

ITEM # CMG5 5 CU FT CEMENT MIXER INSTRUCTION MANUAL



READ ALL INSTRUCTIONS AND WARNINGS BEFORE USING THIS PRODUCT.

This manual provides important information on proper operation & maintenance. Every effort has been made to ensure the accuracy of this manual. These instructions are not meant to cover every possible condition and situation that may occur. We reserve the right to change this product at any time without prior notice.

**IF THERE IS ANY QUESTION ABOUT A CONDITION BEING SAFE OR UNSAFE,
DO NOT OPERATE THIS PRODUCT!**

QUESTIONS? PROBLEMS? CONTACT CUSTOMER SERVICE.

If you experience a problem, have questions or need parts for this product, call Customer Service at 1-866-460-9436, Monday-Friday, 8 AM - 4 PM Central Time. A copy of the sales receipt is required.

FOR CONSUMER USE ONLY – NOT FOR PROFESSIONAL USE.

**KEEP THIS MANUAL, SALES RECEIPT & APPLICABLE WARRANTY FOR
FUTURE REFERENCE.**

THIS ENGINE MEETS U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1054.625 .

2 YEAR LIMITED EMISSION-RELATED WARRANTY

THIS ENGINE MEETS U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1054.625 .The emission-related limited warranty is valid for two (2) years. Keep the purchase receipt and mail in the product registration card for proof of purchase. Buffalo Corp limits emission-related warranty repairs to authorized service centers for owners located within 100 miles of an authorized service center. For owners located more than 100 miles from an authorized service center, Buffalo Corp will, in its sole discretion, either pay for shipping costs to and from an authorized service center, provide for a service technician to come to the owner to make the warranty repair, or pay for the repair to be made at a local non-authorized service center. The provisions of this paragraph apply only for the contiguous states, excluding the states with high-altitude areas identified in 40 CFR part 1068, Appendix III.

To exercise this warranty, DO NOT RETURN TO RETAILER. Instead, call Customer Service toll free at 1-866-460-9436 (email address info@buffalotools.com) and you will be instructed on where to take the engine for warranty service. Take the chainsaw and proof of purchase (your receipt) to the repair facility recommended by the Customer Service Representative. The warranty does not extend to chainsaws damaged or affected by fuel contamination, accidents, neglect, misuse, unauthorized alterations, use in an application for which the product was not designed and any other modifications or abuse.

1 YEAR LIMITED WARRANTY (30 Day Limited Warranty for Commercial and Rental Purpose)

Chainsaws are warranted to be free from defects in materials and workmanship for a period of 1 YEAR from date of original purchase. Buffalo Corp. is not liable for any indirect, incidental or consequential damages from the sale or use of this product. Any implied warranties are limited to 1 YEAR as stated, or as otherwise stated, in this written limited warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages. Some states do not allow limitation on the length of an implied warranty. Buffalo Corp will repair or replace, at its discretion, any part that is proven to be defective in materials or workmanship under normal use during the 1 YEAR warranty period. Warranty repairs or replacements will be made without charge for parts or labor. Parts replaced during warranty repairs will be considered as part of the original product and will have the same warranty period as the original product. This warranty gives you specific legal rights, and you may have other rights that vary state to state.

RECOGNIZE SAFETY SYMBOLS, WORDS AND LABELS

What You Need to Know About Safety Instructions

Warning and Important Safety Instructions appearing in this manual are not meant to cover all possible conditions and situations that may occur. Common sense, caution and care must be exercised when operating or cleaning tools and equipment.

Always contact your dealer, distributor, service agent or manufacturer about problems or conditions you do not understand.



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 an imminently hazardous situation which, if not avoided, will result in death or serious injury.



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



CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

WARNING

GASOLINE IS HIGHLY FLAMMABLE AND EXPLOSIVE. YOU COULD BE BURNED OR SERIOUSLY INJURED IF THE GASOLINE IS IGNITED. Before refueling, stop the engine and keep heat, sparks and flame away. Handle fuel only outdoors. Do not fill the fuel tank above the upper limit line. Wipe up spills immediately.

DANGER

EXHAUST CONTAINS POISONOUS CARBON MONOXIDE GAS THAT CAN BUILD UP TO DANGEROUS LEVELS IN CLOSED AREAS. BREATHING CARBON MONOXIDE CAN CAUSE UNCONSCIOUSNESS OR DEATH. Never run the generator in a closed or even partly closed area where people may be present.

ITEM # CMG5 Cement Mixer

FEATURES:

- Belt Size 23 5/8" length
- Fuel Type: Gasoline
- Fuel Capacity 0.3698 gallons (1.4L)
- Spark Plug: E7RTC
- Oil Type SAE10W-30
- Oil Capacity 15.2 ounces (0.45L)
- Decibel rating: 101 dB
- 5 Cu Ft batch output
- 2.5 HP
- Drum Speed 32 RPM @ 3,600 RPM
- EPA Approved
- If you are using this above sea level, it may not function properly because of air flow getting through the carburetor
- High Altitude Use: This tool is not recommended for high altitude use above 3,000 feet.



IMPORTANT SAFETY INSTRUCTIONS

STOP!

Before using this cement mixer, if you have any questions regarding the hazard and safety notices listed in this manual and/or on this cement mixer, call 1-866-460-9436, Monday - Friday, 8 AM - 4 PM Central Time.

⚠ DANGER

Carbon Monoxide Gas: When in operation, the exhaust from this cement mixer contains poisonous carbon monoxide gas. Carbon monoxide gas is both odorless and colorless AND may be present even if you do not see or smell gas. Breathing this poison gas can lead to headaches, dizziness, drowsiness, loss of consciousness and eventually death.

- USE THIS CEMENT MIXER ONLY OUTDOORS IN NON-CONFINED AREAS. DO NOT SECURE THE CEMENT MIXER WITH A CHAIN OR ROPE, AS THIS WILL MAKE IT DIFFICULT TO MOVE IN AN EMERGENCY.
- Keep at least several feet of clearance on all sides to allow proper ventilation.

⚠ WARNING

Flammable Gasoline: This cement mixer may emit highly flammable and explosive gasoline vapors, which can cause severe burns or even death. A nearby open flame can lead to an explosion even if not directly in contact with gasoline.

- Do not operate near open flame.
- Always operate on a firm, level surface.

Gasoline is highly flammable and explosive. Handling fuel can result in serious injury or burns.

- Always shut down before refueling. Refuel in a well-ventilated area. Keep heat, sparks and flame away while refueling and away from the location where gasoline is stored. Never refuel indoors where gasoline fumes may reach flames and/or sparks.
- Allow to cool for at least 2 minutes before removing the fuel tank cap. Loosen the cap slowly to relieve pressure in the fuel tank.

Avoid spilling fuel.

- Do not fill the fuel tank above the upper limit line. Gasoline may expand during operation. Do not fill to the top of the tank.
- Always check for spilled gasoline and immediately wipe it up before starting.
- Empty the fuel tank before storing or transporting.
- Always handle fuel outdoors.
- Before transporting, turn the fuel valve to the "OFF" position and disconnect the spark plug.

⚠ WARNING

Do not smoke during use. Nicotine reduces the blood supply to the hands and fingers, increasing the risk of vibration-related injury. Wear suitable gloves to reduce the vibration effects on the user.

⚠ DANGER

High Temperatures: This cement mixer produces heat when in operation. Temperatures near the exhaust can exceed 150 Degrees Fahrenheit (65 Degrees Celsius).

- Do not touch hot surfaces. Observe all warning placards denoting hot surfaces.
- Allow to cool for several minutes after use before touching the engine, muffler or other areas that are hot during operation and before storing indoors.
- Hot exhaust may ignite some materials. Keep flammable materials away.
- Keep at least several feet of clearance on all sides during operation. Do not enclose in any structure.

⚠ CAUTION

Usage: Misuse can damage it or shorten its life.

- Use for its intended purpose.
- Operate only on a dry, level surface. Do not secure with a chain or rope, which would prevent it from being moved in an emergency.
- Promptly turn off any malfunctioning devices and disconnect them.

Familiarize yourself with all safety and hazard labels on the Cement Mixer.

⚠ DANGER POISONOUS GAS
 Exhaust contains toxic carbon monoxide gas. Breathing exhaust can cause loss of consciousness and shortness of breath. NEVER operate in poorly ventilated areas.

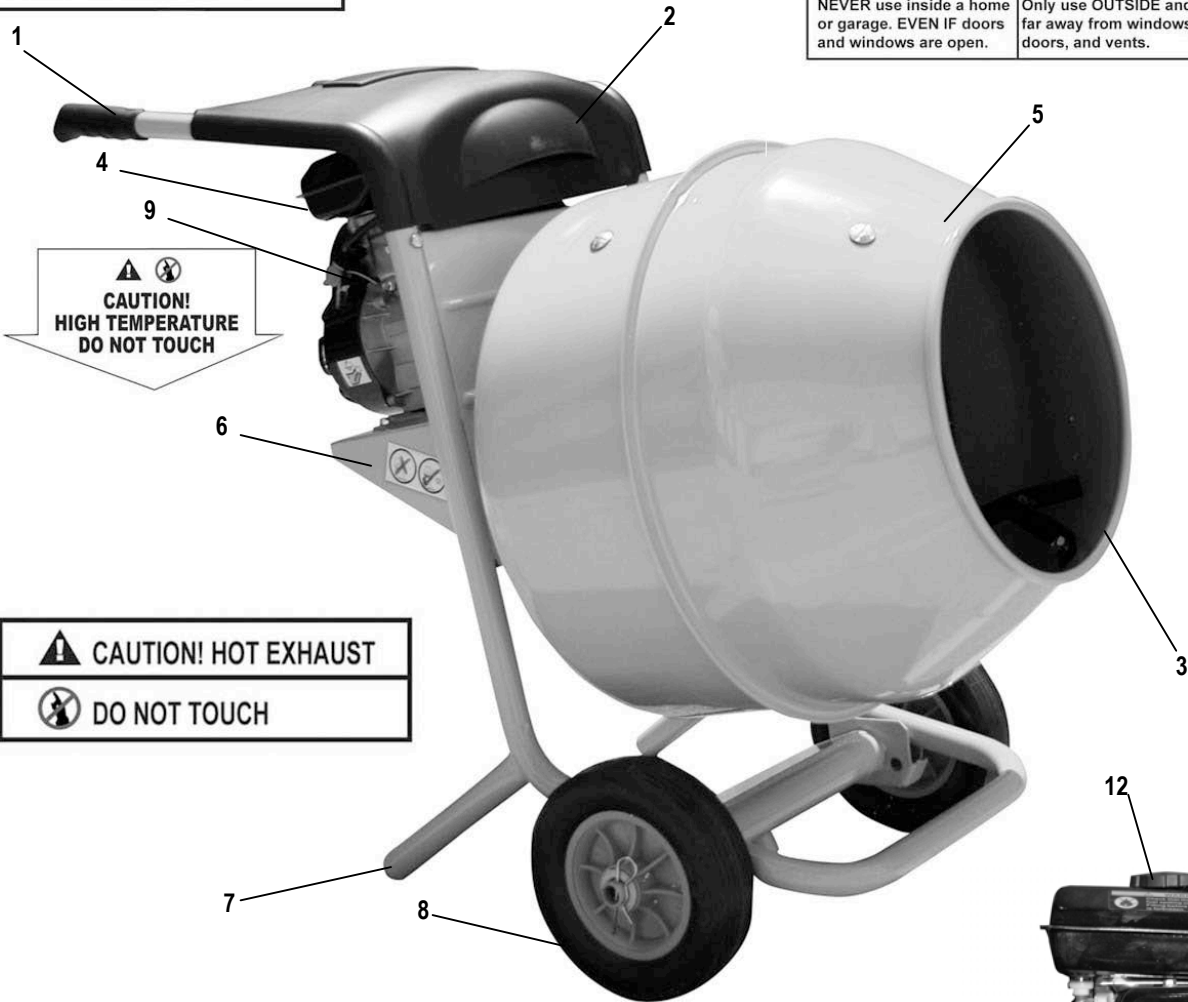
⚠ WARNING
 Risk of electric shock. Do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

⚠ DANGER
 Using **this tool** indoors CAN KILL YOU IN MINUTES.
 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.



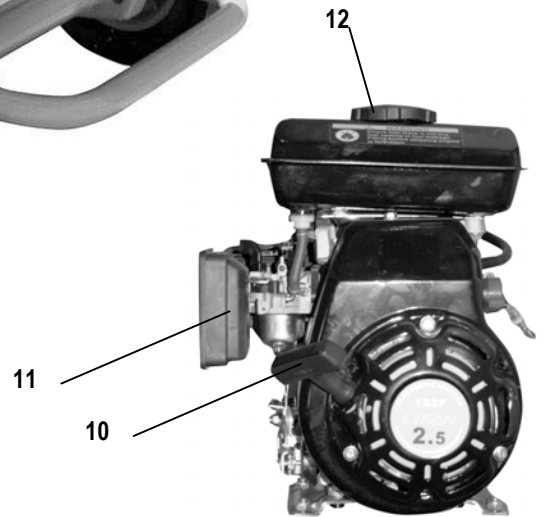
⚠ CAUTION!
 HIGH TEMPERATURE
 DO NOT TOUCH

⚠ CAUTION! HOT EXHAUST
 DO NOT TOUCH

COMPONENTS

Observe the locations and functions of the various components and controls.

- | | |
|------------------|------------------|
| 1) Handle Grip | 7) Support Leg |
| 2) Engine Cover | 8) Wheels |
| 5) Drum Opening | 9) Engine |
| 6) Gas Tank | 10) Recoil Start |
| 5) Drum | 11) Air Filter |
| 6) Warning Label | 12) Gas Tank |



⚠ DANGER

This tool vibrates during use. Repeated or long-term exposure to vibration may cause temporary or permanent physical injury, particularly to the hands, arms and shoulders. Anyone using vibrating tools regularly or for an extended period should first be examined by a doctor and then have regular medical check-ups to ensure medical problems are not being caused or worsened from use. Pregnant women or people who have impaired blood circulation to the hand, past hand injuries, nervous system disorders, diabetes, or Raynaud's Disease should not use this tool. If you feel any medical or physical symptoms related to vibration (such as tingling, numbness, and white or blue fingers), seek medical advice as soon as possible.

STOP!

CAUTION

The following section describes the required steps for preparing this tool for the first use. Failure to correctly perform these steps can damage this tool and/or shorten its life. If still unsure about how to perform any of these steps after reading this section, call 1-866-460-9436 Monday - Friday, 8 AM - 4 PM Central Time for customer service.

If this cement mixer is being used for the first time, the following few steps are required to prepare it for operation:

Step 1 - Add Oil

This cement mixer requires engine oil to function. Engine oil is a major factor affecting engine performance and service life. When new from the package, this cement mixer contains no oil in the engine crankcase. Add the correct quantity of oil before operating for the first time. When replenishing oil for subsequent use, always determine that this cement mixer has the correct quantity of oil.

Oil Capacity (fluid oz./L)	15.2 ounces (0.45 liters)
Oil Type Recommended	SAE10W-30

To add oil:

1. Confirm that this cement mixer is on a level surface.
2. Open the Oil Access Panel as illustrated in Figure 1.
3. Using a funnel, add high detergent motor oil to fill the engine crankcase to the correct quantity as stated above. SAE10W-30 oil is recommended. When the engine crankcase is full, the oil level should reach the lower lip of the oil filling opening as illustrated in Figure 2.
4. Replace the oil filler/dipstick cap and close the oil access panel.



Step 2 - Add Gasoline

WARNING

Gasoline and gasoline fumes are highly flammable and explosive. Handling fuel can result in serious injury or burns.

- Do not fill the fuel tank near a heat, sparks or an open flame. Keep gasoline away from appliance pilot lights, barbecues, electric appliances, power tools, etc.
- Do not overfill the fuel tank. Check for fuel spills and immediately wipe them up. Spilled fuel is a fire hazard and causes environmental damage.

To add gasoline:

To ensure that this cement mixer runs smoothly, use only FRESH, UNLEADED GASOLINE WITH AN OCTANE RATING OF 87 OR HIGHER. Unleaded gasoline produces fewer engine and spark plug deposits and extends the life of the exhaust system.

1. Confirm that this cement mixer is on a level surface.

2. Unscrew fuel tank cap and set aside. (NOTE: The fuel tank cap may be tight and difficult to unscrew.)
3. Slowly add fresh, unleaded gasoline (with an octane rating 87 or higher) to the fuel tank. Be careful not to fill the fuel tank above the upper limit line. NOTE: Because gasoline can expand, do not fill the fuel tank to the very top.
4. Securely tighten the fuel tank cap and immediately wipe up any spilled gasoline with a dry cloth.

Fuel Tank Capacity (gals /L)	0.3698 gallons (1.4 Liters)
Fuel Type	Fresh, Unleaded Gasoline Octane Rating 87 or Higher

IMPORTANT:

- Use only UNLEADED gasoline with an octane rating of 87 or higher.
- Never use a mixture of oil and gasoline.
- Never use old and/or contaminated gasoline.
- Avoid getting dirt and/or water in the fuel tank.
- Gasoline can age in the fuel tank and make it difficult to start. Never store this for extended time with gasoline in the fuel tank.

Subsequent Use of this Cement Mixer

For subsequent uses of this tool after the first use, certain steps still must be completed to prepare it for operation.

IMPORTANT: Be familiar with the procedures described in the previous section titled “Using the Cement Mixer for the First Time” of this manual. If not, review this section now.

Step 1 - Verify Oil Level

Step 2 - Verify Gas Level

Before starting, verify that there is sufficient gasoline in the fuel tank. If necessary, add fresh unleaded gasoline with an octane rating of 87 or higher.

⚠ WARNING

People with pacemakers should consult their physician before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.

IMPORTANT

- Use only fresh UNLEADED gasoline with an octane rating of 87 or higher.
- Never use old and/or contaminated gasoline.
- Never use a mixture of oil and gasoline.
- Avoid getting dirt and/or water in the fuel tank.
- Never store for extended time with gasoline in the fuel tank.

⚠ WARNING

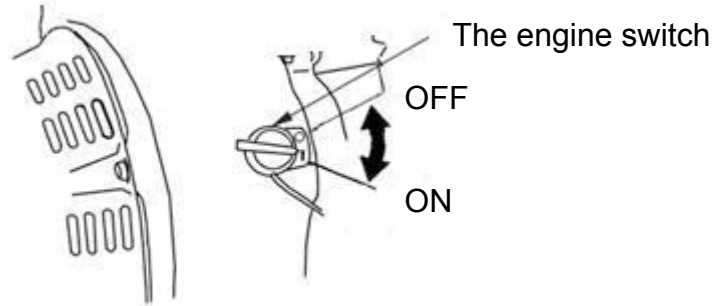
Gasoline and gasoline fumes are highly flammable and explosive. Handling fuel can result in serious injury or burns.

- Do not fill the fuel tank near a heat, sparks or an open flame. Keep gasoline away from appliance pilot lights, barbecues, electric appliances, etc.
- Always allow several minutes for the engine to cool before refueling.
- Do not overfill the fuel tank. Check for fuel spills and immediately wipe them up. Spilled fuel is a fire hazard and causes environmental damage.

CONTROLS

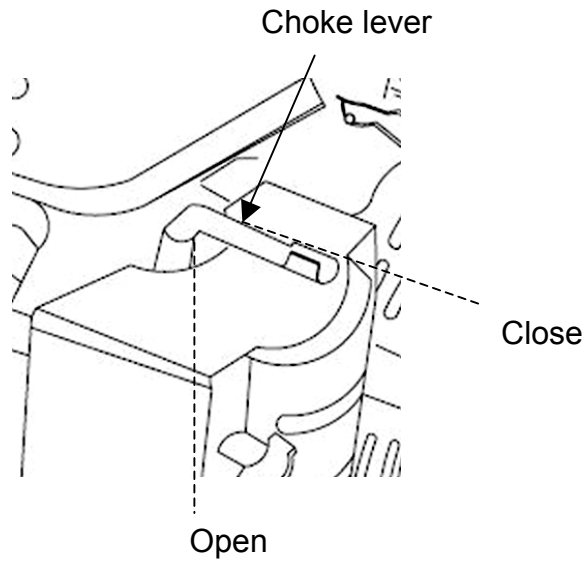
1) Engine Switch

The engine switch enables and disables the ignition system.
The engine switch must be in the ON position for the engine to run.
Turning the engine switch to the OFF position stops the engine.



2) Choke Lever

The choke lever opens and closes the choke valve in the carburetor.
Set lever "CLOSE" for starting a cold engine.
After starting, set the choke lever to "OPEN" position

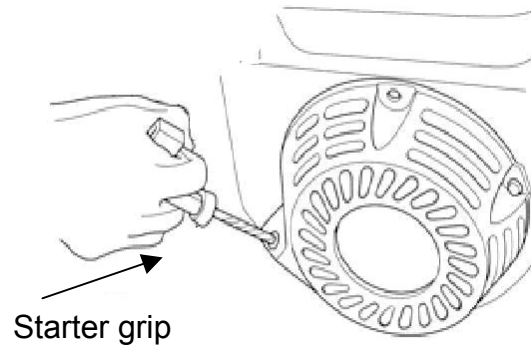


3) Recoil Starter Grip

Pulling the starter grip operates the recoil starter to crank the engine.

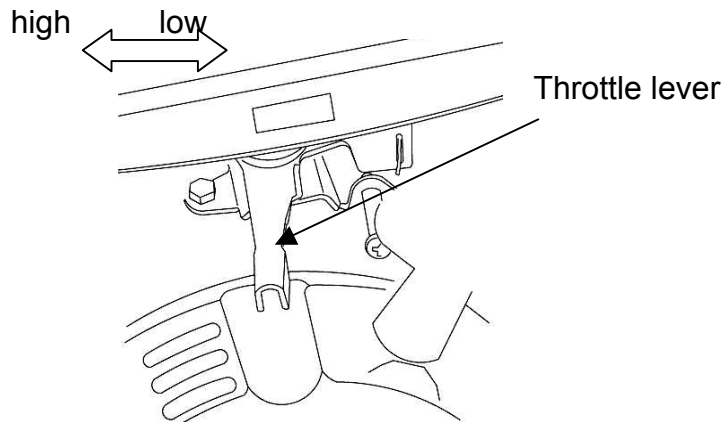


Don't let the lever suddenly rebound: gently allow the lever to spring back.



4) Governor lever

Adjust the throttle lever position to get required speed.



4. CHECK BEFORE OPERATION

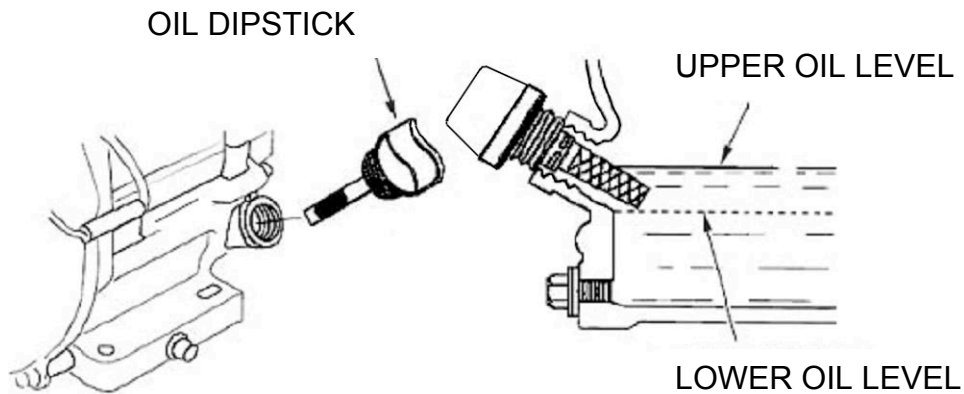
1) Check Unit

- Look around and underneath the engine for signs of oil or gasoline leaks.
- Look for signs of damage.
- Check that all shields and covers are in place, and all nuts, bolts, and screws are tight.

2) Check Oil

When stopping the engine on a horizontal surface, check the oil.

- 1) Take the oil dipstick and clean it.
- 2) Insert the oil dipstick in and check the oil level without screwing down.
- 3) If the oil is too low, add the recommended oil.
- 4) After finishing, reassemble and screw the oil dipstick down.

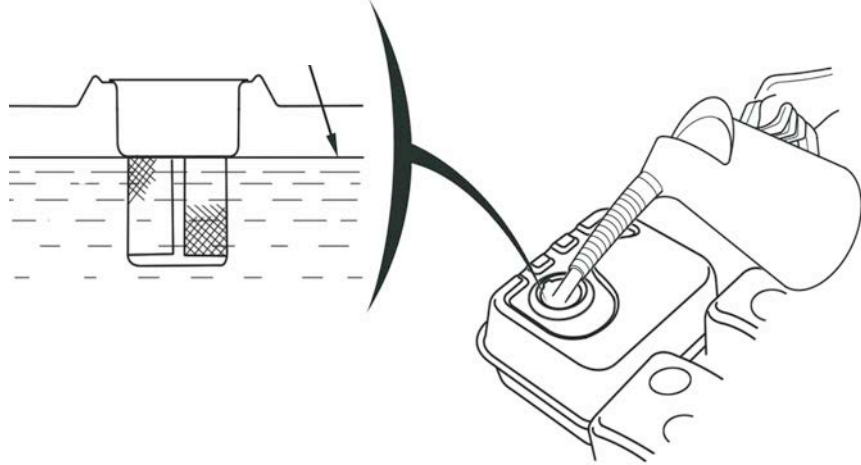


The Oil Alert system (applicable engine types) will automatically stop the engine before the oil level falls below safe limits. However, to avoid the inconvenience of an unexpected shutdown, ALWAYS check the engine oil level before startup.

3) Check Fuel

First, stop the engine, open the fuel cover, and check oil level. If the oil level is too low, add more fuel to until Full. When finished, screw the fuel cap down. Don't over-fill fuel when fueling (maximum oil level).

Fuel tank volume :
0.3698 gallons



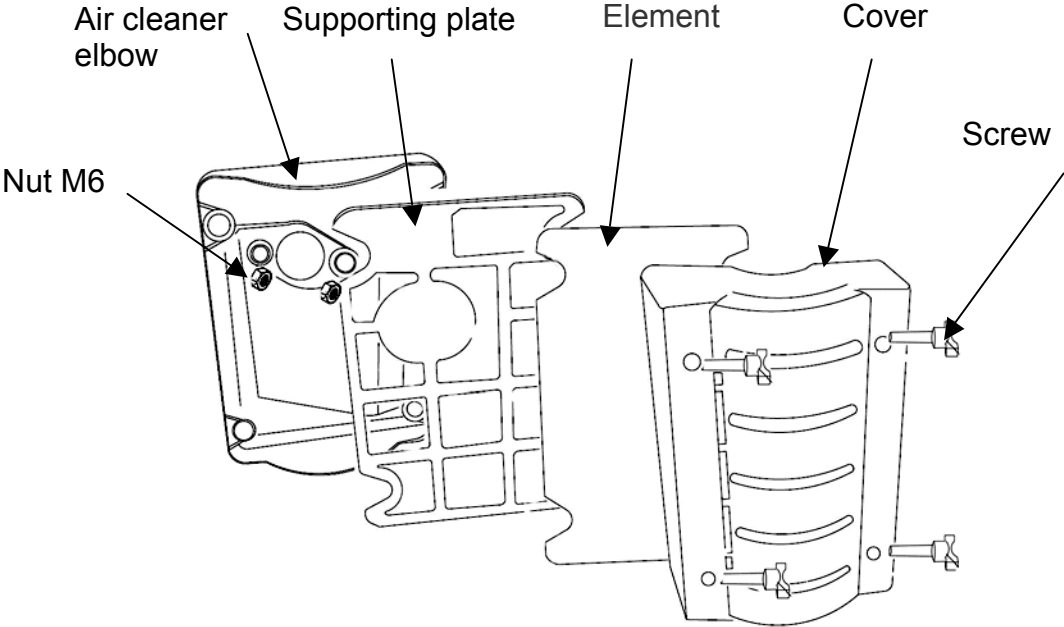
Recommended octane rating over 90 unleaded gasoline

For unleaded gasoline, can make carbon deposit much less and enhance exhaust system service life

Don't use used and contaminated or gasoline with oil , Avoid the dirt and water entering into fuel tank.

4) Check Air Cleaner

Remove the air cleaner housing and check the element. If the element is dirty, clean it. If it is damaged, replace it.



STARTING THE CEMENT MIXER

STOP!

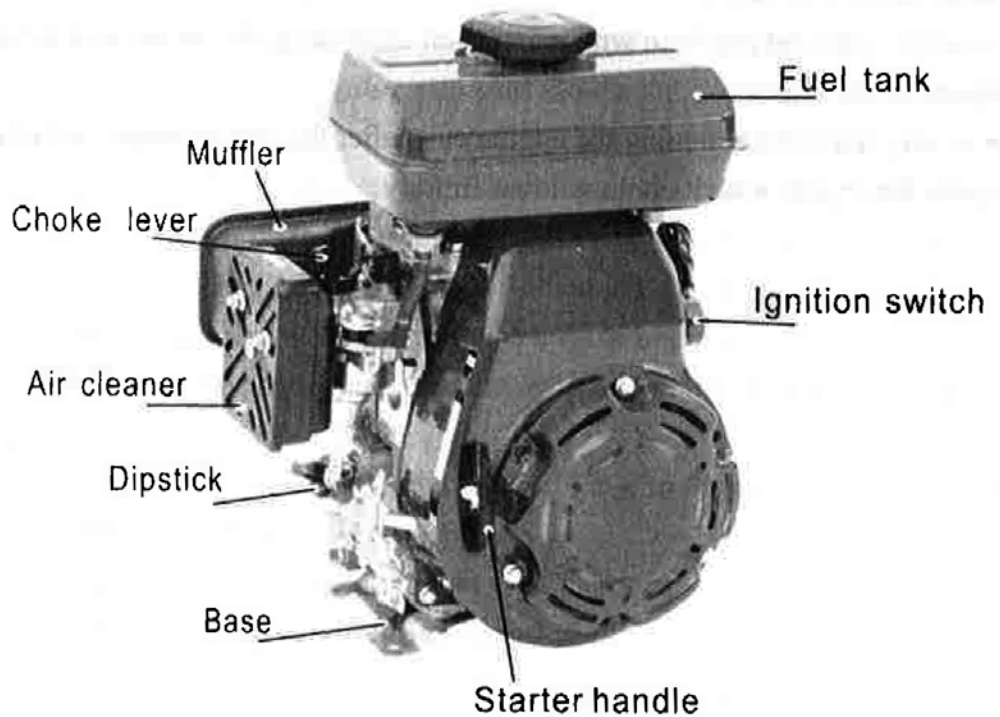
Before starting, confirm that all the steps in the section titled, "Preparing the Cement Mixer for Use," of this manual have been completed.

Place the Concrete Mixer on a solid, level surface.

To start this cement mixer:

1. Turn the fuel valve to the "on" position.
2. Move the choke lever to the "closed" position.
3. Set the engine switch to the "on" position.
4. Slowly pull on the recoil starter handle, shown in Figure 4, until a slight resistance is felt. Then pull briskly to start the engine. Gently return the cord to avoid damage to the starter or housing. Never allow the cord to snap back.
5. If the engine fails to start, repeat step 6. NOTE: After repeated attempts to start the engine, consult the troubleshooting guide before attempting again. If problems persist, **call 1-866-460-9436, Monday - Friday, 8 AM - 4 PM Central Time.**
6. Once the engine has started and runs for about a minute, move the choke lever approximately half way towards the "open" position. Wait an additional 30 seconds and then move the choke lever completely over to the "open" position.

Figure 4



STOPPING THE CEMENT MIXER

To stop this cement mixer:

1. Switch the circuit breaker to the "OFF" position.
2. Allow to run for several more minutes to help stabilize the temperature.
3. Set the engine switch to the "OFF" position.
4. Turn the fuel valve to the "OFF" position.

WARNING

Allow this to cool down before touching areas that become hot during operation.

CAUTION

Allowing gasoline to sit in the fuel tank for extended time without use can increase the difficulty in starting in the future. Never store for extended time with gasoline in the fuel tank.

USING THE CEMENT MIXER

WARNING

- USE ONLY OUTDOORS IN NON-CONFINED AREAS. DO NOT SECURE WITH A CHAIN OR ROPE, AS THIS WILL MAKE IT DIFFICULT TO MOVE IN AN EMERGENCY.
- Keep at least several feet of clearance on all sides to allow proper ventilation.

Add material to the Drum. Typical maximum quantities include: 2 gallons water with 3 shovels of cement and 15 shovels aggregate rock. Disengage the locking pins on the Arm and push on Arm until the desired angle is reached. Re-engage the locking pins.

Once materials are mixed, tilt Drum and dump materials where needed. The materials are dumped while the Drum is rotating. Tilt the Drum angle as far down as possible to drain all fluids from Drum. Clean, then store indoors and out of children's reach.

BELT TENSION

Retighten belt after the first 25 hours of use. To test the tension, remove belt cover. Examine belt for cracks, tears in the backing, or other damage. Replace belt if damaged according to these steps: Loosen the motor bracket bolts and slide the bracket up as far as possible. Slide the old belt off of the larger pulley first, then remove it from the motor pulley. Put the new belt around the small pulley first, then around the large pulley. Move the motor bracket down the belt until it is properly tensioned according to the directions below. Tighten the motor bracket bolts.

Check and adjust belt tension according to these steps: Press on the center of the longest span on the belt with moderate finger pressure. Then measure the deflection distance, the distance that the belt moved. The belt should deflect anywhere from 1/2" to 3/4".

If the belt deflects too much, tighten belt by loosening the motor mounting bolts and moving the motor away from the other pulley slightly. Secure motor mounting bolts and retest tension. If the belt is too long to be properly tensioned, it must be replaced.

If the belt deflects too little, loosen the motor bracket bolts and lift it upward. Secure motor mounting bracket and retest tension. Before use, replace belt motor cover.

MAINTENANCE/CARE

Proper routine maintenance of this tool is essential for safe, economical, and trouble-free operation. It will help prolong the life as well as help reduce air pollution. Perform maintenance checks and procedures according to the schedule in Figure 7.

⚠ CAUTION

Never perform maintenance procedures while this cement mixer is running. Allow to cool before commencing any maintenance procedures. Keep heat, sparks and flame away.

⚠ WARNING

Improper maintenance and/or failure to correct any problems prior to operating this cement mixer can cause a malfunction which could cause death or serious injury. Always follow the inspection and maintenance recommendations and schedules in this manual.

		Each Use	Every Month or Each 20 Hrs	Every 3 Months or Each 50 Hrs	Every 6 Months or Each 100 Hrs	Every Year or Each 300 Hrs
Engine Oil	Check Level	X				
	Replace		X			
Air Filter	Check	X				
	Clean			X		
Fuel Filler Cap	Clean				X	
Spark Plug	Check/Clean				X	
Fuel Tank	Verify Gas Level	X				
	Clean					X

Figure 7 - Recommended maintenance schedule

Checking the Oil Level

It is important to check the oil level in the engine crankcase before each use to ensure that there is a sufficient quantity. To check the oil level:

1. Verify that this engine is shut down and on a level surface.
2. Unscrew the oil filler/dipstick cap from the engine.
3. With a dry cloth, wipe the oil off of the dipstick that is located on the inside of the cap.
4. Insert the dipstick as if replacing the cap and then remove again. There should be oil on the dipstick. If there is no oil on the dipstick, or oil is visible only at the very end of the dipstick, add oil until the engine crankcase is filled.
5. Confirm that the oil filler/dipstick cap is properly in place when finished verifying the oil level.

Changing/Adding Oil

The oil level should be checked before each use. (See Figure 8.) When the oil level is low, add oil until the level is sufficient to operate.

Oil Capacity (fluid oz./L)	15.2 ounces
Oil Type Recommended	High Detergent Motor Oil, SAE10W-30

To drain the oil:

It is necessary to drain the oil from the crankcase only if it has become contaminated with water and/or dirt.

1. Place a bucket underneath to catch oil as it drains.
2. Unscrew the oil drain plug located on the crankcase underneath the oil filler/dipstick cap.
3. Allow all the oil to drain, then replace the oil drain plug and tighten.

NOTE: Never dispose of used motor oil in the trash, down a drain or on the ground. Put oil in a sealed container and contact your local recycling center or auto garage to arrange oil disposal.

To add oil to the engine crankcase:

1. Confirm that the cement mixer is on a level surface.
2. Unscrew the oil filler/dipstick cap from the engine as illustrated in Figure 8 below.
3. Using a funnel, add high detergent motor oil to fill the engine crankcase to the correct quantity. SAE10W-30 oil is recommended for general use. When the engine crankcase is full, the oil level should reach the lower lip of the oil filling opening as shown in Figure 8.

Oil Capacity (fluid oz./L)	15.2 ounces
Oil Type Recommended	High Detergent Motor Oil, SAE10W-30



Figure 8

Air Filter Maintenance

Routine maintenance of the air filter helps maintain proper airflow to the carburetor. Occasionally verify that the air filter is free of excessive dirt.

The air filter will require more frequent cleaning when operating in extremely dusty areas.

To clean air filter, remove from engine. Wash in kerosene. Pour motor oil on filter, squeeze out excess oil and reinstall in the engine.

Spark Plug Maintenance

The spark plug is essential for proper engine operation. The spark plug should be intact, free of deposits, and properly gapped. A bad or incorrectly installed spark plug can cause engine damage.

To inspect the spark plug:

1. Remove the spark plug by pulling on the spark plug cap. (See Figure 9a.)
2. Unscrew the spark plug by using the included spark plug wrench.
3. Visually inspect the spark plug. If it is cracked and/or chipped, discard and install a new spark plug. E7RTC is recommended.
4. Measure the spark plug electrode gap with a gauge. The gap should be (0.7-0.8mm).
5. If re-using the spark plug, use a wire brush to clean any dirt from around the spark plug base and then re-gap the spark plug.
6. Screw the spark plug back into place by using the included spark plug wrench.
7. Replace the spark plug cap.

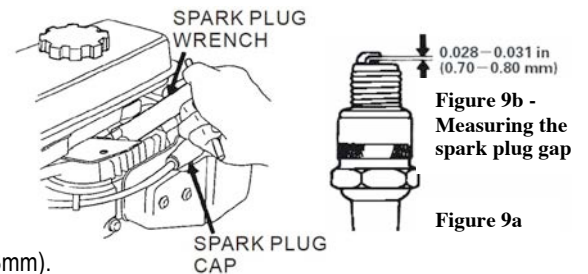


Figure 9b -
Measuring the
spark plug gap

Figure 9a

Emptying the Fuel Tank

To store for extended time, drain the gasoline from the fuel tank. To drain gasoline:

1. Turn the fuel valve to the "off" position.
2. Remove the fuel filter cup. (See "Fuel Filter Cup Cleaning" earlier in this section.)
3. Empty the fuel filter cup of any fuel.
4. Place a receptacle underneath this engine to catch gasoline as it drains.
5. Turn the fuel valve to the "on" position and allow all gasoline to drain.
6. Turn the fuel valve to the "off" position.
7. Replace the fuel filter cup.
8. Store the drained gasoline in a suitable place.

STORAGE/TRANSPORT PROCEDURES



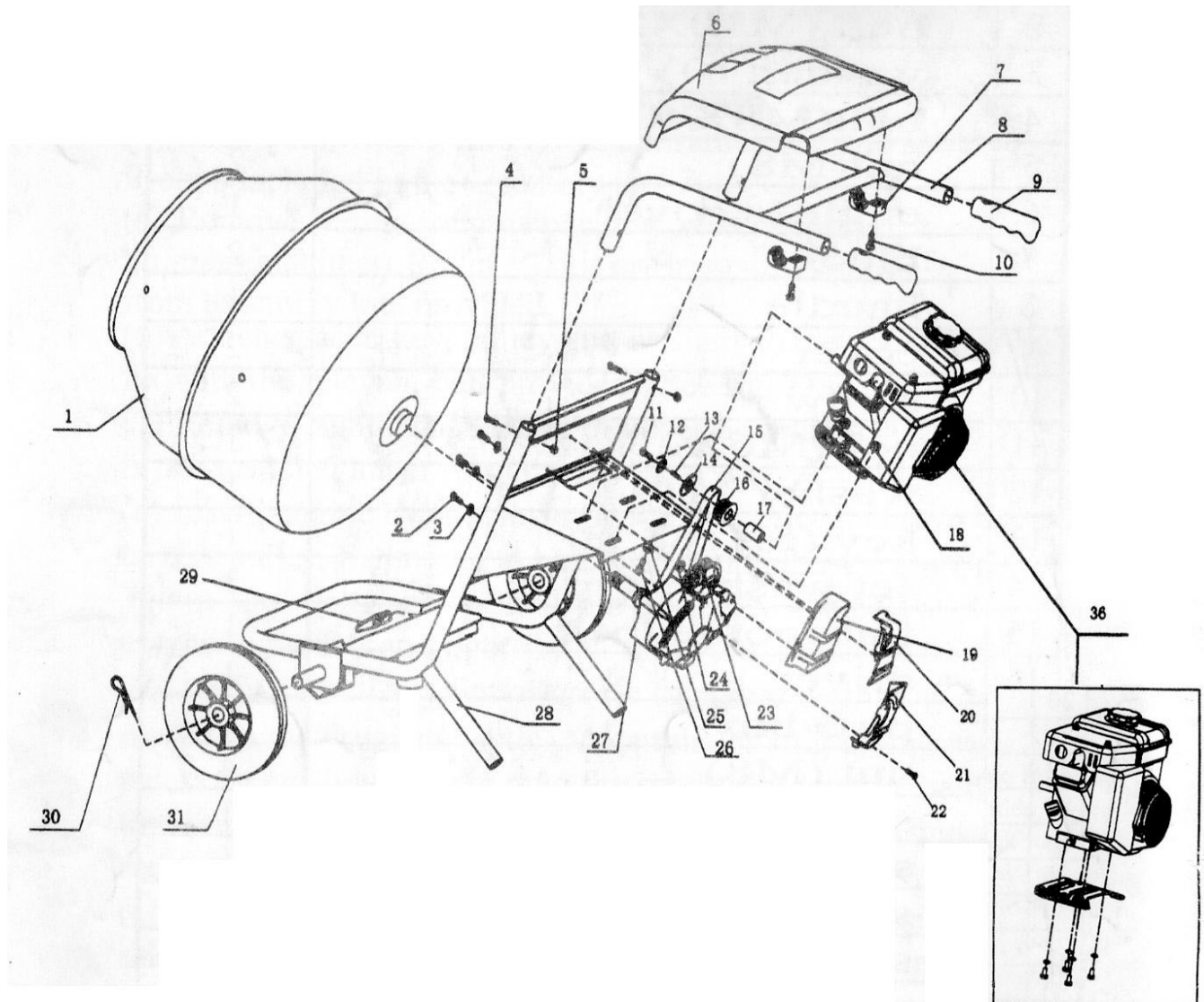
Never place any type of storage cover on this cement mixer while it is still hot. Do not store gasoline for more than 3 months.

When transporting or storing for extended time:

- Allow engine to fully cool before moving it. A hot engine and exhaust system can burn you and ignite some materials.
- Empty the fuel tank. (See "Emptying the Fuel Tank" in the "Maintenance/Care" section.)
- Turn the fuel valve to the "off" position.
- Disconnect the spark plug.
- Do not obstruct any ventilation openings.
- Store in a cool dry area, free of excessive dust.

Storage Time	Recommended Storage Procedure (which will help prevent difficult starts)
Less than 1 month	No storage procedure required.
1 to 2 months	Fill with fresh gasoline and add gasoline conditioner
2 months to 1 year	Empty the fuel tank. (See "Emptying the Fuel Tank" in the "Maintenance/Care" section.)
1 year or more	Empty the fuel tank. (See "Emptying the Fuel Tank" in the "Maintenance/Care" section.) Disconnect the spark plug.

PARTS DIAGRAM



No.	NAME	Qty
1	drum	1
2	bolt (M10X25)	4
3	washer(10)	4
4	bolt(M8X40)	2
5	nut(M8)	2
6	engine cover	1
7	block	2
8	handle	1
9	cover	2
10	screw	2
11	bolt(M6X25)	1
12	washer	1
13	key (5X18)	1
14	set washer	1
15	flat-toothed belt	1
16	driver	1
17	pipe box	1
18	nut (M8)	4

No.	NAME	Qty
19	strap cover-L	1
20	strap cover-r	1
21	strap cover-u	1
22	screw (M5X10)	6
23	pulley	1
24	spring washer (13)	1
25	washer (8)	4
26	bolt (M8X15)	8
27	gear box	1
28	brackets	1
29	stop bolt	1
30	pin	2
31	wheel	2
36	engine assembly	1

ENGINE DETAILS

Model	CMG5	
Type	Single cylinder 4-Stroke Forced air cooling OHV	
Rated power (kW/3600rpm)	1.5Kw/3600 rpm	
Max torque (N·m/rpm)	4N.m/3400 rpm	
Fuel consumption ratio (g/kW·h)	≤ 450	
Idle speed (rpm)	2000 ± 150	
Speed fluctuating ratio	≤10%	
Noise ≤ dB(A)	90	
Bore x Stroke (mm)	52 x 37	
Displacement (cc)	79cc	
Compression ratio	8.5:1	
Lubricating mode	Splash	
Starting mode	Recoil start	
Rotation	Anti-clockwise (from P.T.O.Side)	
Valve clearance (mm)	Intake valve 0.10-0.15 Exhaust valve 0.15-0.20	
Spark plug gap (mm)	0.7~0.8	
Ignition mode	Transistorized magneto ignition	
Air cleaner	Single element	
Dimension mm	Length	310
	Width	260
	Height	305
Net weight (kg)	10.5	

The power rating of the engine indicated in this document is the net power output tested on a production engine for the engine model and measured in accordance with SAE J1349 at 3,600/4200 rpm (Net Power) and at 3,800 rpm (Max. Net Torque). Mass production engines may vary from this value.

TROUBLE SHOOTING: Difficulty Starting Engine

Phenomenon	Possible Cause			Correction	
Cylinder pressure normal	Spark plug normal	Fuel system abnormal	Oil path unpassing	No fuel, oil cock closed	Add fuel, open the oil cock
				Air hole clogged	Clean clogged
				Oil cock clogged	wash
				Main jet adjusted not well, or clogged	Readjust, wash and blow
				Needle valve or float blocked.	Repair or renew
			Oil path passing	Fuel too dirt or deteriorated	Renew fuel or clear carburetor
				Water in the fuel	Renew fuel and clean carburetor
				Too much fuel in the cylinder	Drain fuel and clean spark plug
	Wrong fuel	Change fuel			
	Fuel system normal	Spark normal	Spark plug poor	Carbon deposit and dirt electrode	Clean carbon deposit and dirt
				Damaged insulator	Renew spark plug
				Electrode burn through.	Renew spark plug
				Wrong gap	Adjust gap
		Spark normal	No spark	High tension coil damaged	Renew high tension coil
Igniter coil damaged				Renew high tension coil	
Cylinder pressure abnormal	Fuel system normal	Igniter normal	Spark plug normal	Piston ring worn or broken.	Renew
				Ring cementation	Clean carbon deposit
				No washer or not tightening	Add washer or tighten
				Leaking from joint	Renew gasket
				valve sealing poor	Lap or renew

TROUBLE SHOOTING: ENGINE LACKS POWER

Phenomenon	Possible Cause		Correction
When increasing throttle speed up slowly or speed down or stop the engine	Ignition system	Ignition time not right	Replace ignition coil
	Fuel system	Fuel path with air	Exhaust air
		Wrong adjustment of main jet	Readjustment
		Needle valve and main jet clogged	Clean and blow
		Oil cock clogged	Clean or replace
		Carbon deposit in the combustion chamber	Clean carbon deposit
	Intake system	Air cleaner clogged	Clean or replace
		Intake system clogged	Repair or replace
	Compression poor	Piston, cylinder piston ring worn	replace
		Leakage between cylinder and cylinder head	Replace cylinder head gasket
		Valve gap not right	Readjustment
		Valve sealing leakage	Grinding or replacement

TROUBLE SHOOTING: ENGINE STOPS SUDDENLY

Phenomenon	Possible Cause		Correction
Suddenly stop running	Fuel system	No fuel	Refuel and pass through
		Carburetor clogged	Check fuel path
		Carburetor float leaking fuel	Repair float
		Needle valve blocked	Repair
	Ignition system	Spark plugs breakdown, carbon deposit short circuit	Replace spark plug
		Spark plug electrode fallen off	Replace spark plug
		High tension line fallen off	Repair and replace
		Ignition coil breakdown	Replace
	Others	Serious scuffing and valve fallen off	Repair or replace damaged parts

TROUBLE SHOOTING: ENGINE OVERHEATS

Phenomenon	Possible Cause	Correction
Gasoline engine overheating	Ignition time not right	Replace ignition coil
	Gasoline not enough	Refill gasoline
	Exhaust pipe clogged	Clean exhaust pipe
	Guided air shield clogged	Repair
	Air path clogged	Clean air cooling fin
	Cooling fan damaged	Reinstall
	Gas leaking from ring to down	Replace damaged parts
	Gasoline engine speed too high	Check and governor speed system or replace speed gear
	Crankshaft bearings burned	Replace or repair

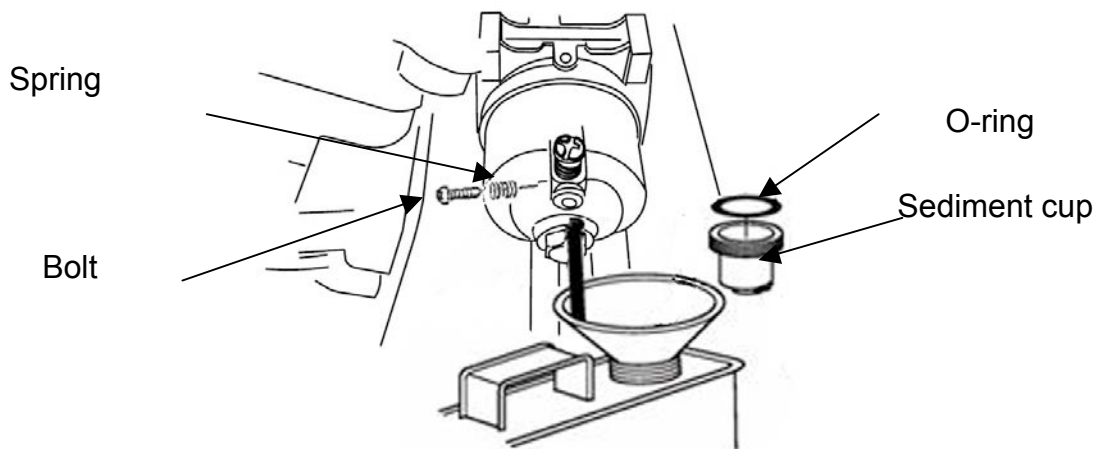
TROUBLE SHOOTING: Abnormal Sound

Phenomenon	Possible Cause	Correction
Knocking sound	Piston and piston ring worn	Replace damaged parts
	Connecting rod, piston pin and pin hole worn	Replace damaged parts
	Crankshaft bearings worn	Replaces or repair
	Piston rings broken	Replace piston rings
Deflagration and metal sound	Combustion chamber carbon deposit too much	Clean carbon deposit
	Spark plug electrode gap too narrow	Adjust electrode gap
	Engine flooded with fuel	Check carburetor
	Wrong fuel	Replace fuel
	Gasoline engine overheating	Refer to overheated trouble column
Other abnormal sounds	Valve gap adjustment wrong	Readjust valve gap
	Flywheel connection with crankshaft loosen	Replace connecting key and reinstall

STORING YOUR ENGINE

If the engine has been running, allow it to cool for at least half an hour before cleaning. Clean all exterior surfaces, repair any damaged paint, and coat other areas that may rust with a light film of oil.

- 1) Place a container underneath the carburetor, and use a funnel to prevent spattering.
- 2) Remove the drain plug and sediment cup, then, open the fuel cock.



- 3) Immediately reassemble sediment cup and drain bolt after fuel completely draining. Screw down.
- 4) Change the engine oil.
- 5) Remove the spark plugs.
- 6) Pour a tablespoon (5-10 cc) of clean engine oil into the cylinder.
- 7) Pull the starter rope several times to distribute the oil in the cylinder.
- 8) Reinstall the spark plugs.
- 9) Pull the starter rope slowly until resistance is felt. This will close the valves so moisture cannot enter the engine cylinder. Return the starter rope gently.

⚠ WARNING

The length of time that gasoline can be left in your fuel tank and carburetor without causing functional problems will vary with such factors as gasoline blend, your storage temperatures, and whether the fuel tank is partially or completely filled. The air in a partially filled fuel tank promotes fuel deterioration. Very warm storage temperatures accelerate fuel deterioration. Gasoline will oxidize and deteriorate in storage. Deteriorated gasoline will cause hard starting, and it leaves gum deposits that clog the fuel system. As a result, If the engine is not used for more than one month, the fuel oil shall be drained thoroughly to prevent from deterioration of the fuel in fuel system and carburetor.

The failures of fuel system or engine performance arising from improper storage are beyond the scope of the warranty.

MAINTENANCE

SCHEDULE

REGULAR SERVICE PERIOD		Each use	First month or 20 Hrs.	Every 3 months or 50 Hrs.	Every 6 months or 100 Hrs.	Every year or 300 Hrs.
Engine oil	Check level	○				
	Change		○		○	
Air cleaner	Check	○				
	Clean			○ (1)		
	Replace					
Sediment Cup	Clean				○	
Spark plug	Clean				○	Replace
Valve clearance	Check-Adjust					○ (2)
Cover comp head	Clean	After every 300 Hrs. (2)				
Fuel tank and fuel filter	Clean	Every 2 years (Replace if necessary) (2)				
Fuel line	Check	Every 2 years (Replace if necessary) (2)				

(1) Service more frequently when used in dusty areas.

(2) These items should be serviced by your servicing dealer unless you have the proper tools and are mechanically proficient.

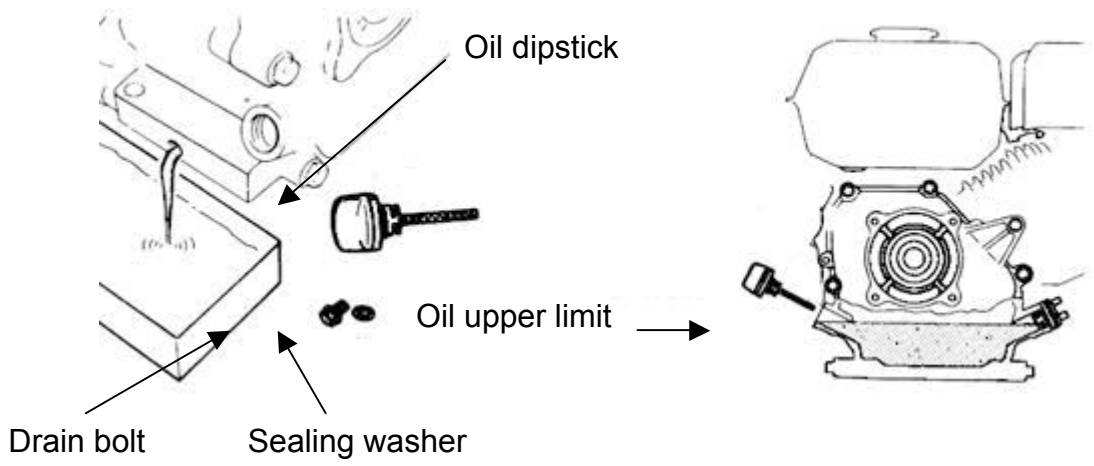
REPLACING ENGINE OIL

Drain the used oil while the engine is warm. Warm oil drains quickly and completely.

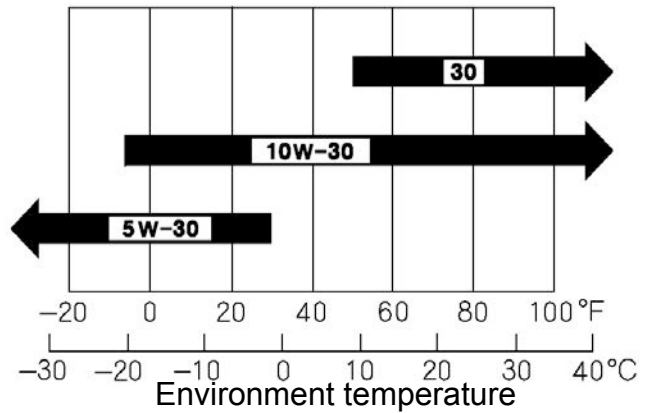
1. Place a suitable container below the engine to catch the used oil, and then remove the pad and dipstick and the drain plug.
2. Allow the used oil to drain completely, and then reinstall the drain plug and pad, and tighten it securely.

Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash; pour it on the ground; or down a drain.

3. With the engine in a level position, fill to upper limit with the recommended oil.



Engine oil capacity :
15.2 ounces



4) Assembling oil dipstick and screwing down

Recommended oil:
Use 4-stroke SAE 10W-30 automotive detergent oil.

MAINTAINING AIR CLEANER

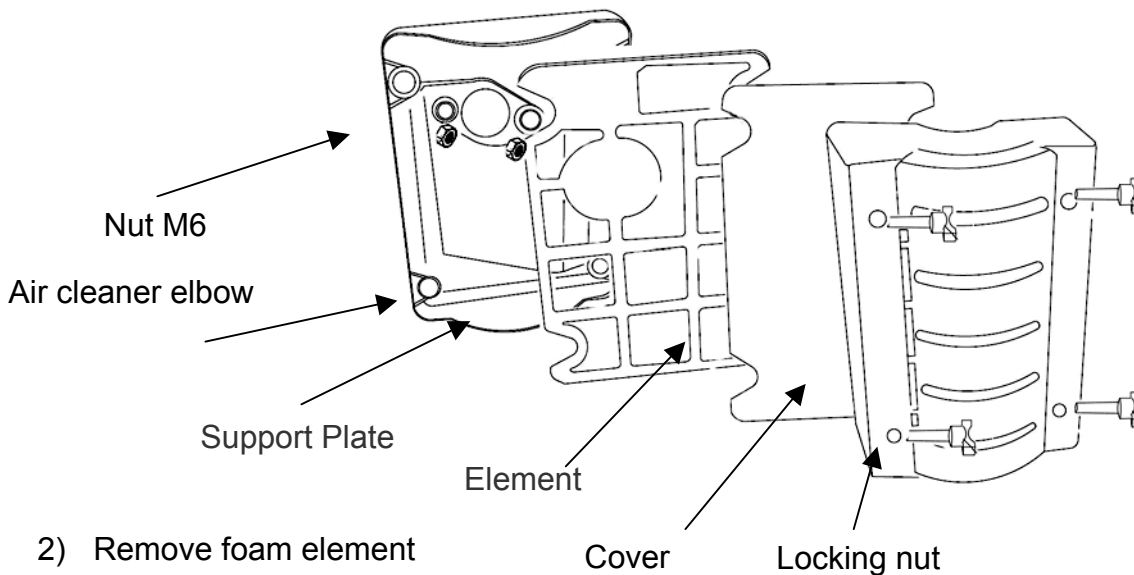
A dirty air filter will restrict air flow to the carburetor, reducing engine performance. If you operate the engine in very dusty areas, clean the air filter more often than specified in the MAINTENANCE SCHEDULE.

NOTICE

Operating the engine without element or with a damaged element will allow dirt to enter the engine, causing rapid engine wear.

Air Cleaner

- 1) Screw off air cleaner bolt and remove the cover.



- 2) Remove foam element

Cover

Locking nut

Check element and renew if damaged.

Wash foam element :

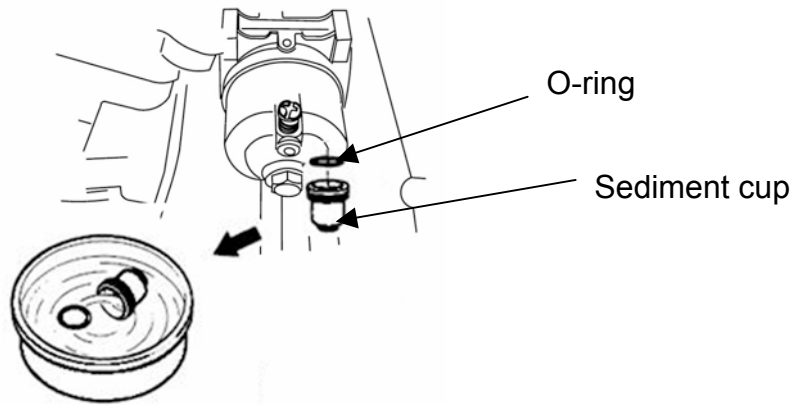
Wash the cover and filter in warm, soapy water, rinse, and allow drying thoroughly. Or clean in nonflammable solvent and allow drying. Dip in clean engine oil, and then squeeze out all excess oil.

1. Empty the used oil from the air cleaner case, wash out any accumulated dirt with nonflammable solvent, and dry the case.
- 3) Clean the air cleaner I, cover and rubber gasket, preventing dust entering into carburetor.
- 4) Reassemble the foam element, paying attention to rubber gasket underneath the element.
- 5) Reassemble the air cleaner, and tighten the wing nut securely.

WASHING SEDIMENT CUP

(First check fuel tank for fuel and drain the fuel in the fuel tank completely.)

1. Remove the fuel sediment cup and O-ring.
2. Wash the sediment cup and O-ring in nonflammable solvent, and dry them thoroughly.
3. Place the O-ring in the fuel valve, and install the sediment cup. Tighten the sediment cup securely.
4. Move the fuel valve to the ON position, and check for leaks. Replace the O-ring if there is any leakage.



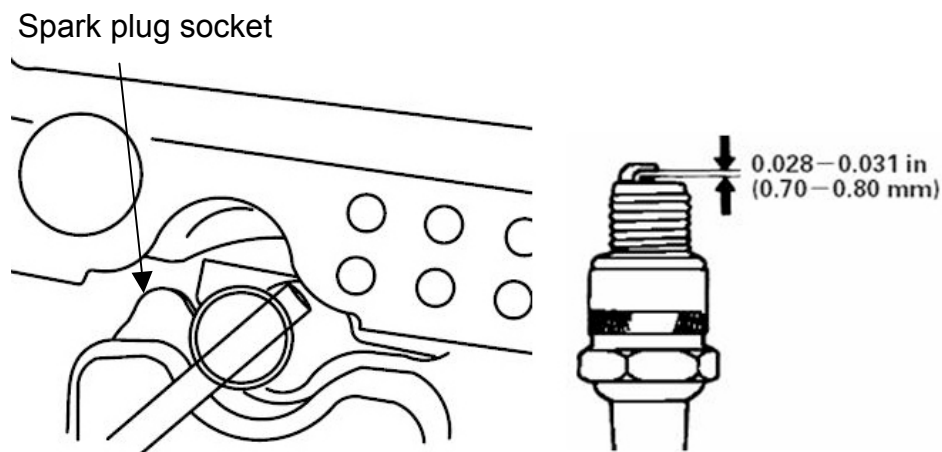
SPARK PLUG

Recommended spark plugs: E7RTC or other equivalents.

NOTICE

An incorrect spark plug can cause engine damage.

1. Disconnect the spark plug cap, and remove any dirt from around the spark plug area.
2. Remove the spark plug with a spark plug wrench.



3. Inspect the spark plug. Replace it if the electrodes are worn, or if the insulator is cracked or chipped. The gap should be 0.028 -0.031 in (0.70 - 0.80 mm). Correct the gap, if necessary,
4. Install the spark plug carefully, by hand, to avoid cross-threading.

5. After the spark plug seats, tighten with a spark plug wrench to compress the water.

If reinstalling the used spark plug , tighten 1/8 - 1/4 turn after the spark plug seats.

If installing a new spark plug, tighten 1/2 turn after the spark plug seats.

6. Assemble spark plug.

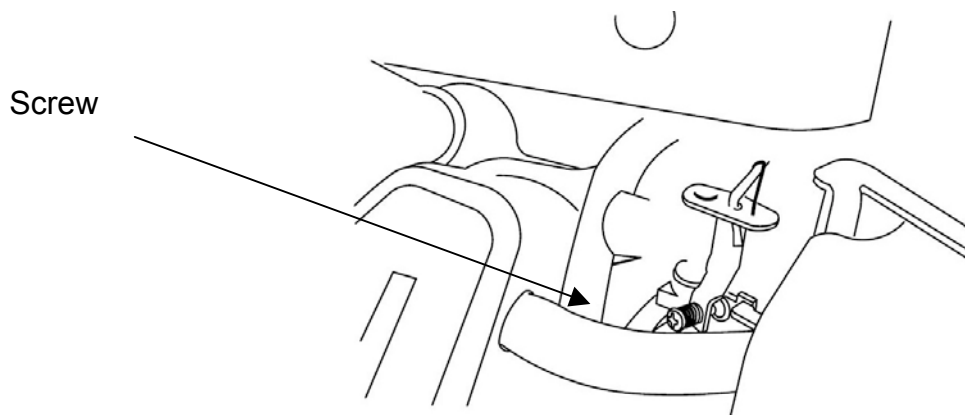
ADJUSTING IDLE SPEED

1. Start the engine outdoors, and allow it to warm up to operating temperature.

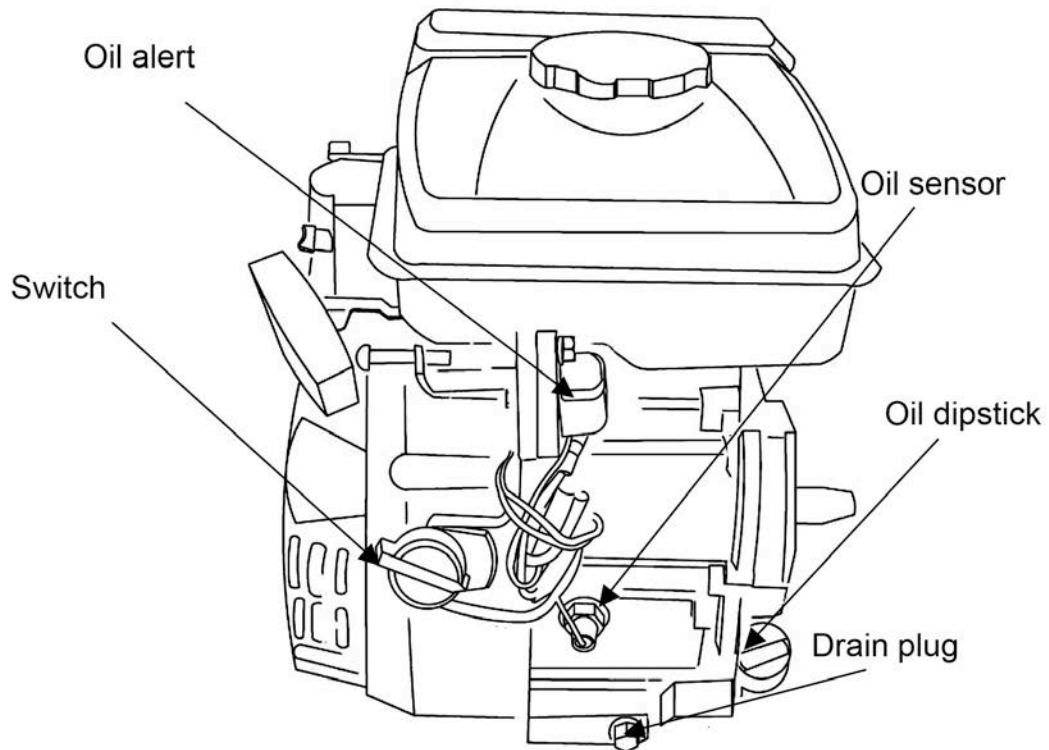
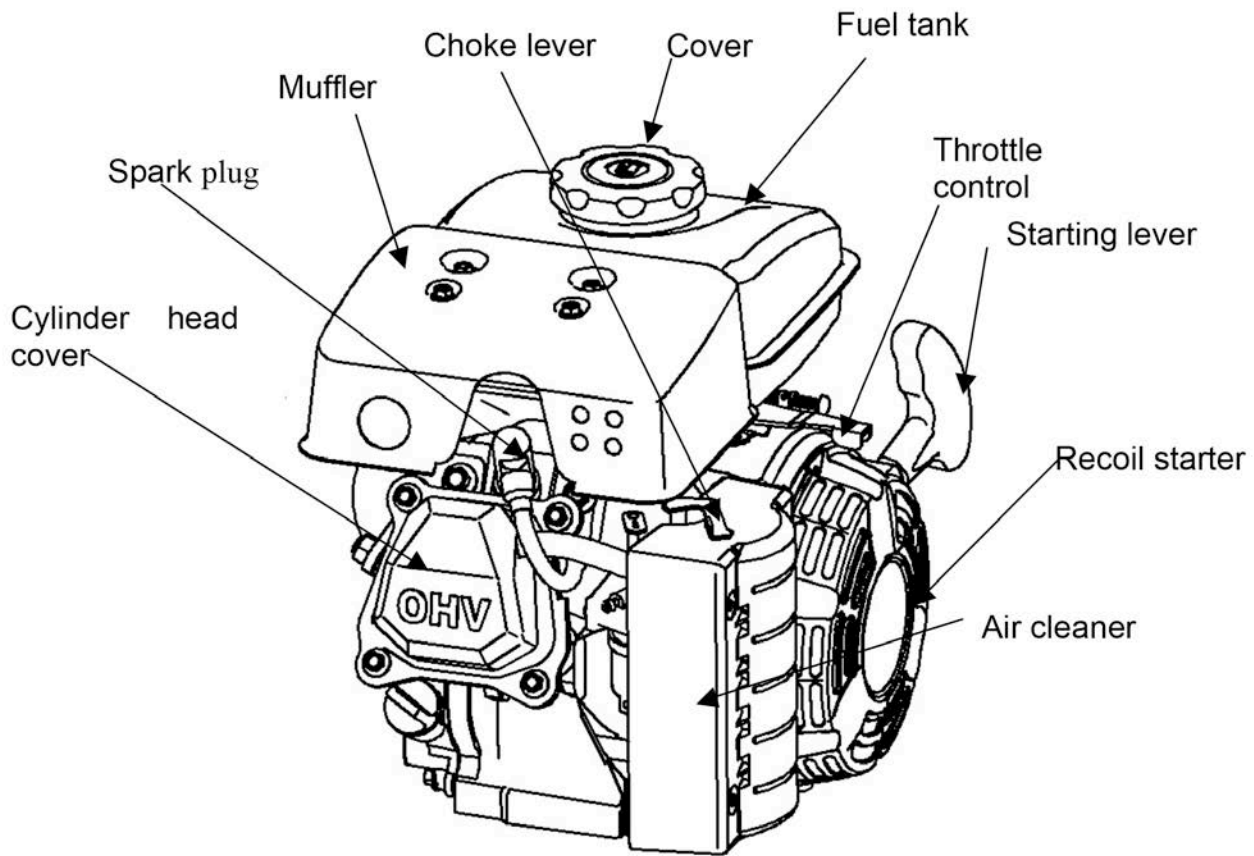
2. Move the throttle lever to its slowest position.

3. Turn the idle speed screw to obtain the standard idle speed.

Standard idle speed: 2000 ± 150 rpm



ENGINE DIAGRAM

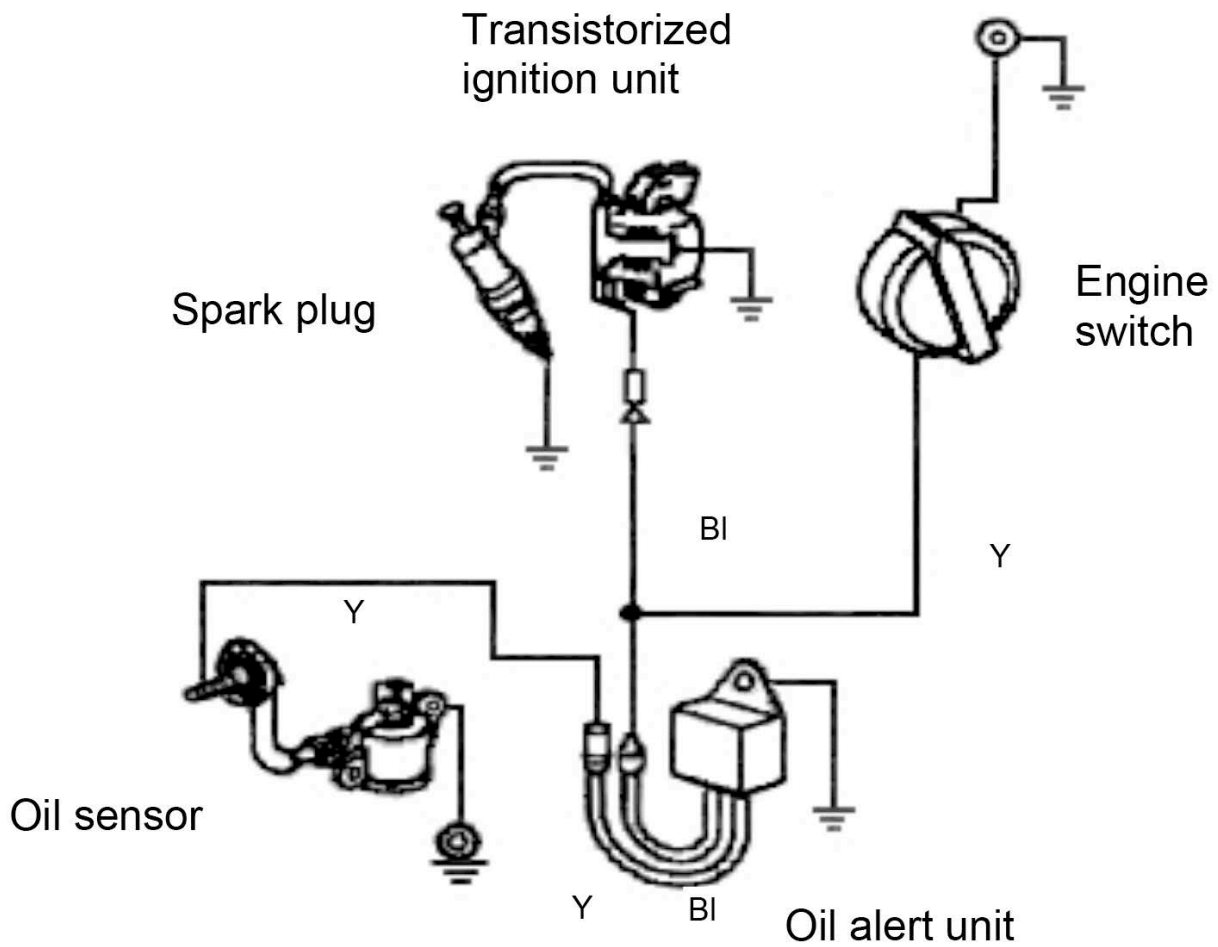


WIRING DIAGRAM

Engine switch WIRING

	IG	E	ST	BAT
OFF	○—○			
ON				
START			○—○	

Bl	black
Y	yellow
G	green



EMISSIONS CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

United States Environmental Protection Agency (EPA), and Buffalo Corp are pleased to explain the emissions control system warranty on your 2020 small off road engine (SORE). Buffalo Corp must warrant the emissions control system on your SOREs for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your SOREs. Your emission control system may include parts such as the carburetor, fuel tanks, fuel caps, fuel lines, the ignition system, and catalytic converter. Also included may be hoses, belts, clamps, connectors and other emission related assemblies. Where a warrantable condition exists, Buffalo Corp. will repair your small off-road engine at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE:

The emissions control system is warranted for two years. If any emissions related part on your engine is defective, the part will be repaired or replaced by Buffalo Corp.

OWNER'S WARRANTY RESPONSIBILITIES:

As the SORE owner, you are responsible for the performance of the required maintenance listed in your owner's manual. Buffalo Corp. recommends that you retain all receipts covering maintenance on your SORE, but Buffalo Corp. can not deny warranty 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 Buffalo Corp. may deny your warranty coverage if your SORE or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your SORE to distribution center or service center authorized by Buffalo Corp. as soon as the problem exists. 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 coverage, you should contact Buffalo Corp. customer service representative at:

Tell : 1-866-460-9436

Email : info@buffalotools.com

DEFECTS WARRANTY COVERAGE

Adopted by the Air Resources Board, Buffalo Corp. warrants to the ultimate purchaser and each subsequent purchaser that the small off-road engine (SORE) (1) has been designed, built and equipped so as to conform with all applicable regulations; and (2) is free from defects in materials and workmanship that cause the failure of a warranted part to conform with those regulations as may be applicable to the terms and conditions stated below.

(A) The warranty period begins on the date the engine is delivered to an ultimate purchaser. The warranty period is two years.

(B) Subject to certain conditions and exclusions as stated below, the warranty on emissions related parts is as follows:

(1) Any warranted part that is not scheduled for replacement as required maintenance in your Owner's Manual is warranted for the warranty period stated above. If the part fails during the period of warranty coverage, the part will be repaired or replaced by Buffalo Corp. according to Subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period.

(2) Any warranted part that is scheduled only for regular inspection in your Owner's Manual is warranted for the warranty period stated above. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period.

- (3) Any warranted part that is scheduled for replacement as required maintenance in your Owner's Manual is warranted for the period of time before the first scheduled replacement date for that part. If the part fails before the first scheduled replacement, the part will be repaired or replaced by Buffalo Corp. according to Subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period prior to the first scheduled replacement point for the part.
- (4) Repair or replacement of any warranted part under the warranty provisions herein must be performed at a warranty station at no charge to the owner.
- (5) Notwithstanding the provisions herein, warranty services or repair will be provided at all of our distribution centers that are franchised to service the subject engines.
- (6) The engine 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) Buffalo Corp. is liable for damages to other engine components proximately caused by a failure under warranty of any warranted part.
- (8) Throughout the engine warranty period stated above, Buffalo Corp. will maintain a supply of warranted parts sufficient to meet the expected demand for such parts.
- (9) Any replacement part may be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of Buffalo Corp.
- (10) Add-on or modified parts that are not exempted by the Air Resources Board may not be used. The use of any non-exempted add-on or modified parts by the ultimate purchaser will be grounds for disallowing a warranty claims. Buffalo Corp. will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.
- (11) The manufacturer issuing the warranty shall provide any documents that describe that manufacturer's warranty procedures or policies within five working days of request by the Air Resources Board.

EMISSION WARRANTY PARTS LIST

The repair or replacement of any warranted part otherwise eligible for warranty coverage may be excluded from such warranty coverage if Buffalo Corp. demonstrates that the engine has been abused, neglected, or improperly maintained, and that such abuse, neglect, or improper maintenance was the direct cause of the need for repair or replacement of the part. That notwithstanding, any adjustment of a component that has a factory installed, and properly operating, adjustment limiting device is still eligible for warranty coverage. The following emissions warranty parts for each engine family list is covered.

For engine family:

- (1) Fuel Metering System:
- (a) Gasoline carburetor assembly and its internal components
 - (b) Carburetor gaskets
 - (c) Fuel tank
 - (d) Fuel Line
 - (e) Fuel Line Fittings
 - (f) Clamps
- (2) Air Induction System including:
- (a) Intake pipe/manifold
 - (b) Air cleaner
- (3) Ignition System including:
- (a) Spark plug
 - (b) Ignition coil
- (4) Catalytic Muffler Assembly (if so equipped) including:

- (a) Muffler gasket
- (b) Exhaust manifold
- (c) Catalytic converter
- (5) Crankcase Breather Assembly including:
 - (a) Breather connection tube.
- (6) Fuel tank evaporative emissions control system including:
 - (a) Purge Valves
 - (b) Carbon Canister (if equipped)
 - (c) Canister Mounting Brackets (if equipped)
 - (d) Fuel Cap
 - (e) Fuel Tank
- (7) Miscellaneous items Used in Above Systems including:
 - (a) Switches
 - (b) Hoses, belts, connectors, and assemblies.
- (8) Air injection system (if equipped)
 - (a) Pulse valve

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