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**Dynamic Cone Penetrometer
SL970**

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User Guide
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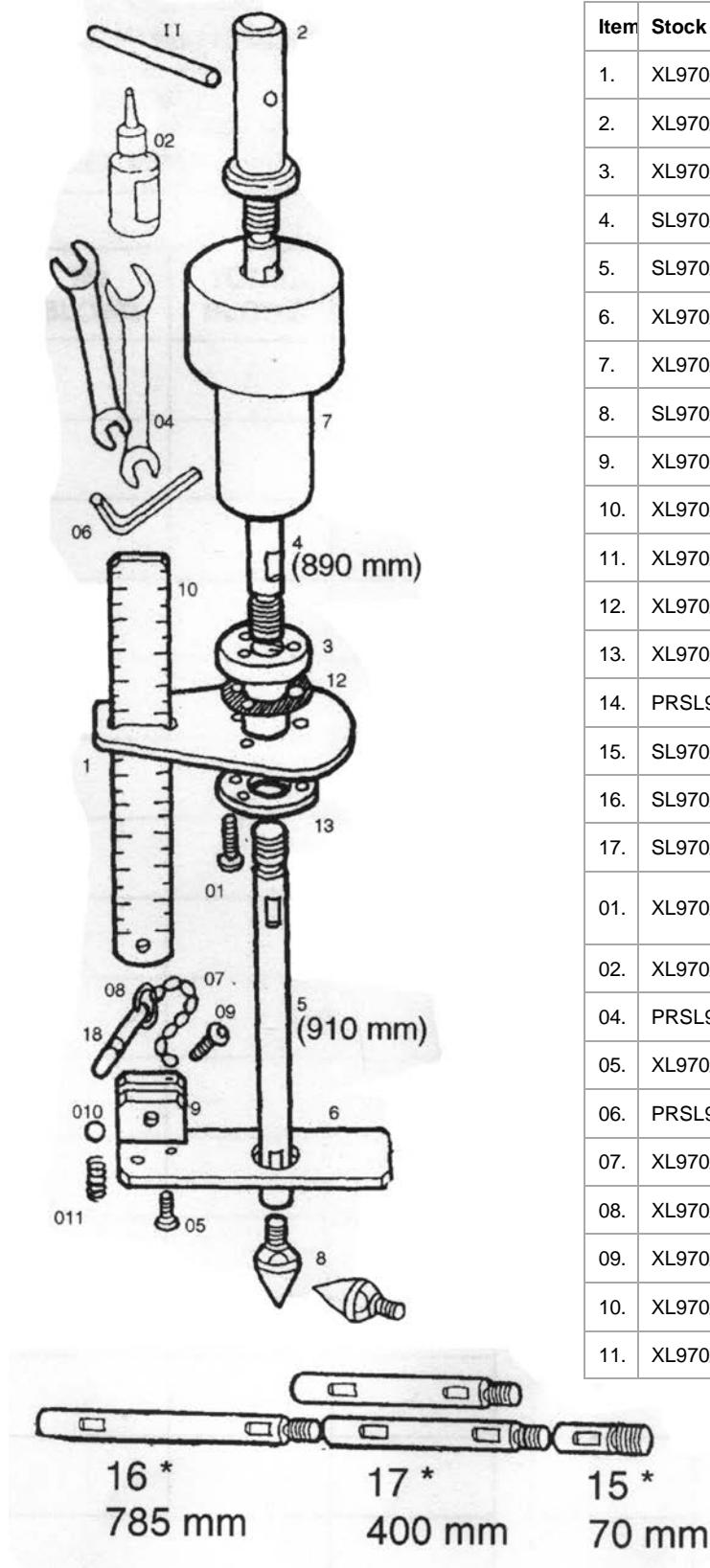
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Dynamic Cone Penetrometer (DCP)



The basic kit comes complete with everything needed for testing. Supplied in a sturdy plastic carrying case with spanners, allen (hex) key, thread adhesive, tommy bar and spare cone.

Note: Please ensure that the three screwed joints connecting handle and upper shaft, coupling and upper shaft, lower shaft and cone are kept tight at all times with the supplied thread adhesive or similar non-hardening thread locking compound prior to use. Operation with any loose joints will significantly reduce the life of the Dynamic Cone Penetrometer.

Operation

Once assembled, record the zero reading. This is done by holding the DCP on a hard flat surface, checking that it is vertical, and then recording the zero reading together with all the relevant site details.

Hold the DCP vertically and lift the hammer to the handle, ensuring that the equipment stays in place and is not raised off the surface. The hammer should be just touching the handle before it is allowed to drop. The hammer must fall freely and not be partially lowered by the operator.

Readings should be taken at increments of approximately 10mm penetration or after a set number of blows, according to the strength of the layer being penetrated. For good quality granular bases, readings every 5 or 10 blows are usually satisfactory but for weaker sub-base layers and subgrades readings every 1 or 2 blows may be appropriate. If readings are taken too infrequently, weak spots may be missed and it will be more difficult to identify layer boundaries accurately.

Note: If the DCP angles off the vertical during the test, do not attempt to correct it because this can give rise to erroneous results. If the angle becomes too severe and the hammer no longer drops freely, the test should be abandoned and the test repeated approximately one metre away.

The DCP can be driven through thin bituminous seals but thick hot mixed asphalt surfaces should be cored prior to testing the lower layers. Little difficulty is normally experienced with the penetration of most types of granular or lightly stabilised materials; however it is more difficult to penetrate strongly stabilised layers, granular materials with large particles, and very dense, high quality crushed stone.

Penetration rates as low as 0.5mm/blow are acceptable but if there is no measurable penetration after 20 consecutive blows it can be assumed that the DCP will not penetrate the material being tested. In this case a hole can be drilled through the layer and the lower pavement layers can then be tested in the normal way. If only occasional difficulties are experienced in penetrating granular materials, it is worthwhile repeating any failed tests a short distance away from the original test point.

To remove the DCP tap the hammer gently upwards against the handle.

Maintenance

Clean the equipment after each use and inspect the cone frequently for wear.

If the DCP is used extensively for hard materials, wear on the cone itself will be accelerated. The cone is a replaceable part and it is recommended that it should be replaced when its diameter is reduced by 10 percent. We recommend that the cone should be inspected before every test for wear or damage.

See overleaf for example test data record sheet.

