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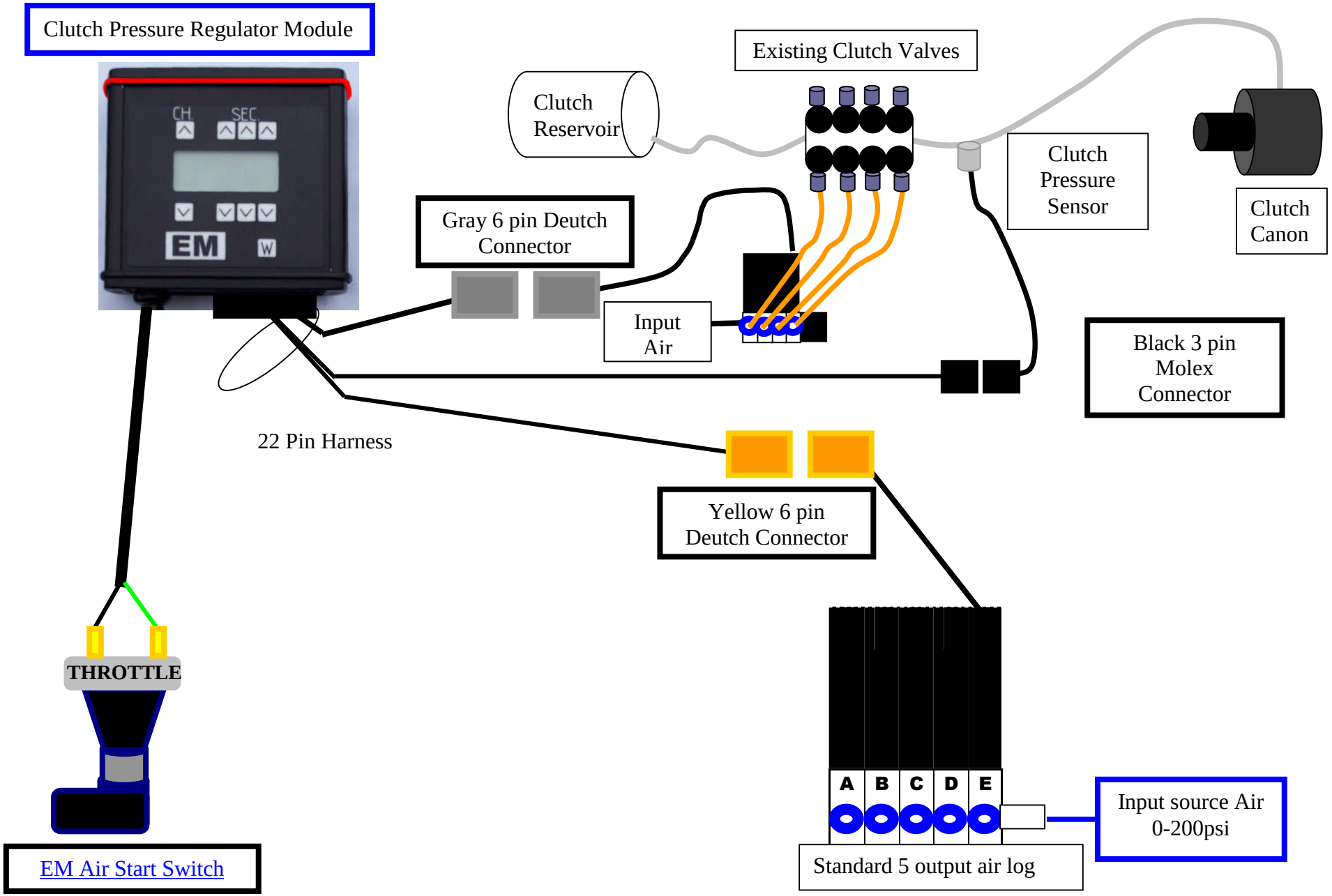
Timed Clutch Pressure Regulator

Connections

Power Input connector: 2 pin plug (red-black) wires 9-16 volt input	**Start Switch connector:** 2 pin green connector Short wires together to start regulator (blk wire is ground). The unit is ground to start.
Outputs: **22 pin conn:** R B ARM B 7 8 Rel Fast Rel Max B R A psi Rel Slow Rel Med 5 R 6 E D C B Red=Pos Black=Neg	
Mounting: 10-32 screws—2.500” by2.000”	**Overall Dims:** 4.250” * 3.500” * 1.750”

Hookup Diagram:



Overview:

The Electrimotion Clutch Pressure regulator with ramp control is specifically designed to assist the control of the Clutch cannon pressure in a top fuel car. The system consists of up to 4 air outputs, a pressure transducer, a controller module and a custom wiring harness. The system has the capability to store 3 separate clutch pressure curves (each curve has 8 points). The system also has an initial delay function, which allows you to shift a curve in or out in time. The system also has 5 timed outputs that can be used to turn on and off events electrically or with our optional air log, pneumatically. The system has a built in pressure ramp monitor function that will turn on the output air valve if the clutch pressure begins to build at a pre-defined ramp. The ramp monitor function has 2 user enterable parameters, hold off time and pressure ramp. The hold off time is used to disable the ramp monitor at the step of the throttle. The pressure ramp parameter is used to define the slope of the pressure curve. The pressure ramp is entered in units of lbs/0.1sec. The air output will turn on when the pressure is increasing at a ramp equal to or greater than that of the pressure ramp parameter after the hold off time has passed.

Channel Assignments:

Channel 1 Time: (Channel 1 time is the Initial Delay time). This value is added to the points in your curve. See example below.

If Channel 1, (initial Delay) is 0.00 and channel 2 is 100psi @ 0.05 sec.
The regulated pressure will be 100psi at 0.050 sec

If Channel 1, (initial Delay) is 0.01 and channel 2 is 100psi @ 0.05 sec.
The regulated pressure will be 100psi at 0.06 sec

Channel 1 Pressure: (Channel 1 pressure value is the initial pressure at the step)

Channels 2-9: (These channels make up the times and pressures of the pressure curve.)
(Enter values for time and Pressure)

Channels A-E: (These channels can be set to turn on and off at specific times.)
(Enter on and off times/channels) Off times are denoted by a ":" colon between the channel number and the time.

Clutch Pressure Regulator Operation:

Startup:

1. Connect unit to +12V, (2 wire Deutch connector with red and black wires)

2. The display will sequence through 3 screens. The first screen shows “1 cur” this indicates which of the 3 pressure curves is currently selected. The second screen is the number of times the regulator output turned on during the previous cycle. The third screen is the current measured system pressure. Each time you scroll to channel 0 this sequence will be repeated. Channel 0 is the starting screen for the timer. (Fig 1,2,3)

Pressure Curve number

# of times the Regulator output was activated

Current Pressure

Fig. 1

Fig. 2

Fig. 3

Entering the initial delay and pressure:

The initial delay is the time value stored in channel 1. This time is added to all the pressure curve points (2-9)

1. Press the CH. ^ button once. The display will read “1 0.00”. This indicates that the initial delay is 0.00 sec. To change the initial delay, use any of the 6 SEC up and down buttons, then press the “W” button to save the value.

2. Press the CH. ^ button once again. The display will read “1 450”. This indicates that the initial regulated pressure is 450 psi. To change the initial pressure, use any of the 6 SEC up and down buttons, then press the “W” button to save the value.

Entering the time/pressure curve points:

1. The system has 8 (time/pressure) channels (2 – 9) that can be individually entered.

The first entry is the **"Time that the pressure becomes active"** (Fig. 4)
The second entry is the **"Pressure value for that time"** (Fig. 5)

Channel 2 Time

Fig. 4

Channel 2 Pressure

Fig. 5

1. By pressing the any of the 6 SEC buttons you can change the time or pressure for the channel that is selected.

2. As you change the time or pressure, the display value begins to blink. This indicates that you have not saved the value. Press the "W" button to save the time value.

3. The regulator will interpolate the pressure values in between time points.

Example.

Channel 2 is set to 1.00 seconds and 200 psi.
Channel 3 is set to 2.00 seconds and 100 psi

The regulated pressure value at 1.50 seconds will be 150 psi.

Timer operation (On times and Off times/channels):

1. The pressure regulator also has 5 timer outputs (Channels A-E) that can turn on and off at specific times.

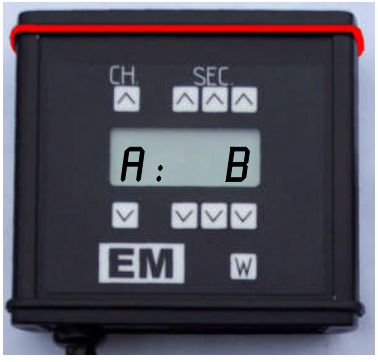
2. To enter the on time for channel A, press “CH ∧” until the display shows “A 4.50”, this indicates that channel A will turn on 4.50 seconds from the time the timer is activated.

3. To enter the off time for channel A, press “CH ∧” until the display shows “A : 7.99”, this indicates that channel A will turn off 7.99 seconds from the time the timer is activated.

4. By pressing the any of the 6 SEC buttons you can change the on or off time for the channel that is selected.

5. The timer has an off time special feature. In this special mode a channel can be configured to turn off, when another channel comes on. To use this mode, press the left most “SEC ∧” button while the 7.99 is displayed. The display will change to “A : B”. To select the off channel use the right most “SEC ∧” button. Press the “W” button to save.

6. As you change the on or off time, the display time value begins to blink. This indicates that you have not saved the value. Press the “W” button to save the time value.

On Time	Off Time	Off Channel
Ch. A on time 4.50 sec.	**Ch. A off time 7.99 sec.**	**Ch. A turns off when Ch. B turns on.**
		

Changing the Ramp Monitor Hold off Time:

1. To change the Ramp monitor hold off time, press “CH v” until the display shows “H 1.00”.

2. By pressing the any of the 6 SEC buttons you can change the Ramp Monitor hold off time.

3. As you change the on time, the display time value begins to blink. This indicates that you have not saved the value. Press the “W” button to save the time value.

Ramp Monitor Hold off Time

Changing the Ramp Monitor Ramp value:

1. To change the Ramp monitor pressure ramp, press “CH v” until the display shows “r 010”.

2. By pressing the any of the 6 SEC buttons you can change the Ramp Monitor pressure ramp in pounds per tenth sec. Stock value is 10lbs/.1 sec.

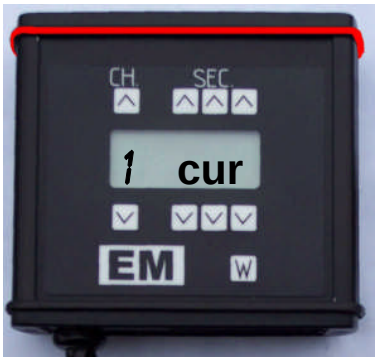
3. As you change the ramp value, the display value begins to blink. This indicates that you have not saved the value. Press the “W” button to save the pressure ramp value.

Ramp Monitor Pressure Ramp

Changing to a different Pressure Curve:

While in channel 0, press the “W” write button 5 times in a row. The display will change to a blinking “1 cur”. By pressing the arrows above and below the number, the display will switch to “2 cur” and then “3 cur”. If you then press “W” write again the blinking will stop and all the points of the curve (and the 5 timer values) will now contain the values for the selected curve.

Pressure Curve 1



Pressure Curve 2