



801 Glasgow Ave.
Fort Wayne, IN 46803

T-550 GAS BURNER

300,000 BTU/H TO 550,000 BTU/H

WARNING

IF THE FOLLOWING INSTRUCTIONS ARE NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT, CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

- DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

- WHAT TO DO IF YOU SMELL GAS? -

- DO NOT TRY TO LIGHT ANY APPLIANCE.
- DO NOT TOUCH ANY ELECTRICAL SWITCHES.
- DO NOT USE ANY PHONE IN YOUR BUILDING.
- IMMEDIATELY CALL YOUR GAS SUPPLIER FROM A NEIGHBORS PHONE.
- FOLLOW THE GAS SUPPLIER'S INSTRUCTIONS.
- IF YOU CANNOT REACH YOUR GAS SUPPLIER, CALL THE FIRE DEPARTMENT.

NOTICE

- A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER MUST PERFORM INSTALLATION AND SERVICE.
- ALL INSTALLATIONS MUST BE MADE IN ACCORDANCE WITH ALL STATE AND LOCAL CODES, WHICH MAY DIFFER, FROM INSTRUCTIONS IN THIS MANUAL.
- THE INSTALLER SHOULD INFORM AND DEMONSTRATE TO THE USER THE CORRECT OPERATION AND MAINTENANCE OF THE APPLIANCE.
- THE INSTALLER SHALL ALSO INFORM THE USER OF THE HAZARDS OF FLAMMABLE LIQUIDS AND VAPORS AND SHALL REMOVE SUCH LIQUIDS AND VAPORS FROM THE VICINITY OF THE BURNER.
- THE INSTALLATION ADJUSTMENT DATA (OR LABEL) SUPPLIED SHALL BE FILLED IN AND AFFIXED TO THE BURNER OR THE COVERED APPLIANCE.

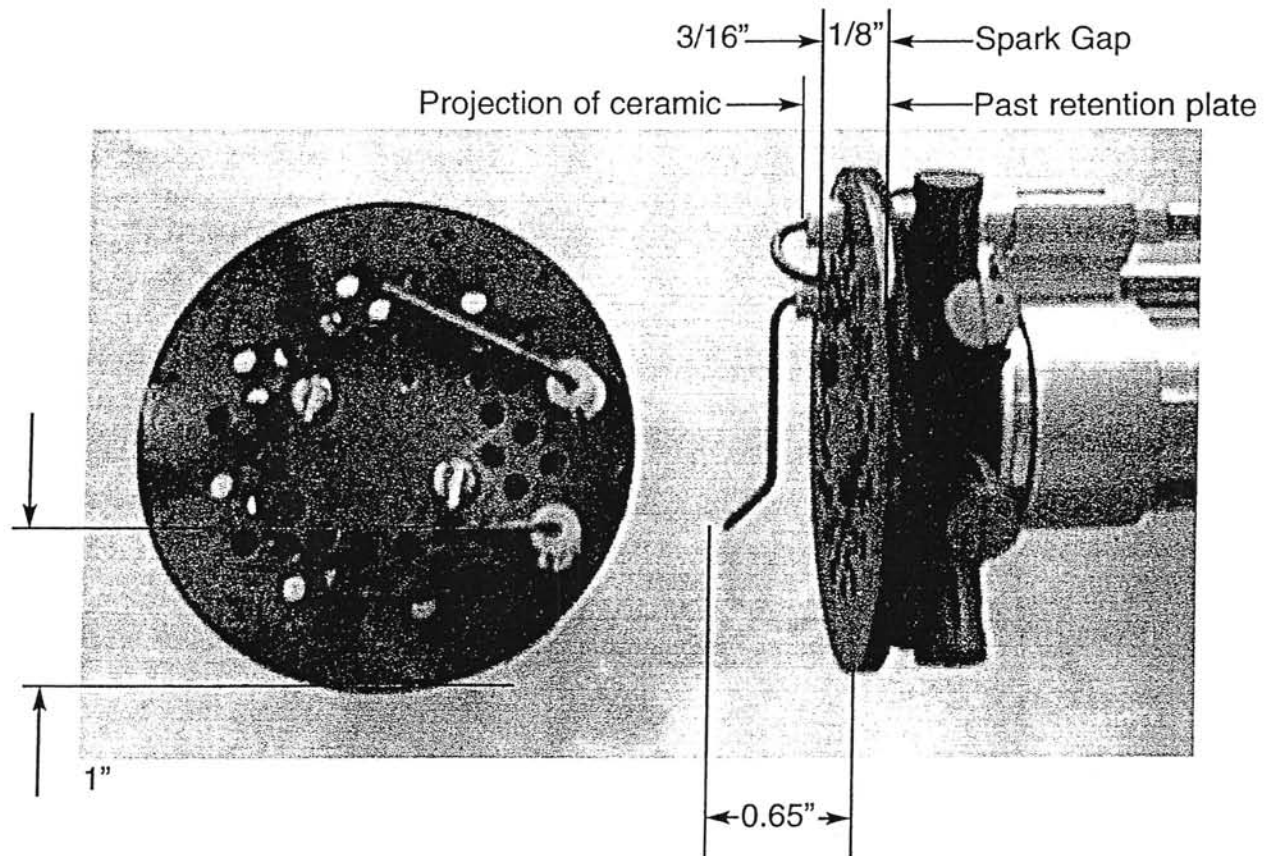


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NY City MEA 363-99-E



THESE INSTRUCTIONS SHOULD BE AFFIXED TO THE BURNER
OR ADJACENT TO THE HEATING APPLIANCE.



FUEL - T-550 Burners will fire natural gas or LP. Maximum inlet pressure at droplet is for both natural and LP gas.

FIRING SYSTEM - The burner operates as ON – OFF with a fixed air inlet shutter and proportional head setting. (See the charts for each firing. In the field they may vary)

BLOWER MOTOR - 120 Volt/ 60 Hz/1 Ph PSC with 1/6 HP

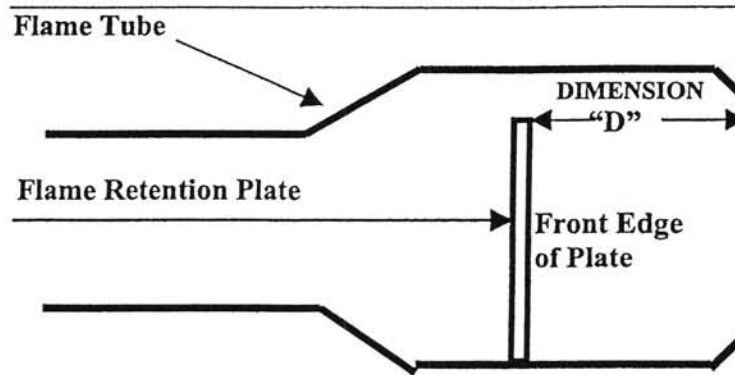
GAS TRAIN - Below 400,000 BTU low and high gas pressure switches are optional. Above 400,000 BTU they are standard with gas leak shut off valve. (See the setting pressures from the table given) Dual gas valves in the form of combination or separate with built in pressure regulator or separate with shut valves are all factory-assembled system. When pressure switches are used, the power (120V) passes through each as a part of the limits; so, that they will trip power to the burner as soon as pressure increases or decreases to the system.

BURNER IGNITION - A separate external high voltage ignition transformer provides interrupted ignition with 4 sec. safety timing to establish the flame.

AIR FLOW SAFETY SWITCH - Diaphragm switch closes when the burner blower develops adequate air pressure. Loss of air pressure causes the fuel valves to close immediately.

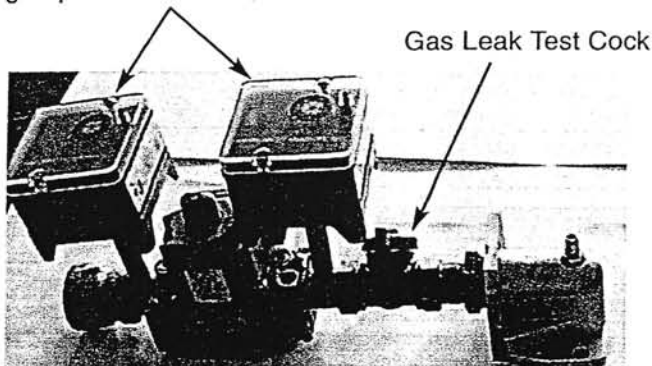
PRE-PURGE - Minimum 30 seconds is standard on burners.

Model No.	Gas	Dimension "D"	Capacity BTU/H	Gas Connection	Orifice	Manifold Pressure	Inlet Pressure
T-550	Natural	2"	Min. 300,000	1"	25/64"	3.3"	8"
		1.65"	Max. 550,000	1"	None	4.0"	8"
T-550	Propane	2"	Min. 300,000	3/4"	9/32"	3.7"	11"
		1.65"	Max. 550,000	3/4"	None	2.5"	11"

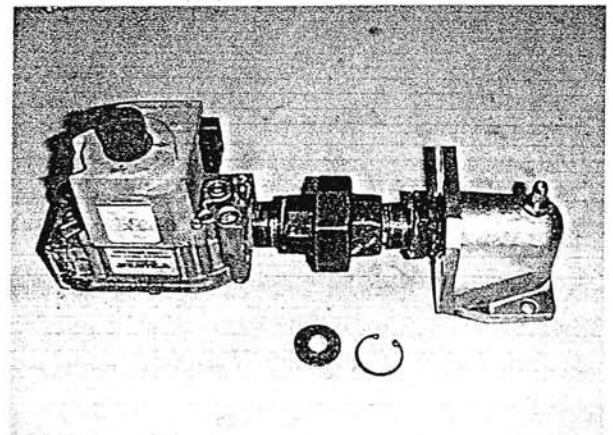


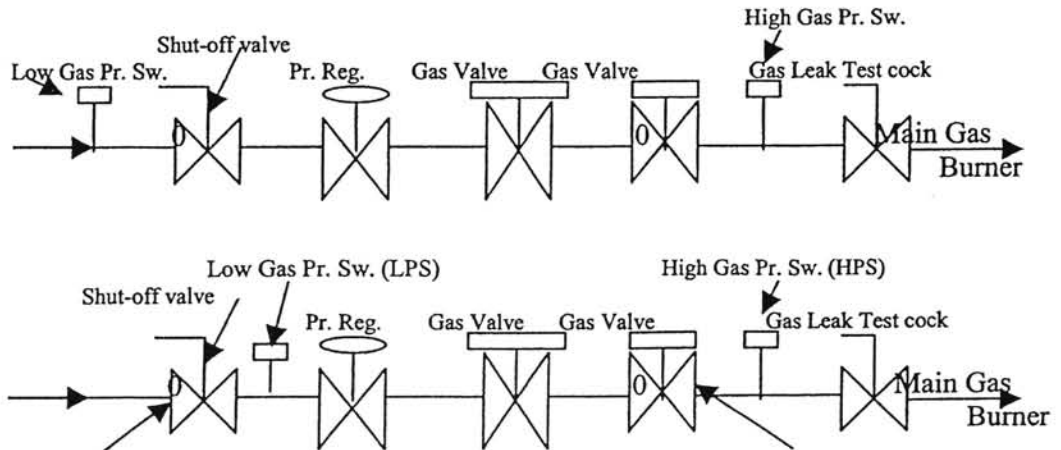
1. ON/OFF switch, Power On, Fuel on Lights is standard on all burners.
2. Flame tube is available as standard 5 1/4" or optional 14" long
3. Gas Pressure Switches below 400,000 BTU are optional
4. Gas manifolds above 400,000 BTU are equipped with Gas Pressure switches standard to conform UL 795, CSD-1 and NFPA-86
5. A Separate Solenoid valve and diaphragm valve along with a separate pressure regulator and gas pressure switches to meet certain local codes are available as optional

With gas pressure switches manifold



Below 400,000 BTU Gas Manifold





Main Inlet Pressure Tap (T_P)

Mainfold Pressure Tap (T_M)

Gas	Firing Rate MBH	Flame Tube	Inlet Press. T_P	Manifold Press. T_M	$T_M > 50\% + \Delta V^*$ LPS	$< 1.5 \times T_M$ HPS
Nat.	300	5 1/4"	6.9"	3.3"	1.6+1=2.6"	3.3x1.5=4.9"
Nat.	550	5 1/4"	5.5"	4"	2+1=3"	4x1.5=6"
Nat.	300	14"	6.9"	3.3"	1.6+1=2.6"	3.2x1.5=4"
Nat.	550	14"	5.5"	4"	3"	4"
LP	300	5 1/4"	8.6"	3.7"	1.85+1=2.85"	5.6"
LP	550	14"	9.2"	2.3"	2.2"	3.4"

Note: ΔV = Pressure drop for this gas valve is 1". Refer literature for gas valve pressure drops.

The following are actual readings, which may differ in the field. By keeping gas pressure and air shutter openings same and by just moving head settings one can vary nearly 100 MBH by just moving head position

3/4" Gas Train: Natural Gas
 without any orifices
 All Furnace Pressure at 0" W.C.

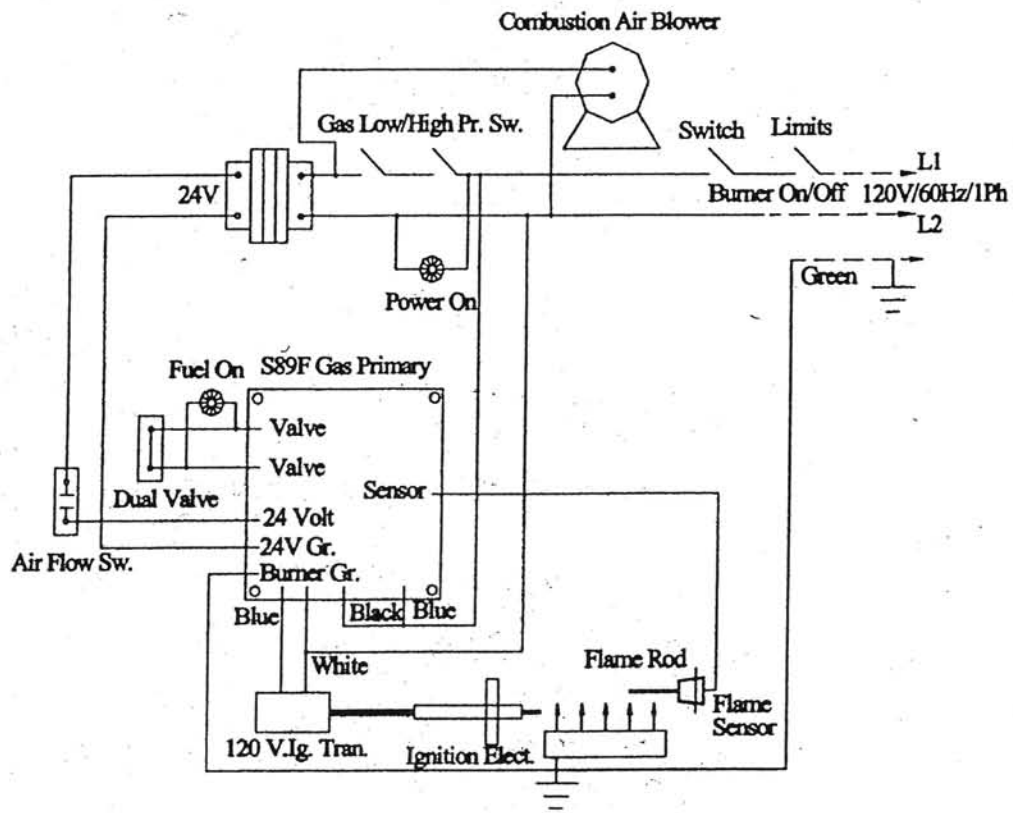


Firing Rate MBH	Combustion Air Shutter	Manifold Pressure " W. C.	Dimension 'D' Inches	Head Settings Number	O2%	CO2%	CO
540	24	3.8	1.7"	5	3.0	10	0
517	26	3.7	1.7"	5	3.4	9.8	0
509	26	3.7	1.9"	10	2.7	10.3	0
445	26	3.5	2"	14	3.7	9.7	0
428	26	3.5	2.1"	18	3.7	9.7	0
393	26	3.5	2.2"	22	4.1	9.4	0
476	18	3.0	1.7"	5	2.8	10.2	0
455	18	3.0	1.9"	10	2.8	10.2	0
432	18	3.0	2"	14	2.8	10.2	0
388	18	3.0	2.1"	18	3.4	9.9	0
369	18	3.0	2.2"	22	4.0	9.5	0
469	15	2.8	1.7"	5	2.3	10.5	0
448	15	2.8	1.9"	10	2.3	10.5	0
419	15	2.8	2"1	4	2.8	10.3	0
385	15	2.8	2.1"	18	3.6	9.8	0
347	15	2.8	2.2"	22	4.6	9.2	0
439	12	2.5	1.7"	5	2.3	10.5	0
416	12	2.5	1.9"	10	2.5	10.3	0
400	12	2.5	2"	14	2.0	10.7	0
366	13	2.5	2.1"	18	2.8	10.2	0
345	13	2.5	2.2"	22	3.1	10.0	0
417	11	2.2	1.7"	5	2.2	10.6	0
402	11	2.2	1.9"	10	2.5	10.3	0
376	11	2.2	2"	14	3.0	10.1	0
349	11	2.2	2.1"	18	3.8	9.7	0
345	11	2.2	2.2"	22	5.0	9.0	0



3/4" Gas Train: LP Gas
without any orifices
All Furnace Pressure at 0" W.C.

Firing Rate MBH	Combustion Air Shutter	Manifold Pressure " W. C.	Dimension 'D' Inches	Head Settings Number	O2%	CO2%	CO
564	24	2.4	1.7"	5	3.2	11.7	0
518	24	2.4	1.9"	10	3.5	11.5	0
536	23	2.2	1.7"	5	3.3	11.6	0
470	23	2.2	1.9"	10	4.3	11	0
500	19	2.0	1.7"	5	2.8	12.0	0
391	19	2.0	1.9"	10	6.1	9.8	0
480	15.5	1.8	1.7"	5	2.3	12.3	10
365	15.5	1.8	1.9"	10	6.6	9.4	0
404	11.5	1.8	2.0"	14	3.0	11.8	0
374	10	1.8	2.1"	18	2.7	12.6	0
343	10	1.8	2.2"	22	3.3	11.6	0

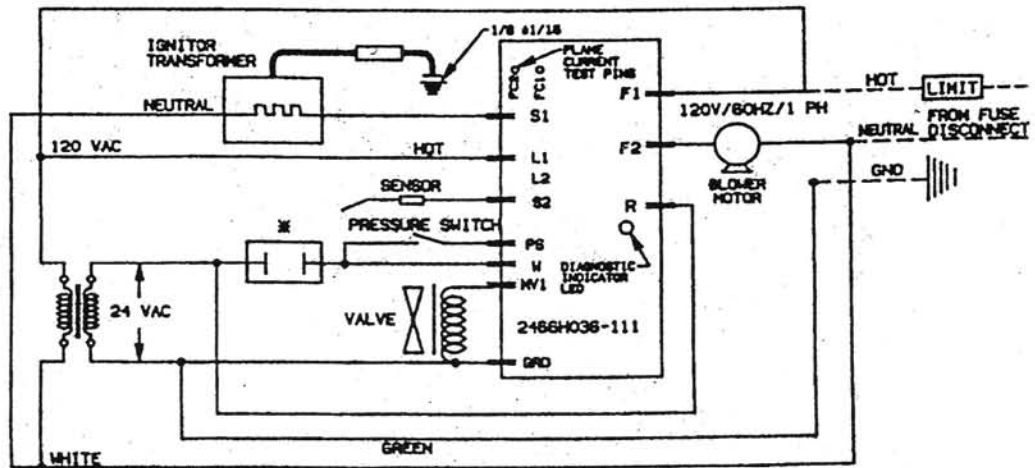


————— Factory Wiring
 - - - - - Field Wiring Use Copper Conductors Only

Sequence Of Operation

1. Limit close
2. Blower motor starts
3. S89F is powered through air-flow switch through 24V step down transformer.
4. 30 second pre-purge is initiated.
5. At the end of the pre-purge, spark is energized for 4 seconds through a separate ignition transformer, during this process gas valve is energized.

- (a) If flame is proved when the current from the flame sensor through the burner flame to the ground reaches 0.8 micro amps DC, then, the gas control remains open and the burner on until the call for heat ends.
- (b) If the flame is not proved, the gas control closes and the system is locked out until the S89 is reset.
- (c) If the flame is lost after being proved, the S89 will close the gas control, perform a safe start check and on S89F, pre-purge delay, the ignition as described above.
- (d) Turning the thermostat below room temperature or removing power to the system for 45 seconds resets the S89.



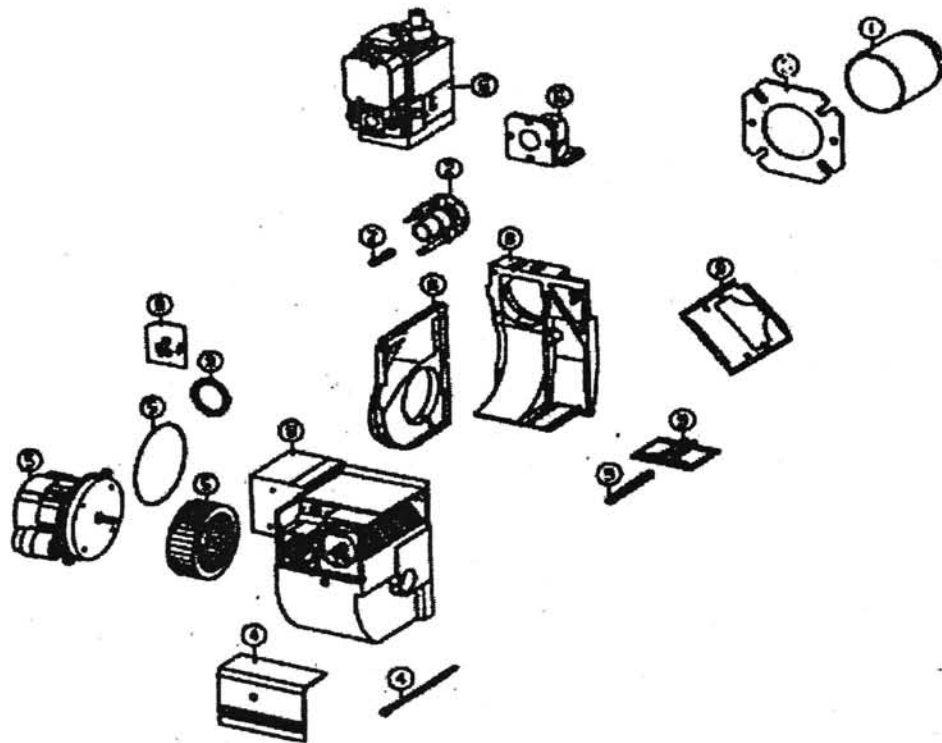
NOTE: 1. HOT & NEUTRAL CAN NOT BE CHANGED.

2. IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THIS CONVERSION BURNER MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE 105°C WIRE OR IT'S EQUIVALENT.

3. OPERATING LIMIT FOR POST-PURGE.

————— FACTORY WIRING
 - - - - - FIELD WIRING
 USE COPPER CONDUCTORS ONLY

Optional Pre-purge/Post-purge control below 400,000 BTU



Items	Part Number	Description	Items	Part Number	Description
1	81119-SER	5 1/4" Std. Flame Tube	5	81104-SER	Motor Flange
1	81120-SER	14 " Long Flame Tube	5	81132-SER	1/6 HP PSC motor
1	81121-SER	Fixed Flange			
2	81122-SER	Gas Nozzle Assembly	5	81102-SER	146 Blower Wheel
2	81127-SER	Pull Rod for 5 1/4"	6	81123-SER	Gas Connection Flange
2	81134-SER	Pull Rod for 14 1/4"	6	62374-004	Gas Valve
4	81117-SER	Cover	8	81101-SER	Main Housing Front
4	81118-SER	Screw to Couple Housing	8	81100-SER	Main Housing Back
9	81112-SER	Air Damper	8	81103-SER	Housing Insert with Extra Plate
9	81115-SER	Scale Air Damper	9	81113-SER	Air Regulation Plate
9	81107-SER	Adj. Screw Gas Nozzle	9	81114-SER	Screw, Air Regulator Adjust
9	81111-SER	Cover Plate Gas Adjustment	9	81116-SER	Cover Plate Air Damper
			9	81109-SER	Scale, Nozzle

Diagrams Not Shown

Part Number	Description	Part Number	Description
81105-SER	Bushing, Cable	81130-SER	Screw, Firing Head Adjust
81106-SER	Coverplate-Nozzle ASM	81131-SER	Shroud, Silencer
81108-SER	Bushing, Adjustment Screw	81135-SER	Cable, Ionization-5 1/4"
81110-SER	Plug, Cover	81136-SER	Cable, Ionization-14"
81124-SER	Gasket, O-Ring 29.2X3.0	81137-SER	Transformer-24V
81125-SER	Electrode, Ignition	81138-SER	Switch, Airflow
81126-SER	Probe, Sensor-Ionization	81139-SER	Light, Power
81128-SER	Ring, Reduction	81140-SER	Light, Fuel On
81129-SER	Flange, Fixing	81141-SER	Igniter-5" Standard
81142-SER	Igniter-14" Standard	62759-002	Control, Ignition



L.P.

D1: $P_{air}=0.4'' \text{ H}_2\text{O}$ (550 btu), $P_{air} + P_{gas} = 2.3'' \text{ H}_2\text{O}$

D2: $P_{air}=0.7'' \text{ H}_2\text{O}$ (400 btu), $P_{air} + P_{gas} = 2.3'' \text{ H}_2\text{O}$

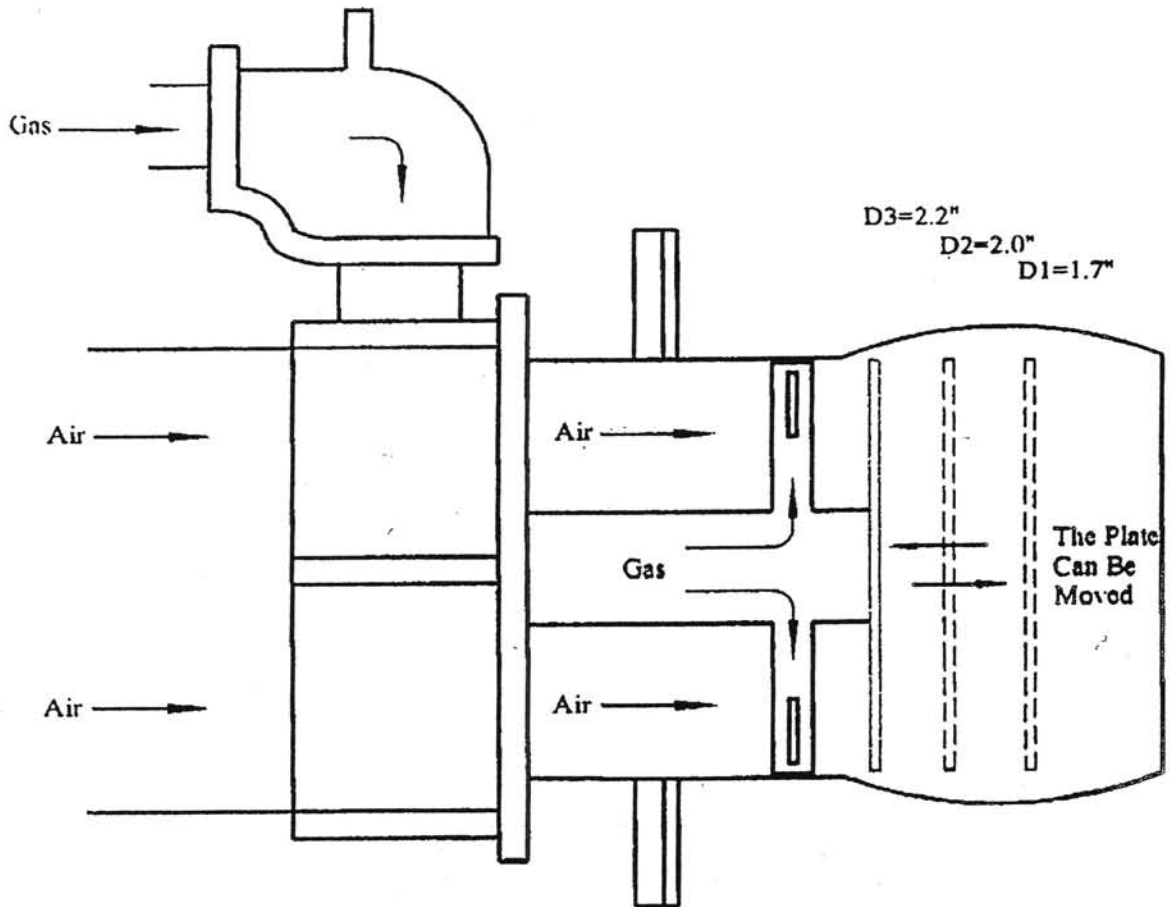
D3: $P_{air}=1.2'' \text{ H}_2\text{O}$ (300 btu), $P_{air} + P_{gas} = 2.3'' \text{ H}_2\text{O}$

Natural

D1: $P_{air}=0.4'' \text{ H}_2\text{O}$ (550 btu), $P_{air} + P_{gas} = 3.5'' \text{ H}_2\text{O}$

D2: $P_{air}=0.7'' \text{ H}_2\text{O}$ (400 btu), $P_{air} + P_{gas} = 3.5'' \text{ H}_2\text{O}$

D3: $P_{air}=1.2'' \text{ H}_2\text{O}$ (300 btu), $P_{air} + P_{gas} = 3.5'' \text{ H}_2\text{O}$





Maintenance Instructions: To be fixed by installer.*

Once a year, a qualified service agency must be contacted for service and other than routine maintenance.

- 1. Blower motor is the only moving part. It does not require lubrication, since the ball bearings have been permanently lubricated.
- 2. The user should do periodic visual checks of the burner and the flame.
- 3. Laundry lint or dog and cat hair should not go inside the blower. If it is seen, it should be removed after disconnecting the power to the burner and cover should be installed before starting the burner.
- 4. Keep the area around the conversion burner clear and free from combustible materials, gasoline and other flammable vapors and liquids.
- 5. No obstruction for the flow of combustion and ventilating air.
- 6. Maximum incoming gas pressure should not be more than 9".
- *7. In coming Gas pressure = " W. C.
- *8. Manifold gas pressure = " W. C.
- *9. CO2% = or O2% = (5% to 2.5%)
- *10. Stack temperature = F (300 F minimum ~530 F maximum)
- *11. Draft over fire = "W.C. (- 0.02" W.C. or zero)
- *12. Carbon Monoxide in flue = PPM (less than 100 PPM ideal; should not exceed 400 PPM)
- *13. Input Cu / Ft. / Hr ==
- *14. Date installed: Day /Month / Year Signature of the installer.



Trouble shooting:

There are three factors to operate the gas burner properly:

1. Electricity {(main Power 120V/60 Hz /1 Ph)(secondary 24V)}
2. Gas flow (In coming pressure should be 10" w. c. with proper gas line without pressure drop during burner operation).
3. Combustion air.

Check these three items properly before proceeding in details for other problems.

Cause	Solutions
1. Burner motor runs:	
No flame after pre-purge time, & no fuel on indicator	Check 24V feed to airflow switch & after airflow switch to control. Fix the airflow switch or replace(Electrical contacts 24V)
No flame, fuel indicator on, faulty ignition, transformer or spark separately	Check ignition transformer, electrode, cracked electrode or gap. Fix them or replace it.
Faulty valve	Check flow of gas through valve. (use manometer to check gas pressure). If no pressure after activation change it.
S 89F defective after above all tests	Replace.
2. Burner locks after 4 secs.	
Polarity reversed	Check power feed for polarity.
Bad earth grounding	Fix the ground wire.
Gas pressure is too low	Check the gas pressures and fix it.
3. Pulsation at start	
Gas Pressure is too high	Use manometer and readjust the pressures.
Blocked flue	Check draft and clear flue for foreign materials
4. Pulsation during operation	
Burner is not correctly adjusted	Readjust with combustion analyzer
The burner is dirty	Clean the burner
Defective chimney	Check and change if necessary with liners.
5. Burner locks out now and then	
Ionization current is too low	Check current. Minimum 0.8 micro amps. Check location and wires.
6. The CO-content is too high	
Excess air is too much or less air	Adjust air shutter.
The gas holes are clogged	Clean them.
The fresh air intakes is too small	Check and readjust
The burner head is out of position	Check and readjust
7. Condensation in heat exchanger	
Firing rate is too low	Increase the rate so that the stack temperature is +350oF. Insulate the chimney.



WAYNE COMBUSTION SYSTEMS

801 Glasgow Ave.
Fort Wayne, IN 46803

LIMITED WARRANTIES FOR OIL AND GAS BURNERS, MADE BY WAYNE AND USED IN RESIDENTIAL INSTALLATIONS

WAYNE COMBUSTION SYSTEMS ("WAYNE") warrants to those who purchase its **Oil Burner Models** for resale or for incorporation into a product of resale, that its burner is free from defects in material and workmanship under normal use and service for thirty-six (36) months from the date of manufacture. **ALL GAS BURNERS** manufactured by "WAYNE" will be similarly warranted for eighteen(18) months from date of manufacture except where original manufacture offers a greater warranty. (Reference #6 below) THESE LIMITED WARRANTIES DO NOT APPLY UNLESS THE BURNER COVERED BY IT IS PROPERLY INSTALLED BY A QUALIFIED, COMPETENT TECHNICIAN, WHO IS LICENSED WHERE STATE AND/OR LOCAL CODES PREVAIL, AND WHO IS EXPERIENCED IN MAKING SUCH INSTALLATIONS, in accordance with NFPA #31 of the national fire protection association and in accordance with all local, state and national codes.

Any **IN-WARRANTY** burner component which is defective in material or workmanship will be either repaired or replaced as follows:

1. Fuel units, motors, transformers, gas valves, and controls should be returned to an authorized service station or distributor of WAYNE for determination of applicability of this LIMITED WARRANTY as to either repair or replacement, where said service station or distributor is reasonably available in the customer's locality. The manufacturers of burner components regularly publish and distribute listings showing the locations of their network of service stations. Where such local service is NOT available for the burner components described above or other burner parts are involved, these items should be returned, freight prepaid, to WAYNE Service Department, 801 Glasgow Ave, Fort Wayne, Indiana 46803.
2. Burners and/or component(s) determined to be covered under this LIMITED WARRANTY by WAYNE shall be repaired or replaced at WAYNE's sole option.
3. WAYNE is not responsible for any labor cost for the removal and replacement of said burner or burner components and equipment associated therewith.
4. A burner so repaired will then carry the LIMITED WARRANTY equal to the unexpired portion of the original burner LIMITED WARRANTY.
5. If inspection by WAYNE does NOT disclose any defect covered by this LIMITED WARRANTY, the burner or burner component(s) will be either repaired or replaced at the expense of the customer and WAYNE's regular charges will apply.
6. If the original manufacturer of a burner component offers a warranty greater than either of our LIMITED WARRANTIES described above, then this portion will be added to our LIMITED WARRANTY.

This LIMITED WARRANTY does NOT cover products which have been damaged as the result of accident, abuse, misuse, neglect, improper installations, improper maintenance or failure to operate in accordance with WAYNE's written instructions.

These LIMITED WARRANTIES do not extend to anyone except the first purchaser at retail and only when the burner is in the original installation site.

IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED TO THE DURATION OF THE LIMITED EXPRESS WARRANTIES CONTAINED HEREIN. WAYNE EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY NATURE FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY.

Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you. Also, some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. WAYNE neither assumes or authorizes any person to assume for WAYNE any other liability or obligation in connection with the sale of these products. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.