

# Boom Hoist Kick-Out Overrides, Ramp Downs and Automatic Boom Locking Pawls

Often, we encounter crane specifications that go to great lengths to describe various schemes to hopefully prevent boom damage caused by abuse or unintentional use of the **boom hoist kick-out** override feature found on many cranes.

Seatrax cranes do not have an override on the **boom hoist kick-out**. We believe this lack of an override is a safety feature, which provides a great benefit to our customers.

We do not require overrides on our designs because our **boom hoist-locking pawl** is manually operated.

Historically, many **booms** on cranes equipped with **automatic boom locking pawls** were damaged because the **booms** were pulled into the **boom stops** when the upper limit switch was overridden. These cranes require this override feature because the automatic operation of the **pawl** sometimes lags the rotation of the **drum** when the **boom** is lowered. This results in the **drum** and **pawl** “hanging up.” To release the **locking pawl**, the **boom** must be raised first, which requires an override.

Note the **boom-locking pawl** is not required to be automatic by API Specification 2C or any other national or certifying authority. Seatrax designs do not require a **locking pawl** because the **spring set drum brake** performs the required **drum** holding function. The **locking pawl** on the Seatrax design is provided mainly as a maintenance tool.

Also, Seatrax cranes do not require **ramp-down** or **speed reduction switches** to slow the approach speed of the **boom** to the **stops**. These types of “switches” are very troublesome and require a high level of maintenance.

Many manufacturers usually used a “plunger” operated **valve**, mounted in line with the travel of the **boom**, to perform the kick-out function. Being in line with the **boom**, these **valves** often break or dismount if the **boom** should over-travel or bounce. This failure then allows the **boom hoist** to re-engage and pull the **boom** into the **boom stops**. **Ramp-down switches** have then been specified as a means to reduce the over-travel or bounce and thereby prevent the accident.

Our designs use a proprietary **dual plunger valve** mounted to the **boom foot heel pin boss**. These plungers are oriented parallel to the **boom pivot pins** and 90 degrees to the **boom** travel direction.

Two adjustable **cams**, one for the high position and one for the low position, operate them. Because of the orientation of these plungers, over-travel or bounce cannot re-engage the **hoist** or damage the mechanism; therefore, **ramp-down switches** are unnecessary.

