

Calibration Procedures for Voltmeter and Ammeter.

The following calibration procedures are suggested by Kar Industries. A similar set suggested by the meters' manufacturer are also included following these procedures.

Calibration Procedures for Voltmeter.

1. Turn the Power *ON*.
2. Turn the battery selector to the *12V* position.
3. Turn the battery switch to the *OFF* position.
4. Facing tester, locate voltmeter at right top of tester panel.
5. Using a small flat-head screwdriver gently lift the inner right corner of the meter frame. With your fingers slowly remove meter frame and plastic lens.
6. Adjustment pot is located at right bottom of exposed meter.
- 7a. Connect the positive and negative clamps to the appropriate leads of a known high input signal that is within the full scale voltage range selected.
- 8a. Adjust the *Span Spot* until the meter displays the required reading for the signal being applied.
- 9a. The voltmeter is now calibrated.

If a known high input signal is not available:

- 7b. Connect the positive and negative clamps to the appropriate leads of an alternator. Turn the motor *ON* and run a test. While running the test use a digital voltmeter to read the alternator output voltage.
- 8b. Adjust the *Span Spot* until the meter displays the same reading as the signal being read.
- 9b. The voltmeter is now calibrated.

Calibration Procedures for Ammeter.

1. Turn the Power *ON*.
2. Turn the battery selector to the *12V* position.
3. Turn the battery switch to the *OFF* position.
4. Facing tester, locate ammeter at left top of tester panel.
5. Using a small flat-head screwdriver gently lift the inner right corner of the meter frame. With your fingers slowly remove meter frame and plastic lens.
6. Adjustment pot is located at right bottom of exposed meter.
- 7a. Connect the positive and negative clamps to the appropriate leads of a known high input signal that is within the full scale amperage range selected.
- 8a. Adjust the *Span Spot* until the meter displays the required reading for the signal being applied.
- 9a. The ammeter is now calibrated.

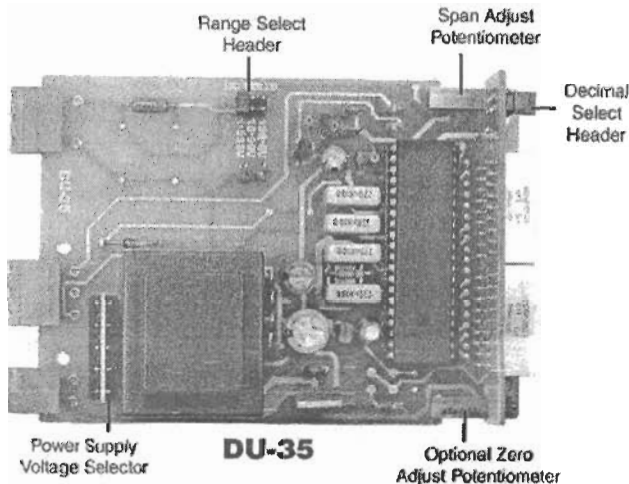
If a known high input signal is not available:

- 7b. Connect to the alternator and run a test. While running the test use a DC digital clamp meter to read the alternator amperage. Apply a 20 AMP load to the alternator.
- 8b. Apply a 20 AMP load to the alternator. Adjust the *Span Spot* until the meter displays the same reading for the signal being read.
- 9b. Apply a 160 AMP load to the alternator. Adjust the *Span Spot* until the meter displays the same reading for the signal being read.

10b. The ammeter is now calibrated.

Calibration Procedures suggested by meter manufacturer.

Component Layout




Signal Conditioning Components




INPUT RANGE Header

Range values are marked on the PCB. Three positions are provided. After selecting a new range with the single jumper clip, re-calibration is required.

SPAN Potentiometer (Pot)

To the Right Front  The 15 turn SPAN pot is always on the right side (as viewed from the front of the meter). Typical adjustment is 20% of the input signal range.
Turn Clockwise to Increase Reading

ZERO Potentiometer (Pot)

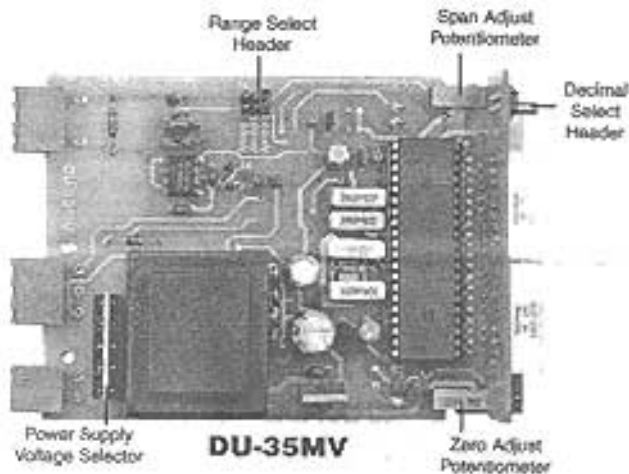
To the Left Front  The Optional ZERO pot when installed is always to the left of the SPAN pot (as viewed from the front of the meter). Typically it enables the displayed reading to be offset ± 1000 counts.
Turn Clockwise to Increase Reading

Calibration Procedure

1. Select the required full scale voltage range by re-positioning the jumper clip on the Range Select Header. A range of 2V, 20V or 200V full scale may be selected.
2. Apply an input of 0 Volt DC to the meter by shorting the inputs. The meter will auto zero and display zero.
3. If you need to offset zero, order the Optional Zero Offset Pot and adjust until the meter reads 0000.
4. Apply a known high input signal that is within the full scale voltage range selected.
5. Adjust the Span Pot until the meter displays the required reading for the signal being applied.
6. The DU-35 is now calibrated and ready for use.

(Whenever a new range is selected, re-calibration is required to meet the specified accuracy).

Component Layout



Signal Conditioning Components



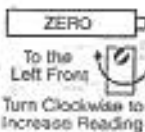
INPUT RANGE Header

Range values are marked on the PCB. Three positions are provided. After selecting a new range with the single jumper clip, re-calibration is required.



SPAN Potentiometer (Pot)

The 15 turn SPAN pot is always on the right side (as viewed from the front of the meter). Typical adjustment is 20% of the input signal range.



ZERO Potentiometer (Pot)

The ZERO pot is always to the left of the SPAN pot (as viewed from the front of the meter). Typically it enables the displayed reading to be offset ± 1000 counts.

Calibration Procedure

1. Select the required full scale voltage range, by repositioning the jumper clip on the range select header.
2. Apply an input of 0 millivolts. Adjust the zero offset pot until the meter reads 000.
4. Apply a known high input signal that is within the full scale voltage range selected.
5. Adjust the Span Pot until the meter displays the required reading for the signal being applied.
6. The DU-35MV is now calibrated and ready for use.

(Whenever a new range is selected, re-calibration is required to meet the specified accuracy).