

## SPECIAL POINTS OF INTEREST:

- Hydraulically driven hi-rail equipment may also be subject to runaway due to contamination in the fail-safe park brakes. Refer to the manufacturer or your local Plant Coordinator for more advice on this subject.
- Maintaining clean quick connect couplings on excavator attachments will assist in reducing the ingress of dirt and contamination which would otherwise directly enter the hydraulic system.
- Project Managers engaging this type of plant should request documented confirmation from the supplier of the equipment's compliance with these safety requirements.

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## Friction Drive Hi-Rail Equipment

Recent incidents involving hydraulic & friction driven hi-railed equipment on networks around Australia have resulted in a number of equipment runaways and serious personal injuries.

Road rail capable equipment typically affected by this plant safety bulletin includes:

- Rubber tyred excavators
- Tracked Excavators
- Rubber tyred tractors / forklifts
- Rail handling cranes eg Pettibones
- Rubber tyred elevating work platforms

Friction drive hi-rail normally relies on the rubber road tyre to contact, drive and brake the rail wheel which is then in contact with the rail head. Once on track and with the rail wheels engaged, the plant is driven in the normal manner with the rubber road tyres rotating and providing motion to the rail wheels through friction. While the rubber road tyre provides drive to the rail wheels it is often the sole means of providing braking for the machine during on-track operation.

Similarly, hydraulically driven hi-rail equipment may rely solely on the hydraulic system to provide drive and braking. The cleanliness and maintenance of these systems is paramount in ensuring their correct & safe operation.



**The operator must remain in control of the piece of equipment to ensure that at all stages of the operation, including transfer process between road & rail operation, the machine is effectively braked and cannot runaway. Also, never leave the machine unattended without the park brake applied and the jib or boom placed firmly on the ground.**

Controls such as interlocked sequencing valves must be used to ensure that one braked rubber tyre is in contact with the ground or rail wheel at all times during the on and off tracking procedure

Equipment which does not use an over-centre action to engage the hi-rail and lock in place or equipment which simply uses the position of blade mounted rail guidance wheels must be thoroughly checked and tested by the supplier to ensure the possibility of a runaway situation has been eliminated. The runaway situation is also possible for low speed non-drive rail guidance systems which have the potential to lift the entire machine eg excavator clear of its driving tracks. In these cases the rail guidance wheels are not braked at all and may result in a runaway if the wheel lift is found to be excessive. In this case stroke limiters may be effective.



Further additional information on this subject may also be found at:

- [http://engineering.railcorp.nsw.gov.au/Disciplines/RollingStock/RollingstockTechnicalNotes/RTN\\_012.pdf](http://engineering.railcorp.nsw.gov.au/Disciplines/RollingStock/RollingstockTechnicalNotes/RTN_012.pdf)
- [http://engineering.railcorp.nsw.gov.au/Disciplines/RollingStock/RollingstockTechnicalNotes/RTN\\_013.pdf](http://engineering.railcorp.nsw.gov.au/Disciplines/RollingStock/RollingstockTechnicalNotes/RTN_013.pdf)
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