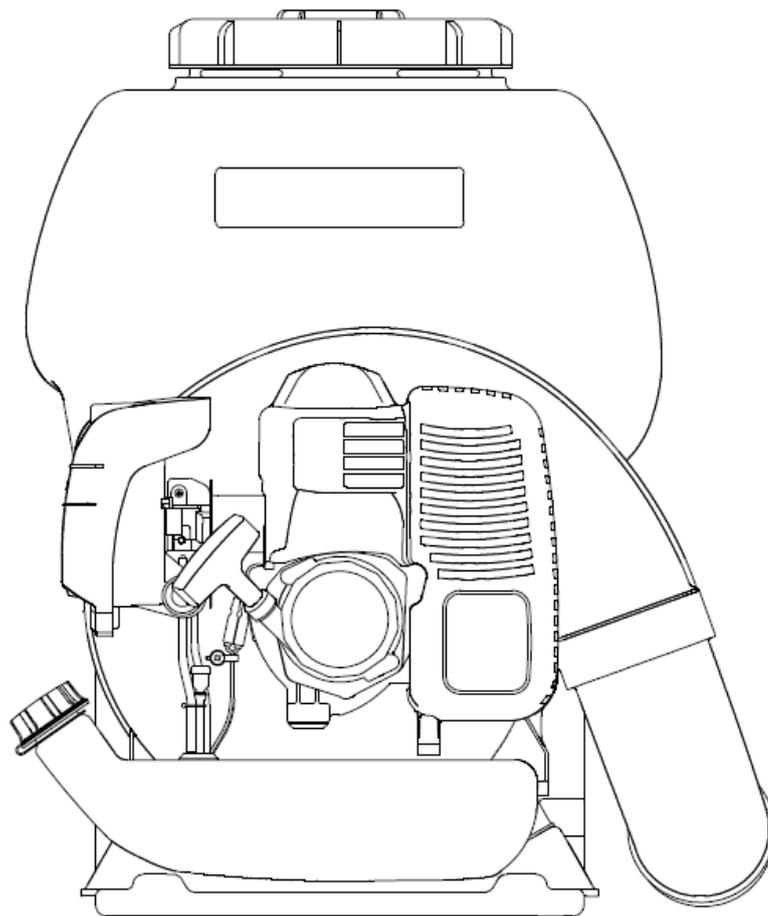


MARUYAMA

OWNER'S/OPERATOR'S MANUAL
MANUAL DEL PROPIETARIO U OPERADOR

Mister

MM91



Premium Outdoor Power Equipment



MARUYAMA *Extraordinary.*

Completely read and understand this manual prior to using this product.

Lisez et assimilez la totalité de ce manuel avant d'utiliser cet appareil.

Lea y entienda este manual a fondo, antes de usar este aparato.



MARUYAMA

WARNING

This Mister is used a powered machine appropriate to spray chemicals for blight or harmful insect on farm house, garden trees, general farm crops, etc. by means of a high velocity air flow.

Under no circumstances may the design of the machine be modified without the permission of the manufacturer. Always use genuine accessories and parts. Non-authorized modifications and/or accessories or parts can result in serious personal injury or death of the operator or others.

Limited Warranty Statement

All Maruyama products are warranted to the original purchaser to be free from defects in materials and workmanship **from the date of purchase** for the time periods listed as follows:

Lifetime for solid steel driveshaft and ignition coils.

5 years for qualified IRON 5-YR™ commercial, institutional, or industrial use.

2 years for residential and commercial use with competitor's oil.

90 days for rental use.

Engine - Refer to engine manufacturer's warranty statement. Only Maruyama engines are covered by this limited warranty statement.

This warranty will be in full effect provided the engine is operated for the initial 80 hour optimization period using Maruyama Premium 2-Stroke oil. After the optimization period the engine should always be run with either Maruyama Premium 2-Stroke oil or equivalent ISO-LEGD & JASO FC 2-Stroke oil.

Any part of a Maruyama product found to be defective within the applicable warranty period shall, at Maruyama's option, be repaired or replaced without charge. Warranty consideration is obtained by delivering any Maruyama product believed to be defective to an Authorized Maruyama Service Dealer within the applicable warranty period.

The purchaser shall not be charged for diagnostic labor that leads to the determination that a warranted part is defective, if the diagnostic work is performed at a Maruyama Dealer.

Any warranted part which is not scheduled for replacement as required maintenance, or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" shall be warranted for the warranty period. Any warranted part, which is scheduled for replacement as, required maintenance shall be warranted for the period of time up to the first scheduled replacement point for that part.

Maruyama Mfg. Co., Inc. is liable for damages to other engine components caused by the failure of a warranted part still under warranty. The purchaser is responsible for the performance of the required maintenance, as defined by Maruyama Mfg. Co., Inc. in the Owner's/Operator's Manual.

EMISSION-RELATED PARTS WARRANTY: In addition to the above warranty coverage, Maruyama Mfg. Co., Inc. will repair or replace, free of charge, for the original purchaser and each subsequent purchaser any emission-related part or parts found to be defective in material and workmanship for five (5) years from original retail delivery date. Emission-related are the carburetor assembly, the ignition coil assembly, the ignition rotor, the spark plug, the catalytic converter and the fuel tank. Any replacement part that is equivalent in performance and durability may be used in non-warranty maintenance or repairs, and shall not reduce the warranty obligation of Maruyama Mfg. Co., Inc.

DISCLAIMER OF IMPLIED WARRANTIES

This limited warranty is in lieu of all other expressed or implied warranties, including any warranty of FITNESS FOR A PARTICULAR PURPOSE OR USE and any implied warranty of MERCHANTABILITY otherwise applicable to this product. Maruyama U.S. Inc. and its affiliate companies shall not be liable for any special incidental or consequential damage, including lost profits. There are no warranties extended other than as provided herein. Only Maruyama U.S. Inc may modify this limited warranty.

This warranty does not cover the following:

1. Maintenance items (excluding defects in materials and workmanship) including hoses, spark plugs, starter rope, air and fuel filters, clutch shoes, vibration isolators, throttle cable and all cutting attachments.
2. Extra expenses including shipping and handling, travel, payment for lost time or pay and for any inconvenience and storage.
3. Alterations or modifications including aftermarket parts not authorized by Maruyama.
4. Wear, accident, abuse, neglect, misuse, negligence, improper fuels, lubricants, fuel mixtures (when applicable), or failure to operate or maintain the product in accordance with instructions approved by Maruyama.

Repair or replacement as provided under this warranty is the exclusive remedy of the consumer. Maruyama shall not be liable for any incidental or consequential damages for breach of any express or implied warranty on these products except to the extent prohibited by applicable law. Any implied warranty of merchantability or fitness for a particular purpose on these products is limited in duration to the warranty period as defined in the limited warranty statement. Maruyama reserves the rights to change or improve the design of the product without notice and does not assume obligation to update previously manufactured products.

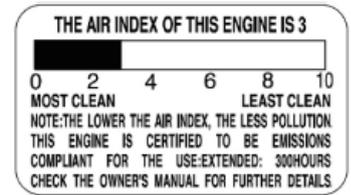
This warranty provides you with specific legal rights, which may vary from state to state. It is the Owner's and Dealer's responsibility to make sure the Warranty Registration Card is properly filled out and mailed to Maruyama U.S., Inc. Proof of purchase and registration will be required in order to obtain warranty service.

To locate an Authorized Maruyama Servicing Dealer nearest you, contact:

Maruyama U.S., Inc.
4770 Mercantile Drive, Suite100,
Fort Worth, TX 76137 U.S.A.
(940)383-7400
maruyama@maruyama-us.com
www.maruyama-us.com

⚠ WARNING ⚠

Operating, servicing and maintaining this product can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, service equipment in a well-ventilated area and wear gloves or wash your hands frequently when servicing this equipment. For more information, visit on the web at www.P65warnings.ca.gov.



MM91

FEDERAL EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

The U.S. Environmental Protection Agency (EPA) and Maruyama Manufacturing Company, Inc. are pleased to explain the emission control system warranty on your small off-road engine. New 1997 and later model year small off-road engines must be designed, built and equipped, at the time of sale, to meet the U.S. EPA regulations for small off-road engines. The equipment engine must be free from defects in materials and workmanship which cause it to fail to conform with U.S. EPA standards for the first 5 years of engine use from the date of sale to the ultimate purchaser. Maruyama Manufacturing Company, Inc. must warrant the emission control system on your small off-road engine for the period of time listed above provided there has been no abuse, neglect or improper maintenance of your small off-road engine.

Emission durability of 300 hours.

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

Where a warrantable condition exists, Maruyama Manufacturing Company, Inc. will repair your small off-road engine at no cost to you, including diagnosis (if the diagnostic work is performed at an authorized dealer), parts, and labor.

MANUFACTURER'S WARRANTY COVERAGE:

The 1997 and later model year small off-road engines are warranted for 5 years. If any emission-related part on your engine is defective, the part will be repaired or replaced by Maruyama Manufacturing Company, Inc. free of charge.

OWNER'S WARRANTY RESPONSIBILITIES:

- As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. Maruyama Manufacturing Company, Inc. recommends that you retain all receipts covering maintenance on your small off-road engine, but Maruyama Manufacturing Company, Inc. cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance. Any replacement part or service that is equivalent in performance and durability may be used in non-warranty maintenance or repairs, and shall not reduce the warranty obligations of the engine manufacturer.
- As the small off-road engine owner, you should be aware, however, that Maruyama Manufacturing Company 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 Maruyama Manufacturing Company, Inc. service 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 Maruyama U.S., Inc. at **1-866-783-7400**, or warranty@maruyama-us.com.

COVERAGE

Maruyama Manufacturing Company, Inc. warrants to the ultimate purchaser and each subsequent purchaser that your small off-road engine will be designed, built and equipped, at the time of sale, to meet all applicable regulations. Maruyama Manufacturing Company, Inc. also warrants to the initial purchaser and each subsequent purchaser that your small off-road engine is free from defects in materials and workmanship which cause the engine to fail to conform with applicable regulations for a period of 5 years.

The 1997 and later model years, EPA requires manufacturers to small off-road engines for 5 years. These warranty periods will begin on the date the small off-road engine is purchased by the initial purchaser. If any emission-related part on your engine is defective, the part will be replaced by Maruyama Manufacturing Company, Inc. at no cost to the owner.

Maruyama Manufacturing Company, Inc. shall remedy warranty defects at any authorized Maruyama Manufacturing Company, Inc. engine dealer or warranty station. Any authorized work done at an authorized dealer or warranty station shall be free of charge to the owner if such work determines that a warranted part is defective. Any manufacturer-approved or equivalent replacement part may be used for any warranty maintenance or repairs on emission-related parts, and must be provided free of charge to the owner if the part is still under warranty, Maruyama Manufacturing Company, Inc. is liable for damages to other engine components caused by the failure of a warranted part still under warranty.

EPA considers emission-related warranted parts to include all the parts listed below. These warranted parts are: the carburetor assembly, the ignition coil assembly, the ignition rotor, the spark plug, the catalytic converter, and the fuel tank.

MAINTENANCE REQUIREMENTS

The owner is responsible for the performance of the required maintenance as defined by the Maruyama Manufacturing Company, Inc. in the owner's manual.

LIMITATIONS

This Emission Control System Warranty shall not cover any of the following:

- (a) repair or replacement required because of misuse or neglect, lack of required maintenance, repairs improperly performed or replacements not conforming to Maruyama Manufacturing Company, Inc. specifications that adversely affect performance and/or durability, and alterations or modifications not recommended or approved in writing by Maruyama Manufacturing Company, Inc., and
- (b) replacement of parts and other services and adjustments necessary for required maintenance at and after the first scheduled replacement point.

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board and Maruyama Manufacturing Company, Inc. are pleased to explain the exhaust and evaporative emissions ("emissions") control system warranty on your 2021 small off-road engine. In California, new equipment that use small off-road engines must be designed, built, and equipped to meet the State's stringent anti-smog standards. Maruyama Manufacturing Company, Inc. must warrant the emissions 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 or equipment leading to the failure of the emissions control system.

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

The evaporative emission warranty parts list shall include all parts whose failure would increase evaporative emissions, and may contain, but is not limited to, the following parts: Fuel Tank, Fuel Cap, Fuel Lines (for liquid fuel and fuel vapors), Fuel Line Fittings, Pressure Relief Valves, Control Valves, Vacuum Control Diaphragms, Purge Valves, Carburetor Purge Port Connector.

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

MANUFACTURER'S WARRANTY COVERAGE:

The exhaust and evaporative emissions control system on your small off-road engine is warranted for 5 years. If any emissions-related part on your small off-road engine is defective, the part will be repaired or replaced by Maruyama Manufacturing Company, Inc.

OWNER'S WARRANTY RESPONSIBILITIES:

- (a) As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. Maruyama Manufacturing Company, Inc. recommends that you retain all receipts covering maintenance on your small off-road engine, but Maruyama Manufacturing Company, Inc. cannot deny warranty coverage solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- (b) As the small off-road engine owner, you should however be aware that Maruyama Manufacturing Company, Inc. may deny you warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, or improper maintenance or unapproved modifications.
- (c) You are responsible for presenting your small off-road engine to a Maruyama Manufacturing Company, Inc. distribution center or service center as soon as the problem exists. The warranty repairs shall be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact Maruyama U.S., Inc. at **1-866-783-7400**, or warranty@maruyama-us.com.

The **evaporative** emission warranty parts list shall include all parts whose failure would increase evaporative emissions, and may contain, but is not limited to, the following parts:

- | | |
|--|-------------------------------------|
| (1) Fuel Tank | (6) Control Valves |
| (2) Fuel Cap | (7) Vacuum Control Diaphragms |
| (3) Fuel Lines (for liquid fuel and fuel vapors) | (8) Purge Valves |
| (4) Fuel Line Fittings | (9) Carburetor Purge Port Connector |
| (5) Pressure Relief Valves | |

The exhaust emission warranty parts list shall include all parts whose failure would increase exhaust emissions, and may contain, but is not limited to, the following parts:

- | | |
|--------------------------------------|--|
| (1) Fuel Metering System | (6) Spark Plug |
| (A) Carburetor and internal parts | (7) Magneto or electronic ignition system |
| (2) Cold start enrichment system | (8) Spark advance/retard system |
| (3) Controlled hot air intake system | (9) Exhaust Gas Recirculation (EGR) System |
| (4) Air filter | (10) EGR valve body, and carburetor spacer if applicable |
| (5) Ignition System | (11) Air pump or pulse valve. |

TABLE OF CONTENTS

FOREWORD	4	OPERATING INSTRUCTIONS.....	9
Warning label.....	4	MAINTENANCE.....	11
ASSEMBLY INSTRUCTIONS	6	STORAGE.....	14
BEFORE OPERATION.....	7	SPECIFICATIONS.....	14

FOREWORD

This Owner's/Operator's Manual is designed to familiarize the operator with the various features and component parts of the equipment and to assist you with the assembly, operation and maintenance of your new Mister.

It is essential that any operator of this Mister product reads and understands the contents of this manual before using the Mister.

Important safety instructions will be identified by the following safety symbol:



Failure to comply with the instructions in this manual may result in serious injury or death.

For additional assistance, contact any local authorized Maruyama dealer or Maruyama U.S., Inc., 4770 Mercantile Drive, Suite 100, Fort Worth, TX 76137 U.S.A.

Phone : 940-383-7400

Web : www.maruyama-us.com

MANUAL SAFETY SYMBOLS

Throughout this manual and on the product itself, you will find safety alerts and helpful, information message preceded by symbols or key words. The following is an explanation of those symbols and key words and what they mean to you.

	<p>This symbol accompanied by the words WARNING and DANGER calls attention to an act or condition that can lead to serious personal injury to operator and bystanders.</p>
--	--

Warning label

- Always remove dirt or mud to make the indications legible.
- The following alarm labels are attached.



Read Owner's/Operator's Manual thoroughly.

Make sure you read the Owner's/Operator's Manual thoroughly prior to use.



Wear protective gear.

Wear protectors such as hat, safety glasses, ear plugs during work.



Cautions for high temperatures

Muffler of engine, fin of cylinder, etc. are at high temperatures. Don't touch them.



Prohibition of fire

Don't put a naked flame close to a place where supplying fuel or doing maintenance.



Cautions for exhaust gas.

Take care not to breathe in exhaust gas from the engine.



WARNING

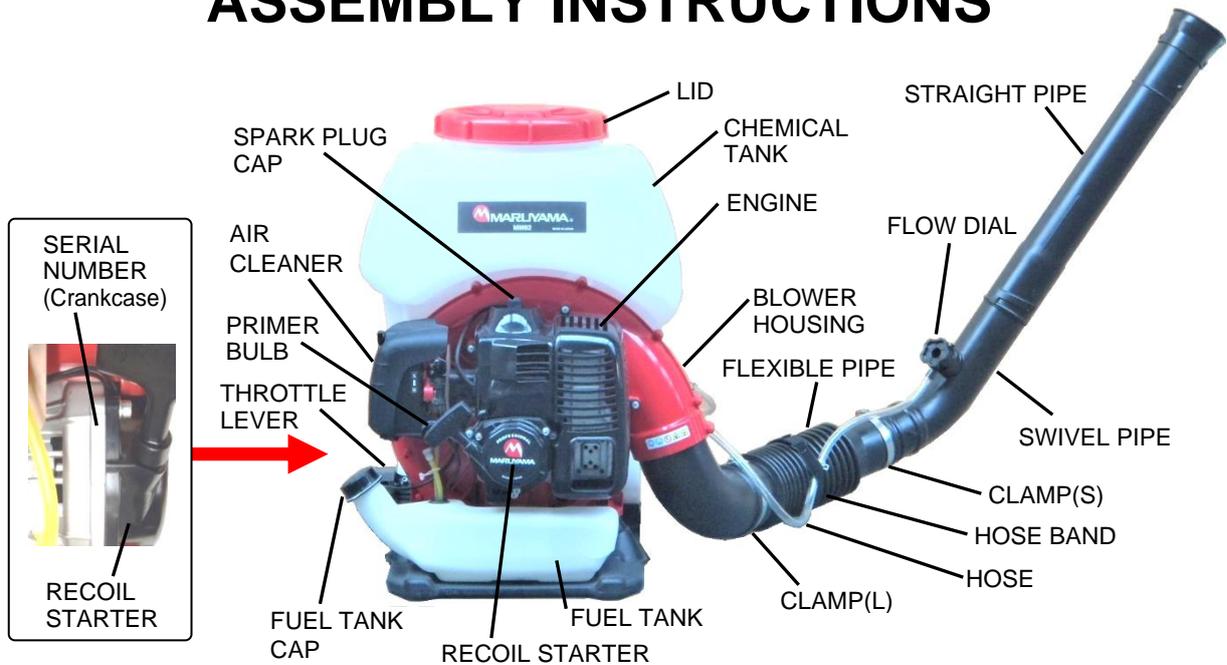


1. Read and understand this Owner's/Operator's Manual before using the this product. Be thoroughly familiar with the proper use of the this product.
2. Never allow children to operate this product. It is not a toy. Never allow adults to operate the unit without first reading the Owner's / Operator's Manual.
3. Become familiar with the controls and know how to stop the engine quickly.
4. Always use eye protection and hearing protection.
5. Keep the area of operation clear of all persons, particularly small children and pets.
6. Do not point the pipe in the direction of people or pets.
7. Never operate a product when you are fatigued, sickness, intoxicated, and pregnant.
8. Never operate a product without proper guards or other protective safety devices in place.
9. Dress properly; do not wear loose clothing or jewelry that can be caught in moving parts. Always wear substantial footwear, long pant, and long sleeved shirt.
10. Gasoline is highly flammable; handle it carefully.
 - A. Do not smoke while handling gasoline.
 - B. Use an approved fuel container for storing the gasoline/oil mixture.
 - C. Do not fill the fuel tank when the engine is hot or running
 - D. Fill the fuel tank outdoors and only up to one-half inch from the top of the tank. Do not fill the filler neck.
 - E. Wipe away any spilled gasoline before starting the engine.
11. Always be sure of your footing; keep a firm hold of the blower pipes, and walk, never run while operating a Mister.
12. Use the correct accessories. Do not use the product for any job except that for which it is intended.
13. Keep all fasteners tight and be sure the Mister is in safe working condition. Follow the maintenance instructions provided on page 8 - 10 of this manual.
14. Do not put hands or feet near or under the rotating parts. Keep clear at all times.
15. If this product should start to vibrate abnormally, stop the engine immediately and check for the cause. Vibration is generally a warning of trouble.
16. Avoid using this product near rocks, gravel, stones and similar matter in order to avoid dangerous flying debris.
17. Use this product only in daylight or good artificial light.
18. Do not allow bystanders in work area.
19. Do not operate without guard(s) in place.
20. Do not operate in unventilated area.
21. To reduce the risk of injury associated with the inhalation of dust, use a face filter mask in dusty conditions.
22. To reduce the risk of injury associated with contacting rotating part, stop the engine before installing or removing attachments.
23. To reduce the risk of fire and burn injury:
 - Move at least 10ft (3m) away from the fueling point before starting engine.
 - Always store gasoline in approved container.

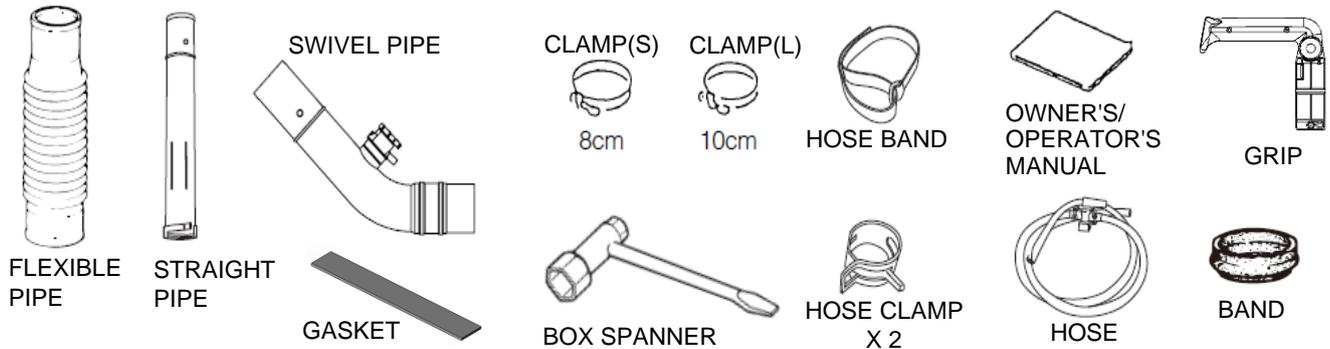
Operating techniques

- A. Operate power equipment only at reasonable hours - not early in the morning or late at night when people might be disturbed. Comply with times listed in local ordinances. Usual recommendations are 9:00 am. to 5:00 p.m., Monday through Saturday.
- B. To reduce noise levels, limit the number of pieces of equipment used at any one time.
- C. To reduce noise levels, operate this product at the lowest possible throttle speed to do the job.
- D. Check your equipment before operation, especially the muffler, air intakes, and air filters.
- E. Use rakes and brooms to loosen debris before blowing.
- F. In dusty conditions, slightly dampen surfaces when water is available.
- G. Conserve water by using this product instead of hoses for many lawn and garden applications, including areas such as gutters, screens, patios, grills, porches, and gardens.
- H. Watch out for children, pets, open windows, or freshly washed cars, and blow debris safely away.
- I. Use the full blower nozzle extension so the air stream can work close to the ground.
- J. After using this product and other equipment, CLEAN UP! Dispose of debris in trash receptacles.

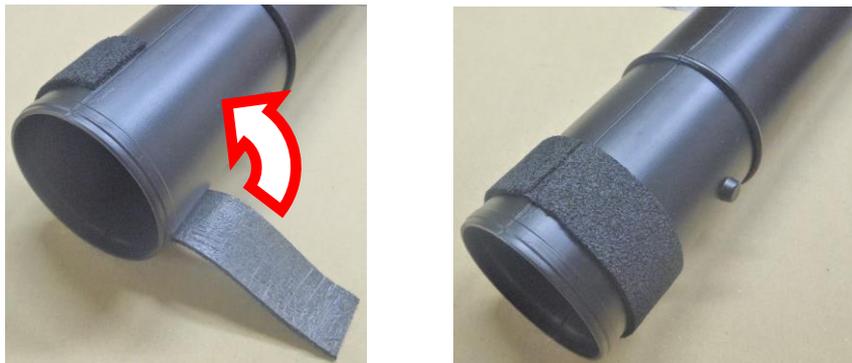
ASSEMBLY INSTRUCTIONS



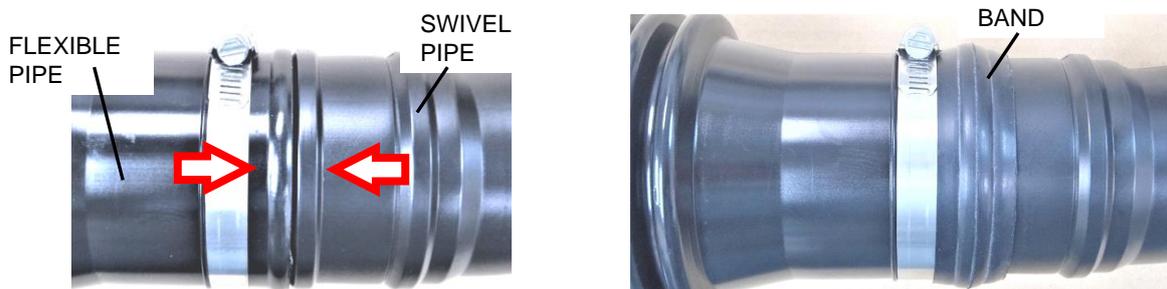
STEP #1) Locate and identify all the components (see sketch).



STEP #2) Attach the gasket to the SWIVEL PIPE. Peel off the gasket paper and attach it to the SWIVEL PIPE as shown in the figure.

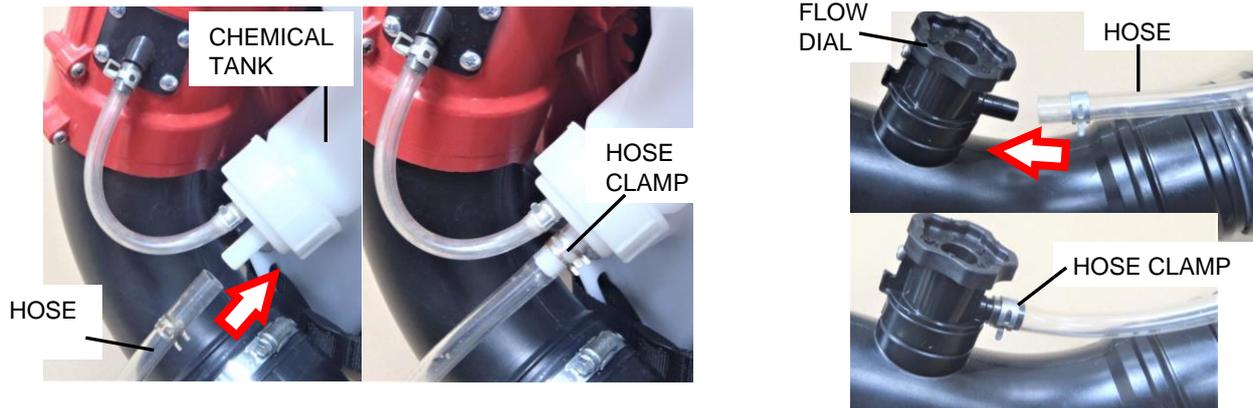


STEP #3) With a flat head screwdriver, use a CLAMP(L) to connect the FLEXIBLE PIPE to the BENT PIPE. Next, using a CLAMP(S), insert the swivel pipe completely into the flexible pipe. Tighten with screwdriver. Then put the band on the seams.



STEP #4) Assemble the STRAIGHT PIPE to the swivel pipe (see sketch).

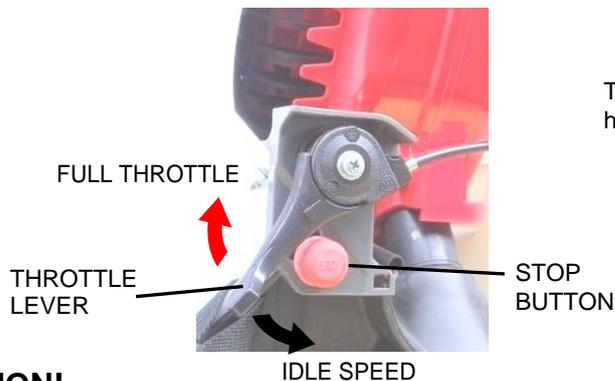
STEP #5) Connect the Hose to the Flow Dial and Chemical tank. (see sketch)



BEFORE OPERATION

Be sure the Mister is correctly assembled and all fasteners and fittings are properly secured.

THROTTLE LEVER



The lowest position of lever is "IDLE" setting, and the highest position is the "FULL THROTTLE" setting.

CAUTION!

1. Shutting Engine Off

Before shutting the engine off, allow it to idle for a short while.

- Never stop the engine by closing the choke.
- Never stop the engine during operation while running above idle speed.

2. Transporting and Storage

- Shut off the engine and allow it to cool before transporting or storing the unit.
- Do not put the unit on dry grass or near any flammable object unless the engine is cold or cooled down.

Chemicals

- Read the labels of chemicals to be used carefully and understand the method of use and cautions. Use the chemicals directly after opening the package. Chemicals left for a long time after the package is open may cause poor discharging due to moisture absorption.
- Mistaking the discharge quantity or category of chemicals may cause damage.
- Do not leave the chemicals in the chemical tank for a long time. The machine might malfunction.
- Store chemicals in a safe place, and be careful not to break open their containers during transportation.
- Treat chemical containers to ensure safety.
- Dispose the used chemical or fertilizer bags in a manner that will not cause injury.
- Pay attention to the handling of chemicals and fertilizer. If a chemical enters into eye or mouth, wash it off with water immediately. If you feel ill, see a doctor immediately.
- According to wind direction, change the discharging method to protect workers and houses. When discharging chemicals, work from upwind to downwind. Also give consideration to prevent chemicals from drifting or scattering on crops, enclosures, fish-breeding ponds, and houses nearby.
- When preparing chemicals, prepare the necessary amount only in accordance with the established spraying plan. If too much chemicals are left over, action is difficult.

RECOMMENDED FUEL TYPE

Use clean, fresh lead-free gasoline, including oxygenated or reformulated gasoline, with an octane rating of 85 or higher. To ensure freshness, purchase only the quantity of gasoline that can be used in 30 days. Use of lead-free gasoline results in fewer combustion chamber deposits and longer spark plug life. Use of premium grade fuel is not necessary or recommended.

CAUTION!

IMPORTANT: Never use methanol, gasoline containing methanol, gasohol containing more than 10% ethanol, premium gasoline, or white gas because engine fuel system damage could result.

Do not use fuel additives other than those manufactured for fuel stabilization during storage such as MARUYAMA's stabilizer/conditioner or a similar product.

MARUYAMA's stabilizer/conditioner is a petroleum distillate based conditioner/stabilizer.

MARUYAMA does not recommend stabilizers with an alcohol base such as ethanol, methanol or isopropyl. Additives should not be used to try to enhance the power or performance of machine.

FUEL: MIXING GASOLINE AND OIL

CAUTION! The engine used on this Mister is of a 2-stroke design. The internal moving parts of the engine, i.e., crankshaft bearings, piston pin bearings and piston to cylinder wall contact surfaces, require oil mixed with the gasoline for lubrication. Failure to add oil to the gasoline or failure to mix oil with the gasoline at the appropriate ratio will cause major engine damage which will void your warranty. For your fuel premix, only use Maruyama 50:1 2-Stroke Oil or quality oil designed for 2-stroke air-cooled engine.

WARNING	
Gasoline is extremely flammable and can be explosive under certain conditions. Turn the engine switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks : this includes any appliance with a pilot light.	

FUEL MIXTURE: When using genuine Maruyama 50:1 2-Stroke Oil, or a quality oil designed for 2- stroke air-cooled engines, oil ratio is 50 parts gasoline to 1 part oil or 50:1.

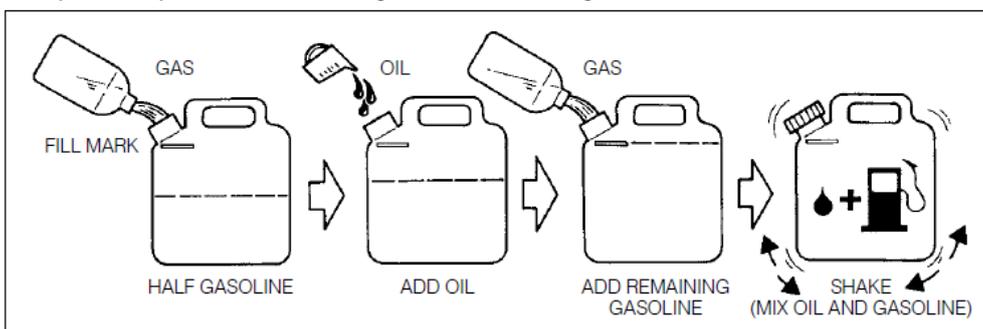
Gasoline	50:1 two-stroke oil
1 gallon	2.6 oz.
2 gallons	5.1 oz.
5 gallons	12.8 oz.

CAUTION! If Maruyama brand oil is not used, never use a mixing ratio less than 50:1 regardless of the oil package mixing instructions.

Ratios less the 50:1, (for example, 60:1, 80:1, 100:1), reduce the amount of lubrication to the internal moving parts of the engine and can cause damage.

1 liter	20mL
5 liters	100mL

MIXING INSTRUCTIONS: Always mix fuel and oil in a clean container approved for gasoline. Mark the container to identify it as fuel mix for the Mister. Use regular unleaded gasoline and fill the container with half the required amount of gasoline. Pour the correct amount of oil into the container then add the remaining amount of gasoline. Close the container tightly and shake it momentarily to evenly mix the oil and the gasoline before filling the fuel tank on the Mister.



When refilling the Mister fuel tank, clean around the fuel tank cap to prevent dirt and debris for entering the tank during cap removal. Always shake the premix fuel container momentarily before filling the fuel tank.

Always use a spout or funnel when fueling to reduce fuel spillage. Only fill the tank to within 1/2 inch from the top of the tank. Avoid filling to the top of the tank filler neck.

NOTE:

1. Never mix gasoline and oil directly in the Mister fuel tank.

CAUTION!

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

OPERATING INSTRUCTIONS

STARTING PROCEDURE

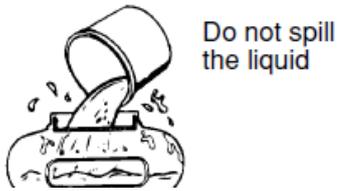
STEP #1)

Move the "FLOW DIAL" to the "0" position.



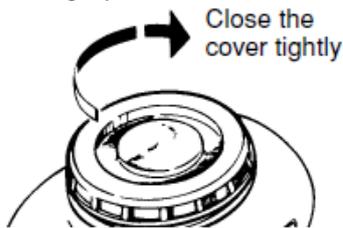
STEP #2)

Pour chemical into the chemical tank.



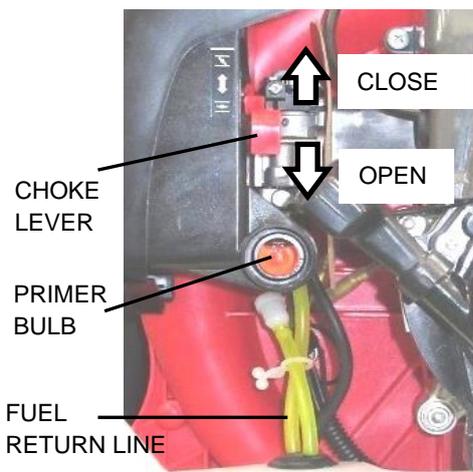
STEP #3)

Close the lid tightly.



STEP #4)

Move the "CHOKE LEVER" fully upward to the closed position. If the engine is already warm, only a partial or open (no choke) choke setting may be required.

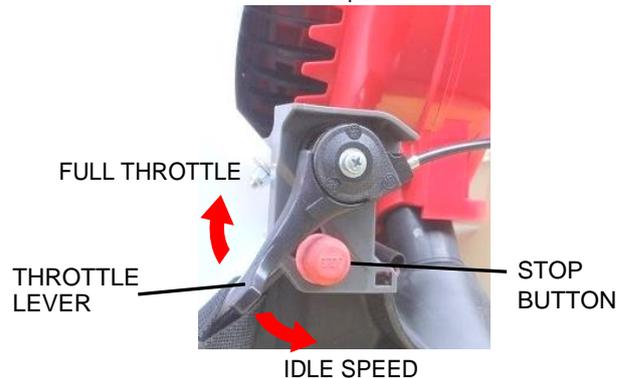


STEP #5)

Move the "CHOKE LEVER" fully upward to the closed position. If the engine is already warm, only a partial or open (no choke) choke setting may be required.

STEP #6)

Set the THROTTLE LEVER at 1/2 speed.



STEP #7)

Press down the "LID" and hold the "FRAME" with your right foot gently.

Pull the "STARTER GRIP" briskly to start the engine.

NOTE: Only short pulls are necessary. Never pull the starter cord to its fullest extension. Never let go of the starter grip until it is at the fully returned position.

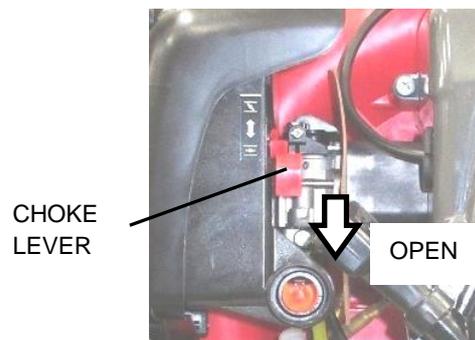


STEP #8)

Warming up the engine.

When the engine has started, slowly move the "CHOKE LEVER" fully downward to the open position.

Allow the engine to "WARM-UP" at less than 1/2 speed.



If a MARUYAMA engine fails to start after following the above procedures, contact an authorized MARUYAMA dealer.

OPERATION

When the engine has warmed-up, the Mister can be positioned on the back of the operator.

When the Mister is positioned and ready for operation, adjust the throttle to a speed required to accomplish the task.

CAUTION

- Avoid using too dense hydrate solution.
- Avoid using highly flammable solutions such as gasoline.

WARNING

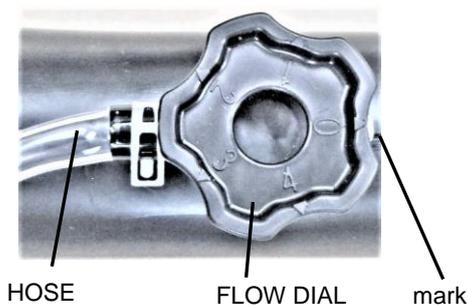
- Never operate a Mister when you are fatigued.
- Never operate a Mister without proper guards or other protective safety devices in place.

WARNING

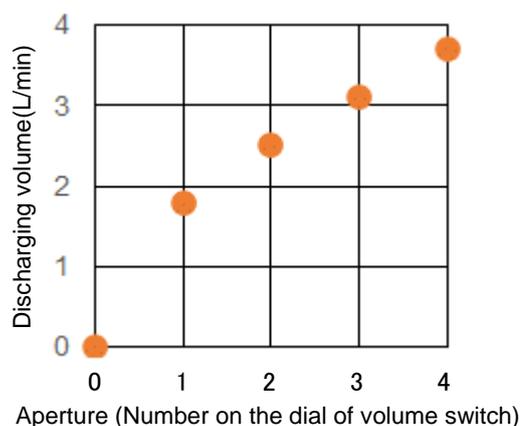
To prevent overheating and engine seizure, cooling air comes from the intake grille of the fan housing and is pushed by the blower fan through an opening in the fan housing over the cylinder fin area, taking away combustion heat. The grille and cylinder fins must be kept clean of grass, dust and any debris. Engine failure due to lack of this "Normal Maintenance" is not covered by warranty.

Adjustment of discharging volume

- Coincide the number on the dial of volume switch with the market.
- Discharging volume will increase accordingly as the number increases.



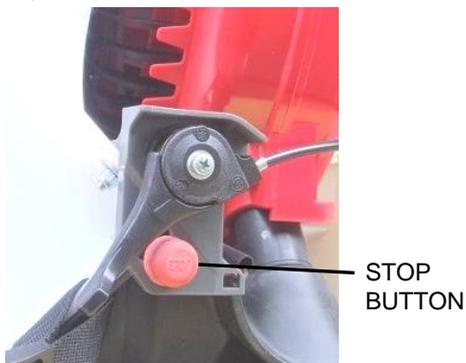
Discharging volume



STOPPING THE ENGINE

Move the "dial" to the "0" position, and stop spraying.

Always run the engine at idle speed for a few minutes to allow cooling before stopping. To stop the engine, press and hold the STOP BUTTON until engine completely stops.



CLEANING THE PRODUCTS

Remove Hose from FLOW DIAL, and discharge chemical from chemical tank.

After recovering the remnant chemical, clean the inside chemical tank using clean water.

ADJUSTMENT

IDLING SPEED ADJUSTMENT

1. Idle speed is the only available adjustment.
2. Do not tamper with the carburetor setting to increase the maximum engine speed.
3. If adjustment is needed, have it performed by your authorized MARUYAMA service dealer.

Carburetor adjustments are made at the factory and are not adjustable without disassembling the carburetor.

MAINTENANCE

Before each use, the Mister should be inspected for proper assembly and fitness of all components. All fasteners should be checked for correct tightness. Always inspect for fuel leaks.



WARNING Do not attempt to start or operate a Mister with a fuel leak.

Maintenance Period

WARNING

Always remove the spark plug cap from spark plug when servicing the engine to prevent accidental starting.

	Maintenance	Daily	Every 20 hours	Every 50 hours	Every 100 hours
	Check and replenish fuel	●			
	Check for fuel leakage	●			
	Check bolts, nuts and screws for tightness or missing	●			
	Check engine idle speed adjustment	●			
■	Clean air filter element		●		
	Check spark plug		●		
■	Check and clean fuel filter		●		
■	Remove dust and dirt from air intake guard		●		
	Tighten bolts and nuts			●	
	Clean spark plug and adjust electrode gap			●	
■	Remove dust and dirt from cylinder fins			●	
●	Remove carbon deposits in exhaust port			●	
●	Clean spark arrester			●	
	Replace air filter				●
	Replace fuel filter				●
	Replace spark plug				●
●	Remove carbon deposits on piston head and combustion chamber				●
●	Check the sliding portion of crankshaft, connecting rod etc.				●
	Replace fuel tube, fuel tank cap gasket	It is recommended to replace every 3 years			

●: Service to be performed by an authorized Maruyama engine dealer.

■: Service more frequently under dusty conditions.

Note:

The service intervals indicated are to be used as a guide.

Service to be performed more frequently as necessary depending on operating condition.

Use Maruyama standard 50:1 2-stroke engine oil.

AIR FILTER

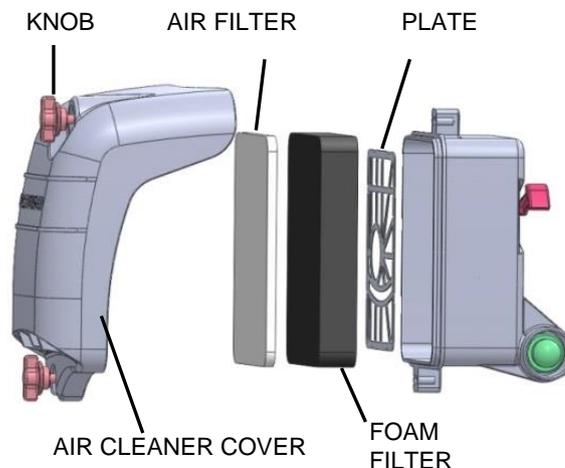
Maintenance Interval

- The air filter should be cleaned and inspected each time the Mister is used, or more often when working in extremely dusty conditions.
- Replace after every 100 hours of operation.

Air Filter Cleaning

Move the choke lever to the closed () position.

1. Loosen the knob and remove the air cleaner cover.
2. Remove the FOAM FILTER and AIR FILTER from the air cleaner body.
3. Clean the filter.
 - FOAM FILTER
Clean FOAM FILTER by gently tapping or cleaning with a suitable solvent the filter. Then completely dry before using again.
 - AIR FILTER
Clean AIR FILTER by gently tapping.
Replace filter if it is damaged or very dirty.
4. Reassemble components in reverse order.
5. Reinstall the air cleaner cover and tighten the knob.



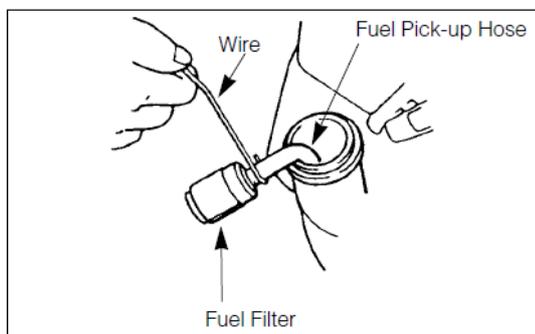
FUEL FILTER

Maintenance Interval

- The fuel filter should be cleaned and inspected for damage after each 20 hours of operation.
- The fuel filter should be replaced after every 100 hours of operation.

Fuel Filter Replacement

The fuel filter is attached to the end of the fuel pick-up hose inside the fuel tank.



To replace the fuel filter:

1. Make sure the fuel tank is empty.
2. Remove the fuel cap.
3. Using a wire hook, gently pull the fuel filter out through the fuel filler opening.
4. Grasp the fuel hose next to the fuel filter fitting and remove the filter, but do not release the hose.
5. While still holding on to the fuel hose, attach the new fuel filter.
6. Drop the new fuel filter back into the fuel tank.
7. Make sure that the fuel filter is not stuck in a corner of the tank, and that the fuel hose is not doubled over (kinked) before refueling.

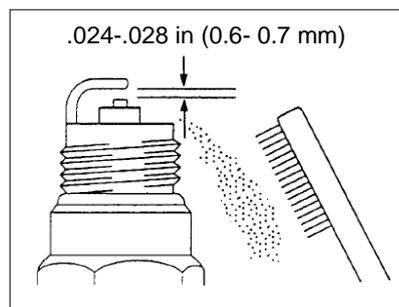
SPARK PLUG

Maintenance Interval

- The spark plug should be removed from the engine and checked after each 20 hours of operation.
- Replace the spark plug after every 100 hours of operation.

Spark Plug Maintenance

1. With the engine at ambient (room) temperature, twist the high tension lead boot on the spark plug back and forth a couple of times to loosen the boot, then pull the boot off of the spark plug.
2. Remove the spark plug.
3. Clean the electrodes with a stiff brush.



4. Adjust the electrode air gap to .024-.028 in (0.6- 0.7 mm).
5. Replace the spark plug if it is oil-fouled, damaged, or if the electrodes are worn down.
6. Do not over tighten the spark plug when installing. The tightening torque is 95-148 in. lbs. (10.7-16.6 N·m).

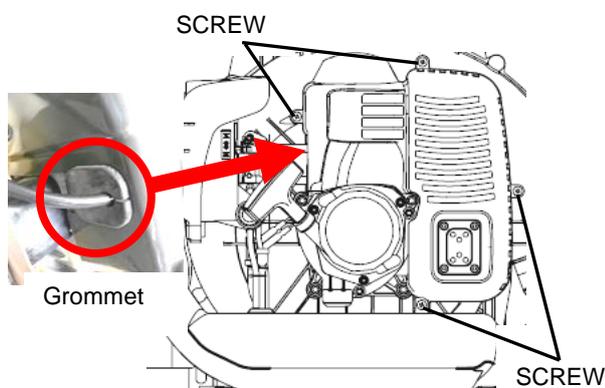
COOLING FINS

Maintenance Interval

The cylinder cooling fins should be cleaned after every 50 hours of operation, or once a week, whichever comes first. Air must flow freely around and through the cylinder cooling fins to prevent engine overheating. Leaves, grass, dirt and debris buildup on the fins will increase the operating temperature of the engine, which can reduce engine performance and shorten engine life.

Cooling Fin Cleaning

1. With the engine at ambient (room) temperature, remove the four screws retaining the top cover, then remove the top cover.
2. Clean all dirt and debris from the cooling fins and from around the cylinder base.
3. Reinstall the top cover and tighten the knob.
Be sure to attach the grommet.



MUFFLER AND EXHAUST PORTS

Maintenance Interval

The muffler should be inspected and cleaned after each 50 hours of use.

Muffler Maintenance

The muffler should be removed and serviced after each one fifty (50) hours of use. At the same time, the exhaust ports should be cleaned and inspected. An AUTHORIZED MARUYAMA DEALER should be contacted for this service.

SPARK ARRESTER

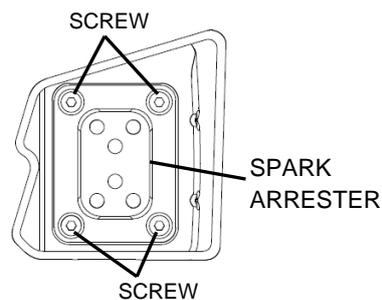
⚠ WARNING ⚠
POTENTIAL HAZARD <ul style="list-style-type: none">• Muffler surface becomes hot when Mister is in operation and remains hot for some time after the engine is shut off.
WHAT CAN HAPPEN <ul style="list-style-type: none">• Contact with hot muffler surfaces could cause a burn.
HOW TO AVOID THE HAZARD <ul style="list-style-type: none">• Make sure the muffler is cool before inspecting and cleaning the spark arrester.

Maintenance Interval

- The spark arrester should be inspected and cleaned after every 50 hours of use.
- Replace the screen if it cannot be thoroughly cleaned, or if it is damaged.

Spark Arrester Maintenance

1. With the engine at ambient (room) temperature, loosen the knob and remove the air cleaner cover (see Cooling Fin Cleaning).
2. Remove the screw from the muffler.



3. Take the spark arrester out of the muffler, and then clean by brushing it.
4. Return the spark arrester to the muffler.
5. Tighten the screw securely.

GENERAL CLEANING AND TIGHTENING

⚠ WARNING ⚠
POTENTIAL HAZARD <ul style="list-style-type: none">• When engine is running, fan is rotating and other parts are moving.
WHAT CAN HAPPEN <ul style="list-style-type: none">• Contact with rotating fan or other moving parts could cause serious personal injury or death.
HOW TO AVOID THE HAZARD <ul style="list-style-type: none">• Always turn off your Mister before you clean or perform any maintenance on it.

The MARUYAMA Mister will provide maximum performance for many hours, if it is maintained properly. Good maintenance includes regular checking of all fasteners for correct tightness, and cleaning the entire machine. Contact an authorized MARUYAMA dealer for additional maintenance suggestions.

STORAGE

For long-term storage of the Mister, first perform all regular maintenance procedures and needed repairs. Empty the fuel tank. Disconnect the fuel supply line from the carburetor and depress the primer bulb until fuel stops discharging from the fuel-return line.

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 Mister in a dry place.

SPECIFICATIONS

Models	MM91-V
Dimensions L x W x H	400 x 500 x 595 mm (15.8 x 19.7 x 23.5 in.)
Dry Weight	11.6 kg (25.6 lbs)
Chemical Tank Capacity	13 L
Engine Type	Maruyama/2-Stroke Air cooled CE800 for EPA
Displacement	79.2 mL
Ignition System	Electric solid state
Carburetor	All position diaphragm
Fuel Tank Capacity	0.53gal (2.0 L)
Fuel Mixture	50:1 Using MARUYAMA 50:1 2-stroke Engine Oil or any quality 2-stroke engine oil designed for use in air-cooled, high performance 2-stroke engines.



Maruyama U.S., Inc.

4770 Mercantile Drive, Suite100,
Fort Worth, TX 76137 U.S.A.

Phone 940-383-7400

Fax 940-383-7466

www.maruyama-us.com

P/N 664026-00 21.07