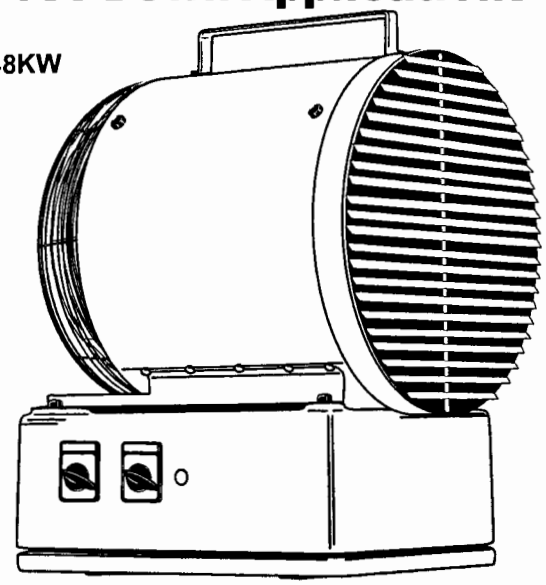
5500 / WD SERIES

WASHDOWN UNIT HEATER

Corrosion Resistant Unit Heater for Hose Down Applications

INSTALLATION INSTRUCTIONS, PARTS, SERVICE, & MAINTENANCE MANUAL

3KW thru 48KW



TPI Corporation
P.O. Box 4973
Johnson City, TN
37602-4973
America's Comfort Conditioning Company

ATTENTION: Read carefully before attempting to install, operate or service the Corrosion Resistant Unit Heater.

GENERAL INSTRUCTIONS

This heater has been designed, tested and manufactured to give the most reliable performance practical. Each unit is given a final check before shipment to assure that every component is correctly wired and operating properly.

The safe and dependable operation of the heater depends upon proper installation. Therefore, care should be taken to follow all instructions and to comply with all applicable codes.

MOUNTING

The heater can be mounted in several horizontal positions as shown in figures provided on attached sheets. Optional mounting brackets and attaching hardware (bolts and lockwashers) are provided to hang the heater. Secure the brackets to the heater as indicated in figures shown, depending on the mounting position selected.

Adequate alternatives for suspending the heater from the ceiling are metal rods, chains or angle iron. If the heater is to be mounted other than as shown in figures, the louver assembly should be repositioned to direct the air stream. To do so, remove the four (4) attaching screws, pull the grill off the heater and reinstall in the correct orientation.

MODEL NO. CODE

Volts: H=240, F = 277, P=480, U = 600
Phase: 1 = Single Phase, 3 = Three Phase
KW Rating: 5 = 5KW, 7 = 7.5KW, etc.
Control System: C = Built-in Contactor
Overcurrent Protection: F = Built-in Fusing, O = Remote Fusing
Thermostat: T = Built-in Stat, O = Remote Stat

MODEL DESIGNATION SYSTEM (EXAMPLE: F1F555CFT01)

F	1	F	55	5	C	F	T	01
HTG Volts	Phase	Motor Volts	Heater Service	KW Rating	Control System	Overcurrent Protection	Thermostat	Mfg. Code D = Disconnect

IMPORTANT: OWNER SHOULD RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

Form 9843

ELECTRICAL WIRING

See diagram pasted inside control compartment. The amperage load and the minimum recommended wire size is listed on the heater data plate.

ELECTRICAL GROUND

This heater must be grounded before operating as required by the National Electrical Code and by applicable local codes. Use a conductor of the appropriate size, secured to the ground lug in the heater and to a grounded connection in the service panel.

INSTALLATION GUIDELINES

Arrange units so that intake and discharge air is not obstructed by building columns, machinery and other objects. Locate thermostats on interior partition walls or position away from cold drafts, internal heat sources and unit air discharge streams.

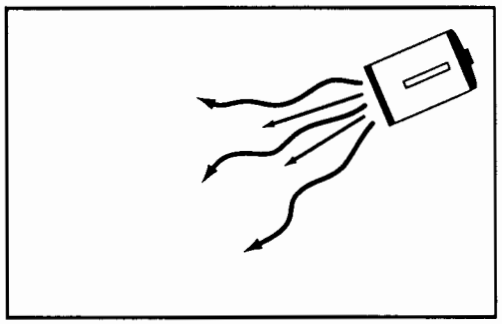
The National Electrical Code requires that overcurrent protection and supply wiring for electric heating equipment be rated at least 125% of the full amp-load of the circuit.

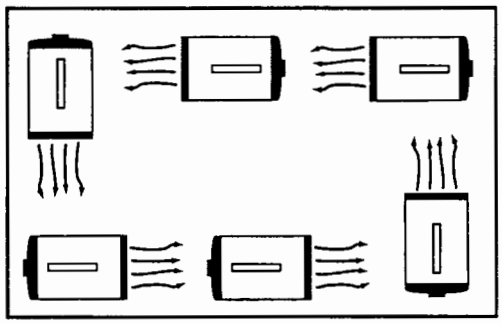
Make sure all field wiring connections are properly made and are tight. Conduit openings are provided in the back of the wiring compartment.

THERMOSTAT (OPTIONAL REMOTE)

The thermostat should be located where it will sense the free air movement within the structure. It should not be positioned or located in direct sunlight or where it will be affected by a localized heat source such as lighting or other heaters.

If a wall mounted thermostat is used, it should be mounted 5 feet above the floor. It should be connected to the control terminal block in the heater as shown on the wiring diagram and per instructions packed with the thermostat. All control circuitry must be per NEC class 1 wiring.





HOSEDOWN INSTRUCTIONS

1. Open the power supply circuit to the heater before any hosedown operations are attempted.
2. DO NOT use high pressure type cleaning equipment for washing or rinsing the heater..
3. Never direct the water spray at the shaft bearing of the fan motor or the control compartment gasket.
4. To remove accumulations which may build up on the heater use a mild detergent and warm water. Do not use caustic solutions which may damage to the seals of the enclosure.
5. The discharge grille can be removed for access to the fan blade and the heating elements.
6. Be sure the grill and all covers have been replaced after cleaning has been completed.

DIMENSION DATA

Heater Size	A	B	C	D	E	F	G	H	Approx. lbs.
3-5 - 7.5 KW	12"	18"	19 3/4"	15 1/4"	16 1/2"	6'	8"	6"	45
10 - 15 KW	14"	19"	21 3/4"	15 1/4"	18"	6'	8"	6"	55
20, 25, 30 KW	16"	27"	28 3/4"	19 1/2"	17 1/2"	6'	15 1/2"	4 1/2"	85
40, 48 KW	18"	31"	30 3/4"	19 1/2"	19 1/2"	6'	21 3/4"	2 3/4"	130

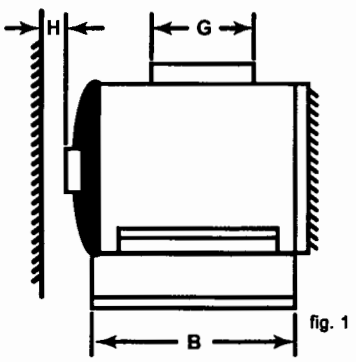


fig. 1

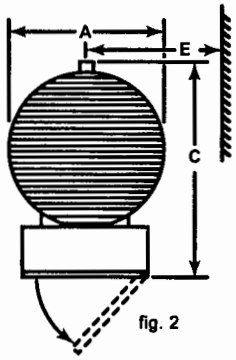


fig. 2

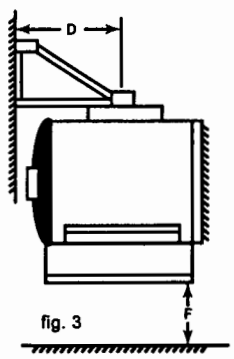
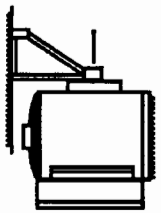


fig. 3

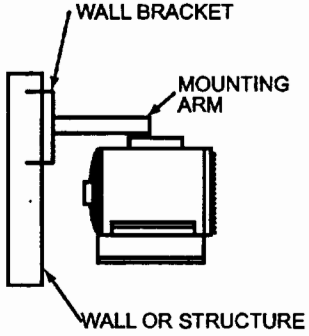
Mounting Bracket Kits



3-15 Kw ONLY

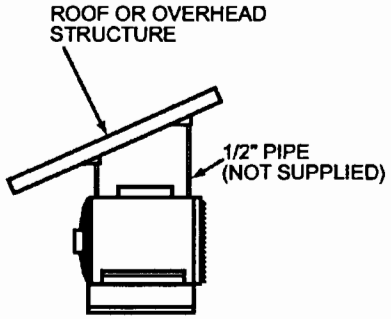
A5520

Ideal for use in buildings that have substantial walls. Arm (only) can be bolted directly to structural steel.



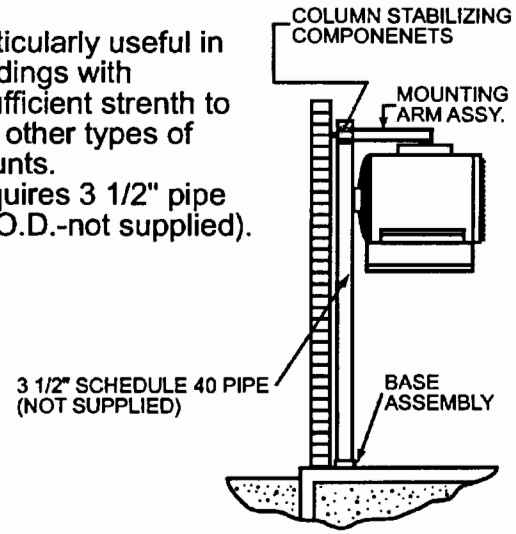
W5550

Simple and economical if adequate overhead structure exists. Requires 1/2" pipe, cut and threaded (not supplied).



H5550

Particularly useful in buildings with insufficient strenth to use other types of mounts.
Requires 3 1/2" pipe (4" O.D.-not supplied).



P5550

CORROSION RESISTANT WASHDOWN UNIT HEATER
SERVICE INSTRUCTIONS - 5500 / WD SERIES 3 KW - 15 KW

SERVICING THE ELEMENTS

The elements are designed to be removed individually and can be removed with the use of standard hand tools.

A. Removing an element:

1. Open all electric power supply disconnects to the heater (cut all power to the heater).
2. Disconnect the element leads at the element terminals inside cabinet. Note: Hold terminal securely when loosening nut to prevent damage to element pin.
3. Remove the outer louver grill by first removing four (4) screws holding the grill to the scroll.
4. Remove 5/16 inch hex machine screw securing element retaining clamp. Located in top center bracket inside scroll housing. One provided for each element.
5. Remove the nuts and washer securing the element inside the control compartment. Use a 15/16 inch deep well socket or box end wrench.
6. Repeat procedure for all elements to be removed.

B. Installing a new element:

Be sure the replacement element matches the original part in voltage and wattage ratings as well as in physical size and shape. Reverse the steps under *removing an element* described above. All elements must be installed in the same orientation.

Caution: Make sure silicone bulkhead washers are located on element before reinstalling element. Do not overtighten bulkhead mounting nuts. Fit should be snug only.

REPLACING THE MOTOR OR FAN

A. Removing the motor and fan:

1. Open all electric power supply disconnects to the heater (cut all power to the heater).
2. Disconnect the motor wiring inside the control box.
3. Remove the strain relief from the cabinet and pull the motor wiring out of the control box.
4. Remove all the screws holding the inlet assembly to the cabinet. Support the weight of the motor as the last screws are removed.
5. Slip the inlet assembly (motor, fan and fan guard) off of the cabinet.
6. Remove the fan blade from the motor shaft.
7. Snip the wire ties securing the motor lead to the fan guard.
8. Remove the screws securing the motor to the fan guard.

B. Installing the Motor Fan:

Reverse the steps under *removing the motor fan*. Be sure to reconnect the grounding lead as it provides the grounding for the motor to the cabinet.

Replace the motor only with an identical part. Contact the factory for information regarding alternate motors.

To prevent overheating and to maintain the designed performance, a replacement fan blade must be identical to the original blade.

LIMIT CONTROL REPLACEMENT (3.3 KW THROUGH 7.5 KW)

Disassemble as described in the following steps 1-9. Be sure replacement control is the correct model.

1. Disconnect power to unit from remote power disconnect.
2. Remove heater from mounting bracket and support on horizontal surface. Place heater on side with door hinge.
3. Remove four (4) 5/16 hex bolts securing fan assembly to rear of heater scroll. Remove scroll and set aside.
4. Slide the limit control capillary bulb to the rear and out of mounting bracket above heating elements.
5. Open control compartment door with key provided with heater.
6. Loosen screws on limit control and remove leads.
7. Remove two (2) 1/4 hex head screws securing limit control to mounting plate. Lift out control and slide capillary through sealed opening in scroll and compartment.
8. Carefully unroll replacement limit capillary tube (be careful not to kink tube), insert bulb and tube through opening provided.
9. Remount control by reversing 4, 6 and 7.
10. Complete assembly and remount by reversing steps 1 through 3.

NOTE: After the capillary tube has been relocated and secured in bracket, the capillary tube must be sealed through scroll and cabinet. Silicone (RTV) sealant must be used (not included). Silicone should be applied from the scroll side of the unit to capillary opening until outflow can be seen inside the enclosure at the base of the capillary tube. Wipe off excess material. Any excess capillary tube should be rolled and secured to internal wires with (2) wire ties provided with replacement control. Be sure capillary tube is adequately spaced away from all live components.

CORROSION RESISTANT WASHDOWN UNIT HEATER
SERVICE INSTRUCTIONS - 5500 / WD SERIES 20 KW - 48 KW

SERVICING THE ELEMENTS

The elements are designed to be removed individually and can be removed with the use of standard hand tools.

A. Removing an element:

1. Open all electric power supply disconnects to the heater (cut all power to the heater).
2. Disconnect the element leads at the element terminals inside cabinet. Note: Hold terminal securely when loosening nut to prevent damage to element pin.
3. Remove the outer louver grill by first removing four (4) screws holding the grill to the scroll.
4. Remove inlet/fan assembly by removing three (3) bolts provided for mounting
5. Remove machine screws located along each side of the scroll housing and remove top half of scroll.
6. Remove two (2) machine screws and two (2) element retaining wires for each element to be removed, using a 5/16 inch hex socket.
7. Remove the nut and washer securing the element to the control box. Use a 15/16 inch deep well type socket.
8. While supporting the element, slide it up and out of the heater.

B. Installing a new element:

Be sure the replacement element matches the original part in voltage and wattage ratings as well as in physical size and shape. Reverse the steps under *removing an element* described above. All elements must be installed in the same orientation.

REPLACING THE MOTOR OR FAN

A. Removing the motor and fan:

1. Open all electric power supply disconnects to the heater (cut all power to the heater).
2. Disconnect the motor wiring inside the control box.
3. Remove the strain relief from the cabinet and pull the motor wiring out of the control box.
4. Remove all the screws holding the inlet assembly to the cabinet. Support the weight of the motor as the last screws are removed.
5. Slip the inlet assembly (motor, fan and fan guard) off of the cabinet.
6. Remove the fan blade from the motor shaft.
7. Remove waterproof fitting and plastic conduit from motor and leads
8. Remove the screws securing the motor to the fan guard.

B. Installing the Motor Fan:

Reverse the steps under *removing the motor fan*. Be sure to reconnect the grounding lead as it provides the grounding for the motor to the cabinet.

Replace the motor only with an identical part. Contact the factory for information regarding alternate motors.

To prevent overheating and to maintain the designed performance, a replacement fan blade must be identical to the original blade.

LIMIT CONTROL REPLACEMENT (10 KW THROUGH 15 KW)

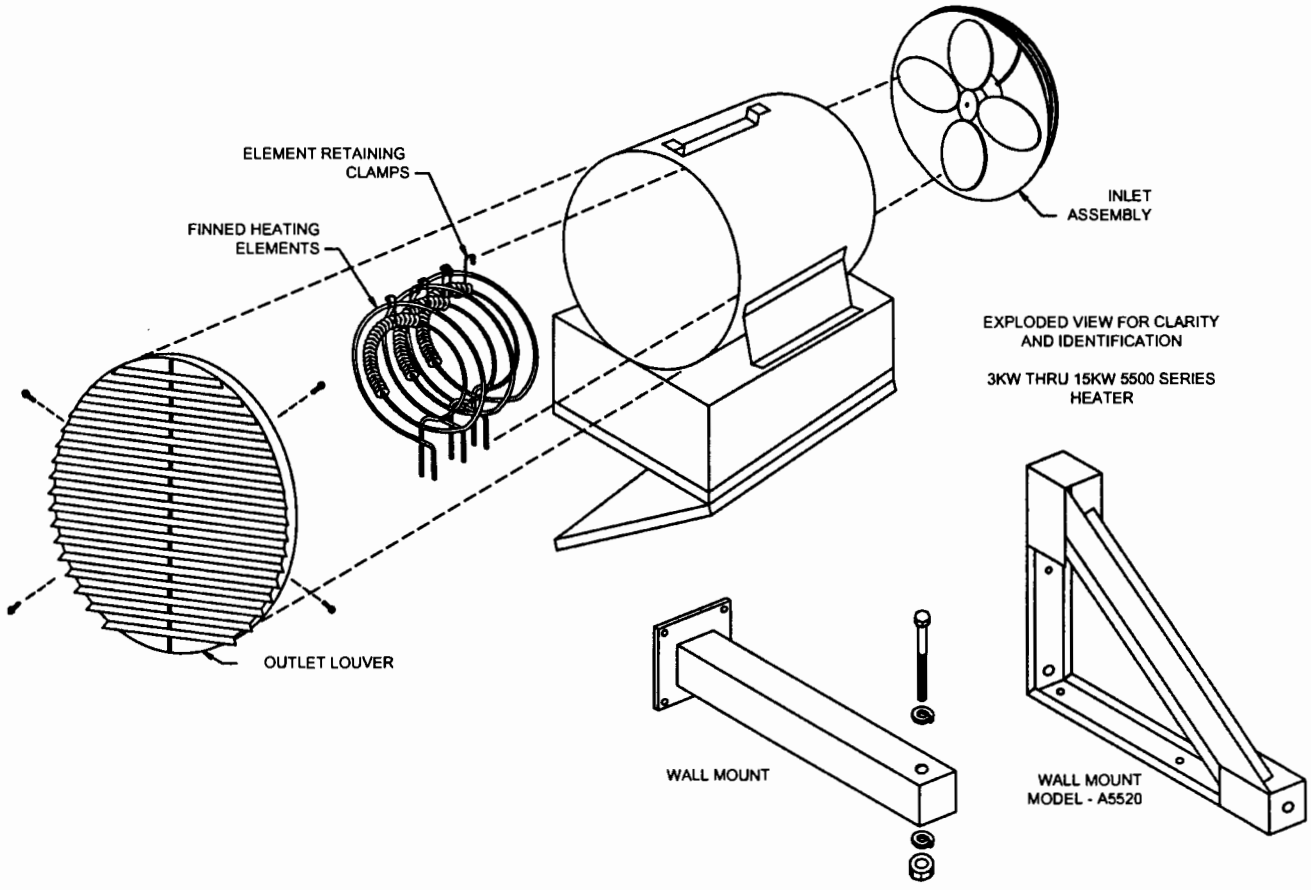
Disassemble as described in the following steps 1-9. Be sure replacement control is the correct model.

1. Disconnect power to unit from remote power disconnect.
2. Remove heater from mounting bracket and support on horizontal surface. Place heater on side with door hinge.
3. Remove four (4) 10-24 hex screws securing fan assembly to rear of heater scroll. Remove grill and set aside.
4. Remove two (2) 1/4-20 screws on the top of the heater scroll which secure the element mounting bracket to the inside of the scroll.
5. Remove three (3) 10-24 hex screws securing element clamps to the bracket and remove clamps.
6. Slide bracket forward until capillary bulb can be slid out of mounting holes in bracket.
7. Open control compartment door with key provided with heater.
8. Loosen screws on limit control and remove leads.
9. Remove two (2) 1/4 hex head screws securing limit control to mounting plate. Lift out control and slide capillary through sealed opening in scroll and compartment.
10. Carefully unroll replacement limit capillary tube (be careful not to kink tube), insert bulb and tube through opening provided.
11. Remount control by reversing 4 through 9.
12. Complete assembly and remount by reversing steps 1 through 3.

NOTE: After the capillary tube has been relocated and secured in bracket, the capillary tube must be sealed through scroll and cabinet. Silicone (RTV) sealant must be used (not included). Silicone should be applied from the scroll side of the unit to capillary opening until outflow can be seen inside the enclosure at the base of the capillary tube. Wipe off excess material. Any excess capillary tube should be rolled and secured to internal wires with (2) wire ties provided with replacement control. Be sure capillary tube is adequately spaced away from all live components.

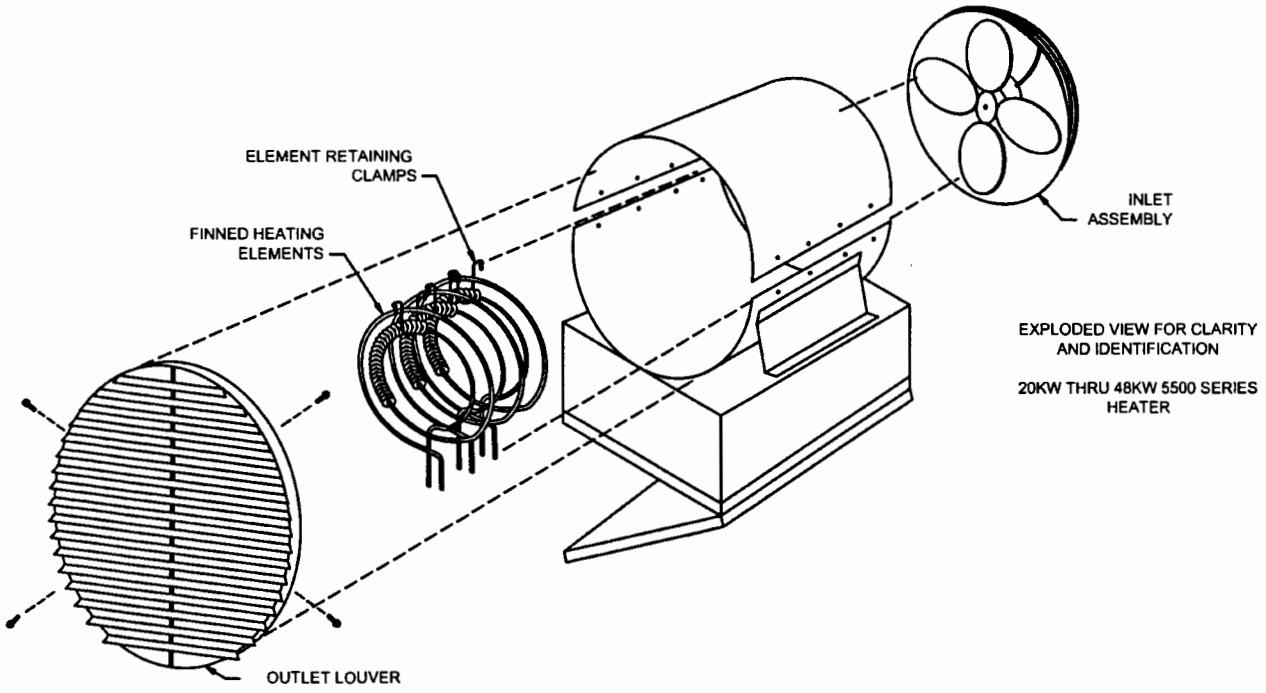
PARTS REPLACEMENT LIST
5500 / WD SERIES - FOR 3.3 KW - 15 KW UNITS

Part No.	Description
54909-001	Stemco Auto Reset Limit
56095-001	Thermostat (Ranco)
54931-001	Thermostat (Sunne)
29712-001	Fan Delay Relay
50378-031	Contactor
60719-VAR	Transformer
43506-005	Fan / Heat Switch
51619-VAR	Disconnect Switch
54936-001	Fan Blade 10" (3.3 KW - 7.5 KW ONLY)
51347-001	Fan Blade 12" (10 KW - 15 KW ONLY)
54934-VAR	Motor
42865-VAR	Heating Element
42708-002	Silicone Bulkhead Washer



PARTS REPLACEMENT LIST
5500 / WD SERIES - FOR 20 KW - 48 KW UNITS

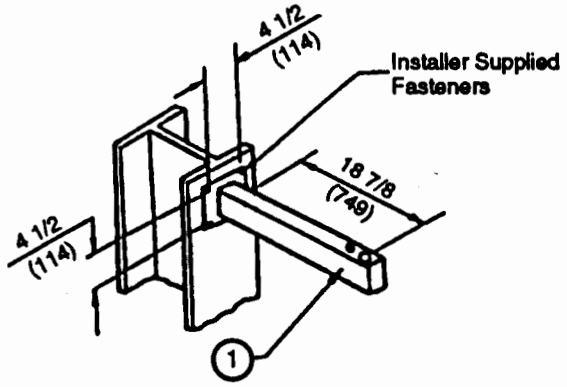
Part No.	Description
54909-001	Stemco Auto Reset Limit
54907-VAR	T.O.D. Auto Reset Limit 10H11
54908-VAR	T.O.D. Manual Reset Limit 10H14
56095-001	Thermostat (Ranco)
54931-001	Thermostat (Sunne)
29712-001	Fan Delay Relay
50378-031	Contactor
60719-VAR	Transformer
43506-005	Fan / Heat Switch
51619-VAR	Disconnect Switch
51412-001	Fan Blade 14" (20 KW ONLY)
57115-001	Fan Blade 16" (148 KW ONLY)
54934-VAR	Motor
42865-VAR	Heating Element
42719-001	Limit Control Capillary Clips
42865-VAR	Element (Rear) with Bracket
42708-002	Silicone Bulkhead Washer

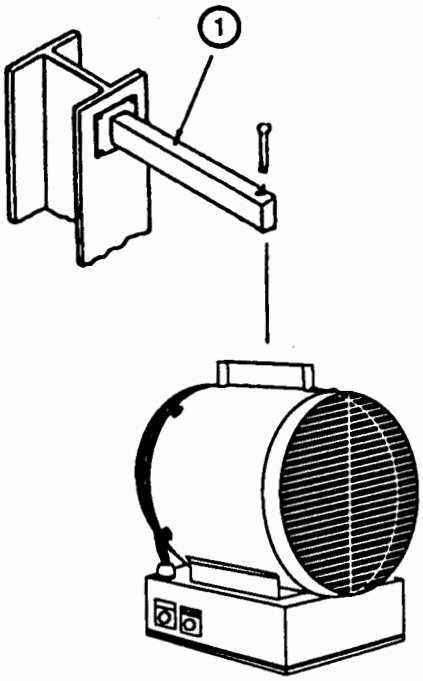


COLUMN/WALL MOUNTING KIT INSTRUCTIONS FOR ALL SERIES 5500/WD HEATER CABINET SIZES

STEP 1

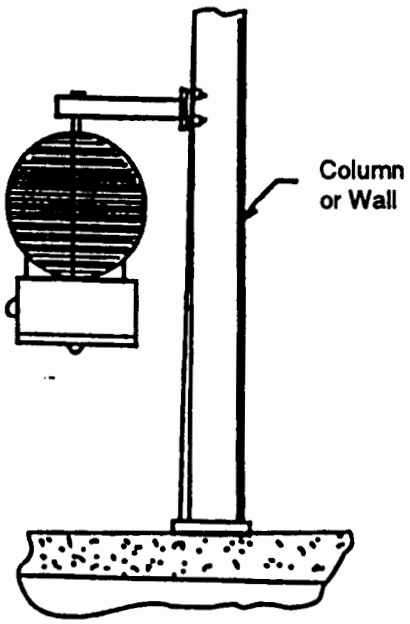
Fasten the Arm (item1) to a surface or structure that will support the weight of the heater. Fastening method provided by the installer.





STEP 2

Lift the heater into place and attach with 4 1/2" bolt and washer provided with the installation kit. On cabinet sizes #1 and #2 a locknut is also provided. This step may require more than one person depending the the heater model. Refer to the installation instructions for details on heater weight.



TPI CORPORATION
GRAY. TENNESSEE 37615

HANGING MOUNTING KIT
INSTRUCTION SHEET

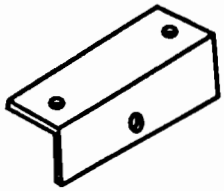
WARNING: DO NOT INSTALL IN BUILDINGS THAT ARE TO BE TRANSPORTED. INSTALL ONLY WHEN BUILDING HAS REACHED ITS FINAL DESTINATION.

REFER TO HEATER INSTALLATION MANUAL FOR MOUNTING SPECIFICATIONS AND CONDITIONS.

INSTALLER REQUIRED TO SUPPLY THE FOLLOWING ITEMS:

a) Method to fasten ANGLE HANGERS to supporting structure. The kit has provisions for four (4) 3/8" diameter grade 5 bolts. However, any method providing the same or better strength may be used

b) Two (2) pieces 1/2" schedule 40 steel pipe or stronger cut to suit installation, and threaded at both ends.

Part Number	Item	Quantity	Description	
51668-001	1	2	ANGLE HANGER	
51669-001	2	2	CONNECTOR HANGER	
43729-001	3	2	ADAPTER HANGER	
43807-001	4	2	1/2 UNC X 1 1/4 GRADE 5 BOLT	
43626-002	5	2	1/2 UNC SELF-LOCKING HEX NUT	
43625-004	6	2	WASHER	
43530-003	7	2	LOCK NUT	

9842

Installation Instructions

COMBINATION WALL/CEILING MOUNT BRACKET FOR SERIES 5500/WD HEATERS, 3.3 KW THROUGH 15 KW.

MODEL A5520

MINIMUM MOUNTING DISTANCES
"A" FROM CEILING
"B" FROM WALLS

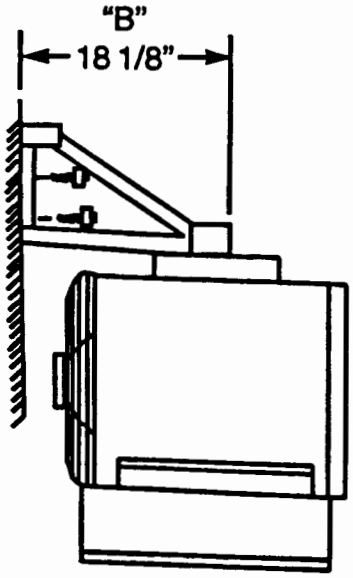


FIG. 1

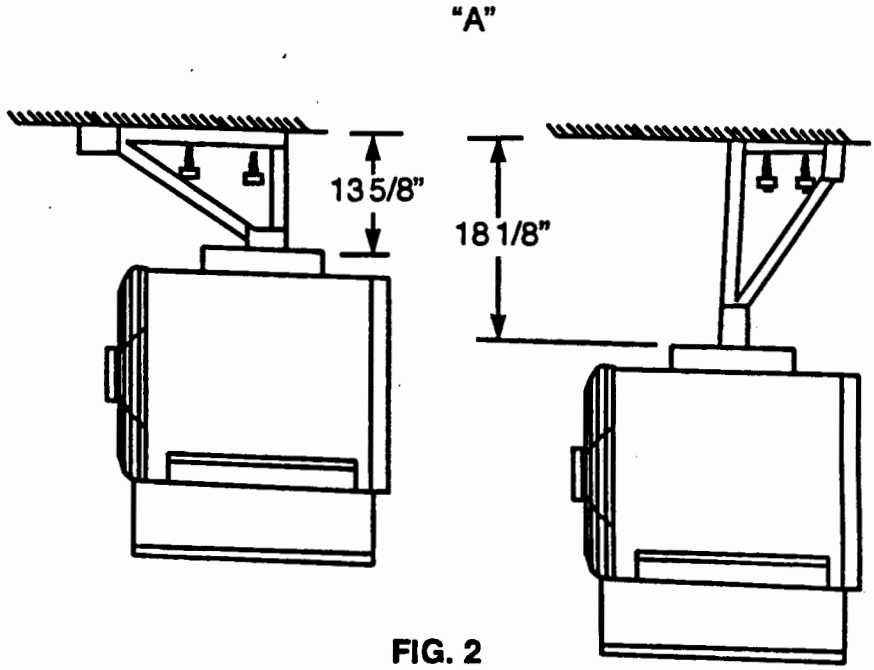


FIG. 2

Swivel hanger bracket can be used to suspend heater from either the wall (Fig. 1) or the ceiling (Fig. 2).

1) Attach the bracket to the wall or ceiling using lag screws or other suitable means (supplied by others).
2) Lift heater into position and insert bolt and washer through holes provided, place remaining washer and locknut on bolt and tighten to within two turns of being tight.
3) Swivel heater to desired position, then tighten locknut.

TPI CORPORATION
GRAY, TENNESSEE 37615

PIPE MOUNTING KIT INSTRUCTIONS FOR 5500 SERIES HEATERS CABINET SIZES #1 AND #2

KIT CONTENTS

ITEM	PART NO.	DESCRIPTION	QTY.
1	53013-001	Arm Assembly, Mtg.	1
2	51660-001	Base Assy. Mtg. Column	1
3	51664-001	Bracket, Column Stabilizer	1
4	51667-001	#414 - 3 1/2 U-Bolt	3*
5	43629-001	3/8 dia. x 2 3/4 Expansion Bolt	2*
6	51665-001	Angle, Stabilizer	1
7	43529-001	Package, Hardware	1

(*Supplied with hardware item 7)

NOTE: The installer must provide a suitable length of 3 1/2" nominal pipe size (4" O.D.) Schedule 40 pipe for column mounting. Alternatively, the support arm may be bolted directly to any suitable verticale surface. Refer to drawing.

The kit design allows full 360º rotation of the arm assembly.

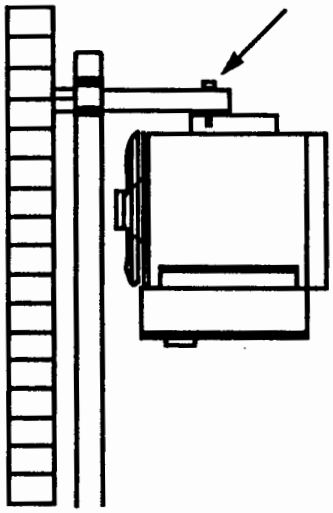
The height from the ground is adjustable.

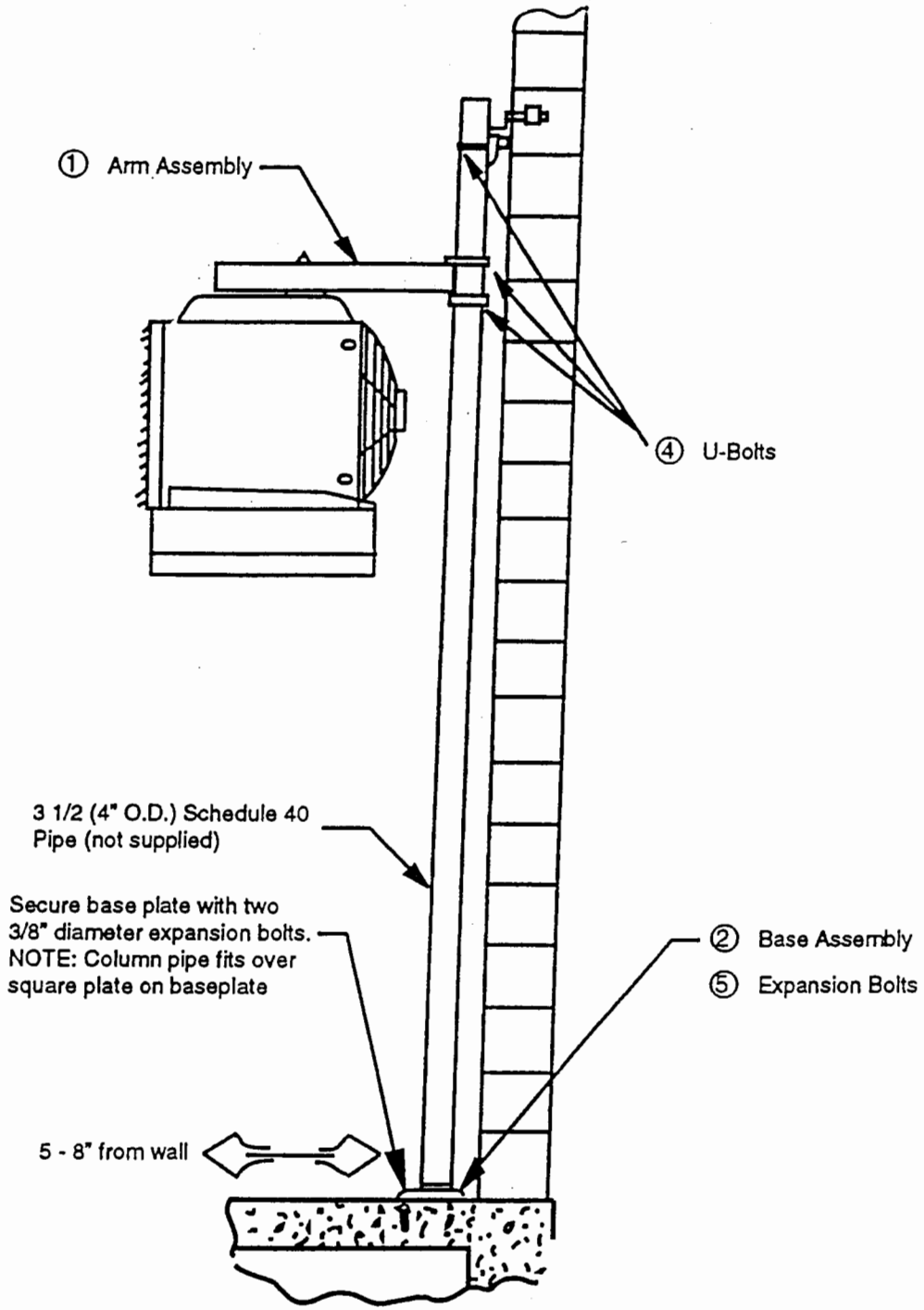
The pipe column may be adjusted from the wall within the range of 5-8".

INSTALLATION OF ATTACHMENT ASSEMBLY TO THE HEATER

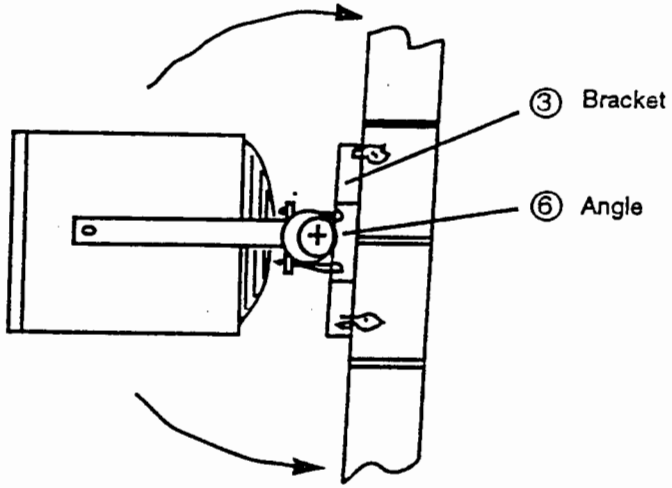
5500 Series heaters are provided with a bracket located on the top of the unit for mounting. Each bracket is provided with two 15/32 in. Dia holes for attachement bolts.

The heater is to be suspended on the 4 1/2 in. bolt from the arm as shown below. If a long section of pipe is used, it may be necessary to provide a stabilizer tie/strut near midpoint.





3 1/2" PIPE MOUNTING



PLAN VIEW

9840