

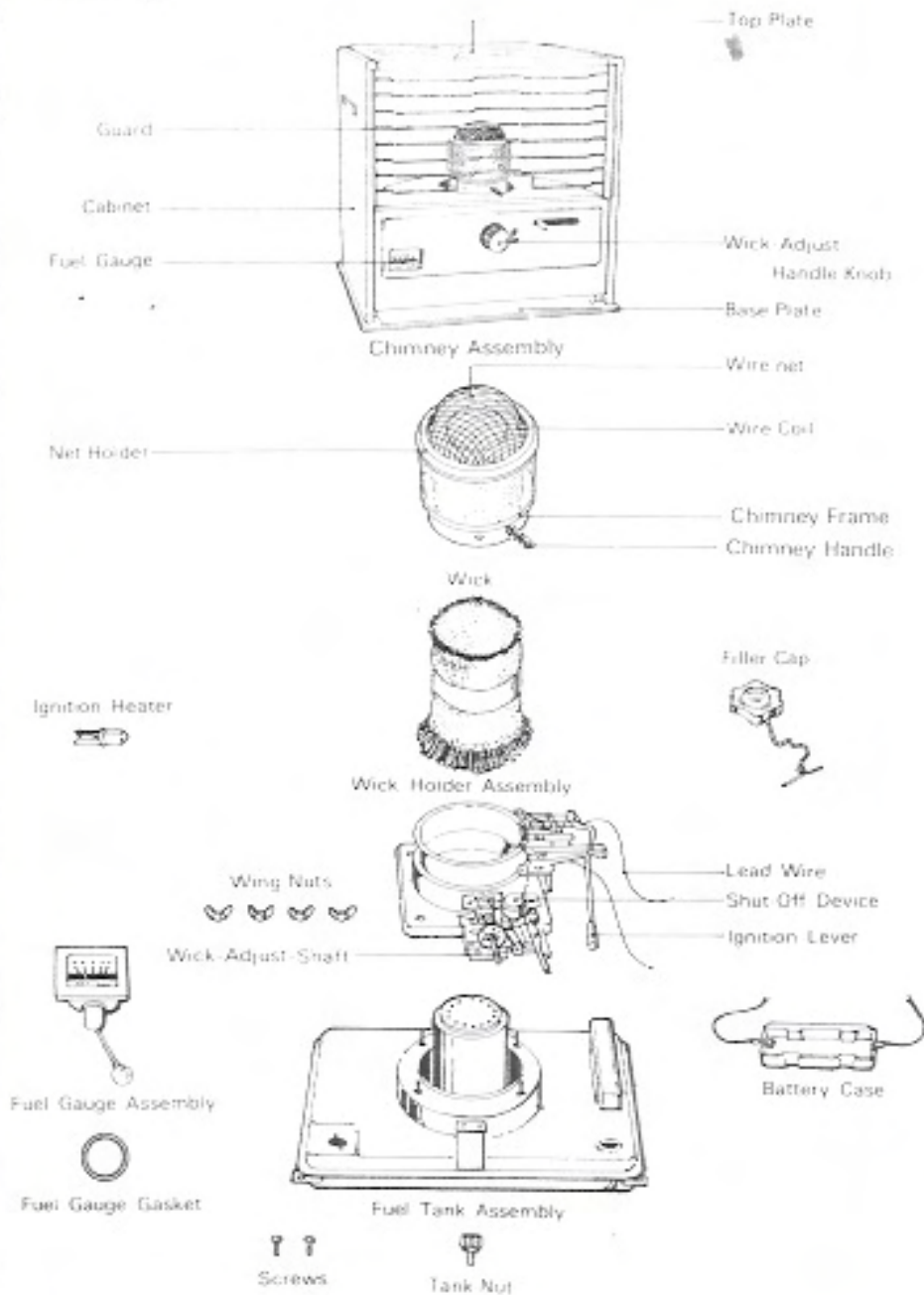


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Kerosene Heater
INSTRUCTION
MANUAL

Model: **P-E 12**

PARTS LIST



SPECIFICATION

MODEL	P E 12
TYPE	RADIANT
IGNITION METHOD	BATTERY IGNITION
FUEL	PURE KEROSENE
HEAT OUTPUT	9,400 Btu/hr
APPLICABLE ROOM SIZE	330 sq. ft.
FUEL CONSUMPTION	0.07 gal/hr
TANK CAPACITY	1.1 gal
CONTINUOUS BURNING TIME	15 hrs
WEIGHT	20 lbs
DIMENSIONS H x W x D	18 x 18 x 12 in
WICK	CYLINDRICAL FIBERGLASS WICK
POWER SUPPLY	2 D-CELL BATTERIES
SELF EXTINGUISHER	AUTOMATIC WICK DROP

WARNING

- (1) Risk of Explosion
 - (a) Never use any fuel other than pure kerosene. Never use gasoline.
 - (b) Never refill heater fuel tank when heater is operating or still hot.
 - (c) Never use heater in areas where flammable vapors or gases may be present.
 - (d) Never fill heater fuel tank in living space. Fill heater tank outdoors.
 - (e) Never store kerosene in any container other than an approved safety can or store kerosene in the living space.
- (2) Due to high surface temperatures, keep children, clothing, and furniture away.
- (3) Risk of asphyxiation, use heater only in well ventilated areas.
- (4) 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, 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.

UNPACKING

- (1) Take out heater body from the packing case and remove the plastic wrap.
- (2) Remove cardboard from burner.
- (3) Keep the packing case as a storage box for heater. For future use also keep operating instruction manual.

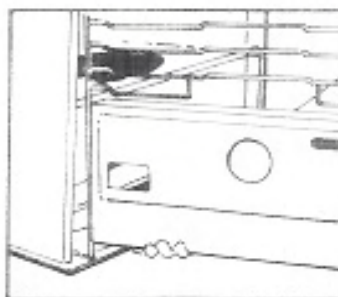


Fig. 1

INSTALL DRY CELLS

- (1) Take off the guard hook and open the guard until making it a right angle, and lift away the guard itself from the casing (Fig. 1).
- (2) Remove chimney.
- (3) Unscrew the both nuts at the right and left side of the fuel tank, also unscrew the tank nut at the back of the casing. Pull out the tank assembly (Fig. 2).
- (4) Insert two dry cells, making sure + - marks correspond (Fig. 3).

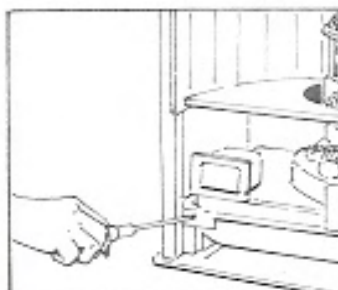


Fig. 2

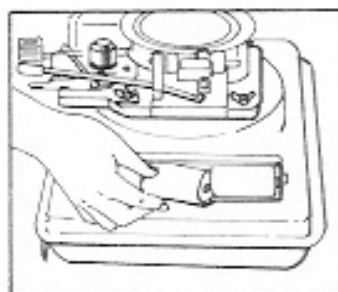


Fig. 3

FUELING

Turn and remove fuel filling cap. Fill until the gauge reaches "F" mark. (Fig. 4)

- * If fuel overflows or is spilt, wipe off with soft cloth.
- * Tighten cap firmly to prevent leakage.
- * Do not pump from bottom of bulk containers. Water is frequently found here.
- * Turn off heater before refueling. Make certain flame is extinguished before attempting to fill tank.

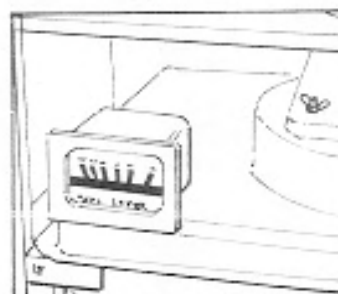


Fig. 4

PREPARATION FOR IGNITION

- (1) Checking of fuel level
The fuel level can be checked by looking at the fuel gauge
- (2) Setting of emergency shut off device. This heater is equipped with shut off device which is designed to extinguish the heater automatically when the heater is disturbed, shaken or overturned. The weight will activate the emergency shut-off device and immediately extinguish the flame. It is operated by a spring which retracts the wick and snuffs out the flame. You must set this system before lighting by pushing the lever up gently. (Fig. 5)

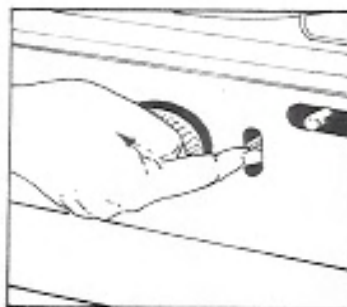


Fig. 5

IGNITION

- (1) For first time using the heater, wait 30 minutes after fueling, to allow wick to become fully saturated before lighting. Ignition is possible after 15 minutes when refueling. If wick is not fully saturated when lighted, heater will not burn properly and would cause odours.
- (2) Raise the wick to its full height by turning the wick adjusting knob clockwise till it stops. (Fig. 6)
- (3) Move ignition lever gently to right till it stops and hold until wick is lit. (Fig. 7) Return the ignition lever after ignition. In case ignition is not obtained and white smoke goes up near ignition heater, set the ignition lever again.

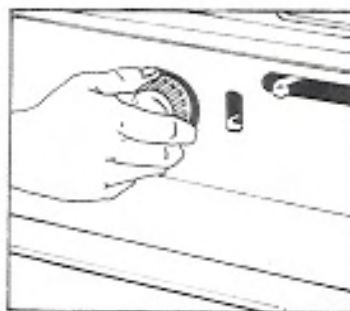


Fig. 6

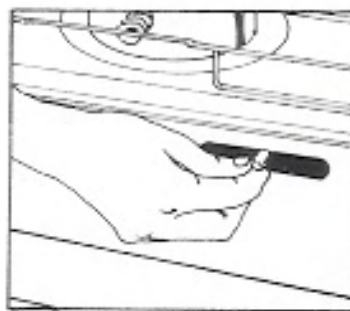


Fig. 7

- (4) Use chimney handle to swing the chimney for 2-3 times, to make sure that chimney is properly seated after lighting (Fig. 8)

* Even a slight unseating of the chimney will cause flame-up or smell.

- (5) When re-ignition is performed immediately after extinguishing, crude fuel can cause an intense smell. Wait 5 minutes for cooling the chimney before re-ignition.

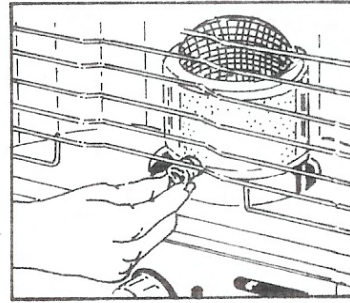


Fig. 8

MATCH IGNITION

(In case of battery failure)

Lift the wick, open guard, tilt the chimney and light the wick with a match at two or three spots. (Fig. 9)

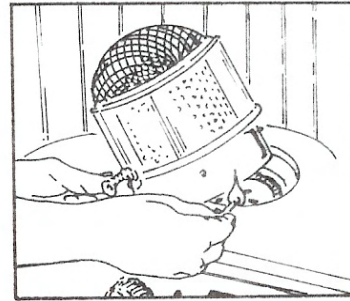


Fig. 9

FLAME ADJUSTMENT

After heater is lit, it takes about 10 minutes to obtain a stable flame. Adjust the flame to proper intensity. (Fig. 10) If the flame flares too high above the wire net (Fig. 11), first check if chimney is seated properly by holding the chimney handle to swing the chimney for 2-3 times and see whether the flame becomes stable. If the flame continues to flare up, adjust by turning wick adjusting knob counterclockwise slowly.

Always use at normal flame. Only manipulate the wick adjusting knob in between the "HIGH" and "LOW" markings for flame adjustment. Do not turn the knob beyond the "LOW" marking. Use at the lower flame will cause carbon deposits on the wick and does not allow perfect combustion. If room becomes too warm, turn heater off or open a window.

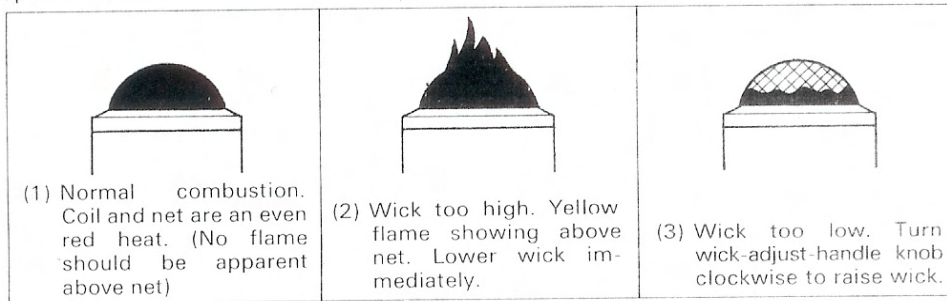


Fig. 10

Fig. 11

Fig. 12

EXTINGUISHING

Turn wick adjusting knob counter-clockwise till it stops. Make sure the flame is completely out.

DAILY CHECK AND MAINTENANCE

Always clean the heater and the area around it. Spilled kerosene in base plate could cause accident. Lack of maintenance could shorten life of heater.

- (1) Checking of fuel tank
Examine for fuel leakage during refueling. Make sure filler cap is tight.
- (2) Checking of wick and wick guide cylinder
Take off the chimney and examine wick for carbon and also on upper end of the wick holder assembly and the wick guide cylinder. If there are carbon deposits, remove them with screwdriver after lowering the wick.
- (3) Checking of ignition heater (glow plug)
When the glow plug does not heat or when the heater is difficult to ignite, examine for breakdown or deformation of the heater coil (Fig. 13). Slight deformation of the heater coil can be corrected by match stick or pencil. In case wire is broken, replace the glow plug with a new one.

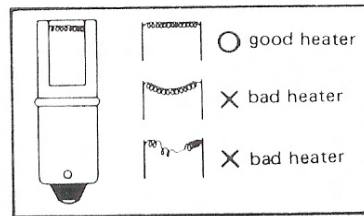


Fig. 13

- (4) Checking and exchange of dry cells
If the glow plug glows weak in spite of the normal heater coil, this is caused by weak dry cells. Replace dry cells with new ones.
- (5) Checking and maintenance of wick
The wick used in this heater is made of heat resisting fibre glass which does not burn and should last for a long time. To keep the wick in good condition, you should burn the wick off every other month to remove the carbon deposits accumulated on the wick.

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If carbon accumulates on the wick and causes difficulty in the up and down movement of the wick, or if the wire net is not heated to normal flame, and the fire is difficult to be ignited by the dry cell ignition, burn the wick without fuel for cleaning according to the following procedures to remove the carbon.

Procedures of No-Fuel Burning for cleaning:

- (a) Perform the wick cleaning outdoors without wind or at an open window.
- (b) To burn the wick clean, operate the heater without fuel.
- (c) When the red heat of the wire net becomes weak, raise the wick fully and leave it till the fire is naturally extinguished (in about 1 hour).
- (d) By this wick cleaning method, the carbon is removed and the wick becomes soft. Refuel the tank and wait 15 minutes for the wick to become fully saturated before lighting the heater again.

NOTE: Carbon is gradually accumulated on a wick used over a long period of time and a wick used over 2-3 seasons may not be improved even when the nofuel burning is performed. Replace such a wick with a new one.

(6) Checking and maintenance of wire net and wire coil.

- (a) Wire net
Brush off any accumulated soot or carbon. Check that the wire net has the correct round dome shape. In case the dome is deformed, reshape it by hand.
- (b) Wire coil
Check for even loops. If loops are uneven, space them by hand. In case coil is broken, replace it.



EXCHANGE PROCEDURES OF IGNITION HEATER

NOTE: Handle with great care. Do not bend or stretch the filament.

- Remove dry-cells.
- Push and rotated to remove old ignitor (rotate anti-clockwise to remove)
- Push and rotate new ignitor. Rotate clockwise to lock.

EXCHANGE PROCEDURES OF WIRE NET AND WIRE COIL

- (1) Untasten the wire net by turning left. (Fig. 14)

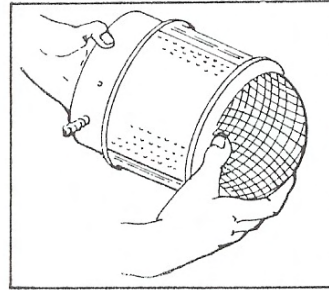


Fig. 14

- (2) Take out the used wire coil and replace with a new one.
(3) Replace the wire net by turning right.

CAUTION:

- Be careful not to deform wire net or wire coil.

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EXCHANGE PROCEDURES OF WICK

If the wick is not regularly burnt clean, or is damaged, replacement will be necessary

- (1) Pull out the wick adjusting knob. (Fig. 15)

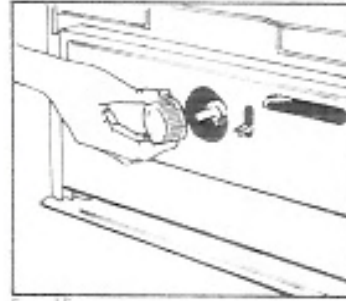


Fig. 15

- (2) Take off the guard, remove set screws and extract the tank unit from casing (Fig. 16).

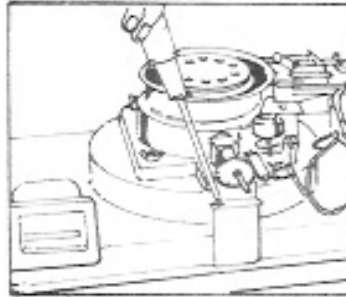


Fig. 16

- (3) Remove lead wires and loosen set screws of shut off device (Fig. 17)

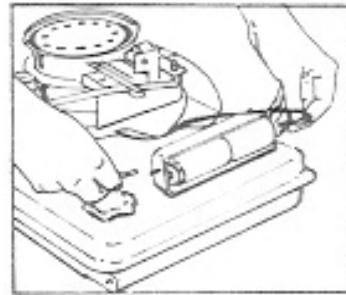


Fig. 17

- (4) Remove 4 wing nuts and lift out the wick holder assembly. (Fig. 18, 19)

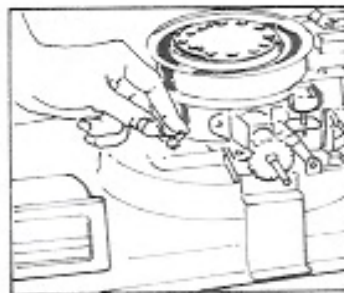


Fig. 18



Fig. 19

- (5) Remove the wick from the wick holder (Fig. 20)

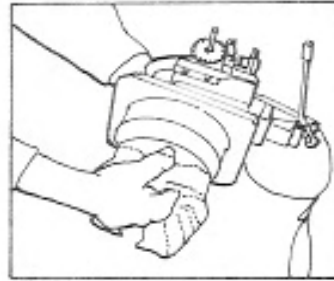


Fig. 20

- (6) Insert the new wick and pierce with the sharp projection inside the wick holder. The new wick should be installed with the bottom line of the tape at the bottom line of wick holder
- (7) Put the wick holder assembly into the wick guide cylinder with the wick control shaft pointing front
- (8) Insert the flame adjusting knob into the shaft.
- (9) Turn wick up and down to make sure the wick fits in the holder and moves smoothly. If not, repeat wick installation procedure from step (6).
- (10) Tighten each two diagonal wing nuts simultaneously so that the gap for up and down movement of the wick is even throughout. (Fig. 21)

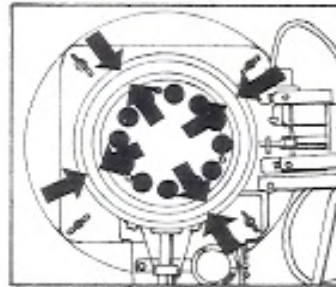


Fig. 21

- (11) Assemble the rest of the heater
- (12) After adding fuel, Wait 30 minutes for the wick to become fully saturated before ignition

- NOTES
- The wick holder assembly gasket stuck on the bottom of the burner cover should never be removed.
 - After assembling the heater, test it in a safe place before you use it

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STORAGE

To store heater for the next season, follow these directions:

- (1) Drain all kerosene from fuel tank and rinse it with fresh kerosene. After draining allow the tank to air dry with cap off.
- (2) Next perform no-fuel burning for cleaning. Burn the wick after draining the fuel. When the red heat of the wire net becomes weak, raise the wick fully and leave it till the fire is naturally extinguished. Perform the no-fuel burning outdoors without wind or at an open window.
- (3) After no-fuel burning, remove the body. Remove the wick holder assembly and dry the inside of the wick case. Clean carbon off the wick holder assembly and the cylinder. Clean dust and stain off the base plate and body.
- (4) Remove the dry cells. Use new dry cells in next season.
- (5) After cleaning, assemble as it was before.
- (6) Cover the heater with a polyvinyl bag. Store it in the packing case and keep in a well ventilated place with low humidity.

NOTICE

CAUSES FOR ODOR FROM KEROSENE HEATERS

- (1) For the first time use the heater, it may give off an odor. This is due to a vapor resulting from the initial burning of the protective rustproof coating. This odor will disappear in subsequent use.
- (2) Kerosene must be pure clear in color. #1 fuel oil is yellow-do not use.
- (3) Never tilt the chimney to check the flame when starting or shutting off since this release excessive kerosene contaminated air.
- (4) Never leave liquid or dust on the base of the heater. This area supplies air to the combustion chamber and will cause abnormal combustion problems.
- (5) Tar buildup on the wick or a damaged wick can cause odor.
- (6) Fill the tank outdoors to avoid spilling kerosene that will cause odor.
- (7) Chimney must be seated properly.

TROUBLE SHOOTING GUIDE

PROBLEM	CAUSES												REPAIR		
	Fails to light	Low flame	Soot	Fails to extinguish	Self-extinguisher will not set	Fumes	Uneven flame	Cannot set, Wick too low	Burner will not glow red	Cannot control wick height	Slow heating	Weak flame		Uneven flame, too high or low	Unsettled flame
Wick too low	*	*							*		*				Adjust wick height
Water in fuel		*				*			*	*	*				Change fuel & dry wick
Contaminated fuel	*	*				*			*	*	*				Change fuel & wick
Carbon on wick									*	*	*				Burn off carbon
Out of fuel		*							*	*	*				Refill tank
Wick too high			*												Lower wick
Wick control malfunction				*			*								Repair or replace
Wick not fitted right										*					Re-fit wick in holder
Fuel spoiled						*									Wipe off excess
Burner not seated			*			*							*		Re-seat Burner by moving handle
Water on wick	*	*				*			*	*	*	*			Remove wick & dry
Wire not dented									*						Remove & reshape
Heater not levelled					*	*							*		Level heater
Wick not adjusted	*	*	*	*		*			*	*	*				Adjust wick
Lack of air			*			*									Ventilate
Wick has not absorbed fuel												*			Wait 30 minutes for fuel to saturate
Wind or draft						*									Remove from draft
Exhaustion of dry cell or broken heater circuit	*														Replace dry cell or heater and repair broken circuit


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