

O-02: Repair Press Control

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- Working around a forge press is extremely hazardous. Presses include many rotating and moving components energized by line voltage and air pressure. Forged parts are hot. The press environment is noisy. Problems in the control system can cause the press to trip unexpectedly. Use extreme caution.

EQUIPMENT

- Allen Bradley PLC-5 program panel or PC with Allen Bradley 6200 software
- electrical test equipment
- ladder or manlift and harness to access the resolver at the top of the press

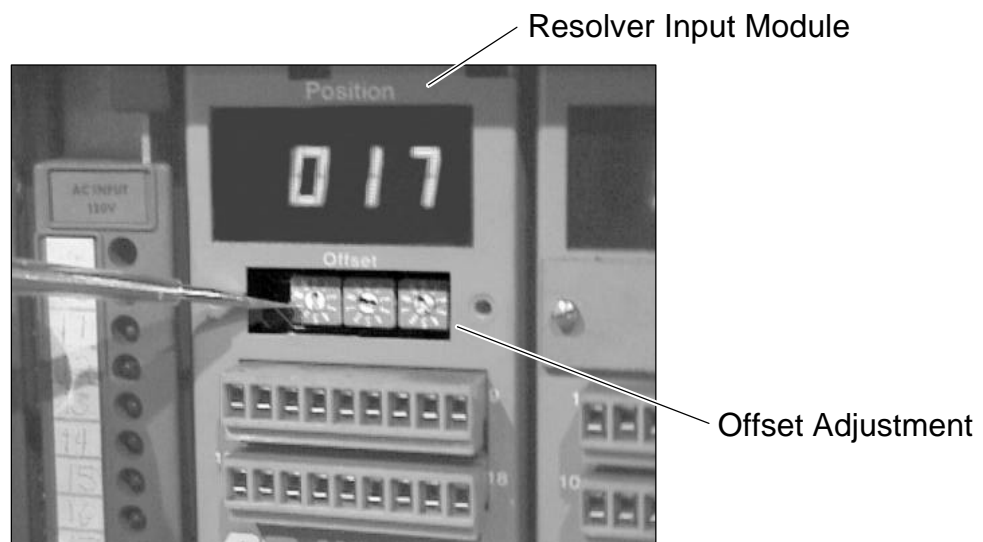
RESOURCES

- press Operator and/or Mechanical Technician
- controls wiring schematics
- PLC program listing
- clutch and brake timing specifications
- manufacturer's documentation for the resolvers and resolver input modules



Repair Press Control

1. Disconnect energy sources.
 - Lock out and tag the circuits providing electrical line power to the forge press drive motor, the system hydraulic pump, the control panel.
 - Shut off air pressure to the clutch and brake.
 - Shut off hydraulic pressure to billet transfer actuators.
2. Set the press equipment to a Zero Mechanical State.
 - Ask an Operator to put the press on the bottom (lower the suspended press ram).
 - Ask a Maintenance Mechanic to release stored air and hydraulic pressure.
 - Wait until the spinning press flywheel stops.
 - Wait until hot billets and press components cool, if necessary.
3. Perform the necessary work on the press controls.
 - Replace any defective component.
 - Restore power to the control panel and adjust the brake or clutch timing, if applicable.
 - Adjust the resolver input module offsets so the display accurately reads the position of the crankshaft or transfer bar.



4. Prepare the press for operation.
 - Ask the Operator to remove any cold billet from the press bed.
 - Ask a Maintenance Mechanic or Operator to manually jog the crankshaft to set the press ram at or slightly past its top position.
 - Ask a Maintenance Mechanic to reset the transfer bar to start position.
5. Restore disconnected power sources in the following order:
 - Activate the control panel power lever.
 - Ask a Maintenance Mechanic to restore air pressure to the clutch and brake.
 - Restore hydraulic power to the transfer bar and billet transfer actuators from the Operator's panel.
 - Press the drive motor power button from the Operator's Panel.

Control Panel



- Restore induction heating line power.