



mfg. by WAYNE HOME EQUIPMENT
A SCOTT FETZER COMPANY
FORT WAYNE, INDIANA

PUBLICATION DATE: 05-01-96
REVISION 03

AMS-10
TMS-10

Installation & Service Instructions AMS-10/TMS-10 Power Gas Burner

PART NO. 62693-001

INSTALLATION INSTRUCTIONS

These instructions cover the installation of Model AMS-10/TMS-10 power gas burner. Safe and economical operation of the burner throughout its service life is largely dependent upon proper installation in the furnace.

Burners are shipped from the factory with natural gas orifices installed, unless propane gas orifices are specified. (See carton markings.) See below for location of alternate orifices.

A. GAS BURNER REPLACEMENT OF OIL BURNER

1. CONTENTS OF CARTON
 - a. Gas Burner
 - b. Installation and Service Manual
 - c. Gas Burner Gasket
2. REMOVING THE PRESENT BURNER

Before installing the Model AMS-10/TMS-10 gas burner, remove the present burner by performing the following:

 - a. Shut off electric power and fuel supply.
 - b. Disconnect and remove fuel line; disconnect thermostat leads and burner cord.
 - c. Remove three (3) hexagon nuts holding burner in place and remove burner.
 - d. Inspect combustion chamber and replace if damaged. Also inspect furnace and vent pipe on top of the furnace for corrosion, loosened fittings, soot, etc.
3. INSTALLING THE GAS BURNER

Place new burner gasket on three studs in furnace, mount burner, fasten in place with three (3) hexagon nuts, connect thermostat leads to T.T. of terminal board on control box and connect gas piping.
4. GAS PIPING TO FURNACE

See Section B Gas Piping and Section C Piping Charts for information about piping.
5. THERMOSTAT

It is necessary to change the heat anticipator setting of the thermostat when the gas burner replaces an oil burner. Reset the anticipator to .4 amps. Failing to make this change will result in a wide temperature range in the mobile home.

B. GAS PIPING

Gas piping should be sized and installed in accordance with local codes and utility regulations.

1. Run a separate gas line from the gas meter to the burner with a shut off valve installed at the meter. Use the proper line size according to the charts shown below. Always use new piping, and locate it conveniently for easy servicing later. Black pipe is the most practical for natural gas because of the large sizes required; copper tubing with an internal coating of tin is recommended with L.P. Gases. Piping must be clean, free from cutting burrs, and defects in structure or threading. The line must be durable, substantial, and gas tight.
2. Install a tee fitting with a sediment trap at the bottom of the riser to catch any foreign matter in the fuel line. Install a main manual gas valve on the outside of the furnace when required by local codes or utility requirements.
3. Carefully check for gas leaks with a soapy solution brushed on the connection. NEVER USE A FLAME.

C. PIPING CHARTS

Black Pipe for Natural Gas

- Use 1/2" when length required is less than 20 feet.
- Use 3/4" when length required is less than 60 feet.
- Use 1" when length required is less than 100 feet.

Aluminum or Copper Tubing for Natural Gas

- Use 1/2" O.D. when length required is less than 10 feet.
- Use 3/4" O.D. when length required is less than 30 feet.

Aluminum or Copper Tubing for L.P. Gas

- Use 5/8" O.D. when length required is less than 40 feet.
- Use 3/4" O.D. when length required is less than 100 feet.

D. CHECKING NATURAL GAS INPUT

Check the label on the burner to be sure the burner is equipped with orifices for whichever gas is to be used. Alternate orifices are in cloth bag attached to burner. Instructions for changing orifices are on Page 2. To check the input, time the dial on the meter for one revolution while the burner is operating. If the time varies more than 5% from the times shown on the chart, check gas pressure according to the procedure stated on Page 2 under "Pressure Regulator." If pressure reading matches the pressure shown on the chart, check to be sure the proper burner orifice is being used. Further gas problems should be referred to the local gas supplier. Natural gas varies in BTU value from 950 to 1,050 BTU per cubic foot. The chart is based on an average of 1,000 BTU per cubic foot.

Btu/ INPUT	PRESSURE	TYPE OF GAS	BURNER ORIFICE	DIAL SIZE	TIME PER REV.
80,000	3.5" W.C.	Natural	No. 19	1 cu. ft.	45 sec.
100,000	3.5" W.C.	Natural	No. 13	1 cu. ft.	37 sec.

E. CHECKING L.P. GAS INPUT

L.P. gas installations are not usually supplied with meters for determining the amount of gas used. The chart shows time required per dial revolution if a meter is used that is calibrated for cubic feet delivery.

Btu/ INPUT	PRESSURE	TYPE OF GAS	BURNER ORIFICE	DIAL SIZE	TIME PER REV.
80,000	11" W.C.	L.P. Propane	No. 41	1 cu. ft.	112 sec.
100,000	11" W.C.	L.P. Propane	No. 36	1 cu. ft.	91 sec.

F. PURGING UNBURNED GAS FROM FURNACE

1. Turn gas valve control knob to "PILOT," depress and turn to "OFF."
2. Set thermostat above room temperature.
3. Plug in gas burner power cord.
4. The gas burner motor and blower will start, drawing air through the burner and forcing unburned gas out the flue. BURNER MUST RUN A MINIMUM OF FIVE MINUTES FOR ANY PURGING OPERATION.

G. STARTING THE BURNER

1. Depress the gas valve control knob on the electric gas valve and turn to "OFF."
2. Set room thermostat above room temperature and let burner run five minutes to purge the unburned gas from the furnace.
3. Set thermostat below room temperature.
4. Turn pilot lighter main valve to "ON." Depress and turn control knob on gas valve to "PILOT."
5. Open pilot observation door.
6. Hold match to pilot lighter tube and depress red button on pilot lighter valve. Hold button down 3 seconds while depressing knob on gas valve. Hold control knob down about 60 seconds until pilot stays lighted after releasing knob.
7. Observe pilot — if not lighted repeat steps 1 through 6.
8. Close pilot observation door.
9. Turn gas valve control knob to "ON."

10. Set the room thermostat higher than room temperature so the burner will start. A safety control (centrifugal switch in the motor) prevents the gas valve from opening until the blower is supplying sufficient combustion air.

H. ADJUSTING THE BURNER

1. Rotate the disc at the left side of the burner housing to adjust the combustion air. Rotate the disc clockwise to increase combustion air, counter-clockwise to decrease combustion air.
2. Observe combustion flame through observation door immediately after the burner is placed in operation. The flame should be blue in color. After the burner has operated for two or three minutes, flame color will change to light orange.
3. Burner should run quietly. If burner pulsates or rumbles, rotate disc to decrease air supply.
4. After checking flame pattern and noise level, lock disc in position by tightening Phillips head screw.

NOTE: It is very important that air supply be ample without decreasing efficiency of burner. An inadequate amount of air can cause carbon monoxide (CO). The carbon dioxide (CO₂) content of the flue products should approximate 7.0 to 8.0 per cent for natural gas and 8.0 to 9.0 per cent for L.P. gases.

I. ADJUSTING HEAT DISTRIBUTION

1. The lower blower control should be set at FAN "ON" 110° FAN "OFF" 90.
2. Set room thermostat for desired room temperature.
3. Balance the heat distribution by adjusting register openings.

J. AIR SUPPLY FOR SEALED COMBUSTION

1. Replace burner access door to complete the outdoor combustion air passage.
2. If the space below the home is enclosed, be sure a vent or duct of at least 18 square inches is made to free outdoor air to provide sufficient air for combustion.

K. TO PUT BURNER OUT OF OPERATION

1. Turn gas valve control knob and pilot lighter main valve to "OFF."
2. Turn off electric supply.

L. GAS BURNER CONTROLS

1. PILOT LIGHTER MAIN VALVE

The Pilot Lighter Main Valve controls the flow of gas to the pilot lighter valve.

2. COMBINATION ELECTRIC GAS VALVE AND PRESSURE REGULATOR

The Combination Electric Gas Valve and Pressure Regulator is equipped with several components.

The Gas Valve Control Knob has three positions. The "OFF" position completely shuts off the gas supply. The "PILOT" position releases gas to the pilot burner only. The "ON" position releases gas to the pilot burner as long as it is lighted, and to the main burner when it is energized electrically.

The Pilot Gas Filter, located in the valve, filters the gas supply to the pilot burner.

The Pilot Safety Valve provides 100% safety shut-off of pilot gas whenever the pilot is extinguished.

The Pressure Regulator regulates pressure for natural and L.P. gases. The screwdriver slot on the regulator must point to the word "NAT." if the burner is to be fired with natural gas and "L.P." if it is to be fired on L.P. gas.

To check gas pressure, remove the pressure tap plug of the combination electric gas valve. Insert the pressure tap fitting of the manometer and connect the rubber tube from the fitting to the manometer. Refer to the manometer instructions for taking pressure readings. Be sure the main burner and pilot burner are both burning, when making readings.

Pressure should be 3.5" W.C. for natural gas and 11.0" W.C. for L.P. Gas.

3. CENTRIFUGAL SWITCH

The electric motor for the blower which supplies combustion air to the burner is equipped with a Centrifugal Switch wired in series with the combination electric gas valve. This switch is normally open until the speed of the blower motor closes it and thus opens the electric gas valve. The valve will not open until the blower is operating at full speed.

M. REMOVING COMPONENTS

1. TO REMOVE BURNER ASSEMBLY
 - a. Set thermostat at lowest setting.

SERVICE CHECKS FOR GAS GUN FURNACES

A. Burner will not start when thermostat calls for heat

1. Be sure gas supply valve is turned on at the meter so fuel is being supplied to the burner.
2. Be sure gas valve control knob on the burner is turned to "ON."
3. Be sure the electric current is on and there are no blown fuses in the furnace circuit.
4. Be sure the pilot is lighted. If extinguished, relight according to Instructions for Starting Gas Burner, Steps 1 through 6. (See B and C below for further instructions on pilots.).
5. Check the main burner orifice. If dirty or plugged, clean it or replace it.
6. Disconnect wires at thermostat and place wires together. If burner starts then thermostat is defective and should be replaced.
7. Check the control circuit with a light tester or volt-ohm meter for loose connections or broken wires.
8. Check the current to the combination electric gas valve. If circuit is closed and valve does not open, replace valve.
9. Check the pressure regulator. If regulator will not adjust and hold to 3½" Water Column for natural gas operation, replace regulator. (L.P. gases are regulated at the tank. Be sure regulator on the burner is open for L.P. gas operation.)
10. Check burner transformer for 24 volt output. If no voltage, replace transformer.
11. Check the burner relay output. If less than 110 volts, replace relay.

- b. Shut off gas supply at the meter.
- c. Disconnect gas burner electric cord, gas supply to burner, and thermostat leads.
- d. Loosen three hexagon nuts holding burner in place. Rotate burner clockwise about 10° and remove burner.

2. TO CHANGE MAIN BURNER ORIFICE

- a. Shut off gas valve at meter or storage tank.
- b. Disconnect fuel pipe union, burner power cord, aluminum tube fittings on the burner front plate and thermocouple lead on the gas valve.
- c. Remove two bolts on the orifice holder. Pull out the holder, and change the burner orifice.
- d. Reverse the above procedure for re-assembly.

NOTE: Be sure to purge the air from the gas line before restarting the burner. (See Page 2)

3. TO CHANGE PILOT ORIFICE OR THERMOCOUPLE

- a. With orifice holder removed (see steps a through d above) remove four screws, pull out the burner tube assembly.
- b. Remove screws holding the pilot and change pilot orifice and/or thermocouple.
- c. Reverse the above procedure for re-assembly, making sure that all the tube fittings are tight.

NOTE: Be sure to purge the air from the gas line before restarting the burner.

12. If burner motor still does not operate, replace it.
13. If burner motor runs but burner will not light, check the operation of the centrifugal switch by removing the end bell of the burner motor. If the contacts are not enclosed, clean them. If the motor has enclosed contacts, replace the motor.

B. Pilot ignition problems or pilot outage between burner cycles

1. Check the pilot orifice. If dirty, clean or replace.
2. Be sure the proper size orifice is being used. (See "Orifice Chart," Page 1.)
3. Check for restrictions in the pilot gas line. Blow out the pilot line.
4. Be sure there is no air in the gas line. Purge the gas line according to the instructions on Page 2.
5. Check gas pressure. If too high or too low, check with the fuel supplier. (Nat. gas pilot pressure normally is 7" Water Column; L.P. gas pilot pressure normally is 11" Water Column.)
6. Be sure the connection between the gas valve and thermocouple is tight to ensure contact.
7. Check thermocouple with millivoltmeter. Voltage should be no less than 8 millivolts closed circuit and range from 18 to 32 millivolts open circuit. A reading of less than 18 millivolts indicates a weak thermocouple and it should be replaced.
8. Excessive combustion air can cause pilot outage. (See Page 2 Adjusting the Burner.)

C. Burner motor runs, pilot is lighted, but no burner flame

1. Be sure gas valve control knob on the burner is turned to "ON!"
2. Check gas pressure and thermocouple as outlined in B-5, 6 and 7 above.
3. Check combination electric gas valve as outlined in A-6 above.
4. Check the contacts of the centrifugal switch as outlined under A-12 above.

D. Burner flame without motor running

Dirt on the valve seat, or an obstruction in the main gas valve is permitting gas to leak to the burner. Replace combination electric gas valve.

E. Intermittent burner operation

1. Be sure room thermostat is not located near another heat or cold source, i.e., lamps, kitchen range, over a register, in sunlight, near an outside door, etc.
2. Be sure the return-air filter is clean.
3. Be sure the lower blower switch setting is at 85° or below.
4. Check the control circuit. (See A-5 above.)
5. Check the thermocouple. (See B-6 and 7 above.)

F. Noisy fire

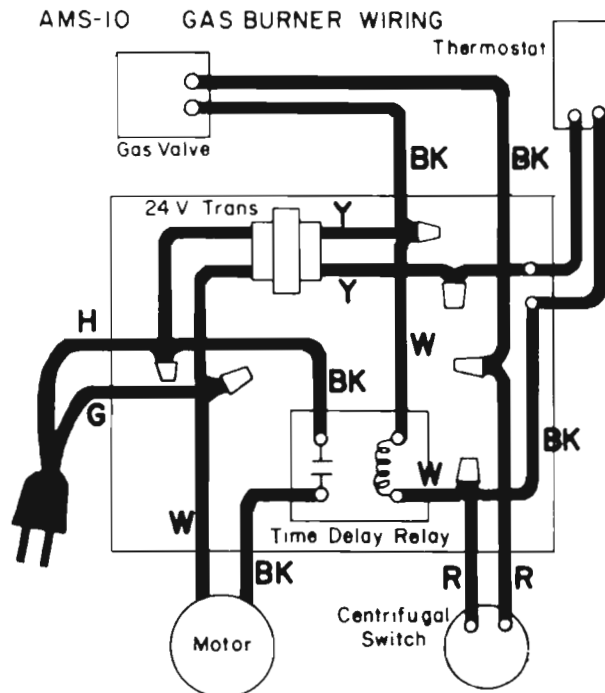
Re-adjust combustion air disc to reduce the volume of air being drawn into the burner. (See Page 2.)

G. High gas bills

1. Check combustion air adjustment.
2. Be sure proper size orifice is being used. (See "Orifice Chart," Page 1.)
3. Be sure return-air filter is clean.
4. Be sure home is insulated, windows and door fit tightly, and there are no air leaks in the heating ducts.
5. Check room thermostat to be sure the setting is not higher than necessary. Low humidity requires high temperatures for comfort. Perhaps humidity should be increased.

H. Circulation blower will not operate, even though the burner operates

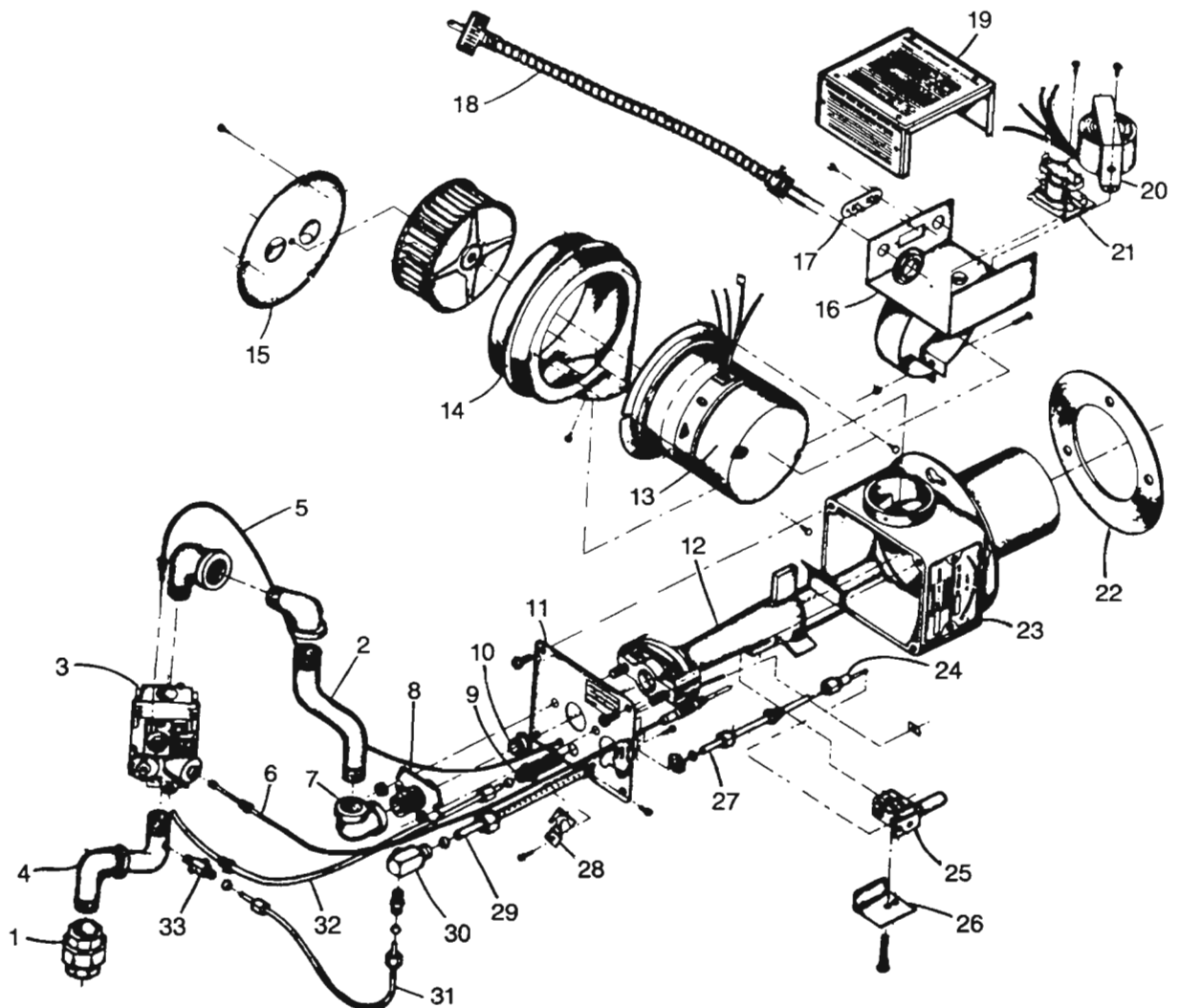
1. Check upper blower and burner switch and lower blower switch.
2. Check the electrical connections to the blower motor.
3. Check out the blower motor.



REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	**	Pipe Union	16	60177	Control Box
2	60150	Off Set Nipple	17	60178	Terminal Board
3	60151	Gas Valve	18	100018	Power Cord
4	**	Elbow	19	60356	Control Cover
6	60154	Thermocouple	20	60186	Transformer
7	**	Elbow	21	61444	Relay
8	60155	Orifice Holder	22	12946	Burner Gasket
9	61455	Bulkhead Union	23	62503-021	Burner Housing
10	61428	Orifice — Nat. 100	24	60192	Pilot Orifice — Nat.
10	60160	Orifice — Nat. 80	24	60193	Pilot Orifice — LP
10	60161	Orifice — LP 80	25	60194	Pilot
10	61407	Orifice — LP 100	26	60198	Pilot Shield
11	60359	Coverplate	27	60728	Pilot Tube
12	61637	Mixer Tube	29	60239	Pilot Lighter Tube
13	60171	Centrifugal Switch Fasco	30	61430	Pilot Valve
		Micro Switch Franklin	31	60196	Lighter Tube
14	60172	Blower, Motor & Wheel	32	60196	Feeder Tube
15	60353	Air Shutter	*33	60006	Shut-Off Valve

*Not Shown

**May be purchased at local hardware store.



The _____ Burner Model No. _____, Serial No. _____,
 installed at _____ (Make)
 _____ (Address of Installation) Bears a label evidencing compliance with ANSZ21.17b 1978 and has
 been installed in accordance with the instructions in the manufacturer's installation manual and in conformity with local
 regulations, codes, and ordinances.

The Furnace _____ No. _____, and the Input
 of unit consists of _____ (Make) _____ BTUH
 CO₂ In Flue _____ % Flue Gas Temperature _____ °F
 CO In Flue _____ % Ambient Temperature _____ °F
 Overfire _____ Net Flue Gas Temperature _____ °F
 Draft In Flue _____ Firing Rate _____ BTU/HR
 _____ (inches H₂O) Manifold Pressure _____ "W.C.

All controls and limiting devices have been checked for proper installation _____
 Fuel used, _____ Gas Gas Supply Pressure _____ Inches W.C.

The above test results are certified to be true: _____
 _____ (Name of Company Making Installation)
 Per _____ Address: _____ Phone: _____
 _____ (Signature)

FOR SERVICE CALL:

Name: _____ Phone: _____ Date: _____
 Address: _____



WAYNE HOME EQUIPMENT
 A SCOTT FETZER COMPANY
 801 Glasgow Avenue
 Fort Wayne, Indiana 46803

LIMITED WARRANTY

Wayne Home Equipment (Wayne) warrants its products and components to be free from defects due to faulty workmanship or defective materials at time of shipment and under normal use and service for twelve (12) months from the date of installation by a qualified installer or eighteen (18) months from the date of manufacture, whichever date occurs first. This LIMITED WARRANTY does not extend or apply to Wayne's products, or any component thereof, which has been misused, neglected, improperly installed or otherwise abused. Equipment which is defective in material or workmanship and which is removed within the specific time period will be repaired or replaced as follows:

- (1) Field units, controls, motors & transformers should be returned to an authorized service point or distributor of Wayne for determination of applicability of this LIMITED WARRANTY as to repair or replacement where said service point or distributor is reasonably available in customer's locality.
- (2) Where such local service is not available for components involving said controls, motors & transformers, or where other components are involved, such products should be returned, freight prepaid, to Wayne's home office.
- (3) Products determined to be covered under this LIMITED WARRANTY by Wayne shall be either repaired or replaced at Wayne's sole option.
- (4) Wayne is not responsible for any labor cost for removal and replacement of said products and equipment associated therewith.
- (5) Controls, motors & transformers, or other components which are so repaired or replaced will carry this LIMITED WARRANTY equal to the unexpired portion of the original product LIMITED WARRANTY.
- (6) If inspection by Wayne does not disclose any defect covered by this LIMITED WARRANTY, the product will be repaired or replaced at the expense of the customer and Wayne's regular charges will apply.

THE FOREGOING STATES THE SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY OR FOR ANY OTHER CLAIM BASED ON ANY DEFECT IN, OR NON-PERFORMANCE OF, THE PRODUCTS, WHETHER SOUNDING IN CONTRACT, WARRANTY OR NEGLIGENCE. NO OTHER WARRANTY, WHETHER EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL EXIST IN CONNECTION WITH THE SALE OR USE OF SUCH PRODUCTS AND IN NO EVENT WILL WAYNE BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE. Wayne neither assumes nor authorizes any person to assume for Wayne any other liability or obligation in connection with the sale of these products.