U-08: Calibrate Resolver (Rotary)

SAFETY FIRST

- ☐ Follow all Caterpillar facility safety standards when performing this task.
- ☐ Machine will be operational for locating to the “on top” position. Be aware of moving equipment.
- ☐ 480VAC may be present in the Control Panel.
- ☐ Use a flashlight if there is low lighting.

EQUIPMENT

- ☐ Autotech Resolver and Module
- ☐ Electrician’s hand tools

RESOURCES

- ☐ installation and operation manual for the resolver module

Calibrate Resolver (Rotary)

1. Position the machine in the “on top” position.

   - ☐ Ask an Operator or Machine Repair for assistance, as needed.

2. Remove power from the rack.

   - ☐ Remove the fuse to the power supply or switch the power off at the toggle switch.

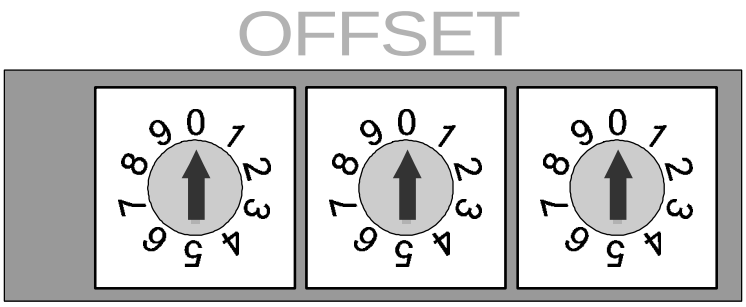
3. Check the DIP switches on the resolver module for the correct configuration.

   - ☐ Remove the resolver module from the rack to access the DIP switches. Because this is not a new installation, the dip switches will probably be configured correctly. However, it is a good practice to check the settings.
   - ☐ There are twelve position DIP switches on the module. Refer to the installation and operation manual for the resolver module, for DIP switch location and configuration.
   - ☐ Reset the switches to match the recommended configuration, as necessary.

- ☐ Return the module to the power rack slot.
- ☐ Ensure that the module is securely seated in the backplane connector.

4. Set the zero position on the resolver.

- ☐ Remove the offset switch cover from the input module to display the three rotary offset switches.
- ☐ Using a small flathead screwdriver, set all three switches to the zero position on the switch. See the figure below.

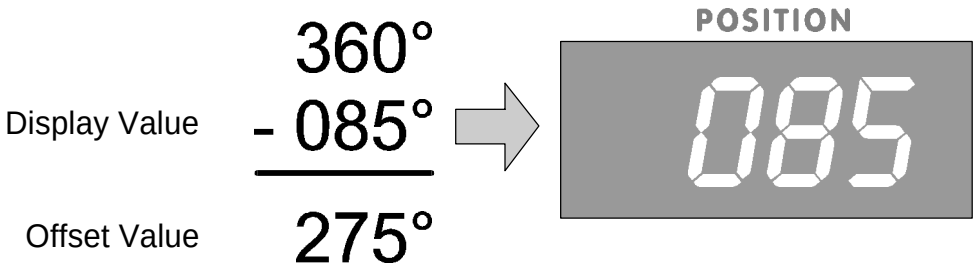


5. Set the module to read the zero position of the machine.

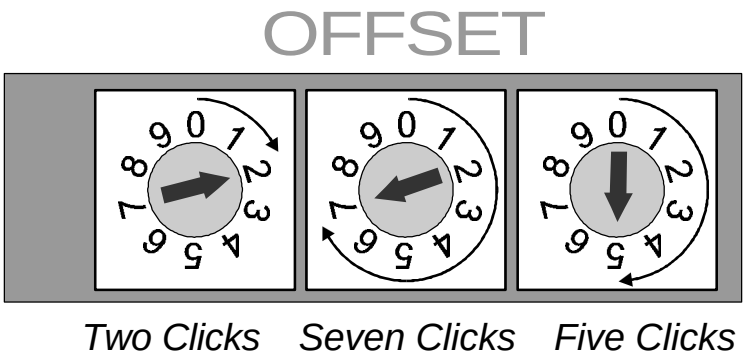
- ☐ The switches on the front provide a means of offsetting the indicated resolver shaft position without mechanically adjusting the position of the resolver shaft at the machine.
- ☐ Read the LED value. This is the degree of revolution or “angle display” as shown in the example below. There should never be an angle offset greater than 360°. If an angle greater than 360° is displayed, the problem could be a faulty module. Be very careful when setting the offset angle.

Example Angle Display

☐ Subtract the display value from 360°. The resulting value is the offset value. See the example below.



☐ Using the offset switches, dial in the angle offset. See the figure below.



Angle Offset On 275°

☐ Using 275° as the example, follow these steps:

a. Starting with the left rotary switch, rotate each switch the required exact number of "clicks" (For example, turn the left switch <u>two</u> clicks clockwise). Do not adjust extra clicks if number change.

b. Turn the middle switch <u>seven</u> clicks clockwise.

c. Turn the right switch <u>five</u> clicks clockwise.

d. If after turning the right switch five clicks, the display does not read "000", adjust the switches for a "000" display. Rotate each switch one click clockwise or counterclockwise to obtain a reading of zero.

e. The resolver module now reads the zero position of the machine.

6. Clean up the work area.

7. Document the work history.