

CRX420

GASOLINE ENGINE OPERATOR'S MANUAL

PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION

If your engine is not working properly or if there are parts missing or broken, please **DO NOT RETURN IT TO THE PLACE OF PURCHASE**. Contact our Customer Service Department at 1-877-362-4271 or cservice@fna-group.com



⚠ WARNING:

This product and its exhaust can expose you to chemicals including lead and lead compounds, and carbon monoxide, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

This Manual contains important safety information and instructions for operating this engine. **PLEASE READ THIS MANUAL CAREFULLY.** Failure to do so could result in property damage and/or personal INJURY/DEATH.

Provide this manual to any operator of this engine. This manual should be considered as a permanent part of your engine and should remain with it when you sell it.

The pictures and figures in the manual shall be only for reference. There may be differences between the pictures and figures and the physical product.

Table of Contents

Operator Safety	2
Safety Rules.....	2
Features and controls	4
Operating	4
Operating Checklist	4
Operating Location	4
Operating Condition	4
Engine Oil.....	4
Engine Fuel	5
Equipment Check	5
Starting the Engine	6
Stopping the Engine	6
Terminal Application	6
Maintenance.....	7
Maintenance Schedule	7
General Maintenance.....	8
Engine Oil.....	8
Add Oil.....	8
Change Oil.....	8
Air Filter	8
Spark Plug	8
Spark Arrestor	9
Idle Speed.....	9
Adjustment.....	9
Trouble Analysis and Troubleshooting	9
Storage	9
Specifications	10
Specification Parameter Table.....	10
Case Cover Installation Dimension.....	11
Engine Circuit Diagram.....	12
Limited Warranty	13
Emission Control System Warranty.....	14

SAVE THESE INSTRUCTIONS FOR FUTURE USE

All information in this publication is based on the latest product information available at the time of printing. We reserve the right to change, alter and/or improve the product and this document at

any time without notice and without incurring any obligation. Write down the engine's serial number and purchase information. Keep this manual and the receipt for future reference.

Model: _____

Serial number: _____

Date of purchase: _____

OPERATOR SAFETY

Safety Rules



Pay attention to this safety alert symbol. Obey all safety messages that follow this symbol to avoid possible property damage, INJURY or DEATH. Each safety message is preceded by a safety alert symbol and one of three words, DANGER, WARNING, or CAUTION.

⚠ DANGER:

Indicates a hazardous situation that, if not strictly complied with, will result in substantial property damage, serious injury or DEATH.

⚠ WARNING:

Indicates a hazardous situation that, if not strictly complied with, may result in property damage, serious injury or DEATH.

⚠ CAUTION:

Indicates a hazardous situation which, if not strictly complied with, could result in property damage or injury.



⚠ WARNING:

READ THIS MANUAL COMPLETELY BEFORE OPERATING.

DO NOT operate this engine until you have read ALL safety, operation, and maintenance Instructions listed in this manual.

Failure to follow the instructions may result in property damage, INJURY 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.

⚠ WARNING:

Before each use, check for loose or damaged parts, signs of oil or fuel leaks, and any other condition that may affect proper operation. Repair or replace all damaged or defective parts immediately.

Locate all operating controls and safety labels.

Keep all safety guards in place and in proper working order at all times.

DO NOT allow any material to block the cooling slots.

DO NOT allow children or untrained persons to operate the engine.

DO NOT run the engine unattended. Turn off the engine before leaving the area.



⚠ WARNING:

KICKBACK

Rapid retraction of the starter cord will pull your hand and arm towards the engine faster than you can let go.

Accidental starts can result in entanglement, traumatic amputation or laceration.

Broken bones, fractures, bruises or sprains could result.



⚠ WARNING:

FIRE

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

This engine may not be equipped with a spark arresting muffler. If the engine will be used around flammable materials, or on land covered with materials such as agricultural crops, forest, brush, grass, or other similar items, then an approved spark arrester must be installed.

In some area, a spark arrester is required by law. Please contact local fire agencies for laws or regulations relating to fire prevention requirements.

⚠ WARNING:

Read the instructions provided with the equipment that is powered by this engine for any additional safety rules that should be observed in conjunction with engine startup, shutdown, operation, or protective apparel that may be needed to operate the equipment.



⚠ WARNING:

HOT SURFACE

Running engines produce heat. Severe burns can occur on contact.

DO NOT touch engine while operating or just after stopping.

Avoid contact with hot exhaust gases.

Maintain at least three feet of clearance on all sides to ensure adequate cooling.

Combustible material can catch fire on contact. Maintain at least five feet of clearance from combustible materials.

⚠ DANGER:

Do not tamper with the engine governed speed limits. High operating speeds are dangerous and increase the risk of personal injury or damage to the equipment. Operating at low speeds with heavy load may shorten the engine's life.



⚠ DANGER:

FIRE OR EXPLOSION

Gasoline is highly flammable and extremely explosive. Fire or explosion can cause severe burns or death.

Keep flammable items away while handling gasoline.

Fill fuel tank outdoors and in a well-ventilated area with the engine stopped.

Always wipe off spilled fuel and wait until the fuel has dried before starting the engine.

DO NOT operate the engine with known leaks in the fuel system.

Use proper fuel storage and handling procedures. DO NOT store fuel or other flammable materials nearby.

Empty the fuel tank before storing or transporting this engine.

Keep fire extinguisher handy and be prepared if a fire starts.



⚠ DANGER:

MOVING PARTS

Moving parts can cause severe injury. Keep hands and feet away.

DO NOT operate engine with covers, shrouds, or guards removed.

DO NOT wear loose-fitting clothing, dangling drawstrings or items that could become caught. Tie up long hair and remove jewelry.

NEVER place fingers, hands, or body near the engine when it is running period.



⚠ DANGER:

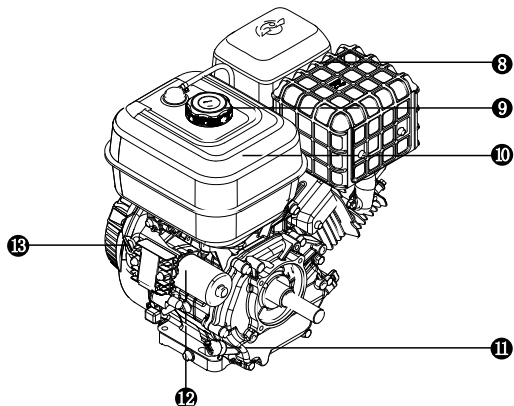
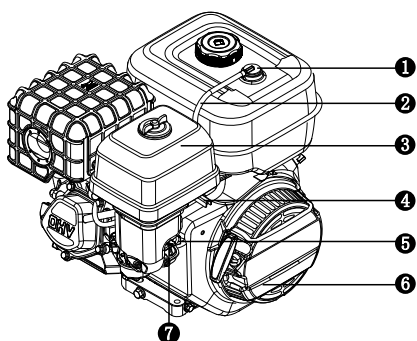
TOXIC FUMES

The exhaust of the engine contains carbon monoxide, an odorless, colorless, poison gas. Using the engine indoors CAN KILL YOU!

NEVER use inside any building or any kind of enclosure, EVEN IF doors and windows are open.

Place the engine in a well ventilated area and carefully consider wind and air currents when positioning the engine.

FEATURES AND CONTROLS



- | | |
|---------------------|----------------------------|
| 1 Evaporative Valve | 7 Choke Lever |
| 2 Evaporating hose | 8 Muffler |
| 3 Air cleaner cover | 9 Fuel Tank Cap |
| 4 Throttle Lever | 10 Fuel Tank (If equipped) |
| 5 Fuel Switch | 11 Oil Dipstick |
| 6 Recoil Starter | 12 Starting motor |
| | 13 OFF/ON Switch |

OPERATING

Operating Checklist

Operating Location

- Only use OUTSIDE and place the engine in a well-ventilated area and carefully consider wind and air currents.
- Place the engine on a level surface before any operation.
- Allow two feet clearance on all sides of the engine while operating.



⚠ DANGER:

TOXIC FUMES

The exhaust of the engine contains carbon monoxide, an odorless, colorless, poison gas. Using the engine indoors **CAN KILL YOU!**

NEVER use inside any building or any kind of enclosure, **EVEN** IF doors and windows are open.

Place the engine in a well ventilated area and carefully consider wind and air currents when positioning the engine.

High Altitude

This engine will have proper engine performance and emission control when it is operated at or below an altitude of 5000 feet (1524 meters). This engine requires a high altitude carburetor kit to ensure proper engine performance and emission control when it is operated at altitudes above 5000 feet (1524 meters). Operating the engine with the wrong engine configuration above 5000 feet (1524 meters) may increase its emissions and decrease fuel efficiency and performance. To obtain a high altitude carburetor kit, contact FNA Group at cservice@fna-group.com or 1-877-362-4271.

⚠ CAUTION:

Operation of the engine with a high altitude carburetor kit at an altitude below 5000 feet (1524 meters) may cause the engine to overheat and result in serious engine damage.

Operating Condition

- Check for loose or damaged parts, signs of oil or fuel leaks, and any other condition that may affect proper operation.
- Repair or replace all damaged or defective parts immediately.

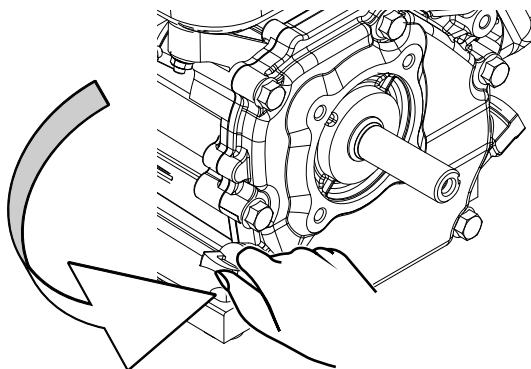
⚠ WARNING:

Failing to correct problem(s) before operation could result in property damage, serious injury or DEATH.

- Remove any excessive dirt or debris, especially around the muffler and recoil starter.
- Refer to the operating instructions for the equipment this engine powers. Do not operate this engine on an inclined surface greater than 15° in any direction.

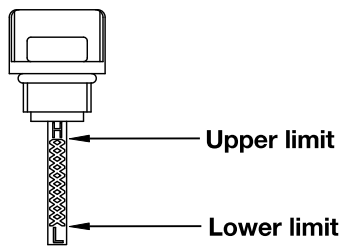
Engine oil

- Place the engine on a level surface with engine stopped.
- Remove the dipstick and wipe it clean.



Remove dipstick

- Reinstall dipstick into hole; rest on oil fill neck, **DO NOT** thread cap into hole.
- Remove the dipstick again and check oil level. Level should be at top of indicator on dipstick.



Dipstick

- Fill to the upper limit of the dipstick with the recommended oil if the oil level is low.
- Reinstall and fully tighten the dipstick.
- Engine damage could result from insufficient lubrication. Refer to **add oil** instruction in **MAINTENANCE** section for more information.
- See **SPECIFICATIONS** for oil capacity and oil type; Page 10.

⚠ WARNING:

This engine is not filled with oil at the factory. Any attempt to crank or start the engine before it has been properly filled with the recommended type and amount of oil may result in engine damage and void your warranty.

⚠ WARNING:

Oil is a major factor affecting performance and service life. Use 4-stroke automotive detergent oil recommended in the **MAINTENANCE** section of this manual.

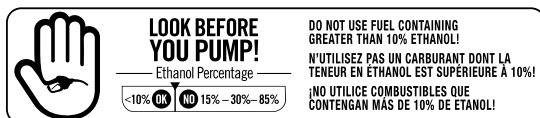
Engine fuel

- With the engine stopped, check the fuel level gauge. Refill the fuel tank if necessary.

⚠ CAUTION:

Pressure can build up in the fuel tank. Allow the engine to cool for at least two minutes before removing fuel cap. Loosen the fuel cap slowly to relieve any pressure in the tank.

- Use clean, fresh regular unleaded gasoline with a minimum octane rating of 87. DO NOT mix oil with gasoline or use gasoline older than 30 days. DO NOT use gasoline that contains more than 10% ethyl alcohol. E15, E20 and E85 are NOT approved fuels and should NOT be used.
- Be sure not to fill the fuel tank above the upper limit mark. Always allow room for fuel expansion.
- See **SPECIFICATIONS** for fuel capacity (rated); Page 10.

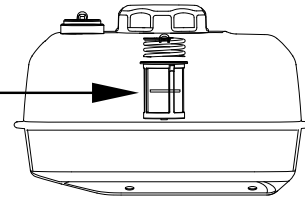


IMPORTANT: Ethanol Shield™ (sold separately) is a fuel stabilizer that helps eliminate and prevent ethanol related problems in power equipment. Follow the instructions on the container and add to the gasoline.



NOTICE: Use of fuels with greater than 10% ethanol are not approved for use in this product per EPA regulations and will damage the unit and void the warranty.

MAXIMUM fuel adding position



⚠ WARNING:

Do not fill the fuel tank above the maximum fuel level.



⚠ DANGER:

FIRE OR EXPLOSION

Gasoline is highly flammable and extremely explosive.

Fire or explosion can cause severe burns or death.

Keep flammable items away while handling gasoline.

Fill fuel tank outdoors and in a well-ventilated area with the engine stopped.

Always wipe off spilled fuel and wait until the fuel has dried before starting the engine.

DO NOT operate the engine with known leaks in the fuel system.

Use proper fuel storage and handling procedures. DO NOT store fuel or other flammable materials nearby.

Empty the fuel tank before storing or transporting this engine.

Keep fire extinguisher handy and be prepared if a fire starts.

NEVER use engine or carburetor cleaner products in the fuel tank or permanent damage may occur.

It is important to prevent gum deposits from forming in essential fuel system parts, such as the carburetor, fuel filter, fuel hose or tank during storage. Also, experience indicates that alcohol-blended fuels (called gasohol, ethanol or methanol) can attract moisture, which leads to separation and formation of acids during storage.

Acidic fuel can damage the fuel system of an engine while in storage. Be sure to review the instructions given in "Storage" on page 9.

Gasoline/Alcohol Blends: up to 10% alcohol, 90% unleaded gasoline by volume is approved as a fuel. Other gasoline/alcohol blends are not approved. Effects of old, stale or contaminated fuel are not warrantable.

⚠ CAUTION:

To minimize gum deposits in your fuel system and to insure easy starting, do not use gasoline left over from the previous season.

Equipment Check

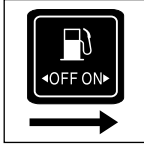
Review the instructions provided for the equipment manufacturer for any precautions and procedures that should be followed before starting the engine.

⚠ WARNING:

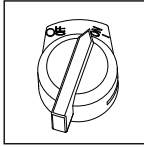
This engine is designed and manufactured for specific applications. Do not attempt to modify the equipment or use it for any application for which it was not designed. If you have questions about specific applications, please contact FNA Group at cservice@fna-group.com or 1-877-362-4271.

Starting the Engine

1. Perform **OPERATING CHECKLIST** (Page 4).
2. Slide the fuel switch to the ON position.



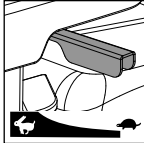
3. Turn the ON/OFF switch to the ON position.



4. Slide the choke lever to the CHOKE position.



5. Move throttle lever to the FAST position.

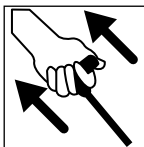


6. For electric starting, refer to your equipment manual.

7. To manually start the engine, first turn the switch to ON (refer to your equipment manual). Grasp the recoil starter handle and pull it slowly until resistance is felt. Pull rapidly to avoid kickback.

⚠ WARNING:

Check starter cord conditions before operating. Have it replaced immediately if the cord is frayed.



⚠ WARNING:

KICKBACK

Rapid retraction of the starter cord will pull your hand and arm towards the engine faster than you can let go. Accidental starts can result in entanglement, traumatic amputation or laceration. Broken bones, fractures, bruises or sprains could result.

8. When the engine is running, slide the choke lever back to the RUN position.



Note: If the engine is warm, there is no need to operate the choke.

⚠ WARNING:

Always operate the engine on a level surface. Angled surface more than 15° may cause the engine to tip and result in property damage, serious injury or DEATH.

Stopping the Engine

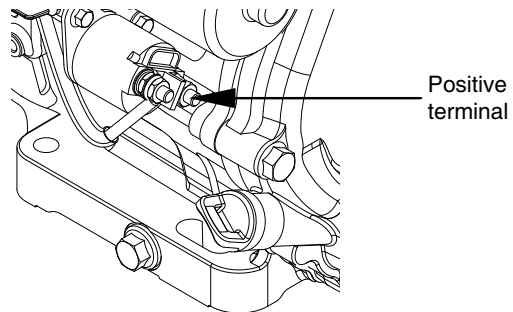
1. If possible, remove the load(s) on the engine.
2. Allow the engine run at no load for a few minutes to stabilize internal temperatures of the engine.
3. Turn the switch to OFF (refer to your equipment manual).
4. Turn the fuel switch to the OFF position.

Terminal application

The engine starter requires the electrical system to be started or powered by a 12-volt (V) battery with a minimum capacity of 14 ampere-hours (Ah). The positive (+) lead from the battery connects to the positive terminal on the starter relay. Connect the negative (-) lead from the battery to an engine mounting bolt, the conductive frame supporting the engine or any other engine grounding point.

⚠ CAUTION:

DO NOT connect the negative (-) battery lead to the oil filter mounting base or any part of the fuel system.



MAINTENANCE

A repair shop or person of the owner's choosing may maintain, replace or repair emission control devices and systems; however, warranty replacements or repairs must be performed by an FNA distribution or service center. To obtain information about how to make a warranty claim or to make arrangements for authorized repairs, please contact FNA Group.

It is the owner's/operator's responsibility to complete all scheduled maintenance in a timely manner. Correct any issue before operating the engine. Always follow the inspection and maintenance recommendations and schedules in this manual. Before servicing the engine, stop the engine, disconnect the battery (if equipped) and allow the engine to cool down.

⚠ WARNING:

Improper maintenance or failure to correct a problem before operation can cause a malfunction and result in property damage, serious injury or DEATH.
Improper maintenance may void your warranty.



⚠ DANGER:

Accidental starts can cause severe injury or death. Remove and ground spark plug wire before performing any service.

⚠ CAUTION:

The filter element may contain polyaromatic hydrocarbons (PAHs). PAHs are harmful to your health. Please wear gloves for protection during air filter maintenance.

Maintenance Schedule

Follow the service intervals indicated in the chart below. Your engine may need to be serviced more frequently when operating in adverse conditions, such as excessive dust or airborne debris, high moisture, high vibrations, or intense heat or sunlight.

		Each time before use	The first month or 10 hours ^{Note 2}	Every three months or 50 hours ^{Note 2}	Every six months or 100 hours ^{Note 2}	Every year or 300 hours ^{Note 2}
Engine oil	Inspection	√				
	Replacement		√		√	
Air cleaner	Inspection	√				
	Cleaning			√ ^{Note 3}		
Spark plug	Inspection and adjustment				√	
	Replacement					√
Spark arrester ^{Note 1}	Cleaning				√	
Idle speed	Inspection and adjustment					√ ^{Note 4}
Valve clearance	Inspection and adjustment					√ ^{Note 4}
Carbon canister ^{Note 1}	Inspection	Every two years ^{Note 4}				
Carbon canister tube ^{Note 1}	Inspection	Every two years ^{Note 4}				
Evaporative oil breather tube	Inspection	Every two years ^{Note 4}				

Note 1: Replace if damaged.

Note 2: Before each season and after then (whichever comes first).

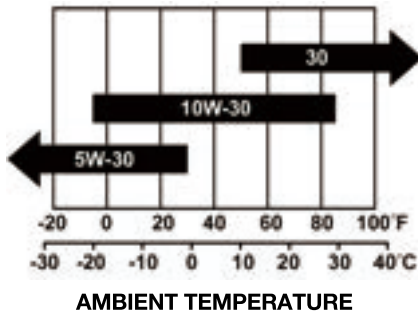
Note 3: Service more frequently under severe, dusty, dirty conditions.

Note 4: To be performed by knowledgeable, experienced owners or the authorized dealer.

General Maintenance

Engine Oil

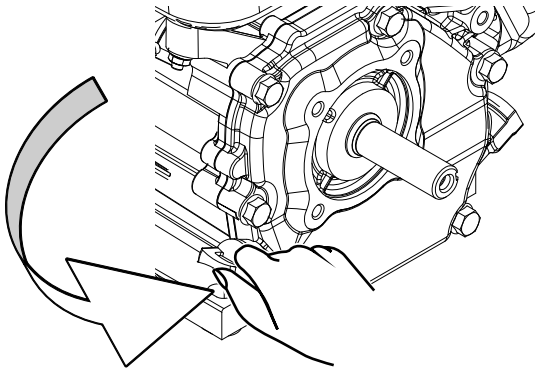
SAE 10W-30 is recommended for general, all-temperature use. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.



See **SPECIFICATIONS** for rated oil capacity; Page 10.

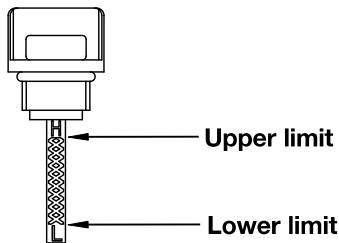
Add Oil

1. Place the engine on a level surface.
2. Remove the dipstick and wipe it clean.



Remove dipstick

3. Add recommended oil to the upper limit.



Dipstick

4. Fully tighten the dipstick.

Change Oil

⚠ CAUTION:

Change oil when the engine is warm from operation.

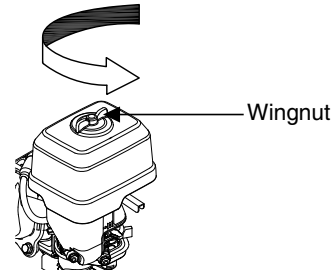
1. Place the engine on a level surface.
2. Clean area around dipstick and drain plug.
3. Remove oil dipstick.
4. Remove the oil drain plug and allow the oil to drain completely.
5. Reinstall and fully tighten the drain plug.
6. See **SPECIFICATIONS** (Page 10) for rated oil; fill to the upper limit. Reinstall and fully tighten the dipstick.
7. Dispose of used oil at an approved waste management facility.

⚠ WARNING:

The engine is not filled with oil at the factory. Any operation before it has been properly filled with the recommended type and amount of oil may result in engine damage and void your warranty.

Air Filter

1. Unscrew the wingnut. Remove the air filter cover.



Remove air filter cover

2. Remove the filter element.
3. Clear away internal dirt and debris.
4. Replace the filter.
5. Reinstall the air cover filter, tighten the wingnut.

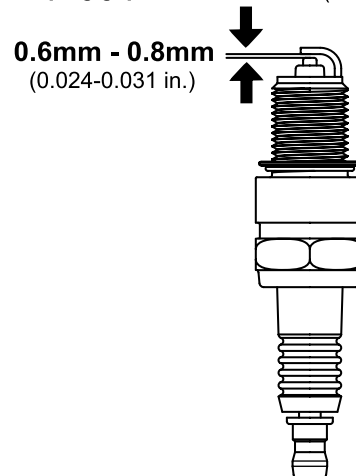
⚠ WARNING:

DO NOT run the engine without the air filter. Serious damage to the engine can result without the air filter.

Spark Plug

1. Remove the spark plug cap from the spark plug.
2. Clean any dirt from the spark plug cap and spark plug base.
3. Use a socket wrench to loosen and remove the spark plug.
4. Inspect the spark plug and spark plug washer. If they are damaged or worn, replace with new one. Clean the spark plug with a wire brush if it can be reused.
5. Check spark plug gap. Carefully bend side electrode to adjust the gap if necessary.

Spark plug gap: 0.6mm - 0.8mm (0.024-0.031 in.)



Check spark plug gap

6. Carefully thread the plug into the engine by hand.
7. After the spark plug is seated, use a torque wrench to tighten to 15-18 ft. lb. (20 - 25 N.m)
8. Attach the spark plug cap to the plug.

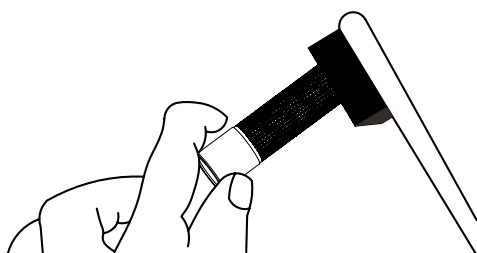
⚠ WARNING:

Only use recommended spark plug or equivalent. DO NOT use a spark plug with an improper heat range. Engine damage may occur.

Spark Arrester

(Applicable types)

1. Allow the engine to cool completely before servicing the spark arrester.
2. Remove the two screws holding the cover plate which retains the end of the spark arrester to the muffler.
3. Remove the spark arrester screen.
4. Carefully remove the carbon deposits from the spark arrester screen with a wire brush.
5. Replace the spark arrester if it is damaged.
6. Reinstall the spark arrester in the muffler and attach with the two screws.



Clean carbon deposits

Idle Speed

The idle speed has been pre-set at the factory and should rarely require readjustment.

⚠ WARNING:

Improper adjustment of idle speed will damage your engine and void your warranty

Adjustment

Except as described in this Manual, there is no additional maintenance or adjustment required for your engine.

Improper adjustments or tampering can damage your engine and your equipment and will void your warranty.

⚠ WARNING:

Tampering with the factory set governor will damage your engine and void your warranty.

If your engine is not working properly or if there are parts missing or broken, please DO NOT RETURN IT TO THE PLACE OF PURCHASE. Contact our Customer Service Department at 1-877-362-4271 or cservice@fna-group.com

TROUBLE ANALYSIS AND TROUBLESHOOTING

Phenomenon	Problems	Solutions
Engine cannot be started.	The OFF/ON switch is in the OFF position	Set the OFF/ON switch to the ON position.
	There is no fuel.	Fill tank per instructions in this manual.
	Inadequate engine oil.	Check oil level. The engine cannot be started unless the oil level is above the prescribed lower limit.
	There is no ignition.	Using an external spark tester, assure that the cylinder has proper spark. If the spark is weak or missing altogether, contact your local authorized service dealer.

STORAGE

Follow the instructions below for longer term storage if the engine will be out of service for 30 days or more.



⚠ DANGER:

FIRE OR EXPLOSION

Gasoline is highly flammable and extremely explosive..

Empty the fuel tank before storing or transporting the engine.

1. Change the oil while engine is still warm from operation.
2. Then allow the engine to cool completely.
3. Drain all fuel completely from the fuel tank, fuel hose and carburetor.
4. Remove spark plug and pour about 1 oz. of engine oil into cylinder. Reinstall spark plug. Crank engine slowly to distribute oil and lubricate cylinder.
5. Clean the engine according to the instructions in the Maintenance section.
6. Store the unit in a clean, dry area out of direct sunlight.

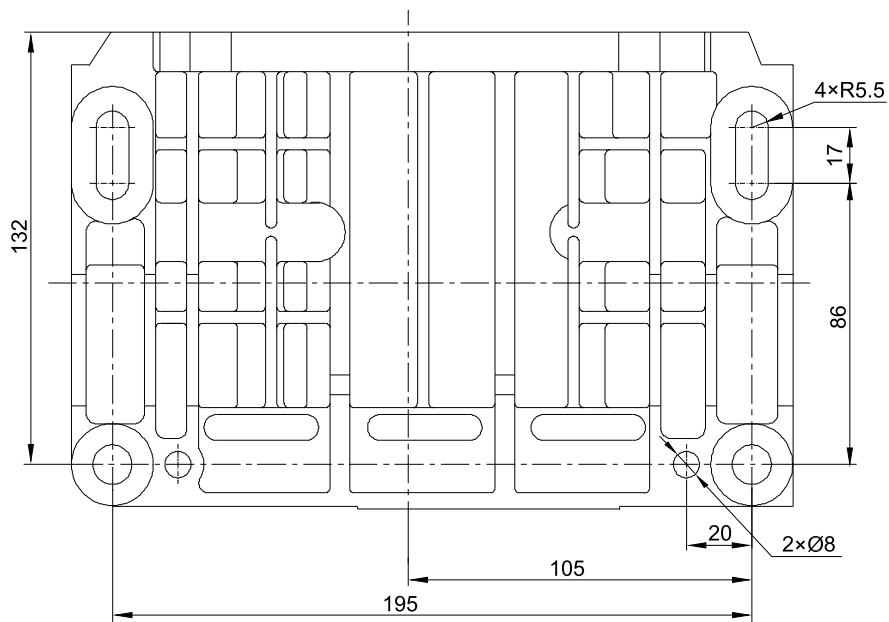
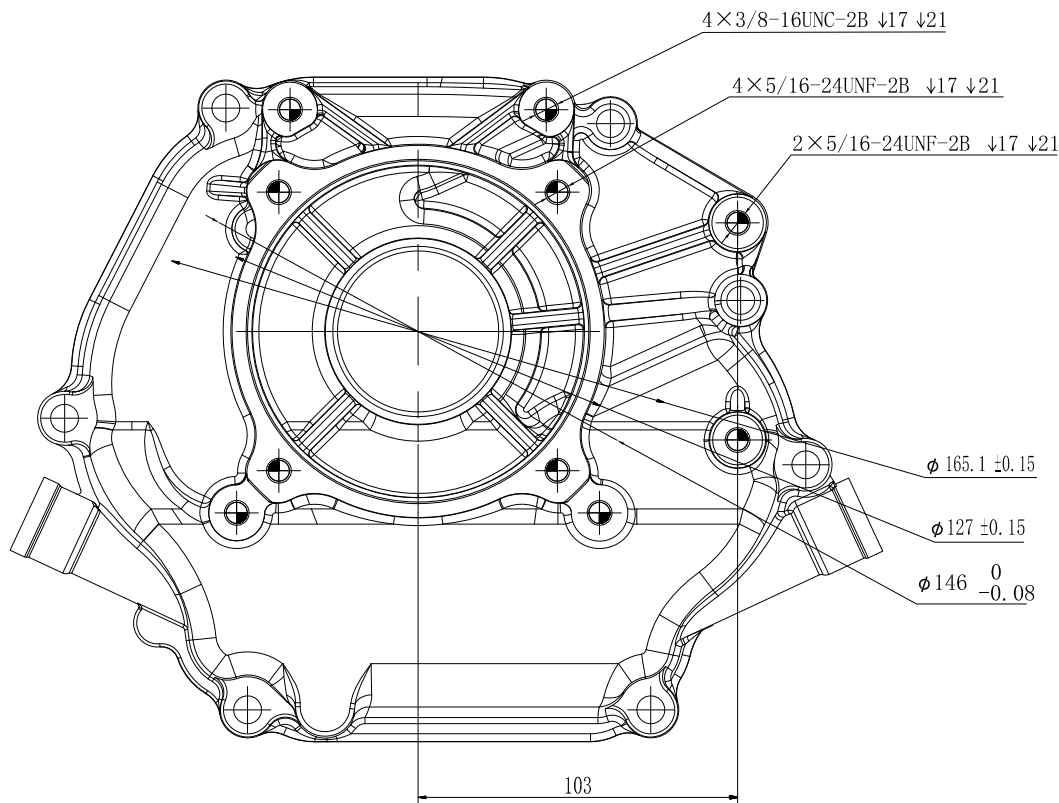
SPECIFICATIONS

Specification Parameter Table

Category	Item	CRX420
Main structure parameters	Valve arrangement	Overhead valve
	Number of cylinders	1
	Cylinder diameter(mm)	90
	Piston stroke(mm)	66
	Total displacement(cm ³)	420
	Compression ratio	9.0:1
	Rated power per SAE J1349 Net Power (Kw/rpm)	9.0/3600
	Direction of rotation	Counter clockwise (from the crankshaft output side)
	Ignition advance angle	30°±2°
	Valve clearance	Intake valve clearance 0.004 – 0.006" (0.10 – 0.15mm)
		Exhaust valve clearance 0.006 – 0.008" (0.15 – 0.20mm)
Fuel and lubricating oil	Spark plug gap	0.024 – 0.031" (0.6 – 0.8mm)
	Engine oil type	SAE 10W-30 API SG or newer
	Fuel delivery	Carburetor
	Fuel tank capacity	1.59 gal (6.0L)
Dimension and mass	Lubricating oil capacity	39oz (1.1L)
	Dimension(Length×Width×Height)	17.95 x 13.98 x 18.07" (456 x 355 x 459mm)
	Weight (net)	73.9 lbs. (33.5Kg)

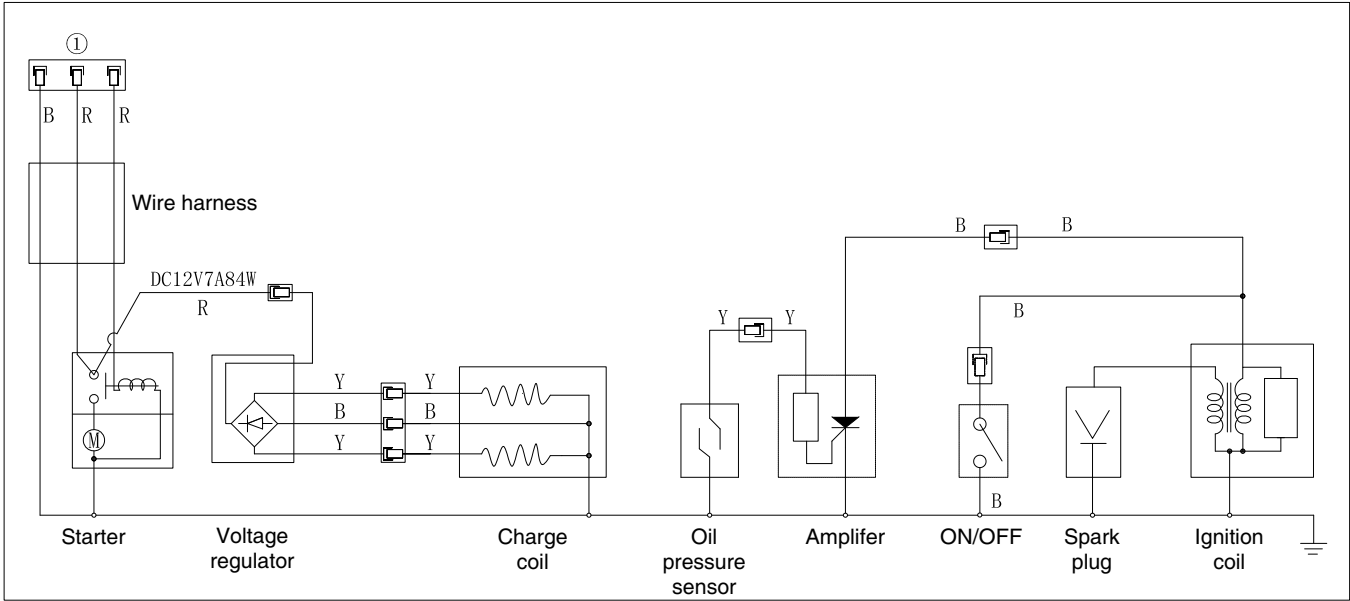
Case Cover Installation Dimension

CRX420



All dimensions are in millimeters (mm) except for thread callouts.

Engine circuit diagram



Port	Power port type	Terminal port type	Note	Explanation
①	HD034Y-7.8-21	B	Start motor power port	Connect the cathode of 12V DC power supply
		R	Start motor power port	Connect to the 12V DC power supply anode which is the power input port for electric startup and the charging output port (DC12V/7A/84W).
		R	Start relay control port	Connect the port to the anode of the 12V power supply through flip the switch to control the relay was turned on by the two contacts of the control site.

LIMITED WARRANTY

3 YEAR COMMERCIAL LIMITED WARRANTY

WARRANTY COVERAGE TERMS:

The manufacturer of this product agrees to repair or replace designated parts that prove defective within the warranty period listed below at the manufacturer's sole discretion. Specific limitations/extensions and exclusions apply.

This warranty covers defects in material and workmanship and not parts failure due to normal wear, depreciation, abuse, accidental damage due to chemical deterioration, scale buildup, rust corrosion or thermal expansion, negligence, improper use, maintenance, water quality or storage. To make a claim under the terms of the warranty, all parts said to be defective must be retained and available for return upon request to a designated Warranty Service Center for warranty inspection. The judgments and decisions of the manufacturer concerning the validity of warranty claims are final.

These warranties pass through to the end user and are non-transferable. As a factory authorized and trained Warranty Service Center, the factory will honor the terms of all component warranties and satisfy claims of the appropriate warranty provisions.

Normal wear items include, but are not limited to, spark plugs, carburetor adjustments, ignition adjustments, filters, oil changes, recoil starter ropes, electric motor brushes, cotter pins, gaskets, valves, pistons or any other parts considered to be wear items, which are not covered by this warranty. The foregoing warranty is exclusive and in lieu of all other warranties whether written, oral, expressed, or implied. There are no warranties of merchantability or fitness of any product for a particular purpose. The FNA Group's only liability shall be the repair or replacement of parts as stated above. In no event shall the FNA Group be responsible for any losses or damages that are indirect, consequential, punitive, special, exemplary, or for economic loss, commercial loss, lost revenues, lost profits, or lost business opportunities, regardless of whether such liability is based on breach of contract, tort, strict liability, breach of warranties, failure of essential purpose or otherwise, or is a direct result of the FNA Group's own actions or inactions. Because some states do not allow limitations on how long an implied warranty lasts, the above limitation may not apply to you.

The FNA Group assumes no responsibility for incidental, consequential, or other damages including, but not limited to, expenses related to transporting the product to or from an authorized service, a mechanic's travel time, any telephone or communication charges, the rental of a like product while the warranty service is being performed, any other travel time or expenses, loss or damage to personal property, loss of revenue, loss of use of the product, loss of time, or any other inconvenience. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty replaces all other warranties, express or implied, including without limitation any warranties of merchantability or fitness for a particular purpose and all such warranties are hereby disclaimed and excluded by the manufacturer. The manufacturer's warranty obligation is limited to repair and replacement of defective products as provided herein and the manufacturer shall not be liable for any further loss, damages, or expenses - including damages from shipping, accident, abuse, acts of God, misuse, or neglect. Neither is damage from repairs using parts not purchased from the manufacturer

or alterations performed by non-factory authorized personnel. Failure to install and operate equipment according to the guidelines put forth in the instruction manual shall void warranty.

RESPONSIBILITY OF ORIGINAL PURCHASER (INITIAL USER):

To process a warranty claim, report the concern to 1-877-362-4271 or cservice@fna-group.com for authorization and direction to the nearest authorized service center in your area.

Retain original cash register sales receipt as proof of purchase for warranty work.

Use reasonable care in the operation and maintenance of the product as described in the Operator's Manual(s).

FEDERAL and CALIFORNIA EXHAUST AND EVAPORATIVE EMISSIONS CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

The United States Environmental Protection Agency (EPA), the California Air Resources Board, and FNA Group (FNA) are pleased to explain the exhaust and evaporative emissions ("emissions") control system's warranty on your 2022 small off-road engine or equipment (SORE). In California, new equipment that use small off-road engines must be designed, built, and equipped to meet the State's stringent anti-smog standards. FNA must warrant the emissions control system on your SORE for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your small off-road engine or equipment leading to the failure of the emissions control system.

Your emissions control system may include parts such as the carburetor or fuel-injection system, the ignition system, catalytic converter, fuel tanks, fuel lines (for liquid fuel and fuel vapors), fuel caps, valves, canisters, filters, clamps and other associated components. Also included may be hoses, belts, connectors, and other emission-related assemblies.

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

MANUFACTURER'S WARRANTY COVERAGE:

This exhaust and evaporative emissions control system on your SORE is warranted for two years. If any emissions-related part on your SORE is defective, the part will be repaired or replaced by FNA.

OWNER'S WARRANTY RESPONSIBILITIES:

As the SORE owner, you are responsible for performance of the required maintenance listed in your owner's manual. FNA recommends that you retain all receipts covering maintenance on your SORE, but FNA cannot deny warranty coverage solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the SORE owner, you should however be aware that FNA may deny your warranty coverage if your SORE or a part has failed due to abuse, neglect, or improper maintenance or unapproved modifications.

You are responsible for presenting your SORE to a FNA distribution center or service center as soon as the problem exists. The warranty repairs shall 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 **FNA Group** at **1-877-362-4271** or at **cservice@fna-group.com**.

DEFECTS WARRANTY REQUIREMENTS:

(a) Applicability. This section applies to emissions control systems on small off-road engines or equipment that use small off-road engines subject to the emission standards in this Article. The warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser.

(b) General Emissions Warranty Coverage. The engine or equipment must be warranted to the ultimate purchaser and any subsequent owner that the emissions control system when installed was:

- (1) Designed, built, and equipped so as to conform with all applicable regulations; and
- (2) Free from defects in materials and workmanship that causes the failure of a warranted part for a period of two years.

(c) The warranty on emissions-related parts will be interpreted as follows:

- (1) Any warranted part that is not scheduled for replacement as required maintenance in the written instructions furnished with each new engine or equipment must be warranted for the warranty period defined in subsection (b)(2). If any such part fails during the period of warranty coverage, it must be repaired or replaced by FNA according to subsection (4) below. Any such part repaired or replaced under the warranty must be warranted for a time not less than the remaining warranty period.
- (2) Any warranted part that is scheduled only for regular inspection in the written instructions furnished with each new engine or equipment must be warranted for the warranty period defined in subsection (b)(2). A statement in such written instructions to the effect of "repair or replace as necessary" shall advise owners of the warranty coverage for emissions related parts. Replacement within the warranty period is covered by the warranty and will not reduce the period of warranty coverage. Any such part repaired or replaced under warranty must be warranted for a time not less than the remaining warranty period.
- (3) Any warranted part that is scheduled for replacement as required maintenance in the written instructions furnished with each new engine or equipment must be warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part must be repaired or replaced by the manufacturer according to subsection (4) below. Any such part repaired or replaced under warranty must be warranted for a time not less than the remainder of the period prior to the first scheduled replacement point for the part.

(4) Repair or replacement of any warranted part under the warranty provisions of this article must be performed at no charge to the owner at a warranty station.

(5) Notwithstanding the provisions of subsection (4) above, warranty services or repairs must be provided at distribution centers that are franchised to service the subject engines or equipment.

(6) The owner must not be charged for diagnostic labor that leads to the determination that a warranted part is in fact defective, provided that such diagnostic work is performed at a warranty station.

(7) Throughout the emissions control system's warranty period set out in subsection (b)(2), FNA must maintain a supply of warranted parts sufficient to meet the expected demand for such parts and must obtain additional parts if that supply is exhausted.

(8) Manufacturer-approved replacement parts that do not increase the exhaust or evaporative emissions of the engine or evaporative emission system must be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of FNA.

(9) The use of add-on or modified parts may be grounds for disallowing a warranty claim made in accordance with this Article. FNA will not be liable under this Article to warrant failures of warranted parts caused by the use of an add-on or modified part.

(10) FNA shall provide any documents that describe FNA's warranty procedures or policies within five working days of request by the Executive Officer.

(d) A list of all emissions warranty parts must be included with each new engine or equipment subject to this Article. The emissions warranty parts list shall include all parts whose failure would increase exhaust or evaporative emissions, and contains the following parts (if applicable):

(1) Fuel Metering System

- Carburetor and internal parts (and/or pressure regulator or fuel injection system).
- Air/fuel ratio feedback and control system.
- Cold start enrichment system.

(2) Air Induction System

- Controlled hot air intake system.
- Intake manifold.
- Air filter.

(3) Ignition System

- Spark Plugs.
- Magneto or electronic ignition system.
- Spark advance/retard system.

(4) Exhaust Gas Recirculation (EGR) System

- EGR valve body, and carburetor spacer if applicable.
- EGR rate feedback and control system.

(5) Air injection System

- Air pump or pulse valve.
- Valves affecting distribution of flow.
- Distribution manifold.

(6) Catalyst or Thermal Reactor System

- Catalytic converter.
- Thermal reactor.
- Exhaust manifold.

(7) Particulate Controls

- Traps, filters, precipitators, and any other device used to capture particulate emissions.

(8) Miscellaneous items Used in Above Systems

- Vacuum, temperature, and time sensitive valves and switches.
- Electronic controls.
- Hoses, belts, connectors, and assemblies.

(9) Evaporative Controls

- Fuel Tank
- Fuel Cap
- Fuel Lines (for liquid fuel and fuel vapors)
- Fuel Line Fittings
- Clamps**
- Pressure Relief Valves**
- Control Valves**
- Control Solenoids**
- Electronic Controls**
- Vacuum Control Diaphragms**
- Control Cables**
- Control Linkages**
- Purge Valves
- Gaskets
- Liquid/Vapor Separator
- Carbon Canister
- Canister Mounting Brackets
- Carburetor Purge Port Connector

**Note: As they relate to the evaporative emission control system.

Note: Any other warranty statements apply to engines or equipment units shall not limit the emissions warranty period (two years) or its applicability to subsequent owners after the ultimate purchaser.



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