PROGRAMMING the 3rd Gen MagneShock™ System for Oval-Track & Road-Racing

Getting Started

- Controller and Programmer contain sensitive electronics, **Handle with Care!**
- Identify all of the cables and their corresponding connections located on the controller and display.
- Do not plug in components when the controller is powered.
- The Controller is fused (4 amp). Requires 12 or 16-volt supply (max 2 amp) and should be activated with the ignition switch or from an accessory power wire.
- Securely route shock cables away from moving parts and exhaust components.
- Securely mount Controller box and be certain it is **grounded** to the chassis.
- The Programmer box need not be mounted and need not be grounded.
  It is not required for operation – only for Progamming the Controller and seeing programmed values.

Using the PROGRAMMER (Display box)

Mode is changed by the Display-On-Off button.
Different "Parameters" are selected & changes are **SAVED** by the Edit/Save button.
You move from one "value" to another (or sometimes view the different SETUPs) by the CW-CCWswitch.
You make "values" higher or lower with the Stiff-Soft switch.
You can define the Force-Velocity curve of each shock, in each SETUP, at FIVE (5) different Velocities (in rebound & compression):
0 (ZERO velocity - the force required to start the shock moving),
H (Half = ½ inch/second piston velocity), 1 in/s, 3 in/s & 7 in/s.
There are 5 SETUPSs (#0, #1, #2, #3 & #4): Each contains all the Rebound & Compression settings at 5 velocities for all 4 shocks.

OFF Mode ("F"):
When first powered up an "F" (display oFf) appears in on the bottom center COMMAND LED & the upper center SETUP LED will display "0" . You can change SETUPs with the CW-CCW switch but nothing can seen till you go to another Mode.
(OR: If the REMOTE cable is connected; it will ONLY display whatever SETUP the switches are set to (0, 1, 2, 3 or 4) .
NONE of the other LEDs light up – so nobody can see your settings unless you want them to.

Pressing the Display-On-Off button will toggle through "A" (Automatic), "U" (User) & "E" (Edit) & then restart at "F".

AUTOMATIC Mode ("A"):
To SEE the damping settings: press Display-On-Off – it goes to Automatic mode & "A" displays in the COMMAND LED.
The damping settings at "0" velocity values will display first, alternating "0" with "A" in the COMMAND LED.

If the REMOTE cable IS connected: It only displays the SETUP selected by the remote switches. It IGNORES the CW-CCW switch.
Pressing Edit/Save will toggle through the velocities (0, H=1/2, 1, 3 & 7 inch/sec) - each will still alternate with "A".

If the REMOTE cable is NOT connected: The CW-CCW switch will be active - you can move it to see all 5 of the SETUPs.
Pressing Edit/Save toggle through the velocities (0, H=1/2, 1, 3 & 7 inch/sec) - each will still alternate with "A".

USER Mode ("U"):
To SEE settings: press Display-On-Off again – it goes to User mode, "U" displays in the COMMAND LED, the external switches are overridden, the CW-CCW is active & you can move it to see all SETUPs.
Velocity "0" is first displayed. Pressing Edit/Save will toggle through all the velocities.
(This is the same as the Automatic Mode if a REMOTE is not connected).

EDIT Mode ("E");
To Edit damping (& the other special parameters); Press Display-On-Off again – the COMMAND LED displays an "E".
The SETUP LED will initially display a "0" – this represents SETUP #0 (there are 5 total: #0, #1, #2, #3 & #4; + "L" & "P").
You can change to any desired SETUP, plus the "L" and the "P" parameters with the CW-CCW switch.
It will NOT toggle: It will display "0", "1", "2", "3", "4", "L" & "P". You can move forward & backward between them.
NOTE: All **EDITs** are made in REAL-TIME: they will be "**active**", even if you are RACING. But, you must **SAVE** to keep them.

To Edit/Change **DAMPING**:
First; use the CW-CCW switch to select the SETUP you desire (#0 to #4) – it will display in the SETUP LED.
Now, pressing Edit/Save again will allow you to actually edit the SELECTED SETUP.
The COMMAND LED will now alternately flash between "E" and "0" (or whichever SETUP you selected).
And, ONE of the eight "Wheel" LEDS will flash.

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The alternating "0" in the COMMAND LED is the first editable Velocity (the numbers on the "wheel" LEDs are the respective forces required to start the shock moving – ZERO velocity).
Use the CW-CCW switch to move the "***flashing***" to the wheel's and Rebound or Compression that you want to edit.
Then, move the Stiff/Soft switch up or down to get the actual damping force you desire at ZERO-velocity.
NOTE: A displayed number without a decimal point it has an "***implied*** extra ZERO"
Example.: Damping "12**.**" = 12**.**(0) = 12 lb, whereas "12" = 12(0) = 120 lb
You can then move to any other wheel's Rebound or Compression values to change that damping at ZERO-velocity.

To change other velocities: Each time you press Edit/Save it will toggle through "0", "H", "1", "3", "7" and then start over at "0".
You can use the CW-CCW & the Stiff/Soft switches to edit all the damping values in this velocity (and this SETUP).

To **SAVE** your changes:
At ANY time, you can PRESS & HOLD Edit/Save for about TWO SECONDS until the COMMAND LED changes to "S" for **SAVE.**

When you release the button, ALL numbers flash to indicate you have **SAVED** any changes made in this SETUP (or in the parameters).
It will NOT exit the **EDIT** mode after a **SAVE** – you may continue to make changes (& **SAVE** them if desired) to this SETUP (only).

NOTE: If you do not SAVE the data, any settings you have input will stay **"active"** until you get OUT of the EDIT Mode or
turn the system (ignition key) off. In either case, it will drop your changes & go back to the last "SAVED" settings.

To EXIT the **EDIT** mode: At any time, you can simply press the Display-On-Off button to EXIT the EDIT mode.
Anything you **SAVED** previously will be **SAVED**.
Any changes made & NOT **SAVED** will be gone.. It will only change whatever you **SAVED**.

To Edit/Change **"L"** (Lowest-Limits of damping):
When in the **EDIT** mode you can move the CW-CCW switch to go past "4", the last SETUP, to "L". ONLY needed for Special shocks.
Now, pressing Edit/Save again will allow you to actually edit the Lowest-Limits for each shock.
It will display special numbers in the same LEDS that represent each shock.
These numbers are unique to each TYPE of shock (the Controller uses them to determine the Lowest-Limits of damping force).
Each MagneShock comes with these values marked on it. Controllers come preset from the factory for the most common shocks.
Normally, you don't have to change these numbers – only if you use special, usually very stiff, shocks.
NOTE: A displayed number without a decimal point it has an "***implied*** extra ZERO"
Example.: Number "75**.**" = 75**.**(0) = 75, whereas "12" = 12(0) = 120
The 1st number is highest & goes in the top LED (Rebound position) & the 2nd number goes in the bottom LED (Compression position).

To Edit/Change **"P"** (Position of Rebound & Compression BUMP-STOPS):
Moving the CW-CCW switch up again, you go past "L" to "P" - the POSITIONS for the Rebound & Compression BUMP-STOPS.
These are the positions where the shock goes to FULL STIFF - to reduce the chance & the bad effects of Bottoming & Topping out.
These numbers also display in the two LEDs for each shock and they can be set for each shock individually.
The upper LED is for Rebound (largest), which is the point where it goes to full stiff to help prevent topping out the shock/suspension.
The lower LED is for Compression (smallest), the point where it goes to full stiff to help prevent bottoming out the shock/suspension.

To set the Rebound-Bump-Stop: you must know the shock's STROKE:
(measure the length/amount of rod showing at full extension – "metal-to-metal" - as if any rubber bumpers are not there).
Example: lets assume that your shock has 6.1" of stroke and you want the Controller to go to FULL STIFF at 1" before it tops out:
You set the UPPER LED to 5.1" (6.1" –1.0"). It is measured in 1/10" increments.
When there is 5.1" (or more) of rod showing (1.0" or less of travel remaining) the damping will go to FULL STIFF.

To set the Compression-Bump-Stop:
If you want the Controller to go to FULL STIFF at ½" before it bottoms-out, you set the LOWER LED to 0.5" (also 1/10" increments).
Note: If your shock has a rubber bumper you could set shock so it goes stiff before or after bumper contact.
When there is 0.5" (or less) of rod showing (extended) the Controller will turn the damping to be FULL STIFF.

You can **SAVE** any changes now: PRESS & HOLD Edit/Save for about TWO SECONDS. (See "To SAVE your changes;" above)

Use of external "Remote-Switch"

When: 1. the Remote-Switch is wired, 2. the cable connected and 3. none of the circuits are closed;
It will put the Controller in "SETUP #0" (and it will display if the Programmer is connected).
The 4 other circuits in the cable represent "SETUPs" number #1 to #4.
If one of these circuits is closed - that "SETUP" will be instantly called (and displayed if the Programmer is connected).

In the case of the 2-position Remote Bat-handle switch, you can connect any one of "SETUPs" #1 to #4 to the switch circuit. When OFF it will call "SETUP #0" and when ON it will call whichever "SETUP" you are connected to.
OR: You can any two of the SETUPs and then it will call one or the other. Connect Ground to Ground.

In the case of the 5-position Remote Rotary switch, you only connect SETUPs #1 to #4 to the switch circuits & Ground to Ground..
Do NOT connect any wires to the 1st position – it is always OFF & it will call "SETUP #0". Ignore & insulate the extra wires.
Connect #1 to #4 to the 2nd through 5th position so the switch will call those SETUPs when clicked to those positions.

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