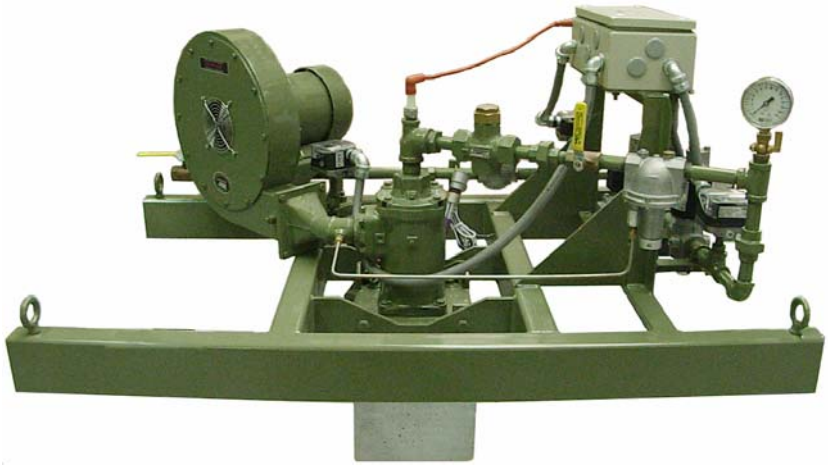
WHGP WALL HUGGER GAS BURNER PACKAGE



WARNING

These instructions are intended for use only by experienced, qualified combustion start-up personnel. Adjustment of this equipment and its components by unqualified personnel can result in fire, explosion, severe personal injury, or even death.

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These instructions are intended to serve as guidelines covering the installation, operation, and maintenance of Hauck equipment. While every attempt has been made to ensure completeness, unforeseen or unspecified applications, details, and variations may preclude covering every possible contingency. **WARNING: TO PREVENT THE POSSIBILITY OF SERIOUS BODILY INJURY, DO NOT USE OR OPERATE ANY EQUIPMENT OR COMPONENT WITH ANY PARTS REMOVED OR ANY PARTS NOT APPROVED BY THE MANUFACTURER.** Should further information be required or desired or should particular problems arise which are not covered sufficiently for the purchaser's purpose, contact Hauck Mfg. Co.

WARNING

This equipment is potentially dangerous with the possibility of serious personal injury and property damage. Hauck Manufacturing Company recommends the use of flame supervisory equipment and fuel safety shutoff valves. Furthermore, Hauck urges rigid adherence to National Fire Protection Association (NFPA) standards and insurance underwriter's requirements. Operation and regular preventative maintenance of this equipment should be performed only by properly trained and qualified personnel. Annual review and upgrading of safety equipment is recommended.

A. GENERAL INFORMATION

The Hauck Wall Hugger Package (WHGP) Gas Burner is designed specifically for direct fired and single roof fired applications, the WHGP Package burner are pre-piped, pre-wired and skid mounted. The WHPG produces a flat flame for more even heating. The flame hugs the wall in a circular pattern, spreading out from the nozzle while the hot gasses move along the adjacent refractory. Flame lengths are given in the capacity table in section C.

B. RECEIVING AND INSPECTION

Upon receipt, check each item on the bill of lading and/or invoice to determine that all equipment has been received. A careful examination of all parts should be made to ascertain if there has been any damage in shipment.

IMPORTANT

If the installation is delayed and the equipment is stored outside, provide adequate protection as dictated by climate and period of exposure. Special care should be given to all motors and bearings, if applicable, to protect them from rain or excessive moisture.

C. CAPACITES

			PACKAGE MODEL NUMBER			
SPECIFICATIONS			**115**	**120**	**125**	**130**
HIGH FIRE	**Max. Input @ 10% Excess Air**	**(Btu/hr)**	**333,000**	**482,500**	**717,100**	**1,063,000**
	Max. Air Flow @ 9.5 osig	(scfh)	3,450	5,000	7,430	11,010
	Min. Input @ Max. Air Flow	(Btu/hr)	76,300	100,200	207,600	285,100
	Max. Excess Air	(%)	380	430	280	310
	Flame Length @ Max. Input	(in.)	5	5	6	7
LOW FIRE	**Max. Input @ 10% Excess Air**	**(Btu/hr)**	**108,100**	**177,500**	**232,500**	**340,700**
	Air Flow @ 1 osig	(scfh)	1,120	1,840	2,410	3,530
	Min. Input @ Air Flow	(Btu/hr)	26,680	32,050	75,270	76,510
	Max. Excess Air	(%)	345	510	240	390

NOTES:

1. Capacities based on natural gas with HHV of 1034 Btu/ft^3, 0.59 S.G., and a stoichiometric air/gas ratio of 9.74:1 with burner firing into chamber under no pressure.
2. Air and gas flows based on 60°F @ sea level.
3. Static air pressures measured at the burner air inlet pressure tap.
4. Flame lengths measured from the end of the refractory tile.
5. All data based on industry standard air and gas piping practices.
6. Flame detection available via flame rod or UV scanner.
7. Max. air flow based on blower motor operation @ 75 Hz.

Table 1. Burner Capacites

C. CAPACITES (Continued)

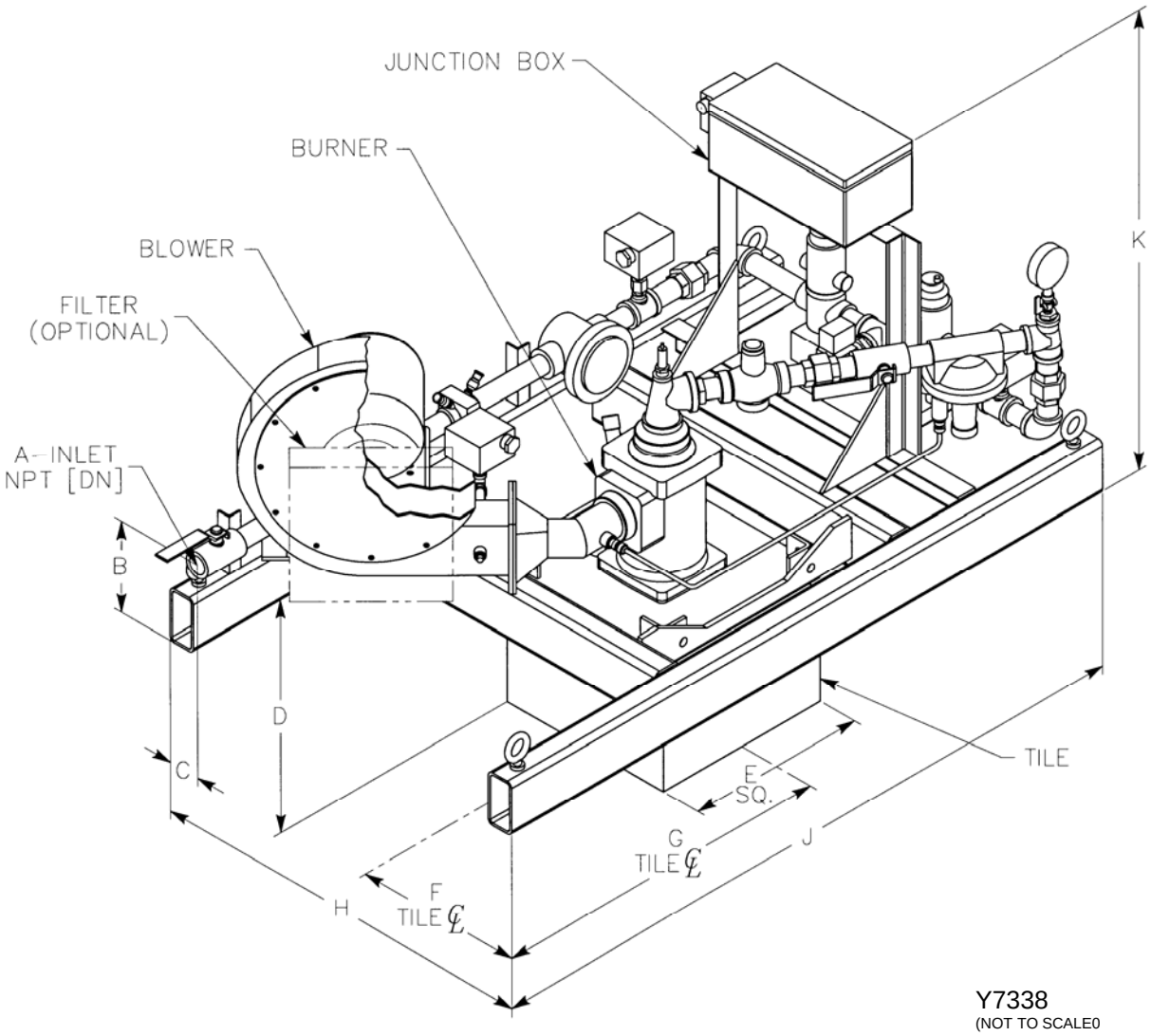
		PACKAGE MODEL NUMBER			
SPECIFICATIONS		**115**	**120**	**125**	**130**
HIGH FIRE	**Max. Input @ 10% Excess Air (kW)**	**88.0**	**128**	**190**	**281**
	Max. Air Flow @ 4,095 Pa (nm^3/hr)	92.4	134	199	295
	Min. Input @ Max. Air Flow (kW)	20.2	26.5	54.9	75.4
	Max. Excess Air (%)	380	430	280	310
	Flame Length @ Max. Input (mm)	125	125	150	175
LOW FIRE	**Max. Input @ 10% Excess Air (kW)**	**28.6**	**47.0**	**61.5**	**90.0**
	Air Flow @ 430 Pa (nm^3/hr)	30.0	49.3	64.6	94.5
	Min. Input @ Air Flow (kW)	7.1	8.5	19.9	20.2
	Max. Excess Air (%)	345	510	240	390

NOTES:

1. Capacities based on natural gas with LHV of 36.74 MJ/nm^3, 0.59 S.G., and a stoichiometric air/gas ratio of 9.74:1 with burner firing into chamber under no pressure.
2. Air and gas flows based on 0°C @ sea level.
3. Static air pressures measured at the burner air inlet pressure tap.
4. Flame lengths measured from the end of the refractory tile.
5. All data based on industry standard air and gas piping practices.
6. Flame detection available via flame rod or UV scanner.
7. Max. air flow based on blower motor operation @ 75 Hz.

Table 2. Metric Burner Capacites

D. DIMENSIONS



DIMENSIONS IN INCHES										
PACKAGE MODEL NO.	A	B	C	D	E	F	G	H	J	K
WHGP 115	3/4	6 9/16	1 13/16	9 1/4	9	12 3/8	25 1/2	29 1/2	51	22 5/16
WHGP 120	3/4	6 5/8	1 13/16	9 1/4	13 1/2	12 3/8	25 1/2	29 1/2	51	22 13/32
WHGP 125	1	6 3/4	2 5/16	9 1/4	13 1/2	12 3/8	25 1/2	29 1/2	51	24 7/8
WHGP 130	1	7 13/16	2 3/16	9 1/4	13 1/2	12 3/8	25 1/2	29 1/2	51	24 7/8

DIMENSIONS IN MILLIMETERS										
PACKAGE MODEL NO.	A	B	C	D	E	F	G	H	J	K
WHGP 115	20	167	46	235	229	314	648	749	1295	567
WHGP 120	20	168	46	235	343	314	648	749	1295	569
WHGP 125	25	171	59	235	343	314	648	749	1295	632
WHGP 130	25	198	56	235	343	314	648	749	1295	632

Figure 1. Dimensions

E. INSTALLATION

1. Furnish an opening in the furnace wall slightly larger than the outside dimensions of the refractory tile. Since WHGP burners can fire in any position, they can be installed through the roof, walls or bottom of the furnace.

> **CAUTION**
> Do not disassemble the tile from the burner when installing the burner. A bonding agent seals the burner to the tile. Disassembly will destroy the effectiveness of the seal.

2. Fabricate four angle mounting clips or brackets and bolt them to the four corners of the mounting plate as shown in the drawings on page 4.

3. Pack Fiberfrax, or other suitable insulating rope, in the entire grooved section of the tile. This will provide a seal between the burner tile and the furnace refractory and firebrick.

4. Coat the outside surfaces of the burner tile with fire clay.

5. Insert the tile into the furnace opening. **The outlet end of the tile must be flush with the inner furnace wall surface.** If the furnace wall is too thick, or too thin, the burner must be recessed or extended with spacers to meet this requirement. The furnace wall should be flat in the vicinity of the WHGP tile to permit free expansion of the hot combustion gasses.

6. Bolt the burner mounting plate to the furnace wall.

7. Ensure that a complete seal has been made between the mounting plate, burner tile and furnace wall.

8. Install the air and gas lines at the appropriate connections. Air and gas pressures will be determined by the application and specific capacity requirements of the equipment. Consult Hauck Manufacturing for piping recommendations. Hauck FPN Flexible Pipe Nipples are recommended to alleviate vibrations and thermal expansion of pipe connections.

9. Insert the gas pilot or spark igniter into the appropriate connection (Ignition method will be determined upon ordering the burner). See section F, ignition, for pilot set-up or spark igniter installation.

10. Verify that all piping connections are tight. Close all port openings on the burner backplate. **If port openings are left open, the burner mounting plate will overheat.**

F. IGNITION

WARNING

Adjustment of this equipment, by unqualified personnel, can result in fire, explosion, severe personal injury, or even death.

WHGP burners can be spark ignited or gas pilot ignited.
For spark ignited burners:

1. The burner will come with the igniter installed. The igniter threads into the gas inlet tee and will bottom out at the end of the burner gas nozzle. Spark gap should be set at 3/32" as shown in drawing CW5987.

2. Provide a high voltage ignition wire to the spark igniter.

3. Upon energizing the ignition transformer, the igniter should spark across the gap.

4. **Ignite the burner under low fire conditions.**

For gas pilot ignited burners:

1. See pilot vendor literature.
   a) Be sure that the pilot threads tightly into pilot port.
   b) Connect air & gas lines to the pilot.
   c) Connect ignition wire to pilot.
   d) Attempt pilot ignition.

2. For Hauck IPG pilots:
   See Hauck Sheet IPG-9
   a) Be sure that the pilot threads tightly into the pilot port.
   b) Follow instructions in IPG-9.

G. INITIAL SET-UP

WHGP burners typically operate with automatic control systems. The burners are capable of proportional control over their entire capacity range. In a typical system, ignition will be preceded by a series of steps.

1. Once installed, the burner is ready for initial set-up. The specific operation of the burner will depend on the individual system components in the entire combustion system. Refer to the Instruction Sheets that accompany the individual components.

2. Combustion air pressure should be set at the combustion air control valve. Typical settings will be specific to the application. Hauck recommends that the combustion air setting remain at minimum until the burner has been ignited. Refer to the capacity table in Section C for burner air flows at various combustion air pressures.

3. Adjust the limiting orifice valve, or Hauck LVG, in the gas line to the required opening. (Readjustment of the limiting orifice may be necessary for final burner set-up)

4. Refer to Section F for spark igniter and pilot set-up.

5. Once the pilot or spark igniter have been set-up, the burner is ready for ignition. **BE SURE THAT THE BURNER IS BEING IGNITED UNDER LOW FIRE CONDITIONS (MINIMUM GAS AND AIR FLOWS.)** Ignite the burner, or burners. When all burners are ignited, bring the combustion air to the high fire position.

6. Once the high fire combustion air is set, adjust the limiting gas orifice (Step 3) to achieve the desired gas flow at high fire.

7. Verify air/gas ratio using orifice meters in the air and gas lines.

8. Run the burner to low fire position and verify that settings are consistent.

9. To shut down the burner system:
    a. Return the burner to the low fire position.
    b. Close all fuel shutoff valves
    c. To prevent damage to the burner and other components, allow the furnace to cool to below 600^{o}F before shutting off the combustion air.

H. OPERATION

Once installed, ignited and fired, the burner is ready for operation. The operation of the burner will depend on the specific items in the combustion control system. Refer to the instruction sheet that accompanies each item. When the burner is firing, the gas pilot or spark igniter should be shut off.

I. MAINTENANCE

The WHGP burner consists of a minimum number of parts. No metal parts extend into the radiant heat of the refractory tile. Large, concentric discharge ports in the gas and air nozzles eliminate blockage. Maintenance is limited to periodically cleaning the pilot nozzle and flame detector.

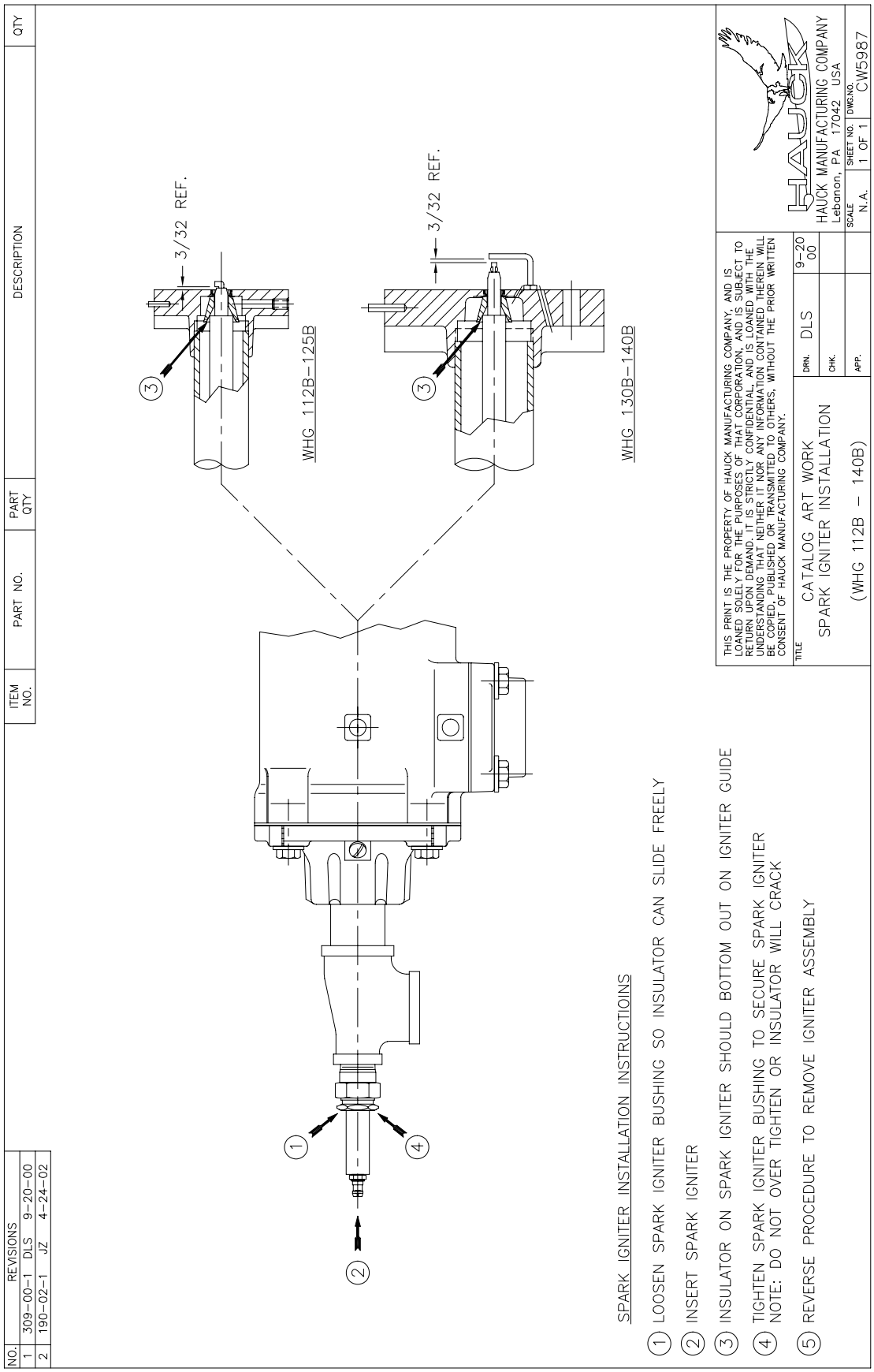
Periodically check the air/gas ratio to ensure the burner is operating at peak efficiency. Flue gas analysis can be performed with the Hauck FGA flue gas analyzer.

J. RECOMMENDED SPARE PARTS LIST

Item	Qty.	Part Number	Description

Table 3. Recommended Spare Parts

APPENDIX:


REVISIONS
NO. 1 309-00-1 DLS 9-20-00
NO. 2 190-02-1 JZ 4-24-02
ITEM NO.
PART NO.
PART QTY
DESCRIPTION
QTY
3/32 REF.
3/32 REF.
WHG 112B-125B
WHG 130B-140B
SPARK IGNITER INSTALLATION INSTRUCTIOINS
1 LOOSEN SPARK IGNITER BUSHING SO INSULATOR CAN SLIDE FREELY
2 INSERT SPARK IGNITER
3 INSULATOR ON SPARK IGNITER SHOULD BOTTOM OUT ON IGNITER GUIDE
4 TIGHTEN SPARK IGNITER BUSHING TO SECURE SPARK IGNITER
NOTE: DO NOT OVER TIGHTEN OR INSULATOR WILL CRACK
5 REVERSE PROCEDURE TO REMOVE IGNITER ASSEMBLY
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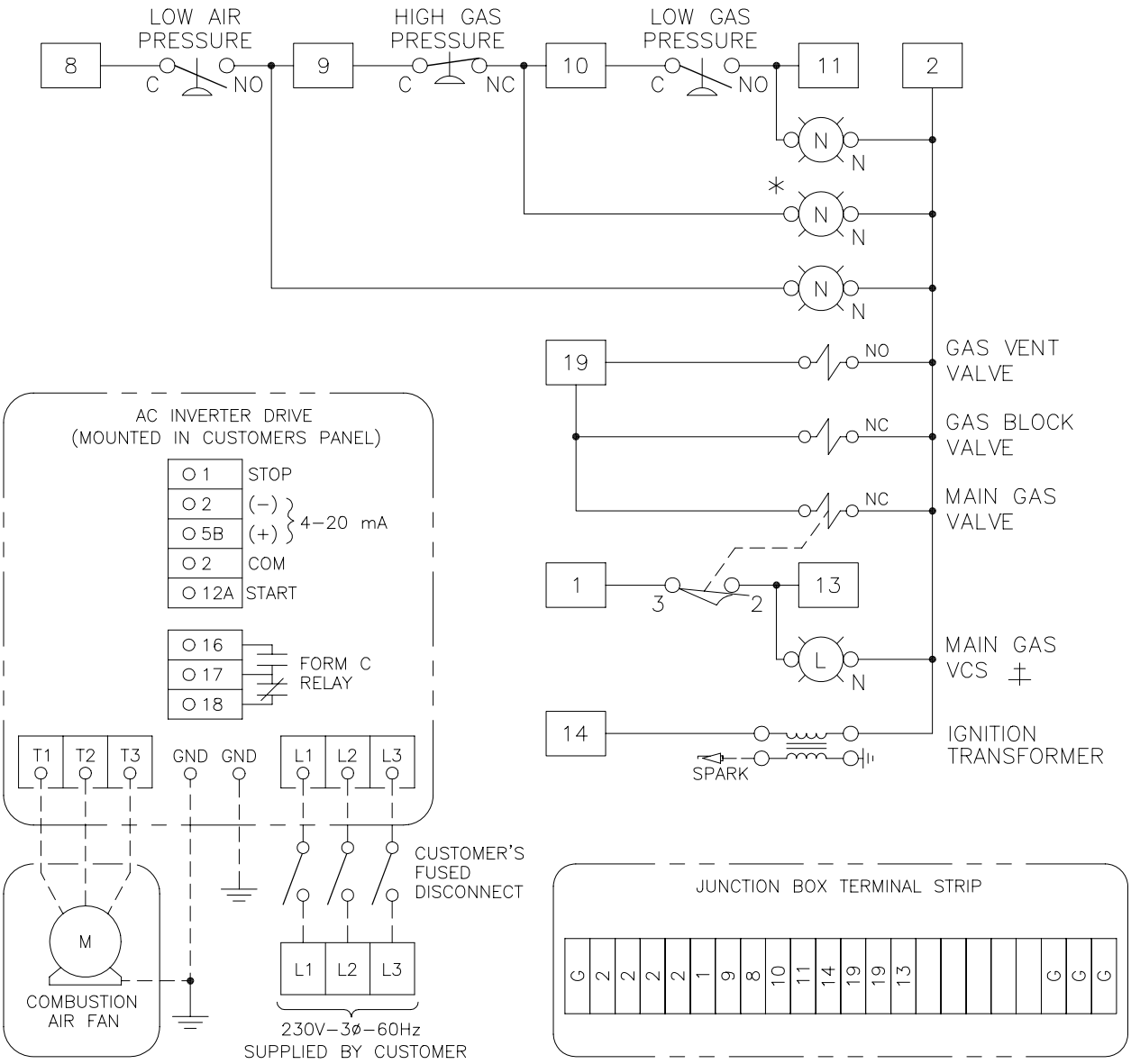
TITLE
CATALOG ART WORK
SPARK IGNITER INSTALLATION
(WHG 112B - 140B)
DRN. DLS 9-20-00
CHK.
APP.
HAUCK
HAUCK MANUFACTURING COMPANY
Lebanon, PA 17042 USA
SCALE N.A.
SHEET NO. 1 OF 1
DWG.NO. CW5987

APPENDIX:



* MOVE NEON INDICATOR FROM NO TO NC IN THE HIGH GAS PRESSURE SWITCH.

⏚ VCS SWITCH CONTACT CLOSED WHEN VALVE IS CLOSED.

V7460