

OPERATING INSTRUCTIONS

MLS Encoder Driven Modular Recorder

I. Description

The Mineral Logging Systems Modular Recorder is equipped with state-of-the-art electronics for computer processed depth, line speed, and chart drive information. This is accomplished by a measuring wheel mechanically connected to an optical encoder which in turn supplies coded line speed and depth information to a microprocessor located in the recorder. The microprocessor drives two led displays for depth and line speed information and a stepper motor which rotates the chart drum at any of 10 preset rates. There are no mechanical drive cables or gearboxes in the system to fail. Operation is quite simple once all the switch functions are understood, and with practice, logging is easier than with the typical mechanical system.

II. Switch Functions

Five switches are incorporated on the front of the recorder for control of the ratio of chart paper to bore hole, selection of ratio or time drive of the chart drum, logging up hole or down, setting depth, and chart feed.

III. Displays

A. Line Speed Display

The line speed display (top) is capable of a maximum speed of 775 ft/minute or 350 m/minute with the "ratio/time" switch in the center position. In the "ratio" position the maximum line speed depends on the scale selected. When this maximum speed is attained, the line speed indication freezes, the depth indication flashes while continuing to count, and the rotation of the chart drum becomes intermittent or stops (the flashing of the depth display will cause information bits to be lost, resulting in a small error, and for this reason a back-up odometer is recommended, but not necessary). To return to normal operation, stop the hoist and momentarily depress the "set/run" switch and release.

B. Depth Display

The depth display (bottom) indicates a six place measurement with the smallest indicated increment being in tenths of a unit.

IV. Operation

A. Scale Selector

The numbers on the ten-position thumbwheel scale selector switch correspond to the switch position numbers on the table engraved on the front of the recorder. Changing Ratio scales is accomplished by merely switching the scale selector to the desired scale. Changing time scales is accomplished by placing the "ratio/time" switch in the center position, selecting a scale, and returning the "ratio/time" switch to the "time" position.

B. Ratio/Time

The three-position "ratio/time" switch is placed in the "ratio" position during actual logging, thus enabling the chart drum to rotate in a selected proportion to the rotation of the measuring wheel, or in the "time" position, enabling the chart drum to be driven at a selected speed per minute, or in the center position, disabling chart drum rotation.

Placing the "ratio/time" switch in the "time" position freezes both displays; however, the microprocessor continues counting internally and the displays will be updated upon return of the switch to either the center or "ratio" positions.

C. Up/Down

The two-position "up/down" switch is placed in the "up" position to log up hole and in the "down" position to log down hole. Reversing this procedure will cause the chart drum to reverse, thus backing up the chart paper.

When the "ratio/time" switch is placed in the "time" position, the "up/down" switch has no effect on chart drum rotation.

D. Set/Run

The two-position "set/run" switch is used to set the depth display and is spring-loaded to return to the "run" position when released.

Depressing the "set/run" switch and holding it will cause the most significant digit (far left) to appear and start counting upward from zero. It will continue to count until the switch is released, setting a number into the most significant position. Depressing the switch again enables the next position to start counting until released. Depressing the switch a third time enables the third position, and so on until numbers have been set in all six positions. In this manner, any depth indication up to 99,999.9 can be obtained.

Turning the Recorder off will reset the depth indication to zero and operating any other switch while setting the depth display will return the sequence back to the most-significant digit.

Placing the “ratio/time” switch in the “time” position disables the “set” function.

E. Chart Feed

Depressing the “chart feed” button enables chart drum rotation, but freezes both display indications. Again, the microprocessor continues to count internally.

The chart feed can be used instead of manually turning the chart drum; however, it is disabled when the “ratio/time” switch is in the “time” position.

INSTALLATION INSTRUCTIONS FOR OPTICAL ENCODER

CAUTION NOTE: The optical encoder is a delicate device with internal glass parts; therefore, care must be taken to avoid dropping or exerting unnecessary pressure on the encoder shaft.

1. Thread the mounting flange onto the right angle drive (takeoff) assembly and tighten the setscrew to lock the flange in place.
2. Visually align the roll pins on encoder shaft with the slot in the drive shaft. Gently push the encoder assembly until the encoder body is flush with the mounting flange (see Caution Note). If a flush condition cannot be achieved with moderate pressure, it may be necessary to release the setscrew and readjust the mounting flange.
3. Fasten the encoder to the mounting flange in four (4) places using the provided hardware.

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