



Mechanical Loading
Press for CBR

Introduction

The Mechanical Compression Machine has been designed to provide a simple and reliable machine to cover a wide range of standard laboratory tests.

The loading machine meets the apparatus requirements of ASTM D 1883 and AASHTO T193 allowing a steady rate of penetration load to be applied and load reading resolution of 10lbf over a 10,000lbf (44.5kN) range. The two-speed jack design of the press allows the following tests to be carried out:

- California Bearing Ratio / Lime Bearing Ratio (CBR/LBR)
- Unconfined Compression on 1.4" (38mm) diameter sample
- Unconfined Compression on 2.8" (70mm) diameter sample
- Soil-Cement
- UU (Quick) Tri-axial on 1.4" (38mm) diameter sample
- UU (Quick) Tri-axial on 2.8" (70mm) diameter sample
- Marshall Stability and Flow Test

General Information

Inspection:

Your Mechanical Loading Press compression machine was thoroughly inspected before it was shipped and should be ready to operate as soon as you have completed the set-up procedure. Notify Humboldt Mfg. Co. or your local agent and file a claim with any carriers involved if you find any damage to the machine.

Physical Specification:

Shipping weight: 120 lbs. (54.4 kg)

Overall height: 41 inches (1042mm)

Base dimension: 13-1/4" x 8" x 2-1/4" (337 x 203 x 57mm)

Initial Installation

Remove the packing list and verify that all parts have been received. Normally you will receive one crate.

Set the machine base up at the place it is to be used in the laboratory and then check that it is level by placing a spirit level on the platen. If it is not level adjust the resting surface under the machine.

Assemble the jack handle to the appropriate shaft on the gearbox using the quick-release detent pin provided.

Operation

Speed Control:

The input shafts extending from the front side of the gearbox drive the platen at the following rate(s) per turn of the crank:

Right shaft: 0.0066 inch/revolution

Left shaft: 0.0023 inch/revolution

Take readings of time versus travel at frequent enough intervals to control the rate of penetration or flow within the required test limits.

Speed Selection:

Test Type	Speed in/min (mm/min)
California Bearing Ratio/Lime Bearing Ratio (CBR/LBR)	0.050 (1.27)
Unconfined Compression and UU Triaxial or plastic material on 1.4" (38mm) diameter sample	0.028 (0.71)
Unconfined Compression and UU Tri-axial for plastic material on 2.8" (70mm) diameter sample	0.056 (1.42)
Soil - Cement	0.050 (1.27)
UU (Quick) Tri-axial for brittle material on 1.4" (38mm) diameter sample	0.008 (0.22)
UU (Quick) Tri-axial for brittle material on 2.8" (70mm) diameter sample	0.017 (0.43)
Marshall Stability and Flow	2.000 (50.8)

Direction of Travel:

The direction of the platen is up for clockwise crank rotation and down for counterclockwise.

Load Ring, Penetration Piston & Strain Gauge:

The calibrated proving ring is attached directly to the cross-beam using the 3/4-16 x 7/8" long bolt and attached to the bottom of the ring is the penetration piston. A dial indicator holder is attached to the ring and a penetration dial is supplied attached with a bracket to the piston and is adjustable on it.

Maximum Load:

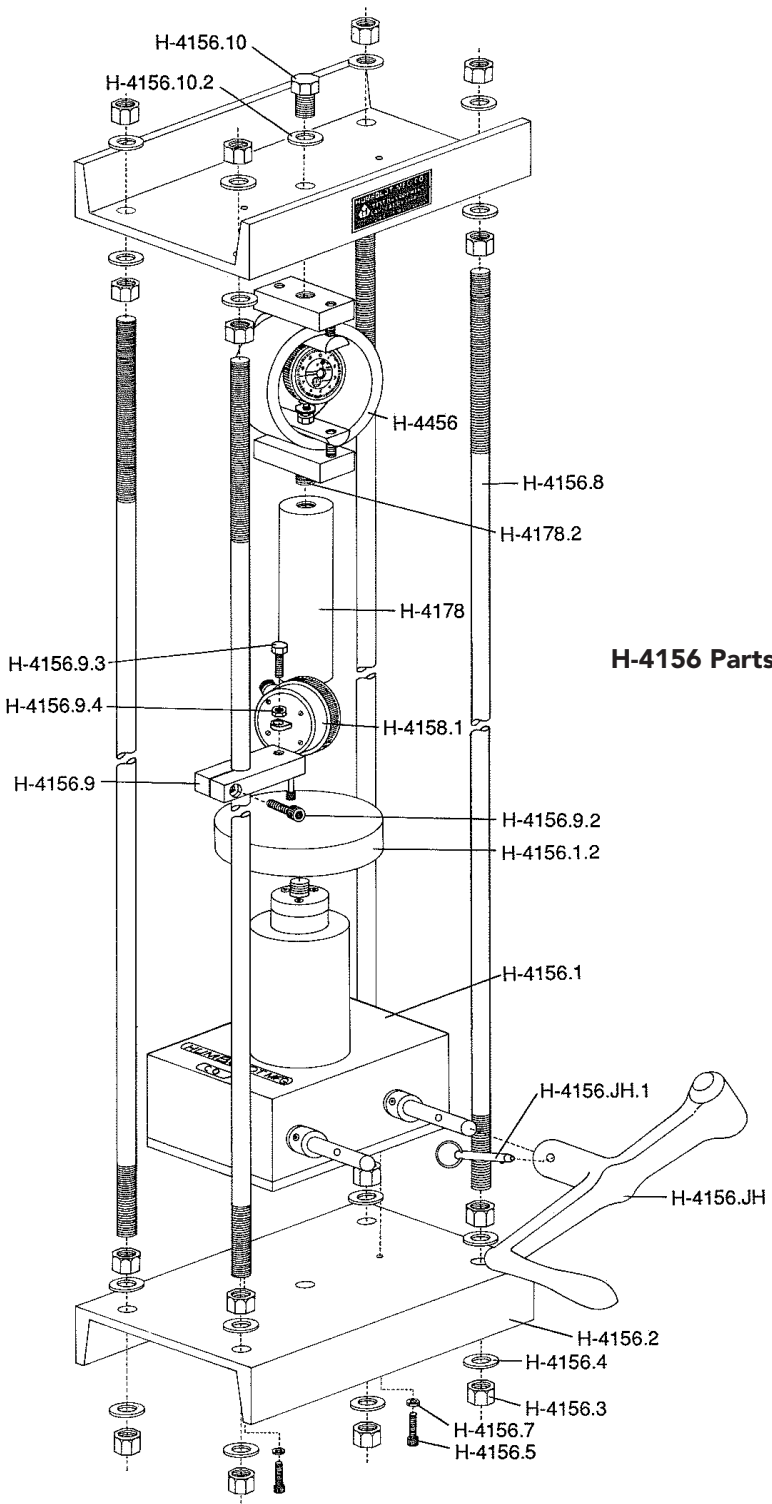
The Machine is rated at 10,000lbf (44kN).

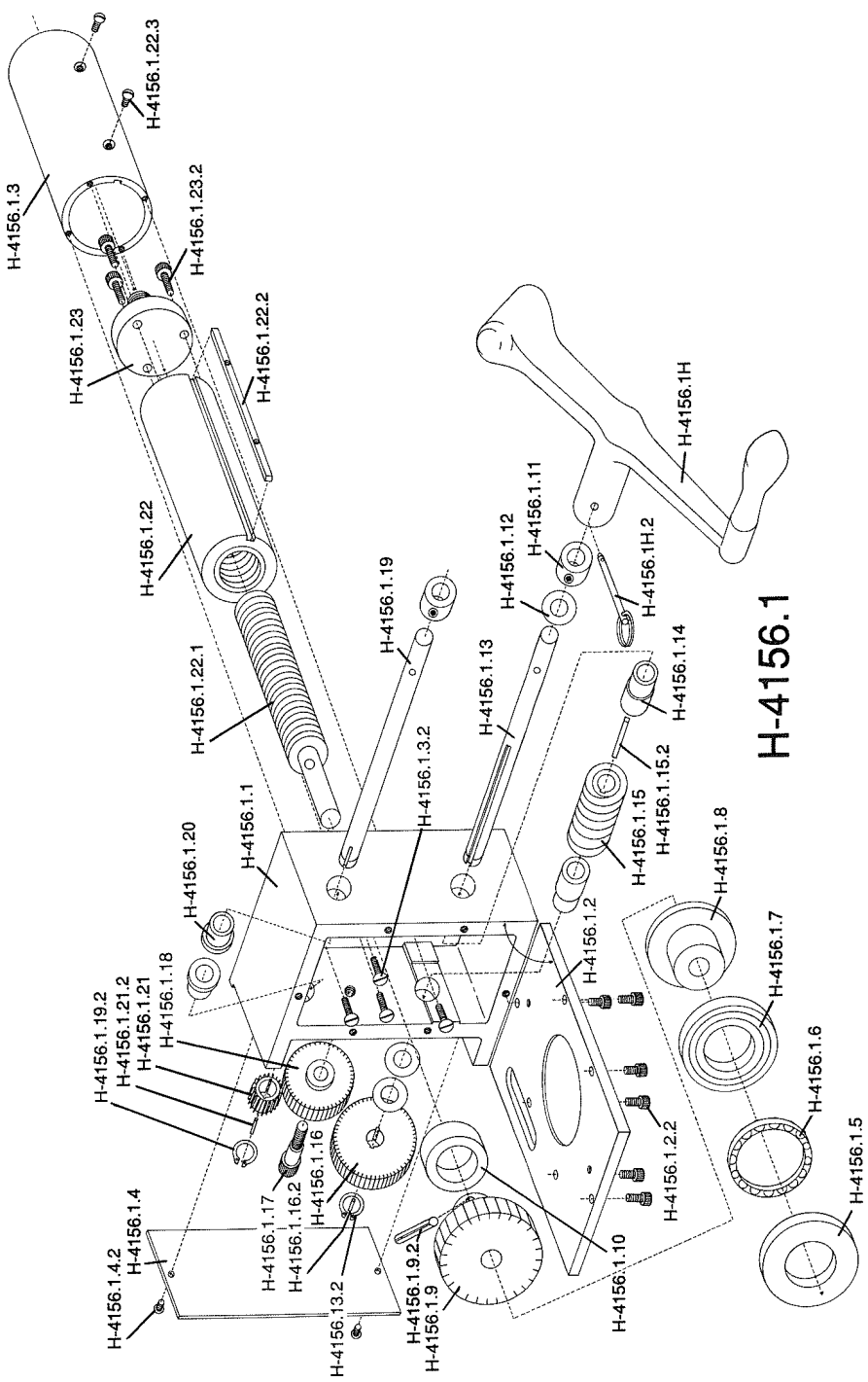
Accuracy Of Platen Speeds:

The speeds used in the various test are in fact the closing gap speed, i.e., the distance between the cross-beam and the platen. These closing gap speeds will be dependent on the stiffness of the sample being tested and the compressibility of any load measuring device (such as the load ring). At high loads, some machine stretch may occur. The test speeds used should therefore, take into account these factors.

Maintenance

Both the jack unit and the gearbox are packed with grease and do not normally require further attention. The machine can generally be maintained by keeping it clean and lightly oiling the exposed threads.





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Warranty

Humboldt Mfg. Co. warrants its products to be free from defects in material or workmanship. The exclusive remedy for this warranty is Humboldt Mfg. Co., factory replacement of any part or parts of such product, for the warranty of this product please refer to Humboldt Mfg. Co. catalog on Terms and Conditions of Sale. The purchaser is responsible for the transportation charges. Humboldt Mfg. Co. shall not be responsible under this warranty if the goods have been improperly maintained, installed, operated or the goods have been altered or modified so as to adversely affect the operation, use performance or durability or so as to change their intended use. The Humboldt Mfg. Co. liability under the warranty contained in this clause is limited to the repair or replacement of defective goods and making good, defective workmanship.

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