



Diesel Engine Performance Analyzer

**MIP3000-2S**

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# Windows Manual



MEIYO ELECTRIC CO., LTD



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## 1. MIP3000 for Windows

### 1.1 Overview

The MIP3000 for Windows is a program developed for operation in the Windows environment which enables the user to transfer the data measured and stored by the MIP3000 to a PC so that further analysis can be executed.

The user can understand the status of combustion and fuel injection of each cylinder of an engine in terms of load in more detail by analyzing and comparing the data.

### 1.2 Purpose

The data measured can be processed in a PC, and therefore, trace ability of data is secured which helps the user to compare the data and achieve optimum control of an engine.

### 1.3 System Requirement

CPU : Pentium 166 MHz or higher

Resolution : 800 x 600 MODE 16bit high color or higher

OS : Windows 95/98/2000/XP/NT, Vista, Window 7

### 1.4 Installation

1. Insert CD to CD-ROM Drive and open My Computer < CD-ROM Drive:
2. CD has 2 folders as 'Instruction Manual' & 'Setup' folder.  
Open 'Setup' folder.
3. Execute 'Setup.exe' for installation.
4. Click 'Next' button. < Fig. 1-4-1 >



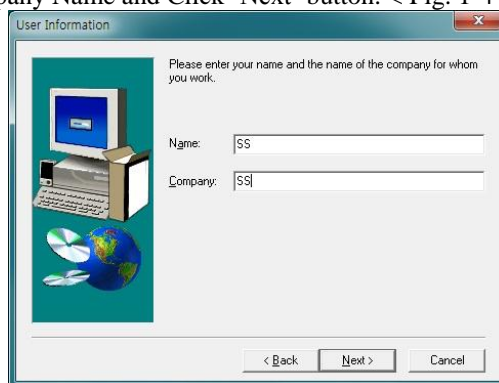
< Fig. 1-4-1 >

5. Click 'Yes' button. < Fig. 1-4-2 >



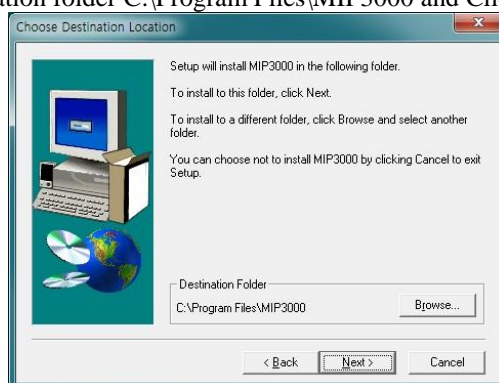
< Fig. 1-4-2 >

6. Input User & Company Name and Click 'Next' button. < Fig. 1-4-3 >



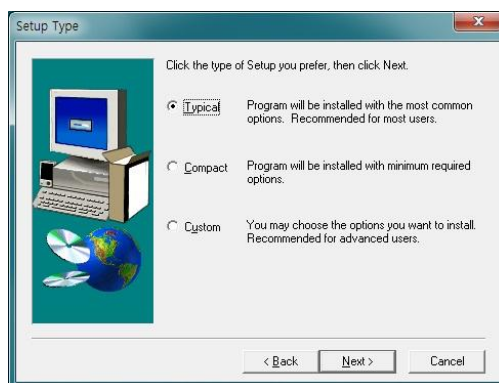
< Fig. 1-4-3 >

7. For confirm destination folder C:\Program Files\MIP3000 and Click 'Next' button. < Fig. 1-4-4 >



< Fig. 1-4-4 >

8. Select 'Typical' on option and click 'Next' button. < Fig. 1-4-5 >



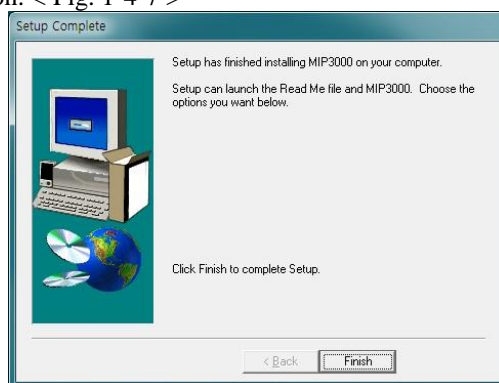
< Fig. 1-4-5 >

9. Confirm folder name "MIP3000" and click 'Next'. Then, precede MIP3000 program automatically. < Fig. 1-4-6 >



< Fig. 1-4-6 >

10. Click 'Finish' button. < Fig. 1-4-7 >



< Fig. 1-4-7 >

11. If need, install shortcut to desktop for ease use.

## 2. Main Menu

When execute MIP3000 windows program, show below main screen. < Fig. 2-1 >



< Fig. 2-1 >

- [File]
  1. [Open] **OPEN**: Show measure data file in PC and can see measured data.
  2. [Transfer] **TRANSFER**: Transfer measured data from MIP3000 to PC by RS232C data cable.
  3. [Exit]: Close MIP3000 program.
- [Trend] **TREND**  
Analysis measured data in PC by graph and data table
- [Print] **PRINT**  
Print out present screen.
- [Setup]  
Input engine information for execute MIP3000 program
- [Windows]  
When executed over two windows, show windows by cascade & tile
- [About]  
Show screen about MIP3000.

### 3. Setup Initial Data

Click [setup] Setup on Menu and display setup screen for input engine data & setup limit value. < Fig.

3-1 >

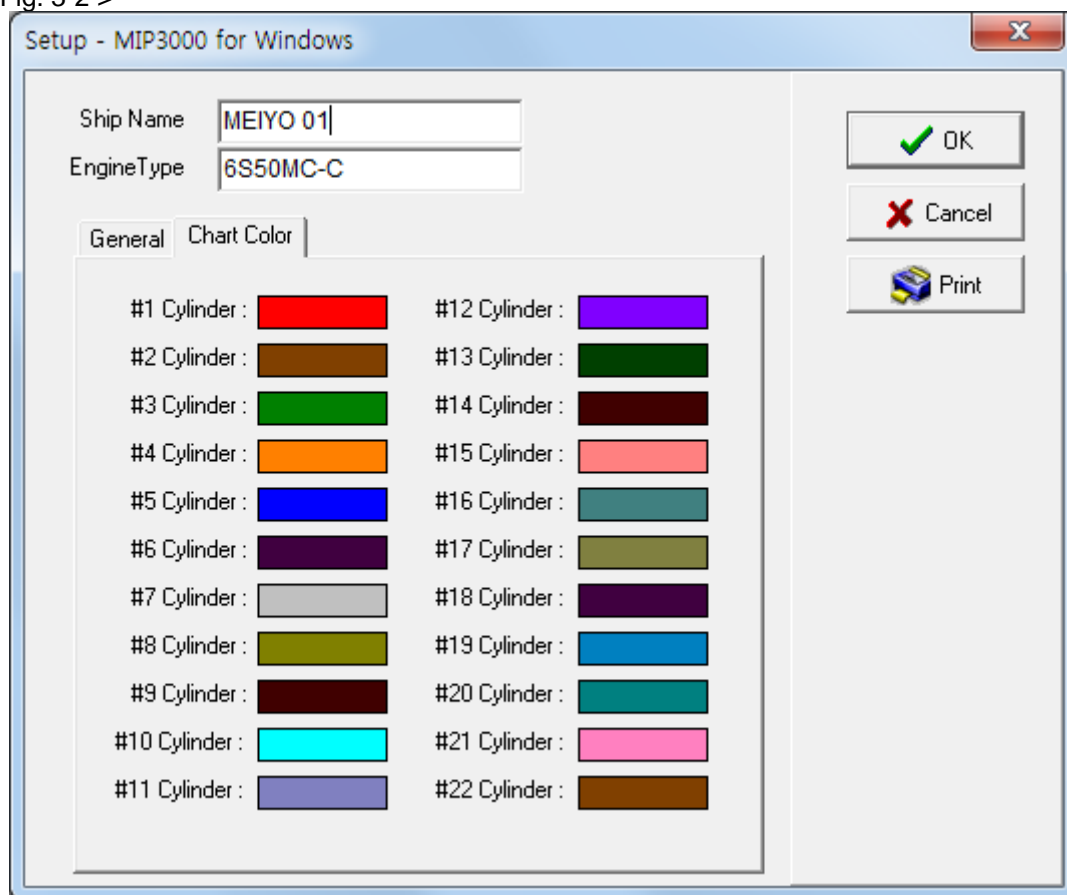
< Fig. 3-1 >

- [General]
  1. Input Ship Name and Engine Model and Engine Specification.
  2. For download measured data to PC by RS232C data cable, select Com. Port No. **(Refer 9.1 Check 'Com Port' at PC)**
- 3. [Analysis & Power Diagram]
  - 1) Chart left axis Max : Setup Max. & Min. pressure on diagram.
  - 2) Normal Pdiff : Setup color for Min. & Max. value of Pmax & Pcomp as Blue color below Min. value & Red color above Max. value.
- 4. [Comparison]
  - 1) Pressure Range : Setup value of graph
  - 2) Deviation Range : Display Red line on Comparison graph



Show color of each cylinder. < Fig. 3-2 > and User can change color by right click.

< Fig. 3-2 >



< Fig. 3-2 >

### 3.1 Com Port

For setup Com. Port No, User should confirm 9-pin communication port at backside of PC. < Fig. 3-1-1

>




< Fig. 3-1-1 >

- 1) PC has 9-pin port: confirm Com. Port No, by below pass.  
Desktop / My Computer(Right click)/ Prosperity/ System Registration / Hardware Manager / Com Port & LPT. (Please contact Meiyo Electric Co., Ltd. [www.meiyoelc.co.jp](http://www.meiyoelc.co.jp))
- 2) PC has not 9-pin port. : Use SD card reader when transfer measured data from MIP3000 to PC.

## 4. Transfer

### 4.1. Data Transfer from MIP3000 to PC

Click "Transfer"  button on Menu and select tool for data transfer. < Fig. 4-1 >



< Fig. 4-1 >

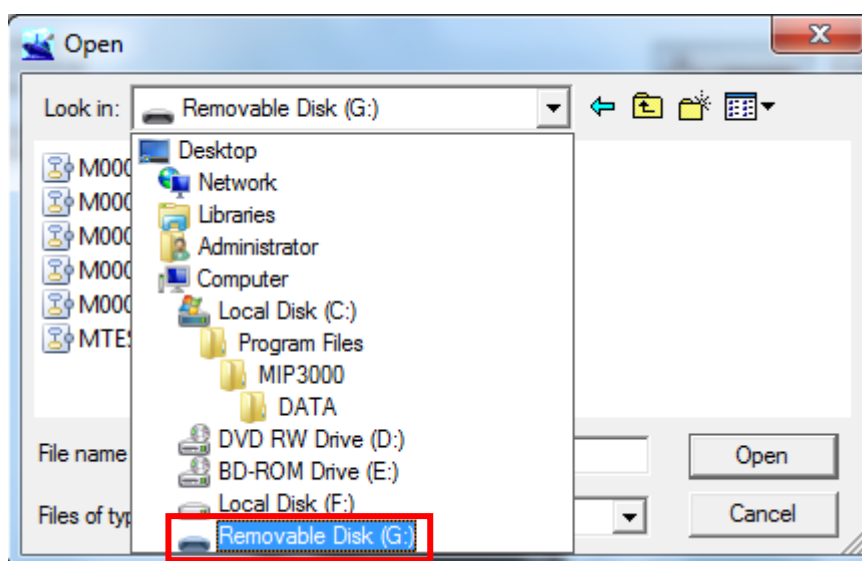
### 4.1.1. SD Card Reader

1. Push SD Card in MIP3000 for pull out and insert SD Card to SD Card Reader.

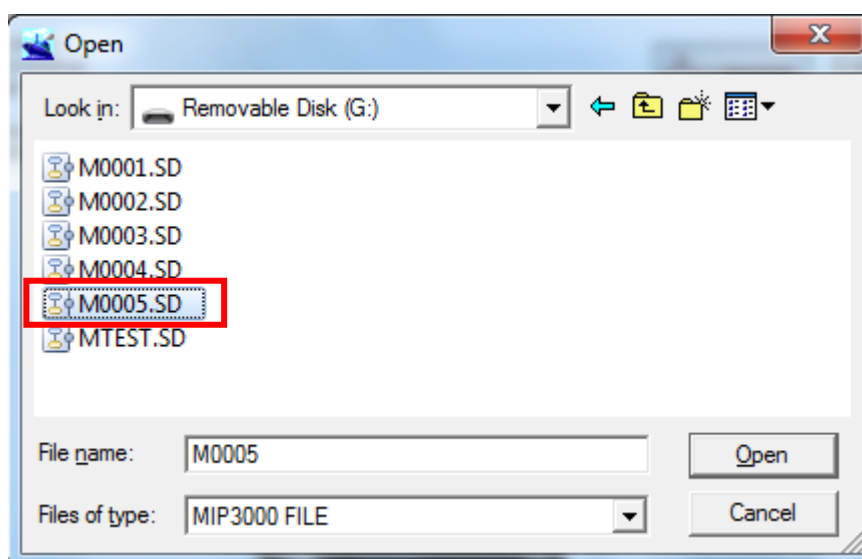


< Fig. 4-1-2 >

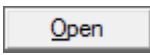
2. Insert SD Card Reader to PC USB Port, Select “SD Card Reader”  
**SD CARD READER** on program and select Removable Disc (MIP3000 SD CARD  
READER) < Fig. 4-1-3 >

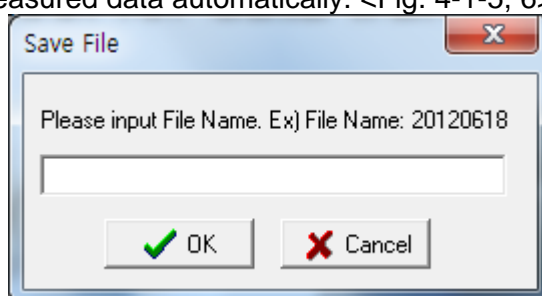


< Fig. 4-1-3 >

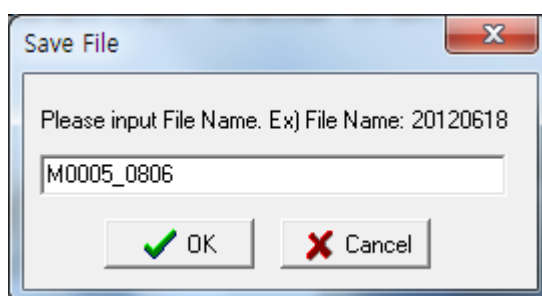


&lt; Fig. 4-1-4 &gt;

3. Select data file for transfer click “open”  and input new file name by English or number, then save new file name to C:>MIP3000>data. And show measured data automatically. <Fig. 4-1-5, 6>



&lt; Fig. 4-1-5 &gt;




&lt; Fig. 4-1-6 &gt;

4. Pull out SD Card Reader at PC and re-store SD Card to MIP3000.

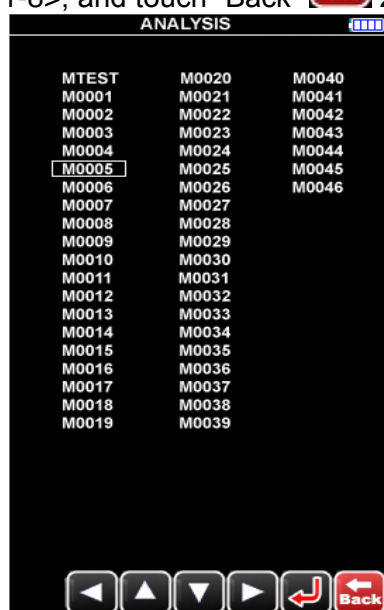
### 4.1.2. Serial Cable (Option)

Connect MIP3000 & PC by serial cable.

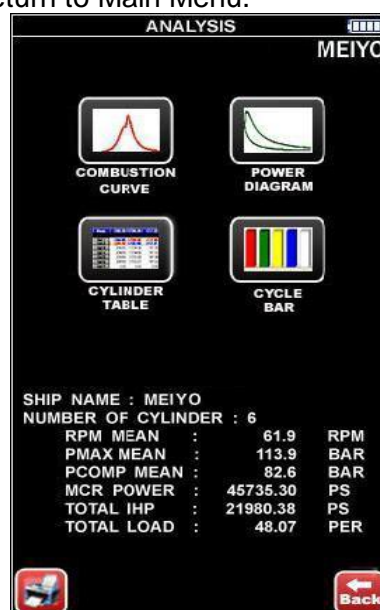
Touch “Analysis”  on Menu of MIP3000.

Select measured data file for transfer & touch “Enter”  for confirm measured data<Fig.


4-1-8>, and touch “Back”  2 times for return to Main Menu.



< Fig. 4-1-7 >




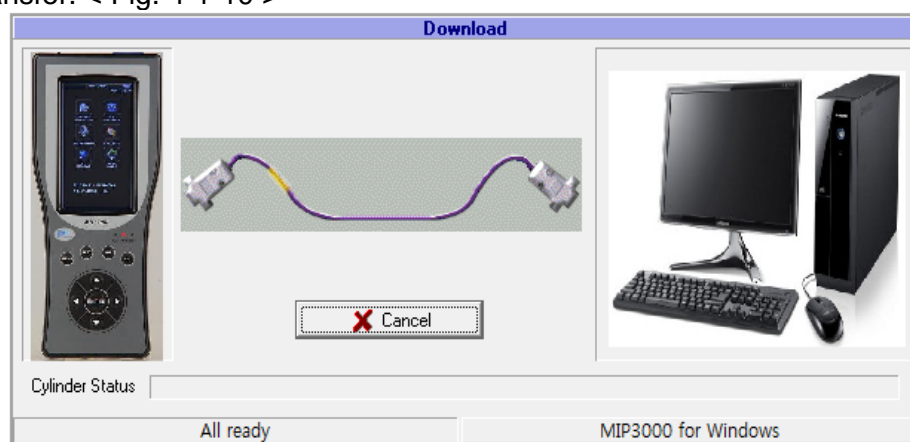
< Fig. 4-1-8 >

Select “PC Upload”  on Main Menu of MIP3000, then finish preparation of data transfer on MIP3000< Fig. 4-1-9 >




< Fig. 4-1-9 >

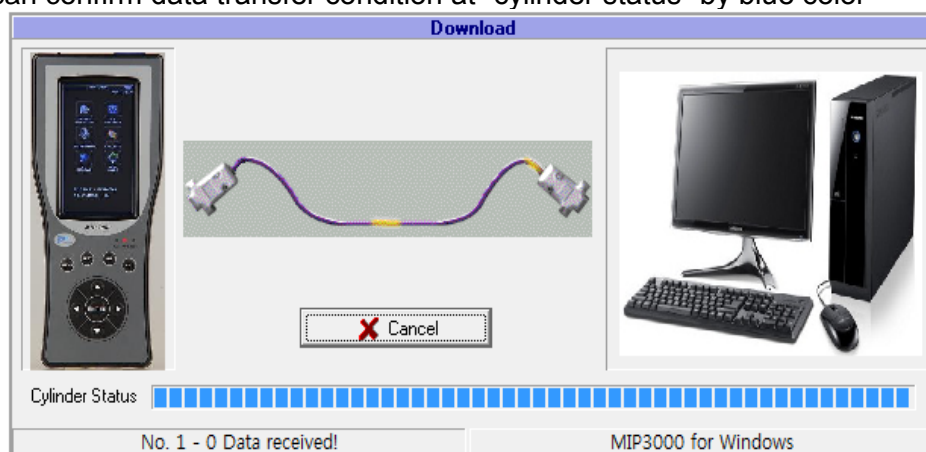
Select "Transfer" on Menu at program and select "Serial Cable"  for data transfer. < Fig. 4-1-10 >



< Fig. 4-1-10 >

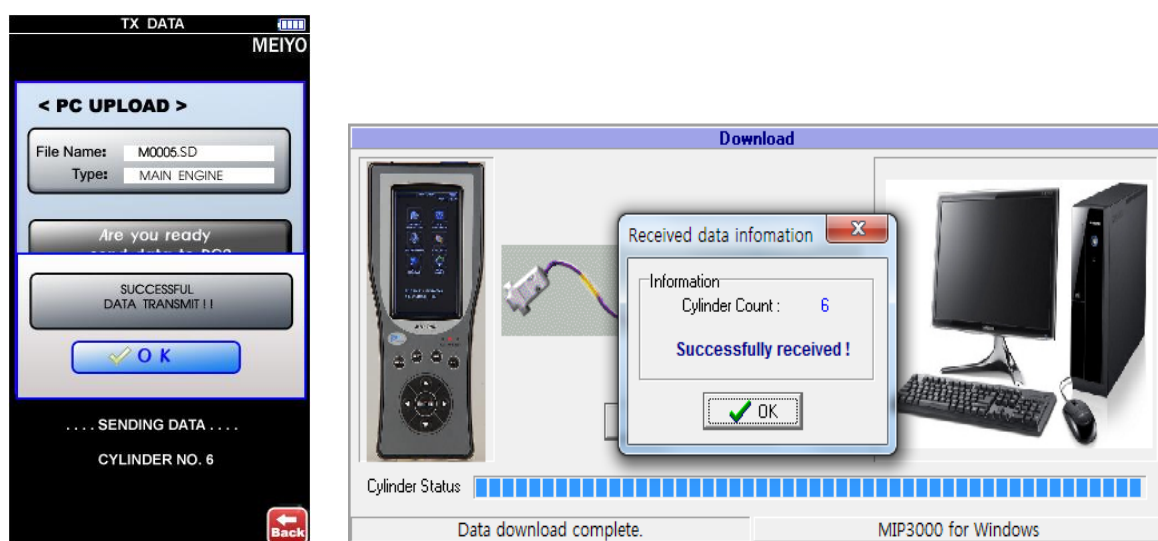
Click "OK"  button on MIP3000. < Fig. 4-1-9>

User can confirm data transfer condition at "cylinder status" by blue color





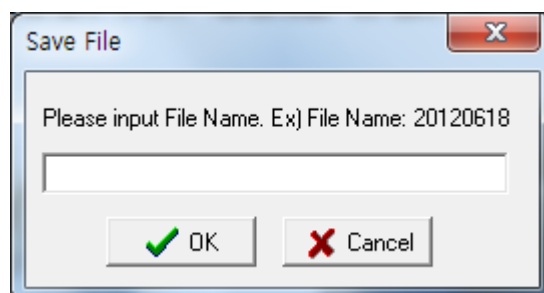
< Fig. 4-1-11 >

When complete data transfer, display transfer completion message on MIP3000 & PC.  
<Fig. 4-1-12>



&lt;Fig. 4-1-12&gt;

Click “OK”  on PC and input file name on “Save File” & click “OK”  for save file to C:\MIP3000\data and show measured data automatically. <Fig. 4-1-13>



&lt;Fig. 4-1-13&gt;

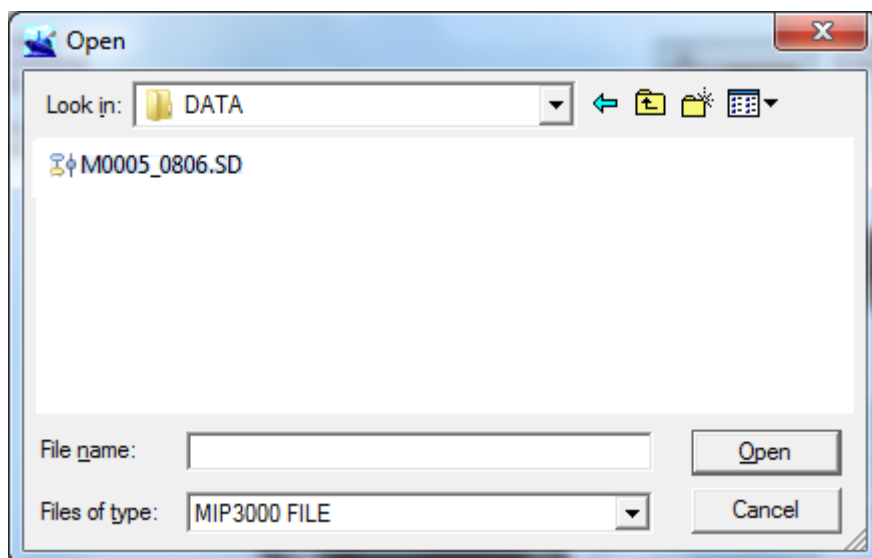
Click “OK”  on MIP3000.




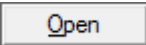
## 5. Open

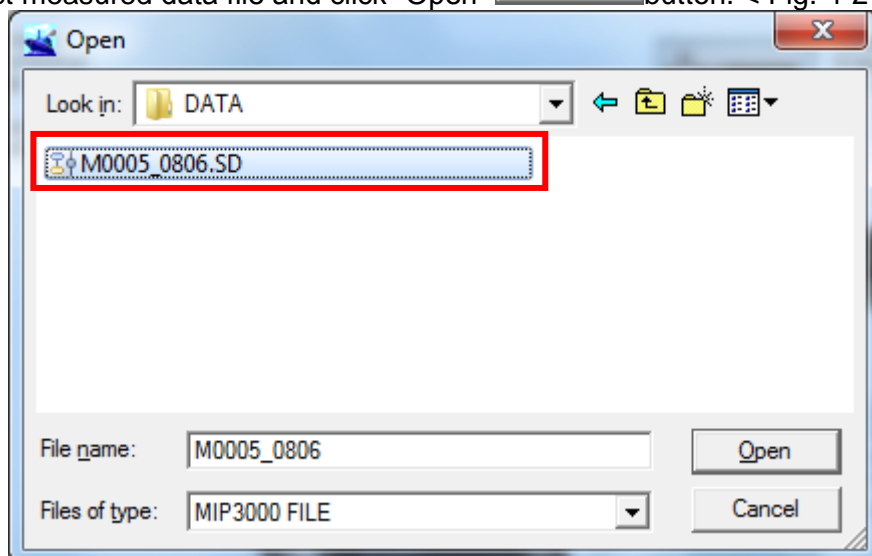
Show measured data in PC for further analysis with graphs & tables by select measure data file.

※ Default File Location: C:\Program Files\MIP3000\DATA



< Fig. 4-2 >

1. Click [File] - [Open] or “OPEN”  button. < Fig. 4-2 >
2. Select measured data file and click “Open”  button. < Fig. 4-2-1 >



< Fig. 4-2-1 >

## 6. Analysis

Analysis & Comparison of data are 3 taps as [analysis], [reference], [comparison].

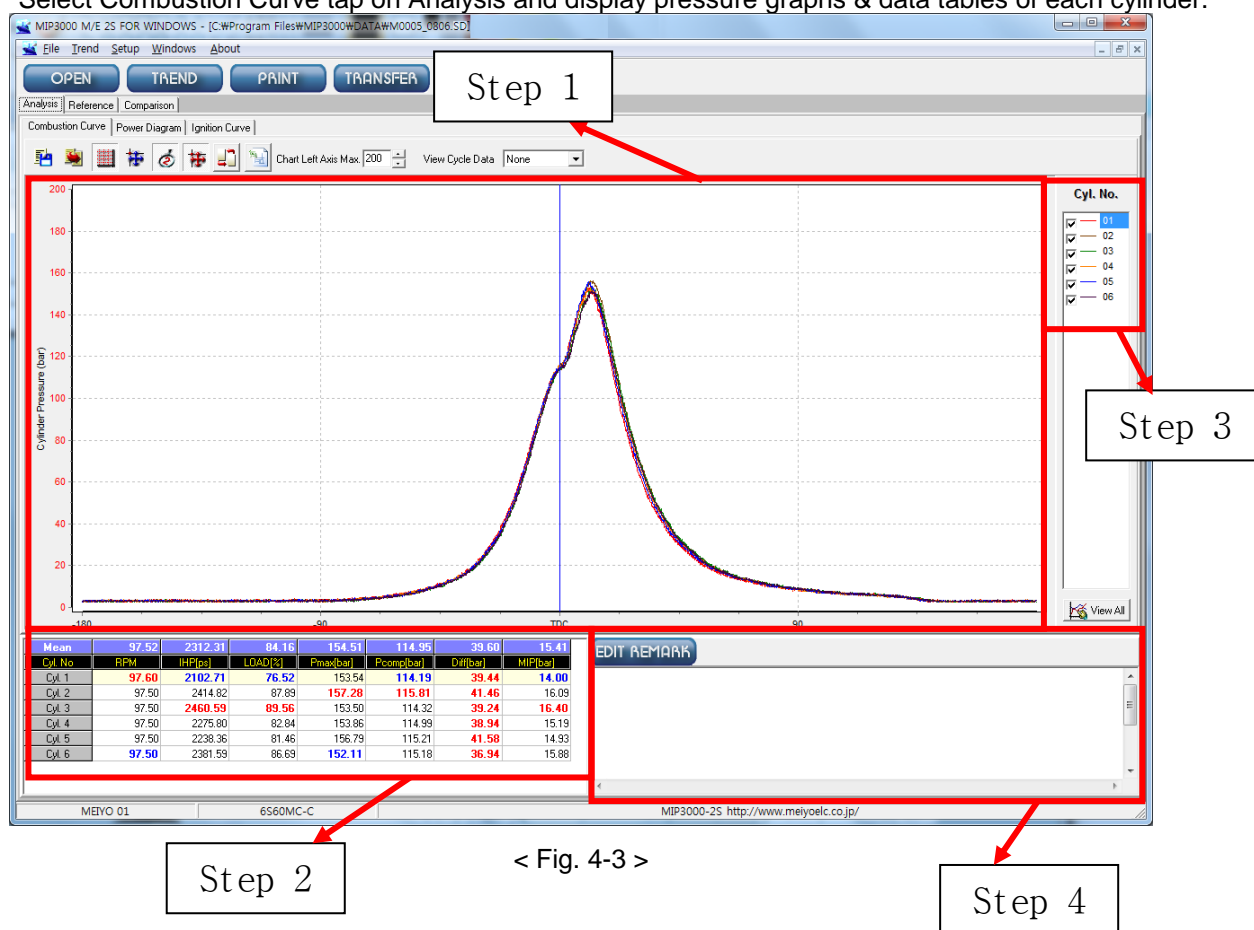
Display graphs & tables which selected by user.

Compare present measured data with another measured data which have  $\pm 1$  rpm deviation.

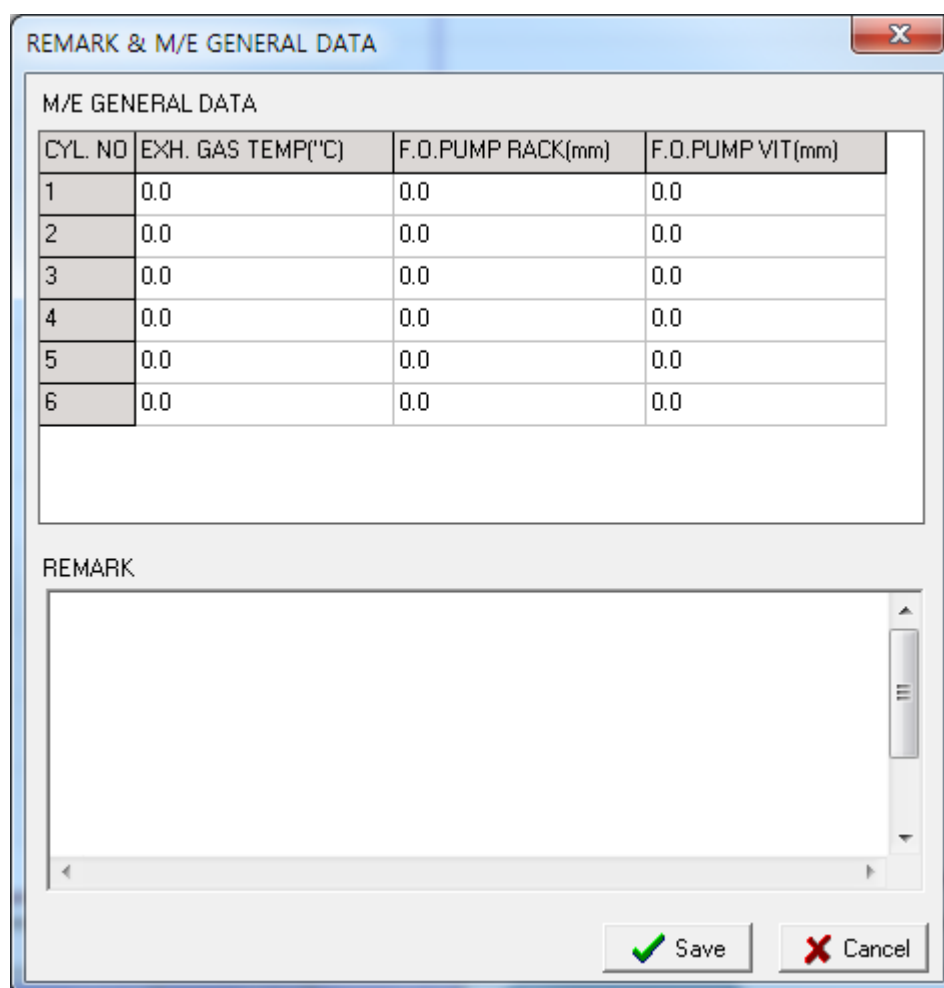
Display & compare bar graphs within each cylinder's pressure & power difference.

### 6.1 Combustion Curve (P-A Graph)

Select Combustion Curve tap on Analysis and display pressure graphs & data tables of each cylinder.



1. Display mean Combustion pressure graphs of each cylinder.
2. Show data tables of each cylinder & mean value of RPM, pressure, power & difference.
3. Show each & all cylinders graph by check Cyl. No.
4. Show original file name with setup data which saved in MIP3000 and User can edit remarks by click "Edit Remark" **EDIT REMARK** button.



REMARK & M/E GENERAL DATA

M/E GENERAL DATA


CYL. NO	EXH. GAS TEMP(°C)	F.O.PUMP RACK(mm)	F.O.PUMP VIT(mm)
1	0.0	0.0	0.0
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0

REMARK









Save Cancel

&lt; Fig. 4-3-1 &gt;

According to ship's needs, User can input M/E EXH. GAS TEMP(°C), F.O. PUMP RACK(mm), F.O. PUMP VIT(mm) data, sea condition & wind force & etc.

After completion of input data, Click  Save .

## 5. Function of Toolbar Icon.

- ①  : The upper area of the window except the lower area indicating values for each cylinder is saved in a BMP file (bitmap).
- ②  : The upper area of the window except the lower area indicating values for each cylinder is saved in the clipboard for further operation in a BMP file (bitmap) or a word processor.  
Run the appropriate program and select Edit-Paste to insert the BMP file into a document, or edit further.
- ③  : Shows gridlines of the chart.
- ④  : Shows the horizontal and vertical coordinate lines of the mouse pointer.
- ⑤  : When want to see graph more minutely, drag for left button on mouse from left upper to right lower of part that want to see. Can magnify continually in the same manner. When want to undo, drag for left button on mouse from right lower to left upper of graph.
- ⑥  : Shows the vertical coordinate line of the TDC.
- ⑦  : Mean Combustion Pressure value per 0.1° : s save in a txt file.
- ⑧  : Mean value table of each cylinder save in a CSV file (Excel file).
- ⑨ Chart Left Axis Max.  : Set Y - AXIS limit value (Range 0~250 Bar).
- ⑩ View Cycle Data  : Show pop-up screen for 10 cycle data of each cylinder. < Fig 4-3-2 >

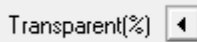
C:\Program Files\MIP3000\DATA\M0005\_0806.SD]

Transparent(%)

### Cycle Data of No. 1 Cylinder

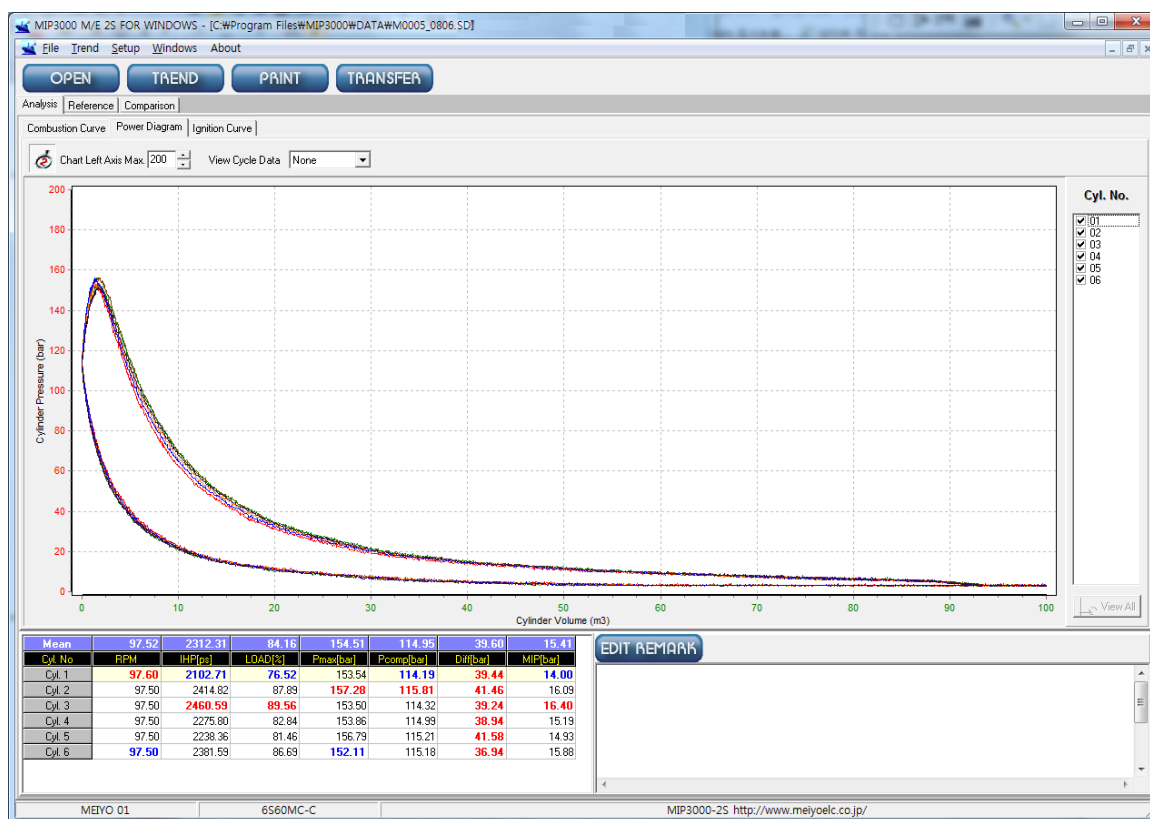
Mean	97.60	2103.09	76.54	153.20	113.45	39.78	14.00
Cyc. No.	RPM	IHP[ps]	LOAD[%]	Pmax[bar]	Pcomp[bar]	Diff[bar]	MIP[bar]
Cyc. 1	97.60	2099.90	76.40	153.20	113.50	39.70	14.00
Cyc. 2	97.60	2105.60	76.60	153.50	114.80	38.80	14.00
Cyc. 3	97.60	2098.50	76.40	153.20	112.90	40.30	14.00
Cyc. 4	97.60	2101.60	76.50	153.50	113.90	39.70	14.00
Cyc. 5	97.60	2124.60	77.30	153.20	114.50	38.80	14.10
Cyc. 6	97.60	2093.10	76.20	153.20	113.50	39.70	13.90
Cyc. 7	97.60	2104.50	76.60	152.90	112.90	40.00	14.00
Cyc. 8	97.60	2107.00	76.70	153.20	113.20	40.00	14.00
Cyc. 9	97.60	2102.60	76.50	152.90	113.20	39.70	14.00
Cyc. 10	97.60	2105.00	76.60	153.20	113.20	40.00	14.00

< Fig 4-3-2 >

- ⑪  : User can adjust the degree of Clearness.

## 6.2 Power Diagram(P-V Graph)

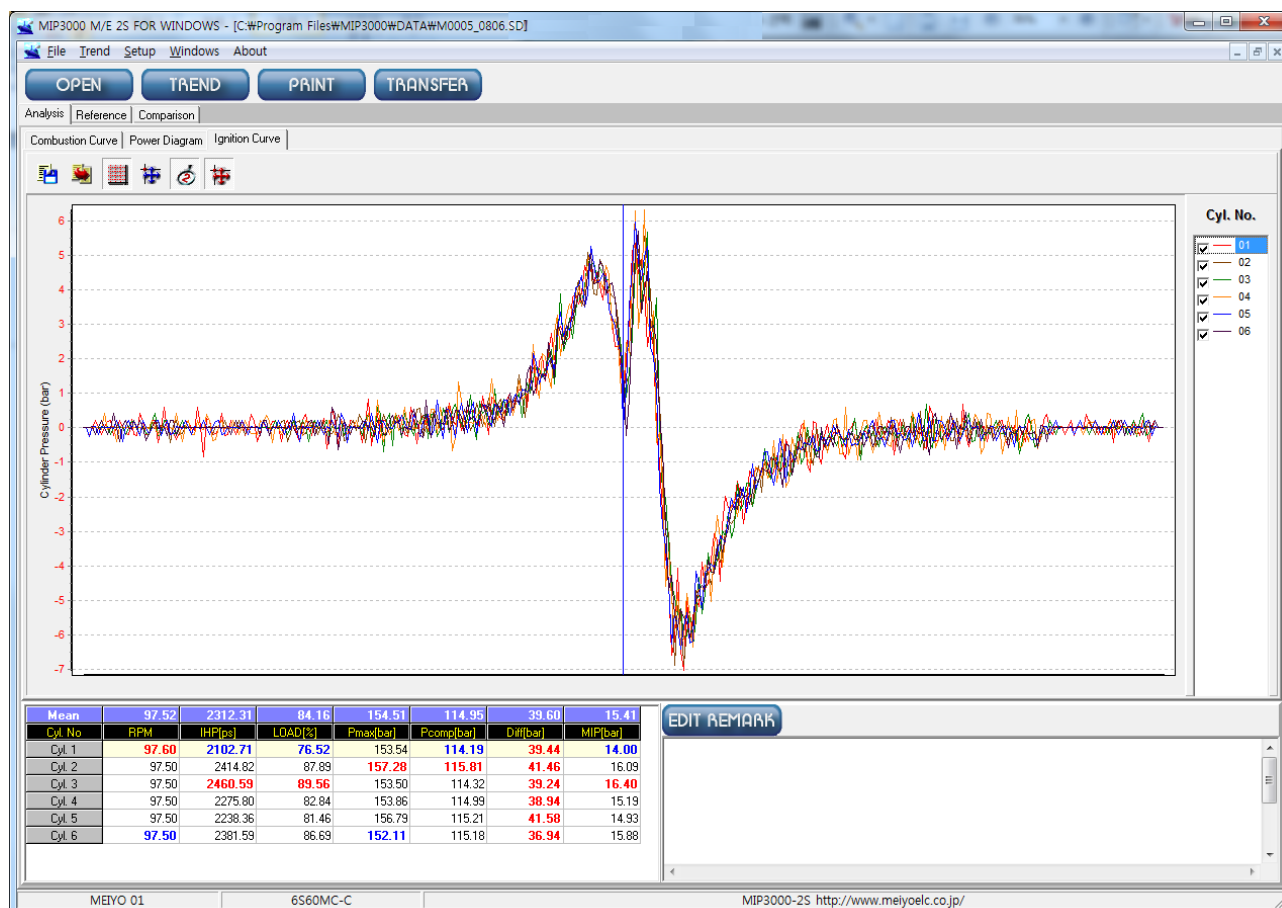
Select power diagram **Power Diagram** on Analysis and display power graph with mean data table.



< Fig 4-3-3 >

## 6.3 Ignition Curve (P-I Graph)

Select Ignition Curve **Ignition Curve** on “Analysis” and display Ignition graph of each cylinder.



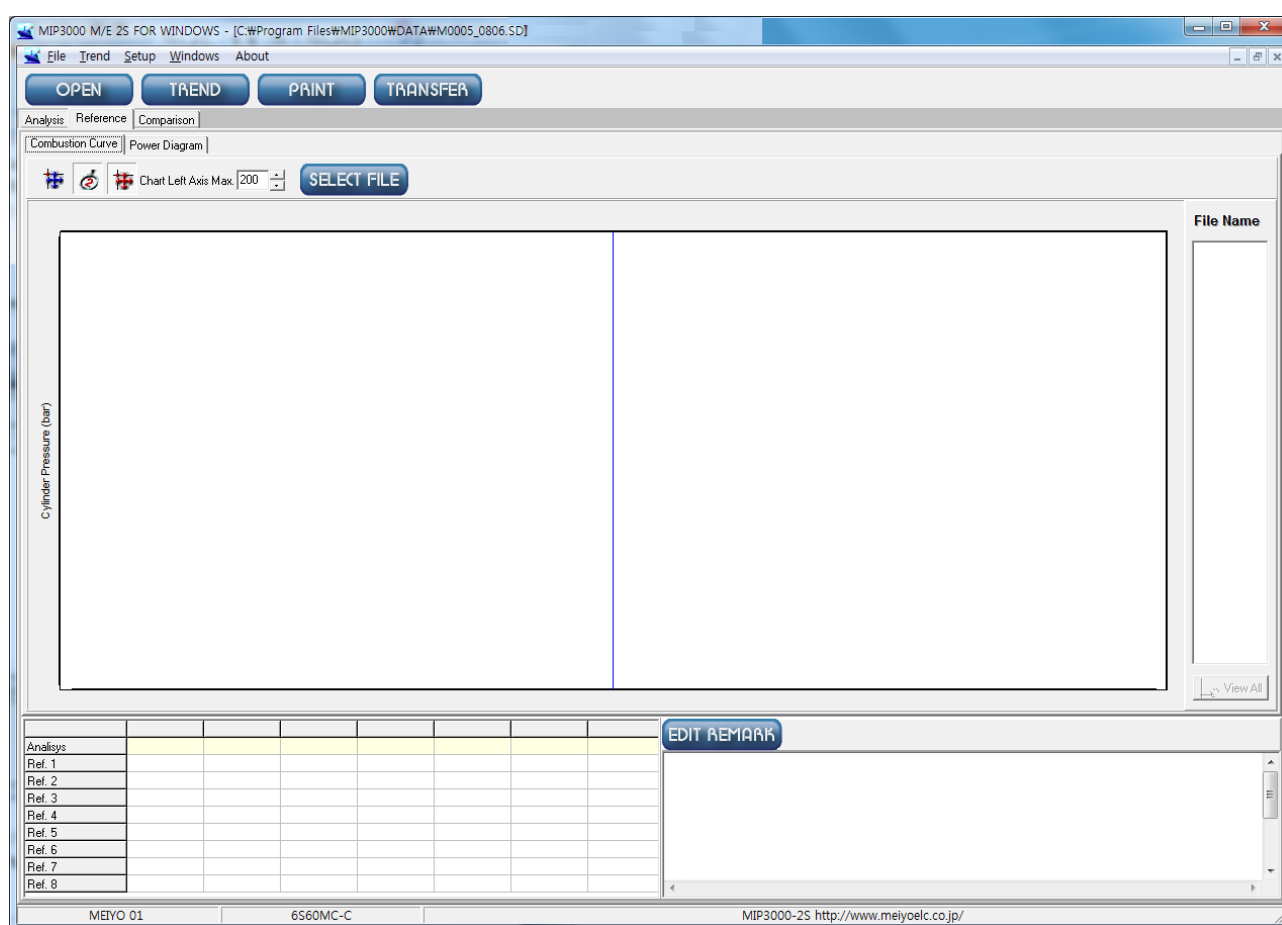
< Fig 4-3-4 >

## 7. Reference

Compare present measured data with measured data file (max 8 files) which has  $\pm 1$  RPM deviation  
 “Reference” have 2 taps as [combustion curve] & [power diagram]

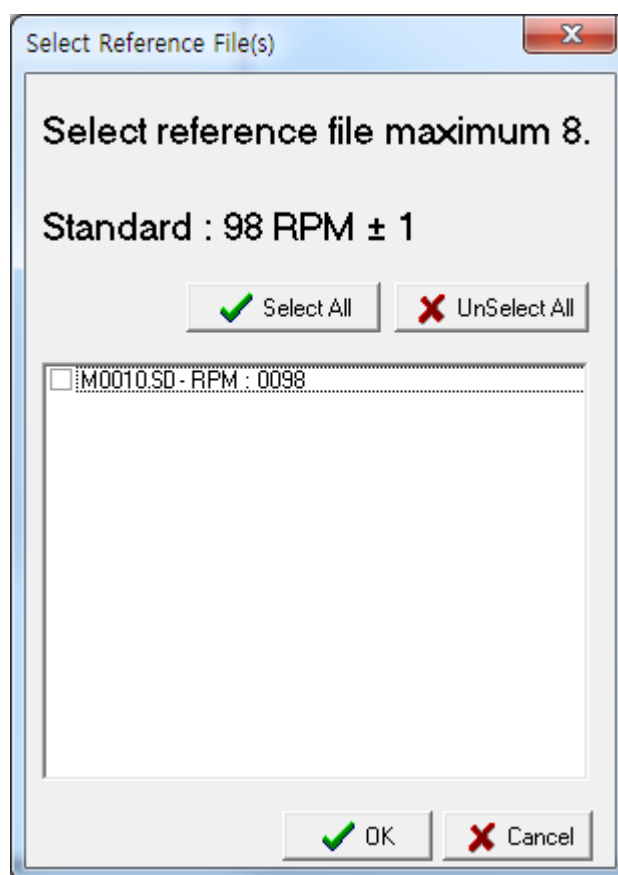
### 7.1 Combustion Curve (P-A Graph)

Select “REFERENCE” **Reference** . < Fig. 4-4 >

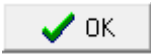




< Fig. 4-4 >

1. Select “Select File” **SELECT FILE** button & display “Select Reference File” window for select Max. 8 reference file which have within  $\pm 1$  rpm deviation < Fig. 4-4-1 >.

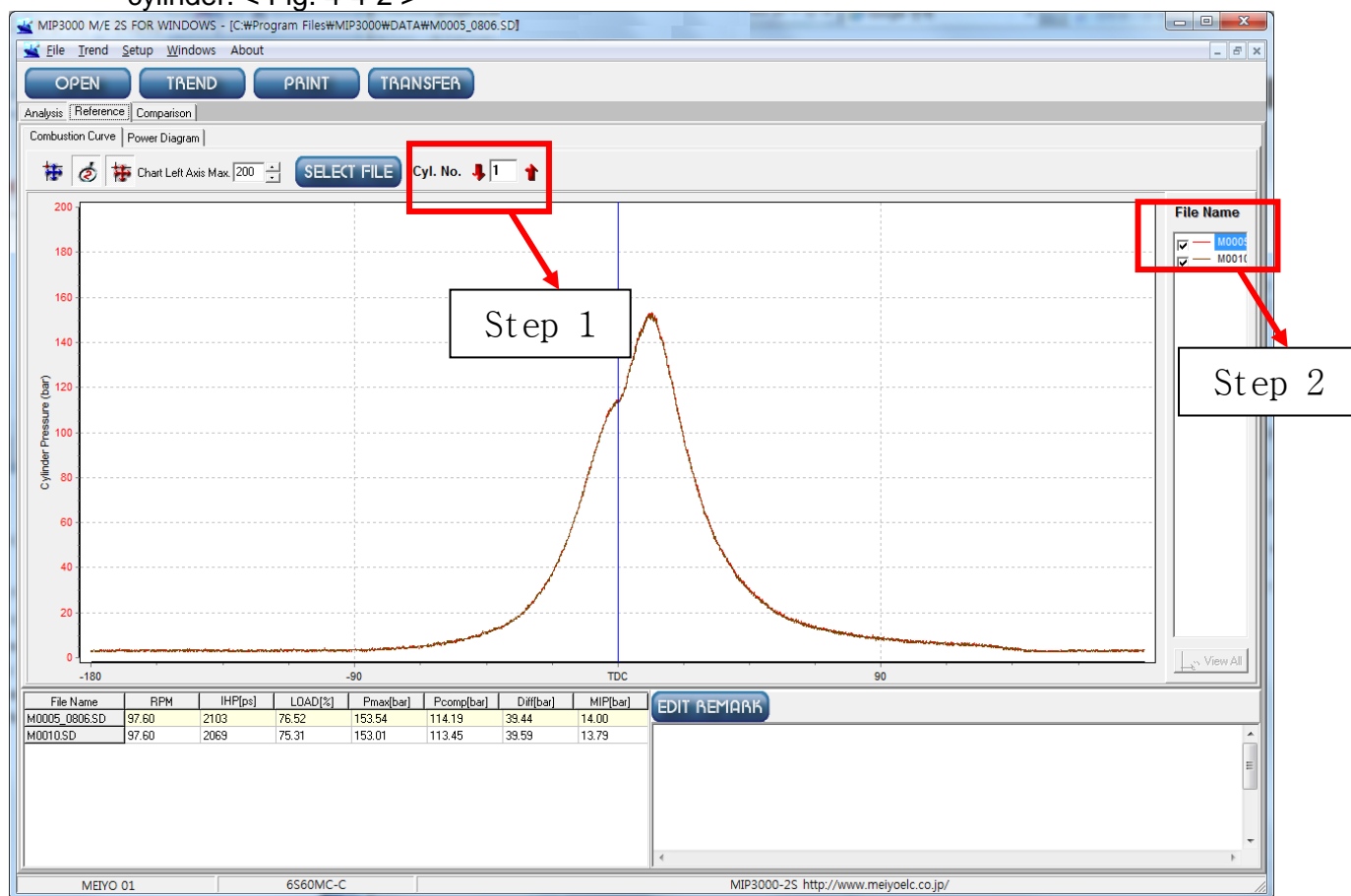


&lt; Fig. 4-4-1 &gt;

2. Check measured file which want to comparison and click "OK"  select all files on "select reference file(s)"
3.  select all files on "select reference file(s)" window,  
 delete all check mark on "select reference file(s)" window .



4. After select compared measured file, User can compare with graphs & data on one cylinder. < Fig. 4-4-2 >

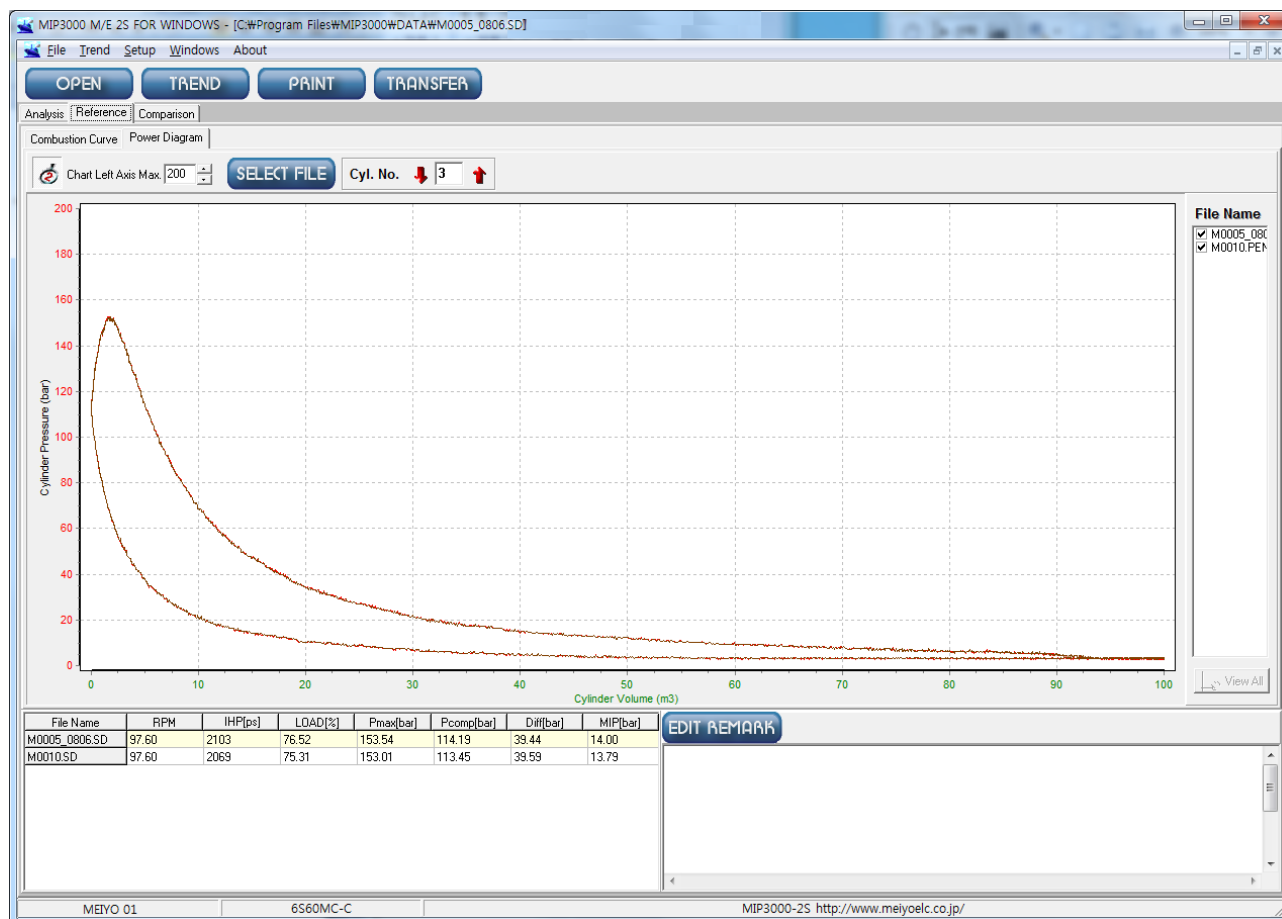


< Fig. 4-4-2 >

- 1). Move to each cylinder  for compare pressure graphs & data
- 2). Show each graphs by click "file name" check box .

## 7.2 Power Diagram (P-V Graph)

Select Power Diagram Power Diagram on "reference" and show P-V graphs & data table.




< Fig. 4-4-3 >

## 8. Comparison

On the basis of mean value of all cylinders, compare Pmax, Pcomp, Power, Pi, Pdiff of each cylinder.



< Fig. 4-5 >

1. 

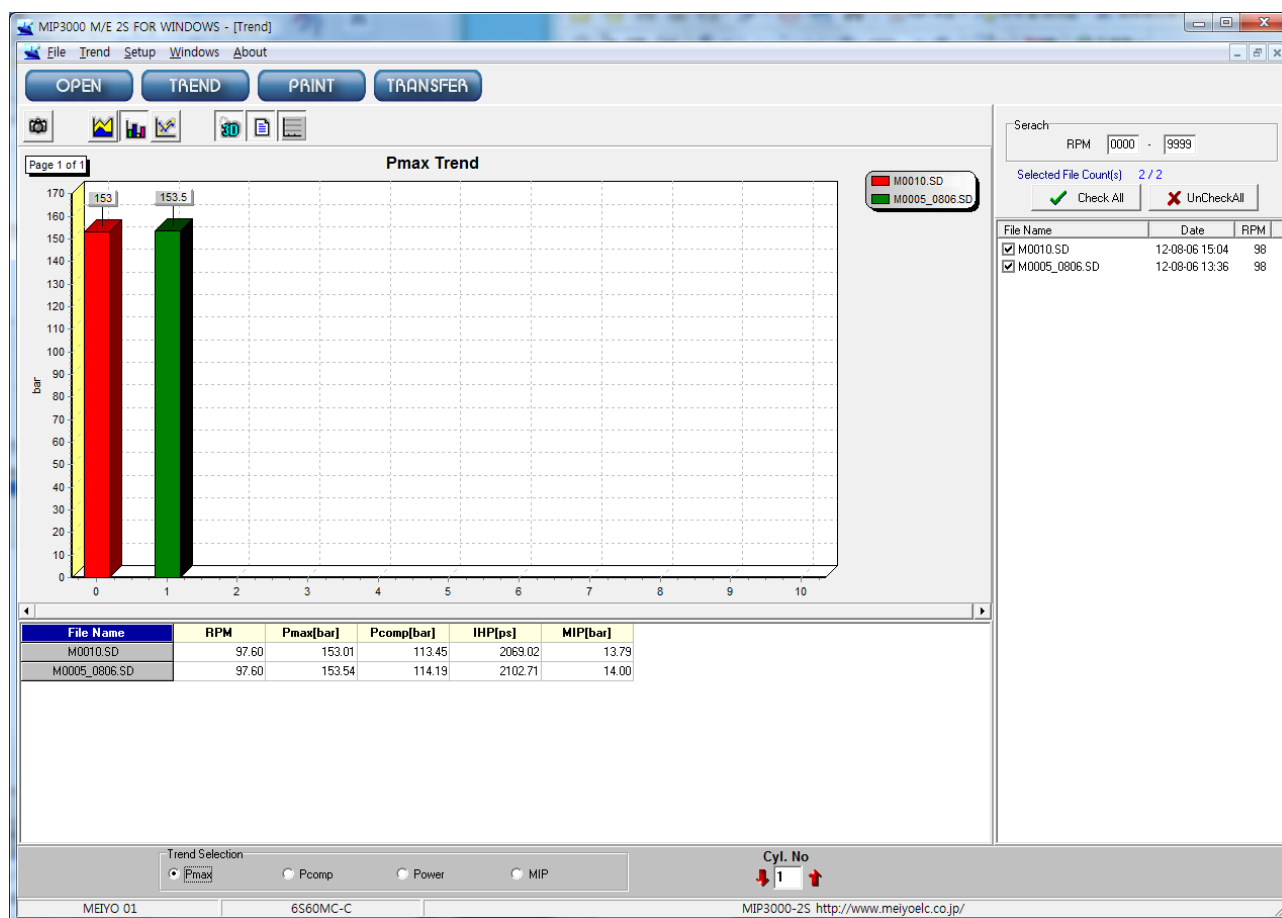
: Select a factor which wants to comparison.

2. User can setup for Y-Axis limit & deviation range at "Setup".
3. Red line (deviation range) use to show excessive difference of each cylinder.

## 9. Trend

After click **Trend** or **TREND**, according to user's selection with RPM range, display selected data by bar graph & table.

Show only 1 cylinder data and move to another cylinder by **Cyl. No.** **1** function.



< Fig. 4-6 >

1. User can compare all files by graphs & tables which saved in data folder of MIP3000.


2. Function of Toolbar icon

- ① : Save present graph in a bmp file.
- ② : Change to Region Graph
- ③ : Change to Bar Graph.
- ④ : Change to Line Graph..
- ⑤ : Change to 3D graph.

⑥  : Display Graph's value on graph.

⑦  : Marked Gridline on graph.

### 3. Function of Tabs

①  : Search RPM [0000] - [9999] : User input RPM range which want to comparison.

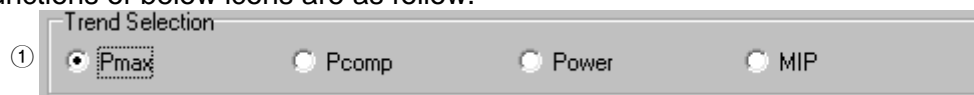
②  Check All : Select all file's on file list.

③  UnCheckAll : Delete check mark on file list.

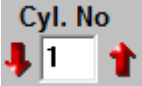
	File Name	Date	RPM
④	<input checked="" type="checkbox"/> M0010.SD	12-08-06 15:04	98
	<input checked="" type="checkbox"/> M0005_0806.SD	12-08-06 13:36	98

: Show file box according to RPM range, display graph and data table by check mark.

### 4. Functions of below icons are as follow.



: Select a factor (Pmax, Pcomp, Power, Pi) which want to comparison

②  : Select cylinder No. Which want to comparison

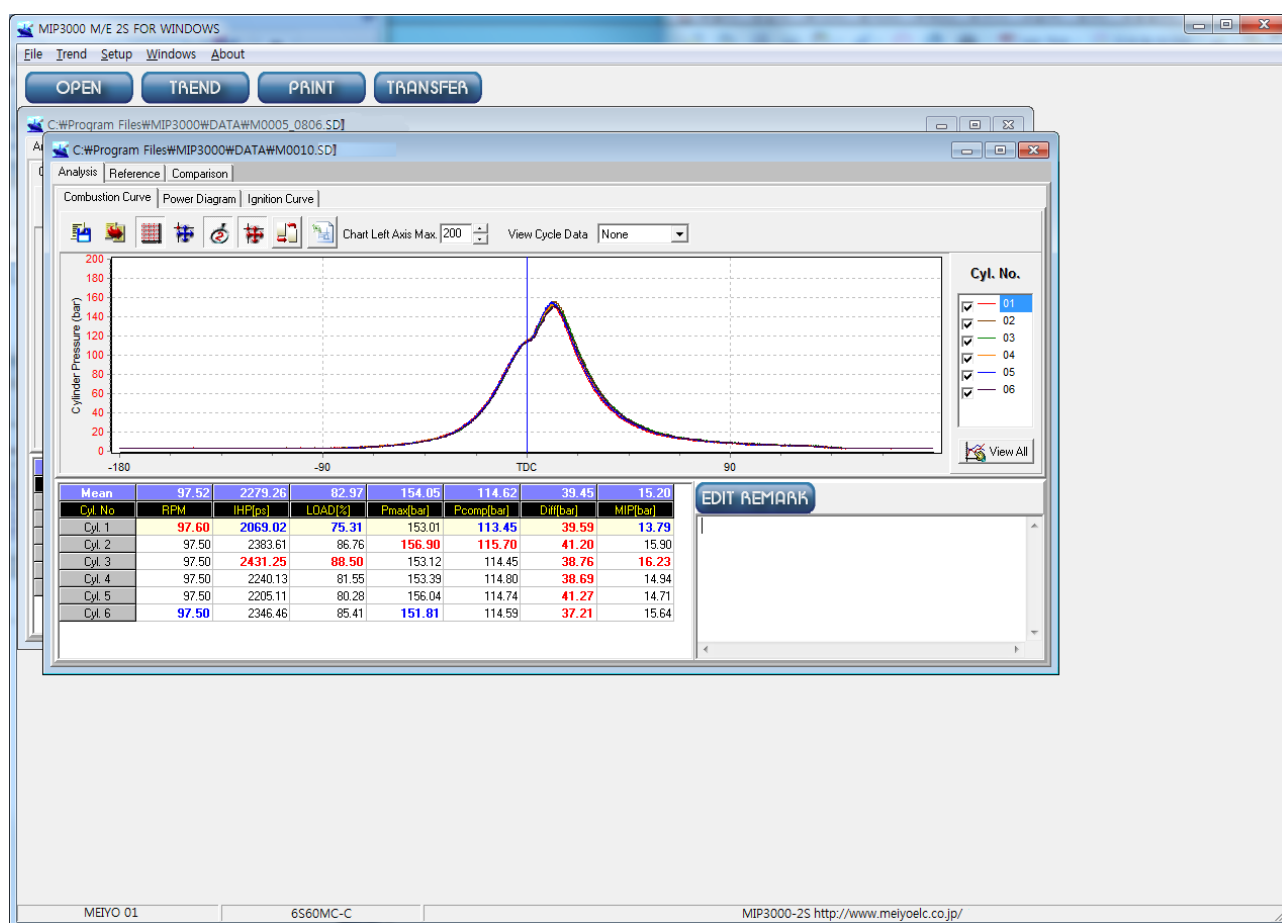
5. File box display 20 data file according to RPM data and can move to above 20files by scroll bar.

## 10. Windows

When executed over two windows, click windows on Menu and can lined up by cascade, tile horizontally, tile vertically type.

### 1. Cascade

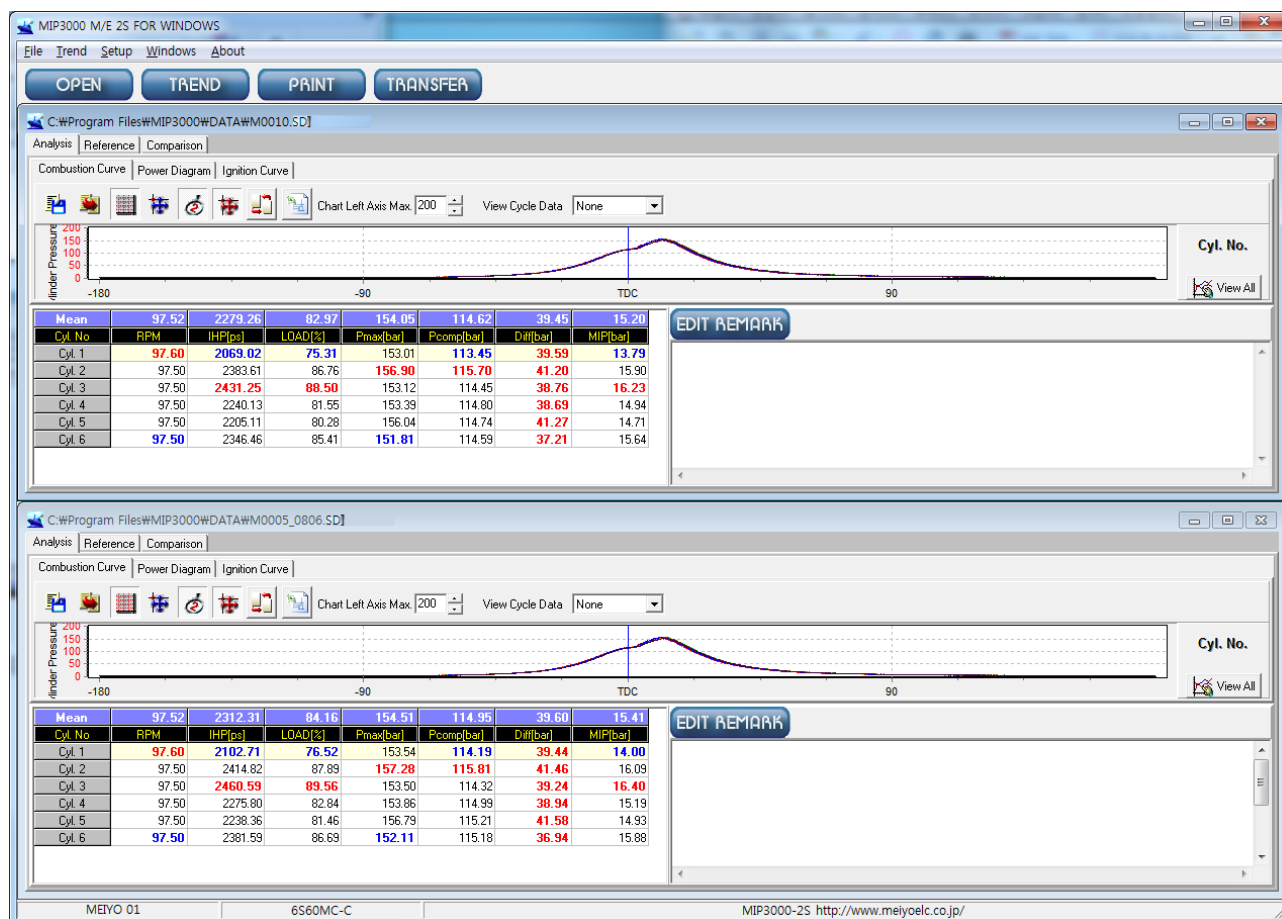
Lined over 2 windows by cascade type. < Fig 4-7-1 >



< Fig 4-7-1 >

## 2. Tile Horizontally

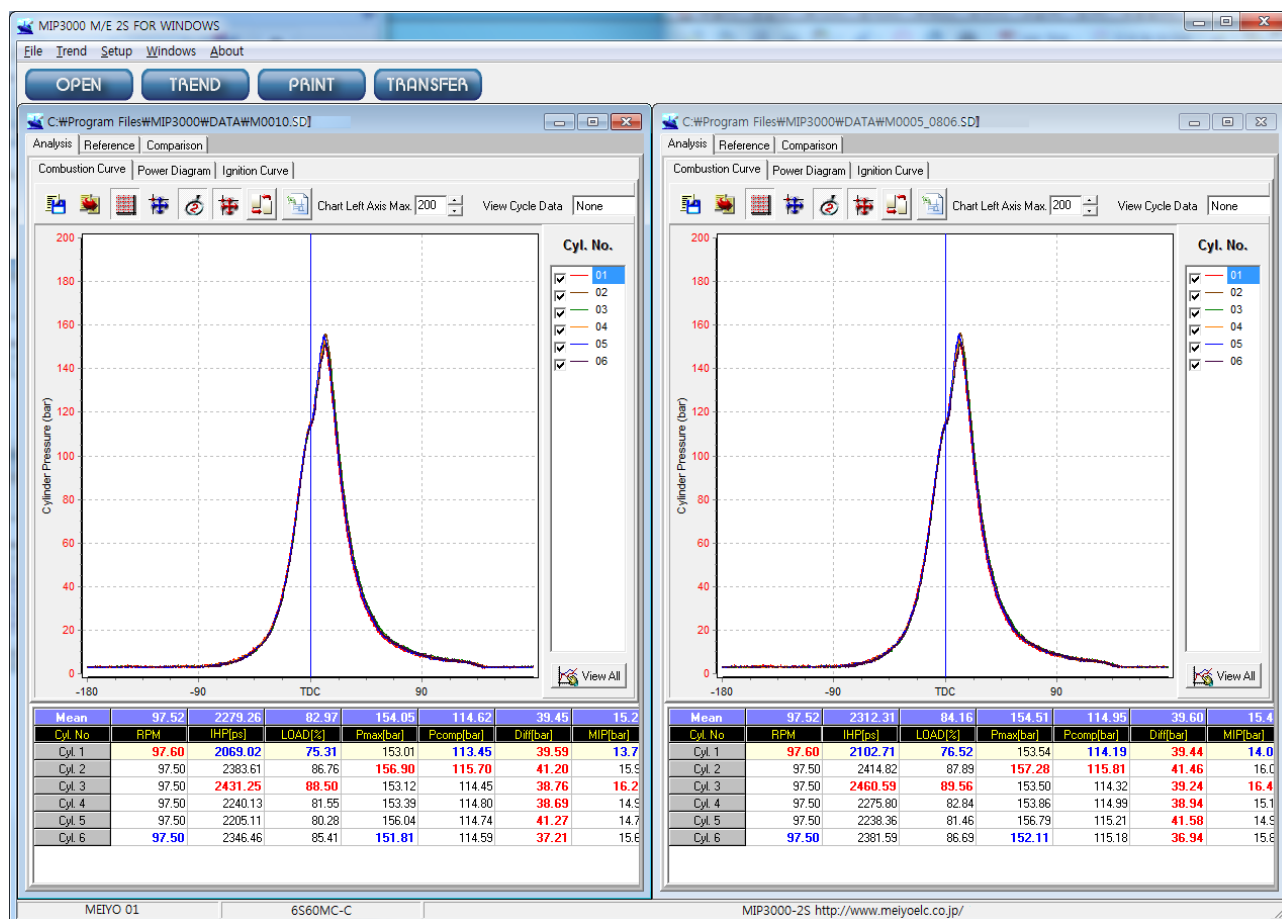
Lined over 2 windows by Horizontally type.< Fig 4-7-2 >



< Fig 4-7-2 >

### 3. Tile Vertically


Lined over 2 windows by vertically type. < Fig 4-7-3 >

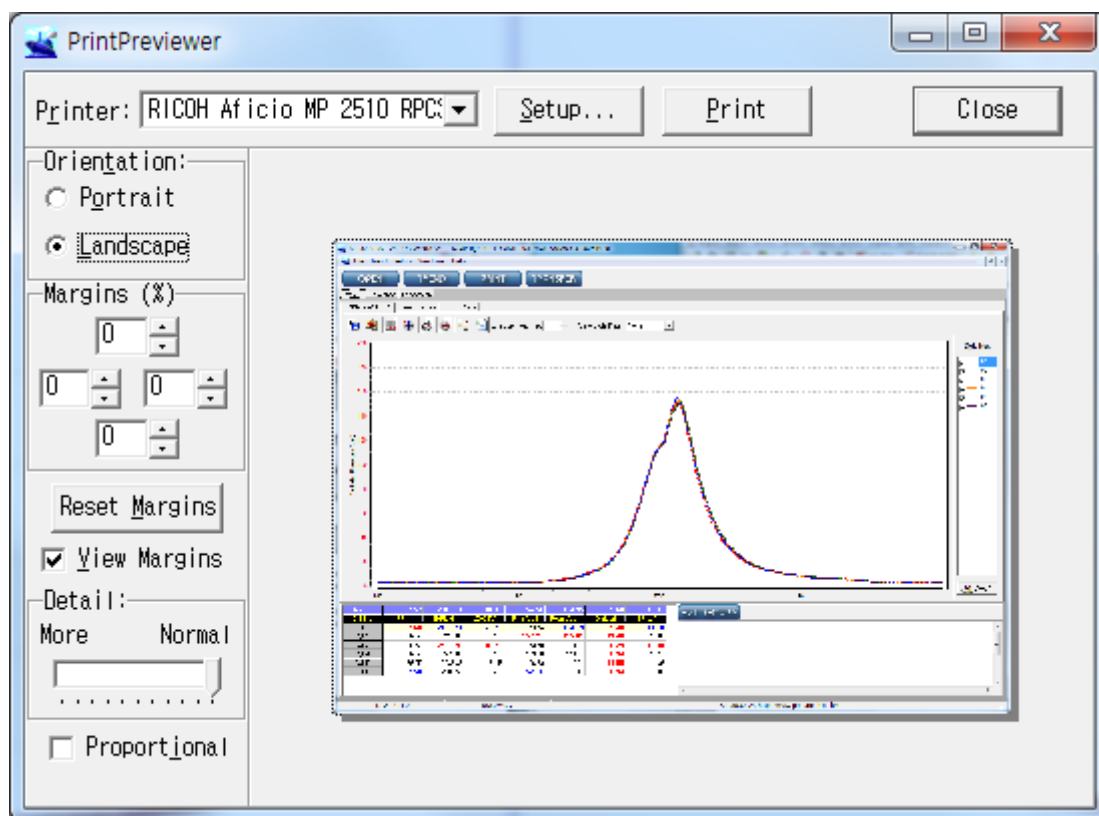


< Fig 4-7-3 >



## 11. Windows Print

Click "Print"  for print present screen out by printer. <Fig 4-8 >



< Fig 4-8 >

1. Printer : Select connected print at PC.
2. Setup : Setup kind of paper, paper direction & etc.
3. Orientation : Change print direction.
  - A. Portrait: Vertical direction
  - B. Landscape: Horizontal direction
4. Margins (%) : Setup paper margins(%)
5. Detail : Setup print clearness.
6. Proportional : Setup paper margins automatically according to screen proportion.
7. Print : Print present screen.
8. Close : Close print screen.



**MEIYO ELECTRIC CO., LTD**

[www.meiyoelc.co.jp](http://www.meiyoelc.co.jp)

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