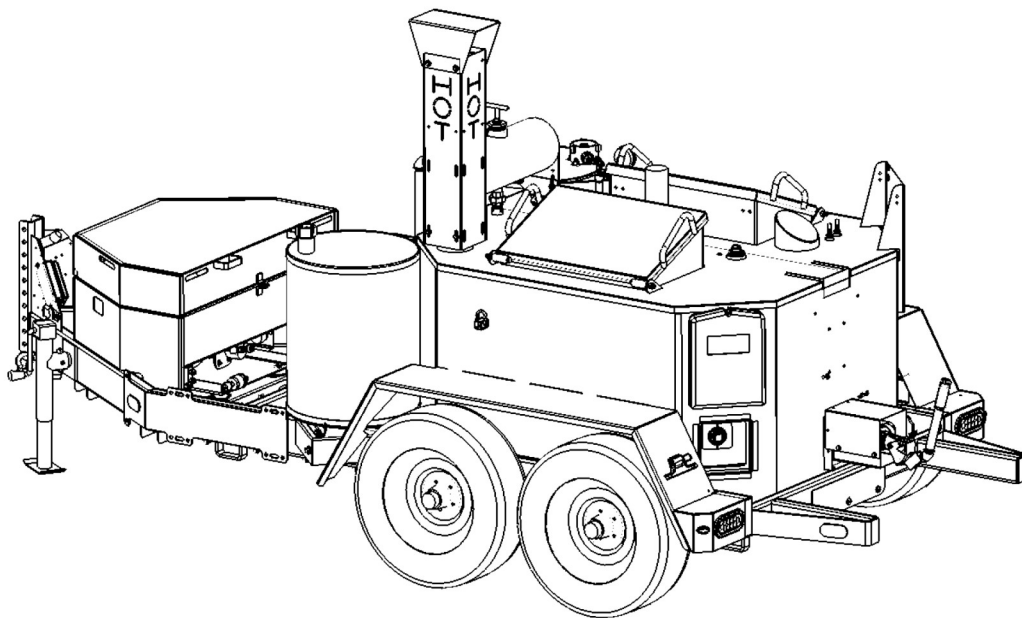




Sealant Melter Applicator Machine

Owner/Operator Manual

M-Series No Pump



CIMLINE.COM
2601 Niagara Lane · Plymouth, MN 55447 · (763) 557-1982 · (877) 841-0848 · Fax (763) 557-1971

Part # 161536

Rev E 11/01/2020

Shipping Papers and Information

In addition to this operators manual, a packet containing IMPORTANT INFORMATION has been enclosed with your CIMLINE M-Series Melter.

The following *Manufacturer's Documents* are included for the following parts:

- a) Engine
- b) Material Pump
- c) Burner

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IMPORTANT: This manual contains the basic information required to operate, maintain and repair the CIMLINE Melter you have purchased. The use of this manual insures accurate adjustments, operation, basic maintenance and proper lubrication of your equipment. Please keep a copy with the machine at all times.

Melter Serial Number:

Engine Manufacturer:

Model Number:

Engine Model (H.P.):

Pump Number:

CONTACTING CIMLINE

At Cimline, impressing the customer is one of our core values. We want to make sure you are covered for any general or technical questions you may have on your new CIMLINE equipment. Please use the following information to get the support you need if this manual does not provide the answers you are looking for.

Cimline Dealer Network:

Your local dealer is always your first point of contact when looking for parts, maintenance, technical support, warranty information or answers to your questions. No one should know you and your business better than your local dealer, and they should always be the first call you make when looking for answers to your questions.

CIMLINE Local Dealer Name:

CIMLINE Local Dealer Phone Number:

CIMLINE Sales:

Toll Free: (877) 841-0848 • Telephone: 763-694-2665 • Fax: 866-557-1971
Corporate Headquarters: 2601 Niagara Lane N, Plymouth, Minnesota 55447
www.cimline.com

Any parts orders or service problems relating to CIMLINE equipment should be directed to your local dealer FIRST.

CIMLINE Customer Care and Technical Service:

CIMLINE Technical Service is available Monday - Friday during normal business hours.
Toll Free: (877) 841-0848 • Telephone: 763-694-2665 • Fax: 866-553-7765
www.cimline.com • Email: customercareorders@plymouthind.com

CIMLINE Parts and Warranty Items:

Toll Free: (800) 328-3874 • Telephone: 763-694-2638 • Fax: 866-553-7765
www.cimline.com • Email: customercareorders@plymouthind.com

Personal Safety

OPERATOR MUST READ AND UNDERSTAND ENTIRE OPERATORS MANUAL BEFORE PROCEEDING.
THIS PAGE ONLY PROVIDES AN OVERVIEW OF SAFETY INFORMATION

WARNING

The melter operates at elevated temperature which can cause burns. Operator and anyone working in close proximity to hot materials must always wear protective clothing.

Required clothing includes:



Gloves with wristlets • Heavy leather boots or shoes • Face shield
 • Long sleeve shirt with sleeves rolled down and cuffs buttoned
 • Long pants with no cuffs

GENERAL OPERATION SAFETY:

- Perform a DOT pre-trip inspection before towing.
- Never go under trailer with out first stabilizing trailer.
- Never touch material expelled by melter while still hot.
- Do not operate without safety cover on hose.
- Never leave machine unattended while it is running.
- Keep material door closed at all times except when adding material.
- Always use pin with swivel jack.
- Never use a damaged swivel jack.
- Never stand on any part of the machine.
- Load melter from ground level.
- Do not touch exhaust stacks or mufflers.

Signal Words in Manual:

The signal words **DANGER**, **WARNING** and **CAUTION**, are used to identify levels of hazard seriousness.

DANGER

DANGER! Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING! Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION! Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE: Is used to address practices not related to personal injury.

Trailer Safety

GENERAL SAFETY CONSIDERATIONS:

Operating this machine requires workers to perform work behind the trailer, it is critical to perform the work safely. Communication between the tow vehicle driver and worker is critical. Worker and tow vehicle driver must stay in communication, use an audible device or visual signals to communicate. A worker must never ride on the trailer or position him or herself between the tow vehicle and trailer when the tow vehicle is running. Tow vehicle driver must always be aware of workers position.

Only use a tow vehicle that is equipped with an electronic brake control system and has the appropriate towing capacity. The best means for determining the vehicle's towing capacity is to read the vehicle owner's manual. The owner's manual will provide detailed instructions and limitations, usually accompanied by tips for safe towing. If the owner's manual has been misplaced, most manufacturers provide free downloadable copies on their website. Towing with an undersized tow vehicle can cause the trailer to tow improperly, potentially causing loss of control. Overloading can also cause unintended failures to tow vehicle.

The weight of your trailer listed in this manual is for the base model without any additional accessories or the weight of the sealant material. The weight of your trailer will vary, weigh your machine to determining your Gross Vehicle Weight (GVW). Scales are sometimes available to use at state highway weigh stations, refuse transfer stations and commercial truck stops.

TRAILER STABILIZATION PROCEDURE:



WARNING

Going under the trailer puts a person at risk of severe injury or death. Follow the procedure below to stabilize trailer before going under the trailer.

METHOD #1 HITCH TO VEHICLE:

Park both the tow vehicle and trailer on a flat level surface. Place tow vehicle in park and remove keys.

METHOD #2 UNHITCHED:

Park trailer on a level surface. Place wheel blocks in front of and behind wheels on both sides of the trailer. Inspect your swivel jack thoroughly for damage or abnormal wear, especially if it was subjected to abnormal load or shock. *[If damaged do not use, replace swivel jack.]* Turn the swivel jack to the vertical position and pin in place. Use the swivel jack to decouple trailer from tow vehicle. After raising the hitch coupler, crib, block, or otherwise secure the trailer at once.

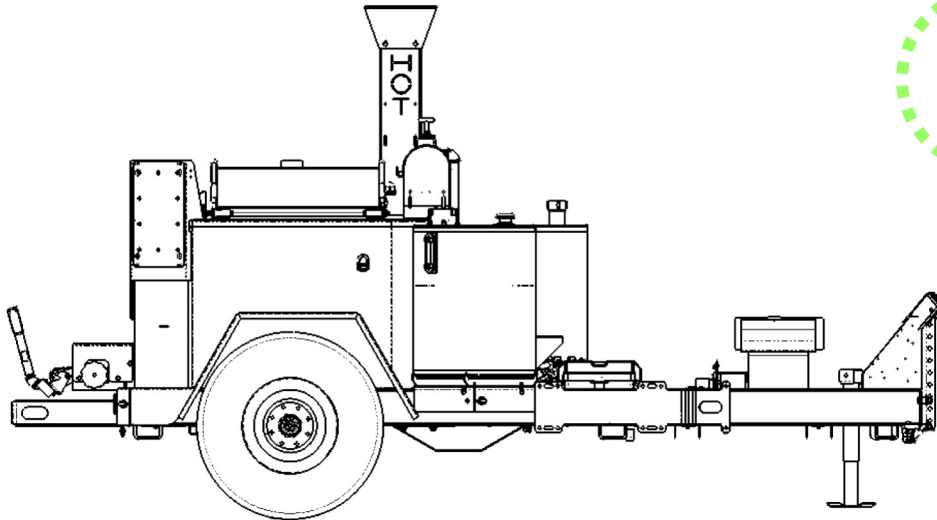


WARNING

BREATHING DIESEL ENGINE EXHAUST EXPOSES YOU TO CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM. ALWAYS START AND OPERATE THE ENGINE IN A WELL-VENTILATED AREA. IF IN AN ENCLOSED AREA, VENT THE EXHAUST TO THE OUTSIDE. DO NOT MODIFY OR TAMPER WITH THE EXHAUST SYSTEM. DO NOT IDLE THE ENGINE EXCEPT AS NECESSARY. FOR MORE INFORMATION GO TO; **WWW.P65WARNINGS.CA.GOV/DIESEL**.

M-Series No Pump Weight and Dimensions

WEIGHT AND DIMENSIONS ARE FOR BASE UNIT WITHOUT OPTIONS.
WEIGHT LISTED DOES NOT INCLUDE MATERIAL WEIGHT.



M1

HEIGHT
85 INCHES
(216 cm)

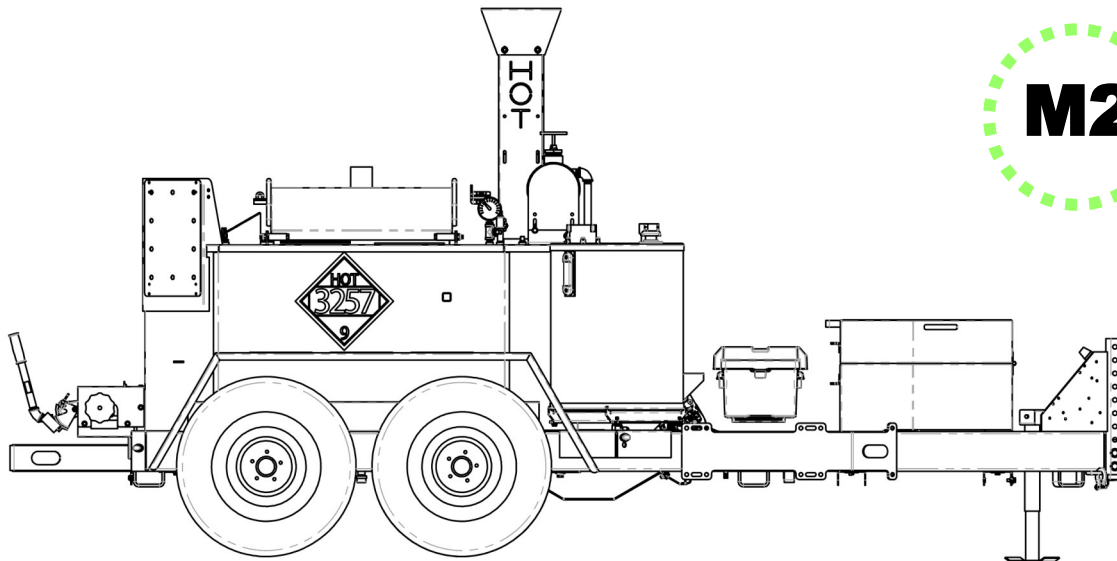
WIDTH
81 INCHES
(208 cm)

LENGTH
148 INCHES
(376 cm)

Sealant Material Tank Size is 150 Gallons

Maximum Safe Operational Sealant Material Tank Capacity is 112 Gallons

BASE
WEIGHT
3700 Lbs.
(1678 kg)



M2

HEIGHT
84 INCHES
(214 cm)

WIDTH
81 INCHES
(206 cm)

LENGTH
164 INCHES
(417 cm)

Sealant Material Tank Size is 230 Gallons

Maximum Safe Operational Sealant Material Tank Capacity is 172 Gallons

BASE
WEIGHT
4500 Lbs.
(2041 kg)



WARNING

***To maintain safe operation of trailer while in transport,
do not fill tank more than 75% of total tank capacity.***

Product specification may change without notice.
Images contained in this manual may differ from the actual product.

M-Series No Pump Weight and Dimensions

WEIGHT AND DIMENSIONS ARE FOR BASE UNIT WITHOUT OPTIONS.
WEIGHT LISTED DOES NOT INCLUDE MATERIAL WEIGHT.

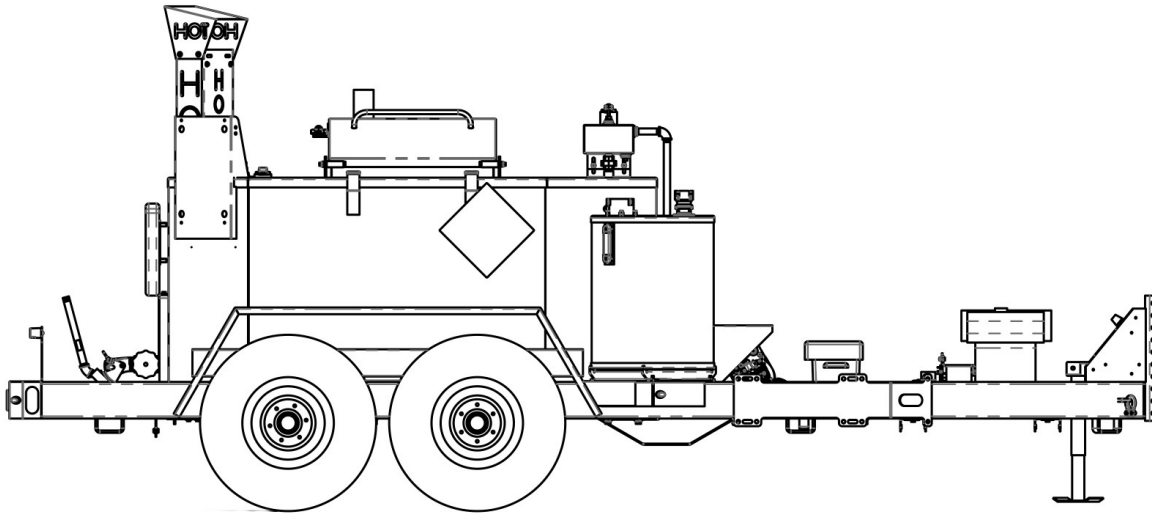


HEIGHT
82 INCHES
(208 cm)

WIDTH
87 INCHES
(221 cm)

LENGTH
166 INCHES
(480 cm)

M4 BASE
WEIGHT
5000 Lbs.
(2267 kg)



Sealant Material Tank Size is 410 Gallons

Maximum Safe Operational Sealant Material Tank Capacity is 307 Gallons



WARNING

*To maintain safe operation of trailer while in transport,
do not fill tank more than 75% of total tank capacity.*

M-Series No Pump Replacement Labels

Inspect your labels and replace any that are damaged.
Contact your dealer to order replacement labels.

WARNING: TO PREVENT BODILY INJURY

HOT MATERIAL

READ OWNER'S MANUAL BEFORE OPERATING

*WEAR GLOVES WITH WRISTLETS
 DO NOT WEAR OPEN WRIST GLOVES.
 *WEAR LONG PANTS
 *WEAR LONG SLEEVE SHIRT WITH SLEEVES ROLLED DOWN AND BUTTONED.
 *WEAR HIGH TOP SAFETY SHOES.
 *WEAR FACE MASK WHEN LOADING MATERIAL
 *NEVER LEAVE MACHINE UNATTENDED WHILE RUNNING.
 *KEEP MATERIAL DOOR CLOSED EXCEPT WHEN LOADING.
 *STAND CLEAR OF OUTLET SPIGOT WHEN OPENING.
 *NEVER STAND ON THE MACHINE.
 *STAY CLEAR OF EXHAUST AREA.

WARNING
 TO PREVENT SERIOUS INJURY

ALERTA
 PARA PREVENIR UN ACCIDENTE SERIO

HEARING PROTECTION
 PROTECCION PARA LOS OIDOS

EYE OR FACE PROTECTION
 PROTECCION PARA LOS OJOS Y LA CARA

HEAD PROTECTION
 PROTECCION PARA LA CABEZA

RESPIRATOR
 MASCARA RESPIRATORIA

FAILURE TO OBSERVE THE SAFETY RULES COULD RESULT IN SERIOUS BODILY INJURY OR DEATH.

WARNING!

OIL MAY BE VERY HOT! ALLOW TO COOL BEFORE REPLACING OR CHECKING LEVEL.

Oil Thermometer

Vent Plug

Vent plug must be removed when filling tank with heat transfer oil.

Replace with an ISO 68 heat transfer oil or equivalent

Capacity: 150 - 21 Gal.
230 - 28 Gal.
410 - 36 Gal.

* Use dipstick to verify level when filling

HYDRAULIC OIL

CHECK HYDRAULIC OIL LEVEL BEFORE STARTING:

1. CHECK SIGHT GAUGE TO VERIFY FLUID LEVEL
 2. CHANGE HYDRAULIC OIL, FILTER AND INSPECT STRAINER ANNUALLY
 3. REPLACE OIL WITH MV 32 HYDRAULIC OIL OR EQUIVALENT
 4. CAPACITY: SEE OWNER'S MANUAL FOR TANK SIZE

DIESEL FUEL ONLY

MANUFACTURER RECOMMENDS
ASTM D975 NO. 2-D S15
(THE GENERAL AUTOMOTIVE DIESEL ENGINE ALL-PURPOSE FUEL OIL) OR EQUIVALENT WHICH FULLY MEETS THE ABOVE REQUIREMENTS.

Operators Manual

Please Read and Understand
Entire Manual Before Operating Equipment

PN: 161441 & 161481

WARNING

Crush Hazard
Always use pin with swivel jack.
 Never use damaged jack.
 Never place blocking under jack

161808(2)

WARNING

Crush Hazard
 Perform Trailer Stabilizing Procedure found in operator's manual before going under trailer.

161808(1)

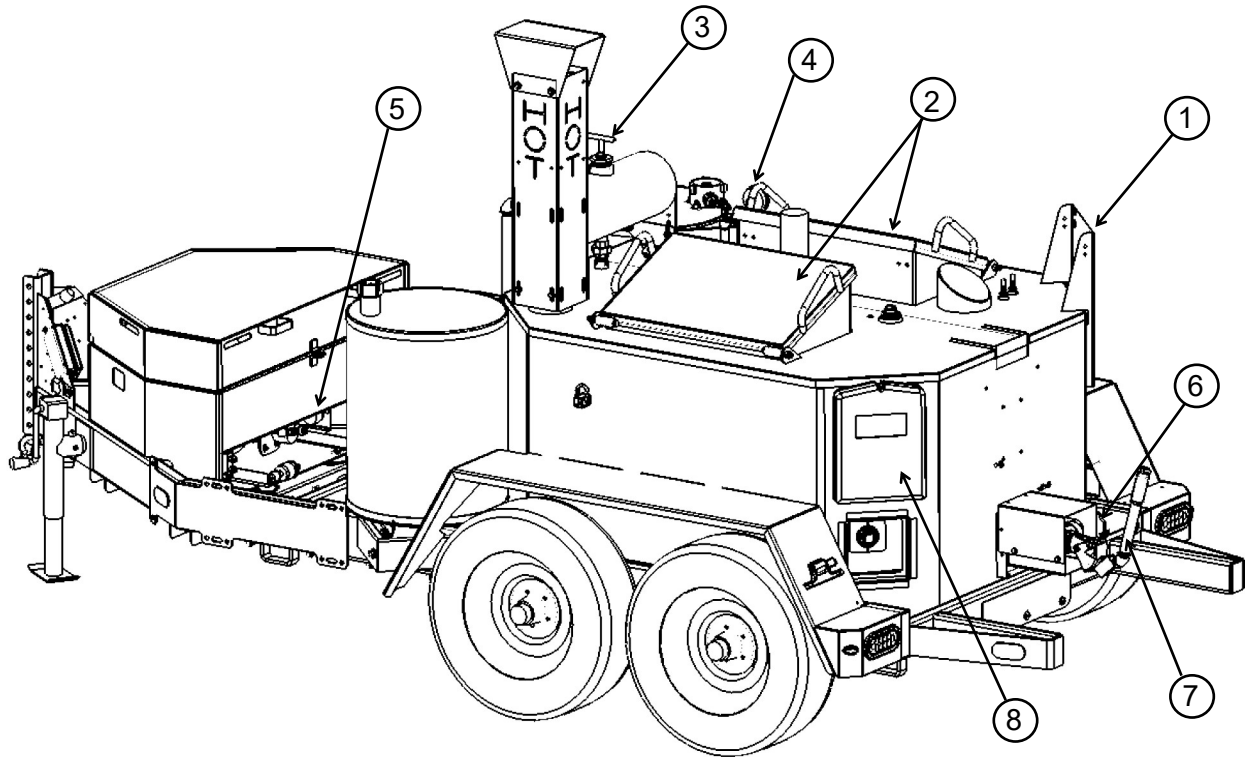
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 FOR MORE INFORMATION GO TO WWW.P65WARNINGS.CA.GOV/DIESEL

161808(3)

PN: 161808

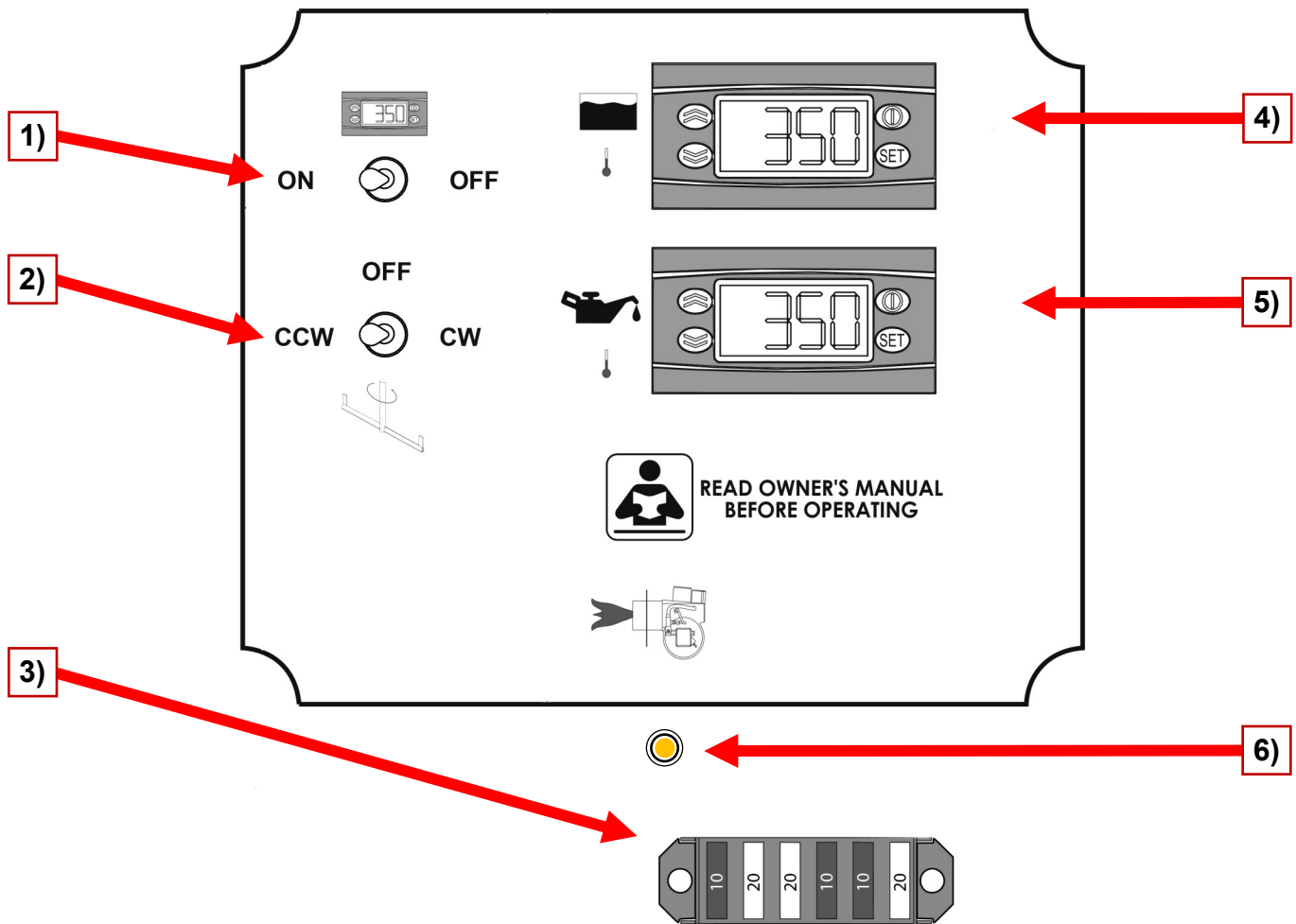
M-Series No Pump Feature Overview



NOTE: This general outline will familiarize you with this machine, dependent on model, location and style and may vary with options installed. Read through the entire manual before putting this machine into operation.

- 1) **Main Control Panel:** The main control panel is used to control the primary functions of the melter, including simple user controls for burner "ON" / "OFF" as well as control of the sealant material tank agitator. You can also monitor or adjust the temperature of the sealant material and heat transfer oil on the control panel. See page 10 for more information on the main control panel.
- 2) **Loading Door:** Place the sealant material block or biscuit on the open door to load the sealant melting tank. See page 11 for more information on safely loading sealant material into the melter.
- 3) **Heat Transfer Oil Level Dipstick:** Allows you to monitor the amount of heat transfer oil in the melter oil tank. See page 20 for more information on using the heat transfer oil dipstick.
- 4) **Heat Transfer Oil Temperature Gauge:** Displays the heat transfer oil temperature.
- 5) **Ignition Switch:** Engine key "OFF" / "ON" / "GL" / "ST" (GL = Glow Plug, ST = Start).
- 6) **Main Tank Valve:** Opens and closes the main tank valve to allow sealant material flow to the material sealant flow valve.
- 7) **Material Flow Valve:** Controls the flow rate of sealant by varying the valve opening.
- 8) **Instruction Manual Case:** Keeps the manual and important documentation protected.

M-Series No Pump Control Panel and Its Functions



CONTROL PANEL:

The Control Panel is used to operate the melter control system

- 1) **TEMPERATURE CONTROLLER ON / OFF SWITCH:** When this switch is on, the digital controllers to the right will be energized and they will be controlling the material tank burner.
- 2) **AGITATOR CCW / OFF / CW SWITCH:** This switch controls the rotation of the agitator from counter-clockwise (CCW) or clockwise (CW). If the switch is in the center position, the agitator will not rotate.
- 3) **FUSE BLOCK:** The Fuse Block is where the control panel fuses are accessed as well as where spare fuses are stored.
- 4) **SEALANT TEMPERATURE CONTROLLER:** The control system on your CIMLINE melter has been factory set to run the most common types of sealant materials. See page 15 to override or change settings.
- 5) **HEAT TRANSFER OIL CONTROLLER:** The control system on you CIMLINE melter has been factory set to not exceed the OEM heat transfer oil limits for maximum temperature. It is advised to only use heat transfer oil from CIMLINE. See Page 17 for heat transfer oil information and specifications.
- 6) **BURNER INDICATOR LIGHT:** When this amber light is on, the digital controllers are sending an "on" signal to the material tank burner.

M-Series No Pump Start Up Procedure

LOAD FRESH SEALANT MATERIAL INTO TANK:

All sealant material must be clean. Keep all foreign matter out of melting tank to avoid damage to systems.

- 1) Open the material door (A) and place the block of sealant material (B) on the open door against the holder (C).
- 2) Push door to the closed position.



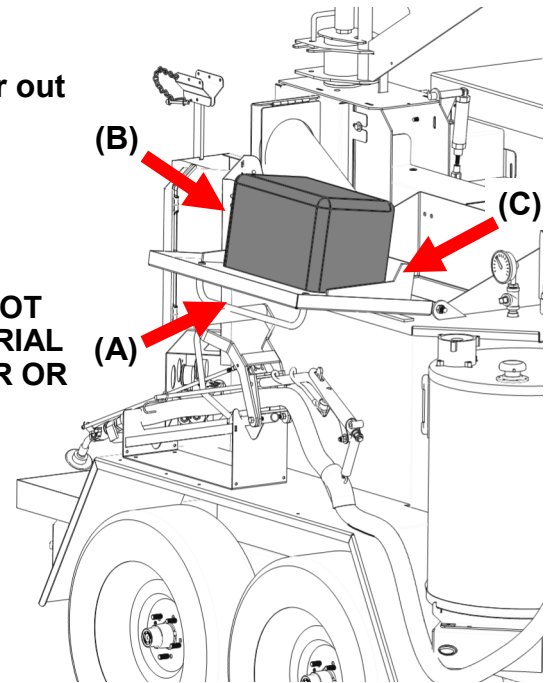
WARNING

TO PREVENT CONTACT WITH HOT SEALANT DO NOT DROP MATERIAL INTO THE MELTER WITH EITHER OR BOTH DOORS OPEN.

LOADING OPERATOR MUST WEAR ALL PROTECTIVE CLOTHING COVERED ON PAGE 4.

LOAD MATERIAL FROM GROUND ONLY.

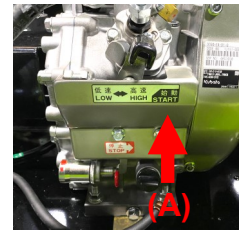
NEVER CLIMB ON THE TRAILER TO LOAD.



1. SET THROTTLE CONTROL FOR ENGINE START:

- A) Set the throttle lever to the “START” position.

NOTE: When diesel engine starts successfully and its idle stabilizes as engine begins to warm up, the throttle will need to be adjusted slightly lower for normal operations.



2. START ENGINE:

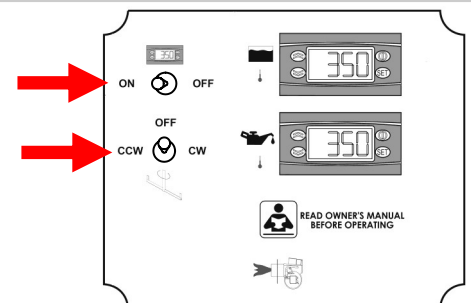
- A) Turn key on engine control to “GL” and hold.
- B) Hold Key on “GL” 3-5 seconds to heat glow plug preheater on engine.
- C) Turn key to “ST” and release when engine starts.
- D) Allow key to return to “ON” while engine is running.



3. VERIFY SWITCHES ON CONTROL PANEL:

- A) Top Tank Burner control switch inside control box is set to “ON”.
- B) Second Agitator control switch inside the control box is “OFF” during initial start up and material tank warm up.

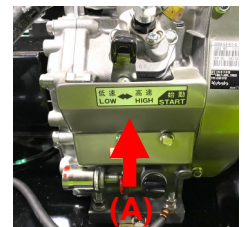
NOTE: The agitator should remain OFF until the material becomes liquid enough to support agitator rotation.



4. SET THROTTLE CONTROL FOR NORMAL OPERATIONS:

- A) Set the throttle lever to about “MID THROTTLE” position.

NOTE: Mid throttle should allow the engine, electrical and connected hydraulic pump to operate normally. If needed, adjust the throttle for best performance in your work environment.

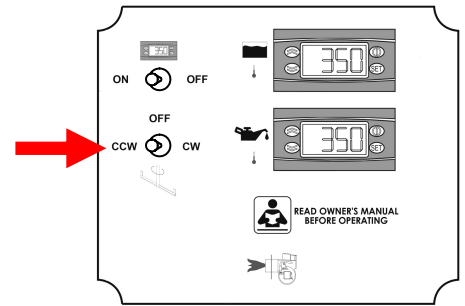


M-Series No Pump Start Up Procedure

5. TURN AGITATOR SWITCH TO “ON”:

- A) After about 30 minutes of initial run time the material in the tank should be liquid enough to support agitator rotation
- B) Turn (second) Agitator control switch to “CCW” inside the control box to begin agitating the material in the tank.

NOTE: The agitator should remain off until the material becomes liquid enough to support agitator rotation.

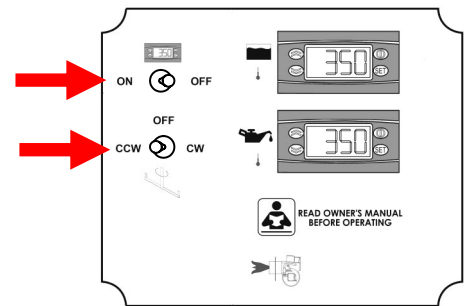


M-Series No Pump Shut Down Procedure

1. VERIFY SWITCHES ON CONTROL PANEL:

- A) Top Tank Burner control switch inside control box is set to “OFF”.
- B) Second Agitator control switch inside the control box is “ON” during material tank cool down.

NOTE: The engine and agitator should remain ON until the heat transfer oil temperature comes down close to, or is below, the normal material application temperature.



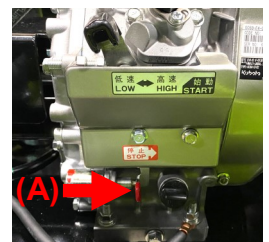
2. SET THROTTLE CONTROL FOR SHUT DOWN:

- A) Set the throttle lever to “LOW THROTTLE” position.



3. PRESS THE ENGINE “STOP” LEVER:

- A) Press and hold the engine “STOP” Lever (red) just below the throttle control to shut the engine off.



4. SHUT DOWN ENGINE:

- A) Turn key on engine control to “OFF”.
- B) Remove and store the key in a secure place.



NOTICE

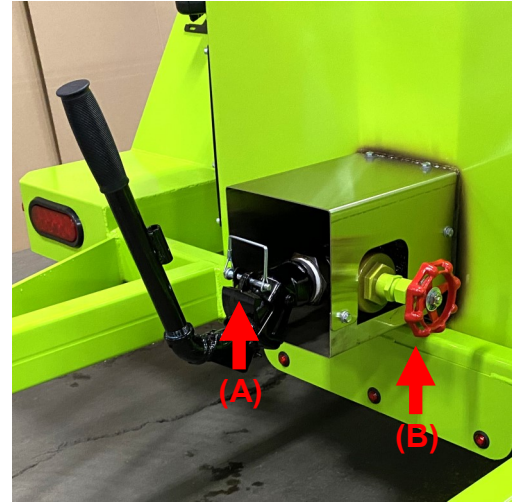
PROPER COOL DOWN: It is important that the material be allowed to cool down evenly to ensure the longevity of material that is being heated multiple times in the tank. With the tank burner OFF, watch the analog heat transfer oil temperature gauge while the agitator and engine runs during cool down. Shut the system down fully when the heat transfer oil reduces below the normal application temperature of the material you are using in the tank.



M-Series No Pump Pouring Material Procedure

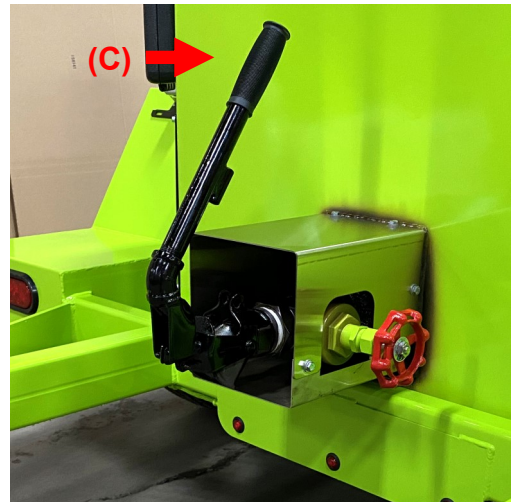
1. PREPARE DRAW OFF VALVES:

- A) Remove the safety locking pin from material flow valve
- B) Open main tank valve fully by turning counter clock wise.



2. OPENING VALVE - POURING MATERIAL:

- C) Push the outlet valve forward, towards the material tank, to begin the flow of hot material.



3. CLOSING VALVE - HALTING MATERIAL FLOW:

- D) Pull the outlet valve backward, away from the material tank, to stop the flow of hot material.



4. WHEN APPLICATION IS FINISHED:

- E) When finished with the material application, close the main tank valve (B) fully by turning it clock wise.
- F) When finished with the material application replace the safety locking pin (A) on the material flow valve.

**CAUTION**

Use caution when in proximity of flowing hot material. This includes proper face and skin protection.

M-Series No Pump Sealant Material Tank Capacity

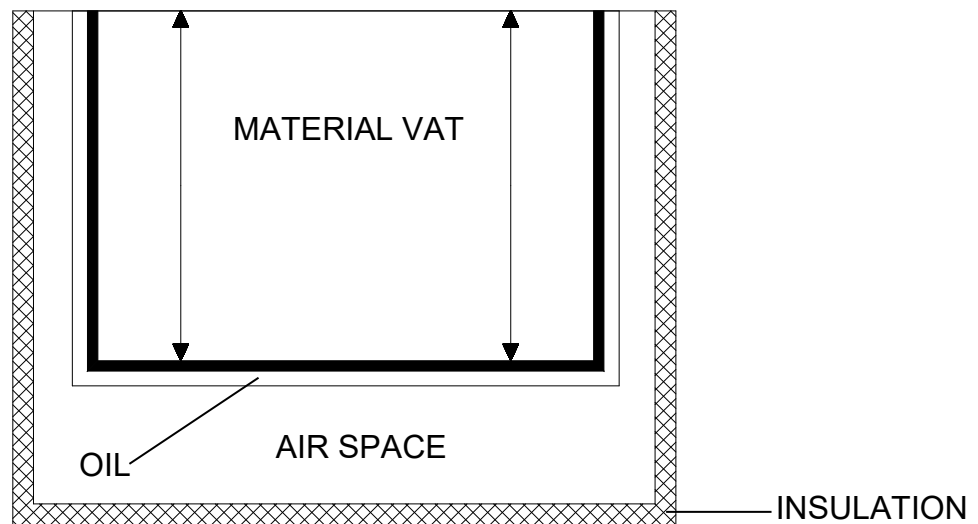
The amount of sealant material can be estimated by measuring the depth of sealant material in the tank.



WARNING

To maintain safe operation of trailer while in transport, do not fill tank more than 75% of total tank capacity.

MATERIAL CAPACITY (Tank cutaway)



Material Depth	M1 GALLONS (6.8 Gallons/Inch)	M2 GALLONS (9.7 Gallons/Inch)	M4 GALLONS (13.9 Gallons/Inch)
2"	13.6	19.4	27.8
4"	27.2	38.8	55.6
6"	40.8	58.2	83.4
8"	54.4	77.6	111.2
10"	68	97	139
12"	81.6	116.4	166.8
14"	95.2	135.8	194.6
16"	108.8	155.2	222.4
16.5"	112.2 (Max)	160.1	229.4
17.5"		170.6 (Max)	243.3
18"			250.3
20"			278.1
22"			305.9 (Max)

M-Series No Pump Temperature Control Settings

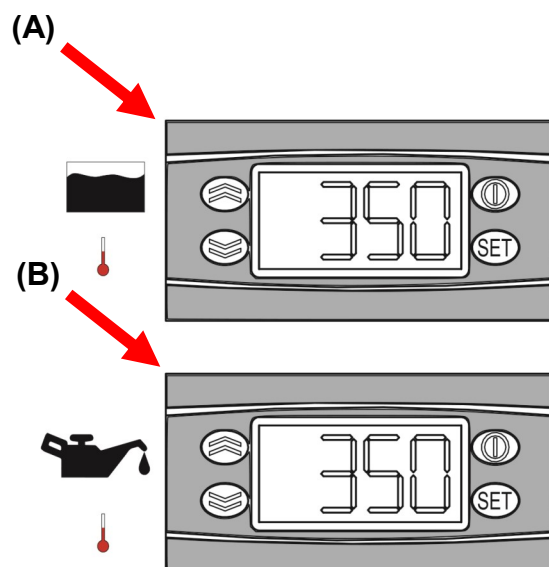
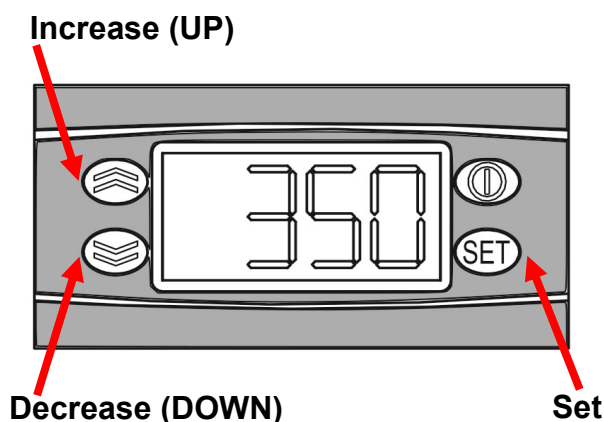
MODIFYING SEALANT TEMPERATURE CONTROL SETTINGS:

NOTICE

Modifying any of the M-Series Applicator Temperature Controls is only intended to be done by trained, experienced operators.

The Sealant Temperature Control (A) on your CIMLINE melter applicator has been factory set to run the most common types of sealants. These sealants have an application temperature of 380° F (193°C). With some sealants, it may require a change to the controller to achieve the appropriate application temperature. To achieve this, open the control box and alter the Sealant Temperature Controller (top controller) by following the directions below.

- 1) Press the "SET" button twice.
- 2) "SP1" (Set Point 1) is displayed.
- 3) Press the "SET" button.
- 4) Current material temperature setting is displayed (factory default is 380°F (193°C)).
- 5) Use the "Up / Down" arrow buttons to change to the desired temperature.
- 6) Press the "SET" button.
- 7) Let the controller time out. The controller will now be changed and the updates will be saved.



OTHER MELTER NOTES:

On a new CIMLINE Melter Applicator or a unit that has been idle for some time, it is recommended that you slowly raise the oil temperature to 250°F (121°C) and hold there for approximately 20 to 30 minutes. This will help evaporate any water condensation that may be in the oil chamber.

To do this it will be necessary to temporarily change the heat transfer oil temperature setting.

The heat transfer oil control (B) on your CIMLINE melter has been factory set to 550° F (288°C). To temporarily change the max temperature for evaporating condensation follow the same process as above and apply to the heat transfer oil temperature controller (B). Run the melter applicator machine maintaining the 250°F (121°C) heat transfer oil temperature for 20 to 30 minutes. Follow the instructions again to return the heat transfer oil temperature controller back to the factory setting of 550°F (288°C).



WARNING

Operating the heat transfer oil controller at temperatures higher than the factory recommended 550°F (288°C) can risk death or serious injury, equipment damage and will shortening the life of the oil.

M-Series No Pump Fluid and Components Specs

ENGINE:

The operation and life of the engine depends on you and your operators. Do not start engine until the engine pre-check is complete. The engine pre-check consists of checking the oil, the fuel level, the hydraulic oil level and the air filter. For more details about your engine please refer to the engine operator maintenance manual and warranty provided with your sealant melter applicator.

NOTICE

When breaking in a new sealant melter applicator, CIMLINE recommends running the engine for one hour with no load prior to actual use on the job.

AIR CLEANER:

Due to the dusty conditions that can be created by road work, it is essential to check the engine air cleaner element daily. Remove element and shake out the accumulated dust and dirt. Wipe out dirt from inside cover and from housing. Reference engine manual for washing instructions. CIMLINE recommends stocking replacement filters.

ENGINE OIL:

Use high quality detergent oil of API (American Petroleum Institute) service class CF or higher grade. Select the viscosity based on the air temperature at the time of operation. Reference your engine manual for other recommendations.

Hydraulic Reserve Capacity	33 Gallons (125L)
Hydraulic Oil Type	Conoco MV32 or equivalent
Diesel Fuel Capacity	33 Gallons (125L)
Diesel Fuel Type	ASTM D975 No.2
Heat Transfer Oil Type	See specification on next page

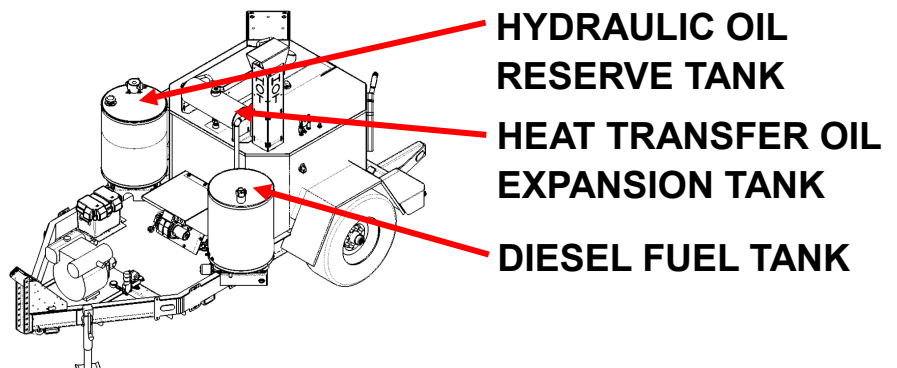
MELTER UNIT	HEAT TRANSFER OIL CAPACITY	PUMP Hydraulic Relief Setting	AGITATOR Hydraulic Relief Setting
M1 NO PUMP	25 Gal (95 L)	N/A	1100 psi (76 Bar)
M2 NO PUMP	30 Gal (114 L)	N/A	800 psi (55 Bar)
M4 NO PUMP	42 Gal (159 L)	N/A	800 psi (55 Bar)

NOTICE

**Only the oils specified, or equal, may be used in this system.
(Always check your local and state regulations before disposal)**

These are petroleum based products. CIMLINE recommends that you do not mix oil brands.

Mixing any oils (Engine oil, hydraulic oil, transmission fluid, etc.) adversely affects each Manufacturers formula.



M-Series No Pump Heat Transfer Oil Specification

ISO GRADE 68 HEAT TRANSFER OIL SPECIFICATION:

To insure maximum safety and performance, CIMLINE recommends you purchase your oil through CIMLINE directly. CIMLINE heat transfer oil can be ordered in 5 or 30 gallon (19L and 114L) bulk quantities and is also included when ordering a CIMLINE maintenance kit. PN 409185 (M1 & M2), PN 409186 (M4, M4 Dual and MA4).

There are many different types of heat transfer oils on the international marketplace. It is critical that you use the proper oil to prevent poor performance, oil flashing, or auto-ignition. To conform to most government bids and to supply a readily available product, ISO Grade 68 heat transfer oil specifications listed should be the same as the table to the right.

ISO Viscosity Grade	68
API Gravity	30.7
Viscosity cSt @ 40° C°	68
Flash Point, COC, F°	420° F
Pour Point, F°	10° F

NOTICE

Using oil that does not meet CIMLINE heat transfer oil specification is cause for a voided warranty.

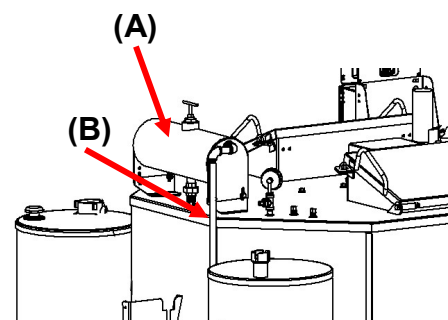
REFERENCE INFORMATION:

GENERAL DESCRIPTION - Due to the extremely high temperatures experienced in these applications, the oil must provide excellent thermal stability to resist oxidation, while also providing good resistance to carbon deposits (coking). CIMLINE heat transfer oil is fully formulated to provide long service in closed low pressure heat transfer systems such as asphalt processing plants and sealant material melter's working at temperatures up to 550°F. Low volatility control enables operation in closed high temperature, low pressure systems. Excellent conductivity provides rapid heating and cooling properties in various operations while maintain longer life.

ISO GRADE - Is a viscosity index (ability to flow/thickness). An ISO Grade 68 oil can be an engine oil, hydraulic oil, etc. The manufacturer uses different additives to make the oil conform to different applications. **YOU MUST CLARIFY WITH THE SUPPLIER** that the oil is to be used in a heat transfer system to avoid any potential problems. The correct and recommended oil is available from CIMLINE in 5 and 30 gallon (19L and 114L) containers for ship-out.

FLASH POINT - Test in which a container of oil is heated until an open flame will flash when passed over the fumes.

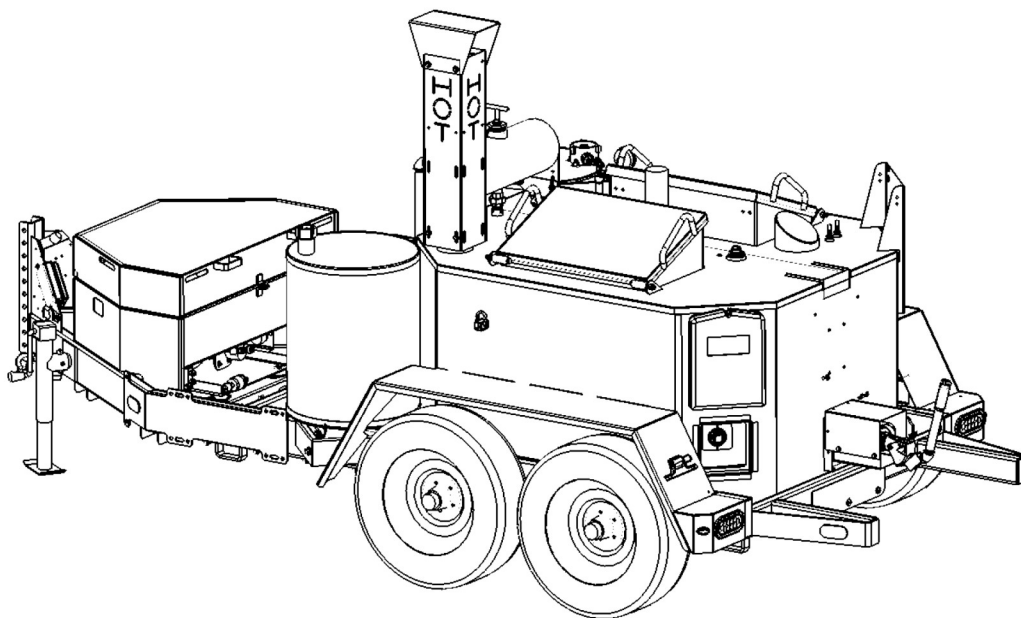
NOTE: CIMLINE melter applicators use an expansion tank (A), when the oil heats up and expands, it flows into the expansion tank. The expansion tank is cooler since it is not part of the oil jacketed heating system and is surrounded by outside airflow. The only exposure the hot oil has to the atmosphere is through a 3/4" vent/overflow pipe (B). This is done so the oil in the oil jacketed tank can run at higher than the flash point temperatures. Only the lower temperature oil fumes are exposed to the atmosphere.



M-Series No Pump Maintenance And Troubleshooting

MAINTENANCE, TROUBLESHOOTING AND PARTS DIAGRAMS:

M-Series No Pump Maintenance Schedule.....	19
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M-Series No Pump Maintenance - Hydraulic Oil Servicing	21-22
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M-Series No Pump Maintenance - Trouble Shooting Guide.....	30
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M-Series Trailer Wiring Diagram and Parts	32
M-Series Hydraulic Reservoir and Diesel Tank Parts	33
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M-Series Miscellaneous Components and Parts	38-39



M-Series No Pump Maintenance Schedule

Maintenance Schedule / Operation	Every Day	Every 25 Hrs.	Every 100 Hrs.	Every 200 Hrs.	Every 500 Hrs. or Yearly
Check engine fuel level (add if low)	X				
Check engine oil and heat transfer oil (add if low)	X				
Check hydraulic oil (add if low)	X				
Check engine air cleaner	X				
Inspect and clean engine air pre-cleaner		X			
Clean out sealant material system		X			
Service engine air cleaner element/gaskets				X	
Inspect sealant material flow plumbing				X	
Inspect tank burner nozzle, electrode & head position (adjust if necessary)				X	
Change engine oil and oil filter				X	
Grease agitator bearing block (load adapter)				X	
Replace engine fuel filter				X	
Inspect diesel tank burner electric eye (clean if dirty)					X
Grease trailer wheel bearings					X
Inspect tank burner chamber lining insulation (replace if excessive cracking)					X
Inspect engine starting motor					X
Replace hydraulic oil					X
Replace hydraulic return filter					X
Replace hydraulic suction strainer					X
Replace tank burner nozzle					X
Change heat transfer oil					X
Change diesel tank fuel filter					X

M-Series No Pump Changing Heat Transfer Oil

HEAT TRANSFER OIL LONGEVITY:

The regular interval for changing heat transfer oil is once annually or every 500 hours. If the time frame between heat transfer oil changes is not known a significant difference in temperature from the digital oil controller readout and the analog gauge may mean the oil has reached it's service life and is due to be changed. Oil that is not changed regularly can cause numerous problems including; slow start-up times, incorrect controller temperature readings, oil crystalizing inside the vessel and damage to the heat sensing probes.



DANGER

Going under the trailer puts a person at risk of serious injury or death. Follow procedure in the manual to stabilize trailer before going under the trailer.



WARNING

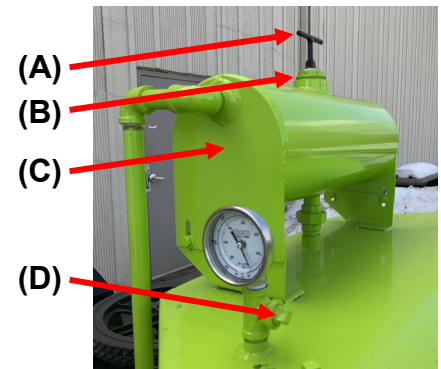
The melter operates at elevated temperatures which can cause burns. Be sure the heat transfer oil is cool before performing maintenance.

NOTICE

Using oil that does not meet CIMLINE Heat Transfer Oil specification is cause for a voided warranty.

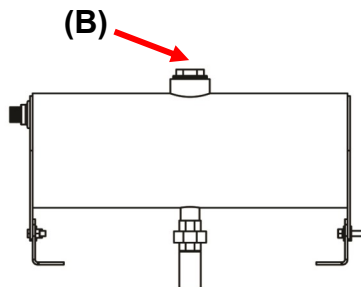
CHANGING/REPLACEMENT OF HEAT TRANSFER OIL:

- 1) Remove the dipstick (A) and the larger hex head cap (B) on the top of the expansion tank (C).
- 2) Remove the fill and drain breather plug (D) at the base of the analog temperature gauge when draining and filling heat transfer oil.
- 3) Drain from the bottom of the vessel (under the trailer) through the 3/4" pipe cap (E), or by suction through the hex head cap on the top of the expansion tank (B). Use two wrenches to remove the drain cap, you do not want the pipe to come unscrewed, just the cap on the end of the pipe.
- 4) Replace the 3/4" drain plug (E) and refill with the correct amount of heat transfer oil as stated on page 21 by pouring through the hex head cap (B).
- 5) Replace the hex head cap, the fill and drain breather plug, and check for the proper heat transfer oil level using the dipstick.

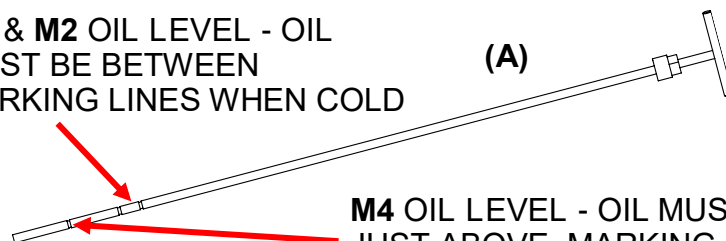


CHECKING HEAT TRANSFER OIL LEVEL:

NOTE: Use dipstick (A) as provided for checking heat transfer oil level when cold.



M1 & M2 OIL LEVEL - OIL MUST BE BETWEEN MARKING LINES WHEN COLD



M4 OIL LEVEL - OIL MUST BE AT, OR JUST ABOVE, MARKING LINE WHEN COLD

NOTICE

Do not operate machine when heat transfer oil is below the marking line or significant damage to machine can occur.

M-Series No Pump Hydraulic Oil Servicing

HYDRAULIC OIL LONGEVITY:

The regular interval for changing hydraulic oil, replacing the return filter and recirculation strainer is once annually or every 500 hours. Hydraulic oil that is not changed regularly can cause numerous problems including; poor or sluggish control operation, incorrect pressure readings and damage to the hydraulic actuators and pumps.

The operation and life of the hydraulic system depends on you and your operators. Do not start engine until the engine pre-check is complete which should include the inspection of hydraulic oil level and the overall hydraulic system.

HYDRAULIC OIL:

Use high quality Conoco MV32 or equivalent hydraulic oil. CIMLINE recommends that you do not mix oil brands. Mixing any oils (Engine oil, hydraulic oil, etc.) adversely affects each manufacturers formula. The maximum capacity of the hydraulic reserve tank is 33 gallons (125L).

HYDRAULIC OIL CAPACITY:

The maximum capacity of the hydraulic tank is 33 gallons, but the actual fill level of hydraulic oil is between 27 and 28 gallons. Do not fill the tank higher than the top level of the site gauge (G) on the tank. Normal operating capacity of the hydraulic oil should be around the top 3/4 on the site gauge.



DANGER

Going under the trailer puts a person at risk of serious injury or death. Follow procedure in the manual to stabilize trailer before going under the trailer.



WARNING

The melter operates at elevated temperatures which can cause burns. Be sure the hydraulic oil is cool before performing maintenance.

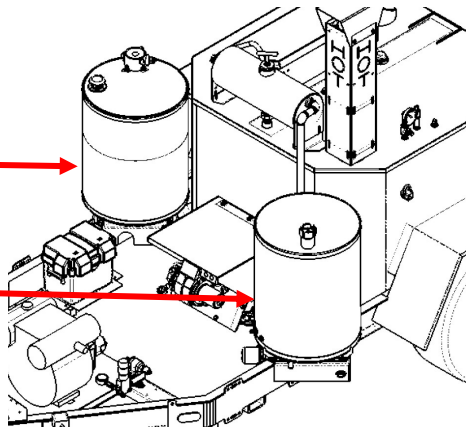
NOTICE

Using oil that does not meet CIMLINE Hydraulic Oil specification is cause for a voided warranty.

#	PART #	DESCRIPTION
A-D	172127	Return Filter Assembly (Non-Compressor)
C	170407	Element - Return Filter (Non-Compressor)
E	172186	Suction Strainer
G	171631	Hydraulic Tank Sight Gauge

**HYDRAULIC OIL
RESERVE TANK**

**DIESEL
FUEL TANK**



(G)



M-Series Non Pump Hydraulic Oil Servicing

SERVICING THE HYDRAULIC OIL:

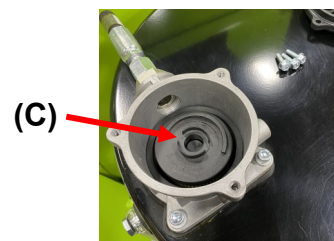
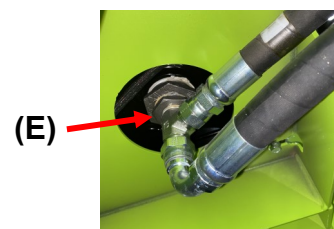
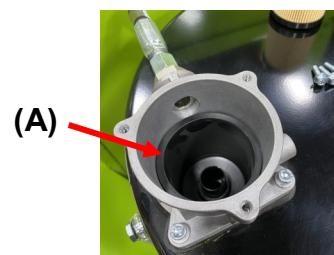
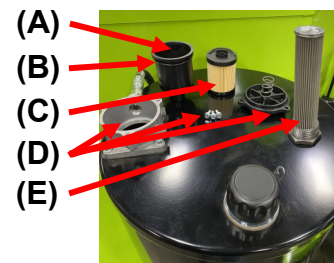
- 1) At the top of the hydraulic tank, loosen the three bolts holding the hydraulic return filter assembly cap (D) on the filter assembly base.
NOTE - the cap is spring loaded so be ready for the cap to “pop up” as the bolts are removed! Be careful to not lose the large o-ring that seals the cap to the filter assembly itself.
- 2) Pull out the return filter cartridge and inspect for metal shavings and/or unusual debris.
- 3) Remove the return filter cup (A) while being careful not to lose the o-ring (B) that seals the cup to the inside of the return filter assembly, it can easily fall back into the tank if you do not capture it as you lift out the filter cup.
- 4) Disconnect the hydraulic lines at the base of the tank and capture the hydraulic oil in an appropriate container. Be prepared to capture nearly 30 gallons of fluid while the reservoir tank drains.



WARNING

The melter operates at elevated temperatures which can cause burns. Be sure the hydraulic oil is cool before performing maintenance.

- 5) Unscrew and remove the suction strainer (E) from the bottom of the tank and replace with Cimline part number 172186.
- 6) Apply pipe thread tape and an appropriate amount of thread sealant to the threads of the suction strainer (E) and any other pipe threads in this assembly. The hydraulic JIC compression type connections do not require thread tape or sealant.
- 7) Tighten all the components of the suction strainer (E) and related hydraulic connections and leak test them before filling the tank completely with hydraulic oil.
- 8) Reassemble the return filter assembly in reverse of the disassembly instructions being careful to not drop the filter cup o-ring (B) into the tank while replacing the filter cup (A) into the return filter base.
- 9) Place a new filter cartridge (C), Cimline part number 170407, into the filter cup (A) and seat properly all the way into the cup.
- 10) Replace the filter cap (D) back onto the return filter assembly base. Be careful to seat the large o-ring in the cap properly (F) in order to seal the cap on the base. Alternate tightening the three lid screws to evenly seat the lid and not pinch or distort the o-ring.
- 11) Fill the tank using high quality Conoco MV32 or equivalent hydraulic oil. The maximum capacity of the hydraulic tank is 33 gallons, but the actual fill level of hydraulic oil is between 27 and 28 gallons. Do not fill the tank higher than the top level of the site gauge (G) on the tank. Normal operating capacity of the hydraulic oil should be around the top 3/4 on the site gauge window.



NOTICE

Using oil that does not meet CIMLINE hydraulic oil specification is cause for a voided warranty.

M-Series No Pump Tank Burner

TANK BURNER:

Have your equipment inspected at regular intervals by a qualified service agency to assure continued proper operation. The burner should be adjusted using dedicated combustion test equipment. Failure to properly set the burner could result in inefficient operation, equipment damage and/or conditions that could potentially cause severe personal injury, death or substantial property damage.



WARNING

Professional Service Required: Incorrect installation, adjustment, and use of this burner could result in severe personal injury, death, or substantial property damage.

OWNER SERVICE AND MAINTENANCE

Daily:

Check the area around your burner/equipment to make sure:

- A. Nothing is blocking the burner inlet air openings.
- B. Air ventilation openings are clean and unobstructed and the exhaust is not crusted.
- C. No combustible materials are stored near the equipment.

Beckett Corp. ADC 12V Tank Burner

Capacity: Firing rate 0.75 - 2.50 GPH, Input 105,000 - 350,000 Btu/h

Fuel: (USA) No.1 or No.2 diesel fuel

Electrical: Power Supply 13.5Vdc, Operating load w/igniter on 15amps, w/igniter off 8-10amps

Pump: Outlet pressure 140psi

Regular Service/Maintenance:

- A. The following components/assemblies should be checked/adjusted/replaced on a regular basis. See page 48 for more information and the tank burner parts exploded view.
- B. Replace the diesel fuel supply line filter. The line filter cartridge must be replaced to avoid contamination of the pump and nozzle.
- C. Inspect the diesel supply system. All fittings should be leak-tight.
- D. Verify the nozzle is the one originally specified by CIMLINE and always replace the nozzle with one having the exact specifications from CIMLINE.
- E. Clean and inspect the electrodes for damage, replacing any that are cracked or chipped.
- F. Check electrode tip settings. Replace electrodes if tips are rounded.
- G. Inspect the igniter spring contacts. Clean or replace if corroded.
- H. Clean the cad cell (electric eye), if applicable.
- I. Inspect all gaskets including the igniter base plate gasket. Replace any that are damaged or missing.
- J. Clean the blower wheel, air inlet, air guide, retention head and static plate of any dirt, asphalt or other material.
- K. Check motor current. The amp draw should not exceed the nameplate rating. Check all wiring for loose connections or damaged insulation.
- L. Check the pump pressure and cutoff function.
- M. Check ignition system for proper operation.
- N. Inspect the exhaust system for soot accumulation or other restriction.

Extended Down Time:

If the equipment will be stored for an extended period of time, insure that the fuel tank is full and add a fuel stabilizer to the tank.

M-Series No Pump Tank Burner

TANK BURNER TROUBLESHOOTING:

Oil burners that are designed for use on road maintenance equipment are built to take temperature extremes, vibration, and rough handling. When performing the following troubleshooting steps, we assume that the oil burner motor and ignition transformer operate continuously and the oil solenoid valve, which controls oil flow, is cycled by the equipment controls. We also assume that there is power to the burner and fuel in the tank.

Symptom	Possible Cause
Fuel Not Igniting	<p>If the burner is not igniting, the burner motor, drive coupling, and fuel pump are operating and fuel is flowing to the nozzle through the solenoid valve, check the following possibilities.</p> <p>Check the air shutter adjustment. If it is opened too far, the flow of air may prevent the arc from reaching the fuel spray. This may appear as a white vapor exhaust from the heater. The ignition system may have failed to supply an adequate arc to ignite the fuel. Check the battery and charging system to insure a continuous supply of 12 to 16 volts DC (15 amps). Check the electrodes for wear and damage. Insure that the electrodes are adjusted properly.</p>
No Flame	<p>If there is no flame, the burner motor and igniter operate continuously and the oil solenoid valve is functional, check the following possibilities.</p> <p>Check for a plugged fuel nozzle. If the coil on the solenoid valve is actuating, insure the valve is opening and closing properly. Check for sufficient fuel pressure. Pressure is 140 psig with valve energized. Check the pump pressure. Check for air in fuel lines. Check burner for broken motor coupling. If the coupling is broken check pump rotation prior to replacing the coupling. Check for contaminated fuel and/or partially plugged fuel filter.</p>
Motor Not Operating	<p>If the blower motor is not operating, check the following possibilities.</p> <p>Check voltage at the motor to insure that switches and relays, in line with the motor, are operating properly. Check pump and motor shaft operation. They should work freely without binding.</p>
No Fuel Spray	<p>If the blower motor is operating, there is fuel in the tank, but oil does not spray out the end of the nozzle, check the following possibilities.</p> <p>Check for a broken or stripped coupling between the pump and the motor. Check the pump output for fuel. Check operation of the fuel valve. Check for a plugged fuel nozzle. Check for air in the fuel line. Check for fuel contamination or plugged filter.</p>
Fluctuation Or No Pump Pressure	<p>If the pump pressure, as determined by a pressure gauge, is erratic or does not exist, check the following possibilities.</p> <p>Check motor rotational speed. Low rpm can cause erratic or no pump pressure. Check for a broken or worn motor coupling. Check that the pump turns freely. Check for air leaks in the lines. Check for fuel froth at the bleed point. Check voltage at the motor. Check for fuel contamination or partially plugged filter.</p>
Slow Motor Rotation	<p>If the blower motor is not operating at the rpm's listed on the nameplate, check the following.</p> <p>Check the supply voltage to the motor. Check for free operation of the motor shaft and pump assembly.</p>

M-Series No Pump Tank Burner

Igniter Maintenance:

The igniter assembly does not require any adjustments beyond making sure the springs and the burner electrode rods make solid contact when the igniter is in the closed position. The sealing surfaces of the gaskets should be checked and replaced at the first signs of any damage or deterioration. Clean any dirt or residue from the porcelain bushings, springs, and baseplate.

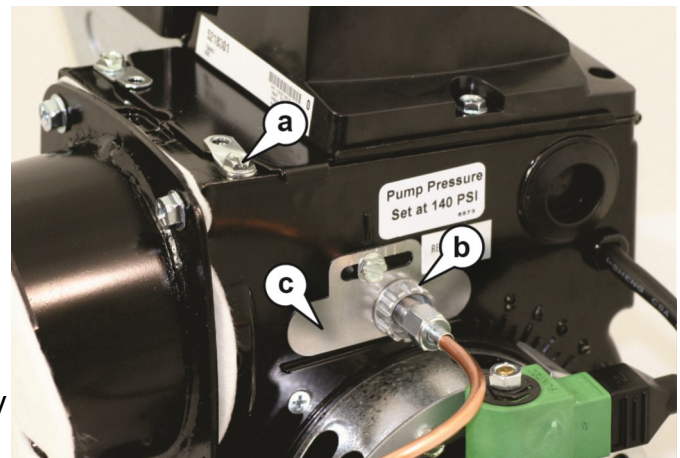
The simplest way to check igniter operation is by supplying voltage to the input and checking to see whether an arc is produced. Check by either looking or listening to see if there is an arc across the electrodes while the burner is running and the igniter is energized.

The igniter must be grounded to the burner before checking the following. To check the igniter, ensure all power to the burner is off and use an ohmmeter to check the resistance between the two springs. The meter should read between .480 - .580 ohm.

The igniter should be replaced if the meter indicates an open circuit, or the spring-to-spring resistance exceeds the .480 - .580 ohm range by more than 10%.

Servicing Nozzle Assembly:

- A. Before proceeding, turn off power to the burner.
- B. Disconnect the diesel fuel connector tube from the nozzle line.
- C. Loosen the two screws securing the igniter retaining clips (a) and rotate both clips to release the igniter baseplate. Then tilt the igniter back on its hinge.
- D. Remove the splined nut (b).
- E. Remove the nozzle line assembly from the burner, being careful not to damage the electrodes or insulators while handling. To ease removal of short assemblies, it may be necessary to loosen the escutcheon plate (c). Reset to the edge of the label.
- F. To replace the nozzle assembly, reverse the above steps.

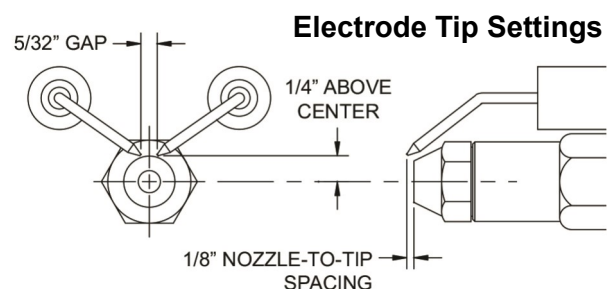


Replacing The Burner Nozzle:

- A. Use rubber gloves and avoid touching the new nozzle with your bare fingers. The oils in your skin can adversely affect the operation of the new nozzle.
- B. Remove the plastic cover protecting the nozzle adapter threads.
- C. Place a 3/4" open-end wrench on the nozzle adapter. Insert the nozzle into the adapter and finger tighten with your gloved hand. Finish tightening with a 5/8" open-end wrench.
- D. Verify that the electrode tip settings comply with the diagram below.

Check/Adjust Electrodes:

- A. Check the electrode tip settings.
- B. Adjust if necessary to comply with the dimensions shown.
- C. To adjust, loosen the electrode clamp screw and slide/rotate electrodes as necessary.
- D. Securely tighten the clamp screw when finished.



M-Series No Pump Tank Burner

Primary Controller:

The Beckett ADC tank burner motor is used to drive the blower and pump. The rotational speed of the motor is determined by the voltage supplied and the load placed on the motor. Pump pressure and air settings are the main factors affecting the motor load. The ignition transformer converts battery DC voltage into a high voltage spark to ignite the fuel. The pump and solenoid valve are used to control the flow of fuel from the reservoir to the nozzle.

The tank burner has a control circuit to reduce current draw on the charging system by turning the igniter off after a flame has been established. This circuit controls ignition transformer operation based on a signal from a light sensing cad cell (electric eye). When light hits the cell the control will sense a decrease in resistance across the sensor. As long as sufficient light is reaching the cell eye, the igniter will remain off. If light is removed from the sensor, the igniter will turn on until light is again sensed by the cad cell.

Air Supply Set-up:

The tank burner is set up properly from the factory.

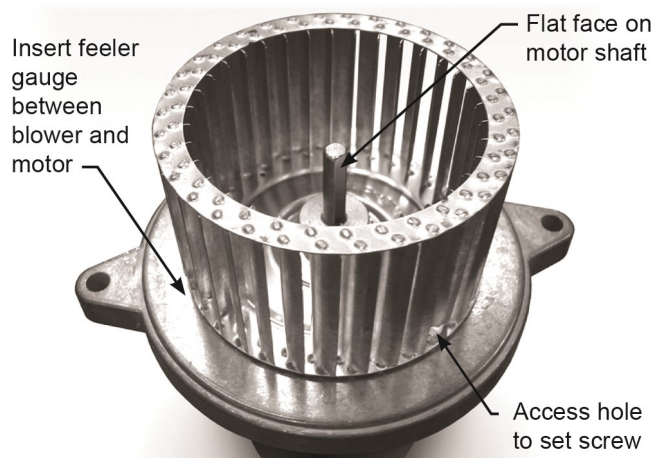
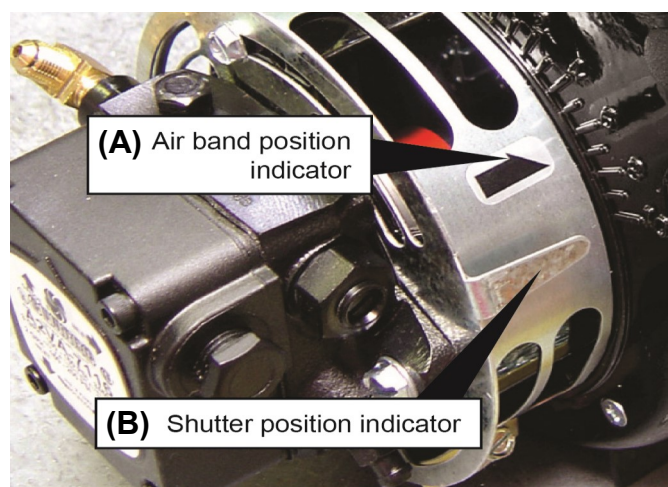
Air Band Position (A) should be set to 8.5

Shutter Position (B) should be set to 10

Motor, Blower Wheel and Coupling Replacement:

See page 48 for the tank burner parts exploded view

- A. Before servicing, turn off and/or disconnect all power to the burner.
- B. Disconnect the burner motor wires.
- C. Remove the bolts securing the motor to the burner housing.
- D. Remove the motor, coupling, and blower wheel.
- E. Loosen the set screw on the blower wheel to slide the existing wheel off the shaft.
- F. Slide the new blower wheel onto the old shaft and/or slide the old blower wheel onto the new motor shaft.
- G. Place a .030" ($1/32" \pm 1/64"$) feeler gauge between the blower wheel and the motor housing.
- H. Slide the blower wheel toward the motor until it contacts the feeler gauge.
- I. Rotate the blower wheel until the setscrew is centered on the flat of the motor shaft. Tighten the setscrew to secure the wheel.
- J. Slide the motor coupling on the motor shaft, then install the motor on the burner housing. Ensure that the motor coupling fits between the motor shaft and the pump shaft inside the housing. Tighten the motor retaining screws. Reconnect the wires.

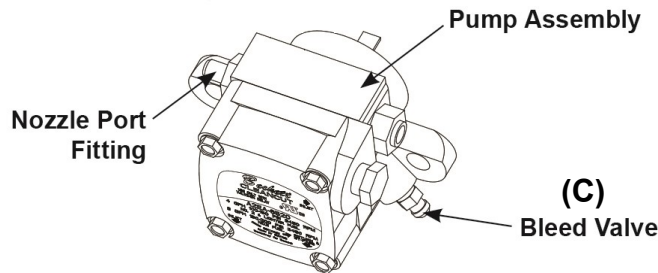


M-Series No Pump Tank Burner

Bleeding The Fuel Supply Line (Older Melter Units):

More recent CIMLINE Melters use a Clean-Cut Fuel Pump on the Beckett Burner units. These more modern fuel pumps are self priming and this process should not be needed.

In the case of older Beckett Burner units there may be a need to bleed air from the fuel line if the burner has run completely out of fuel. To bleed the pump, attach a clear plastic hose over the vent fitting (C). Loosen the fitting and catch the fuel in an empty container. Tighten the fitting when all air has been purged from the supply system. Note: If the burner stops after a flame is established, the unit probably requires additional bleeding. Continue to bleed the system until the pump is primed and a flame is established when the bleed valve is closed.



Tank Burner

After initial 200 hours of operation, the chamber lining must be inspected. Cracks in lining may occur and should be regularly inspected and monitored. If cracks expand excessively a new lining kit should be ordered to replace worn lining.

Chamber Lining:

NOTICE

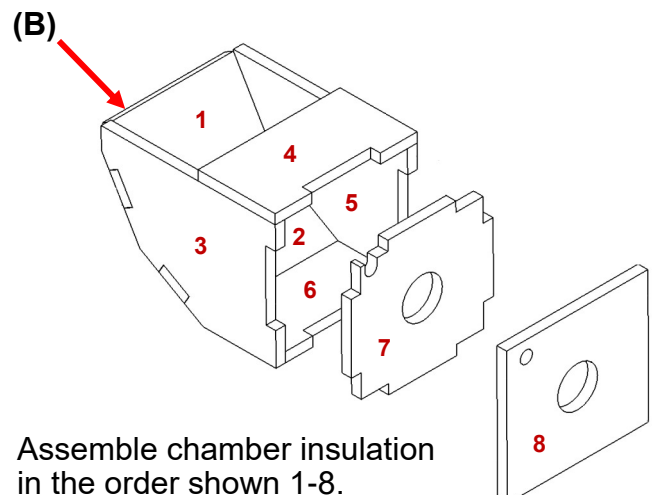
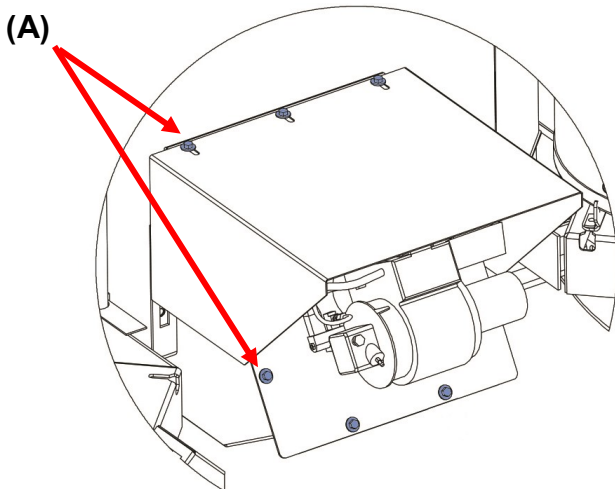
Do not run machine if cracks are wide enough to allow flame to contact the metal combustion chamber walls or if any piece has broken loose. Do not attempt to repair cracks.



CAUTION

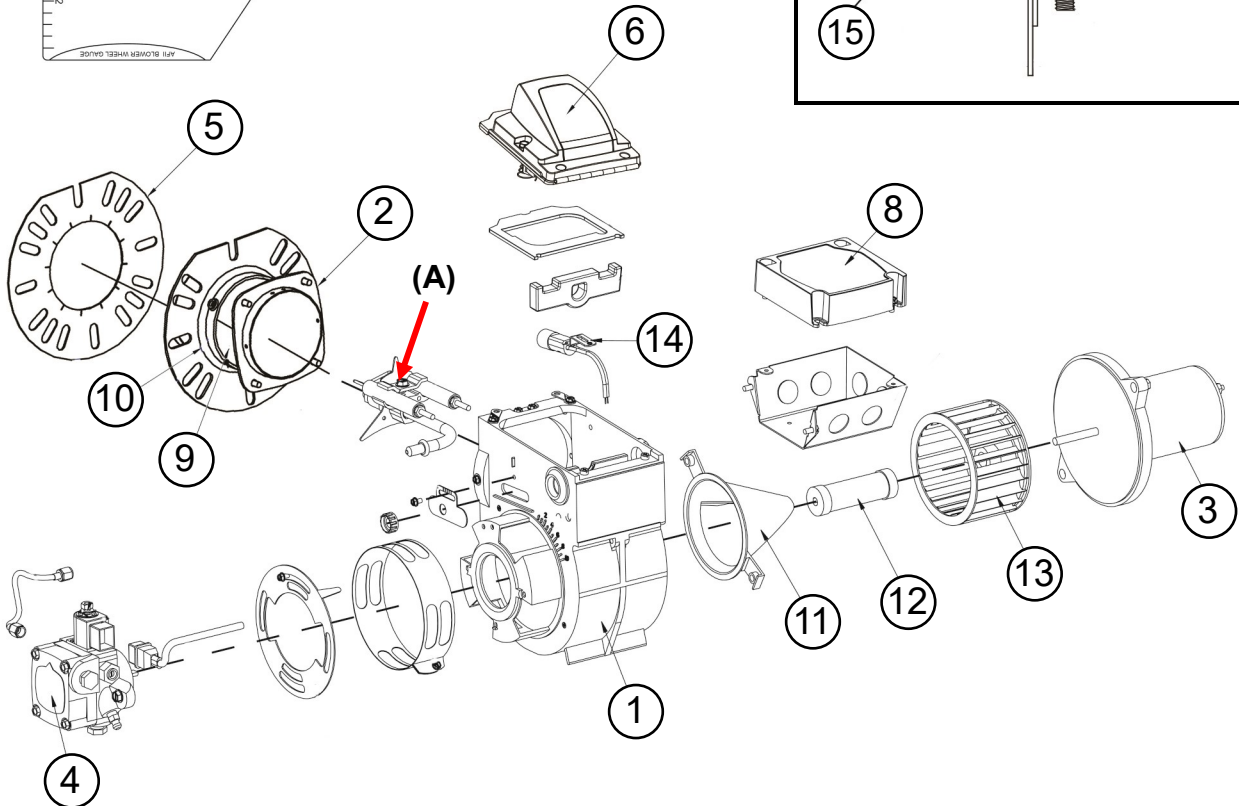
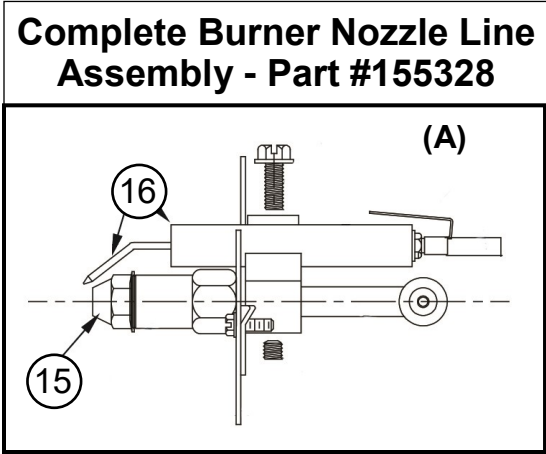
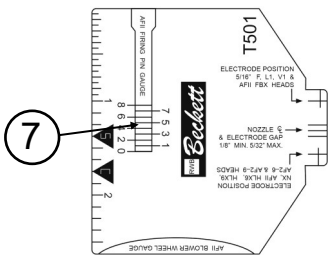
Contact with lining may cause skin or eye irritation, wear long sleeve shirt, gloves, and goggles when inspecting lining.

Remove tank burner mount bolts (A) and pull out burner and mount. Inspect lining (B) for excessive cracking. If cracks exceed guidelines, contact your CIMLINE dealer to purchase a replacement PN# 403400 Burner Chamber Lining Kit.



M-Series No Pump Tank Burner Parts

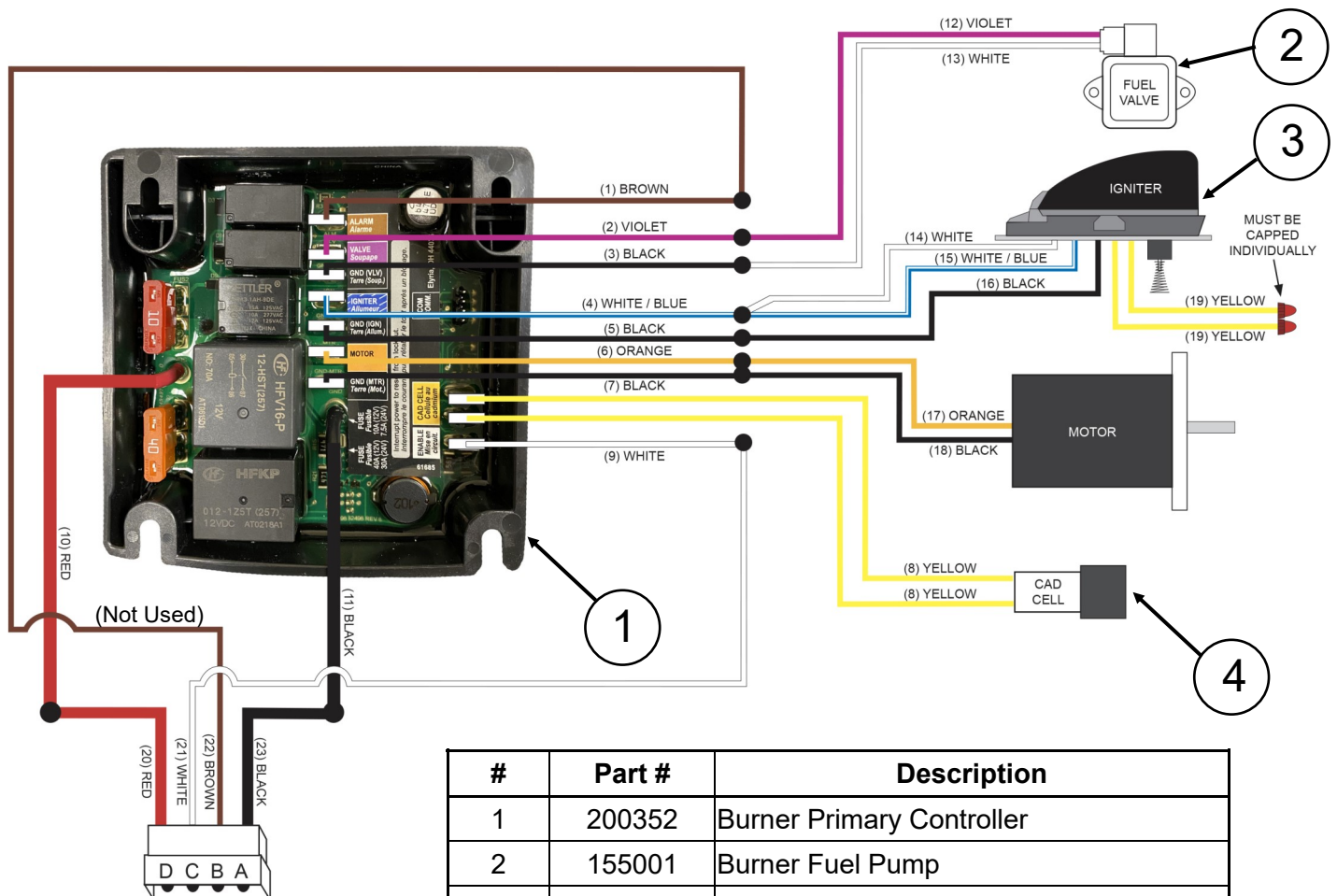
#	PART #	DESCRIPTION	#	PART #	DESCRIPTION
1	152197	Tank Burner, Complete M1 & C1	10	153446	Burner Head Tube
1	404428	Tank Burner, Complete M2	11	152398	Air Inlet Guide
1	404388	Tank Burner, Complete M4 & MA4	12	152399	Coupling
2	153505	Square Plate, Gasket	13	152466	Blower Wheel
3	152191	Tank Burner Motor (Items #12 & #13)	14	152105	Cad Cell (Electric Eye) Assembly
4	155001	Fuel Pump	15	152305	Nozzle Tip M1 & C1 1.75gph x 90B
5	152128	Gasket, Burner Flange	15	152204	Nozzle Tip M2 2.00gph x 90B
6	152173	Ignition Transformer Assembly	15	153445	Nozzle Tip M4 & MA4 2.25gph x 90B
7	152668	Nozzle / Electrode Set Gauge	16	152106	Electrode Rod Assembly
8	200352	Primary Control Assembly	*	130166	Fuel Pressure Gauge
9	120443	Air Tube			* - Not Shown



M-Series No Pump Tank Burner Wiring Diagram

#	COLOR	DESCRIPTION
1	Brown	Alarm To Controller (Not Used)
2	Violet	Fuel Valve To Controller
3	Black	Fuel Valve Ground To Controller
4	Wht/Blu	Igniter To Controller
5	Black	Igniter Ground To Controller
6	Orange	Motor To Controller
7	Black	Motor Ground To Controller
8	Yellow	Cad Cell To Controller (x2)
9	White	Control Circuit Enable To Controller
10	Red	12V (+) Input To Controller
11	Black	Ground (-) To Controller

#	COLOR	DESCRIPTION
12	Violet	Fuel Valve Input Lead
13	White	Fuel Valve Ground Lead
14	White	Secondary Igniter Input Lead
15	Wht/Blu	Primary Igniter Input Lead
16	Black	Igniter Ground Lead
17	Orange	Motor Input Lead
18	Black	Motor Ground Lead
19	Yellow	Not Used (Capped Individually) X2
20	Red	12V (+) Power (Wiring Harness)
21	White	Burner Enable (Wiring Harness)
22	Brown	LOFA Alarm (Wiring Harness)
23	Black	Ground From Relay (Wiring Harness)



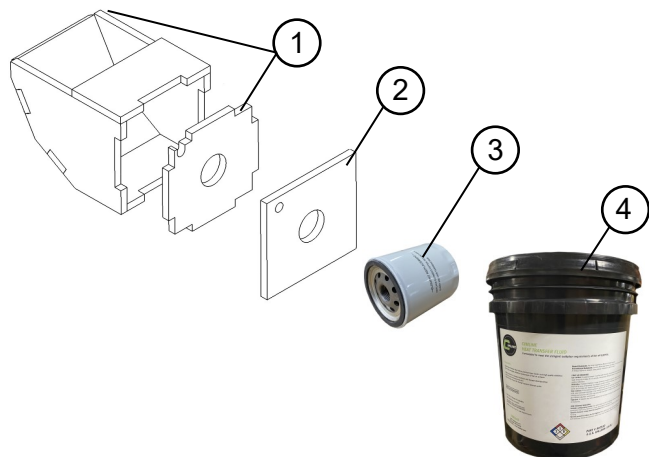
#	Part #	Description
1	200352	Burner Primary Controller
2	155001	Burner Fuel Pump
3	152173	Burner Ignition Transformer Assembly
4	152105	Burner Cad Cell (Electric Eye)

M-Series No Pump Trouble Shooting Guide

Problem	Cause	Solution
Burner will not ignite	Fuse burned out	Check 20A fuse at sub control panel
	Burner relay inoperative	Check for 12VDC at relay
	Primary control fuse	Check control switch fuse
	Thermocouple(s) inoperative	Replace thermocouple(s)
Agitator will not rotate	Fuse burned out	Check 10A control switch fuse
	Sealant material not hot enough	Allow material to heat longer
	Too many biscuits added at one time	Continue heat up and reverse agitation to break biscuits free
	Low hydraulic oil level	Check hydraulic oil Level
	Worn agitator motor	Replace agitator Motor
Sealant heat up time slow	Burner orifice clogged	Remove orifice and clean/replace
	Heat transfer oil is worn out	Check oil level. Replace if necessary
	Too much old material on tank walls	Clean material tank

M-Series No Pump Service Parts Kits (Optional)

**M-Series Maintenance Kit Part #409185 for M1 and M2
and Maintenance Kit Part #409186 for M4, M4 Dual and MA4**



Maintenance Kit Part #409185

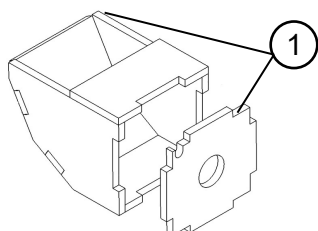
#	Part #	Description
1	403400	Burner Chamber Lining Kit
2	152487	Heat Chamber Insulation
3	170169	3" Fuel Filter
4	403910	5gal Heat Transfer Oil (6 Qty)

Maintenance Kit Part #409186

The only difference between #409185 and #409186 is the quantity of Heat Transfer Oil for the M4, M4 Dual and MA4.

4	403910	5gal Heat Transfer Oil (8 Qty)
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M-Series Burner Chamber Lining Kit Part #403400



#	Part #	Description
1	403400	Burner Chamber Lining Kit

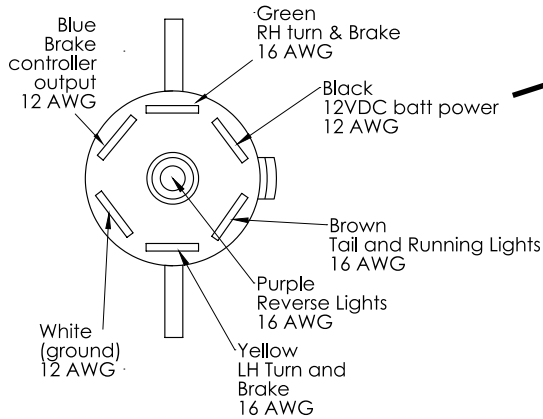
M-Series Melter Spare Parts Kit Part #404695

#	PART #	DESCRIPTION	QTY.	#	PART #	DESCRIPTION	QTY.
1	152105	Electric Eye	1	5	130384	Material Controller	1
2	200352	Burner Primary Control	1	6	130097	Thermocouple	2
3	130113	12V/30A Relay (Hose & Burner)	1	7	130505	240V/18A Ceramic Fuse	1
4	152399	Burner Coupling	1	8	152883	12V/10A Blade Fuse (Qty 5)	5



M-Series Trailer Wiring Diagram and Parts

60" Trailer Harness Cable PN 156025



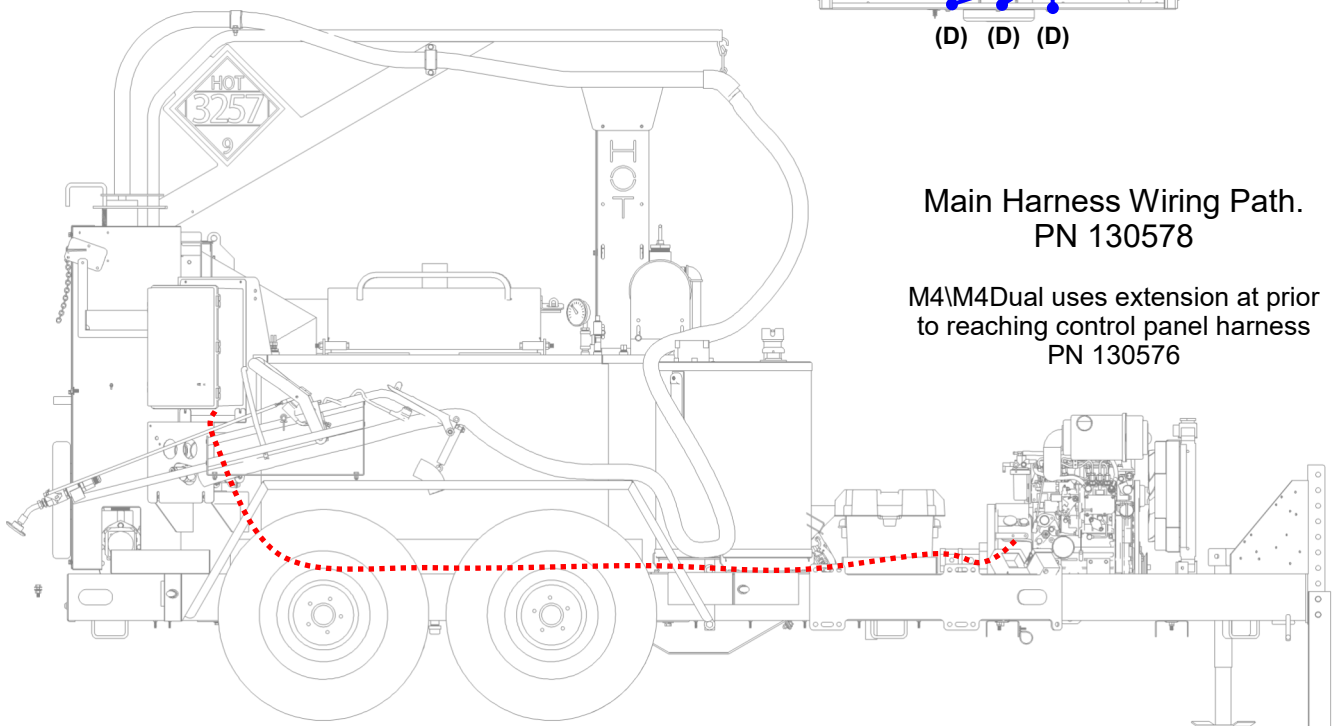
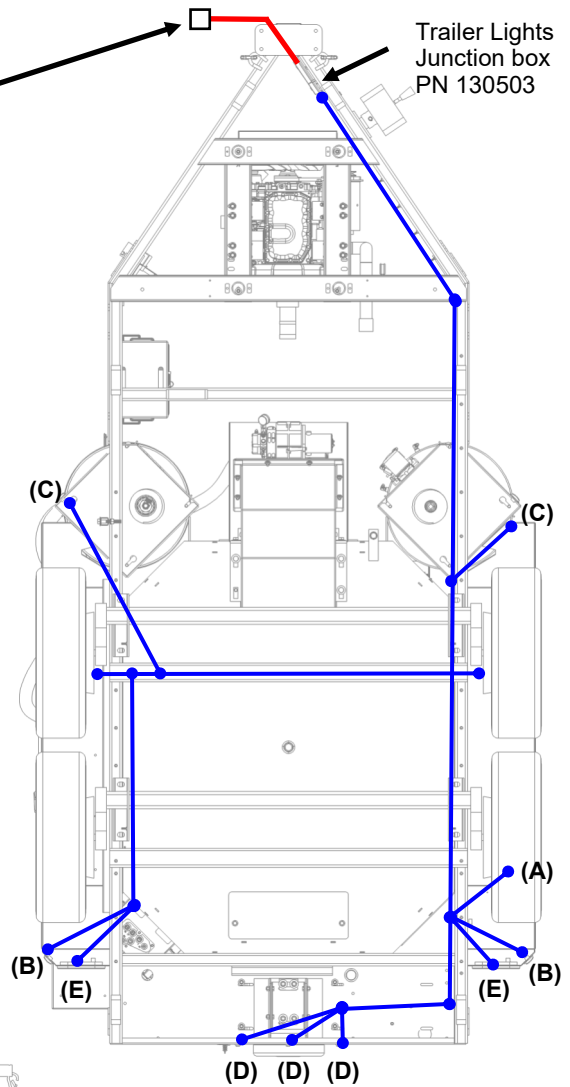
Front view of plug

BRAKING NOTE:

Brake controller is required on vehicle to activate the brakes on the trailer.

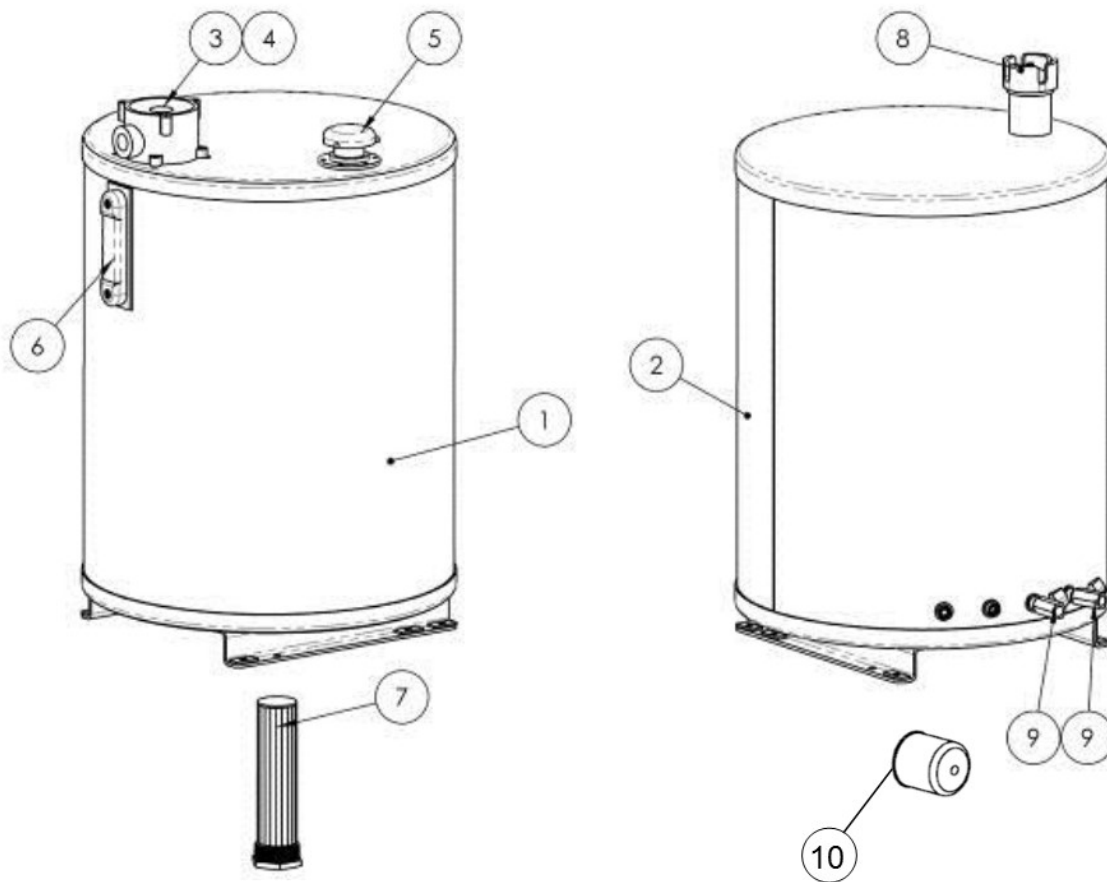
TRAILER LIGHT COMPONENTS:

PN	Material Description	Location
130360	LICENSE PLATE BRKT	(A)
130374	CLEARANCE LIGHT RED	(B)
130375	CLEARANCE LIGHT AMBER	(C)
130402	CLEARANCE LIGHT RED	(D)
130403	TAIL LIGHT LED OVAL	(E)
130405	GROMMET FOR TAILLIGHT	(E)



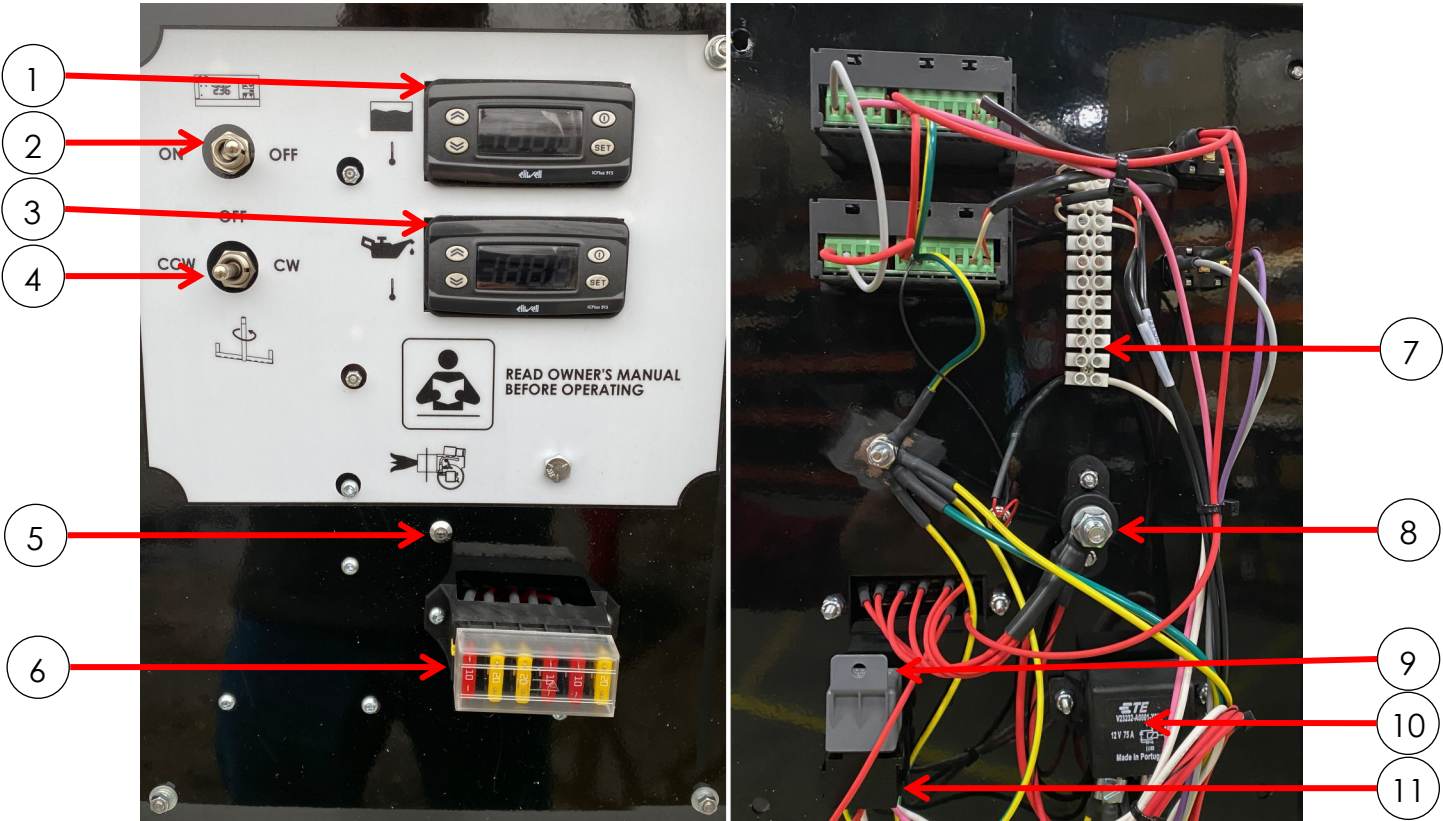
M-Series Hydraulic Reservoir and Diesel Tank Parts

#	PART #	DESCRIPTION
1	172618	Hydraulic Tank
2	172619	Diesel Tank
3	172127	Return Filter Assembly (Non-Compressor)
4	170407	Element - Return Filter (Non-Compressor)
5	152044	Filler Cap Assembly
6	171631	Sight Gauge
7	172186	Suction Strainer
8	155396	Fuel Gauge / Cap
9	120743	Fuel Shut-off Valve
10	170169	Fuel filter



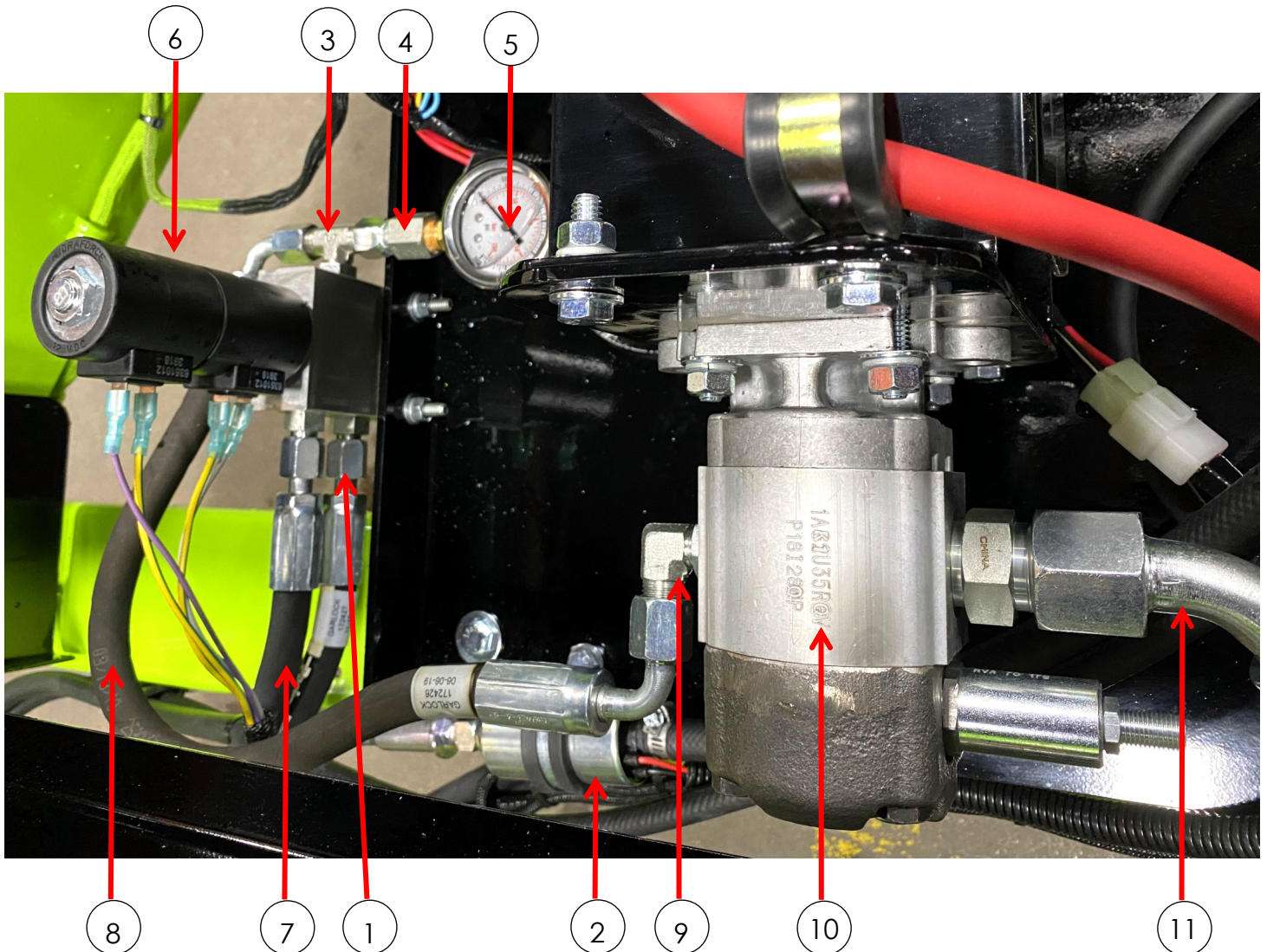
M-Series No Pump Control Panel Parts

#	Part #	Description
1	200597	Material Controller
2	130122	Toggle Switch SPST
3	200596	Oil Controller
4	130227	Toggle Switch SPDT
5	130624	Yellow LED Light
6	429735	Fuse Block
7		Terminal Strip
8		Lug
9	130113	12V 30A Relay
10	130222	12V 75A Relay
11	153870	Relay Base



M-Series No Pump Hydraulic Components

#	PART #	DESCRIPTION
1	170614	Adapter 6MB-6MJ
2	110926	Fuel Pump
3	171567	Tee 6MB-6MJ-6MJ
4	171577	Adapter 6FJX-4FP
5	171597	Gauge </td
6	171227	Solenoid Valve
7	172427	Hose .38" 6FJX-6FJX 150"
8	172426	Hose .38" 6FJXT90-6FJXT90 19.5"
9	171018	Elbow 6MB-6MJ-90
10	170875	Hydraulic Pump 2000PSI
11	172424	Hose .75" 12FJX-12FJXT45 46"



M1 and M2 Agitation System Parts

M1

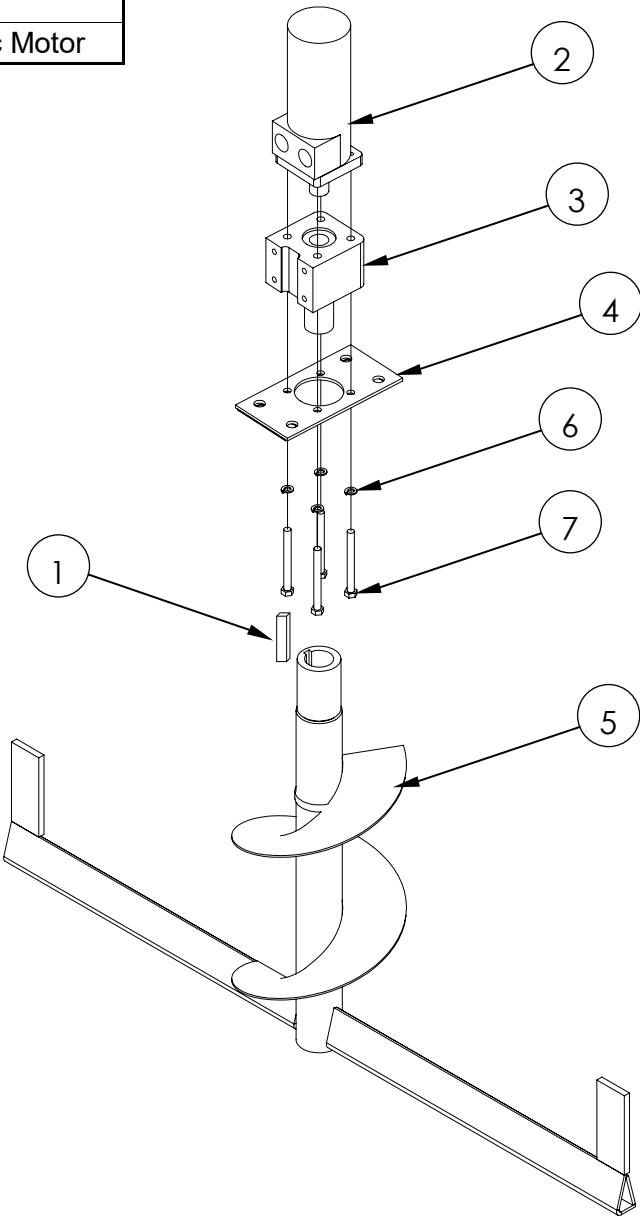
M2

#	PART #	DESCRIPTION	QTY.
1	110294	Key .38 X 2.00 LG	1
2	170467	Motor - Agitation	1
3	170449	Load Adapter M	1
4	416670	Agitator Motor Mount	1
5	405107	Agitator	1
6	100093	Washer - Split-lock .38	4
7	100877	HHCS .38 x 3.75	4

#	PART #	DESCRIPTION	QTY.
1	110294	Key .38 X 2.00 LG	1
2	170602	Motor - Agitation	1
3	170449	Load Adapter M	1
4	416670	Agitator Motor Mount	1
5	403557	Agitator	1
6	100093	Washer - Split-lock .38	4
7	100877	HHCS .38 x 3.75	4

MAINTENANCE KIT:

PART #	DESCRIPTION
153772	Seal Kit for Hydraulic Motor



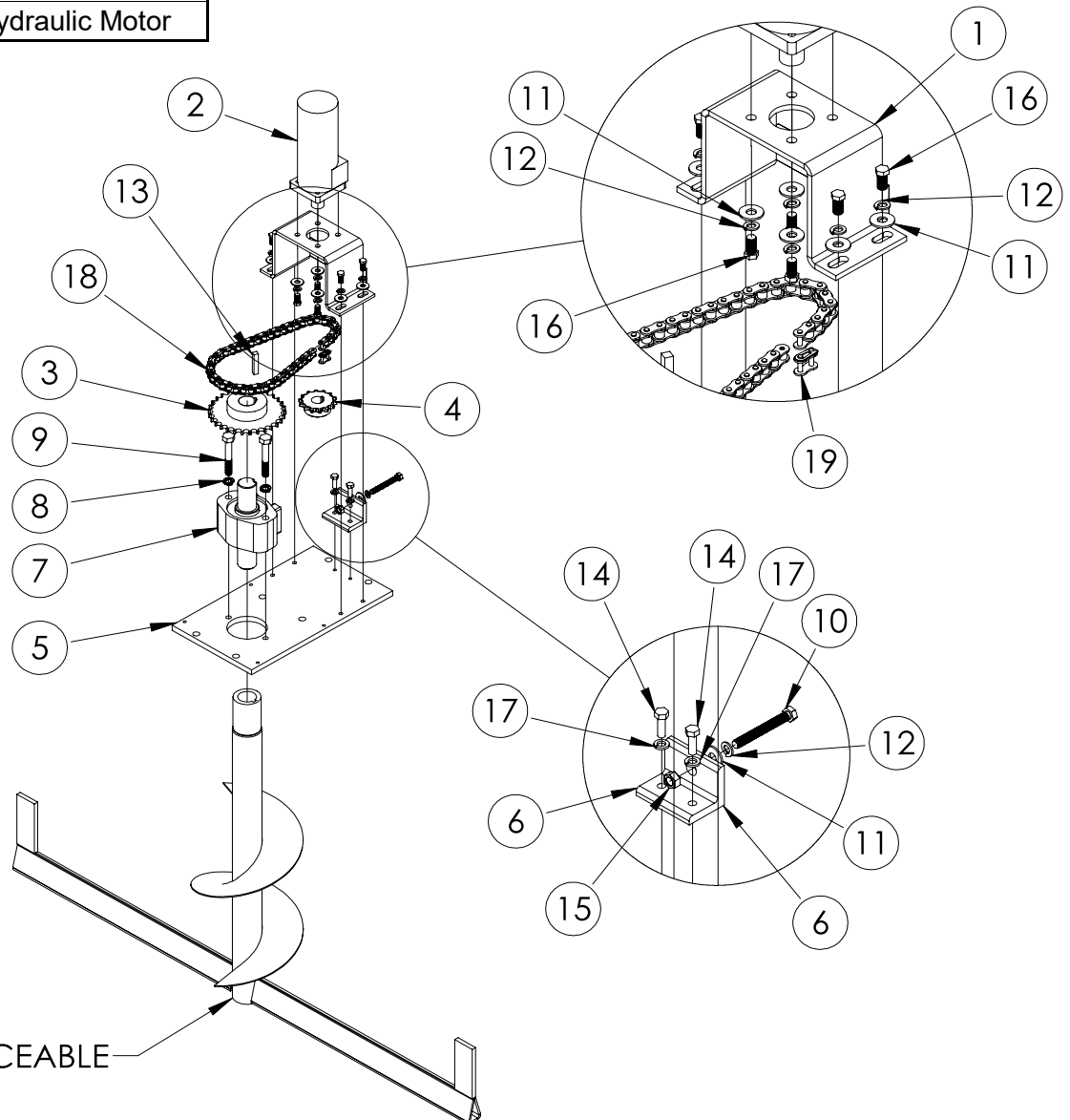
M4 Agitation System Parts

#	PART #	DESCRIPTION	QTY.
1	404327	Motor Mount	1
2	170602	Motor - 45 CU IN	1
3	111087	Sprocket	1
4	111088	Sprocket	1
5	420169	Plate - Agitator	1
6	420171	Adjustment Angle	1
7	171173	Load Adapter	1
8	100095	Washer - Split-lock 1/2"	2
9	100039	HHCS 1/2 X 3-1/2	2
10	100295	HHCS 3/8 X 3 FL THD	1

#	PART #	DESCRIPTION	QTY.
11	100126	Washer - Flat .38	9
12	100093	Washer - Split-lock .38	9
13	110294	Key .38 X 2.00 LG	1
14	100006	HHCS .31 X 1.0	2
15	100069	Nut - Hex .38	1
16	100015	Bolt, Hex 3/8-16 X 3/4	8
17	100092	Washer - Split-lock .31	2
18	110488	Chain No. 50 X 68 Links	1
19	110190	Link - Master No. 50	1

MAINTENANCE KIT:

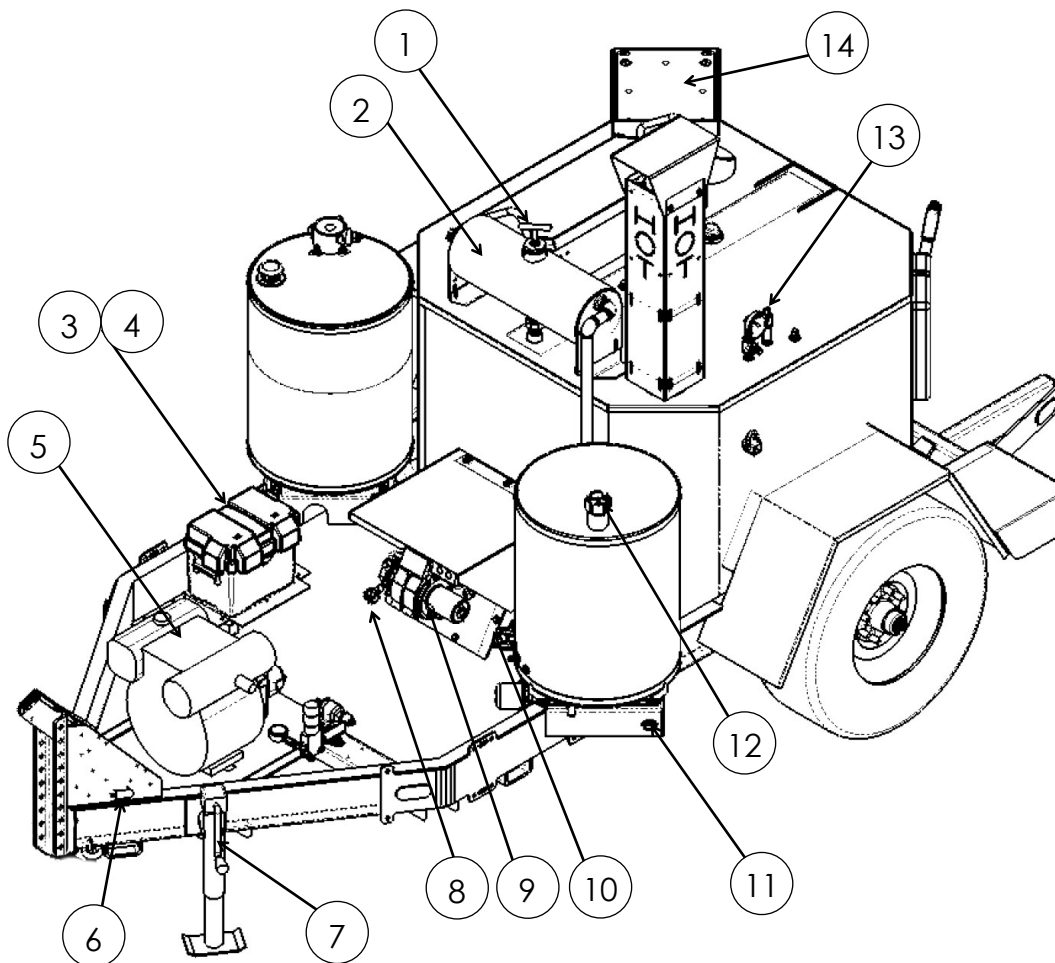
PART #	DESCRIPTION
153772	Seal Kit for Hydraulic Motor



ITEM NOT REPLACEABLE

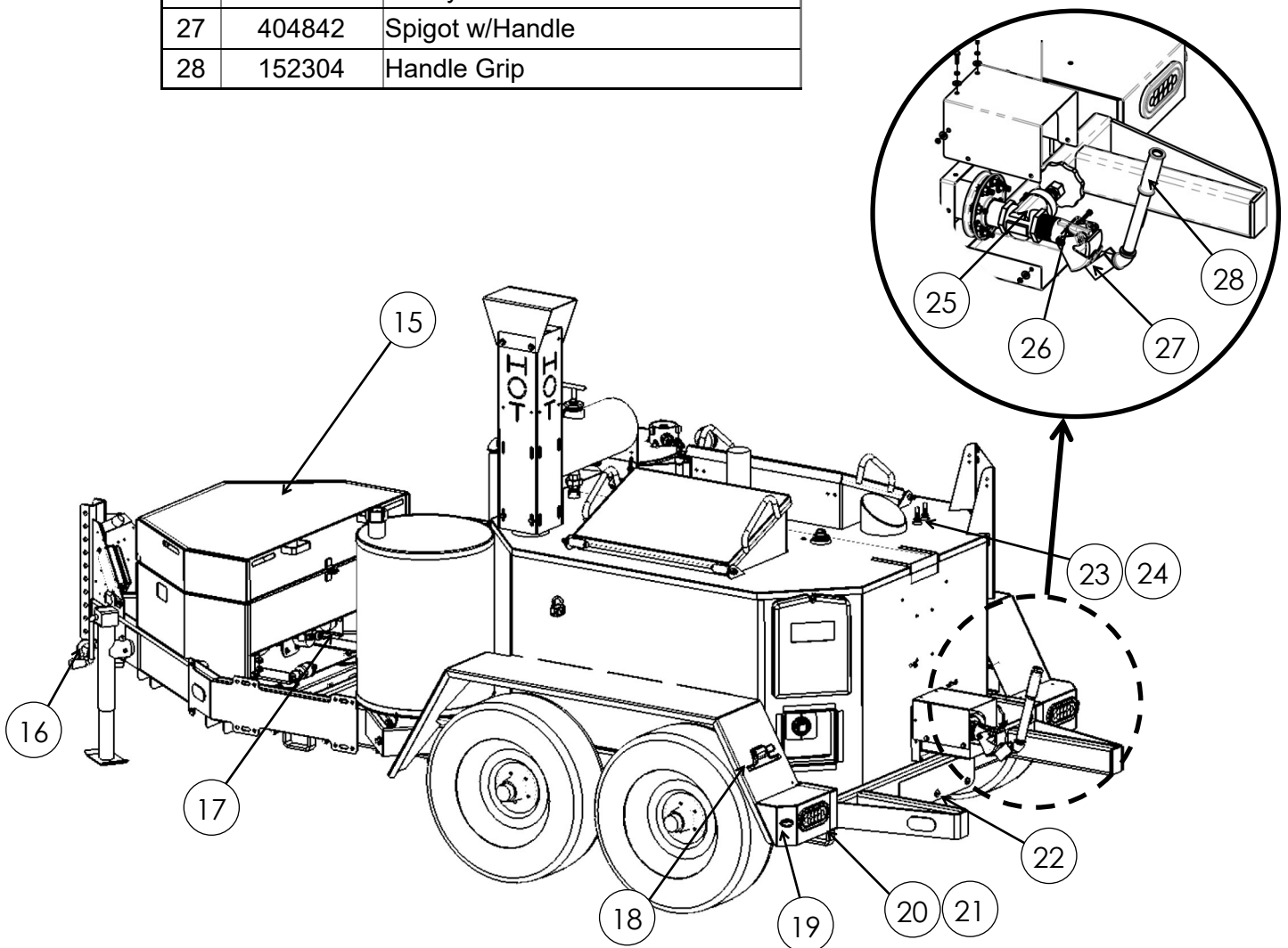
M-Series No Pump Miscellaneous Components and

#	PART #	DESCRIPTION
1	404341	Dipstick - Melter
2	406164	Expansion Tank
3	200543	Battery Box
4	150212	Battery - 26/26R-50 Wet
5	407920	Engine/Pump Assy.
6	130050	Switch-Breakaway No 2010
7	140330	Jack 5000 Lb.
8	130166	Gauge - 0-160 PSI
9	152197	Burner - Diesel 105-110
10	404518	Heat Chamber Sub-Assembly
11	130375	Clearance Light Amber
12	155396	Gauge/Cap Fuel
13	130130	Thermometer - 24 In.
14	130886S	Control Panel



M-Series No Pump Miscellaneous Components and

#	PART #	DESCRIPTION
15	301244	Engine Cover
16	152664	Anchor Shackle W/Pin
17	111174	Ignition Switch
18	130360	License Plate Bracket
19	130374	Clearance Light Red
20	130403	Taillight LED Oval
21	130405	Grommet for Taillight
22	130402	Clearance Light Red
23	130097	Thermocouple Straight
24	130097	Thermocouple Straight
25	120875	Gate Valve 2" SS
26	150124	Safety Pin .31x2.50"
27	404842	Spigot w/Handle
28	152304	Handle Grip



EQUIPMENT WARRANTY

Cimline Pavement Maintenance Group warrants its equipment, to the original purchaser only, against defects in material or workmanship based on normal use of service.

Cimline Equipment is warranted for one year / 1000 hours of use and includes/excludes the following:

Includes basic frame and tanks, steel fabricated parts, hydraulic and burner control system.

Excludes the engine, air compressor, battery, and tires as these items are covered by their respective manufacturer; and all warranty for these items should be directed to their local authorized distributor/dealer.

Warranty period begins at the date unit is first placed in service, or shipped from factory. Upon sale or rental of the equipment by the distributor or Cimline the provided warranty card should be mailed within 14 days starting date the unit is placed in service.

In the absence of this card on file, the warranty period begins from date of shipment from factory.

Warranty for material pumps and electric heated hoses/heated hose with heated wands, are pro-rated using the following scale:

<u>Days</u>	<u>Hours</u>	<u>Warranty Coverage</u>
365 (1 year)	500	100%

Any warranty claims on parts may require a return for evaluation. Specifically heated wands with heated hose, standard heated hoses, and material pumps will be required to return for evaluation on any warranty claim.

Replacement parts are warranted for a period of 60 days from factory invoice, with the exception of the replacement material pumps, heated hoses and heated hoses with heated wands, which use the above scale for pro-rated coverage. For replacement parts that are purchased, the 60-day period will commence from the date of distributor to end user invoice. A copy of the invoice will be required as proof of in service date. If invoice is not provided, policy will revert back to the original factory invoice date.

Warranty does not apply to defects caused by improper or unreasonable use, damage (including freight damage), accidents, failure to provide reasonable maintenance or faulty repair made by others; furthermore, warranty is void if the product or any of its components are modified or altered in any way or if aftermarket (NON-OEM) parts have been used during the warranty period.

Our responsibility under this warranty is limited to replacement or repair (at Cimline's discretion) of such part or parts, as inspection shall disclose to have been defective, to be performed at Cimline Inc. factory at Plymouth, MN or at a facility designated by Cimline.

In no event shall Cimline Pavement Maintenance Group be liable for incidental or consequential damages of any kind whatsoever. Downtime, overhead and performance penalties are not recognized at any time as part of warranty coverage. Reasonable labor, travel, and diagnostic time will be reviewed for reimbursement. The use of aftermarket (NON-OEM) parts will result in denial of the claim.

All warranty claims must be processed through the factory authorized Cimline dealer that was the original distributor of your Cimline Equipment or OEM Parts.

No exceptions will be made to this warranty unless agreed to in writing by the Cimline Customer Service Manager.

