



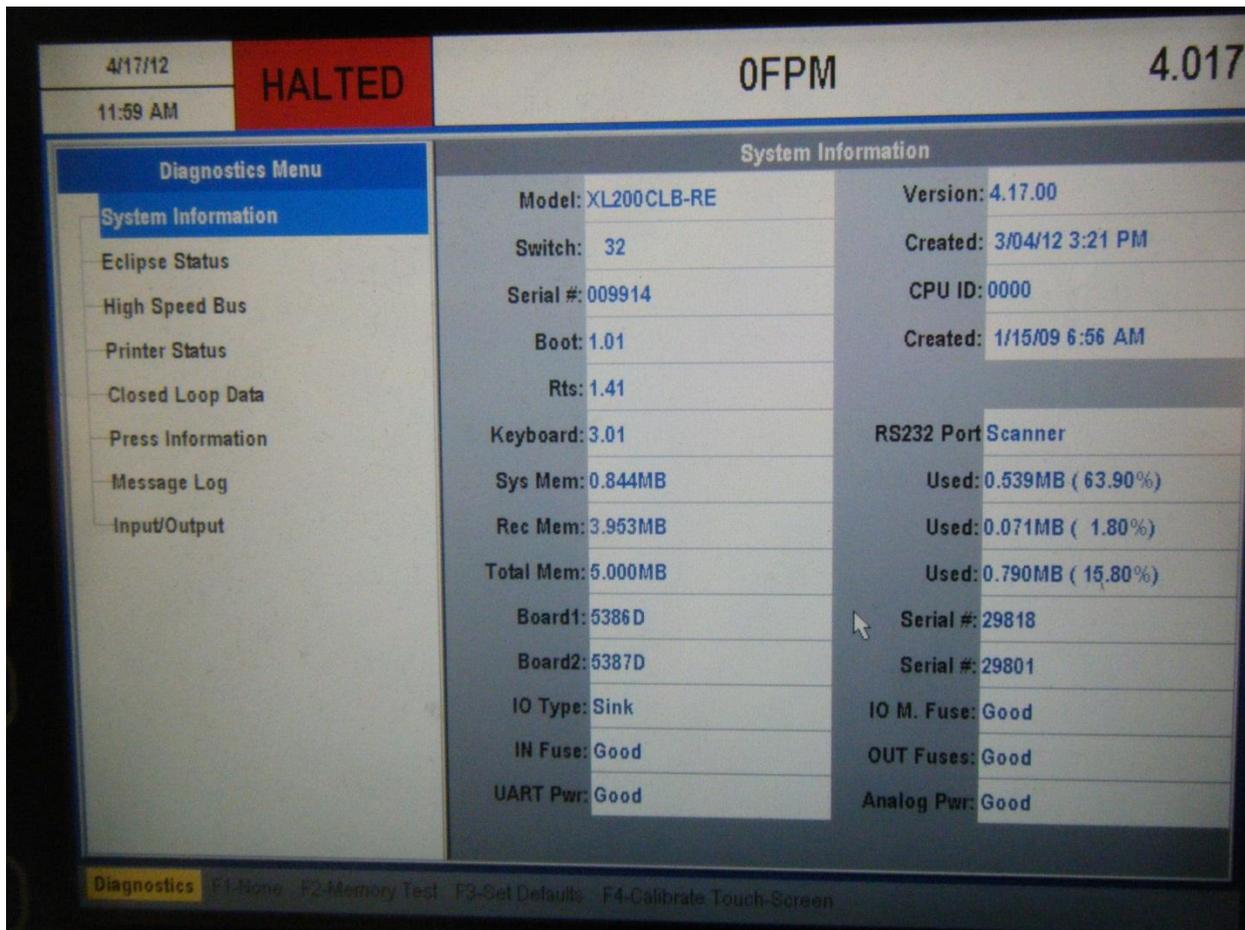
## *XL200CL-RE Setup Guide*

Eccentric "Boss" Shear – replaces XL208CL

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# XL200CL-RE Eccentric (Boss) Shear Installation Guide

The XL208CL model is being discontinued and is being replaced by the XL200CL-RE. The reason behind this is to release the new **Rotary Eccentric Algorithm**, and ensure customers do not get an update and expect that their old setups are going to work. This document will focus on the Boss Shear.



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## Items Required for Setup

In order to efficiently setup the parameters, it is recommended that the following items be available:

- Dial Indicator with a Magnetic base

## Initial Controller Setup

### Setting the Dipswitches

The dip switch settings for the XL200CL-RE are identical to the XL208CL to make that part of the process as easy as possible.

However, this model does support two new features that the XL208CL did not. The die can be configured as a **Rotary Die**, or a **Standard Linear Die**.

DIP 6	DIP 7	DIP 8	Die Configuration
On	Off	Off	Eccentric (XL208CL)
On	On	Off	Rotary
On	Off	On	Standard Linear

## BOSS Shear – New and Old Geometry

There are only two different configurations, the original and the new. You can tell the difference by viewing the crank arm and where it attaches to the die.

**Note:** It is important to note the two types as their mechanical dimensions differ, and these dimensions must be entered into the controller.

### BOSS Shear - New Machine Geometry

On the new machine geometry, the crank arm has the flywheel pin, the die pin and shear pin all in-line and the die pin is below the centerline of the flywheel. The arm pushes down or inline.



New Geometry

The physical measurements as reported by Bradbury:

<b>Flywheel Radius</b>	The distance measured from the center of the flywheel to the crankshaft pin.	<b>4.00"</b>
<b>Crankshaft Length</b>	The measured length of the crankshaft that connects the flywheel to the die.	<b>25.00"</b>
<b>Crankshaft Offset</b>	The measured distance from the center of the flywheel to the plane traveled by the crankshaft pin on the die.	<b>-3.971"</b>

### BOSS Shear - Original Machine Geometry

The original machine geometry has a bend in the crank arm and the shear pin is off-center from the other pins. The die pin is above the centerline of the flywheel. The arm is always pushing up or inline.



Original Geometry

The physical measurements as reported by Bradbury:

<b>Flywheel Radius</b>	The distance measured from the center of the flywheel to the crankshaft pin.	<b>4.00"</b>
<b>Crankshaft Length</b>	The measured length of the crankshaft that connects the flywheel to the die.	<b>24.732"</b>
<b>Crankshaft Offset</b>	The measured distance from the center of the flywheel to the plane traveled by the crankshaft pin on the die.	<b>3.654"</b>

## New Parameters

For the new software calculations, some new parameters must first be defined.

**Note:** It is important to note the **Die Travel Parameter** when doing these measurements. It can be found in the Setup screen under Machine Parameters.

**Die Travel Parameter** - This is the overall distance that the die will travel from its fully retracted position to its maximum extension. It is automatically calculated by the controller based on the above dimensions entered. The values are below.

Old Geometry – 8.0913”  
New Geometry – 8.0157”

It is also good to know the definitions of the **Full Retract** and **Maximum Extension Parameters**.

**Full Retract** – The furthest distance back that the die travels before moving in the opposite direction.

**Maximum Extension** – The furthest distance forward that the die travels before moving in the opposite direction.

**Home Switch Position** – The linear distance from Full Retract where the die home switch turns from Off to On.

This is best calculated by first homing the die, then setting a dial indicator with a magnetic base so that we can track the linear movement of the die. Jog the die until we are at the Full Retract position. Note what the indicator reads and use these rules to determine what value to put in the controller.

If from Full Retract the die has to travel forward to get back to the home position, then a negative value is used. (In most cases this is what happens.) For example if we measured .225” on our indicator we would enter in -.225” into the controller.

After the Home Position is entered, reference the die for the change to take effect.

**Start Match Position** – The linear distance from Full Retract of the die where the press first contacts the material. **Note that the value must be greater than Die Travel Parameter divided by 8.**

After the correct Home Position is found, we can simply jog the die until it contacts the material and use the value displayed in the controller for Die Position. This can be found under Diagnostics and Closed Loop Data.

**Cut Position** – The linear distance from Full Retract of the die where tolerance should be tested.

For example, if we have a Start Match value of 1.5”, we want to make sure we are using a large enough distance to test for tolerance. I would use 3”.

**Stop Match Position** – The linear distance from Full Retract of the die where the press first retracts from the material. **Note the value must be less than the Die Travel Parameter multiplied by .875.**

After the correct Home Position is found, we can simply jog the die until it first retracts from the material and use the value displayed in the controller for Die Position. This can be found under Diagnostics and Closed Loop Data.

## Other Parameters

There are other parameters that are specific to this model of software.

**Start Position** – The position where the die will rest after it has completed a cycle and is waiting for another one. This position represents the offset from the Full Retract position. **Note that since the die moves in the forward direction (XL’s reverse), a negative number should be used.**

**Note:** I had a good experience using -4.600” as my value. This gave the die plenty of travel to accelerate up to line speed, and provided less strain on the motor and mechanics.

**Speed Reduction** – Determines the increase or decrease in velocity for the die during the time that the die is between Start and End Match speed positions. If set to zero, the die will track the line position.

**Start Match Smoothing** – Specifies how smooth the Die Velocity transition is at the Start Match point. 100% is the smoothest.

**Max Die Count** – The total number counts received from the motor encoder after one full revolution of the flywheel. If this is a software upgrade, the same value as before should be used. If this is a new installation, call AMS Technical Support for help calculating this value.

**Auto Crop** – On some machines, the controller may not be able to produce the programmed part following a manual shear or coil change. The next programmed part may include punch locations that have already advanced beyond their required punching stations. In this case, the controller must generate scrap. This parameter allows this scrap material to be cut into manageable lengths that can be reused. A value of zero instructs the controller to produce “good” parts whether the hole locations are punched or not.

## Controller's Rotary/Crank Calculations

After your parameters are set, or if you change any die specific parameters, the first time you try to jog or reference the die, the controller will prompt you with the calculations window.



Calculations Window

Once the controller is finished, I would jog the die to it's Full Retract and Maximum Extension positions. **It is very important that the XL shows a position of 0" when we are at Full Retract and a position of what your Die Travel parameter shows when we are at Maximum Extension.** If this is not the case double check that your home switch position, Max Die Count, or Machine Mechanics match what was entered in the controller.

Once the controller is finished, perform a Die Test to allow the controller to dial in its automatically calculated closed loop settings.



Calculations Complete Window