

Owner's Manual & Safety Instructions

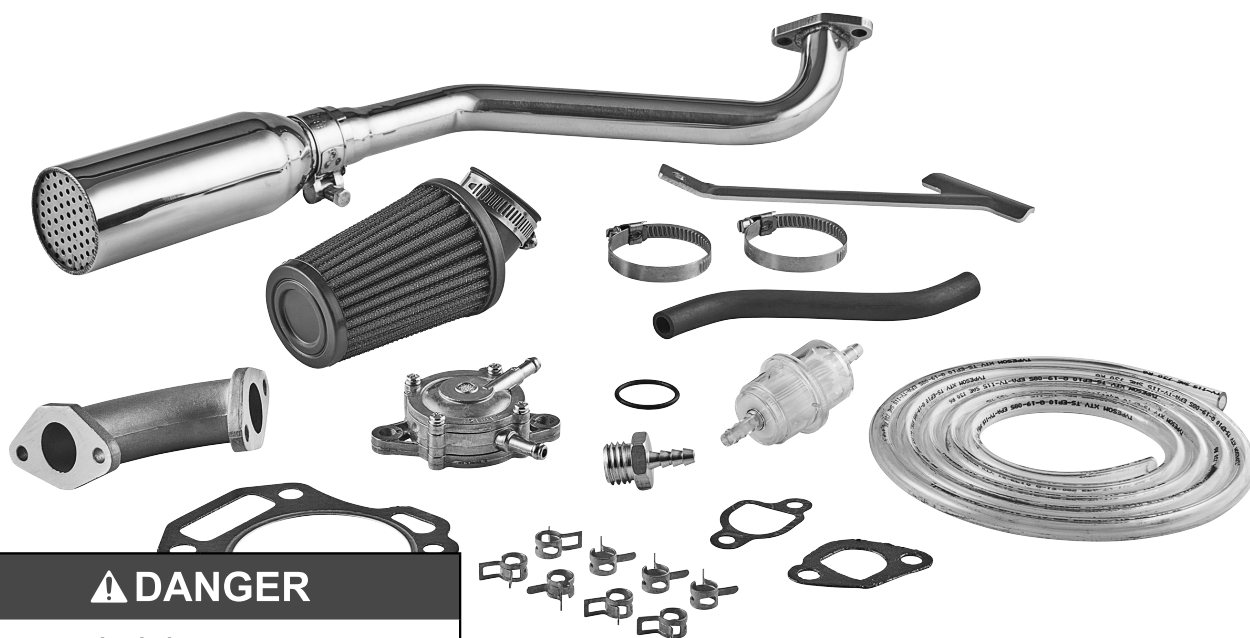
Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the manual near the components diagram (or month and year of purchase if product has no number). Keep this manual and the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

21j

PREDATORTM RACING

212cc KART RACING ENGINE ACCESSORY KIT

PR212A



⚠ 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.



GHOSHTM

58057

Visit our website at: <http://www.harborfreight.com>
Email our technical support at: predator@harborfreight.com
Email our engine support at: predator@harborfreight.com

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

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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.

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SAFETY

SETUP




INSTALLATION




MAINTENANCE

WARNING SYMBOLS AND DEFINITIONS

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

Symbol Definitions

Symbol	Property or Statement
RPM	Revolutions Per Minute
HP	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.

IMPORTANT SAFETY INSTRUCTIONS



SAVE THESE INSTRUCTIONS –

This manual contains important instructions that should be followed during installation and maintenance of this Accessory Kit and the engine the Kit is installed on.


THESE COMPONENTS ARE FOR COMPETITION USE ONLY.

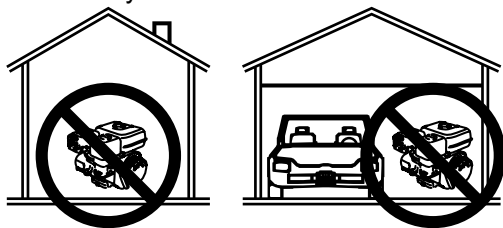
They are specifically designed, engineered, and manufactured for the Predator™ Racing 212cc GHOST™ Kart Racing Engine. Inspect the components and the engine they will be installed on looking for damaged, loose, and missing parts before installation, set up and starting. If any problems are found, do not use equipment until fixed properly.

Set up Precautions

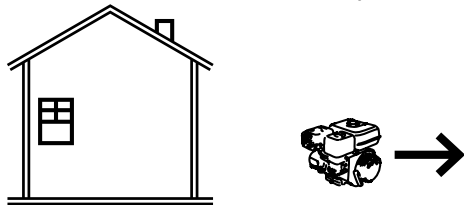
1. Turn the engine switch to its "OFF" position, wait for the engine to cool, and disconnect the spark plug cap before performing any installation procedures or making any adjustments to the equipment.
2. Drain gasoline from the fuel tank and carburetor into an approved container in a well-ventilated area away from ignition sources.
3. 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.
4. Remove the drain plug and drain oil from the crankcase. Recycle used oil.
5. Have multiple ABC class fire extinguishers nearby.
6. Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.
7. Set up and use only on a flat, level, well-ventilated surface.
8. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during installation.

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 fuel 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 it from rolling, slipping, and tilting.
9. Industrial applications must follow OSHA requirements.
10. Do not leave the engine unattended when it is running. Turn off the engine (and remove safety keys, if available) before leaving the area.
11. The engine can produce high noise levels. Prolonged exposure to noise levels above 85 dBA is hazardous to hearing. Wear ear protection when operating the engine or when working nearby while it is operating.
12. Wear ANSI-approved safety glasses and hearing protection 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 engine. Do not use while tired or under the influence of drugs, alcohol or medication.
17. 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.
18. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.

19. Do not cover the engine during operation.
20. Keep the engine and surrounding area clean at all times.
21. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
22. 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.
23. Do not operate the equipment with known leaks in the engine's fuel system.
24. 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.
25. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
26. 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.
27. 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.**
 4. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during service.
 5. Maintain labels and nameplates on the equipment. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
 6. Have the equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained. Do not attempt any service or maintenance procedures not explained in this manual or any procedures that you are uncertain about your ability to perform safely or correctly.
 7. Store equipment out of the reach of children.
 8. Follow scheduled engine and equipment maintenance.
- Refueling:**
1. Do not refill the fuel tank while the engine is running or hot.
 2. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
 3. **TO PREVENT FUEL LEAKAGE AND FIRE HAZARD, 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.

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING: Turn the engine switch to its “OFF” position, wait for the engine to cool, and unplug the spark plug wire(s) before assembling or making any adjustments to the equipment.

Read manual and instructions for the engine on which the accessories will be installed before use. The preparation of an engine for competitive events and sanctioned racing requires specific, specialized skill and knowledge. This preparation must be completed before starting or operating the engine. If you are uncertain about your ability to perform any procedures in this manual safely or correctly have the work performed by a qualified mechanic.

Accessories are intended for competition use only. Do not modify the accessories or use the accessories for purposes for which they are not intended.

Modification of components or use for purposes not intended **VOIDS WARRANTY**.

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.

WARNING! TO PREVENT SERIOUS INJURY: INSTALL THE PREPARED ENGINE ACCORDING TO INSTRUCTIONS FOR THE EQUIPMENT ON WHICH THE ENGINE WILL BE PLACED BEFORE USE.

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 193175431318 when ordering parts.

Components

SAFETY

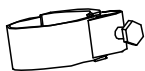
SETUP

INSTALLATION

MAINTENANCE

1

Muffler Clamp x 1



2

Exhaust Pipe x 1



3

Exhaust Pipe Gasket x 1



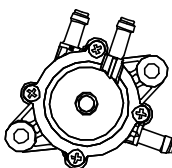
4

Muffler x 1



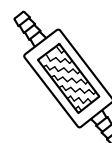
5

Fuel Pump x 1



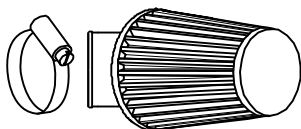
6

Fuel Filter x 1



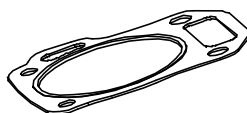
7

Air Filter & Clamp x 1



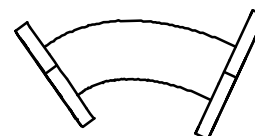
8

Head Gasket x 1



9

Intake Manifold x 1



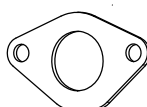
10

Intake Manifold O-Ring x 1



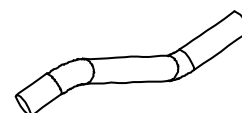
11

Intake Manifold Gasket x 1



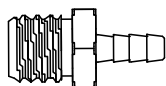
12

Oil Breather Tube x 1



13

Pulse Connector x 1



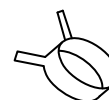
14

Pulse Connector O-Ring x 1



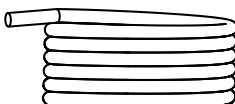
15

Fuel Line Clamp x 8



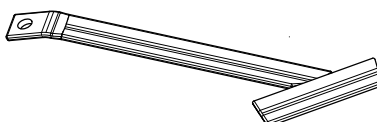
16

Fuel Line x 6 ft.



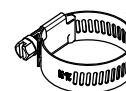
17

Muffler Support Bracket x 1



18

Support Bracket Clamp x 2



Installation



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

Component Installation

These components are specifically designed, engineered, and manufactured for the Predator™ Racing 212cc GHOST™ Kart Racing Engine. Inspect the components and the engine they will be installed on looking for damaged, loose, and missing parts before installation, set up and starting. If any problems are found, do not use equipment until fixed properly.

Install Fuel Pump/Pulse Connector

1. Mount the Fuel Pump onto the fuel pump installation plate located on top of the engine. Secure pump in place using two M6x16 Bolts.
2. Remove the Oil Cap on top of the engine's Crankcase Cover Assembly. Lubricate the O-Ring on the Pulse Connector, then thread the Pulse Connector into the opening. Tighten securely.

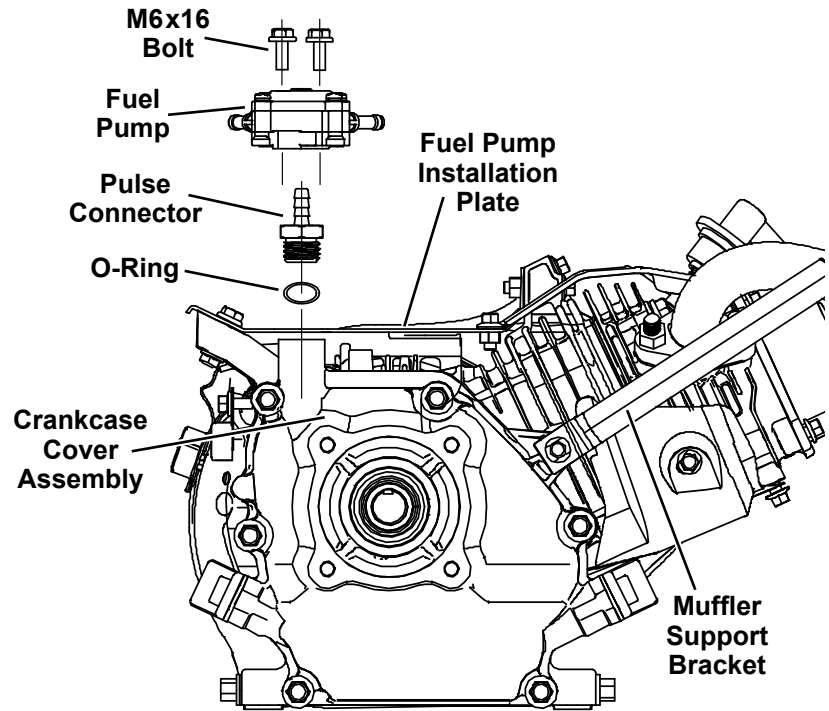


Figure A

Install Exhaust Pipe/Muffler Assembly, Carburetor/Intake Manifold, Air Filter, Oil Breather Tube

1. Install Exhaust Pipe Gasket onto exhaust port studs. Attach the Exhaust Pipe to the studs using two Spring Washers and two M8 Nuts.
2. Install two Support Bracket Clamps onto Exhaust Pipe, and position T-bar portion of the Muffler Support Bracket between Clamps. Partially tighten Clamps to hold Bracket in place. Mount the Bracket onto the engine using one 5/16-24 Bolt. Finger tighten Bolt, tighten Clamps, then tighten Bolt securely. Refer to Figure A for the Support Bracket mounting location.
3. Attach the Muffler to the Exhaust Pipe with the Muffler Clamp.
4. Attach the Carburetor to the Intake Manifold using two M6x16 Bolts.
5. Install Intake Manifold Paper Gasket onto intake port studs. Attach the Carburetor/Intake Manifold Assembly to the studs using two M6 Nuts. Route Carburetor drain hose to safe drain area and avoid heat and abrasion.
6. Attach the Air Filter to the Carburetor inlet using the Air Filter Clamp.
7. Insert one end of the Oil Breather Tube into the hole on the Valve Cover. Route other end of Tube to an overflow can (not included). If necessary, attach an extension tube (not included) to the end of the Oil Breather Tube to reach the overflow can.

Note: Ensure that oil breather flow is not restricted by tubing or overflow can, which must be vented to atmosphere.

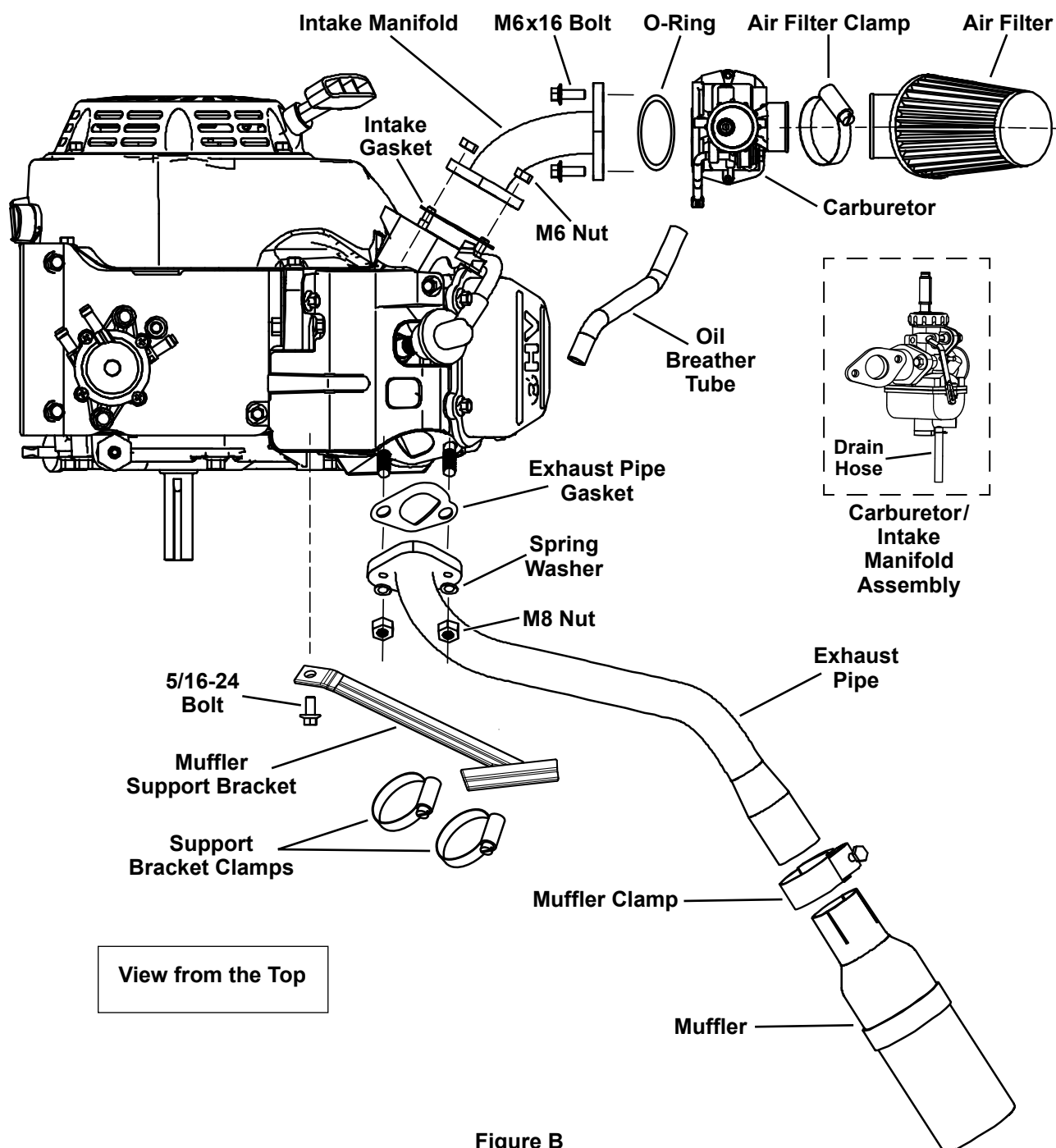


Figure B

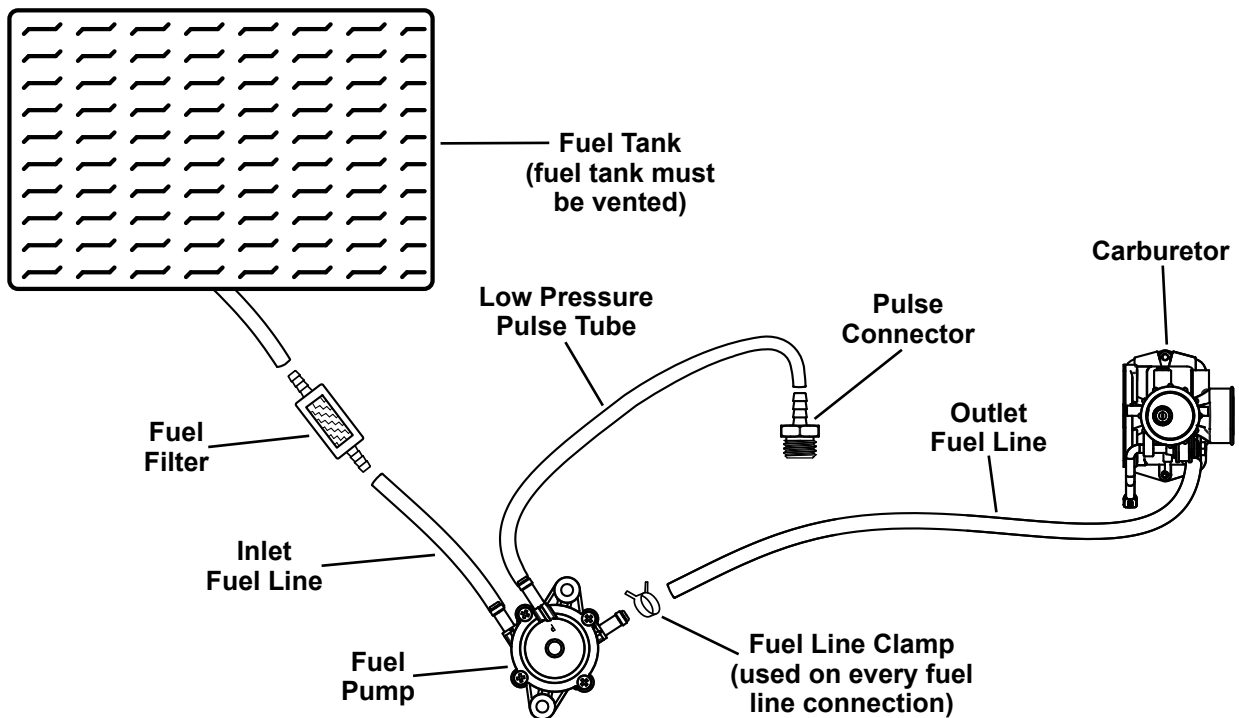
Install Fuel Filter/Fuel Lines

There are three tubes that attach to the Fuel Pump:

- Inlet fuel line from fuel tank (tank not included) to Fuel Filter, then to Fuel Pump.
- Outlet fuel line to Carburetor.
- Low pressure pulse tube that is attached to the Pulse Connector on the Crankcase Cover Assembly.

When installing ensure that these tubes are routed to avoid heat and sharp edges.

- Using Fuel Line Clamps, attach appropriate lengths of fuel line from the fuel tank to the Fuel Filter, then from the Fuel Filter to the IN connector on the Fuel Pump.
- Attach an outlet fuel line from the OUT connector on the Fuel Pump to the fuel inlet on the Carburetor using Fuel Line Clamps.
- Connect an appropriate length of fuel line between the "P" port on the Fuel Pump and the Pulse Connector on the engine using Fuel Line Clamps.



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WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING:

Turn the engine switch 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 the cleaning, maintenance and lubrication schedule and all service instructions in the manual for the engine on which the Accessory Kit has been installed. The engine may fail critically if not serviced properly.



Many maintenance procedures 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.

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.

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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