Function Of Controls

Main Panel

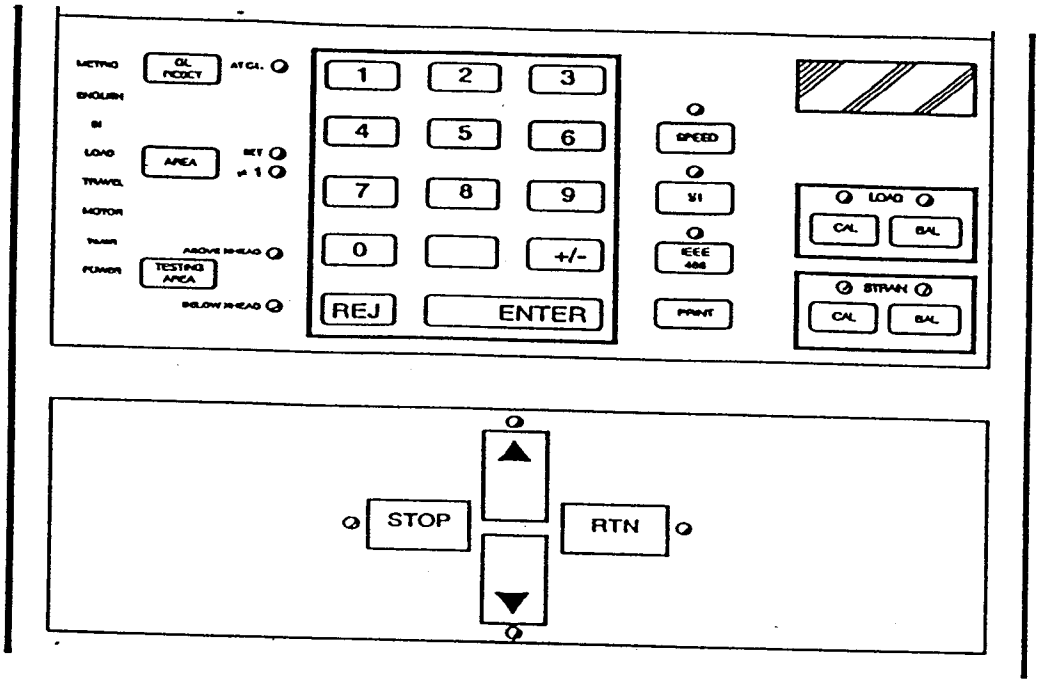

Figure 4-1. Main Panel

Table 4-1. Main Panel Functions

CONTROL or INDICATOR	FUNCTION
Numeric Keypad	(a)Numeric Keys, 0 through 9, allow entry of: 1. Value of calibration signal for manually calibrated transducers. 2. Desired crosshead speed. 3. Area compensation value. 4. Maximum and minimum electronic limits for load,extension, and strain. 5. Preset points.

Table 4-1. Main Panel Functions (continued)

	CONTROL or INDICATOR	FUNCTION
1	Numeric Keypad (continued)	(b) +/- key defines the values of load, extension, and strain as + for tension testing and - for compression testing. This key is also used when entering the electronic limits. (c)REJect key allows the rejection of an incorrect input on keypad before pressing ENTER key. (d)ENTER key must be pressed to change any system variable entered on keypad or to complete a transducer calibration or balance.
2	Display	A 4-digit display used to view system variables in the range from .0001 to .9999. "EEEE" is shown if an overflow of the display register occurs. A "——" is shown when the system is uncalibrated and no valid data can be read. "LOSS" is shown if the non-volatile memory is reset to a default state. All keypad entries (0-9, +/-) are read on this display.
3	AT G.L.	Gauge length indicator LED is lit whenever crosshead is at gauge length. Lamp flashes when power is initially turned on, or a momentary power loss occurs to indicate a loss of gauge length information. Pressing G.L..RESET key or moving crosshead by pressing UP, DOWN, RETURN or JOG stops the flashing.
4	G.L. RESET	Gauge length reset key, when pressed, causes current crosshead position to be entered as the gauge length. Also, any EXTENSION readout will be set to zero. Pressing this key causes the AT G.L. LED to stop flashing.

Table 4-1. Main Panel Functions (continued)

	CONTROL or INDICATOR	FUNCTION
5	AREA SET ≠ 1	Enables an area compensation circuit which divides both displayed load value and output voltage to a recorder by a set value between 1.000 and 9.999. When this key is pressed, the SET LED lights and an area value can be entered on the keypad. After the ENTER key is pressed, if the value of area compensation is other than 1.000, the ≠1 LED lights and the SET LED stays on. Area compensation is temporarily set to 1.000 during a load cell calibration procedure. The default value of area compensation is 1.000.
6	TESTING AREA BELOW XHEAD ABOVE XHEAD	Always set to 'BELOW XHEAD'
7	SPEED	Allows a desired crosshead speed to be entered on the numeric keypad. If the load frame has not been identified, the display will show "——" when this key is pressed.
8	LOAD CAL	Initiates a load cell calibration procedure. The LOAD CAL key LED is lit during calibration or when a load calibration relay is closed. A flashing LED indicates a calibration error. A test cannot be started during a calibration procedure, and calibration is locked out during a test.

Table 4-1. Main Panel Functions (continued)

	CONTROL or INDICATOR	FUNCTION
9	LOAD BAL	Sets a load cell balance, or zero, during a calibration procedure or when balancing out the tare of grips and fixtures before starting a test. The LOAD BAL key LED is lit during a balance operation or if a load calibration relay is closed. A flashing LED indicates a calibration or balance error. A test cannot be started during a balance operation, and the balance function is locked out during a test.
	STRAIN CAL	Not used
	STRAIN BAL	Not used
10	METRIC ENGLISH SI	Status indicators that show the operating units for the load and strain channels. The indicator that is lit shows the current status of the units, as determined by the positioning of a switch mounted on the rear connector panel of the console. The selection of units determines the scaling of displays and the input to a recorder. After switching units, the Main Panel display will show "LOSS", indicating that nonvolatile memory is reset to the default state and stored test data is lost. Load and strain channels must be recalibrated and all electronic limits reset.

Table 4-1. Main Panel Functions (continued)

	CONTROL or INDICATOR	FUNCTION
11	LOAD	Fault indicator that lights when a load overrange (102% or greater of load cell maximum capacity) occurs. The crosshead stops and the indicator flashes until the overload is cleared by pressing the UP or DOWN key or a JOG key on the load frame, whichever direction decreases the measured load.
12	TRAVEL	Fault indicator that lights when the overtravel limits for the moving crosshead are actuated. The crosshead is stopped when this indicator is lit.
13	MOTOR	Fault indicator that functions as described below. This indicator is lit steadily for the following conditions: 1. Motor drive enabling sequence (5 sec. duration). 2. Motor drive cannot be enabled. 3. Load frame cannot be identified. 4. Load frame power supply failure. 5. Crosshead second level travel limit tripped. 6. Emergency stop switch tripped. This indicator flashes for the following conditions: 1. Drive motor overheats. 2. Drive loop failure (stall, etc.) The MOTOR status indicator will remain on (steady or flashing) after the condition/fault is cleared, except after the 5-sec motor drive enable sequence. Perform the key sequence (S1) (1) (ENTER) to restore the indicator to standby (off) condition.
14	TIMER	Fault indicator that lights when the CPU malfunctions and a special circuit shuts off the crosshead drive motor. Usually, momentarily shutting down the system power clears this condition. This LED also lights if the +/- 15 Vd.c. console power supply fails.

Table 4-1. Main Panel Functions (continued)

	CONTROL or INDICATOR	FUNCTION
15	POWER	Fault indicator that lights if a momentary power failure occurs. Momentarily shutting down system power clears this condition.
16	PRINT	Obtain a printout of the current test at any time, or a printout of the last test when no test is running.
	IEEE	Not used
18	S1	Enables or disables system options, as follows: (a)System reset option - clearing of nonvolatile memory. Press S1, then 0 and ENTER on keypad. This sequence clears the nonvolatile memory, setting all variables to a default state, and thereby resetting the system to a known condition. Also, any previously stored data will be lost. The Main Panel Display will show "LOSS" after this type of reset key sequence is entered. (b)System reset option - no clearing of nonvolatile memory. Press S1, then 1 and ENTER on the keypad. This sequence is a "warm restart" of the system which is used to to reset certain fault conditions, without resetting nonvolatile memory to the default state; that is, all previously entered parameters will remain in storage. An exception is when this sequence is used to enable a change in system operating units.

Table 4-1. Main Panel Functions (continued)

	CONTROL or INDICATOR	FUNCTION
	S1 (continued)	Not used
19	UP DOWN STOP RETURN	The pushbutton switches (keys) used for manually controlling the crosshead. Each key has an LED that is lit when the function of the key is active. STOP - crosshead stops. UP - crosshead moves up at programmed speed. DOWN - crosshead moves down at programmed speed. RETURN - crosshead returns at a speed that increases exponentially to maximum and then decreases exponentially to stop the crosshead at gauge length.

Display Section

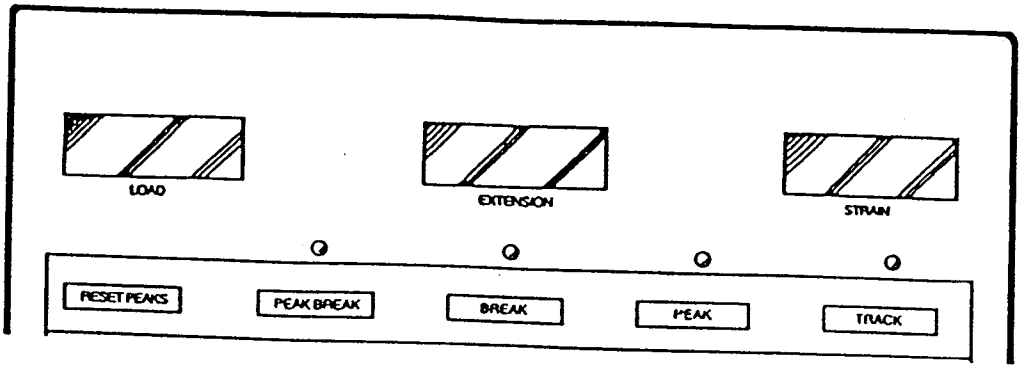

Figure 4-2. Display Section

Table 4-2. Display Section Functions

	CONTROL or INDICATOR	FUNCTION
20	LOAD DISPLAY	A 4-digit display which indicates + and - values of load between .0001 and 9999. The display shows "——" when the load cell is uncalibrated; is blank without data; and shows "EEEE" when overranged.
21	EXTENSION DISPLAY	A 4-digit display which indicates + and - extension values between .0001 and 9999 from gauge length. The display shows "——" if the load frame has not been identified, and is blank if no data is available.
	STRAIN DISPLAY	Not used
22	TRACK	Sets the displays to show instantaneous values of load, extension and strain. The displays are updated every 300 msec during a test. The TRACK LED is lit when this key is active. (Peak and break values are recorded even though tracking is active.)

Table 4-2. Display Section Functions (continued)

23	PEAK	Sets the displays to show load, extension and strain values that occur at the peak load during a test. These values are held on the display at the end of a test. When a test begins, the displays show current tracking values until a "peak" load is reached. The PEAK LED is lit when this key is active.
24	BREAK	Sets the displays to show load, extension and strain at specimen break, where break is defined as just prior to break detection. When a test begins, the displays are blank and remain blank until the break criteria is met. The BREAK LED is lit when this key is active.
25	PEAK BREAK	Sets the LOAD display to show the peak load value for a test and the EXTENSION and STRAIN displays to show values that occur at specimen break. The LED at this key is lit when the key is active.
26	RESET PEAKS	This key is used during a test to reset the stored peak values of load, extension, and strain to the values at the current load. The peak storage is then continuously updated to the values at the next peak load that occurs during the remainder of the test. This key does not change which values are selected to be displayed (Break, Peak, or Track) and it is functional only when a test is in progress.

Limits Section

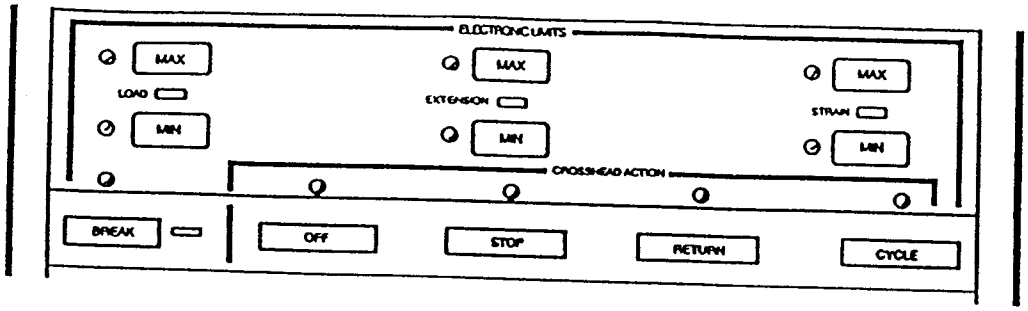

Figure 4-3. Limits Section

Table 4-3. Limits Section Functions

	CONTROL or INDICATOR	FUNCTION
27	LOAD MAX/MIN EXTENSION MAX/ MIN STRAIN MAX/MIN BREAK	Electronic limits which permit an action to be independently assigned to the maximum and minimum values of load, extension or strain, or to detect break. An LED to the left of each key lights when the key is pressed. This shows that the key has enabled the numeric keypad and a limit value can be entered and viewed on the display (except BREAK, as this has an unknown numeric value). If the Recorder is installed, the STRAIN limits are functional only if STRAIN is selected for the X-axis of the X-Y recorder.
28	OFF STOP RETURN CYCLE	Crosshead actions that can be selected to occur at the electronic limits. The actions are: OFF - no action STOP - stop crosshead when limit occurs RETURN - return crosshead to gauge length CYCLE - change crosshead travel direction Whenever a limit key LED is lit, a CROSSHEAD ACTION key LED is lit also. To change the action, press a different key.

Table 4-3. Limits Section Functions (continued)

29	STATUS LEDs	A rectangular STATUS LED is located to the right of the BREAK key and one each between the LOAD, EXTENSION, and STRAIN MAX/MIN limit keys. When a limit or break detection is selected to cause a crosshead action (except OFF), the related STATUS LED lights. When either a STOP or RETURN action occurs, the STATUS LED will flash and stay flashing until recycled by starting a new test. If the current value of load, extension or strain is beyond the assigned limit ranges, then the crosshead control key (UP or DOWN) which would increase the out-of-range error is disabled. If this disabled key is pressed, the crosshead will not move and the related limit status LED flashes. The flashing continues until the enabled key (UP or DOWN) is pressed and the crosshead is moved in a direction to decrease the out-of-range error.