



THC 85N INDUSTRIAL / COMMERCIAL SPACE HEATER



Certified to / Certifié à CGA 2.14 M2000 Conforms to / Conforme à ANSI std
Z83.7 2000

Suitable for indoor or outdoor installation / Unvented / Unattended Type

OPERATING INSTRUCTIONS MANUAL

SPECIFICATIONS:

Model	THC-85N
Input	85,000 BTUH
Fuel	Natural Gas
Inlet Pressure	7.0" W.C.
Ignition	Direct Spark Ignition
Thermostat Control.....	Standard
Air Circulation	700 cfm
Fuel Consumption.....	82 cfh
Approved.....	cETLus listed

THC-85N / THC-175N OPERATING INSTRUCTIONS MANUAL

! GENERAL HAZARD WARNING:

FAILURE TO COMPLY WITH THE PRECAUTIONS AND INSTRUCTIONS PROVIDED WITH THIS HEATER, CAN RESULT IN DEATH, SERIOUS BODILY INJURY AND PROPERTY LOSS OR DAMAGE FROM HAZARDS OF FIRE, EXPLOSION, BURN ASPHYXIATION, CARBON MONOXIDE POISONING, AND / OR ELECTRICAL SHOCK.

ONLY PERSONS WHO CAN UNDERSTAND AND FOLLOW THE INSTRUCTIONS SHOULD USE OR SERVICE THIS HEATER.

IF YOU NEED ASSISTANCE OR HEATER INFORMATION SUCH AS AN INSTRUCTIONS MANUAL, LABEL, ETC. CONTACT THE MANUFACTURER.

! WARNING: FIRE, BURN, INHALATION, AND EXPLOSION HAZARD, KEEP SOLID COMBUSTIBLES, SUCH AS BUILDING MATERIALS, PAPER, OR CARDBOARD, A SAFE DISTANCE AWAY FROM THE HEATER AS RECOMMENDED BY THE INSTRUCTIONS. NEVER USE THE HEATER IN SPACES WHICH DO OR MAY CONTAIN VOLATILE OR AIRBORNE COMBUSTIBLES, OR PRODUCTS SUCH AS GASOLINE SOLVENTS, PAINT THINNER, DUST PARTICLES OR UNKNOWN CHEMICALS.

! WARNING: NOT FOR HOME OR RECREATIONAL VEHICLE USE.

WARNING:

This heater is designed and approved for use in accordance with Standard ANSI Z83.7-CGA 2.14. CHECK WITH YOUR LOCAL FIRE SAFETY AUTHORITY IF YOU HAVE QUESTIONS ABOUT APPLICATIONS.

Other standards govern the use of fuel gases and heat producing products in specific applications. Your local authority can advise you about these.

FOR TEMPORARY HEAT ONLY.

FOR USE WITH NATURAL GAS ONLY.

DO NOT OPERATE IN A CLOSED OR CONFINED SPACE.

ALWAYS PROVIDE ADEQUATE VENTILATION. AIR SUPPLY – MUST BE FRESH AIR FROM OUTDOORS OR ADEQUATE INDOOR SUPPLY.

DO NOT USE OR STORE GASOLINE OR FLAMMABLE VAPOURS OR LIQUIDS IN THE VICINITY OF THE HEATER.

HEATER MUST BE INSTALLED ON A LEVEL SURFACE.

INSTALLATION:

The installation of this heater shall conform with local codes or, in the absence of codes with the National Fuel Gas Code ANSI Z223.1/NFPA 54 and the Natural Gas and Propane Installation Code, CSA B149.00. This heater must be installed by a qualified gas technician, following local codes published by the authority having jurisdiction.

PIPING: This heater must be installed by a qualified gas technician following local codes published by the authority having jurisdiction.
Sizing of supply piping must be determined using the length of pipe run as well as total btuh rating of the appliance(s).
Appropriate piping tables must be used to determine size of supply piping dependant on the length of run from source.

PRESSURES: MAXIMUM INLET PRESSURES: NG: 7.0 IN. WC.

MINIMUM INLET PRESSURES: NG: 7.0 IN. WC.

This heater must be supplied by pressures indicated on the approval label. Over pressure may cause controls to fail.

DO NOT supply this unit with more than 7.0 in. W.C.)

FUEL: This heater will operate on natural gas only. The manifold pressure is listed on the approval label and the proper have been provided. Ensure the supply pressure is correct before attempting to light the heater. Any replacement parts must be purchased from the manufacturer or authorized distributor.

HOSES: All hoses used to connect this heater of fuel supply must be Type 1 approved propane / natural gas hose assemblies.

ELECTRICAL: WARNING Electrical Grounding Instructions

This appliance is equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle.

120v supply must be available. Please note that the motor on this unit requires 20 amps. Ensure appropriate gauge extension cord is used.

CLEARANCE TO COMBUSTIBLES:

TOP – 2 ft FRONT – 8 ft SIDES – 2 ft REAR – 1 ft

MAINTENANCE:

1. Every heater should be inspected before each use.
2. Heaters must be inspected annually by a qualified service person.
3. The hose assembly shall be visually inspected prior to each use of the heater. If it is evident there is excessive abrasion or wear, or the hose is cut, it must be replaced prior to the heater being put into operation. The replacement hose assembly shall be that specified by the manufacturer.
4. The appliance must be kept clear and free from combustible materials, gasoline and other flammable vapors and liquids.
5. The flow of combustion and ventilation air must not be obstructed. Be sure to check the fan assembly and ensure the motor and blade are operating properly.
6. Compressed air should be used to keep components free of dust and dirt build up. Note: Do not use the compressed air inside any piping or regulator components.

START UP INSTRUCTIONS:

1. Ensure the heater is provided with a gas supply of 7.0" W.C.
2. Open the gas supply.
3. Depress the fan switch to the "ON" position. The fan motor will start and air will be pushed through the outlet of the heater.
4. Depress the burner switch to the "ON" position. The burner should ignite and hot air will be pushed through the outlet of the heater.
5. Set the Thermostat (if provided) to desired temperature.
6. If heater fails to ignite after 3 attempts call your supplier for service.

TO SHUT DOWN:

1. Close the gas supply valve.
2. Move both the "FAN" and "BURNER" switches to the "OFF" position.
3. Disconnect heater from the gas supply.

09/14/12

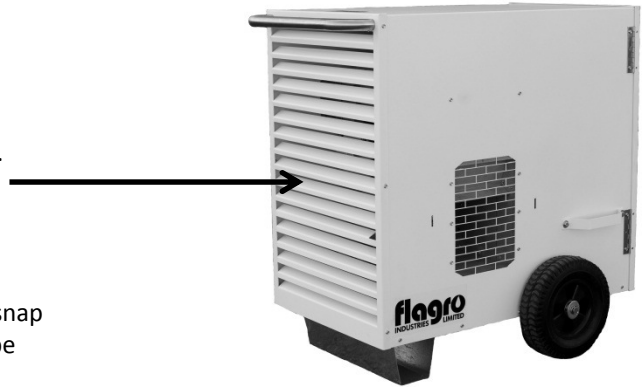
THC-85 SERIES TROUBLESHOOTING ANALYSIS

PLEASE NOTE: In order to facilitate trouble shooting, unit panels have been removed in some of these pictures for ease of identification only. All panels and fasteners must be in place as provided by the manufacturer to ensure the safe and efficient operation of this gas fuelled appliance.

PROBLEM: NO HEAT, FAN OPERATES.

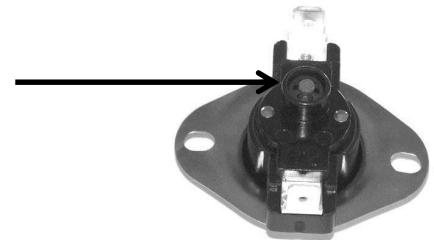
POSSIBLE CAUSE: Rear of heater is blocked.

REMEDY: Ensure rear of heater is unobstructed and proper rear clearances are maintained. (see approval label for specifications)



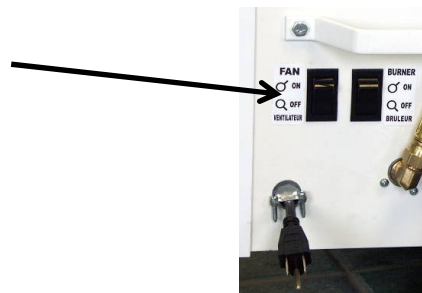
POSSIBLE CAUSE: If the rear of the heater is obstructed, the snap disc manual reset limit may trip and must be reset manually before the fan can operate.

REMEDY: The high temperature limit switch reset button is found behind the louvers on the rear of the heater, DISCONNECT THE POWER TO THE HEATER. Use a non-metallic slim tool, insert carefully through louver opening and push the "red" button to reset the switch OR remove the louvered rear panel door and push the "red" reset button. Make certain to re-close the panel before operating the appliance.



POSSIBLE CAUSE: Faulty On-Off switch.

REMEDY: Replace the switch.



PROBLEM: HEATER WILL NO LIGHT.

POSSIBLE CAUSE: Gas Supply.

REMEDY: Ensure required gas supply pressures are available to the heater.
(see approval label for specifications).

POSSIBLE CAUSE: Gas Valve / Solenoid.

REMEDY: Ensure solenoid is energized. (use volt meter).

Ensure plunger in solenoid is being activated. (use manometer at test point after solenoid).

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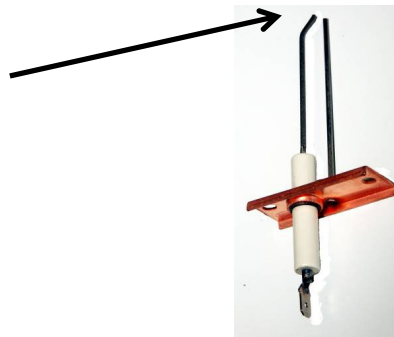
POSSIBLE CAUSE: Igniter / Flame Sensor

REMEDY: Ensure the gap between the igniter and sensor is approximately 1/8" – 3/16". DO NOT adjust the porcelain side of the igniter as permanent damage may result.

Check igniter wire connections.

Ensure igniter spark is strong.

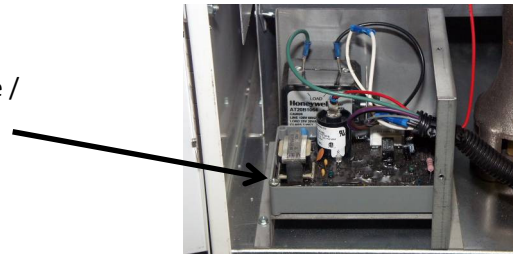
Replace igniter assembly if necessary.



POSSIBLE CAUSE: Ignition Board.

REMEDY: Ensure electrical signals for igniter and gas valve / solenoid are present.

Ensure ignition board is properly grounded.



POSSIBLE CAUSE: Thermostat.

REMEDY: Ensure that the thermostat is calling for heat (if it is, the fan will start). Please note that as a safety measure the thermostat is equipped with a 10 second delay.

If your heater is equipped with an optional external thermostat check that connections are secure and restart the heater. If the heater fails to restart, remove the optional line thermostat and restart the heater to confirm operational status. If the heater starts, replace the thermostat.



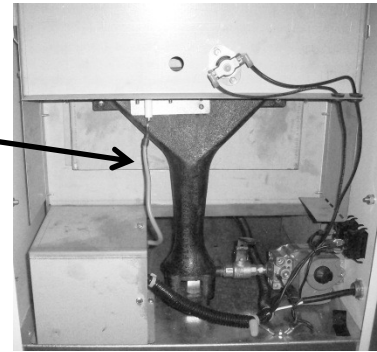
PROBLEM: HEATER WILL NOT REMAIN LIT AFTER START UP.

POSSIBLE CAUSE: Faulty igniter wire.

REMEDY: Check igniter wire for any damage. Replace is necessary.

POSSIBLE CAUSE: Faulty igniter / flame sensor.

REMEDY: Ensure connections are secure. Replace igniter / flame sensor if necessary.

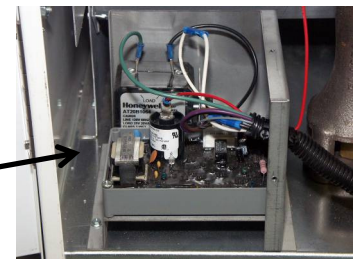


POSSIBLE CAUSE: Ignition board.

REMEDY: Check ground wire for proper connection.

Check polarity of extension cord compared to polarity of plug on the heater.

Replace faulty ignition board.



POSSIBLE CAUSE: Thermostat.

REMEDY: Ensure thermostat is calling for heat. NOTE: If the thermostat is not calling for heat, the heater will not operate.

PROBLEM: ELECTRICAL.

POSSIBLE CAUSE: All components.

REMEDY: Before replacing any component, all connections must be checked to ensure the electrical circuit is complete. (Use volt meter and enclosed wiring diagram).

Any point in the circuit where 120v is not achieved indicates location of problem and/or possible faulty component. NOTE: Everything downstream of the transformer is 24v (eg. all switches and sensors).

PROBLEM: PIPING.

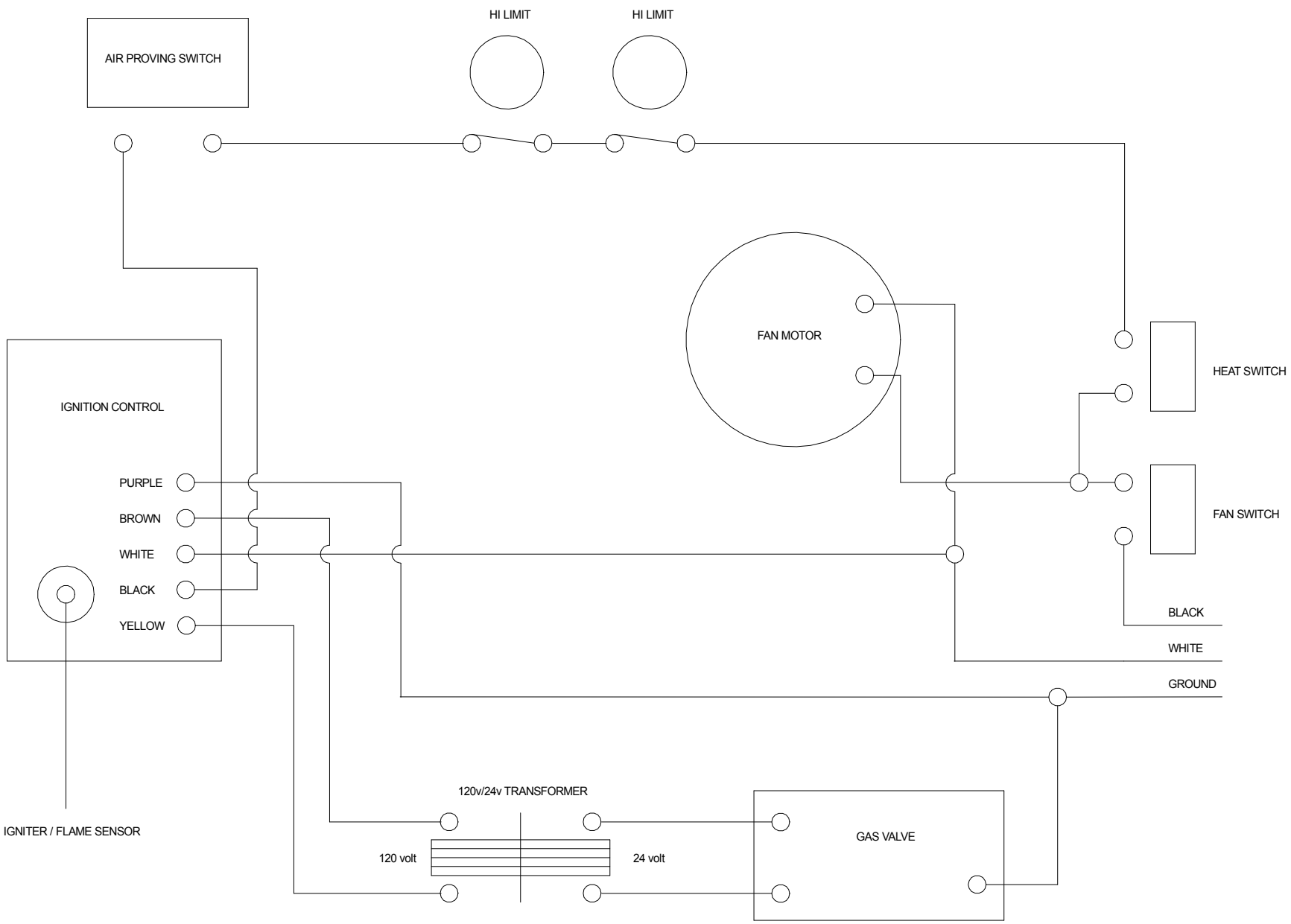
POSSIBLE CAUSE: All pipe fittings.

REMEDY: When loosened, tightened or replaced, the complete fitting should be removed and approved pipe sealant applied to all male threads before reconnection

PARTS LIST FOR THC-85

Part Number	Part Description	
THCP-101	CAST IRON BURNER	
THCP-102	IGNITER/ FLAME SENSOR ASSEMBLY	
THCP-103	IGNITER WIRE	
THCP-104	120/24 VOLT TRANSFORMER	
THCP-105	GAS VALVE / SOLENOID - 24V	
THCP-106A	IGNITION CONTROL - 120V	
THCP-107A	WIRING HARNESS FOR THCP-106A	
THCP-108A	HIGH TEMPERATURE LIMIT (OUTLET) CURRENT	
THCP-109	HIGH TEMPERATURE LIMIT (BURNER)	
THCP-110	AIR PROVING SAIL SWITCH	
THCP-111	MAIN BURNER OR FAN SWITCH	
THCP-113	MOTOR	
THCP-114A	FAN BLADE - THC-85	
THCP-117	ORIFICE FOR THC-85LP	
THCP-118	ORIFICE FOR THC-85NG	
THCP-119	ORIFICE HOLDER	
THCP-120	1/4" X 4 1/2" NIPPLE	
THCP-120A	1/4" X 3" NIPPLE	
THCP-121	ELECTRICAL SUPPLY CORD	
THCP-122	SIDE HANDLES (EACH) TWO REQUIRED	
THCP-123	REAR HANDLE	
THCP-124	WHEELS - 10" (EACH) TWO REQUIRED	
THCP-125S	WHEEL SHAFT - THC-85	
THCP-126A	REAR FOOT - THC-85	
THCP-127	3/8" X 15FT HOSE ASSEMBLY - 3/8" SAE X 3/8" NPT	
THCP-129	TWO STAGE REGULATOR - 3/8" OUTLET (THC-85)	
THCP-131	TENT HEATER DOOR LATCH (EACH)	
THCP-132	DOOR HINGE (EACH) TWO REQUIRED	
THCP-8510	BODY PANEL FOR THC-85	
THCP-8511	FRONT DOOR FOR THC-85	
THCP-8512	REAR PANEL FOR THC-85	

	ACCESSORIES	
THCP-WD12	WHITE DUCT 12" X 10FT	
THCP-DA12	DUCT ADAPTER	
THCP-DD	DUCT DIFFUSER	
THCP-HD85	HEAT DIFFUSER	
THCP-TH	THERMOSTAT KIT	



DATE: 04/20/06	DRAWN BY: IBW
SCALE:	CHECKED BY:
TITLE: THC Series - Wiring Diagram (R) (2005)	DWG. NO. THC-001R