

The Motion Tech News

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NEWS FOR TODAY

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Screw Jack Help and Repairs

Getting customers screw jack working again for rail lift



Repairing and fitting safety

This is a typical application for Motion Technologies, as we are known in the industry for our sound knowledge in screw jacks. This above screwjack was originally manufactured in the early 70's by Unimec for lifting the end of a train to remove the bogie. It has 120 ton lifting capacity with a 200mm diameter screw that strokes 2.2 metres. The customer rang in desperation, as his local machine shop could not repair and asked us to take a look. We received the screw jack in pieces which totalled 1.5 ton in weight. What was evident is that the screw jack was over stroked causing some damage to the bronze worm wheel. Additionally the grease lubrication was non existent. This can be a problem on type 1 screw jacks where the lubrication of the gearbox is lost.

Type 1 Screw jack means the screw translates through the gearbox.

Due to the damage on the worm wheel, we suggested a safety nut be fitted in the event of failure. A safety nut is essentially another nut fitted to the screw and is driven by pins from the main worm wheel. It is no load bearing thus does not wear out.

If and when the worm wheel losses all its thread for the translating screw, the safety nut slides down on its pins to the worm wheel and then becomes load bearing. This then stops the load on the screwjack from collapsing the actuator. A proximity sensor was fitted to the safety nut, so if activated the drive motor driving the screw jack stops. The jack was returned to a happy customer.

Better lubrication

After discussions with the customer we suggested the screw jack be returned to us during their next shutdown so Motion Technologies could work on the lubrication system.

As mentioned previously this screw jack gearbox is grease filled though the problem is this actator sits in a pit below ground and lubricant levels cannot be seen.

Additionally, we wanted more lubricant on the main lift screw as well as if you have lubricant under mechanical pressure then the materials don't wear out. We proposed changing to oil lubrication and fitted a gravity oil tank to the screw jack gearbox housing and converted the anti rotation tube into a oil tank. Now the safety nut and gearbox has oil lubricant everytime it operates.

Additionally the customer changed the operation cycle to fully collapse "retract" the lift screw which in turn implies the screw has oil lubrication over it entire length on every cycle. To monitor oil loss a dip stick is fitted with predefined minimum and maximum level marks.

This Unimec screw jack is extremely expensive to purchase new and with civil works and alike the estimated value is \$500k.

Thus it is definately worth updating and keeping an eye on it.

Of course we repair smaller screw jacks as well being machined screws and ball screws.

We even sell new.

If you are experiencing these types of problems, feel free to make contact with our friendly staff.