



L3 Long-range Extensometer Unpacking and Inspection

1 Purpose and Scope

This document covers the unpacking (and repacking) and inspection procedure for the TTL-based long-range extensometer (model QC-551) on L3 Series testing frames. It is possible for the wire/pulley system to develop issues during shipping/handling and setup. This document will try to help identify and aid in the repair of such issues.

2 Packing Screw

On the backside of the extensometer column near the top is a packing screw that holds the pulley counterweight stationary during shipping. Care must be taken when removing this screw to ensure that the wire maintains the proper path through the pulley system when the counterweight is allowed to drop into operating position. Please follow these guidelines:

- Extensometer column needs to be in the vertical (operating) orientation.
- Remove any shrink wrap or tape (securing the arms, wire, etc.).
- Lower extensometer arm should be in the bottom parked position, with the upper arm secured to it (with a twist tie). You should not see excessive slack in the wires going to the arms.
- Remove the packing screw to release the internal counterweight.
- At this point the wires to the arms should be taut and both arms should be able to be moved freely and independently. The counterweight pulley system is free-floating in the column, so it is normal/desired to hear it rattling if you shake the column.

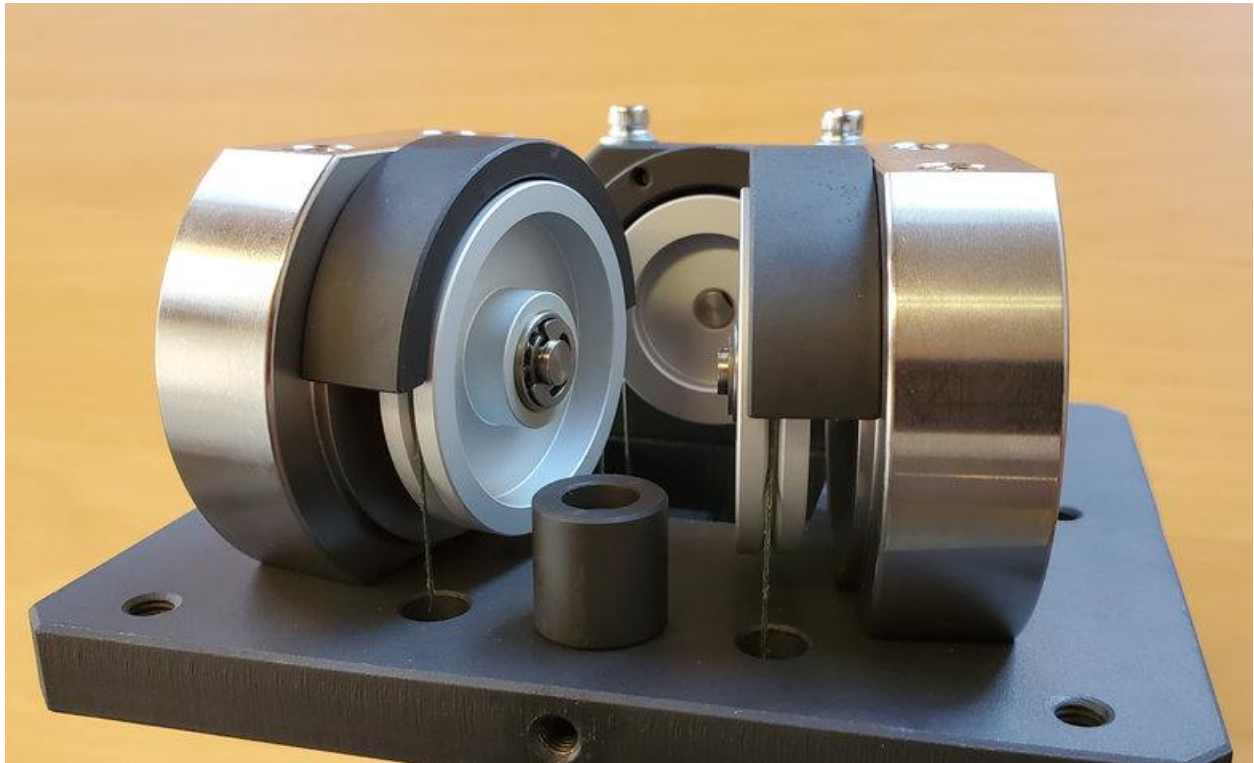
If the unit has to be moved/shipped again, the packing screw needs to be reinstalled:

- Move both arms to the bottom parked position. This will position the counterweight up at the top of the column where the parking screw hole is. There is no mating hole on the counterweight. The screw just applies pressure to the side of the weight so that it will not move in the column.
- Tighten the parking screw (do not overtighten).
- Near the top of the column, pull the two wires taut and secure them to the column with masking tape (or any other tape that will not leave residue on the wire). This should keep the path of the wire through the pulley system secure during travel.

3 Inspection and Repair

With the packing screw removed, each of the extensometer arms should move freely (no binding or slack in the wire) and independently. You should be able to move one arm slowly with little to no influence on the other arm. If there is resistance or one arm drives the position of the other, this is indicative of a problem with the wire routing through the pulley system.

Remove the top cover (3 screws) to inspect the three large pulleys (one for each extensometer arm, and one connected to the rotary encoder). Verify that the wire has not fallen out of any of the pulley wheel channels:



The guards over the tops of the wheels are there to help prevent the wire from coming off during normal operation, but it is still possible for the wire to pop off if the unit has been mishandled. If the wire has come off any of the pulleys, it should be possible to get it back on track without having to remove the guards (as there is a fine gap between the guard and wheel that the wire can squeeze through).

The next thing to check is the wire routing to the two pulley wheels connected to the counterweight. Here is a view from the top looking down on the counterweight assembly:



The wires should appear centered in the channels cut out of the plastic top plate. Here is a close up:





If the wire is touching any part of the plastic, this is indicative of a problem. The wire has likely fallen off one or both of the pulley wheels, and the counterweight will need to be pulled partially out of the top of the column in order to rectify the problem.

In order to service the counterweight pulleys, all three top pulleys need to be removed. It is best to lay the extensometer horizontal on a table to conduct this service. Each top pulley is secured with two allen bolts. Once removed and the pulleys set aside, the counterweight assembly can be pulled partially out for inspection and repair.



If the wire has come off the counterweight pulley(s), you may need to loosen the allen bolt on the top of that assembly in order to route the wire in the wheel channel(s). This bolt connects the weight (which also serves as the pulley guard) to the rest of the assembly. Re-tighten the bolt once the wire is correctly routed.

Push the counterweight assembly back into the column and reassemble the top pulleys. Take care to maintain tension on the wire so that it does not fall off the wheels during reassembly. Carefully move the unit to the upright position and verify smooth operation.