467782 when ordering parts.

# Assembly Diagram



SAFETY

SETUP

OPERATION

MAINTENANCE

## Limited 90 Day Warranty (Retail)

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS, EXCEPT FOR THE EMISSIONS CONTROL SYSTEM WARRANTY BELOW.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

## Emissions Control System Warranty

The California Air Resources Board and Harbor Freight Tools (HFT) are pleased to explain the emissions control system warranty on your 2023 Small Off-Road Engine. In California, new equipment that uses small off-road engines must be designed, built, and equipped to meet the State's stringent anti-smog standards. HFT must warrant that the emissions control system on your engine will be free from defects in material and workmanship for two (2) years, provided there has been no abuse, neglect, or improper maintenance of your engine. HFT also warrants that the emissions control system on your engine is designed, built, and equipped so that it conforms to the United States Environmental Protection Agency's (EPA) emissions requirements in effect at the time of manufacture.

Your emissions control system may include parts such as the carburetor or fuel-injection system, the ignition system, catalytic converter, fuel tanks, fuel lines, fuel caps, valves, canisters, vapor hoses, clamps, connectors, and other emissions-related assemblies.

Where a warrantable condition exists, HFT will repair or replace, at our option, your engine if at no cost to you, including diagnosis, parts and labor.

### MANUFACTURER'S WARRANTY COVERAGE

This emissions control system is warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by HFT.

### OWNER'S WARRANTY RESPONSIBILITIES

As the engine owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual.

As the engine owner, you should however be aware that HFT may deny you warranty coverage if your engine or a part has failed due to abuse (including failure to follow the fuel use instructions contained in this manual), neglect, improper maintenance, or unapproved modifications.

You are responsible for contacting HFT as soon as the problem exists in order to obtain warranty repair or replacement, by doing either of the following: (a) contact HFT product support at 1-888-866-5797 or [predator@harborfreight.com](mailto:predator@harborfreight.com); or (b) bring the to your nearest Harbor Freight Tools retail store. The nearest Harbor Freight Tools retail store can be found on the internet at <http://www.harborfreight.com>. The warranty repairs or replacement should be completed in a reasonable amount of time, not to exceed 30 days. If you have a question regarding your warranty coverage, you should contact HFT product support at 1-888-866-5797 or [predator@harborfreight.com](mailto:predator@harborfreight.com)

## GENERAL EMISSIONS WARRANTY COVERAGE

- a) The warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser. The warranty period is two years.
- b) HFT warrants to the initial owner and each subsequent owner that the engine is:
1. Designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board; and
  2. Free from defects in materials and workmanship that causes the failure of a warranted part for a period of two years.
- c) The warranty on emissions-related parts is as follows:
1. Any warranted part that is not scheduled for replacement as required maintenance in the written instructions provided, is warranted for the warranty period stated above. If any such part fails during the period of warranty coverage, it will be repaired or replaced HFT. Any such part repaired or replaced under the warranty will be warranted for the remaining warranty period.
  2. Any warranted part that is scheduled only for regular inspection in the written instructions is warranted for the warranty period stated above. A statement in the written instructions to the effect of "repair or replace as necessary" does not reduce the period of warranty coverage. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period.
  3. Any warranted part that is scheduled for replacement as required maintenance in the written instructions will be warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part will be repaired or replaced by HFT. Any such part repaired or replaced under warranty will be warranted for the remainder of the period prior to the first scheduled replacement point for the part.
  4. Repair or replacement of any warranted part under the warranty will be performed at no charge to the owner at a retail store or by HFT paying for shipping the product for repair.
  5. Notwithstanding the provisions herein, warranty services or repairs will be provided at all retail stores or by contacting HFT product support at 1-888-866-5797 or predator@harborfreight.com.
  6. The owner will not be charged for diagnostic labor that leads to the determination that a warranted part is in fact defective, provided that such diagnostic work is performed at a retail store.
  7. HFT is liable for damages to other engine components proximately caused by a failure under warranty of any warranted part.
  8. Throughout the emissions warranty period stated above, HFT will maintain a supply of warranted parts sufficient to meet the expected demand for such parts.
  9. Any replacement part may be used in the performance of any warranty maintenance or repairs and will be provided without charge to the owner. Such use will not reduce the warranty obligations of HFT.
  10. Add-on or modified parts that are not approved by HFT may not be used. The use of any non-exempted add-on or modified parts will be grounds for disallowing a warranty claim. HFT is not liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.
- d) Emission Warranty Parts List.
- |  |   |
|--|---|
| 1. Fuel Metering System  | 4. Catalyst System (if so equipped)   |
| a. Carburetor and its internal parts (and/or pressure regulator or fuel injection system). | a. Exhaust pipe stud/exhaust manifold.  |
| b. Fuel tank.  | b. Thermal reactor.   |
| c. Cold start enrichment system.   | c. Catalytic converter (if so equipped).  |
| d. Air/fuel ratio feedback and control system.   | 5. Particulate Controls   |
| 2. Air Induction System  | a. Traps, filters, precipitators, and any other device used to capture particulate emissions.     |
| a. Controlled hot air intake system.   | 6. Miscellaneous Items Used in Above Systems  |
| b. Intake manifold.  | a. Vacuum, temperature and time sensitive valves and switches.                                    |
| c. Air filter.   | b. Hoses, belts, connectors, and assemblies.  |
| 3. Ignition System   | 7. Evaporative Emission Control System  |
| a. Spark plugs.  | a. Fuel tank.   |
| b. Magneto ignition system.  | b. Fuel caps, valves, canisters, filters, vapor hoses, clamps, connectors, belts, and assemblies. |
| c. Spark advance/retard system.  |   |

HFT provides with each product written instructions for the maintenance and use of the product by the owner.

**PREDATOR<sup>®</sup>**  
**E N G I N E S**

26677 Agoura Road • Calabasas, CA 91302 • 1-888-866-5797