



## 9 - APL - Light Curtain

# Haas Automatic Parts Loader - Service Manual

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## 9.1 LIGHT CURTAIN - TROUBLESHOOTING

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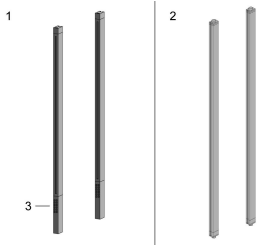
9 - APL - Light  
Curtain

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9.1 LIGHT CURTAIN - TROUBLESHOOTING

Light Curtain - Troubleshooting Guide

Introduction



The light curtain is a transmitter/emitter and receiver system. When the light curtain is broken, the APL or machine motion will stop until the curtain is unbroken and cycle start is pressed.

There are two types of light curtains:

- Light Curtain for APL [1]
- Light Curtain for HRP/Cobots [2]


**NOTE:** The main appearance difference between the Light Curtain for APL [1] vs. HRP/Cobots [2] is that the Light Curtain for APL [1] has programmable buttons [3] on the bottom whereas the Light Curtain for HRP/Cobots [2] has no programmable buttons on the bottom.


Light Curtain for APL - Service Video

The following video will help to troubleshoot the light curtain used for APL.






**NOTE:** This service video is for reference only and does not replace the written procedure.

Symptom Table

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
<b>Light Curtain for APL Only:</b> The light curtain logic is reversed. When the light curtain is broken the icon (shown below) is not displayed and the I/O is a 0 and the APL motion is not stopped. 	The Light curtain parameters are set incorrectly so the logic is reversed.	Reset the light curtain parameters. See the <b>Light Curtain for APL - Reset Parameters</b> section below.
	The programming buttons were unintentionally pressed changing the parameters.	A cover can be made to cover the programmable buttons. See the <b>Light Curtain for APL - Programming Button Cover</b> section below.

<p><b>Light Curtain for HRP/Cobot Only:</b> The Light Curtain icon does not clear when the Light Curtain is not tripped.</p> 	<p>The electrical connections are not correct.</p>	<p>Check the connections from the Light Curtain to I/O PCB. Refer to the <b>Electrical Schematic</b> section below.</p>
	<p>There is something interfering the light curtain.</p>	<p>Remove the object interfering the light curtain protective field.</p>
	<p>On Multi-sided light curtain the mirrors are not correctly align.</p>	<p>Make sure you correct the position of the mirrors. Refer to the <a href="#">Light Curtain Installation - AD0704</a> procedure.</p>
<p>The Light Curtain when broken does not trigger the machine to stop APL motion.</p>	<p>There is no input from the light curtain to the machine.</p>	<p>Light Curtain wired correctly and receiving power. Check from the PSUP &gt; 24V Transformer &gt; I/O &gt; Light Curtain. Refer to the <b>Electrical Diagram</b> section below.</p>
		<p>Light Curtain transmitter and receiver are not aligned.</p>
		<p>The Light Curtain <b>Parameter 2191</b> is not enabled.</p>
		<p>The <b>Setting 376</b> Light Curtain Enable is not turned ON.</p>
		<p><b>Light Curtain for APL Only:</b> Reset the light curtain parameters.</p>

Light Curtain for APL - Reset Parameters

1. Press the Menu button  to enter parameterization mode.
2. Press the Menu button  repeatedly until the F2 icon starts flashing.
3. Press the OK button.  This will take you to the 2nd parmaterization level.
4. Press the Menu button  repeatedly until the H3 icon starts flashing.
5. Press the OK button.  The Light Curtain Parameters will be reset.

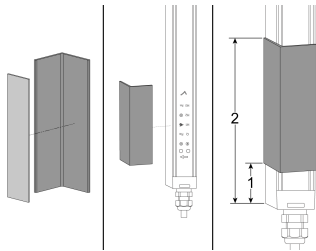
Follow the following steps to reset the Light Curtain Factory Parameters.

1. Press the Menu button to enter parameterization mode.
2. Press the Menu button repeatedly until the F2 icon starts flashing.
3. Press the OK button. This will take you to the 2nd parmaterization level.
4. Press the Menu button repeatedly until the H3 icon starts flashing.
5. Press the OK button. The Light Curtain Parameters will be reset.

See the Light Curtain User Manual below for more information.

LIGHT CURTAIN - USER  
MANUAL

Light Curtain for APL - Programming Button Cover



If the buttons are pressed and the programming changed unintentionally. A shield can be added to cover the programming buttons.

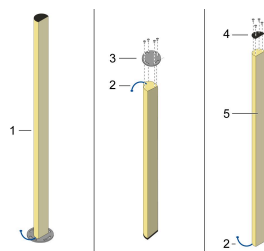
Install a 0.75 inch wide double sided tape to a 1" x 1" aluminum angle that is 3.5" long.

Apply this to the side of the light curtain to cover the buttons.

The cover should be 1.5" from the bottom of the light curtain[1]. The top of the cover should not exceed 5.25"

from the bottom of the light curtain[2]  
or it will trip the light curtain.

## Light Curtain for HRP/Cobot - Remove Light Curtain from Housing



**1**

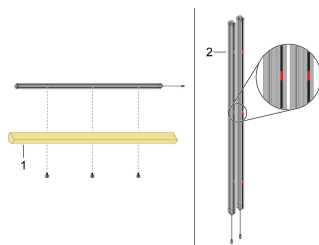
The light curtain housing [1] is standing on the ground. Flip the light curtain housing [1] so that the light curtain receiver/emitter cable [2] is located on the top.

Remove the light curtain housing stand [3] from the light curtain housing [1].

Flip the light curtain housing [1] so that the light curtain receiver/emitter cable [2] is located on the bottom.

Remove the light curtain cap [4] from the light curtain housing [1].

Slide the light curtain protective film [5] out of the light curtain housing [1].



**2**

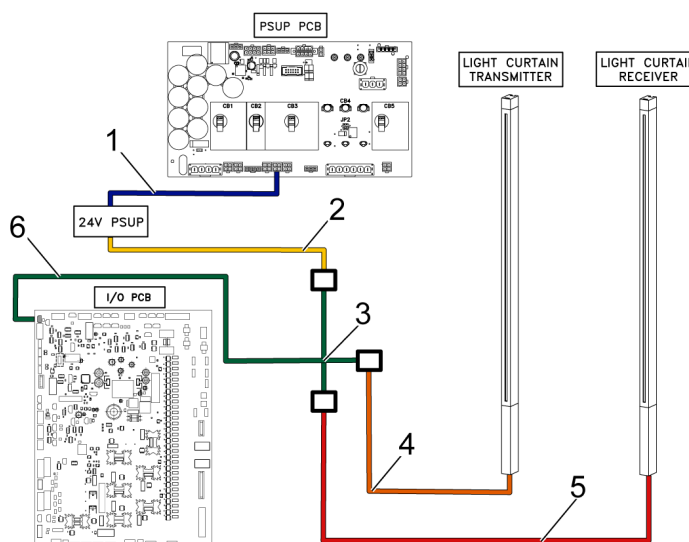
Place the light curtain housing [1] flat onto the floor.

Remove the (x3) bolts securing the light curtain receiver/emitter to the light curtain housing [1].

Remove the light curtain receiver/emitter.

**NOTE:** Make sure not to lose any of the light curtain receiver/emitter T-slot sliders [2].

## Light Curtain for APL - Electrical Diagrams



**[1]** Connect cable **33-1910A** CBL90B 115V TO 24V PS from PSUP **P5/6/7** to **32-9122** 24VDC Power Supply.

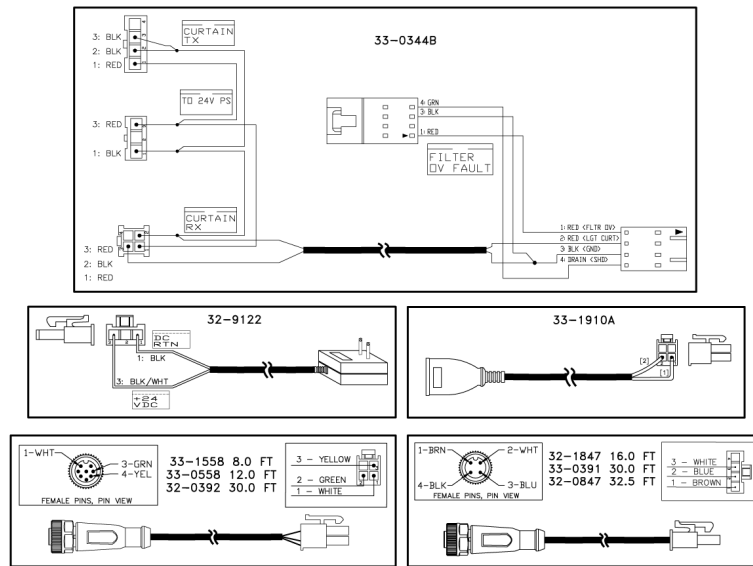
**[2]** Connect 24VDC Power Supply Cable **32-9122** from **33-1910A** CBL90B 115V TO 24V PS to **33-0344B** CBL LIGHT CURTAIN HARNESS WITH FILTER OV.

**[3]** Cable **33-0344B** CBL LIGHT CURTAIN HARNESS WITH FILTER

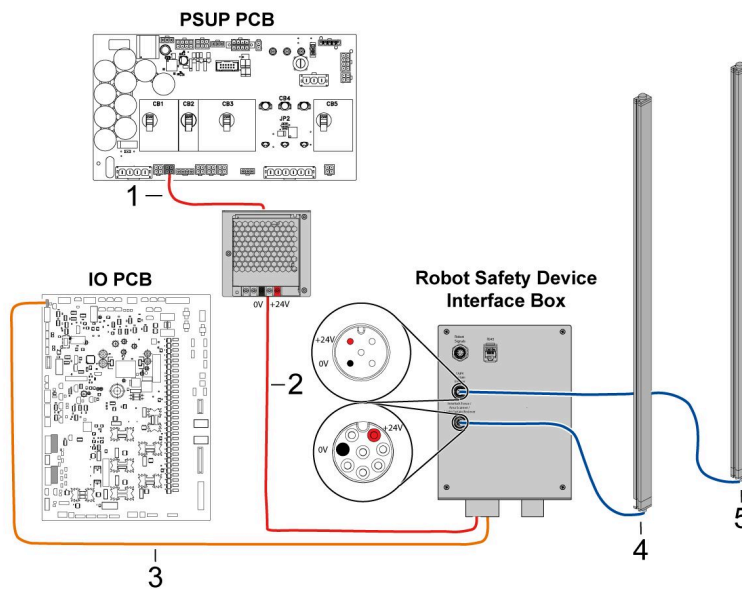
**[4]** Connect cable **32-1847** CBL LIGHT CURTAIN TRANSMITTER to the Light Curtain Transmitter.

**[5]** Connect cable **33-1558** CBL LIGHT CURTAIN RECEIVER to the Light Curtain Receiver.

**[6]** Connect Cable **33-03448** CBL LIGHT CURTAIN HARNESS WITH FILTER to the I/O PCB at **P1**.



## Light Curtain for HRP/Cobot - Electrical Diagram



**[1]** Connect cable **33-1281** CBL 50W 24VDC PS 120VAC PWR IN from PSUP **P3** to **32-1277** 24V Power Supply.

**[2]** Connect 24VDC Power Supply Cable **32-1277** from **33-1281** CBL 50W 24VDC PS 120VAC PWR IN to **33-8562C** CBL 18' HRP SIG FROM I/O TO INTF BOX.

**[3]** Connect **33-8562C** CBL 18' HRP SIG FROM I/O TO INTF BOX to the I/O PCB at **P1**.

**NOTE:** If the machine has a Regen Vector Drive, unplug cable **33-0634** FILTER OV TO IOPCB P1 from **P1** SIO and plug it into the connector FILTER OV FAULT on cable **33-8562C**. If the machine does not have a Regen Vector Drive, do not plug anything into the connector FILTER OV FAULT.

**[4]** Connect cable **09-0638** LIGHT CURTAIN EMITTER CABLE from the Light Curtain Emitter to the interface box.

**[5]** Connect cable **09-0639** LIGHT CURTAIN RECEIVER CABLE from the Light Curtain Receiver to the interface box.

