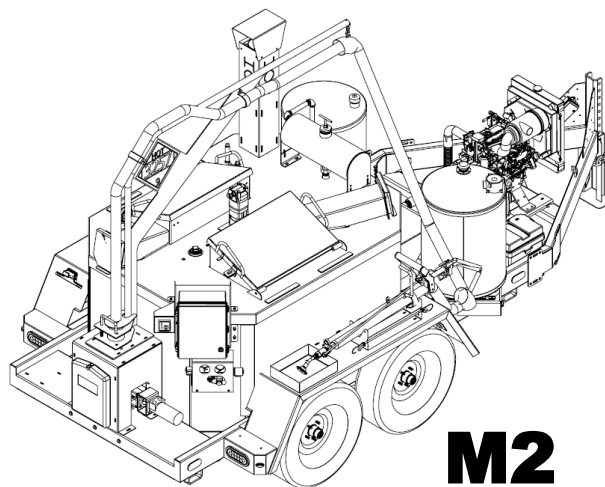
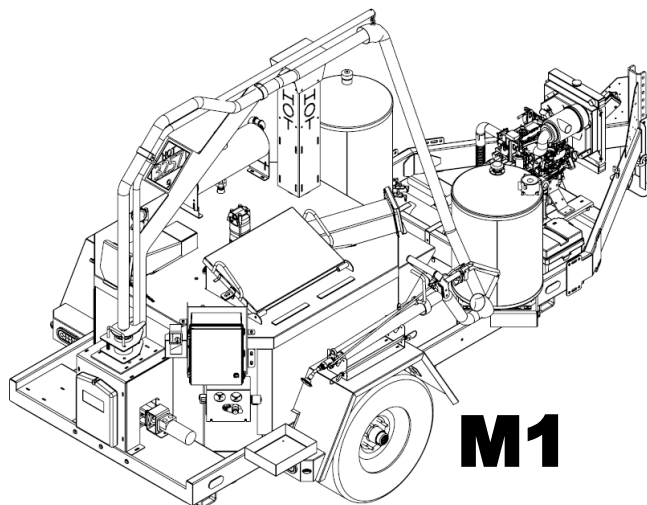




Sealant Melter Applicator Machine

Owner/Operator Manual



CIMLINE.COM

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

Part # 311-000-000

Rev C 9/13/2022

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

TABLE OF CONTENTS:

Serial Number, Model Number, Engine Number	3
Contacting Cimline	3
Personal Safety, Signal Words in Manual	4
Trailer Safety	5
Wheels	6-7
Replacement Labels	8
M-Series Weight and Dimensions	9
M-Series Feature Overview	10
M-Series Control Panels and Their Functions	11
M-Series Manual Sub Control Panel and its Functions	12-13
M-Series Start Up Procedure	14-15
M-Series Clean Out/Shut Down Procedure	16-17
M-Series Sealant Material Tank Capacity	18
M-Series Automatic Temperature Control Setting	19
M-Series Fluid and Components Specifications	20
M-Series Heat Transfer Oil Specs	21

MAINTENANCE AND TROUBLESHOOTING:

M-Series Maintenance Schedule	23
M-Series Maintenance - Changing Heat Transfer Oil	24
M-Series Maintenance - Sealant Material Pump	25
M-Series Maintenance - Hydraulic Oil Servicing	26-27
M-Series Maintenance - Tank Burner	28-32
M-Series Maintenance - Trouble Shooting Guide	33
M-Series Melter Applicator Service Parts Kits	34-35

PARTS AND ASSEMBLY DIAGRAMS:

M-Series Tank Burner Internal Wiring Diagram	37
M-Series Trailer Wiring Diagram and Parts	38
M-Series Main Wiring Harness	39
M-Series Control Panel Wiring Diagram and Parts	40-41
M-Series Tank Burner Parts	42
M-Series Hydraulic Reservoir and Diesel Tank Parts	43
M-Series Sealant Wand Diagram and Parts	44-46
M-Series Optional Sealant Wand Attachments	47
M-Series Combustion Chamber Parts	48
M-Series Agitation System Diagram and Parts	49
M-Series Hydraulic Manifold Parts and Schematic	50-51
M-Series Diesel Engine Components	52-53
M-Series Sealant Material Plumbing Parts	54
M-Series Miscellaneous Components and Parts	55-58

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**.

Wheels

Wheel Selection

When specifying or replacing your trailer wheels it is important that the wheels, tires, and axles are properly matched. The following characteristics are extremely important and should be thoroughly checked when replacement wheels are considered:

- 1 **Bolt Circle.** Wheels have many bolt circle variations and some are so close that it could be possible to attach an inappropriate wheel that does not match the axle hub.
- 2 **Capacity.** Wheel load capacity should match tire and trailer max. load ratings.
- 3 **Offset.** The relationship of the center line of the tire to the hub face of the axle should match any replacement. Failure to match offset may result in reducing the carrying capacity of your axle.
- 4 **Rim Contour.** Replacement wheels should be direct replacements to match the rim contour

Inspection

All the components of your suspension system should be visually inspected for signs of wear, damage, or loose fasteners at least every 6,000 miles. When replacing or tightening loose fasteners, consult the torque chart for correct torque values. Worn spring eye bushing or sagging or broken springs should be replaced.



WARNING

Use only rim contours suggested by manufacturer. Failure to use correct rim contour may cause dramatic separation of tire and wheel and could cause serious injury or death.



WARNING

Attempting to modify or repair a wheel can cause unsafe conditions that may result in an explosion. Air pressure on a weakened or cracked rim can cause serious injury or death.

Torque Requirements

It is extremely important to apply and maintain proper wheel mounting torque on your trailer axle. Torque wrenches assure the proper amount of torque is being applied to a fastener. Use no other method to torque fasteners.



WARNING

Proper and accurate torque must be maintained to prevent wheels from loosening, studs from cracking and/or breaking or other possible hazardous breakage resulting in serious injury or death.

Be sure to use only the fasteners matched to the cone angle of your wheel (usually 60° or 90°) The proper procedure for attaching your wheels is as follows:

- 1 Start all bolts or nuts by hand to prevent cross threading.
- 2 Tighten bolts or nuts in the following sequence.
- 3 Tightening fasteners should be done in stages. Follow the recommended sequence, tighten fasteners per wheel torque requirements diagram (see next page).
- 4 Wheel nuts/bolts should be torqued before first road use and after each wheel removal. Check

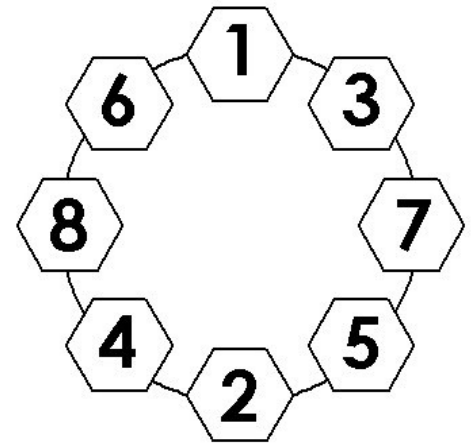
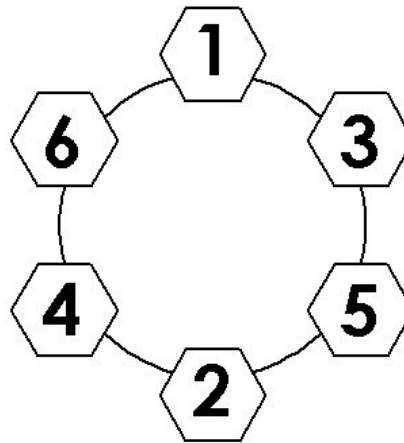
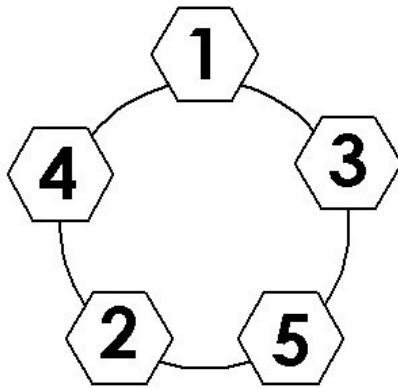
Wheels

Wheel Sizes
14" - 15" - 16" - 16.5" x 6.75"
NOTE: All torque in ft-lb

1st Stage
20-25

Torque Sequence
2nd Stage
50-80

3rd Stage
90-120



LUG TIGHTENING SEQUENCE CHART

TIRES

Prior to mounting tires onto wheels, be sure the rim size and contour are approved by the Tire and Rim Association Yearbook or the Tire Manufacturers Catalog in the United States and Recreational Vehicle Running Gear Certification - CSA CAN3 in Canada. Use only Tires, Rims and Wheels complying with CMVTSS 109 and CVMTSS110; or CMBTSS 119 and CMVTSS 120. In addition, confirm that the tire will carry the rated load. If the load is not evenly distributed on all tires, use the tire rated for the heaviest wheel position. The Rubber Manufacturers Association or the tire manufacturers guidelines should be consulted for mounting procedures. Tire inflation pressure is the most important factor in tire life. Tire pressure should always be what is recommended by the manufacturer for the load. Always check pressure cold before operation. **DO NOT** bleed air from tires when they are hot. Check inflation pressure weekly during use to insure maximum tire and tread life. The following tire wear diagnostic chart will help you pinpoint the causes and solutions of tire wear problems.

NOTE: Tire wear should be checked frequently because once a wear pattern becomes firmly established in a tire it is difficult to stop, even if the underlying cause is corrected.

PROBABLE CAUSE

CORRECTIVE ACTION

CENTER WEAR	Over-inflation	Adjust pressure to particular load per tire catalog.
EDGE WEAR	Under-inflation	Adjust pressure to particular load per tire catalog.
SIDE WEAR	Loss of camber or overloading	Make sure load doesn't exceed axle rating. Align at alignment shop or service center.
TOE WEAR	Incorrect toe-in	Align at alignment shop or service center.
CUPPING	Out-of-balance	Checking bearing adjustment and balance tires.
FLAT SPOTS	Wheel lockup & tire skidding	Avoid sudden stops if possible and adjust brakes.

M-Series 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.

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

! WARNING TO PREVENT SERIOUS INJURY
HEARING PROTECTION
EYE OR FACE PROTECTION
HEAD PROTECTION
RESPIRATOR

! ALERTA PARA PREVENIR UN ACCIDENTE GRAVE
PROTECCIÓN PARA LOS OÍDOS
PROTECCIÓN PARA LOS OJOS Y LA CARA
PROTECCIÓN PARA LA CABEZA
MASCARILLA RESPIRATORIA

MAINTENANCE OPERATION	DAILY	25 HRS.	100 HRS.	200 HRS.	500 HRS./YEARLY
CHECK ENGINE FUEL LEVEL	X				
CHECK ENGINE AND HEAT TRANSFER OIL	X				
CHECK HYDRAULIC OIL (ADD IF LOW)	X				
CHECK ENGINE AIR CLEANER	X				
INSPECT PRE-CLEANER		X			
CLEANOUT MATERIAL SYSTEM		X			
INSPECT SEALING HOSE CONNECTION			X		
INSPECT AND CLEAN COOLING SYSTEM/RADIATOR			X		
INSPECT MATERIAL PUMP PACKING (ADJUST IF LEAKING IS EXCESSIVE)			X		
SERVICE AIR CLEANER ELEMENT/GASKETS				X	
INSPECT MATERIAL FLOW PLUMBING				X	
INSPECT BURNER NOZZLE, ELECTRODE AND HEAD POS. (ADJUST IF NECESSARY)				X	
CHANGE ENGINE OIL AND OIL FILTER				X	
GREASE AGITATOR BEARING BLOCK (LOAD ADAPTER)				X	
REPLACE FUEL FILTER				X	
INSPECT DIESEL BURNER ELECTRIC EYE (CLEAN IF DIRTY)					X
GREASE WHEEL BEARINGS					X
INSPECT CHAMBER LINING (REPLACE IF EXCESSIVE CRACKING)					X
INSPECT STARTER MOTOR					X
REPLACE HYDRAULIC OIL					X
REPLACE HYDRAULIC RETURN FILTER					X
REPLACE HYDRAULIC SUCTION STRAINER					X
REPLACE BURNER NOZZLE					X
CHANGE HEAT TRANSFER OIL					X
CHANGE DIESEL FUEL FILTER					X
FLUSH RADIATOR AND REPLACE FLUID					X

ENGINE RPM

MAXIMUM RPM IS SET AT THE FACTORY TO APPROXIMATELY 2800 RPM
DO NOT ALTER THIS RPM (REFER TO MANUAL ON HEATED HOSE MODELS)

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 HY 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

AGITATOR PRESSURE GAUGE

MATERIAL PRESSURE GAUGE

! WARNING: TO PREVENT BODILY INJURY

STAY CLEAR OF ACTUATOR WHILE ENGINE IS RUNNING

! 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

PN: 161441

! 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)

! WARNING

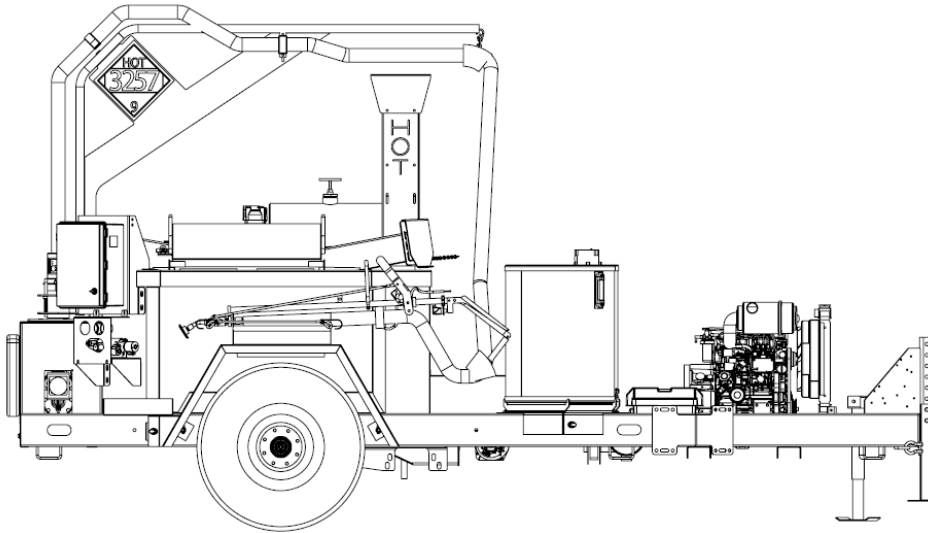
BREATHING DIESEL ENGINE EXHAUST EXPOSES YOU TO CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM. ALWAYS START AND OPERATE THE ENGINE IN A WELL-VENTILATED AREA. IF IN AN ENCLOSED AREA, VENT THE EXHAUST TO THE OUTSIDE. DO NOT MODIFY OR TAMPER WITH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

161808(3)

PN: 161808

M-Series Weight and Dimensions

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



HEIGHT
93 INCHES
(236 cm)

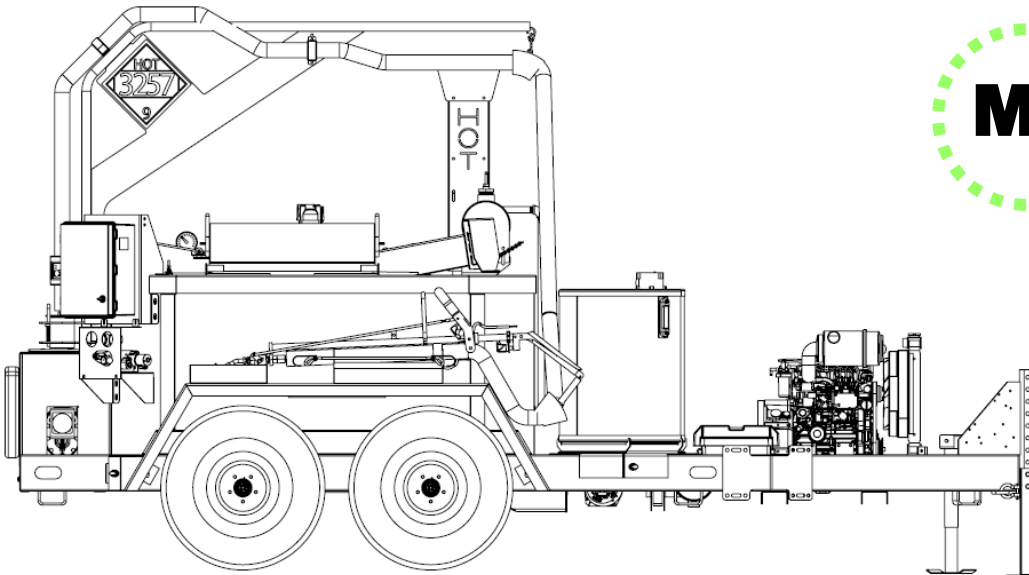
WIDTH
83 INCHES
(211 cm)

LENGTH
170 INCHES
(432 cm)

Sealant Material Tank Size is 150 Gallons

Maximum Safe Operational Sealant Material Tank Capacity is 112 Gallons

BASE
WEIGHT
4550 Lbs.
(2064 kg)



HEIGHT
90 INCHES
(229 cm)

WIDTH
82 INCHES
(208 cm)

LENGTH
170 INCHES
(430 cm)

Sealant Material Tank Size is 230 Gallons

Maximum Safe Operational Sealant Material Tank Capacity is 172 Gallons

BASE
WEIGHT
4700 Lbs.
(2132 kg)

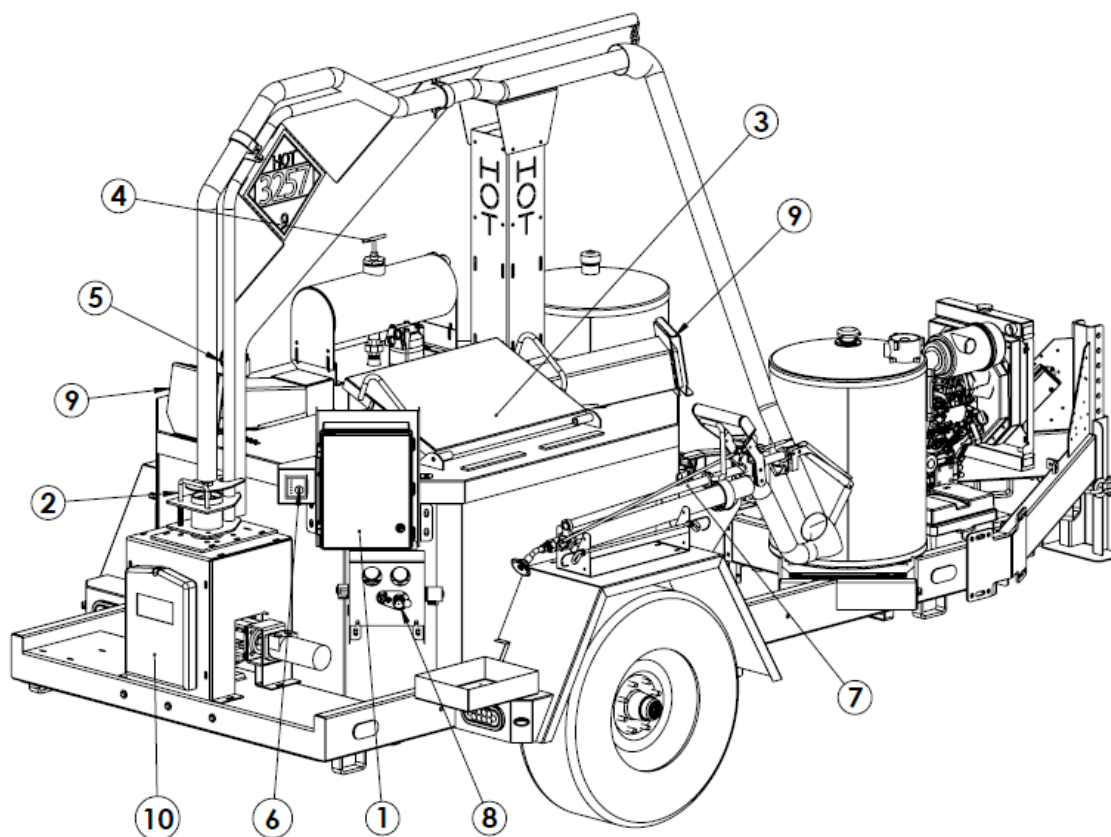


WARNING

***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.

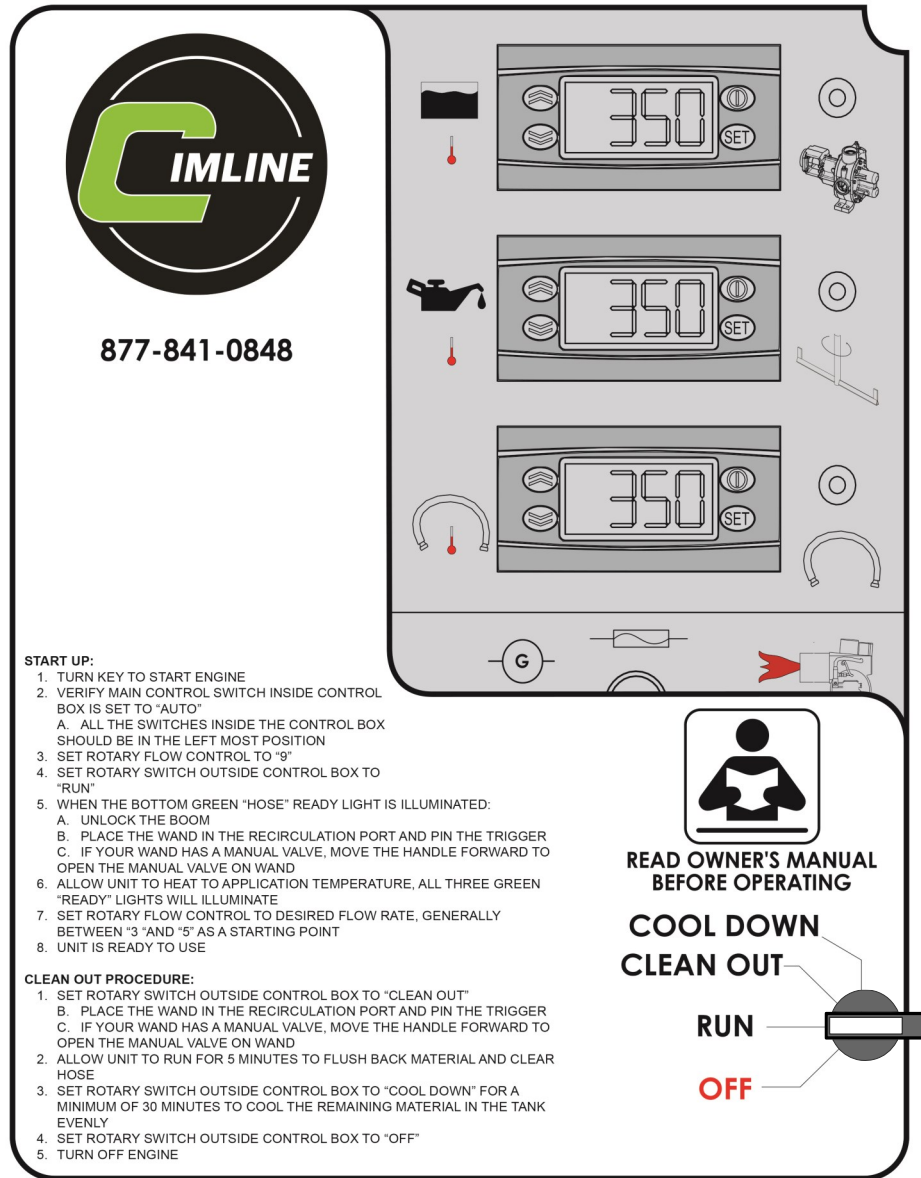
M1 / M2 Feature Overview



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 automated user controls for Off / Run / Clean Out / Cool Down as well as manual control of the sealant material pump direction and tank agitator. You can also monitor or adjust the temperature of the sealant material and heat transfer oil on the control sub panel. See page 10-11 for more information on the main control panel.
- 2) **Boom Rotation Lock:** This handle locks the boom from rotating during transport.
- 3) **Loading Door:** Place the sealant material block or biscuit on the open door to load the sealant melting tank. See page 14 for more information on safely loading sealant material into the melter.
- 4) **Heat Transfer Oil Level Dipstick:** Allows you to monitor the amount of heat transfer oil in the melter oil tank. See page 24 for more information on using the heat transfer oil dipstick.
- 5) **Heat Transfer Oil Temperature Gauge:** Displays the heat transfer oil temperature.
- 6) **Ignition Switch:** Engine key "Start" / "On" / "Off" and also displays engine running hours, glow plug status, alternator charge, engine oil pressure and engine coolant warnings.
- 7) **Sealing Wand:** Dispenses sealant material to the ground.
- 8) **Material Sealant Flow Control:** Controls the flow rate of sealant by varying the pump speed.
- 9) **Recirculation Port:** The sealing wand is placed here when not in use. This allows operator to continue circulating sealant material through the hose and wand to prevent the sealant material from cooling and freezing up.
- 10) **Instruction Manual Case:** Keeps the manual and important documentation protected.

M1 / M2 Control Panels and Their Functions



MAIN CONTROL PANEL:

The Main Control Panel is used to operate the melter control system. Controls located on the outer cover are for operating in AUTO mode only.

OFF: Shuts down power to the control panel and the pump, agitator and burner.

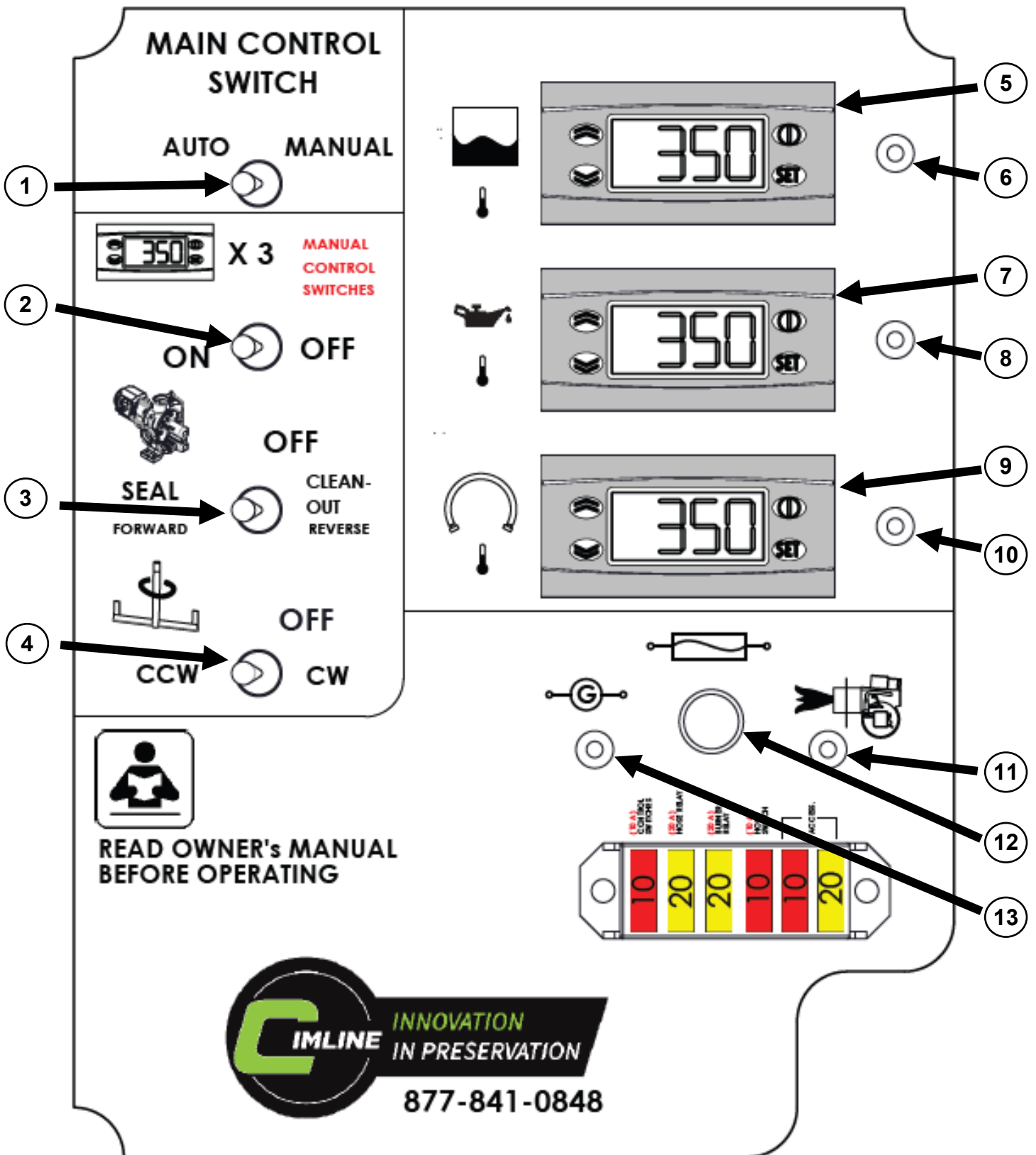
RUN: Allows the preprogrammed controllers to turn on the pump, agitator, and burner.

CLEAN OUT: Shuts down the burner and reverses pump flow direction to clean out material from the hose and internal plumbing returning the sealant material to the material tank

COOL DOWN: - Shuts down the burner and pump and turns the agitator only. This allows the material to cool down more consistently, extending the life of the material remaining in the tank.

**Inside the Main Control Panel box is a Sub Control Panel.
See pages 12-13 for detailed explanation of its use.**

M1 / M2 Panel and Its Functions



M1 / M2 Manual Sub Control Panel and Its Functions

NOTICE

CIMLINE recommends using the Main Control Panel in “AUTO” control mode. “MANUAL” mode is provided for trouble shooting and trained advanced/experienced users.

1) MAIN CONTROL SWITCH:

Auto: (left position) Machine will operate from the systems preconfigured program using the rotary switch control located on the outside front cover.

Off: (center position) Power to all systems will be off and burner, pump and agitator will stop.

Manual: (right position) Main rotary switch on front cover is no longer active. The three switches below for temperature control, pump and agitator must be used to control the melter's operations.

2) TEMPERATURE CONTROLLER ON / OFF SWITCH: When this switch is on, the three digital controllers to the right will be energized and they will be controlling the diesel burner and activate the hydraulics for agitator motor, sealant material pump and the heated hose.

3) MATERIAL PUMP SWITCH:

Seal (Forward): When the switch is on “SEAL (Forward)” the pump will be rotating counter clockwise with sealant material recirculating back to sealant material tank or to the application wand.

Off: When the switch is “OFF”, the pump will not be rotating.

Clean-out (Reverse): When the switch is on “CLEAN-OUT”, the pump will be rotating clockwise in reverse direction and will be drawing back any sealant material in the application wand and plumbing system back to the sealant material tank.

4) 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.

5) 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 19 to override or change settings.

6) PUMP LIGHT (Green): This LED light indicates that the sealant material has reached the preset temperature and if the unit is running in the auto mode, the hydraulic circuit for the sealant material pump will be activated. If enough sealant material has melted the pump should be turning and sealant material should be circulating through the system and back into the top of the sealant material tank.

7) 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 21 for heat transfer oil information and specifications.

8) AGITATOR READY LIGHT (Green): This LED light indicates that the heat transfer oil has reached the preset temperature and if the unit is running in the auto mode, the hydraulic circuit for the agitator will be activated. If enough sealant material has melted the agitator should be turning.

9) HOSE TEMPERATURE CONTROLLER: The control system on your CIMLINE melter has been factory set to run a heated hose to the proper temperature for successful application of sealant material.

10) HOSE READY LIGHT (Green): This LED light indicates that the heated hose has reached the preset temperature and is ready to use.

11) DIESEL BURNER LIGHT (Yellow): This LED light indicates that the material and heat transfer oil temperature control are demanding that the diesel burner circuit is turned on.

12) HEATED HOSE FUSE: This is a 240V/18A slow-blow fuse for protecting the heated hose.

13) HEATED HOSE GENERATOR LIGHT (Yellow): This LED light indicates that the heated hose temperature control is demanding that the generator circuit is turned on.

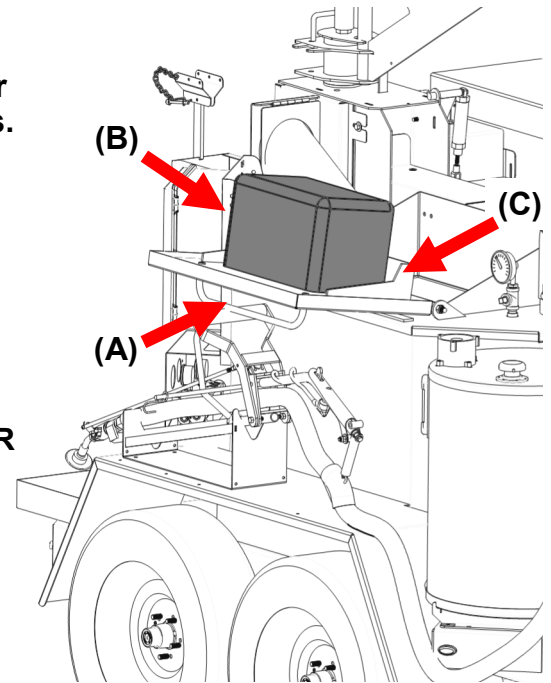
14) LOW FLOW SWITCH (M4 & M4 Dual Only): Some sealants dispense best at low flow rates (<4 on the flow controller). If the sealant material dispenses unevenly, switch the AUTO/MANUAL switch to MANUAL and place the low flow switch on “FOR MATERIAL FLOW LOWER THAN 4”. This will make the sealant material pump only rotate when the wand trigger is pressed, resulting in a smoother, more consistent flow.

M1 / M2 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 pump and 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.

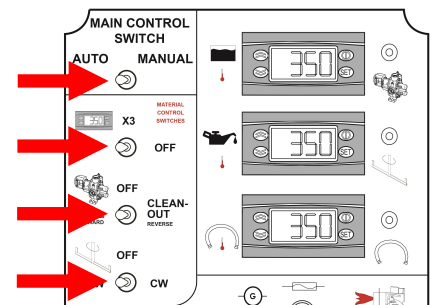
1. START ENGINE:

- A) Turn key on engine control to “1”.
- B) Allow 3-5 seconds to heat glow plugs. (Flashing green light will turn to solid green)
- C) Turn key to “2” and release when engine starts.



2. VERIFY SWITCHES ON CONTROL PANEL:

- A) Verify main control switch inside control box is set to “AUTO”.
- B) Verify ALL the switches inside the control box are in their left most position.



3. SET ROTARY FLOW CONTROL TO 9:

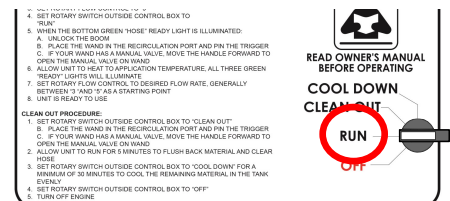
- A) Set rotary switch (A) on the hydraulic block to “9” for maximum sealant material flow during the start up process.

NOTE: Remember to return the flow control back to your starting point setting before beginning sealant material application.



4. POWER UP CONTROL PANEL:

- A) Set control panel rotary switch on front (outside) of control box to the “RUN” position.

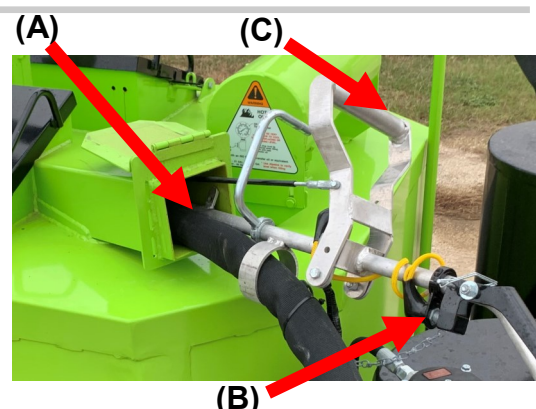


M1 / M2 Start Up Procedure

5. PREPARE HOSE AND WAND:

After powering up the control panel:

- Remove the wand from its holder on the fender
- Place the wand in the recirculation port (A) and pin the trigger (A).
- If your wand has a manual valve, move the handle forward to open the valve on the wand.

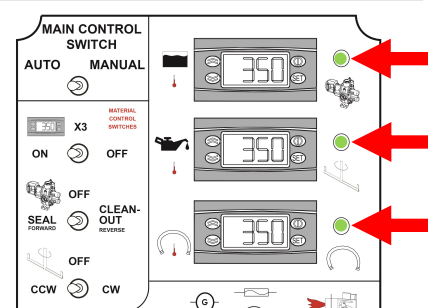


CAUTION

Do not pull or kink the hose. Moving the hose prior to it being up to operating temperature could permanently damage the hose.

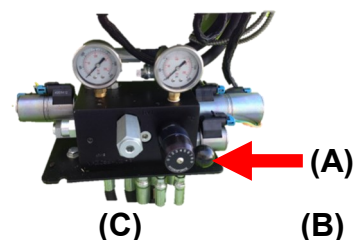
6. ALLOW UNIT TO HEAT SEALANT MATERIAL TO CORRECT APPLICATION TEMPERATURE:

The unit should be ready for operation when all three (green) ready lights are illuminated. The correct sealant material temperature is now reached in the sealant material tank. The agitator and pump should be running and the heated hose should be up to the proper temperature.



7. SET WAND FLOW CONTROL SPEED:

- Set flow control (A) to "0" with the wand securely in the recirculation port, the trigger pinned (B) and the manual valve open (C).
- Slowly adjust the flow control knob to begin the flow of material through the wand. The flow of material can be observed through the recirculation port.
- Generally most sealant materials dispense at a setting between "3" and "5" on the flow control.
- Once the material is flowing at the desired rate pull the manual valve handle back to close the valve on the wand.



CAUTION

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

8. RUNNING SEALING WAND:

With the start up procedure complete you are ready to begin sealing.

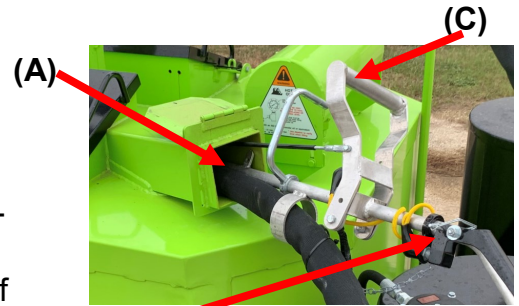
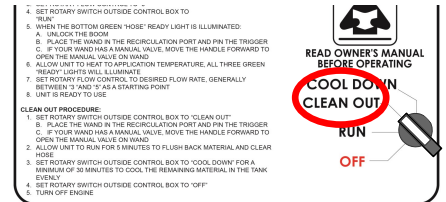
- Remove the pin from the wand trigger.
- Remove the wand from the recirculation port.
- Push the manual valve handle forward and squeeze the wand trigger to begin the flow and start sealing.
- Adjust the flow control as needed to best fit your movements and the size of the areas you are sealing.

M1 / M2 Clean Out & Shut Down Procedure

1. SET ROTARY SWITCH OUTSIDE CONTROL BOX TO “CLEAN OUT”:

The clean out function on the control box will reverse the sealant material pump and begin to evacuate the wand, heated hose and internal plumbing of a majority of the sealant material and return it back to the sealant material tank. The entire procedure (steps A - G) should be followed and all steps properly executed. Following this process fully will increase start up efficiency on the next job. If using duck-bill tip, remove from wand.

- Place the wand in the recirculation port (A) and pin the trigger (B).
- If your wand has a manual valve, move the handle forward to open the manual valve on the wand (C).
- Set rotary switch (E) on the hydraulic block to “9” for maximum sealant material flow during the clean out process.
- Allow the unit to run for 5 minutes to suck back as much of the sealant material to the tank as possible.
- After 5 minutes, unpin the wand trigger, pull the handle back on the manual valve to close the valve and remove the wand from the recirculation port.
- Properly secure the wand in the storage tray (F).
- Swing the boom all the way forward and lock the boom using the locking pin (D).



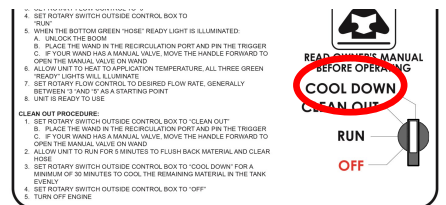
CAUTION

Caution should be taken to not pull or kink the hose excessively while

moving the boom back to its storage position. Moving the hose when cold could permanently damage the hose.

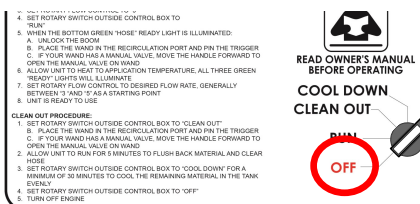
2. SET ROTARY SWITCH OUTSIDE CONTROL BOX TO “COOL DOWN”:

The “Cool Down” function on the control box will shut down all functions on the M-Series except the sealant material agitator. The cool down step should be run for a minimum of 30 minutes. Following this process will allow the sealant material to more evenly cool down and increase longevity of the material remaining in the tank.



3. SET ROTARY SWITCH OUTSIDE CONTROL BOX TO “OFF”

4. TURN OFF ENGINE



M1 / M2 Maintenance - Sealant Material Plumbing

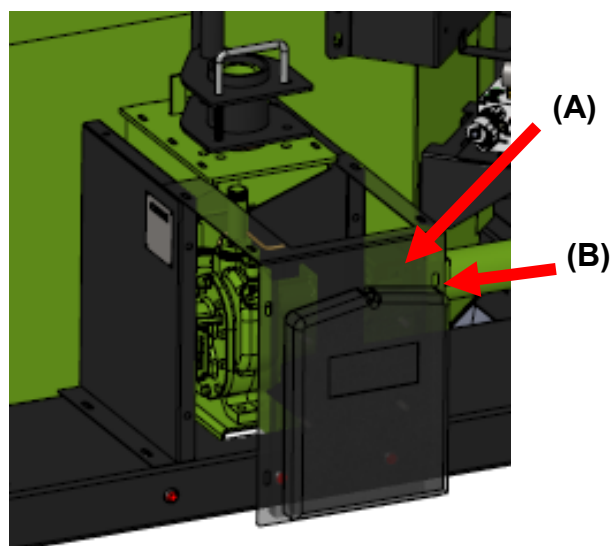
Material Plumbing

It's important to check the torque of the nuts on the plumbing flanges, check the torque of the nuts after the initial 8 hours of run time, then every 200 hours after that.

Accessing Plumbing

M1 and M2

A) Remove rear plumbing cover (A) by removing the 8 bolts (B) on the outside of the rear cover.

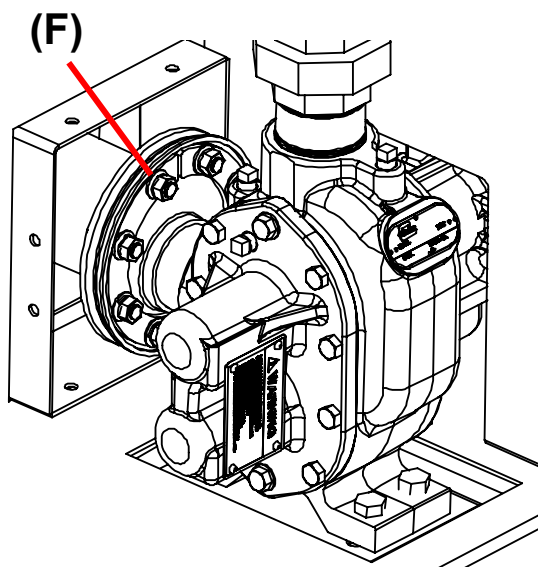


Plumbing Maintenance

Use a torque wrench with an extension and check the 8 nuts on the lower pump flange (F).

These need to be set to 22 Ft/pounds.

Reinstall plumbing cover when completed.



M-Series Sealant Material Tank Capacity

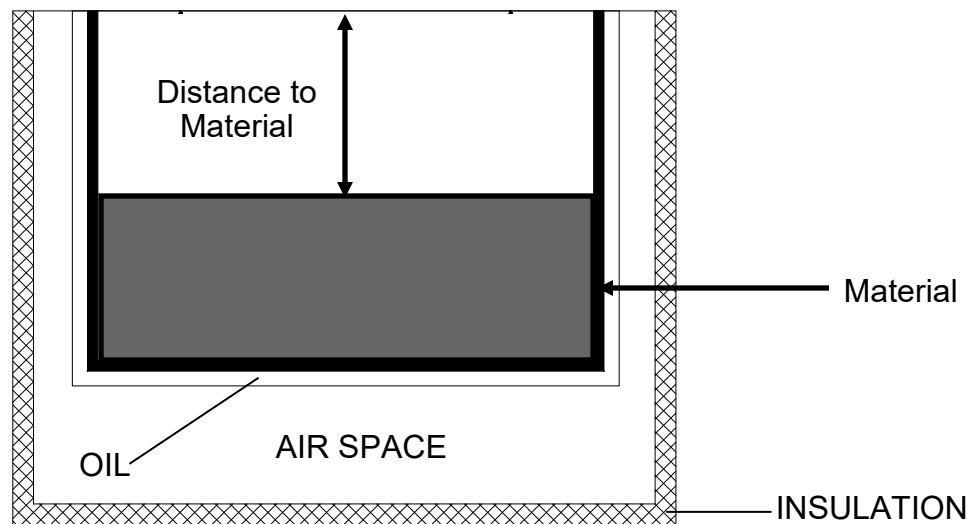
The amount of sealant material can be estimated by measuring the distance from the top of the tank to the sealant material. (When Material is cold)



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)



Distance To Material	M1 GALLONS (6.8 Gallons/Inch)	M2 GALLONS (9.7 Gallons/Inch)
5"	113 (Max)	
6"	105.6	170 (Max)
7.5"	94.5	162.7
9"	83.4	156.1
11"	68.6	141.5
13"	53.8	122.1
15"	39.0	102.7
17"	24.2	83.3
19"	9.5	63.9
21"		44.5
23"		25.1
25"		
27"		

M-Series Automatic Temperature Control Settings

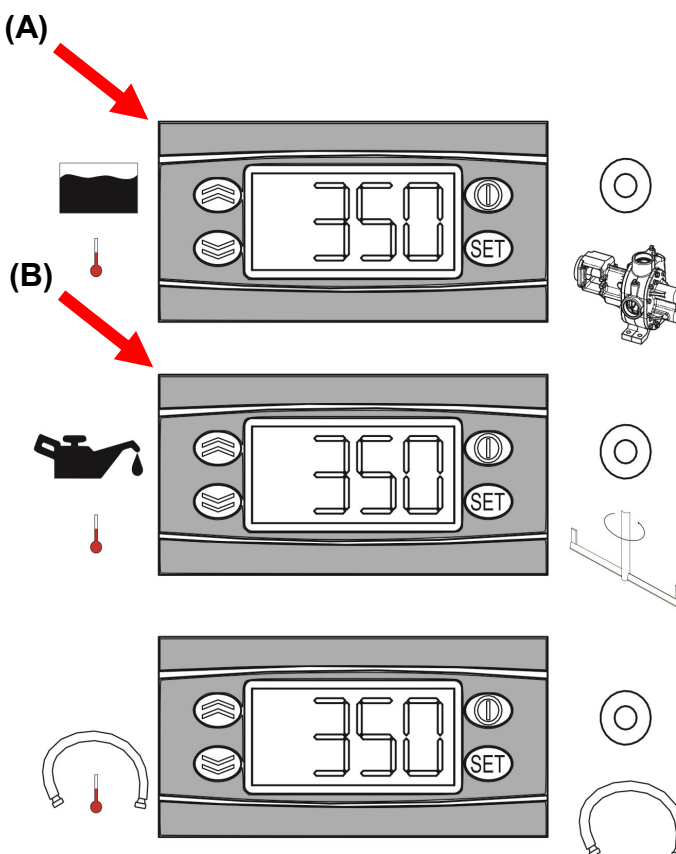
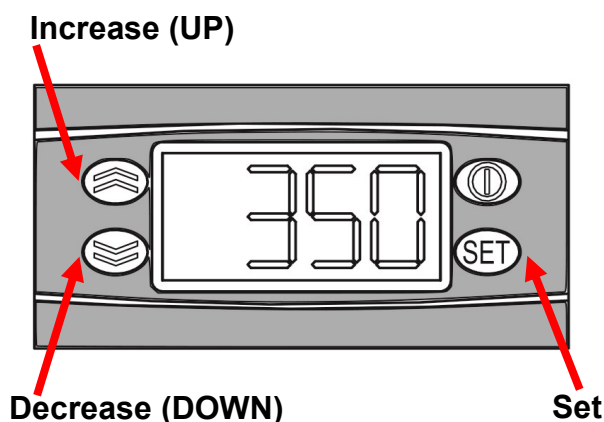
MODIFYING SEALANT TEMPERATURE CONTROL SETTINGS:

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 Fluid and Components Specifications

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

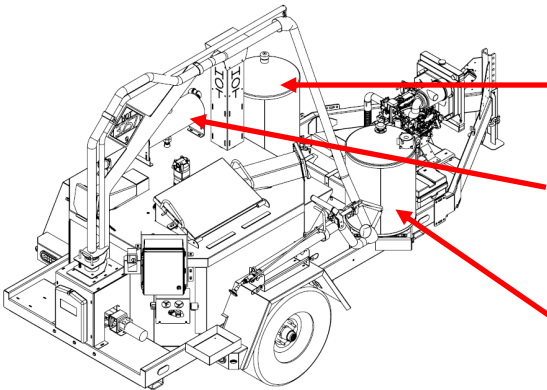
MELTER UNIT	HEAT TRANSFER OIL CAPACITY	PUMP Hydraulic Relief Setting	AGITATOR Hydraulic Relief Setting
M1	25 Gal (95 L)	800 psi (55 Bar)	1100 psi (76 Bar)
M2	30 Gal (114 L)	800 psi (55 Bar)	800 psi (55 Bar)

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.



DIESEL FUEL TANK

HEAT TRANSFER OIL
EXPANSION TANK

HYDRAULIC OIL
RESERVE TANK

M-Series 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.

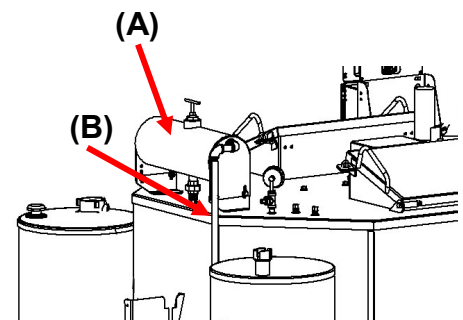
REFERENCE INFORMATION:

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 General Maintenance And Troubleshooting

GENERAL MAINTENANCE AND TROUBLESHOOTING:

M-Series Maintenance Schedule.....

M-Series Maintenance - Changing Heat Transfer Oil.....

M-Series Maintenance - Sealant Material Pump

M-Series Maintenance - Hydraulic Oil Servicing

M-Series Maintenance - Tank Burner.....

M-Series Maintenance - Trouble Shooting Guide.....

M-Series Melter Applicator Service Parts Kits.....

23

24

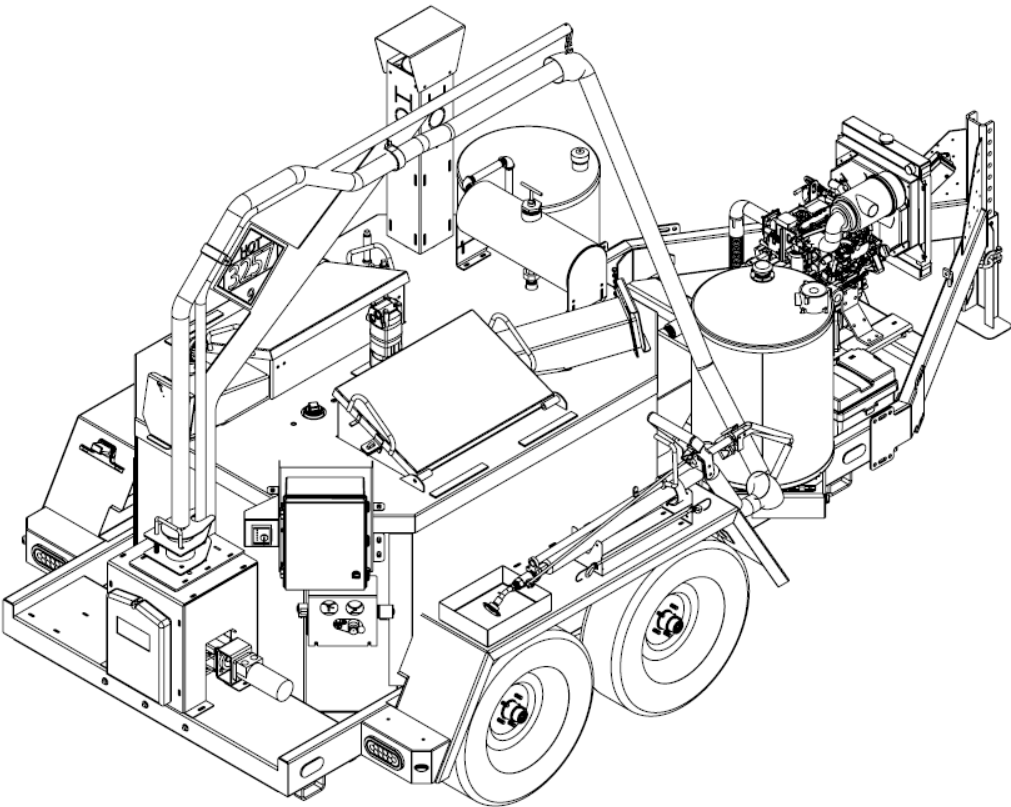
25

26-27

28-32

33

34-35



M-Series Maintenance Schedule

Maintenance Schedule / Operation	Every Day	Every 25 Hrs.	Every 100 Hrs.	Every 200 Hrs.	Every 500 Hrs. or Yearly	Manual Page Number
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				
Inspect sealing hose connections			X			
Inspect and clean engine cooling system/radiator			X			
Inspect sealant material pump packing (adjust if leaking is excessive)			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	
Flush engine radiator and replace fluid					X	

M-Series Maintenance - 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

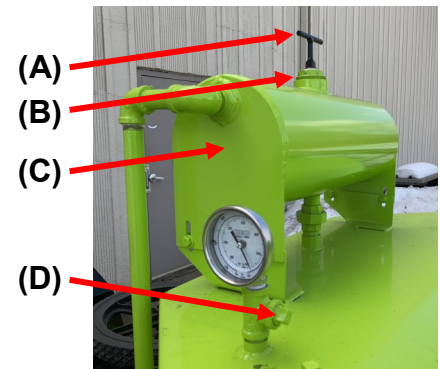
The melter operates at elevated temperatures which can cause burns. Be sure the heat transfer oil is cool before performing maintenance.

NOTICE

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

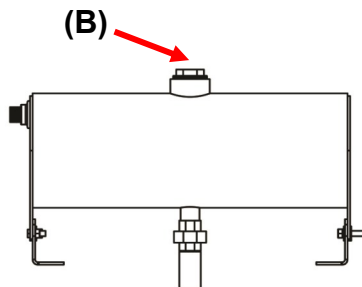
CHANGING/REPLACEMENT OF HEAT TRANSFER OIL:

- 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.

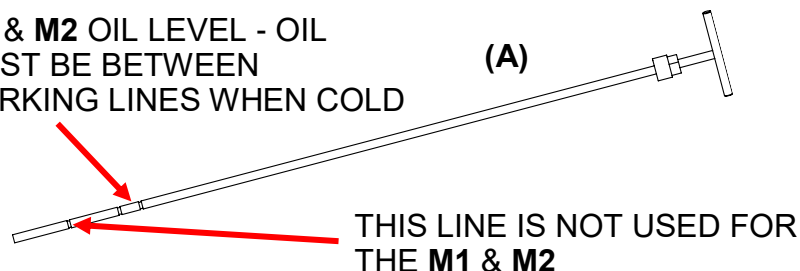


CHECKING HEAT TRANSFER OIL LEVEL:

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



NOTICE

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

M-Series Maintenance - Sealant Material Pump

SEALANT MATERIAL PUMP:

Examine the packing around the drive shaft for leakage. (A) Slight leakage (about 1 drip per minute) is necessary and is a normal condition for packing and allows for expansion and proper seating of the pump shaft. If leakage is excessive follow tightening instructions below.

TIGHTENING SEALANT MATERIAL PUMP PACKING:

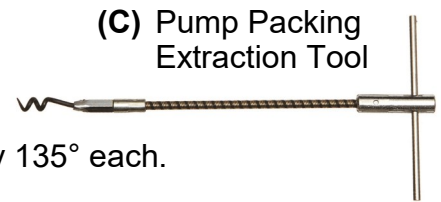
With machine warmed up and material pump running, tighten the 2 lock nuts (B) evenly by only a half turn each. Allow pump to flow for a minute and examine for leakage. If leaking continues repeat in half turn increments until excessive leaking stops. The pump will leak about 1 drip per minute when adjusted properly - this is normal.

The material pump is sealed by a series of compressible fibrous braded graphite packing rings. If tightening does not reduce the leaking, replace these packing rings. Contact your CIMLINE dealer for packing ring kit and follow the instructions below to replace.

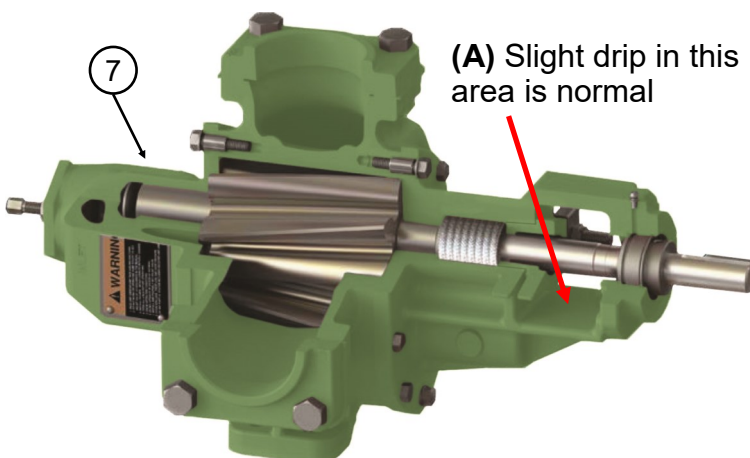


MATERIAL PUMP PACKING REPLACEMENT:

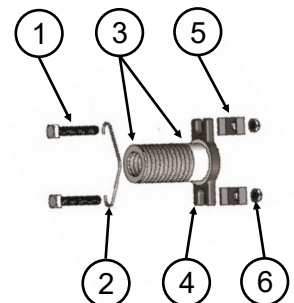
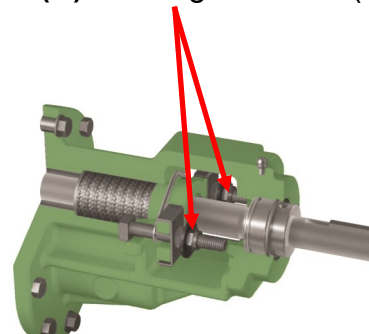
- 1) Remove the locknuts, packing gland clips, spring clip and square head bolts.
- 2) Slide the packing gland back as far as possible on the shaft.
- 3) Using a packing extractor tool (C) remove as much of the old packing as possible.
- 4) Clean the shaft and adjacent parts.
- 5) Examine the shaft, if excessively worn or scored the pump may need to be replaced.
- 6) Install new the 8 new packing rings, offsetting the open ends by 135° each.
- 7) Reassemble the components
- 8) Draw up evenly on the packing gland to assure proper seating of the packing and then loosen locknuts about 1/2 turn
- 9) NOTE: DO NOT COCK THE PACKING GLAND. THIS MAY CAUSE BINDING OR EXCESSIVE HEATING OF THE SHAFT
- 10) Run in the pump for several minutes and observe the leakage as explained above.



#	Part #	Description
1	120554	Square Head Bolt (2 Qty)
2	155148	Spring Clip
3	120541	Packing Rings (8 Qty)
4	120525	Packing Gland
5	120526	Packing Gland Clips (2 Qty)
6	100495	Locknuts (2 Qty)
7	120803	20GPM Material Pump



(B) Packing lock nuts (2)



M-Series Maintenance - 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.

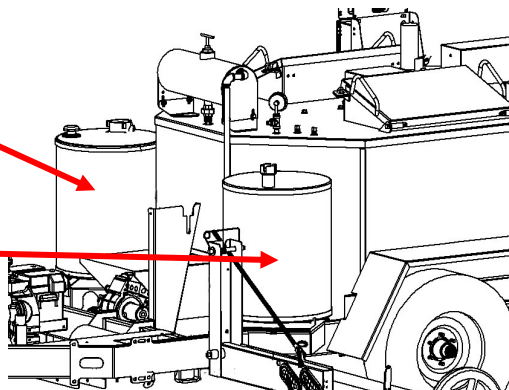
NOTICE

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**



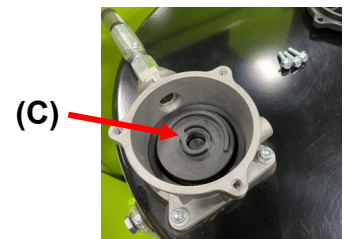
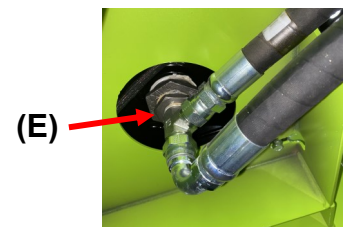
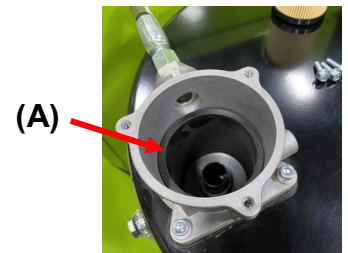
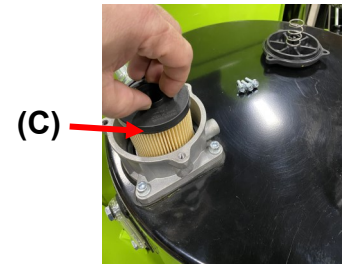
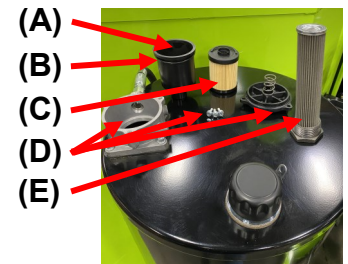
(G)



M-Series Maintenance - 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 Maintenance - 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.



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 Maintenance - 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 Maintenance - 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.

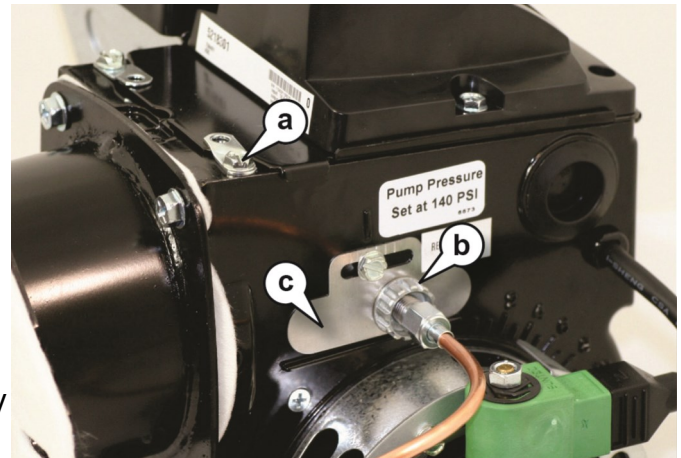
The simplest way to check igniter operation is by supplying voltage to the input and checking to see whether an arc is produced. Check by either looking or listening to see if there is an arc across the electrodes while the burner is running and the igniter is energized.

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.

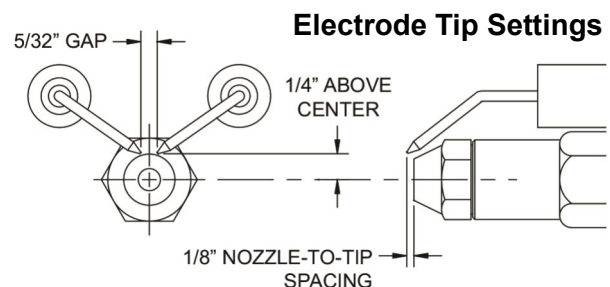


Replacing The Burner Nozzle:

- 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 Maintenance - 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.

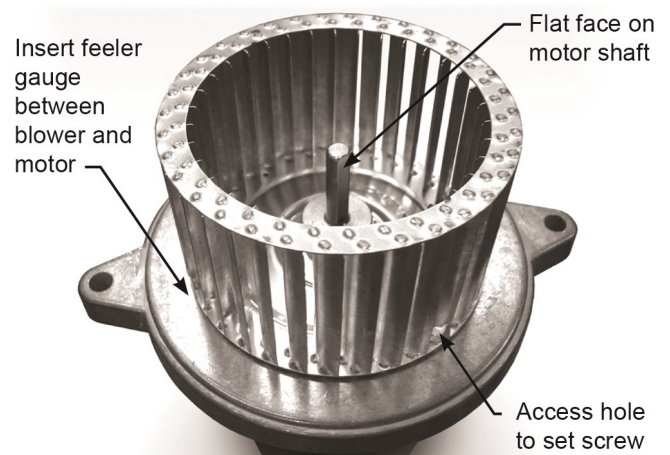
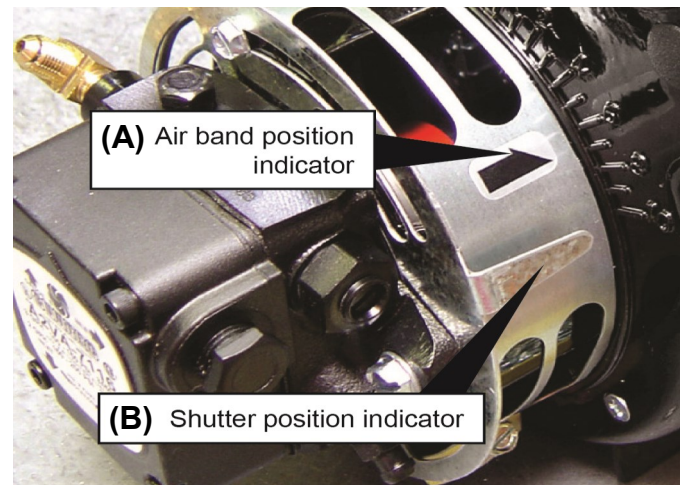
Air Band Position (A) should be set to 8.5

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.

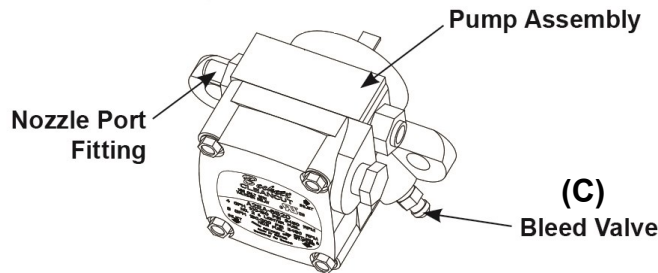


M-Series Maintenance - Tank Burner

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

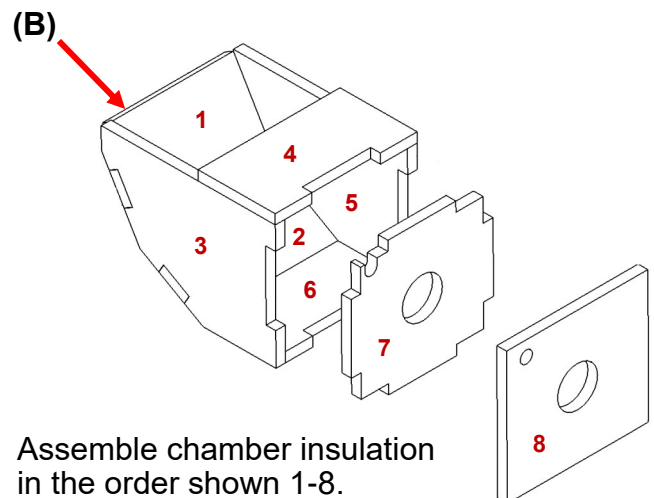
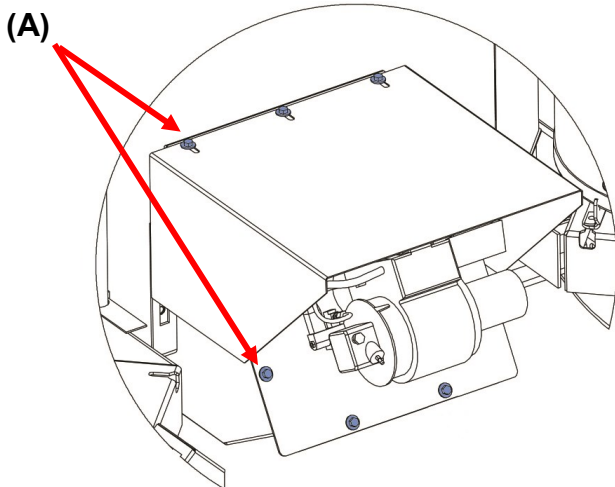
Do not run machine if cracks are wide enough to allow flame to contact the metal combustion chamber walls or if any piece has broken loose. Do not attempt to repair cracks.



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.

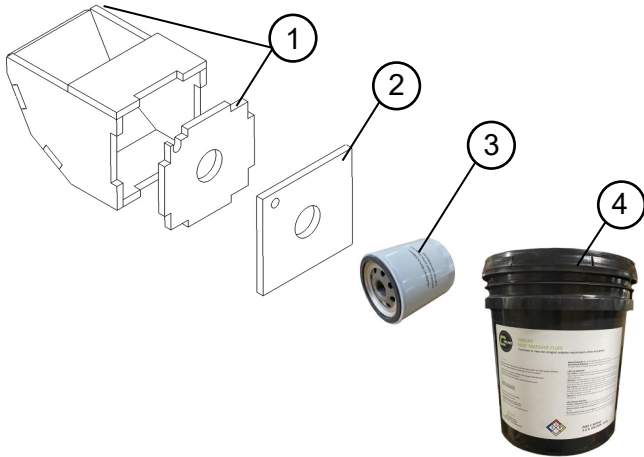


M-Series Trouble Shooting Guide

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
Material pump will not rotate	Fuse burned out	Check 10A control switch fuse
	Sealant material not hot enough	Allow material to heat longer
	Too much cold material left in lines from previous use	Heat plumbing and valve to melt material
	Low hydraulic level	Check hydraulic oil level
	Foreign object lodged in line	Locate/remove foreign object
	Pump worn or damaged	Confirm pump switch on control panel is in "SEAL" forward position
Material pump rotates but does not pump material	Pump rotating in wrong direction	Reverse pump switch
	Pump inlet line plugged	Check sealant tank grid and lines for obstruction
	Too much cold material left in lines from previous use	Heat plumbing and valve to melt material
	Pump worn or damaged	Replace pump
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
Material recirculates but will not flow through sealing nozzles.	Sealing nozzle valve not completely closing or worn out	Realign valve or replace
	Actuator not turning valve	Realign valve or replace

M-Series 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

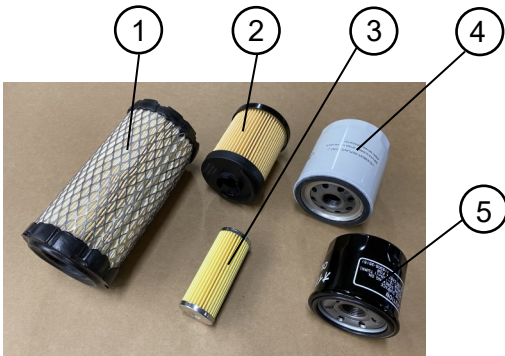
#	Part #	Description
1	403400	Burner Chamber Lining Kit
2	152487	Heat Chamber Insulation
3	170169	3" Fuel Filter
4	403910	5gal Heat Transfer Oil (6 Qty)

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.

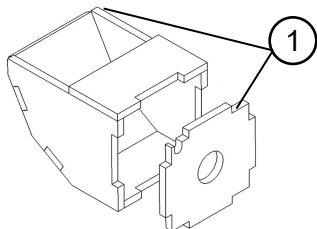
4	403910	5gal Heat Transfer Oil (8 Qty)
---	--------	--------------------------------

M-Series Engine/Hydraulic Fluids Service Kit Part #406597



#	Part #	Description
1	111111	Engine Air Filter Element
2	170407	Hydraulic Return Filter Element
3	111457	Engine Fuel Filter Element
4	170169	3" Fuel Tank Filter
1	111337	Engine Oil Filter

M-Series Burner Chamber Lining Kit Part #403400



#	Part #	Description
1	403400	Burner Chamber Lining Kit

M-Series Pump Packing Set Kit Part #120541



#	Part #	Description
1	120541	Pump Packing Set

M-Series Spare Parts Kit (Optional)

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 General Parts and Assembly Drawings

Parts and Assembly Drawings:

M-Series Tank Burner Internal Wiring Diagram.....

37

M1 / M2 Trailer Wiring Diagram and Parts

38

M1 / M2 Main Wiring Harness

39

M1 / M2 Control Panel Wiring Diagram and Parts.....

40-41

M-Series Tank Burner Parts

42

M-Series Hydraulic Reservoir and Diesel Tank Parts.....

43

M-Series Sealant Wand Diagram and Parts.....

44-46

M-Series Optional Sealant Wand Attachments

47

M1 / M2 Combustion Chamber

48

M1 / M2 Agitation System Diagram and Parts.....

49

M1 / M2 Hydraulic Manifold Parts and Schematic.....

50-51

M1 / M2 Diesel Engine Components

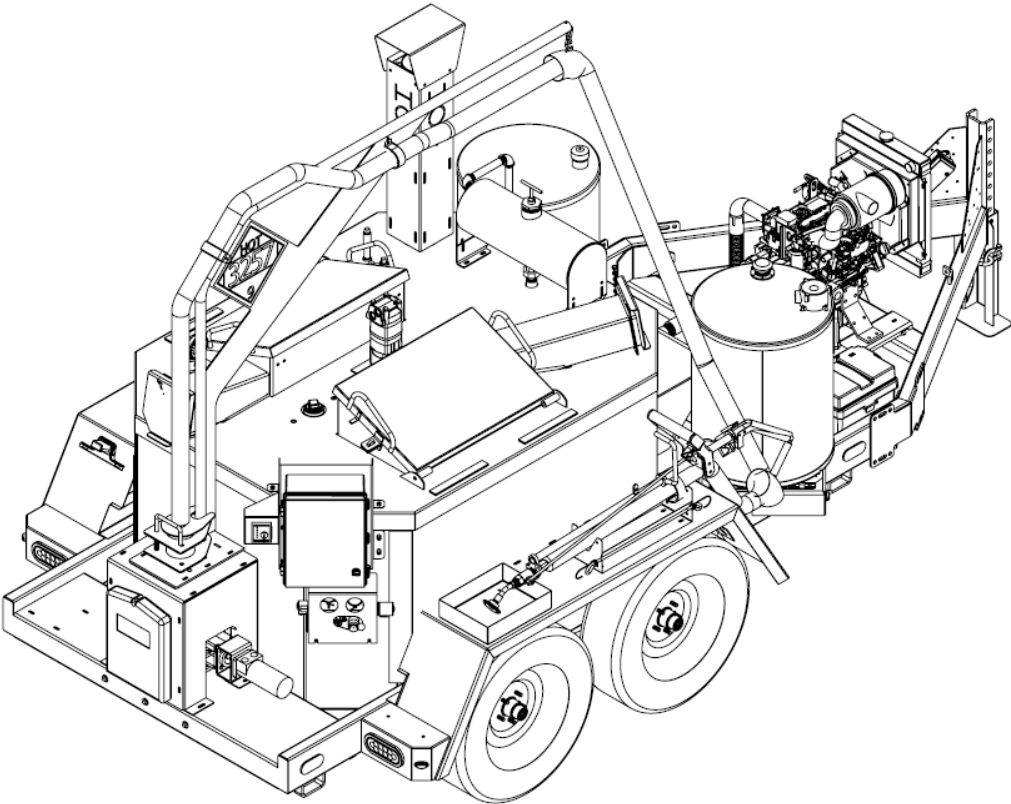
52-53

M1 / M2 Sealant Material Plumbing Parts

54

M1 / M2 Miscellaneous Components and Parts

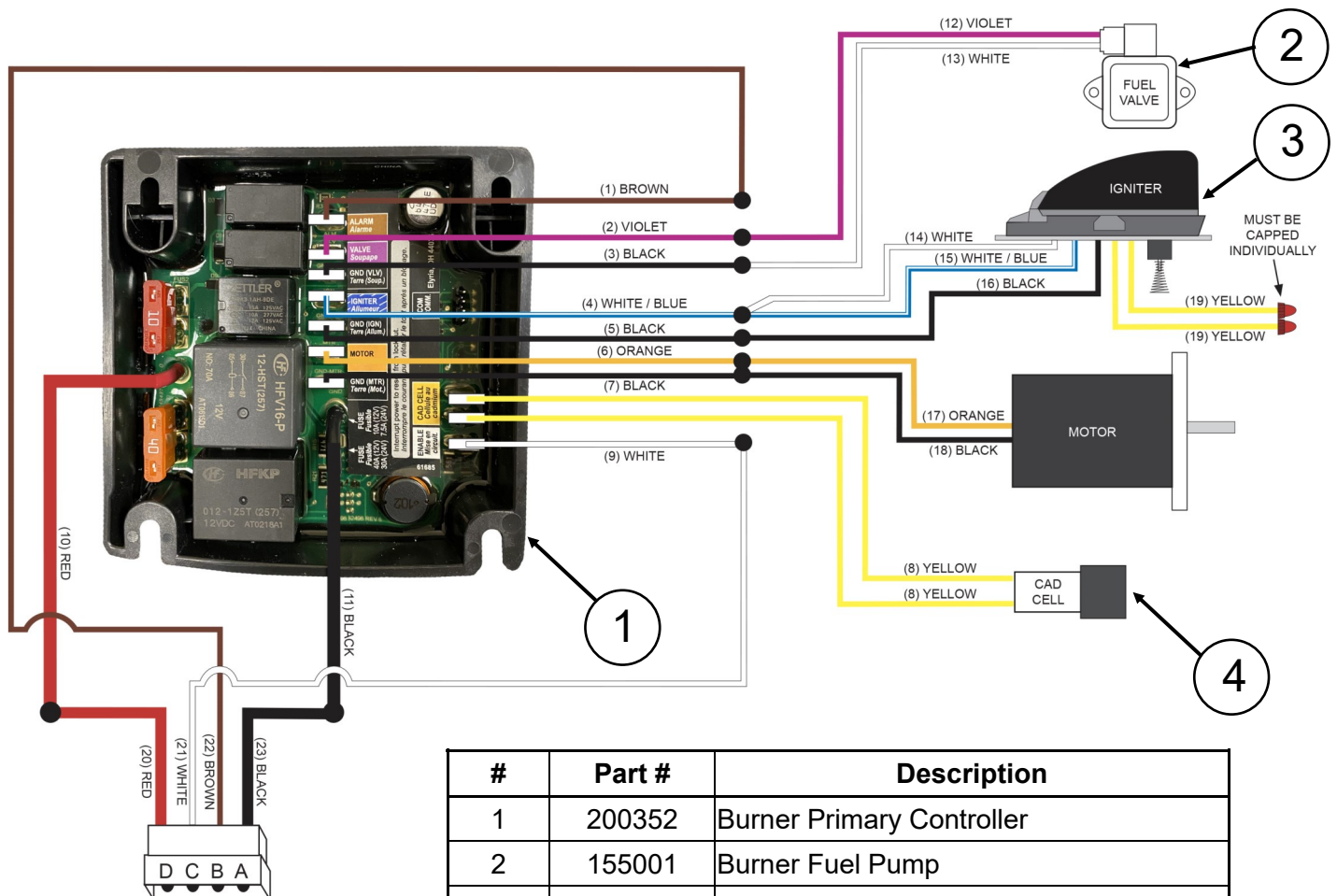
55-58



Tank Burner Internal Wiring Diagram

#	COLOR	DESCRIPTION
1	Brown	Alarm To Controller
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

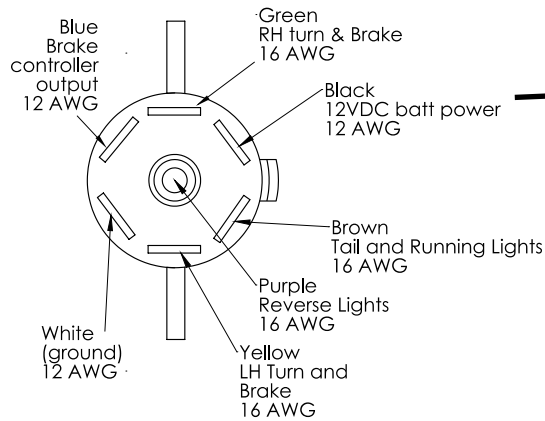
#	COLOR	DESCRIPTION
12	Violet	Fuel Valve Input Lead
13	White	Fuel Valve Ground Lead
14	White	Secondary Igniter Input Lead
15	Wht/Blu	Primary Igniter Input Lead
16	Black	Igniter Ground Lead
17	Orange	Motor Input Lead
18	Black	Motor Ground Lead
19	Yellow	Not Used (Capped Individually) X2
20	Red	12V (+) 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)

M1 / M2 Trailer Wiring Diagram and Parts

60" Trailer Harness Cable PN 156025



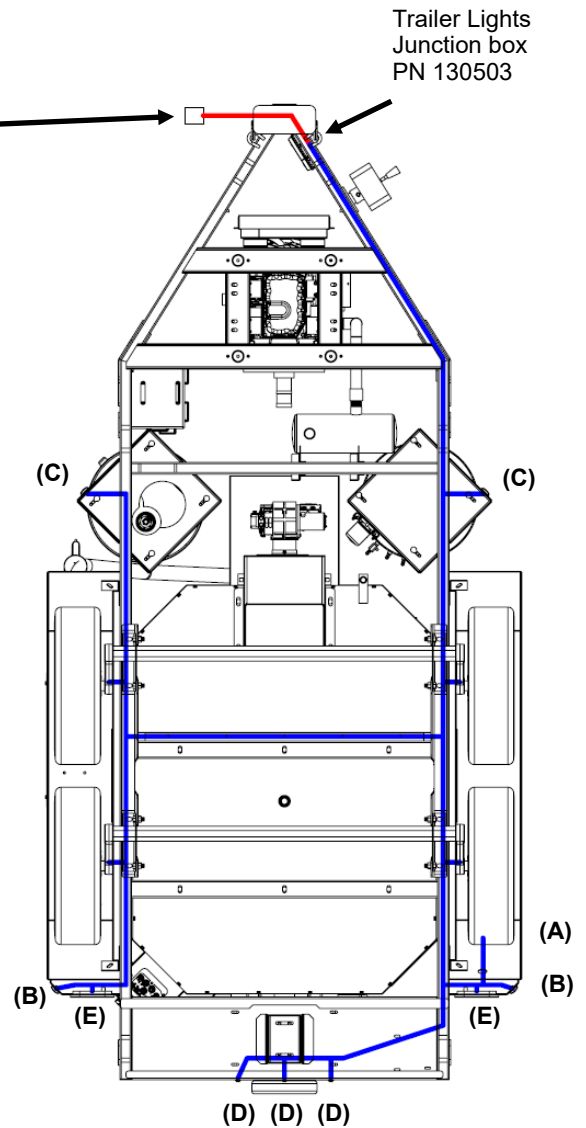
Front view of plug

BRAKING NOTE:

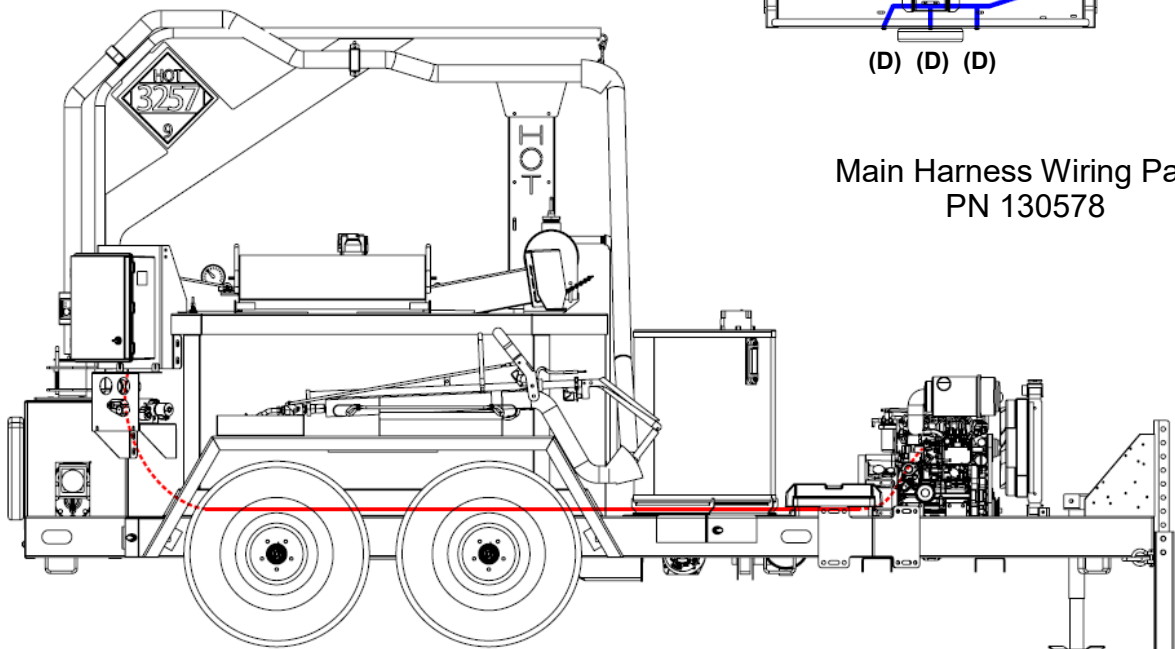
Brake controller is required on vehicle to activate the brakes on the trailer.

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)



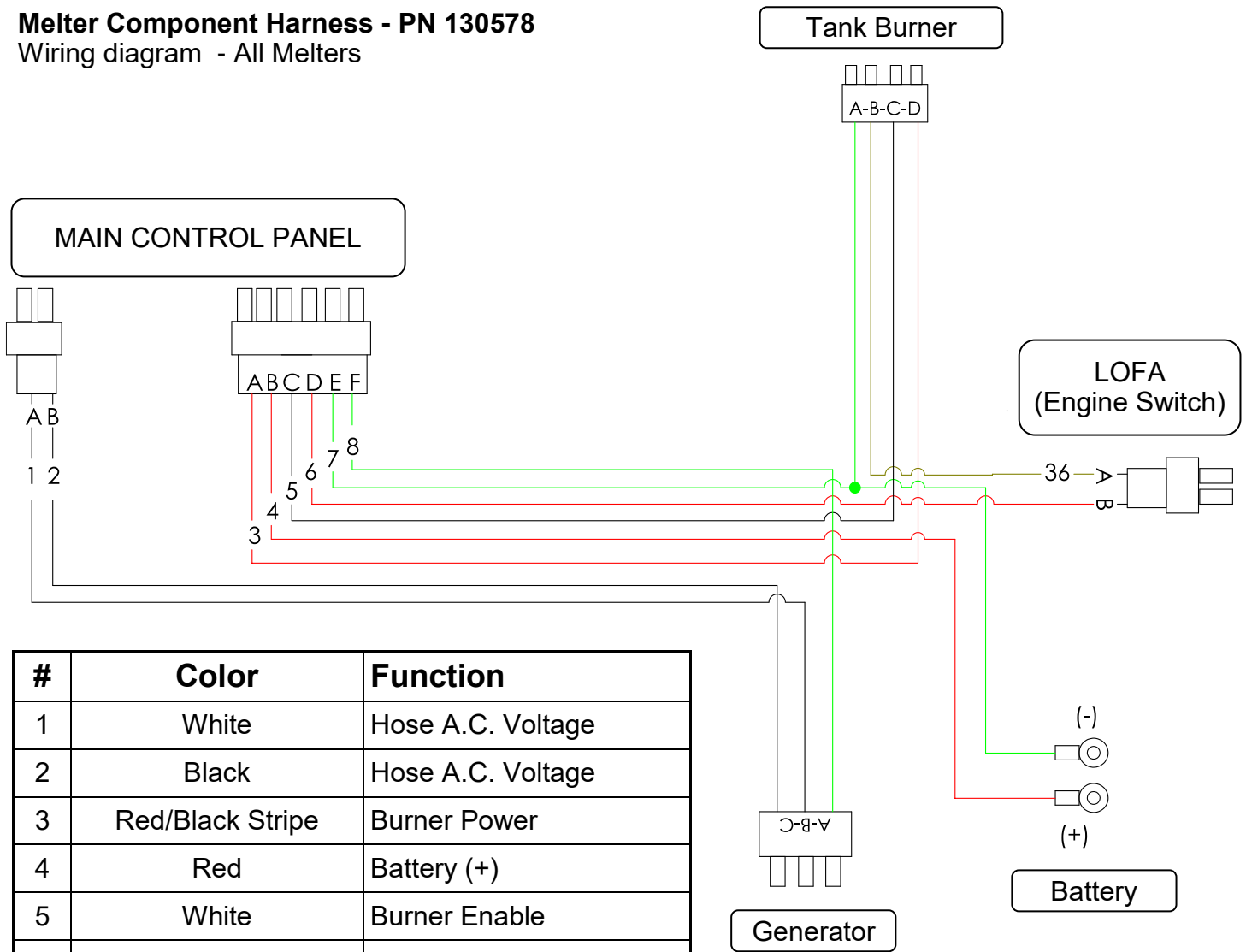
Main Harness Wiring Path.
PN 130578



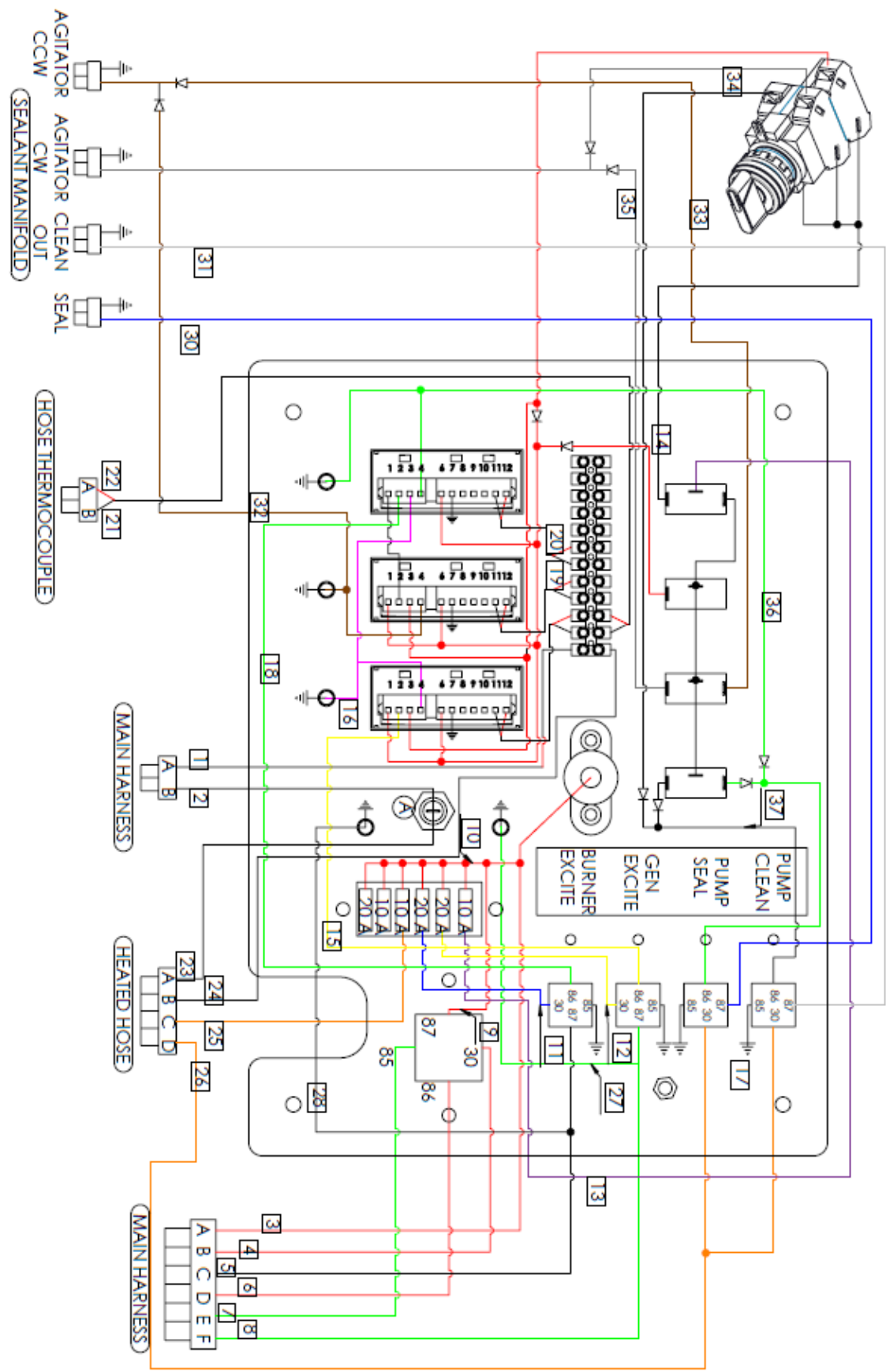
M1 / M2 Main Wiring Harness Diagram

Melter Component Harness - PN 130578

Wiring diagram - All Melters



M1 & M2 Control Panel Wiring Diagram



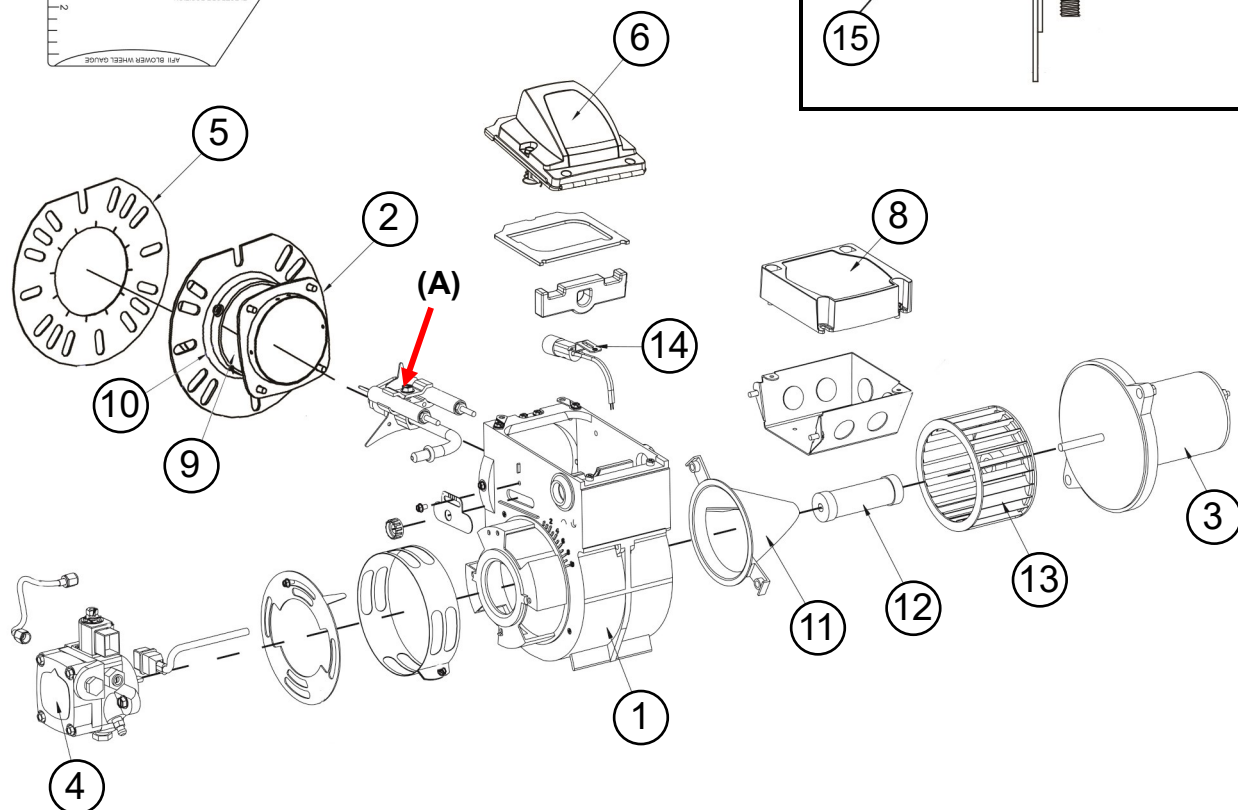
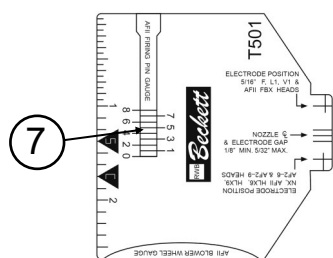
M1 & M2 Control Panel Wiring Diagram

Number	Color	Function	AWG Wire Gauge
1	White	Hose A.C. Voltage	16
2	Black	Hose A.C. Voltage	16
3	Red/Black Stripe	Burner Power	14
4	Red	Battery (+)	12
5	White	Burner Enable	16
6	Red	Micro Panel Accessory Input	16
7	Green/Yellow Stripe	Battery (-)	12
8	Green/Red Stripe	Generator Excite	16
9	Red	AC.S Relay Output	12
10	Red	Relay Panel Lug to Fuse	16
11	Blue	Fuse to Burner Relay	16
12	Yellow	Fuse to Generator Relay	16
13	Purple	Fuse to Manual/Auto Switch	16
14	Black	Auto/Manual Switch to Rotary Switch	16
15	Yellow/Red Stripe	Hose Controller to Generator Relay	16
16	Pink	Hose Controller to LED/Material Controller	16
17	Green/Yellow Stripe	Ground (All Ground Symbols on Drawing)	16
18	Green	Material Controller to Burner Relay	16
19	White Sensor Wire	Controller to Terminal Strip	Sensor Wire
20	Red Sensor Wire	Controller to Terminal Strip	Sensor Wire
21	White Sensor Wire	Terminal Strip to Hose	Sensor Wire
22	Red Sensor Wire	Terminal Strip to Hose	Sensor Wire
23	Black	Hose A.C.	16
24	White	Hose A.C.	16
25	Orange/Red Stripe	Fuse to Hose Accessory	16
26	Orange	Hose Switch to Pump Relays	16
27	Green/Red Stripe	Generator Relay to LED	16
28	White	Burner Relay to LED	16
30	Blue	Seal Relay to Manifold	16
31	Gray	Clean Out Relay to Manifold	16
32	Brown	Oil Controller to Agitator CCW	16
33	Brown	Manual Switch to Agitator CCW	16
34	Tan	Rotary Switch to Agitator CW	16
35	Tan	Manual Switch to Agitator CW	16
36	Green	Material Controller to Seal Relay	16
37	White	Switches to Clean Relay	16

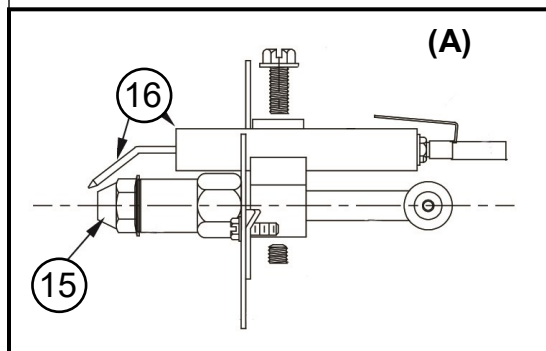
Tank Burner Parts

#	PART #	DESCRIPTION
1	152197	Tank Burner, Complete M1 & C1
1	404428	Tank Burner, Complete M2
1	404388	Tank Burner, Complete M4 & MA4
2	153505	Square Plate, Gasket
3	152191	Tank Burner Motor (Items #12 & #13)
4	155001	Fuel Pump
5	152128	Gasket, Burner Flange
6	152173	Ignition Transformer Assembly
7	152668	Nozzle / Electrode Set Gauge
8	200352	Primary Control Assembly
9	120443	Air Tube

#	PART #	DESCRIPTION
10	153446	Burner Head Tube
11	152398	Air Inlet Guide
12	152399	Coupling
13	152466	Blower Wheel
14	152105	Cad Cell (Electric Eye) Assembly
15	152305	Nozzle Tip M1 & C1 1.75gph x 90B
15	152204	Nozzle Tip M2 2.00gph x 90B
15	153445	Nozzle Tip M4 & MA4 2.25gph x 90B
16	152106	Electrode Rod Assembly
*	130166	Fuel Pressure Gauge
		* - Not Shown

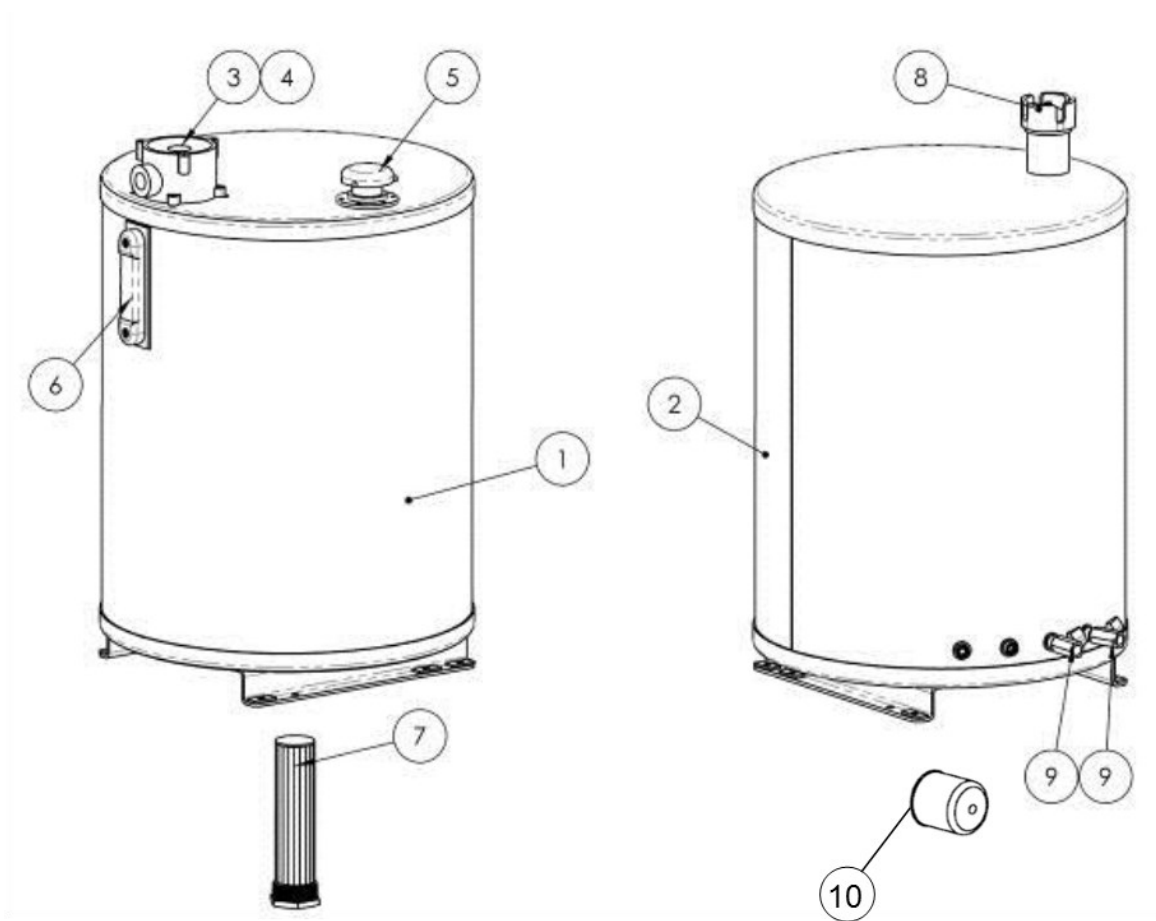


Complete Burner Nozzle Line Assembly - Part #155328



M-Series Hydraulic Reservoir and Diesel Tank Parts

#	PART #	DESCRIPTION
1	172618	Hydraulic Tank
2	309-074-004	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	156463	Fuel Gauge / Cap
9	120743	Fuel Shut-off Valve
10	170169	Fuel filter

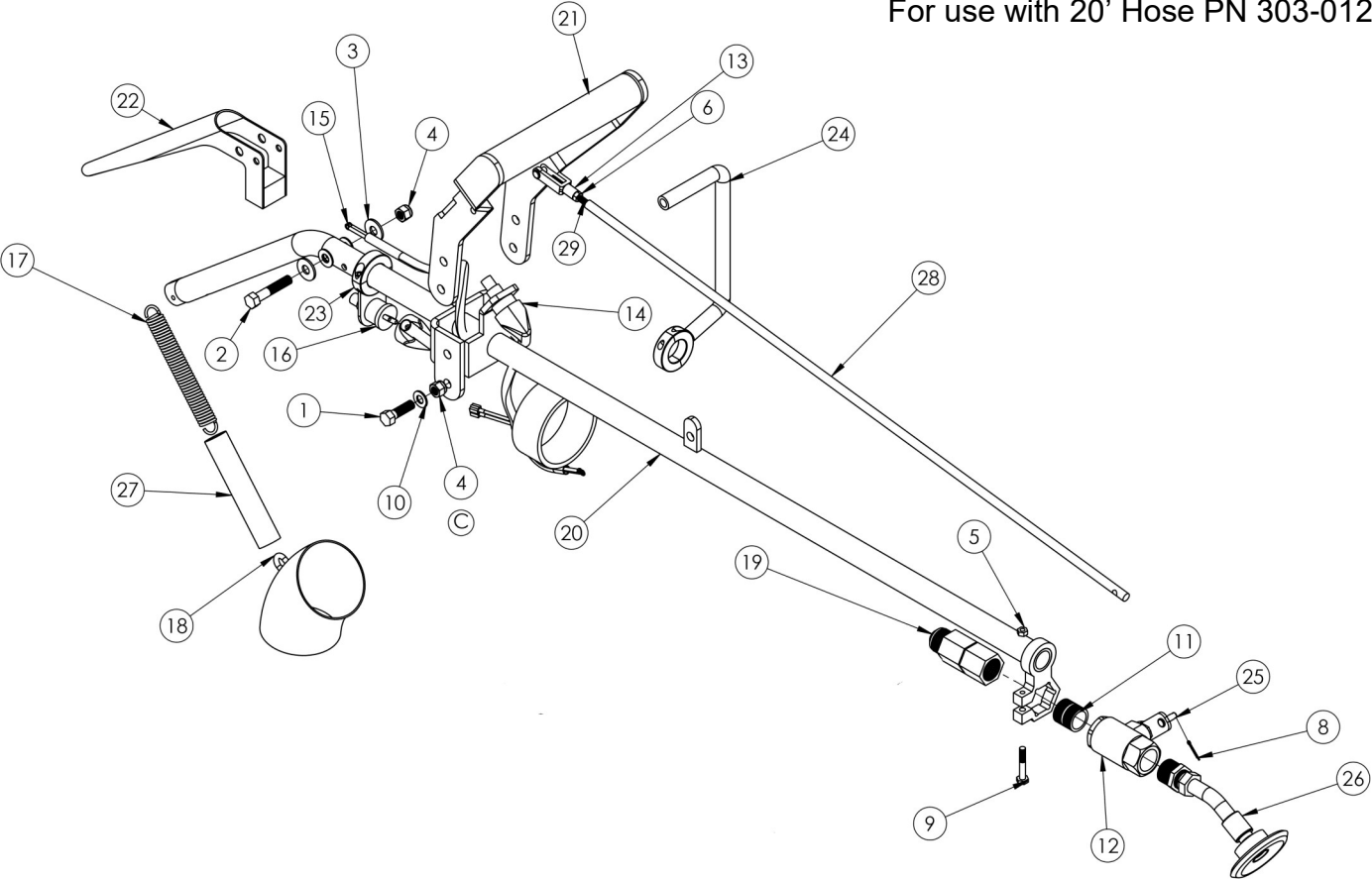


M-Series No Drip Sealant Wand

#	PART #	DESCRIPTION	QTY.	#	PART #	DESCRIPTION	QTY.
1	100017	HHCS .38 x 1.25	2	16	152058	Switch	2
2	100020	HHCS .38 X 2.00	1	17	155297	Spring	1
3	100126	Washer-Flat .38	2	18	155975	Sleeve w/Link	1
4	100169	Nut-Plastic Lock .38	3	19	171065	Swivel	1
5	100206	Nut-Hex .25	1	20	303-005-000	Handle Assembly	1
6*	100207	.25 Nut	1	21	303-006-000	Handle	1
7	100211	Washer - Flat SAE .38	2	22	303-008-004	Switch Activation Assy.	1
8*	100275	Cotter Pin .09 X .75	1	23	303-011-004	Switch, Wand	1
9	100562	HHCS 1/4 X 1-1/2	1	24*	303-013-601	Wand, Frt Hndl	1
10	111725	Thrust Washer	2	25*	403905	Valve Lever	1
11*	120412	Pipe-Nipple-Close-.75	1	26	407232	Swivel Tip	1
12*	120560	Wand Valve .75 IN	1	27	427116	Spring Guard	1
13*	130155	Clevis Kit	1	28*	427358	Rod	1
14	130224	Boot, Switch	2	29*	429945	Stud	1
15	130580	Harness, Wand	1		303-004-000	Complete Wand Assy.	

* Not used on Light Weight Wand 303-003-000

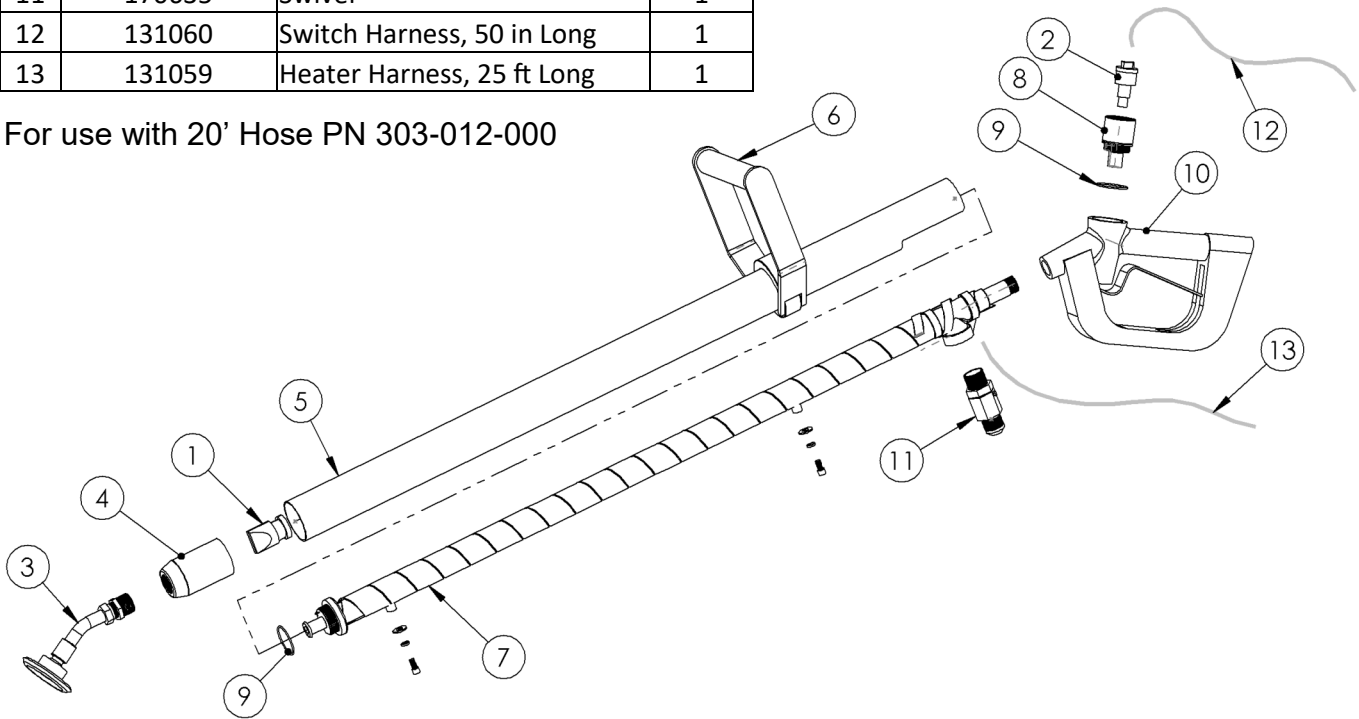
For use with 20' Hose PN 303-012-000



M-Series Heated Wand PN 309-010-902

#	Part #	DESCRIPTION	QTY
1	156431	Duckbill Valve	1
2	152058	Switch	1
3	407232	Swivel Tip	1
4	309-021-000	Valve Cover	1
5	309-015-000	Wand Cover	1
6	156430	Handle	1
7	309-022-000	Wand Assy	1
8	309-015-000	Switch Adapter	1
9	172697	O-Ring	2
10	156430	Handle	1
11	170635	Swivel	1
12	131060	Switch Harness, 50 in Long	1
13	131059	Heater Harness, 25 ft Long	1

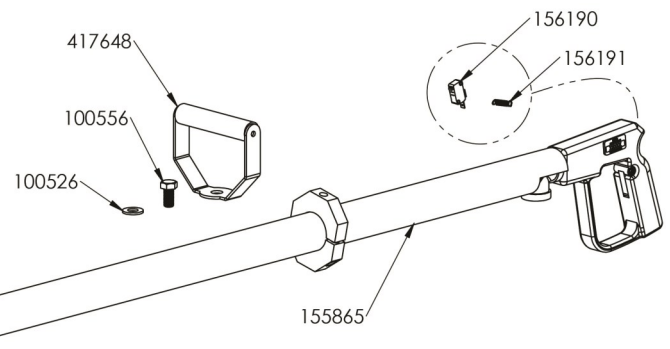
For use with 20' Hose PN 303-012-000



Legacy Heated Sealant Wand

#	PART #	DESCRIPTION	QTY.
1	155865	Heated Wand Assy.	1
3	100556	HHCS .50 x 1.0 GR 5 ZP	2
4	409228	Heated Wand Handle	1
5	100526	Washer-Flat-SAE .50	2
6	161689	Decal - Heated Wand SN	1
13	156249	Clamp	1
	409134	Complete Heated Wand Assy.	

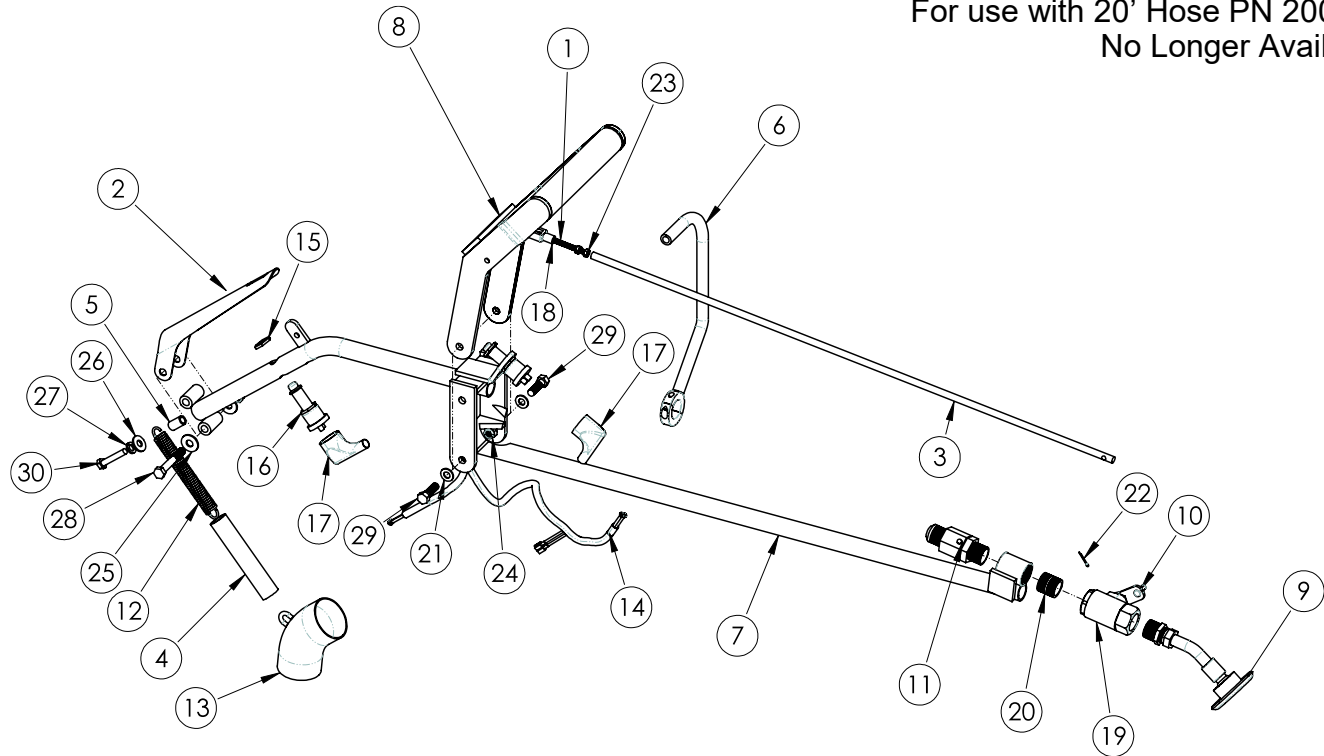
For use with 18' Hose Part #200622
No longer available



M-Series Legacy Sealant Wand Parts

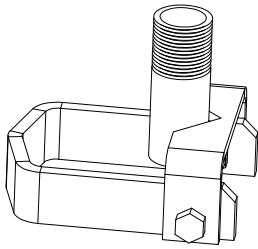
#	PART #	DESCRIPTION	QTY.	#	PART #	DESCRIPTION	QTY.
1	429945	STUD	1	16	130323	SWITCH - MOMENTARY	2
2	427557	CLUTCH LEVER	1	17	130224	BOOT, SWITCH	2
3	427358	ROD	1	18	130155	CLEVIS KIT-.25-28 X .25	1
4	427116	SPRING GUARD	1	19	120560	WAND VALVE .75 IN	1
5	426987	SPACER	1	20	120412	PIPE-NIPPLE-CLOSE-.75	1
6	407872	SUB HANDLE	1	21	111725	THRUST WASHER	2
7	407863	WAND SUB -WELD	1	22	100275	COTTER PIN .09 X .75	1
8	407862	HANDLE	1	23	100207	.25 NUT	2
9	407232	SWIVEL TIP	1	24	100169	NUT-PLASTIC LOCK .38	3
10	403905	VALVE LEVER	1	25	100126	WASHER-FLAT .38	2
11	170635	SWIVEL	1	26	100125	WASHER-FLAT .31	1
12	155297	SPRING	1	27	100092	WASHER-SPLITLOCK .31	1
13	155272	SLEEVE W/ LINK	1	28	100022	HHCS .38X2.5	1
14	130580	HARNESS, WAND	1	29	100017	HHCS .38 X 1.25	2
15	130324	LOCKNUT - 5/8-32 BRASS	2	30	100009	HHCS .31 X 1.75	1

For use with 20' Hose PN 200526
No Longer Available



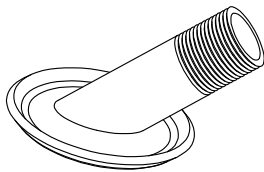
Optional Wand Attachments Available See Page 35

Optional Sealant Wand Attachments



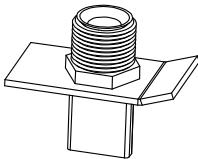
PIVOTING SHOE 2-1/2" / 403137

- 2-1/2" Wide Band
- 3/4" NPT Inlet
- Open Shoe Design For Clear Visibility Of Material
- Pivoting Inlet Tube Maintains Contact With The Road



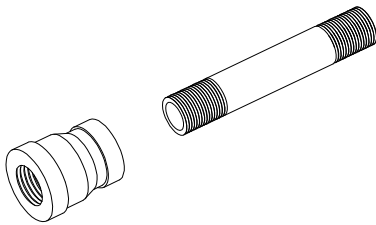
SEALING DISC 3.5" / 403162 SEALING DISC 2.5" / 404528

- 2" or 3" Wide Band
- 3/4" NPT Inlet
- 3/8" OD Orifice
- 4-1/2" OD Plate
- Uniform Band Provided By Disc Shape



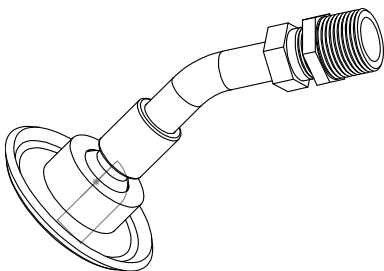
SEALING TIP 1/8" / 403164Z SEALING TIP 1/4" / 403163Z

- Available In 1/8" And 1/4"
- 3/4" NPT Inlet
- Skid Plate To Reduce Operator Fatigue
- Tip May Be Shortened Or Angled On Field For Specific Applications



SEALING TUBE 3/8" / 416968 REDUCER 3/4" X 3/8" / 120567

- 3/8 NPT X 3-1/2" Long Tube
- Angled Tip
- May Be Flattened In Field For Different Applications
- 3/4" NPT Inlet
- **120567 REDUCER REQUIRED**



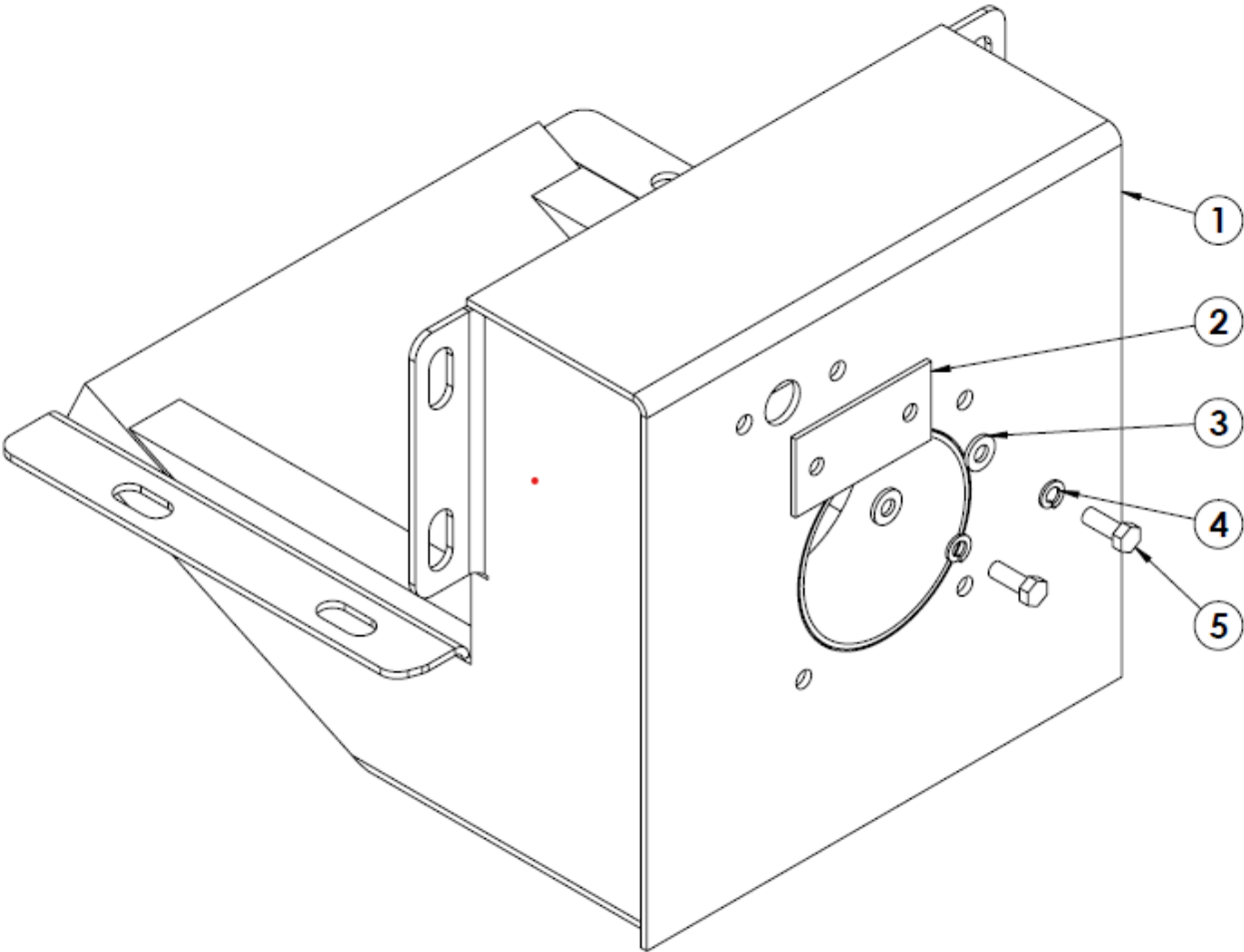
SWIVEL TIP 4" / 407233 SWIVEL TIP 2-1/2" / 407232

- 2" or 3-1/2" Wide Band
- 3/4" NPT Inlet
- 3/8" OD Orifice
- 3-1/8" OD Plate
- Uniform Band Provided By Disc Shape
- Pivoting Shoe

M1 / M2 Combustion Chamber Parts

COMPLETE ASSEMBLY (ITEMS 1-11) - Part #404518

#	PART #	DESCRIPTION	QTY.
1	311-168-004	M-SERIES A BURNER CHAMBER	1
2	417041	INSPECTION COVER	1
3	100211	WASHER FLAT SAE 0.38	2
4	100093	WASHER SPLITLOCK 0.38	2
5	100016	HHCS 0.38 X 1.0	2



M1 and M2 Agitation System Parts

M1

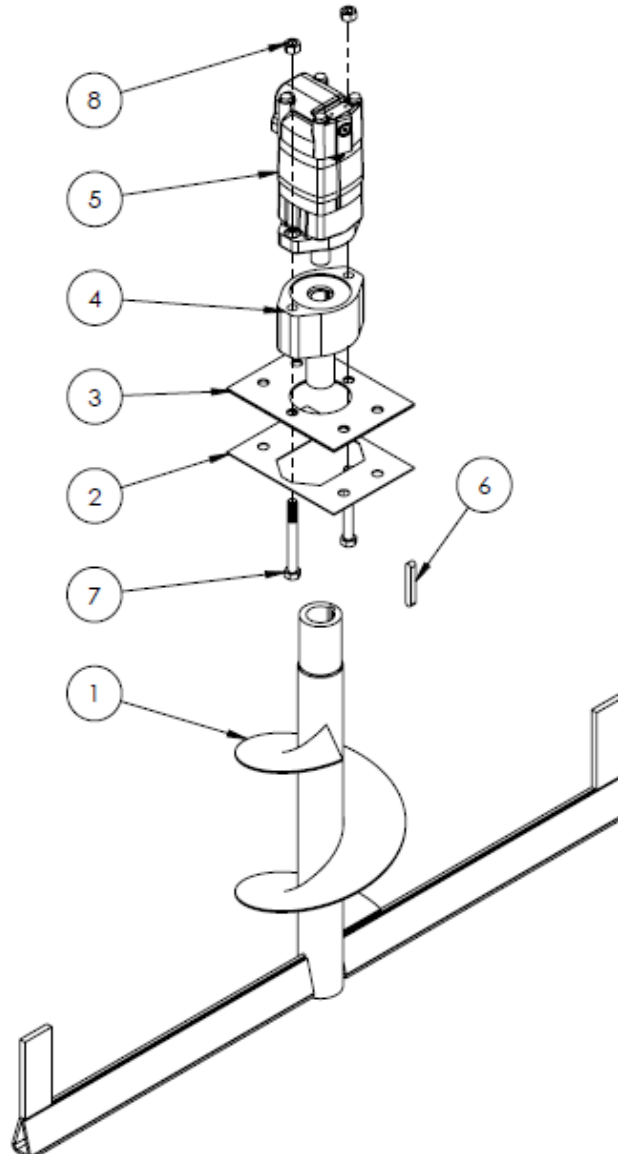
#	PART #	DESCRIPTION	QTY
1	311-107-000	M1 AGITATOR WELD	1
2	311-192-000	GASKET - HYD MOTOR	1
3	311-191-000	PLATE - HYD MOTOR MOUNT	1
4	172709	LOAD ADAPTER 2K HYD MOTOR	1
5	172708	HYD MOTOR 2K	1
6	110715	KEY .38 X 2.75 LG	1
7	101299	HHCS .5 X 4.5 GR 8 ZP	2
8	100071	1/2-13 HEX NUT	2

M2

#	PART #	DESCRIPTION	QTY
1	403557	AGITATOR WELDMENT	1
2	311-192-000	GASKET - HYD MOTOR	1
3	311-191-000	PLATE - HYD MOTOR MOUNT	1
4	172709	LOAD ADAPTER 2K HYD MOTOR	1
5	172708	HYD MOTOR 2K	1
6	110715	KEY .38 X 2.75 LG	1
7	101299	HHCS .5 X 4.5 GR 8 ZP	2
8	100071	1/2-13 HEX NUT	2

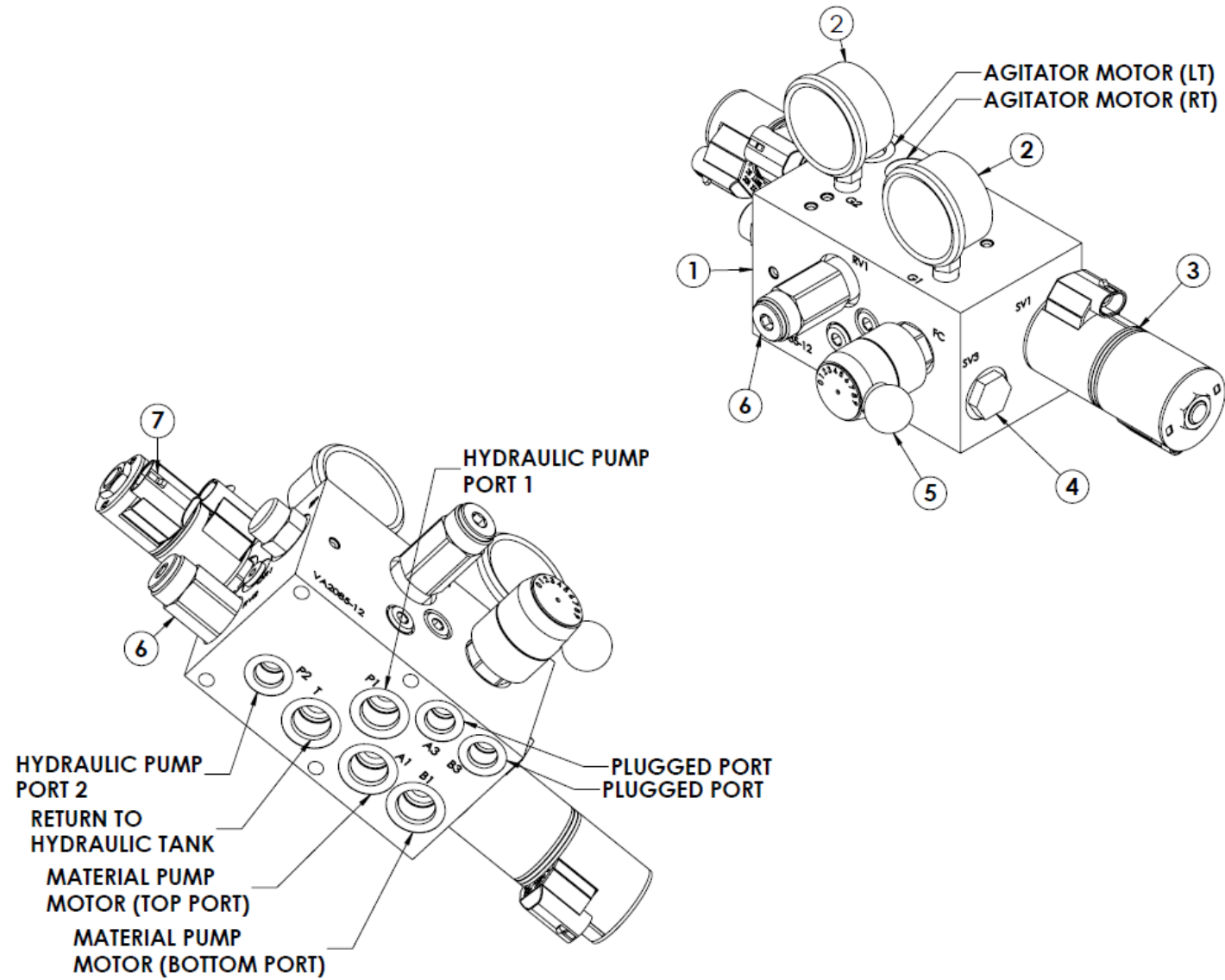
MAINTENANCE KIT:

PART #	DESCRIPTION
153772	Seal Kit for Hydraulic Motor

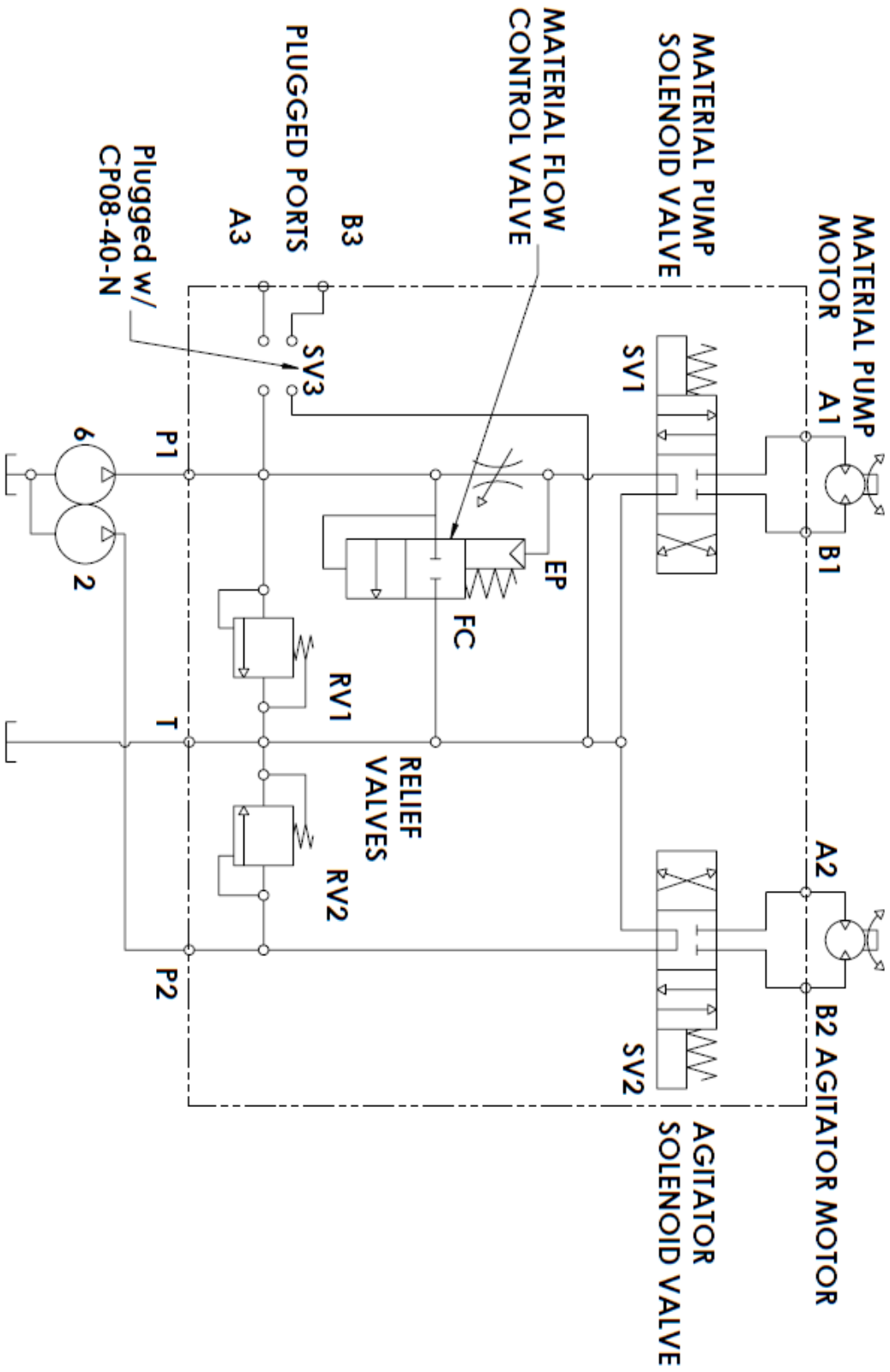


M1 / M2 Hydraulic Manifold Parts

#	Part #	Description
1	172713	Hydraulic Manifold
2	171597	Gauge
3	172226	Spool and Coil Kit for Material Pump
	172224	Spool for Material Pump
	172225	Coil for Material Pump (2 Required)
4		Cavity Plug
5	172566	Handle Kit (Knob/Housing)
6	172587	Relief Valve (Set at 800 PSI)
7	172583	Spool and Coil Kit for Agitator
	172584	Spool for Agitator
	172585	Coil for Agitator (2 Required)



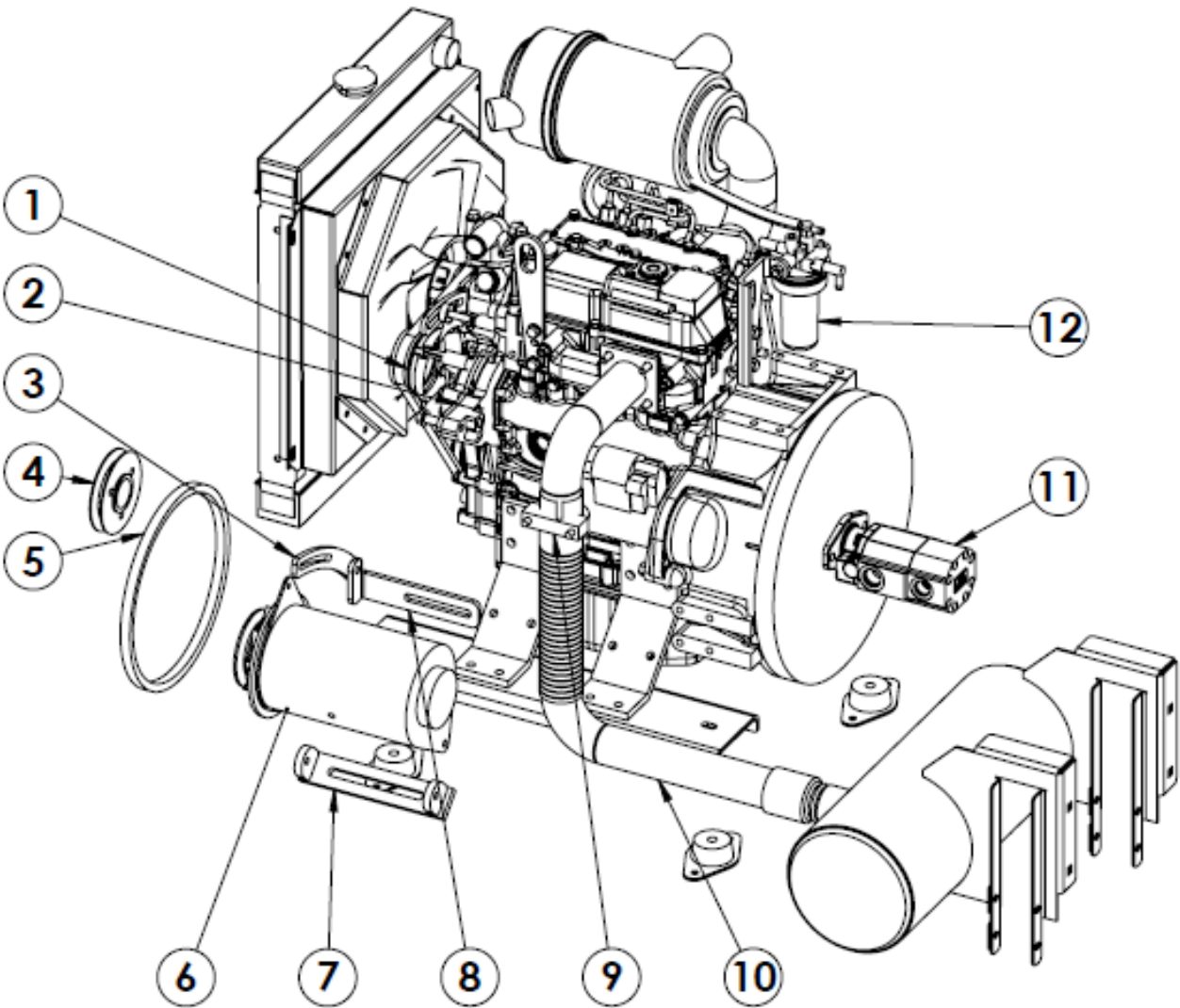
M1 / M2 Hydraulic Schematic



M1 / M2 Diesel Engine Components

See the included engine manual for additional engine component diagrams and information.

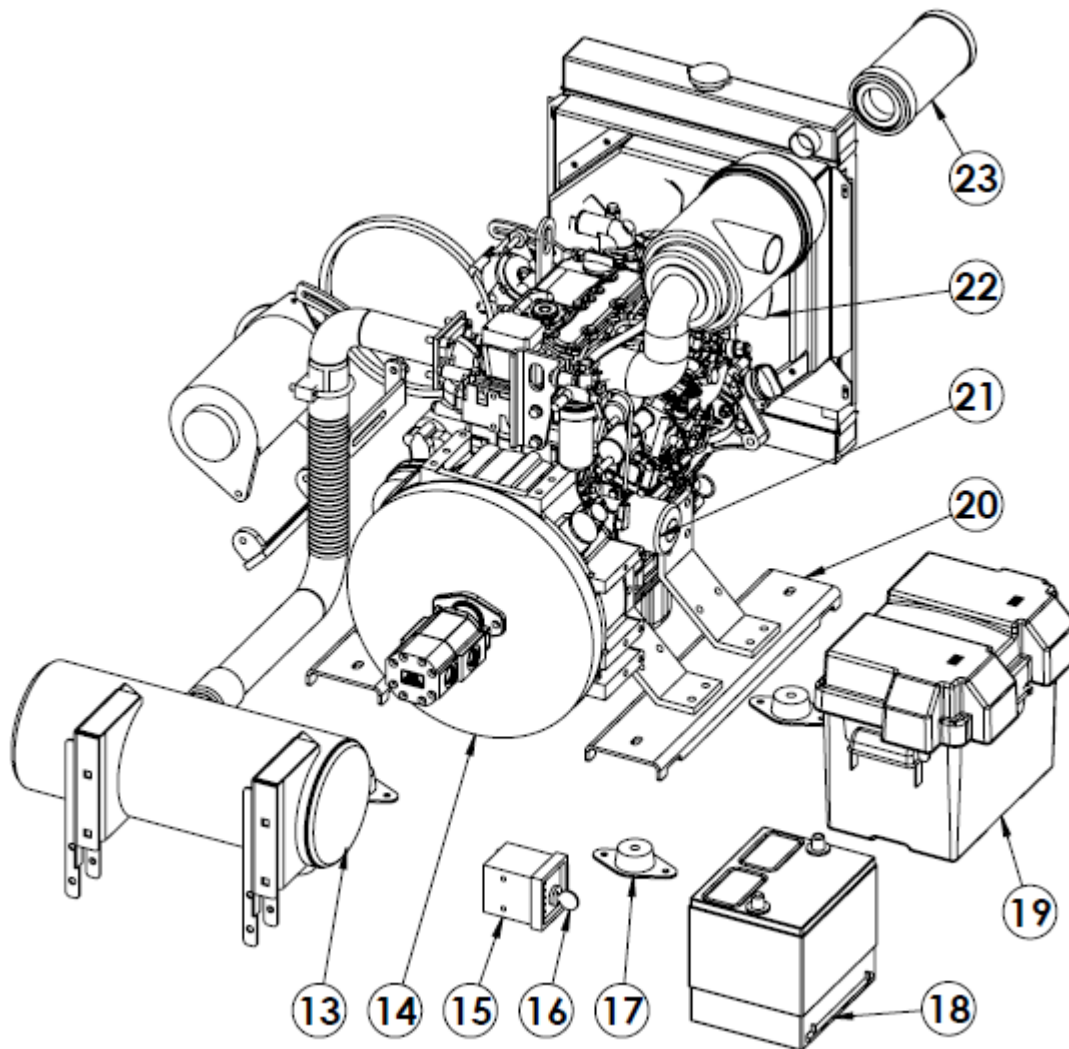
#	PART #	DESCRIPTION	#	PART #	DESCRIPTION
1	111372	FAN BELT	7	406016	GENERATOR MOUNTING BRACKET
2	156283	30 A ALTERNATOR	8	423399	PLATE GENERATOR STIFFENER
3	422256	SHORT GEN. ADJUST BRACKET	9	100512	MUFFLER CLAMP
4	152808	PULLEY SINGLE BELT	10	156662	EXHAUST
5	110947	GENERATOR BELT A-29	11	156057	HYDRAULIC PUMP(S)
6	130431	GENERATOR	12		



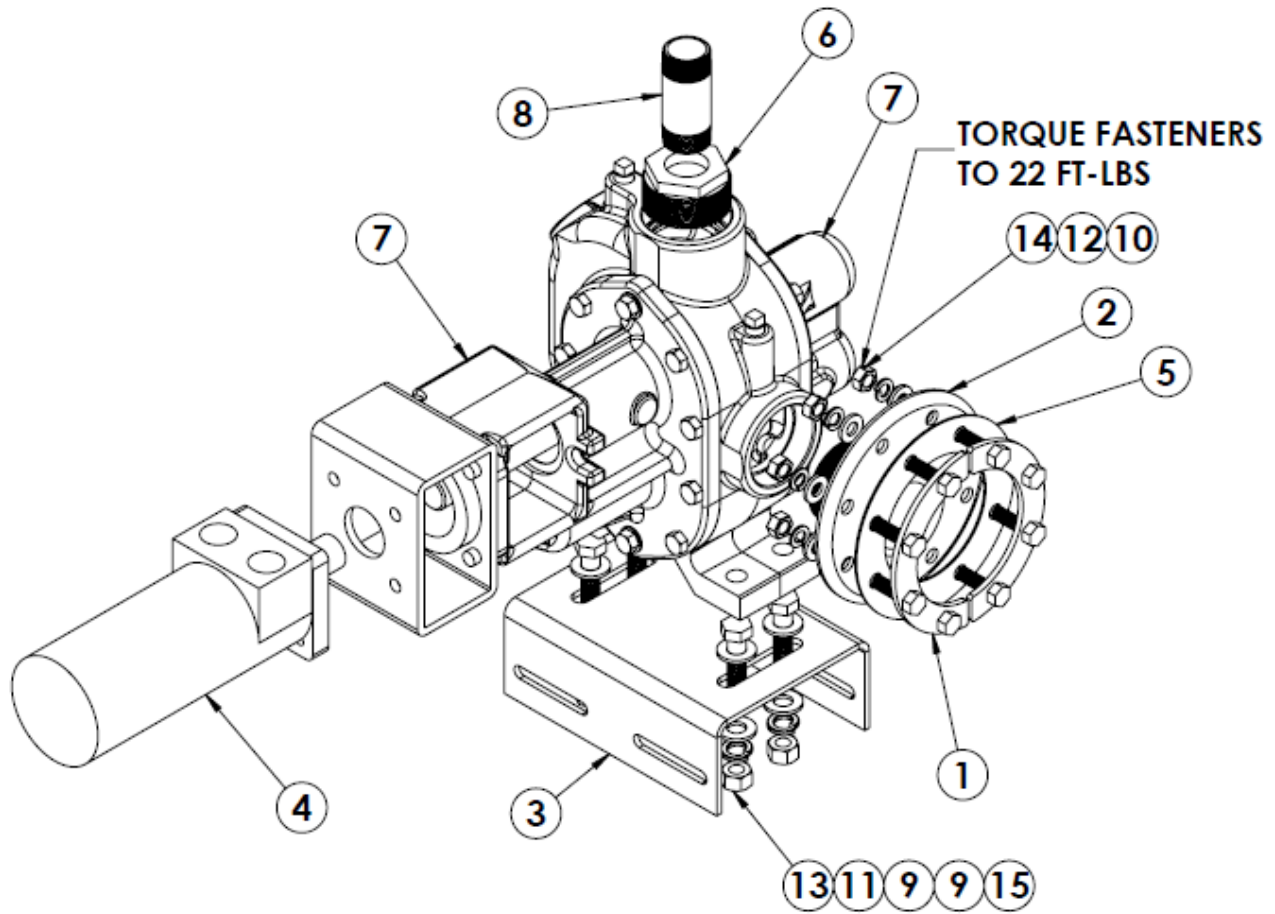
M1 / M2 Diesel Engine Components

See the included engine manual for additional engine component diagrams and information.

#	PART #	DESCRIPTION	#	PART #	DESCRIPTION
13	311-205-004	EXHAUST WELD	19	200543	BATTERY BOX
14	111838	ENGINE 3CJ1	20	308-252-004	PLATE - ME3 ENGINE MOUNT
15	111108	LOFA CONTROL SWITCH	21	111337	OIL FILTER
16	155266	IGNITION KEY	22	111872	RADIATOR HOSE
17	152047	RUBBER ISOLATOR	23	111111	AIR FILTER
18	150212	BATTERY 26/26R-50-WET			



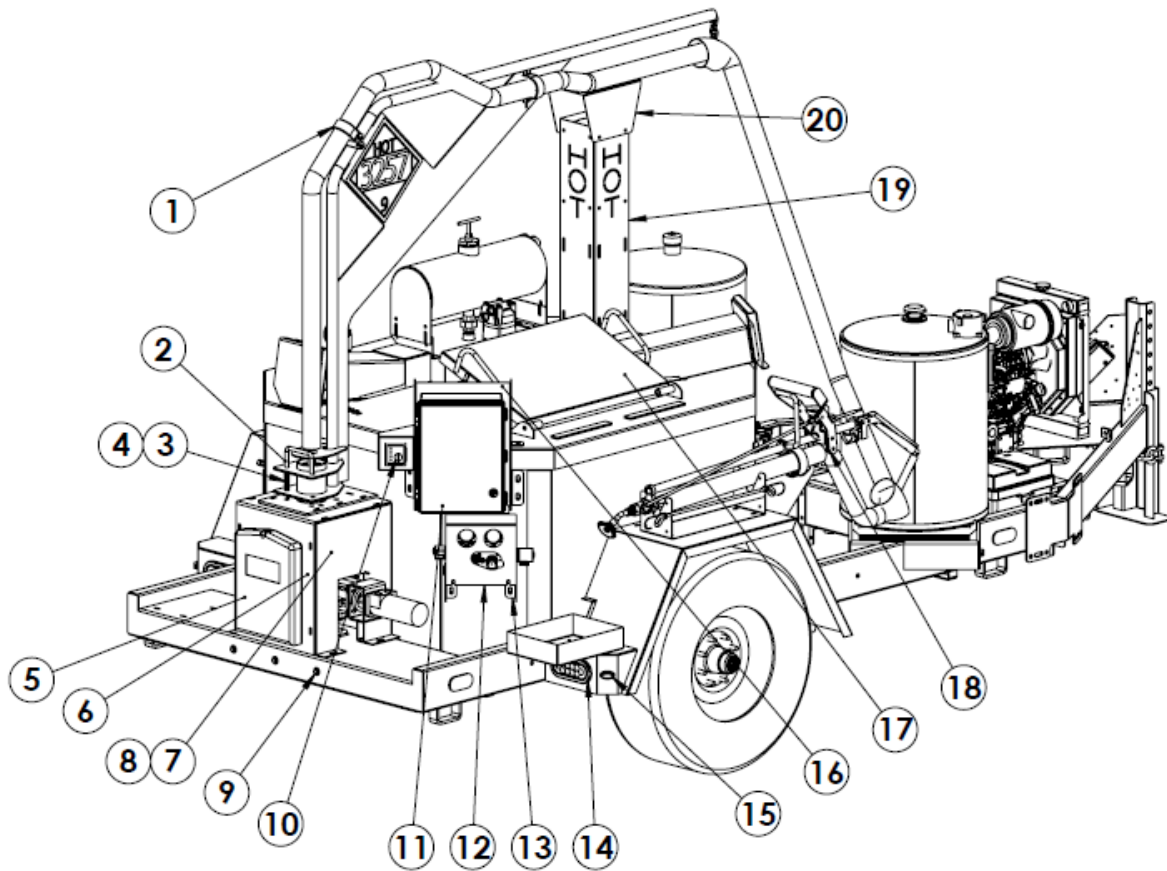
M1 / M2 Sealant Material Plumbing Parts



#	PART #	DESCRIPTION	QTY.
1	409484	FLANGE SUPPORT WELD	2
2	406162	OFFSET FLANGE WELD	1
3	311-158-000	PLATE - PUMP MOUNT	1
4	170602	MOTOR - 45 CU IN	1
5	152127	GASKET 3"	1
6	120819	PIPE-BUSHING-HEX-2.0 X 1.0	1
7	120803	PUMP	1
8	120682	PIPE-NIPPLE-1.0 X 3.0	1
9	100526	WASHER-FLAT-SAE 0.50	8
10	100211	WASHER-FLAT-SAE 0.38	8
11	100095	1/2" SPLITLOCK WASHER	4
12	100093	WASHER-SPLIT LOCK 0.38	8
13	100071	1/2-13 HEX NUT	4
14	100069	NUT-HEX 0.38	8
15	100034	HHCS 1/2 X 2.0	4

M-Series Miscellaneous Components and Parts

#	PART #	DESCRIPTION	#	PART #	DESCRIPTION
1	156416	Hose Clamp	11	311-172-900	M-Series Control Panel (M1 & M2)
2	429581	Pin - Engagement		130831S	M-Series Control Panel (M4 & M4 Dual)
3	154308	Spring	12	311-178-004	Plate - Hyd Manifold Cover
4	111861	Set Collar - 0.56 in	13	311-177-004	Plate - Hyd Manifold Mount
5	154234	Pack - Manual Holder	14	130403	Taillight - LED Oval
6	311-188-004	Rear Cabinet M-Series	15	130374	Clearance Light - Red
7	311-185-004	Pass Cabinet M-Series	16	311-175-004	Plate - Control Panel Mount
8	311-182-004	Driver Cabinet M-Series	17	311-202-004	M-Series Door
9	130402	Clearance Light - Red	18	303-004-000	M-Series Wand, Dripless
10	111108	LOFA Control Switch	19	429336	Plate - Side (Need 2)
			20	429335	Plate - Cap

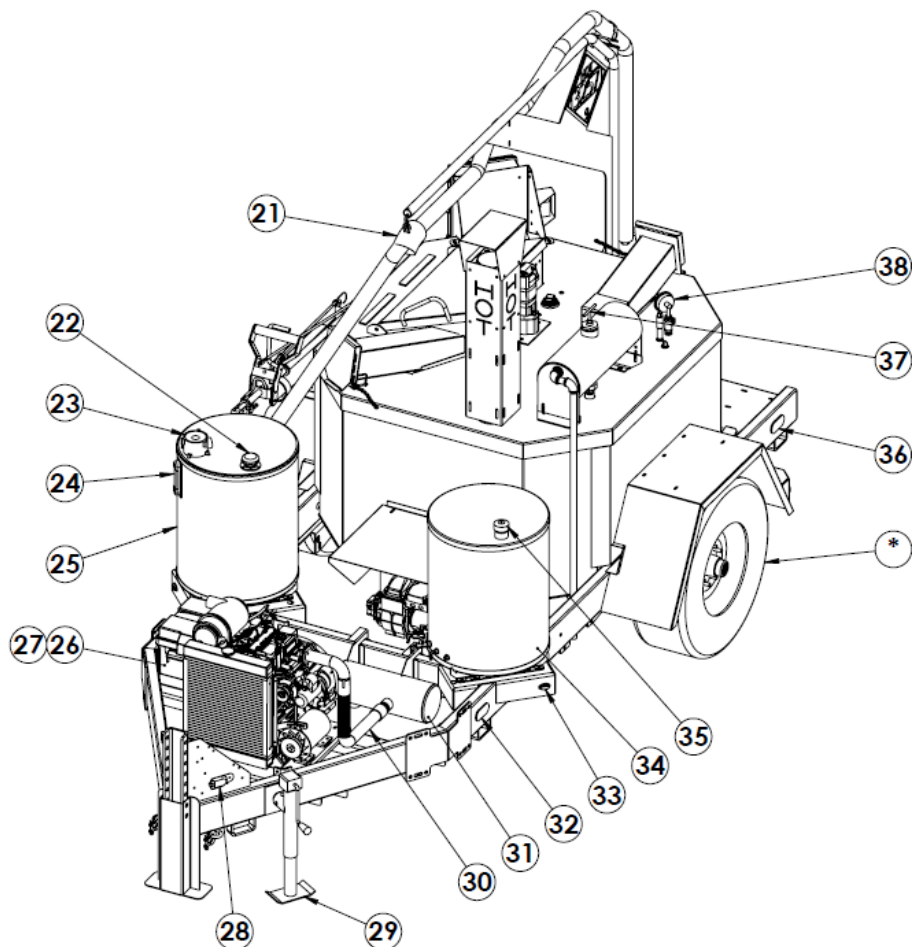


M-Series Miscellaneous Components and Parts

#	PART #	DESCRIPTION	#	PART #	DESCRIPTION
21	155272	Sleeve - Hose	31	311-204-004	EXHAUST WELD (M1 &M2)
22	152044	FILLER CAP ASSEMBLY		409037	EXHAUST WELD (M4 & M4 DUAL)
23	172127	RETURN FILTER - HYDRAULIC	32	150215	REFLECTOR - AMBER
24	171631	SIGHT GAUGE 5"	33	130375	CLEARANCE LIGHT - AMBER
25	172618	HYDRAULIC TANK BLACK	34	309-074-004	M-SERIES DIESEL TANK
26	200543	BATTERY BOX	35	156463	FUEL GAUGE/CAP
27	150212	BATTERY 26/26R-50-WET	36	150214	REFLECTOR - RED
28	130050	SWITCH - BREAKAWAY	37	402890	DIPSTICK - M1
29	140330	JACK 5000 LBS		404341	DIPSTICK - M2
30	156662	EXHAUST PIPE	38	130130	THERMOMETER 24"
			*		TIRES DIFFER BY MACHINE

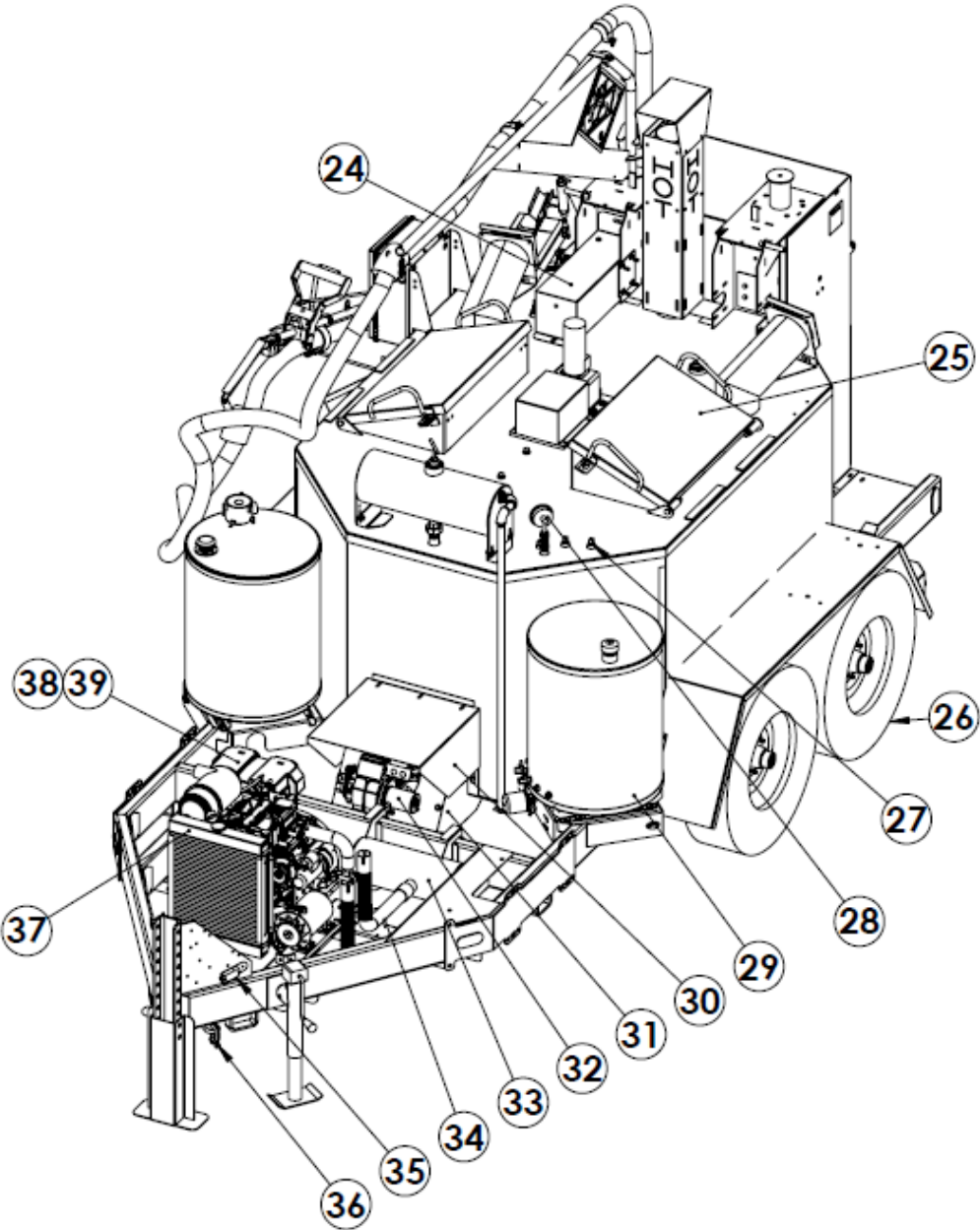
Tire Part Numbers

Melter Size	Part #	Description
M1	140709	TIRE ST235-80-R16
M2	140711	TIRE ST205-75-R15



M-Series Miscellaneous Components and Parts

#	PART #	DESCRIPTION	#	PART #	DESCRIPTION
24	409622	RETURN BOX WELD	32	152197	BURNER - DIESEL M4
25	404215	LOADING DOOR	33	155957	EXHAUST - GEN V
26	140715	TIRE ST225/75R15 LRE SILVER RIM	34	155976	EXHAUST TUBE WELD
27	120073	PIPE PLUG - .50 GALV	35	130050	SWITCH - BREAKAWAY
28	130130	THERMOMETER - 24 IN.	36	152664	ANCHOR SHACKLE W/ PIN
29	172373	DIESEL TANK GEN 4	37	111887	ENGINE ASSEMBLY
30	424534	PLATE - BURNER SHIELD	38	172684	BATTERY BOX
31	404518	HEAT CHAMBER	39	111553	BATTERY





EQUIPMENT WARRANTY

2601 Niagara Lane N,
Plymouth, MN 55447
(877) 841-0848
Tel: 763-694-2665
Fax: 763-553-1093
cimline.com

Cimline, Inc. warrants its equipment, to the original purchaser only, against defects in material or workmanship based on normal use of service. Except as provided herein, no agent, dealer, employee or any other person is authorized to give any warranties of any nature outside of this agreement on behalf of Cimline, Inc.

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 the 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 thus beginning the warranty period.

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

Warranty for material pumps, electric heated hoses or 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 require an appropriate Return Merchandise Authorization (RMA) from Cimline Customer Care and that the item be returned for evaluation with that RMA for any warranty claim to be considered. For electric heated hose with heated wand claims; the defective hose and wand must be returned as a pair to the Cimline factory for inspection, unless the heated wand has a serial number on the handle, than it can ship back alone. All other components must be returned only at the request of Cimline Customer Service.

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 from distributor stock, 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, including but not limited to 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. In the event of freight damage, a claim must be filed by the purchaser with the freight carrier.

Our responsibility under this warranty is limited to replacement or repair (at Cimlines 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. Mileage will be reimbursed at a rate of \$0.80 (80 cents) per mile (domestic 48 states), and no more than one round trip per claim. Shop Labor will be reimbursed at a max rate of \$80/hour. Parts freight will be reimbursed at a "UPS REGULAR" rate only for stock items, and for non-stock items will be reimbursed at a "UPS BLUE" rate.

All warranty claims must be processed through the factory authorized Cimline dealer that was the original distributor of your Cimline Equipment or OEM Parts. All claim notices to Cimline pursuant to this limited warranty must be made by completing a Cimline Warranty Claim Form which should be Emailed to: customercareorders@plymouthind.com

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

This warranty is in lieu of all other warranties expressed or implied, and such other warranties are hereby disclaimed including any warranty of merchantability and fitness for a particular purpose.



For more information about your machine and for quick access to literature and videos. Scan the QR Code above.



2601 Niagara Lane · Plymouth, MN 55447 · (763) 557-1982 · (800) 328-3874 · Fax (763) 557-1971