

## MX TUNER SUZUKI RM-Z450 【Part No. 431-185-0000】

- Be sure to read this manual carefully before starting to work.
- While in the installation, keep this manual at hand and proceed by following the procedure.
- This manual must be retained until the product is scrapped.

This product is designed for the racetrack use ONLY. Do not use this product on the public road. When use this product, confirm race regulation before installation.

**! DANGER** : Indicates a potential hazard that could result in death, injury or engine breakdown.

**! CAUTION** : Indicates a potential hazard that could result in motorcycle damage.

**REFERENCE** : Indicates special information for smooth work.

### ● Applicable Model

SUZUKI : RM-Z450 K8/K9

**! DO NOT** use it for any other models.

### ● Specification

- Fuel Volume Adjustment : +/-5steps each
  - Ignition Timing Adjustment : +/-2degrees
- <Adjustable Range>
- Engine Revolution ; 2,000-12,000rpm or All  
Throttle Position ; 5%-75% or All

### ● KIT Contents

No.	Part No.	Description	Q'ty
1	A-E8320-930	Unit, CO Adjust	1
2	36890-28H00	Wire, Battery	1

### ● Necessary Item

- 12V Battery (FT12A-BS, 12V10AH) ----- [SUZUKI Genuine Part No : 33610-14G10]
- \* Any 12V battery with fixable battery +/- terminals can be used.

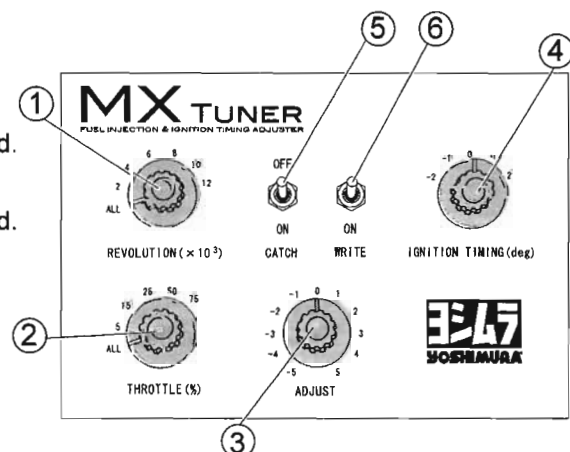
**! CAUTION** The 12V battery should be fully charged. Otherwise the operation may not be done properly.

### What is MX Tuner

- MX Tuner is a set up tool which makes it possible to adjust the fuel injection volume and ignition timing by simple way. It offers suitable mapping depending on the engine modifications, circuit conditions or riding style.

### Functions

- ① Revolution Dial : Adjustment dial to select the engine revolution when fuel volume or ignition timing to be adjusted.
- ② Throttle Dial : Adjustment dial to select the throttle position when fuel volume or ignition timing to be adjusted.
- ③ Adjust Dial : Adjustment dial to change the fuel volume.
- ④ Ignition Timing Dial : Adjustment dial to change the ignition timing.
- ⑤ Catch Switch : Switch for the operation.
- ⑥ Write Switch : Switch to write the data.



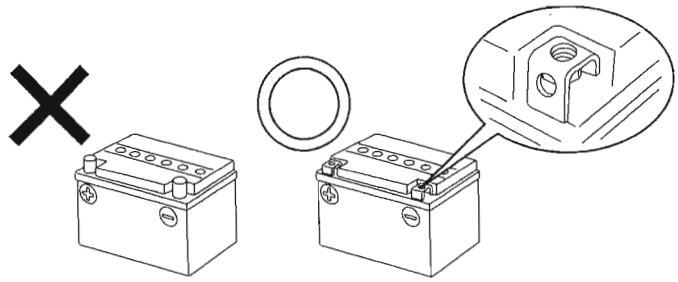
## Preparation

### ● 12V Battery

1. Prepare a 12V battery.



: A 12V battery with fixable battery +/- terminals should be used.

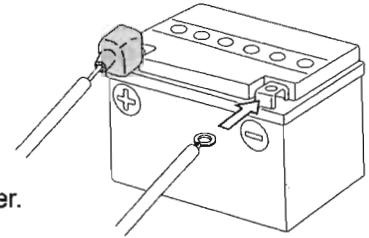


2. Mount the Wire, Battery to 12V battery.

The wire terminal with red cover goes to (+) terminal and the wire terminal without cover goes to (-) terminal.

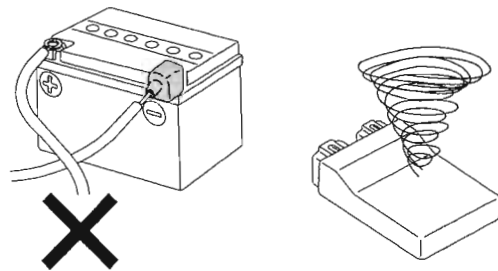
#### REFERENCE

: Make sure to mount (+) terminal first and then (-) terminal in order. When removing, disconnect from (-) terminal.



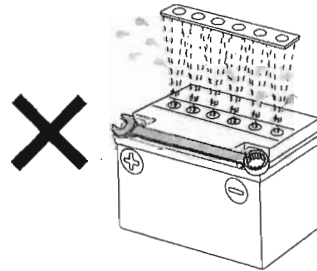
#### DANGER

: Wrong way of connection causes serious damage of Wire, Battery or ECM.



#### DANGER

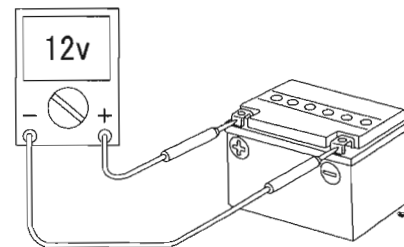
: Handle with care and do not connect battery terminals by metallic material. It may cause battery leakage.



#### CAUTION

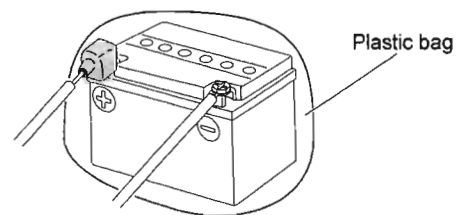
: The 12V battery should be fully charged. Otherwise the operation may not be done properly. Check the voltage using tester, and keep proper level.

Recommended voltage : more than 6V



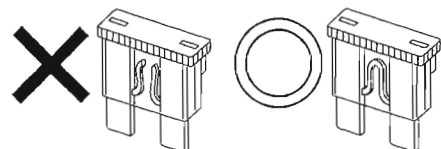
#### REFERENCE

: It is recommended to cover the battery by plastic bag. Keep away battery from water or dirt.



#### REFERENCE

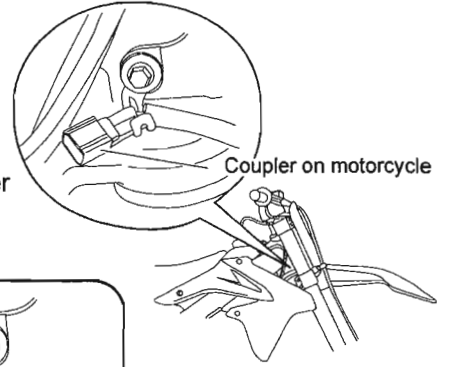
: Check that there is no failure or damage on the fuse before using this product. The fuse with different volume should not be used.



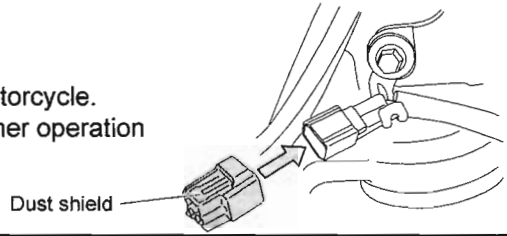
● **MX Tuner connection**

**CAUTION** : All the procedures should be done when engine is off.

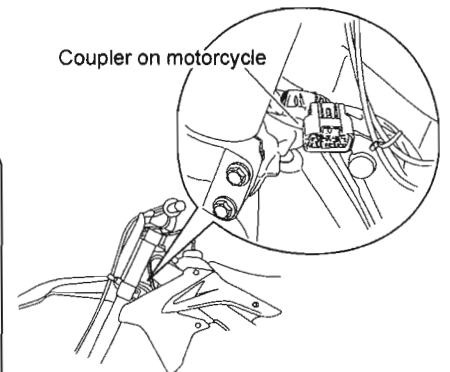
1. Connect Wire, Battery to 12V battery, and then connect the Wire, Battery coupler to the coupler on the right side of steering stem.



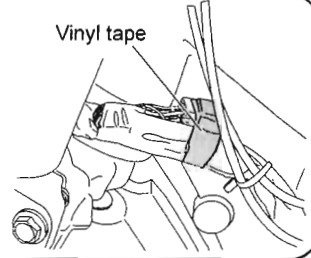
**CAUTION** : There is a dust shield preinstalled on the motorcycle. It should be disconnected only when MX Tuner operation is done. Make sure to connect it when riding the motorcycle.



2. Relocate the coupler on the left side of steering stem to any convenient place to connect MX Tuner coupler.

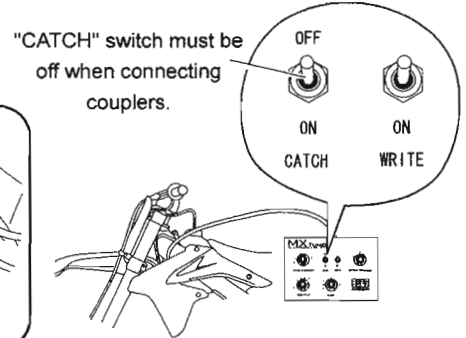
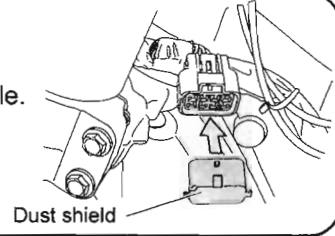


**REFERENCE** : The coupler to connect MX Tuner is located on the left side of steering stem. It is originally mounted by vinyl tape.



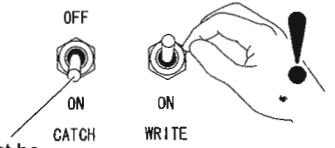
3. Check that the "CATCH" switch on MX Tuner is off, and then connect the couplers.

**CAUTION** : There is a dust shield preinstalled on the motorcycle. It should be disconnected only during MX Tuner operation. Make sure to connect it when riding the motorcycle.

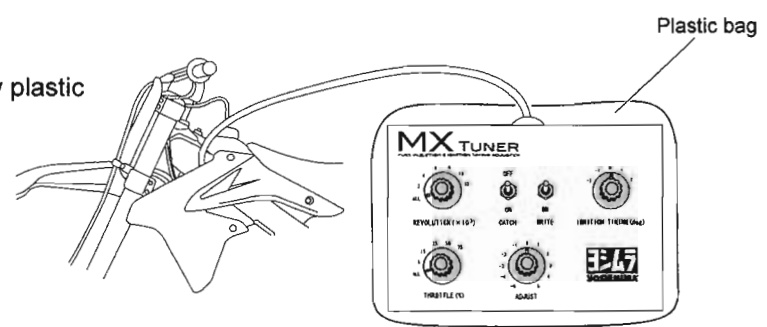


**CAUTION** : When connecting the couplers, be careful not to switch the "WRITE" switch by mistake. In case while the "CATCH" switch is on and "WRITE" switch is on, the data is overwritten on the ECM.

"CATCH" switch must be off when connecting couplers.



**REFERENCE** : It is recommended to cover the MX Tuner by plastic bag. Keep away it from water or dirt.



## Setting

- MX Tuner makes it possible to adjust the fuel injection volume and ignition timing by simple way. Following contents show how to set them up.

### ● Fuel injection volume adjustment

- RM-Z450 K8 is the very first motocross model with fuel injection system. Following charts show the difference and way to set up between carburetor and fuel injection.

#### Carburetor

Types of jet	Throttle position				
	Close	1/4	1/2	3/4	Full open
Main jet (MJ)					
Jet needle (JN) Clip position					
Jet needle (JN) Straight diameter					
Slow jet (SJ) / Pilot screw (PS)					

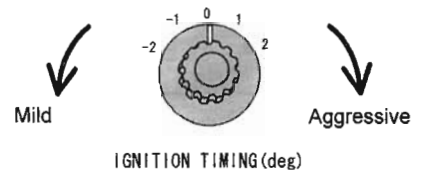
#### Fuel injection

Engine revolution (rpm)	Below 2,000	4,000	6,000	8,000	10,000	Over 12,000
	Throttle position	← ALL area →				
Below 5%						
15%						
25%						
50%						
Over 75%						

As it can be seen in the charts, fuel injection setting is done by two conditions such as throttle position and engine revolution while carburetor setting is based on the throttle position only. It means fuel injection is possible to make more precise setting. Also it is a big advantage to change the setting without disassemble carburetor for speedy set up.

### ● Ignition timing adjustment

- Ignition timing adjustment changes the engine character by changing the spark timing. It is effective in different course conditions or various scenes. Changing the timing to minus position makes the engine character milder, and the other way makes the character more aggressive.

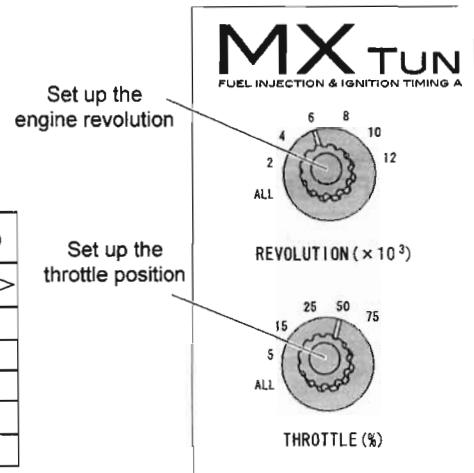


### ● Select the overwrite area

- Figure out the area which needs resetting from approximate throttle position and engine revolution (rpm). Then select the area by dials to overwrite the newer setting.

Engine revolution (rpm)	Below 2,000	4,000	6,000	8,000	10,000	Over 12,000
	Throttle position	← ALL area →				
Below 5%						
15%						
25%						
50%						
Over 75%						

■ : Overwrite area



## ● Overwriting the data

- After selecting the area to change the setting, newer data is set up by "ADJUST" and "IGNITION TIMING" dials.

"ADJUST" dial

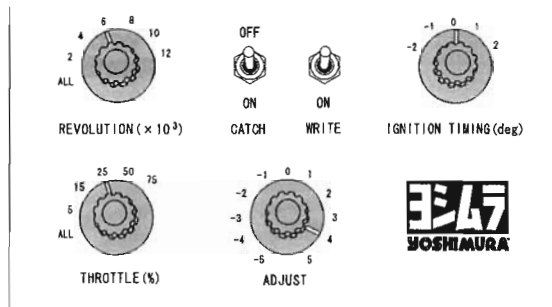
: Fuel injecting time change (+ or - for 5steps each. Each click makes 4% of change from original ECM.)

"IGNITION TIMING" dial

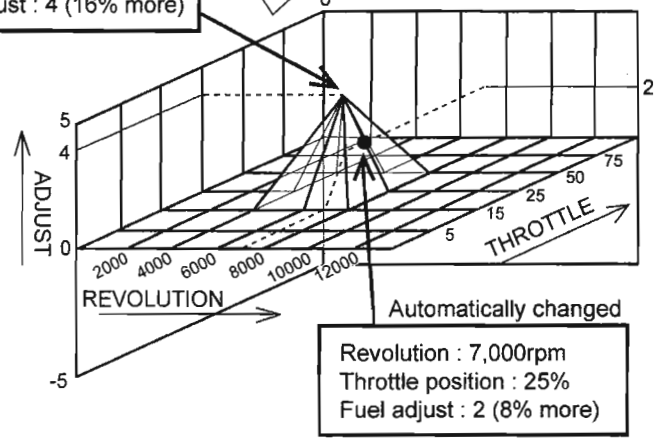
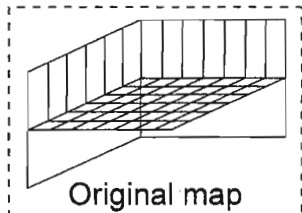
: Ignition spark timing change (-2degrees to 2degrees for 1degree each.)

**REFERENCE** : The setting is always overwritten and not to add on the previous data.

- Set up and overwrite the fuel injecting time and/or ignition spark timing by dials, then original map on ECM changes as the right figure shows.



Revolution : 6,000rpm  
Throttle position : 25%  
Fuel adjust : 4 (16% more)



Automatically changed  
Revolution : 7,000rpm  
Throttle position : 25%  
Fuel adjust : 2 (8% more)

### REFERENCE

: When a certain point is selected and adjusted, the values on each next points are connected in lines from the selected place.

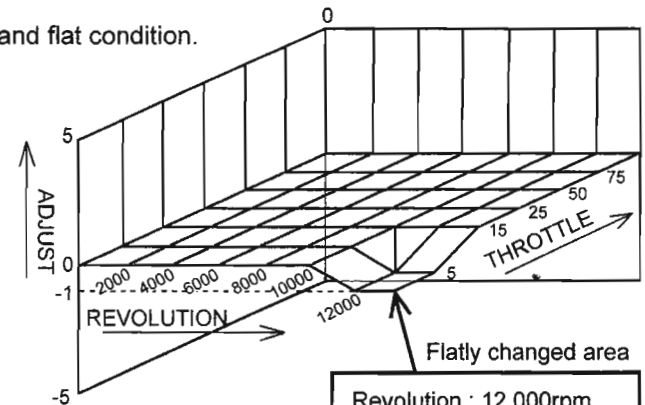
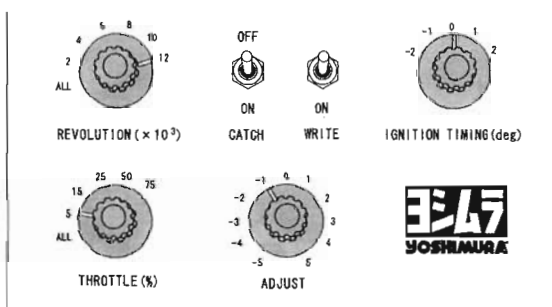
The values are automatically changed in the ratio as the figure shows.

In this case, the value at 7,000rpm which is unselected area with throttle position 25% becomes Fuel adjust at 2 (8% more).

## ● Area without dial indication

- There are no indications at "REVOLUTION" dial below 2,000rpm and over 12,000rpm, and also at "THROTTLE" dial below 5% and over 75%.

The setting of these non-indicated area is done in the same and flat condition.



Flatly changed area  
Revolution : 12,000rpm  
Throttle position : 5%  
Fuel adjust : -1 (4% less)

As the right figure shows, when engine revolution 12,000rpm and throttle position 5% are selected, and fuel volume is adjusted with [ -1 ] (-4%), all the are below and over from selected point automatically change the setting in the same condition.

## ● The way to find the suitable setting (Fuel adjustment)

Set both "REVOLUTION" and "THROTTLE" dials at ALL position and change the fuel setting by "ADJUST" dial either [ 1 ] or [ -1 ] which is minimum change. Then feel the setting differences between before and after the overwriting. Any better area should be kept as it is, and put back all other non improved area and try something different.

**REFERENCE** : It is recommended to keep all the data with comments in the setting data sheet. Make photocopies of page 8/8 and note all the settings and the results as the record.

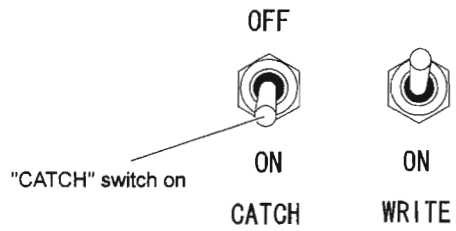
## How to overwrite on the ECM



### CAUTION

: All the procedure should be done when engine is off.  
Check both connections between motorcycle and Wire, Battery & MX Tuner are done properly.

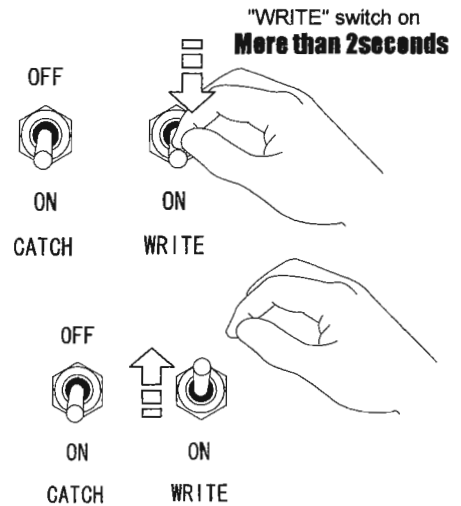
1. Set up all the dials as it is introduced on the previous pages.
2. Switch on the "CATCH" switch.



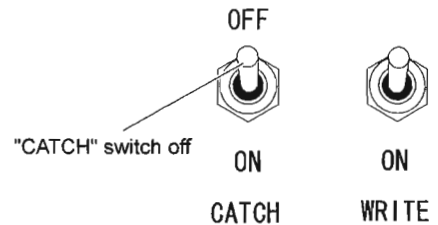
3. Switch on the "WRITE" switch and keep the position for more than 2seconds.

### REFERENCE

: After the 2seconds of switching, the data is overwritten on ECM.  
In case other point also needs to change the setting, repeat the steps 1 to 3.  
It is possible to repeat the steps many times.



4. Switch off the "CATCH" switch.

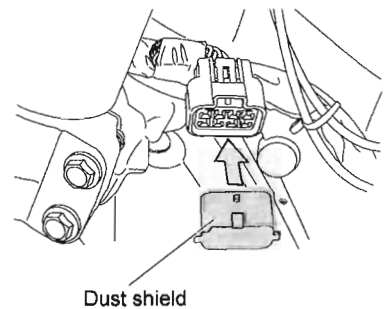


5. Disconnect MX Tuner coupler from motorcycle, and mount dust shield.



### CAUTION

: Make sure to connect dust shield when riding the motorcycle.

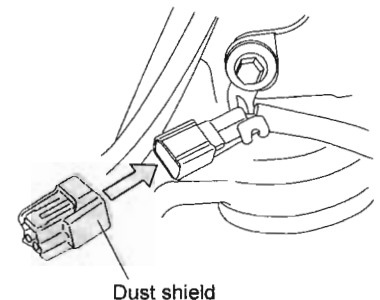


6. Disconnect Wire, Battery coupler from motorcycle, and mount dust shield.



### CAUTION

: Make sure to connect dust shield when riding the motorcycle.



7. Fix both couplers on motorcycle with vinyl tape or zip tie for safe riding.

## Put back initial setting on ECM

■ When all the overwritten settings on the ECM need be deleted, follow the steps below.

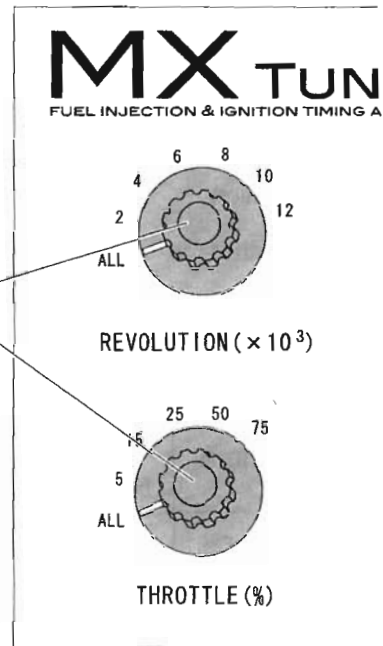
1. Set "REVOLUTION" and "THROTTLE" dials at ALL.

### REFERENCE

: Selecting ALL in "REVOLUTION" and "THROTTLE" makes possible to change all area at once.

Engine revolution (rpm)	Below 2,000	4,000	6,000	8,000	10,000	Over 12,000
Throttle position	← ALL area →					
Below 5%						
15%						
25%						
50%						
Over 75%						

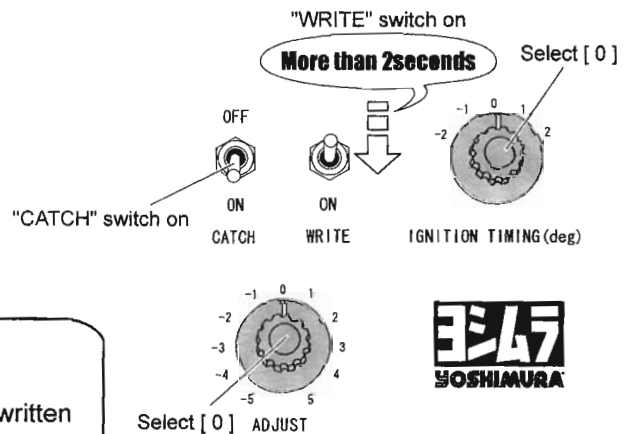
■ : Overwrite area



2. Set "ADJUST" and "IGNITION TIMING" dials at [ 0 ].

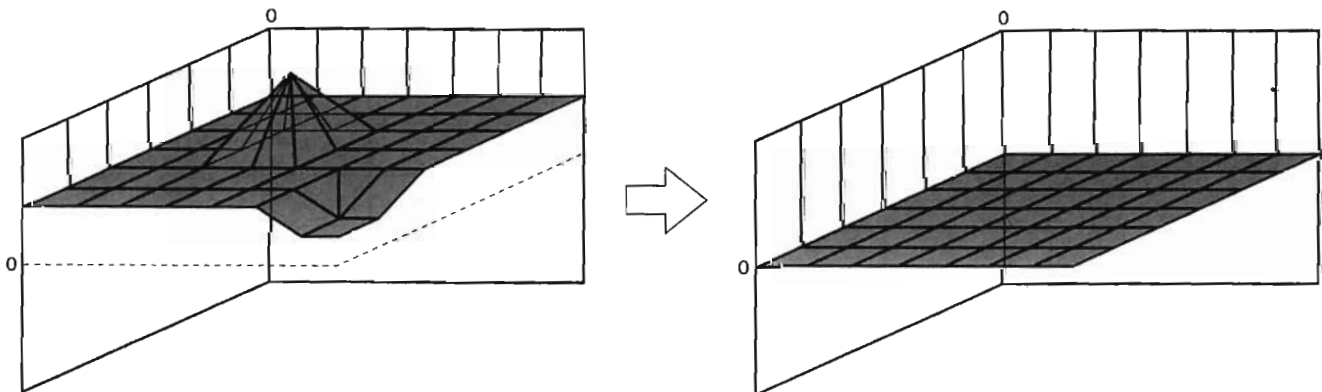
3. Switch on the "CATCH" switch.

4. Switch on the "WRITE" switch and keep the position for more than 2seconds.



### REFERENCE

: After the 2seconds of switching, the data which was overwritten on ECM is deleted.



Quality control is implemented to all the products. If, however, any failure was found, please notify Yoshimura Japan through the selling dealer. Necessary technical service or replacement will be made. Due to improvement, the specifications and prices of the products are subjected to be changed without notice.

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## MX Tuner setting record

Date :

Course :

Rider :

Machine No. :

Course condition :

Weather :

Other note :

Fuel volume		Engine revolution (rpm)					
		Below 2,000	4,000	6,000	8,000	10,000	Over 12,000
Throttle position	Below 5%						
	15%						
	25%						
	50%						
	Over 75%						

Result :

Ignition timing		Engine revolution (rpm)					
		Below 2,000	4,000	6,000	8,000	10,000	Over 12,000
Throttle position	Below 5%						
	15%						
	25%						
	50%						
	Over 75%						

Result :