



OPERATING INSTRUCTIONS

FOR THE

LOW VOLTAGE DISCONNECT

WITH ADJUSTABLE DROP OUT AND PICK UP VOLTAGES

OPTION 03S

(USING S2A-173A ASSEMBLIES)

Description

The low voltage disconnect provides a means of disconnecting the d.c. load from the battery at a predetermined adjustable d.c. level. The disconnect relay has been set at the factory to disconnect the battery from the load when the battery voltage falls to 1.75 Vpc lead or 1.1 Vpc nickel cadmium. When the battery returns to 2.05 Vpc lead or 1.28 Vpc nickel cadmium, the d.c. load will be reconnected to the battery.

A LED (green light) on the front indicates when the battery is connected to the load.

A manual disconnect switch is provided, which allows the battery to be disconnected from the load. The calibration switch and the calibration terminals allow the disconnect system to be checked or adjusted without affecting the battery or load.

A fuse alarm terminal (TS-A) is provided for customer remote alarm in the event of a fuse failure.

Remote Low Voltage Alarm/Load Disconnect Alarm

Dry form "C" contacts are provided on the terminal strip TS-A. Terminal #1 & #2 are closed when the load is disconnected, #2 & #3 are open.

Remote Fuse Alarm

When terminals #4 & #5 are closed on TS-A, this indicates a blown fuse. Terminals #5 & #6 will be open.

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Operation

Under normal operating conditions, the manual disconnect switch must be in the "connect" position.

The load connected LED should be lit, the pick up LED should also be lit, and the drop out LED should be off.

The LVLD relay will be energized and the alarm contacts on TS-A, #2 and #3 will be open, with the alarm contacts between #3 and #4. If the battery voltage drops below 1.75 Vpc lead or 1.1Vpc nickel cadmium for approximately five seconds, the load will disconnect from the battery.

The pick up LED will extinguish as the battery voltage drops below the pick up voltage. As the battery voltage continues to drop, the load connected LED will diminish and the drop out LED will light. The LVLD relay will de-energize and its contacts will change state. The alarm contacts between #2 and #3, will close and the contacts between #3 and #4 will open.

LOW VOLTAGE LOAD DISCONNECT

LED CONDITIONS:

Pick Up only "ON": Normal operation, battery voltage is above Pick Up voltage set point.

Pick Up and Drop Out "OFF": Battery voltage is between the Pick Up and Drop Out settings, battery voltage is declining.

Drop Out only "ON": Battery voltage is below the Drop Out set point. The load will be disconnected.

Pick Up and Drop Out "ON": Is set incorrectly.

VOLTAGE AT TEST POINTS:

Multiply the voltage read by 10 for the actual voltage reading.

Normal Mode:

Test points are reading the battery voltage.

Calibrate Mode:

Test points are reading the calibration voltage. This voltage varies with the calibration potentiometer, to ease the checking and setting procedures.

TO MANUALLY DISCONNECT THE LOAD:

Place the manual disconnect switch in the disconnect position. The "connected " led will turn off.

CALIBRATION PROCEDURE

WARNING: BEFORE RELEASING THE CALIBRATE SWITCH BE SURE TO ADJUST THE CALIBRATE POTENTIOMETER UNTIL THE DROP OUT LED IS "OFF". IF THE DROP OUT LED IS LEFT "ON" THE LOAD MAY BE INADVERTENTLY BE DROPPED WHEN LEAVING THE CALIBRATE MODE.

TO SET THE DROP OUT VOLTAGE:

1. Place and HOLD the calibrate switch in the calibrate position during the calibration procedure.
2. Measure the voltage at the test points, adjust the calibrate potentiometer until the correct drop out voltage is achieved.
3. Adjust the drop out potentiometer until the drop out led is "on". (SEE WARNING ABOVE)
4. Before releasing the calibrate switch be sure the drop out led is "off", by adjusting the calibrate voltage to a higher level. (SEE WARNING)
5. To check the setting :
 - A. Place and HOLD the calibrate switch in the calibrate position during this procedure
 - B. Adjust the calibrate voltage until the drop out led is "off".
 - C. Measuring the voltage at the test points, lower the calibrate voltage (calibrate pot.) until the drop out led is just "on". The voltage at this point is the drop out voltage.
 - D. Before releasing the calibrate switch be sure the drop out led is "off", by adjusting the calibrate voltage to a higher level. (SEE WARNING)

WARNING: BEFORE RELEASING THE CALIBRATE SWITCH BE SURE TO ADJUST THE CALIBRATE POTENTIOMETER UNTIL THE DROP OUT LED IS "OFF". IF THE DROP OUT LED IS LEFT "ON" THE LOAD MAY BE INADVERTENTLY BE DROPPED WHEN LEAVING THE CALIBRATE MODE.

TO SET THE PULL IN VOLTAGE:

1. Place and HOLD the calibrate switch in the calibrate position during the calibration procedure
2. Measure the voltage at the test points, adjust the calibrate potentiometer until the correct pull in voltage is achieved.
3. Before releasing the calibrate switch be sure the drop out led is "off". (SEE WARNING)
4. To check the setting :
 - A. Place and HOLD the calibrate switch in the calibrate position during this procedure.
 - B. Adjust the calibrate voltage until the pull in led is "off".
 - C. Measuring the voltage at the test points, raise the calibrate voltage (calibrate pot.) until the pull in led is just "on". The voltage at this point is the pull in voltage.
 - D. Before releasing the calibrate switch be sure the drop out led is "off". (SEE WARNING)