

2010 CICA Lift of the Year Awards

Category B (Cranes up to 130t capacity)

Applicant: Kelly's Crane Hire Pty Ltd
ABN 86 103 554 196

Job Location: Rex Range Road, Rex Highway
1.5 hours north of Cairns

Client: Oakdare Holdings Pty Ltd

Equipment: Grove GMK3055 All Terrain Crane
Franna AT-20
Case Loader



Description of the job:

Our lift is the recovery of a 25T bridge girder and dolly which left the road along the Rex Highway approximately 1.5 hours north of Cairns. On 20 October 2009 a convoy of 4 trucks were transporting the first bridge girders from Cairns to Cooktown for the new Endeavour River Bridge. The first truck did not negotiate a sharp uphill bend wide enough and the wheels of the dolly ran over the kerb onto sloping ground. The weight of the 25T girder pulled the load clear of the truck, and the dolly, with the girder still attached, slid several metres into a gully.



Difficulties of Job and how they were overcome:

We did not have the capacity with the cranes available to do a two crane lift, but by lifting one end at a time we could utilize the full capacity of each crane. By doing the lift in this way the road was opened earlier than if larger equipment was brought from further south and also resulted in a considerable cost saving to the client.

The limited information immediately available for this job contributed to time delays before we could make a decision to go ahead. By the time our supervisor was on site we were given weights for the items to be lifted. Time was an important factor as the whole highway was closed which was affecting peak hour traffic.

Our company is a small, family run business and we have a limited skilled workforce to call out for these types of emergencies. Fortunately we were able to utilise an extra person at short notice on this day.

The job site was on quite a steep grade which required more packers than usual to set up the crane. Where the girder rested in the gully was steep and overgrown which made access difficult.

Details of the lift:

The job was planned to create a pivot point as close as possible to where the girder was in contact with the pavement. This was approximately half way along the girder and the weight of the top half of the girder would act as a counterweight. Two timber packers were used to create the pivot point. Timbers were also used at the top end of the girder for when the girder was righted so that it would not come in contact with the pavement and would act as a second pivot point for when the girder came into radius to lift one end.



One option to lighten the load was to disconnect the dolly from the girder but after consultation between the dogger, crane driver and client it was decided the risk was too high to send someone into the gully to disconnect the girder from the dolly.

Prior to the dogger walking down the girder it was attached at the top end to the 20T Franna with a 22T set of 2-legged chains and to the Case Loader with a 36T set of 2-legged chains to secure the load from sliding further into the gully. The chains on the loader and Franna were tensioned to take out any slack without adding any extra weight.

The Grove GMK3055 was set up with full counterweights with six drops of rope which gives 30.6T on the winch.

The dogger walked down the girder and attached a 22T set of 2-legged chains onto the lifting points on the concrete beam. The dogger inspected the chains attaching the bridge girder to the dolly and they appeared in good order.

Prior to the lift commencing the Franna and loader drivers were instructed to follow the load rather than applying weight as this would overload the main crane. The Franna and loader were purely to secure the load and act as an anchorage point to prevent any sudden movement or slippage of the girder while the main crane brought the girder into a radius of 8m.



The estimated weight applied to lift the lower end of the girder and dolly by the Grove was 4.5-5T at a radius of 13m as the upper part of the girder was acting as a counter weight. The machine was good for 8.2T at this point.

The lift commenced and the dogger instructed the crane to follow the contour of the land to maximise safety until the load was within an 8m radius where the crane was good for 18.1T.

Once the load was within this radius the girder was rolled upright and lifted until it came in close contact to the pavement at the upper end. More packers were placed under the top end so that it had something to pivot on.

The 55T Grove took the full weight of its end of the girder and lifted it off the centre pivot point onto the opposite end pivot point. The weight on the 55T Grove was 14.5T at this time.

When the end of the girder made contact with the end pivot point the crane slewed until the wheels of the dolly could be placed onto the pavement. The wheels were chocked to stop any downhill movement before the full weight of the girder was released.



The Grove was no longer required and the 20T Franna was re-positioned to lift the front end of the bridge girder. It was attached to the 36T set of 2-legged chains with a 2.5m radius where the crane was good for 13.9T. The truck reversed under the girder and it was re-attached.



The client re-assessed the condition of the truck and dolly to ensure there was no significant damage. Once he was satisfied it was safe to drive, the truck transported the girder to the nearest lay down area approximately 6km up the range where it was unloaded in the reverse procedure for further assessment.

The lift was completed in approximately 2 hours and the road was re-opened to traffic once the remaining 3 girders were escorted to the top of the range to continue their journey to Cooktown.

Declaration:

The lift was always within the Safe Working Load (SWL) of the equipment used, and complied with all safety standards and safe working practices.

