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Original Instruction

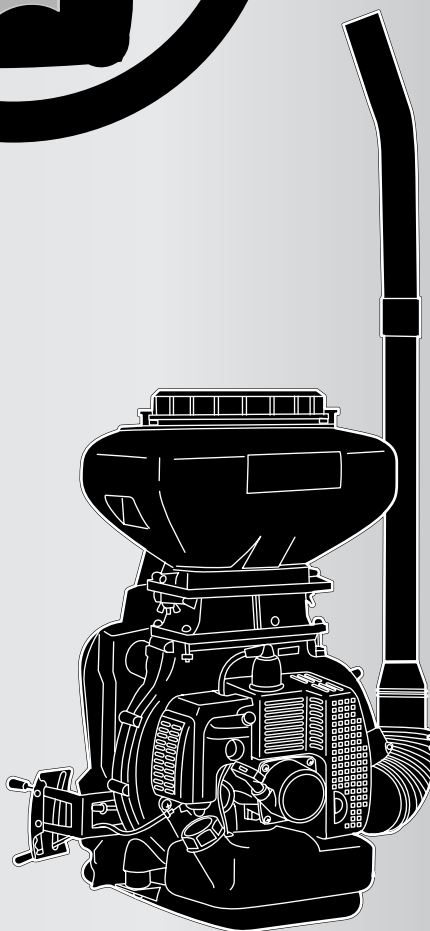


GB



OWNER'S MANUAL

DUSTER/MISTER



MD431A



WARNING



Before using our products, please read this manual carefully to understand the proper use of your unit.

EC DECLARATION OF CONFORMITY

(Applies to Europe only)

The undersigned manufacturer,
Husqvarna Zenoah Co.,Ltd.,
1-9, Minamidai, Kawagoe, Saitama, Japan,

declares under sole responsibility that the following products referred to in this declaration conform with the requirement of the following COUNCIL'S DIRECTIVE.

The products referred to are :

DESIGNATION : DUSTER / MISTER (Back-pack garden duster/mister)
MANUFACTURER : Husqvarna Zenoah Co., Ltd.
MODELS : MD431A
SERIAL NUMBERS DATING : 2010 and onwards
(The year is clearly stated on the rating plate,
followed by the serial number)

This declaration conform with :


- **DIRECTIVE 2006/42/EC** of 17 May, 2006
- **DIRECTIVE 2004/108/EC** of December 15, 2004
(The following standards have been applied: EN 61000-6-1, EN 55012 (CISPR 12))
- **DIRECTIVE 2000/14/EC** of 8 May, 2000
conformity assessment procedure followed ANNEX V
(The following standards have been applied: ISO 11094)
- **DIRECTIVE 97/68/EC** of December 16, 1997
2002/88/EC of December 9, 2002

Date : 29 December 2009



Signature : 
Kiyoshi Honda
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EXPLANATION OF SYMBOLS AND SAFETY WARNINGS



WARNING!!!
RISK OF DAMAGING HEARING
Wear head, eye and ear protection.

MODEL	DISPLACEMENT	SOUND LEVEL ¹⁾			VIBRATION LEVEL ²⁾
		2000/14/EC		ISO 7917	ISO 22867
		LWA		L _{pAra}	a _{hv, eq}
		measured	guaranteed		
MD431A	41.5 cm ³	108 dB(A)	110 dB(A)	99 dB(A)	6.4 m/s ²

* Specifications are subject to change without notice

- Noise emissions in the environment measured as sound power (L_{WA}) in conformity with EC directive 2000/14/EC.
Reported soundpower level for the machine has been measured with the original attachment.
The difference between guaranteed and measured sound power is that the guaranteed sound power also includes dispersion in the measurement result and thevariations between different machines of the same model according to Directive 2000/14/EC.
Reported data for sound pressure level (L_{pAra}) at the operator's ear for the machine has a typical statistical dispersion (standard deviation) of 1 dB (A),
- Reported data for equivalent vibration level (a_{hv, eq}) at the control handle has a typical statistical dispersion (standard deviation) of 1 m/s².

APPROVAL NUMBER OF CE EXHAUST EMISSION REGULATION (2002/88/EC)
e13*97/68SH2G3*2002/88*0105*02

SAFETY FIRST

Instructions contained in warnings within this manual marked with a **▲** symbol concern critical points which must be taken into consideration to prevent possible serious bodily injury, and for this reason you are requested to read all such instructions carefully and follow them without fail.

WARNINGS IN THE MANUAL

WARNING

This mark indicates instructions, which must be followed in order to prevent accidents, which could lead to serious bodily injury or death.

IMPORTANT

This mark indicates instructions, which must be followed, or it leads to mechanical failure, breakdown, or damage.

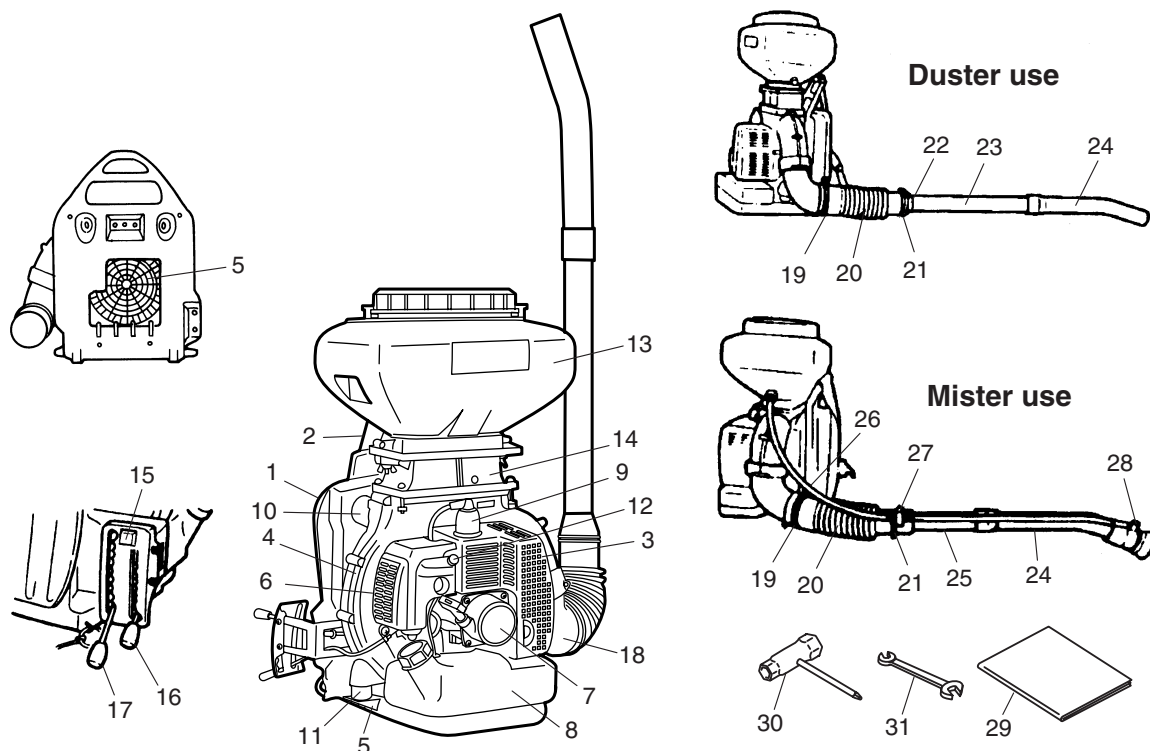
NOTE

This mark indicates hints or directions useful in the use of the product.

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1. Parts location



- | | | | |
|-------------------|-----------------------------|------------------------|---------------------------|
| 1. Frame | 10. Shock Absorber (Rubber) | 19. Clamp (Large) | 28. Mist nozzle |
| 2. Harness | 11. Shock Absorber (Rubber) | 20. Flexible hose | 29. Owner's manual |
| 3. Engine cover | 12. Choke rod | 21. Clamp (Small) | 30. Plug wrench |
| 4. Volute case | 13. Material tank | 22. Joint | (Hexagon socket S13/S19 + |
| 5. Net | 14. Regulator case | 23. Straight pipe | Screw driver (cross head) |
| 6. Air cleaner | 15. Stop switch | 24. Bend pipe | 31. Spanner (S8/S10) |
| 7. Recoil starter | 16. Throttle lever | 25. Swivel joint | |
| 8. Fuel tank | 17. Regulator lever | 26. Solution tube | |
| 9. Spark plug | 18. Elbow | 27. Intermediate valve | |

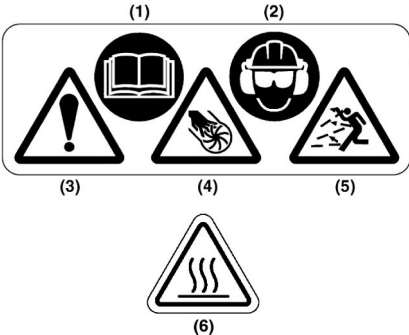
2. Specification

MODEL			MD431A	
			Duster use	Mister use
Dimensions (LxWxH)**		mm	420x500x700	
Dry weight*		kg	10.8	11.3
Fuel tank capacity		liter	2.0	
Engine type			Air cooled2-cycle gasoline engine	
Displacement		cm³	41.5	
Air filter			Half wet polyurethane foam	
Carburetor			Diaphragm, rotary valve type	
Ignition system			C.D.I.	
Spark plug			NGK BMR7A (Noise-proof)	
Operating engine speed*		rpm	2000 to 7400	2000 to 8300
Fuel consumption		liter/h	1.5	
Air volume**		cu.m/min	17	
Max. air pressure		mmAq	860	
Container capacity		liter	14 (23 as option)	
Discharge	Powder	kg/min	6	—
	Granule	kg/min	15	—
	Water	l/min	—	4
Longitudinal coverage	Granule	m	16	—
	Water Horizontal	m	—	11
	Water Vertical	m	—	10

* with standard pipe **without pipe

Specifications are subject to change without notice.

3. Warning labels on the machine



(1) (2)

(3) (4) (5)

(6)

(1) Read owner's manual before operating this machine.

(2) Wear head, eye and ear protection.


(3) Handling this machine improperly could result in accidents causing serious injury or death. Read this manual carefully and practice using the machine until you are fully acquainted with all operations and have learned to use it correctly.


(4) Severing of fingers or hand by fan blade
Do not open or remove safety guards or nets while engine is running.

(5) Thrown or blown object
Stay a safe distance from the machine.

(6) Hot surface
Avoid contact the hot surface during and immediately operation.

Keep all children, bystanders and helpers 15 meters away from the machine.

 If warning label peels off or becomes soiled and impossible to read, you should contact the dealer from which you purchased the product to order new labels and affix them in the required location(s).

 **Never modify your machine.**
We won't warrant the machine, if you use the remodeled machine or if you don't observe the proper usage written in the manual.

4. Symbols on the machine

For safe operation and maintenance, symbols are carved in relief on the machine. According to these indications, please be careful not to make a mistake.



The port to refuel the "MIX GASOLINE"
Position: FUEL TANK CAP



The operation rod for choke
Position: CHOKE ROD

▲ 5. For safe operation



▲ WARNING

1. Read this manual carefully until you completely understand and follow all safety and operating instructions.
2. Keep this manual handy so that you may refer to it later whenever any questions arise. Also note, if you have any questions which cannot be answered herein, contact the dealer from whom you purchased the product.
3. Always be sure to include this manual when selling, lending, or otherwise transferring the ownership of this product.
4. Do not lend or rent your machine without the owner's manual.
5. Be sure that anyone using your unit understands the information contained in this manual.
6. Never let a child under 13 years old use the machine.
7. Long-term exposure to noise can result in permanent hearing impairment. So always use approved hearing protection.
8. Under no circumstances may the design of the machine be modified without the permission of the manufacturer. Always use genuine accessories. Non-authorized modifications and/or accessories can result in serious personal injury or the death of the operator or others.
9. This machine is a dangerous tool if used carelessly or incorrectly and can cause serious, even fatal injuries. It is extremely important that you read and understand the contents of this Operator's manual.
10. Husqvarna Zenoah has a policy of continuous product development and therefore reserves the right to modify the design and appearance of products without prior notice.
11. The machine is mainly designed for the purpose of scattering an agricultural fertilizer or spraying pest control chemicals and weed killers. Do not use it for other purpose, as this may cause unforeseen accidents.



12. Always follow the instructions from the chemical supplier regarding personal protective equipment, usage of the chemicals, mixing and handling of the chemicals and waste.

WORKING CONDITION

1. Refrain from operating the machine if you are tired, ill, or upset, or if you are under the influence of alcohol, drugs or medication.
2. To reduce the risk of hearing loss associated with sound level(s), hearing protection is required.
3. To reduce the risk of injury associated with thrown objects, always wear eye protection and foot protection. Eye protection should meet the requirements of ANSI Z87.1.
4. To reduce the risk of injury associated with the inhalation of dust, use a face filter mask.
5. Wear sturdy rubber-soled shoes or shoes with some other form of anti-slip protection to help protect you against falling.
6. To reduce the risk of injury associated with objects being drawn into rotating parts, do not wear loose clothing, scarves, neck chains, hair longer than shoulder length, or other loose material.
7. Prolonged use of a machine, exposing the operator to vibrations and cold may produce whitefinger disease (Raynaud's phenomenon), which symptoms are tingling and burning sensations followed by loss of color and numbness in the fingers. All factors which contribute to whitefinger disease are not known, but cold weather, smoking diseases or physical conditions as well as long periods of exposure to vibration are mentioned as factors. In order to reduce the risk of whitefinger disease, the following precautions are strongly recommended;
 - a) Keep your body warm. Never use machine during rains.
 - b) Wear thick anti-vibration gloves.
 - c) Take more than 5 minutes of break in warm place frequently.
 - d) Maintain a firm grip at all times,

▲ 5. For safe operation

but do not squeeze the handles with constant, excessive pressures.

- e) If you feel discomfort, redness and swelling of your fingers or any other part of your body, see a doctor before getting worse.
8. The ignition system of your unit produces an electromagnetic field of a very low intensity. This field may interfere with some pacemakers. To reduce the risk of serious or fatal injury, persons with pacemaker should consult their physician and the pacemaker manufacturer before operating this tool.

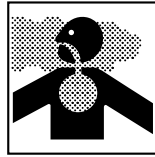
OTHER PRECAUTIONS

- When engaged in spraying work over a protracted period of time, please have your health checked regularly.
- Please carry out spraying in a planned fashion, keeping a daily record of the date and time of spraying, the chemicals used, the target pest, contents of the work, duration of the work, and other details.
- Please keep the following points in mind when selecting or using protective gear.



- a) Protective clothing
Choose clothing that is cool to wear and offers good ventilation and waterproofing. In addition, wear items that enable you to carry out spraying work in total comfort and safety.
- b) Spraying hood
Use a hood with a brim that is waterproof and covers your neck and shoulders.
- c) Gloves
Use gloves that are difficult for chemicals to penetrate and do not slip even if you perspire while doing the work.
- d) Rubber apron
When mixing chemicals, wear a long, thick, and wide apron that cannot be penetrated by chemical splashes.
- e) Protective goggles, mask, etc.
Select suitable protective goggles, mask, rubber boots, eye washer, and protective cream,

etc., paying attention to standards and the recommendations of farm work safety promotion organizations.



WORKING CIRCUMSTANCE

1. To reduce the risk of injury associated with exhaust fume inhalation, do not operate in unventilated area. The exhaust gases contain harmful carbon monoxide.
2. Avoid using the machine where stable footing and balance are not assured.
3. Never operate the machine in high wind, bad weather, potentially explosive atmosphere, when visibility is poor or in very high or low temperatures. (Our recommended use environment is below 40 degrees C (104 degrees F).)

AVOID NOISE PROBLEM

① IMPORTANT

Check and follow the local regulations as to sound level and hours of operations for machine.

1. Operate machine 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.
2. To reduce sound levels, limit the number of pieces of equipment used at any one time.
3. Operate the machine at the lowest possible throttle speed to do the job.
4. Check your equipment before operation, especially the muffler, air intakes and air filters.

WORKING PLAN

- When using for the first time, before commencing actual spraying please receive guidance in operating the product from a person with adequate experience.
- When planning your work schedule, allow plenty of time to rest. Limit the amount of time over which the product is to be used continuously to somewhere



▲ 5. For safe operation

around 30 ~ 40 minutes per session, and take 10 ~ 20 minutes of rest between work sessions. Also try to keep the total amount of work performed in a single day under 2 hours or less.

▲ WARNING

If you don't observe the working time, or working manner, Repetitive Stress Injury (RSI) could occur.

If you feel discomfort, redness and swelling of your fingers or any other part of your body, see a doctor before getting worse.

PRECAUTIONS BEFORE SPRAYING

- Make sure you have the correct protective clothing, headgear, rubber gloves and boots, a protective mask, goggles, a towel, protective cream, etc., to prevent chemicals from coming into contact with your skin or entering your lungs. When spraying, please wear this protective gear to prevent any risk of injury.



- Please store chemicals in a locked storage box, locker, or other safe place out of the reach of children.
- Carefully read the instructions for using the chemicals, and familiarize yourself with the level of toxicity, method of use, etc.
- Please pay all due consideration to the area in which you will be spraying, to ensure that you do not pollute the water supply, rivers, lakes, ponds, etc., or cause any damage to residents, passers-by, livestock, etc.



- Prepare yourself physically on the day before spraying, by for example cutting down on alcoholic beverages or late-night work.
- Do not allow children, animals, etc., to enter the chemical spraying area.
- Before spraying, please prepare fully by inspecting sprayer nozzles and checking for abnormalities such as loose screws or spray hose connections, fuel leaks, defective or broken fluid gaskets, or damage to the carrying band.

PRECAUTIONS WHEN TRANSPORTING CHEMICALS

- When transporting chemicals, please handle with care to ensure that there is no spillage of chemicals from torn bags, broken bottles, or loose stoppers.
- Do not carry chemicals in the same container as food.

PRECAUTIONS WHEN TRANSPORTING THE SPRAYER

- Do not transport the sprayer while it has chemicals or fuel in the tank, as these could leak out as a result of impact during transportation.
- When transporting in a vehicle, please use a rope or similar to fix the sprayer firmly to the cargo trailer in an upright position. Please do not transport by bicycle or motorbike, as this is dangerous.

FUEL

▲ WARNING

To reduce the risk of fire and burn injury:



- Handle fuel with care. It is highly flammable.
- Do not smoke while handling fuel.
- Do not refuel a hot engine.
- Do not refuel a running engine.
- Avoid spilling fuel or oil. Always wipe unit dry before using.
- Move at least 10 ft. (3 meters) away from the fueling point before starting engine.
- Always store gasoline in a con-

▲ 5. For safe operation



tainer approved for flammable liquids.

- h) Make sure the unit is properly assembled and in good operating condition.
- i) Do not use the machine near a fire, as aiming the machine in the direction of a flame may cause flammable substances to ignite.

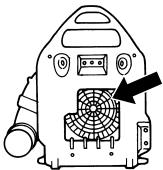
PRECAUTIONS WHEN REFILLING CHEMICALS

- Before filling the tank with chemicals, please make sure that the spray lever is completely at rest.
- After chemical refilling, firmly tighten the tank cap. If not fully tightened the cap may become loose during spraying, with the risk of physical exposure to the chemicals.

BEFORE STARTING THE ENGINE

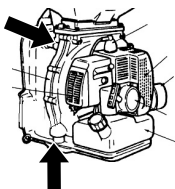
- Each time before starting the engine, inspect the entire unit to see if every part is in good order and is securely tightened in place. If any damage is found in the fuel line, the exhaust line, or the ignition wiring, do not use the machine until it has been repaired.

❶ IMPORTANT



- **Before starting operation, always make sure to check if any obstacles are left inside the volute case and net. The obstacles may cause damage on fan and volute case and serious injury.**

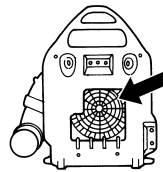
▲ WARNING



- Check to see if the shock-absorbing rubber mount has become cracked or otherwise damaged. **Note that failing to replace this rubber mount when it has become cracked or damaged may cause the engine to come loose from its frame during use, thus resulting in possible serious bodily injury.**
- If cracked, be sure to replace without delay.

▲ WARNING

- To reduce the risk of injury asso-



ciated with contacting rotating parts, stop the engine before installing or removing attachments.

Do not operate without net in place. Always disconnect the spark plug before performing maintenance or accessing movable parts.

USING THE PRODUCT

▲ WARNING

While using the product, if abnormal noise or vibration occurs, stop the engine immediately and contact the nearest ZENOAH servicing dealer for assistance. Checking the fan is very important. If the rotating fan should break up, it might lead to serious accidents.



1. This machine, duster/mister, is a backpack type, and is shouldered while operating. The blow tubes is held with straight pipe or swivel joint and operated by right hand. And then the throttle and the regulator lever is controlled by left hand.
2. Since protective clothing generally offers poor ventilation and thus places stress on the body, there is a risk of contracting heat-stroke or other illness when operating for long periods under high temperatures. Please avoid spraying on hot days, aiming instead for early morning and late afternoon times when temperatures are relatively cool and winds are low.
3. Check the work area that the machine will be used in and remove or cover all valuables that may be damaged by the air blast or thrown debris.
4. Make sure you can move and stand safely. Check the area around you for possible obstacles (roots, rocks, branches, ditches, etc.) in case you have to move suddenly. Take great care when working on sloping ground. If the sprayer is tilted the chemical may leak out through the air holes in the cap. When spraying always make sure you have a firm footing and maintain your balance.



▲ 5. For safe operation

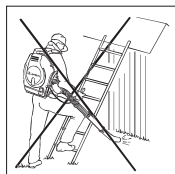
5. To reduce the risk of injury associated with thrown objects.

- a) When starting work, please pay all due consideration to the spraying time, wind direction, etc., to ensure that no noise disturbance or chemical hazard is caused to nearby residents, passers-by, farm crops, and so on.
- b) Watch out for children, pets, open windows or freshly washed cars, and blow debris safely away.
- c) Do not allow bystanders in work area.



While spraying please hold the pipe firmly at all times and be careful not to point the nozzle in the direction of people or animals.

- d) Always check to be sure that no debris has been blown onto someone else's property.
- e) While spraying please be careful of the wind direction and always stand on the upwind side, to avoid spraying yourself with chemicals.
- f) Never point a blower tube toward an open flame to avoid the possibility of igniting the unit, causing injury to yourself or damage to surroundings.



6. The machine must not be used while on a ladder or scaffolding.
7. Never put the machine down with the engine running unless you have it in clear sight.
8. Never to touch the spark plug or plug cord while the engine is in operation. Doing so may result in being subjected to an electrical shock.
9. Never to touch the muffler, spark plug, or other metallic parts of the engine or engine cover while the engine is in operation or immediately after shutting down the engine. These metallic parts and engine cover reach high temperatures during operation and doing so could result in serious burns.

▲ WARNING

The temperature of the machine may increase after stopping the engine. Especially never forget to cool down the engine before refueling the machine.



10. Should you begin to feel even slightly unwell while spraying, consult a doctor immediately. When doing so, inform the doctor of the name of the chemical you were using, the conditions of use, etc.
11. In an emergency, pull up the lower portion of both strap buckles to loosen the straps. Move yourself away from the unit.
12. After completing the work and tidying away chemicals and spraying tools, you should immediately take a bath or wash your hands, feet, face, etc. thoroughly with soap, as well as washing your mouth out.
13. You should change all clothes worn, including underwear, and wash them thoroughly. Clothes worn during spraying should not be worn again the following day.
14. After spraying, please limit your alcohol intake and rest thoroughly by going to bed early. If you feel even slightly unwell, please see a doctor as soon as possible.

MAINTENANCE



1. In order to maintain your product in proper working order, perform the maintenance and checking operations described in the manual at regular intervals.
2. Always be sure to turn off the engine and disconnect the spark plug before performing any maintenance or checking procedures.

▲ WARNING

The metallic parts and engine cover reach high temperatures immediately after stopping the engine.

3. Examine the machine at intervals for loose fasteners and rusted or damaged parts. **Use special care around the fuel line, the muffler, and the ignition wiring.**
4. All engine service except for those described in this manual should be performed by competent service personnel. Improper service to the blower fan and muffler could cause a hazardous failure.

▲ 5. For safe operation

5. When replacing the any other part, or any lubricant, always be sure to use only ZENOAH products or products which have been certified by ZENOAH for use with the ZENOAH product.
6. In the event that any part must be replaced or any maintenance or repair work not described in this manual must be performed, please contact a representative from the store nearest ZENOAH authorized servicing dealer for assistance.
7. Do not use any accessory or attachment other than those bearing the ZENOAH mark and recommended for the unit.
8. Under no circumstances should you ever take apart the product or alter it in any way. Doing so might result in the product becoming damaged during operation or the product becoming unable to operate properly.

TRANSPORTATION

- Drain the fuel from the fuel tank before transporting or storing the machine.
- Secure the unit carefully to prevent movement when it is transported.
- A unit that receives a strong shock during transport and unloading may malfunction.

STORAGE

- When storing the machine, choose a space indoors free from moisture and out of the reach of children.
- Please seal unused chemicals and store them out of the reach of children.
- Fully inspect and maintain protective clothing, masks, gloves, and other protective gear in preparation for the next session.

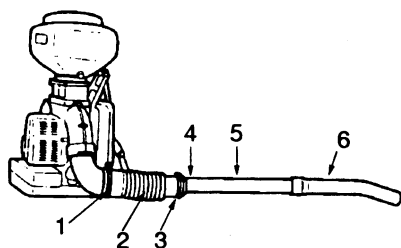
DISPOSAL

- When you dispose of the machine, do not disassemble the machine.
- Do not simply discard empty chemical containers, but dispose of them safely by incinerating, burying, or another similar method. In addition, please take every care that the water used to clean spraying tools does not create any hazard.
- When disposing your machine, fuel or oil for the machine, be sure to allow your local regulations

6. Set up

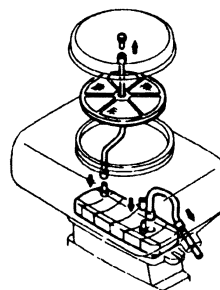
■ DUSTER USE

Connect the blow pipes securely.



1. Clamp (Large)
2. Flexible hose
3. Clamp (Small)
4. Joint
5. Straight pipe
6. Bent pipe

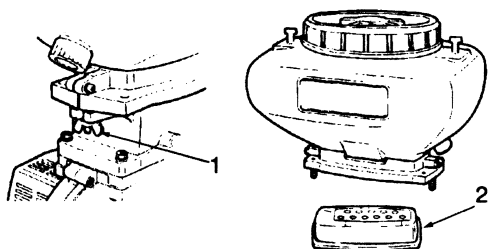
5. Connect the attached rubber tubes as shown in the picture.



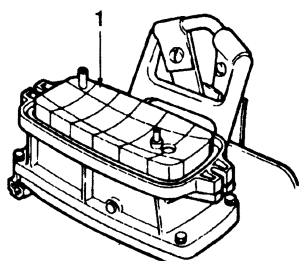
6. Connect the blow pipes and route the solution tube from the material tank to the mist nozzle.

■ MISTER USE

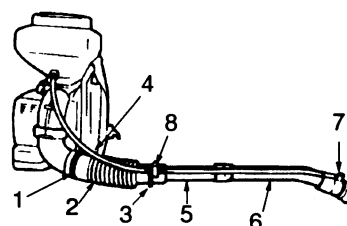
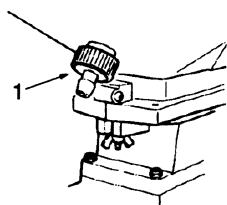
1. Remove two wing nuts (1) and take off the material tank. Then remove the bottom cover (2) from the tank.



2. Install the attached mist cover (1) to the regulator case as shown in the picture.



3. Put the material tank on the mist cover and tighten to the regulator case evenly with the wing nuts.
4. Replace the side cap of the tank with the attached joint (1).



1. Clamp (Large)
2. Flexible hose
3. Clamp (Small)
4. Solution tube
5. Swivel joint
6. Bent pipe
7. Mist nozzle
8. Intermediate valve (Fixed with clamp (Small))

7. Fuel

■ FUEL

⚠ WARNING

- **Gasoline is very flammable. Avoid smoking or bringing any flame or sparks near fuel. Make sure to stop the engine and allow it cool before refueling the unit. Select outdoor bare ground for fueling and move at least 3 m (10 ft) away from the fueling point before starting the engine.**



- The Zenoah engines are lubricated by oil specially formulated for air-cooled 2-cycle gasoline engine use. If Zenoah oil is not available, use an anti-oxidant added quality oil expressly labeled for air-cooled 2-cycle engine use (JASO FC GRADE OIL or ISO EGC GRADE).
- Do not use BIA or TCW (2-stroke water-cooling type) mixed oil.



■ RECOMMENDED MIXING RATIO GASOLINE 50 : OIL 1

<when using ZENOAH genuine oil>

- **Exhaust emission are controlled by the fundamental engine parameters and components (eq., carburation, ignition timing and port timing) without addition of any major hardware or the introduction of an inert material during combustion.**
- These engines are certified to operate on unleaded gasoline.
- Make sure to use gasoline with a minimum octane number of 89RON (USA/Canada: 87AL).
- If you use a gasoline of a lower octane value than prescribed, there is a danger that the engine temperature may rise and an engine problem such as piston seizing may consequently occur.
- Unleaded gasoline is recommended to reduce the contamination of the air for the sake of your health and the environment.
- Poor quality gasolines or oils may damage sealing rings, fuel lines or fuel tank of the engine.

■ HOW TO MIX FUEL

❗ IMPORTANT

- **Pay attention to agitation.**

1. Measure out the quantities of gasoline and oil to be mixed.

2. Put some of the gasoline into a clean, approved fuel container.
3. Pour in all of the oil and agitate well.
4. Pour in the rest of gasoline and agitate again for at least one minute. As some oils may be difficult to agitate depending on oil ingredients, sufficient agitation is necessary for the engine to last long. Be careful that, if the agitation is insufficient, there is an increased danger of early piston seizing due to abnormally lean mixture.
5. Indicate the contents on outside of container for easy identification. To avoid mixing up with gasoline or other containers.

■ FUELING THE UNIT

1. Untwist and remove the fuel cap. Rest the cap on a dustless place.
2. Put fuel into the fuel tank to 80% of the full capacity.
3. Fasten the fuel cap securely and wipe up any fuel spillage around the unit.

⚠ WARNING

1. **Select bare ground for fueling.**
2. **Move at least 10 feet (3 meters) away from the fueling point before starting the engine.**
3. **Stop the engine before refueling the unit. At that time, be sure to sufficiently agitate the mixed gasoline in the container.**
4. **Do not smoke or place hot object near fuel.**

■ FOR YOUR ENGINE LIFE, AVOID:

1. **FUEL WITH NO OIL (RAW GASOLINE)** – It will cause severe damage to the internal engine parts very quickly.
2. **GASOHOL** – It can cause deterioration of rubber and/or plastic parts and disruption of engine lubrication.
3. **OIL FOR 4-CYCLE ENGINE USE** – It can cause spark plug fouling, exhaust port blocking, or piston ring sticking.
4. **Mixed fuels which have been left unused for a period of one month or more** may clog the carburetor and result in the engine failing to operate properly.
5. In the case of storing the product for a long period of time, clean the fuel tank after rendering it empty. Next, activate the engine and empty the carburetor of the composite fuel.
6. In the case of scrapping the used mixed oil container, scrap it only at an authorized repository site.

📖 NOTE

- As for details of quality assurance, read the description in the section Limited Warranty carefully. Moreover, normal wear and change in product with no functional influence are not covered by the warranty. Also, be careful that, if the usage in the instruction manual is not observed as to the mixed gasoline, etc. described therein, it may not be covered by the warranty.

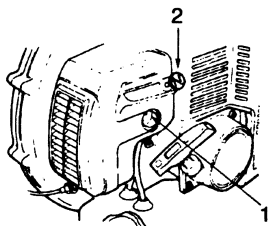
8. Operation

■ STARTING THE ENGINE

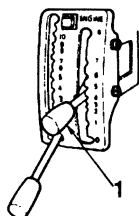
▲ WARNING

When starting the engine, make sure that there are no people around the blow pipe.

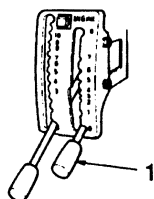
1. Push the primer pump (1) several times until overflowed fuel flows out in the clear tube.
2. Cold starting only - Pull out the choke rod (2) to close the choke.



3. Move the throttle lever to the half open position (1).



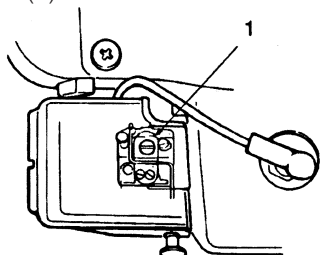
4. While holding the unit firmly, pull out the starter rope quickly.
5. After the engine has started, open the choke gradually, move the throttle lever to the bottom position (1) and allow the engine to warm up.



- The engine should be started with the blow pipes connected, otherwise the cooling air becomes short and the engine may burn out.
- In case that the engine does not start after third pulling of the rope, push in the choke rod and repeat pulling the rope.

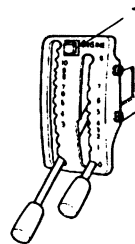
■ IDLING SPEED

The idling speed is adjusted by the screw on the top of the carburetor (1).



■ STOPPING THE ENGINE

1. Move the throttle lever to the bottom position.
2. Press the stop switch (1) until the engine stops completely.

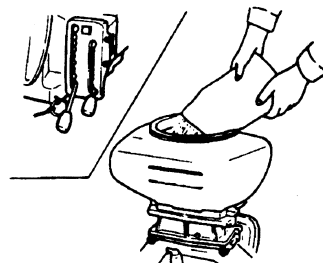


▲ WARNING

1. Always work from the windward side.
2. Be alert to bystanders or fragile things in the blowing direction.

■ HOW TO USE DUSTER USE

1. Put material into the tank with the regulator lever kept at the bottom position. If the regulator is opened, the material will blow out concurrently with the start of the engine.



2. Tighten the tank cap securely.
3. Start the engine and carry the unit on your back.
4. While holding the straight pipe in your right hand, raise the engine speed. Then, move the regulator lever to let the material flow out. Adjust the flow according to the work conditions.

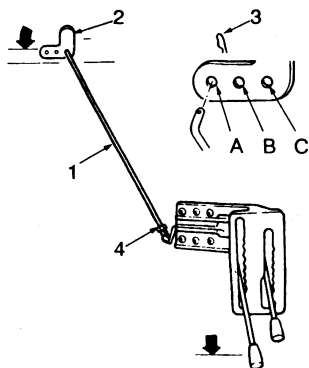


5. After spray work has finished, move the regulator lever to the bottom position and blow off the material staying inside the blow pipes, and stop the engine.

8. Operation

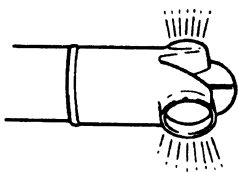
• HOW TO CHANGE FLOW RATE

1. Move the regulator lever to the bottom position and check that the regulator is closed.
2. Disconnect the upper end of the rod (1) from the arm (2) after removing the snap pin (3)
3. Loosen the lock nut (4) and adjust the length of rod so that it may fit with a hole. (A-Small, B-Medium, C-Large) Secure the rod end with the snap pin.



• DUAL-PORT HEAD

The dual-port head is ideal for spraying materials on both left and right sides at the same time. The head is used as fitted to the bent pipe.



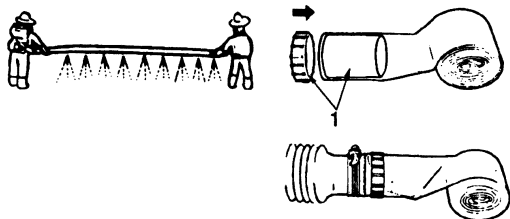
• JET HOSE (Optional acc.)

Ideal for spraying powder or granular materials quickly over wide area.

To connect the jet hose and the flexible hose, use the optional adapter (1) as shown in.

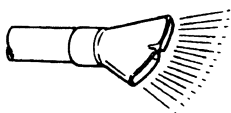
When using the hose, operate the engine in full admission.

Type	Size-m
For powder materials	20, 30, 40, 55
For granular materials	20, 30, 40



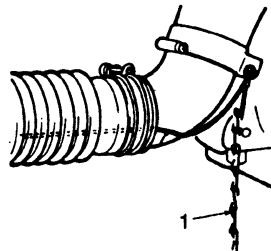
• FLAT NOZZLE (Optional acc.)

Useful for scattering granular materials quickly in wide angle. When using the nozzle, slightly tilt it upward.



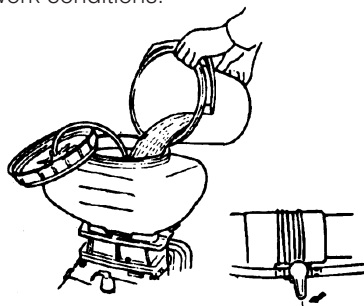
• EARTH CHAIN

An electro-static shock may be felt sometimes in spraying fine materials under dry condition. In such a case, use the unit with the provided earth chain (1) attached as shown in.

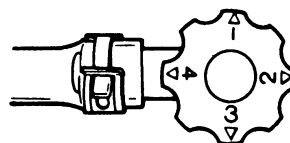


■ MISTER USE

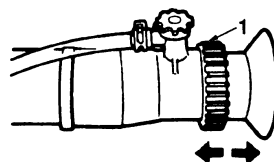
1. Pour the solution into the tank with the intermediate valve closed.
2. Adjust the solution flow and the spray range according to work conditions.



The solution flow is changed by shifting the number on the top of the valve at the mist nozzle. The number indicates the flow per minute in litres. The figure shows 4 lit/min, position.



The spray range is changed by shifting the bell position after loosening the lock ring (1).



Pulled out position - Long distance, narrow angle spray

Pushed in position - Short distance, wide angle spray

3. Start the engine and carry the unit on your back.
4. While holding the swivel joint in your right hand, move the throttle lever upward and turn the intermediate valve to the open position.
5. After spraying work has finished, close the intermediate valve and stop the engine.

9. Maintenance

Maintenance, replacement, or repair of the emission control device and systems may be performed by any non-road engine repair establishment or individual.

System / Component	Procedure	Daily or Before use	Every 25 hours after	Every 50 hours after	Every 100 hours after ---
Air Filter	Inspect / Clean	✓			
Fuel Leaks	Inspect / Replace	✓			
Fuel Filter	Inspect / Replace	✓	✓		
Fuel Line	Inspect / Clean	✓			
Spark Plug	Inspect / Clean		✓		
Muffler	Inspect / Clean	✓			
Cooling System	Inspect / Clean	✓			
Screws / Nuts / Bolts	Tighten	✓			
Cylinder Exhaust Port	Inspect / Clean				✓

GB

⚠ WARNING

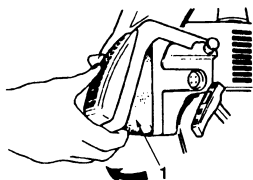
Make sure that the engine has stopped and is cool before performing any service to the machine. Contact with rotating blower fan or hot muffler may result in a personal injury.

AIR CLEANER

- Never operate the machine without the air filter or with a deformed filter element because unfiltered dusty air will quickly ruin the engine.
- Check the air cleaner before use.**
A clogged air filter may increase fuel consumption while cutting down the engine power.

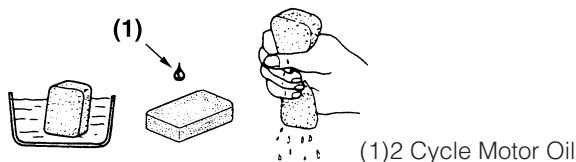
CLEANING AIR FILTER:

- Remove the air cleaner cover by loosen the knob on upside and pulling the tab on bottom and take out the filter element.
- Use neutral detergent and warm water to clean the filter element. After cleaning, air dry the element completely and moisten with a small amount of 2 cycle motor oil.



📖 NOTE

- Do not apply 4 cycle motor oils as they may damage element.
- Do not use mixture gasoline. this type of gasoline does not contain much of oil so that element becomes dry after a few hours.



📖 NOTE

Soak the filter element into a 2cycle motor oil. Squeeze the element to remove excess oil so that it weighs 2 times heavier than that of the dry element.

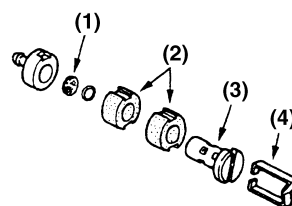
- Place the filter element into the air cleaner body, and set the cover securely.

📖 NOTE

- Assure that the screen is securely fitted to the packing. Fit securely if it is loose.

FUEL FILTER

- A clogged fuel filter may cause poor acceleration of the engine. Check periodically to see if the filter is clogged with dirt. The filter can be taken out of the fueling port using a small wire hook. Disconnect the filter assembly from the fuel pipe and unhook the retainer to disassemble it. Clean the components with gasoline.

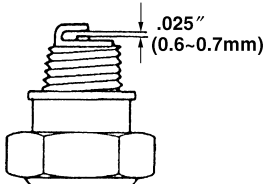


- (1) Screen (2) Element
(3) Holder (4) Retainer

9. Maintenance

SPARK PLUG

- The spark plug may gather carbon deposits on its firing end with reasonable use. Remove and inspect the spark plug every 25 hours and clean the electrodes as necessary with a wire brush. The spark gap should be adjusted to .025 in (0.6~0.7mm).



- Plug manufacturers recommend replacing the plug twice a year to avoid unexpected plug failure in a job.

REPLACEMENT PLUG

NGK BMR7A

❗ IMPORTANT

- Note that using any spark plugs other than those designated may result in the engine failing to operate properly or in the engine becoming overheated and damaged.
- To install the spark plug, first turn the plug until it is finger tight, then tighten it a quarter turn more with a socket wrench.

MUFFLER

⚠ WARNING

- Inspect periodically, the muffler for loose fasteners, any damage or corrosion. If any sign of exhaust leakage is found, do not use the machine and have it repaired immediately.
- Note that failing to do so may result in the engine catching on fire.**

❗ IMPORTANT

- Before starting operation, always make sure to check if the muffler is properly held by bolts. (Fastening Torque : 8~12 N·m)
- Even if one of bolts is loose, it may result in engine catching on fire.

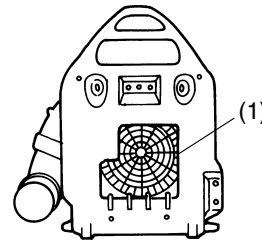
PROCEDURES TO BE PERFORMED AFTER EVERY 100 HOURS OF USE

- Remove the muffler, insert a screwdriver into the vent, and wipe away any carbon buildup. Wipe away any carbon buildup on the muffler exhaust vent and cylinder exhaust port at the same time.
- Tighten all screws, bolts, and fittings.

AIR INLET NET

❗ IMPORTANT

- Blowing air is taken in from the air inlet net. When air flow has dropped down during operation, stop the engine and inspect the air inlet net for blocking by obstacles.
- Note that failure to remove any such obstacles may result in the engine becoming overheated and damaged.



(1) Net

⚠ WARNING

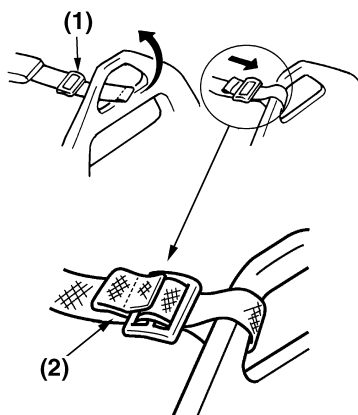
Never use the machine without the net of the machine. Before each use, check that the net is attached in place and is free from any damage.

9. Maintenance

HARNESS

If the harness is damaged it may break during use, thus causing the product to fall and resulting in personal injury. Follow the instructions below to replace the harness with new one.

1. Pass the upper end of the harness through the hanger, marking the **FLAPPED SIDE OUTSIDE**.
2. Put the end of the harness through the ring on the harness, and then push the ring toward the hanger as close as possible.



- (1) Ring
(2) Flapped side

⚠ WARNING

- **The flap on the end of the harness works as a stopper. Never install the harness with the flapped side inside, or the unit may fall from the operation, which could result in injury to the operator and/or damage to the unit.**
- **Do not apply liquid type screw lock glue on screws or bolts used to fix plastics components. Adherence of this type of glue may cause cracks on plastics and end up with the breakage.**

10. Storage

BEFORE STORING THE MACHINE:

⚠ WARNING

- **When draining fuel, please be careful not to spill it. If fuel is spilled, wipe off thoroughly. In addition, please be sure to close the storage container cap tightly.**

❗ IMPORTANT

- If fuel is left in the engine for protracted periods, the inside of the carburetor may become clogged and cause engine malfunction (faulty starting and insufficient output).
- During storage, slightly loosen the cap of the chemical fluid tank. If screwed too tightly, the gasket may become distorted.

On completion of all work procedures, when not planning to use again for a protracted period please carry out the following pre-storage care, to prevent trouble caused by time-lapse changes.

1. Clean the chemical fluid tank and nozzle.
2. Remove dirt from the sprayer, inspect it for any damage or looseness, and, if any abnormality is found, correct it thoroughly in preparation for the next time you use the unit.
3. Drain the fuel tank.
4. Start the engine, and leave it in idling condition until all the fuel inside the carburetor is spent and the engine comes to a natural stop.
5. Remove the spark plug and put a few drops (1 to 2 cc) of 2-cycle oil inside the engine. After pulling the starter rope 2 or 3 times, return the spark plugs to their original position and stop in compressed position.
6. After oiling the throttle lever and other metal parts with anti-corrosive oil, cover the sprayer and store unit in a dry, dust free place, out of the reach of children.

11. Disposal

- When you dispose of the machine, do not disassemble the machine.
- Do not simply discard empty chemical containers, but dispose of them safely by incinerating, burying, or another similar method. In addition, please take every care that the water used to clean spraying tools does not create any hazard.
- When disposing your machine, fuel or oil for the machine, be sure to allow your local regulations

12. Troubleshooting guide

Case 1. Starting failure

CHECK	PROBABLE CAUSES	ACTION
fuel tank	→ incorrect fuel	→ drain it and use correct fuel
fuel filter	→ fuel filter is clogged	→ clean
carburetor adjustment screw	→ out of normal range	→ adjust to normal range
sparkling (no spark)	→ spark plug is fouled/wet	→ clean/dry
	→ plug gap is incorrect	→ correct (GAP: 0.6 ~ 0.7 mm)
spark plug	→ disconnected	→ retighten

Case 2. Engine starts but does not keep running/hard re-starting

CHECK	PROBABLE CAUSES	ACTION
fuel tank	→ incorrect fuel or staled fuel	→ drain it and use correct fuel
carburetor adjustment screw	→ out of normal range	→ adjust to normal range
muffler, cylinder (exhaust port)	→ carbon is built-up	→ wipe away
air cleaner	→ clogged with dust	→ wash
cylinder fin, fan cover	→ clogged with dust	→ clean

When your unit seems to need further service, please consult with our ZENOAH service shop in your area.

Limited warranty

Should any failure occur on the product under normal operating conditions within the applicable warranty period, the failed part will be replaced or repaired free of charge by a ZENOAH authorized dealer.

WARRANTY PERIOD: 1 year (6 months if used professionally, and 30 days if used for rental purpose) from the date of initial purchase.

THE PURCHASER SHALL BEAR COSTS OF TRANSPORTING THE UNIT TO AND FROM THE ZENOAH DEALER.

THE PURCHASER SHALL NOT BE CHARGED FOR DIAGNOSTIC LABOR WHICH LEADS TO THE DETERMINATION THAT A WARRANTED PART IS DEFECTIVE, IF THE DIAGNOSTIC WORK IS PERFORMED AT THE ZENOAH DEALER.

THE PURCHASER OR OWNER IS RESPONSIBLE FOR THE PERFORMANCE OF THE REQUIRED MAINTENANCE AS DEFINED BY THE MANUFACTURER IN THE OWNER/OPERATOR MANUAL.

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 THE PART.

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 THE COMPANY.

THE COMPANY IS LIABLE FOR DAMAGES TO OTHER ENGINE COMPONENTS CAUSED BY THE FAILURE OF A WARRANTED PART STILL UNDER WARRANTY.

THE WARRANTY DOES NOT APPLY TO THOSE UNITS WHICH HAVE BEEN DAMAGED BY NEGLIGENCE OF INSTRUCTION LISTED IN THE OWNER/OPERATOR MANUAL FOR PROPER USE AND MAINTENANCE OF THE UNITS ACCIDENT MISHANDLING, ALTERATION, ABUSE, IMPROPER LUBRICATION, USE OF ANY PARTS OR ACCESSORIES OTHER THAN THOSE SPECIFIED BY THE COMPANY, OR OTHER CAUSES BEYOND THE COMPANY'S CONTROL.

THIS WARRANTY DOES NOT COVER THOSE PARTS REPLACED BY NORMAL WEAR OR HARMLESS CHANGES IN THEIR APPEARANCE.

THERE ARE NO OTHER EXPRESS WARRANTIES.

IMPLIED WARRANTIES INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE **ARE LIMITED** TO TWO (2) YEARS OF HOME USE [ONE (1) YEAR FOR ANY OTHER USE] FROM THE ORIGINAL DELIVERY DATE.

LIABILITIES FOR INCIDENTAL OR CONSEQUENTIAL DAMAGE UNDER ANY AND ALL WARRANTIES ARE EXCLUDED.

IF YOU NEED TO OBTAIN MORE INFORMATION, PLEASE CALL YOUR NEAREST SERVICE CENTER, OR CHECK PLEASE ZENOAH WEB SITE <http://www.zenoah.net>