

DRAPER[®]

INSTRUCTIONS FOR 100 AMP Battery Load Tester

Stock No.53090

Part No.BLT100

IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY TO ENSURE THE SAFE AND EFFECTIVE USE OF THIS PRODUCT.



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GENERAL INFORMATION

These instructions accompanying the product are the original instructions. This document is part of the product, keep it for the life of the product passing it on to any subsequent holder of the product. Read all these instructions before assembling, operating or maintaining this product.

This manual has been compiled by Draper Tools describing the purpose for which the product has been designed, and contains all the necessary information to ensure its correct and safe use. By following all the general safety instructions contained in this manual, it will ensure both product and operator safety, together with longer life of the product itself. All photographs and drawings in this manual are supplied by Draper Tools to help illustrate the operation of the product. Whilst every effort has been made to ensure the accuracy of information contained in this manual, the Draper Tools policy of continuous improvement determines the right to make modifications without prior warning.



OPERATION AND USE

WARNING - RISK OF EXPLOSIVE GASES

1. Working in the vicinity of a lead acid battery is dangerous. Batteries generate explosive gases during normal battery operation. For this reason, it is of utmost importance that each time before using your tester, you read these instructions carefully.
2. To reduce risk of battery explosion, follow these instructions and those published by the battery manufacturer and manufacturer of any equipment you intend to use in the vicinity of the battery. Observe cautionary markings on these items.
3. Do not expose the tester to rain or snow.
4. Do not operate tester with damaged cables - replace them immediately.
5. Do not operate tester if it has been damaged in any way; take it to a qualified auto technician for repair.

PERSONAL SAFETY PRECAUTIONS

1. Someone should be in range of your voice or close enough to come to your aid when you work near a lead acid battery.
2. Have plenty of fresh water and soap nearby in case battery acid contacts the skin, clothing or eyes.
3. Wear complete eye and clothing protection. Avoid touching eyes when working with batteries.
4. If battery acid contacts the skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least ten minutes and get medical attention immediately.
5. NEVER smoke or allow a spark or flame in vicinity of battery or engine.
6. Be extra cautious to reduce risk of dropping a metal tool onto the battery. It could spark or short-circuit the battery or other electrical parts and could cause an explosion.
7. Remove personal metal items such as rings, bracelets, necklaces and watches when working with a lead acid battery. It can produce a short circuit high enough to weld a ring or the like to metal causing a severe burn.

PREPARING TO TEST

1. Be sure area around battery is well ventilated while battery is being tested. Gas can be forcefully blown away by using a piece of cardboard or other non-metallic material as a fan.
2. Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
3. Inspect the battery for cracked or broken case or cover. If so damaged, do not use the tester.
4. Add distilled water in each cell until battery acid reaches level specified by the manufacturer. This helps purge excessive gas from cells. Do not overfill.
5. Make load tests only on battery above 60°F (16°C).
6. If necessary to remove battery from vehicle to test, always remove earth terminal from battery first. Make sure all accessories in the vehicle are off, to ensure you do not cause an arc.

CONNECTION PRECAUTIONS

1. Do not connect clips with load switch on tester in the on position.
2. Determine polarity of battery posts. The positive (POS, P, +) post usually has a larger diameter than the negative (NEG, N, -).
3. When attaching clips to battery posts, twist or rock back and forth several times to ensure a good connection. This tends to keep clips from slipping off terminals and helps reduce risk of arcing.
4. Position cables to reduce risk of damage from engine parts.
5. Stay clear of fan blades, belts, pulleys and other parts that can cause injury.

TESTING THE BATTERY

1. Connect red clip to positive post, black clip to negative post. The meter pointer should move to the right above zero; if below zero, the tester is connected in reverse polarity, if so release connections. If there is no reading (pointer on zero), check for a bad connection to battery posts.
2. Push the load switch to the ON position and hold for a maximum of 15 seconds - until meter pointer stabilises.
3. Read battery condition and follow instructions on meter dial.



OPERATION AND USE

BATTERY ANALYSIS - Meter reaction after 10 seconds of load.

LOAD TEST	BATTERY CONDITION
OK (GREENBAND) After 10 seconds of load.	Battery capacity is good. May or may not be fully charged. Determine state of charge by checking specific gravity (use hydrometer). If gravity is less than full charge, check for possible charging system trouble or electrical drain. Recharge battery to full charge.
WEAK OR BAD, BUT STEADY (meter reading steady after 10 seconds of load).	Battery capacity is unsatisfactory. Battery may be either: (1) defective or (2) partly discharged. To determine which, check specific gravity. If gravity is under 1.225, recharge battery and re-test. If cell-to-cell gravity varies more than 0.025 (25 points), cell trouble may exist. If charging does not bring gravity to full charge level, the battery is either sulfated or has lost active material.
WEAK OR BAD AND FALLING (meter continues to fall after 10 seconds of load).	Battery may be defective (e.g. a bad cell). For a quick check, release load switch and note volt meter reaction. If voltage recovers to 12.0 volts or more in a few seconds battery is probably defective. If voltage recovers slowly, battery may be only very run down. For more accurate results, check gravity and follow above procedure.

TEMPERATURE COMPENSATION

BATTERY TEMPERATURE	0°C	-10°C	-20°C
DECREASE BATTERY RATING BY:	1 STEP	2 STEP	3 STEP

1 STEP = 50 cranking amps.

If the load indicates poor battery condition, allow the battery to stabilise for a few minutes and check the open circuit voltage. This is a good measure of the percent charge in the battery. The battery is considered charged if it measures less than 75%, it should be charged and load tested again. Replace the battery if it fails again. The values in the following charge are for a 12 volt battery; divide these in half for 6 volt batteries:

OPEN CIRCUIT VOLTS*	PERCENT OF CHARGE
11.7 Volts or lower	0
12.0	25
12.2	50
12.4	75
12.6	100

TESTING THE CHARGING SYSTEM

1. Connect the tester the same as for battery testing.
2. Start the engine and allow it to reach normal operating temperature.
3. Run engine at 1200 to 1500rpm. CAUTION: Stay clear of moving engine parts. Do not press the load switch.
4. Read the meter. A reading in the red band area indicates a problem in the charging system that will undercharge a battery; if the meter is beyond the OK area, the charging system is likely to overcharge the battery.

STARTER MOTOR TEST (12 VOLT VEHICLES)

This test identifies excessive starter current draw, which makes starting difficult and shortens battery life. Perform battery load test - proceed if battery is GOOD.

ENGINE MUST BE AT NORMAL OPERATING TEMPERATURE

1. Connect negative (black) clamp to the negative (NEG,N,-) battery post. Connect positive (red) clamp to the positive (POS,P,+) battery post. ROCK clamps back and forth to ensure a good electrical connection.
2. Disable the ignition system so the car will not start.
3. Crank the engine and note the voltage reading during cranking.
4. A meter reading of 9 volts or less indicates excessive current draw. This may be due to bad connections or a failing starter motor; or the battery is too small for the vehicle's requirements.



CONTACTS

- **DRAPER TOOLS LIMITED,**
Hursley Road, Chandler's Ford,
Eastleigh, Hampshire. SO53 1YF. U.K.
- **Helpline:** (023) 8049 4344
- **Sales Desk:** (023) 8049 4333
- **Internet:** www.draper.co.uk
- **E-mail:** sales@drapertools.com
- **Sales Fax:** (023) 8049 4209
- **General Enquiries:** (023) 8026 6355
- **Service/Warranty Repair Agent**
For aftersales servicing or warranty repairs, please
contact the Draper Tools Helpline for details of an
agent in your local area.

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PJDH130510

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