The Incidents

WorkSafe investigated two separate incidents where panel lifting clutches became detached while lifting and rotating panels.

No one was injured, but there was an obvious potential for death or serious injury to occur. In both cases, the clutch became detached from the panel during the first part of the rotation process.

One case involved Ramset 10 tonne clutches, the other involved Olivetti clutches. WorkSafe considers that the same problem can be expected with all clutches of a similar design.

The Investigation

WorkSafe’s investigation revealed that there was no apparent damage to clutches or panel inserts in either incident.

In each case, wire or fibre rope lines were used to provide a remote-release method for the clutch.

Tests were carried out to replicate the apparent release mode. This demonstrated that release was possible when the clutch was positioned with its release pin below the link and the release line became snagged.

Investigation Outcome

When panels are lifted prior to rotation, the full panel weight can be taken with the clutch bolt still being loose in the ring.

In clutches attached to the edge which is to be rotated to become the top of the panel, the load can be taken by the clutch doughnut tilting on the insert, and bearing on two corners.

If the bolt moves during lifting, due to snagging of the release line, the clutch can release as the panel is rotated.

When the panel has rotated 30 degrees or more, the bolt takes the load, as intended.
Conclusions

At WorkSafe’s request, the manufacturers of these types of clutch are examining the feasibility of design changes to eliminate the risk of inadvertent release.

In the meantime, the following precautions should be taken when using remote-release clutches for panel rotation:

- **Always** place the bolt release pin in the up position, with the pin trapped between the clutch link and the panel when the load is taken (see right-hand photo), so that it will be unable to move until the panel is in position and the load is taken off the crane.
- **Always** use a natural fibre rope of not more than 12 mm diameter for the release line. This will help to ensure that if the line does become trapped or snagged, it will break before the bolt can move to release the clutch. **Do not use** wire or synthetic fibre rope as release lines, as these are likely to have far higher breaking loads.
- **Always** ensure that a person with an intermediate rigging certificate (class code RI) who has training and experience specific to precast and tilt-up panel work, is in charge, and is observing the panel rotation. The rigger should specifically ensure that the clutches and release lines are correctly positioned, and that line snagging does not occur, or is rectified immediately.

These incidents highlight the importance of an appropriately trained, certificated and experienced rigger directly supervising the lifting of precast and tilt-up panels, and the necessity for site dogmen to strictly follow the rigger’s instructions.

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