



OPERATING INSTRUCTIONS MANUAL

THC- 355CDF

(Dual Fuel)

INDUSTRIAL / COMMERCIAL DIRECTIONAL SPACE HEATER

(OPERATOR MUST RETAIN FOR FUTURE REFERENCES)



Certified to / Certifié à ANSI std Z83.7 2000

Certified to / Certifié à CGA 2.14 M2000

Suitable for indoor or outdoor installation / Unvented / Unattended Type



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THC-350DF 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 Code, CSA 2.14 or ANSI std Z83.7 2000. 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 VAPOUR PROPANE & 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 National Fuel Gas Code ANSI Z223.1/NFPA 54 and the Natural Gas and Propane Installation Code, CSA B149.5. This heater must be installed by a qualified gas technician, following local codes published by the authority having jurisdiction

The installation of this heater for use with propane tank or cylinder shall conform with local codes or, in the absence of local codes, with the Standard for the Storage and Handling of Liquefied Petroleum Gases, ANSI/NFPA 58 and the Natural Gas and Propane Installation Code, CSA B149.5.

This heater must be located at least 10ft (3m) from any propane gas cylinder
This heater shall not be directed toward any propane gas container within 20ft (6m).

CONNECTING TO YOUR FUEL SUPPLY

PROPANE

If cylinders are used to supply the heater, no cylinders smaller than 100lb capacity shall be used. **These cylinders must supply a vapor withdrawal only.**

1. All cylinder connections must be made using a wrench to tighten the POL fitting
2. Be sure the cylinder valve is in the closed position when connecting or disconnecting the cylinder.
3. A soap and water solution must be applied to all connections in order to leak check the system

4. The gas must be turned off at the propane supply cylinder(s) when the heater is not in use. When the heater is to be stored indoors, the connection between the propane supply cylinder(s) and the heater must be disconnected and the cylinders removed from the heater and stored in accordance with CSA B149.5, Natural Gas and Propane ANSI Z223.1/NFPA 54

NATURAL GAS

The regulator should only be used if the supply pressure to the heater is above 14" WC

Connect the regulator to the natural gas supply line.

Gas supply pressure to the heater must be a minimum of 9.0" WC

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:

| | MIN. | MAX. |
|--------------------|-------------|-------------|
| LP INLET PRESSURE: | 11 IN. WC | 14 IN. WC |
| NG INLET PRESSURE: | 9.0 IN. WC | 14 IN. WC |

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

FUEL:

This heater will operate on Propane & Natural Gas only.

The manifold pressure is listed on the approval label.

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 Power Supply Indicator & 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 15 amps. Ensure appropriate gauge extension cord is used.

CLEARANCE TO COMBUSTIBLES:

TOP: 5 ft

FRONT: 2 ft

SIDES: 1 ft

REAR: 2 ft

POWER SUPPLY INDICATOR LIGHT:

The power supply indicator light will help detect any faulty power supplied to the heater such as; grounding issues, reverse polarity or missing/poor connections.

Warning Light Indications

Green Light Meets Power Requirements

Solid Red Light..... Reverse Polarity

Solid Red & Green Light... Ground Issue

ATTENTION: IF SOLID RED & GREEN IS INDICATED, MAKE CORRECTIONS TO POWER SUPPLY BEFORE TURNING HEATER ON. FAILURE TO DO SO WILL VOID ANY WARRANTY.

DUCTING

Manufacturers ducting must be used with this heater. Flagro Part Number THCP-WD18
(18" x 12FT Hitex) **A MAXIMUM OF 12 FT OF DUCTING ONLY**

MAINTENANCE

- 1 Every heater should be inspected before each use, and at least annually, by a qualified service person
- 2 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.
- 3 The appliance must be kept clear and free from combustible materials, gasoline and other flammable vapors and liquids.
- 4 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.
- 5 Compressed air may 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 For LP - Connect the POL inlet on the regulator of the heater to the propane cylinder.
For NG - Ensure the Heater is provided with a gas supply of 9.0" WC
- 2 Ensure fuel selector valve on heater is in the proper position (Propane or Natural Gas).
- 3 Turn on fuel supply.
- 4 Plug in Power Supply to heater. Visually watch the Power Supply Indicator light.
(see heater label if power is acceptable)
- 5 Depress the fan switch to the "ON" position. The fan motor will start and air will be pushed through the outlet of the heater.
- 6 Depress the heat switch to the "ON" position. The burner should ignite and hot air will be pushed through the outlet of the heater.

7 Confirm & Set proper manifold pressure (see page 7)

8 Set the thermostat (if provided) to desired temperature.

If heater fails to ignite after 3 attempts, call your supplier for service.

TO SHUT DOWN

1 Close fuel supply.

2 Move "Burner" switch to "OFF" position.

3 Wait 2-3 minutes and move "FAN" switches to the "OFF" position.

4 Disconnect heater from fuel supply.

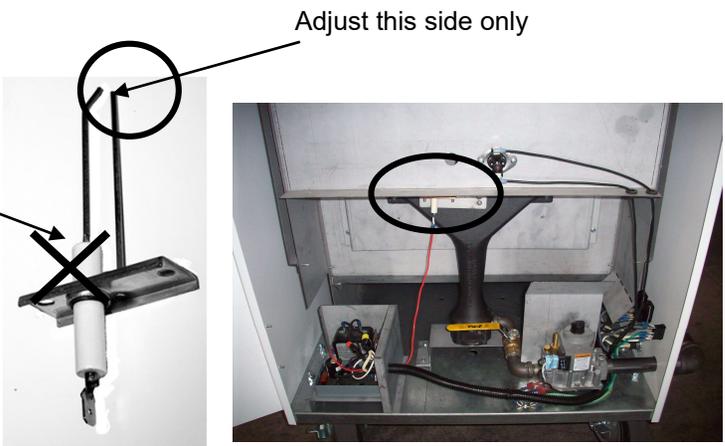
Important Note

When heater is to be stored indoors, the connection between the propane supply cylinder(s) and the heater must be disconnected and the cylinder(s) removed from the heater and stored in accordance with CSA B149.5, Natural Gas and Propane Installation Code & ANSI Z223.1/NFPA 54



THC-355CDF - HEATER SPECIFICATIONS

| MODEL | THC-355CDF | |
|---|---|-------------------------|
| FUEL TYPE (dual fuel) | PROPANE | NATURAL GAS |
| MAXIMUM INPUT (btu/hr) | 330,000 btuh | 330,000 btuh |
| INLET PRESSURE | Min. 11"WC/Max. 14"WC | Min. 9.0" WC/Max. 14"WC |
| BURNER MANIFOLD PRESSURE | 7.75" WC | 5.5" WC |
| FUEL CONSUMPTION PER HR. | 16.0 LBS. | 307 CFH |
| TEMPERATURE RISE <small>(above ambient)</small> | 160 (F) | 150 (F) |
| AMP DRAW | STARTING | 21 AMPS |
| | CONTINUOUS | 7 AMPS |
| OUTLET SIZE <small>(Designed for 18" Dia. Ducting)</small> | 12.5" X 10.75" | |
| DIMENSIONS <small>H X L X W (IN.)</small> | 42" X 46" X 32.5" | |
| SHIPPING WEIGHT | 390 LBS. | |
| IGNITION | Direct Spark Ignition Thermostat Control | |
| AIR CIRCULATION | 2400 CFM | |
| APPROVED | cETLus listed | |

| PROBLEM | POSSIBLE CAUSES | REMEDY | COMPONENT |
|-----------------------|---|--|--|
| | Faulty On-Off Burner Switch | Replace the switch |  |
| Heater will not Light | <p>Gas Supply</p> <p>Gas Valve/Solenoid</p> <p>Igniter/Flame sensor</p> | <p>Ensure required gas supply pressures are available to the heater (see approval label for specs).</p> <p>Ensure solenoid is energized (use volt meter to measure).</p> <p>Ensure plunger in solenoid is being activated (use manometer at the test point after solenoid).</p> <p>Ensure the gap between the igniter and sensor is approx. 1/8" - 3/16". DO NOT adjust the porcelain side of the igniter or permanent damage may result.</p> <p>Check igniter wire connections.</p> <p>Ensure igniter spark is strong.</p> <p>Replace igniter if necessary.</p> |  <p>Adjust this side only</p> <p>Note location of igniter sensor</p> |

| PROBLEM | POSSIBLE CAUSES | REMEDY | COMPONENTS |
|---------|----------------------------|---|---|
| | <p>Igniton Board</p> | <p>Ensure electrical signals for igniter and gas valve/solenoid are present.</p> |  |
| | | <p>Typical igniton board.</p> |  |
| | <p>Thermostat</p> | <p>Ensure ignition board is properly grounded.</p> | |
| | <p>Optional Thermostat</p> | <p>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.</p> <p>If your appliance is equipped with an optional external thermostat, check that connections are secure and restart the appliance. If the appliance fails to restart, remove the optional line thermostat and restart the appliance to confirm its operational status. If the unit starts, then replace the thermostat.</p> |  |

| PROBLEM | POSSIBLE CAUSES | REMEDY | COMPONENTS |
|---|---|--|---|
| <p>Heater will not remain lit after start up</p> | <p>Faulty igniter wire</p> <p>Faulty igniter/flame sensor</p> <p>Ignition board</p> <p>Thermostat</p> | <p>Check igniter wire for any damage replace if necessary.</p> <p>Ensure connections are secure Replace igniter/flame sensor if necessary.</p> <p>Check ground wire for proper connection.</p> <p>Visually check the Power Supply Indicator (see sticker on heater) Green light - Meets Power Req. Solid Red Light - Reverse Polarity Red & Green Solid Light- Ground Issue</p> <hr/> <p>Ensure thermostat is calling for heat NOTE: if the thermostat is not calling for heat, the appliance will not operate.</p> |  |
| <p>Electrical</p> | <p>All Components</p> | <p>Before replacing any components, all connections must be checked to ensure electrical circuit is complete (Use volt meter and enclosed wiring diagram)</p> | |
| <p>Piping</p> | <p>All pipe fittings</p> | <p>When loosened, tightened or replaced, the complete fitting should be removed and approved pipe dope applied all male threads before reconnection.</p> <p>After a heater is serviced, the valve train should be checked for leaks with a soap and water solution or approved leak detector solution.</p> |  |

THC-355CDF – PARTS LIST



BURNER

THCP-101



**IGNITER/FLAME SENSOR
ASSEMBLY**

THCP-102



IGNITOR WIRE

THCP-103A



120/24V TRANSFORMER

THCP-104



GAS VALVE/SOLENOID – 24V

THCP-105A



IGNITION BOARD

THCP-106A



WIRING HARNESS

THCP-107A



**HIGH LIMIT OUTLET (200F)
THCP-108A
HIGH LIMIT BURNER (300F)
THCP-109**



AIR PROVING SAIL SWITCH

THCP-110B



BURNER/FAN SWITCH

THCP-111



3/4 HP MOTOR

THCP-113A



FAN BLADE

THCP-114B



ORIFICE

THCP-115AC



ORIFICE HOLDER

THCP-119A



POWER CORD

THCP-121A

THC-355CDF – PARTS LIST



THC-355CDF – PARTS LIST



FUEL SELECTOR VALVE

THCP-155



SIGHT GLASS

THCP-162



PULLEY GUARD

THCP-164



THERMOSTAT HOLDER

THCP-165



20 FT CORD

THCP-TH-CORD



**THERMOSTAT C/W 20 FT
CORD**

THCP-TH



THERMOSTAT KNOB

TH-KNOB

PARTS LIST FOR THC-355CDF

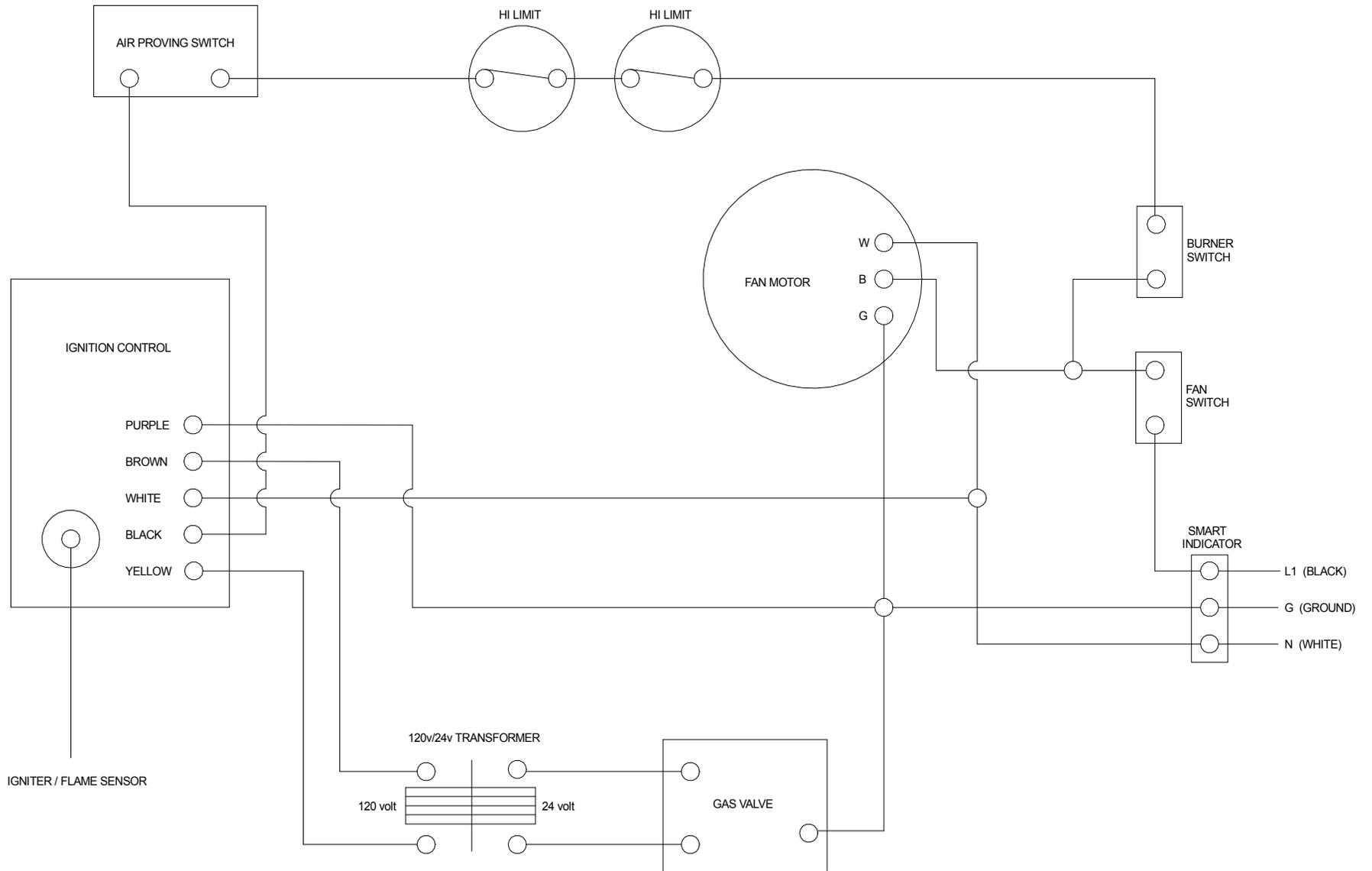
| Part Number | Part Description |
|--------------------|--|
| THCP-101 | CAST IRON BURNER |
| THCP-102 | IGNITER/ FLAME SENSOR ASSEMBLY |
| THCP-103A | IGNITER WIRE |
| THCP-104 | 120/24 VOLT TRANSFORMER |
| THCP-105A | GAS VALVE / SOLENOID - 24V (THC-355DF ONLY) |
| THCP-106A | IGNITION CONTROL - 120V |
| THCP-107A | WIRING HARNESS FOR THCP-106A |
| THCP-108A | HIGH TEMPERATURE LIMIT (OUTLET) 200F |
| THCP-109 | HIGH TEMPERATURE LIMIT (BURNER) 300F |
| THCP-110B | AIR PROVING SAIL SWITCH |
| THCP-111 | MAIN BURNER OR FAN SWITCH |
| THCP-113A | 3/4 HP MOTOR - THC-355DF |
| THCP-114B | FAN BLADE - THC-355DF |
| THCP-115AC | ORIFICE FOR THC-355DF |
| THCP-119A | ORIFICE HOLDER FOR THC-355DF |
| THCP-121A | POWER CORD FOR THC-355DF |
| THCP-122 | SIDE HANDLES (EACH) TWO REQUIRED |
| THCP-124C | FLAT FREE WHEEL - 12" (EACH) |
| THCP-124B | 6" LOCKABLE CASTERS (EACH) TWO REQUIRED |
| THCP-125LB | WHEEL SHAFT - THC-355DF |
| THCP-128B | 3/4 X 15-FT HOSE ASSEMBLY 3/4" F.JIC X 1/2" MP (FOR THC-355DF) |
| THCP-129B | TWO STAGE REGULATOR 1/2" Outlet/2003-T |
| THCP-131A | TENT HEATER DOOR LATCH (EACH) |
| THCP-132 | DOOR HINGE (EACH) FOUR REQUIRED |
| THCP-146 | BELT TENSOR |
| THCP-147 | BELT TENSOR PULLEY |
| THCP-148 | BELT TENSOR PULLEY BUSHING |
| THCP-149 | MOTOR PULLEY |
| THCP-150A | SHAFT PULLEY |
| THCP-151 | PILLOW BLOCK (TWO REQUIRED) |
| THCP-152 | 3/4" X 16" PULLEY SHAFT |

| | |
|--------------|---|
| THCP-153 | DRIVE BELT |
| THCP-154A | POWER SUPPLY INDICATOR - AS OF 2014 |
| THCP-155 | LOCKABLE FUEL SELECTOR VALVE |
| THCP-156 | INLET RING - THC-355DF |
| THCP-157 | FRONT DOOR - THC-355DF |
| THCP-158 | REAR DOOR - THC-355DF |
| THCP-159 | TOP PANEL - THC-355DF |
| THCP-160 | SIDE BODY PANEL (OULET) - THC-355DF |
| THCP-161 | SIDE BODY PANEL (FUEL SUPPLY) - THC-355DF |
| 40-100-12 | 3/4" 90 DEGREE ELBOW |
| 40-113E5 | 3/4" X 5" NIPPLE |
| 40-113D1.5 | 1/2" X 1 1/2" NIPPLE |
| 40-116-8 | 1/2" 90 DEGREE STREET ELBOW (EACH) TWO REQUIRED |
| 40-120-12-8 | 3/4" X 1/2" REDUCING BUSHING |
| 348-12E | 3/4 MP X 3/4 M.JIC STEEL ADAPTER |
| THCP-162 | SIGHT GLASS |
| THCP-163 | SHAFT MOUNTING BRACKET - THC-355CDF |
| THCP-164 | PULLEY GUARD - THC-355CDF |
| THCP-165 | THERMOSTAT HOLDER - ALL THC MODELS |
| THCP-TH-CORD | 20FT THERMOSTAT CORD |
| TH-KNOB | THERMOSTAT KNOB |

ACCESSORIES

| Part Number | Part Description |
|--------------------|-------------------------------|
| THCP-WD18 | 18" X 12FT DUCTING |
| THCP-DA18 | DUCT ADAPTER FOR 18" DUCTING |
| THCP-DD18 | DUCT DIFFUSER FOR 18" DUCTING |

THC SERIES WIRING DIAGRAM 2010



| | | |
|--|--|---------------------------|
| DATE: 07/19/10 | | DRAWN BY: IBW |
| SCALE: | | CHECKED BY: |
| TITLE: THC Series - Wiring Diagram (SI) | | DWG. NO. THC-001SI |