## Operation



## ThermoLazer<sup>®</sup> 200/200⊤c/300⊤c and ThermoLazer ProMelt<sup>™</sup> Pavement Marking Systems

3A1319K

ΕN

 For professional application of thermoplastic traffic marking compound materials (reflective beads applied simultaneously with screeding) For outdoor use only (not to be operated in rain or damp conditions) -

*Fuel: LP Gas (Propane Vapor) Burner capacities: See Technical Data, page 38. Material capacity (max): 200-300 lb (91-136 kg)* 



**IMPORTANT SAFETY INSTRUCTIONS** Read all warnings and instructions in this manual. Save these instructions.

#### **Related Manuals:**

Repair	3A1320
Parts	3A1321
Double Bead Box	3A0004
SmartDie <sup>™</sup> II	3A1738
FlexDie <sup>™</sup>	3A1738

ThermoLazer 200/200TC



#### **ThermoLazer ProMelt**

ThermoLazer 300TC



CE

# **System Chart**

SmartDie II used on ThermoLazer 300TC and ProMelt only.

Smart Die II	
Part No.	Smart Die Description
17A173	2 in. (5 cm)
24H431	3 in. (8 cm)
24H426	4 in. (10 cm)
17J250	4.75 in. (12 cm)
24H432	5 in. (13 cm)
24H427	6 in. (15 cm)
24H433	7 in. (18 cm)
24H428	8 in. (20 cm)
24H434	9 in. (22.5 cm)
24H429	10 in. (25 cm)
24H430	12 in. (30 cm)
‡17A174	16 in. (41 cm)
24H437	3-3-3 in. (8-8-8 cm)
24H435	4-3-4 in. (10-8-10 cm)
24H436	4-4-4 in. (10-10-10 cm)
24J785	4-6-4 in. (10-15-10 cm)
‡17A175	6-4-6 in. (15-10-15 cm)
‡17R738	5-5-5 in. (13-13-13 cm)
‡26C273	6-3-6 in. (15-8-15 cm)

‡ Requires 16" (40 cm) Conversion Bead System Kit for 300TC/ProMelt Only.

- 17B190 Kit, accy, 16" (40 cm) Single Drop Bead System
- 17B189 Kit, accy, 16" (40 cm) Double Drop Bead Box (requires 17B190 to be installed)

FlexDie used on ThermoLazer 200/200TC only.

FlexDie Part No.	FlexDie Description
16Y661	2 in. (5 cm)
16Y662	3 in. (8 cm)
16Y320	4 in. (10 cm)
16Y663	5 in. (12 cm)
16Y190	6 in. (15 cm)
16Y664	7 in. (18 cm)
16Y326	8 in. (20 cm)
16Y665	9 in. (22.5 cm)
16Y332	10 in. (25 cm)
16Y207	12 in. (30 cm)
16Y338	3-3-3 in. (8-8-8 cm)
16Y352	4-3-4 in. (10-8-10 cm)
16Y666	4-2-4 in. (10-5-10 cm)
16Y363	4-4-4 in. (10-10-10 cm)



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# Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

	<b>WARNING</b>
	<ul> <li>FIRE AND EXPLOSION HAZARD</li> <li>Flammable fumes and liquids, such as propane gas, gasoline and combustible fuel, in work area can ignite or explode. To help prevent fire and explosion:</li> <li>Do not use equipment unless fully trained and qualified.</li> <li>Do not allow open containers of flammables within 25 ft (7.6 m) of equipment. Do not operate equipment within 10 ft (3 m) of any structure, combustible material, or other gas cylinders.</li> <li>Shut off all burners when adding fuel to equipment.</li> <li>Close the tank shut-off valve immediately if you smell propane gas; extinguish all open flames. If gas odor continues, keep away from equipment and immediately call the fire department.</li> <li>Follow lighting instructions for the burner and torch.</li> <li>Do not heat thermoplastic traffic marking compound material above its maximum temperature rating.</li> </ul>
	<ul> <li>Fire extinguisher equipment shall be present and working.</li> <li>Keep work area free of debris, including solvent, rags and gasoline.</li> </ul>
Ma bor PS	<ul> <li>Description of the control of the control</li></ul>
	<ul> <li>BURN HAZARD</li> <li>Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:</li> <li>Do not touch hot fluid or equipment.</li> </ul>
÷	<ul> <li>CARBON MONOXIDE HAZARD</li> <li>Exhaust contains poisonous carbon monoxide, which is colorless and odorless. Breathing carbon monoxide can cause death.</li> <li>Do not operate in an enclosed area.</li> </ul>
*	<ul> <li>TOXIC FLUID OR FUMES HAZARD</li> <li>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</li> <li>Read MSDSs to know the specific hazards of the fluids you are using.</li> <li>Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.</li> </ul>



<b>WARNING</b>	
	<ul> <li>PERSONAL PROTECTIVE EQUIPMENT</li> <li>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to: <ul> <li>Clothing and respirator as recommended by the fluid, material, and solvent manufacturer.</li> <li>Gloves, shoes, overalls, face shield, hat, etc. rated for elevated temperatures of at least 500° F (260° C).</li> </ul> </li> </ul>
	CALIFORNIA PROPOSITION 65
	Exhaust from this product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.
	CALIFORNIA PROPOSITION 65
	This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.



## **Component Identification - ThermoLazer 200**



\*LP-Gas supply cylinder not supplied by Graco. LP-Gas supply cylinder must be designed, fabricated, and marked in accordance with specifications and regulators for LP-Gas cylinders at The U.S. Department of Transportation (DOT), The National Standard of Canada, CAN/CSA-B339, Cylinders, Spheres, and Tubes for Transportation of Dangerous Goods, The Transportable Pressure Vessels Regulators 2001 (S1 2001/1426), The Gas Cylinders (Pattern Approval) Regulations 1987 (SI 1987/116)(Pattern Approval Regulations) for EEC-type cylinders under European Directive 84/525/EEC, 84/526/EEC, and 84/527/EEC.





### **Component Identification - ThermoLazer 200 (continued)**



## Component Identification - ThermoLazer 200TC



\*LP-Gas supply cylinder not supplied by Graco. LP-Gas supply cylinder must be designed, fabricated, and marked in accordance with specifications and regulators for LP-Gas cylinders at The U.S. Department of Transportation (DOT), The National Standard of Canada, CAN/CSA-B339, Cylinders, Spheres, and Tubes for Transportation of Dangerous Goods, The Transportable Pressure Vessels Regulators 2001 (S1 2001/1426), The Gas Cylinders (Pattern Approval) Regulations 1987 (SI 1987/116)(Pattern Approval Regulations) for EEC-type cylinders under European Directive 84/525/EEC, 84/526/EEC, and 84/527/EEC.



## - DD E I CC 0 5 C P AA 1 0 Q 0 1 K. BΒ Ø Bu ti22641b \_\_\_\_\_

## Component Identification - ThermoLazer 200TC (Continued)

AA	Kettle Temperature Control Knob
BB	Kettle Temperature Indicator
CC	Kettle Gas Safety Valve
DD	System Regulator



## Component Identification - ThermoLazer 300TC



AB Ρ SplitBead<sup>™</sup> Hopper

\*LP-Gas supply cylinder not supplied by Graco. LP-Gas supply cylinder must be designed, fabricated, and marked in accordance with specifications and regulators for LP-Gas cylinders at The U.S. Department of Transportation (DOT), The National Standard of Canada, CAN/CSA-B339, Cylinders, Spheres, and Tubes for Transportation of Dangerous Goods, The Transportable Pressure Vessels Regulators 2001 (S1 2001/1426), The Gas Cylinders (Pattern Approval) Regulations 1987 (SI 1987/116)(Pattern Approval Regulations) for EEC-type cylinders under European Directive 84/525/EEC, 84/526/EEC, and 84/527/EEC.

Torch



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## Component Identification - ThermoLazer 300TC (Continued)

AA	Kettle Temperature Control Knob
BB	Kettle Temperature Indicator
CC	Kettle Gas Safety Valve
DD	Kettle Pilot Burner Igniter
EE	Screed Box (SmartDie II)
GG	Front Screed Box Burners
HH	Flame Indicator
KK	Kettle Burners Manual Shut-Off Valve
LL	Kettle Burner Regulator
MM	Lifting Ring
NN	Lid/Lever Latch
PP	Propane Tank Connector
QQ	Torch Igniter
SS	Parking Brake
TT	Rear Screed Box Burners
UU	Screed Box Burners Regulator



## **Component Identification - ThermoLazer ProMelt**



\*LP-Gas supply cylinder not supplied by Graco. LP-Gas supply cylinder must be designed, fabricated, and marked in accordance with specifications and regulators for LP-Gas cylinders at The U.S. Department of Transportation (DOT), The National Standard of Canada, CAN/CSA-B339, Cylinders, Spheres, and Tubes for Transportation of Dangerous Goods, The Transportable Pressure Vessels Regulators 2001 (S1 2001/1426), The Gas Cylinders (Pattern Approval) Regulations 1987 (SI 1987/116)(Pattern Approval Regulations) for EEC-type cylinders under European Directive 84/525/EEC, 84/526/EEC, and 84/527/EEC.





## **Component Identification - ThermoLazer ProMelt (Continued)**

AA	Kettle Temperature Control Knob
BB	Kettle Temperature Indicator
CC	Kettle Gas Safety Valve
DD	Kettle Pilot Burner Igniter
EE	Screed Box (SmartDie II)
GG	Front Screed Box Burners
HH	Flame Indicator
KK	Kettle Burners Manual Shut-Off Valve
LL	Kettle Burner Regulator
MM	Lifting Ring
NN	Lid/Lever Latch
PP	Propane Tank Connector
QQ	Torch Igniter
RR	Agitator Crank
SS	Parking Brake
TT	Rear Screed Box Burners
UU	Screed Box Burners Regulator
VV	Scraper



# **Important Safety Information**



If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or death.

Keep gas supply hose away from hot surfaces and flames.

Use equipment in accordance with state and local ordinances with Storage, Handling and Transportation of Liquid Petroleum Gases, ANSI/NFPA58 or CSA B149.1

If equipment has been in storage, check for insects and insect nests on burners and Venturi tubes.



Use only vertical vapor-withdrawal LP gas cylinders which have been designed, fabricated, tested and marked in accordance with registration of the U.S. Department of Transportation (DOT) or the Standard for Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods CAN/CSA-B337, The Transportable Pressure Vessels Regulators 2001 (S1 2001/1426), The Gas Cylinders (Pattern Approval) Regulations 1987 (SI 1987/116)(Pattern Approval Regulations) for EEC-type cylinders (under European Directive 84/525/EEC, 84/526/EEC, and 84/527/EEC. Use only 20 lb to 30 lb (9.07 kg to 13.6 kg) LP-Gas cylinders.

LP-Gas cylinder to be used only in vertical upright position as noted on agency approved LP-Gas cylinder for proper vapor withdrawal.

Check gas supply hose connection to LP-Gas cylinder. Make sure fitting is free of debris before connecting to tank. Make sure gas connection is screwed completely on and is free of leaks.

**NOTE:** The LP gas tanked is equipped with a POL gas fitting. If a different sized fitting is needed, see your local LP gas equipment supplier.





**Rear Screed Box Burners** 

ti22561b Burner

ti16989b

FlexDie Burners (ThermoLazer 200/200Tc)



# **Important Safety Information**



If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or death.

**BEFORE LIGHTING:** Smell all around the working area for gas. Be sure to smell next to the ground because propane is heavier than air and will settle on the ground.

**DAILY:** Check for gas leaks. Use mild soap and water solution or other approved method. Apply solution to all gas lines and fittings then watch for gas bubbles.



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ThermoLazer 300TC/ProMelt shown above

Front Screed Box Burners and Rear Screed Box Burners will need to be ignited to test gas lines and fitting downstream of flame adjusting valve.

**NOTE:** Kettle burners will need to be ignited to test gas lines and fittings downstream of gas safety valves (CC). Ignite burners and torch only after thoroughly checking gas line and fittings.

# WHAT TO DO IF YOU SMELL GAS OR FIND GAS BUBBLES:

- Evacuate all unqualified personnel from area
- Do not try to ignite any burner
- Do not strike a flame
- Do not use electric fans to remove gas from area
- Do not touch any electric switch and do not use any phone
- If leak is from a gas fitting, tighten fitting until leak stops
- If leak is from a gas line, shut off at LP-gas cylinder and replace gas line
- Immediately call your gas supplier from a remote phone. Follow gas supplier's instructions.
- If leak can not be stopped by shutting off LP-gas cylinder shut-off valve, immediately call your gas supplier from a remote phone. Follow gas supplier's instructions.
- If you cannot reach your gas supplier call the fire department



Use only your hand to push in or turn the kettle gas safety valve (CC). Never use tools. If the knob will not push in or turn by hand, do not try to repair it; call a qualified service technician. Attempted repair or force may result in a fire or explosion.

Do not use this equipment if any part has been under water. Immediately call a qualified service technician to inspect equipment and all components. Replace defective parts only with approved manufactured parts.



# Important Safety Information

### Before attempting to start equipment:



If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or death.



All surfaces are capable of becoming extremely hot. Be sure to always wear heat-resistant gloves and other protective equipment rated for  $500^{\circ}$  F (260° C). Material and unit are very hot  $350^{\circ}$  -  $500^{\circ}$  F (177° C - 260° C). Never exceed material maximum temperature rating.

Hot molten plastic will burn skin. Do not attempt to remove from skin. Cool under running water and seek medical attention.

See MSDS for Thermoplastic Traffic Marking Compound.



#### FIRE AND EXPLOSION HAZARD

If using this unit in conjunction with LineDriver<sup>®</sup>, do not fill gasoline tank while burners are ignited. Allow equipment to completely cool before refueling.



#### INHALATION HAZARD

Melting thermoplastic produces toxic fumes. Avoid prolonged inhalation of fumes.

DAILY: Check all gas lines and fittings for gas leaks.

**DAILY:** Check gas supply hose for wear, abrasions, cuts or leaks. Replace only with hoses recommended by Graco.

Check gas supply hose connection to LP-gas cylinder. Make sure fitting is free of debris before connecting to tank. Make sure gas connection is screwed completely on and is free of leaks.

Check to ensure that the following are closed:

- LP Gas Tank manual shut-off valve
- ControlFlow gate valve
- Front screed box burner flame adjusting valve
- Torch/flame adjusting valve
- Screed box burner flame adjusting valve (24H622 and 24H624 only)
- Kettle gas burner manual shut-off valve
- Kettle gas safety valve
- Kettle temperature control knob (turn to "OFF")

Check to make sure exhaust openings on kettle are not obstructed.



Check to make sure combustion air supply openings on kettle are not obstructed.





# **Lighting Instructions**

## **Lighting Kettle Burners**



# **NOTE:** Read **Important Safety Information**, page 14-16.

### ThermoLazer 200

1. Open kettle door to view burner.



2. Open propane tank valve.



3. Open kettle temperature control knob (AA).



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4. Light kettle burner with torch.



5. Regulate kettle flame as desired with kettle temperature control knob (AA).





#### FIRE AND EXPLOSION HAZARD

If pilot ignites without depressing the gas safety valve knob, replace gas safety valve. If gas safety valve knob does not pop back after releasing in pilot position, STOP and replace gas safety valve. Shut off gas at propane tank before replacing valve.

- 6. Turn gas safety valve knob to "ON".
- 7. Turn temperature to 250° F (121° C) and observe that main burners have ignited. Turn kettle temperature control back to "OFF" and observe that main burners shut off.





#### FIRE AND EXPLOSION HAZARD

If main burners do not ignite or shut off when rotating temperature control knob, STOP. Shut off gas at the propane tank. Follow diagnostic procedure in Repair manual.

8. Turn temperature control to desired setting.

### ThermoLazer 200TC

1. Open kettle door.





2. Open propane tank valve.



3. Turn gas safety valve (CC) to "PILOT" and push in.



4. Light kettle burner with torch.



5. Continue to push in gas safety valve (CC) for approximately 1 minute. If pilot goes out, repeat steps 3-5 after 10 minutes.



#### FIRE AND EXPLOSION HAZARD

If pilot ignites without depressing the gas safety valve knob, replace gas safety valve. If gas safety valve knob does not pop back after releasing in pilot position, STOP and replace gas safety valve. Shut off gas at propane tank before replacing valve.

- 6. Turn gas safety valve knob to "ON".
- 7. Turn temperature to 250° F (121° C) and observe that main burners have ignited. Turn kettle temperature control back to "OFF" and observe that main burners shut off.



#### FIRE AND EXPLOSION HAZARD

If main burners do not ignite or shut off when rotating temperature control knob, STOP. Shut off gas at the propane tank. Follow diagnostic procedure in Repair manual. 8. Turn temperature control to desired setting.

#### ThermoLazer 300TC/ProMelt

1. Turn temperature control knob (AA) to "OFF".



2. Turn kettle gas safety valve (CC) to "OFF".



3. Open kettle burner view port. (Not all models have a view port.)



4. Open manual shut-off valve on propane tank located at front of unit; open kettle manual shut-off valve (KK) below kettle and behind propane tank.



ThermoLazer 300TC shown

5. Turn gas safety valve (CC) to "PILOT".



- 6. Push in gas safety valve knob.
- 7. Push kettle pilot burner igniter (DD) until pilot ignites.



 Continue to push in gas safety valve (CC) for approximately 1 minute. If pilot goes out, repeat steps 4-6 after 10 minutes.



#### FIRE AND EXPLOSION HAZARD

If pilot ignites without depressing the gas safety valve knob, replace gas safety valve. If gas safety valve knob does not pop back after releasing in pilot position, STOP and replace gas safety valve. Shut off gas at propane tank before replacing valve.

- 9. Turn gas safety valve knob to "ON".
- 10. Turn temperature to 250° F (121° C) and observe that main burners have ignited. Turn kettle temperature control back to "OFF" and observe that main burners shut off.



### FIRE AND EXPLOSION HAZARD

If main burners do not ignite or shut off when rotating temperature control knob, STOP. Shut off gas at the propane tank. Follow diagnostic procedure in Repair manual.

11. Turn temperature control to desired setting.

### **Shutting Off Burner**

### ThermoLazer 200

1. Close kettle temperature control knob.



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 Close kettle manual shut-off valve (KK) when finished heating with kettle burners. Close manual shut-off valve on propane tank when finished melting and heating thermoplastic material.



**NOTE:** The kettle gas burner can be lit manually with a small torch (for example: DOT 39 NRC 228/286 Cylinder with #3 torch tip) if the battery powered pulse igniter fails to light the pilot.

### ThermoLazer 200TC

1. Turn gas safety valve to "OFF".



2. Close kettle manual shut-off valve (KK) when finished heating with kettle burners. Close manual shut-off valve on propane tank when finished melting and heating thermoplastic material.



**NOTE:** The kettle gas burner can be lit manually with a small torch (for example: DOT 39 NRC 228/286 Cylinder with #3 torch tip) if the battery powered pulse igniter fails to light the pilot.



### ThermoLazer 300TC/ProMelt

- 1. Turn gas safety valve to "OFF".
- 2. Close kettle manual shut-off valve (KK) when finished heating with kettle burners. Close manual shut-off valve on propane tank when finished melting and heating thermoplastic material.



**NOTE:** The kettle gas burner can be lit manually with a small torch (for example: DOT 39 NRC 228/286 Cylinder with #3 torch tip) if the battery powered pulse ignitor fails to light the pilot.

## **Torch Lighting Instructions**



1. Open manual shut-off valve on propane tank located at front of unit.



2. Remove external torch from holder.



ThermoLazer 300TC shown

3. Slowly open torch flame adjusting valve and use striker to ignite flame.



4. Adjust flame to desired length.



### **Shutting Off Torch**

1. Fully close torch flame adjusting valve.



2. Close manual shut-off valve on propane tank when finished melting and heating thermoplastic material.



## Front Screed Box Burner Lighting Instructions



#### Read Important Safety Information, page 14-16.

- 1. Make sure screed box burners flame adjusting valve is turned OFF.
- 2. Open manual shut-off valve on propane tank located at front of unit.
- 3. Light torch (see **Torch Lighting Instructions**, page 20).
- 4. Open screed box access door.



5. Slowly open screed box burners flame adjusting valve.

#### ThermoLazer 300TC/ProMelt



ThermoLazer 200/200TC



ti23072a

6. Place torch at end of screed box burners to ignite and use screed box burners flame adjusting valve to adjust to desired flame.



#### NOTICE

If material begins to smoke or become discolored, turn screed box burners down or off to prevent material from burning.

7. Visually inspect to make sure flame indicators are glowing.

### Shutting Off Burners

- 1. Fully close screed box burners flame adjusting valve.
- 2. Close manual shut-off valve on propane tank.



### Rear Screed Box Burner Lighting Instructions (ThermoLazer 300Tc/ProMelt)



#### Read Important Safety Information, page 14-16.

- 1. Make sure screed box burners flame adjusting valve is turned OFF.
- 2. Open manual shut-off valve on propane tank located at front of unit.
- 3. Light torch (see **Torch Lighting Instructions**, page 20).
- 4. Slowly open screed box burners flame adjusting valve.

5. Place torch at end of screed box burners to ignite and use screed box burners flame adjusting valve to adjust to desired flame.



#### NOTICE

If material begins to smoke or become discolored, turn screed box burners down or off to prevent material from burning.

6. Visually inspect to make sure flame indicators are glowing.

#### **Shutting Off Burners**

- 1. Fully close screed box burners flame adjusting valve.
- 2. Close manual shut-off valve on propane tank.



