

TM 9-4940-660-14&P

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE
MANUAL INCLUDING REPAIR PARTS LIST

FOR

HEATER, GUN TYPE, ELECTRICAL
MODEL 5630

(NSN 4940-00-785-1162)

ALTON IRON WORKS, INC.

HEADQUARTERS, DEPARTMENT OF THE ARMY

AUGUST 1981

WARNING

BEFORE OPERATION:

The three-prong plug should be mated with a grounded outlet. In the event that a grounded outlet is unavailable, and the two-prong adapter is used, the pigtail lead (grounding wire) must be attached to a proper ground connection. If the pigtail is grounded to an outlet box, make certain that the outlet box is part of a grounded system to insure maximum performance and safety. If an extension cord is used, make sure it is a three-conductor type with NEMA connectors, to insure a continuous ground circuit from the gun to the receptacle.

DURING OPERATION:

Do not touch the nozzle shield when the gun is in operation. It is extremely hot. Do not place anything but the product to be worked on directly in front of the nozzle.

AFTER OPERATION:

Do not touch the nozzle shield for a period of 30 minutes after the gun is shut off.

Technical Manual }
No. 9-4940-660-14&P }

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 7 August 1981

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, IL 61299. A reply will be furnished directly to you.

NOTE

This manual is published for the purpose of identifying an authorized commercial manual for the use of the personnel to whom this gun type heater is issued.

Manufactured by: Alton Iron Works, Inc.
1475 Palisado Avenue, PO Box 544
Windsor. CT 06095

Procured under Contract No. DAAA09-77-M-6181

This technical manual is an authentication of the manufacturers' commercial literature and does not conform with the format and content specified in AR 310-3, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

INSTRUCTIONS FOR REQUISITIONING PARTS

NOT IDENTIFIED BY NSN

When requisitioning parts not identified by National Stock Number, it is mandatory that the following information be furnished the supply officer.

- 1 - Manufacturer's Federal Supply Code Number - 84027
- 2 - Manufacturer's Part Number exactly as listed herein.
- 3 - Nomenclature exactly as listed herein, including dimensions, if necessary.
- 4 - Manufacturer's Model Number - Model 5630
- 5 - Manufacturer's Serial Number (End Item)
- 6 - Any other information such as Type, Frame Number, and Electrical Characteristics, if applicable.
- 7 - If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and Remarks field in accordance with AR 725-50.

Complete Form as Follows:

(a) In blocks 4, 5, 6, list manufacturer's Federal Supply Code Number - 84027 followed by a colon and manufacturer's Part Number for the repair part.

(b) Complete Remarks field as follows:

: (nomenclature of repair part)

For: NSN: 4940-00-785-1162

Manufacturer: Alton Iron Works, Inc.
1475 Palisado Avenue, PO Box 544
Windsor, CT 06095

Model: No. 5630

Serial: (of end item)

Any other pertinent information such as Frame Number, Type, Dimensions, etc.

SECTION I

INTRODUCTION AND DESCRIPTION

1. Scope

This technical manual describes and gives instructions for the operation and care, with an illustrated parts list, for a Heater, Gun Type, Electrical, Model 5630.

2. Purpose

The thermal gun (Fig.1) is a portable hand or stand operated unit that produces a flameless concentrated heat. This heat can be used for shrinking thermo plastic tubing, molded parts, etc.

3. Description

This heating device contains an electric motor which drives a blower wheel. Air from the blower flows across a heater element. When the heater element is unenergized (control switch in the COOL position) , a cool stream of air emanates from the gun nozzle. When the control switch is placed to Heat the heater element is energized and will produce heat that is forced from the gun nozzle in a concentrated stream by the blower wheel. In the HEAT position, the elevated temperature of air flow is almost instantaneous and can be controlled within a range of 300°F to 500°F by an adjustable intake cover on the side of the unit. See Fig. 2, the electrical schematic/wiring of the thermal gun.

4. Leading Particulars

Envelope size:	10- x 10- x 5-inches
Electrical input requirements:	110-120 V(AC-DC), 14 amps
Air delivery velocity:	3,000 lineal ft/min
Air delivery volume:	28 cubic ft/min
Operating temp. @ room ambient (74°F), air control position:	open: 300°F, half: 400°F, and closed: 500°F
Weight:	1 lb (approximate).

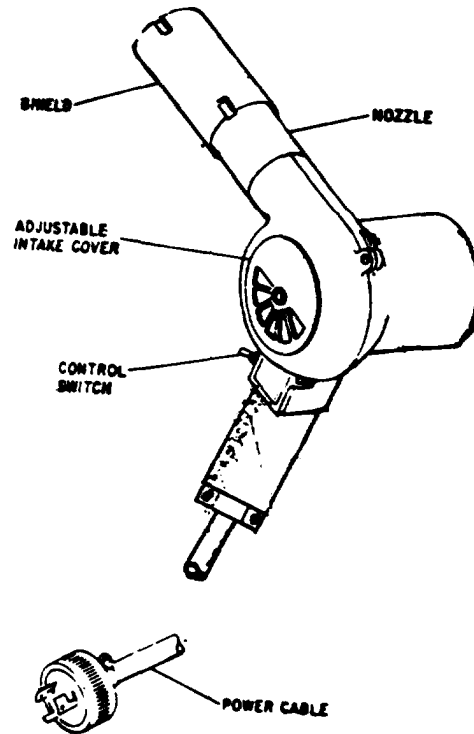


Figure 1. Thermal Gun Set;
Identification of Controls
and External Parts

SECTION II

PREPARATION FOR USE

5. Inspection, Service and Installation

- a. Remove the thermal gun and accessories from the sealed package and inspect for physical damage, shortages, or defects. Report any discrepancies to the proper authority.
- b. No service or lubrication is required. The unit is ready in all respects for operation.

- c. With the control switch in the OFF position, insert the power cable plug into the 110-120 volt electrical supply.

NOTE: If a three prong receptacle is not available on the electrical supply, procure and use a mating two prong outlet adapter with a grounding lead.

SECTION II I

OPERATING INSTRUCTION S

6. Operating Controls (Fig.1)

- a. Control Switch. The three position toggle switch controls the thermal gun as follows: in the COOL (center) position the blower motor is energized but the heater element is unenergized, resulting in a flow of cool ambient air from the nozzle; in the HEAT (up) position both the blower motor and heater element are energized, and in the OFF (down) position both the blower motor and heater element are unenergized resulting in shutdown.
- b. Adjustable Intake Cover. This side vent can be positioned to control the air temperature flowing from the gun nozzle. The cover is graduated in degrees Fahrenheit so that when it is aligned with the arrowhead on the cover, air with that approximate temperature will be discharged from the nozzle.

7. Operating Procedure

- a. With the control switch OFF set the gun operation as described in para 5.
- b. Place the switch to COOL. The motor should run smoothly and the blower should force ambient air from the nozzle.
- c. Rotate adjustable intake cover to the desired heat range.
- d. Place control switch to HEAT and allow about 60 seconds for warm-up and stabilization of temperature.

WARNING: do not touch the nozzle or place anything but the product to be worked on directly in front of it.

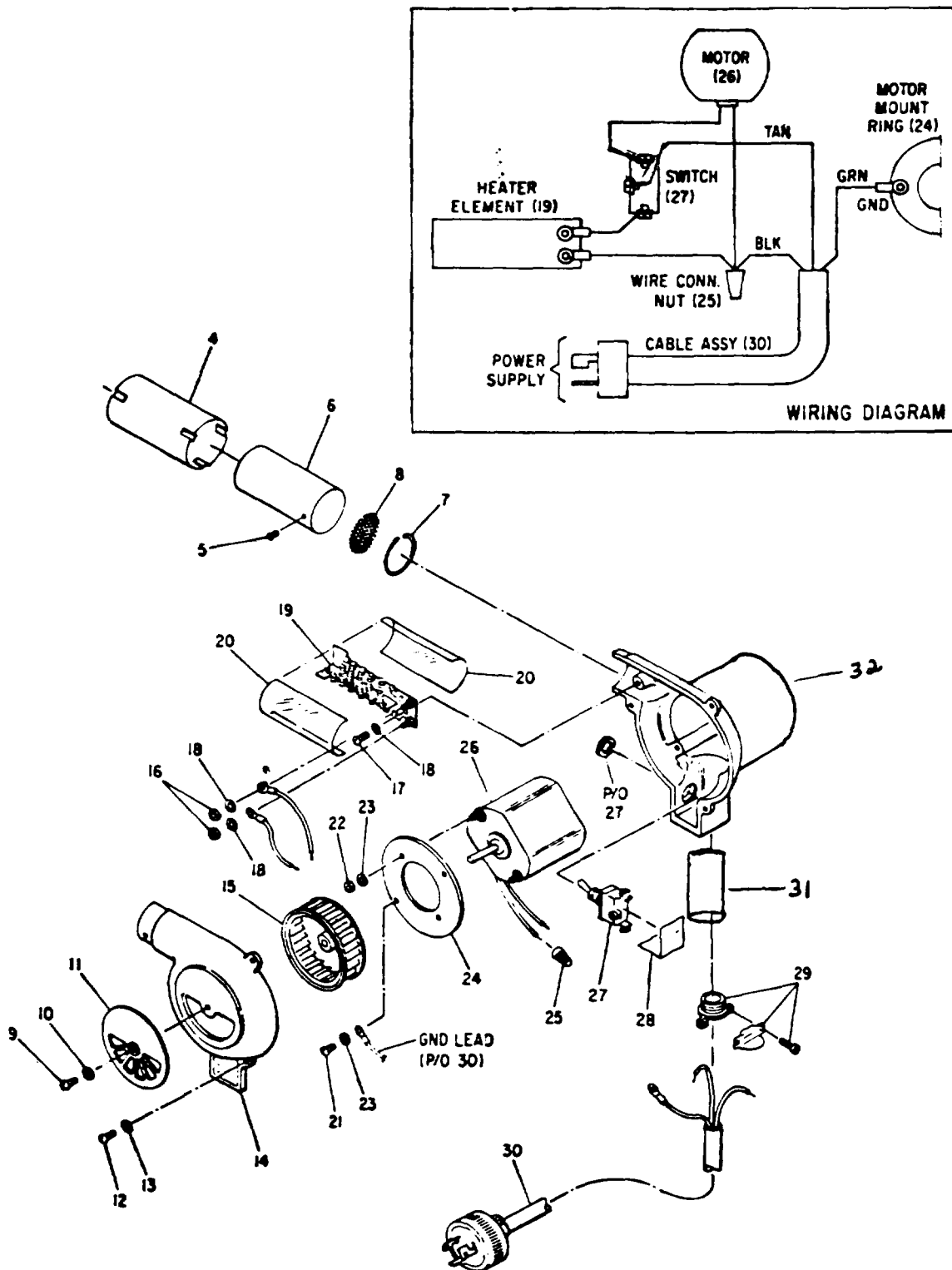


Figure 2. Thermal Gun Set, Exploded View

- e. When production run is completed, place the switch to COOL.
- f. When nozzle has cooled, place the switch on OFF and remove the plug from the electrical outlet.

SECTION IV

TROUBLESHOOTING AND REPAIR

8. Repair

- a. General. Repair is limited to the replacement of defective components and can be accomplished with standard hand tools.
- b. Disassembly. Disassemble only to the extent required to effect replacement and repair.
 - (1) Disconnect power cable from the electrical outlet.
 - (2) Pull the nozzle shield (4) off the nozzle (6).
 - (3) Remove screw (5) and remove nozzle (6) carefully.
 - (4) Remove retainer ring (7) from inside the nozzle and remove nozzle screen (8).
 - (5) Remove screw (9) and washer (10) and remove intake cover (11).
 - (6) Remove three screws (12) and lockwashers (13) and remove cover housing (14).
 - (7) With wrench loosen screw in blower wheel (15) and remove blower wheel.
 - (8) Remove two nuts (16) and washers (18) to disconnect heater wires. Label all electrical leads.
 - (9) Remove screw (17) and washer and remove heater element (19) and two mica insulation sheets (20).
 - (10) Remove the two screws (21) , nuts (22) and four lockwashers (23) holding the motor mount ring (24), ground lead wire and motor (26). The motor (26) may now be pulled out of housing (32), but not removed.
 - (11) Disconnect one motor lead wire from the center of switch (27) and remove wire nut connector (25) connecting second motor lead, heater lead and one leg of the input power supply. Remove motor (26). Label all leads.

(12) Loosen cable clamp (29) and remove leads from cable assembly (30) to switch (27). Remove cable (30).

(13) Remove Switch ring nut and remove switch (27) and insulator (28).

(14) Remove screw handle (31) from housing (32).

c. Inspection

(1) Replace hardware with stripped threads.

(2) Replace mica sheets (20) whenever they are removed.

(3) Replace cover (14) and housing (32) if they are cracked.

(4) Replace components determined to be defective by para 9.

d. Assembly. Assembly is essentially the reverse of disassembly, keeping in mind the following important techniques:

(1) When replacing leads to electrical components check the schematic/wiring inset of Fig. 2 and identifying tags on each lead.

(2) Stagger mica insulation sheets (20, Fig. 2) to completely insulate the heater element (19). Wrap the sheets around the heater element before installing cover (14) and Nozzle (6). Place nozzle over the heater element and mica carefully. Do not tear the mica insulation.

(3) After the gun has been reassembled, check air flow distribution by running the gun in HEAT and observing the color of the element on both sides of the ceramic. If one side is much brighter than the other, reposition mica after nozzle has cooled.

9. Service Troubles and Remedies

<u>TROUBLE</u>	<u>CAUSE</u>	<u>REMEDY</u>
Gun plugged in but does not operate	Defective power cable. Defective switch. Defective wiring.	Replace (30, Fig.2) Replace (27). Check wiring (Fig.2)
Heater element overheats	Defective blowers Insufficient air flow	Replace wheel (15) Check motor speed with hand tachometer in COOL position. If low, replace (26).
	Improperly installed or defective mica	Install mica (20) properly, para 8, or replace if defective
Gun does not heat	Defective heater	Replace (19)
Unit rattles	Loose hardware.	Check and tighten loose hardware.

SECTION V

ILLUSTRATED PARTS LIST

10. GENERAL

THE PARTS LIST AND ACCOMPANYING ILLUSTRATION (FIG. 2) ARE SELF-EXPLANATORY.

FIG. & IND. #	PART NUMBER	DESCRIPTION	QTY
2-	6249	SET, HEATER GUN AND REFLECTOR (NOT	1
-1	6249-2	.REFLECTOR, TUBE, UP TO 3/4-IN DIAM(SHOWN)	1
-2	6249-3	.REFLECTOR, TUBE, 3/4 TO 2-IN (NOT SHOWN)	2
	6249-1	.GUN, HEATER, ELECTRIC TYPE	1
-3	6249-4	..BASE ASSY (NOT SHOWN)	1
-4	56306B-2	..SHIELD	1
-5	COML	..SCREW, OVAL, 4-40X3/16-IN LG	1
-6	65306B-1	..NOZZLE	1
-7	5630110	..RING, RETAINER, ..SCREEN	1
-8	563010-A	..SCREEN, NOZZLE	1
-9	COML	..SCREW, BIND HEAD, 8-32 X 1/4-IN LG	1
-10	COML	..WASHER, FLAT #8	1
-11	56307-A	..COVER, INTAKE, ADJUSTABLE	1
-12	COML	..SCREW, ROUND HEAD, 6-32 X 3/8-IN LG	3
-13	COML	..WASHER, LOCK, INT TEETH, #6	3
-14	56302-C	..COVER, HOUSING	1
-15	5630160	..WHEEL, BLOWER	1
-16	COML	..NUT, HEX, 6-32	2
-17	COML	..SCREW, ROUND HEAD, 6-32 X 3/8-IN LG	1
-18	COML	..WASHER, FLAT, #6	3
-19	56304-B	..ELEMENT ASSY, HEATER	1
-20	56304-B	..INSULATOR, MICA	2
-21	COML	..SCREW, ROUND HEAD, 8-32 X 3/8-IN LG	2
-22	COML	..NUT, HEX, 8-32	2
-23	COML	..WASHER, LOCK, INT TEETH, #18	4
-24	56308-A	..RING, MOTOR MOUNT	1
-25	5630157	..NUT, CONNECTOR, WIRE	1
-26	5630140	..MOTOR, ELECTRIC	1
-27	5630150-A	..SWITCH, TOGGLE, SPDT	1
-28	5630156-A	..INSULATOR, ASBESTOS PAPER	1
-29	563020	..CLAMP, ELECTRIC	1
-30	563021	..CABLE ASSY, 6-FT LG	1
-31	563011-A	..HANDLE	1
-32	56303-C	..HOUSING	1

By Order of the Secretary of the Army:

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General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
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Maintenance Manual for Heater, Gun Type, Electrical

BE EXACT... PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
6		7	
7	5(e)1		

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Callout no. 15 should be no. 25.

step should read: Remove nozzle shield (18) from nozzle (12).

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

Roy R. Rogers, Pfc., 112-0011

SIGN HERE:

Roy R. Rogers, Pfc

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