BENCHMARK BM215-HVR4

SERVICE MANUAL

Your System Configuration

Temperature Controls
Microprocessor

Tank Size
13 lb (6 kg) 1.7 gal (6.3 L)

Voltage Requirements
120 VAC, Single Phase, 20 A

Motor Rating
120 VAC, 43 RPM

Hot Melt Technologies, Inc.
No One Puts It Together Like HMT®

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Intended Use

Benchmark® and ProFlex® adhesive melters and components are designed to melt and pump thermoplastic hot melt adhesives and sealants. Any other use is considered to be unintended. Hot Melt Technologies, Inc. (HMT) will not be liable for personal injury or property damage resulting from unintended use. Intended use includes the observance of HMT safety instructions. HMT recommends obtaining detailed information on the hot melt materials being used.

- The product is only intended for use in industrial applications and may only be used to melt and pump thermoplastic hot melt adhesives (e.g. EVA, PSA, APO, Polyamide).
- The product may only be installed, assembled, commissioned, operated, maintained, repaired, de-commissioned and disposed of by trained personnel.
- The product may only be operated with compatible original components and original accessories from HMT.
- The product is to be used exclusively for the purpose described herein and within the limits defined in this document. The product must not be modified with respect to its structure or its safety features without the written consent of HMT. No changes to the software or hardware of HMT products are permitted. Only use original spare parts, original accessories or standard parts that have been approved by HMT.

The instructions are part of this product. No applications other than those described in the instructions are permitted.

Improper Use

Examples of misuse of the product include:

- Melting and pumping of unsuitable adhesives (e.g. polyurethane reactive (P.U.R.) a.k.a. “Moisture Cured” adhesives)
- In defective condition
- With electrical cabinet open
- With the tank lid open
- Melting and pumping materials which, when under vacuum or pressure, can pose a health hazard or endanger safety in the workplace (e.g. solvents, explosive or highly flammable materials)
- Cleaning the product with highly flammable materials (e.g. solvents)
- Use in environments that require cleaning of the product with jets or sprays of water
- Processing of food

Residual Risks

In the design of the Benchmark® and ProFlex® systems, every measure was taken to protect personnel from potential danger. However, some residual risks cannot be avoided:

- Risk of burns from hot material
- Risk of burns when filling the tank, from the tank lid and exposed metal surfaces
- Risk of burns when conducting maintenance and repair work for which the melter or components must be heated up
- Material fumes may be hazardous; Always avoid direct inhalation

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STOP

If incorrectly used, this machine can cause severe injury. Those who use and maintain the machine should be trained in its proper use, warned of its dangers, and should read the entire manual before attempting to set up, operate, adjust or service the machine.

WARNING

- Do not allow the pump motor to stall. A prolonged stall may damage the motor and other components.
- Do not connect or disconnect electrical connectors, or remove components, with the power on. This will prevent arcing of electrical contacts and possible failure of components.
- Always close and secure the control panel access cover to protect internal electrical components.
- Always operate the system with the tank full and lid on.
- Prior to dismantling, assembly, or adjustment of certain service parts (hose/gun fittings, pump assemblies, etc.), the part(s) being serviced should be preheated to reduce the chance of stripping threads or ruining components.
- Working on or around hot melt adhesives and equipment can cause severe burns.
- Use eye protection, gloves and protective clothing while operating and/or servicing hot melt equipment.
- Before installing any hot melt equipment, determine proper electrical requirements per all applicable codes.

At Hot Melt Technologies, we pay special attention to the needs of operators and service personnel when designing equipment, but molten hot melt adhesives are dangerous and can cause severe burns. Extreme care must be exercised to insure personnel safety.

Fire, explosion, personal injury, property, and/or equipment damage can result if the material(s) used in or around any hot melt adhesive supply unit are toxic, heat, or fire sensitive. Always read the manufacturer's recommended use guidelines.

All HMT units are equipped with over temperature protection as a necessary safety device. Run-away heating can cause hot melt materials to exceed their flashpoint.

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LEGEND: SAFETY SYMBOLS

Electric Shock Hazard: Line Voltage Present with Machine Power Off. Risk of electrical Shock or Burn

Disconnect Power Before Servicing

Consult Service Manual

Warning/Caution: Used to draw attention to Hot Surface Warnings, Over Temp Alarms, Hose Routing Practices, and other safety notifications.

Hot Surface: Surface and surrounding area may be hot. Exercise extreme caution and utilize proper Personal Protective Equipment (PPE).

Before Using Your Hot Melt System

It is your responsibility and obligation to make sure your system:

- Has been properly installed off the floor and on a steady, level work surface away from combustible materials.
- Has been located in such a way that the controls are away from the operator and that the control panel is securely closed at all times.
- Is the right capacity system for the intended use.
- Is connected to the proper power supply. (See Below).
- Is only used to do what a hot melt system is designed to do.
- Is not used by anyone unable to operate it properly.
- Is used in an area where the room temperature does not fall below 65 °F.
- Is used in an area which is free from blowing air caused by cooling fans, open doors or windows.

Prevent Serious Equipment Damage

Protect your hot melt equipment by installing a GFEP (Ground Fault Equipment Protector) device in your distribution panel.

HMT recommends that hot melt systems be protected from unintended line-to-ground currents by installing an appropriate ground fault equipment protection (GFEP) device. Contact HMT Technical Service & Support or a qualified electrical contractor for more information. When installing a GFEP device always comply with local electrical codes.

20 Amp Connection

Basic Electrical Power Connections

For 120 VAC Operation

- A fused 20 amp 120 VAC electrical supply is required. Performance problems will occur with voltages less than 108 VAC or greater than 132 VAC.
- Total amperage draw will depend on the final system configuration; number of hoses & length, guns, accessories, etc.
- **Do not** allow the system to share the same circuit with other electrical items. A dedicated supply is recommended.
- **Do not** use an extension cord.
- **If you change the configuration** of your system in any way that may affect the electrical requirements (ex. add a gun, longer hose, automate, etc.) call HMT Technical Service & Support at 248-853-2011 for assistance.

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Front Panel Controls

1. **Main Power Switch:** Turns the system "ON" or "OFF."
2. **Set Temperatures:** Press and hold the Tank, Hose, or Gun button for 2 seconds. When the Set Mode light illuminates, continue to hold the zone button and adjust the set temperature using the arrow keys. Set temperatures range from 100°F to high limit°F (38°C to high limit°C), in 5°F (1°C) increments.
3. **Standby:** All temperatures lowered by 50%. Pump will not operate while in Standby.

   Auto Standby & Auto Off Timer: When activated, the system will enter Standby after three (3) hours of continuous inactivity, then off after three (3) more hours. To activate, press and hold the Standby Button and turn the system On. Use the Arrow Buttons to turn "ON" or "OFF." Turn the Main Power Switch OFF and then ON to begin operation.
4. **Temperature Display:** During operation the actual temperatures scan every five (5) seconds. Press and release any zone button to display that zone's actual temperature.
5. **Over Temp:** If any zone reaches 25°F (15°C) above the High Limit, the Over Temp light will illuminate, and the system will shut off. The Temperature Display will read "OFF", and the light above the faulted zone will flash.
6. **Pump Ready:** The pump will not operate until the actual tank temperature is within 25°F (15°C) of set temperature.
7. **Set Lock:** Lit when feature is "ON." (See page 7).
8. **Pump Control "ON/OFF" Switch:** Turns pump motor circuit "ON" or "OFF."

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Temperature and System Controls

High Limit: The exclusive High Limit Feature limits the Set Point for any zone. This limit is adjustable between 250ºF and 475ºF.

To Adjust the High Limit: Press and hold down the Tank button and turn the Power Switch ON. The display will show the current High Limit.

Release the Tank button and use the Arrow Keys to adjust High Limit Up or Down. Turn the Main Power Switch OFF then ON again.

All zones will default to the new High Limit and must be reset.

9 **Set Lock:** Dip Switch used to lock or unlock set temperature adjustment.

10 **°F vs. °C:** Dip Switch used to change from °F or °C (default is Fahrenheit). For Celsius set the switch to “ON.”

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Exploded View

NOTE: If system is BM215-HVR4-B, See motor 10b.

BILL OF MATERIALS

ITEM	DESCRIPTION	PART NO	QTY
1	Tank Lid Assembly	911-004	1
2	Tank Seal 7"	510-015	1
3	Tank Shroud Assembly	345-019	1
4	Display Panel	See page 10	1
5	Switch Panel	See page 10	1
6	Hose/Gun Card	245-215	1
7	Benchmark 215-HVR4 Main Board	245-214	1
8	Base Assembly	330-060	1
9	Motor Coupling Assembly (LV/HV)	941-051	1
10a	Motor Assembly 43 RPM, 120 VAC	941-016	1
10b	Motor Assembly, Butyl 28 RPM, 120 VAC	941-128	1
11	Tank Heater Harness, 120 VAC, 1000 W	923-215	1
12	Tank/Pump Assembly	See page 9	1
13	Tank Filter 1/4" Mesh	420-061	1
14	Power Cord, 120 VAC, 20 A	922-057	1
15	Handgun Hanger Bar	330-012	1
16	Accessory Harness	929-215	1
17	Hose/Gun Wire Harness	927-215	1

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Tank & Pump Assembly

911-075

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BILL OF MATERIALS

ITEM	DESCRIPTION	PART NO	QTY
1	1/4-20 X 2.5" Socket Head Cap Screw	322-110	4
2	1/4" Lock Washer, Black	316-007	6
3	1/4" Flat Washer	315-007	4
4	3/4-16 Drain Plug with O-ring	160-042	1
5	Chevron Pump Seal	510-020	1
6	Pump Seal Retainer	420-002	1
7	1/4-20 X 1" Hex Head Bolt	328-004	2
8	DFS Tank Mounting Hardware Kit (LV/HV)	911-061	1
9	DFS Rebuild Kit, PA-30	942-030	1
10	Flow Control Assembly (incl. item 11)	940-003	1
11	DFS Accu-Flow™ Control	940-015	1
12	90º Male Elbow, 3/8" NPT to #6 JIC	160-029	2

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Control Panels

Display Panel

BILL OF MATERIALS			
ITEM	DESCRIPTION	PART NO	QTY
1	Display Board	245-213	1
2	Display Panel	330-057	1
3	Display Panel Decal	340-228	1
4	8-32 × 7/16" Socket Head Cap Screw	322-031	4
5	6-32 × 1/4" Socket Head Cap Screw	322-002	4

Switch Panel

BILL OF MATERIALS			
ITEM	DESCRIPTION	PART NO	QTY
1	Switch Panel	330-059	1
2	Switch Panel Decal	340-229	1
3	Pump ON/OFF Switch	211-070	1
4	6-32 × 1/4" Socket Head Cap Screw	322-002	2
5	8-32 × 7/16" Socket Head Cap Screw	322-031	4
6	Main Breaker, 20 A, 120 VAC	211-045	1

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Fuse & Relay Chart

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CONNECTOR IDENTIFICATION	
C1	Hose #1
C2	Gun #1
C3	Accessory
C4	Motor

Pump Ready / C2-7	Relay Contacts (Normally Open)		RTD Sensor
	AMP Connector & Pin Number	M	Motor
	AMP Quick Disconnect		"ON/OFF" Breaker Switch
	Stakon Connector		Heater
	Switch		

FUSE CHART

ITEM	DESCRIPTION	REPLACE WITH	PART NO
F1	Tank Fuse	10 A, 125 VAC (AGC)	214-210
F2	Motor Fuse	5 A, 125 VAC (GMA)	214-105
F3	Power Supply	300 mA, 125 VAC (GMD)	214-063

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Hose & Gun Card

Green LED:

ON Steady	=	Calling for heat
Blinking	=	At temperature
OFF	=	No input from RTD

Red LED:

ON Steady	=	Hose or Gun sensor fault or over temp

Hose/Gun Card 120 V (245-215)

FUSE CHART			
ITEM	**DESCRIPTION**	**REPLACE WITH**	**PART NO**
F1	Hose & Gun	10 A, 250 VAC (AGC)	214-210

CONNECTOR IDENTIFICATION	
C1	Hose
C2	Gun
C3	Accessory
C4	Motor

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Schematic

Benchmark BM215-HVR4

*** Accessory Input:**
Customer Supplied N.O. (Normally Open) Contact.

**** Accessory Output:**
120 VAC when triggered.

POWER CONNECTION

120 VAC, 20A, 1 PH

L1 ← 120 V → N G

SYMBOL LEGEND

Pump Ready	Relay Contacts (Normally Open)		Wire Termination
	Relay Description		Board Mounted Fuse
	Relay Contacts (Normally Closed)	Hose/Gun	Fuse Description
	AMP Connector & Pin Number		RTD Temperature
C2-7	AMP Quick Disconnect	M	Capacitor and Motor
	Stakon Connector		"ON/OFF" Breaker Switch
	Switch		Heater

CONNECTOR IDENTIFICATION

C1	Hose
C2	Gun
C3	Accessory
C4	Motor

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Warranty Information

This Warranty extends to the original purchaser only and commences on the date of the original purchase.

Any part of the Hot Melt Technologies (HMT) adhesive supply unit (ASU) manufactured by HMT and found in the reasonable judgement of HMT to be defective in material and workmanship, will be repaired or replaced by HMT without charge for parts or labor.

This Warranty is limited to:

a) One (1) year from initial use,

b) Eighteen (18) months from date of purchase, or

c) Two thousand (2,000) hours of use, whichever comes first.

The ASU including any defective part must be returned to HMT within the warranty period. All transportation expenses to HMT for warranty work and the expense of returning it to the owner will be paid for by the owner. HMT's responsibility in respect to claims is limited to (at its option) making the required repairs, adjustment, or replacements. No claim of breach of warranty shall be cause for cancellation of the contract of sale of any HMT ASU.

This warranty does not cover any ASU that has been subject to misuse, abuse, negligence,or accident, or which has been operated in any way contrary to the operating instructions. Warranty does not apply to any damage to the ASU that is the result of improper maintenance or installation.

This warranty does not cover any ASU that has been altered or modified by the customer. In addition, the warranty does not extend to repairs made necessary by normal wear or by the use of hot melt materials in the ASU which in the reasonable opinion of HMT are either incompatible with the ASU or adversely affect its operation, performance, or durability. This warranty does not extend to any accessory attachments to the ASU that are warranted separately for different periods of time. Other components supplied by HMT as part of a system will carry the warranty of the original manufacturer.

This warranty does not extend to an ASU damaged during shipment. Risk of loss or damage to the ASU shall pass to the buyer.

HMT reserves the right to change or improve the design of any ASU, or part of an ASU, without assuming any obligation to modify any ASU previously manufactured.

HMT assumes no responsibility for incidental, consequential or other damages including but not limited to: expense for hot melts, delivery or return freight expenses, mechanics travel time, telephone or telegraph charges, rental of a like product during the time warranty repairs are being performed, travel, loss or damage to personal property, loss of revenue, loss of use of the ASU, loss of time or inconvenience.

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