BENCHMARK 205-LV4

SERVICE MANUAL

Your System Configuration

Tank Size
8 lb (3.6 kg) 1 gal (4.4 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®

1723 W. Hamlin Rd | Rochester Hills, MI 48309
248.853.2011 | www.hotmelt-tech.com

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 (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, Polyamid).
- 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 Hot Melt Technologies Inc.
- 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 Hot Melt Technologies. 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. PUR-Polyurethane hot melt 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 can not be avoided:

- Risk of burns from hot material
- Risk of burns when filling the tank, from the tank lid, and from the hose and gun 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.

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.

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:

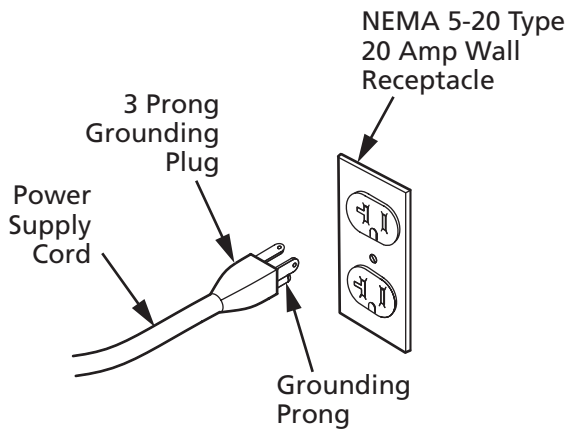
- Has been properly installed off the floor and on a steady, level work surface away from combustible materials.
- Has been located in such a way that the controls are away from the operator and that the control panel is securely closed at all times.
- Is the right capacity system for the intended use.
- 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

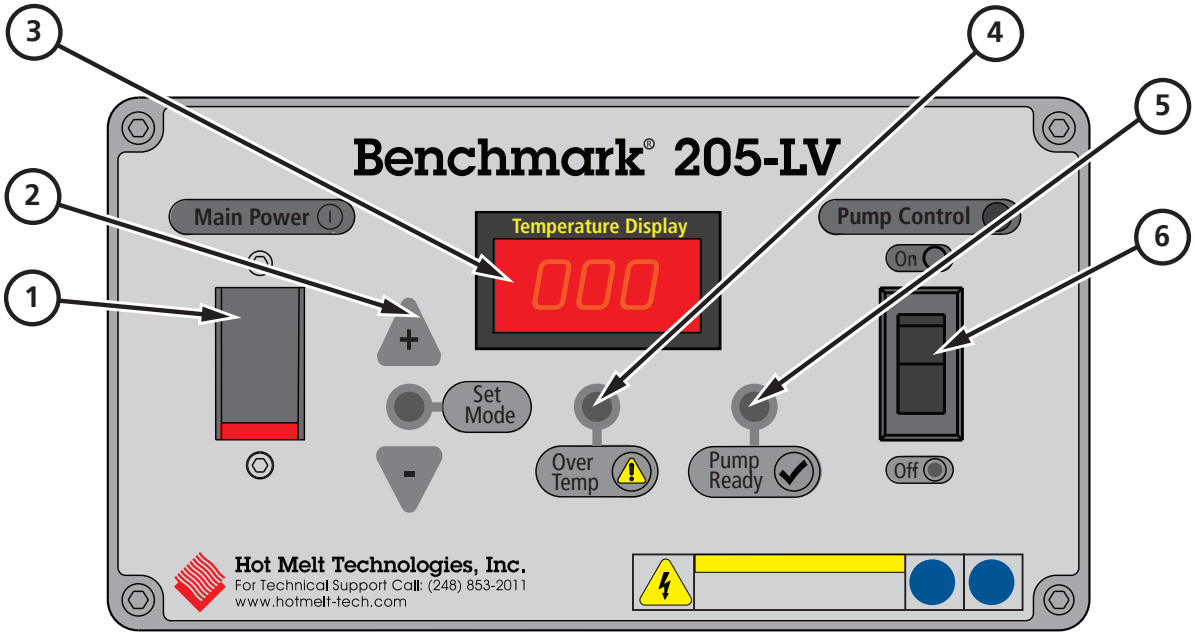


Basic Electrical Power Connections

For 120 VAC Operation

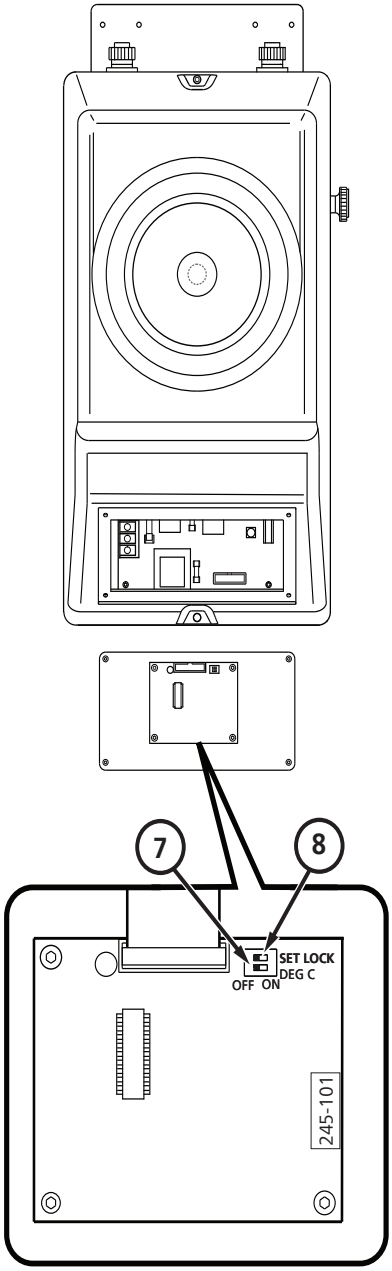
- A fused 20 amp 120 VAC electrical supply is required. Performance problems will occur with voltages less than 108 VAC or greater than 132 VAC.
- Total amperage draw will depend on the final system configuration; number of hoses & length, guns, accessories, etc.
- **Do not** allow the system to share 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.

Front Panel Controls



1. **Main Power Switch:** Turns the system "ON" or"OFF."
2. **To adjust the Tank Temperature Set Point:** Press and hold the "+" or "-" button for two (2) seconds to enter Set Mode. The Set Mode LED will illuminate when Set Mode is active. While in Set Mode, use the "+" or "-" button to change the tank temperature set point. The tank temperature can be adjusted between 225°F and 400°F (107°C and 204°C).
3. **Temperature Display:** Displays the tank temperature in °F or °C. If the "+" or "-" button is pressed the tank temperature set point is displayed. When released the Temperature Display will show the actual tank temperature.
4. **Over Temp:** Over Temp occurs when the tank temperature reaches 425°F (218°C). The Over Temp LED will flash red, for safety the system will shut down, and "OFF" will be shown on the Temperature Display. Contact Technical Service and Support for repair options.
5. **Pump Ready:** When the Pump Ready LED is illuminated, the pump can be triggered on. The Pump Ready LED illuminates when the tank temperature is within 25°F (14°C) of the tank temperature set point.
6. **Pump Control "ON/OFF" Switch:** Allows the pump motor to run when triggered.

Front Panel Controls



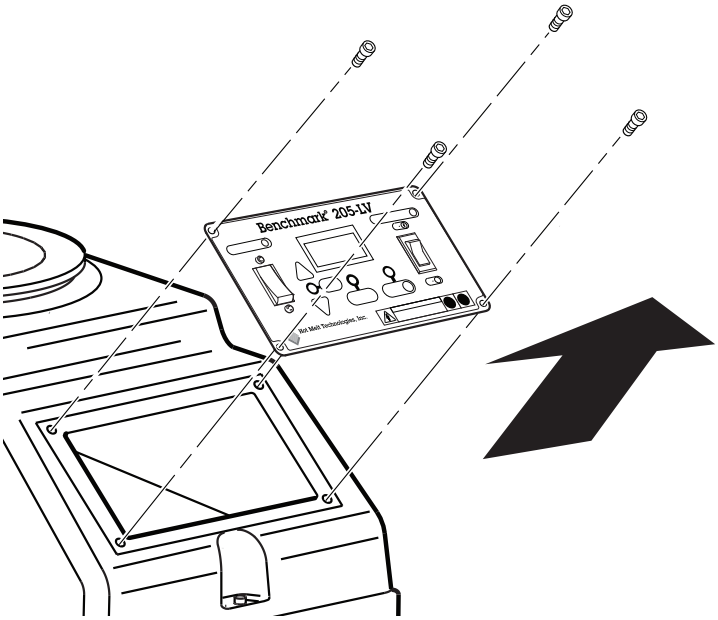
7 **Celsius:** If the “Deg °C” switch is in the ON position, the temperature display will show the tank temperature in °C.

8 **Set Lock:** If the “Set Lock” switch is in the ON position, Set Mode cannot be activated and the tank temperature set point cannot be changed. The Set Mode LED will not illuminate when the "set lock" switch is ON.

Adjusting Hose & Gun Temperatures

STOP

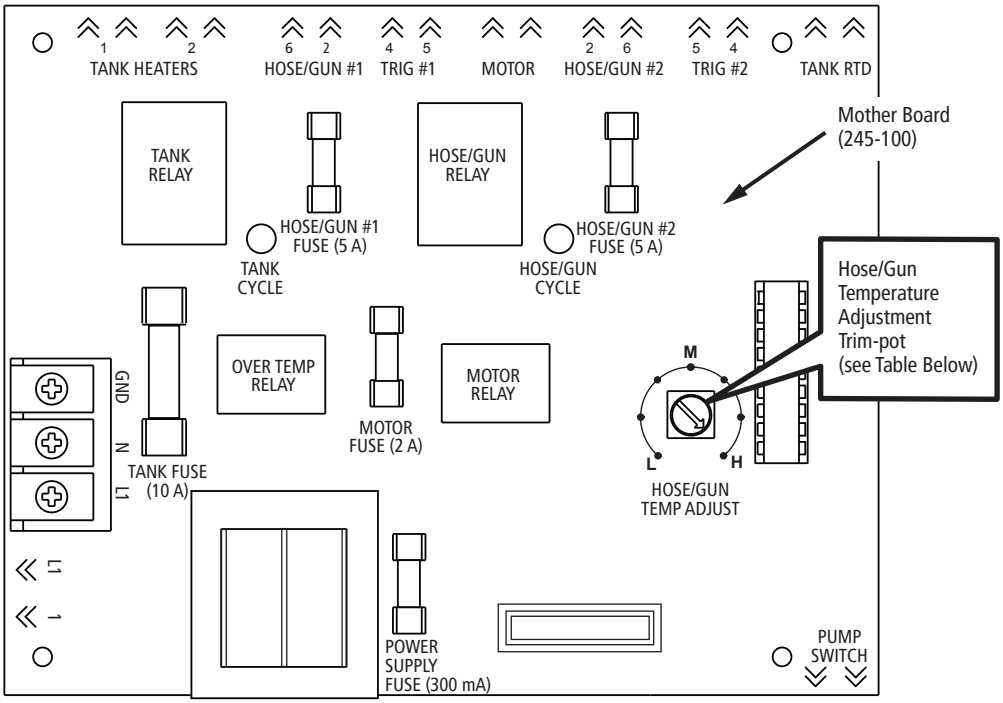
Turn OFF the Main Power Switch and disconnect electrical service prior to accessing any internal components.



1) Remove the four (4) screws that attach the face panel to the shroud using a 9/64" Allen wrench, and carefully lift the face panel off the shroud.

2) Hose & Gun Zones 1 and 2 can be adjusted using the Hose/Gun Temp Adjust Trim-pot that is located on the Mother Board (245-100). See illustration below.

3) Table A below gives an approximate temperature for settings of the Hose/Gun Trim-Pot.



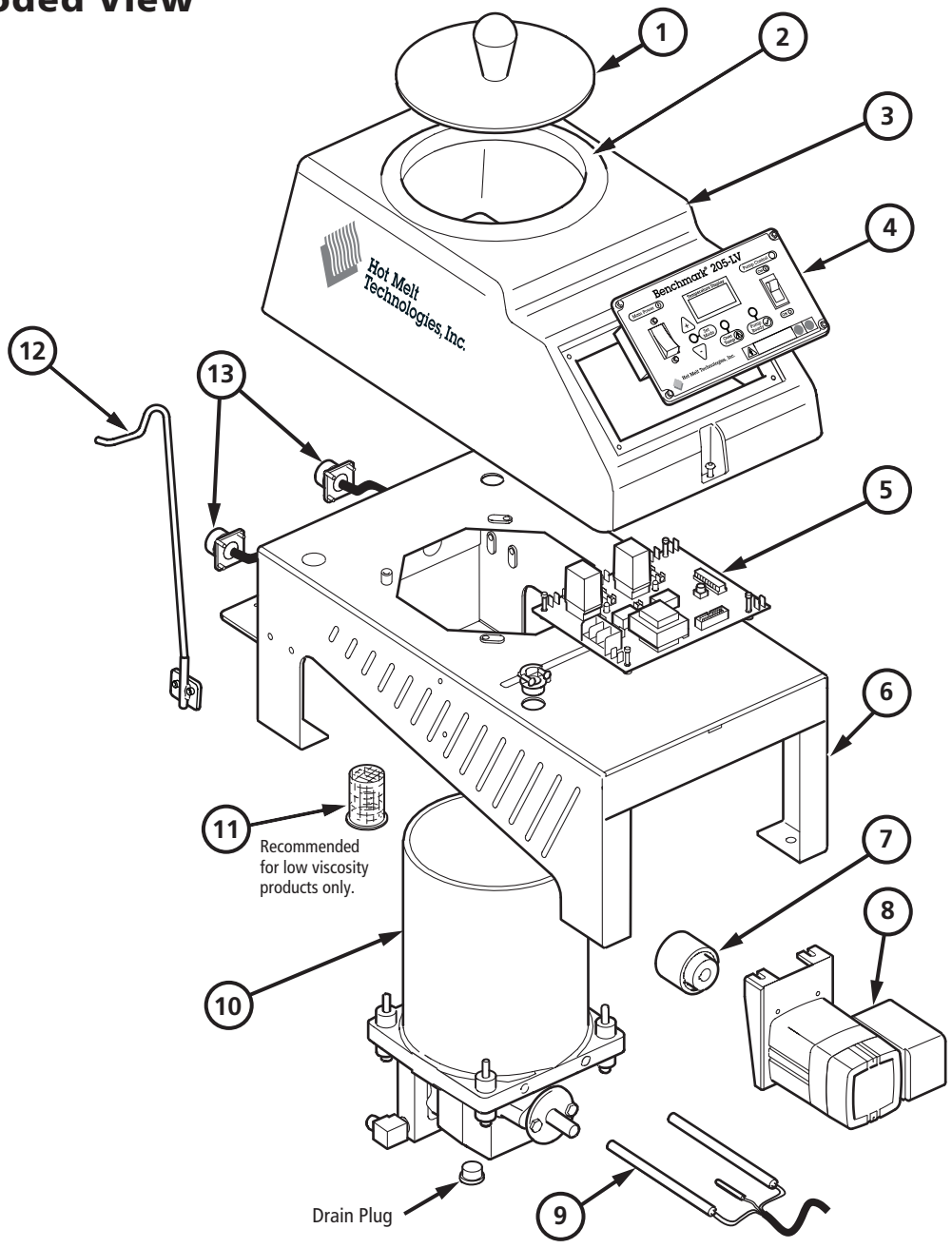
Trim-Pot Set	Standard Hose (721-6XX)	High Temp Hose (721-6XX-HT)
L	225°F (107°C)	275°F (135°C)
M	287°F (142°C)	338°F (170°C)
H	350°F (177°C)	400°F (204°C)

Table A

⚠ **NOTE:** Substandard voltages will reduce temperatures listed above.

Exploded View

Benchmark 205-LV4



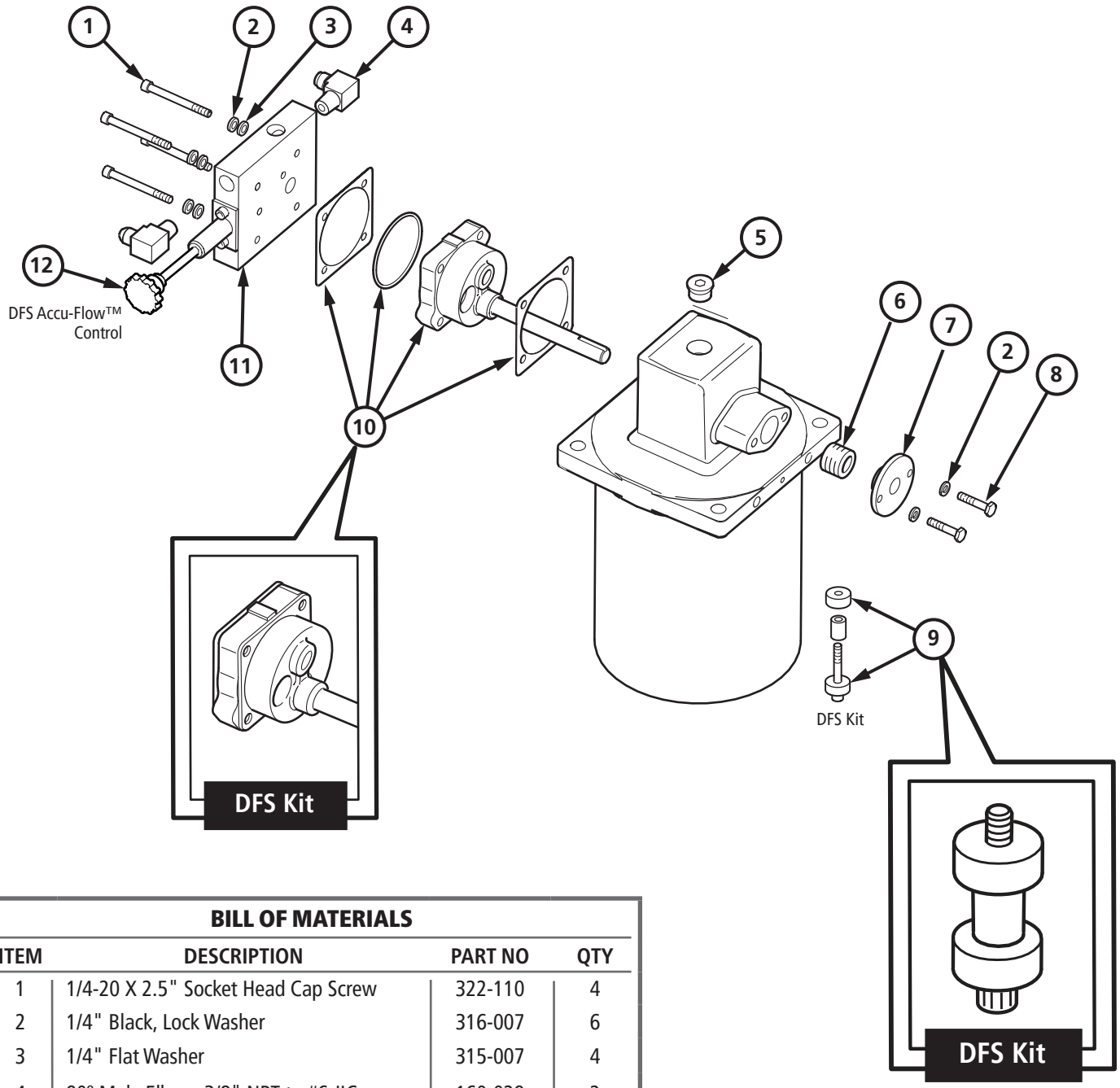
BILL OF MATERIALS

ITEM	DESCRIPTION	PART NO	QTY	ITEM	DESCRIPTION	PART NO	QTY
1	Tank Lid Assembly	911-004	1	8	Motor Assembly 43 RPM, 120 V	941-016	1
2	Tank Seal 7"	510-015	1	9	Tank Heater Harness, 120 V, 1000 W	923-215	1
3	Tank Shroud Assembly	345-014	1	10	Tank/Pump Assembly	See page 10	1
4	Front Panel	See page 11	1	11	Tank Filter 1/4" Mesh	420-061	1
5	Benchmark LV & HV Main Board	245-100	1	12	Handgun Hanger Bar	330-012	1
6	Base Assembly	330-060	1	13	Hose/Gun Wire Harness	922-027	2
7	Motor Coupling Assembly (LV/HV)	941-051	1		Power Cord, 120 VAC, 20 A *(not shown)*	922-057	1

Benchmark 205-LV4

Tank & Pump Assembly

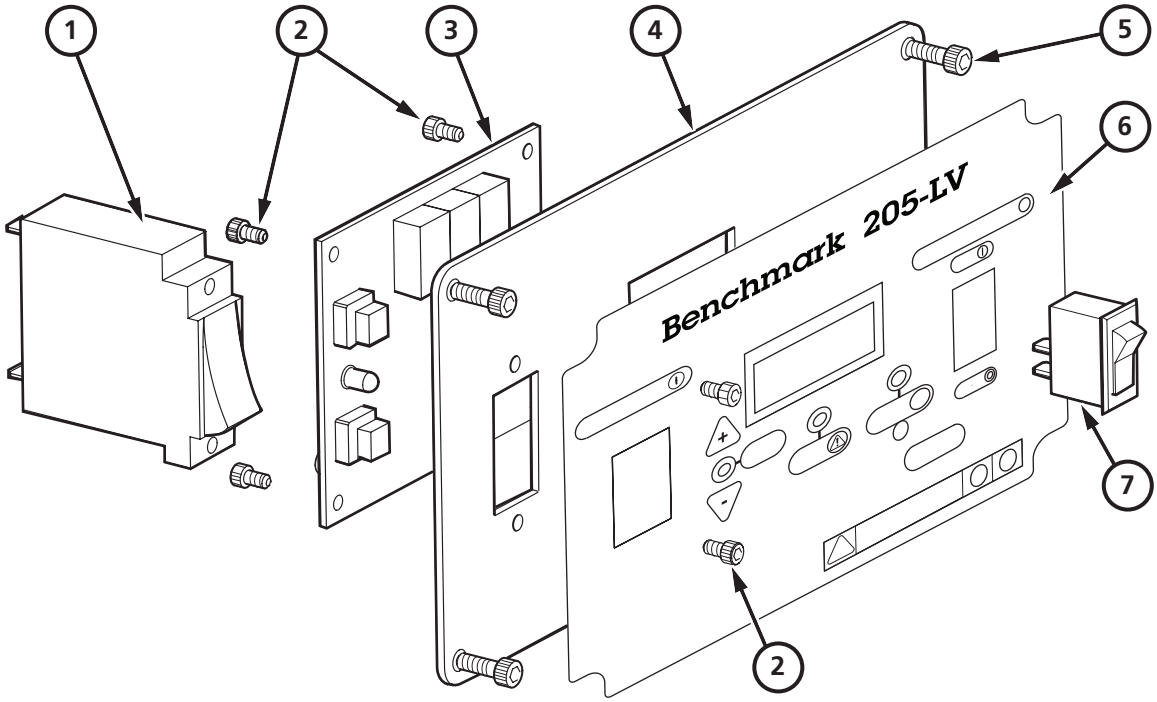
911-070



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" Black, Lock Washer	316-007	6
3	1/4" Flat Washer	315-007	4
4	90º Male Elbow, 3/8" NPT to #6 JIC	160-029	2
5	3/4-16 Plug with O-ring	160-042	1
6	Pump Seal, Chevron	510-020	1
7	Pump Seal Retainer	420-002	1
8	1/4-20 X 1" Hex Head Bolt	328-004	2
9	DFS Tank Mounting Hardware Kit (LV/HV)	911-061	1
10	DFS Pump Kit 30mm	942-030	1
11	Flow Control Assembly (incl. item 12)	940-003	1
12	DFS Accu-Flow™ Control	940-015	1

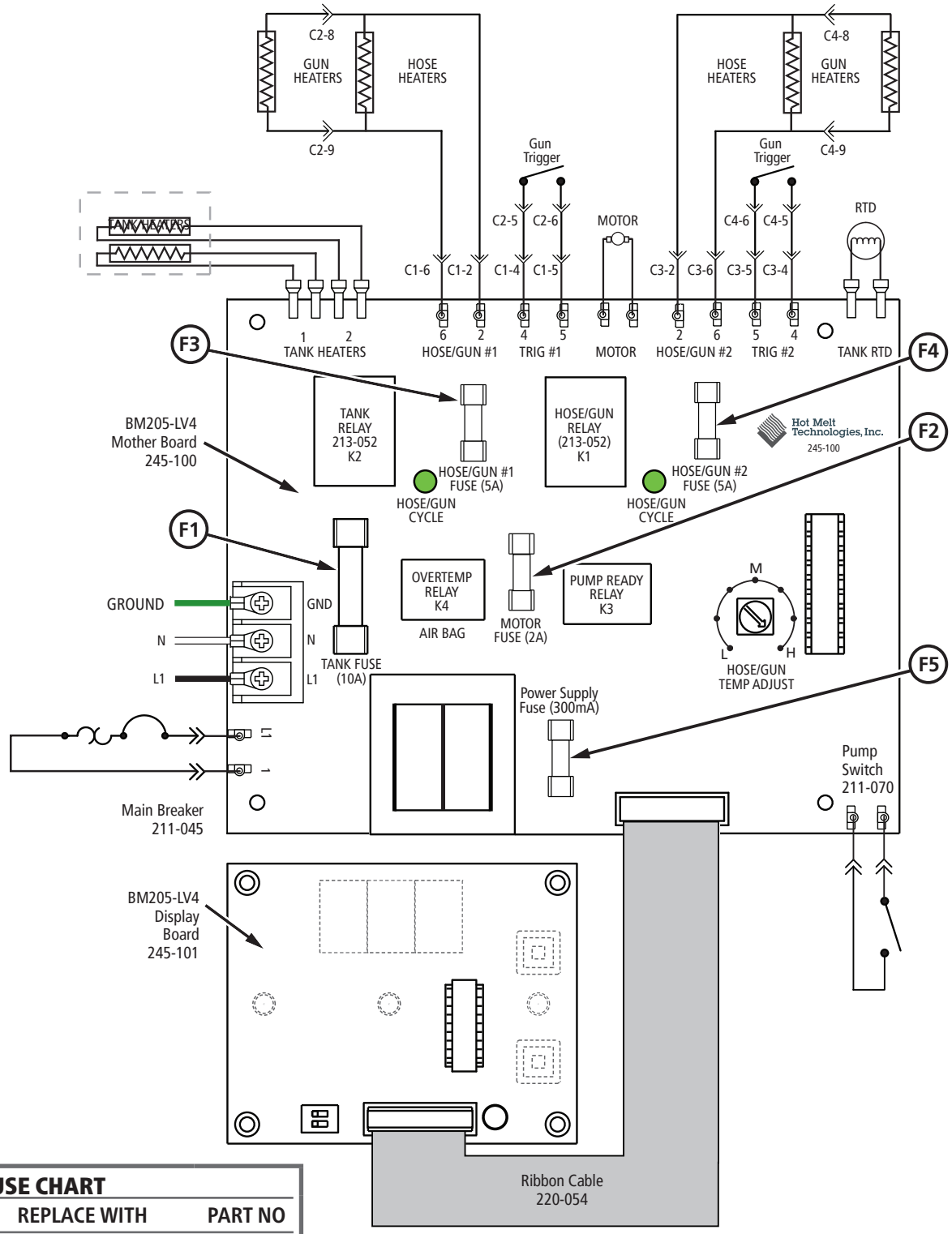
Front Panel



BILL OF MATERIALS

ITEM	DESCRIPTION	PART NO	QTY
1	On/Off Breaker, 20 A 120 VAC	211-045	1
2	6-32 × 1/4" Socket Head Cap Screw	322-002	6
3	Benchmark LV/Display Board	245-101	1
4	LV4 Micro Face Plate	330-066	1
5	8-32 × 7/16" Socket Head Cap Screw	322-031	4
6	Benchmark LV4 Face Panel Decal	340-270	1
7	Pump Switch	211-070	1

Fuse & Relay Chart



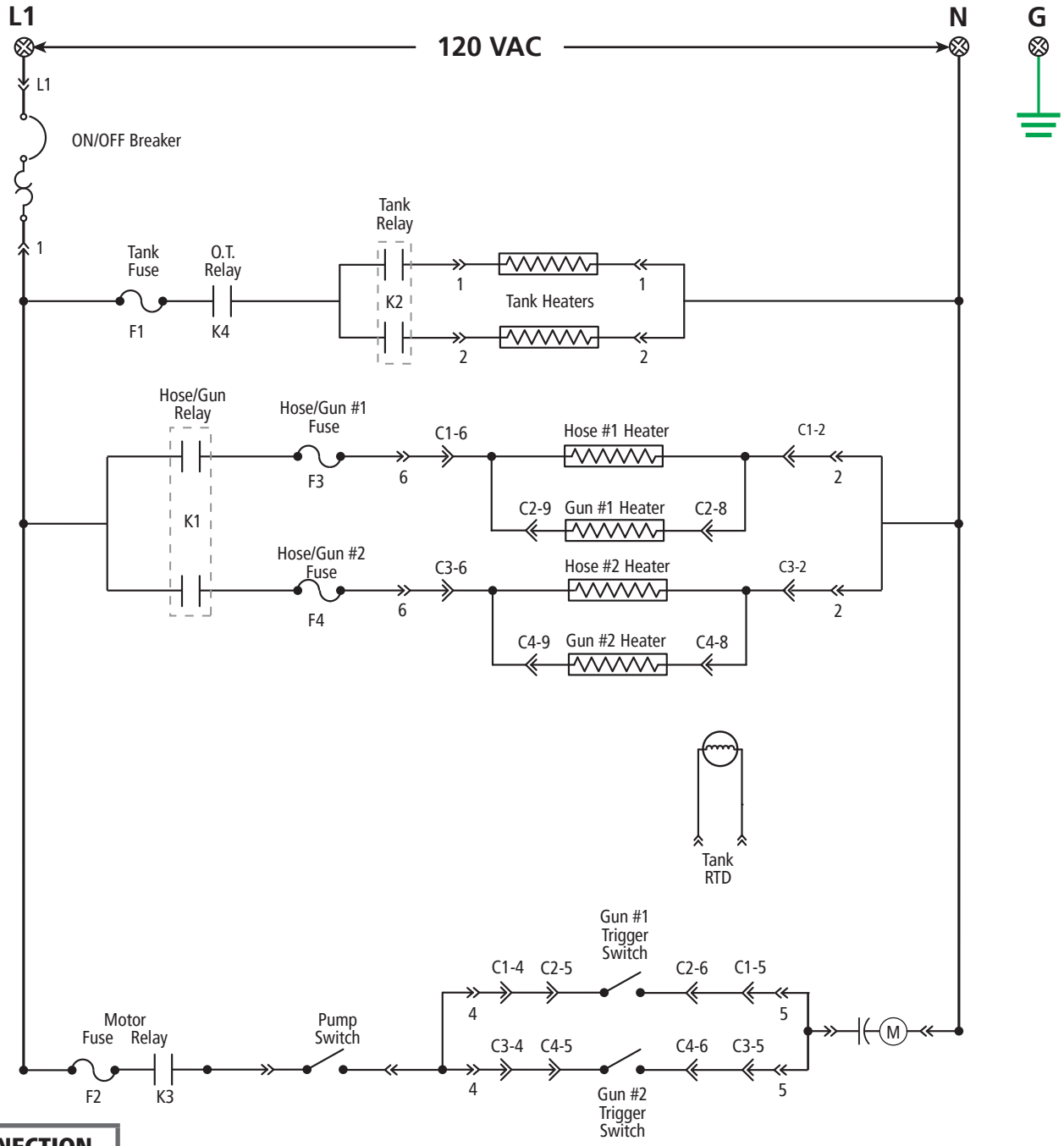
CONNECTOR IDENTIFICATION	
C1	Hose #1
C2	Gun #1
C3	Hose #2
C4	Gun #2

FUSE CHART

ITEM	DESCRIPTION	REPLACE WITH	PART NO
F1	Tank	10 A, 125 VAC (AGC)	214-210
F2	Motor	2 A, 125 VAC (GMA)	214-102
F3	Hose/Gun 1	5 A, 125 VAC (GMA)	214-105
F4	Hose/Gun 2	5 A, 125 VAC (GMA)	214-105
F5	Power Supply	300 mA, 125 VAC (GMD)	214-063

Schematic

Benchmark 205-LV4



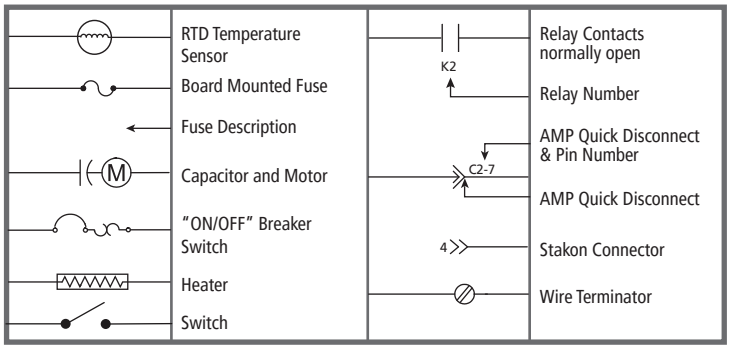
POWER CONNECTION

120 VAC, Single Phase, 20 A
L1←120 VAC→N

CONNECTOR IDENTIFICATION

C1	Hose #1
C2	Gun #1
C3	Hose #2
C4	Gun #2

SYMBOL LEGEND

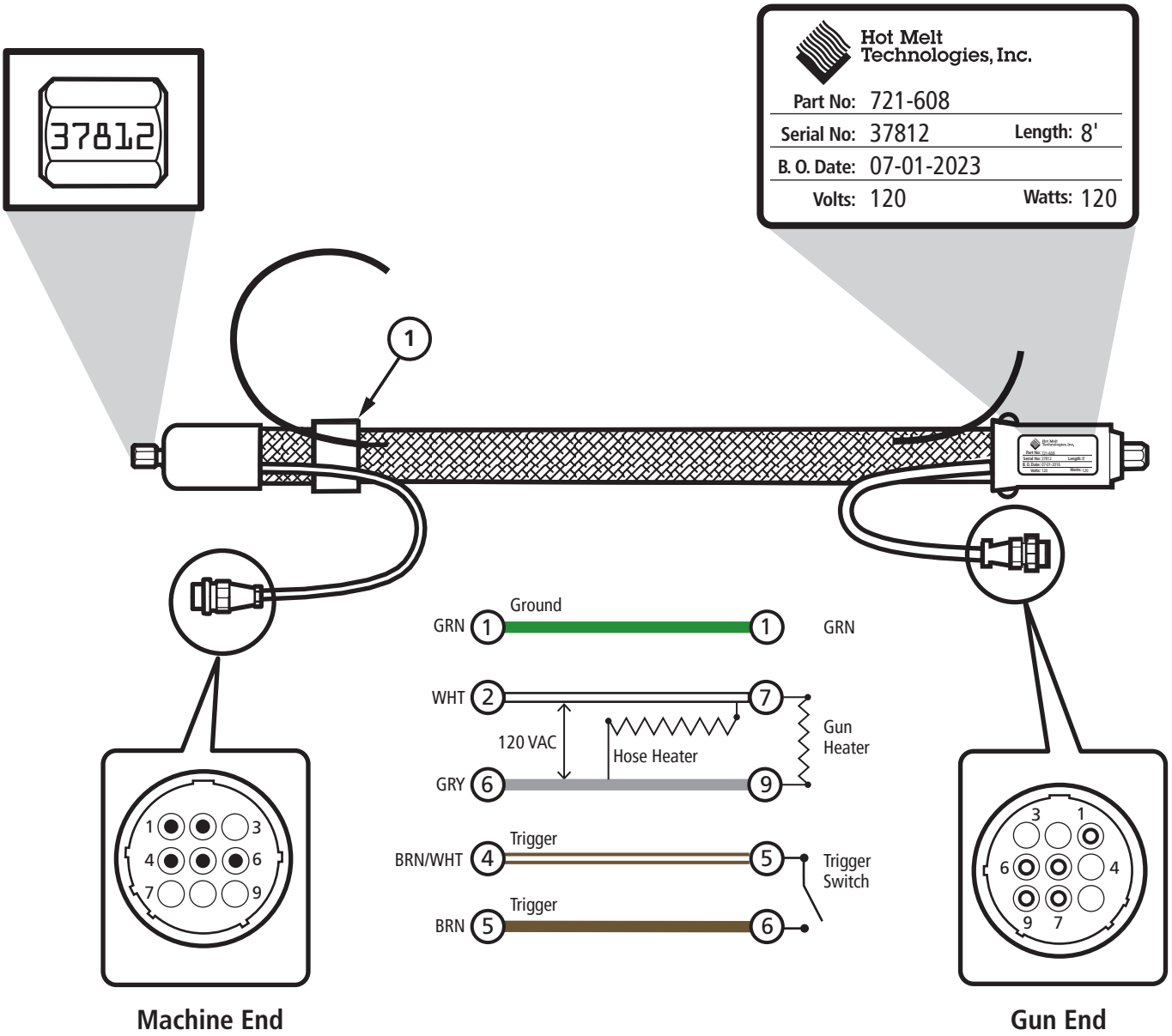


Benchmark 205-LV4

721 Series Hoses 120 VAC

HOSE PART NUMBER	LENGTH		STYLE	
721-6	08	= 8 FT.	S	= Spray
	12	= 12 FT.	HT	= High Temp
	16	= 16 FT.	HTS	= High Temp Spray

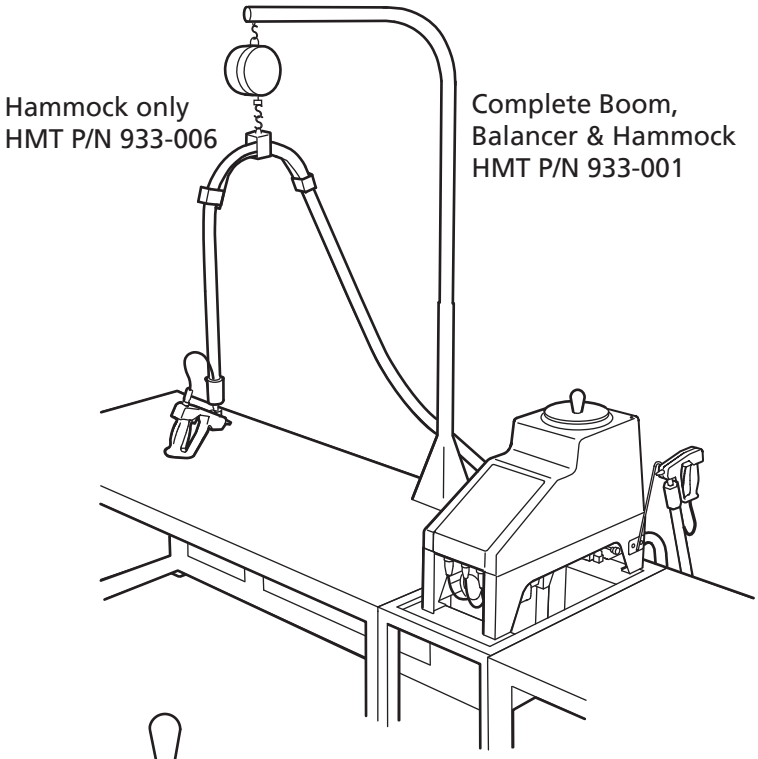
Other lengths available



BILL OF MATERIALS			
ITEM	DESCRIPTION	PART NO	QTY
1	Hose Mounting Block	540-027	1

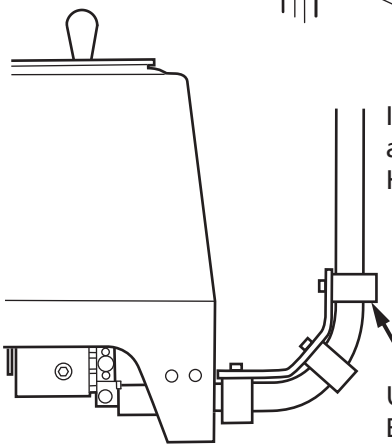
NOTE
Substandard voltages will reduce hose temperatures.

Proper Hose Usage



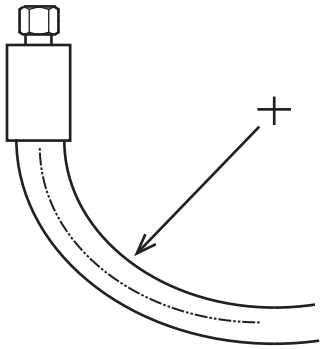
Hammock only
HMT P/N 933-006

Complete Boom,
Balancer & Hammock
HMT P/N 933-001



Install Hose Hammock
at rear (up or down)
HMT P/N 933-007

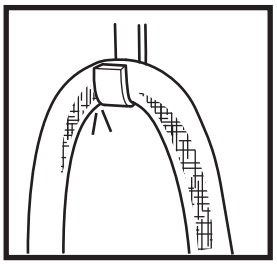
Use Hose Mounting
Blocks for anchoring
HMT P/N 540-027



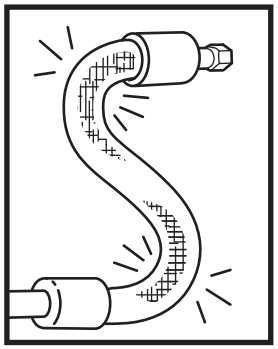
#6 Core = 8" Min. Rad.
#8 Core = 10" Min. Rad.
#10 Core = 12" Min. Rad.

Also Avoid

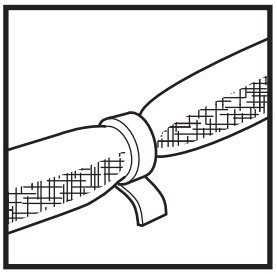
- Twisting or pulling
- Getting hoses wet
- Heating fittings with a torch
- Installing in closed conduits
- Bending while cold



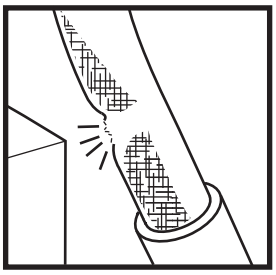
Do not hang a hose
without proper support



Radius too sharp!



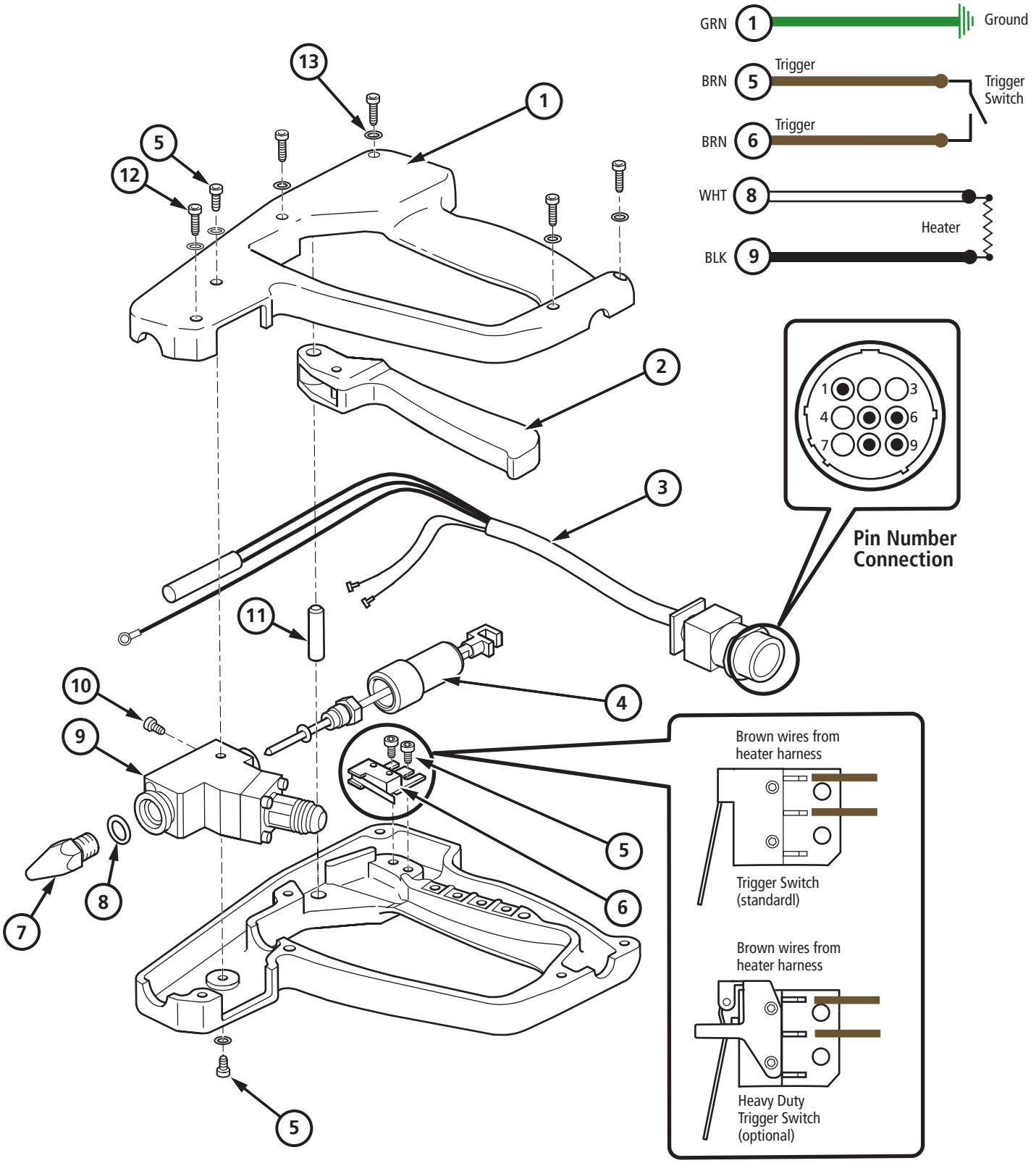
Never compress a hose
using clamps or ties



Avoid abrasion
against objects

Repair services are available

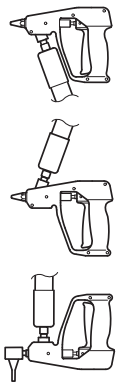
Please contact Technical Service and Support



ETC Handgun Parts List

340-028
Sticker

340-029
Sticker



YOUR GUN CONFIGURATION

Standard Hose Entry

☐ DG-411-S, Linear Swivel

☐ DG-413-S, 360 Plus Swivel

Top Hose Entry

☐ DG-413-T, 360 Plus Swivel

In-Line Hose Entry

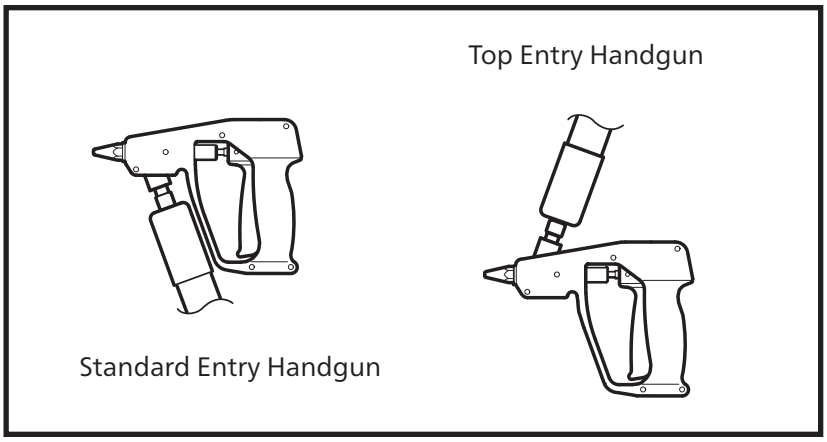
☐ DG-513, 360 Plus Swivel

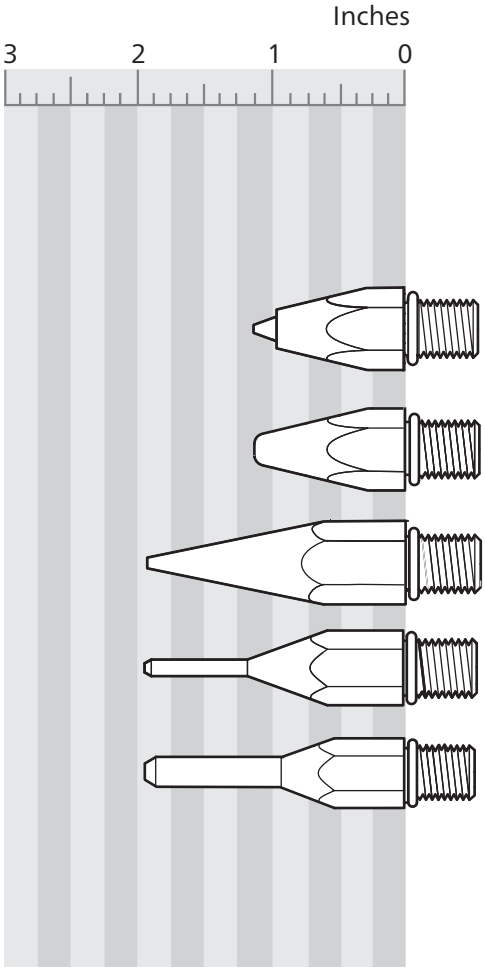
BILL OF MATERIALS

ITEM	DESCRIPTION	PART NO	QTY	DG-411-S	DG-413-S	DG-413-T	DG-513
1a	Handgun Body (Standard, In-Line)	125-001	1	●	●		●
1b	Handgun Body (Top Entry)	125-002	1			●	
2	Trigger	125-004	1	●	●	●	●
3a	**DFS** Heater Harness (Standard, In-Line) 30 W	912-110	1	●	●		●
3b	**DFS** Heater Harness (Top Entry) 30 W	912-111	1			●	
3c	**DFS** Heater Harness (Standard, In-Line) 35 W	912-112	1	○	○		○
3d	**DFS** Heater Harness (Top Entry) 35 W	912-113	1			○	
4a	**DFS** Needle Assembly (Standard, Top Entry)	912-060	1	●	●	●	
4b	**DFS** Needle Assembly (In-Line)	912-061	1				●
5	6-32 X 1/4" Socket Head Cap Screws	322-002	4	●	●	●	●
6a	Trigger Switch (standard)	912-550	1	●	●	●	●
6b	Trigger Switch Heavy Duty (optional)	912-551	1	○	○	○	○
7	Nozzle	See Nozzles	1	○	○	○	○
8	O-ring	520-023	1	●	●	●	●
9a	**DFS** Heater Body With Linear Swivel	912-547	1	●			
9b	**DFS** Heater Body With Ball Swivel	912-545	1		●	●	●
10	6-32 X 1/8" Socket Head Cap Screws	322-001	1	●	●	●	●
11	Trigger Pivot Pin	300-018	1	●	●	●	●
12	6-32 X 1/2" Socket Head Cap Screws	322-004	5	●	●	●	●
13	DG Handgun Body Assembly Washer	125-035	7	●	●	●	●

● Standard
○ Optional

400 Series Extrusion Nozzles





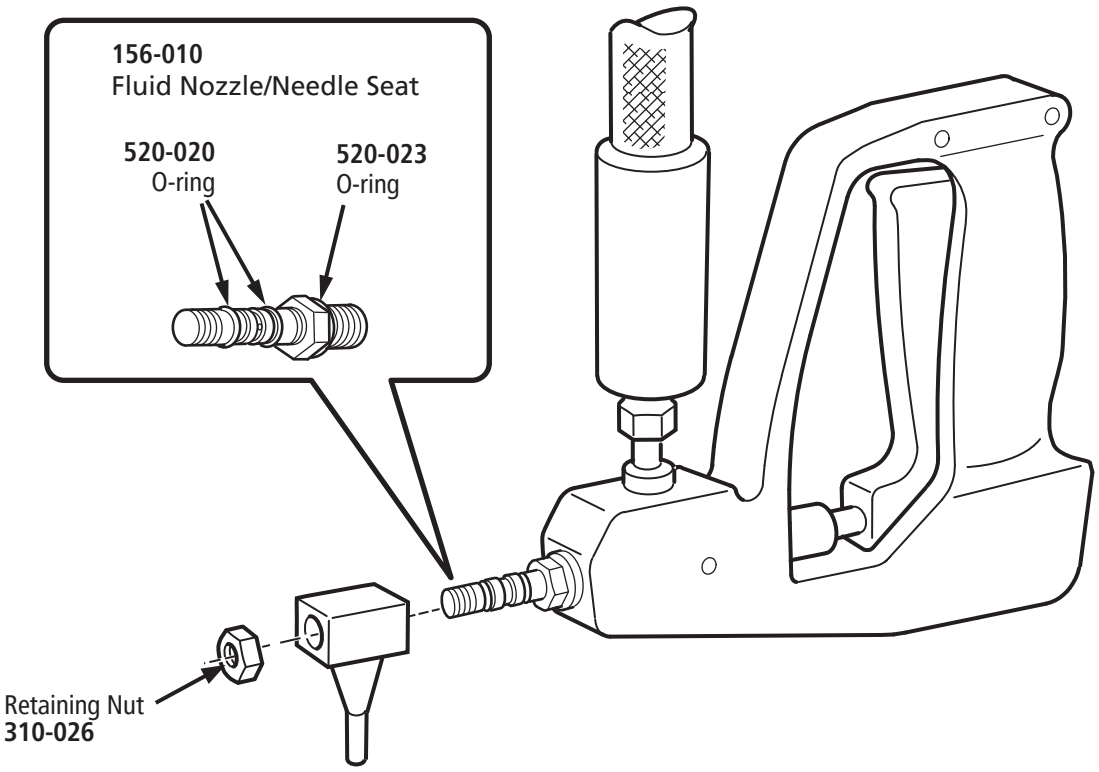
YOUR SYSTEM CONFIGURATION

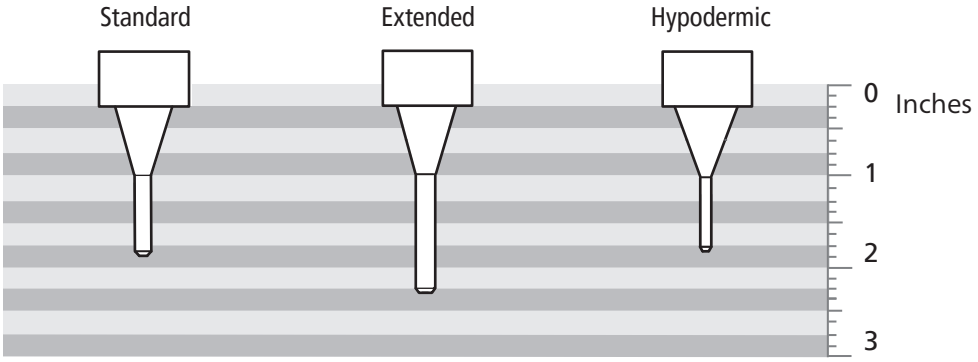
	ORIFICE	PART NO
Fine Point	.020"	156-240
	.030"	156-242
	.040"	156-244
Blunt Nose	.050"	156-018
	.090"	156-022
Tapered	.050"	156-080
Hyperdermic	.030"	156-031
	.050"	156-033
Extended	.050"	156-043
	.090"	156-047

All nozzles include:
1) O-ring P/N 520-023

⚠ **NOTE:** Special nozzles are available, please contact us for more information.

500 Series Extrusion Nozzles

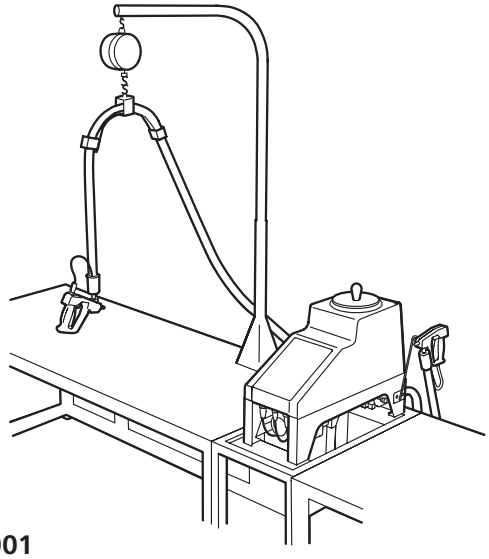




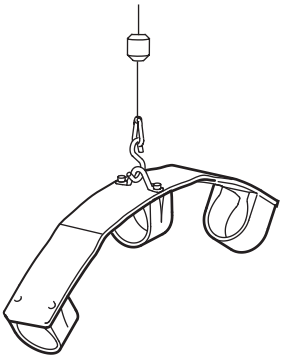
YOUR SYSTEM CONFIGURATION

ORIFICE	PART NO	ORIFICE	PART NO	ORIFICE	PART NO
.050"	156-024	.050"	156-025	.050"	156-028
.090"	156-026	.090"	156-027		

LV/HV Optional Items



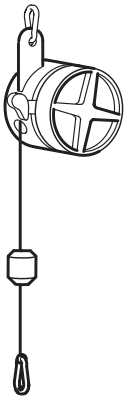
933-001
Boom & Balancer (complete)



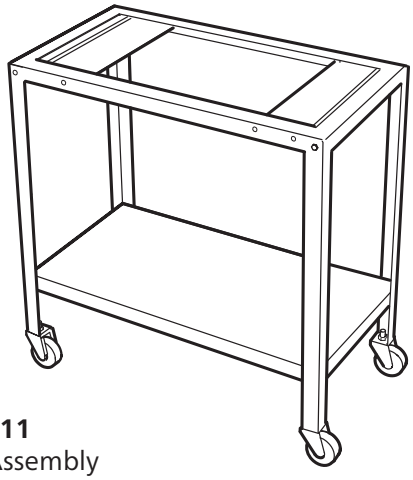
933-006
Hammock Only

MC204-5 Gal. MC204-1 Gal.

Macro Clean
System Flush for Polyamides
& High Performance Resins



170-004
Balancer Only



921-011
Cart Assembly

1200-HMP
System Flush for Standard Hot Melts

DFS Kits

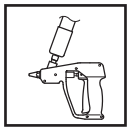
Benchmark 205-LV4

400 series handguns are Standard and Top Entry 500 series handguns are In-Line

Top Entry ETC Handgun

912-111
DFS Heater Harness
120 VAC, 30 W

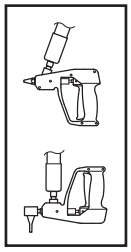
912-113
DFS Heater Harness,
120 VAC, 35 W

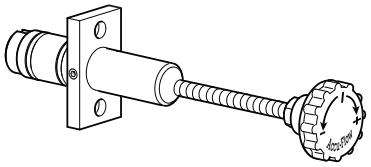


Standard & In-Line ETC Handgun

912-110
DFS Heater Harness
120 VAC, 30 W

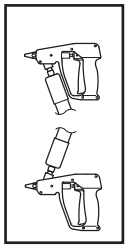
912-112
DFS Heater Harness
120 VAC, 35 W

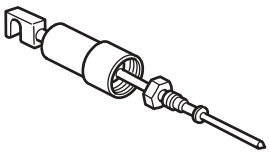




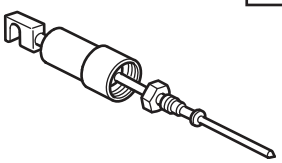
940-015
DFS Accu-Flow™
Control

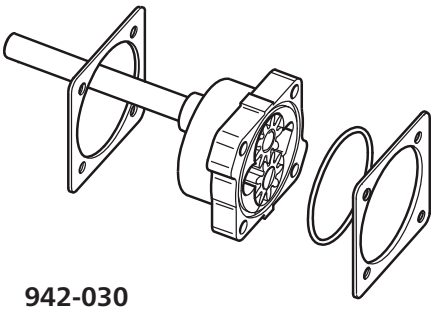
912-060
DFS DG-400
Needle Repair Kit





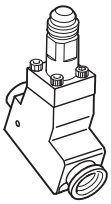
912-061
DFS DG-500
Needle Repair Kit



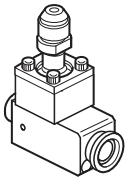


942-030
DFS Pump Rebuild Kit

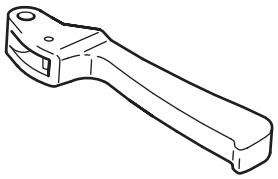
912-547
DFS Linear Swivel Heater
Body Assembly

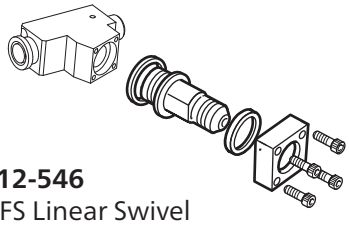


912-545
DFS Ball Swivel
Heater Body Assembly

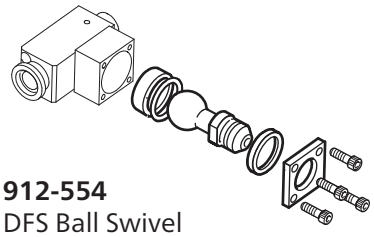


125-004
DFS Handgun Trigger

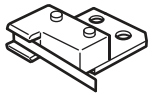




912-546
DFS Linear Swivel
Repair Kit



912-554
DFS Ball Swivel
Repair Kit



912-550
DFS Handgun
Trigger Switch

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.

Technical Service & Support (TSS) Can Help

Phone & E-mail Support

- Most problems can be taken care of with one call
- Troubleshooting and Repairs
- System Set Up and Operation
- Maintenance and Preventative Maintenance.

Factory Service Center

- Repair and Upgrade of HMT ASU's, Hoses & other components
- Turnaround is fast and all work is guaranteed
- Free Training Classes are available at our Factory Service Center

Contact TSS

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

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