



tradition and innovation

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Read the instructions in this Operator's Manual before using the equipment.
Attention to the operating, maintenance and safety instructions.

Operator's Manual

GUARDSMAN™ BACKPACK ULV APPLICATOR

Serial Number

Date of manufacture



tradition and innovation



Illustrative Photo

Code: 0401.70
(6 Liters / 1.6 gal)



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READ THE INSTRUCTIONS CAREFULLY BEFORE OPERATING EQUIPMENT

Using the equipment in a manner contrary to the information in this manual may result in the improper operation of the machine, resulting not only in damage to the equipment, which is not covered by the warranty, but also in accidents that could endanger the health of the operator.

DESCRIPTION OF THE SYMBOLS AND SAFETY SIGNS

	Danger / Caution / Warning		Use respiratory protection
	Wear chemical hazard protection gear – overalls		Closed / Open
	Wear safety gloves		Heated surface
	Wear safety footwear		Wear face protection / face mask
	Read Manual		Move / Push Tighten / screw
	Choke: open / closed		Keep bystanders away when spraying
	Wear hearing protection/ earplugs		
	This symbol accompanied by the words WARNING or DANGER calls attention to an act or condition that can lead to serious personal injury to operator and bystanders. This symbol accompanied by the word CAUTION calls attention to an act or condition that can lead to moderate or minor personal injury to operator and bystanders. Only the word CAUTION I used to call attention to an act or condition that can result in equipment damage.		

1. INTRODUCTION

This Operator's Manual contains important information about the equipment features, technical specifications of the equipment, besides initial assembling instructions, operation and maintenance of the **GUARDSMAN™ BACKPACK ULV APPLICATOR 6L**.

This equipment combines the traditional quality of **Guarany products** with innovative solutions regarding design and performance, with the world recognized quality of Kawasaki engines. We are sure it will surprise you for its many applications and durability, it is the best investment for your property.

Keep carefully this Manual and always consult it in case of any doubt regarding the equipment operation or when a spare part is needed.

If you have any further request, please contact Clarke Mosquito Control Products, Inc./675 Sidwell Ct./St. Charles, IL 60172 USA. Phone: 1-800-323-5727 . e-mail: info@clarke.com .

Read carefully all the other specific safety instructions throughout this manual, which are highlighted with safety signs.

IMPORTANT: This equipment meets all specifications of the WORLD HEALTH ORGANIZATION (WHO) - WORLD HEALTH ORGANIZATION (WHO, 2010) and the FOOD AND AGRICULTURE ORGANIZATION (FAO, 2001) regarding the quality, operational performance and operator safety, the Brazilian requirements Norm (NR12 - MACHINERY AND EQUIPMENT SAFETY AT WORK) under the Ministry of Labor and Employment, and ISO 4254-1 (AGRICULTURAL MACHINERY - SAFETY. PART 1: GENERAL REQUIREMENTS) concerning required safety standards and safe work practices, and ISO 11684 (TRACTORS, MACHINERY FOR AGRICULTURE AND FORESTRY, POWERED LAWN AND GARDEN EQUIPMENT - SAFETY SIGNS AND HAZARDS PICTORIALS – GENERAL PRINCIPLES) and ISO 3864-1 (GRAPHICAL SYMBOLS - SAFETY COLOURS AND SAFETY SIGNS) regarding equipment safety information. EMISSION CONTROL INFORMATION:This equipment complies with all federal codes required by the US Environmental Protection Agency (EPA) for the emissions control.

EQUIPMENT FOR VECTOR CONTROL – SPECIFICATION GUIDELINES.Department of Control of Neglected Tropical Diseases WHO Pesticide Evaluation Scheme (WHOPES).World Health Organization, 2010. GUIDELINES ON STANDARDS FOR AGRICULTURAL PESTICIDE APPLICATION EQUIPMENT AND RELATED **TEST PROCEDURES** - Volume One. PORTABLE (OPERATOR-CARRIED) SPRAYERS

2. TECHNICAL SPECIFICATION

ENGINE: KAWASAKI (JAPAN)

Type: TK065D - AS00 (E-O)	Mono-cylindric, forced air cooled two stroke engine
Bore x stroke	48.5mm x 35 mm
Piston Displacement	64.7 cc (cm³)
Rotation (RPM) ^a	(Max.) 8,000
Max. Horse Power ^a	4.6 HP (3.4 kW) ¹ / 3.89 HP (2,9kW) ²
Carburetor (brand/model)	WALBRO - WYA
Air filter	Dry type (paper element)
Fuel mix	50:1 (2%) only when using synthetic oil
Fuel Consumption (maximum)	261g / HP. Hour
Spark Plug (NGK – BPMR7A-9)	Gap between 0.6 and 0.7 mm (0.024” to 0.028”) Spark plug tightening: 12 ~ 17 N/m (1.2 ~ 1.7 kg/m)
Ignition (system)	Electronic
Starter (system)	Auto-retractable
Pollutant emission levels (Hydrocarbons + Nitrogen Oxides)	62 g/kW/hour
Noise level	Sound power: 98 ± 1(dB) ³

^a Average values may vary depending on the altitude or fuel quality.

¹ Norma JIS B8017

² Norma SAE J1349 / ISO 8893

³ EN ISO 9614-2:1997 Acoustics. Determination of sound power levels of noise sources using sound intensity. Measurement by scanning.

EQUIPMENT

Equipment Rotation	(Min.) 2,600 / (Max.) 7,300
Net Weight	12.6 kg (27.8 lbs)
Gross Weight (formulation/fuel)	19.0 kg
Chemical tank - liquid (capacity)	6 l (1.6 gal)
Fuel tank (capacity)	2 l (0.5 gal)
Liquid flow (Max)	2,5 l/min (0.66 gal/min) ^c
Horizontal spray reach	18 m (59.1 ft) ^c
Vertical spray reach	12 m (39.4 ft) ^c
Air speed (Max)	90 m/s ^b
Air Volume (Max)	20 m³/min. ^b
Carton dimensions	500 x 415 X 610 mm (19.7 x 16.3 x 24.0 in)

^b Approximate values obtained with clean water, that could vary according to the product applied and the type of application.

^c Average values may vary depending on the altitude, product solution, method of application or weather conditions.

METERING TIPS FLOWRATE CHART

TIP (color)	FILTER (mesh/color)	FLOW RATE (ml/min) / (oz./min) ^a using water	VMD (µm) using water	FLOW RATE (ml/oz per min) using soybean oil	VMD (µm) using soybean oil
Purple	100/green	14	-----	-----	-----
Grey	50/blue	50	23.3	30	26.0
Red	50/blue	80	24.0	35	26.1
Light green	50/blue	110	23.7	44	26.7
Yellow	50/blue	150	23.6	60	27.3
Black	50/blue	200	27.0	80	28.5
Blue	50/blue	250	27.7	100	28.1
Orange	50/blue	600	Residual application	-----	Residual application

^d Approximate values obtained with clean water, that could vary according to the product applied and the type of application. Results obtained with 50% relative humidity and temperature between 25° and 30° C, and without any external interference.

3. GENERAL SAFETY INSTRUCTIONS



Before using this equipment, carefully read the pesticide label before applying. It is necessary knowing the personal protective equipment (PPE), and other protection means recommendations, when handling these chemicals.

Make the application according to the recommended use instructions for this equipment as well as of the chemical to be applied.

In case of absence of information about Personal Protective Equipment (PPE) on the labels and leaflets of the chemical to be applied, wear: protective clothing against chemical risk (pants and long sleeves shirt); waterproof boots, respiratory protection, face mask, gloves and apron (in front of the body when filling up the tank and on the back during the application).

Only spray when the nozzle is directed towards the target.

Avoid applying when it is very windy. Do not applying into wind, permitting drift into your face.

This equipment should be used only by adults; do not allow pregnant women, people tired or apparently sick, or under the influence of alcohol, drugs and medications.

The equipment must be used by adults in good physical condition and with the proper knowledge of the standards and specifications of this manual. Moreover, the operator must be in possession of suitable skills and requirements to use the machine and he must have received proper training.

Do not remove fan protective grid, engine cowl and spark arrester. If these safety devices become damaged or have been removed, do not use the equipment, please contact our representative or technical assistance on how to proceed about the replacement of these parts, and resume the normal equipment operation only after these parts have been correctly replaced.

Operating equipment without the safety devices mentioned above or with these devices damaged or modified, may cause serious injury to users (such as cuts and / or burns).

Do not perform maintenance operations when the engine is running.

Always follow the maintenance instructions indicated by the manufacturer.

Do not operate any damaged equipment, poorly repaired, improperly assembled or with irregular modifications. Do not remove or damage any safety devices, replace the safety device by a new one if any damage or poor function is observed.

Improper use and failure to observe safety procedures can result in contamination or injury to the operator.

If any technical or operational training is required, it can be provided by Clarke – Mosquito Control Products & Services (dealer Guarany in the USA). Please contact us for more information.

4. ASSEMBLY INSTRUCTIONS

Components

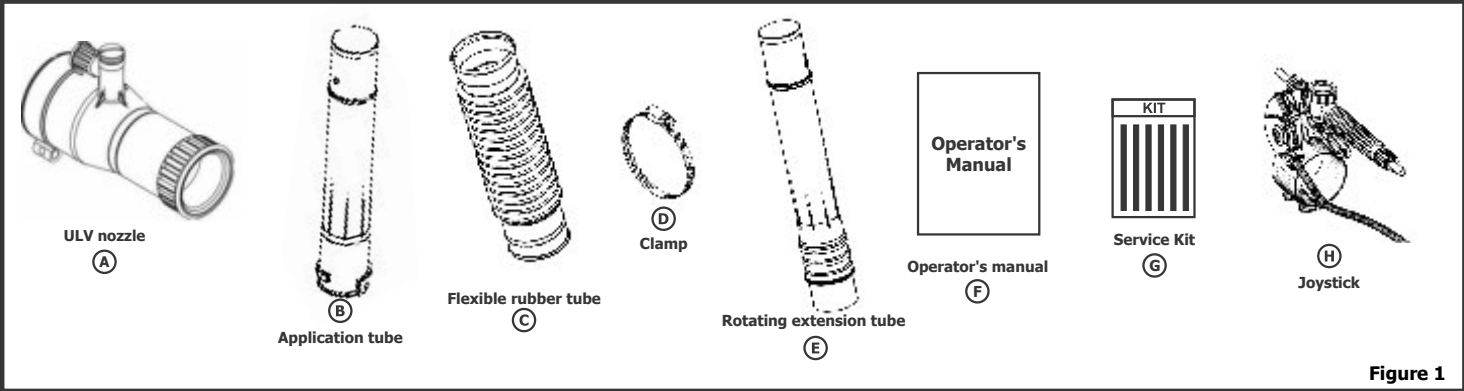


Figure 1

Firstly find and identify all the components that come with the equipment

4.1 LIQUID DISCHARGE SET ASSEMBLY (FIGURE 2)

Fit the flexible rubber tube (C) between to the rotating extension tube (E) and air engine outlet elbow, fixing it with a clamp (D), then attach the application tube (B) at the other end of the rotating extension tube (E) to its respective ULV Nozzle (A).

Note: after attaching the extensions (E) and (B) manually, make a slight turn of the application tube (B) to the right until you hear a “click” of a proper fit. For disassembling, do the opposite.

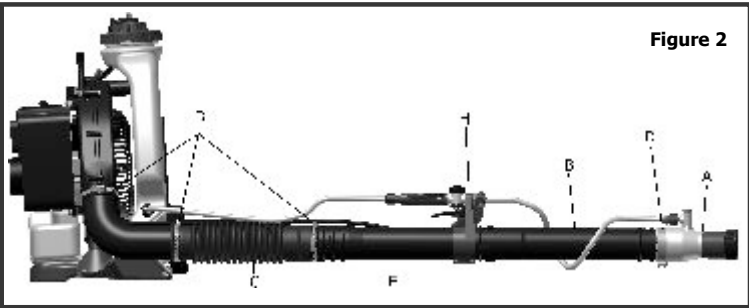


Figure 2

4.2 JOYSTICK

Unified Command (H): For ease of assembly (Figure 3), this component is provided with a connected electrical cord and a hose for liquids.

After completing assembly process in 4.1., put the equipment on your back and adjust the position of the unified command ("joystick") by sliding it forward or backward, as shown in Figure 3, until you find the most comfortable position for operation. Finally, tighten the unified command screws (H), using a Philips screwdriver (provided in the kit) to fix it in a defined position.

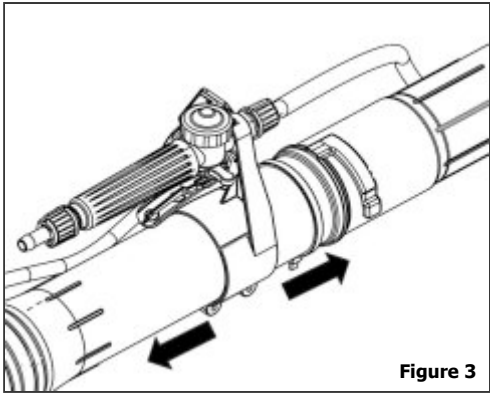


Figure 3

4.3 ULV NOZZLE

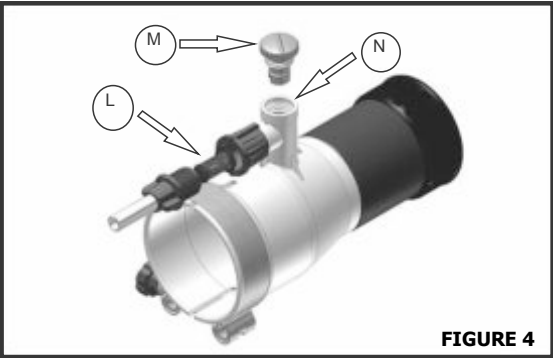


For exchanging the metering tip and filter, and nozzle filter cleaning is recommended to use protective gloves and goggles.

To adjust nozzle flow rate, replace by color-coded metering tips (M) by unscrewing it from its housing (N) in the nozzle (Figure 4). Replace with different metering tip for desired flow rate (ml/min).

This nozzle is equipped with a tip filter (L). It is recommended its removal for cleaning after each full working day (approximately 8 hours), or in case of an interruption/reduction in the flow from the nozzle.

To access, unscrew it from the part where it is installed (Figure 4 - L), clean it and put it back in place before resuming operation.



Metering tip and tip filter (figure 4)

5. SAFETY PRECAUTIONS DURING THE FUEL FILLING



- a) Gasoline is extremely flammable, handle it carefully.
- b) Fill only in well ventilated places and never smoke or light fire in the refueling place, or area where gasoline is stored.
- c) Do not fill the fuel tank when the engine is hot or running.
- d) Do not spill fuel when refueling and do not take the equipment near to locals or people with flames and sparks during this procedure
- e) Never fill the tank beyond its capacity (2 l), recorded on it, and if gasoline is spilled on the fuel tank or engine, clean it immediately.
- f) If during the refueling operation fuel falls on the ground, take the equipment at about 3 m away from the contaminated site before running it.
- g) Be sure to tighten the fuel tank cap after refueling.
- h) Check for leaks. If so, do not run the engine until the problem is resolved.

6. FUEL PREPARATION

CAUTION! The engine durability depends also on the 2-stroke oil quality and of the correct oil proportion mixed with the gasoline. Therefore, it is recommended the use of high-quality synthetic 2-stroke oil (JASO FC or FD, API TC, or ISO EGC/EGD), mixed in the correct proportion 50:1 (2%). Never use oil of lower quality than specified, for example JASO FB, because it will cause non-compliance with pollutant emission levels required by environmental regulations of the country. The failure to add oil to the gasoline or failure to mix oil at the appropriate ratio will cause major engine damage which will void your warranty.

CAUTION! Do not use National Marine Manufacturer's Association (NMMA) or BIA certified oils. This type of 2-stroke oil does not have the proper additives for air-cooled 2-stroke engines and can cause engine damages.

CAUTION! Do not use automotive motor oil. This type oil does not have the proper additives for air-cooled 2-stroke engines and can cause engine damage.

CAUTION! Use the metering bottle supplied with the service kit to make the fuel mixture (2-stroke oil + gasoline). First fill the bottle with gasoline to the level indicated and complete with oil at the recommended ratio up to the total volume of 1 liter. Then, vigorously shake the bottle for a perfect mixture of the two components. Never mix gasoline and oil directly in the fuel tank of the GUARDSMAN™ BACKPACK ULV APPLICATOR.

Attention to the Examples of fuel mixture ratio rates:

50 parts gasoline to 1 part oil JASO FC/FD, API TC or ISO EGC/EGD (2%)			
Gasoline	2-stroke oil*	Gasoline	2 stroke oil*
US Gallon	OZ.	Liter	ml
1	2.6	1	20
2	5.2	5	100
3	7.8	10	200
4	10.4	15	300
5	13.0	20	400

Caution! Avoid using fuel mixture (oil + gasoline) prepared for another 2 weeks

7.EQUIPMENT OPERATION

CAUTION! THIS EQUIPMENT IS DESIGNED FOR USE WITH PESTICIDES (CHEMICAL OR BIOLOGICAL)IN CONTROLLING DISEASE VECTORS IN PUBLIC HEALTH, REGISTERED BY OFFICIAL AUTHORITIES. BEFORE APPLYING ANY OTHER PRODUCT THAT DOES NOT FALL BETWEEN THOSE DESCRIBED HERE, CHECK WITH THE MANUFACTURER ABOUT THE POSSIBILITY OF USE.

7.1. SAFETY PRECAUTIONS DURING APPLICATION



WARNING

a) Wear ear, body, hands, feet, eyes and breathing protection during the operation of this equipment



Note: wear apron (in front of the body when filling up the tank and on the back during the application).

- b)** Do not smoke, eat or drink while filling the tank with chemicals or during application.
- c)** Inspect equipment for loose screws, and damage to parts before starting operation/application.
- d)** Check connections of spray hose, discharge valve, nozzle and tank caps, for leakage, before starting operation/application.
- e)** Do not operate this equipment indoors. When running the engine, make sure that the site has good ventilation, because the exhaust gases contain carbon monoxide, which is highly dangerous to health.
- f)** Always direct the spray nozzle toward the target area.
- g)** Stay away from open flames or heat sources.
- h)** Never aim the spray nozzle toward people and animals.
- I)** Keep children, animals and people at least 20 meters / 65 feet, away from the work area.
- j)** Never put your hands on the engine exhaust gases region, because the high temperature in this region when the engine is running can cause severe burns.

7.2 DIGITAL TACHOMETER/HOUR METER

This component is installed above the engine, as show in Figure 5, and has the following functions:



Figure 5

- **Hour meter:** Its function is to record the hours of operation of the equipment / engine, function intended to assist in proper engine maintenance, as well as recording the daily use of the equipment.
- **Tachometer:** This component indicates the engine speed during operation of the equipment, considering that the engine should operate between 2,600 ("idle") and 7,300 RPM;

CAUTION! If you need remove the horimeter/tachometer, when you reinstall it, it is important to keep the same number of laps of the red wire around the spark plug cable, which must be of 3 to 4 laps.

CAUTION! Be careful not to spill chemicals on to the digital tach/ hour meter when filling the Chemical tank. Also, avoid getting wet during cleaning/ maintenance.

7.3. CHEMICAL TANK FILLING

Never remove the filter from the filling opening of the tank to fill chemicals in the tank.

The useful capacity of the chemical tank is 6 liters / 1.6 gallons. **Do not exceed this volume, to avoid compromising the product agitation inside the tank.**

Be sure to properly close the lid of the tank after filling it.

Make sure you have clean water near the place where you carry out the treatment.

7.4 LIQUID AGITATION SYSTEM

To prevent sedimentation of some products based on "wetttable powder", this machine has a special system of liquid agitation (Figure 6). To operate it follow the steps below:

AGITATION "MAX": Place the arrow on the lever cap in position "II";

AGITATION "MINIMUM": Place the arrow on the lever cap in position "I";

AGITATION "NEUTRAL": Place the arrow on the lever cap in position "O".

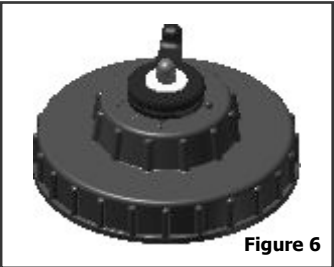


Figure 6

7.5 INITIAL ENGINE STARTING

a) Place the ignition switch in the RUN position (I) - Figure 8

b) Press around 8 times the bulb - Figure 9 - in order to fill the carburetor with gasoline;

c) Place the choke lever in the closed position (| / |) - Figure 9

d) Place the throttle lever in the middle (1/2) of its speed - Figure 7

e) Pull the starting cord until you feel resistance and then pull firmly to start the engine (Figure 9) and then return the choke lever to the open position (| | |) in order to allow the engine to operate normally.

Note: If the engine does not work in first or second attempt, return the choke lever to the open position (| | |).

7.6 ENGINE STOP

To stop the engine, fully return the throttle lever to the initial position ("idle"), and place the button (Figure 8) in the stop position "O".

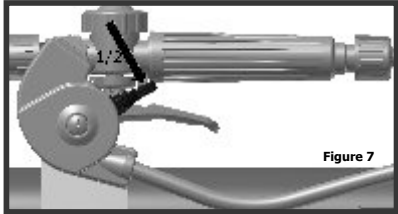


Figure 7

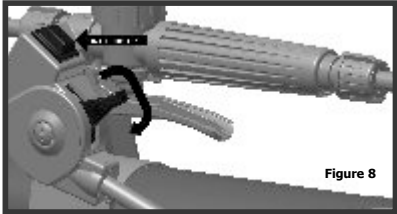


Figure 8

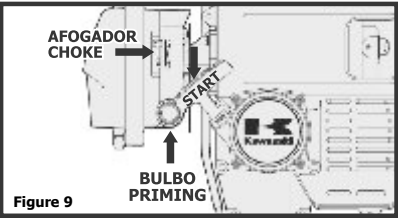


Figure 9



WARNING

In emergency situations, the engine can be turned off without the need to return the throttle lever to the starting position, but just pressing the button (Figure 8) to the off position "O".

The power switch is a safety device. If it is damaged or removed, do not use the equipment, please contact our representative or technical assistance on how to proceed with the replacement of this component and only after the correct substitution, resume the normal operations of the machine.

8.CARE AFTER USE

8.1 EQUIPMENT CLEANING AND MAINTENANCE



WEAR BODY, HANDS, FEET AND EYES PROTECTION DURING THE EQUIPMENT CLEANING AND CONSERVATION.



CAUTION! Every day, drain and wash the tank completely, leaving no residues or chemicals inside, as this may cause irreparable damage to the tank. To facilitate this procedure, place the machine on the corner of a bench and remove the cap at the bottom of the chemical tank, as shown in Figure 10. Use a bucket to collect the liquid left after the application.

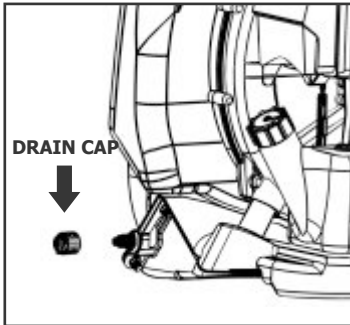


Figure 10

Then, fill the tank using clean water; rinse (2 times), reassemble the hose, start the engine and circulate the water for 2 minutes to clean the pipes and metering tips. Collect this washing water liquid in a bucket, and ALWAYS dispose in a proper place. When not in use, the machine should be placed upright on a flat and solid surface.

8.2 ENGINE CARE (FUEL TANK)

CAUTION! Drain the fuel tank whenever the machine remains off for more than 1 (one) week, as the fuel accumulation in the tank may cause problems when starting the engine again; it can also cause irreparable damage to the carburetor, as a result loss of warranty.

9.EQUIPMENT MAINTENANCE



Hot parts in the engine can cause severe burns. Stop the machine and allow the engine cooling down before proceeding maintenance. Always remove the spark plug cap from spark plug when servicing the engine to prevent accidental starting.



Use protection gloves during maintenance procedures.

9.1 SPARK ARRESTER SCREEN MAINTENANCE



Operation of this equipment may create sparks that can start fire. The spark arrestor screen prevent discharge of hot/glowing particles of carbon from leaving the muffler. Never use the equipment without the presence and correct maintenance (cleaning) of this component.

Clean the sparks retaining grid each 50 hours of operation.

- a) Remove the sparks retaining grid fixing screw (Figure 11), using the screwdriver (supplied in the kit);
- b) Clean the retaining grid using a brush (Figure 12).

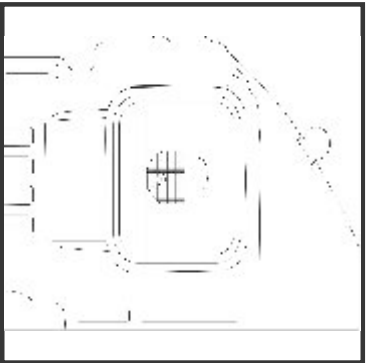


Figure 11

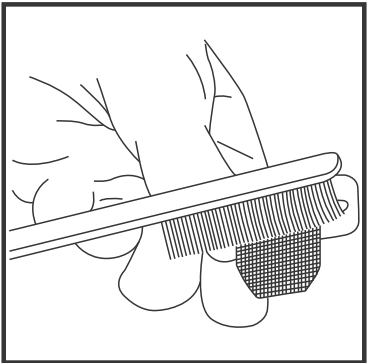


Figure 12

9.2 AIR FILTER ELEMENT MAINTENANCE

The air filter should be inspected each time the equipment is used.
To inspect remove the air filter cover (loosen two screws) and remove the element filter from the case (Figure 13).
Clean the element by tapping it gently on a flat surface to remove dust.

CAUTION!
If the element is very dirty, replace it with a new one. Do not use brush or high compressed air to clean the element. Do not oil the element.

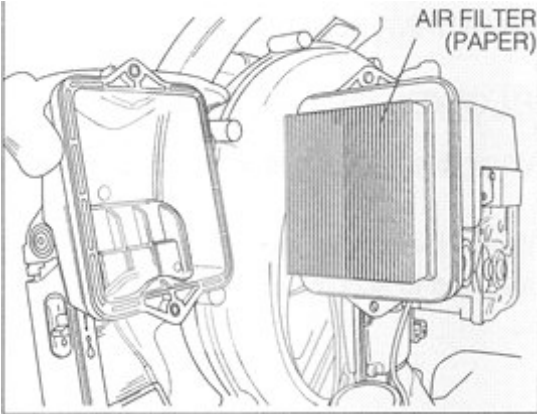


Figure 13

9.3. FUEL FILTER MAINTENANCE

The fuel filter is attached to the fuel tube inside the fuel tank (Figure 14). Loosen the clamp and pulls back then take out the fuel filter.

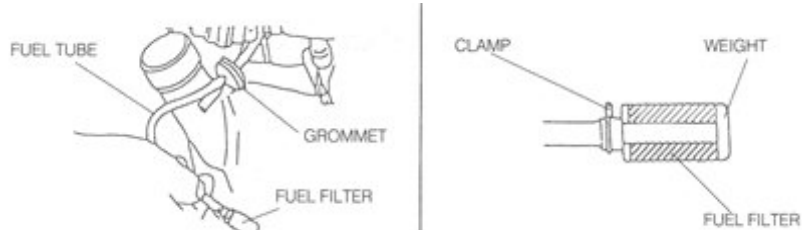


Figure 14

Clean the fuel filter in a bath of high flash-point solvent.

WARNING Gasoline and low flash-point solvents can be flammable and/or explosive and cause severe burns. Clean the fuel filter in a well-ventilated area, and take care that there are no sparks or flame anywhere near the working area. Do not use gasoline or low flash-point solvents to clean the fuel filter.
Dry the fuel filter before installing as dust does not adhere.
Inspect and clean the fuel tank before re-installing the fuel filter.
NOTE: If fuel does not flow better with the fuel filter cleaned, replace the fuel filter with a new one.

9.4. FUEL TANK CAP MAINTENANCE

The fuel tank cap needs to be in place to keep the internal pressure of the fuel tank (Figure 15 A) equal to the atmospheric pressure in order to prevent poor fuel flow caused by internal pressure drop (or rise) because of fuel use for operation or temperature change.
For this purpose both the tank cap (Figure 15 B) and the breather (Figure 15 C) have an air vents (Figure 15 D).
When cleaning the fuel tank inside, check to see if no clogging is found in the air vents and breather passage. If found, clean or replace the parts.

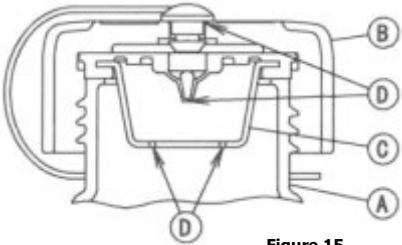


Figure 15

9.5. SPARK PLUG MAINTENANCE

The spark plug must be removed and checked from the engine after each fifty (50) hours of use.
First remove the spark plug cap and then remove spark plug using the suitable plug wrench supplied with the service kit.
If the plug is oily or has carbon build up on it, clean the plug using a high flash-point solvent and a wire brush or other suitable tool.
If the spark plug electrodes are corroded or damaged, or if the insulator (Figure 16A) is cracked, replace the spark plug with a new one. Use the standard spark plug (NGK BPMP7A-9) or its equivalent.
Measure the plug gap (Figure 16 C) of the center electrode (Figure 16 B) and/or side electrode (Figure 16 D) are regulation range with a wire-type thickness gauge.

Correct standard spark plug gap: 0.8 ~ 0.9 mm (0.031 ~ 0.035 in.)

When spark plug gap is except standard, adjustment side electrode is bent carefully.
Install the spark plug: screw it gently into the plug hole with the plug installed in the spark plug wrench and then tighten the plug.

CAUTION! The correct torque for the spark plug is 14 N.m (1.4 kgf.m, 10 ft. lbs). Do not over-tighten.
Fit the spark plug cap securely.
Make sure that the spark plug cap is properly installed by pulling up it lightly.

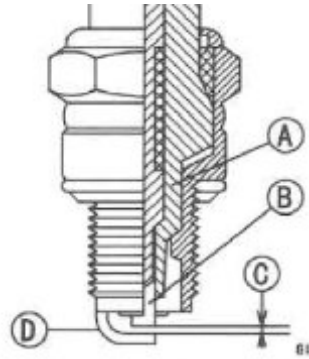


Figure 16

9.6. COOLING FINS MAINTENANCE

Free passage of air flow through the cylinder cooling fins is required to prevent poor engine performance and shortened engine life.
Regularly check and clean all debris from the cooling fins by removing the engine cover and start case (see Figure 17).

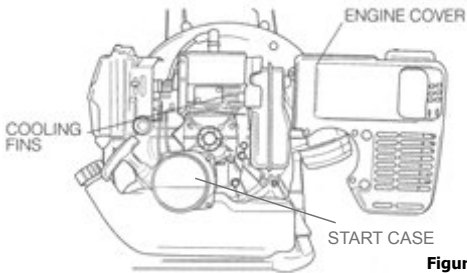


Figure 17

9.7. FUEL TUBE REPLACEMENT

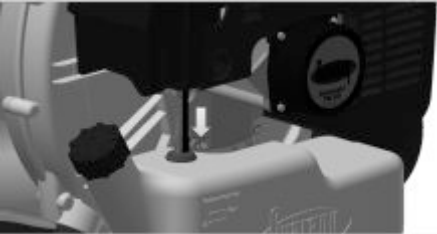


Figure 18A

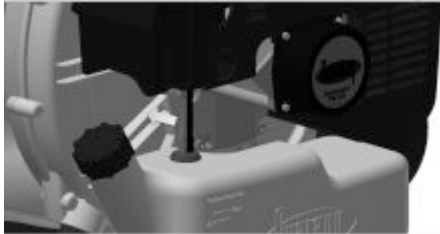


Figure 18B



Figure 18C

Remove the fuel tube (black color – Figure 18A) from the intake pipe of the carburetor by gently pulling it down and remove the overflow pipe (Figure 18B) of the priming pump, in this case, pulling it sideways and never down, to prevent the breaking of its fixing pin.
Remove the tank grommet (Figure 18C) together with fuel tubes from the fuel tank.
Remove the fuel filter (see item 9.3) from the fuel tube and then replace the fuel tubes with new ones.
During the installation of the tank grommet the raised letter face must be on the outside of the fuel tank.

9.8. OTHER PERIODIC MAINTENANCE

See periodic maintenance chart below for other items that require an authorized Guarany dealer to be performed.

9.9. PERIODIC MAINTENANCE CHART

MAINTENANCE	INTERVAL				
	Daily	First 20 hours	Each 20 hours	Each 50 hours	Each 100 hours
Check and fill the fuel tank	x				
Check for fuel leakage (on fuel tank, fuel tube, tank cap, tank grommet and carburetor)	x				
Check looseness and loss of nuts and bolts	x				
Check the throttle lever proper operation	x				
Check the engine switch proper operation	x				
Check condition of shoulder straps	x				
Clean the fuel filter			x		
Clean fuel tank cap			x		
Clean the air filtering element *			x		
Tighten nuts and bolts		x		x	
Clean the spark plug and adjust the electode gap				x	
Remove dust and dirt from cylinder fins*				x	
Remove carbon deposits on piston head and inside the cylinder**				x	
Remove carbon deposits on the exhaust pipe or muffler**				x	
Clean the spark arrester screen				x	
Check the crankshaft slinding portion and connecting rod					x
Fuel line			reaplace every 3 years		

* Service/maintenance more frequently under dusty conditions
** Service to be performed by an authorized GUARDSMAN™ BACKPACK ULV APPLICATOR Guarany dealer.

10. LONG-TERM STORAGE

When for long-term storage of the equipment – after performing all maintenance procedures and needed repairs – empty the fuel tank, then disconnect the fuel supply line from the carburetor and compress the primer bulb until fuel stops discharging from the fuel-return line. Subsequently, start the engine and allow it to run until it stops. Pull the starter cord a few times to remove any excess fuel from the engine. Remove the spark plug and insert a small amount of oil into the cylinder. Slowly pull the starter cord and bring the piston to a position closest to the spark plug hole. Re-install the spark plug. Apply a thin coating of oil to all the metal surfaces and store the equipment in a dry place.

11. ENVIRONMENTAL RECOMMENDATIONS

IMPORTANT

Contaminating residues disposal

Refer to the procedures contained in the labels and leaflets of the chemicals to be used, and consult the local legislation in force.
Do not wash the packaging or the equipment in lakes, fountains, rivers and other water sources. Dispose properly product residues and packaging.
Guarany recommends that the disposal of waste is carried out in accordance with the regulatory requirements of the legislation in force. The disposal of residues done improperly may affect the environment causing significant damage to soil quality, surface water, water frears as well as to the population health.

12 DECONTAMINATION, SCRAPING AND DISPOSAL RECOMMENDATIONS OF GUARANY EQUIPMENT

For the discard operation for equipments used for applying pesticides, proceed as follows:

a) Decontamination of the tank and other components through which flow the chemicals:

- NOTE**-Before sending the atomizing equipment for the disposal / recycling process, perform the process of washing / decontamination as described below.
- 1** - During the atomizer washing procedure, the operator must be using the same PPE (personal protective equipment) recommended in item 08 in this manual (CARE AFTER USE).
 - 2** - The washing should be done in a ventilated place and waterproof floor.
 - 3** - Completely empty the contents of the sprayer tank in a plastic container, through a emptying device.
 - 4** - Fill the sprayer with "clean" water up to half of its rated capacity recommended by the technical bulletin.
 - 5** - Close the lid and stir for 30 seconds.
 - 6** - Dispose part of the liquid in the tank through the liquid ULV nozzle hose (removing the hose from its point of attachment in the nozzle) for at least 1 minute of operation, and pour the remaining liquid through the emptying device and collect all washing liquid in the same plastic container mentioned in item 3.
- NOTE: This liquid must not be discarded under any circumstances and wherever possible should be used for dilution / preparation of new pesticide chemicals.
- 7** - This operation must be repeated three times before sending the spraying equipment to the process of disposal / recycling.
 - 8** - After the triple washing procedure, make unusable the plastic tank puncturing the bottom to prevent possible future use.

b) Equipment storage after decontamination process:

Upon completion of the triple washing store the equipment in a place isolated from any chemicals and other contaminated equipment, keeping it properly identified with the following words: equipment decontaminated, useless and ready to be disposed / recycled.

c) Transportation of used equipment:

The disposed / recycled equipment, after the triple washing process should not be transported together with food, beverages, medicines, feed, animals and people.

IMPORTANT

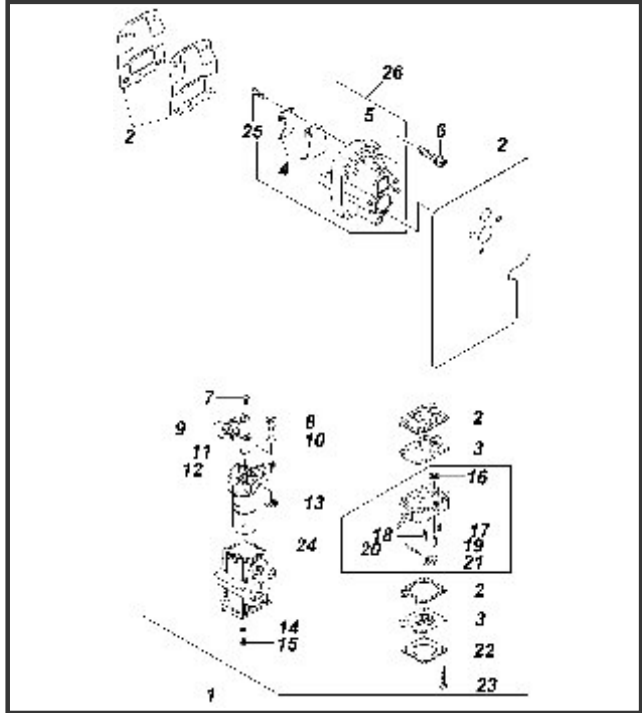
Guarany warns that improper use of our spray equipment can cause contamination of soil, water, air and damaging the fauna, flora and human health.

13 TROUBLESHOOTING

PROBLEM	CAUSES	SOLUTIONS
Fuel does not reach the carburetor	Dirty internal filter (fuel tank);	Clean / replace
	Clogged fuel cap vent;	Clean
	Clogged fuel line;	Clean
	Defective primer pump;	Repair / clean
	Priming pump was not used (engine start)	Pump a few times (located in the carburetor)
Fuel does not reach the cylinder	Blocked pump diaphragm;	Clean / replace
	Clogged air filter;	Wash / dry
	Clogged carburetor fuel injector;	Clean
	Clogged carburetor needle;	Clean
	Throttle valve blocked;	Clean / replace
Engine cuts from excess of gasoline in the carburetor	Clogged carburetor return hose;	Clean
	Dirty air filter;	Clean / replace
	Overflowing fuel tank	Fill up only to the maximum level indicated in the tank
The engine runs intermittently or does not run on idle	Contaminated / dirty gasoline;	Replace
	Dirty carburetor;	Clean
	Dirty air filter;	Wash / dry
	Air entering through the oil sump or carburetor seals;	Replace gaskets and seals
Dead spark plug	Poor contact between the spark plug and ignition cable;	Adjust
	Carbon deposits in the spark plug electrode;	Clean
	Wrong spark plug electrode gap;	Adjust = 0.6mm/0.7mm
	Cracked spark plug porcelain;	Replace spark plug
	Drenched spark plug;	Wash / dry
No sparks in the ignition cable	Poor contact in the ignition cable;	Adjust
	Ignition coil defective;	Replace

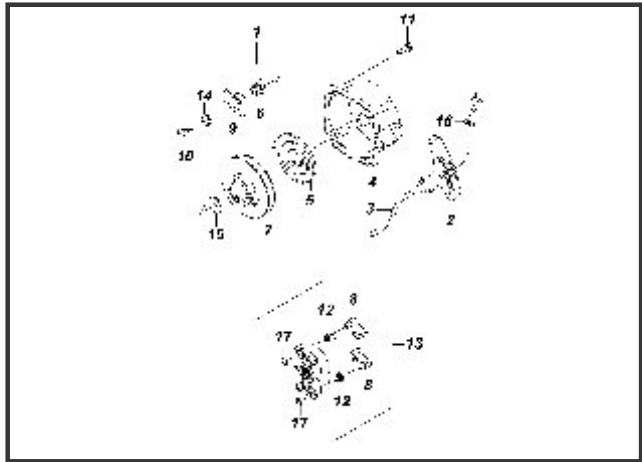
Engine does not run, although fuel reaches the cylinder and there are sparks in the spark plug	Poor quality filter	Replace
	Incorrect starting procedure	See manual instructions
	Loose spark plug	Tighten / replace
	Piston rings locked or worn	Replace
	Damaged cylinder	Replace
Lack of power in the engine	Dirty air filter	Wash / dry
	Partially closed choke	Open (lever down)
	Carbon excess in the exhaust window (cylinder)	Clean
	Wrong spark plug electrode gap	Clean /Adjust=0,6mm/0,7mm
	Worn piston rings	Replace
	Damaged piston	Replace
Engine overheating, immediately shut engine down	Worn cylinder/scratched	Replace
	Wrong fuel mixture	Replace
	Low quality 2-stroke oil	Replace
	Carbon deposits in the combustion chamber, in the piston or exhaust pipe	Clean
	Damaged rotor fan vanes	Clean
Abnormal noises/knocking sounds	Wrong spark plug	Replace BPMR7A (NGK)
	Loose fan rotor	Tighten
	Damaged fan rotor vanes	Replace
	Wrong fuel mixture	Replace

14 ENGINE SPARE PARTS



CARBURETOR (E-0 version) COMPLETE CODE 11149

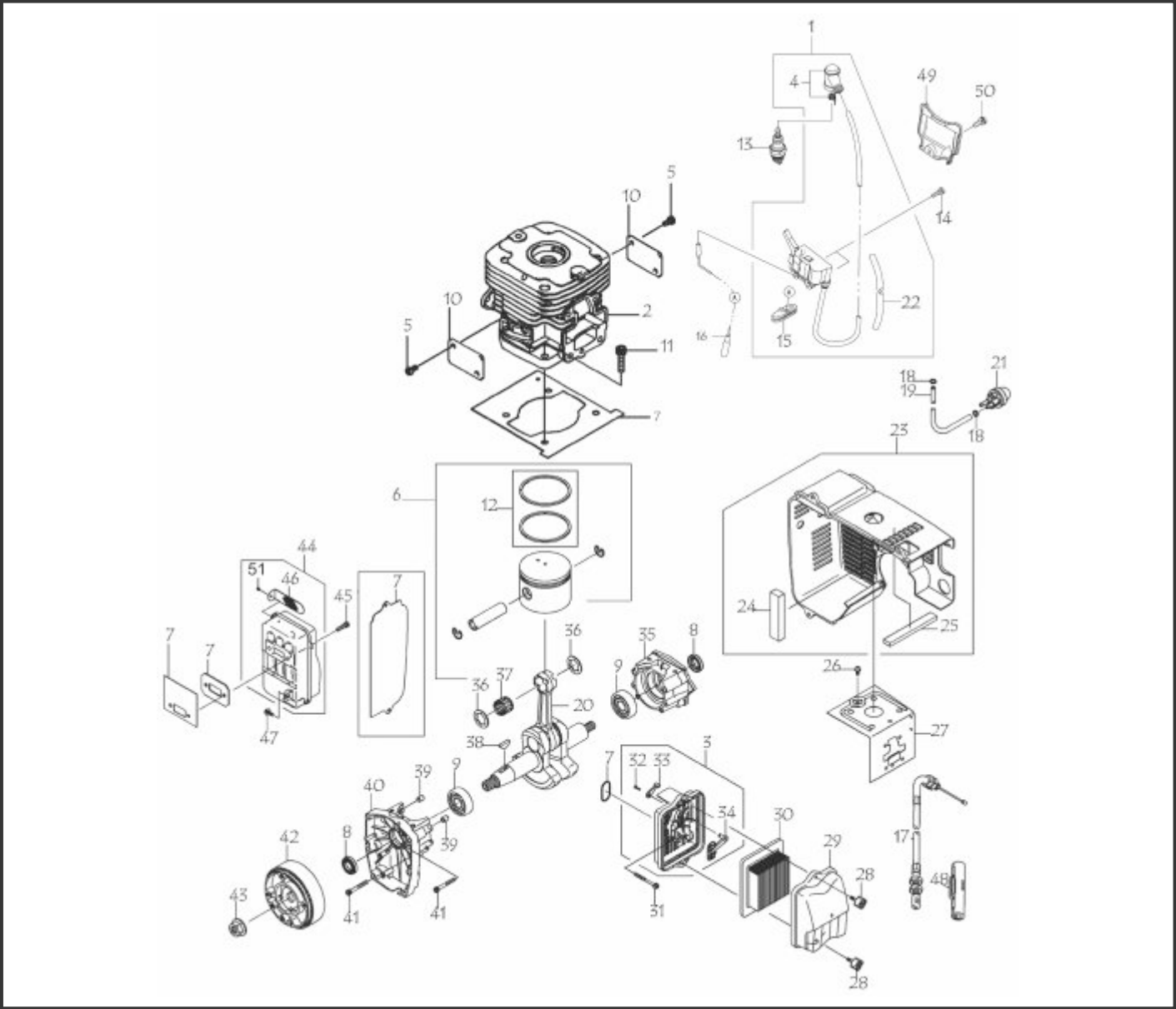
Number	Description	Code E-0	Quantity
1	Carburetor kit	7769	1
2	Carburetor gaskets kit	7680	1
3	Diaphragms kit	11093	1
4	Valves kit	7682	1
5	Insulation	11124	1
6	Screw, 5X25	7684	4
7	Screw	7685	1
8	Arm	7686	1
9	Bracket	7687	1
10	Washer	7688	1
11	Plug	7689	1
12	Acceleration valve	7770	1
13	Friction ring	7691	4
14	O´ring	7692	4
15	Gicleur, #55.5	7771	1
16	Filter	7694	1
17	Screw	7695	1
18	Spring	7696	1
19	Valve	7697	1
20	Pin	7698	1
21	Lever	7699	1
22	Carburetor cap	7700	1
23	Screw	7701	4
24	Casing	7772	1
25	Screw	11125	1
26	Bracket of Carburetor kit	11126	1



START SET (COMPLETE) CODE 11147

Number	Description	Code	Quantity
1	Start	11135	1
2	Starting handle	11132	1
3	Cord	11137	1
4	Start case complete	11131	1
5	Start spring	11140	1
6	Spring	11141	1
7	Base	11136	1
8	Pawl, recoil-starter	11129	2
9	Retainer	11130	1
10	Screw	11142	1
11	Screw	11138	4
12	Spring	11139	2
13	Start Pulley	11134	1
14	Washer	11143	1
15	Washer	11144	1
16	Plate, recoil starter	11145	1
17	Ring-snap	11146	2

ENGINE (COMPLETE) (E-0 USA Version) CODE 11314



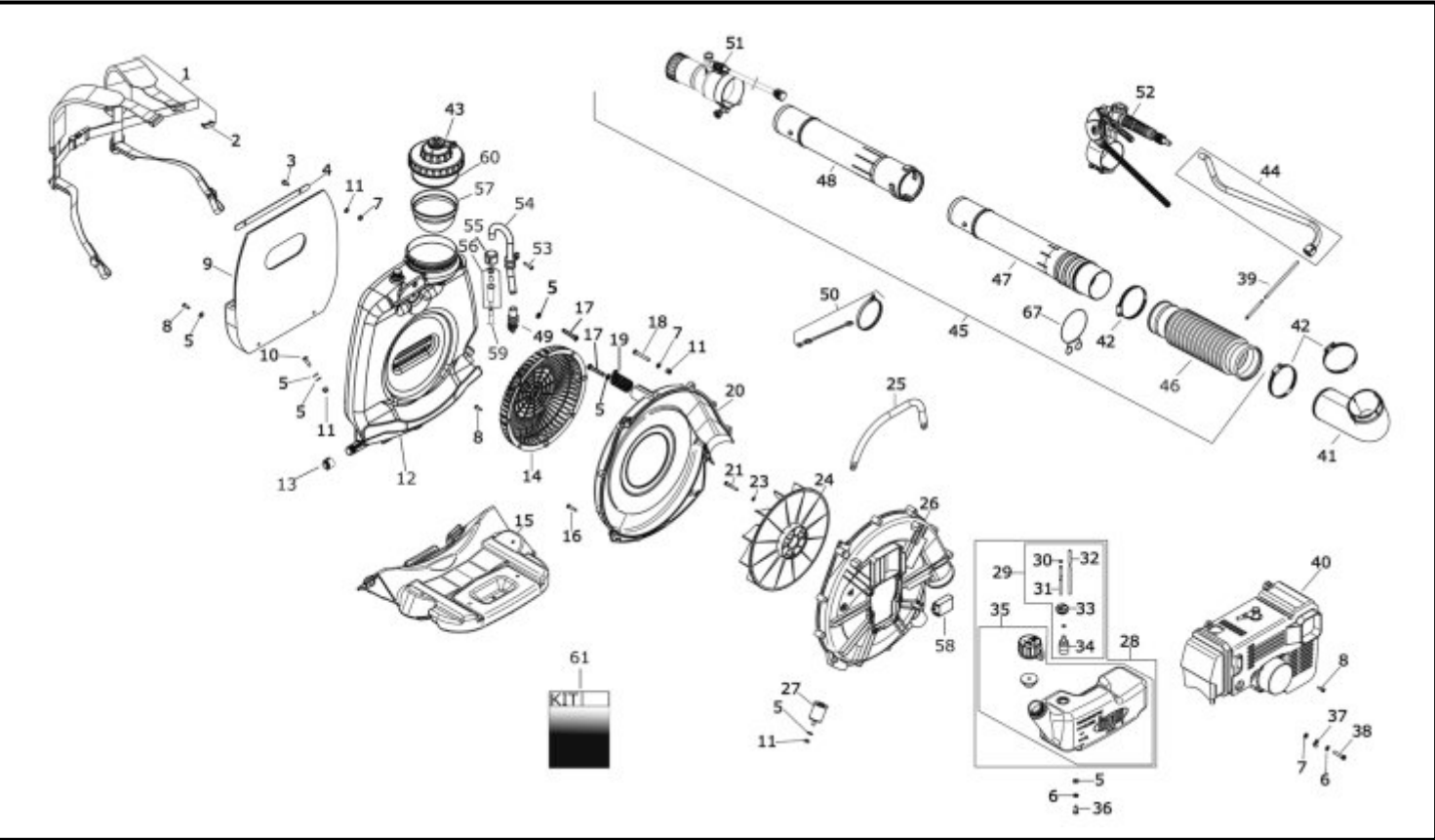
ENGINE (COMPLETE) (version E-0) CODE 11103

Number	Description	Code	Qty.
1	Complete coil	11120	1
2	Engine cylinder	7720	1
3	Air filter bracket	7721	1
4	Spark plug terminal	7722	1
5	PAN +- Screw, 4x8	7723	4
6	Piston with ring	11117	1
7	Engine gasket kit	7725	1
8	Retainer, TBY 17x30x7	7726	2
9	Bearing 6303C3	7727	2
10	Engine plaque	7728	2
11	Screw, 5x20	7729	4
12	Piston ring (set)	7730	2
13	Spark plug, BRMR7A (BGK)	7731	1
14	Screw, 4x20	7732	2
15	Eyelet	11122	1
16	Lead wire	11121	1
17	Throttle cable	7767	1
18	Clamp	7736	2
19	Tube, 2,3x5x93	11382	1
20	Tie rod	11133	1
21	Pump	7739	1
22	Tube, 6x7,4x300	7740	1
23**	Engine cowl	7741	1
24	Pad	7742	1
25	Pad	7743	1
26	Screw WP+-, 5x10	7744	1

Number	Description	Code	Qty.
27	Air hood	7745	1
28	Screw, 5x18	7746	2
29	Air filter cover	7747	1
30	Filter element	7748	1
31	Screw WSP+-,5x55	7749	2
32	Screw, 3x10	7750	1
33	Lever	11127	1
34	Valve	11128	1
35	Rear half-sump	11116	1
36	Spacer, 11,2x18,5x0,9	11118	2
37	Tie rod bearing	7755	1
38	Cotter pin	7756	1
39	Pins	7757	2
40	Front half-sump	11115	1
41	Screw, 5x40	7759	4
42	Flywheel	10885	1
43	Nut, M10	7761	1
44	Exhaust set	7762	1
45	Screw	7763	1
46***	Spark arrester	7764	1
47	Screw, 6x20	7765	2
48	Cable case	7766	1
49	Coil cap	11119	1
50	Screw	11123	1
51	Screw	11248	2

** Safety Device
When ordering parts the code number must be informed

15. GUARDSMAN™ BACKPACK ULV APPLICATOR SPARE PARTS

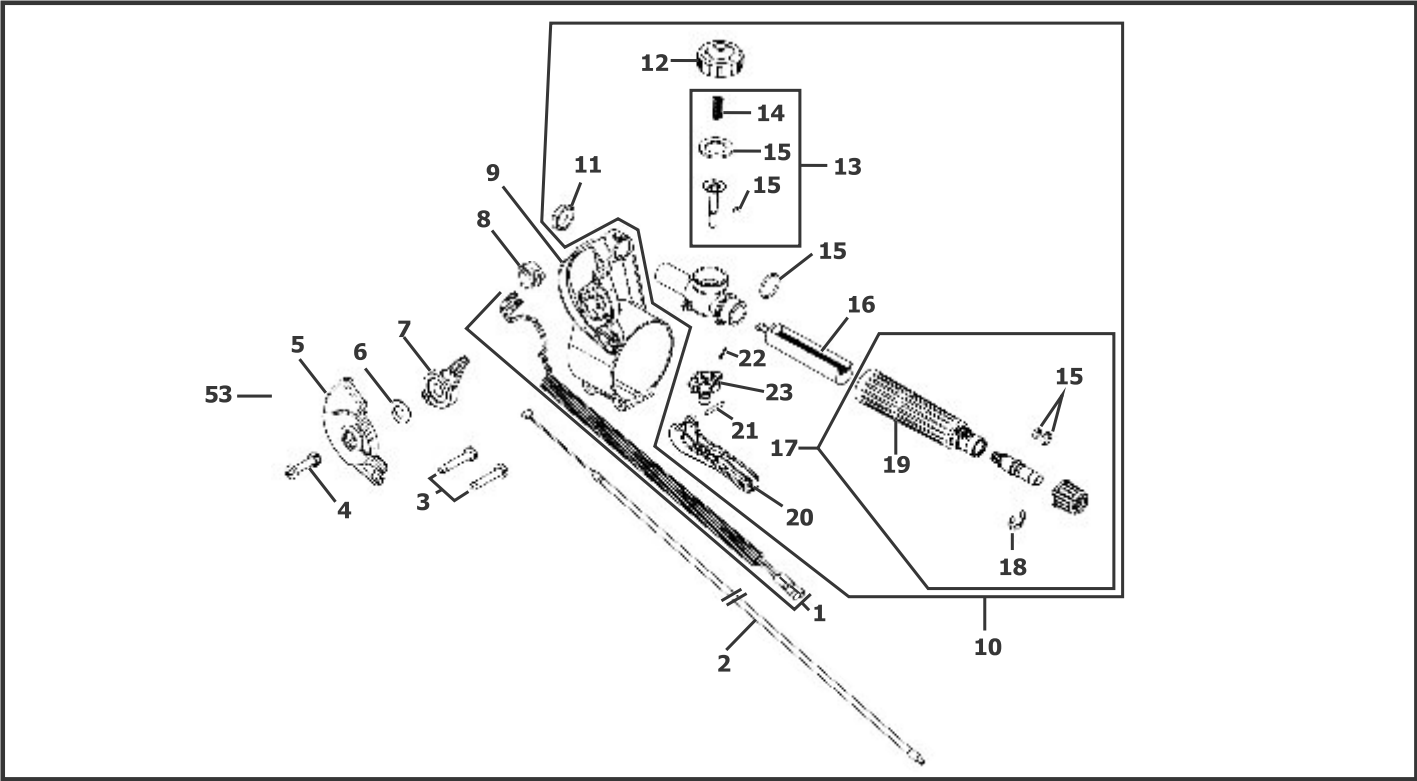


GUARDSMAN™ BACKPACK ULV APPLICATOR - 6L (complete)

Number	Description	Code	Quantity
1	Belt (complete)	7832	1
2	Fastener Clamp	6457	10
3	Screw	6602	4
4	Backrest plate	7027	1
5	Washer	3020	3
6	Washer	2439	6
7	Washer	2461	10
8	Screw	5995	10
9	Back support	7065	1
10	Screw	2453	4
11	Nut	5498	10
12	Tank	10038	1
13	Nut with gasket	7817	1
14	Fan grid	7357	1
15	**Base	11483	1
16	**Screw	7535	10
17	Screw	5298	6
18	Screw	6770	2
19	Spring	10077	1
20	Fan casing	10076	1
21	Screw	5673	4
23	Washer	2461	10
24	Fan rotor	10881	1
25	Handle	6852	1
26	Fan case cover	7345	1
27	Lower cushion	7356	1
28	Fuel tank set	11379	1
29	Vent set	11383	1
30	Clamp	7820	1
31	Suction hose	7821	1
32	Return hose	11381	1
33	Tank grommet	7823	1
34	Filter	7824	1
35	Tank with lid	11378	1
36	Screw	2588	4
37	Clamp	5297	10
38	Screw	7676	6
39	Suction tube	7940	1
40	Engine	11314	1

Number	Description	Code	Quantity
41	Clamp	6887	2
42	Tank cap with gasket	7028	1
43	Hose with nut	7829	1
44	Full discharge kit	7830	1
45	Flexible rubber tube	7286	1
46	Tube with sleeve	8043	1
47	Tube extension	7284	1
48	Blower connection	6882	1
49	Joystick (details page 71)	8128	1
50	Clamps	7831	1
51	ULV nozzle (details page 72)	11536	1
52	Screw M x 10	6602	4
53	External tube	10197	1
54	Fixing nut	6130	1
55	Blower valve set	4917	1
56	Sieve	4424	1
57	Tachometer	10199	1
58	Blower internal tube	7514	2
59	Lid gasket	1128	2
60	Service kit:	11534	1
61	Metering bottle	6784	1
	Ear protection	0048	1
	Spark plug wrench and		1
	Phillips screwdriver	10439	1
	Screwdriver	2901	1
	Gasket	3034	1
	Restrictors kit	11533	1
	Drain gasket	7401	1
	Filter	5590	1

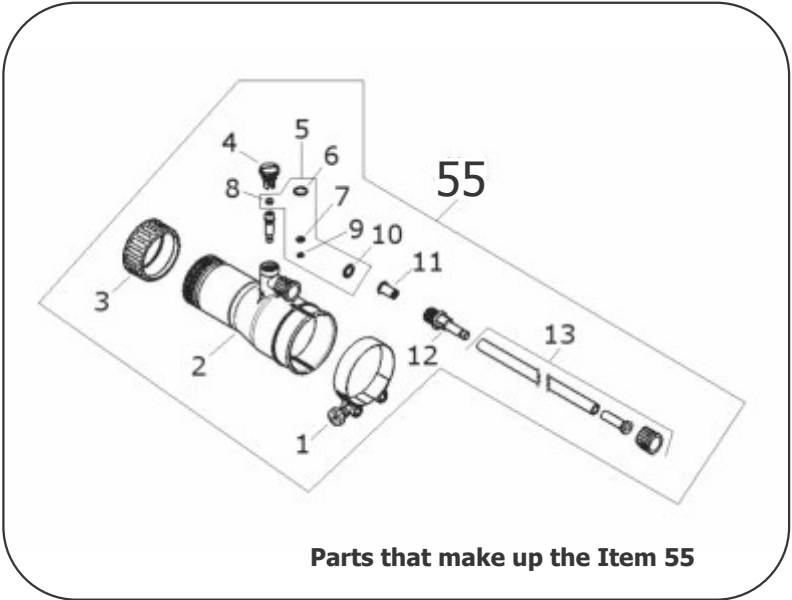
When ordering spare parts is essential to inform the code
** Safety device



Number	Description	Code	Quantity
1**	Electrical wiring	7797	1
2	Throttle cable	7667	1
3	Screws	7668	2
4	Nut and bolt M6	7794	1
5	Lid	7649	1
6	Nut	2660	4
7	Throttle lever	7659	1
8**	Switch	7611	2
9	Body	7648	1
10	Valve S-4 (complete)	8131	1
11	Nut	5294	2
12	Valve lid	5190	1

Number	Description	Code	Quantity
13	Valve sealing kit	7795	1
14	Valve spring S-4	5389	1
15	Joystick sealing kit	7793	1
16	Valve filter	6270	10
17	Tap	7796	1
18	Retention ring	7203	10
19	Valve cable	7670	1
20	Lever	7650	1
21	Valve pin	7050	1
22	Cotter	2805	10
23	Valve lock	7660	1

When ordering parts the code number must be informed.
** Safety device

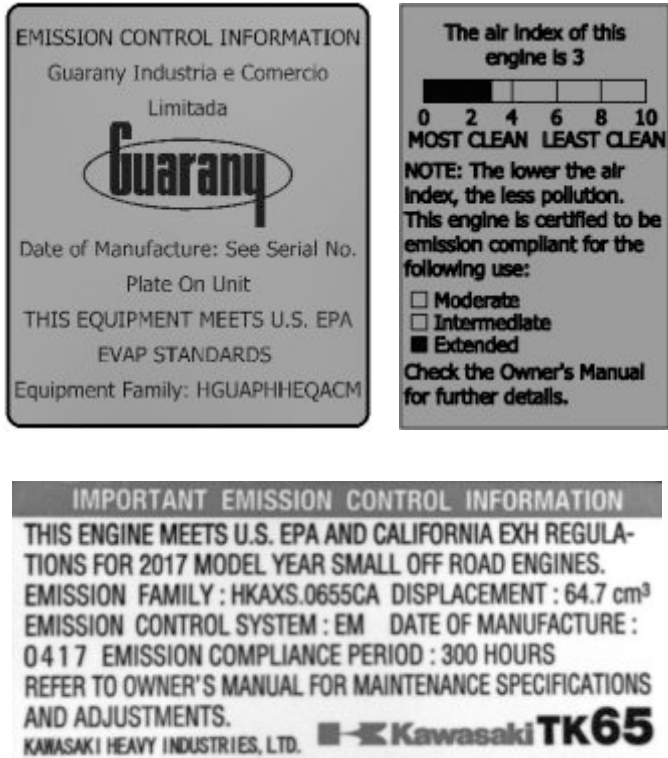


Item	Description	Code
1	Nozzle Clamp	7792
2	Body With Cap and Screw	7791
3	Cap Protector	7592
4	Flow Restrictor Kit	7625
5	Seal Kit (Nozzle)	7798
6	O'ring	7600
7	O'ring	2739
8	Seal Ring	6313
9	O'ring	2810
10	Gasket	3034
11	Nozzle Filter	5590
12	Connecting Pipe	9825
13	Hose Assembly Output	4186

16. EMISSION CONTROL (EXHAUST & EVAPORATIVE) INFORMATION

The emission control system for the engine is EM (engine modification) and the fuel tank/fuel line emission control system is EVAP (evaporative emissions).

Emission Control Labels are located on the engine (THIS IS AN EXAMPLE ONLY).



Product Emission Durability (Emission Compliance Period)

The 300 hour emission compliance period is the time span selected by the manufacturer certifying the engine emissions output meets applicable emissions regulations, provided that approved maintenance procedures are followed as listed in the Maintenance Section of this manual.

17. WARRANTY STATEMENT GUARANY

EMISSION CONTROL SYSTEM WARRANTY STATEMENT

- 1. Guarany provides to the original retail purchaser two (2) year warranty to the fuel tank and fuel cap valid from the date of the purchase invoice.
- 2. The warranty will be automatically cancelled if or when:
 - A - the equipment is improperly installed, assembled or used;
 - B - the equipment was contains non-original parts or components;
 - C - the equipment was not used in accordance with the procedures described in our operator's manual provided with all our products;
 - D - occur any damage due to improper use, such as: impact, dropping, bumping or if there are holes in the tank;
 - F - fuel or lubricating oils with different characteristics to our recommendations have been used;
 - G - repairs have been made by any person or entity not authorized by Clarke;
 - H - there has been any violation of the internal or external original features;
 - I - used by non-qualified persons;
 - J - there has been negligence in the corrective or preventive maintenance;
 - K - the equipment has undergone changes that affect its function, stability or safety;

WARRANTY STATEMENT FOR ITEMS NOT RELATED TO THE EMISSION CONTROL SYSTEM

- 1. Guarany provides to the original retail purchaser one (1) year warranty valid from the date of the purchase invoice, and subject to the conditions set out in item 3 below.
- 2. The following items are not covered by this warranty:
 - A - Incorrect assembly, use and cleaning;
 - B – Components that show normal wear in regular use, such as, o-rings, gaskets as well as the parts supplied at the kit that comes with the equipment.
- 3. The warranty will be automatically cancelled if or when:
 - A - the equipment is improperly installed, assembled or used;
 - B - the equipment was contains non-original parts or components;
 - C - the equipment was not used in accordance with the procedures described in our operator's manual provided with all our products.
 - D - there has occurred any maltreatment such as damage, impact, dropping, bumping or if there are holes in the tank;
 - F - fuel or lubricating oils with different characteristics to our recommendations have been used;

- G - repairs have been made by any person or entity not authorized by Clarke;
- H - there has been any violation of the internal or external original features;
- I - used by non-qualified persons;
- J - there has been negligence in the corrective or preventive maintenance;
- K - the equipment has undergone changes that affect its function, stability or safety;
- L - erasures or tampering of the serial number or invoice have occurred.
- 4. This warranty is limited to the repair or replacement of defective parts; no other express or implied warranty is given to the buyer;
- 5. Guarany is not responsible for any damage, loss, inconvenience, or direct or indirect losses that may arise from misuse of its products, or use of harsh or inappropriate chemicals or products not compatible with the components in our equipment (any questions, doubts or concerns regarding these items must be referred to an authorized dealer);
- 6. Claims of missing parts and accessories will be accepted only at the moment of purchase;
- 7. Guarany will provide spare parts for our products – except for Kawasaki engines – for a period of five (5) years from the date on which the factory discontinues the product;
- 8. Guarany reserves the right to make technical changes to improve the product without prior notice.

IMPORTANT:

To allow for claims covered by this Warranty Statement, retain the invoice during the warranty validity period.

18. WARRANTY STATEMENT KAWASAKI

EMISSION CONTROL SYSTEM WARRANTY STATEMENT

This warranty statement outlines the emission warranty coverage provided by Kawasaki Heavy Industries, Ltd. (hereinafter "Kawasaki") for small off-road engines sold in the U.S. and its territories, as well as the 13 provinces and territories of Canada. This warranty statement is divided into two parts. Part I warrants that a new Kawasaki small off-road engine complies with U.S. EPA and Environment Canada emissions regulations. Part II warrants that a new Kawasaki small off-road engine certified for sale in California also complies with the State of California's emissions regulations.

Part I: United States and Canada

Your Warranty Rights and Obligations

Your new small off-road engine must be designed, built and equipped to meet the U.S. EPA emission standards for small off-road engines with maximum engine power at or below 19 kilowatts or an engine displacement less than 1 liter. Kawasaki must warrant the emission control system on your small off-road engine for the period of time listed below, provided there has been no abuse, neglect, or improper maintenance of your small off-road engine.

Where a warrantable condition exists, CLARKE MOSQUITO CONTROL PRODUCTS, INC. (hereinafter "CLARKE") repair your small off-road engine at no cost to you including diagnosis, parts, and labor. Your emission control system may include such parts as the carburetor or fuel injection system, the ignition system, and catalytic converter. Also included may be hoses, connectors, and other emission-related assemblies.

For a list of the emission control system parts covered under this warranty, please contact your nearest CLARKE Dealer or contact CLARKE directly at 1-800-323-5725 or customercare@clarke.com.

Warranty Coverage

Kawasaki warrants to the original retail purchaser, and each subsequent purchaser, that the small off-road engine, including all parts of its emission control system, is:

1. designed, built, and equipped to conform to the U.S. EPA and Environment Canada emission standards at the time of sale to the original retail purchaser; and
2. free from defects in materials and workmanship that may keep it from meeting the requirements under these emission standards.

This warranty begins on the date the small off-road engine is delivered to the original retail purchaser and extends for a period of two (2) years. This warranty covers all components whose failure would increase the emissions of any regulated pollutant. This warranty does not cover components whose failure would not increase the engine's emissions of any regulated pollutants.

Owner's Warranty Responsibility

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

As the small off-road engine owner, you should, however, be aware that Kawasaki may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

You are responsible for presenting your small off-road engine to a CLARKE dealer as soon as a problem exists. The emission related warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your emission warranty rights and responsibilities, you should contact:
CLARKE MOSQUITO CONTROL PRODUCTS, INC.
159 N. GARDEN AVENUE, ROSELLE, IL 60172 USA
Telephone: 1-800-323-5725 | customercare@clarke.com

To Obtain Warranty Service

You must, at your own expense, take your Kawasaki small off-road engine or the product on which it is installed, along with proof of original purchase date, to any CLARKE Dealer who is authorized by CLARKE to sell and service that CLARKE product during the Dealer's normal business hours. Claims for repair or adjustments found to be caused solely by defects in material or workmanship will not be denied because the engine was not properly maintained and used.

If however, you reside more than 100 miles from an authorized service center in the contiguous states, excluding certain high-altitude areas, CLARKE will 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. If you are unable to obtain emission warranty service or are dissatisfied with the warranty service you received, contact the owner of the dealership involved. However, if you require further assistance, contact CLARKE directly via the contact information above.

Exclusions

Failures other than those resulting from defects in material or workmanship are not covered by this warranty. This warranty does not extend to emission control systems and parts that are affected or damaged by owner abuse, misuse, neglect, improper maintenance or repairs, misfueling, improper storage, collision, the use of unsuitable attachments, or the unauthorized alteration of any part.

This warranty does not cover replacement of parts or other services and adjustments necessary for required maintenance at and after the first scheduled replacement point.

Disclaimer of Consequential Damages and Limitation of Implied Warranties

Kawasaki Heavy Industries, Ltd. disclaims responsibility for incidental or consequential damages such as loss of time or the use of the power equipment, or any commercial loss due to the failure of the equipment; and any implied warranties are limited to the duration of this written warranty. This warranty is applicable only where the California, U.S. EPA, or Environment Canada emission control system warranty regulation is in effect.

Part II: CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT

Your Warranty Rights and Obligations

The California Air Resources Board and Kawasaki are pleased to explain the emission control system warranty on your model year 2017/2018 small off-road engine. In California, new small off-road engines must be designed, built, and equipped to meet the State's stringent anti-smog standards. Kawasaki must warrant the emission control system on your small off-road engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your small off-road engine.

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

Where a warrantable condition exists, CLARKE will repair your small off-road engine at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

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

Owner's Warranty Responsibility

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

As the small off-road engine owner, you should however be aware that Kawasaki may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

You are responsible for presenting your small off-road engine to a CLARKE distribution center as soon as a 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 rights and responsibilities, you should contact:
CLARKE MOSQUITO CONTROL PRODUCTS, INC.
159 N. GARDEN AVENUE, ROSELLE, IL 60172 USA
Telephone: 1-800-323-5725 | customercare@clarke.com

General Emissions Warranty Coverage

Kawasaki warrants to the ultimate purchaser and each subsequent purchaser that the small off-road engine is:

1. designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board pursuant to its authority in Chapters 1 and 2, Part 5, Division 26 of the Health and Safety Code; and
2. free from defects in materials and workmanship that cause the failure of a warranted part to be identical in all material respects to the part as described in Kawasaki's application for certification.

The warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser or first placed into service. The equipment or engine owner will not be charged for diagnostic labor that is directly associated with diagnosis of a defective, emission-related warranted part, provided that such diagnostic work is performed at a CLARKE warranty station.

Engine parts outlined in the Periodic Maintenance Chart found in the Owner's Manual provided with this engine, are warranted as follows:

1. Any warranted part that is not scheduled for replacement as required maintenance in the Periodic Maintenance Chart, is warranted for the warranty period stated above. If any such part fails during the warranty period, the part will be repaired or replaced by CLARKE at no charge to the owner provided the repair or replacement is performed at a warranty station. Any such part repaired or replaced under the warranty will be warranted for the remaining warranty period.
2. Any warranted part that is scheduled only for regular inspection in the Periodic Maintenance Chart 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 the Periodic Maintenance Chart 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 CLARKE at no charge to the owner provided the repair or replacement is performed at a warranty station. 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.

Kawasaki is liable for damages to other engine components proximately caused by a failure under warranty of any warranted part.

Throughout the engine's warranty period defined above, CLARKE will maintain a supply of warranted parts sufficient to meet the expected demand for such parts. Any replacement part may be used in the performance of any warranty maintenance or repairs and will be provided without charge to the owner. Such use will not reduce the warranty obligations of CLARKE.

Add-on or modified parts, as defined in Section 1900(b)(1) and (b)(10), Title 13, 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 claim made in accordance with this article. Kawasaki will not be liable under this article to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

To Obtain Warranty Service

Notwithstanding the provisions herein, warranty services or repairs will be provided at all CLARKE distribution centers that are franchised to service the subject engines.

You must, at your own expense, take your Kawasaki small off-road engine or the product on which it is installed, along with proof of original purchase date, to any CLARKE Dealer who is authorized by CLARKE to sell and service that CLARKE product during the Dealer's normal business hours. Claims for repair or adjustments found to be caused solely by defects in material or workmanship will not be denied because the engine was not properly maintained and used.

If you are unable to obtain emission warranty service or are dissatisfied with the warranty service you received, contact the owner of the dealership involved. However, if you require further assistance, contact the CLARKE office in your region:
CLARKE MOSQUITO CONTROL PRODUCTS, INC.
159 N. GARDEN AVENUE, ROSELLE, IL 60172 USA
Telephone: 1-800-323-5725 | customercare@clarke.com

Exclusions

- (1) The repair or replacement of any warranted part otherwise eligible for warranty coverage as stated above may be excluded from such warranty coverage if CLARKE 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.
- (2) CLARKE warrants your engine only for the warranty period specified above.
- (3) Except as provided above, any adjustment of a component that has a factory installed, and properly operating, adjustment limiting device (such as an idle limiter cap or plug) is eligible for warranty coverage as stated above.

Disclaimer of Consequential Damage and Limitation of Implied Warranties:

Kawasaki Heavy Industries, Ltd. disclaims responsibility for incidental or consequential damages such as loss of time or the use of the power equipment, or any commercial loss due to the failure of the equipment; and any implied warranties are limited to the duration of this written warranty. This warranty is applicable only where the California, U.S. EPA, or Environment Canada emission control system warranty regulation is in effect.

Warranted Parts List:

The following is the emission warranty parts list for your small off-road engine:

(i) Fuel Metering System

- (A) Carburetor and internal parts (and/or pressure regulator or fuel injection system)
- (B) Cold start enrichment system
- (C) Intake valve(s)

(ii) Air Induction System

- (A) Intake manifold
- (B) Air filter

(iii) Ignition System

- (A) Spark plugs
- (B) Magneto or electronic ignition system
- (C) Spark advance/retard system
- (D) Ignition coil and/or control module

(iv) Lubrication System

- (A) Oil pump and internal parts

(v) Positive Crankcase Ventilation (PCV) System

- (A) PCV valve
- (B) Oil filler cap

(vi) Catalyst or Thermal Reactor System

- (A) Catalytic converter
- (B) Exhaust manifold
- (C) Exhaust valve(s)

(vii) Miscellaneous Items Used in Above Systems

- (A) Hoses, clamps, fittings, tubing, sealing gaskets or devices, and mounting hardware
- (B) Pulleys, belts and idlers
- (C) Vacuum, temperature, check, and time sensitive valves and switches
- (D) Electronic Controls

Emissions related parts may vary from model to model. Certain models may not contain all of those parts and certain models may contain functionally equivalent parts.