Installation Guide
English

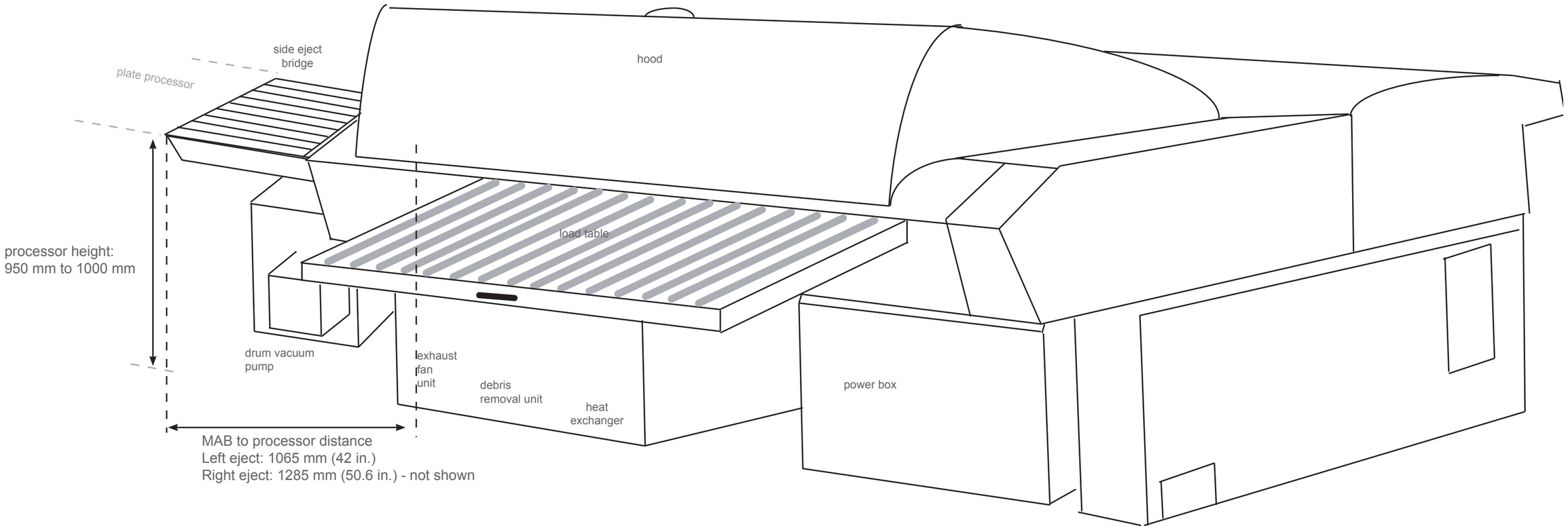
Magnus VLF with ContinuousLoad

653-00840C-EN-A

Internal 719-00262C-EN-RevA
February 2007

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CRATES

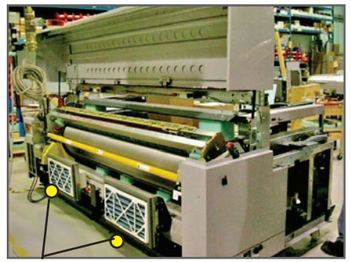
No.	Contents
1	Magnus VLF ContinuousLoad
2	Thermal head
3	Ejector track
4	Panels
5	Hood
6	Bridge
7	Debris removal unit
8	Drum vacuum pump
9	Heat exchanger

Note: The crate numbers listed in this document may differ from the actual crate numbers. Refer to the shipping list documentation to verify the actual crate numbers.

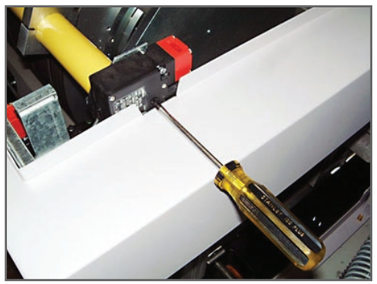
ORDER OF INSTALLATION

1 Align the device (pg. 2)
2 MAB extensions (pg. 3)
3 Power box (pg. 4)
4 Heat exchanger, debris removal unit, exhaust fan unit (pg. 5)
5 Load table (pg. 6)
6 Fetcher track and MAB upper tierod (pg. 7)
7 Unload table (pg. 8)
8 Ejector (pg. 9)
9 TH3 Filter and Camera (pg. 10)
10 Hood (pg. 11)
11 Ejector bridge (pg. 12)
12 Drum vacuum pump and thermal head (pg. 13)
13 Load table rails, unload table panels, and power up (pg. 14)
14 Startup procedure (pg. 15)

1 Uncrate device.

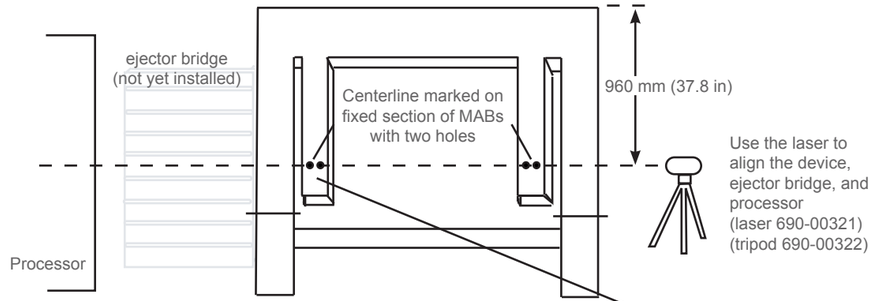


Insert forklift arms under the casting at the rear of the device.

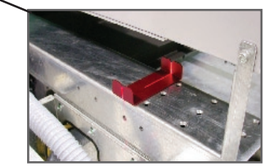


Turn solenoid to unlock position.

2 Position the device in line with the processor.



Place alignment tool (690-00467A) in the two holes on MABs. Align the MAB center line with the processor center line (does not need to be precise yet).
If there is no limitation on service access space, the optimum distance between device bridge and the processor should be 10 mm.

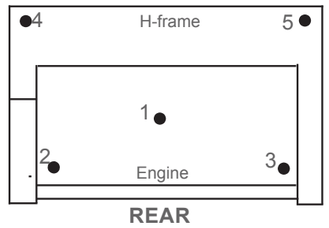


NOTE: When calculating the distance between device and processor, consider:
- the ejector stops 170 mm from the end of the bridge
- the minimum plate to be ejected at subscan size
- the distance from edge of processor in to the first rollers (if applicable)
- the distance needed for processor service access (if applicable)

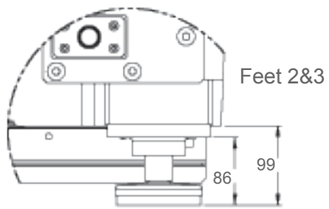
For more information, see “Footprint and Working Area” of the *Magnus VLF ContinuousLoad Site Preparation Guide* (725-00033B).

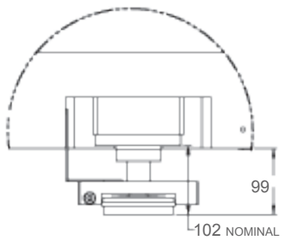
3 Check the nominal foot height (adjust if required).

Foot locations



Drum sizes 5183 & 4570



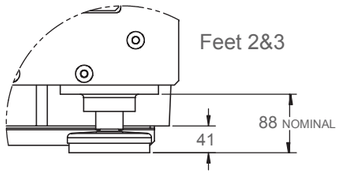


Foot 1

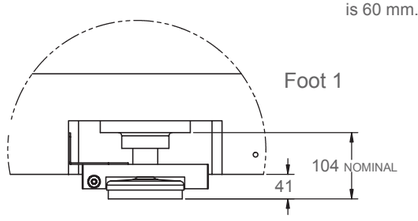
NOTE: Foot 1 is factory adjusted—do not adjust it.

Check the nominal foot height continued.

Drum sizes 6383 & 5570



Nominal height is 60 mm.

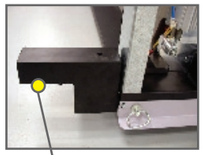


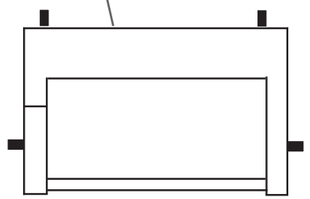
Feet 4&5

Loosen the clamp and turn the rod
(each full turn = 5 mm).



4 Remove the casters.





Attach the jack adapters (4 locations).



Raise the device evenly until the weight is off all the casters.



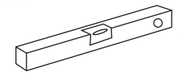
Place wooden blocks under the casting and remove the casters. Lower the device evenly until the feet take its weight. Remove the jacks and adapters.

Re-check the alignment of the MAB center line to the processor center line.

If needed, put greased pads under the jacks and move the device.

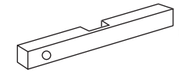
5 Calibrate the level.

Before starting, calibrate the digital level:



Cal 1

press **cal**, flip the level around and press **cal** again.

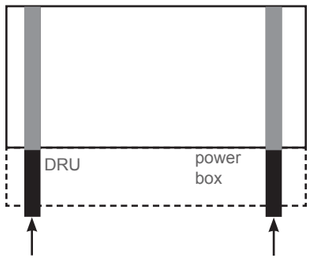


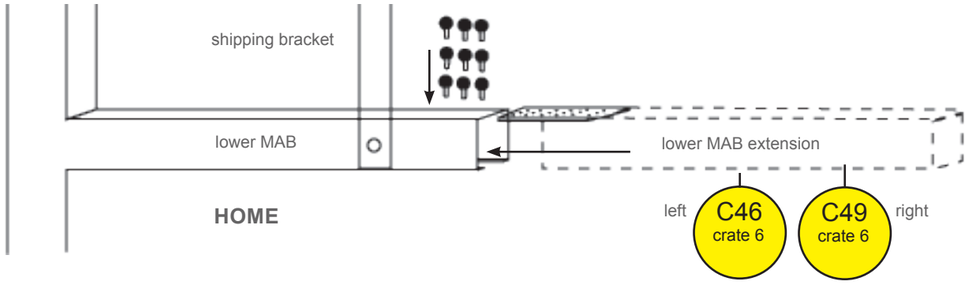
Cal 2

Parts in crate 6 .

1 Insert the lower MAB extensions and fasten.

NOTE: Do not remove the shipping brace and side screws yet.

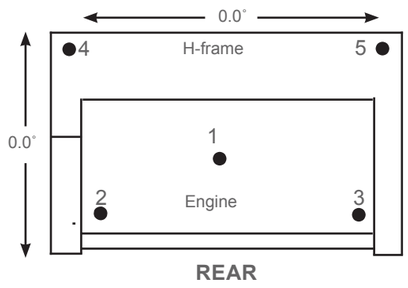


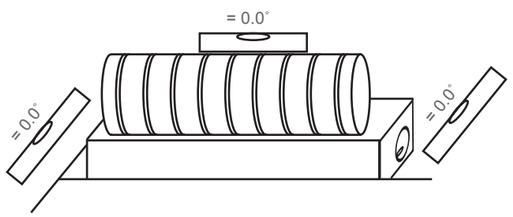


Attaching the lower extension.

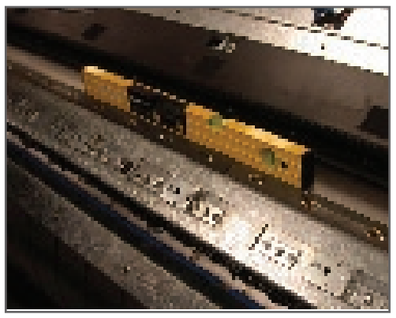


2 Level the device (first pass).

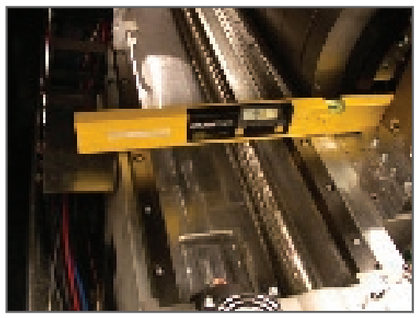




a Adjust feet 2 & 3 until drum is level.

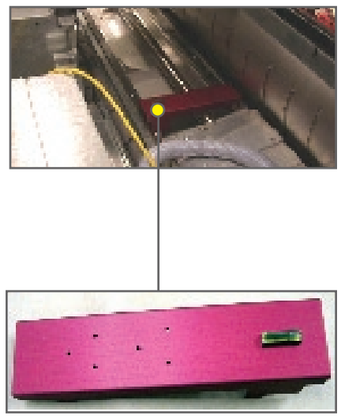


b Place level on the carriage tracks. Make a mark on feet 2 & 3 and raise/lower equally until 10° ± 0.1° is achieved.



OR

If you do not have a digital level, use the jig on the frame as shown. Adjust feet 2 & 3 equally for 0° ± 0.1°.



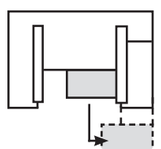
c Adjust feet 4 & 5 so that the lower MAB is 0.1°+ (angled up slightly).
Note: Ensure that all of the feet are touching the ground.

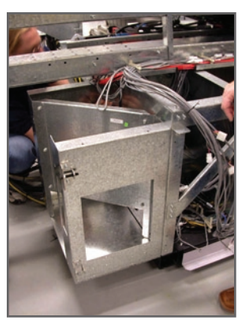


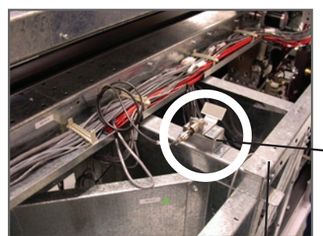
NOTE: Once you finish building the subassemblies on to the Magnus, the weight of the of the assemblies will level the MAB to 0.0°.

Parts in crate 4, 7.

1 Install the power box extension.



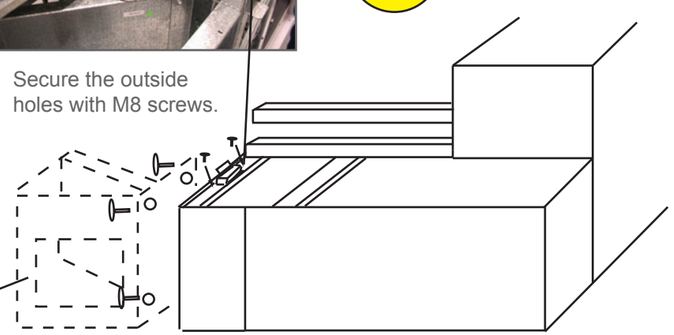




Attach SS sensor with mirror (C59) to the frame - left eject configurations only.

C59

Secure the outside holes with M8 screws.



Insert and fasten the extension bracket (C55).

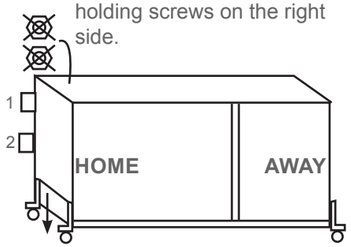
2 Move the power box.

a Lower the casters.



NOTE: Casters must be lowered all the way to avoid damaging the power box.

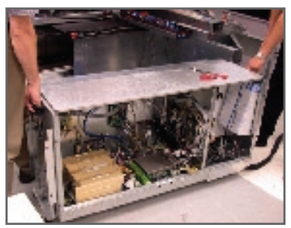
b Remove both M5 nylock nuts on left side and remove both holding screws on the right side.



c Release the cables from their shipping position (untrimmed cable ties are only for shipping).



d Lift off and roll to new position.



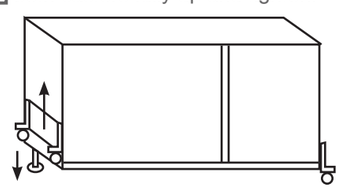
e Lift powerbox onto C55 extension bracket. Hook up the right corner first (as pivot point).

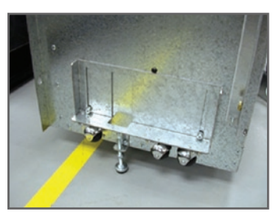


f Fasten screw on inside at the bottom.



g Lower foot down to the floor, then raise both casters fully up and tighten.

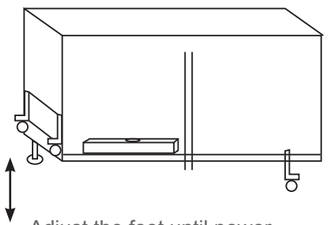




NOTE: Casters must be raised all the way up to avoid damaging the power box and so that the sub panel and right front panel can be installed.

3 Level the power box.

Place digital level on the frame.



Adjust the foot until power box is level.

4 Make the power box connections.

E77

Connect drum motor to J4 drum amp.

E04

Connect drum motor to J2 drum resistive brake.

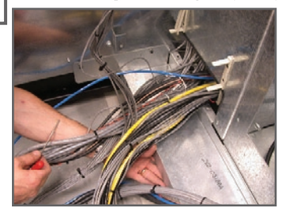




Inside the power box, make the connections.

5 Install the fire gutter tray.

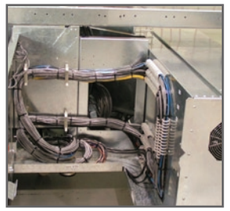
a Install fire gutter tray 1 (C51).

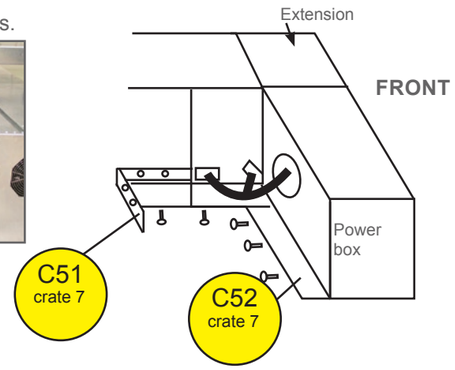


b Install fire gutter tray 2 (C52).

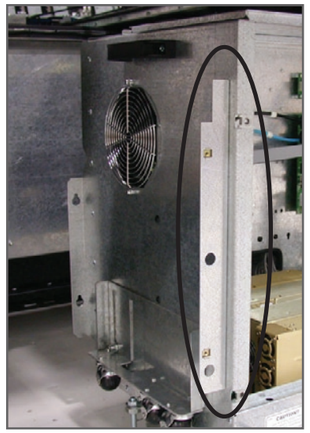


c Secure cable bundles.

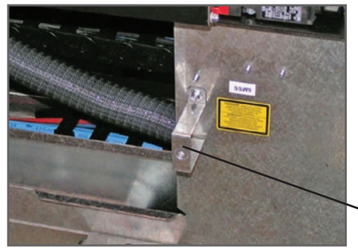




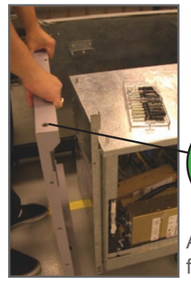
6 Install the support bracket for P19.



7 Install the right sub panel (P19) and the laser safety panel bracket (C97).



Head cover panel bracket





P19
crate 7

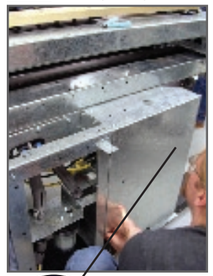
C97
crate 7

Also check that the power box filters are in place.

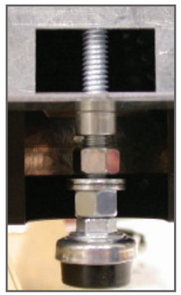
Parts in crates 3, 4, 7, 9.

1 Install the hot air exhaust unit.

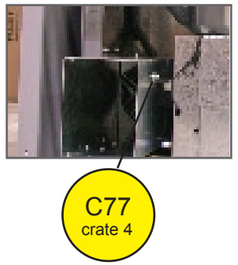
a Install the exhaust unit (C56).

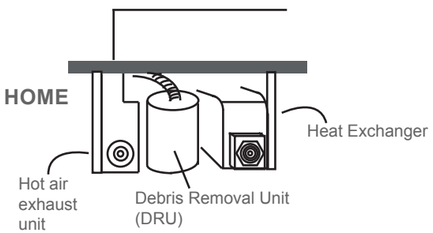


b Put the foot down until pressure is applied to the floor.



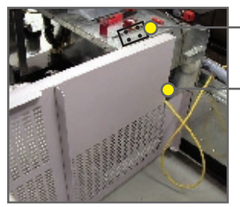
c Install the hot air exhaust extension duct (C77).





2 Install the left sub panel.





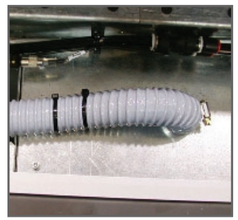
3 Install the Magnus Debris Removal Cabinet (MDRC).



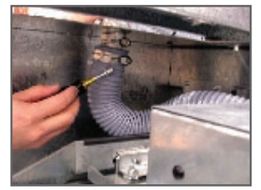
Roll the debris removal unit (C44) into place beside the chiller or heat exchanger.

C44
crate 7

Attach the DR holding bracket to the frame.



Route the debris hose from the head.



Clamp the hose.



Install the safety panel (P23) over the unit.

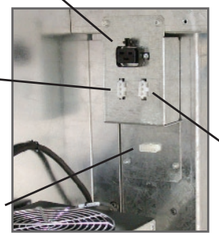
4 Make the MDRC connections.



E09 Connect debris blower AC plug to PEB AC receptacle.

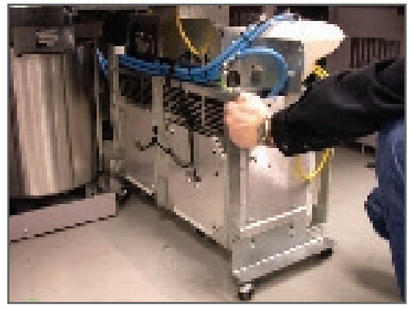
E06 Connect hot air exhaust cable to PDB (J24).

E08 Connect debris removal sensor to LIONEL (J8).

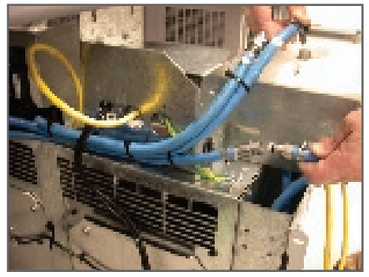


E07 Connect debris AC fan to PDB (J24).

5 Install the heat exchanger (TH2 configurations only)



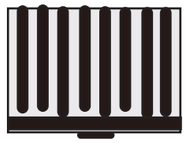
Roll the heat exchanger (C0) into place.

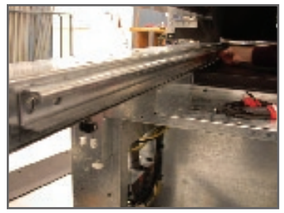


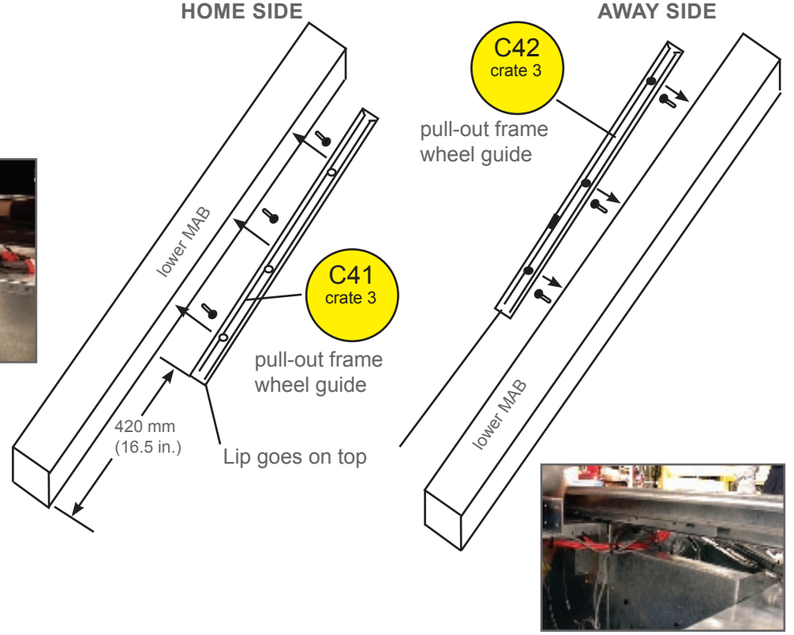
Connect the cables and tubes.

Parts in crates 3, 4, 7.

1 Install the wheel guide rails for the pull-out load table frame.

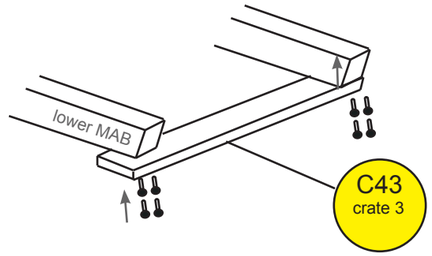






2 Install the pull-out load table frame support.

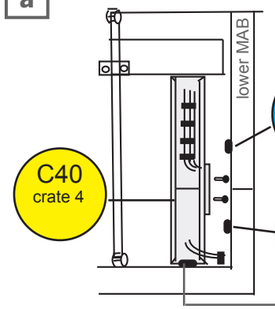
Lift the pull-out frame support assembly (C43) into place and fasten.





3 Install the flex track tray.

a Connect GENINE 1 to load table



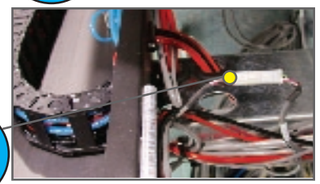
c

E62 Connect load table plate stop up/down.



Secure flex track to wall of tray (transition must be smooth).

E54 Connect GENINE 1 to load table traveler away sensor.



E61 Connect E61.

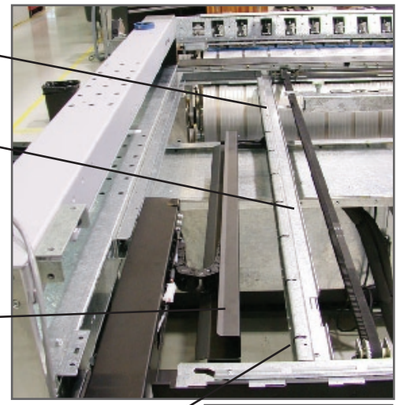
4 Install extensions to the guide rails.

a Attach the join carriage guide at engine side and to pull-out table.

C76 crate 3

C38 crate 3

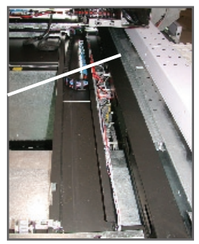
Left guide rail extension



Note: C76 and C38 may be shipped as one piece.

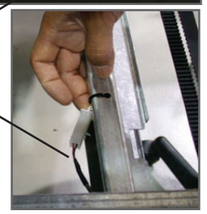
b Right guide rail extension (on other side)

C39 crate 3



C75 crate 3

E63

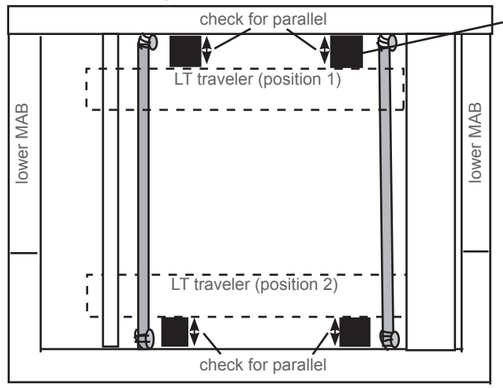


c Attach pull-out table cable guide to LT join carriage guide and to pull-out frame.

d Start button external cable

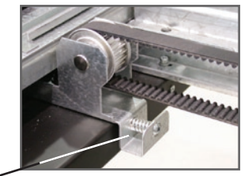
5 Align the traveler.

Start with the right hand side.



Tension spacer jig 690-00117A or wooden blocks





a Undo two locking screws underneath.

b Connect the traveler belt - the belt bottom must be above the traveler.

c Belt tension compressed spring length - 17 mm.

NOTE: Do not use the moveable (pivoting) position of the traveler for adjustment.

6 Install the pull-out load table frame.

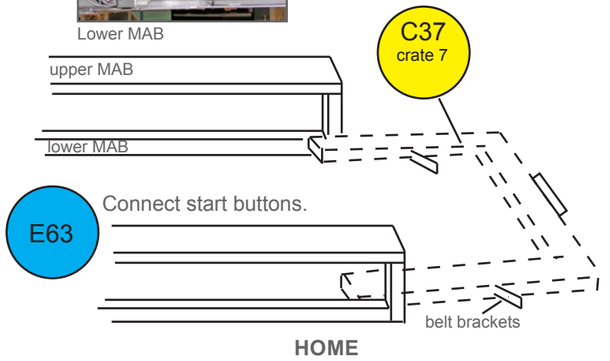


Tilt the frame (C37) and slide it in until the belt brackets have cleared the tie rod.



Lower MAB

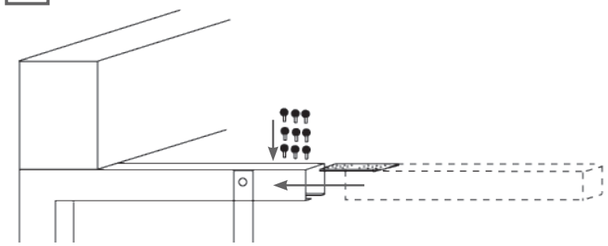
Untilt the frame and fasten the belt brackets to the inside edge of the tie rod.



Parts in crates 6, 8, 9.

1 Attach upper MAB sections with the end plates

a Insert the upper MAB extensions and fasten.

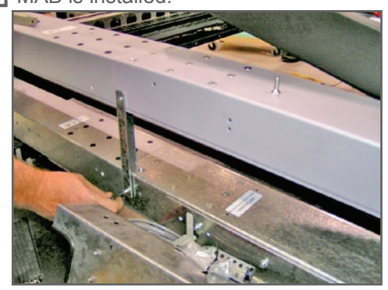




Attaching the upper extension.



b Remove shipping braces once upper MAB is installed.

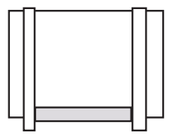


c Attach shoulder panel support bracket (C23).



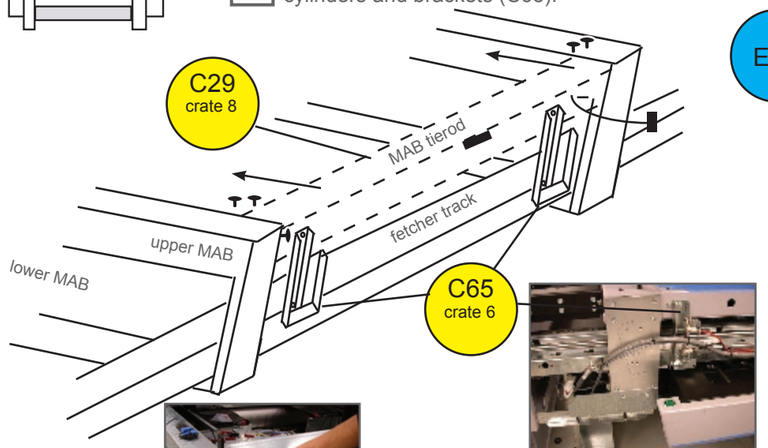
NOTE: End plates are shipped with upper MAB

2 Install the MAB upper tierod.



a Slide the upper tierod (C29) into place from outside going in.

b Install the load table air cylinders and brackets (C65).



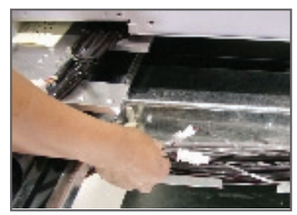


Fit the notched ends onto the MAB brackets and fasten.

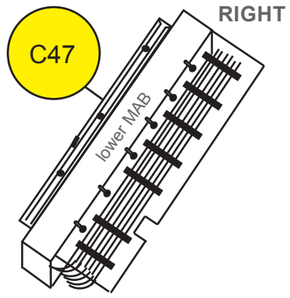
c

E19 Connect front hood unlock solenoid SSW 12 to PBO (J30).

E20 Connect front hood unlock solenoid SSW 12 to PBO (J29).



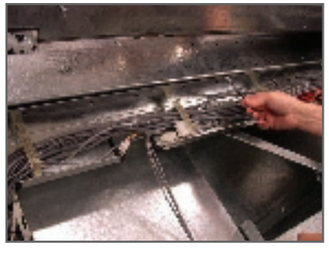
3 Install the MAB cable tray.





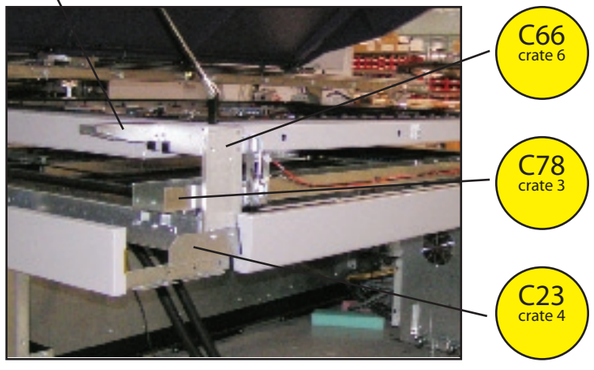
C47 is tucked loosely inside the device

Secure removable cable tray (C47) to outside of right lower MAB.

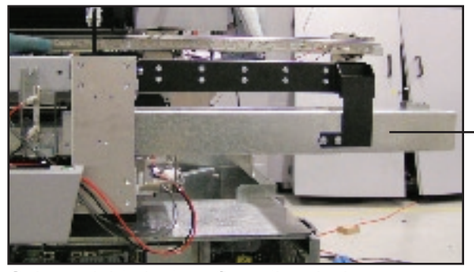


4 Install the fetcher track and support brackets.

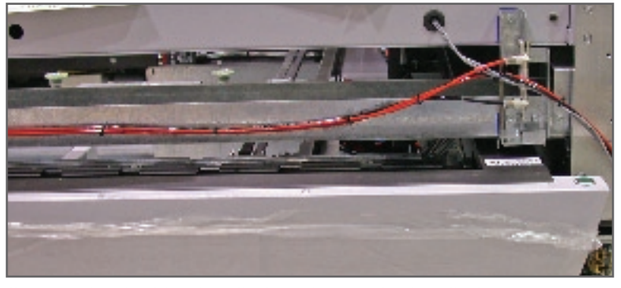
C16 crate 4 — C16 is always on the opposite side of the bridge.



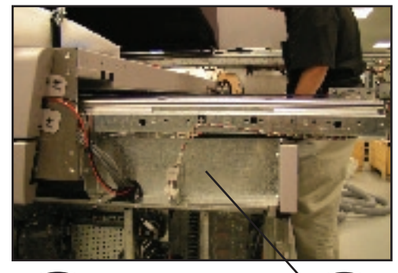
NOTE: For easier access to the installation screws, attach C78 to C79 before installing.

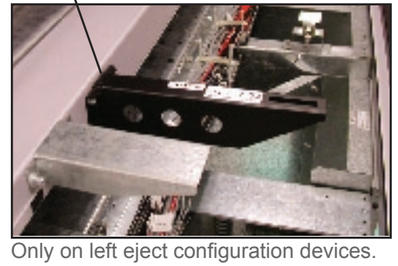


Only on right eject configuration devices.



Connect load table air cylinder tubes on both cylinders.

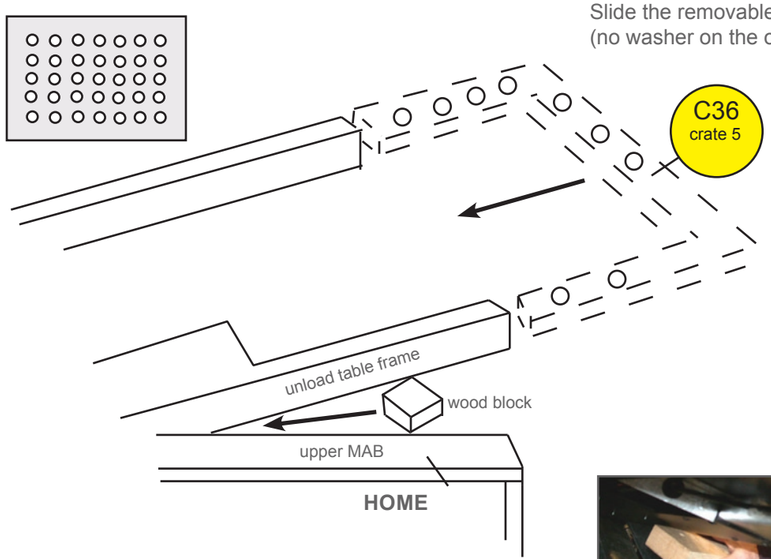




Only on left eject configuration devices.

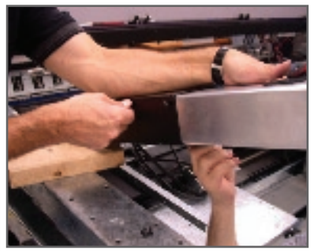
Parts in crates 3, 4, 5.

1 Insert the removable unload table frame.



Slide the removable frame (C36) in and fasten (no washer on the outside).



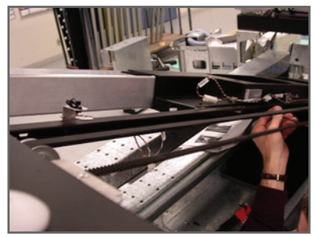




NOTE: Tilt cylinder tubes are removed for ease of handling. Reconnect them when the unload table has been secured.

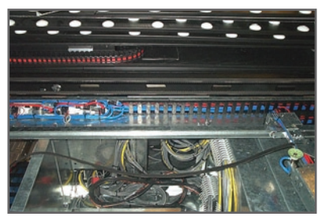
2 Install the extensions for the guide rails.

LEFT

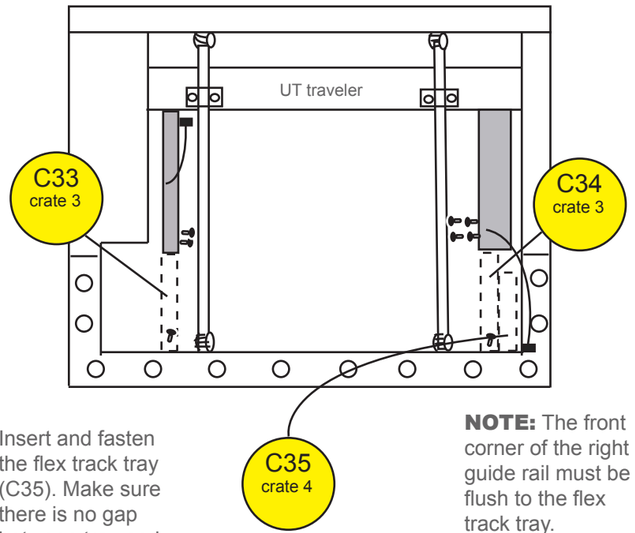


Place the end of the left guide rail (C33) against the end of the fixed rail.

Align height so the joint will allow smooth travel.

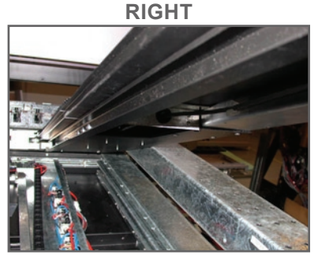


Insert and fasten the flex track tray (C35). Make sure there is no gap between tray and guide rail.



NOTE: The front corner of the right guide rail must be flush to the flex track tray.

RIGHT

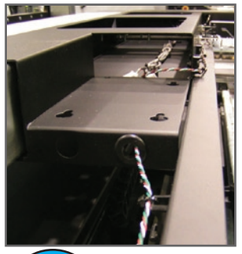


Place the end of the right guide rail (C34) against the end of the fixed rail.

Align height so the joint will allow smooth travel.



3 Connect the sensor and motor.

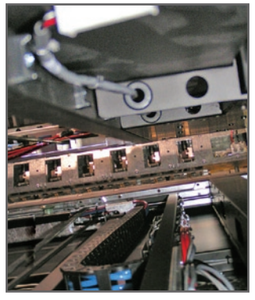


E21 Connect unload traveler away sensor to GENINE 2.



E22 Connect unload traveler motor to GENINE 2.





4 Connect the belts.



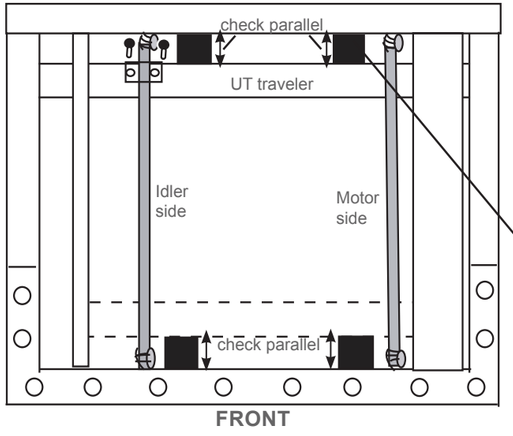
Starting on the right side, feed the belts through the pulleys.

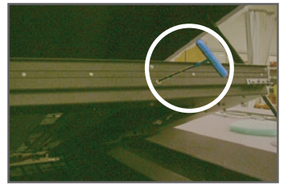


Attach the belts to the traveler.

Align the traveler parallel with the frame.

The traveler must be aligned parallel to the front of the unload table frame.



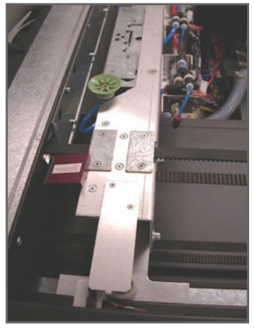


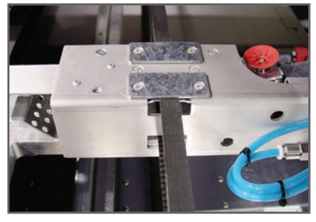
Belt tension on the motor side should match the self-tensioning idler side.

Use jigs or wood blocks as spacers.



Tension spacer jigs 690-00117A

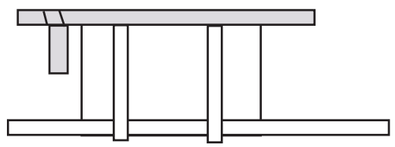




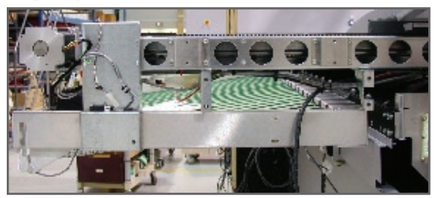
- **a** Loosen the pulley block (access is through the cutout in the frame).
- **b** Connect the belt.
- **c** Adjust the belt by adjusting the pulley block.

Parts in crates 3, 4, 6.

1 Install the ejector track.



Right eject



Left eject

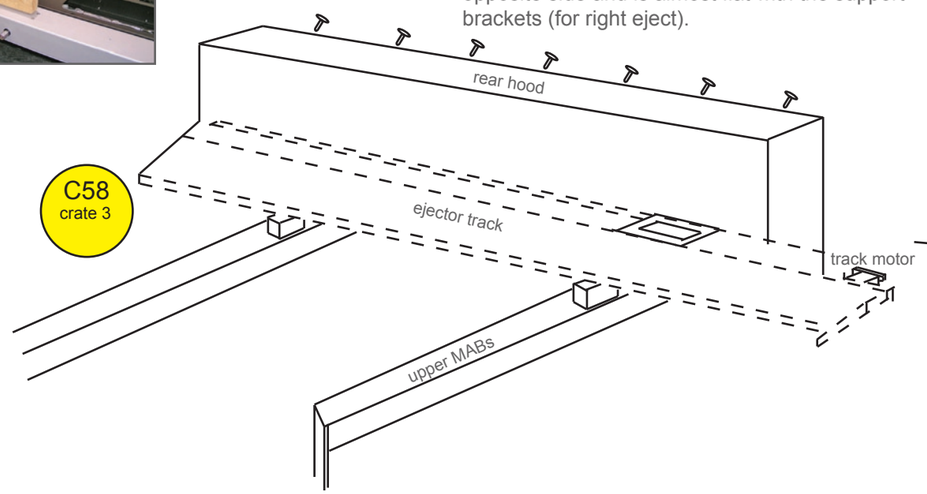


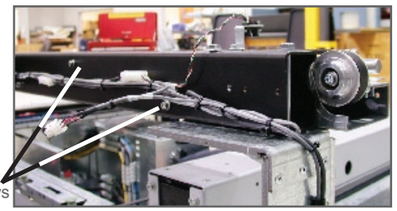
a Lift the ejector track (C58) onto 10 x10 cm (2 x 4 in.) wood blocks at rear of MABs.



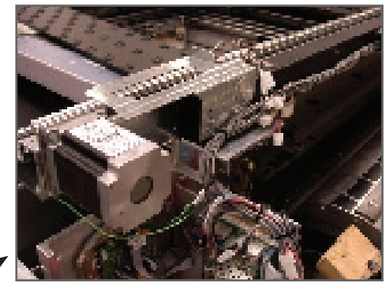
b Fasten the ejector track to the frame, inserting screws from behind the hood.

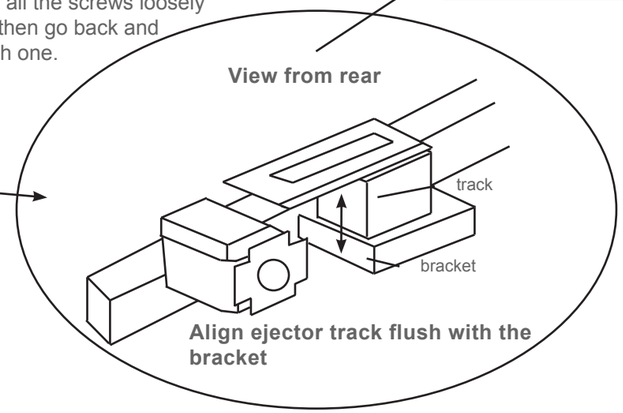
- The ejector motor always mounts on the right (power box) side.
- The ejector motor pulley mounts on the opposite side and is almost flat with the support brackets (for right eject).





TIP: Install all the screws loosely (by hand), then go back and tighten each one.





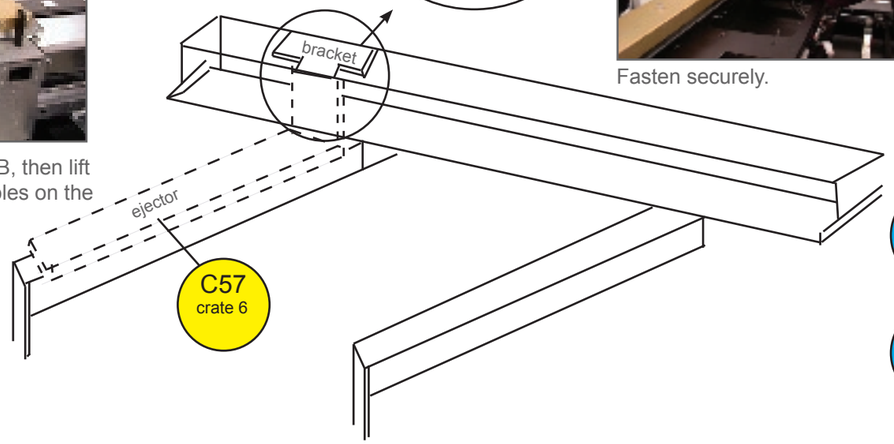
2 Install the ejector.



Move the carriage along the ejector track until it is above the MAB. Be careful of the sensors.



Rest the ejector on the MAB, then lift it up and align it with the holes on the carriage.





Fasten securely.



Connect the motor, air hoses, and sensor cables.

E24 Connect the ejector motor to carriage amp (J3).

E25 Connect side eject away sensor to GENINE 1.

3 Install the bridge support bracket.

C80 crate 4 Install the bridge support bracket (C80).



Connect bridge in position sensor. E35

Parts in crate 7.

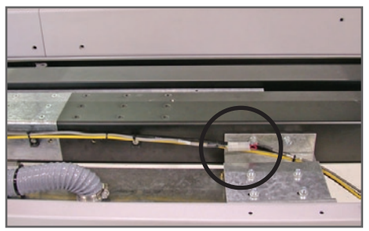
1 Install the TH3 filter/regulator.

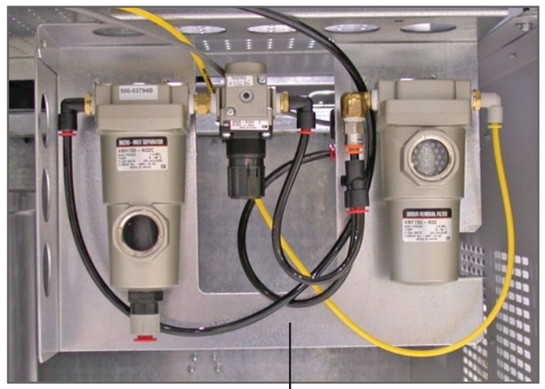
a Attach the TH3 filter/regulator assembly (C98) to the underside of the pullout load table frame support (C43).

b Connect the yellow and black tubes to the filter/regulator assembly.

Note: The yellow tube may have a blanking plug inserted to keep the tube free of debris during shipping.

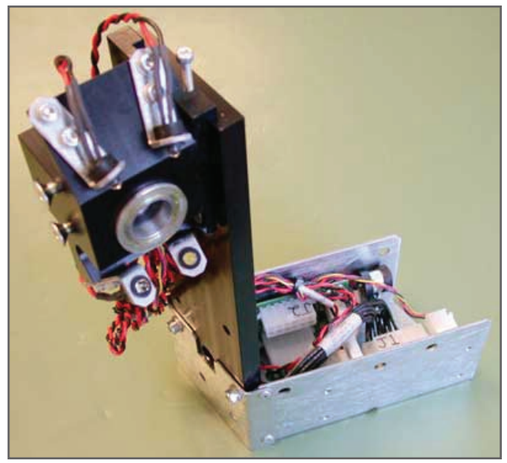
c Connect the pressure switch cable (E82) on the home side of the device.





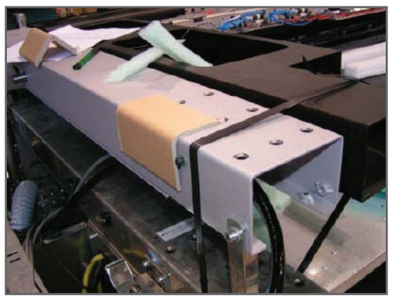
2 Install the edge detect camera assembly.

See *Edge Detect Camera Installation and Callibration* (710-00696A) for details.

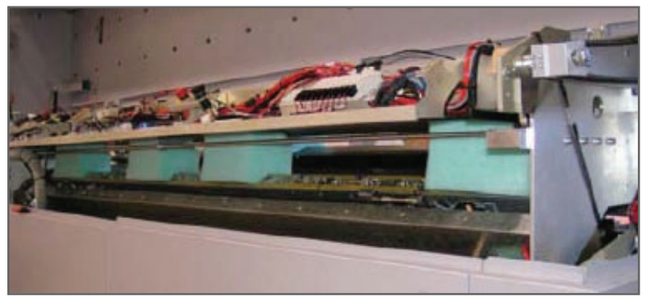


3 Remove punch assembly packing material.

For punch head setup, go to Magnus VLF Punch on Techplanet:
http://techplanet.creo.com/output/computer_to_plate/magnus_vlf_al/nav/punch.htm.



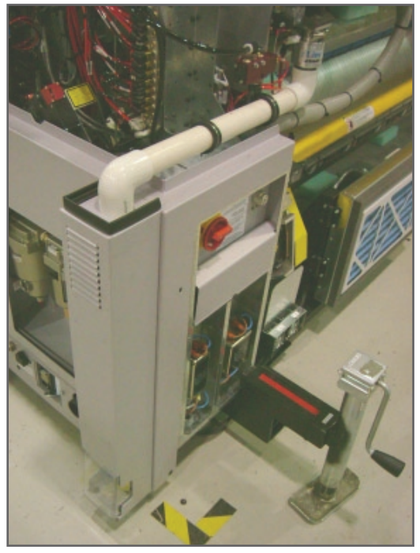
Cut securing straps



Remove foam blocks

4 Install the punch chip collection unit.

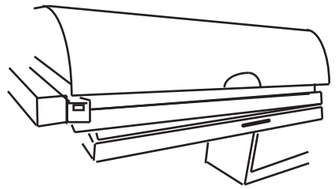
For more information, see the *Chip Collection System* assembly drawing (500-03543A).



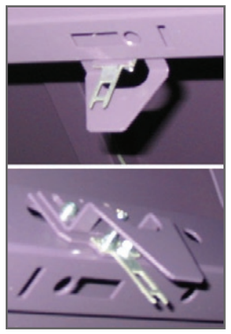


Parts in crates 5.

1 Position the hood and lock it.



NOTE: Be careful not to damage the ejector home and away cables and sensors.



The hood lock switch bracket is rotated for shipping (top). Rotate the bracket back before installing the hood.

Move the ejector close to either one of the MABs (away from the center) ...



... then lift the hood (P1) and place it on the MABs.



Go under the hood and lift from the inside, settling the back edge onto the hinges (space the plastic washers evenly on the hinges).

Secure the hood by sliding the locking bar from left to right (until the locking plates are all the way in the slots).



Open

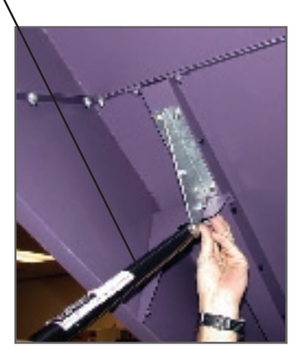


Closed

Fasten the M6 flathead screws and shoulder bolts.

2 Attach the hood struts.



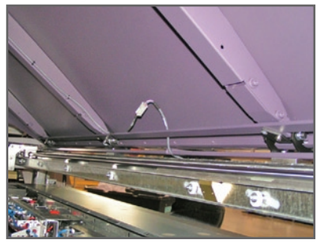


While one person holds the hood up, a second person attaches the two gas struts (C61).

NOTE: The main cylinder must be connected at the top, the piston at the bottom.

3 Connect the status light cable.

a The status light cable must be routed underneath the hood locking bar. Ensure that the cable is tied out of the way of the ejector when the hood is down.

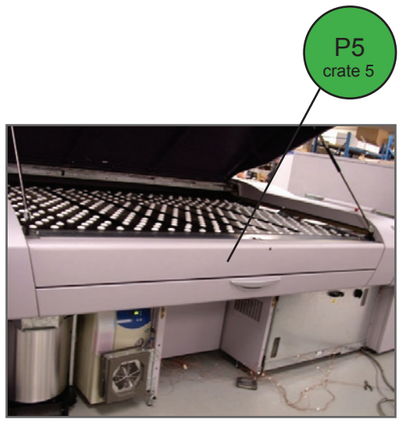


b Connect the status light cable.



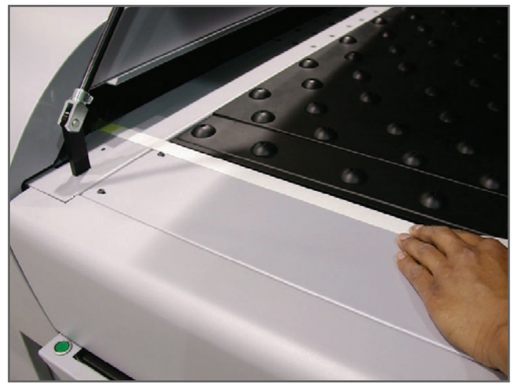
Connect LIONEL EXTN to status LED EXTN.

4 Install the front chin panel.



Install the upper front chin panel (P5).

5 Apply UHMW Tape.



- Apply a strip of UHMW tape on the upper front chin panel where the ejector rollers run.
- Apply the tape all the way across the upper front chin.
- Wrap the tape over the corner to prevent the tape from lifting.

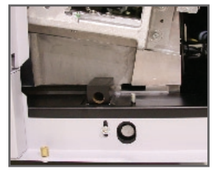
6 Final device leveling.

For a more detailed explanation, see *Align the Device* on page 2.

a Check that the device is still level by placing the level on the drum and on the carriage tracks. Adjust feet 2 & 3 if necessary.

b Place level on upper MAB beams and adjust feet 4 & 5 until you measure 0° ± 0.1°. To confirm that the device is level, reach in and check that the front pins on both sides of the casting slide freely. Adjust feet 2 & 3 if necessary.

c Recheck steps a & b to confirm that the device is level.





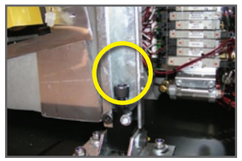
7 Check weight off-load alignments.



There should be 1 mm gap between upper and lower bracket.



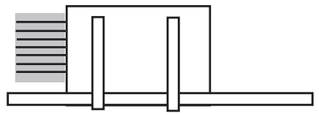
If there is no gap, loosen the two side locking screws for the weight off-loading posts.



Adjust the height with the jackscrew and tighten the side locking screws.

Parts in crates 4, 5, 6.

1 Install the lower shoulder panels.

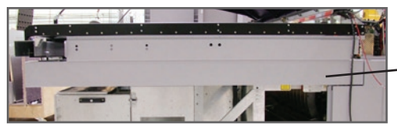


Install lower shoulder panels (P8R and P8L) on each end of the device. Depending on the configuration, either P8R or P8L will have a black panel attached to it.

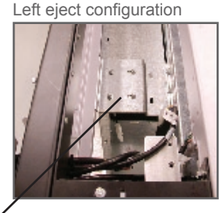
LEFT EJECT CONFIGURATION



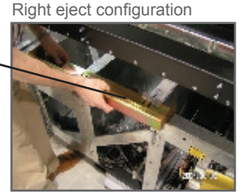
RIGHT EJECT CONFIGURATION



Left eject configuration



Right eject configuration



Install the bridge moment bracket (C68) so that it butts up against the lower shoulder panel.

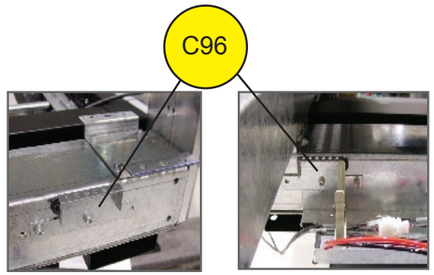
2 Install the bridge support beam.





Attach the bridge support beam (C21).

3 Install the fetcher level blanking panel (bridge plug).



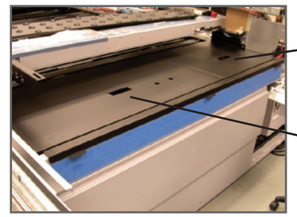
Install C96—one on each side of the device.



Install the fetcher level blanking (bridge plug) panel (P55) to the bridge support beam (C21).
Note: P55 may already be installed on C21.

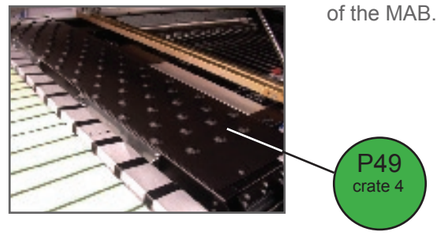
4 Install the lower MAB panels.

Install the MAB-to-skin short panels.



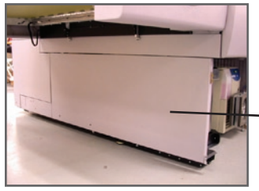
P52 and P53 are on the opposite side. The shorter cover always goes to the drum side at the end of the MAB.

Install the bridge transition panel (P49).



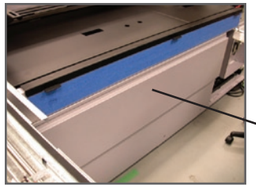
5 Install the bridge.

a Install the side panels.



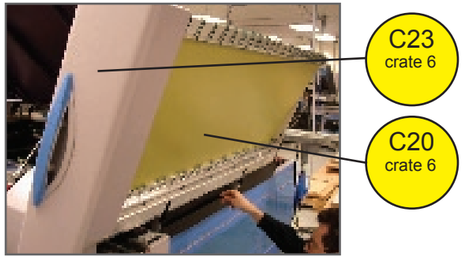
Always on the left side, regardless of configuration.

NOTE: Leave the panel for the MCU side off until the MCU is fully installed.



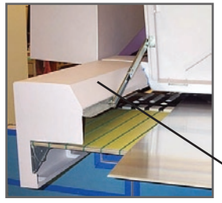
Always on the right side, regardless of configuration.

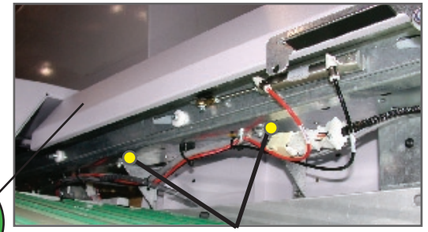
b Loosen off the eight M5 bridge installation screws. Lift the bridge (C20), insert its slotted bracket onto the screws, and fasten.
Install C23.



NOTE: Check that the cables do not interfere with the bridge when it is moving from its normal operation position to its service positions.

c Install the rear bridge panel (P46).





Mounting screws for panel brackets.

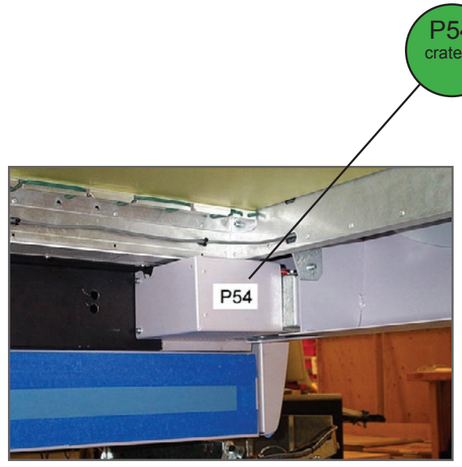
d Make the connections.



E37 Connect plate on processor to GENINE 1 (J4).

E36 Connect SSW11 (bridge cover) to SSW9 (hood cover).

7 Install the fetcher motor cover.



Install the fetcher motor cover (P54).

Parts in crates 7, 8.

Install the drum vacuum pump (DVP).



Roll the drum vacuum pump (C73) into position (usually under the bridge).



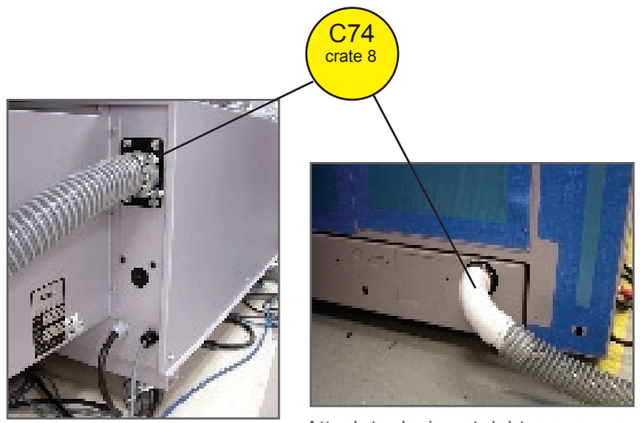
Connect the power cord and the electrical cable.

E65

Connect DVP to LIONEL 0 (J1) in the power box.

Install the drum vacuum pump hose (C74).

NOTE: 15 m (50 ft) of hose is supplied to allow flexibility in where the DVP is located. Cut what you need.

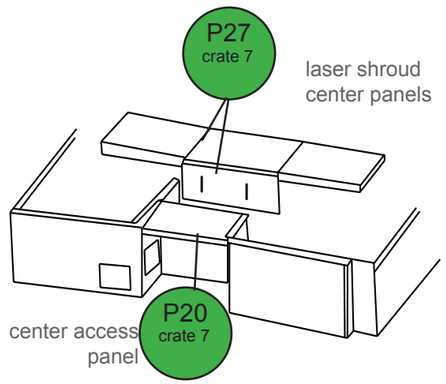


Attach at rear of DVP (use hose clamp).

Attach to device at right rear corner (use elbow and hose clamp).

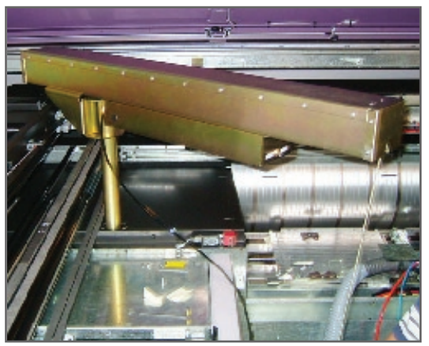
1 Access the carriage area.

Access the carriage by removing the center access panel (P20) and the two laser shroud center panels (P27).



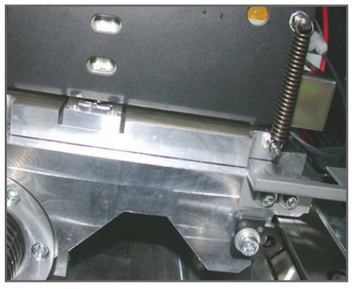
2 Install the head lifting crane (for TH3 equipped devices only).

Install the TH3 head lifting crane for devices with themal 3 heads—not required for devices with thermal 2 heads.
See *TH3 Head Lifting Crane* document (719-00564A).
For TH3, attach the flexure blocks and remove the lens cover before installing on the carriage.



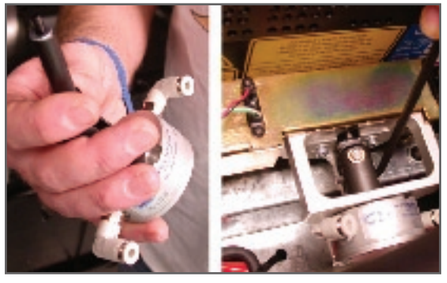
Place the thermal head on the carriage—use the head lifting crane for TH3.

3 Install the hanger springs and clamp cylinder (TH2 equipped devices only).



For TH2, use a ball hex key to attach the four hanger springs between the head and the carriage. See the TH2 replacement procedure for details.

TH3 attaches to the carriage via the flexure blocks. See the TH3 installation guide for details.



Add the shims to the clamp cylinder's pull pin and install the clamp cylinder onto the guide rod.

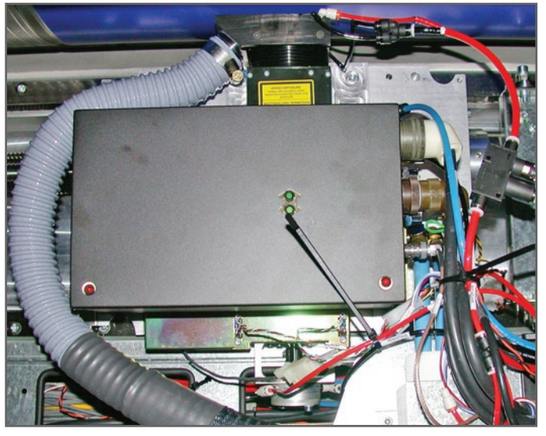
Connect the air tubes (black left and red on right.

4 Connect the debris vacuum hose.



Connect the debris vacuum hose to the nozzle and secure it with a hose clamp. Rotate the drum by hand and check for interference with the hose and clamp.

5 Connect the coolant hoses, tubes, and all cables.

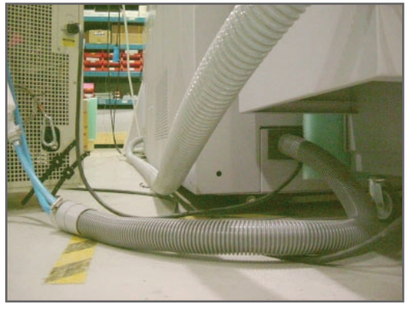


Attach the coolant hoses, air tubes, and cable connectors—TH2 shown.
For TH3, see the *TH3 Head Installation Guide* (719-00438A).

Install the center access panel (P20) and the laser shroud panel (P27).

6 Install TH3 chiller (TH3 equipped devices only).





Load Table and Unload Table

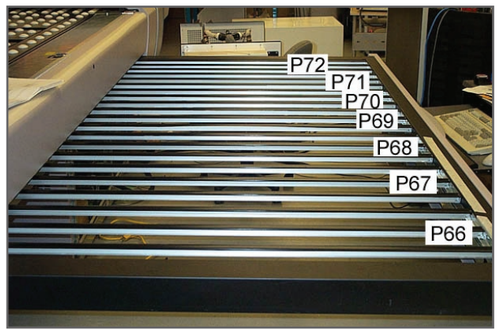
1 Install the unload table panels.

No.	Panel Name
P57	UT Left
P59	UT Center Left Wide
P60	UT Left Narrow
P61	UT Central
P62	UT Right Narrow
P63	UT Center Right Wide
P65	UT Right



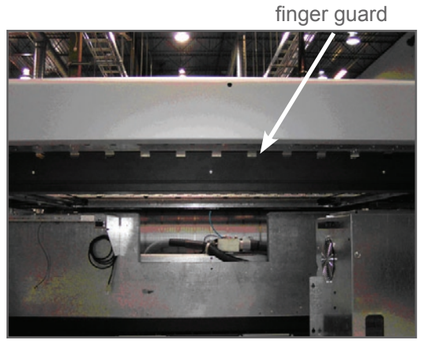
2 Install the load table rails.

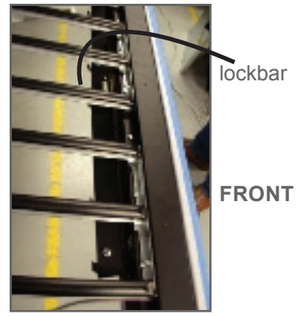
No.	Panel Name
P66 to P72	LT Rails from Left to Right



NOTE: Plate stop cylinder - on left side when looking from front - should be extended (fully open).
To install the load table rails:
1. Rest the back end of the rail panel on the back frame.
2. Holding the rails level, insert the front end of the panel between the guard and the table frame.
3. Push the front end down securely into the slots provided in the front frame.
4. Adjust the spring on the rails so that the back end is in position on the slots on the back frame.
5. Push the guard panel up on its slotted screws.
6. Use the lockbar to lock the rails in place.

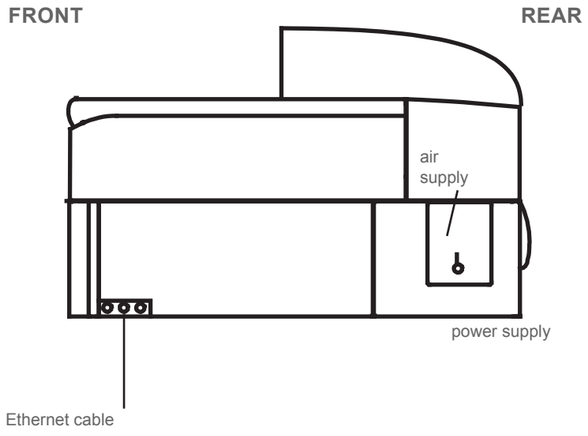






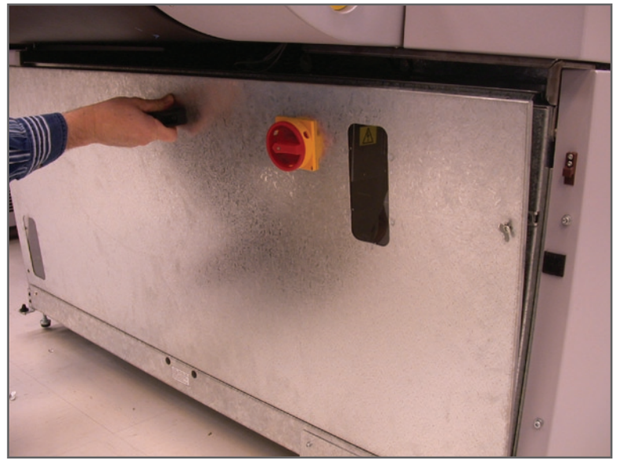
Power Up

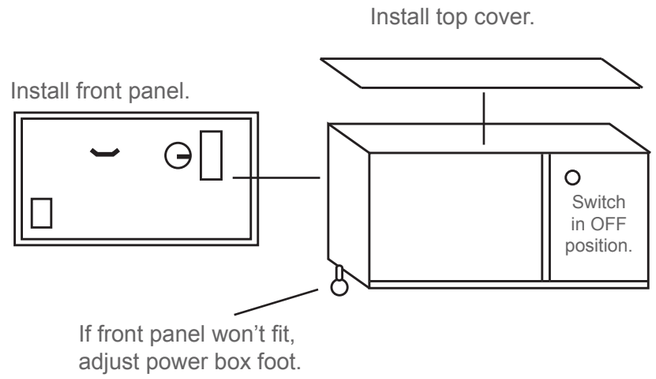
1 Connect the device and power up.



Connect the ethernet cable, the power cables, and the compressed air supply hose.

2 Install the power box covers.





Startup Procedure.

1. Connect the ethernet cable from the device to the workstation.
2. Turn the device power on and open the comressed air supply to the device.
3. Run the Site Installer CD.
   This CD is supplied with the device and is not part of the controlled release CD. The site installer CD contains a simple installer that will copy the device NVS parameters to the workstation and will also set up a secondary backup location for the NVS parameters. For details, see CTP Site Installer CD in the release notes document for the latest controlled release.
4. Check the system pressure. Type:
   >>system (pressure should be approximately 84 psi)
5. Check the safety loop. Type
   >>safety
6. Initialize the device. Type
   >>init
7. While the device is initializing, monitor the operation of the following sub-systems:
   Ejector
   Load table traveler
   Unload table traveler
8. Check the flyoff alignment.
9. Manually check the bridge up/down movement.
   NOTE: When the bridge is fully in, it must not interfere with the ejector cable.
10. Check the positioning of the trailing edge clamp on the drum. Type:
    >>backbone init
    >>backbone tilted unload
    >>TEC getclampservicepark
11. Calibrate the load table plate sensors. Type:
    >>load calibrate 770 1118 manual (where 770 is mscan and 1118 is sscan)
12. Set up the media parameters.
13. Load a plate.
14. Position the head and check the head tilt.
    For detailed instructions on setting up a TH2, refer to the following document: *Thermal 2 Head on a Universal Carriage with Z-Stage (719-00705A).*
    For detailed instructions on setting up a TH3, refer to the following document: *TH3 Installation Guide (719-00438A).*
15. Check the image quality.
    -Check the edge detection.
    -Check the edge detect position. Type:
    >>edge test using the focus laser
    >>edge test camera using the edge detect camera
16. Check the image quality.
    -Check and adjust the image quality according to the media specifications (focus series, exposure series, bmslope, bmcurve, banding).
17. Adjust the ejector speed. Type:
    >>set exit velocity
18. Adjust the delay between dual plates. Type:
    >>set exit dualplateejectdelay
19. Install the plate positioning labels on the load table. For detailed instructions, refer to the following document: *Placing Registration Stickers on the Magnus VLF Load Table* (719-00428A).

No.	Cable Name	Part Number	Main Assembly
E03	Drum motor to J4 drum amp	10-9056A	power box
E04F	To drum motor	500-00058A	
E04M	Drum motor to J2 drum resistive brake	10-9058A	
E05M	PDB 0 (J24) to chiller fan	10-9067A	
E05F	Chiller fan to PDB 0 (J24)	10-1436A	left sub panel
E06F	PDB (J24) to hot air exhaust	10-9067A	power box
E06M	Hot air exhaust to PDB (J24)	10-1436A	hot air exhaust
E07F	PDB (J24) to debris AC fan	10-9067A	power box
E07M	Debris AC fan to PDB (J24)	500-00338A	debris assembly
E08F	LIONEL (J8) to debris removal sensor	10-9085A	power box
E08M	Debris removal sensor to LIONEL (J8)	220-00158A	debris assembly
E09F	PEB AC receptacle to debris blower AC plug	10-9084A	power entry box
E09M	Debris blower AC plug to PEB AC receptacle	220-00156A	debris assembly
E10F	PEB AC receptacle to fan box AC plug/chiller	10-9086A	power entry box
E10M	Fan box AC plug	220-00445A	fan box assembly
E10M	Chiller to PEB AC receptacle	220-00253A	chiller
E19F	PBO (J30) to front hood unlock solenoid SSW12	220-00374A	power box
E19M	Front hood unlock solenoid SSW12 to PBO (J30)	220-00375A	MABs
E20F	PBO (J29) to front hood unlock solenoid SSW12	220-00380A	power box
E20M	Front hood unlock solenoid SSW12 to PBO (J29)	220-00381A	MABs
E21F	GENINE 2 to unload traveler away sensor	220-00189A	unload table
E21M	Unload traveler away sensor to GENINE 2	10-4733A	
E22F	GENINE 2 to unload traveler motor	220-00172A	
E22M	Unload traveler motor to GENINE 2	500-00717A	
E24F	Carriage amp (J3) to ejector motor	220-00186A	wire frame kit
E24M	Ejector motor to carriage amp (J3)	11-0851B	ejector assembly
E25F	GENINE 1 to side eject away sensor (R to L)	220-00196A	wire frame kit
E25M	Side eject away sensor to GENINE 1 (R to L)	10-4982A	ejector assembly

No.	Cable Name	Part Number	Main Assembly
E26M	LIONEL EXTN to status LED EXTN	220-00413A	hood
E26F	Status LED EXTN to LIONEL EXTN	220-00363A	
E31	GENINE 1 to load table closed 1	220-00249A	load table
E32	GENINE 1 to load table closed 2	220-00249A	
E35	Bridge in position sensor	220-00251A	bridge
E36F	SSW11 (bridge cover) to SSW9 (hood cover)	220-00377A	
E36M	SSW9 (hood cover) to SSW11 (bridge cover)	220-00378A	wire frame kit
E37F	GENINE 1 (J4) to plate on processor	220-00251A	
E37M	Plate on processor to GENINE 1 (J4)	220-00364A	bridge
E38M	MCE to start button 1 EXTN	220-00328A	power box
E38F	Start button 1 EXTN to MCE	220-00401A	shoulder panel away
E39F	ES2 to adapter EXTN	220-00402A	
E39M	Adapter EXTN to ES2	220-00326A	wire frame
E40F	ES5 to ES4/ES6	220-00330A	shoulder panel home
E40M	ES4/ES6 to ES5	220-00398A	wire frame
E54F	Load table traveler away sensor to GENINE 1	220-00195A	load table
E54M	GENINE 1 to load table traveler away sensor	10-4733A	
E61F	Load table stopper up to sensor	220-00306A	load table
E61M	Sensor to load table stopper up	220-00537A	
E62F	Load table stopper down to sensor	220-00482A	
E62M	Sensor to load table stopper down	220-00250A	
E63F	Start button 1 to start button 2 EXTN	220-00538A	power box
E63M	Start button 2 EXTN to start button 1	220-00537A	load table
E64F	Start button 2 EXTN1 to EXTN2	220-00538A	unload table
E64M	Start button 2 EXTN2 to EXTN3	220-00539A	
E65M	LIONEL 0 (J1) to DVP	220-00611A	drum vacuum pump