ELE INTERNATIONAL COMPRESSION TESTER
Standard Operating Procedure

Version 1.1

UNB

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Supervisor of Laboratory/Workshop

Mechanical & Electrical
Type of hazards (mechanical, electrical, chemical, biological or radiation)

ELE Compression Tester **Room A2**
Name and Function of Lab/Project

ELE International
Make

 # 36-0650/02
Model

A. Introduction

Specifications	
Capacity	250,000 lbf. (1,112 kN).
Frame.	Upper and lower steel plate sections with four steel uprights, threaded and welded into place; 14.75" w. X 12" d. X 37" h. (375 x 305 x 940 mm).
Ram.	6-1/8" (155 mm) diameter; 3" (76 mm) travel.
Upper Platen.	Swivel seat type; 6-1/4" (159 mm) diameter.
Lower Platen.	7" (178 mm) diameter.
Vertical Clearance.	12-1/2" (318 mm); or 14-1/2" (368 mm) with lower spacer removed.
Horizontal Clearance.	9" (229 mm) between uprights.
Pump.	1 h.p. (0.7kw) electro-hyraulic pump mounted within reservoir with overload protection.
Controls.	Pump-mounted pressure compensated flow control valve with 4-piston control lever and adjustable flow valve. Pump On/Off switch.
Display.	Digital display with membrane keypad; pace deviation bargraph; automatic stress calculation; data storage for 500 tests; RS232C data output and printer ports.
Range.	2,500 to 250,000 lbf. (11.2 to 1,112 kN).
Accuracy.	Factory calibrated to within 0.5% of reading - from 1% to 100% of machine capacity.
Overall Dimensions.	25.5" w. X 12" d. X 45" h. (648 x 305 x 1,143 mm).
Weight.	Net 535 lbs. (243 kg).

B. Health and Safety Considerations

I. Safety devices required (e.g. machine guards, personal protective equipment, etc.)

- ***SAFETY GOGGLES/GLASSES*** must be worn **at all times in the lab**. Prescription glasses can be worn under the safety goggles.

- ***HARD TOE BOOTS/SHOES*** must be worn **at all times in the lab**.

II. General Safety

- **FOOD AND DRINK** are not allowed in any laboratory
- Be aware of the specific hazards associated with each lab exercise.
- Wear appropriate clothing and foot wear (**NO OPEN-TOED SHOES**).
- Familiarize yourself with all emergency safety equipment (eyewash, fire alarm, fire extinguishers, telephone).
- Do not leave hazardous experiment unattended
- **Clean** your work area before leaving the laboratory

FIRE: Immediately **report it to the supervisor or lab demonstrator** or other responsible personal, and then exit the laboratory and building quickly via proper exit route (Make sure you know where the exits are). Use fire extinguishers for bench-top fires or other small fires.

ACCIDENTS AND INJURIES must be reported to the demonstrator or other responsible personal. There are emergency first aid supplies available and all technicians are trained in basic first-aid, however any injury of consequence will be handled by the medical services.

UNSUPERVISED WORK: No student is permitted in the laboratories unless there is a supervisor present.

THE BEST SAFETY PRECAUTIONS *include* ***ADVANCED PREPARATION*** *for each laboratory and a* ***CLEAN ORGANIZED WORK SPACE***.

D. Procedure for Basic Operation:

*The following guidelines are for persons who request the use of the ELE compression tester. A verbal **request** to departmental technicians must be made to obtain permission to use any testing equipment. If operating any equipment for the first time, a competent certified operator must be present to provide adequate training and guidance.*

Note: The procedure for normal operation is described in this section. Normal operation consists of: (1) entering initial operating parameters, (2) compressing specimen to gather data, and (3) either displaying data, printing it on the optional printer, or downloading to a computer.

A. WARM UP THE ELECTRONIC CONTROL BOX **Figure 1 (A)**

*** Please refer to the Operating Instructions for the 37-4855 ADR Digital Readout Unit for further details (attached at end of document).**

B. Place the specimen on the top of the lower platen. **Figure 1 (B)**

1. There should be about ¼" clearance between the upper platen and the concrete specimen. If necessary, install spacers on lower platen.

2. Center the specimen under the upper platen.

C. Set Parameters/Controls on Electronic Control Panel. **Figure 1 (A)**

*** Please refer to the Operating Instructions for the 37-4855 ADR Digital Readout Unit for further details (attached at end of document).**

D. Compress the specimen.

1. With the control handle on ***RETRACT*** position **Figure 1 (C)**, turn the metering valve knob fully clockwise **(D)**. Turn the hydraulic pump on by pushing the toggle switch to the ***ON*** position **(E)**.

2. Check that there is approximately ¼" clearance between the upper platen and the concrete specimen before starting compression. Turn the control handle to ***FULL ADVANCE*** position **(C)**, watching until the upper platen is within 1/8" of the specimen. Turn the control handle to ***METERED ADVANCE*** **(C)** and press ***TARE*** key **(F)** to zero the reading. The display will read "000000". The red bar on the Pace Deviation Rate display will appear at the extreme left.

WARNING: Take precautions to protect the operator and other laboratory personnel from possible flying particles.

*NOTE: If loading the first half (first 50%) of loading phase at high rate (**FULL ADVANCE** mode) as allowed by ASTM C-39, be sure to press **TARE** key **(F)** to zero the reading while in the **METERED ADVANCE (C)** mode before rapid loading.*

3. Adjust the ***METERING VALVE*** **(D)** counter-clockwise to keep the moving bar on the pace deviation rate meter near the center of the scale. The bar is allowed to fluctuate within the +/-20% scale to meet ASTM. If the bar goes off scale, adjust the ***METERING VALVE*** to compensate.

   *** For explanation of flashing bars on the Pace Deviation Rate display, please refer to the Operating Instructions for the 37-4855 ADR Digital Readout Unit (attached at end of document).**

4. Load the specimen at the controlled rate until the specimen breaks.

5. When breakage occurs, turn the control handle to ***RETRACT*** **(C)**. The upper platen will retract. If the control handle is not turned to ***RETRACT***, the upper platen will continue to move down.

The load display will remain at the value at which the specimen broke (known as Peak Load) until the ***TARE*** key **(F)** is pushed.

The pace deviation bar will become blank after the Peak Load is reached. It will continue to have no display until the ***TARE*** key (tared zero) is pushed.

E. Please refer to the Operating Instructions for the 37-4855 ADR Digital Readout Unit for printing test results.

F. Please refer to the Operating Instructions for the 37-4855 ADR Digital Readout Unit for displaying stress results.

G. After each test, remove the broken specimen and clean out any breakage.

H. To start another test with the same size specimen, position specimen, press the ***TARE*** key **(F)** and return to Step D. For a different size or type of specimen, return to Step C, #6.

I. When all testing is completed, push the toggle switch to the ***OFF*** **(E)** position to turn off power to the hydraulic pump, press the ***ON-OFF*** **(backside of A)** button on the front electronic control panel to turn off the display screen, and depress the rocker switch on the back of the electronic control box to turn off the system.

If you ever have any doubts or questions, <u>ASK THE SHOP TECHNICIANS</u>!

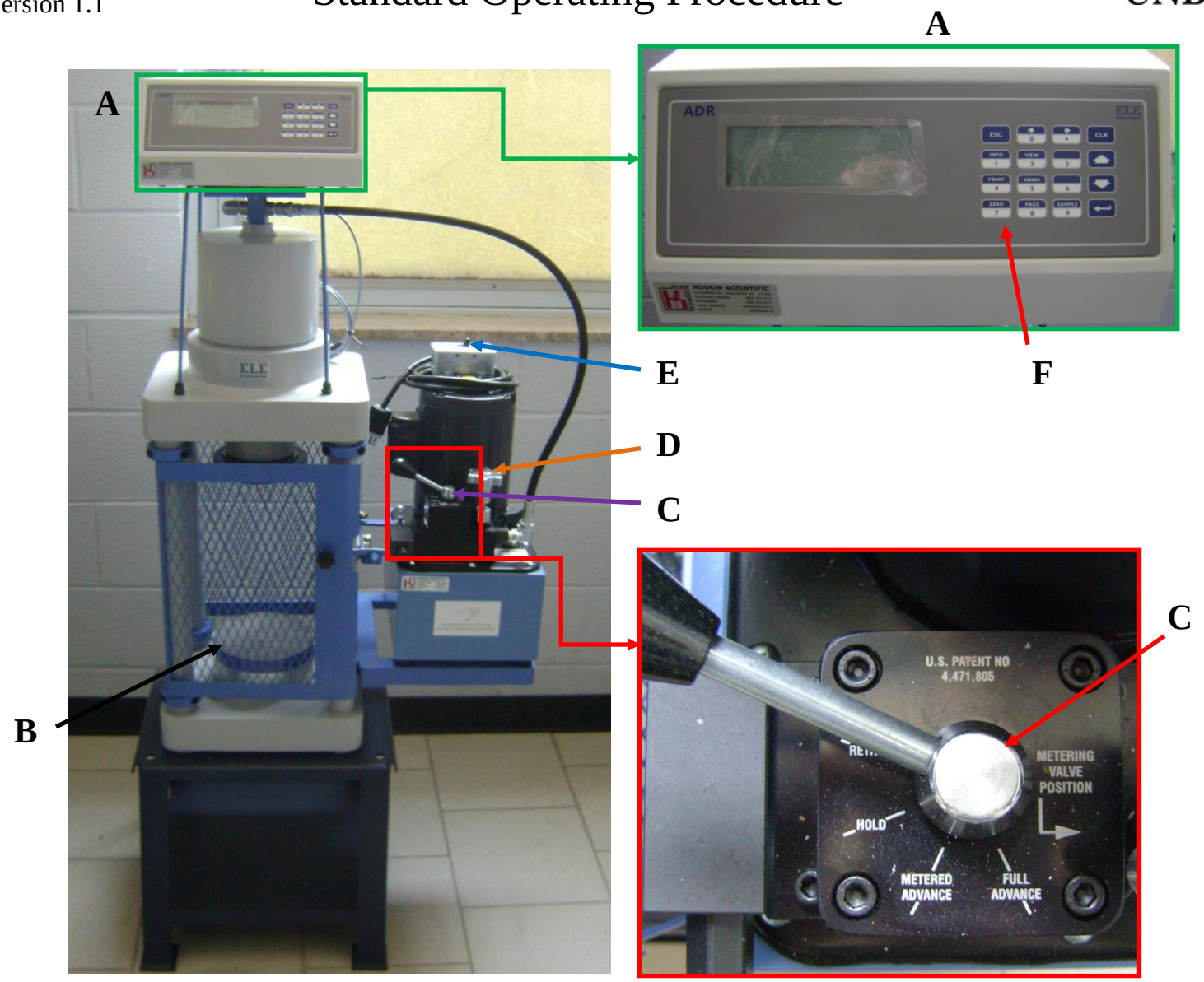

Figure 1. ELE Compression Tester

Emergency Contacts:

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FIRE/AMBULANCE/SAFETY -Emergency Response,	9-911	Internal (UNB Phones)
	911	External (Cell Phone)