



PORTABLE KEROSENE HEATER **OPERATION AND MAINTENANCE INSTRUCTION**



MODEL RSA-850

FOR SAFE AND EFFICIENT OPERATION OF YOUR TOYOSTOVE™ PORTABLE HEATER,
PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

CONTENTS

SPECIFICATIONS	1	ASSEMBLY AND OPERATION	6
OUTSTANDING FEATURES	1	CARE AND MAINTENANCE	10
SAFETY TIPS	2	REPLACEMENT OF PARTS	12
FUEL GUIDE	4	STORAGE	15
COMPONENT PARTS	5	TROUBLESHOOTING	16

Congratulations, you are ready to begin enjoying the benefits of one of the most popular kerosene heaters ever made. TOYOTOMI, the leader in kerosene heater technology, has tested and refined the RSA-850 to assure you of long term safety and satisfaction. Please study the following instruction, use and care your heater carefully, and it will serve you well for many years.

SPECIFICATIONS

MODEL	RSA-850
HEAT RATING*	9,400 BTU/hr.
FUEL TANK CAPACITY	1.85 Gallons
BURNING TIME/TANK	21-29 Hours
SIZE (W x H x D)	19-11/16" x 19-5/16" x 13-7/8"
WEIGHT (EMPTY)	23.4 Pounds
WICK ADJUSTER	3-Step
EXTINGUISHER	Automatic
IGNITER	Automatic, powered by two (2) "D" size batteries

**Matching Room Size to HEAT RATING*

- Because the "Heat Load" of an area to be heated is influenced by so many factors, it is impossible to specify a heater output to an exact room size.
- If you use a heater too large for the area to be heated, the temperature you desire will be reached quickly. In such cases, to avoid overheating the area, the heater must be turned off frequently, or doors opened to other areas of the house, or windows to the outside opened to cool the area.
- If you use a heater too small for the area to be heated, it will take much longer to reach the desired temperature, in fact it may not be reached at all depending on the outside weather conditions.
- As a "rule of thumb", the following can be given as a guide:
If you live in an area of the country exposed to severe winter temperatures, multiply the primary area (in square feet) to be heated by 24 BTU/ft²/hr, if you live in a moderate climatic area, multiply the primary area (in square feet) by 12 BTU/ft²/hr.

OUTSTANDING FEATURES AND BENEFITS

- **AUTOMATIC EXTINGUISHER:** Automatically extinguishes the flame if heater is jarred or tipped. Extinguisher can also be activated manually in emergency situation.
- **FUEL FEED:** Fuel is fed to the flame through the wick. The fuel is not under pressure, therefore, if the flame goes out, the fuel flow stops.
- **LOW CENTER OF GRAVITY:** The heater is designed such, that the weight is concentrated in the base making accidental tipover difficult, if not impossible.
- **DOUBLE TANK CONSTRUCTION AND SPECIAL OIL RESISTANT SEALS:** Minimize leakage of fuel in case of accidental tipover.
- **HEAVY ZINC COATING OF FUEL TANK:** Prevents corrosion when water is present in the fuel.
- **HIGH EFFICIENCY:** The unique "Double Clean™" combustion system increases combustion efficiency, thereby greatly reducing unwanted combustion products.
- **DUAL BURN CHAMBER:** Provides more efficient combustion and wide adjustment range of heat output.
- **THREE STEP WICK ADJUSTER:** Helps maintain good wick performance and extends useful wick life.
- **EASY MAINTENANCE:** No tools are required to change the wick, or perform other maintenance operations.

Remember that your portable kerosene heater is a well engineered and crafted heating appliance. Safety, reliability, and convenience have been engineered into the product but, as with any appliance, a common sense approach to its use will assure its maximum benefit to you.

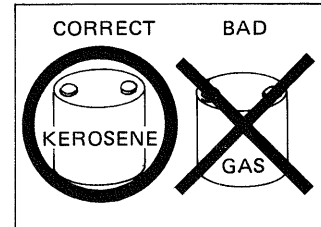
SAFETY TIPS

BEFORE OPERATING YOUR HEATER, PLEASE review these safety tips:

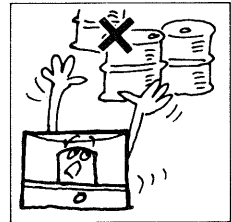
—WARNING—

RISK OF EXPLOSION

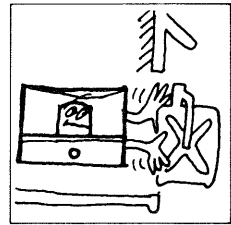
1. Never use any fuel other than pure kerosene (ASTM 1K or equivalent).
Never use gasoline.



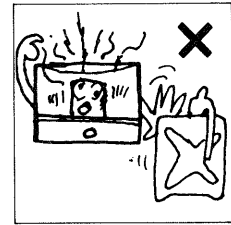
2. Never use heater in areas where flammable vapors or gases may be present.



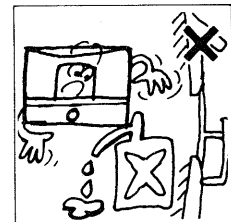
3. Never store kerosene in any container other than an approved safety can or store kerosene in living space.



4. Never refill heater fuel tank when heater is operating or still hot.



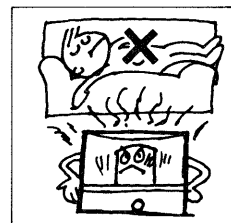
5. Never fill heater fuel tank in living space.
Fill heater tank outdoors. Never overfill your heater. Always replace heater tank cap securely after refueling.



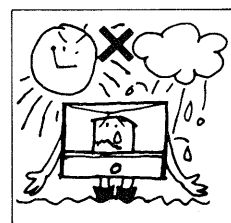
—WARNING—

RISK OF BURNS, OR FIRE

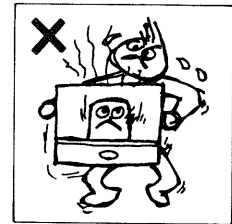
1. Due to high surface temperatures, keep children, furniture and clothing away.



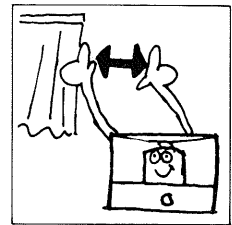
2. Do not operate your heater in areas exposed to strong drafts.



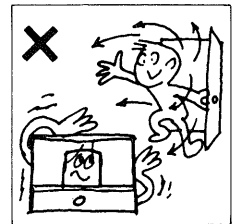
3. Do not move, fuel, or attempt to service your heater while it is burning, or still hot.



4. Do not operate heater less than three (3) feet from walls, draperies, clothing, or furniture.

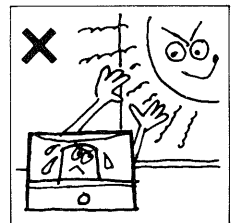


5. Do not operate your heater in high traffic areas such as doorways or hallways where it may be touched, jarred, or tipped accidentally.

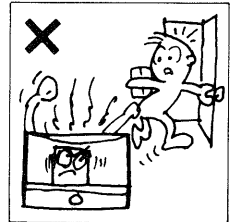


6. Do not operate heater in direct sunlight to avoid overheating, causing abnormal flame behavior.

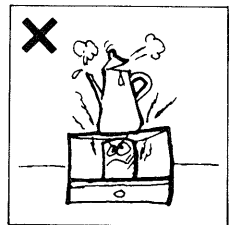
When room temperature goes above a level comfortable to you, open the door to the rest of the house, or turn heater down. Do not allow room temperature in the room to go above 80° - 85° F.



7. Before going out, or at bedtime, turn the heater off, making sure the wick is in its lowest position (see Extinguishing the Flame on page 10), and flame is completely extinguished.



8. When using your heater, do not place cooking utensils, tea kettles, or other type containers on top of the heater. The heater is designed such that optimum air flow for combustion and temperature removal is achieved. When an object is placed over the top surface it can disrupt the air flow and affect performance.



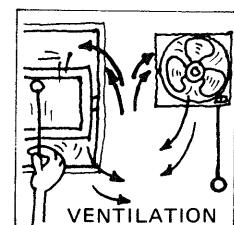
—WARNING—

RISK OF ASPHYXIATION

USE HEATER ONLY IN WELL VENTILATED AREAS

Never use in small tightly closed areas such as bathrooms and campers.

"In a house of typical construction, that is, one that is not of unusually tight construction due to heavy insulation and tight seals against air infiltration, as adequate supply of air infiltration, an adequate supply of air for combustion and ventilation is provided through infiltration. However, if the heater is used in a small room where less than 200 cubic feet (5.7 m³) of air space is provided for each 1000 Btu per hour of heater rating (considering the maximum burner adjustment), the door(s) to adjacent room(s) should be kept open or the window to the outside should be opened at least 1 inch (25.4 mm) to guard against potential buildup of carbon monoxide. Do not use the heater in a bathroom or any other small room with the door closed."



FUEL GUIDE

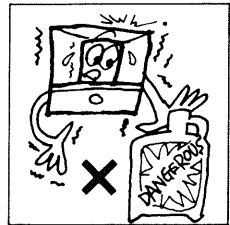
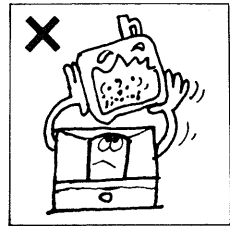
What to Buy. . .

ALWAYS: Crystal clear, colorless, high quality KEROSENE, ASTM 1K or equivalent.

ALWAYS: Kerosene free of contaminants, water or cloudiness.

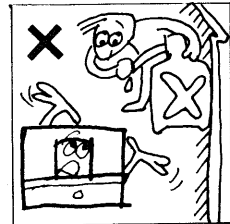
NEVER: Gasoline, alcohol, white gas, camp stove fuel or additives.

NEVER: Yellow or sour-smelling fuel.



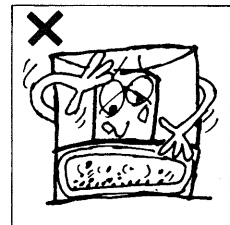
How to Use It. . .

ALWAYS: Fill heater away from living quarters when heater is cool; use siphon.



ALWAYS: Check wick frequently for tar build-up. (Rapid, heavy build-up may indicate poor quality or deteriorated fuel.)

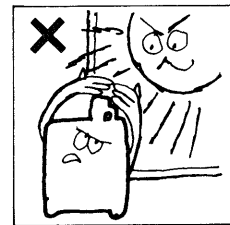
ALWAYS: Watch fuel gauge to avoid over-filling heater.



How to Store It. . .

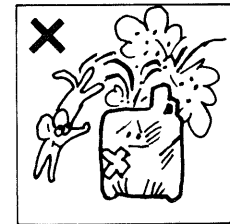
ALWAYS: In a clean container, clearly marked KEROSENE.

ALWAYS: AWAY FROM direct sunlight, heat sources or extreme temperature changes.



NEVER: In glass container, or one that has been used for other fuels.

NEVER: For longer than 6 months. (Begin each heating season with fresh kerosene; discard at the end of the season.)

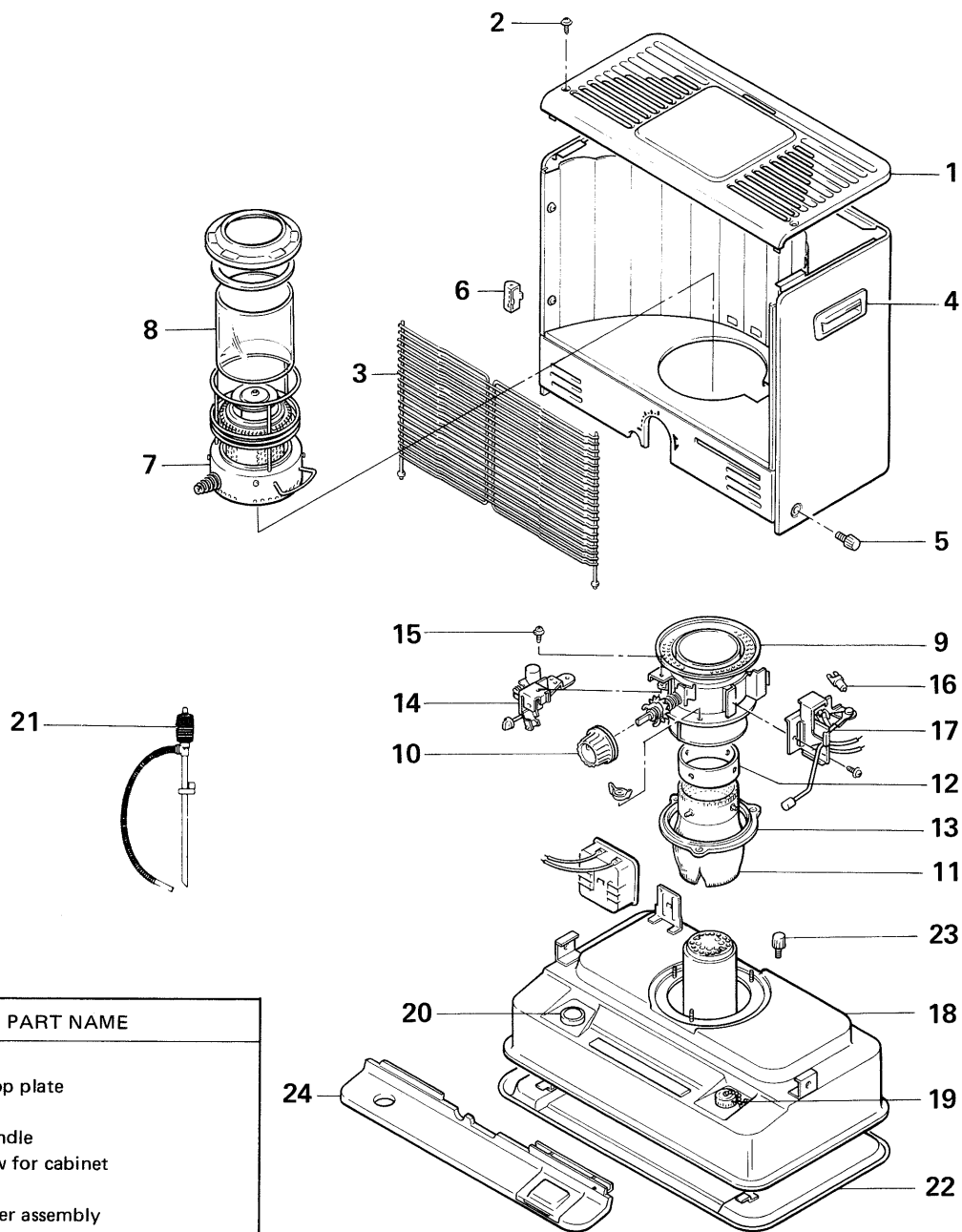


Why is It Important. . .

Pure, clean kerosene is essential for safe, efficient heater operation. Poor quality or contaminated kerosene can cause:

- Excess tar deposits on the wick.
- Reduce wick life.
- Odor, smoke.
- Difficulty in igniting or extinguishing flame.
- Use of a highly volatile flammable fuel such as gasoline can produce uncontrollable flame creating a severe fire hazard.

COMPONENT PARTS



REF #	PART #	PART NAME
1.	20450201	Top plate
2.	20450002	Screw for top plate
3.	20450203	Grille
4.	20450004	Carrying handle
5.	20450005	Thumbscrew for cabinet
6.	20450007	Plumb bob
7.	20450008	Heat chamber assembly
8.	20450009	Glass cylinder
9.	20450211	Wick adjuster with pendulum assembly
10.	20450112	Wick adjuster knob
11.	20450013	Glass fiber wick
12.	20450014	Wick sleeve
13.	20450015	Rubber packing
14.	20450216	Pendulum assembly
15.	20450017	Screw for pendulum and igniter
16.	20450018	Igniter coil
17.	20450019	Igniter unit
18.	20450222	Fuel tank assembly
19.	20450124	Fuel tank cap
20.	20450223	Fuel gauge
21.	20450028	Manual fuel siphon
22.	20450229	Drip tray
23.	20450130	Thumbscrew for tray
24.	20450231	Fuel tank cover

You should register heater's serial number. The serial number is located on the outside surface of fuel tank or cabinet. You need replacement parts or service in the future, reference to this number will assure you of obtaining the proper parts quickly.

Your heater's serial number

SERIAL NO.

ASSEMBLY AND OPERATION

INSPECTION AND ASSEMBLY

NOTE: Please save the shipping carton and packing materials for future storage of your heater.

1. REGISTRATION CARD

Take out the registration card from the shipping carton and fill it out and mail it as soon as possible.

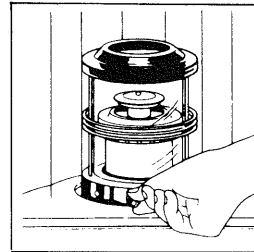
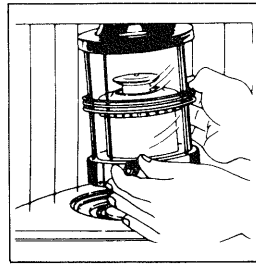
2. REMOVE PACKING MATERIALS

Open the grille by raising the lower right hand corner of grille and pulling straight out. Remove the styrofoam packing wedge from under the top plate of the cabinet to release the heat chamber assembly. Lift the heat chamber, in its protective packing, out of the cabinet.

3. REPLACE THE HEAT CHAMBER

Remove the styrofoam packing, and replace the heat chamber assembly. Point the wire handle to the front of the heater.

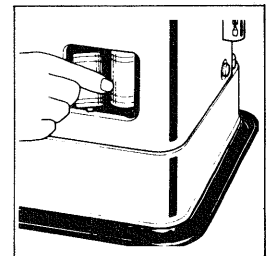
Close the grille.



4. INSTALL THE BATTERIES

Locate the battery holder on the back of your heater.

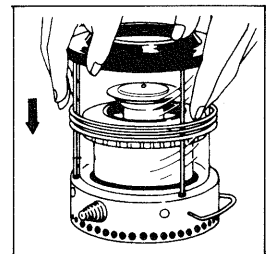
- Insert the 2 "D" size batteries according to the plus (+) and minus (−) markings.



5. CHECK THE THUMBSCREWS AND THE HEAT CHAMBER

Make sure that the three (3) thumbscrews around the sides and back of the cabinet are tighten.

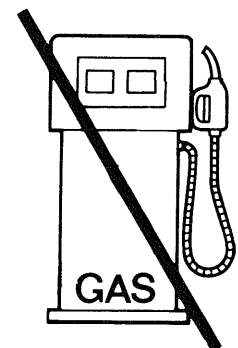
If the glass cylinder is raised, put it down and inlay it.



NOTE: If the glass cylinder is raised, it can cause smoke and soot.

FUELING

WARNING: Use only water clear kerosene, ASTM 1K or equivalent.
Never use gasoline or other flammable liquids.

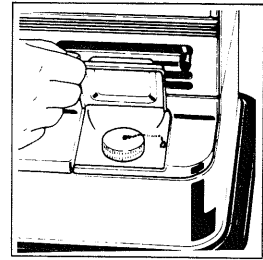


USE KEROSENE ONLY

1. Insert the straight tube of the manual fuel siphon into the kerosene container.

Open the fuel tank cap cover, remove the fuel tank cap on the heater, and insert the siphon's flexible hose into the fuel tank opening.

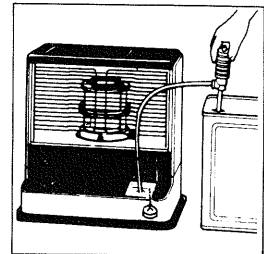
To hold the hose in place, and reduce the possibility of a spill, push it over the wire guide inside the tank.



2. Turn the air vent knob on the top of the siphon clockwise to close the air vent.

3. To start the flow of kerosene, squeeze the bulb of the siphon vigorously six or seven times. Once the flow begins, it is no longer necessary to squeeze the bulb.

To avoid overfilling the tank, watch the fuel gauge. As the indicator enters the red zone, stop the flow by turning the air vent knob counterclockwise.



NOTE: Be especially careful to avoid overfilling the tank with very cold kerosene; otherwise overflow of the fuel tank might occur when the fuel warms up.

4. Remove the siphon carefully, allowing the excess kerosene to drain from the tube back into container.

Replace the fuel tank cap and tighten it securely. Be sure to wipe away any spilled kerosene from tank or other parts of heater.

CHECK BEFORE LIGHTING

1. LOCATE YOUR HEATER AWAY FROM WALLS AND AVOID DRAFTS

Allow at least three (3) feet of clearance between the heater and walls, curtains, shelving or other combustible materials.

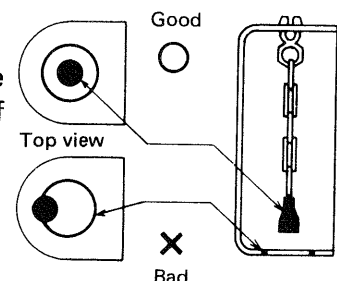
Do not operate your heater in drafty areas or locations where opening doors may create gusts of air. Drafts or strong air current may make flame unstable and affect heater performance.

2. LEVEL THE HEATER

The heater should be operated on a firm, level floor.

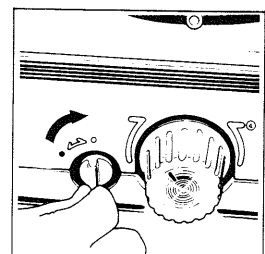
A built-in level indicator is located on the left side of the heater. When the heater is level, the end of the chain will lie approximately in the center of the red circle.

NOTE: If your heater is not level, change locations.
Do not prop it with books or other objects.



3. ENGAGE THE AUTOMATIC EXTINGUISHER

Engage the automatic extinguisher by turning the set knob clockwise into vertical position.



LIGHTING

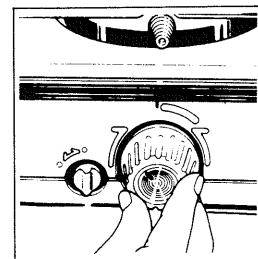
NOTE: When you first use your new heater, ignite it out of the living area of your house, either in a garage or an area outside protected from strong drafts. Burn it for about 15 minutes to remove all of the protective oil present on the burner parts. If this 15 minutes "burn-in" is done inside, some objectionable odor will be observed. This procedure is necessary **ONLY THE FIRST TIME** you ignite your heater.

NOTE: If you have fueled your heater for the first time, or if you are refueling it after it has been out of fuel for a long time, you will need to wait about thirty (30) minutes for the wick to become fully saturated.

1. Turn the wick adjuster knob clockwise until it stops.

As the wick rises within the heater, the wick adjuster knob turns with some resistance and makes a sound like the winding of a clock. Once the wick has reached its proper height, the automatic extinguisher is fully engaged.

The wick adjuster knob can now move freely left or right to adjust the flame.

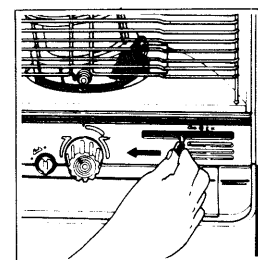


2. **AUTOMATIC LIGHTING**

Gently push the igniter lever to the left, the igniter coil should glow and touch the wick.

When flame appears, release the igniter lever.

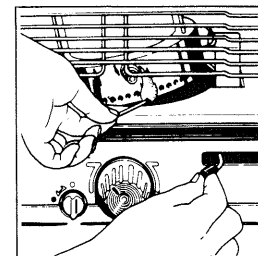
NOTE: If you have difficulty igniting wick, let up on the igniter lever very slightly to remove the igniter coil from direct contact with the wick.



3. **LIGHTING WITH A MATCH**

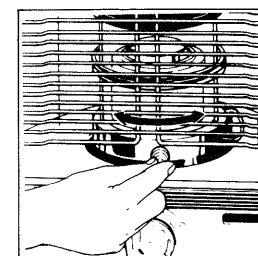
You should not have to light the heater with a match, but should it become necessary, open the grille, push the igniter lever and touch the match to the top of the wick. Do not allow burned parts of the match to fall or remain on the wick.

NOTE: To restore the automatic igniter system to proper operation, replace worn out batteries, or if the igniter coil defective, replace it.



4. Be sure that heat chamber is properly seated by moving the wire handle left and right. If the movement is cough and jerky, it indicates that the heat chamber has not seated properly.

NOTE: An improperly seated heat chamber can cause high flame, smoke, and potential damage to the heater itself. Do not leave the heater until you have determined that the flame is burning normally, which will be described in the following section.

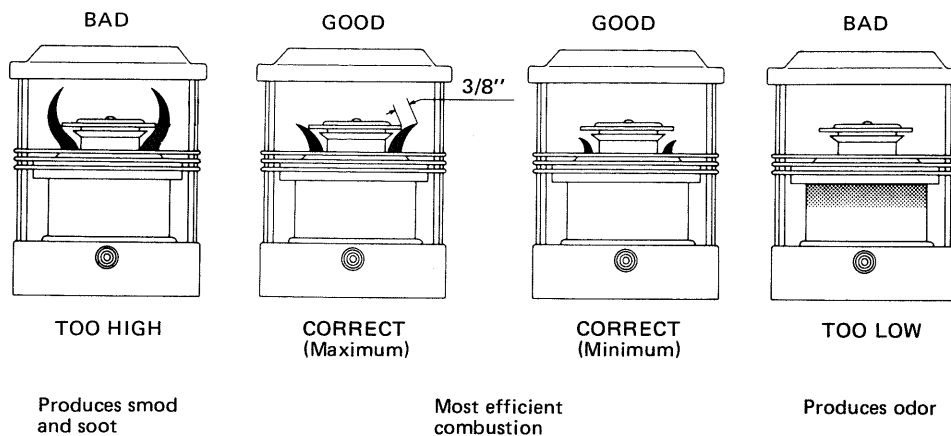


ADJUSTING THE FLAME

1. After lighting wait for the heat chamber to reach operating temperature. This will take ten-fifteen minutes, then the flame will be visible through the glass cylinder.

2. CHECK THE FLAME LENGTH

Look at the flame and check its length. While the flame length may vary around the circumference of the disk of the heat chamber, the average should be $\frac{3}{8}$ inch.



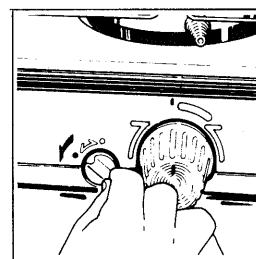
If necessary, raise or lower the wick by turning the wick adjuster knob to produce the proper flame condition.

NOTE: Do not operate your heater with wick set TOO LOW or TOO HIGH. Doing so will decrease combustion efficiency and increase production of unwanted emissions. When operating heater, be sure wick is high enough to keep the primary heat chamber heated to a uniform red glow from its top to bottom.

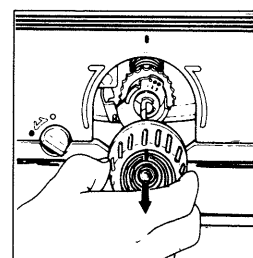
3. ADJUSTMENT OF MAXIMUM WICK HEIGHT

After using the heater over a long period of time, you may observe that the flame length in the heat chamber does not reach its normal level in several minutes after lighting. When this condition is observed, it means that the wick height needs adjusting using the unique 3-step adjuster.

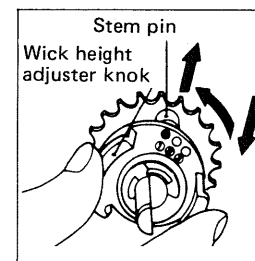
To adjust the wick height using the 3-step mechanism, first release the automatic extinguisher by turning the set knob counterclockwise.



Pull the wick adjuster knob out completely. (It can be removed completely from its shaft.)



The 3-step wick height adjuster, with three small holes marked ① , ② , and ③ can be seen. The stem pin is engaged in one of the holes. Pull the knob toward you and change the location of the pin from ① to ② , or from ② to ③ . Each step from pin ① to ② will raise the maximum wick height by 2 mm per step. After this adjustment, replace the wick adjuster knob.



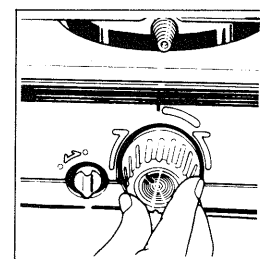
When suitable flame length can no longer be achieved even on pin position 3 , it is time to clean and replace the wick. **AFTER REPLACING THE WICK, CHECK THE OPERATION OF THE AUTOMATIC EXTINGUISHER BEFORE LIGHTING YOUR HEATER.**

NOTE: Never use positions ② or ③ until position ① no longer gives adequate flame length.

EXTINGUISHING THE FLAME

1. Turn the wick adjuster knob counterclockwise until it stops. This requires about a half turn. At this point, the flame is completely extinguished and the heater is off.

NOTE: DO NOT use the automatic extinguisher to routinely turn off the heater. Automatic extinguishing should occur only when the heater is jarred or tipped. Using the automatic extinguisher to turn off the heater will cause odor, smoke and soot.



2. Make sure the flame is out completely.
3. Do not try to relight the heater for at least three (3) minutes after extinguishing it off as this may cause smoke and odor.

CARE AND MAINTENANCE

As with any good appliance, preventative as well as corrective maintenance is occasionally required. Please read carefully the following section in order that you may enjoy the greatest benefits from your heater.

INSPECTION OF THE WICK

NOTE: One of the simplest but also the most important components of your heater is the wick. With proper attention, the wick can last at least one heating season and depending on the quality of the fuel used, it can be extended beyond that. It helps to perform routine maintenance operations on the wick.

1. Indications that the wick may need attention are:
 - deposits of tars on the top edge of the wick.
 - difficulty in turning the wick adjuster knob.
 - a flickering, dying or small flame.

2. Clean the wick in according to the following procedure of burning dry.

- 1) When the fuel gauge indicates empty, but the heater is still burning, raise the wick to its highest position and allow the flame to consume the remaining fuel in the tank.

NOTE: Burning the wick dry can at times create odors. During the burning dry procedure, remove your heater from the living area of your house into a well ventilated area such as a garage or even in a sheltered area outside. If you burn the wick dry outside please be sure that the heater is not exposed to strong wind drafts during the procedure.

- 2) After the heater has cooled completely, remove the cabinet as described in Items 1 through 5 of the next section.
- 3) Remove any residue from the wick with a small brush such as an old toothbrush. Cinders or soot in the burner are around the wick may be vacuumed away. Be careful when removing such material from the wick with the brush, do so gently and in a way not to tear the top surface of the wick.
- 4) Remove any tar deposits on the top of wick adjuster and primary air tube by a scraper.

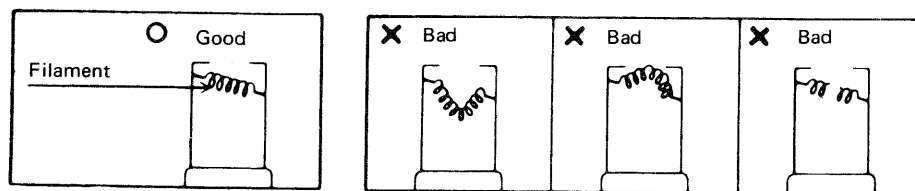
NOTE: When good wick performance is no longer achieved by the burning dry process, it may be necessary to replace the burned wick with a new one.

- 5) Before reassembling the heater, take a few minutes to wipe the parts with a soft cotton cloth or paper towels.
- 6) Reassemble the heater following directions in Item 16 of the next section.

NOTE: If the flame still remains small after cleaning the wick, the wick may contain some water. It is then necessary to remove the wick to replace or dry while emptying all kerosene from the fuel tank. Dry the tank thoroughly.

INSPECTION OF THE IGNITER COIL

If the wick does not ignite or it is hard to ignite, check if the igniter filament is broken.



If the igniter coil is found to be defective, replace it as described on page 15.

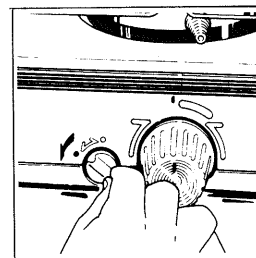
REPLACEMENT OF PARTS

REPLACING THE WICK

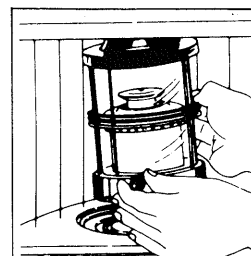
USE ONLY GENUINE TOYOTOMI™ "RSA-850" REPLACEMENT WICK.
SUBSTITUTE WICKS CAN SEVERELY REDUCE PERFORMANCE.

WARNING: Before disassembling your heater, allow it to cool completely.

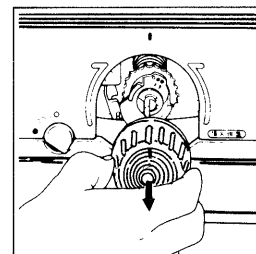
1. To release the automatic extinguisher, turn the set knob counterclockwise.



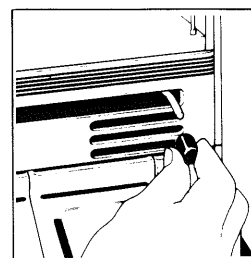
2. After the heat chamber has cooled completely, open the grille and remove the heat chamber.



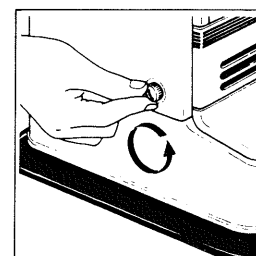
3. Grasp the wick adjuster knob and pull it straight off the wick adjuster shaft.



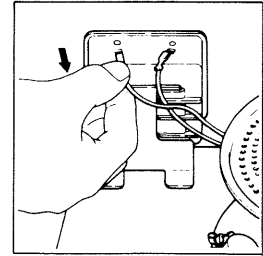
4. Take off the igniter knob by twisting back and forth.



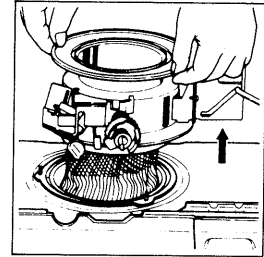
5. Remove the three (3) thumbscrews at the sides and rear of the cabinet, then lift the cabinet off the fuel tank.



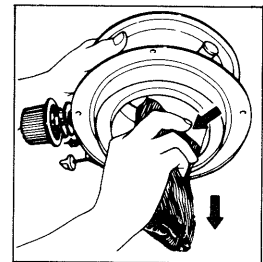
6. Disconnect the two electrical leads (red and white) attached to the battery holder.



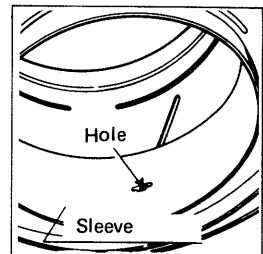
7. Remove the three (3) wing nuts around the wick adjuster assembly. Lift the assembly off the heater while moving it slightly back and forth.



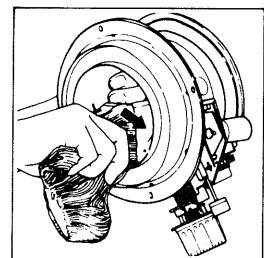
8. Slide two fingers between the orange band on the wick and the silver wick sleeve attached to the wick adjuster. Lift the pins in the wick off the slots in the wick sleeve.
After lifting all three (3) pins off the slots, fold the wick and remove it. Leave the wick sleeve in place.



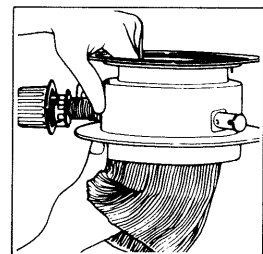
9. Replace the wick adjuster knob on the wick adjuster shaft.
Place the wick adjuster assembly on its side. Insure that the wick is in the wick adjuster with the holes in the section of the sleeve closer to the inside burn chamber.
At this time, you must line up the three (3) opening in the wick adjuster: 1) the holes in the sleeve, 2) the diagonal slots in the fixed part of the wick adjuster, and 3) the slots in the moving part of the wick adjuster controlled by the wick adjuster knob.



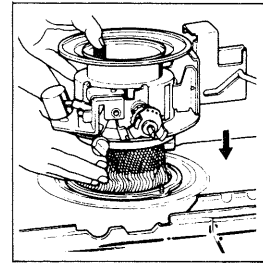
10. Fold the new wick in quarters and insert it into the assembly. Place one of the pins in one of the lined-up openings. If you experience difficulty, gently turn the wick adjuster knob clockwise. Then place the two other pins, turning the wick adjuster knob if necessary. Do not bend the sleeve.



11. Finally, gently press the wick, all along its circumference, against the adjuster to insure that it is firmly in place.

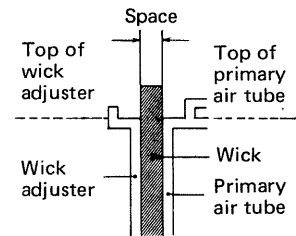


12. Lower the wick adjuster assembly into the fuel tank, guiding the tail of the wick so it fits over the primary air tube and evenly into place. Point the wick adjuster shaft to the front of the heater. Insure that the wick adjuster is centered over the studs on the fuel tank.

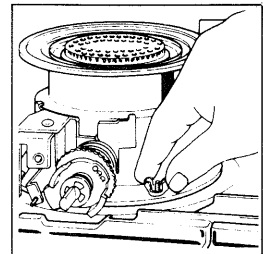


NOTE: The space between the wick adjuster and the primary air tube should be even all around.

NOTE: Make certain the top of the wick adjuster and the top of primary air tube are the same height. If they are uneven, the flames tend to be uneven, too.



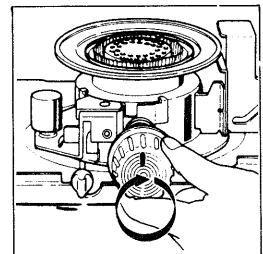
13. Tighten the three (3) wing nuts around the wick adjuster assembly.



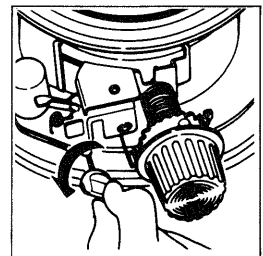
14. Engage the automatic extinguisher by turning the set knob clockwise into vertical position.

Operate the wick adjuster knob to be sure the wick moves smoothly up and down.

AFTER REPLACING THE WICK, CHECK THE OPERATION OF THE AUTOMATIC EXTINGUISHER.



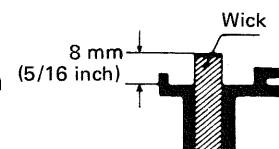
Wick height on position ① of 3-step wick adjuster should be 8 mm (5/16 in.) when wick adjuster knob fully clockwise. Be sure to check.



NOTE: Remember always start new wick on position ① of 3-step wick adjuster.

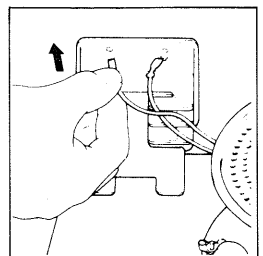
NOTE: If wick does not move smoothly and easily, or wick height is more or less than 8 mm (5/16 in.), do not use heater, disassemble and repeat Items 9 through 14.

NOTE: If any ragged edges appear on the top of the wick, trim them with a scissors carefully. DO NOT cut the body of the wick.



Remove the wick adjuster knob from the wick adjuster shaft once more.

15. Reconnect the red and white electrical leads to the battery holder.

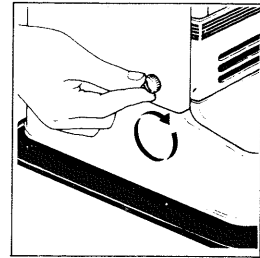


16. Replace the cabinet on the fuel tank and secure it into position with three (3) thumbscrews.

Replace the wick adjuster knob on the wick adjuster shaft. Replace the igniter knob on the igniter lever.

Install the heat chamber. Grasp the wire handle, then turn the heat chamber left and right to insure that it is properly seated.

Once again, check the proper operation of the automatic extinguisher.



NOTE: Before lighting a new wick for the first time, turn the wick to its lowest position. Allow the wick to saturate with kerosene for about thirty (30) minutes.

REPLACING THE IGNITER COIL

WARNING: Before replacing the igniter coil, allow the heater to cool completely.

1. FIRST CHECK THE BATTERIES

When the igniter coil no longer glows sufficiently to light the wick, replace the batteries. If proper glow is not restored, the igniter coil may be defective.

2. CHANGE THE IGNITER COIL

Remove the batteries from the battery holder.

Release the automatic extinguisher, and remove the heat chamber as described in Items 1 and 2 of the preceding section.

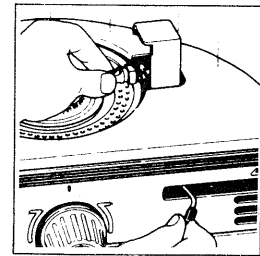
Push the igniter lever to bring the igniter coil into view.

Note that the igniter coil fits into a bayonet socket the same way a flashlight bulb fits into its holder.

To remove the igniter coil, push it in and twist it in either direction while holding the sides of the socket with your other hand.

Install the new igniter coil by pressing it into the socket and turning.

Replace the heat chamber, and reinstall the batteries.



STORAGE

At the end of each heating season, or when you do not plan to use your heater for an extended period of time, the following Items are recommended:

1. CLEAN THE WICK AND HEATER

Follow directions in Item 2 under "INSPECTION OF THE WICK".

2. DRAIN THE FUEL TANK

After you have burned your heater dry, a small amount of kerosene will remain in the fuel tank. It should be removed in order to avoid contamination when the heater is refueled at a later date. To do this, remove the fuel cap, tip the heater toward you and insert a small syringe into the bottom-most portion of the fuel tank. Empty the tank completely before storing.

3. REMOVE THE BATTERIES FROM THE BATTERY HOLDER.

4. STORE THE HEATER

The original shipping carton is the best place to store your heater. If you do not have the original packing materials, cover the heater with a large plastic bag and store in a place that is low in humidity.

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION	PAGE
Wick will not ignite.	Out of fuel.	Check fuel gauge; add fuel if necessary.	6
	Igniter coil will not glow.	Replace batteries. Replace igniter coil, if necessary.	6 15
	Water in Kerosene.	Drain tank. Remove, dry and reinstall wick. Refill with fresh, clean kerosene.	12 6
Smoke or odor.	Heat chamber tilted and not properly seated.	Move wire handle until heat chamber is properly seated and moves smoothly left and right.	8
	Flame too high.	Reduce wick height by turning wick adjuster knob counterclockwise.	9
	Dirty wick.	Clean wick as described under "CARE AND MAINTENANCE".	10
	Drafts.	Relocate heater.	7
	Contaminated fuel.	Drain tank and rinse it with clean kerosene. Install new wick and refill with fresh, clean kerosene.	15 12 6
Flickering, dying of low flame.	Dirty wick.	Clean wick as described under "CARE AND MAINTENANCE".	10
		If necessary, install new wick.	12
	Water in kerosene.	Drain tank. Remove, dry and reinstall wick. Refill with clean kerosene.	12 6
	Wick is too low to sustain good flame.	Raise 3-step wick adjuster to step ② or ③ . If already to step ③ , replace wick.	9 12
Wick adjuster knob is hard to turn.	Dirty wick.	Clean wick as described under "CARE AND MAINTENANCE".	10
	Water in kerosene.	Drain tank. Remove, dry and reinstall wick. Refill with fresh, clean kerosene.	15 12
	Damaged mechanism.	Contact your dealer for service.	
Flame too high and cannot be adjusted using normal procedure.	Fuel contaminated with gasoline, paint thinner, denatured alcohol or other volatile substance.	IMMEDIATELY shut off heater. Drain tank and rinse it with clean kerosene. Install new wick, refill with fresh clean kerosene.	10 15 12 6
	Wick installed too high.	Remove wick. Reinstall wick according to directions under "REPLACING THE WICK".	12

LIMITED WARRANTY

TOYOTOMI AMERICA INC. ("TOYOTOMI") warrants each heater (the "Product") and any parts thereof sold by it to be free from defects in materials or workmanship under normal use and service for TWELVE (12) MONTHS from the date of delivery to the original purchaser at retail subject to the following terms and conditions:

WHAT IS COVERED: Product or any parts thereof which are defective in materials or workmanship.

WHAT IS NOT COVERED:

(1) Product which has been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse including improper or contaminated fuels, repair using improper parts, or repair by anyone other than a service facility specified by TOYOTOMI;

(2) Normal wear and tear parts, including wicks, batteries, igniter coils and siphons.

WHO IS COVERED: The original purchaser at retail.

WHAT WE WILL DO: TOYOTOMI will either repair or replace, at its option, all defective parts free of charge that are covered by this limited warranty on a carry-in basis, to your nearest authorized dealer or distributor of TOYOTOMI.

WHAT YOU MUST DO FOR WARRANTY SERVICE: You must return the defective Product or part to any authorized dealer or distributor of TOYOTOMI with this LIMITED WARRANTY CARD and a copy of your bill of sale or credit card charge receipt or other document evidencing the date of the Product's delivery. If service is not available locally, please contact our CUSTOMER RELATIONS DEPARTMENT or call:

TOYOTOMI AMERICA INC.
604 Federal Road
Brookfield, CT 06804
(203) 775-1909

THE FOREGOING EXPRESSES ALL OF TOYOTOMI'S OBLIGATIONS AND LIABILITIES WITH RESPECT TO THE QUALITY OF PRODUCT FURNISHED BY IT. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. TOYOTOMI SHALL NOT BE LIABLE FOR THE LOSS OF USE OF THE PRODUCT, INCONVENIENCE, LOSS OR ANY OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, ARISING OUT OF THE USE OF, OR INABILITY TO USE, THE PRODUCT OR DAMAGES RESULTING FROM OR ATTRIBUTABLE TO DEFECTS IN THE PRODUCT.

No one other than TOYOTOMI has authority to extend or modify the terms of this Limited Warranty in any manner whatsoever.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so these limitations or exclusions may not apply to you. This Limited Warranty gives you specific legal rights and you may also have other rights which vary from state to state.



TOYOTOMI AMERICA INC.
P.O. Box 176, Brookfield, CT 06804-0176