

TEMPERATURE PROBE CHECK

With the temperature probe connected, ENTER the TEMP PROBE CHECK from the SETUP MENU.

TEMP PROBE CHECK
65°

The display will show the current sensor temperature.

Press any key to return to MAIN MENU.

NOTE: **** will be displayed if the temperature sensor is not connected.

This function can also be used to check on ambient temperature with the temperature sensor placed in an area at room temperature.

SET SPIN-UP

Select SET SPIN-UP from the SETUP MENU.

SPIN-UP SPEED
LEVEL 5

Increase or decrease the spin-up level by using the + / - keys. Press ENT to save selection or ESC to exit without saving.

The spin-up level will determine how fast the motor starts up during motor testing. A higher spin-up level will start the motor up at a faster rate during motor testing.

Note: The default spin-up level is set to 5.

SOUND SETUP

Enter SOUND SETUP from the SETUP MENU.

SOUND SETUP
SOUND ON

Enable or disable sound using the + / - keys. Press ENT to save selection or ESC to exit without saving.

TEMPERATURE UNIT

Enter TEMP UNIT from the SETUP MENU.

TEMPERATURE
FAHRENHEIT

Switch between Fahrenheit and Celsius using the + / - keys. Press ENT to save selection or ESC to exit without saving.

Note: The default setting for temperature unit is Fahrenheit.

SAFETY PRECAUTIONS

Thank you for your purchase of APS products. APS products incorporates a host of features designed to give you excellent performance. THIS GUIDE CONTAINS IMPORTANT SAFETY AND OPERATING INSTRUCTIONS, PLEASE READ CAREFULLY BEFORE USING.

Your APS products have been designed with your safety in mind. Please read all safety precautions carefully to insure the most effective and safe use of all features of your APS Products.

- If you have any questions, please contact your local hobby shop or stop using immediately.
- Never leave your APS product(s) unattended during operation especially with children. Children should not be allowed to handle, touch, or use any APS product(s) without proper supervision of an adult.
 - Avoid strong shock and dropping
 - Do not operate the unit in or around water. Never allow water, moisture of other foreign materials to get inside the unit.
 - Always disconnect the unit when not in use.

LIMITED WARRANTY

PRODUCT FAILURE! Consult with your dealer(hobby shop) if you have any questions or problems concerning the APS product upon purchase. DO NOT ATTEMPT TO REPAIR THE PRODUCT. ALL REPAIR IS TO BE CONDUCTED BY OUR COMPANY. WARRANTY IS VOID IF THE UNIT IS NOT SERVICED BY MAGMA INTERNATIONAL LTD.

MAGMA INTERNATIONAL LTD. warrants the APS product(s) to be free from manufacturing defects in materials and workmanship for a period of 90 days from original date of purchase.(original itemized sales receipt strictly required for verification) This warranty does not cover improper use or alteration of the unit; components worn by normal use; special, incidental or consequential in connection with such defective product; damage resulting from (1) strong shocks and dropping or (2) use of improper battery type or (3) failure to follow operating instructions. The warranty is restricted to repair of the defective unit only. This warranty shall be the sole warranty granted by MAGMA INTERNATIONAL LTD. and there are no other warranties written or oral, expressed or implied, statutory of otherwise provided in respect of the product. In no case shall our product liability exceed product's original cost. We reserve the right to modify warranty provisions without notice. As MAGMA INTERNATIONAL LTD and their authorized distributors / dealers have no control over the connection and usage of the product, no liability may be assumed nor will liability be accepted for damaged resulting from the use of this product. By the act of connecting and operating our APS products, the user accepts all resulting liability.

WARRANTY CLAIM!

Please follow these steps:-

MAGMA INTERNATIONAL LTD. offers free repair service of APS products with valid warranty claim only. To speed up warranty claim, indicate "WARRANTY CLAIM" on the APS SERVICE CARD. Please read and follow the instructions below to expedite our services to you. All APS products will be repaired and returned approx. 4 weeks upon receipt of the unit.

NOTE! Any APS product that (1) operates normally upon receipt or (2) with expired or void warranty is subject to a minimum (CAD 30 / USD 25) service fee and return shipping costs.

1. Obtain RETURN AUTHORIZATION(RA) No. from our company. CALL (905) 886-1808 or e-mail for a RA number. No return for repair accepted without this RA number. APS REPAIRS MUST BE SENT DIRECTLY TO MAGMA INTERNATIONAL LTD.
2. Complete APS SERVICE REQUEST FORM and describe in details the problems of your unit.
3. Valid cash register itemized receipt with purchase date, or invoice of previous service work by MAGMA INTERNATIONAL LTD.
4. Mail the unit with the SERVICE REQUEST FORM to our company. We recommend insuring your return to assure our receipt of your unit. MAGMA INT'L LTD is not responsible for any lost or damages during transit.

COSTS! For product under warranty, MAGMA INTERNATIONAL LTD. will repair free of charge, except for shipping cost of product to our company. For non-warranty, repair, all work will proceed unless repair charge exceeds 40% of retail price of the unit. VISA / MASTER card information is required for all non-warranty repairs. C.O.D available for repairs in Canada only.

FOR ALL REPAIR RETURNS, SEND ONLY THE UNIT DO NOT SEND OTHER ACCESSORIES OR CORDS.

CUSTOMER SERVICE:

TEL: 905-886-1808
FAX: 905-886-1830
Website: www.aps-racing.net
E-mail: sales@magmarc.com
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Richmond Hill, Ontario,
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INSTRUCTION MANUAL

DYNO-CHARGE APS3309



SPECIFICATIONS

Dimensions	5" x 5" x 2.2" (125 x 134 x 58 mm)
Weight	approx. 1.3 lb, 600 g
Input Voltage	12 - 16 volts DC
Charging Mode	Linear
Charging Capability	1 - 8 cells
Charge Current	0.5 - 8 A
Delta Peak	10 - 200 mV (per pack)
Initial Peak Lockout	60 secs. (default), 600 secs. (long)
Temperature cutoff	59° - 140° F (15° - 60° C)
Charge Profile Memory	5
Motor Test Run	0.1 - 8 V / 20 A
Motor Test Data Memory	5 (max RPM & max Amp draw)
Motor Spin-up Speed	0.2 - 2 V/sec (10 levels)
Motor Break-in	0.1 - 8 V / 20 A
Motor Break-in Timer	10 - 3600 (1hr) secs
Break-in Pulse Speeds	0.2 - 2 V/sec (10 levels)
Protection	Fuse Protected Input & Output, Input RVP, Short Circuit LCD - Display
Buttons	2 Line, 16 character Blue Backlit Buttons
	4 (Soft Touch)

IMPORTANT PRECAUTIONS

Before you operate your new Dyno-Charge, please read over and follow these precautions to prevent possible damage or injury.

- Charge only nickel-cadmium (NiCd) or nickel-metal hydride (NiMH) rechargeable batteries. Damage will occur from charging other battery types.
- Do not obstruct cooling vents on the Dyno-Charge.
- Do not allow water, moisture, or other foreign materials to enter the Dyno-Charge.
- Never leave the Dyno-Charge unattended when connected to the power supply, battery or motor.
- ONLY charge serial connected battery packs containing 1 to 8 cells. NEVER charge parallel connected cells.
- Do not charge battery packs with voltage exceeds the power supply voltage.
- Never exceed 16 volt DC as input power source.
- Do not use automobile battery charges to power the DynoCharge
- Do not connect DynoCharge directly to a 110/230VAC power outlet.
- Make sure you connect both input and output terminals with the correct polarity! Red indicates positive(+) and black indicates negative(-).
- If cells in the pack heat up excessively, stop the charging process immediately.
- Always wear safety goggles when operating motor functions
- Excessive charge current can damage batteries.
- Avoid contact with motor shaft/RPM reflector while motor is still spinning.
- Gases produced by a lead-acid battery are explosive. Lead-acid battery such as car battery should only be used in a well ventilated area. Avoid open flames and sparks which may ignite battery gases.

APS Racing or MAGMA INTERNATIONAL LTD shall not be liable for any property damage or personal injury which may result from the failure to these instruction or other improper use of this product.

FEATURES

Common:

- 16x2 dot matrix blue backlit LCD display
- Soft touch buttons (4)
- Compact size of 5"x5"x2.2" (125x134x58mm)
- PWM technology: light weight, compact, cooler operation, high efficiency, quiet operation.

DC Charger:

- Linear current with adjustable delta voltage
- Adjustable charge current 0.5-8A in 0.1A increment
- Programmable temperature cut-off
- Selectable initial peak lockout to prevent false peaking (on/off)
- Auto detect number of cells (1-8 cells)
- Display shows: output voltage, output current, charging capacity, charge time (sec), battery temperature (°C/°F), charging status, peak voltage, and input voltage.
- 5 user programmable charging profiles

Motor Dyno:

- CNC Machined Aluminum motor maintenance stand included
- Over current protection
- Selectable output voltage 0.1-8V (0.1V increment)
- 10 spin up speed selections
- 5 motor data memories
- 10 break-in pulse speeds
- Display shows: output voltage, current draw, RPM, runtime(secs) and supply voltage

CONNECTIONS

Input power source:

A DC power source is required for the DynoCharge to operate. The power source should output at least 12 volts and must be 1 volt DC above peak voltage of the battery pack for charging. Output current on the power source should meet or exceed desired charge rate.

***DynoCharge should be connected to the power supply before any other connection is made.**

Connecting to motor / battery:

When connecting the motor / battery, make certain that the polarity on the terminals are correct before making the connection. The red alligator clip indicates positive(+) and the black alligator clip indicates negative(-). Make sure that you have made good connection to the battery, bad connection may cause false peaks.

Connecting sensors:



Mounting the motor onto the stand:



MAIN MENUS

MAIN MENU CHARGE



MAIN MENU EDIT PROFILE



MAIN MENU MOTOR TEST



MAIN MENU MAX RPM DATA



MAIN MENU MAX AMP DATA



MAIN MENU MOTOR BREAK-IN



MAIN MENU SETUP

Navigate the menus by using the + / - keys on the control panel. Enter the selected function using the ENT key.

CHARGE

With the battery is connected, enter the CHARGE function from the MAIN MENU.

SELECT PROFILE 1: NIMH 5A



Scroll to the desired charge profile using the + / - keys on the panel and press ENT to select profile for charging.

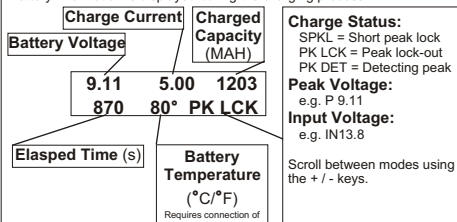
PEAK LOCK-OUT OFF

Initial peak lock-out is reset to "OFF" on every charge. Use the + and - keys to enable or disable peak lock-out. Press ENT to start charging.

NOTE: By default, Dyno Charge will disable peak detection for the first 60 seconds of the charge. Fully discharged battery packs can cause false peaks at the start of the charge. Peak Lock-Out can be enabled to block peak detection for the first 600 seconds of the charge. Peak Lock-Out will default back to disable after every charge.

Charging

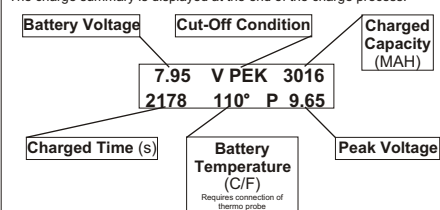
Battery Information is displayed during the charging process.



NOTE: Press the ESC key to stop charging at anytime, if needed.

Charge Summary

The charge summary is displayed at the end of the charge process.



Cut-Off Condition:
V PEK = Voltage peak detected
CAN = User cancelled charge
T CUT = Temperature Cut-Off
ERROR = Cut-Off due to error

*Error is a result of bad connections, low input voltage or blown fuse.

EDIT CHARGE PROFILE

Enter the EDIT PROFILE mode from the MAIN MENU.

SELECT PROFILE 1: NIMH 5A



Select the profile to be edited using the + / - keys and press ENT to continue or ESC to cancel editing.

CHARGE CURRENT 5.00A



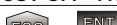
Increase or decrease the charge rate using the + / - keys.

DELTA PEAK 48 mV



Increase or decrease the delta peak voltage using the + / - keys.

TEMPERATURE CUT-OFF 118°



Increase or decrease the battery cutoff temperature using the + / - keys.

EDIT NAME 1: NIMH 5A



CHARGE PROFILE SAVED

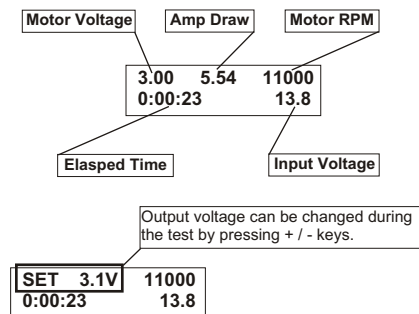
MOTOR TEST

With the motor connected, enter the MOTOR TEST function from the MAIN MENU.

SET VOLTAGE 3.0

Increase or decrease the output voltage using the + / - keys. Press ENT to start test.

Motor Testing



Press ESC / ENT any time to stop testing.

Saving Data

Test results can be saved after each run.

SAVE DATA? YES



When asked to save data, select Yes / No using the + / - keys. Press ESC to exit without saving.

SELECT MEMORY: 1



Select a memory slot to store the data using the + / - keys. Press ESC to exit without saving.

MOTOR DATA SAVED

Data saved successfully. Press any key to return to MAIN MENU.

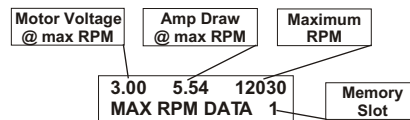
REVIEWING MOTOR DATA

Enter into MAX RPM DATA/ MAX AMP DATA function from the MAIN MENU.

- Cycle through the memory slots using the + / - keys.
- Press ENT / ESC to exit to MAIN MENU

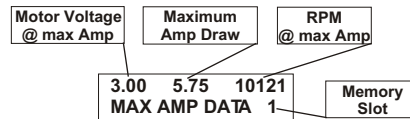
MAX RPM DATA

The data displayed are results obtained when the motor was at maximum RPM.



MAX AMP DATA

The data displayed are results obtained when the motor was at maximum Amp draw.



MOTOR BREAK-IN

With the motor is connected, enter the MOTOR BREAK-IN from the MAIN MENU.

PULSED BREAK-IN

* Pulsed break-in will alternate the voltage between the set low and hi voltage smoothly to simulate race conditions for better break-in.
* At higher pulse speed levels the motor will accelerate and decelerate faster.
* To disable pulsed break-in, set the low voltage and hi voltage to be the same.

SET LOW VOLTAGE 1.00 VOLTS



Set the low break-in voltage using the + / - keys.

SET HI VOLTAGE 2.00 VOLTS



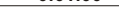
Set the high break-in voltage using the + / - keys.

SET PULSE SPEED LEVEL 5



Set the break-in pulse speed using the + / - keys.

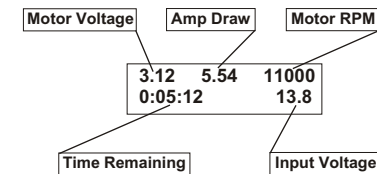
SET DURATION 0:01:00



Set the break-in duration using the + / - keys. (10 sec / step)
Press ENT to start break-in.

Motor Break-in

To stop break-in and return to MAIN MENU press ENT / ESC.



SETUP MENUS

Enter the SETUP from the MAIN MENU.

SETUP MENU RPM SENSOR CHECK



Navigate the menus by using the + / - keys on the control panel. Enter the selected function using the ENT key.

MAIN MENU TEMP PROBE CHECK



MAIN MENU SET SPIN-UP



MAIN MENU SOUND SETUP



MAIN MENU TEMP UNIT

RPM SENSOR CHECK

Enter the RPM SENSOR CHECK from the SETUP MENU.



SENSOR STATUS NON-REFLECTIVE

Rotate the RPM reflector so that the non-reflective part is facing the RPM sensor. Sensor Status should read "NON-REFLECTIVE".



MAIN MENU REFLECTIVE

Rotate the RPM reflector so that the reflective part is facing the RPM sensor. Sensor Status should read "REFLECTIVE".

Press any key to return to MAIN MENU.

The above procedure verified that the RPM sensor is working properly. To perform a test on the RPM reflector, slowly rotate the RPM reflector for one full revolution and verify with the sensor status that it only both the reflective and non-reflective parts of the RPM reflector are continuous.