

# 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 near the assembly diagram (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.

20g

## CENTRALPNEUMATIC®

### 30<sup>GAL</sup> gas powered two-stage 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)

**62779**

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.

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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 .....	13
Specifications.....	5	Parts Lists and Diagrams.....	16
Setup .....	6	Warranty .....	20
Operation .....	9		

## 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	Property or Statement
	Revolutions Per Minute
	Horsepower
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.

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 Explosion.

## 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

- 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.
- Have multiple ABC class fire extinguishers nearby.
- 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. Use only lubricants and fuel recommended in the engine manual or in the Specifications chart of this manual.

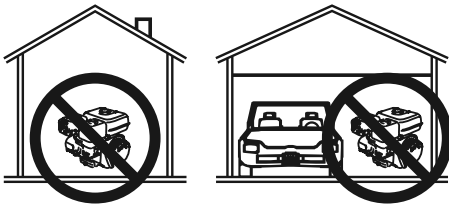
6. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during set up.

## Engine Precautions

Follow engine precautions and instructions in the included engine instruction 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. 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.
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. Industrial applications must follow OSHA requirements.

9. 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.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. Do not overreach. Keep proper footing and balance at all times. This enables better control of the equipment in unexpected situations.
16. 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.
17. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
18. Do not cover the engine or equipment during operation.
19. Keep the equipment, engine, and surrounding area clean at all times.



20. 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.
21. Do not operate the equipment with known leaks in the engine's fuel system.
22. 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.
23. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
24. 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.
25. 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.

## 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 maximum stated 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. Do not use the air hose to move the compressor.
6. Drain Tank daily and after use. Internal rust causes tank failure and explosion.
7. **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.**
8. Compressor head gets hot during operation. Do not touch it or allow children nearby during or immediately following operation.
9. Release the pressure in the storage tank before moving.
10. The use of accessories or attachments not recommended by the manufacturer may result in a risk of injury to persons.
11. All air line components, including hoses, pipe, connectors, filters, etc., must be rated for a minimum working pressure of 125 PSI, or 150% of the maximum system pressure, whichever is greater.



**SAVE THESE INSTRUCTIONS.**



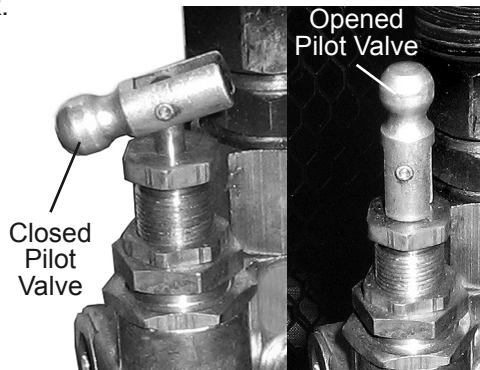
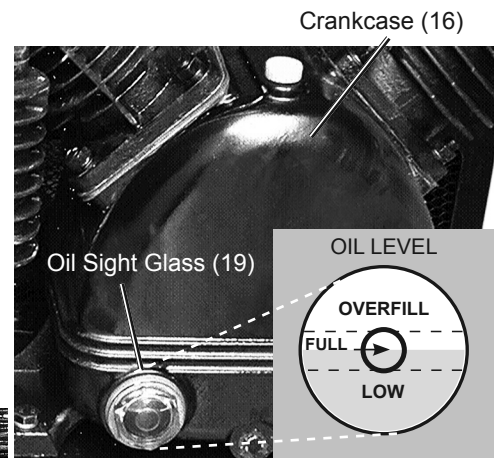
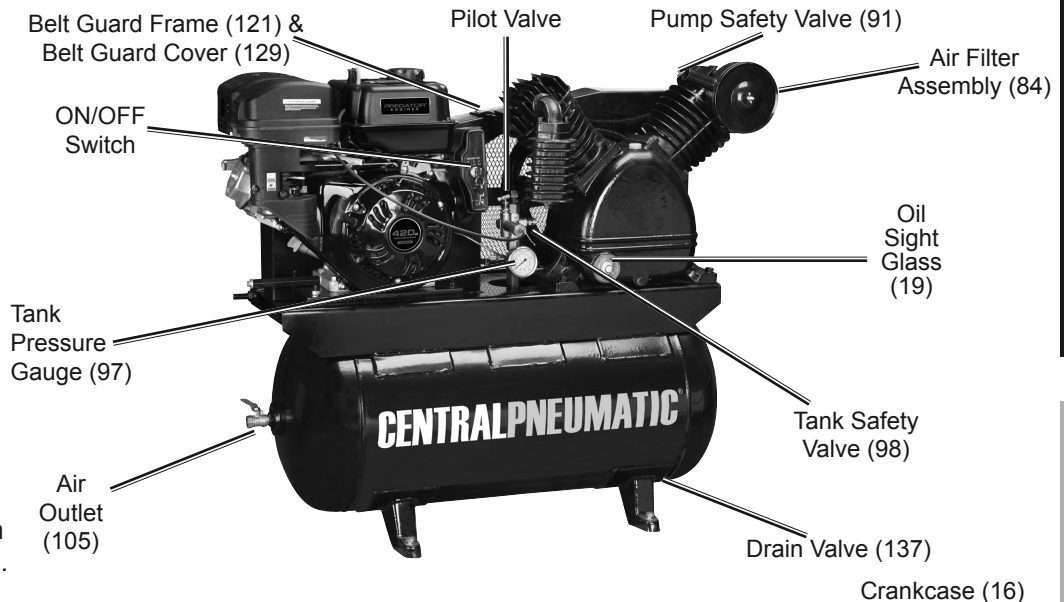
# Specifications

Pump	Two stage	Oil Capacity	61 oz. (1.8L)
Air Outlet Size	1/2"- NPT female	Oil Type	SAE 30W non-detergent Air Compressor Oil (Item 95048, sold separately)
Air Pressure	Auto Shut-Off @ 180 PSI Restart @ 140 PSI	Required Rotation	Counterclockwise viewed from PTO (Power TakeOff - the output shaft)
Air Tank Capacity	30 Gallons	Required Engine Idle Speed	2100 RPM $\pm$ 100 RPM
Air Flow Capacity	18 CFM @ 90 PSI 19.5 CFM @ 40 PSI		

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

## Engine Controls

- Belt Guard** - The Belt Guard encloses the pulleys and drive belts. It protects the user from the moving parts and allows the large pulley to direct cooling air to the Air Pump.
- Oil Sight Glass** - The oil sight glass shows proper level of the oil. Oil level should be at center of Sight Glass.
- Tank Drain Valve** - The Air Tank Drain Valve allows moisture to be removed from the tank to prevent corrosion.
- Safety Valve** - The Safety Valve automatically releases air if the Air Tank pressure exceeds the preset maximum. In an emergency, the ring can be pulled to relieve tank air pressure. There is one safety valve on the pump and one on the tank.
- Air Outlet** - An air hose attaches to this valve. Air pressure required by tools is set by an air pressure regulator.
- Air Storage Tank** - The Air Tank is where air pressurized by the Air Pump is stored for use.
- Tank Pressure Gauge** - The Air 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.





## Setup

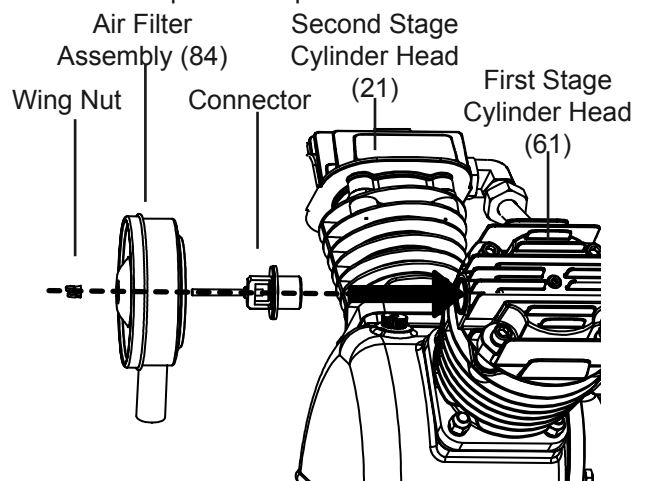
The emission control system for this Compressor's Engine is warranted for standards set by the U.S. Environmental Protection Agency and by the California Air Resources Board (also known as CARB). For warranty information, refer to the engine manual.

## Mounting to a Truck bed

1. Before mounting, if needed, reinforce the area with plywood or steel plating.
2. With assistance, move the compressor to the truck bed location and mark the floor of the 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 the compressor aside.
3. Drill the four 1/2" diameter holes through the truck bed and any reinforcing materials.
4. Set the compressor back in place, and align the foot holes with the pre-drilled holes. Use four 1/2" diameter, bolts, washers and lock washers (all not included) to secure the compressor in place.

## Assembly

To install the Air Filter Assembly (84), fit the Connector into the Air Filter Assembly and slide the assembly into the hole on the side of the First Stage Cylinder Head (61). Secure in place with the Wing Nut.



## Break-In Compressor

Break in the new Air Compressor as follows:

1. Make sure the engine is off. Open the air outlet valve on the left side of the tank.
2. Check all fluid levels in the engine and pump.
3. Start the engine following the General Operating Instructions.
4. Let the unit run for 30 minutes. Air will expel freely through the Coupler.
5. Turn OFF the engine.
6. Remove the male coupler.

## Connection

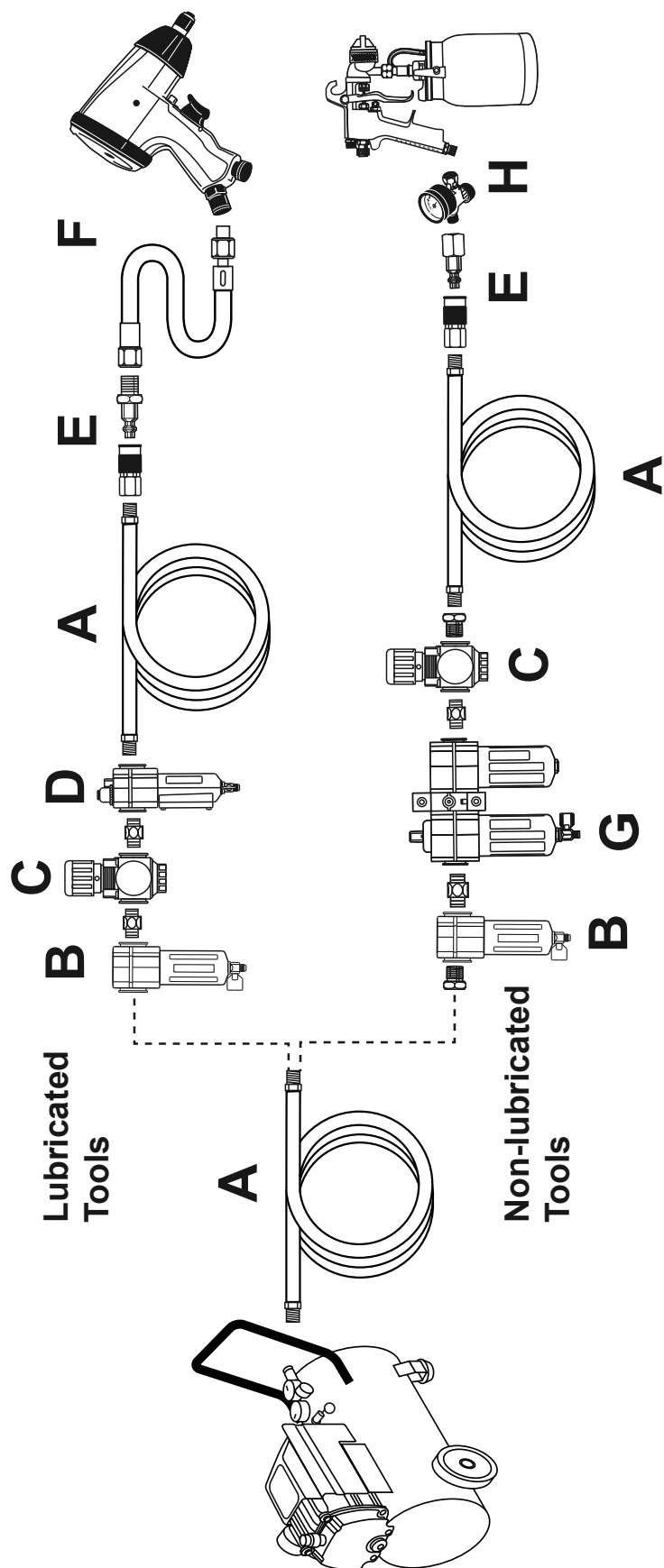
1. Connect a regulator valve, an in-line shut off valve and a 1/2" NPT air hose (all sold separately) to the Quick Coupler. The air hose must be long enough to reach the work area with enough extra length to allow free movement while working.

**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.

2. Depending on the tool which you will be using with this compressor, you may need to incorporate additional components, such as an in-line oiler, a filter, or a dryer (all sold separately). Consult your air tool's manual for needed accessories. See Typical Air Line Setup charts on the following pages. This is a truckbed compressor, so use the portable setup as a model.



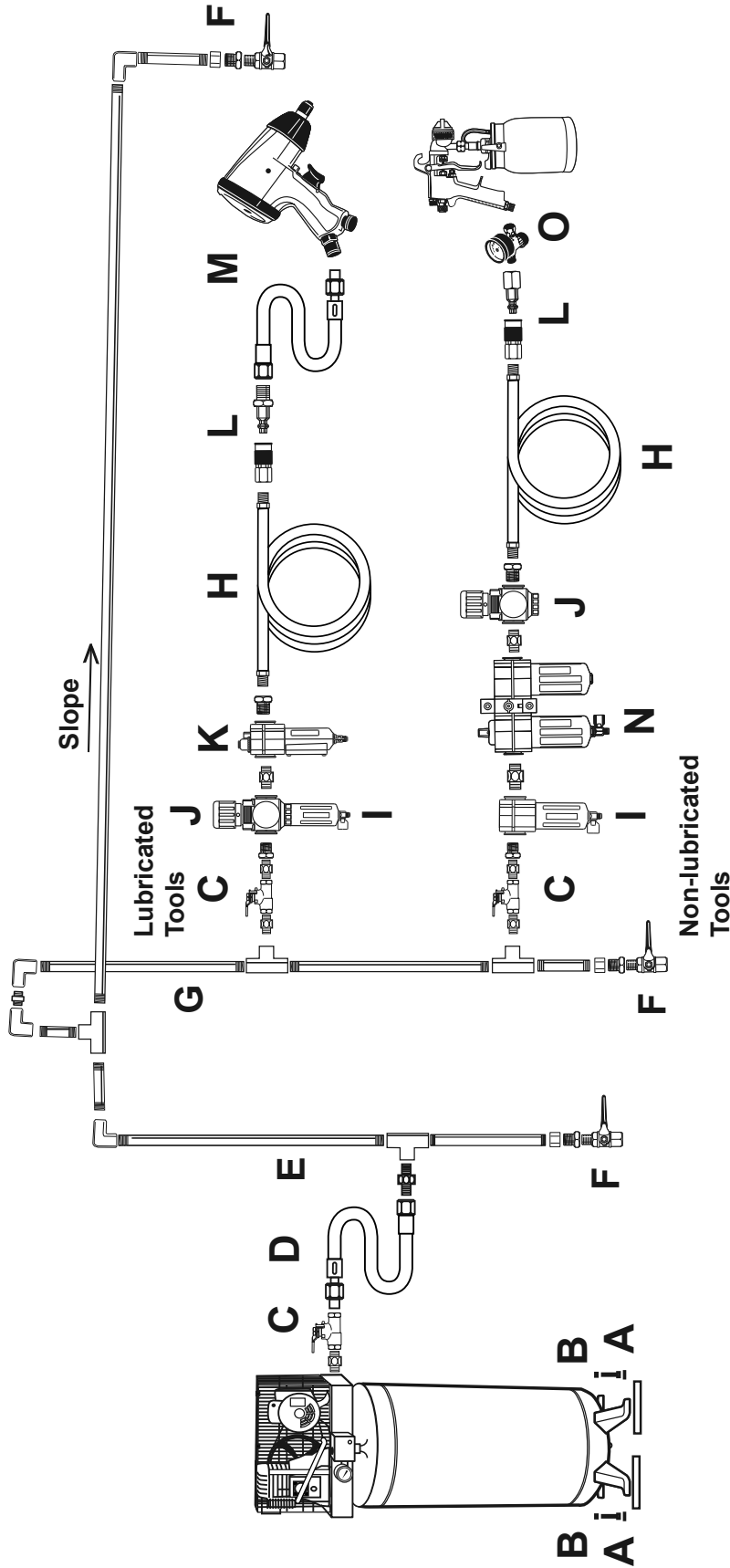
Figure A: Portable Air Supply Setup



	Description	Function
A	Air Hose	Connects air to tool
B	Filter	Prevents dirt and condensation from damaging tool or work piece
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 work piece
H	Air Adjusting Valve (optional)	For fine tuning airflow at tool



Figure B: Stationary Air Supply Setup



Description	Function
A Vibration Pads	For noise and vibration reduction
B Anchor Bolts	Secures air compressor in place
C Ball Valve	Isolates sections of system for maintenance
D Isolation Hose	For vibration reduction
E Main Air Line - 3/4" minimum recommended	Distributes air to branch lines
F Ball Valve	To drain moisture from system
G Branch Air Line - 1/2" minimum recommended	Brings air to point of use
H Air Hose	Connects air to tool
I Filter	Prevents dirt and condensation from damaging tool or work piece
J Regulator	Adjusts air pressure to tool
K Lubricator (optional)	For air tool lubrication
L Coupler and Plug	Provides quick connection and release
M Leader Hose (optional)	Increases coupler life
N Air Cleaner / Dryer (optional)	Prevents water vapor from damaging work piece
O Air Adjusting Valve (optional)	For fine tuning airflow at tool



# Operation



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.

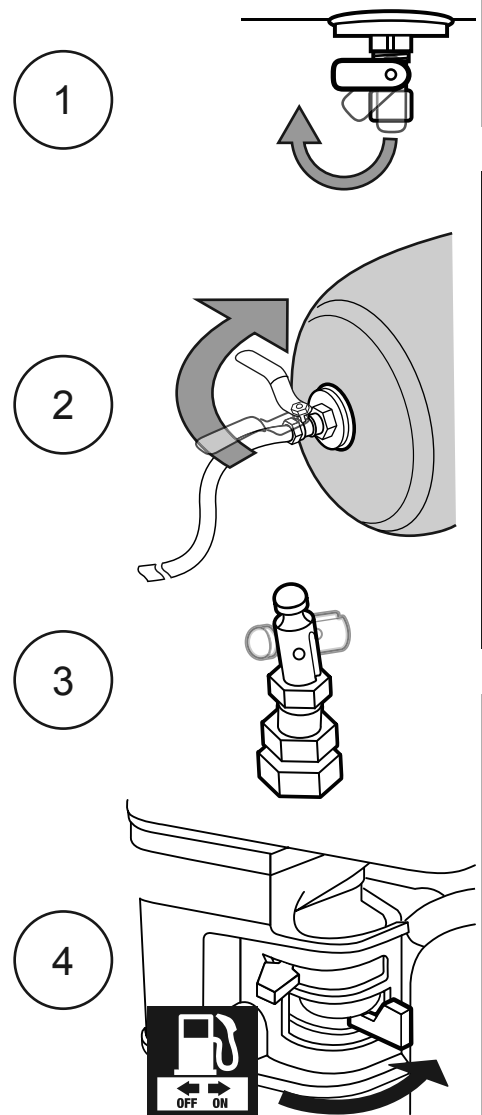
### Before starting the Compressor:



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

### To Start and Use the Compressor

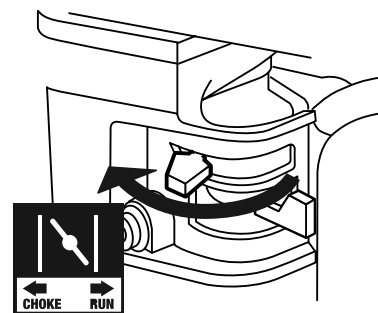
1. Close the Drain Valve (137) by turning the lever up so that it is perpendicular to the valve.
2. Close the in-line Shutoff Valve between the compressor and the air hose.
3. Open the Pilot Valve by rotating it to a vertical position.
4. Open the Fuel Valve.





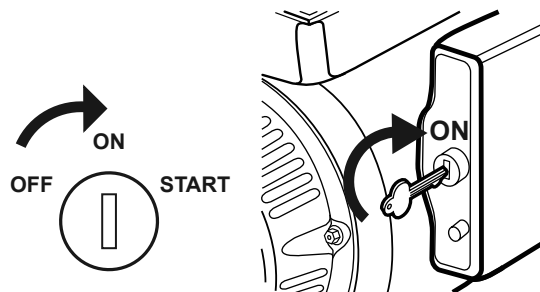
5. To start a cold engine, move the Choke to the CHOKE (start/closed) position.  
To restart a warm engine, leave the Choke in the RUN position.

5

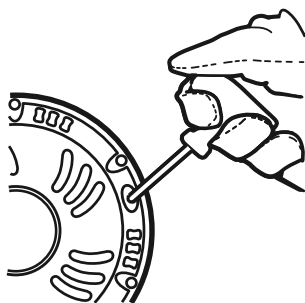


## 6. For MANUAL START

- a. Turn the Engine Switch to ON.



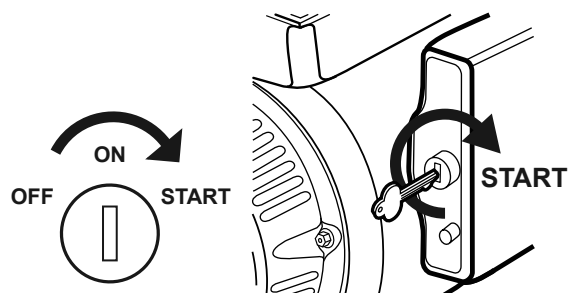
- b. Grip the Starter Handle of the Engine loosely and pull it slowly several times to allow the gasoline to flow into the Engine's carburetor. Then pull the Starter Handle gently until resistance is felt. Allow Cable to retract fully and then pull it quickly. Repeat until the engine starts. Note: Do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



## For ELECTRIC START

Turn the Engine Switch to START.

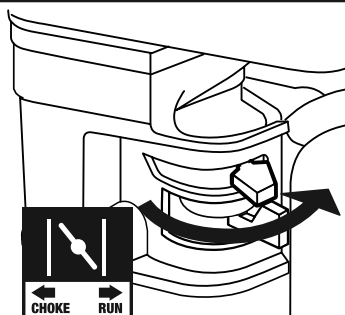
**Note:** To prolong starter life, use short starting cycles (5 seconds maximum). Then wait one minute before attempting to start again.



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

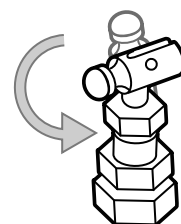
**Note:** Moving the Choke Lever too fast could kill the engine.

7



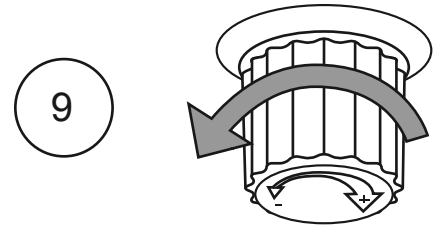
8. Close the Pilot Valve by rotating it to a horizontal position.

8





9. When the Gas Engine is started and running, the compressor Pump starts compressing air into the Air Tank. Open the in-line Shutoff 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.



**IMPORTANT:** Allow the 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.

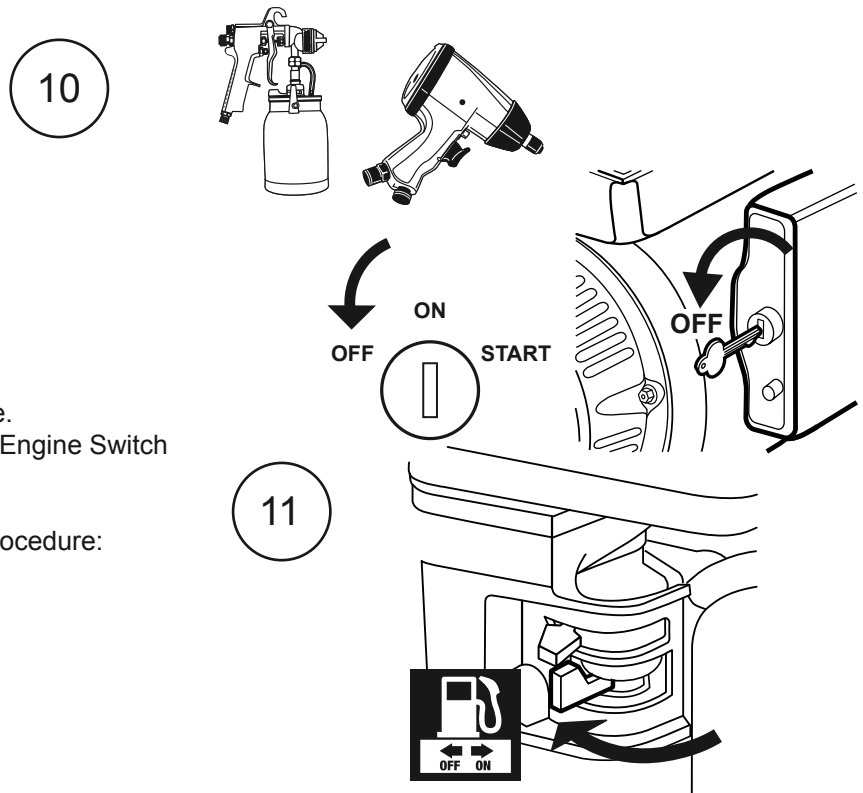
**Note:** When maximum tank pressure is reached, the compressor automatically disengages, and the engine RPM drops down to idle speed. The engine remains at idle until Air Tank pressure falls to a preset level. The Gas Engine will then accelerate and air pressure once again begins to build up in the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



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

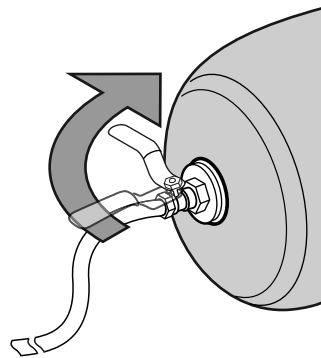
Under normal conditions, use the following procedure:

- Turn the Engine Switch off.
- Close the Fuel Valve.



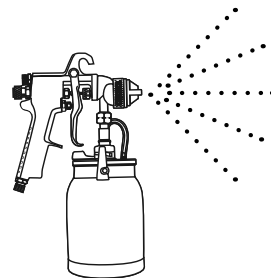
12. Close the in-line Shutoff Valve.

12



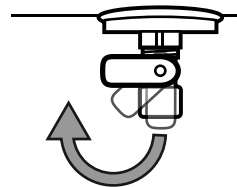
13. Bleed air from the tool then disconnect the tool.

13



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

14



15. Clean, then store the Air Compressor indoors.



## ⚠ WARNING

### TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING:

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 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.



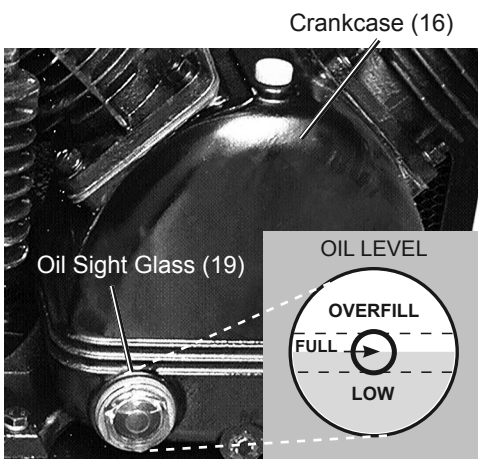
Many maintenance procedures, including any not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts about your ability to safely service the equipment or engine, have a qualified technician service the equipment instead.

## 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, you will need to replace the oil more frequently.

Change the compressor oil after the first hour of use to remove any debris.

## Adding Oil



c. Replace the Oil 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 SAE 10W 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.

1. The oil level should be at the center of the “full” level on the Oil Sight Glass, as shown above. Add oil as needed to maintain this level. Do not let the oil level go below the center dot (LOW as shown above) and do not overfill the oil so that it is above the center dot (OVERFILL as shown above) on the Oil Sight Glass.
2. To add oil:
  - a. Remove the Oil Plug (17).
  - b. Using a funnel to avoid spills, pour enough oil into the pump Crankcase to reach the “full” level in the Oil Sight Glass.

3. If uncertain which oil to use for this compressor, please call Harbor Freight Tools customer service at 1-800-1-888-866-5797 for assistance.

**WARNING!** To prevent serious injury from burns: Do not add or change the oil while the compressor is in operation. Allow the compressor to cool before replacing oil.



## Changing Oil

1. Place a container under the Drain Plug.
2. Remove the Oil Plug to allow air flow into the Pump.
3. Remove the Drain Plug, allowing the oil to drain into the container.
4. When the oil is completely drained from the Pump, replace the Drain Plug.
5. Fill the Pump with new compressor oil to the FULL level on the Oil Sight Glass.
6. Replace and tighten the Oil Plug.
7. Discard the 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 accessed daily to release all trapped air and moisture from the Tank. This will eliminate condensation which can cause tank corrosion. To empty the air and condensation:

1. Make sure the compressor engine is off.
2. Place a collection pan under the Drain Valve.
3. Open the Drain Valve by pivoting the lever on the bottom of the Compressor so the lever is in line with the Drain Valve.
4. When all the pressure is released, close the Drain Valve by pivoting the lever on the bottom of the compressor so that the lever is perpendicular to the Drain Valve.

## Air Filter Maintenance

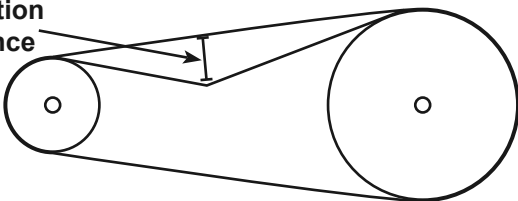
Check the Air Filter weekly to see if it needs replacement. If working in dirty environments, you may need to replace the filter more often. To replace the Air Filter:

1. Unthread the Wing Nut holding the Air Filter Assembly in place.
2. Remove the Air Filter Assembly.
3. Replace with a new Air Filter.
4. Secure in place with the Wing Nut.

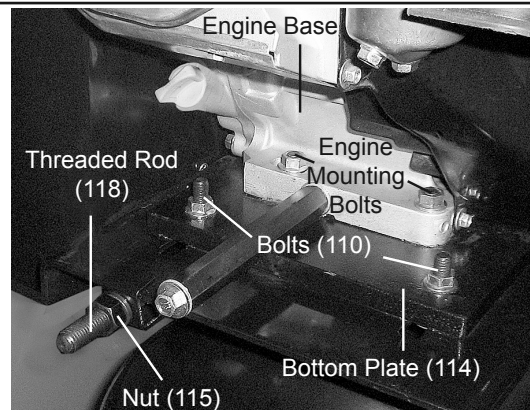
## Adjusting Belt Tension

1. Remove the Belt Guard Cover (129) and set it aside.

**Deflection Distance**



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 Bolts (110) on the Bottom Plate (114) and moving the engine away from the other pulley slightly by turning the Nut (115) holding the Threaded Rod (118). Secure 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 Bolts on the Bottom Plate and moving the engine towards the other pulley slightly by turning the Nut (115) on the Threaded Rod (118). Secure engine mounting bolts and retest tension.



- Before use, replace belt cover.

## Troubleshooting

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 2,200±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 EQUIPMENT SET UP, Equipment Oil Fill 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 and gaskets proven faulty on inspection. 5. Tighten Belts (See monthly 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.

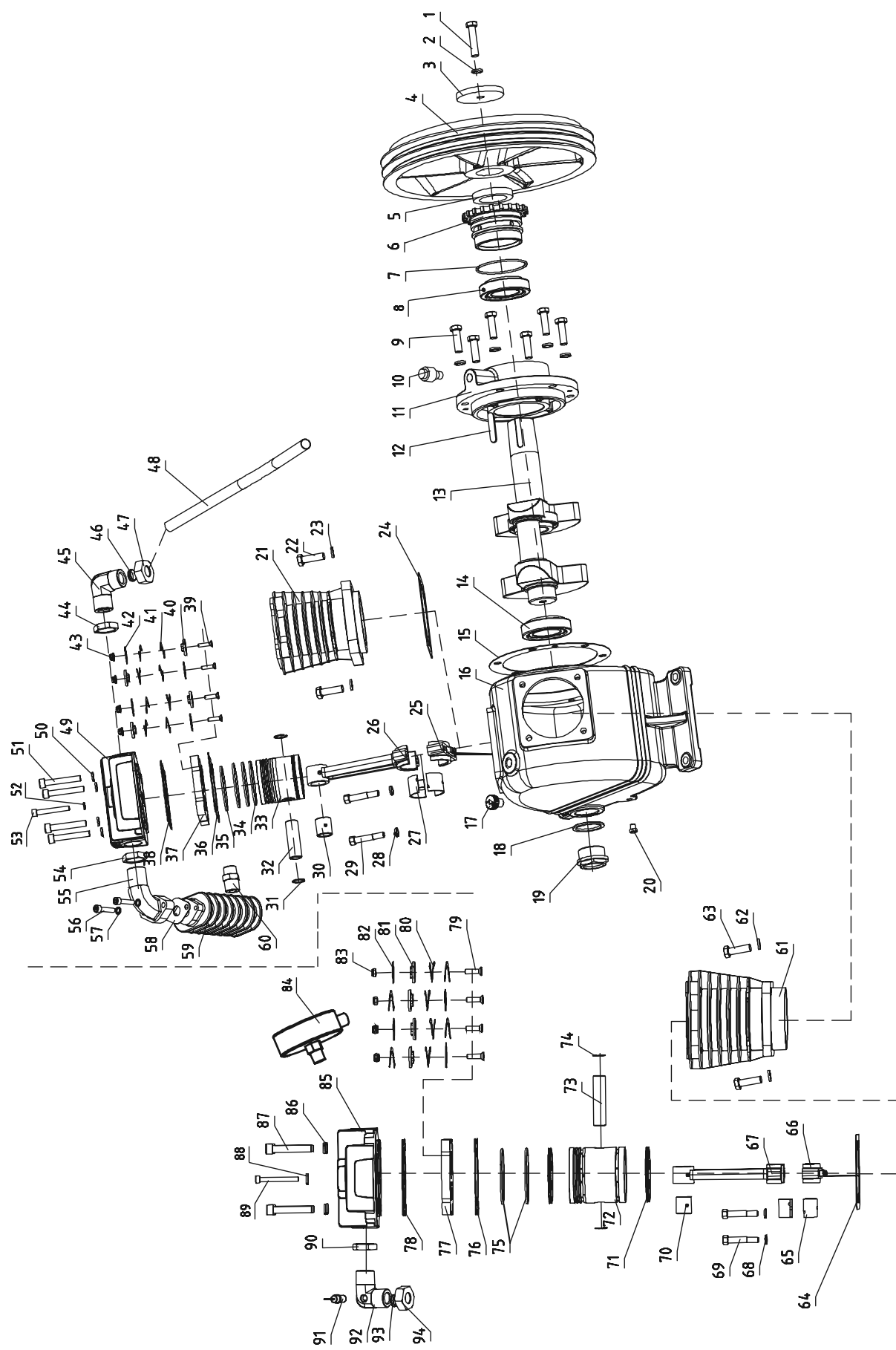
## Parts Lists and Diagrams

### Pump Parts List

Part	Description	Qty	Part	Description	Qty	Part	Description	Qty
1	Bolt M12×55	1	32	Pin	1	63	Spring Washer 12	4
2	Spring Washer 12	1	33	Piston	1	64	Gasket	1
3	Flat Washer	1	34	Wiper Ring	2	65	Bushing	2
4	Drive Pulley	1	35	Piston Ring	2	66	Connecting Rod A	1
5	Oil Seal Circle	1	36	Gasket	1	67	Connecting Rod B	1
6	Flange Plate	1	37	Valve	1	68	Spring Washer 10	2
7	O-ring Ø85	1	38	Aluminum Seal	1	69	Bolt M10×55	2
8	Bearing	1	39	Bolt M6×25	4	70	Bushing	1
9	Bolt M12×40	6	40	Valve Stop Block	4	71	Wiper Ring	2
10	Oil Breather	1	41	Spring	8	72	Piston	1
11	Crank Case End Cover	1	42	Valve Plate	4	73	Pin	1
12	Flat Key	1	43	Nut M6	4	74	Clip	2
13	Crankshaft	1	44	Lock Nut	1	75	Piston Ring	2
14	Bearing	1	45	Elbow	1	76	Gasket	1
15	Gasket	1	46	Taper Sleeve	1	77	Valve	1
16	Crankcase	1	47	Nut	1	78	Aluminum Seal	1
17	Oil Plug	1	48	Brass Tube	1	79	Bolt M8×30	4
18	Gasket	1	49	Cylinder Head	1	80	Spring	8
19	Oil Sight Glass	1	50	Spring Washer	4	81	Restrictor	4
20	Drain Oil Bolt	1	51	Bolt M10×65	4	82	Valve Plate	4
21	Second Stage Cylinder Head	1	52	Bolt M8×60	1	83	Nut M8	4
22	Bolt M12×40	4	53	Spring Washer 10	1	84	Air Filter Assembly	1
23	Spring Washer 12	4	54	Nut	1	85	Cylinder Head	1
24	Gasket	1	55	Elbow	1	86	Spring Washer 12	4
25	Connecting Rod A	1	56	Bolt M8×35	2	87	Bolt M12×70	4
26	Connecting Rod B	1	57	Spring Washer 8	2	88	Spring Washer 8	4
27	Bearing Shell	2	58	Gasket	1	89	Bolt M8×70	4
28	Spring Washer 10	4	59	Radiator	1	90	Nut	1
29	Bolt M10×55	2	60	Connector	1	91	Pump Safety Valve	1
30	Bushing	1	61	First Stage Cylinder Head	1	92	Elbow	1
31	Clip	2	62	Bolt M12×40	4	93	Taper Sleeve	1
						94	Nut	1



# Pump Assembly Diagram



SAFETY

SETUP

OPERATION

MAINTENANCE



# Tank Parts List

SAFETY

Part	Description	Qty
95	Tank	1
96	Connector	1
97	Pressure Gauge	1
98	Tank Safety Valve	1
99	Unloader Valve	1
100	Throttle Control	1
101	Connector	1
102	Taper Sleeve	2
103	Pipe Nut	2
104	Brass Tube	1
105	Air Outlet	1
106	Engine	1
107	Bolt M10×40	4
108	Nut M10	4
109	Bracket	1

SETUP

Part	Description	Qty
110	Bolt M10×50	4
111	Nut M10	4
112	Washer 8	1
113	Bolt M8×20	1
114	Bottom Plate	1
115	Nut M14	1
116	Spring Washer 14	1
117	Bracket	1
118	Threaded Rod	1
119	Bolt M6×20	1
120	Belt Guard Bracket A	1
121	Belt Guard Frame	1
122	Belt	2
123	Driven Pulley	1
124	Key	1

Part	Description	Qty
125	Bushing	1
126	Spring Washer 8	2
127	Bolt M8×30	2
128	Bolt M6×10	11
129	Belt Guard Cover	1
130	Bolt M6×10	1
131	Belt Guard Bracket B	1
132	Bolt M8×16	4
133	Washer 8	4
134	Bolt M12×45	4
135	Spring Washer 12	4
136	Bolt M12	2
137	Drain Valve	1

OPERATION

MAINTENANCE

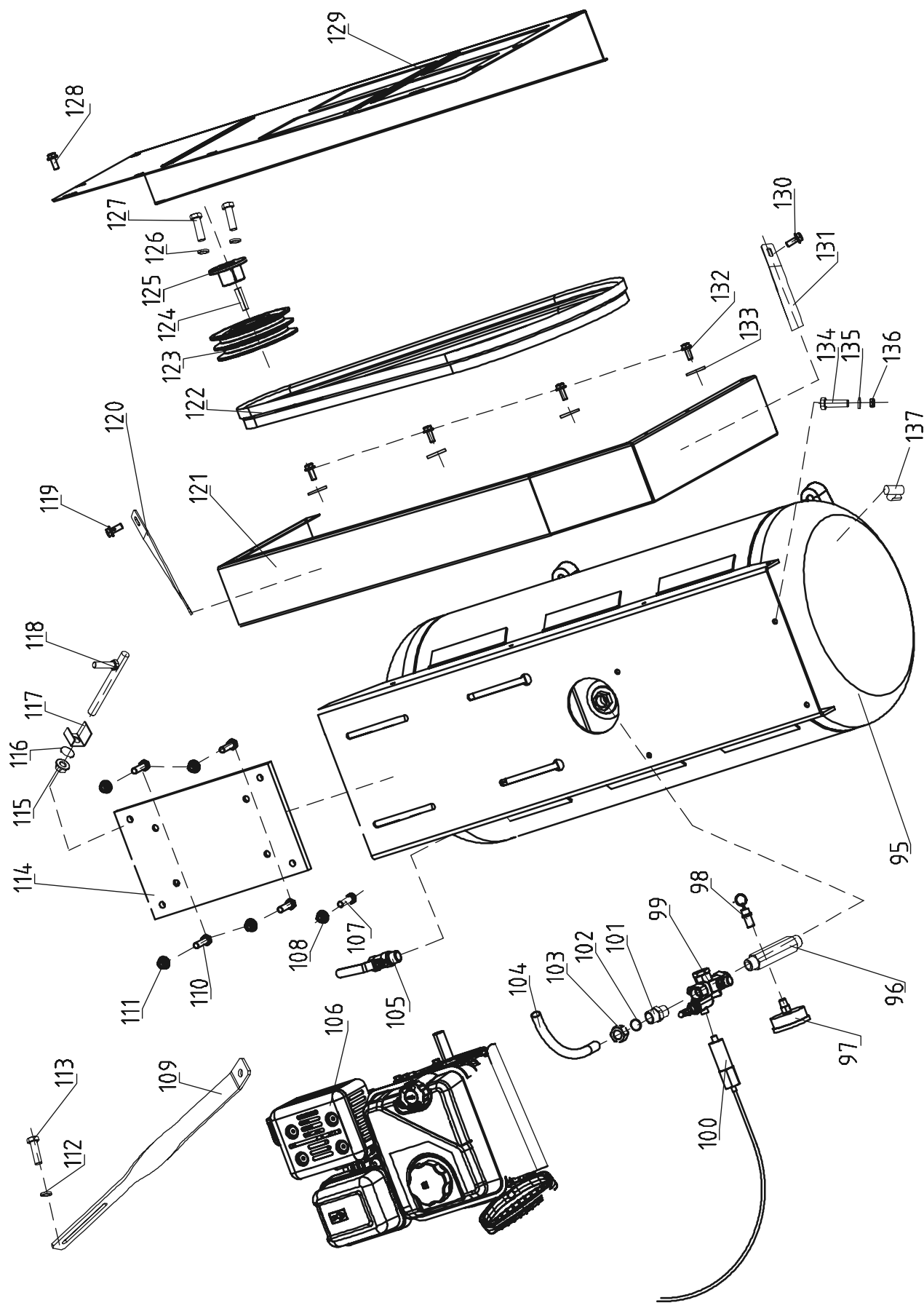
Record Product's Serial Number Here:

**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 193175310828 when ordering parts.



# Tank Assembly Diagram



SAFETY

SETUP

OPERATION

MAINTENANCE



## Limited 90 Day Warranty

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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.

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# 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 near the assembly diagram (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.

20g

## PREDATOR<sup>™</sup> E N G I N E S

# 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 technical support at: [predator@harborfreight.com](mailto:predator@harborfreight.com)

**ENGINE FOR  
ITEM 62779**

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.

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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 .....	23
Operation.....	8	Parts List and Diagram .....	20

## Specifications




Displacement		420cc
Engine Type		Horizontal Single Cylinder 4 stroke OHV
Cooling System		Forced air cooled
Fuel	Type	87+ octane unleaded gasoline
	Capacity	1 Gallon
Engine Oil	Type SAE	10W-30 above 32° F 5W30 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		8.5:1
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® F6TC
	Gap	0.7 - 0.8 mm
Valve Clearance	Intake	0.10 - 0.15 mm
	Exhaust	0.15 - 0.20 mm
Speed	Idle	1,800 ± 50 RPM




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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

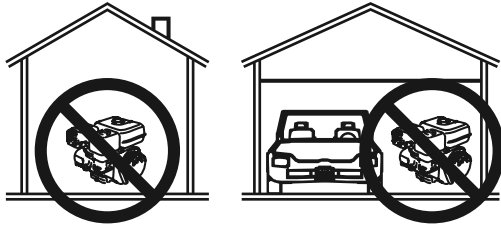


## Set up Precautions

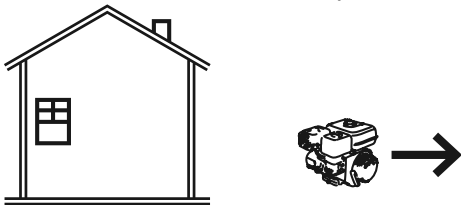
1. Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
2. Have multiple ABC class fire extinguishers nearby.
3. Operation of this equipment may create sparks that can start fires around 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.



## Operating Precautions (cont.)

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.
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. 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.
24. Do not operate the equipment with known leaks in the engine's fuel system.
25. 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.
26. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
27. 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.
28. 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 smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
  2. Do not refill the fuel tank while the engine is running or hot.
  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.

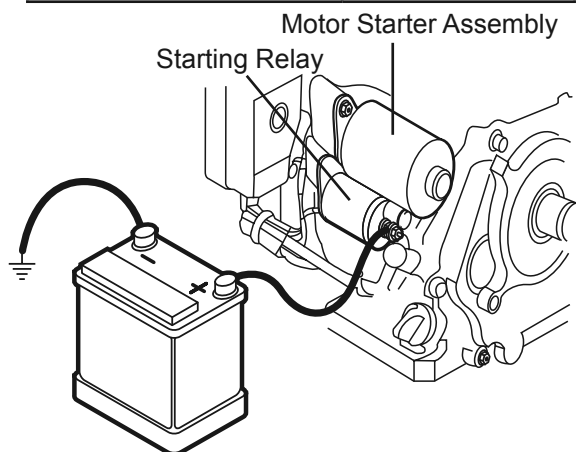
The emission control system for this Generator's Engine is warranted for standards set by the U.S. Environmental Protection Agency and by the California Air Resources Board (also known as CARB). For warranty information, refer to the last pages of this manual.

**WARNING! TO PREVENT SERIOUS INJURY: DO NOT INSTALL THIS ENGINE ON A VEHICLE.**

## Battery Setup Instructions

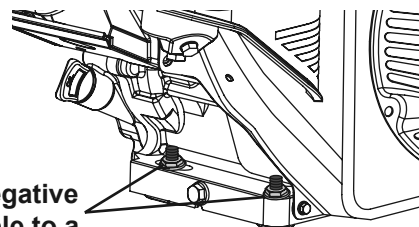
1. Place a **fully charged**, lead-acid **12 volt, 300 CCA, 36 Ah** battery (not included) in a stable, flat location near the engine.
2. Only use cables sized to match their length according to the following chart:

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



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.

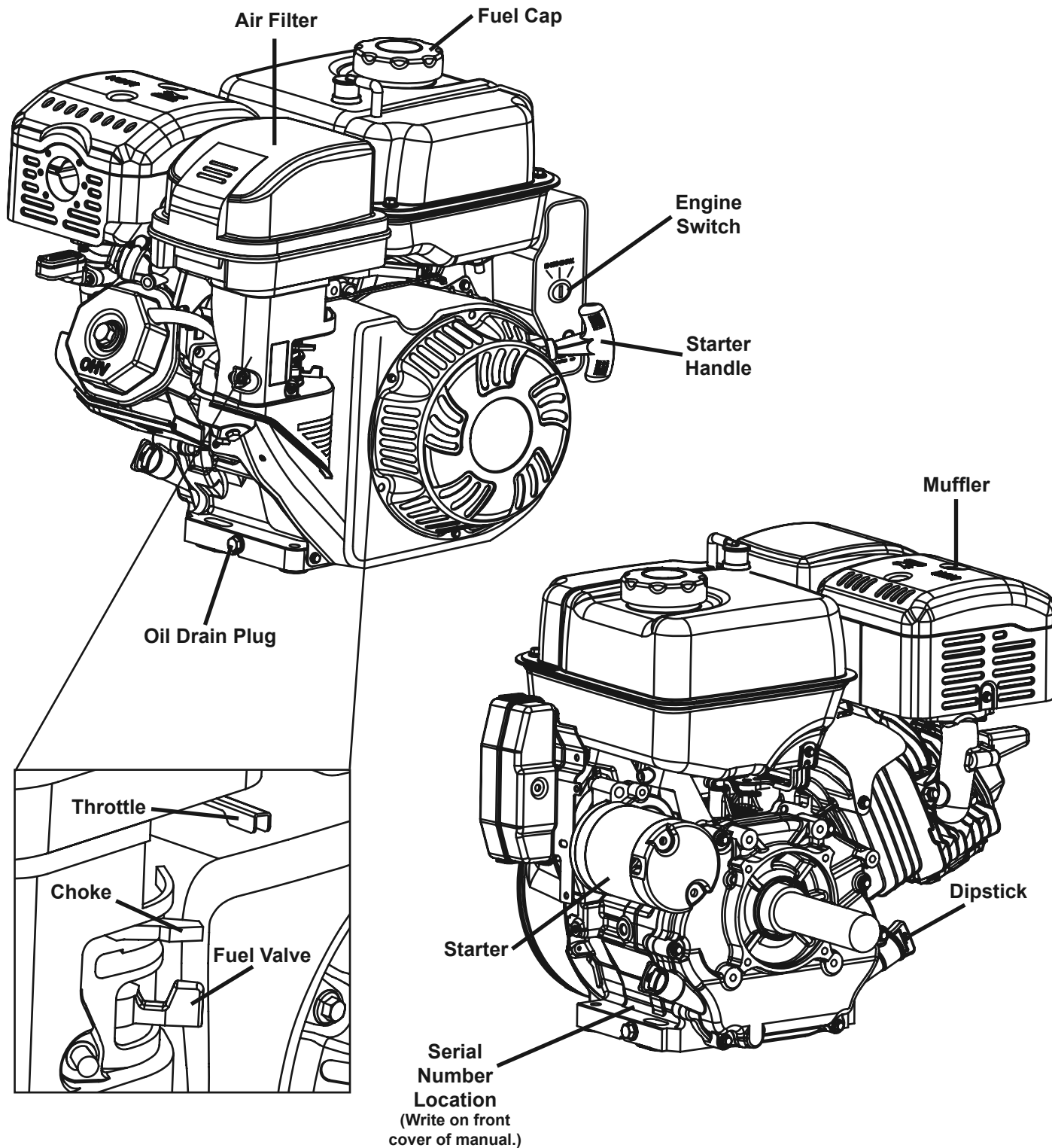


**Connect Negative Battery Cable to a Mounting Bolt**

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



# Engine Controls



SAFETY

SETUP

OPERATION

MAINTENANCE



## Operation

**SAFETY**  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.

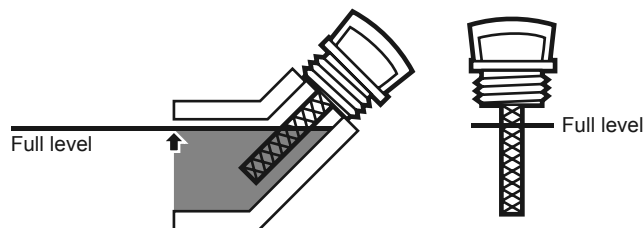
## Pre-Start Checks

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. Do not run the engine with low or no engine oil. Running the engine with no or low engine oil WILL permanently damage the engine.

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 threading it counterclockwise, and wipe it off with a clean lint free rag.



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.

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 Service 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. The engine will be permanently damaged.

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## 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 of the Fuel Tank with 87 octane or higher unleaded gasoline.

**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 fuel and oil.
- d. Read the Equipment Operation section in the equipment manual.

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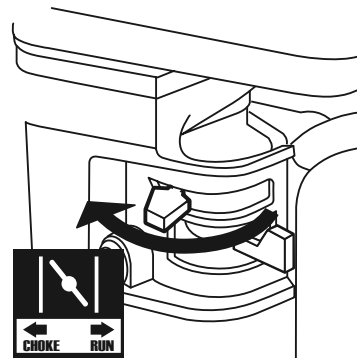


## Manual Start

SAFETY

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

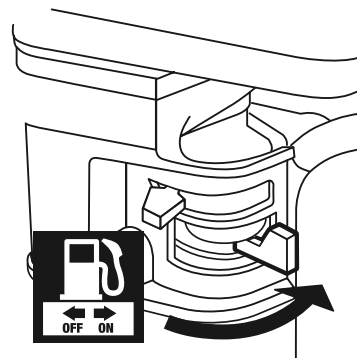
1



SETUP

2. Open the Fuel Valve.

2



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

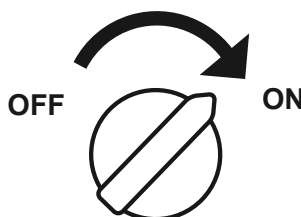
3



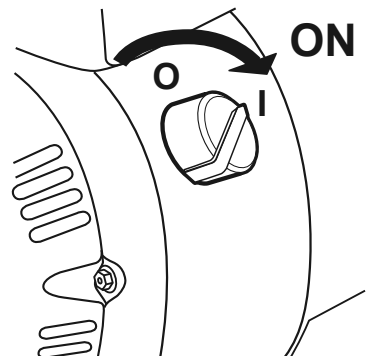
**Note:** Some tools have a Speed Control Lever located elsewhere on the tool which functions the same as the Throttle. Use the Speed Control Lever in place of the Throttle when the tool is so equipped.

OPERATION

4. Turn the Engine Switch on.



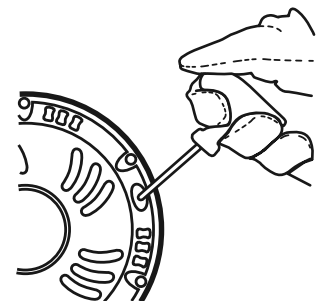
4



MAINTENANCE

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.

5



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



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

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

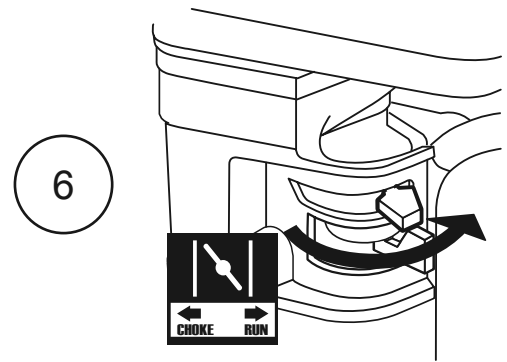
**IMPORTANT:** Allow the engine to run at no load for five minutes with no load after each start-up so that the engine can stabilize.

7. Adjust the Throttle as needed.

8. **Break-in Period:**

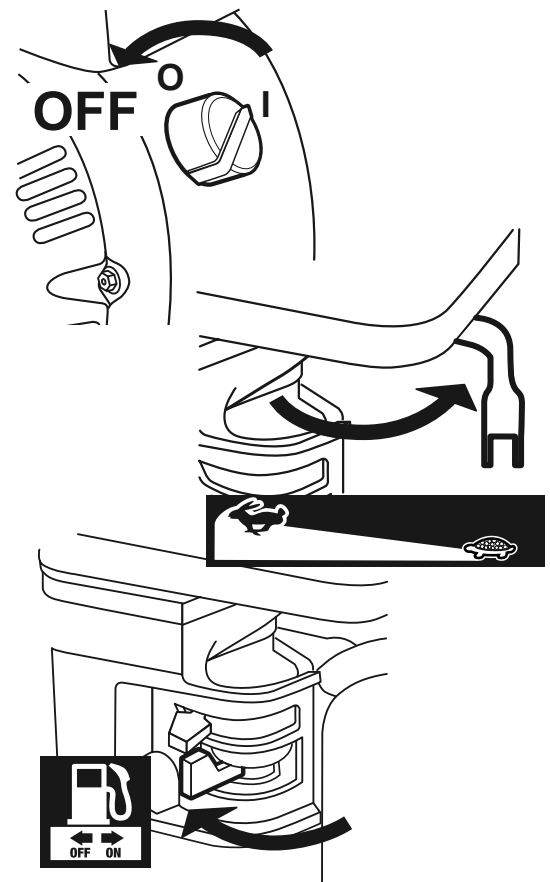
- a. Breaking-in the engine will help to ensure proper equipment and engine operation.
- b. The operational break-in period will last about 3 hours of use. During this period:
  - Do not apply a heavy load to the equipment.
  - Do not operate the engine at its maximum speed.
- c. The maintenance break-in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

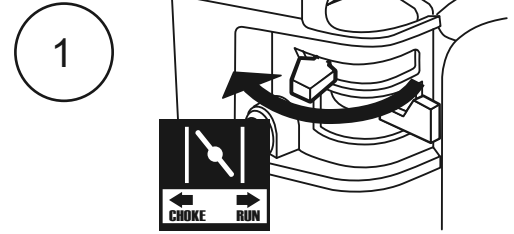




## Electric Start (if equipped)

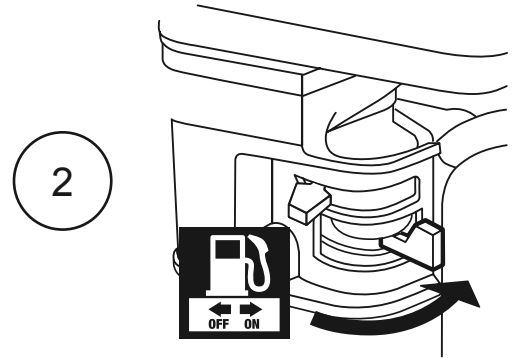
### SAFETY

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



### SETUP

2. Open the Fuel Valve.



### OPERATION

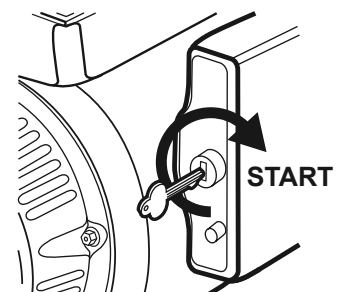
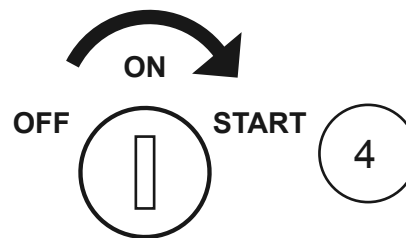
3. Slide the Throttle or Speed Control Lever to 1/3 away from the SLOW position (the "turtle").

**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.





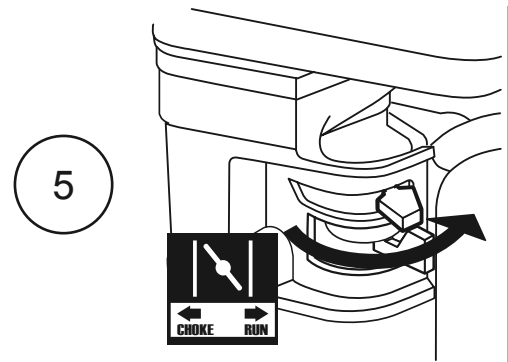
5. Allow the Engine to run for several seconds.  
Then, if the Choke lever is in the CHOKE position, move the Choke Lever very slowly to its RUN position.

**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.

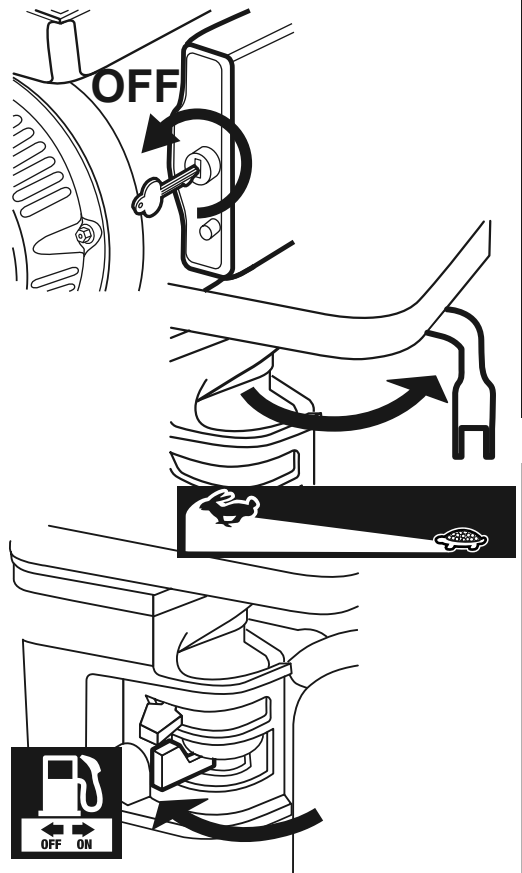
6. Adjust the Throttle as needed.
7. **Break-in Period:**
  - a. Breaking-in the engine will help to ensure proper equipment and engine operation.
  - b. The operational break-in period will last about 3 hours of use. During this period:
    - Do not apply a heavy load to the equipment.
    - Do not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





## Maintenance

### ⚠ 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.

# PREDATOR<sup>TM</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 of the Fuel Tank with 87 octane or higher unleaded gasoline.

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

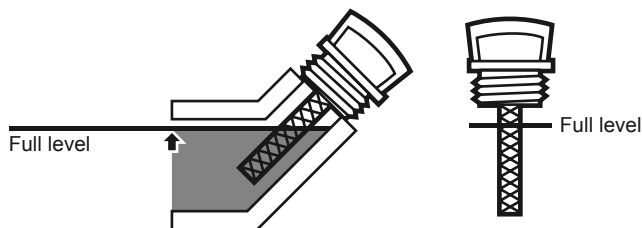
**Note:** Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting engine performance and/or causing damage.

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

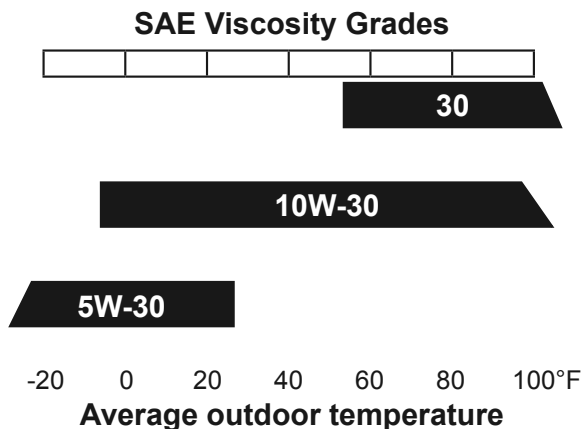
**⚠ CAUTION!** Oil is very hot during operation and can cause burns. Wait for engine to cool before changing oil.

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 threading 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.



8. Thread the dipstick back in clockwise.

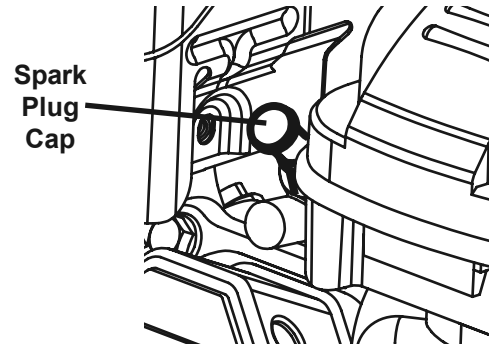
**CAUTION!** Do not run the engine with too little oil. The engine will be permanently damaged.



### Air Filter Element Maintenance

1. Remove the air filter cover and the air filter elements and check for dirt. Clean or replace 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. If this does not get the filter clean, replace it.
  - 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 new filter or 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® F6TC 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 1/2-2/3 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.

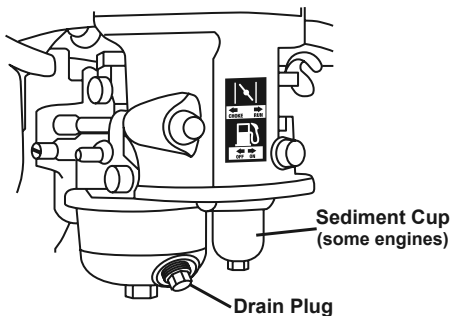
### 2. **FUEL:**



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

Drain 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 draining fuel. Do not smoke.

- Place a funnel leading to a proper gasoline container below the carburetor.



- Remove the drain bolt from the bottom of the carburetor bowl and allow the fuel to drain.
- Remove the small sediment cup next to the bowl and allow the fuel to drain from there as well.

- Open the fuel valve. After all fuel has drained, reinstall the drain bolt and sediment cup (if equipped). Tighten securely.

### 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.

### 6. **AFTER STORAGE:**

Before starting the engine 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™**  
E N G I N E S



# 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>1. No fuel in tank or fuel valve closed.</li> <li>2. Choke not in CHOKE position, cold engine.</li> <li>3. Gasoline with more than 10% ethanol used. (E15, E20, E85, etc.)</li> <li>4. Low quality or deteriorated, old gasoline.</li> <li>5. Carburetor not primed.</li> <li>6. Dirty fuel passageways.</li> <li>7. Carburetor needle stuck. Fuel can be smelled in the air.</li> <li>8. Too much fuel in chamber. This can be caused by the carburetor needle sticking.</li> <li>9. Clogged Fuel Filter.</li> </ol>	<b>FUEL RELATED:</b> <ol style="list-style-type: none"> <li>1. Fill fuel tank and open fuel valve.</li> <li>2. Move Choke to CHOKE position.</li> <li>3. Clean out ethanol rich gasoline from fuel system. Replace components damaged by ethanol. Use fresh 87+ octane unleaded gasoline only. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>4. Use fresh 87+ octane unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>5. Pull on Starter Handle to prime.</li> <li>6. Clean out passageways using fuel additive. Heavy deposits may require further cleaning.</li> <li>7. <b>Gently</b> tap side of carburetor float chamber with screwdriver handle.</li> <li>8. 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 CHOKE position.</li> <li>9. Replace Fuel Filter.</li> </ol>
	<b>IGNITION (SPARK) RELATED:</b> <ol style="list-style-type: none"> <li>1. Spark plug cap not connected securely.</li> <li>2. Spark plug electrode wet or dirty.</li> <li>3. Incorrect spark plug gap.</li> <li>4. Spark plug cap broken.</li> <li>5. Circuit breaker tripped (electric start models only).</li> <li>6. Incorrect spark timing or faulty ignition system.</li> </ol>	<b>IGNITION (SPARK) RELATED:</b> <ol style="list-style-type: none"> <li>1. Connect spark plug cap properly.</li> <li>2. Clean spark plug.</li> <li>3. Correct spark plug gap.</li> <li>4. Replace spark plug cap.</li> <li>5. Reset circuit breaker. Check wiring and starter motor if breaker continues to trip.</li> <li>6. Have qualified technician diagnose/repair ignition system.</li> </ol>
	<b>COMPRESSION RELATED:</b> <ol style="list-style-type: none"> <li>1. Cylinder not lubricated. Problem after long storage periods.</li> <li>2. Loose or broken spark plug. (Hissing noise will occur when trying to start.)</li> <li>3. Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.)</li> <li>4. Engine valves or tappets mis-adjusted or stuck.</li> </ol>	<b>COMPRESSION RELATED:</b> <ol style="list-style-type: none"> <li>1. Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again.</li> <li>2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3.</li> <li>3. Tighten head. If that does not remedy problem, replace head gasket.</li> <li>4. Have qualified technician diagnose/repair ignition system.</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 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 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. Low oil shutdown.</li> <li>2. Fuel tank empty or full of impure or low quality gasoline.</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 engine oil to proper level. Check engine oil before EVERY use.</li> <li>2. Fill fuel tank with fresh 87+ octane unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></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 or replace 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 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	<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>	<ol style="list-style-type: none"> <li>1. Fill fuel tank with fresh 87+ octane 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>



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

SAFETY

SETUP

OPERATION

MAINTENANCE



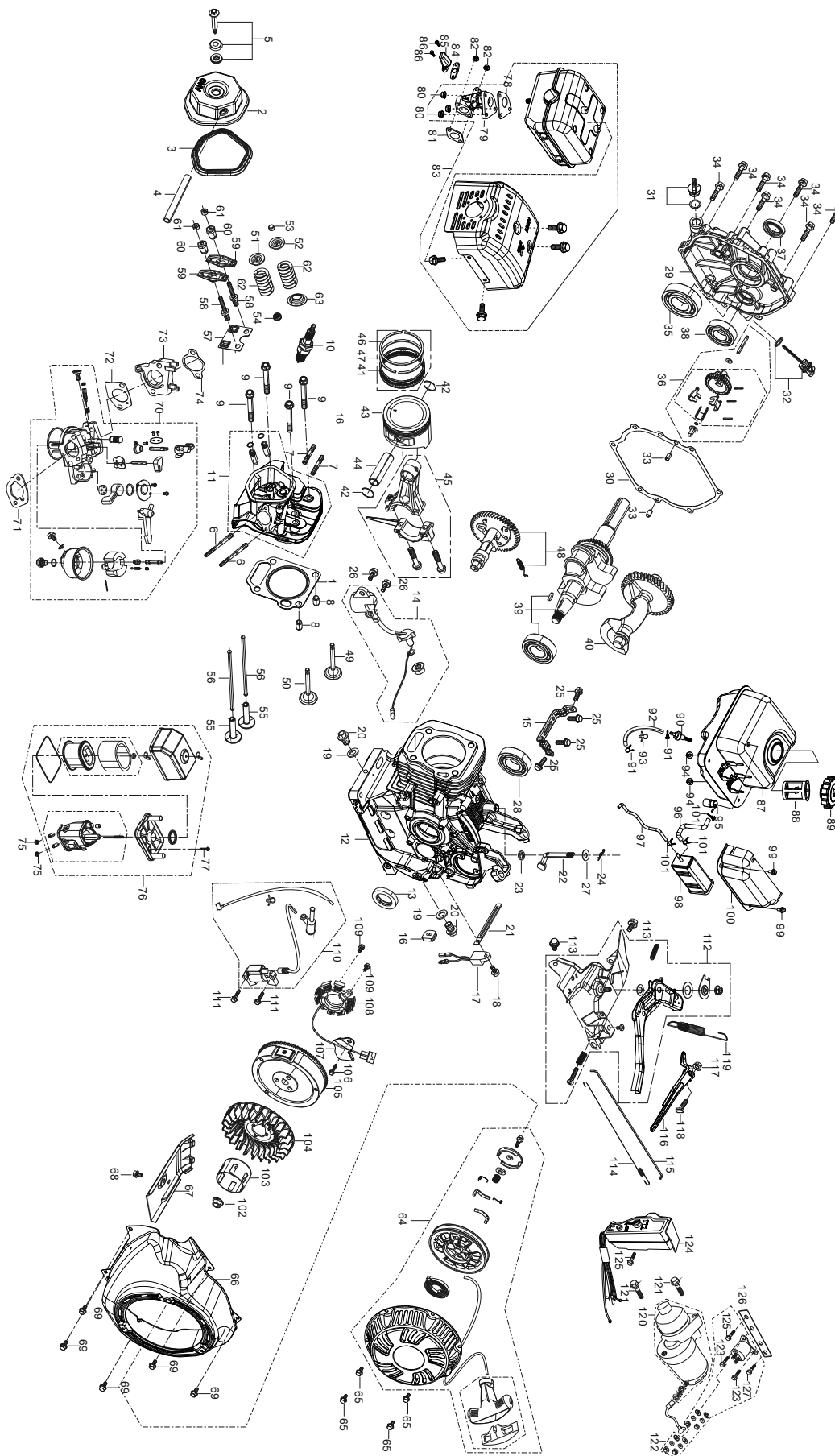
## Parts List and Diagram

### Parts List

Part	Description	Qty	Part	Description	Qty	Part	Description	Qty
1	Gasket, Cylinder Head	1	44	Pin, Piston	1	85	Secondary Air Intake Valve	1
2	Cylinder Head Cover	1	45	Rod, Connecting	1	86	Bolt	2
3	Cylinder Head Gasket	1	46	Primary Ring	1	87	Tank, Fuel	1
4	Tube, Breather	1	47	Secondary Ring	1	88	Strainer, Fuel	1
5	Cylinder Head Cover Bolt	1	48	Camshaft Assy.	1	89	Cover, Fuel Tank	1
6	Stud	2	49	Valve, Exhaust	1	90	Outlet, Fuel Tank Oil	1
7	Stud	2	50	Valve, Intake	1	91	Clamp	2
8	Pin	2	51	Seat, Valve Spring	1	92	Fuel Line	1
9	Bolt, Cylinder Head	4	52	Retainer, Exhaust Valve	1	93	Clip	1
10	Plug, Spark	1	53	Rotator, Valve	1	94	Nut	2
11	Cylinder Head	1	54	Guide, Seal	1	95	One Way Valve	1
12	Crankcase	1	55	Tappet, Valve	2	96	Fuel Steam Hose	1
13	Seal, Oil	1	56	Valve Lifter	2	97	Air Cleaner Hose	1
14	Sensor, Engine Oil	1	57	Lifter Stopper Plate	1	98	Fuel Vapor Collector	1
15	Fuel Tank Frame	1	58	Bolt, Valve Adjusting	2	99	Bolt	2
16	Plug, Rubber	1	59	Rocker, Valve	2	100	Vapor Collector Cover	1
17	Protector, Oil	1	60	Nut, Valve Adjusting	2	101	Clamp	3
18	Bolt	1	61	Nut, Valve Lock	2	102	Nut, Flywheel	1
19	Washer, Flat	2	62	Spring, Valve	2	103	Pulley, Starter	1
20	Bolt, Drain Plug	2	63	Retainer, Valve Spring	1	104	Impeller	1
21	Clip	1	64	Starter Assy, Recoil	1	105	Flywheel	1
22	Arm, Governor	1	65	Bolt	4	106	Bolt	1
23	Seal, Oil	1	66	Shroud	1	107	Cap, Spark Plug	1
24	Pin	1	67	Shroud, Cylinder Body	1	108	Charge Coil	1
25	Bolt	4	68	Bolt	1	109	Bolt	2
26	Bolt	2	69	Bolt	5	110	Coil, Ignition	1
27	Washer, Flat	1	70	Carburetor Assy.	1	111	Bolt	2
28	Bearing	1	71	Gasket, Air Cleaner	2	112	Control Assy, Throttle	1
29	Cover, Crankcase	1	72	Gasket, Carburetor	1	113	Bolt	2
30	Gasket, Crankcase	1	73	Carburetor Insulator	1	114	Throttle Returning Spring	1
31	Engine Oil Plug	1	74	Gasket, Inlet	1	115	Rod, Governor	1
32	Dipstick	1	75	Nut	2	116	Governor Support	1
33	Pin	2	76	Cleaner, Air	1	117	Nut	1
34	Bolt	7	77	Bolt	1	118	Bolt, Governor Support	1
35	Bearing	1	78	Gasket, Muffler	1	119	Spring, Governor	1
36	Gear Assy, Governor	1	79	Pipe, Exhaust	1	120	Starter Motor	1
37	Seal, Oil	1	80	Nut	3	121	Bolt	2
38	Bearing	1	81	Gasket, Exhaust Outlet	1	122	Relay, Starting	1
39	Crankshaft Assy.	1	82	Nut	2	123	Bolt	2
40	Shaft Assy, Balancing	1	83	Muffler Assy.	1	124	Switch, Control	1
41	Ring Set, Oil	1	84	Secondary Air Intake Valve Gasket	1	125	Bolt	2
42	Clip, Piston Pin	2				126	Support	1
43	Piston	1				127	Bolt	1



# Assembly Diagram



SAFETY

SETUP

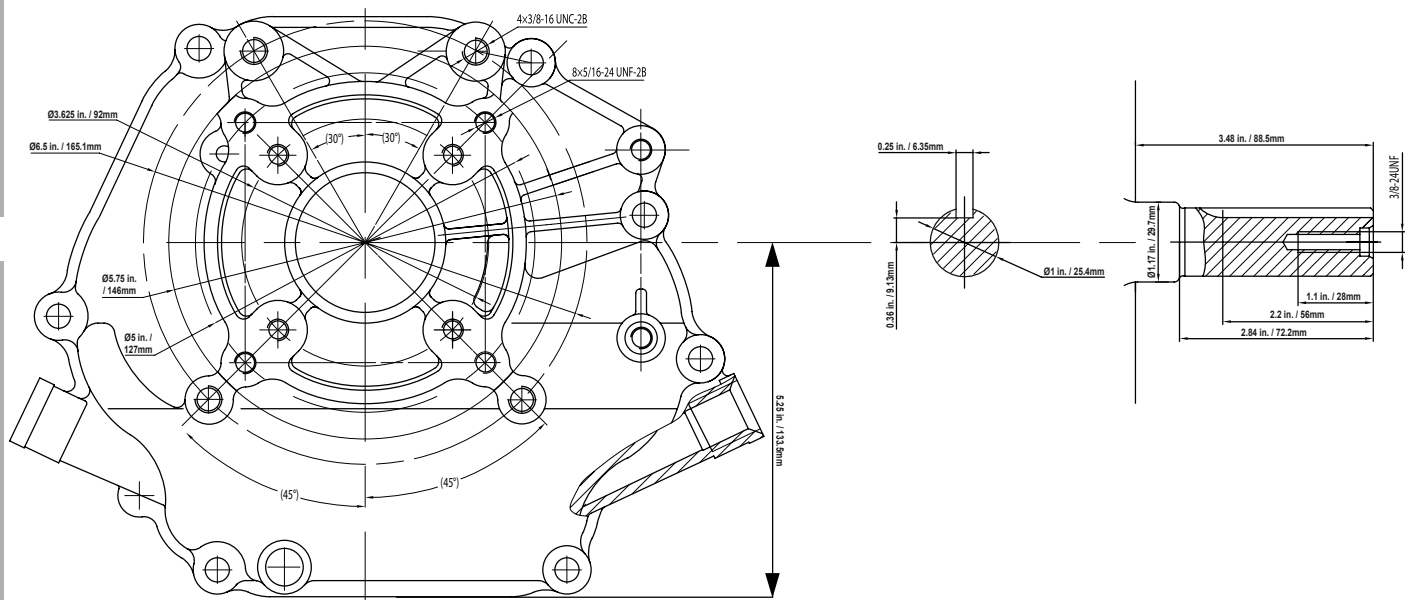
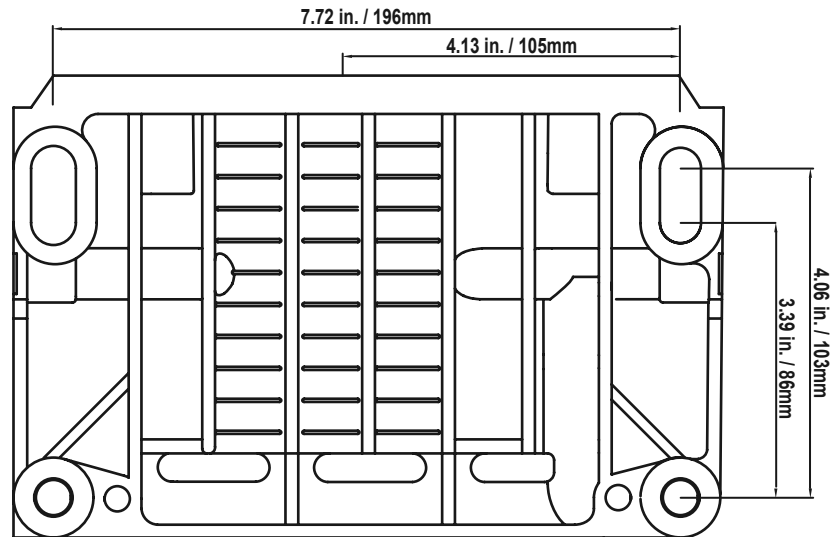
OPERATION

MAINTENANCE



# SAFETY

# SETUP



# OPERATION

# MAINTENANCE

**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 193175310828 when ordering parts.



## 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.

## Emission Control System Warranty

### California and United States Emission Control Defects Warranty Statement

The California Air Resources Board (herein CARB), the United States Environmental Protection Agency (herein EPA), and Harbor Freight Tools (herein HFT) are pleased to explain the emission control system warranty on your 1995 and later Small Off-Road Engine (herein engine). In California, the engine must be designed, built and equipped to meet the State's stringent anti-smog standards. Elsewhere within the United States, new off-road, spark-ignition engines certified for model year 1997 and later, must meet similar standards set forth by the EPA. HFT must warrant the emission control system on your engine for the periods of time described below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, and the ignition system. Also included may be hoses, belts, connectors and other emission-related assemblies.

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

### Manufacturer's Warranty Coverage

The 1995 and later engines are warranted for two (2) years. If any emission-related part on your engine is defective, the part will be repaired or replaced by HFT.

### Harbor Freight Tools Emission Control Defects Warranty Coverage

Engines are warranted for a period of two (2) years relative to emission control parts defects, subject to the provisions set forth below. 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. HFT recommends that you retain all receipts covering maintenance on your engine, but HFT cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- 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, neglect, improper maintenance, or unapproved modifications.
- You are responsible for shipping your engine to a HFT warranty station as soon as a problem exists. Contact the HFT Customer Service department at the number below to make shipping arrangements. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact the Harbor Freight Tools Customer Service Department at 1-888-866-5797.



## Harbor Freight Tools Emission Control Defects Warranty Provisions

### 1. Length of Coverage

HFT warrants to a first retail purchaser and each subsequent purchaser that the engine is free from defects in materials and workmanship that cause the failure of warranted parts for a period of two (2) years after the date of delivery to the first retail purchaser.

### 2. No Charge Repair or Replacement

Repair or replacement of any warranted part will be performed at no charge to the owner if the work is performed through a warranty station authorized by HFT. For emissions warranty service, contact the HFT Customer Service Department at 1-888-866-5797.

### 3. Consequential Damages Coverage

Coverage under this warranty shall also extend to the failure of any engine components caused by the failure of any warranted part while it is still covered under this warranty.

### 4. Coverage Exclusions

Warranty claims shall be filed in accordance with the provisions of the HFT warranty policy explained in the box at the top of the previous page. HFT shall not be liable for any loss of use of the engine, for any alternative usage, for any damage to goods, loss of time, or inconvenience. Warranty coverage shall also be excluded for any part which fails, malfunctions, or is damaged due to failure to follow the maintenance and operating instructions set forth in the Owner's Manual including, but not limited to:

- a) Use of parts which are not authorized by HFT
- b) Improper installation, adjustment or repair of the engine or of any warranted part unless performed by an authorized warranty center
- c) Failure to follow recommendations on fuel use contained in the Owner's Manual
- d) Improper or inadequate maintenance of any warranted parts
- e) Repairs performed outside of the authorized warranty service dealers
- f) Alterations by changing, adding to or removing parts from the engine.

### 5. Service and Maintenance

Component parts which are not scheduled for replacement as required maintenance or are scheduled only for regular inspection to the effect of "repair or replace as necessary" are warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time up to the first scheduled replacement point for that part. Any replacement part, provided it is equivalent in durability and performance, may be used in performance of maintenance or repairs. The owner is responsible for commissioning a qualified technician/mechanic to perform all required maintenance, as outlined in the Inspection, Cleaning, and Maintenance section in this manual.

### 6. Warranted Parts

#### 1) Fuel Metering System

- i) Carburetor and its internal parts.
- ii) Fuel pump (if so equipped).
- iii) Cold start enrichment system.

#### 2) Air Induction System

- i) Intake pipe/manifold.
- ii) Air cleaner.

#### 3) Ignition System

- i) Spark plug.
- ii) Magneto ignition system.

#### 4) Catalyst System (if so equipped)

- i) Exhaust pipe stud.
- ii) Muffler.
- iii) Catalytic converter (if so equipped).

#### 5) Miscellaneous Items Used in Above Systems

- i) Vacuum, temperature and time sensitive valves and switches.
- ii) Hoses, belts, connectors, and assemblies.

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E N G I N E S

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# 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 near the assembly diagram (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.

## CENTRALPNEUMATIC®

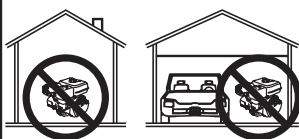
### 30<sup>GAL</sup> gas powered two-stage air compressor



#### **⚠ 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.

REV 14b

Visit our website at: <http://www.harborfreight.com>

Email our technical support at: [productsupport@harborfreight.com](mailto:productsupport@harborfreight.com)

**ITEM 56101**

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.

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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 .....	13
Specifications .....	5	Parts Lists and Diagrams .....	16
Setup .....	6	Warranty .....	20
Operation .....	9		

## 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	Property or Statement
	Revolutions Per Minute
	Horsepower
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.

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 Explosion.

## 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

- 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.
- Have multiple ABC class fire extinguishers nearby.
- 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.
- Set up and use only on a flat, level, well-ventilated surface.




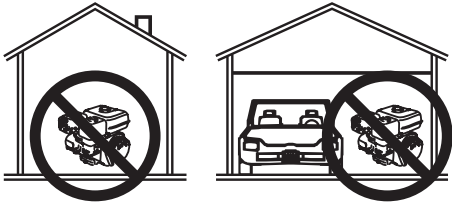

5. Use only lubricants and fuel recommended in the engine manual or in the Specifications chart of this manual.

6. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during set up.

## Engine Precautions

Follow engine precautions and instructions in the included engine instruction 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. 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.
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. Industrial applications must follow OSHA requirements.
9. 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.

10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. Do not overreach. Keep proper footing and balance at all times. This enables better control of the equipment in unexpected situations.
16. 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.
17. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
18. Do not cover the engine or equipment during operation.
19. Keep the equipment, engine, and surrounding area clean at all times.
20. 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.



21. Do not operate the equipment with known leaks in the engine's fuel system.
22. This product contains or, when used, produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, *et seq.*)
23. 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.
24. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
25. 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.
26. 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.

## 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 maximum stated 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. Do not use the air hose to move the compressor.
6. Drain Tank daily and after use. Internal rust causes tank failure and explosion.
7. **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.**
8. Compressor head gets hot during operation. Do not touch it or allow children nearby during or immediately following operation.
9. Release the pressure in the storage tank before moving.
10. The use of accessories or attachments not recommended by the manufacturer may result in a risk of injury to persons.
11. All air line components, including hoses, pipe, connectors, filters, etc., must be rated for a minimum working pressure of 125 PSI, or 150% of the maximum system pressure, whichever is greater.



**SAVE THESE INSTRUCTIONS.**



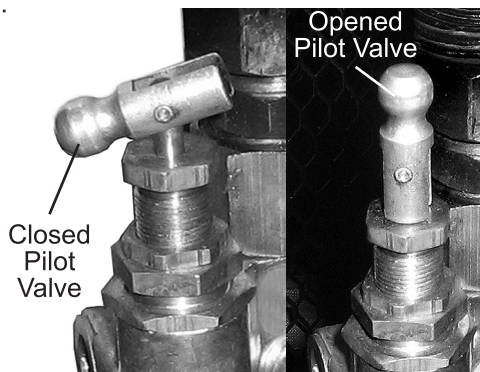
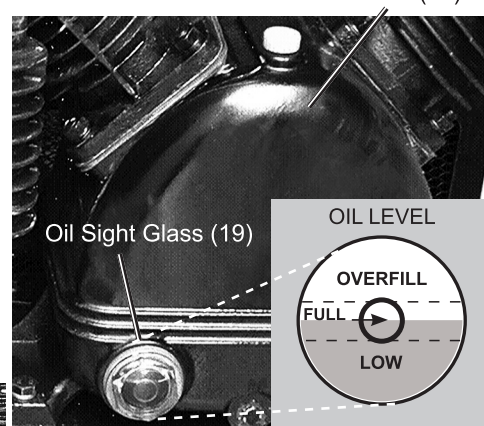
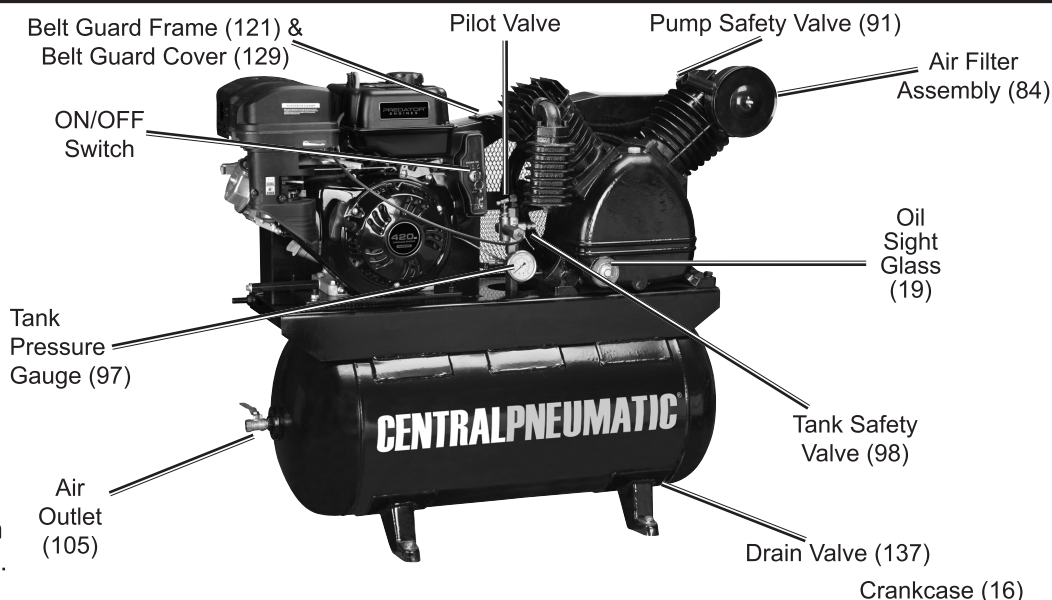
## Specifications

Pump	Two stage	Oil Capacity	61 oz. (1.8L)
Air Outlet Size	1/2"- NPT female	Oil Type	SAE 30W non-detergent Air Compressor Oil (Item 95048, sold separately)
Air Pressure	Auto Shut-Off @ 180 PSI Restart @ 140 PSI	Required Rotation	Counterclockwise viewed from PTO (Power TakeOff - the output shaft)
Air Tank Capacity	30 Gallons	Required Engine Idle Speed	2100 RPM $\pm$ 100 RPM
Air Flow Capacity	18 CFM @ 90 PSI 19.5 CFM @ 40 PSI		

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

## Engine Controls

- Belt Guard** - The Belt Guard encloses the pulleys and drive belts. It protects the user from the moving parts and allows the large pulley to direct cooling air to the Air Pump.
- Oil Sight Glass** - The oil sight glass shows proper level of the oil. Oil level should be at center of Sight Glass.
- Tank Drain Valve** - The Air Tank Drain Valve allows moisture to be removed from the tank to prevent corrosion.
- Safety Valve** - The Safety Valve automatically releases air if the Air Tank pressure exceeds the preset maximum. In an emergency, the ring can be pulled to relieve tank air pressure. There is one safety valve on the pump and one on the tank.
- Air Outlet** - An air hose attaches to this valve. Air pressure required by tools is set by an air pressure regulator.
- Air Storage Tank** - The Air Tank is where air pressurized by the Air Pump is stored for use.
- Tank Pressure Gauge** - The Air 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.





## Setup

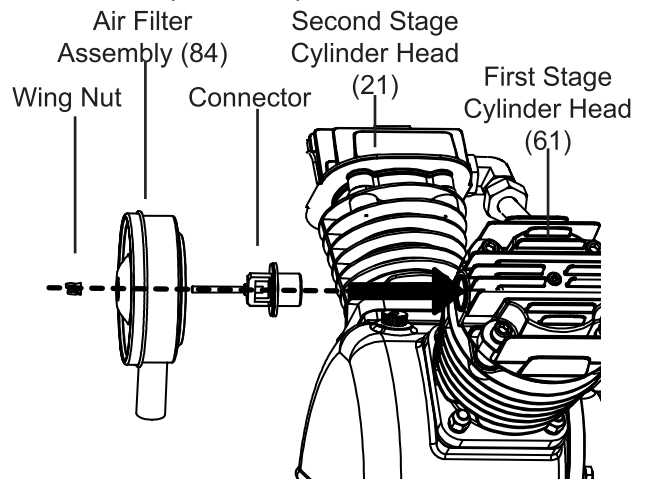
The emission control system for this Compressor's Engine is warranted for standards set by the U.S. Environmental Protection Agency and by the California Air Resources Board (also known as CARB). For warranty information, refer to the engine manual.

## Mounting to a Truck bed

1. Before mounting, if needed, reinforce the area with plywood or steel plating.
2. With assistance, move the compressor to the truck bed location and mark the floor of the 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 the compressor aside.
3. Drill the four 1/2" diameter holes through the truck bed and any reinforcing materials.
4. Set the compressor back in place, and align the foot holes with the pre-drilled holes. Use four 1/2" diameter, bolts, washers and lock washers (all not included) to secure the compressor in place.

## Assembly

To install the Air Filter Assembly (84), fit the Connector into the Air Filter Assembly and slide the assembly into the hole on the side of the First Stage Cylinder Head (61). Secure in place with the Wing Nut.



## Break-In Compressor

Break in the new Air Compressor as follows:

1. Make sure the engine is off. Open the air outlet valve on the left side of the tank.
2. Check all fluid levels in the engine and pump.
3. Start the engine following the General Operating Instructions.
4. Let the unit run for 30 minutes. Air will expel freely through the Coupler.
5. Turn OFF the engine.
6. Remove the male coupler.

## Connection

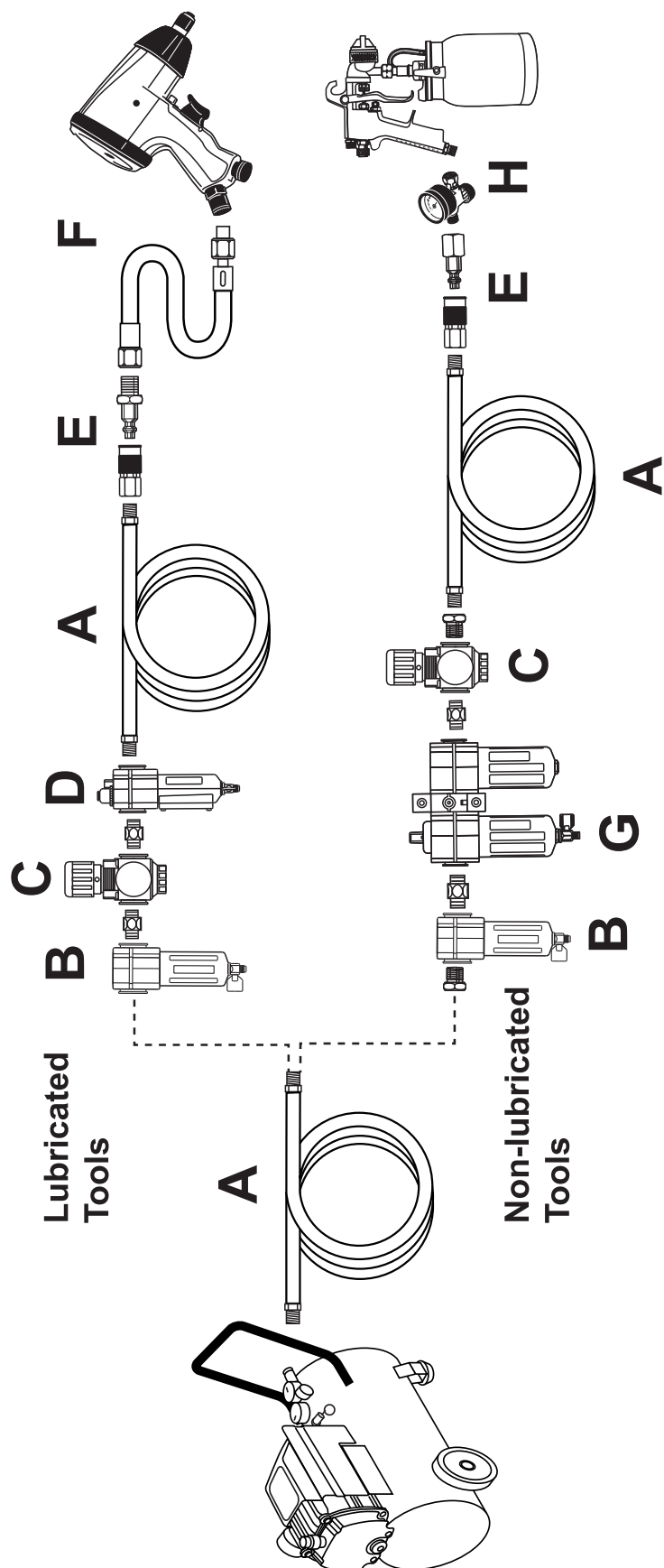
1. Connect a regulator valve, an in-line shut off valve and a 1/2" NPT air hose (all sold separately) to the Quick Coupler. The air hose must be long enough to reach the work area with enough extra length to allow free movement while working.

**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.

2. Depending on the tool which you will be using with this compressor, you may need to incorporate additional components, such as an in-line oiler, a filter, or a dryer (all sold separately). Consult your air tool's manual for needed accessories. See Typical Air Line Setup charts on the following pages. This is a truckbed compressor, so use the portable setup as a model.



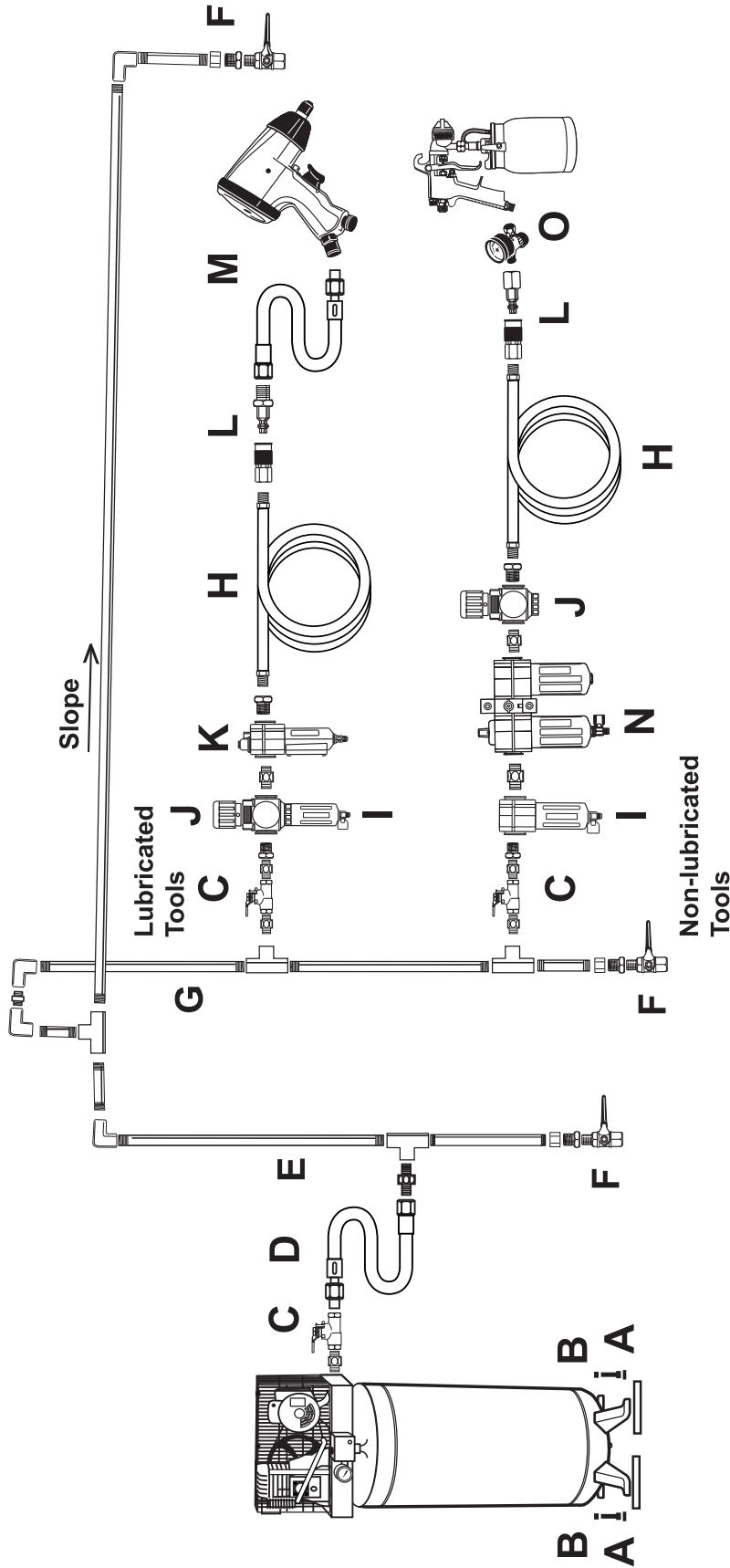
Figure A: Portable Air Supply Setup



	Description	Function
A	Air Hose	Connects air to tool
B	Filter	Prevents dirt and condensation from damaging tool or work piece
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 work piece
H	Air Adjusting Valve (optional)	For fine tuning airflow at tool



Figure B: Stationary Air Supply Setup



Description	Function
A Vibration Pads	For noise and vibration reduction
B Anchor Bolts	Secures air compressor in place
C Ball Valve	Isolates sections of system for maintenance
D Isolation Hose	For vibration reduction
E Main Air Line - 3/4" minimum recommended	Distributes air to branch lines
F Ball Valve	To drain moisture from system
G Branch Air Line - 1/2" minimum recommended	Brings air to point of use
H Air Hose	Connects air to tool
I Filter	Prevents dirt and condensation from damaging tool or work piece
J Regulator	Adjusts air pressure to tool
K Lubricator (optional)	For air tool lubrication
L Coupler and Plug	Provides quick connection and release
M Leader Hose (optional)	Increases coupler life
N Air Cleaner / Dryer (optional)	Prevents water vapor from damaging work piece
O Air Adjusting Valve (optional)	For fine tuning airflow at tool





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.

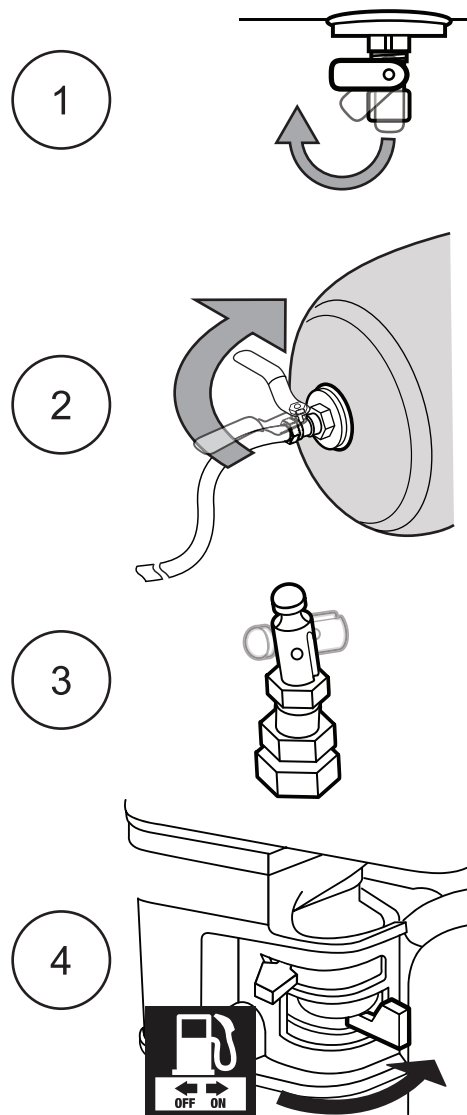
### Before starting the Compressor:



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

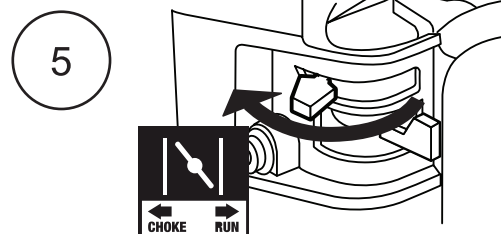
### To Start and Use the Compressor

- Close the Drain Valve (137) by turning the lever up so that it is perpendicular to the valve.
- Close the in-line Shutoff Valve between the compressor and the air hose.
- Open the Pilot Valve by rotating it to a vertical position.
- Open the Fuel Valve.



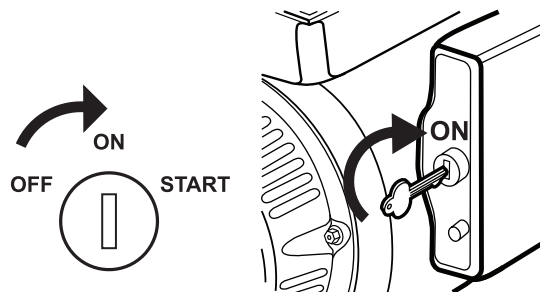


5. To start a cold engine, move the Choke to the CHOKE (start/closed) position.  
To restart a warm engine, leave the Choke in the RUN position.

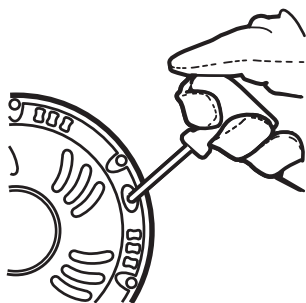


## 6. For MANUAL START

- a. Turn the Engine Switch to ON.



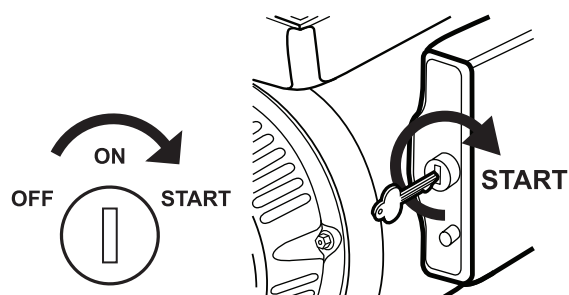
- b. Grip the Starter Handle of the Engine loosely and pull it slowly several times to allow the gasoline to flow into the Engine's carburetor. Then pull the Starter Handle gently until resistance is felt. Allow Cable to retract fully and then pull it quickly. Repeat until the engine starts. Note: Do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



## For ELECTRIC START

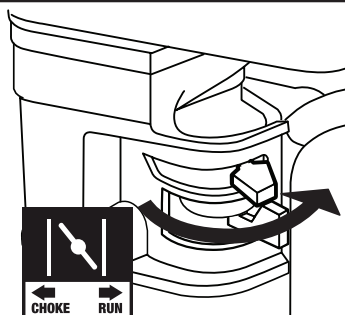
Turn the Engine Switch to START.

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

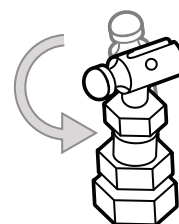


7. Allow the Engine to run for several seconds. Then, if the Choke lever is in the CHOKE position, move the Choke Lever very slowly to its RUN position.

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

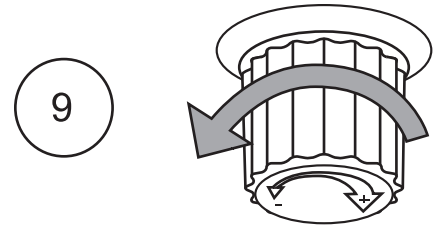


8. Close the Pilot Valve by rotating it to a horizontal position.





9. When the Gas Engine is started and running, the compressor Pump starts compressing air into the Air Tank. Open the in-line Shutoff 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.



**IMPORTANT:** Allow the 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.

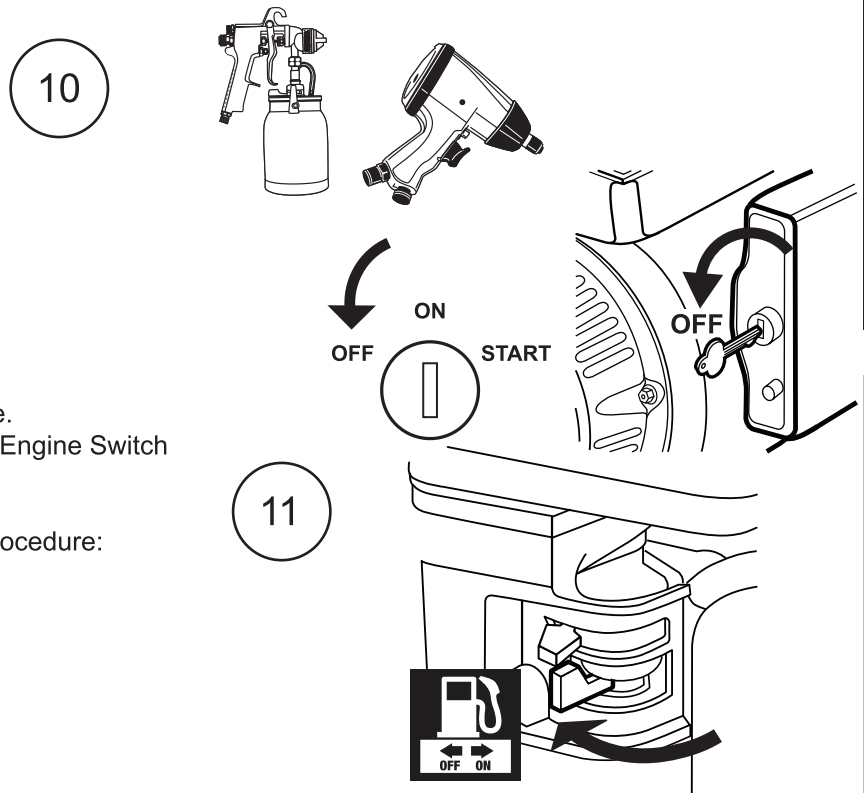
**Note:** When maximum tank pressure is reached, the compressor automatically disengages, and the engine RPM drops down to idle speed. The engine remains at idle until Air Tank pressure falls to a preset level. The Gas Engine will then accelerate and air pressure once again begins to build up in the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



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

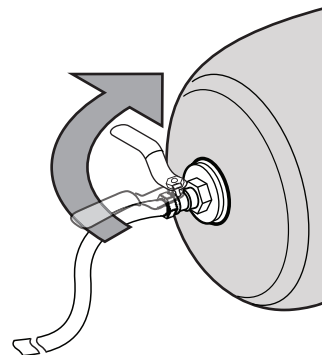
Under normal conditions, use the following procedure:

- Turn the Engine Switch off.
- Close the Fuel Valve.



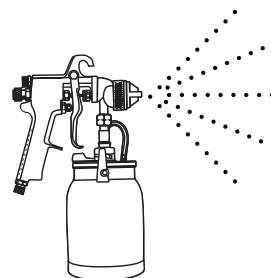
12. Close the in-line Shutoff Valve.

12



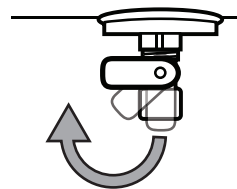
13. Bleed air from the tool then disconnect the tool.

13



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

14



15. Clean, then store the Air Compressor indoors.



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

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 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.



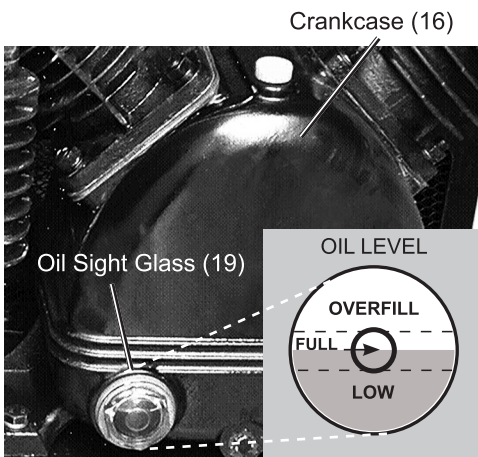
Many maintenance procedures, including any not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts about your ability to safely service the equipment or engine, have a qualified technician service the equipment instead.

## 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, you will need to replace the oil more frequently.

**Change the compressor oil after the first hour of use to remove any debris.**

## Adding Oil



1. The oil level should be at the center of the “full” level on the Oil Sight Glass, as shown above. Add oil as needed to maintain this level. Do not let the oil level go below the center dot (LOW as shown above) and do not overfill the oil so that it is above the center dot (OVERFILL as shown above) on the Oil Sight Glass.
2. To add oil:
  - a. Remove the Oil Plug (17).
  - 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 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 SAE 10W 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.

3. If uncertain which oil to use for this compressor, please call Harbor Freight Tools customer service at 1-800-1-888-866-5797 for assistance.

**WARNING!** To prevent serious injury from burns: Do not add or change the oil while the compressor is in operation. Allow the compressor to cool before replacing oil.



## Changing Oil

1. Place a container under the Drain Plug.
2. Remove the Oil Plug to allow air flow into the Pump.
3. Remove the Drain Plug, allowing the oil to drain into the container.
4. When the oil is completely drained from the Pump, replace the Drain Plug.
5. Fill the Pump with new compressor oil to the FULL level on the Oil Sight Glass.
6. Replace and tighten the Oil Plug.
7. Discard the 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 accessed daily to release all trapped air and moisture from the Tank. This will eliminate condensation which can cause tank corrosion. To empty the air and condensation:

1. Make sure the compressor engine is off.
2. Place a collection pan under the Drain Valve.
3. Open the Drain Valve by pivoting the lever on the bottom of the Compressor so the lever is in line with the Drain Valve.
4. When all the pressure is released, close the Drain Valve by pivoting the lever on the bottom of the compressor so that the lever is perpendicular to the Drain Valve.

## Air Filter Maintenance

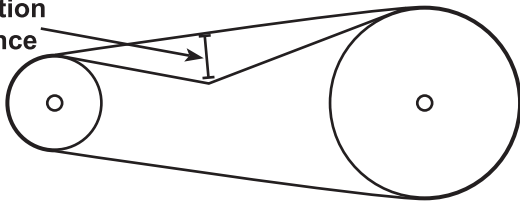
Check the Air Filter weekly to see if it needs replacement. If working in dirty environments, you may need to replace the filter more often. To replace the Air Filter:

1. Unthread the Wing Nut holding the Air Filter Assembly in place.
2. Remove the Air Filter Assembly.
3. Replace with a new Air Filter.
4. Secure in place with the Wing Nut.

## Adjusting Belt Tension

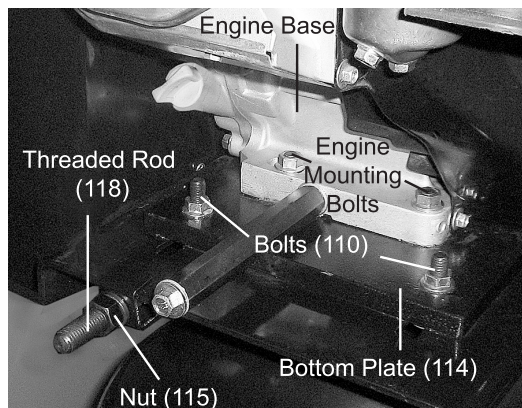
1. Remove the Belt Guard Cover (129) and set it aside.

**Deflection Distance**



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 Bolts (110) on the Bottom Plate (114) and moving the engine away from the other pulley slightly by turning the Nut (115) holding the Threaded Rod (118). Secure 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 Bolts on the Bottom Plate and moving the engine towards the other pulley slightly by turning the Nut (115) on the Threaded Rod (118). Secure engine mounting bolts and retest tension.
5. Before use, replace belt cover.





# Troubleshooting

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 2,200±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 EQUIPMENT SET UP, Equipment Oil Fill 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 and gaskets proven faulty on inspection. 5. Tighten Belts (See monthly maintenance.)



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

SAFETY

SETUP

OPERATION

MAINTENANCE



## PLEASE READ THE FOLLOWING CAREFULLY

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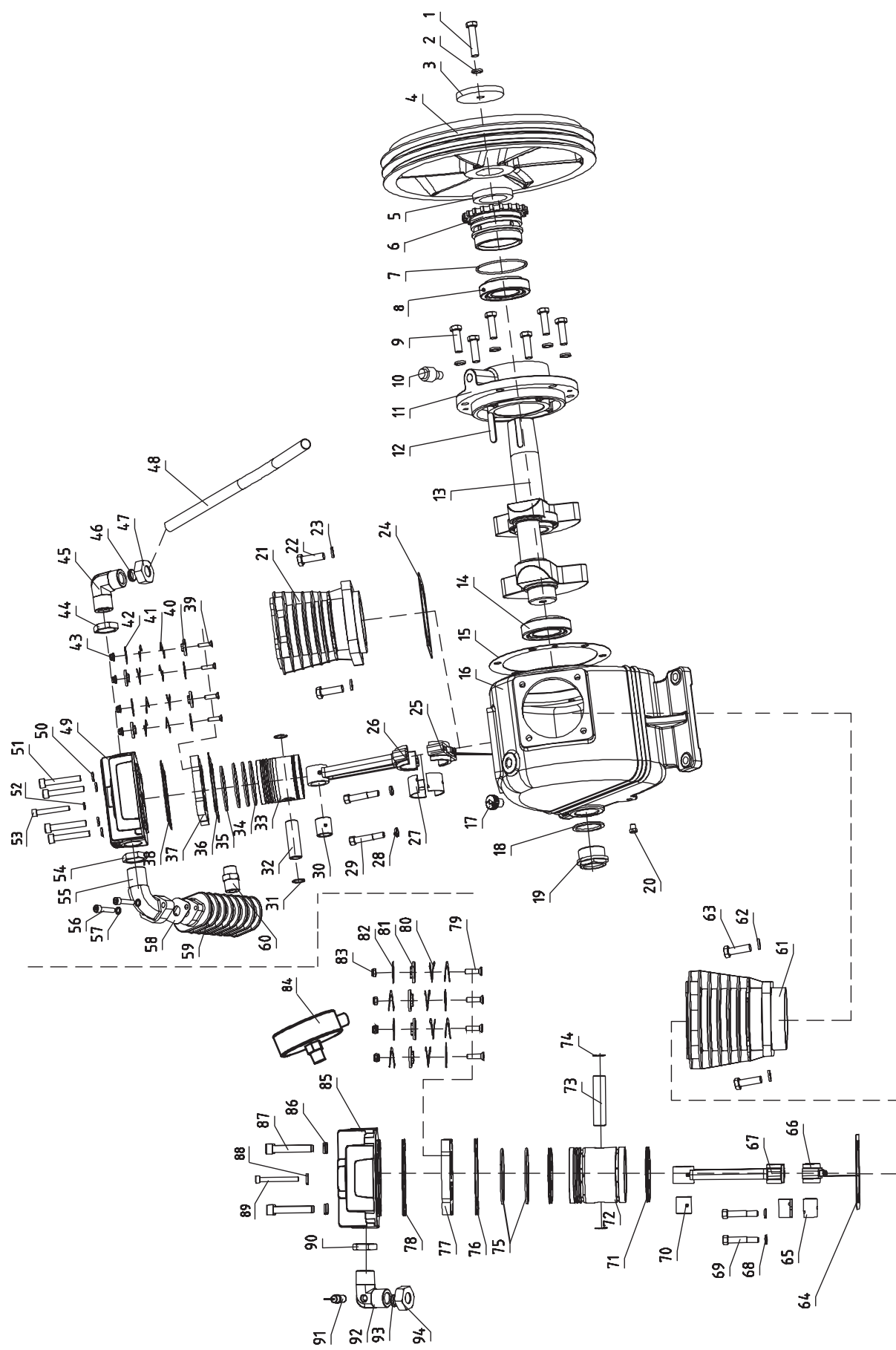
### Parts Lists and Diagrams

### Pump Parts List

Part	Description	Qty	Part	Description	Qty	Part	Description	Qty
1	Bolt M12×55	1	32	Pin	1	63	Spring Washer 12	4
2	Spring Washer 12	1	33	Piston	1	64	Gasket	1
3	Flat Washer	1	34	Wiper Ring	2	65	Bushing	2
4	Drive Pulley	1	35	Piston Ring	2	66	Connecting Rod A	1
5	Oil Seal Circle	1	36	Gasket	1	67	Connecting Rod B	1
6	Flange Plate	1	37	Valve	1	68	Spring Washer 10	2
7	O-ring Ø85	1	38	Aluminum Seal	1	69	Bolt M10×55	2
8	Bearing	1	39	Bolt M6×25	4	70	Bushing	1
9	Bolt M12×40	6	40	Valve Stop Block	4	71	Wiper Ring	2
10	Oil Breather	1	41	Spring	8	72	Piston	1
11	Crank Case End Cover	1	42	Valve Plate	4	73	Pin	1
12	Flat Key	1	43	Nut M6	4	74	Clip	2
13	Crankshaft	1	44	Lock Nut	1	75	Piston Ring	2
14	Bearing	1	45	Elbow	1	76	Gasket	1
15	Gasket	1	46	Taper Sleeve	1	77	Valve	1
16	Crankcase	1	47	Nut	1	78	Aluminum Seal	1
17	Oil Plug	1	48	Brass Tube	1	79	Bolt M8×30	4
18	Gasket	1	49	Cylinder Head	1	80	Spring	8
19	Oil Sight Glass	1	50	Spring Washer	4	81	Restrictor	4
20	Drain Oil Bolt	1	51	Bolt M10×65	4	82	Valve Plate	4
21	Second Stage Cylinder Head	1	52	Bolt M8×60	1	83	Nut M8	4
22	Bolt M12×40	4	53	Spring Washer 10	1	84	Air Filter Assembly	1
23	Spring Washer 12	4	54	Nut	1	85	Cylinder Head	1
24	Gasket	1	55	Elbow	1	86	Spring Washer 12	4
25	Connecting Rod A	1	56	Bolt M8×35	2	87	Bolt M12×70	4
26	Connecting Rod B	1	57	Spring Washer 8	2	88	Spring Washer 8	4
27	Bearing Shell	2	58	Gasket	1	89	Bolt M8×70	4
28	Spring Washer 10	4	59	Radiator	1	90	Nut	1
29	Bolt M10×55	2	60	Connector	1	91	Pump Safety Valve	1
30	Bushing	1	61	First Stage Cylinder Head	1	92	Elbow	1
31	Clip	2	62	Bolt M12×40	4	93	Taper Sleeve	1
						94	Nut	1



# Pump Assembly Diagram



SAFETY

SETUP

OPERATION

MAINTENANCE



## Tank Parts List

SAFETY

Part	Description	Qty
95	Tank	1
96	Connector	1
97	Pressure Gauge	1
98	Tank Safety Valve	1
99	Unloader Valve	1
100	Throttle Control	1
101	Connector	1
102	Taper Sleeve	2
103	Pipe Nut	2
104	Brass Tube	1
105	Air Outlet	1
106	Engine	1
107	Bolt M10×40	4
108	Nut M10	4
109	Bracket	1

SETUP

Part	Description	Qty
110	Bolt M10×50	4
111	Nut M10	4
112	Washer 8	1
113	Bolt M8×20	1
114	Bottom Plate	1
115	Nut M14	1
116	Spring Washer 14	1
117	Bracket	1
118	Threaded Rod	1
119	Bolt M6×20	1
120	Belt Guard Bracket A	1
121	Belt Guard Frame	1
122	Belt	2
123	Driven Pulley	1
124	Key	1

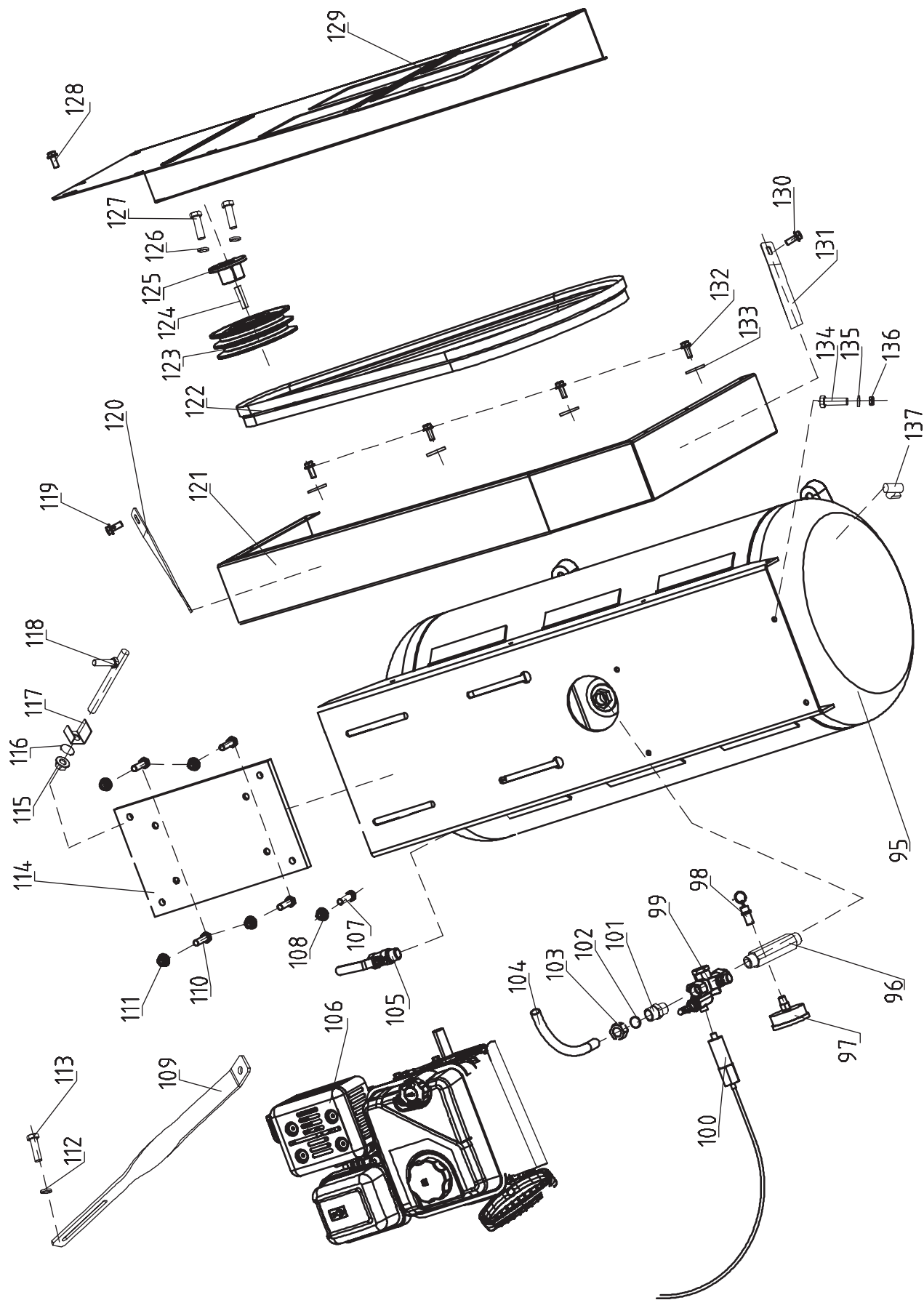
Part	Description	Qty
125	Bushing	1
126	Spring Washer 8	2
127	Bolt M8×30	2
128	Bolt M6×10	11
129	Belt Guard Cover	1
130	Bolt M6×10	1
131	Belt Guard Bracket B	1
132	Bolt M8×16	4
133	Washer 8	4
134	Bolt M12×45	4
135	Spring Washer 12	4
136	Bolt M12	2
137	Drain Valve	1

OPERATION

MAINTENANCE



# Tank Assembly Diagram



SAFETY

SETUP

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.

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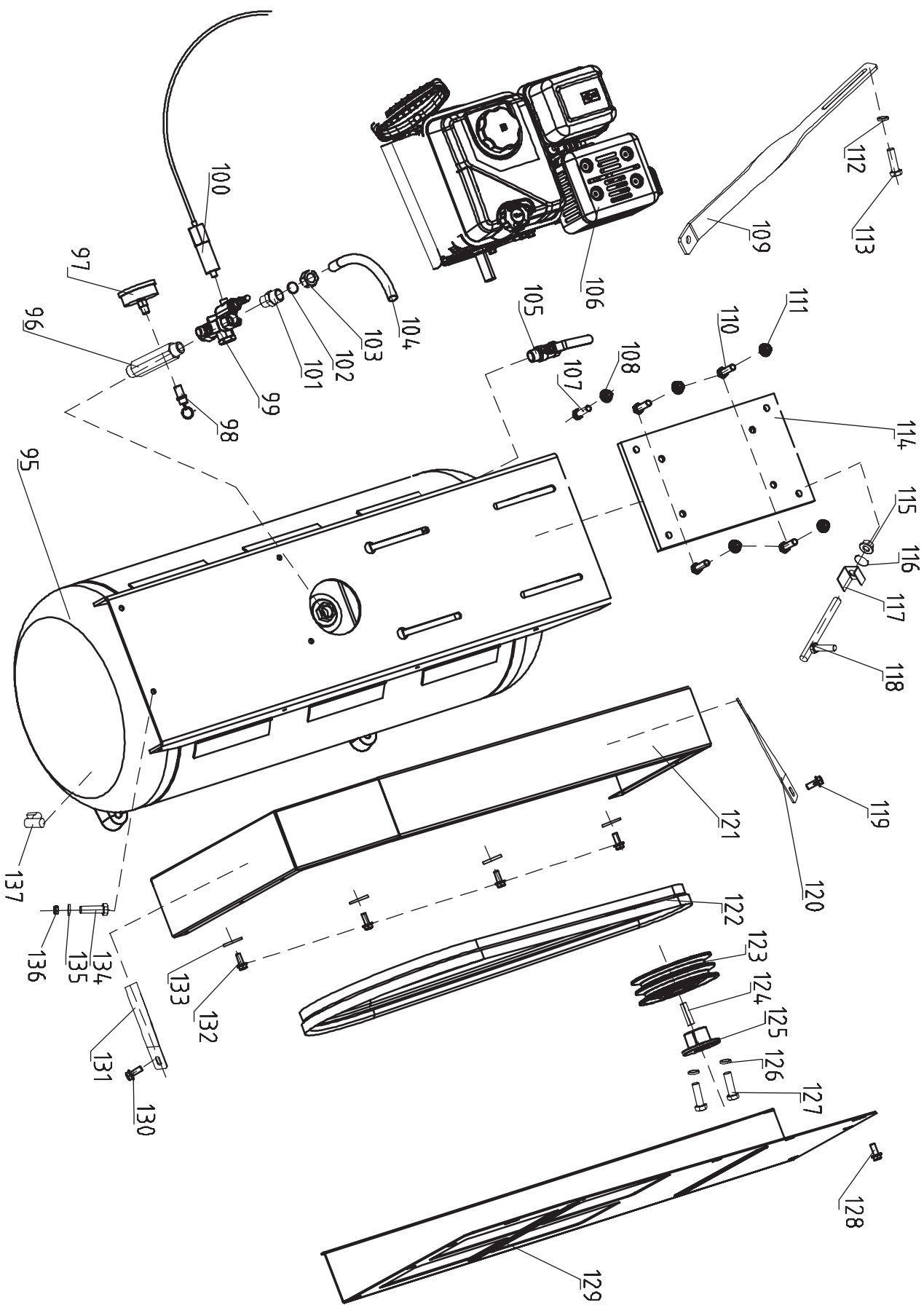
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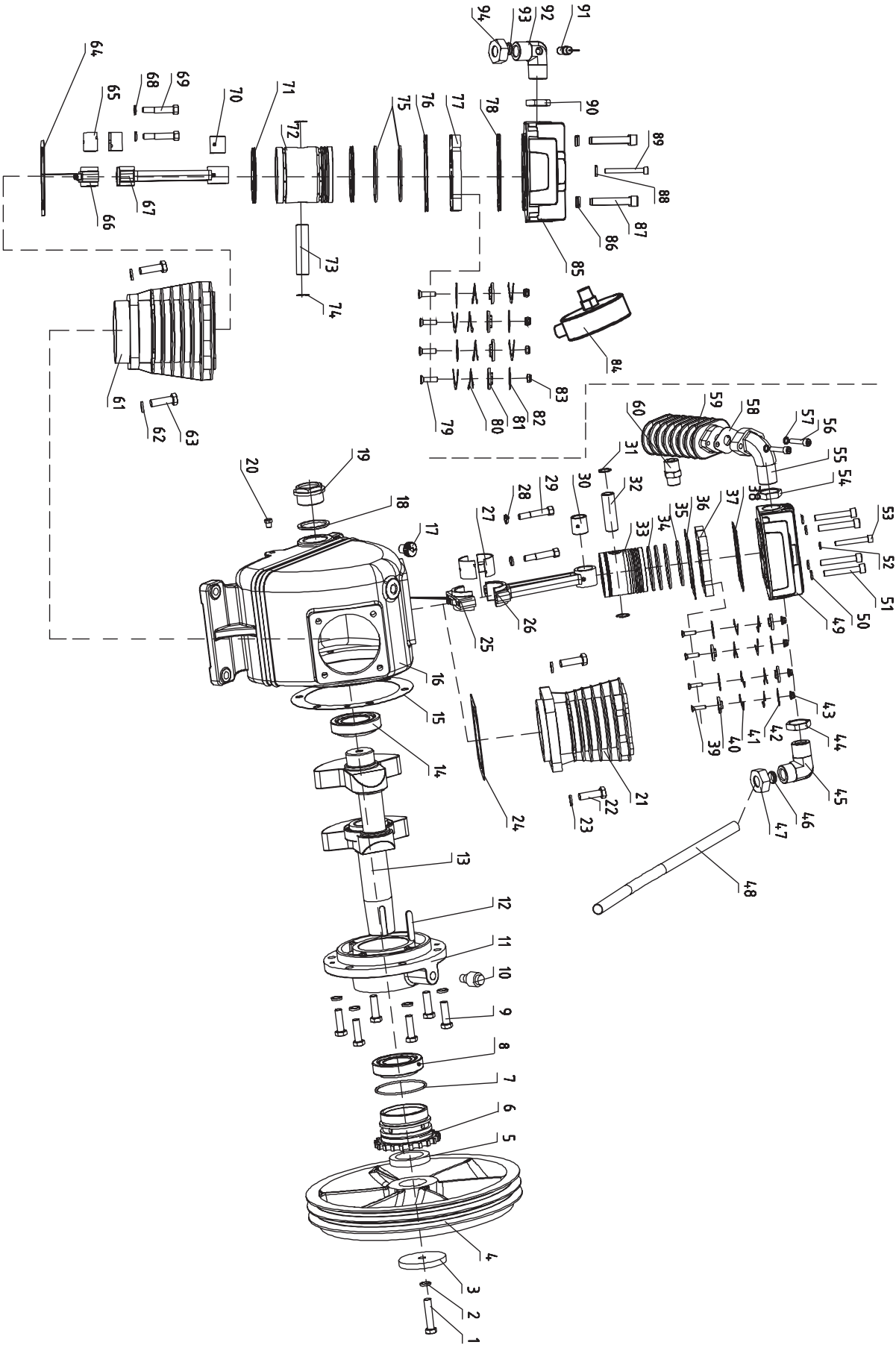
Lista de piezas del tanque

Pieza	Descripción
95	Tanque
96	Conector
97	Manómetro
98	Válvula de seguridad del tanque
99	Válvula de descarga
100	Control del regulador
101	Conector
102	Manguito cónico
103	Tuerca para tubo
104	Tubo de bronce
105	Salida de aire
106	Motor
107	Perno M10×40
108	Tuerca M10
109	Soporte

Pieza	Descripción
110	Perno M10×50
111	Tuerca M10
112	Arandela 8
113	Perno M8×20
114	Placa inferior
115	Tuerca M14
116	Arandela de resorte 14
117	Soporte
118	Vástago roscado
119	Perno M6×20
120	Soporte A del cubrecorrea
121	Bastidor del cubrecorrea
122	Correa

Pieza	Descripción
123	Polea motriz
124	Cuña
125	Cojinete
126	Arandela de resorte 8
127	Perno M8×30
128	Perno M6×10
129	Tapa del cubrecorrea
130	Perno M6×10
131	Soporte B del cubrecorrea
132	Perno M8×16
133	Arandela 8
134	Perno M12×45
135	Arandela de resorte 12
136	Perno M12
137	Válvula de drenaje







POR FAVOR, LEA ESTO CON DETENIMIENTO

EL FABRICANTE Y/O DISTRIBUIDOR HA PROPORCIONADO LA LISTA DE PIEZAS Y EL DIAGRAMA DE MONTAJE QUE SE MUESTRAN EN ESTE MANUAL ÚNICAMENTE COMO HERRAMIENTA DE REFERENCIA. NI EL FABRICANTE NI EL DISTRIBUIDOR ASEVERAN O GARANTIZAN DE NINGÚN MODO QUE EL/LA COMPARADOR(A) ESTÉ CALIFICADO(A) PARA REALIZAR REPARACIONES AL PRODUCTO, NI QUE EL/LA ESTÉ CALIFICADO(A) PARA REEMPLAZAR NINGUNA PIEZA DEL PRODUCTO. EN REALIDAD, EL FABRICANTE Y/O EL DISTRIBUIDOR DEJAN EXPRESA CONSTANCIA DE QUE TODAS LAS REPARACIONES Y REEMPLAZOS DE PIEZAS DEBEN SER EFECTUADOS POR TÉCNICOS DIPLOMADOS Y CERTIFICADOS, Y NO POR EL/LA COMPARADOR(A). EL/LA COMPARADOR(A) ASUME TODOS LOS RIESGOS Y RESPONSABILIDADES QUE PUEDAN DERIVARSE DE LAS REPARACIONES DEL PRODUCTO ORIGINAL O DE LAS PIEZAS QUE REEMPLACE, O QUE PUEDAN DERIVARSE DE LA INSTALACIÓN DE PIEZAS DE REEMPLAZO QUE REALICE.

Listas de piezas y diagramas

Lista de piezas de la bomba

Pieza	Descripción	1	Perno M12x55	1
		2	Arandela de resorte 12	1
3	Arandela plana	1		
4	Polea motriz	1		
5	Círculo del retén	1		
6	Chapa rebordada	1		
7	Junta tórica Ø85	1		
8	Cojinete	1		
9	Perno M12x40	6		
10	Respiradero de aceite	1		
11	Cubierta del extremo del cigüeñal	1		
12	Espeja plana	1		
13	Cigüeñal	1		
14	Cojinete	1		
15	Junta	1		
16	Cárter	1		
17	Tapón del depósito de aceite	1		
18	Junta	1		
19	Minilla de nivel de aceite	1		
20	Perno de drenaje de aceite	1		
21	Cabeza del cilindro de la segunda fase	1		
22	Perno M12x40	4		
23	Arandela de resorte 12	4		
24	Junta	1		
25	Varilla de acoplamiento A	1		
26	Varilla de acoplamiento B	1		
27	Casquillo de cojinete	2		
28	Arandela de resorte 10	4		
Pieza	Descripción	29	Perno M10x55	2
		30	Cojinete	1
		31	Broche	2
		32	Pasador	1
		33	Pistón	1
		34	Anillo rascador	2
		35	Aro de pistón	2
		36	Junta	1
		37	Válvula	1
		38	Sello de aluminio	1
		39	Perno M6x25	4
		40	Bloque de tope de válvula	4
		41	Resorte	8
		42	Platillo de válvula	4
		43	Tuerca M6	4
		44	Tuerca de retención	1
		45	Codo	1
		46	Manguito cónico	1
		47	Tuerca	1
		48	Tubo de bronce	1
		49	Cabeza del cilindro	1
		50	Arandela de resorte	4
		51	Perno M10x65	4
		52	Perno M8x60	4
		53	Arandela de resorte 10	1
		54	Tuerca	1
		55	Codo	1
		56	Perno M8x35	2
		57	Arandela de resorte 8	2
		58	Junta	1
		59	Radiador	1
		60	Conector	1
		61	Cabeza del cilindro de la primera fase	1
		62	Perno M12x40	4
Pieza	Descripción	63	Arandela de resorte 12	4
		64	Junta	1
		65	Cojinete	2
		66	Varilla de acoplamiento A	1
		67	Varilla de acoplamiento B	1
		68	Arandela de resorte 10	2
		69	Perno M10x55	2
		70	Cojinete	1
		71	Anillo rascador	2
		72	Pistón	1
		73	Pasador	1
		74	Broche	2
		75	Aro de pistón	2
		76	Junta	1
		77	Válvula	1
		78	Sello de aluminio	1
		79	Perno M8x30	4
		80	Resorte	8
		81	Limitador	4
		82	Platillo de válvula	4
		83	Tuerca M8	4
		84	Estructura del filtro de aire	1
		85	Cabeza del cilindro	1
		86	Arandela de resorte 12	4
		87	Perno M12x70	4
		88	Arandela de resorte 8	4
		89	Perno M8x70	4
		90	Tuerca	1
		91	Válvula de seguridad de la bomba	1
		92	Codo	1
		93	Manguito cónico	1
		94	Tuerca	1

SEGURIDAD

CONFIGURACIÓN

FUNCIONAMIENTO

MANTENIMIENTO



Resolución de problemas

Problema	Causas posibles	Soluciones probables
El motor no enciende	ESPECÍFICOS DEL COMPRESOR:  1. La válvula piloto está cerrada. 2. El tanque ya está presurizado.	ESPECÍFICOS DEL COMPRESOR: 1. Abra la válvula piloto antes de comenzar el procedimiento; ciérrela cuando la unidad ya esté funcionando. 2. Encienda el motor. El compresor no enciende como debería hacerlo cuando la presión alcanza el nivel preestablecido.
El compresor se recalienta	1. Lubricación incorrecta o insuficiente. 2. Piezas gastadas.	1. Lubrique según las instrucciones, utilizando aceite o grasa recomendados. 2. Solicite a un técnico calificado que inspeccione el mecanismo interno y, de ser necesario, reemplace las piezas.
Pronunciada fuga de aire	1. Sellado deficiente de la salida de aire. 2. Cilindro flojo/cabeza de cilindro floja. 3. Válvula o carcasa dañadas. 4. Válvula sucia, gastada o dañada.	1. Ajuste o vuelva a conectar utilizando cinta para sellado de roscas. 2. Ajuste la estructura del cilindro/de la cabeza del cilindro. Si no es posible ajustar el cilindro/la cabeza del cilindro de manera adecuada, es posible que las piezas internas estén desalineadas. 3. Reemplace los componentes dañados. 4. Limpie o reemplace el mecanismo de la válvula.
La unidad se detiene	1. Bajo ralentí del motor. 2. Filtro de aire extremadamente tapado. 3. Lubricación inadecuada. 4. Válvula piloto/de descarga defectuosa.	1. Un técnico calificado debe aumentar el ralentí a 2200±100 RPM ajustando el interruptor de presión. 2. Cambie el filtro de aire. 3. Verifique que el nivel de aceite sea adecuado. 4. Cambie la válvula piloto.
Ruido excesivo	1. Polea motriz o polea volante flojas. 2. Poleas mal alineadas. 3. Falta de aceite en el cárter. 4. Varilla de acoplamiento gastada. 5. El cojinete del muñón está gastado. 6. Rodamientos gastados. 7. Correas flojas.	1. Las poleas flojas son causa frecuente de "golpeteo". Ajuste los pernos apropiados. 2. Alinee las poleas con regla y ajústelas en su lugar. 3. Verifique que el nivel de aceite sea adecuado. 4. Reemplace la varilla de acoplamiento. 5. Quite el conjunto del pistón y cambie las piezas necesarias. 6. Cambie los rodamientos y el aceite. 7. Verifique que la tensión de la correa sea la adecuada.
Hay aceite en el aire de escape	1. Tipo incorrecto de aceite o aceite de baja calidad. 2. Recalentamiento. 3. Aire de admisión restringido. 4. Aros de pistón gastados. 5. Exceso de humedad en el tanque.	1. Cambie el aceite. Consulte las recomendaciones sobre aceite en la sección "INSTALACIÓN DEL EQUIPO, Cómo colocar aceite en el equipo" de este manual. 2. Vea más arriba la sección "Ruido excesivo". 3. Limpie o reemplace el filtro de aire. 4. Reemplace los aros de pistón. 5. Drene la humedad del tanque todos los días.
Baja presión de descarga	1. Hay una fuga de aire. 2. Hay fugas en las válvulas. 3. Admisión de aire restringida. 4. Las juntas reventaron. 5. Las correas patinan.	1. Escuche para detectar por dónde escapa el aire. Aplique solución jabonosa a todos los acoples y conexiones. En los lugares donde haya fugas se formarán burbujas. Ajuste o reemplace los acoples o conexiones donde haya fugas. 2. Extraiga el cabezal e inspeccione para determinar si existe rotura de válvulas, válvulas frágiles, placa de válvula con muescas, etc. Reemplace las piezas defectuosas y vuelva a instalar. Vuelva a colocar la junta de culata cada vez que extraiga el cabezal. 3. Limpie o reemplace el filtro de aire. 4. Reemplace las juntas que en la inspección encuentre defectuosas. 5. Ajuste las correas (Consulte la sección "Mantenimiento mensual").
Siga todas las precauciones de seguridad cada vez que realice tareas de diagnóstico o reparación al equipo o motor.		

SEGURIDAD

CONFIGURACIÓN

FUNCIONAMIENTO

MANTENIMIENTO



## Cómo cambiar el aceite

1. Coloque un recipiente debajo del tapón de drenaje.
2. Quite el tapón de aceite para permitir que fluya aire al interior de la bomba.
3. Quite el tapón de drenaje, permitiendo que el aceite drene al recipiente.
4. Cuando el aceite haya drenado por completo de la bomba, vuelva a colocar el tapón de drenaje.
5. Llene la bomba con aceite para compresores nuevo hasta el nivel FULL de la mirilla de nivel de aceite.
6. Vuelva a colocar y a ajustar el tapón de aceite.
7. Al descartar el aceite viejo, cumpla con las disposiciones locales, estatales y federales.

## Cómo drenar la humedad del tanque

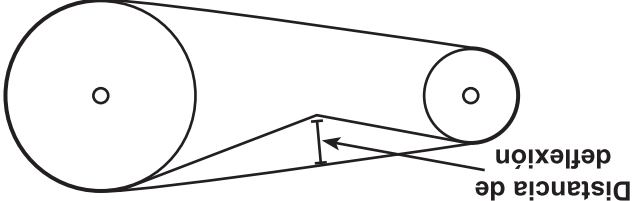
1. Abra la válvula de drenaje pivotando la palanca ubicada en la base del compresor de modo que quede alineada con la válvula de drenaje.
2. Cuando se haya liberado toda la presión, cierre la válvula de drenaje pivotando la palanca ubicada en la base del compresor de modo que quede perpendicular a la válvula de drenaje.
3. Coloque una bandeja recolectora debajo de la válvula de drenaje.
4. Asegúrese de que el motor del compresor esté apagado.
5. Debe utilizarse diariamente para liberar todo el aire y la humedad atrapados en el tanque. Esto eliminará la condensación, que podría producir corrosión en el tanque. Para drenar el aire y la condensación:

## Mantenimiento del filtro de aire

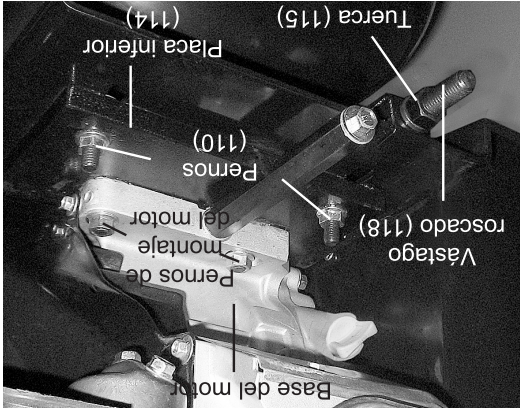
- Revise el filtro de aire todas las semanas para ver si hace falta reemplazarlo. Si trabaja en ambientes con suciedad, es posible que necesite reemplazarlo con más frecuencia. Para reemplazar el filtro de aire:
1. Desenrosque la tuerca de mariposa que sostiene la estructura del filtro de aire en su lugar.
  2. Extraiga la estructura del filtro de aire.
  3. Reemplácelo por un filtro de aire nuevo.
  4. Fíje en su lugar con la tuerca de mariposa.

## Cómo ajustar la tensión de la correa

1. Quite la tapa del cubrecorrea (129) y déjela aparte.
2. Con los dedos, presione de forma moderada (4–4,5 lb.) en el centro del tramo más largo de correa. Luego, mida la distancia de deflexión (es decir, la distancia que se movió la correa). La deflexión de la correa debe ser de entre 1/2" y 1".



3. Si alguna de las correas se desvía demasiado, ajústela aflojando los cuatro pernos (110) de la placa inferior (114) y apartando ligeramente el motor de la otra polea girando la tuerca (115) que sostiene el vástago roscado (118). Ajuste los pernos de montaje del motor y vuelva a examinar la tensión. Si alguna de las correas está demasiado larga como para tensarla adecuadamente, ambas correas deben ser reemplazadas.
4. Si alguna de las correas se desvía demasiado poco, aflojela desajustando los cuatro pernos de la placa inferior (114) y moviendo ligeramente el motor hacia la otra polea girando la tuerca (115) del vástago roscado (118). Ajuste los pernos de montaje del motor y vuelva a examinar la tensión.
5. Antes de utilizar la unidad, vuelva a colocar la tapa del cubrecorrea.





ADVERTENCIA

**PARA EVITAR LESIONES GRAVES CONSECUENCIA DE UN ARRANQUE ACCIDENTAL:**  
Gire el interruptor de alimentación del equipo a la posición "OFF" (APAGADO), libere la presión del tanque de aire, permita que el motor se enfríe y desconecte la tapa de la bujía antes de realizar cualquier inspección, tarea de mantenimiento o procedimiento de limpieza.

**PARA EVITAR LESIONES GRAVES OCASIONADAS POR UN FUNCIONAMIENTO DEFECTUOSO DEL EQUIPO:**  
No utilice el equipo si está dañado. Si detecta ruidos o vibraciones anormales o hay exceso de humo, corrija el problema antes de su uso.

Siga todas las instrucciones para mantenimiento que brinda este manual. Si no se efectúa un mantenimiento técnico adecuado, el motor puede presentar fallas críticas.

Por cuestiones de seguridad, muchos procedimientos de mantenimiento, incluyendo cualquiera que no esté detallado en este manual, deberán estar a cargo de un técnico calificado. Si duda de su capacidad para realizar tareas de mantenimiento al equipo o al motor en condiciones seguras, solicite los servicios de un técnico calificado.

Mantenimiento del aceite de la bomba del compresor

Verifique periódicamente que el aceite esté limpio. Cambie el aceite si éste tiene aspecto lechoso o si advierte la presencia de residuos, o bien cámbielo cada 6 meses o 100 horas de funcionamiento (lo que ocurra primero). En ambientes extremos, como por ejemplo climas muy calurosos o de alto nivel de humedad, necesitará cambiar el aceite con más frecuencia.

Cambie el aceite del compresor después de la primera hora de uso, para eliminar cualquier residuo.

Cómo agregar aceite



1. El nivel de aceite debe encontrarse en el centro del nivel "full" (lleno) de la mirilla de aceite, como se muestra arriba. Agregue aceite según sea necesario para mantener ese nivel. No permita que el nivel de aceite llegue a estar por debajo del punto central [LOW (BAJO)], como se muestra arriba], y no llene de aceite en exceso de modo tal que el nivel de aceite esté por encima del punto central [OVERFILL (EXCESO)], como se muestra arriba] de la mirilla de nivel de aceite.
2. Para agregar aceite:
  - a. Retire el tapón de aceite (17).

Funcionamiento en clima frío

- b. Utilizando un embudo para evitar derrames, vierta en el cárter de la bomba aceite suficiente para llegar al nivel "full" (lleno) de la mirilla de nivel de aceite.
- c. Vuelva a colocar el tapón de aceite.

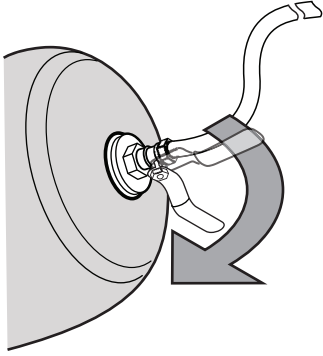
El aceite para compresor de aire calidad Premium peso 30, sin detergente (se vende por separado) es recomendado para el uso con este compresor. Si la temperatura en el exterior es inferior a 32° F, haga arrancar el compresor en un área calefaccionada. Si esto no resulta práctico, drene el aceite viejo de la bomba y utilice aceite para compresores de aire SAE 10W sin detergente en el cárter de la bomba cuando la temperatura del compresor sea menor a 40°. No utilice aceite de viscosidad múltiple (como 10W-30), pues deja depósitos de carbono en los componentes de la bomba y lleva a fallo acelerado del equipo. Cuando se realicen trabajos pesados, es posible que se necesite aceite de mayor viscosidad.

3. Si tiene dudas acerca de qué aceite utilizar para este compresor, llame a Servicios al Cliente de Harbor Freight Tools al 1-888-866-5797 para recibir asistencia.

**ADVERTENCIA!** Para evitar lesiones graves por quemaduras: No agregue ni cambie el aceite mientras el compresor esté funcionando. Espere a que el compresor se enfríe antes de cambiar el aceite.

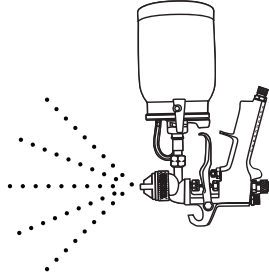


- a. Coloque el interruptor del motor en la posición "OFF" (APAGADO).
- b. Cierre la válvula de combustible.



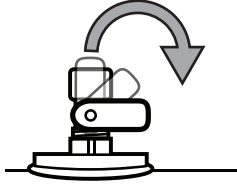
12

13. Purgue el aire de la herramienta; luego, desconéctela.



13

14. Abra la válvula de drenaje ubicada en la base del tanque, para liberar cualquier humedad acumulada y la presión interna del tanque.



14

15. Limpie el compresor de aire; luego, guárdelo bajo techo.



9. Cuando el motor de gasolina ya ha arrancado y está funcionando, la bomba del compresor comienza a comprimir aire hacia el interior del tanque de aire. Abra la válvula de corte en línea y ajuste el regulador de presión (se vende por separado) de modo que la salida de aire sea suficiente para alimentar adecuadamente a la herramienta, pero que la salida no exceda la presión máxima de aire de la herramienta en ningún momento. Gire la perilla en el sentido de las agujas del reloj para aumentar la presión, y en sentido contrario al de las agujas del reloj para disminuir la presión. Regule la presión poco a poco, mientras comprueba el indicador de salida de aire para configurar el rango de presión correcto.

**IMPORTANTE:** Permita que el motor funcione sin carga durante cinco minutos después de cada arranque, para que pueda estabilizarse.

#### Periodo de asentamiento de mantenimiento:

Asentar el motor ayudará a garantizar un funcionamiento adecuado del equipo y del motor. El periodo de asentamiento **de mantenimiento** corresponderá a aproximadamente 20 horas de uso. Transcurrido ese periodo, cambie el aceite del motor.

En condiciones normales de funcionamiento, ulteriores tareas de mantenimiento siguen el cronograma que se detalla en la sección MANTENIMIENTO Y SERVICIO TÉCNICO.

**Nota:** Cuando se alcanza la presión máxima en el tanque, el compresor se desactiva automáticamente, y las RPM del motor disminuyen a velocidad de ralentí. El motor permanecerá en ralentí hasta que la presión del tanque de aire caiga a un nivel predeterminado. Luego, el motor de gasolina se acelerará y la presión de aire volverá a acumularse en el tanque de aire nuevamente.

**Nota:** Mientras el motor esté operando, el funcionamiento del compresor de aire será automático, controlado por un interruptor de presión interna.

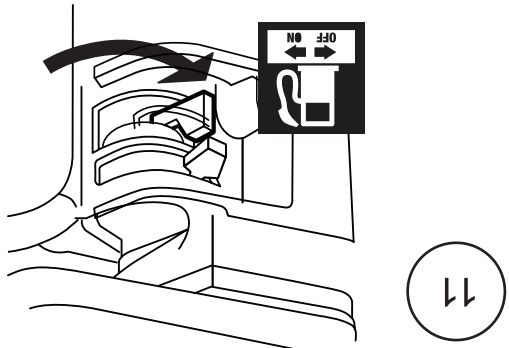
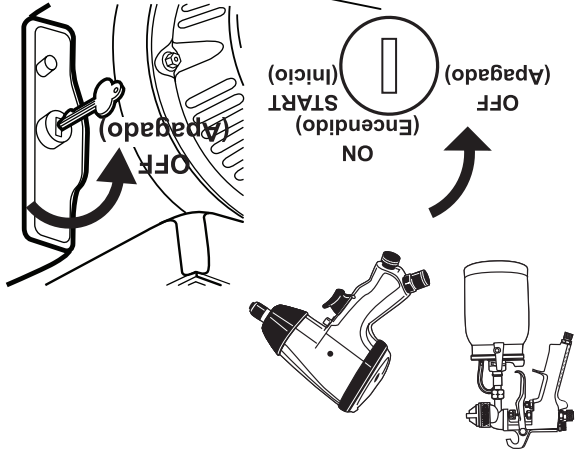
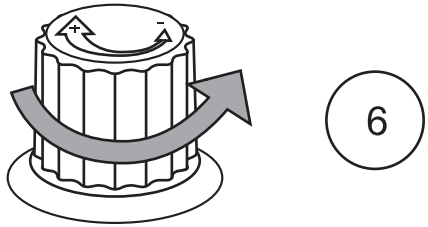
**IMPORTANTE:** El interruptor de presión interna no puede ser regulado por el usuario; **no modifique los parámetros de presión de aire del interruptor de presión interna.** Cualquier cambio en los niveles automáticos de presión puede hacer que se acumule un exceso de presión, generando una situación peligrosa.

**Nota: Despresurización** - De ser necesario *despresurizar* rápidamente el compresor, apague el motor. Luego, tire del anillo de la válvula de seguridad del tanque para liberar la presión de aire almacenada.

10. Utilice la herramienta neumática como necesite.

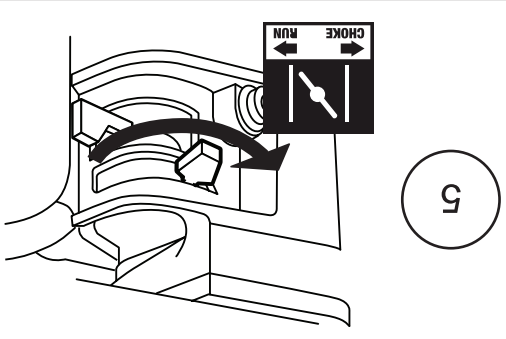
11. Una vez terminado el trabajo, apague el motor. Para detener el motor en caso de emergencia, coloque el interruptor del motor en la posición "OFF" (APAGADO).

En condiciones normales de funcionamiento, utilice el siguiente procedimiento:



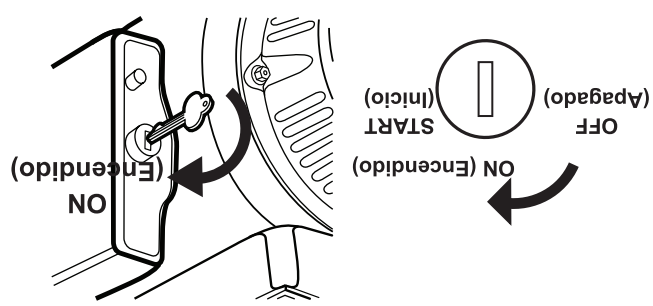


5. Para hacer arrancar un motor frío, coloque el cebador en la posición CHOKE (encender/cerrado). Para volver a encender un motor caliente, deje el cebador en la posición RUN.

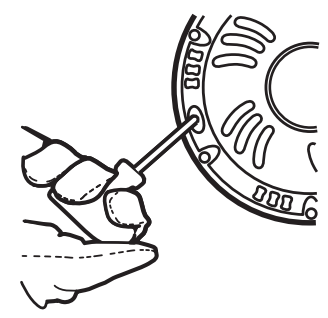


### Para un ENCENDIDO MANUAL

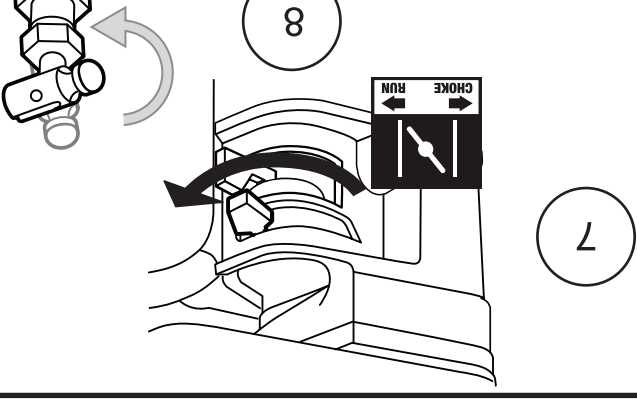
a. Coloque el interruptor del motor en ON (ENCENDIDO).



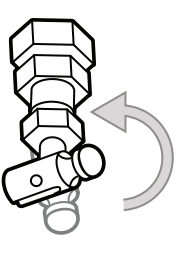
b. Tome suavemente la manija del arrancador del motor y acciónela lentamente varias veces, para permitir que la gasolina fluya hacia el interior del carburador del motor. Luego, accione la manija del arrancador suavemente, hasta que sienta que opone resistencia. Permita que el cable se repliegue por completo, y luego tire de él rápidamente. Repita hasta que el motor arranque. Nota: No permita que la manija del arrancador retroceda de golpe contra el motor. Sosténgala mientras retrocede, para que no golpee el motor.



7. Permita que el motor funcione durante varios segundos. Luego, si la palanca del cebador está en la posición CHOKE, muévela muy lentamente hacia la posición RUN. **Nota:** Mover la palanca del cebador demasiado rápidamente podría parar el motor.

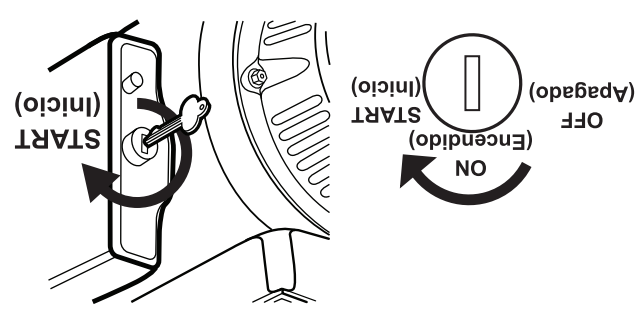


8. Cierre la válvula piloto rotándola a la posición horizontal.



### Para un ENCENDIDO ELÉCTRICO

Coloque el interruptor del motor en START (INICIO). **Nota:** Para extender la vida útil del arrancador, utilice ciclos cortos de encendido (5 segundos como máximo). Luego, espere un minuto antes de intentar encender el motor nuevamente.







Antes de instalar o usar este producto, lea la TOTALIDAD DE LA SECCIÓN "INFORMACIÓN IMPORTANTE SOBRE SEGURIDAD" que se encuentra al comienzo de este manual, incluyendo todos los textos debajo de los subtítulos.

## Cómo usar el compresor

Antes de la instalación y el encendido, inspeccione el compresor, el motor, la bomba y el equipo, verificando que no existan piezas dañadas, sueltas o faltantes. Si detecta algún problema en el equipo, no lo utilice hasta que haya sido reparado.

**Nota:** Al comienzo del primer uso de la jornada del compresor de aire, verifique que no existan fugas de aire aplicando agua jabonosa a las conexiones mientras el compresor de aire está bombeando y después del corte por presión. Busque burbujas de aire. Si nota la presencia de burbujas de aire en las conexiones, ajústelas. No utilice el compresor de aire a menos que todas las conexiones estén herméticamente cerradas. De lo contrario, el aire extra que se filtre hará que el compresor funcione con demasiada frecuencia, lo cual aumentará su desgaste.

### Antes de encender el compresor:



- Siga las instrucciones de instalación del manual del equipo, para preparar el motor.
- Siga las "Instrucciones de instalación" del manual del motor, para preparar el motor.
- Inspeccione todos los componentes de instalación. Asegúrese de que todas las tuercas y todos los pernos estén ajustados.
- Llene el motor con la cantidad correcta y el tipo correcto de combustible y aceite.
- Llene la bomba del compresor con aceite para compresores, siguiendo las "Instrucciones de mantenimiento" de este manual.

### Para encender y usar el compresor

- Cierre la válvula de drenaje (137) subiendo la palanca de modo que quede perpendicular a la válvula.

- Cierre la válvula de cierre en línea entre el compresor y la manguera de aire.

- Abra la válvula piloto rotándola a la posición vertical.

- Abra la válvula de combustible.

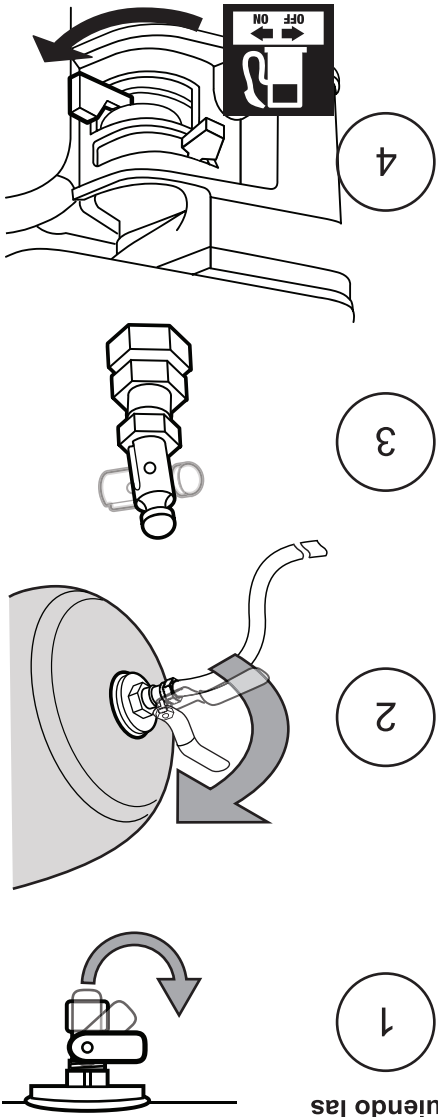
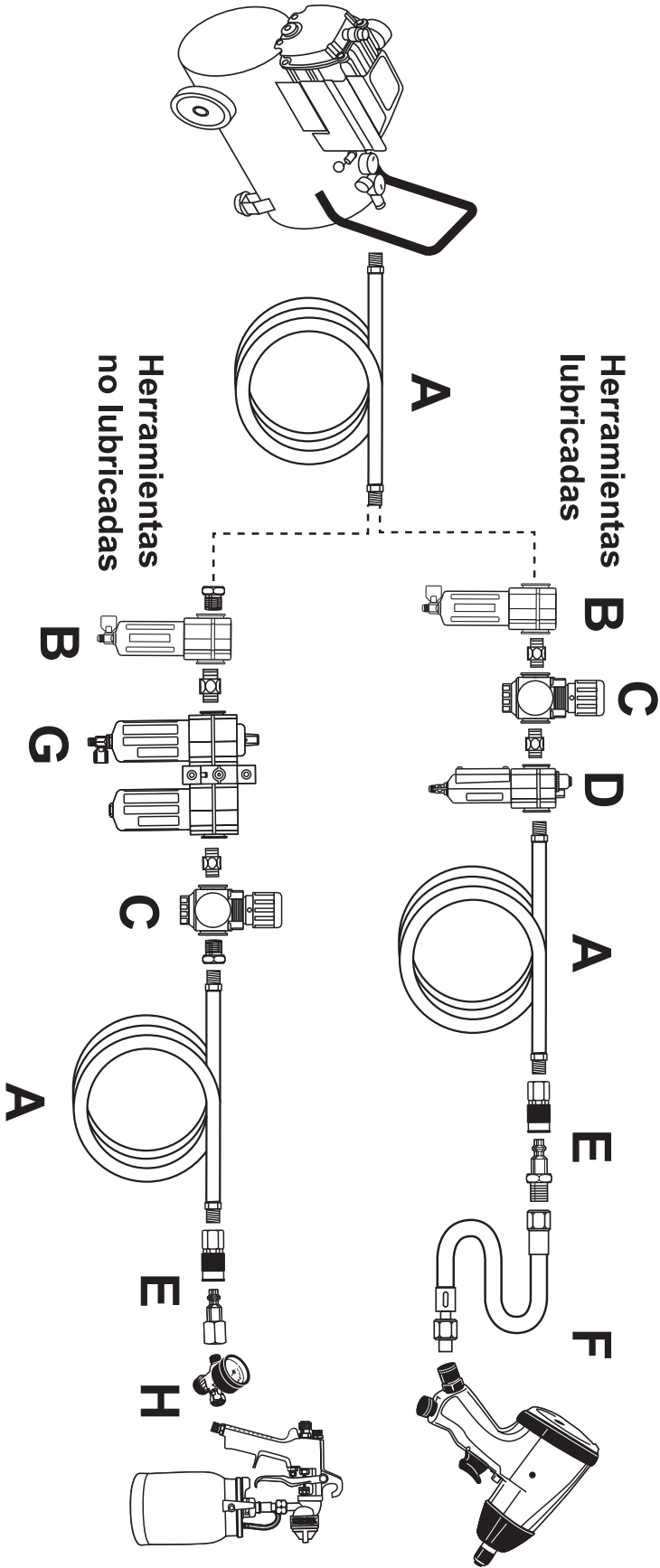


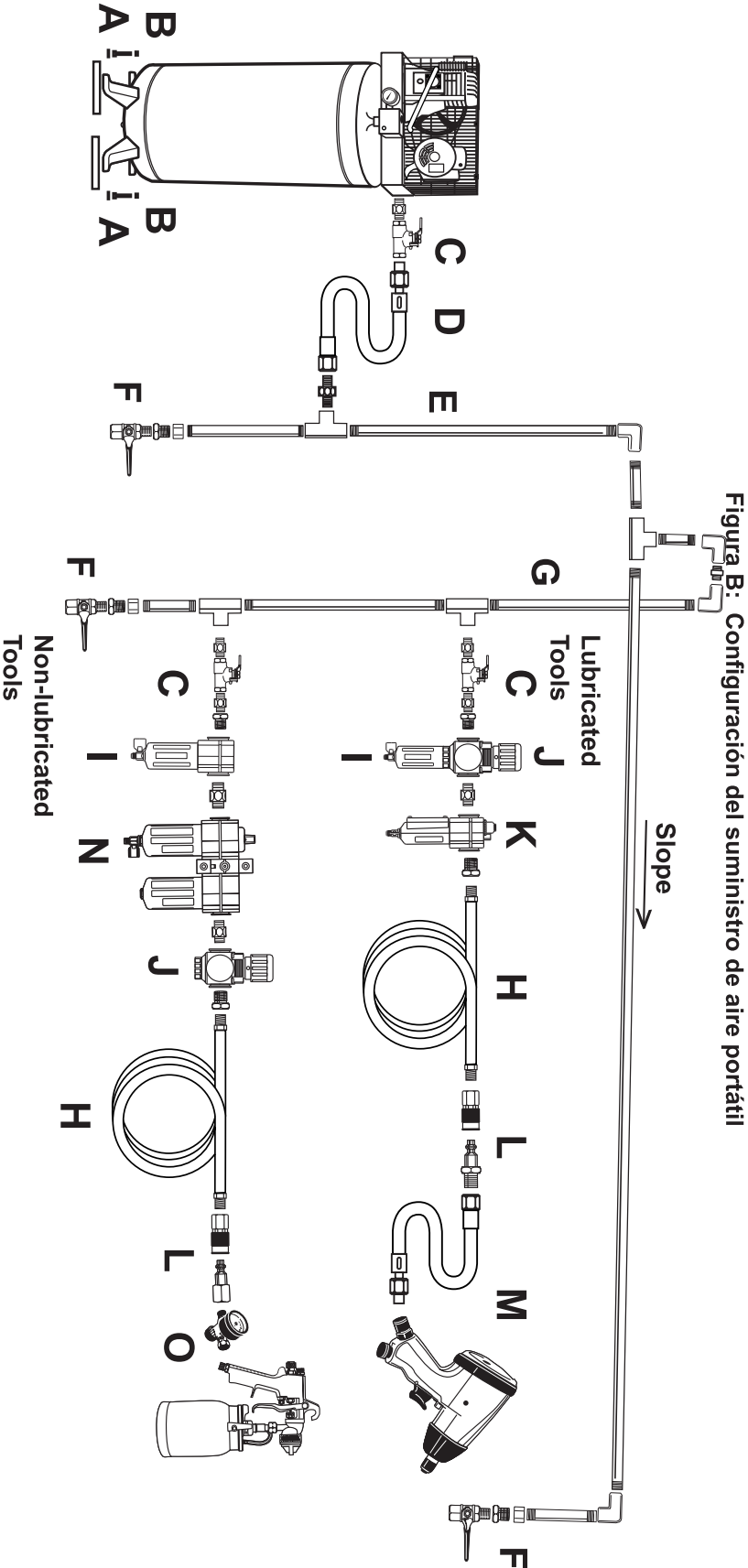


Figura A: Configuración del suministro de aire fijo



	Descripción	Función
A	Almohadillas antivibratorias	Para la reducción de ruidos y vibraciones
B	Pernos de anclaje	Asegura el compresor de aire en su lugar
C	Válvula esférica	Aísla las secciones del sistema para su mantenimiento
D	Manguera de aislamiento	Para la reducción de la vibración
E	Línea principal de aire - se recomienda de 3/4" mínimo	Distribuye el aire a las líneas secundarias
F	Válvula esférica	Para drenar la humedad del sistema
G	Línea secundaria de aire - se recomienda de 1/2" mínimo	Transporta el aire hasta el punto de uso
H	Manguera de aire	Conecta el aire a la herramienta
I	Filtro	Evita que la suciedad y la condensación causen daños a la herramienta o pieza de trabajo
J	Regulador	Regula la presión de aire a la herramienta
K	Lubricador (opcional)	Para la lubricación de herramientas neumáticas
L	Acoplador y tapón	Proporciona una conexión y liberación rápidas
M	Manguera principal (opcional)	Aumenta la vida útil del acoplador
N	Limpiador/secador de aire (opcional)	Evita que el vapor de agua dañe la pieza de trabajo
O	Válvula reguladora de aire (opcional)	Para el ajuste fino del flujo de aire en la herramienta





Descripción		Función
A	Manguera de aire	Conecta el aire a la herramienta
B	Filtro	Evita que la suciedad y la condensación causen daños a la herramienta o pieza de trabajo
C	Regulador	Regula la presión de aire a la herramienta
D	Lubricador (opcional)	Para la lubricación de herramientas neumáticas
E	Acoplador y tapón	Proporciona una conexión y liberación rápidas
F	Manguera principal (opcional)	Aumenta la vida útil del acoplador
G	Limpiador/secador de aire (opcional)	Evita que el vapor de agua dañe la pieza de trabajo
H	Válvula reguladora de aire (opcional)	Para el ajuste fino del flujo de aire en la herramienta



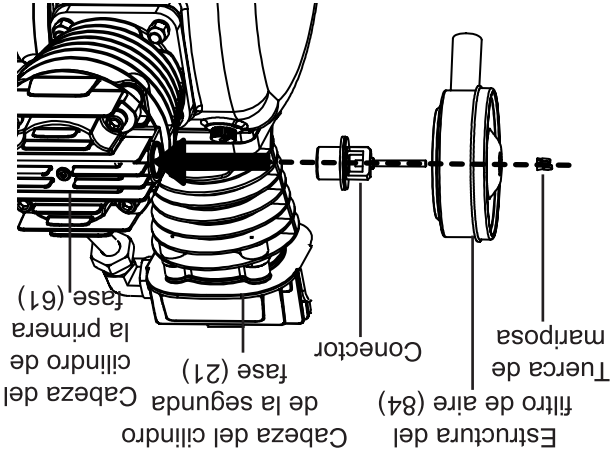
Garantizamos que el sistema de control de emisiones para el motor de este compresor cumple con los estándares establecidos por la Agencia de Protección Ambiental de EE.UU. (U.S. Environmental Protection Agency) y por el Departamento de Recursos del Aire de California (California Air Resources Board, CARB). Para información sobre la garantía, consulte el manual del motor.

## Cómo instalar en la caja de una camioneta

1. Antes de instalar el equipo, de ser necesario refuerce el área con contrachapado o chapas de acero.
2. Con ayuda, traslade el compresor al lugar de la caja de la camioneta donde lo ubicará y marque el piso de la caja a través de los orificios de las patas del compresor. Verifique que no haya cables ocultos y modifique el lugar para los orificios según sea necesario. Luego, deje a un lado el compresor temporalmente.
3. Perfore los cuatro orificios de 1/2" de diámetro en la caja de la camioneta y en los materiales de refuerzo.
4. Vuelva a colocar el compresor en su lugar, y alinee los orificios de las patas con los orificios que ha perforado en la caja. Utilice cuatro pernos, arandelas y arandelas de bloqueo de 1/2" de diámetro (no se incluyen) para fijar el compresor en su lugar.

## Montaje

Para instalar la estructura del filtro de aire (84), inserte el conector en la estructura del filtro de aire y deslice la estructura dentro del orificio ubicado en el lateral de la cabeza del cilindro de la primera fase (61). Fije en su lugar con la tuerca de mariposa



## Cómo asentar el compresor

- Para asentar su nuevo compresor de aire, siga estos pasos:
1. Asegúrese de que el motor esté apagado. Abra la válvula de salida de aire ubicada en el lateral izquierdo del tanque.
  2. Verifique todos los niveles de fluido en el motor y la bomba.
  3. Encienda el motor siguiendo las "Instrucciones generales de funcionamiento".
4. Deje la unidad en funcionamiento durante 30 minutos. Saldrá aire libremente por el acoplador.
  5. Apague el motor.
  6. Extraiga el acoplador macho.

## Conexión

1. Conecte una válvula reguladora, una válvula de cierre en línea y una manguera de aire de 1/2" NPT al acoplador rápido (todo se vende por separado). La manguera de aire debe ser lo suficientemente larga para llegar a la zona de trabajo, con suficiente longitud adicional para permitir el libre movimiento durante el trabajo.
- Nota:** Una válvula esférica de cierre en línea es un importante dispositivo de seguridad, ya que controla el suministro de aire, incluso si la manguera de aire se rompe. La válvula de cierre debe ser una válvula esférica, ya que se puede cerrar rápidamente.
2. De acuerdo a cuál sea la herramienta que va a utilizar con este compresor, es posible que necesite incorporar componentes adicionales, como un lubricador en línea, un filtro o un secador (todos se venden por separado). Consulte el manual de su herramienta neumática para conocer qué accesorios necesita. Consulte los cuadros de "Configuración típica de la línea de aire" en las páginas que siguen. Este es un compresor para cajas de camioneta; por eso, utilice la instalación portátil como modelo.



Bomba	Dos fases
Tamaño de la salida de aire	1/2"- NPT (hembra)
Presión de aire	Apagado automático a 180 PSI Rearranque a 140 PSI
Capacidad del tanque de aire	30 galones
Capacidad de flujo de aire	18 CFM a 90 PSI 19,5 CFM a 40 PSI

Capacidad de aceite	61 oz. (1,8L)
Tipo de aceite	Acéite para compresores de aire SAE 30W sin detergente (ítem 95048, se vende por separado)
Rotación requerida	En sentido contrario al de las agujas del reloj visto desde la PTO (toma de potencia - el eje de salida)
Velocidad de ralentí del motor requerida	2100 RPM ± 100 RPM

Nota: Las especificaciones del motor se encuentran en el manual del motor que se proporciona con este equipo.

Controles del motor

1. Cubrecorrea - El cubrecorrea

rodea las poleas y las correas de transmisión. Protege al usuario de las piezas móviles, y permite que la polea grande envíe aire refrigerante a la bomba de aire.

2.

Mirilla de nivel de aceite -

La mirilla de nivel de aceite indica el nivel adecuado de aceite. El nivel de aceite debe encontrarse en el centro de la mirilla de nivel de aceite.

3.

Válvula de drenaje del tanque - La válvula de

drenaje del tanque permite eliminar la humedad del tanque para evitar su corrosión.

4.

Válvula de seguridad - La válvula de seguridad libera aire automáticamente si la presión del tanque de aire excede el máximo

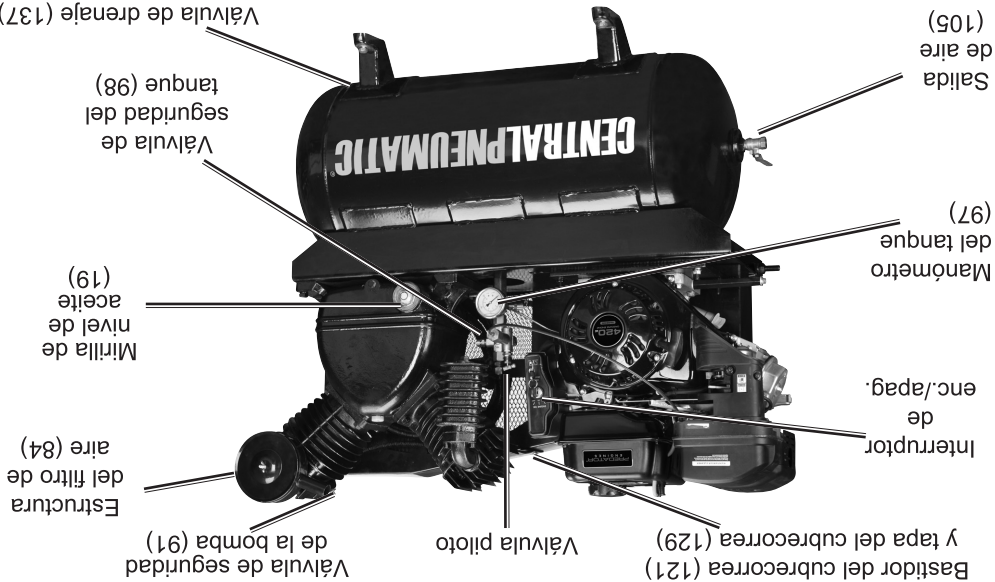
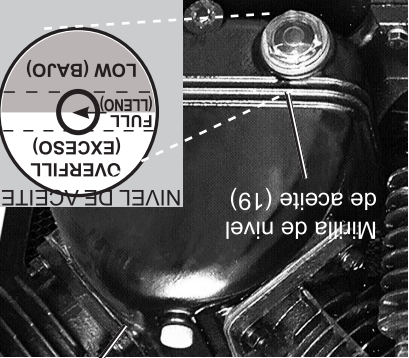
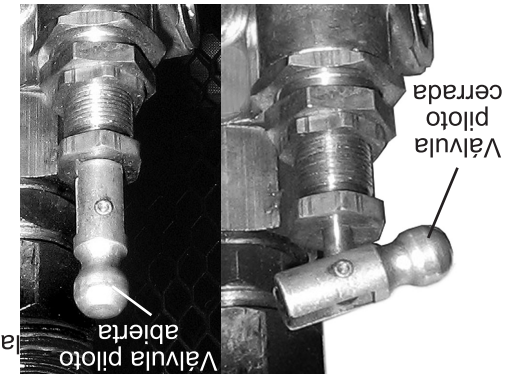
predeterminado. En caso de emergencia, se puede tirar del anillo para liberar la bomba y una en el tanque. Salida de aire - Una manguera de aire se conecta a esta válvula. La presión de aire requerida por las herramientas es calibrada por un regulador de presión de aire. Tanque de almacenamiento de aire - En el tanque de aire se almacena el aire presurizado por la bomba de aire.

7.

Manómetro del tanque -

El manómetro del tanque muestra presión de aire en el tanque. Válvula piloto - Abra la válvula piloto antes de encender el motor. Libera resistencia en el motor para que sea posible hacerlo arrancar. Para abrirla, rote el pasador de modo que quede vertical. Una vez que el motor esté en funcionamiento, cierre la válvula piloto para que el compresor pueda acumular presión.

8.





22. Este producto contiene (o, cuando se lo utiliza, produce) un químico que, según posee conocimiento el Estado de California, causa cáncer, defectos congénitos u otros daños relacionados con la reproducción. (Código de Salud y Seguridad de California § 25249.5, et seq.)

23. Cuando se produzcan derrames de combustible o aceite, se los debe limpiar de inmediato. Al desechos fluidos y materiales de limpieza, cumpla con los códigos y las regulaciones estatales, locales o federales. Almacene los trapos con aceite en un contenedor de metal con tapa y ventilación en la parte inferior.

Precauciones para el servicio técnico

24. Mantenga manos y pies alejados de las piezas móviles. No se estire sobre ni a través del equipo cuando esté en funcionamiento.
25. Antes de utilizar, verifique que no haya piezas móviles desalineadas o empastadas, piezas rotas o cualquier otra condición que pueda afectar el funcionamiento del equipo. **Si está dañado, haga reparar el equipo antes de usarlo.** Muchos accidentes se deben a un mal mantenimiento de los equipos.
26. Utilice el equipo correcto para la aplicación. No modifique el equipo ni su motor, y no utilice el equipo para fines que no sean aquellos para los que fue creado.

1. Antes de realizar tareas de reparación, mantenimiento o limpieza:

a. Coloque el interruptor del motor en la posición de apagado (OFF).

b. Permita que el motor se enfríe por completo.

c. Luego, extraiga la tapa de la bujía.
2. Mantenga todas las protecciones de seguridad en su lugar y en buenas condiciones de funcionamiento. Entre las protecciones de seguridad se incluyen: silenciador, filtro de aire, protectores mecánicos y escudos térmicos.
3. **No modifique ni ajuste ninguna pieza del equipo o de su motor que esté sellada por el fabricante o el distribuidor. Únicamente un técnico calificado puede ajustar las piezas que pueden aumentar o reducir la velocidad de régimen del motor.**

Advertencias de seguridad del compresor de aire

4. Durante las tareas de servicio técnico, utilice gafas de seguridad, mascarar antipolvo/respiratorias y guantes de trabajo de caucho de alta resistencia aprobados por el ANSI.
5. Conserve las etiquetas y placas del equipo. Estas tienen información importante. Si faltan o son ilegibles, póngase en contacto con Harbor Freight Tools para solicitar un reemplazo.
6. El servicio técnico de su equipo debe estar a cargo de una persona calificada que utilice únicamente piezas de repuesto idénticas a las del equipo. No intentará realizar ningún procedimiento de reparación o mantenimiento que no esté explicado en este manual, ni ningún procedimiento que no esté seguro de poder realizar de manera segura o correcta.
7. Guarde el equipo fuera del alcance de los niños.
8. Cumpla con el cronograma de tareas de mantenimiento del motor y el equipo.

1. Riesgo de incendio o explosión - No pulverice líquido inflamable en un área cerrada o en dirección a una superficie caliente. El área de pulverización debe estar bien ventilada. No fume mientras realiza la pulverización, ni pulverice en presencia de chispas o llama. Piezas que forman arcos eléctricos - Mantenga el compresor al menos a 20 pies de distancia de vapores explosivos, como por ejemplo cuando se utilizan pistolas pulverizadoras.
2. Riesgo de explosión - El regulador no debe exceder la presión máxima marcada en el equipo conectado.
3. Riesgo de lesiones - No dirija el chorro de aire hacia las personas o los animales.
4. No utilice para suministrar aire respirable.
5. No tire de la manguera de aire para mover el compresor.
6. Drene el tanque diariamente después de usarlo. El óxido en el interior genera fallos y explosiones en el tanque.



CONSERVE ESTAS INSTRUCCIONES.

7. **Agregue la cantidad correcta de aceite para compresores antes del primer uso y cada vez que utilice el equipo. Hacer funcionar el equipo con la cantidad de aceite incorrecta causa daño permanente y quita validez a la garantía. Para evitar daños, no utilice el equipo con aceite en exceso o baja cantidad de aceite.**
8. El cabezal del compresor se calienta durante el uso. No lo toque ni permita que haya niños cerca durante el uso o inmediatamente después.
9. Antes de moverlo, libere la presión del tanque de almacenamiento.
10. La utilización de accesorios o conexiones no recomendadas por el fabricante pueden generar riesgo de lesiones.
11. Todos los componentes de la tubería de aire, incluyendo mangueras, caños, conectores, filtros, etc, deben tener una presión de trabajo nominal mínima de 125 PSI o del 150% de la presión máxima del sistema (la que sea mayor).



MANTENIMIENTO

FUNCIONAMIENTO

CONFIGURACIÓN


SEGURIDAD

6. Durante la instalación, utilice gafas de seguridad, mascararas antipolvo/respiratorias y guantes de trabajo de caucho de alta resistencia aprobados por el ANSI.



5. Utilice únicamente los lubricantes y el combustible que se recomiendan en el manual del motor o en el cuadro de Especificaciones de este manual.

Precauciones para la utilización del equipo

Siga las precauciones e instrucciones relacionadas con el motor que encontrará en el manual de instrucciones del motor, que se incluye.



**PELIGRO: MONÓXIDO DE CARBONO**  
**Utilizar un motor en un ambiente cerrado puede causar la MUERTE EN MINUTOS.**  
El motor emite monóxido de carbono. Es un veneno imperceptible a la vista y el olfato.



NUNCA utilice el equipo dentro del hogar o de un garaje. NI SIQUIERA AUNQUE las ventanas y las puertas estén abiertas.





Utilice la AFUERA únicamente, y lejos de ventanas, puertas y conductos de ventilación.




2. Mantenga a los niños lejos del equipo, especialmente cuando esté funcionando.
3. ¡Peligro de incendio! No llene el tanque de combustible cuando el motor del compresor esté en funcionamiento. Si hubo un derrame de gasolina, no haga funcionar el equipo. Antes de encender el motor, limpie la gasolina derramada. No utilice el equipo cerca del fuego o de una llama piloto.
4. No toque el motor del compresor durante el uso. Permita que el motor se enfríe después del uso.
5. Nunca almacene combustible u otros materiales inflamables cerca del motor del compresor.
6. Al transportar el compresor, utilice únicamente un medio de transporte y dispositivos de izado que tengan suficiente capacidad para soportar grandes pesos.
7. Amarre el compresor a los vehículos de transporte, para impedir que ruede, resbale o se incline.
8. Los usos industriales deben cumplir con los requisitos de la Administración de Seguridad y Salud Ocupacional (OSHA).
9. No desatenda el equipo cuando esté en funcionamiento. Apague el equipo (y quite las llaves de seguridad, si están disponibles) antes de abandonar el área de trabajo.

10. Durante el uso, emplee gafas de seguridad aprobadas por el ANSI, protectores para los oídos y máscara para polvo/respirador aprobado por NIOSH debajo de un protector facial total, junto con botas de trabajo con puntera de metal.
11. Las personas que utilizan marcapasos deben consultar a su(s) médico(s) antes de utilizar el equipo. Los campos electromagnéticos próximos a un marcapasos podrían interferir con el funcionamiento del marcapasos o hacer que éste funcione mal. Tenga precaución cuando esté cerca del imán o del tirador para arrancar manual del motor.
12. Utilice únicamente los accesorios recomendados por Harbor Freight Tools para su modelo. Los accesorios que resultan adecuados para un equipo determinado pueden tornarse peligrosos cuando se los utiliza en otro equipo.
13. No opere el equipo en ambientes explosivos, como por ejemplo aquellos donde pueda haber líquidos inflamables, gases o polvo. Los motores a gasolina pueden encender el polvo o las emanaciones.
14. Manténgase alerta; cuide lo que hace y utilice el sentido común cuando utilice este equipo. Cuando esté cansado o bajo la influencia de drogas, alcohol o medicamentos, no utilice este equipo.
15. No se extienda demasiado. Mantenga una postura firme y buen equilibrio en todo momento. Esto permite controlar mejor el equipo en situaciones inesperadas.
16. Utilice prendas adecuadas. No utilice prendas sueltas ni alhajas. Mantenga el cabello, la ropa y los guantes lejos de las piezas móviles. Las prendas sueltas, las alhajas o el cabello largo podrían quedar atrapados en las piezas móviles.
17. Las piezas, especialmente los componentes del sistema de escape, se calientan mucho durante el uso. Manténgase alejado de las piezas calientes.
18. No cubra el motor o el equipo durante el funcionamiento.
19. Mantenga limpios el equipo, su motor y el área circundante en todo momento.
20. Utilice el equipo, los accesorios, etc. de acuerdo a estas instrucciones y para los fines para los que este tipo de equipo fue creado, tomando en cuenta las condiciones de funcionamiento y el trabajo a realizar. Utilizar este equipo para otros fines que no sean los indicados podría generar situaciones peligrosas.
21. Si tiene conocimiento de la existencia de fugas en el sistema de combustible del motor, no utilice el equipo.



Contenido	
Seguridad .....	2
Especificaciones .....	5
Instalación .....	6
Funcionamiento .....	9
Mantenimiento .....	13
Listas de piezas y diagramas .....	16
Garantía .....	20

SÍMBOLOS DE ADVERTENCIA Y DEFINICIONES	
	Este es el símbolo de alerta de seguridad. Se utiliza para alertarlo sobre potenciales riesgos de sufrir lesiones personales. Para evitar posibles lesiones o la muerte, acate todos los mensajes de seguridad que acompañan a esta señal.
	Indica una situación peligrosa que, de no evitarse, provocará la muerte o lesiones graves.
	Indica una situación peligrosa que, de no evitarse, podría provocar la muerte o lesiones graves.
	Indica una situación peligrosa que, de no evitarse, podría provocar lesiones menores o de moderada gravedad.
<b>AVISO</b>	Hace referencia a prácticas no relacionadas con lesiones personales.
<b>PRECAUCIÓN</b>	

Símbolo	Propiedad o enunciado	RPM	HP	Símbolo	Señal de ADVERTENCIA que refiere al riesgo de sufrir lesiones oculares. Utilice gafas de seguridad con protectores laterales aprobadas por el ANSI.
	Señal de ADVERTENCIA que refiere a riesgo de explosión.				
	Señal de ADVERTENCIA que refiere a riesgo de sufrir lesiones respiratorias. Utilice el motor AFUEA únicamente, y lejos de ventanas, puertas y conductos de ventilación.				
	Señal de ADVERTENCIA que refiere a riesgo de sufrir lesiones oculares. Utilice gafas de seguridad con protectores laterales aprobadas por el ANSI.				

INFORMACIÓN IMPORTANTE SOBRE SEGURIDAD

Advertencias de seguridad generales

**ADVERTENCIA** Lea todas las advertencias e instrucciones de seguridad. *No seguir las advertencias e instrucciones puede ocasionar descarga eléctrica, incendio y/o lesiones graves.*

**Conservar todas las advertencias e instrucciones para referencia futura.**

Las advertencias, precauciones e instrucciones que se ofrecen en este manual de instrucciones no pueden cubrir todas las situaciones y condiciones posibles que pueden ocurrir. El operador del equipo debe entender que el sentido común y la cautela son factores que no pueden fabricarse e incorporarse al producto, sino que corren por cuenta del operador.

**Precauciones para la instalación**

- La gasolina y sus emanaciones son inflamables y potencialmente explosivos. Siga los procedimientos adecuados para el almacenamiento y la manipulación de combustible. No almacene combustible u otros materiales inflamables en cercanías de las personas. Tenga a mano varios extinguidores de incendios de clase ABC.
- Al entrar en funcionamiento, este equipo puede generar chispas que podrían ocasionar incendios ante la presencia de vegetación seca. Es posible que se requiera un parachispas. El operador debe ponerse en contacto con los organismos locales de protección contra incendios para conocer las leyes o disposiciones sobre prevención de incendios.
- Instale y utilice únicamente sobre una superficie plana, uniforme y bien ventilada.



# Manual del Usuario y Instrucciones de Seguridad

Conservar Este Manual Guarde este manual para consultas futuras sobre las advertencias y precauciones de seguridad y los procedimientos de montaje, funcionamiento, inspección, mantenimiento y limpieza. Escriba el número de serie del producto en el dorso del manual junto al esquema de montaje (o el mes y año de la compra si el producto no tiene número). Conservar este manual y el comprobante de compra en un lugar seco y seguro para futuras consultas.

# CENTRAL PNEUMATIC®

## Compresor de aire de 30 gal y dos fases



### ⚠ PELIGRO

Utilizar un motor en un ambiente cerrado  
PUEDE CAUSARLE LA MUERTE EN MINUTOS.

El motor emite monóxido de carbono.  
Es un veneno imperceptible a la vista y el olfato.



Utilícelo AFUERA

únicamente, y lejos  
de ventanas, puertas  
y conductos de  
ventilación.

NUNCA utilice el  
equipo dentro del  
hogar o de un garaje,  
NI SIQUIERA AUNQUE  
las ventanas y las  
puertas estén abiertas.

Visite nuestro sitio web: <http://www.harborfreight.com>  
Si lo necesita, envíe un correo electrónico a nuestro  
Servicio Técnico: [productsupport@harborfreight.com](mailto:productsupport@harborfreight.com)

Al desembalar el producto, asegúrese de que esté intacto  
y no haya sufrido daños. Si alguna pieza falta o está rota,  
llame al 1-888-866-5797 tan pronto como sea posible.

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sus ilustraciones gráficas, sin el expreso consentimiento escrito de Harbor Freight Tools.  
Es posible que los diagramas incluidos en este manual no hayan sido dibujados  
guardando las proporciones. Debido a las mejoras continuas, el producto real puede  
difierir ligeramente del descrito en este documento. Es posible que las herramientas  
necesarias para el montaje y el mantenimiento técnico no estén incluidas.

### ⚠ ADVERTENCIA

Lea el siguiente material antes  
de usar este producto.  
De no hacerlo, podría sufrir lesiones graves.  
CONSERVE ESTE MANUAL.

### AVISO

¡IMPORTANTE! Esta edición en  
español del manual es una traducción  
del manual original inglés. El manual  
original inglés reemplaza a esta  
información si hay una inconsistencia.

ARTÍCULO 56101



# 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 near the assembly diagram (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.

## PREDATOR<sup>™</sup> E N G I N E S

### 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>

ENGINE FOR ITEM 56101

REV 14b

Email our technical support at: [predator@harborfreight.com](mailto:predator@harborfreight.com)

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-800-520-0882 as soon as possible.

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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 .....	23
Operation .....	8	Parts List and Diagram .....	20

## Specifications




Displacement		420cc
Engine Type		Horizontal Single Cylinder 4 stroke OHV
Cooling System		Forced air cooled
Fuel	Type	87+ octane unleaded gasoline
	Capacity	1 Gallon
Engine Oil	Type SAE	10W-30 above 32° F 5W30 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		8.5:1
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® F6TC
	Gap	0.7 - 0.8 mm
Valve Clearance	Intake	0.10 - 0.15 mm
	Exhaust	0.15 - 0.20 mm
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.
 <b>DANGER</b>	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 <b>WARNING</b>	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 <b>CAUTION</b>	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
<b>NOTICE</b> <b>CAUTION</b>	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**

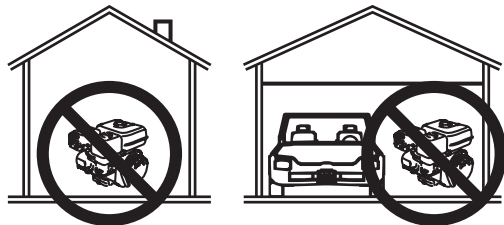


## Set up Precautions

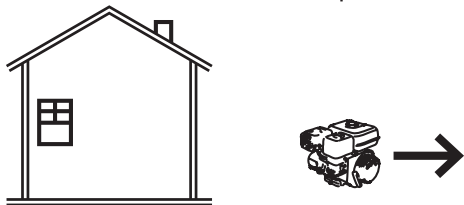
1. Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
2. Have multiple ABC class fire extinguishers nearby.
3. Operation of this equipment may create sparks that can start fires around 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.



## Operating Precautions (cont.)

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.
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. 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.
24. Do not operate the equipment with known leaks in the engine's fuel system.
25. This product contains or, when used, produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, *et seq.*)
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 smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
  2. Do not refill the fuel tank while the engine is running or hot.
  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.

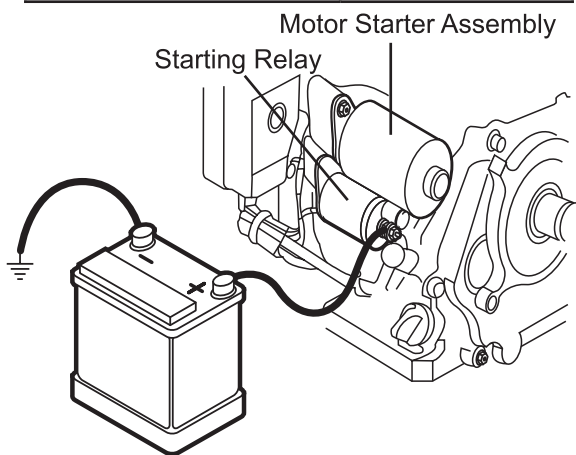
The emission control system for this Generator's Engine is warranted for standards set by the U.S. Environmental Protection Agency and by the California Air Resources Board (also known as CARB). For warranty information, refer to the last pages of this manual.

**WARNING! DO NOT INSTALL THIS ENGINE ON A VEHICLE.**

## Battery Setup Instructions

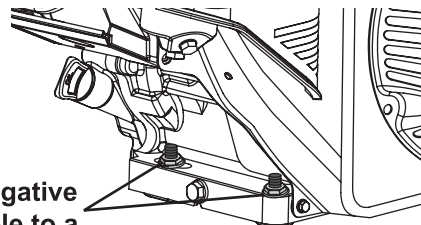
1. Place a **fully charged**, lead-acid **12 volt, 300 CCA, 36 Ah** battery (not included) in a stable, flat location near the engine.
2. Only use cables sized to match their length according to the following chart:

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



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.

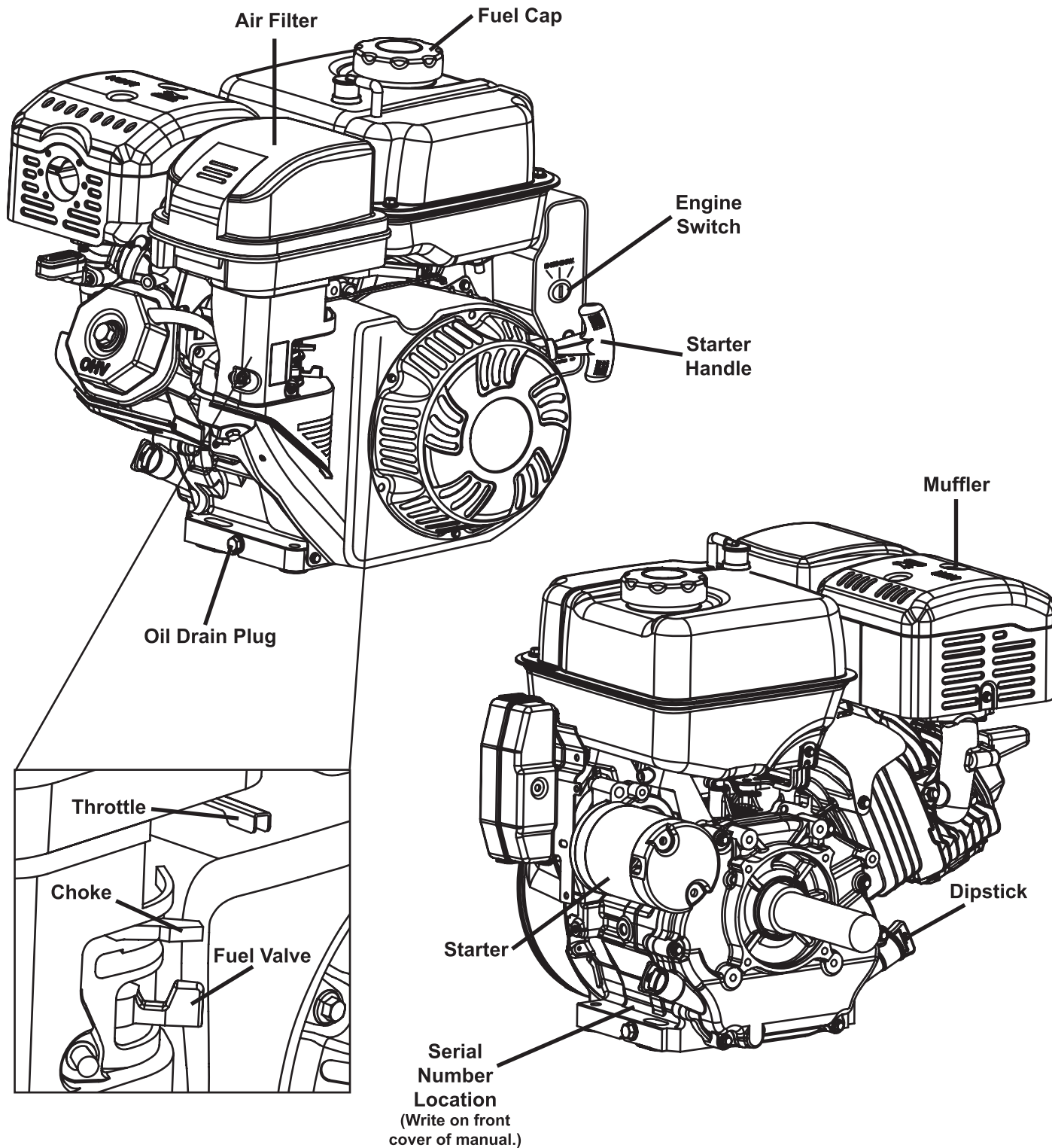


**Connect Negative Battery Cable to a Mounting Bolt**

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



# Engine Controls



SAFETY

SETUP

OPERATION

MAINTENANCE



## Operation

**SAFETY**  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.

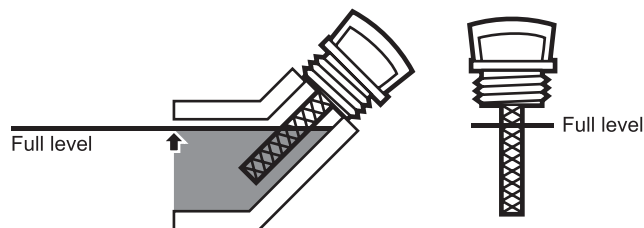
## Pre-Start Checks

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. Do not run the engine with low or no engine oil. Running the engine with no or low engine oil WILL permanently damage the engine.

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 threading it counterclockwise, and wipe it off with a clean lint free rag.



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.
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 Service 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. The engine will be permanently damaged.

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## 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 of the Fuel Tank with 87 octane or higher unleaded gasoline.

**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 fuel and oil.
- d. Read the Equipment Operation section in the equipment manual.

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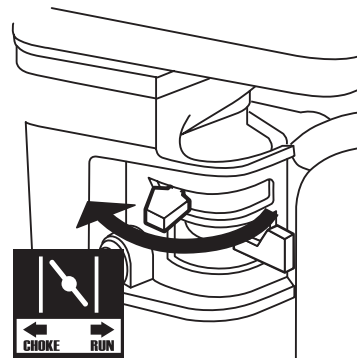


## Manual Start

SAFETY

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

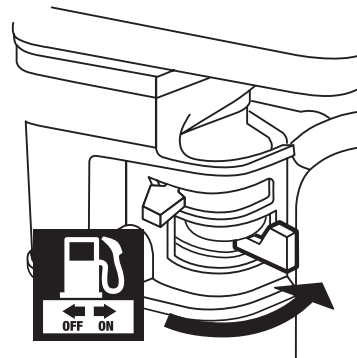
1



SETUP

2. Open the Fuel Valve.

2



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

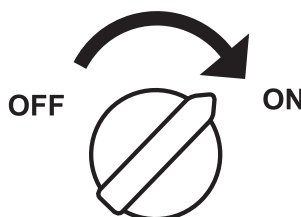
3



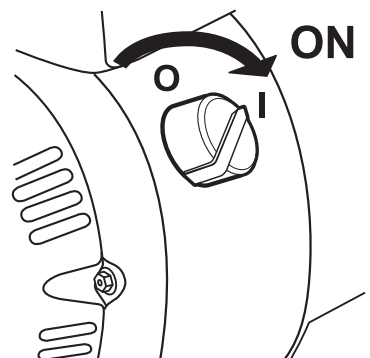
**Note:** Some tools have a Speed Control Lever located elsewhere on the tool which functions the same as the Throttle. Use the Speed Control Lever in place of the Throttle when the tool is so equipped.

OPERATION

4. Turn the Engine Switch on.



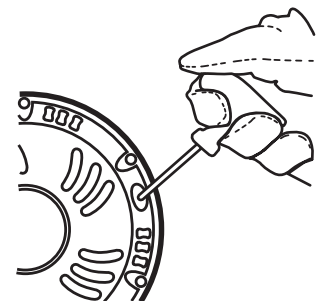
4



MAINTENANCE

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.

5



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



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

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

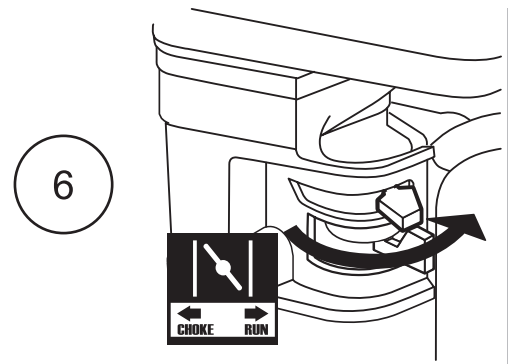
**IMPORTANT:** Allow the engine to run at no load for five minutes with no load after each start-up so that the engine can stabilize.

7. Adjust the Throttle as needed.

8. **Break-in Period:**

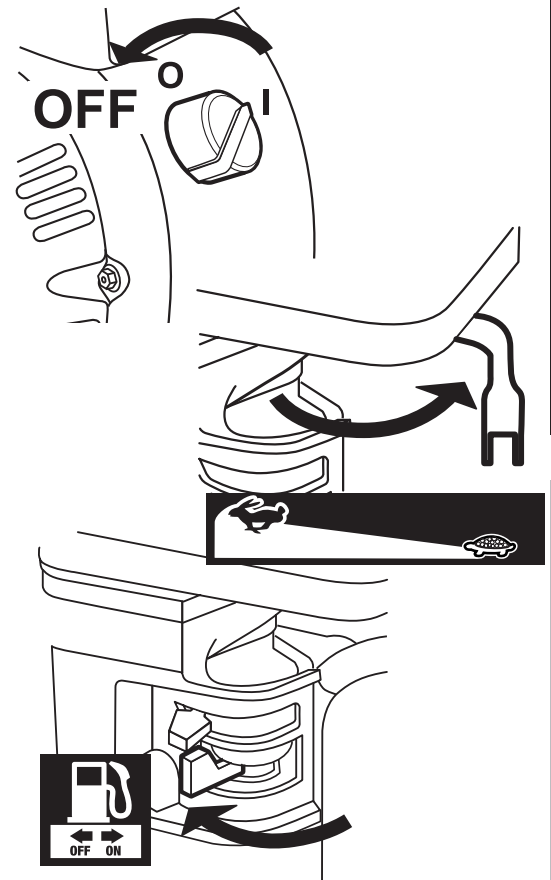
- a. Breaking-in the engine will help to ensure proper equipment and engine operation.
- b. The operational break-in period will last about 3 hours of use. During this period:
  - Do not apply a heavy load to the equipment.
  - Do not operate the engine at its maximum speed.
- c. The maintenance break-in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

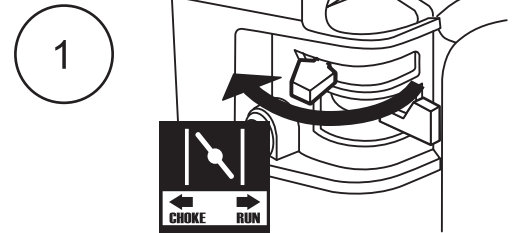




## Electric Start (if equipped)

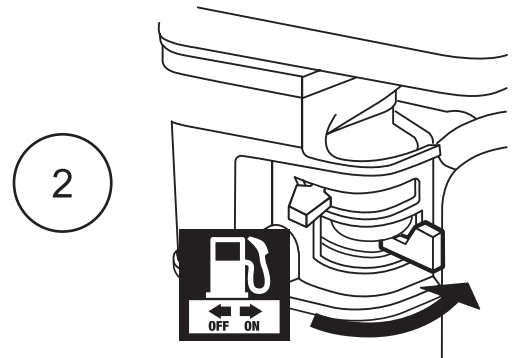
### SAFETY

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



### SETUP

2. Open the Fuel Valve.



### OPERATION

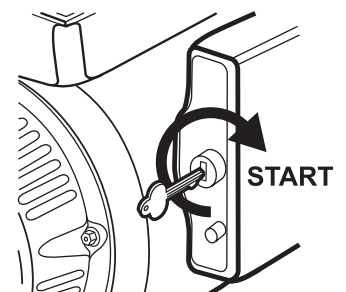
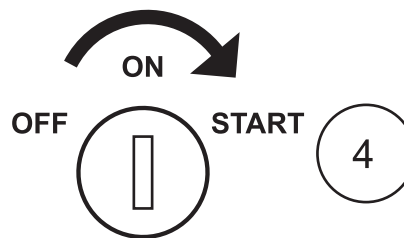
3. Slide the Throttle or Speed Control Lever to 1/3 away from the SLOW position (the "turtle").

**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.





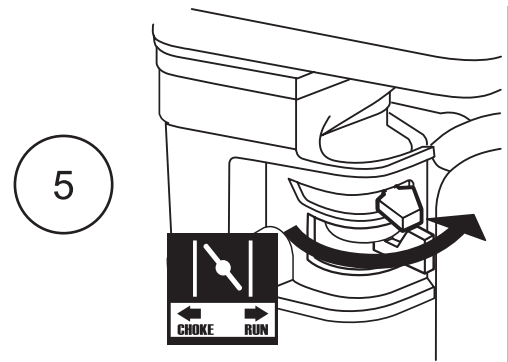
5. Allow the Engine to run for several seconds.  
Then, if the Choke lever is in the CHOKE position, move the Choke Lever very slowly to its RUN position.

**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.

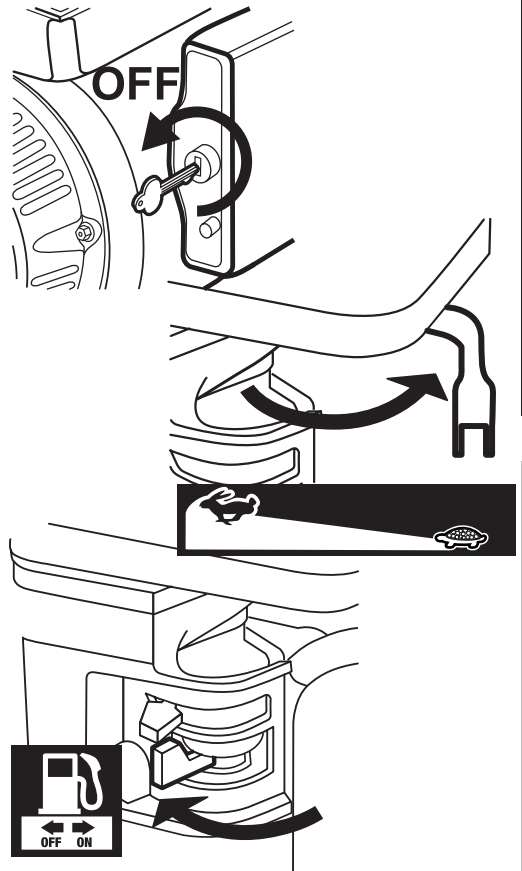
6. Adjust the Throttle as needed.
7. **Break-in Period:**
  - a. Breaking-in the engine will help to ensure proper equipment and engine operation.
  - b. The operational break-in period will last about 3 hours of use. During this period:
    - Do not apply a heavy load to the equipment.
    - Do not 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.





## Maintenance

### ⚠ 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.

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## 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 of the Fuel Tank with 87 octane or higher unleaded gasoline.

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

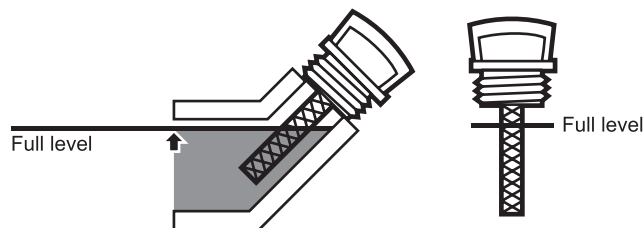
**Note:** Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting engine performance and/or causing damage.

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.

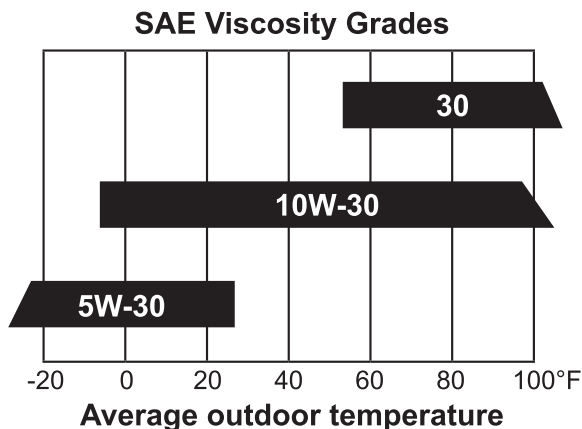
## Engine Oil Change

**⚠ 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 threading 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.



8. Thread the dipstick back in clockwise.

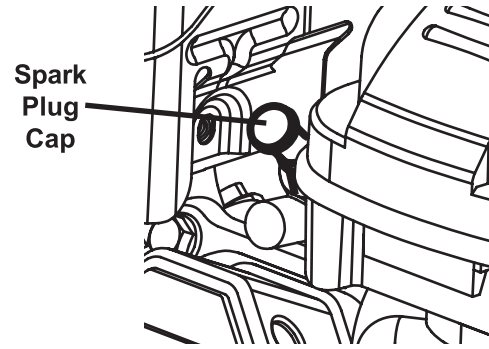
**CAUTION!** Do not run the engine with too little oil. The engine will be permanently damaged.



### Air Filter Element Maintenance

1. Remove the air filter cover and the air filter elements and check for dirt. Clean or replace 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. If this does not get the filter clean, replace it.
  - 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 new filter or 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® F6TC 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 1/2-2/3 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.

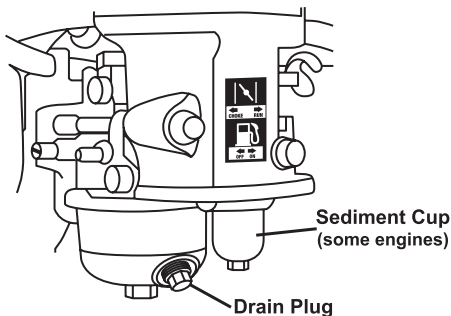
### 2. **FUEL:**



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

Drain 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 draining fuel. Do not smoke.

- Place a funnel leading to a proper gasoline container below the carburetor.



- Remove the drain bolt from the bottom of the carburetor bowl and allow the fuel to drain.
- Remove the small sediment cup next to the bowl and allow the fuel to drain from there as well.

- Open the fuel valve. After all fuel has drained, reinstall the drain bolt and sediment cup (if equipped). Tighten securely.

### 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.

### 6. **AFTER STORAGE:**

Before starting the engine 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.

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# 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>1. No fuel in tank or fuel valve closed.</li> <li>2. Choke not in CHOKE position, cold engine.</li> <li>3. Gasoline with more than 10% ethanol used. (E15, E20, E85, etc.)</li> <li>4. Low quality or deteriorated, old gasoline.</li> <li>5. Carburetor not primed.</li> <li>6. Dirty fuel passageways.</li> <li>7. Carburetor needle stuck. Fuel can be smelled in the air.</li> <li>8. Too much fuel in chamber. This can be caused by the carburetor needle sticking.</li> <li>9. Clogged Fuel Filter.</li> </ol>	<b>FUEL RELATED:</b> <ol style="list-style-type: none"> <li>1. Fill fuel tank and open fuel valve.</li> <li>2. Move Choke to CHOKE position.</li> <li>3. Clean out ethanol rich gasoline from fuel system. Replace components damaged by ethanol. Use fresh 87+ octane unleaded gasoline only. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>4. Use fresh 87+ octane unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></li> <li>5. Pull on Starter Handle to prime.</li> <li>6. Clean out passageways using fuel additive. Heavy deposits may require further cleaning.</li> <li>7. <b>Gently</b> tap side of carburetor float chamber with screwdriver handle.</li> <li>8. 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 CHOKE position.</li> <li>9. Replace Fuel Filter.</li> </ol>
	<b>IGNITION (SPARK) RELATED:</b> <ol style="list-style-type: none"> <li>1. Spark plug cap not connected securely.</li> <li>2. Spark plug electrode wet or dirty.</li> <li>3. Incorrect spark plug gap.</li> <li>4. Spark plug cap broken.</li> <li>5. Circuit breaker tripped (electric start models only).</li> <li>6. Incorrect spark timing or faulty ignition system.</li> </ol>	<b>IGNITION (SPARK) RELATED:</b> <ol style="list-style-type: none"> <li>1. Connect spark plug cap properly.</li> <li>2. Clean spark plug.</li> <li>3. Correct spark plug gap.</li> <li>4. Replace spark plug cap.</li> <li>5. Reset circuit breaker. Check wiring and starter motor if breaker continues to trip.</li> <li>6. Have qualified technician diagnose/repair ignition system.</li> </ol>
	<b>COMPRESSION RELATED:</b> <ol style="list-style-type: none"> <li>1. Cylinder not lubricated. Problem after long storage periods.</li> <li>2. Loose or broken spark plug. (Hissing noise will occur when trying to start.)</li> <li>3. Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.)</li> <li>4. Engine valves or tappets mis-adjusted or stuck.</li> </ol>	<b>COMPRESSION RELATED:</b> <ol style="list-style-type: none"> <li>1. Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again.</li> <li>2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3.</li> <li>3. Tighten head. If that does not remedy problem, replace head gasket.</li> <li>4. Have qualified technician diagnose/repair ignition system.</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 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 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. Low oil shutdown.</li> <li>2. Fuel tank empty or full of impure or low quality gasoline.</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 engine oil to proper level. Check engine oil before EVERY use.</li> <li>2. Fill fuel tank with fresh 87+ octane unleaded gasoline. <b>Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).</b></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 or replace 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 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	<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>	<ol style="list-style-type: none"> <li>1. Fill fuel tank with fresh 87+ octane 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>



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

SAFETY

SETUP

OPERATION

MAINTENANCE



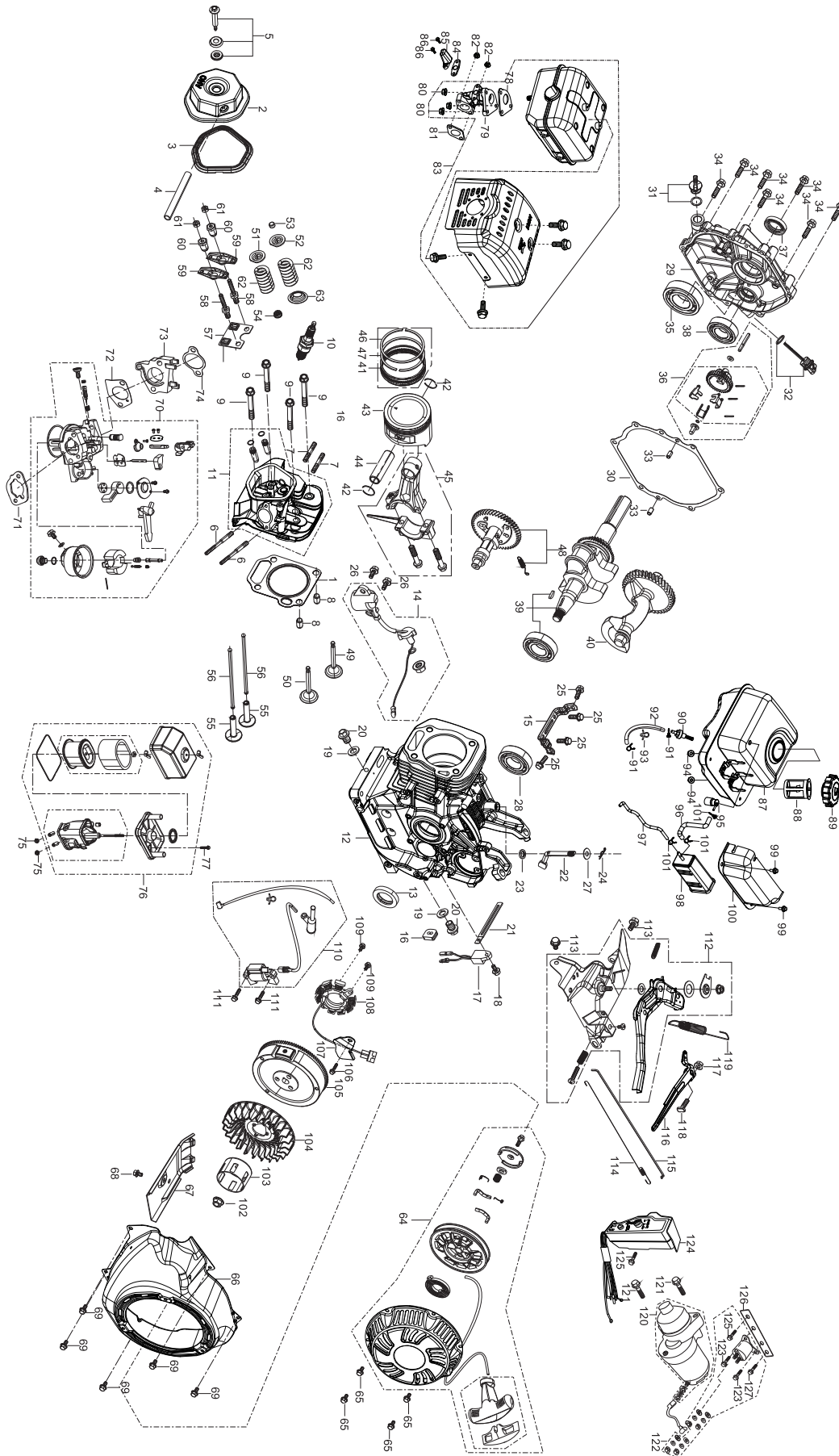
## Parts List and Diagram

### Parts List

Part	Description	Qty	Part	Description	Qty	Part	Description	Qty
1	Gasket, Cylinder Head	1	44	Pin, Piston	1	85	Secondary Air Intake Valve	1
2	Cylinder Head Cover	1	45	Rod, Connecting	1	86	Bolt	2
3	Cylinder Head Gasket	1	46	Primary Ring	1	87	Tank, Fuel	1
4	Tube, Breather	1	47	Secondary Ring	1	88	Strainer, Fuel	1
5	Cylinder Head Cover Bolt	1	48	Camshaft Assy.	1	89	Cover, Fuel Tank	1
6	Stud	2	49	Valve, Exhaust	1	90	Outlet, Fuel Tank Oil	1
7	Stud	2	50	Valve, Intake	1	91	Clamp	2
8	Pin	2	51	Seat, Valve Spring	1	92	Fuel Line	1
9	Bolt, Cylinder Head	4	52	Retainer, Exhaust Valve	1	93	Clip	1
10	Plug, Spark	1	53	Rotator, Valve	1	94	Nut	2
11	Cylinder Head	1	54	Guide, Seal	1	95	One Way Valve	1
12	Crankcase	1	55	Tappet, Valve	2	96	Fuel Steam Hose	1
13	Seal, Oil	1	56	Valve Lifter	2	97	Air Cleaner Hose	1
14	Sensor, Engine Oil	1	57	Lifter Stopper Plate	1	98	Fuel Vapor Collector	1
15	Fuel Tank Frame	1	58	Bolt, Valve Adjusting	2	99	Bolt	2
16	Plug, Rubber	1	59	Rocker, Valve	2	100	Vapor Collector Cover	1
17	Protector, Oil	1	60	Nut, Valve Adjusting	2	101	Clamp	3
18	Bolt	1	61	Nut, Valve Lock	2	102	Nut, Flywheel	1
19	Washer, Flat	2	62	Spring, Valve	2	103	Pulley, Starter	1
20	Bolt, Drain Plug	2	63	Retainer, Valve Spring	1	104	Impeller	1
21	Clip	1	64	Starter Assy, Recoil	1	105	Flywheel	1
22	Arm, Governor	1	65	Bolt	4	106	Bolt	1
23	Seal, Oil	1	66	Shroud	1	107	Cap, Spark Plug	1
24	Pin	1	67	Shroud, Cylinder Body	1	108	Charge Coil	1
25	Bolt	4	68	Bolt	1	109	Bolt	2
26	Bolt	2	69	Bolt	5	110	Coil, Ignition	1
27	Washer, Flat	1	70	Carburetor Assy.	1	111	Bolt	2
28	Bearing	1	71	Gasket, Air Cleaner	2	112	Control Assy, Throttle	1
29	Cover, Crankcase	1	72	Gasket, Carburetor	1	113	Bolt	2
30	Gasket, Crankcase	1	73	Carburetor Insulator	1	114	Throttle Returning Spring	1
31	Engine Oil Plug	1	74	Gasket, Inlet	1	115	Rod, Governor	1
32	Dipstick	1	75	Nut	2	116	Governor Support	1
33	Pin	2	76	Cleaner, Air	1	117	Nut	1
34	Bolt	7	77	Bolt	1	118	Bolt, Governor Support	1
35	Bearing	1	78	Gasket, Muffler	1	119	Spring, Governor	1
36	Gear Assy, Governor	1	79	Pipe, Exhaust	1	120	Starter Motor	1
37	Seal, Oil	1	80	Nut	3	121	Bolt	2
38	Bearing	1	81	Gasket, Exhaust Outlet	1	122	Relay, Starting	1
39	Crankshaft Assy.	1	82	Nut	2	123	Bolt	2
40	Shaft Assy, Balancing	1	83	Muffler Assy.	1	124	Switch, Control	1
41	Ring Set, Oil	1	84	Secondary Air Intake Valve Gasket	1	125	Bolt	2
42	Clip, Piston Pin	2				126	Support	1
43	Piston	1				127	Bolt	1



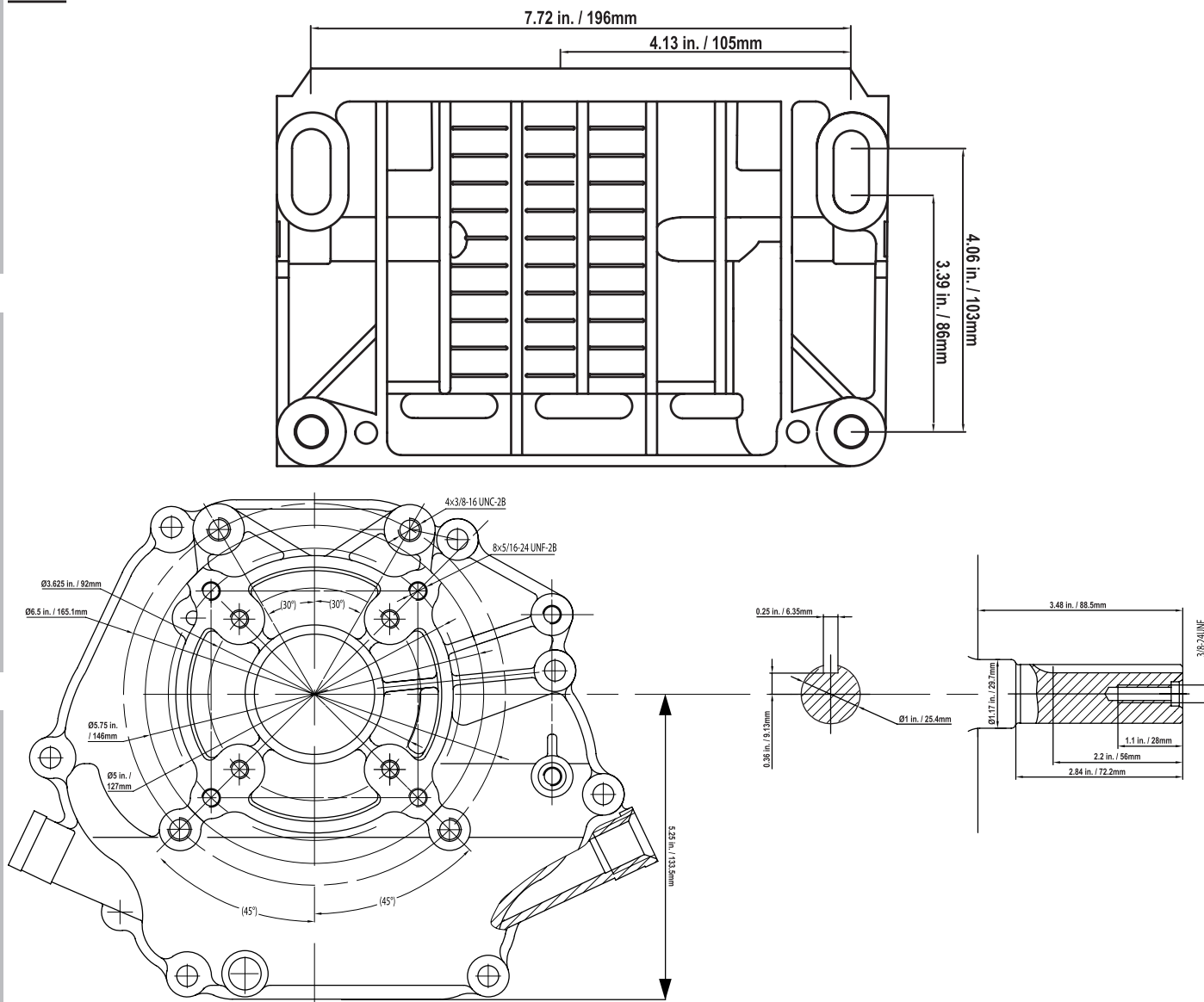
# Assembly Diagram





# Mounting Hole and Power Take-Off Diagrams

**Note:** Not to scale.



## 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.

**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.



## 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.

## Emission Control System Warranty

### California and United States Emission Control Defects Warranty Statement

The California Air Resources Board (herein CARB), the United States Environmental Protection Agency (herein EPA), and Harbor Freight Tools (herein HFT) are pleased to explain the emission control system warranty on your 1995 and later Small Off-Road Engine (herein engine). In California, the engine must be designed, built and equipped to meet the State's stringent anti-smog standards. Elsewhere within the United States, new off-road, spark-ignition engines certified for model year 1997 and later, must meet similar standards set forth by the EPA. HFT must warrant the emission control system on your engine for the periods of time described below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, and the ignition system. Also included may be hoses, belts, connectors and other emission-related assemblies.

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

### Manufacturer's Warranty Coverage

The 1995 and later engines are warranted for two (2) years. If any emission-related part on your engine is defective, the part will be repaired or replaced by HFT.

### Harbor Freight Tools Emission Control Defects Warranty Coverage

Engines are warranted for a period of two (2) years relative to emission control parts defects, subject to the provisions set forth below. 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. HFT recommends that you retain all receipts covering maintenance on your engine, but HFT cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- 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, neglect, improper maintenance, or unapproved modifications.
- You are responsible for shipping your engine to a HFT warranty station as soon as a problem exists. Contact the HFT Customer Service department at the number below to make shipping arrangements. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact the Harbor Freight Tools Customer Service Department at 1-800-520-0882.



## Harbor Freight Tools Emission Control Defects Warranty Provisions

### 1. Length of Coverage

HFT warrants to a first retail purchaser and each subsequent purchaser that the engine is free from defects in materials and workmanship that cause the failure of warranted parts for a period of two (2) years after the date of delivery to the first retail purchaser.

### 2. No Charge Repair or Replacement

Repair or replacement of any warranted part will be performed at no charge to the owner if the work is performed through a warranty station authorized by HFT. For emissions warranty service, contact the HFT Customer Service Department at 1-800-520-0882.

### 3. Consequential Damages Coverage

Coverage under this warranty shall also extend to the failure of any engine components caused by the failure of any warranted part while it is still covered under this warranty.

### 4. Coverage Exclusions

Warranty claims shall be filed in accordance with the provisions of the HFT warranty policy explained in the box at the top of the previous page. HFT shall not be liable for any loss of use of the engine, for any alternative usage, for any damage to goods, loss of time, or inconvenience. Warranty coverage shall also be excluded for any part which fails, malfunctions, or is damaged due to failure to follow the maintenance and operating instructions set forth in the Owner's Manual including, but not limited to:

- a) Use of parts which are not authorized by HFT
- b) Improper installation, adjustment or repair of the engine or of any warranted part unless performed by an authorized warranty center
- c) Failure to follow recommendations on fuel use contained in the Owner's Manual
- d) Improper or inadequate maintenance of any warranted parts
- e) Repairs performed outside of the authorized warranty service dealers
- f) Alterations by changing, adding to or removing parts from the engine.

### 5. Service and Maintenance

Component parts which are not scheduled for replacement as required maintenance or are scheduled only for regular inspection to the effect of "repair or replace as necessary" are warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time up to the first scheduled replacement point for that part. Any replacement part, provided it is equivalent in durability and performance, may be used in performance of maintenance or repairs. The owner is responsible for commissioning a qualified technician/mechanic to perform all required maintenance, as outlined in the Inspection, Cleaning, and Maintenance section in this manual.

### 6. Warranted Parts

#### 1) Fuel Metering System

- i) Carburetor and its internal parts.
- ii) Fuel pump (if so equipped).
- iii) Cold start enrichment system.

#### 2) Air Induction System

- i) Intake pipe/manifold.
- ii) Air cleaner.

#### 3) Ignition System

- i) Spark plug.
- ii) Magneto ignition system.

#### 4) Catalyst System (if so equipped)

- i) Exhaust pipe stud.
- ii) Muffler.
- iii) Catalytic converter (if so equipped).

#### 5) Miscellaneous Items Used in Above Systems

- i) Vacuum, temperature and time sensitive valves and switches.
- ii) Hoses, belts, connectors, and assemblies.

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Disposiciones que rigen la cobertura de garantía de Harbor Freight Tools por defectos en el sistema de control de emisiones.

1. Duración de la garantía

HFT garantiza al primer comprador minorista y a cada comprador subsecuente que el motor está libre de defectos en sus materiales y mano de obra que puedan causar el fallo de las piezas cubiertas por la garantía durante un periodo de dos (2) años a partir de la fecha de entrega al primer comprador minorista.

2. Reparaciones o reemplazos sin cargo

Se reparará o reemplazará cualquier pieza cubierta por la garantía sin cargo para el propietario, siempre y cuando el trabajo sea realizado por una agencia de servicios de garantía autorizada por HFT. Para servicios de garantía del sistema de emisiones, póngase en contacto con el Departamento de Servicios al Cliente de HFT, al 1-800-520-0882.

3. Cobertura por daños consecuentes

La cobertura brindada por esta garantía también incluirá el fallo de cualquier componente del motor como consecuencia del fallo de cualquier pieza cubierta en la garantía mientras la cobertura de dicha pieza esté vigente.

4. Exclusiones de la cobertura

Los reclamos por esta garantía deberán tramitarse de acuerdo con las disposiciones de la política de garantía de HFT que se explican en la caja ubicada en la parte superior de la página anterior. HFT no será responsable por ninguna pérdida de uso del motor, por ningún uso alternativo, por ningún daño a bienes, por ninguna pérdida de tiempo y ningún inconveniente. También quedará excluida de la garantía cualquier pieza que falle, funcione mal o resulte dañada a causa de no haberse seguido las instrucciones de mantenimiento y operación detalladas en el manual del usuario, incluyendo, entre otras:

- a) Utilización de piezas no autorizadas por HFT.
- b) Instalación, ajuste o reparación inadecuada del motor o de cualquier pieza cubierta por la garantía, a menos que haya sido realizada por un centro de servicios de garantía autorizado.
- c) Falta de acatamiento a las recomendaciones sobre uso de combustible que se proporcionan en el manual del usuario.
- d) Mantenimiento inadecuado o incorrecto de las piezas cubiertas por la garantía.
- e) Reparaciones realizadas por personas ajenas a las agencias de servicio técnico de garantía autorizadas.
- f) Alteraciones hechas al motor a través de cambios, adición o extracción de piezas.

5. Mantenimiento y servicio técnico

Los componentes cuyo reemplazo no está indicado en el cronograma de mantenimiento obligatorio o para las que únicamente se indican inspecciones regulares a los efectos de "reparar o reemplazar si es necesario" están cubiertas por la garantía durante el periodo de vigencia de dicha garantía. Cualquier pieza cubierta por la garantía cuyo reemplazo está indicado en el cronograma de mantenimiento obligatorio está cubierta por la garantía durante el periodo de tiempo que culmina en la fecha del primer reemplazo programado de esa pieza. En la realización de tareas de reparación y mantenimiento puede utilizarse cualquier pieza de repuesto, siempre y cuando sea equivalente en cuanto a duración y desempeño. El propietario es responsable de solicitar a un técnico/mecánico calificado que realice todas las tareas de mantenimiento requeridas, tal como se indica en la sección "Inspección, mantenimiento y limpieza" de este manual.

6. Piezas en garantía

1) Sistema de medición de combustible

- i) Carburador y sus piezas internas
- ii) Bomba de combustible (si está incluida en el modelo)
- iii) Sistema de enriquecimiento de mezcla, para arranque en frío

2) Sistema de inducción de aire

- i) Tubo/colector de admisión
- ii) Filtro de aire

3) Sistema de encendido

- i) Buja
- ii) Sistema de encendido con imán.

4) Sistema de catalización (si está incluido en el modelo)

- i) Clavija del caño de escape.
- ii) Silenciador.
- iii) Conversor catalítico (si está incluido en el modelo)

5) Elementos diversos utilizados en los sistemas arriba mencionados

- i) Válvulas e interruptores de vacío, temperatura y sensibles al tiempo.
- ii) Mangueras, correas, conectores y estructuras de montaje.



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Garantía limitada de 90 días

Harbor Freight Tools Co. hace todo lo posible para asegurar que sus productos cumplen con altos estándares de calidad y durabilidad, y garantiza al comprador original que este producto está libre de defectos en sus materiales y mano de obra durante un plazo de 90 días a partir de la fecha de compra. Esta garantía no aplica a daños que, directa o indirectamente, se deban a mala utilización, maltrato, negligencia o accidentes, reparaciones o alteraciones realizadas fuera de nuestras instalaciones, actividad delictiva, instalación inadecuada, desgaste y roturas normales o falta de mantenimiento. En ningún caso seremos responsables por muerte, lesiones a personas o bienes, o en el caso de daños incidentales, contingentes, especiales o consecuentes derivados del uso de nuestro producto. Algunos estados no permiten la exclusión o limitación de daños incidentales o consecuentes, por lo cual es posible que la anterior limitación de exclusión no sea aplicable a usted. ESTA GARANTÍA SUSTITUYE EXPRESAMENTE TODAS LAS DEMÁS GARANTÍAS, EXPRESAS O IMPLÍCITAS, INCLUIDAS LAS GARANTÍAS DE COMERCIABILIDAD Y ADECUACIÓN.

Para obtener los beneficios de esta garantía, deberá remitirnos el producto o pieza con los gastos de transporte prepagados. Junto con el artículo, deberá remitir, además, el comprobante de la fecha de compra y una explicación de su reclamo. Si nuestra inspección verifica el defecto, repararemos o sustituiremos el producto, a nuestra elección, o podemos optar por reintegrar el precio de compra si no podemos fácil y rápidamente proporcionarle un reemplazo. Los gastos de envío de los productos reparados correrán por nuestra cuenta, pero si determinamos que no existe ningún defecto, o que el defecto fue resultado de circunstancias que no se encuentran dentro del alcance de nuestra garantía, usted deberá hacerse cargo de los costos de envío del producto.

Esta garantía le otorga derechos legales específicos y también puede tener otros derechos que varían entre estados.

Declaración de California y Estados Unidos sobre las garantías contra defectos en el control de emisiones

El Departamento de Recursos del Aire de California (de aquí en adelante, denominado "CARB"), la Agencia de Protección Ambiental de EE.UU. (de aquí en adelante, denominada "EPA"), y Harbor Freight Tools (de aquí en adelante, denominada "HFT") se complacen en explicar la garantía del sistema de control de emisiones de su pequeño motor para uso fuera de carreteras 1995 y posteriores (de aquí en más, denominado "motor"). En California, los motores deben estar diseñados, fabricados y equipados de modo tal que cumplan con los rigurosos estándares anti-smog del estado. En el resto de Estados Unidos, los motores nuevos con encendido por chispa para uso fuera de carreteras certificados para el año 1997 y modelos posteriores deben cumplir con estándares similares establecidos por la EPA. HFT debe garantizar el sistema de control de emisiones de su motor para los periodos de tiempo que se describen más abajo, siempre y cuando su motor no haya sido sometido a malos tratos, falta de cuidados o mantenimiento inadecuado.

Cobertura de garantía del fabricante

Es posible que su sistema de control de emisiones incluya piezas como el carburador o el sistema de inyección de combustible, y el sistema de encendido. Además, es posible que estén incluidas mangueras y correas, además de conectores y otras estructuras de montaje relacionadas con el sistema de emisión.

Cuando se presente un problema cubierto por la garantía, HFT reparará su motor sin cargo, incluyendo el diagnóstico, las piezas de repuesto y la mano de obra.

Los motores modelo 1995 y posteriores poseen una garantía de dos (2) años. Si alguna pieza relacionada con el sistema de control de emisiones de su motor posee algún defecto, HFT la reparará o reemplazará.

Garantía del sistema de control de emisiones

Cobertura de garantía de Harbor Freight Tools por defectos en el sistema de control de emisiones.

Los motores poseen garantía por dos (2) años por defectos en piezas del sistema de control de emisiones, con sujeción a las disposiciones que se establecen a continuación. Si alguna pieza relacionada con el sistema de control de emisiones de su motor posee algún defecto, HFT la reparará o reemplazará.

**Responsabilidades del propietario en relación con la garantía**

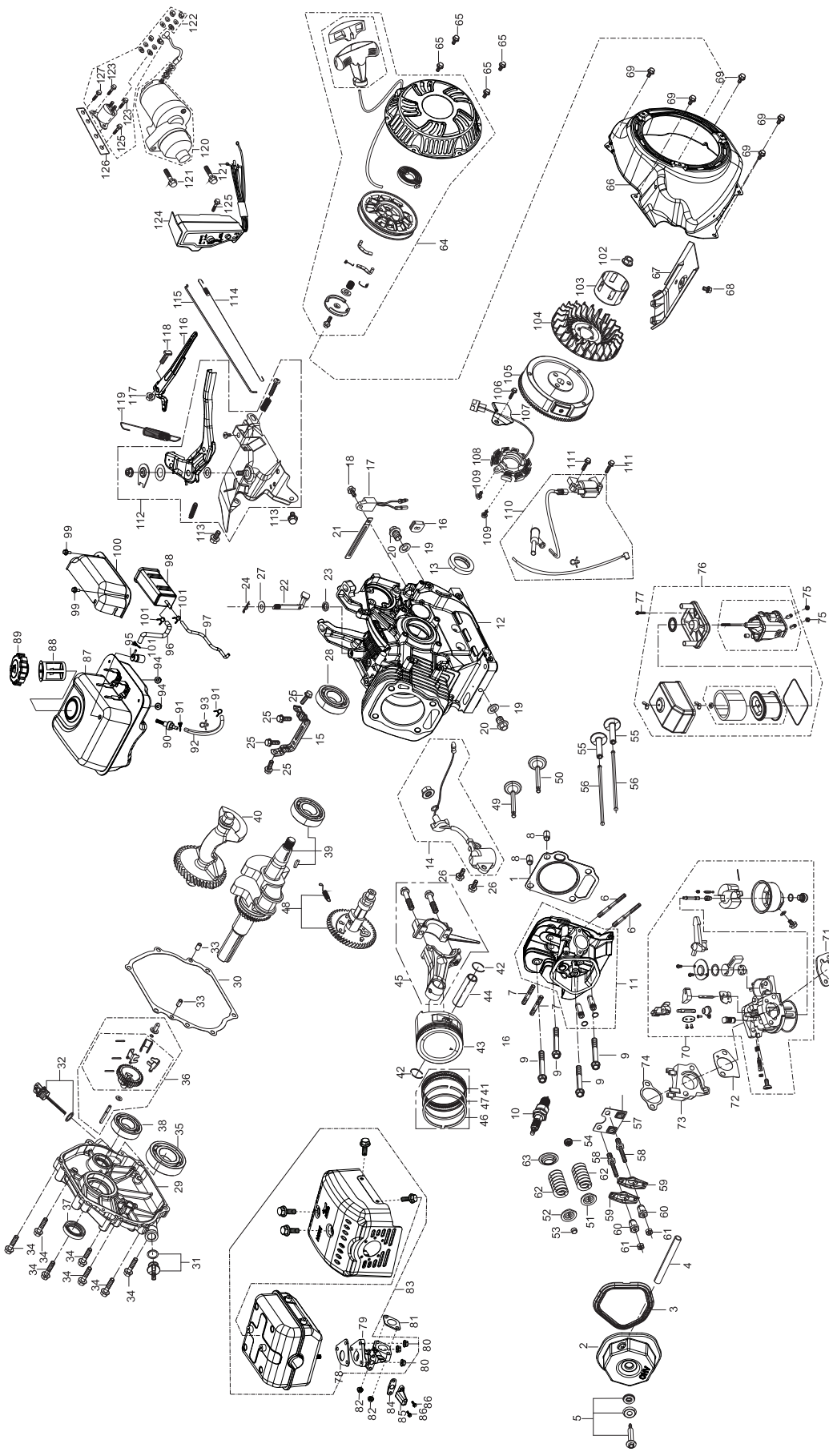
- Como propietario del motor, usted es responsable de realizar las tareas de mantenimiento requeridas, que se enumeran en su "Manual del usuario". HFT le recomienda que conserve todos los recibos que cubren las tareas de mantenimiento de su motor, pero HFT no podrá negarle la cobertura de garantía en caso de que usted no posea los recibos o en caso de que usted no haya realizado las tareas de mantenimiento indicadas en el cronograma.
- Como propietario del motor, debe, sin embargo, saber que HFT puede negarle la cobertura de garantía si su motor o una pieza presenta fallos debidos a malos tratos, falta de cuidados, mantenimiento inadecuado o modificaciones no aprobadas.
- Usted será responsable de enviar su motor a una agencia de servicios de garantía de HFT tan pronto como se presente un problema. Para organizar el envío, póngase en contacto con el Departamento de Servicios al Cliente de HFT al número que se indica a continuación. Se deberá dar cumplimiento a los trabajos de reparación cubiertos por la garantía en un plazo razonable, que no deberá exceder los 30 días.

Si posee preguntas sobre sus derechos y responsabilidades relativos a la garantía, póngase en contacto con el Departamento de Servicios al Cliente de Harbor Freight Tools al número 1-800-520-0882.











Lista de piezas

		1	Junta, cabeza del cilindro	1
		2	Tapa de la cabeza del cilindro	1
		3	Junta de culata del cilindro	1
		4	Tubo, respiradero	1
		5	Perno de la tapa de la cabeza del cilindro	1
		6	Montante	2
		7	Montante	2
		8	Pasador	2
		9	Perno, cabeza del cilindro	4
		10	Bujía, encendido	1
		11	Cabeza del cilindro	1
		12	Cárter	1
		13	Retén, aceite	1
		14	Sensor, aceite del motor	1
		15	Armazón del tanque de combustible	1
		16	Tapón, goma	1
		17	Protector, aceite	1
		18	Perno	1
		19	Arandela, plana	2
		20	Perno, tapón de drenaje	2
		21	Broche	1
		22	Brazo principal	1
		23	Retén, aceite	1
		24	Pasador	1
		25	Perno	4
		26	Perno	2
		27	Arandela, plana	1
		28	Cojinete	1
		29	Tapa, cárter	1
		30	Junta, cárter	1
		31	Tapón de aceite del motor	1
		32	Varilla medidora de aceite	1
		33	Pasador	2
		34	Perno	7
		35	Cojinete	1
		36	Módulo de engranajes, regulador del motor	1
		37	Retén, aceite	1
		38	Cojinete	1
		39	Montaje del cigüeñal	1
		40	Árbol del eje, balanceado	1
		41	Juego de aros, aceite	1
		42	Broche, pasador del pistón	2
		43	Pistón	1
		44	Pasador, pistón	1
		45	Varilla, acoplamiento	1

SEGURIDAD

CONFIGURACIÓN

FUNCIONAMIENTO

MANTENIMIENTO

		46	Aro principal	1
		47	Aro secundario	1
		48	Módulo del árbol de levas	1
		49	Válvula, escape	1
		50	Válvula, admisión	1
		51	Asiento, resorte de válvula	1
		52	Retén, válvula de escape	1
		53	Rotador, válvula	1
		54	Guía, retén	1
		55	Empujador, válvula	2
		56	Levantaválvula	2
		57	Placa obturadora de levantaválvula	1
		58	Perno, ajuste de válvula	2
		59	Balancín, válvula	2
		60	Tuerca, ajuste de válvula	2
		61	Tuerca, bloqueo de válvula	2
		62	Resorte, válvula	2
		63	Retén, resorte de válvula	1
		64	Montaje del arrancador, tirador	1
		65	Perno	4
		66	Camisa	1
		67	Refuerzo, cuerpo del cilindro	1
		68	Perno	1
		69	Perno	5
		70	Estructura del carburador	1
		71	Junta, limpiador de aire	2
		72	Junta, carburador	1
		73	Asistente del carburador	1
		74	Junta, entrada	1
		75	Tuerca	2
		76	Limpiador, aire	1
		77	Perno	1
		78	Junta, silenciador	1
		79	Cañó, escape	1
		80	Tuerca	3
		81	Junta, salida de gases de escape	1
		82	Tuerca	2
		83	Módulo del silenciador	1
		84	Junta de válvula de admisión de aire secundaria	1
		85	Válvula de admisión de aire secundaria	1
		86	Perno	2
		87	Tanque, combustible	1

Si desea realizar preguntas técnicas, llame al 1-800-520-0882.

Artículo 56101

		88	Depurador, combustible	1
		89	Tapa, tanque de combustible	1
		90	Salida, aceite tanque de combustible	1
		91	Pinza	2
		92	Tuberías de combustible	1
		93	Broche	1
		94	Tuerca	2
		95	Válvula unidireccional	1
		96	Manguera de vapor de combustible	1
		97	Manguera de limpiador de aire	1
		98	Colector de vapor de combustible	1
		99	Perno	2
		100	Tapa del colector de combustible	1
		101	Pinza	3
		102	Tuerca, polea volante	1
		103	Polea, arrancador	1
		104	Rotor	1
		105	Volante	1
		106	Perno	1
		107	Tapa, bujía	1
		108	Bobina de carga	1
		109	Perno	2
		110	Bobina, encendido	1
		111	Perno	2
		112	Módulo de control, regulador	1
		113	Perno	2
		114	Muelle de retorno del regulador	1
		115	Varilla, regulador del motor	1
		116	Soprote del regulador del motor	1
		117	Tuerca	1
		118	Perno, soporte del regulador del motor	1
		119	Resorte, regulador del motor	1
		120	Motor de arranque	1
		121	Perno	2
		122	Relé, arranque	1
		123	Perno	2
		124	Interruptor, mando	1
		125	Perno	2
		126	Soprote	1
		127	Perno	1





Siga todas las precauciones de seguridad cada vez que realice tareas de diagnóstico o reparación al equipo o motor.

Problema	Causas posibles	Soluciones probables
El motor falla	<ol style="list-style-type: none"><li>La tapa de la bujía está floja.</li><li>El espacio interelectrónico de la bujía es incorrecto, o la bujía está dañada.</li><li>La tapa de la bujía es defectuosa.</li><li>Gasolina vieja o de mala calidad.</li><li>Compresión incorrecta.</li></ol>	<ol style="list-style-type: none"><li>Verifique las conexiones de los cables.</li><li>Corrija el espacio interelectrónico o reemplace la bujía.</li><li>Reemplace la tapa de la bujía.</li><li>Utilice únicamente gasolina nueva de 87+ octanos sin plomo.</li><li>Haga diagnóstico y reparar la compresión. (Utilice la sección <b>El motor no enciende: RELACIONADAS CON LA COMPRESIÓN</b>.)</li></ol>
El motor se detiene de repente	<ol style="list-style-type: none"><li>Apagado por bajo nivel de aceite.</li><li>El tanque de combustible está vacío o lleno de gasolina con impurezas o de mala calidad.</li><li>La tapa del depósito de combustible es defectuosa, genera un vacío e impide el flujo adecuado del combustible.</li><li>Imán defectuoso.</li><li>La tapa de la bujía está mal conectada o desconectada.</li></ol>	<ol style="list-style-type: none"><li>Llene con aceite para motor hasta el nivel adecuado. Verifique el aceite del motor antes de CADA uso.</li><li>Llene el tanque de combustible con gasolina nueva de 87+ octanos sin plomo.</li><li><b>No utilice gasolina con más de 10% de etanol (E15, E20, E85, etc.).</b> Pruebe/reemplace la tapa del depósito de combustible.</li><li>Haga reparar el imán por un técnico calificado.</li><li>Ajuste la tapa de la bujía.</li></ol>
El motor se detiene cuando trabaja con cargas pesadas	<ol style="list-style-type: none"><li>El filtro de aire está sucio.</li><li>El motor está funcionando en frío.</li></ol>	<ol style="list-style-type: none"><li>Limpie o reemplace el elemento.</li><li>Permita que el motor se caliente antes de utilizar el equipo.</li></ol>
El motor golpea	<ol style="list-style-type: none"><li>Gasolina vieja o de mala calidad.</li><li>El motor está sobrecargado.</li><li>Tiempo de encendido incorrecto, acumulación de depósitos, motor agotado u otros problemas mecánicos.</li></ol>	<ol style="list-style-type: none"><li>Llene el tanque de combustible con gasolina nueva de 87+ octanos sin plomo.</li><li><b>No utilice gasolina con más de 10% de etanol (E15, E20, E85, etc.).</b> No exceda la capacidad nominal de carga del equipo.</li><li>Haga diagnóstico y reparar el motor por un técnico calificado.</li></ol>
El escape del motor produce detonaciones	<ol style="list-style-type: none"><li>Gasolina con impurezas o de mala calidad.</li><li>El motor está demasado frío.</li><li>Válvula de admisión atascada o motor recalentado.</li><li>Tiempo de encendido incorrecto.</li></ol>	<ol style="list-style-type: none"><li>Llene el tanque de combustible con gasolina nueva de 87+ octanos sin plomo.</li><li><b>No utilice gasolina con más de 10% de etanol (E15, E20, E85, etc.).</b> Utilice aditivos para aceite y combustible para climas fríos, de modo de evitar detonaciones en el escape del motor.</li><li>Haga diagnóstico y reparar el motor por un técnico calificado.</li><li>Verifique el tiempo de encendido del motor.</li></ol>

MANTENIMIENTO

FUNCIONAMIENTO

CONFIGURACIÓN

SEGURIDAD





Siga todas las precauciones de seguridad cada vez que realice tareas de diagnóstico o reparación al equipo o motor.

MANTENIMIENTO

FUNCIONAMIENTO

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SEGURIDAD

Problema	Causas posibles	Soluciones probables
El motor no enciende	<p>1. No hay combustible en el tanque o la válvula de combustible está cerrada.</p> <p>2. El cebador no está en posición CHOKE; motor frío.</p> <p>3. Se está utilizando gasolina con más de 10% de etanol. (E15, E20, E85, etc.)</p> <p>4. Gasolina vieja, de mala calidad o deteriorada.</p> <p>5. No se cebó el carburador.</p> <p>6. Conductos de gasolina sucios.</p> <p>7. La aguja del carburador se trabó.</p> <p>8. Se percibe olor a combustible en el aire.</p> <p>9. Demasiado combustible en la cámara. Esto puede deberse a que la aguja del carburador se ha trabado.</p> <p>9. Filtro de combustible tapado.</p>	<p>1. RELACIONADAS CON EL COMBUSTIBLE:</p> <p>1. Llene el tanque de combustible y abra la válvula de combustible.</p> <p>2. Coloque el interruptor del cebador en la posición CHOKE.</p> <p>3. Elimine del sistema de combustible la gasolina rica en etanol. Reemplace los componentes dañados por el etanol: Utilice únicamente gasolina nueva de 87+ octanos sin plomo.</p> <p>4. Utilice únicamente gasolina nueva de 87+ octanos sin plomo.</p> <p>5. No utilice gasolina con más de 10% de etanol (E15, E20, E85, etc.).</p> <p>6. No utilice gasolina con más de 10% de etanol (E15, E20, E85, etc.).</p> <p>7. Tire de la manija del arrancador para cebar.</p> <p>8. Limpie los conductos con aditivo para combustible.</p> <p>9. Cuando los depósitos sean muy gruesos es posible que se necesite una limpieza extra.</p> <p>10. Dé unos golpecitos <b>suaves</b> con el mango de un destornillador en el costado de la cámara del flotador del carburador.</p> <p>11. Coloque el interruptor del cebador en la posición RUN. Extraiga la bujía y tire de la manija del arrancador varias veces para extraer el aire de la cámara. Vuelva a instalar la bujía y coloque el interruptor del cebador en la posición CHOKE.</p> <p>12. Reemplace el filtro de combustible.</p> <p>13. RELACIONADAS CON EL ENCENDIDO (CHISPA):</p> <p>1. Conecte adecuadamente la tapa de la bujía.</p> <p>2. Limpie la bujía.</p> <p>3. Corrija el espacio interelectrónico de la bujía.</p> <p>4. Reemplace la tapa de la bujía.</p> <p>5. Restablezca el disyuntor. Si el disyuntor continúa disparándose, inspeccione el cableado y el motor de arranque.</p> <p>6. Haga diagnóstico/repasar el sistema de encendido por un técnico calificado.</p> <p>7. RELACIONADAS CON LA COMPRESIÓN:</p> <p>1. El cilindro no está lubricado. Es un problema que se presenta después de largos periodos de almacenamiento.</p> <p>2. Bujía floja o rota. (Al tratar de arrancar, se escucha un sonido sibilante)</p> <p>3. Cabeza del cilindro floja o junta de culata dañada. (Al tratar de arrancar, se escucha un sonido sibilante)</p> <p>4. Válvulas o empujadores del motor mal ajustados o atascados.</p>



Cuando no vaya a utilizar el equipo por más de 20 días, prepare el motor para almacenamiento de la siguiente manera:

1. LIMPIEZA:

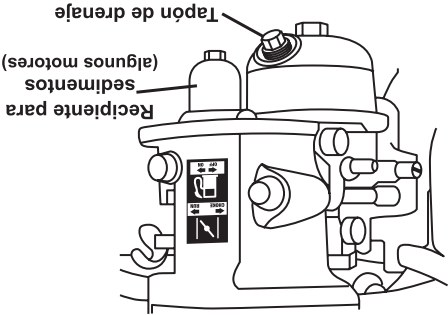
Permita que el motor se enfríe; luego, límpielo con un trapo seco. **AVISO: No limpie con agua.** El agua ingresará gradualmente al motor y causará daños por oxidación. Aplique una capa fina de aceite antioxidante a todas las piezas metálicas.

2. COMBUSTIBLE:

**¡ADVERTENCIA! PARA EVITAR LESIONES GRAVES OCASIONADAS POR INCENDIO:**

Vacíe el tanque de combustible en un área bien ventilada alejada de fuentes de ignición. Si el motor está caliente por el uso, apáguelo y espere que se enfríe antes de vaciar el tanque de combustible. No fume.

a. Coloque debajo del carburador un embudo que conduzca a un recipiente para combustible adecuado.



b. Extraiga el perno de drenaje de la parte inferior de la taza del carburador y permita que el combustible drene.  
c. Quite el pequeño recipiente para sedimentos que se encuentra junto a la taza, y permita que el combustible drene de allí también.

PREDATOR™  
E N G I N E S

Si desea realizar preguntas técnicas, llame al 1-800-520-0882.

d. Abra la válvula de combustible. Cuando el combustible haya drenado por completo, vuelva a instalar el perno de drenaje y el recipiente para sedimentos (si está presente). Ajuste firmemente.

3. LUBRICACIÓN:

a. Cambie el aceite del motor.  
b. Limpie el área que rodea a la bujía. Quite la bujía y eche una cucharada de aceite para motores dentro del cilindro a través del orificio de la bujía.  
c. Vuelva a colocar la bujía, pero deje desconectada la tapa de la bujía.

d. Tire de la manija del arrancador para distribuir el aceite en el cilindro. Deténgase después de una o dos revoluciones, cuando sienta que el pistón inició la carrera de compresión (es decir, cuando comience a sentir resistencia).

4. BATERÍA:

Desconecte los cables de la batería (si está presente). Recargue las baterías una vez por mes durante el almacenamiento del equipo.

5. ÁREA DE ALMACENAMIENTO:

Cubra y guarde en un área seca, uniforme y bien ventilada, lejos del alcance de los niños. Además, el área de almacenamiento debe estar alejada de fuentes de ignición, tales como calentadores de agua, secarropas y calderas.

6. TERMINADO EL ALMACENAMIENTO:

Antes de encender el motor después de un periodo de almacenamiento, tenga en cuenta que la gasolina no tratada se deteriora rápidamente. Si la gasolina tratada ha estado inactiva por un mes, si la gasolina tratada ha estado inactiva por más tiempo que el recomendado para el estabilizante de combustible o si el motor no arranca, vacíe el tanque de combustible y coloque combustible nuevo.

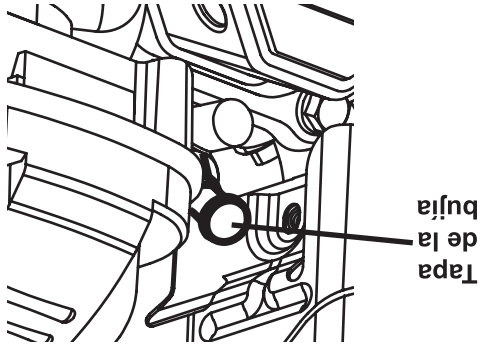


Mantenimiento del filtro de aire

1. Quite la tapa del filtro de aire y el filtro de aire y verifique que no haya suciedad. Limpie o vuelva a colocar como se describe abajo.
2. **Limpieza:**

- En el caso de filtros de "papel": Para evitar lesiones ocasionadas por el polvo y los residuos, utilice gafas de seguridad aprobadas por el ANSI, máscara antipolvo/respiratoria aprobada por el Instituto Nacional para la Seguridad y Salud Ocupacional (NIOSH) y guantes de trabajo de caucho de alta resistencia. En un área bien ventilada y alejada de los circunstancias, utilice aire presurizado para quitar el polvo del filtro de aire. Si con este procedimiento el filtro no queda limpio, reemplácelo.
  - En el caso de filtros de espuma: Lave el filtro varias veces con agua tibia y detergente suave. Enjuague. Escorra el exceso de agua y permita que se seque completamente. Sumerja brevemente el filtro en aceite liviano; luego, escurra el exceso de aceite.
3. Instale el nuevo filtro o el filtro que ha limpiado. Antes de utilizar, ajuste la tapa del filtro de aire.

Mantenimiento de la bujía



1. Desconecte la tapa de la bujía del extremo de la bujía. Limpie los residuos de alrededor de la bujía.
  2. Con una llave para bujías, extraiga la bujía.
  3. Inspeccione la bujía.
- Si el electrodo tiene aspecto aceitoso, límpielo con un trapo limpio y seco. Si hay depósitos sobre el electrodo, púlalo con una lija. Si el aislante blanco está rajado o cascado, deberá reemplazar la bujía. Utilice únicamente una bujía F6TC NHSP®/Torch®.
- AVISO:** Utilizar una bujía incorrecta puede dañar el motor.
4. Al instalar una nueva bujía, ajuste el espacio entre los electodos de acuerdo a lo que indica el cuadro de Especificaciones técnicas. No haga palanca contra el electrodo; la bujía podría dañarse.
  5. Instale en el motor la nueva bujía o la bujía que ha limpiado. De tipo junta: Ajuste con el dedo hasta que la junta entre en contacto con la cabeza del cilindro; luego, un 1/2-2/3 de vuelta más. No de tipo junta: Ajuste con el dedo hasta que el tapón entre en contacto con la cabeza; luego, un 1/16 de vuelta más.
- AVISO:** Ajuste adecuadamente la bujía. Si queda floja, la bujía podría hacer que el motor se recaliente. Si está ajustada por demás, se dañarán las roscas del bloque del motor.- 6. Aplique protector dieléctrico para bornes de bujías (no incluido) en el extremo de la bujía, y vuelva a conectar firmemente el cable.



Verificación y carga de combustible

**¡ADVERTENCIA! PARA EVITAR LESIONES GRAVES OCASIONADAS POR INCENDIO:**



Llene el tanque de combustible en un área bien ventilada alejada de fuentes de ignición. Si el motor está caliente por el uso, apáguelo y espere que se enfríe antes de agregar combustible. No fume.

1. Limpie la tapa del depósito de combustible y el área que la rodea.
2. Desenrosque y extraiga la tapa del depósito de combustible.

3. De ser necesario, llene el tanque de combustible hasta aproximadamente 1 pulgada por debajo de la boca de llenado del tanque de gasolina con gasolina sin plomo de 87 octanos o más.

**Nota:** No utilice gasolina que contenga más de 10% de etanol (E10). No utilice etanol E85.

**Nota:** No utilice gasolina que haya sido almacenada en un recipiente metálico de combustible o en un recipiente de combustible sucio. De lo contrario, podrían ingresar partículas al carburador, lo cual afectaría el desempeño del motor y/o podría causar daños.

4. Vuelva a colocar la tapa del depósito de combustible.
5. Si se derramó combustible, límpielo, y permita que el exceso se evapore antes de encender el motor. Para evitar un incendio, no encienda el motor mientras el olor del combustible continúe percibiéndose en el aire.

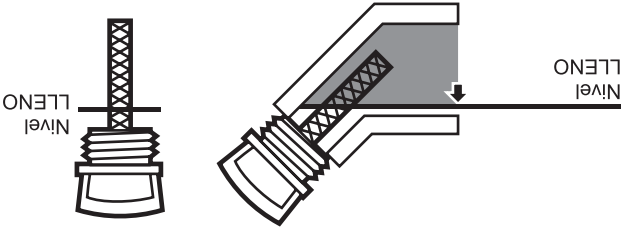
Cómo cambiar el aceite del motor

**¡PRECAUCIÓN!** Durante el funcionamiento el aceite está muy caliente y podría causar quemaduras. Antes

1. Asegúrese de que el motor esté detenido y nivelado.
2. Cierre la válvula de combustible.
3. Coloque una bandeja de drenaje (no incluida) debajo del tapón de drenaje del cárter.

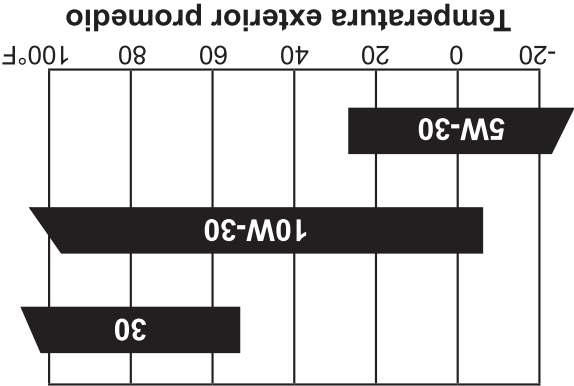
4. Quite el tapón de drenaje y, de ser posible, incline ligeramente el cárter para ayudar a drenar el aceite. Recicle el aceite usado.
5. Vuelva a colocar el tapón de drenaje y ajústelo.

6. Limpie la parte superior de la varilla medidora de aceite y el área que la rodea. Quite la varilla medidora de aceite desenroscándola en sentido contrario al de las agujas del reloj, y límpiela con un trapo limpio libre de pelusas.



7. Agregue el tipo apropiado de aceite hasta que alcance el nivel FULL (LLENO). Se recomienda aceite SAE 10W-30 para uso general. El cuadro "Índices de viscosidad de SAE" en la sección "Mantenimiento y servicio técnico" muestra otras viscosidades a utilizar con diferentes temperaturas promedio.

Índices de viscosidad de SAE



8. Vuelva a enroscar la varilla medidora de aceite en el sentido de las agujas del reloj.

**¡PRECAUCIÓN!** No haga funcionar el motor con baja cantidad de aceite. El motor sufrirá daños permanentes.



ADVERTENCIA

**PARA EVITAR LESIONES GRAVES CONSECUENCIA DE UN ARRANQUE ACCIDENTAL:**  
Gire el interruptor de alimentación del equipo a la posición "OFF" (APAADO), permita que el motor se enfríe y desconecte la tapa de la bujía antes de realizar cualquier inspección, tarea de mantenimiento o procedimiento de limpieza.  
**PARA EVITAR LESIONES GRAVES OCASIONADAS POR UN FUNCIONAMIENTO DEFECTUOSO DEL EQUIPO:**  
No utilice el equipo si está dañado. Si detecta ruidos o vibraciones anormales o hay exceso de humo, corrija el problema antes de su uso.  
Siga todas las instrucciones para mantenimiento que brinda este manual. Si no se efectúa un mantenimiento técnico adecuado, el motor puede presentar fallas críticas.  
Por cuestiones de seguridad, muchos procedimientos de mantenimiento, incluyendo cualquiera que no esté detallado en este manual, deberán estar a cargo de un técnico calificado. Si duda de su capacidad para realizar tareas de mantenimiento al equipo o al motor en condiciones seguras, solicite los servicios de un técnico calificado.

Cronograma de limpieza, mantenimiento y lubricación

**Nota:** Este cronograma de mantenimiento debe considerarse únicamente como una guía general. Si el desempeño disminuye o si el equipo funciona de manera inusual, verifique los sistemas inmediatamente. Las necesidades de mantenimiento serán diferentes para cada equipo, dependiendo de factores tales como ciclo de trabajo, temperatura, calidad del aire, calidad del combustible y otros factores.  
**Nota:** Los siguientes procedimientos se suman a los controles y el mantenimiento regulares indicados como parte del funcionamiento regular del motor y del equipo.

Procedimiento	Antes de cada uso	Mensualmente o cada 20 horas de uso	Cada 3 meses o 50 horas de uso	Cada 6 meses o 100 horas de uso	Anualmente o cada 300 horas de uso	Cada 2 años
Cepille el exterior del motor	✓	✓	✓	✓	✓	✓
Verifique el nivel de aceite del motor	✓	✓	✓	✓	✓	✓
Verifique el filtro de aire	✓		✓	✓	✓	✓
Verifique el recipiente del depósito	✓			✓	✓	✓
Cambie el aceite del motor.		✓		✓	✓	✓
Limpie/reemplace el filtro de aire			✓*	✓	✓	✓
Verifique y limpie la bujía				✓	✓	✓
1. Verifique/ajuste la velocidad de ralentí						✓**
2. Verifique/ajuste la holgura de las válvulas						✓**
3. Limpie el tanque de combustible, la abrazadera y el carburador						✓**
4. Elimine la acumulación de carbono de la cámara de combustión						✓**
Reemplace las tuberías de combustible, de ser necesario						✓**

\* Cuando utilice el equipo en zonas polvorientas, realice tareas de mantenimiento con mayor frecuencia.  
\*\* El servicio técnico de estos elementos debe estar a cargo de un técnico calificado.





MANTENIMIENTO

FUNCIONAMIENTO

CONFIGURACIÓN

SEGURIDAD

5. Permita que el motor funcione durante varios segundos. Luego, si la palanca del cebador está en la posición CHOKE, muévela muy lentamente hacia la posición RUN.
- Nota:** Mover la palanca del cebador demasiado rápidamente podría parar el motor.

**IMPORTANTE:** Permita que el motor funcione sin carga durante cinco minutos después de cada arranque, para que pueda estabilizarse.

6. Ajuste el regulador según sea necesario.

**Período de asentamiento:**

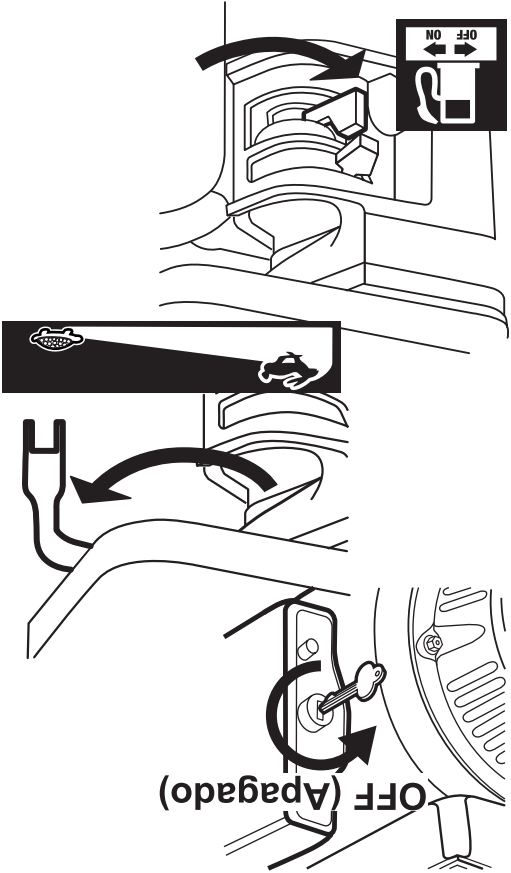
- a. Asentar el motor ayudará a garantizar un funcionamiento adecuado del equipo y del motor.
- b. El período de asentamiento de funcionamiento corresponderá a aproximadamente 3 horas de uso. Durante ese período:
  - No aplique ninguna carga pesada al equipo.
  - No haga funcionar el motor a máxima velocidad.
- c. El período de asentamiento de mantenimiento corresponderá a aproximadamente 20 horas de uso. Después de ese período:
  - Cambie el aceite del motor.

En condiciones normales de funcionamiento, ulteriores tareas de mantenimiento siguen al cronograma que se detalla en la sección MANTENIMIENTO Y SERVICIO TÉCNICO .

1. Para detener el motor en caso de emergencia, coloque el interruptor del motor en la posición "OFF" (APAGADO).

2. En condiciones normales de funcionamiento, utilice el siguiente procedimiento:

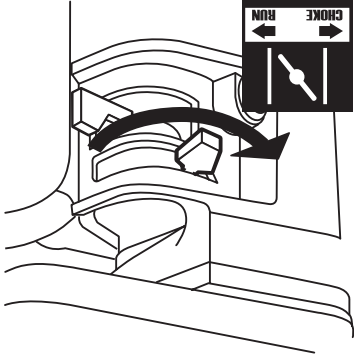
- a. Deslice el regulador o la palanca de control de velocidad a la posición SLOW (la "tortuga").
- b. Coloque el interruptor del motor en la posición "OFF" (APAGADO).
- c. Cierre la válvula de combustible.





SEGURIDAD

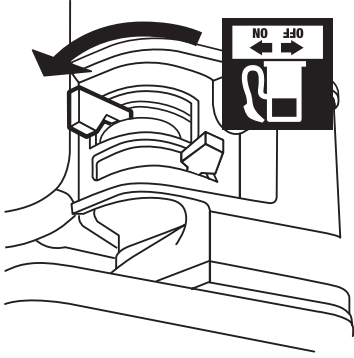
- 1. Para hacer arrancar un motor frío, coloque el cebador en la posición CHOKE. Para volver a encender un motor caliente, deje el cebador en la posición RUN.



1

CONFIGURACIÓN

- 2. Abra la válvula de combustible.



2

FUNCIONAMIENTO

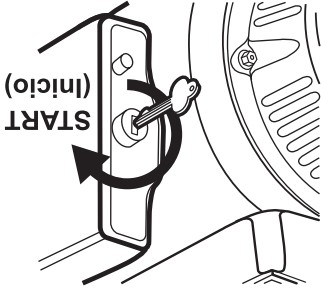
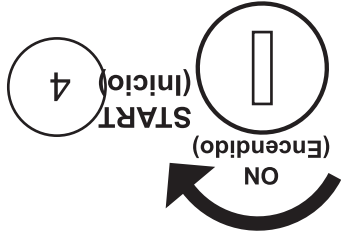
- 3. Deslice el regulador o la palanca de control de velocidad a 1/3 de distancia de la posición SLOW (la "tortuga"). **Nota:** Algunas herramientas cuentan con una palanca de control de velocidad ubicada en otro lugar de la herramienta, y que cumple la misma función que el regulador. Si la herramienta está equipada con palanca de control de velocidad, utilícela en lugar del regulador.



3

MANTENIMIENTO

- 4. Coloque el interruptor del motor en START. OFF (Apagado)





**Nota:** No permita que la manija del arrancador vuelva hacia atrás contra el motor.  
Sosténgala mientras retrocede, para que no golpee el motor.

6. Permita que el motor funcione durante varios segundos. Luego, si la palanca del cebador está en la posición CHOKE, muévela muy lentamente hacia la posición RUN.

**Nota:** Mover la palanca del cebador demasiado rápidamente podría parar el motor.

**IMPORTANTE:** Permita que el motor funcione sin carga durante cinco minutos después de cada arranque, para que pueda estabilizarse.

7. Ajuste el regulador según sea necesario.

8. **Periodo de asentamiento:**

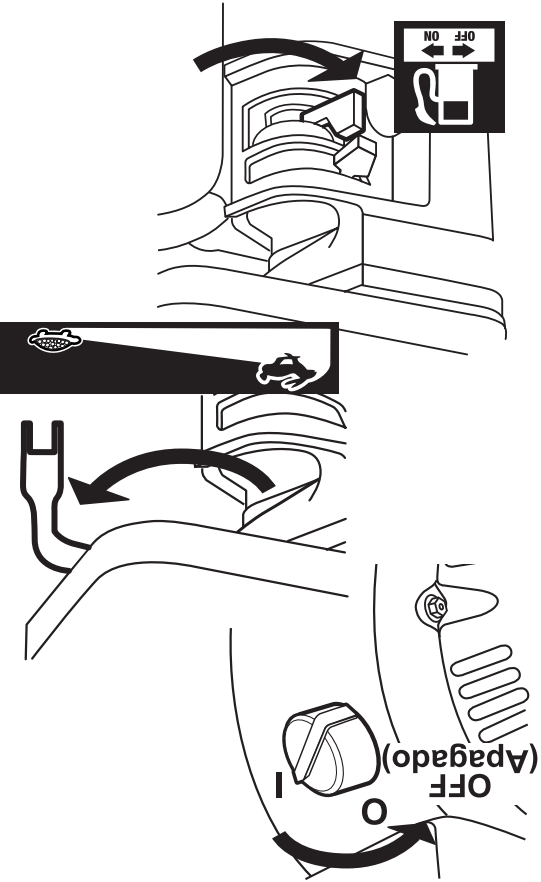
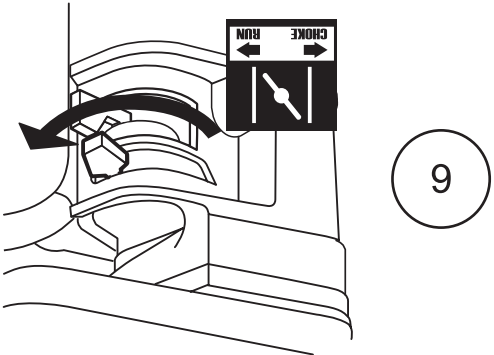
- Asentar el motor ayudará a garantizar un funcionamiento adecuado del equipo y del motor.
- El periodo de asentamiento de funcionamiento corresponderá a aproximadamente 3 horas de uso.
- Durante ese periodo:
  - No aplique ninguna carga pesada al equipo.
  - No haga funcionar el motor a máxima velocidad.
- El periodo de asentamiento de mantenimiento corresponderá a aproximadamente 20 horas de uso.

• Cambie el aceite del motor.

En condiciones normales de funcionamiento, ulteriores tareas de mantenimiento siguen al cronograma que se detalla en la sección MANTENIMIENTO Y SERVICIO TÉCNICO .

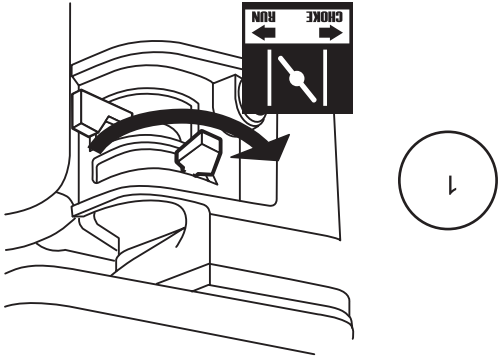
## Cómo detener el motor

- Para detener el motor en caso de emergencia, coloque el interruptor del motor en la posición "OFF" (APAGADO).
- En condiciones normales de funcionamiento, utilice el siguiente procedimiento:
  - Deslice el regulador o la palanca de control de velocidad a la posición SLOW (la "tortuga").
  - Coloque el interruptor del motor en la posición "OFF" (APAGADO).
  - Cierre la válvula de combustible.



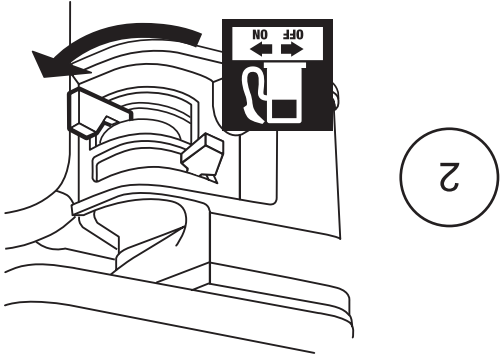


1. Para hacer arrancar un motor frío, coloque el cebador en la posición CHOKE.  
Para volver a encender un motor caliente, deje el cebador en la posición RUN.



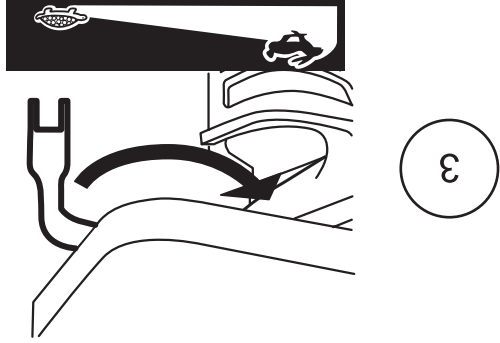
1

2. Abra la válvula de combustible.



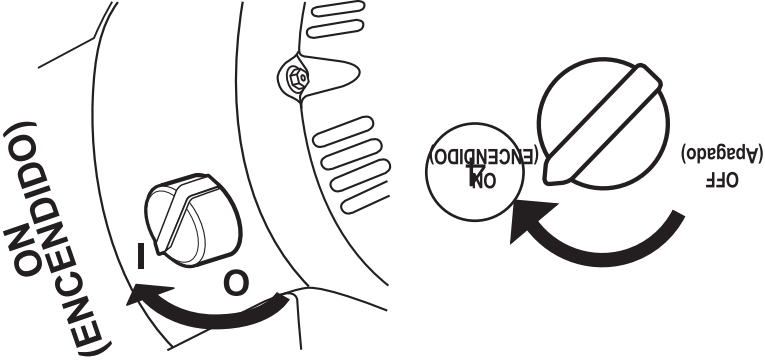
2

3. Deslice el regulador o la palanca de control de velocidad a 1/3 de distancia de la posición SLOW (la "tortuga").  
**Nota:** Algunas herramientas cuentan con una palanca de control de velocidad ubicada en otro lugar de la herramienta, y que cumple la misma función que el regulador. Si la herramienta está equipada con palanca de control de velocidad, utilícela en lugar del regulador.



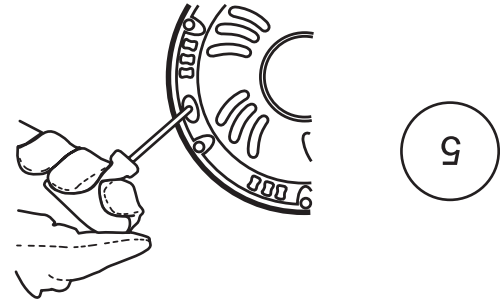
3

4. Coloque el interruptor del motor en la posición "ON" (ENCENDIDO).



OFF (Apagado)  
ON (ENCENDIDO)

5. Tome suavemente la manija del arrancador del motor y acciónela lentamente varias veces, para permitir que la gasolina fluya hacia el interior del carburador del motor. Luego, accione la manija del arrancador suavemente, hasta que sienta que opone resistencia. Permita que el cable se repliegue por completo, y luego tire de él rápidamente. Repita hasta que el motor arranque.



5





Antes de encender el motor

- a. Siga las instrucciones de instalación del manual del equipo, para preparar el equipo.
- b. Inspeccione el equipo y el motor.
- c. Llene el motor con la cantidad correcta y el tipo correcto de combustible y aceite.
- d. Lea la sección "Funcionamiento del equipo" en el manual del equipo.

Cómo encender el motor



**¡ADVERTENCIA! PARA EVITAR LESIONES GRAVES OCASIONADAS POR INCENDIO:**

Llene el tanque de combustible en un área bien ventilada alejada de fuentes de ignición. Si el motor está caliente por el uso, apáguelo y espere que se enfríe antes de agregar combustible. No fume.

1. Limpie la tapa del depósito de combustible y el área que la rodea.
2. Desenrosque y extraiga la tapa del depósito de combustible.
3. De ser necesario, llene el tanque de combustible hasta aproximadamente 1 pulgada por debajo de la boca de llenado del tanque de gasolina con gasolina sin plomo de 87 octanos o más.
4. Vuelva a colocar la tapa del depósito de combustible.
5. Si se derramó combustible, límpielo, y permita que el exceso se evapore antes de encender el motor. Para evitar un incendio, no encienda el motor mientras el olor del combustible continúa percibiéndose en el aire.

**Nota:** No utilice gasolina que haya sido almacenada en un recipiente metálico de combustible o en un recipiente de combustible sucio. De lo contrario, podrían ingresar partículas al carburador, lo cual afectaría el desempeño del motor y/o podría causar daños.

**Nota:** No utilice gasolina que contenga más de 10% de etanol (E10). No utilice etanol E85.



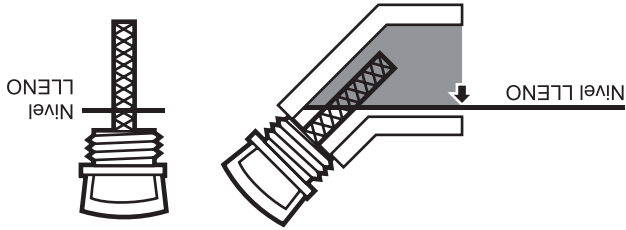
## Verificaciones previas al encendido

Antes de la instalación y el encendido, inspeccione el motor y el equipo, verificando que no existan piezas dañadas, sueltas o faltantes. Si detecta algún problema en el equipo, no lo utilice hasta que haya sido reparado.

### Cómo examinar y cargar el aceite del motor

**AVISO:** Su garantía PERDERÁ VALIDEZ si no se llena correctamente el cárter del motor con aceite antes de cada uso. Antes de cada utilización, verifique el nivel de aceite. No haga funcionar el motor con baja cantidad de aceite o sin aceite. Hacer funcionar el motor con poco aceite o sin aceite DAÑARÁ el motor de forma permanente.

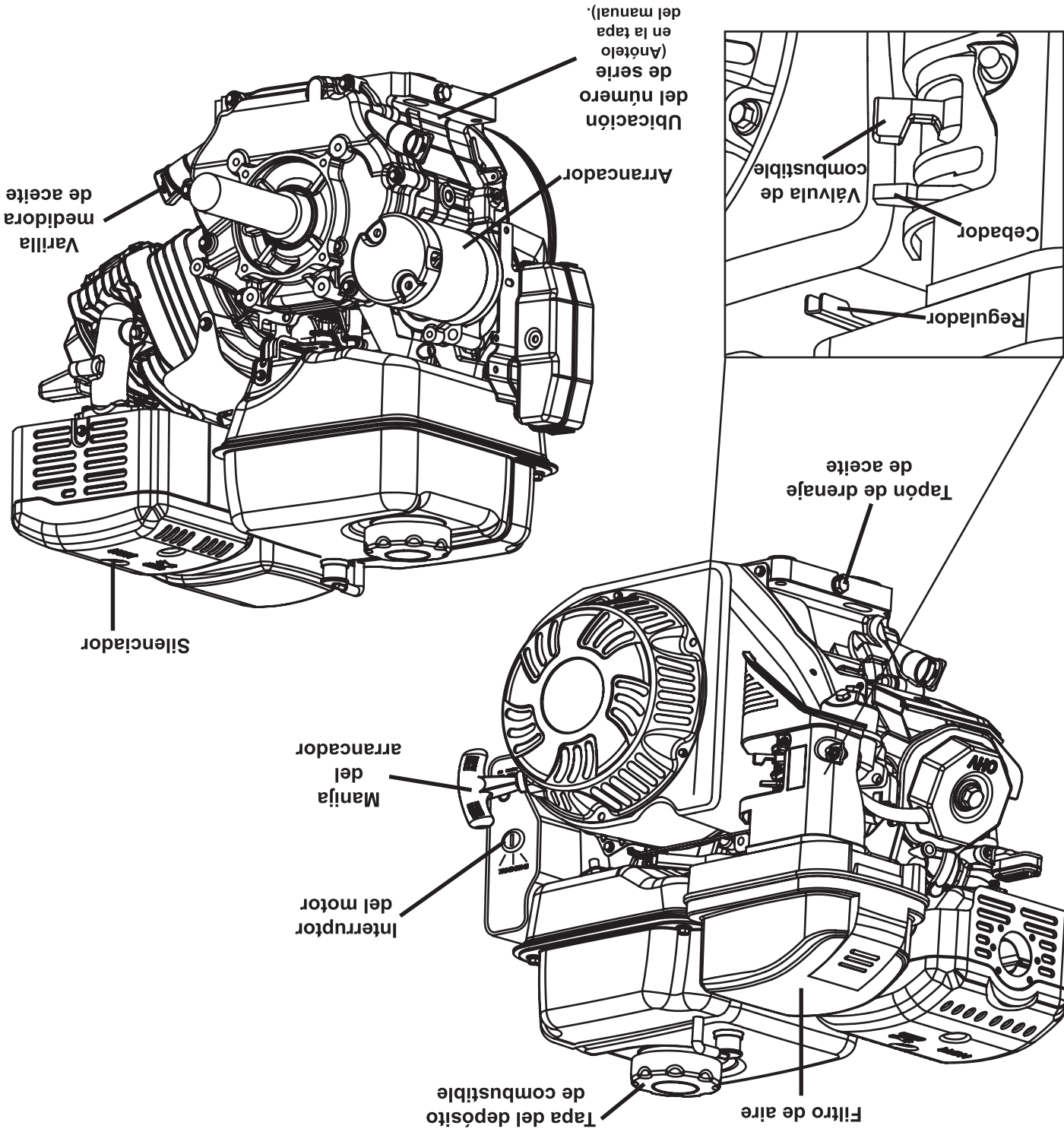
1. Asegúrese de que el motor esté detenido y nivelado.
2. Cierre la válvula de combustible.
3. Limpie la parte superior de la varilla medidora de aceite y el área que la rodea. Quite la varilla medidora de aceite desensoscándola en sentido contrario al de las agujas del reloj, y límpiela con un trapo limpio libre de pelusas.



4. Vuelva a insertar la varilla medidora de aceite sin enroscarla, y luego retírela para comprobar el nivel de aceite. El aceite debe alcanzar el nivel FULL (LLENO), como se muestra arriba.
  5. Si el nivel de aceite se encuentra sobre la marca LOW (BAJO) o por debajo de ella, agregue el tipo apropiado de aceite hasta que el aceite alcance el nivel correcto. Se recomienda aceite SAE 10W-30 para uso general. (El cuadro "Índices de viscosidad de SAE" en página 34 la sección "Mantenimiento y servicio técnico" muestra otras viscosidades a utilizar con diferentes temperaturas promedio).
  6. Vuelva a enroscar la varilla medidora de aceite en el sentido de las agujas del reloj.
- AVISO:** No haga funcionar el motor con baja cantidad de aceite. El motor sufrirá daños permanentes.

PREDATOR<sup>TM</sup> ENGINES





MANTENIMIENTO

FUNCIONAMIENTO

CONFIGURACIÓN

SEGURIDAD



Antes de instalar o usar este producto, lea la **TOTALIDAD** de la sección "INFORMACIÓN IMPORTANTE SOBRE SEGURIDAD" que se encuentra al comienzo de este manual, incluyendo todos los textos debajo de los subtítulos.

**ADVERTENCIA**

**PARA EVITAR LESIONES GRAVES:**  
Utilice únicamente luego de haber instalado un parachispas adecuado.  
Al entrar en funcionamiento, este equipo puede generar chispas que podrían ocasionar incendios ante la presencia de vegetación seca.  
Es posible que se requiera un parachispas. El operador debe ponerse en contacto con los organismos locales de protección contra incendios para conocer las leyes o disposiciones sobre prevención de incendios.

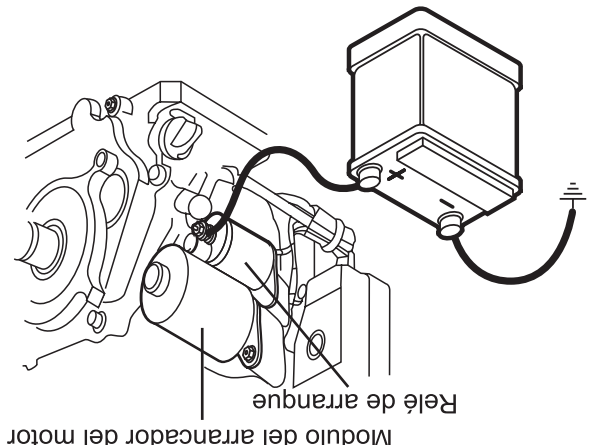
A grandes alturas, un mecánico calificado deberá realizar ajustes al carburador y al regulador del motor (si está incluido) y a cualesquiera otras piezas que controlen la proporción combustible-aire, para permitir un uso eficiente a grandes alturas y evitar que el motor y otros dispositivos utilizados con este producto se dañen.  
Garantizamos que el sistema de control de emisiones para el motor de este generador cumple con los estándares establecidos por la Agencia de Protección Ambiental de EE.UU. (U.S. Environmental Protection Agency) y por el Departamento de Recursos del Aire de California (California Air Resources Board, CARB). Para información sobre la garantía, consulte las últimas páginas de este manual.

**¡ADVERTENCIA! NO INSTALE ESTE MOTOR EN UN VEHÍCULO.**

Instrucciones para la instalación de la batería

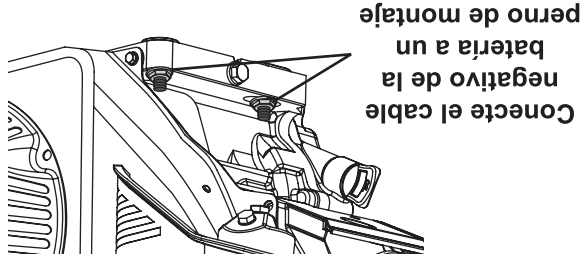
1. Coloque una batería **totalmente cargada**, de plomo-ácido de **12 voltios, 300 CCA y 36 Ah** (no incluida) en un lugar plano y estable cerca del motor.
2. Utilice únicamente cables cuyo calibre sea compatible con su longitud, de acuerdo al siguiente cuadro:

Calibre del cable (los números de calibre bajos indican cables más gruesos)	Longitud máxima del cable
6	5'
4	7'
2	12'



3. Conecte el cable positivo desde el terminal positivo de la batería al terminal positivo del solenoide del arrancador (**terminal descubierto**), como se muestra arriba. Conecte el cable firmemente, para evitar una desconexión y cortocircuitos.

6. Cubra los terminales y los extremos del cable con una pintura anticorrosiva.



4. Conecte el cable negativo al terminal negativo de la batería.
5. Conecte el cable negativo firmemente a uno de los **pernos de montaje** del motor, como se muestra en el diagrama de abajo. Conecte el cable firmemente, para evitar una desconexión y cortocircuitos.



19. Utilice prendas adecuadas. No utilice prendas sueltas ni alhajas. Mantenga el cabello, la ropa y los guantes lejos de las piezas móviles. Las prendas sueltas, las alhajas o el cabello largo podrían quedar atrapados en las piezas móviles.

20. Las piezas, especialmente los componentes del sistema de escape, se calientan mucho durante el uso. Manténgase alejado de las piezas calientes.

21. No cubra el motor o el equipo durante el funcionamiento.

22. Mantenga limpios el equipo, su motor y el área circundante en todo momento.

23. Utilice el equipo, los accesorios, etc. de acuerdo a estas instrucciones y para los fines para los que este tipo de equipo fue creado, tomando en cuenta las condiciones de funcionamiento y el trabajo a realizar. Utilizar este equipo para otros fines que no sean los indicados podría generar situaciones peligrosas.

24. Si tiene conocimiento de la existencia de fugas en el sistema de combustible del motor, no utilice el equipo.
25. Este producto contiene (o, cuando se lo utiliza, produce) un químico que, según posee conocimiento el Estado de California, causa cáncer, defectos congénitos u otros daños relacionados con la reproducción. (Código de Salud y Seguridad de California § 25249.5, et seq.)

26. Cuando se produzcan derrames de combustible o aceite, se los debe limpiar de inmediato. Al desechos fluidos y materiales de limpieza, cumpla con los códigos y las regulaciones estatales, locales o federales. Almacene los tapos con aceite en un contenedor de metal con tapa y ventilación en la parte inferior.

27. Mantenga manos y pies alejados de las piezas móviles. No se esforce sobre ni a través del equipo cuando esté en funcionamiento.

28. Antes de utilizar, verifique que no haya piezas móviles desalineadas o empastadas, piezas rotas o cualquier otra condición que pueda afectar el funcionamiento del equipo. **Si está dañado, haga reparar el equipo antes de usarlo.** Muchos accidentes se deben a un mal mantenimiento de los equipos.

29. Utilice el equipo correcto para la aplicación. No modifique el equipo ni lo utilice para fines que no sean aquellos para los que fue creado.

Precauciones para el servicio técnico

1. **Antes de realizar tareas de reparación, mantenimiento o limpieza:**

a. **Coloque el interruptor del motor en la posición de apagado (OFF).**

b. **Permita que el motor se enfríe por completo.**

c. **Luego, extraiga la tapa de la bujía.**

2. Mantenga todas las protecciones de seguridad en su lugar y en buenas condiciones de funcionamiento. Entre las protecciones de seguridad se incluyen: silenciador, filtro de aire, protectores mecánicos y escudos térmicos.

3. **No modifique ni ajuste ninguna pieza del equipo o de su motor que esté sellada por el fabricante o el distribuidor. Únicamente un técnico calificado puede ajustar las piezas que pueden aumentar o reducir la velocidad de régimen del motor.**

4. Durante las tareas de servicio técnico, utilice gafas de seguridad, mascarar antipolvo/respiratorias y guantes de trabajo de caucho de alta resistencia aprobados por el ANSI.

5. Conserve las etiquetas y placas del equipo. Estas tienen información importante. Si faltan o son ilegibles, póngase en contacto con Harbor Freight Tools para solicitar un reemplazo.
6. El servicio técnico de su equipo debe estar a cargo de una persona calificada que utilice únicamente piezas de repuesto idénticas a las del equipo. Esto garantizará que se mantenga la seguridad del equipo. No intente realizar ningún procedimiento de reparación o mantenimiento que no esté explicado en este manual, ni ningún procedimiento que no esté seguro de poder realizar de manera segura o correcta.

7. Guarde el equipo fuera del alcance de los niños.

8. Cumpla con el cronograma de tareas de mantenimiento del motor y el equipo.
- Recarga de combustible:**

1. No fume ni permita que haya chispas, llamas u otras fuentes de ignición en cercanías del equipo, especialmente al realizar la recarga de combustible.

2. No recargue el tanque de combustible mientras el motor esté funcionando o esté caliente.

3. No llene el tanque de combustible hasta el borde. Deje un pequeño espacio para que el combustible se expanda.

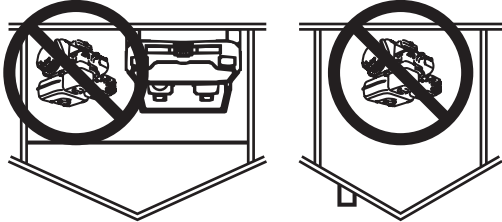
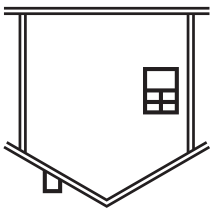

4. Realice la recarga de combustible únicamente en un área bien ventilada.

5. Si se derramó combustible, límpielo, y permita que el exceso se evapore antes de encender el motor. **Para evitar un incendio, no encienda el motor mientras el olor del combustible continúe percibiéndose en el aire.**



CONSERVE ESTAS INSTRUCCIONES.



<p>1. La gasolina y sus emanaciones son inflamables y potencialmente explosivas. Siga los procedimientos adecuados para el almacenamiento y la manipulación de combustible. No almacene combustible u otros materiales inflamables en cercanías de las personas.</p> <p>2. Tenga a mano varios extinguidores de incendios de clase ABC.</p> <p>3. Al entrar en funcionamiento, este equipo puede generar chispas que podrían ocasionar incendios ante la presencia de vegetación seca. Es posible que se requiera un paracheispas. El operador debe ponerse en contacto con los organismos locales de protección contra incendios para conocer las leyes o disposiciones sobre prevención de incendios.</p>		<p><b>Precauciones para la instalación</b></p>			
<p>4. Instale y utilice únicamente sobre una superficie plana, uniforme y bien ventilada.</p> <p>5. Durante la instalación, utilice gafas de seguridad, máscaras antipolvo/respiratorias y guantes de trabajo de caucho de alta resistencia aprobados por el ANSI.</p> <p>6. Utilice únicamente los lubricantes y el combustible que se recomiendan en el cuadro de Especificaciones de este manual.</p>		<p>8. Amarre el motor a los vehículos de transporte, para impedir que ruede, resbale o se incline.</p> <p>9. Los usos industriales deben cumplir con los requisitos de la Administración de Seguridad y Salud Ocupacional (OSHA).</p> <p>10. No desatienda el equipo cuando esté en funcionamiento. Apague el equipo (y quite las llaves de seguridad, si están disponibles) antes de abandonar el área de trabajo.</p> <p>11. El motor puede generar altos niveles de ruido. La exposición prolongada a niveles de ruido superiores a 85 dB(A) es peligrosa para la audición. Utilice siempre protectores para los oídos al utilizar o trabajar en el entorno del motor de gasolina.</p> <p>12. Durante el uso, emplee gafas de seguridad aprobadas por el ANSI, protectores para los oídos y máscara para polvo/respirador aprobado por NIOSH debajo de un protector facial total, junto con botas de trabajo con puntera de metal.</p> <p>13. Las personas que utilizan marcasapas deben consultar a su(s) médico(s) antes de utilizar el equipo. Los campos electromagnéticos próximos a un marcasapas podrían interferir con el funcionamiento del marcasapas o hacer que éste funcione mal. Tenga precaución cuando esté cerca del imán o del tirador para arranque manual del motor.</p> <p>14. Utilice únicamente los accesorios recomendados por Harbor Freight Tools para su modelo. Los accesorios que resultan adecuados para un equipo determinado pueden tornarse peligrosos cuando se los utiliza en otro equipo. No opere el equipo en ambientes explosivos, como por ejemplo aquellos donde pueda haber líquidos inflamables, gases o polvo. Los motores a gasolina pueden encender el polvo o las emanaciones.</p> <p>16. Manténgase alerta; cuide lo que hace y utilice el sentido común cuando utilice este equipo. Cuando esté cansado o bajo la influencia de drogas, alcohol o medicamentos, no utilice este equipo.</p> <p>17. No se extienda demasiado. Mantenga una postura firme y buen equilibrio en todo momento. Esto permite controlar mejor el equipo en situaciones inesperadas.</p> <p>18. Utilice este equipo con ambas manos únicamente. Utilizar equipos con una sola mano puede ocasionar fácilmente una pérdida de control.</p>		<p><b>PELIGRO: MONÓXIDO DE CARBONO</b></p> <p>Utilizar un motor en un ambiente cerrado puede causar la muerte en minutos.</p> <p>El motor emite monóxido de carbono. Es un veneno imperceptible a la vista y el olfato.</p>  <p>NUNCA utilice el equipo dentro del hogar o de un garaje, NI SIQUIERA AUNQUE las ventanas y las puertas estén abiertas.</p>   <p>Utilice el AFUERA únicamente, y lejos de ventanas, puertas y conductos de ventilación.</p> <p>2. Mantenga a los niños lejos del equipo, especialmente cuando esté funcionando.</p> <p>3. Mantenga a todos los espectadores a al menos seis pies del motor durante su funcionamiento.</p> <p>4. !Peligro de incendio! No llene el tanque de combustible cuando el motor esté en funcionamiento. Si hubo un derrame de gasolina, no haga funcionar el equipo. Antes de encender el motor, limpie la gasolina derramada. No utilice el equipo cerca del fuego o de una llama piloto.</p> <p>5. No toque el motor durante el uso. Permita que el motor se enfríe después del uso.</p> <p>6. Nunca almacene combustible u otros materiales inflamables cerca del motor.</p> <p>7. Al transportar el motor, utilice únicamente un medio de transporte y dispositivos de izado que tengan suficiente capacidad para soportar grandes pesos.</p>	







**CONSERVE ESTAS INSTRUCCIONES**

**!ADVERTENCIA! Lea todas las instrucciones.**  
**No seguir todas las instrucciones que se dan a continuación puede ocasionar incendio, lesiones graves y/o LA MUERTE.**








## Advertencias de seguridad

<b>Símbolo</b>	
<b>RPM</b>	Revoluciones por minuto
<b>HP</b>	Caballos de fuerza
<b>Señal de ADVERTENCIA que refiere al riesgo de sufrir lesiones oculares. Utilice gafas de seguridad con protectores laterales aprobadas por el ANSI.</b>	
<b>Lea el manual antes de la instalación y/o el uso.</b>	
	<b>Señal de ADVERTENCIA respecto al riesgo de sufrir pérdida de la audición. Use protección auditiva.</b>

<b>Símbolo</b>	<b>Propiedad o enunciado</b>
	Señal de ADVERTENCIA respecto al riesgo de incendio cuando se manipula combustible. No fume mientras manipula combustible.
	Señal de ADVERTENCIA respecto al riesgo de incendio. No cargue combustible mientras utiliza el equipo. Mantenga los objetos inflamables lejos del motor.

## Definiciones de símbolos

SÍMBOLOS DE ADVERTENCIA Y DEFINICIONES	
Este es el símbolo de alerta de seguridad. Se utiliza para alertarlo sobre potenciales riesgos de sufrir lesiones personales. Para evitar posibles lesiones o la muerte, acate todos los mensajes de seguridad que acompañan a esta señal.	
Indica una situación peligrosa que, de no evitarse, provocará la muerte o lesiones graves.	
Indica una situación peligrosa que, de no evitarse, podría provocar la muerte o lesiones graves.	
Indica una situación peligrosa que, de no evitarse, podría provocar lesiones menores o de moderada gravedad.	
Hace referencia a prácticas no relacionadas con lesiones personales.	



Especificaciones.....	2
Seguridad .....	3
Configuración .....	6
Funcionamiento .....	8
Mantenimiento.....	14
Resolución de problemas .....	18
Garantías .....	23
Lista de piezas y diagrama.....	20

Contenido

Especificaciones

Cilindrada	420cc
Tipo de motor	Horizontal, con válvula en la culata, de cilindro único y 4 tiempos
Sistema de refrigeración	
Por sistema de aire forzado	
Combustible	Tipo
	Gasolina de 87+ octanos, sin plomo
Aceite del motor	Capacidad:
	1 Galón
Capacidad:	Tipo SAE
	10W-30 por encima de 32° F 5W30 a 32° F o menos
Tiempo de funcionamiento al 50% de la carga con tanque lleno	
3 horas	
Nivel de ruido a 22 pies	
108 decibeles	
Diámetro x carrera	
90 mm x 66 mm	
Relación de compresión	
8,5:1	
Rotación visto desde la PTO (toma de potencia - el eje de salida)	
En sentido contrario al de las agujas del reloj	
Eje	Eje
	1" x 3,48"
	Bocallave
	1/4" (6,35 mm)
Con	extremos
	roscados
Tipo	
NHSP® / Torch® F6TC	
Bujía	Separación
	0,7 - 0,8 mm
Holgura de las válvulas	Admisión
	0,10 - 0,15 mm
Escape	0,15 - 0,20 mm
	Ralentí
Velocidad	1800 ± 50 RPM





# Manual del Usuario y Instrucciones de Seguridad

**Conservar Este Manual** Guarde este manual para consultas futuras sobre las advertencias y precauciones de seguridad y los procedimientos de montaje, funcionamiento, inspección, mantenimiento y limpieza. Escriba el número de serie del producto en el dorso del manual junto al esquema de montaje (o el mes y año de la compra si el producto no tiene número). Conserve este manual y el comprobante de compra en un lugar seco y seguro para futuras consultas.

**PREDATOR**<sup>TM</sup> ENGINES

## Motor Horizontal de 420cc



MOTOR PARA EL  
ARTÍCULO 56101

### AVISO

¡IMPORTANTE! Esta edición en español del manual es una traducción del manual original inglés. El manual original inglés reemplaza a esta información si hay una inconsistencia.

Visite nuestro sitio web: <http://www.harborfreight.com>  
Si lo necesita, envíe un correo electrónico a nuestro Servicio Técnico: [predator@harborfreight.com](mailto:predator@harborfreight.com)

REV S12a

Al desarmar el producto, asegúrese de que esté intacto y no haya sufrido daños. Si alguna pieza falta o está rota, llame al 1-800-520-0882 tan pronto como sea posible.

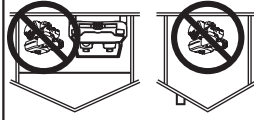
Copyright © 2012 por Harbor Freight Tools®. Todos los derechos reservados. Queda prohibido cualquier tipo de reproducción de los contenidos de este manual, incluyendo sus ilustraciones gráficas, sin el expreso consentimiento escrito de Harbor Freight Tools. Es posible que los diagramas incluidos en este manual no hayan sido dibujados guardando las proporciones. Debido a las mejoras continuas, el producto real puede diferir ligeramente del descrito en este documento. Es posible que las herramientas necesarias para el montaje y el mantenimiento técnico no estén incluidas.

### ⚠ ADVERTENCIA

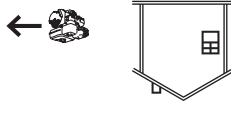
Lea el siguiente material antes de usar este producto.  
De no hacerlo, podría sufrir lesiones graves.  
CONSERVE ESTE MANUAL.

### ⚠ PELIGRO

Utilizar un motor en un ambiente cerrado  
PUEDE CAUSARLE LA MUERTE EN MINUTOS.  
El motor emite monóxido de carbono. Es un  
veneno imperceptible a la vista y el olfato.



NUNCA utilice el equipo  
dentro del hogar o de  
un garaje. NI SIQUIERA  
AUNQUE las ventanas y  
las puertas estén abiertas.



Utilícelo AFUERA  
únicamente, y lejos  
de ventanas, puertas  
y conductos de  
ventilación.