15 - Mist Condenser

Chip Removal and Coolant - Service Manual

15.1 MIST CONDENSER - INSTALL

Mist Condenser - Installation

AD0453

Introduction

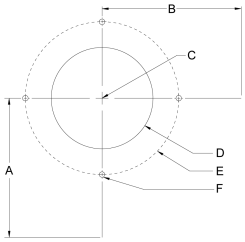
This procedure will show you how to install the Mist Condenser option on VF's, DT/DM's, and Lathes.

Note: Lathes must have been built after **4/1/2021** for this option.

Machine requirements:

- Software Version **100.19.000.1120 or higher.**
- An I/O hinge door is needed, order **93-1000573** I/O DOOR ASSY HINGED only if the hinge door is not included in the kit.

Some machines do not have the necessary cutout. For these machines, use these templates:



Mist Condenser Cutout:

On the top of the machine enclosure, measure the dimensions [A] from the front of the machine and [B] from the right side of the machine. Mark the center [C]:

- A - 20.00" (50.8 cm).
- B - 10.00" (25.4 cm).

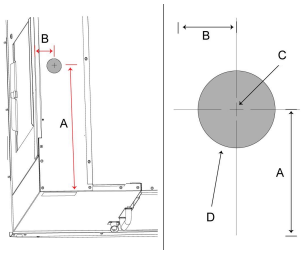
Note: For larger machines, be sure to put the cutout nearer to the work area.

Measure the dimensions [D], [E], and [F]:

- D - Ø6.50" (16.5 cm).
- E - Ø9.843" (25.0 cm).
- F - 4X Ø0.356" (9 mm).

Cut the (1) large hole [D] and the (4) small holes [F].

Note: For an HMC, make the cutout above the machine enclosure, behind the operator's door.



Register Box Cutout:

On the top of the machine enclosure, measure the dimension [A] from the front of the machine and [B] from the left side of the machine. Mark the center [C]:

- A - 28.00" (71.12 cm)
- B - 4.00" (10.16 cm)

NOTE: For dimension [B], make sure measurement starts at the edge of the enclosure, rather than from the window.

Measure the dimension [D]:

- D - Ø3.25" (8.25 cm)

Cut the hole [D] from the center [C].

This procedure applies to the following kits:

Use the following kits on VF's with VFD's and other mills and lathes:

- **93-1000648** MIST CONDENSER KIT VF SML/MED W/TMD
- **93-1000351** COOLANT MAINTENANCE PACKAGE MIST COLL
- **93-1000649** MIST CONDENSER KIT VF-LRG TMD
- **93-1000506** COOLANT MAINTENANCE PKG MIST COND VF LRG
- **93-1000505** MIST CONDENSER FIELD INSTALL DM/DT
- **93-1000507** COOLANT MAINTENANCE PKG MIST COND DT/DM
- **93-1000636** MIST CONDENSER SYSTEM LATHE
  Note: Use this kit for UMC-350 machines
- **93-1000637** COOLANT MAINTENANCE PKG MIST COND LATHE

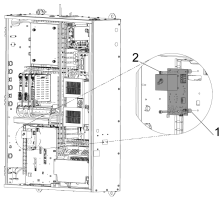
Use the following kits for VF's without a VFD:

- **93-1000018** MIST CONDENSER KIT VF SML/MED W/O TMD
- **93-1000385** MIST CONDENSER KIT VF-LRG W/O TMD

Electrical Installation - TMD connection

Note: This section applies to service kits **93-1000648, 93-1000351, 93-1000649, 93-**

1000506, 93-1000505, 93-1000507, 93-1000636, and 93-1000637.

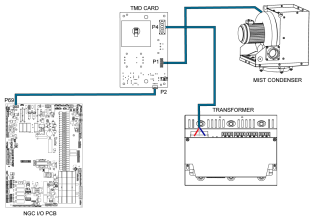


1

Install the TMD card onto the hinge door located as shown in the picture using the spacers [1] and the hardware [2].

- If the machine has hinge door PN **25-0512D** use (2x) **1/4-20 SHCS** to attach the TMD card
- If the machine has hinge door PN **25-0512E** use (2x) **10-32 SHCS** and (2x) **washers** to attach the TMD card

if you do not have the hinged door installed please refer to the I/O PCB HINGED DOOR INSTALLATION procedure.



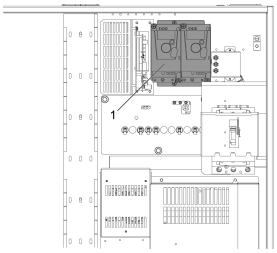
2

The mist condenser will be powered from the TMD card, the mist condenser will connect to **P1** on the TMD card. The TMD card will connect to the I/O board via **P69**. The TMD card will be powered from the transformer and will connect to **P4** on the TMD card.

NOTE: Make sure that TMD card has a jumper installed on **P3** in between pin 1 and 2 (the bottom two pins).

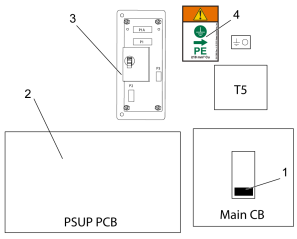
Electrical Installation - VF's without Variable Frequency Drives (VFD)

Note: This section applies to service kits **93-1000018 and 93-1000385.**



NOTE: Perform the steps in this section for machines that do not have a variable frequency drives [1] installed above the power card.

Turn off the control cabinet. Open the control cabinet door if your machine has a variable frequency drive to go to the next section.



1

Turn Off the main circuit breaker [1].

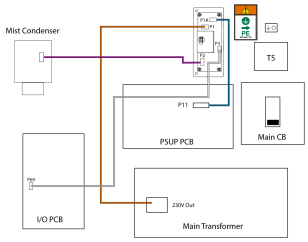
Remove the cover from the **PSUP PCB** [2].

Remove the cover from the **Mist Condenser PCB** [3].

Mount the **Mist Condenser PCB** above the **PSUP PCB**.

Install the ground decal [4] next to the ground lug.

NOTE: Make sure the ground decal is visible and that the green arrow points towards ground lug.



2

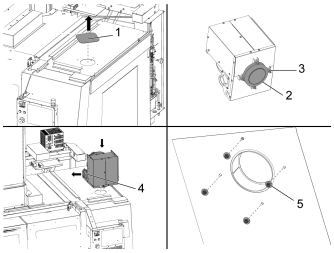
Remove the cover from the cable channel.

Disconnect the cable from the **PSUP PCB at P11.** Pull the cable slack from the cable channel and connect it to the **Mist Condenser PCB at P1.**

Connect cable P/N 33-0538 to the **Mist Condenser PCB at P1A**. Connect the other end to the **PSUP PCB at P11.**

Connect cable P/N 33-0536 to the **mist condenser PCB at P3.** Connect the other end to the **I/O PCB at P69.**

Mist Condenser Unit - Installation



1

VF-1 to VF-5 pictured

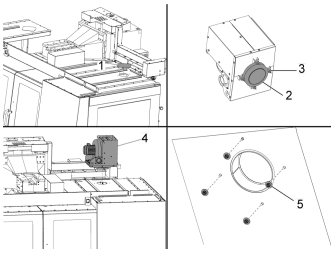
Remove the cover plate [1] from the top of the machine enclosure.

Make sure the mist condenser unit has the two gaskets [2] and (4x) vibration isolators [3] installed.

Place the mist extraction unit so the outlet port [4] is facing the spindle.

Secure it from the underside of the panel with washers and flange nuts [5] provided in the kit.

Note: Machines with an umbrella toolchanger or a 70 pocket SMTC may need to rework the top left roof panel.



2

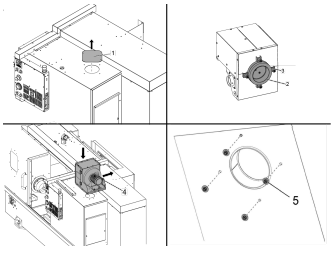
VF-6 pictured

Remove the cover plate [1] from the top of the machine enclosure.

Make sure the mist condenser unit has the two gaskets [2] and (4x) vibration isolators [3] installed.

Place the mist extraction unit so the outlet port [4] is facing the spindle.

Secure it from the underside of the panel with washers and flange nuts [5] provided in the kit.



3

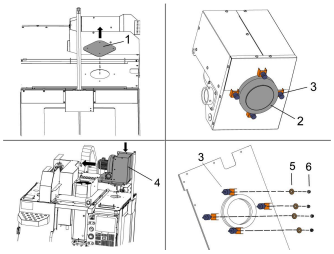
ST Standard Bed pictured

Remove the cover plate [1] from the top of the machine enclosure.

Make sure the mist condenser unit has (2x) gaskets [2] and (4x) vibration isolators [3] installed.

Place the mist extraction unit so the outlet port [4] is facing the BACK of the machine.

Secure it from the underside of the panel with washers and flange nuts [5] provided in the kit.



4

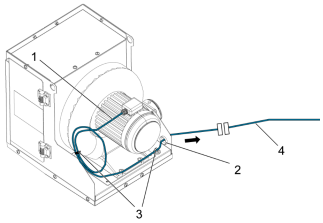
DM/DT with Auto Window Option

Remove the cover plate [1] from the top of the machine enclosure.

Make sure the mist condenser unit has the (2x) gaskets [2] and (4x) vibration isolators [3] installed.

Place the mist extraction unit so the outlet port [4] is facing the front on the machine.

Secure it from the underside of the panel with washers [5] and flange nuts [6] provided in the kit.



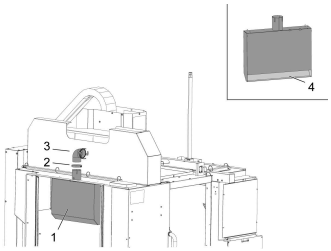
5

Locate the Mist Condenser motor fan cable [1] cut the zip ties and feed the cable [1] through the motor housing grommet [2].

Coil the excess cable [3] and secure it with zip ties and cable clamp.

Connect the Mist Condenser power cable to the **extension cable P/N 33-9537**.

Mist Condenser Register Box - Installation



1

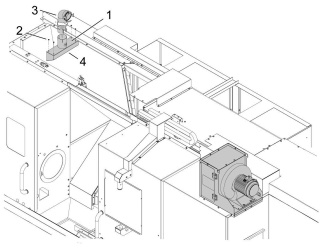
VF & DT/DM Register Box Installation

On the left side of the machine, open the window to remove the register box roof panel.

The register box [1] is install from inside the machine, use the four fastener to secure the register box to the top of the roof.

Loosen the hose clamp [2] and install the hose elbow [3]. Leave the hose clamp loose for now.

NOTE: Make sure the high flow vent points as shown [4].



2

ST Line Register Box Installation

Above the spindle of the machine, remove the register box roof panel.

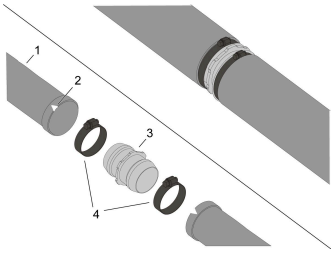
The register box [1] is installed from inside the machine, use the four fasteners [2] to secure the register box to the roof of the machine.

Loosen the hose clamp and install the hose elbow [3]. Leave the hose clamp loose for now.

Note: If PN: **25-14616A** MIST CONDENSER REGISTER BOX LATHE interferes with the Z-Axis Waycover. Install PN: **25-14616B**.

NOTE: The hose elbow and the high flow vent [4] will be facing **towards** the Mist Condenser unit.

Mist Condenser - Hose Routing



1

Route the hose [1] on top of the machine from the mist condenser to the register box on the other side.

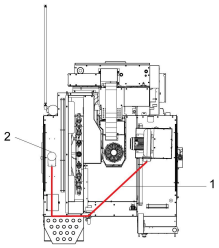
NOTE: Making sure when routing the mist condenser hose to reduce the amount of bends and snaking of the hose to avoid the reduction of efficiency.

Strech the hose out when routing above the machine. Cut the hose at the end of routing while leaving extra hose slack (~6 inchs of extra hose).

Cut a small slit [2] into both ends of the hose so that the first two wire rings are broken. Slide the hose opening around the coupler [3] secured with hose clamps [4]. Make sure the hose clamp covers the entire slit.

NOTE: The hose and coupler will be a tight fit. To make it easier to install, twist and push the hose around the coupler.

Slide the other hose opening around the other end of the coupler [3] secured with hose clamps [4].



2

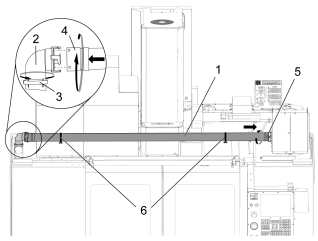
DT/DM Hose Routing

Route the hose [1] from the mist condenser along the FRONT of the machine to the register box on the other side.

The register bayonet lock should be facing the front of the machine [2]. Insert the hose into the bayonet lock and rotate the hose to lock it into place.

Insert the other end of the hose to the mist condenser port.

Secure the hose at each end using the magnetic hose clamps and add both mist condenser hose brackets around wiring to secure it from falling from the enclosure.



3

VF-1 to VF-5 Hose Routing

Route the hose [1] from the mist condenser along the front of the machine to the register box on the other side.

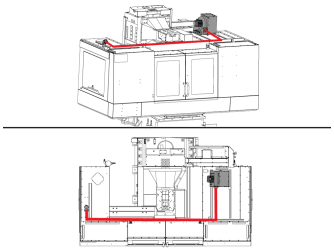
Rotate the elbow [2] to the desired position and secure the hose clamp [3].

Insert the hose into the bayonet lock and rotate the hose [4] to lock it into place.

Insert the other end of the hose to the mist condenser port [5].

NOTE: For VF-Large series there will be an extra hose that needs to be coupled with the first in order to reach the mist condenser port.

Secure the hose at each end using the magnetic hose clamps [6].



4
VF-6 to 9 Hose Routing

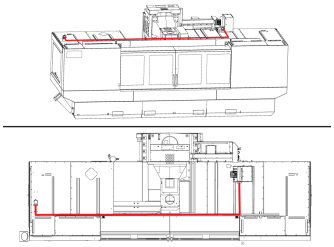
Route the hose from the mist condenser along the front of the machine to the register box on the other side.

Insert the hose into the bayonet lock and rotate the hose to lock it into place.

Insert the other end of the hose to the mist condenser port

NOTE: For VF-Large series there will be an extra hose that needs to be coupled with the first in order to reach the mist condenser port.

Secure the hose at each end using the magnetic hose clamps



5
VF-10/11 Hose Routing

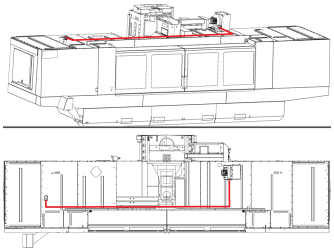
Route the hose from the mist condenser along the front of the machine to the register box on the other side.

Insert the hose into the bayonet lock and rotate the hose to lock it into place.

Insert the other end of the hose to the mist condenser port

NOTE: For VF-Large series there will be an extra hose that needs to be coupled with the first in order to reach the mist condenser port.

Secure the hose at each end using the magnetic hose clamps



6
VF-12 Hose Routing

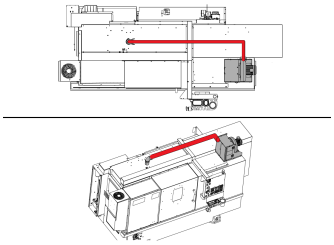
Route the hose from the mist condenser along the front of the machine to the register box on the other side.

Insert the hose into the bayonet lock and rotate the hose to lock it into place.

Insert the other end of the hose to the mist condenser port

NOTE: For VF-Large series there will be an extra hose that needs to be coupled with the first in order to reach the mist condenser port.

Secure the hose at each end using the magnetic hose clamps



7
ST Standard Bed Hose Routing

Route the hose from the mist condenser along the TOP of the machine to the register box in in the middle.

Insert the hose into the bayonet lock and rotate the hose to lock it into place, then secure the hose clamp.

Insert the other end of the hose to the mist condenser port.

Secure the hose at each end using the magnetic hose clamps.

Verification

Reinstall all the covers, turn on all the circuit breakers.

Press **[Power On]**.

Install necessary patches.

In **[MDI]** run the following program:

M158;
G04 P20.;
M159;

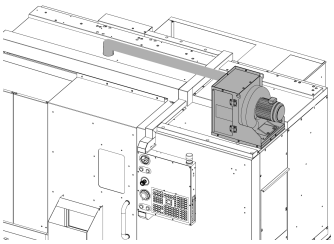
The mist condenser fan should run for 20 seconds then turn Off.

NOTE: There is approximately 10 seconds delay after the MDI program completes, after this the mist condenser will turn OFF. If you like to turn on the mist condenser without this shut off delay, go to the **CURRENT COMMANDS>DEVICES>MECHANISMS>MIST CONDENSER** and press **[F2]** to turn it on.

15.2 MIST CONDENSER - TROUBLESHOOTING

Mist Condenser - Troubleshooting Guide

Introduction



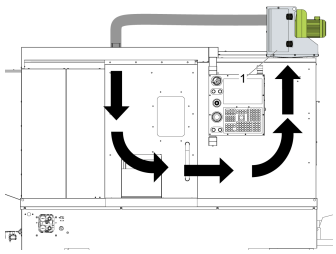
The Haas Coolant Mist Condenser is a complete closed-loop recirculation system that extracts coolant mist from the machine's enclosure, runs it through dual mesh filters to condense the coolant, and then returns the condensed coolant and clear air to the enclosure.

Symptom Table

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Loud motor / excessive vibration	Damaged motor / imporperly installed rubber bushings	Refer to **Motor** section below
Motor not turning on	Wiring	Refer to **Electrical Diagram** section below

Poor recirculation	Clogged mesh filters / incorrect motor phasing	Clean and re-intall filters and verify the phasing on the motor Refer to **Air flow direction** section below

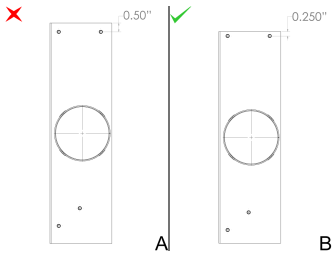
Air Flow Diagram



Note : When verifying phasing ensure that the air follow this path or the phasing would need to be switched.

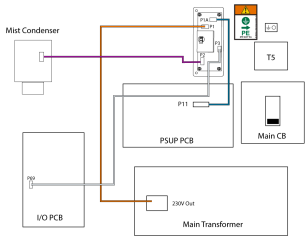
The coolant mist is extracted by the mist condenser through dual mesh filters then returned back into the work envelope through the register back.

Letter Box Fitment Issue (Lathe)

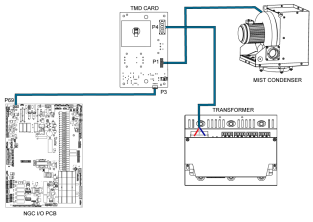


If PN: **25-14616A** MIST CONDENSER REGISTER BOX LATHE interferes with the Z-Axis Waycover. Install PN: **25-14616B**.

Electrical Diagrams



This diagram only applies to VF machines without Variable Frequency Drives (VFD)

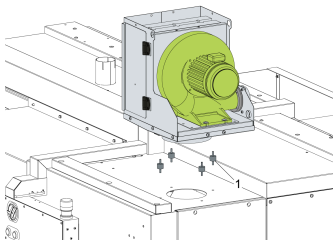


This diagram applies to machines with a TMD card.

The mist condenser is powered by the TMD card, the mist condenser will connect to P1 on the TMD card. The TMD card will connect to the I/O board via P69. The TMD card will be powered from the transformer and will connect to P4 on the TMD card.

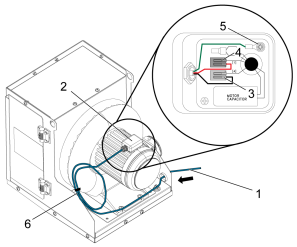
Note : Make sure that TMD card has a jumper installed on P3 in between pin 1 and 2 (the bottom two pins).

Motor



Verify that the rubber bushings [1] are properly seated and are not damaged.

Note : Damaged bushings will lead to excessive vibrations to be transmitted to the machine which may sound like a failing motor.



Verify that the ground wire [5] is fully tightened and properly seated.

Ensure that wires are fully seated into the lever nut connectors [4] and [3].