



OWNER/OPERATOR MANUAL

HANDHELD SPRAYER

HM20



⚠ WARNING ⚠


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

⚠ WARNING ⚠

This sprayer is not designed to be used with acids of any kind, corrosive products like caustic soda, gasoline, materials capable of generating heat, hot fluids, explosive or highly volatile products.

USE OF THESE AND OTHERS EXPOSE USERS TO SERIOUS INJURY AND EVEN DEATH.

SAFETY FIRST

Instructions contained in warnings within this manual and warning seals marked with a  symbol on the sprayer 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.

Note that there may be times when warning seals peel off or become soiled and impossible to read. If this happens, you should contact the dealer from which you purchased the product to order new seals and affix the new seal(s) in the required location(s).

■ NOTES ON TYPES OF WARNINGS



Instructions labeled as shown at left, concern critical steps or procedures which must be followed in order to prevent accidents which could lead to serious bodily injury or death. This mark is used to indicate instructions which must be followed without exception.



Instructions labeled as shown at left concern steps or procedures which, if not followed correctly, could lead to mechanical failure, breakdown, or damage.

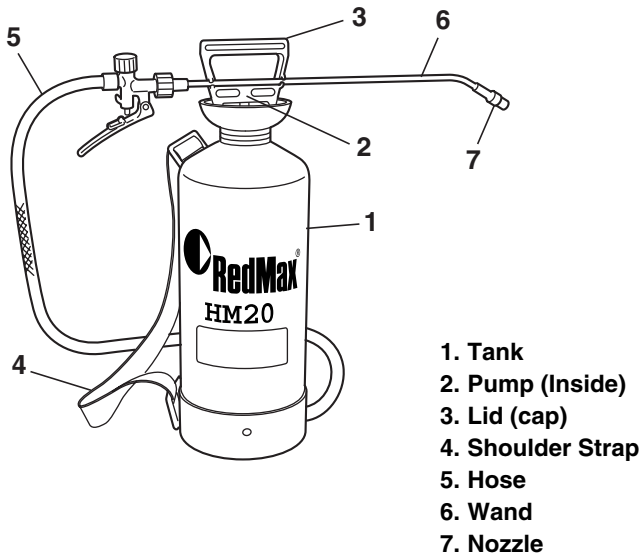


Used to label supplementary instructions designed to provide hints or directions useful in the use of the product.

Contents

1. Parts location	3
2. Specifications	3
3. Warning labels on the machine	3
4. For safe operation	3
5. Set up	5
6. Pre Operation	6
7. Operation	6
8. Maintenance	7
9. Storage	7
10. Disposal	7
11. Parts list	9

1. Parts location



2. Specifications

Type	Handheld
Model Name	HM20
Dimensions (LxWxH)	576x205x205 (22.7x8.1x8.1) mm (in)
Dry Weight	2.85 (5.7) kg (lbs)
Tank Capacity	7.57 (2.0) liter (Gal)
Max. Pressure	2.94 (42) kgf/cm ² (psi)
Working Pressure	(0.7 – 2.8) kgf/cm ² (psi)
Sealed/O rings	VITON/Nytril
Pump Type	Internal Piston
Reparability	YES
Tank Mouth	4.5" Funnel
Wand Type	16" Brass
Standard Nozzle	Adjustable Brass Nozzle

3. Warning labels on the machine

IMPORTANT

If warning label peel off or become 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).



WARNING

Never modify your machine.

We won't warrant the machine, if you use the remodeled machine or you don't observe the proper usage written in the manual.

4. For safe operation

WARNING



1. Read this Sprayer Owner/Operator Manual carefully. Be sure you understand how to operate this unit properly before you use it. Failure to do so could result in serious injury. 
2. Be sure to keep this manual handy so that you may refer to it later whenever any questions arise. Also note that you are requested to contact the dealer from whom you purchased the product for assistance the event that you have any questions which cannot be answered herein.
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. DO NOT use flammables in the sprayer. They can ignite or explode causing serious injury.
8. Always wear splash goggles and protective gear and clothing when filling, using and/or cleaning the sprayer.
9. Oil the rubber cap gasket prior to first usage so the gasket will seal properly.
10. Tighten all connections before using the sprayer. Some may not be properly secured and must be tightened to prevent leakage.

WARNING

BEFORE USING:

Oil cap gasket, oil check valve, and maintain breather hole clear of debris. Your failure to oil and to clean check valve, and to maintain breather hole open to allow air into tank, can cause tank to collapse and crack due to vacuum created by the pump.

WORKING CONDITION

1. Refrain from operating the sprayer 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 injury when filling, using and/or cleaning the sprayer, always wear eye protection. Eye protection should meet the requirements of ANSI Z87.1.
3. Always wear a mask or respirator when filling, using and cleaning sprayer, if recommended by the spray material manufacturer.
4. Wear protective gear and clothing when filling, using and cleaning the sprayer. 

4. For safe operation

5. Wear sturdy rubber-soled shoes or shoes with some other form of anti-slip protection to help protect you against falling when filling, using and/or cleaning the sprayer.
6. Do not wear loose clothing, scarves, neck chains, hair longer than shoulder length, and the like when filling, using and/or cleaning the sprayer.



IMPORTANT

Check and follow the local regulations.

■ WORKING PLAN

- 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 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.

■ USING THE PRODUCT

NOTE

Hose clamps are not completely tight.
Please tighten hose clamps prior to using.
Hose clamps are left loose to extend life of gaskets and fittings.

WARNING

Oil cap gasket before using and lubricate weekly so the gasket will seal properly and prevent chemical leaks.

Oil check valve and maintain breather hole clear of debris. Your failure to oil may cause the tank to collapse and crack due to vacuum created by pump lubricate with "3 and 1" oil.

1. Always inspect your sprayer thoroughly before and after each use. Check to be sure hose is securely attached and in good condition before pressurizing the tank.
2. Check the work area that the sprayer will be used in and remove or cover all valuables that may be damaged by using sprayer.
3. To reduce the risk of injury,
 - Watch out for children, pets, open windows or freshly washed cars, and spray safely away.
 - Do not allow bystanders in work area.
 - Do not point the sprayer nozzle in the direction of people or pets.



- Pay attention to the direction of the wind, do not work against the wind.
- Never use the sprayer during windy conditions.
- Never point a sprayer nozzle toward an open flame to avoid the possibility of igniting the unit, causing injury to yourself or damage to surroundings.
- Always release pressure in the pump prior to filling, cleaning, or servicing the sprayer.
- Before opening a container of pesticide or other spray material, carefully read, understand, and follow all instructions on the label.
- Do not use flammable materials in the sprayer: they can ignite and/or explode, causing serious injury.
- Never use caustic or corrosive materials in the sprayer, which could result in damage to the unit.
- In case of personal contamination: remove contaminated clothing, remain upright, do not consume liquids or cause vomiting, and get professional help immediately.
- Never attempt to pressurize the unit by any other method than with the pump module provided. Never over-pressurize the unit.
- Do not eat, drink, or smoke while spraying.
- Wash face and hands with soap and water after spraying.
- Clean and rinse tank and spraying assembly after each use to prevent crystallizing, which would later cause clogging and chemical damage to the unit.
- Do not store sprayer under pressure, or with spray solution in tank.
- Do not transfer spray materials to other containers, especially, food and/or drink containers.
- Keep spray materials locked up and out of reach of children and animals.
- Use only original manufacturer's replacement parts.
- As a rule, mix your chemicals in a separate container from which to fill the sprayer. Do not mix formulas inside the sprayer. Where an exception is made (e.g. with liquid fertilizers), fill sprayer with water BEFORE adding the active ingredient.
- Always sift formula through the screen. If there is no built-in strainer, use a screened funnel.
- Never fill the sprayer with hot liquids. Max. 30°C, or 85°F.
- Never use gasoline or other flammable materials.
- Before cleaning or servicing the sprayer, allow all pressure to escape. Do not store or transport sprayer under pressure.
- After each use, wash the sprayer—including hose, lance and shut-off valve—with plenty of fresh water. Unless spraying is to be continued within hours, drain chemical formula and thoroughly rinse the tank and all liquid ducts.
- Never store chemicals in your sprayer for any length of time
- Do not leave the sprayer in reach of children or persons not qualified to handle it in proper fashion.
- When not in use—and especially during prolonged storage—keep your sprayer in a protected place away from direct solar heat.

▲ 4. For safe operation

- Make sure the spray hose loops freely without kinking or squeezing.

4. After using sprayers and other equipment, **CLEAN UP!**
Dispose of debris in trash receptacles.

■ 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. Examine the sprayer at intervals for loose fasteners and rusted or damaged parts. Use special care for chemical leakage.
3. Clean and rinse tank and spraying assembly after each use to prevent crystallizing, which would later cause clogging and chemical damage to the unit.
4. All service except for those described in this manual should be performed by competent service personnel.
5. When replacing the any other part, or any lubricant, always be sure to use only RedMax products or products which have been certified by RedMax for use with the RedMax 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 RedMax authorized servicing dealer for assistance.
7. Do not use any accessory or attachment other than those bearing the RedMax 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

- Clean and rinse tank and spraying assembly after each use to prevent crystallizing, which would later cause clogging and chemical damage to the unit.
- Drain the content from the tank before transporting or storing the sprayer.
- 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

- Clean and rinse tank and spraying assembly after each use to prevent crystallizing, which would later cause clogging and chemical damage to the unit.
- Do not store sprayer under pressure, or with spray solution in tank.
- When storing the sprayer, choose a space indoors free from moisture and out of the reach of children.

■ DISPOSAL

- When disposing your machine, or chemical, be sure to allow your local regulations.

5. Set up

NOTE

Hose clamps are not completely tight.
Please tighten hose clamps prior to using.
Hose clamps are left loose to extend life of gaskets and fittings.

WARNING

Oil cap gasket before using and lubricate weekly so the gasket will seal properly and prevent chemical leaks.

Oil check valve and maintain breather hole clear of debris. Your failure to oil may can cause the tank to collapse and crack due to vacuum created by pump lubricate with "3 and 1" oil.

■ HOW TO ASSEMBLE

1. Attach spray wand to spray gun and tighten firmly.
2. If unit is fitted with pressure valve, secure tightly.

6. Pre-operation

NOTE

Hose clamps are not completely tight.
Please tighten hose clamps prior to using.
Hose clamps are left loose to extend life of gaskets and fittings.

WARNING

Oil cap gasket before using and lubricate weekly so the gasket will seal properly and prevent chemical leaks.

Oil check valve and maintain breather hole clear of debris. Your failure to oil may can cause the tank to collapse and crack due to vacuum created by pump lubricate with "3 and 1" oil.

IMPORTANT

Before using, oil cap gasket, felt pump washer, and check valve, and maintain breather hole clear of debris. Your failure to oil, clean check valve, and maintain breather hole open to allow air into the tank, can cause the tank to collapse and crack, due to vacuum created by pump.

1. Before you remove cap, be sure there is no pressure in the tank. in order to release pressure, invert unit upside down and squeeze spray pistol (aim away from you). Pressure will escape; when hissing stops, all pressure has been released. Remove pump assembly by turning counter-clockwise. The pump handle has two locking positions, one turning clockwise and one counter-clockwise.
2. Remove cap.
3. A unit that has been used with herbicides should never be used to spray insecticides, unless the sprayer has been properly cleaned and all other chemicals neutralized. Failure to do this could cause you to kill plants that have been sprayed. Consult with the manufacturer of the chemicals in use to obtain proper instructions.
4. Always oil the gasket on the cap of the unit, as well as the check valve. This will extend the life of the seal and is important for obtaining a proper seal with no leaks.
5. Mix solution in a separate container, following the manufacturers' directions.
6. Pour pre-mixed solution through strainer into tank. Reinstall cap tightly.

7. Operation

- Always release pressure in the pump prior to filling, cleaning, or servicing the sprayer.
- Before opening a container of pesticide or other spray material, carefully read, understand, and follow all instructions on the label.
- Do not use flammable materials in the sprayer: they can ignite and/or explode, causing serious injury.
- Never use caustic or corrosive materials in the sprayer, which could result in damage to the unit.

- A single pumping session or 40 full strokes provides enough pressure to spray continuously for 10 minutes - enough to completely empty tank with just two pumping sessions.
- If sprayer is fitted with pressure relief valve - this valve will release at 42 psi.
- Spray pistol may be locked in the open position for continual spraying.

■ HOW TO ADJUST THE NOZZLE

- To adjust nozzle, tighten cap (turn clockwise) for fine atomized spray, or loosen (turn counter-clockwise) for coarser spray or solid stream.

■ RECOMMENDED APPLICATIONS FOR

"LAWN AND GARDEN" OR "AGRICULTURE" USAGE.

Herbicide : Yes
Insecticides/Pesticides : Yes
Fertilizers : Yes
Chlorine based : Yes
Diesel : Yes
Wettable Powder : No
Stains & Sealers : Yes
Oil Based : Yes
Solvent-Based : Yes
Viscous : No

8. Maintenance

WARNING

Before you remove cap, be sure there is no pressure in the tank. In order to release pressure, invert unit upside down and squeeze spray pistol (aim away from you). Pressure will escape; when hissing stops, all pressure has been released. Remove pump assembly by turning counter-clockwise. The pump handle has two locking positions, one turning clockwise and one counter-clockwise.

1. Remove cap and pour out remaining solution, then rinse all parts thoroughly with clean water.
 2. Add 1/2 gallon of fresh water in tank. Pressurize, and flush pumping system by depressing trigger for at least two minutes; then drain all remaining water.
- Periodically re-grease lid gasket as well as lid vent and pump cylinder, where applicable.
 - To ensure good performance, keep lid vent free of obstruction. Before and after each use, make sure all connections are well tightened. Service and replace worn parts as required.

NOTE

Failure to follow manufacturer's recommendation of use and care of unit will void any expressed or implied warranty. Do not use chlorine or clorox. It will permanently damage pump system.

NOTE

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 RedMax authorized servicing dealer for assistance.

NOTE

If pumping does not pressurize the tank, remove pump from tank; then remove the two screws from top of pump module. Pull plunger out and inspect seals. If damaged, obtain original SP Systems replacement parts from your dealer and replace.

■ SPRAYER MAINTENANCE TABLE

System/Component	Procedure	Dayly or Before Use	After Use
Lid Gasket	Grease	✓	
Pump	Grease	✓	
Connection	Inspect/Tight	✓	
Whole unit	Wash/inspect		✓

9. Storage

WARNING

Never store chemicals in your sprayer for any length of time

1. Before you remove cap, be sure there is no pressure in the tank. In order to release pressure, invert unit upside down and squeeze spray pistol (aim away from you). Pressure will escape; when hissing stops, all pressure has been released. Remove pump assembly by turning counter-clockwise. The pump handle has two locking positions, one turning clockwise and one counter-clockwise.
2. Remove cap and pour out remaining solution, then rinse all parts thoroughly with clean water.
3. Add 1/2 gallon of fresh water in tank. Pressurize, and flush pumping system by depressing trigger for at least two minutes; then drain all remaining water.
4. Always store tank clean and empty in a dry, shaded location.

10. Disposal

When disposing your machine, or chemical, be sure to allow your local regulations.

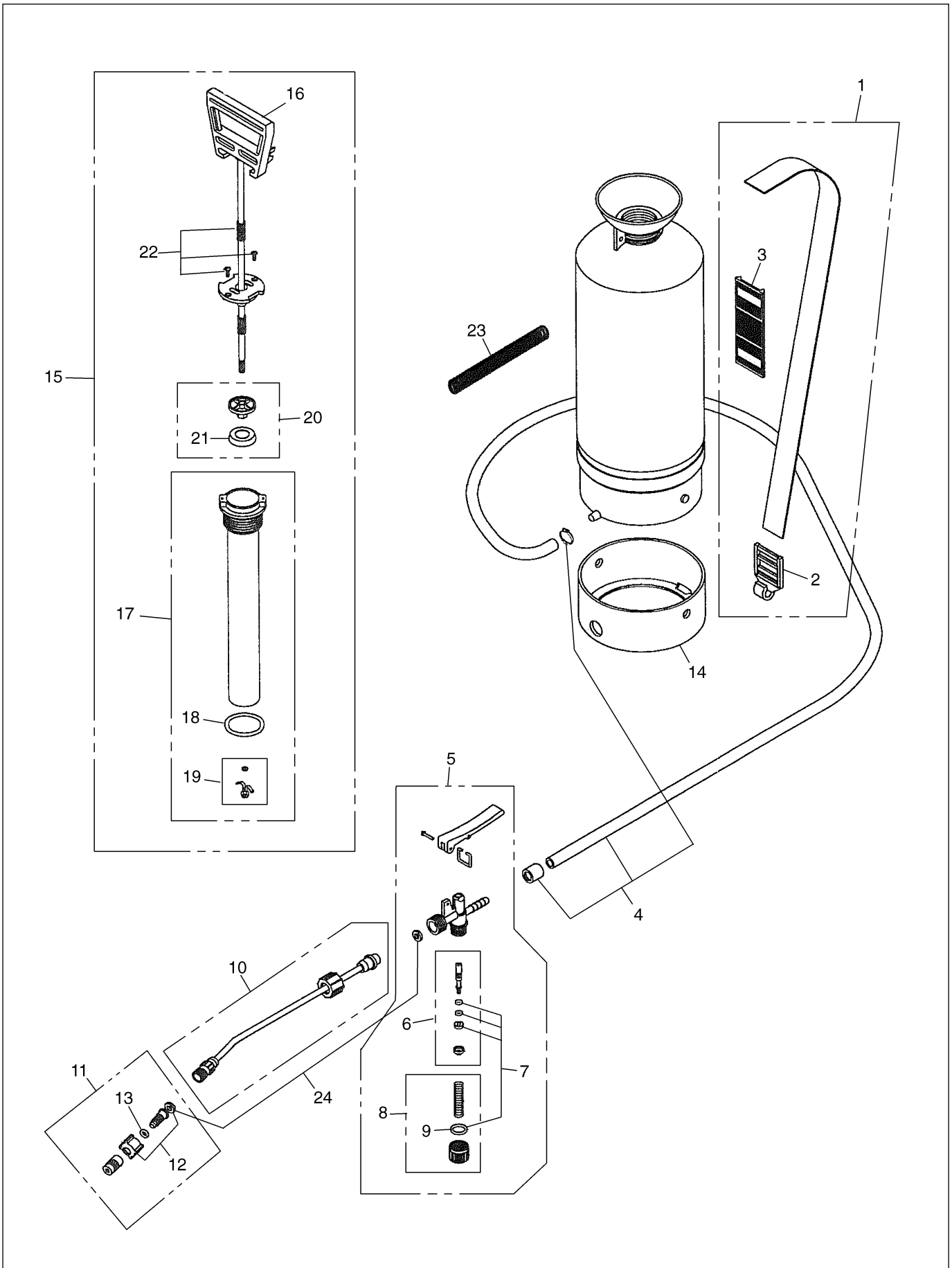
HANDHELD SPRAYER

HM20

NOTE :

1. Use RedMax/ZENOAH genuine parts as specified in the parts list for repair and/or replacement.
2. RedMax/ZENOAH does not warrant the machines, which have been damaged by the use of any parts other than those specified by the company.
3. When placing parts orders for repair and/or replacement, check if the model name is applicable to those specified in the parts list, then use parts number described in the parts list.
4. The contents described in the parts list may change due to improvement.
5. The parts for the machine shall be supplied seven (7) years after the machine is discontinued. [It is possible that some specific parts may be subject to change of their delivery term and list price within the limit of seven (7) years after the machine is discontinued. It is also possible that some parts may be available even after the limit of seven (7) years.]

11. Parts List : HM20



11. Parts List : HM20

Key#	Part KIT Number	Description	Q'ty
1	RMKIT15	Belt and clip.	1
2	RMKIT283	• Belt hook.	2
3	RMKIT36	• Shoulder pad.	1
4	RMKIT17	Hose & 2 hose clamps.	1
5	RMKIT18	Complete spray pistol.	1
6	RMKIT19	• Spindle set.	1
7	RMKIT20	• Spindle O-ring set.	1
8	RMKIT21	• Plug set.	1
9	RMKIT367	•• O-ring for plug.	1
10	RMKIT22	Brass spray wand 20".	1
11	RMKIT25	Spray tip set.	1
12	RMKIT24	• Nozzle holder.	1
13	RMKIT26	• Spray tip O'ring Nytril.	1
14	RMKIT524	Red base for compression sprayer.	1
15	RMKIT0567	Complete pump module.	1
16	RMKIT0566	• Recl pump handle.	1
17	RMKIT54.2	• Pump tube.	1
18	RMKIT55	•• Large pump O'ring.	1
19	RMKIT56	•• Check valve "antenna" & O'ring.	1
20	RMKIT59	• Pump plunger ass'y set.	1
21	RMKIT57	•• Pump plunger.	1
22	RMKIT60	• Pump top screw set.	1
23	RMKIT279	Hose spring for compression sprayer.	1
24	RMKIT392	Washer set for gun and nozzle.	1

LIMITED WARRANTY

FOR TWO (2) YEARS OF HOME USE, ONE (1) YEAR FOR COMMERCIAL USE AND NINETY (90) DAYS FOR RENTAL USE FROM THE DATE OF ORIGINAL PURCHASE, THE COMPANY, THROUGH ANY RedMax DEALER, WILL REPAIR OR REPLACE, FREE OF CHARGE, FOR THE ORIGINAL PURCHASER, ANY PART OF PARTS FOUND TO BE DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP. **THIS IS THE EXCLUSIVE REMEDY.**

THE PURCHASER SHALL BEAR COSTS OF TRANSPORTING THE UNIT TO AND FROM THE RedMax 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 RedMax 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, ACCIDENTAL 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 COMMERCIAL USE AND NINETY (90) DAYS FOR RENTAL USE FROM THE ORIGINAL DELIVERY DATE.

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

SOME STATES DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS OR EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

IF YOU NEED TO OBTAIN INFORMATION ABOUT THE NEAREST SERVICE CENTER, PLEASE CALL RedMax / ZENOAH AMERICA, INC. AT (770)-381-5147.

IMPORTANT: YOU WILL RECEIVE A WARRANTY REGISTRATION CARD AT TIME OF PURCHASE. PLEASE FILL OUT THE CARD AND SEND IT TO RedMax / ZENOAH AMERICA WITHIN SEVEN (7) DAYS. BE SURE TO KEEP A COPY FOR YOUR RECORDS.



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