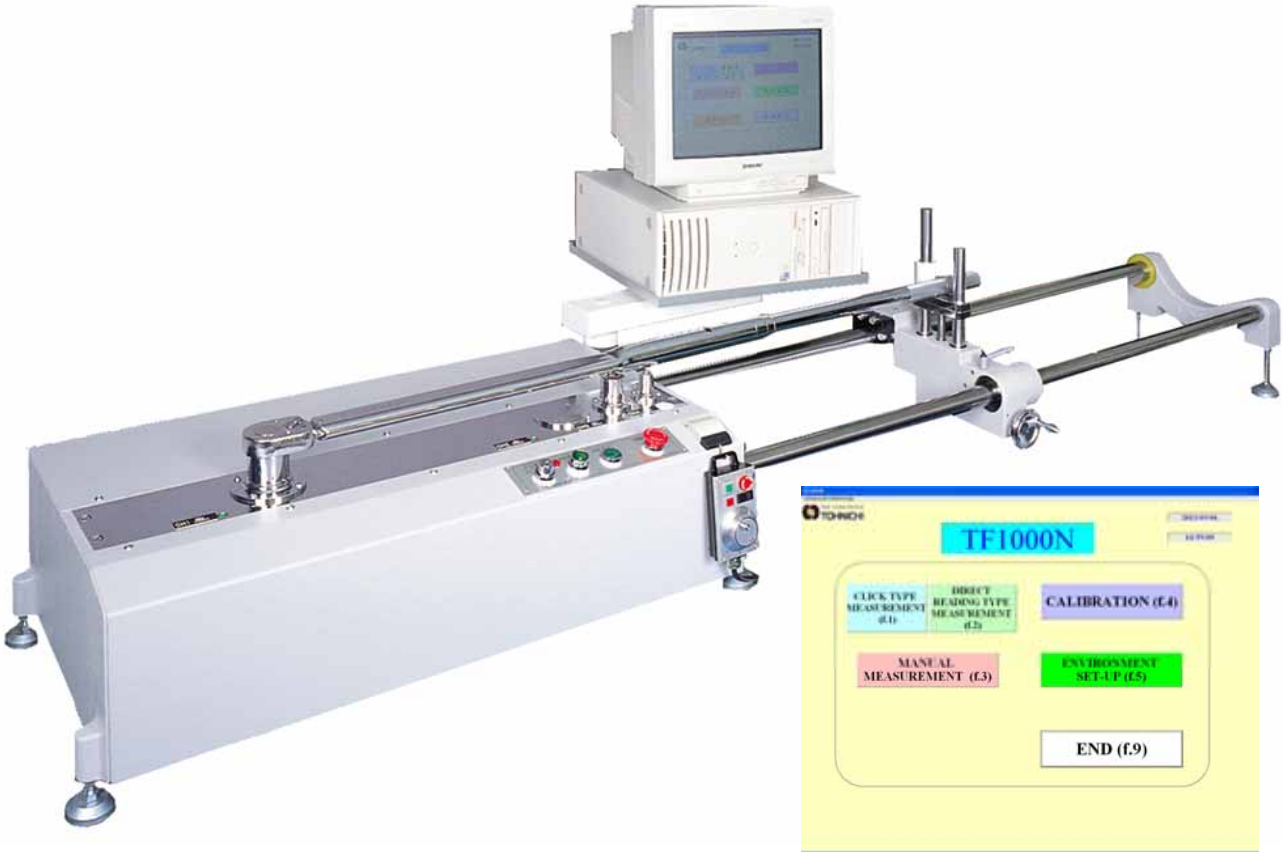
TF

FULL AUTOMATIC TORQUE WRENCH TESTER

OPERATING MANUAL



TOHNICHI

SAFETY INSTRUCTIONS

1 Make sure you have read and understand these safety instructions before operating.
2 It is critical that all safety instructions be followed, or serious injury to the operator or failure of the tester may result. Only those persons trained and authorized to operate this tester should do so.

TERMS

Tester in this manual refers to TF model torque tester from Tohnichi. Safety notice symbol. This symbol indicates that caution should be exercised. These symbols must never be ignored, as they indicate possible danger and risk of injury.

Signal word. A signal word will show the relative danger as follows:

Danger	:	Death or serious injury likely if safety instructions are not followed.
Warning	:	Serious injury possible if safety instructions are not followed.
Notice	:	Injury possible if safety instructions are not followed.

Please observe the following:

WARNING

Never use the tester near flammable materials or gases, as fire or explosion may result. Do not disassemble the tester or any part of the tester, or remove any covers to prevent death or serious injury from electric shock. Damage to the tester may also result. Never insert anything into the machine, except for purposes of adjustment or repair, and then only those performed by persons authorized and trained for those purposes.

NOTICE

Do not subject the tester to extreme temperatures; excessive humidity or moisture; intense vibration. Keep the tester on a surface that offers stability and is strong enough to support its weight. Failure to do this may result in damage or destruction of the tester.

Don't bend, crimp, or twist the power cable or controller cable. This may damage the insulation, and cause shorts or risk of fire or electric shock.

Unplug the tester from the electrical outlet if the tester will be unused for lengthy periods.

Never stand or climb on the tester, or place anything on it, other than wrenches to be tested or accessories intended and designed for use with the tester.

If the tester fails to perform properly, follow proper lock-out, tag-out procedures, if you have instituted them, or turn off the tester, disconnect it from power, and contact your authorized Tohnichi dealer.

COPYRIGHT NOTICE

If you have any questions or find any errors, please contact the Tohnichi sales offices closest to you. (See the address of the back page of this manual.)

CONTENTS

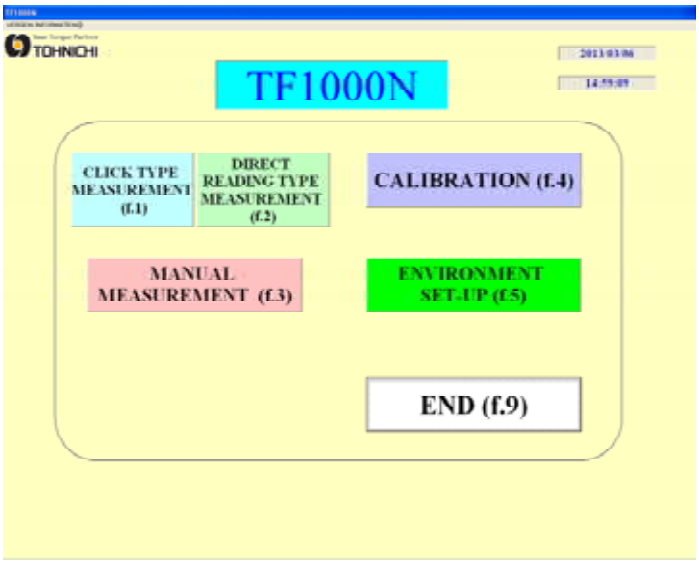
Congratulations on the purchase of your new digital, fully automatic Tohnichi model TF Torque Tester. We appreciate your business, and we are sure you will be very pleased with the easy operation and functionality of your Tohnichi TF Torque Tester.

This manual will serve as an easy reference guide. Please keep it near the tester, so operators can refer to this manual as needed.

Before operating the tester, please be sure that you have read and fully understand the Safety Instructions.

Characteristics and Accessories

After selecting the model of wrench to check, the tester will perform automatic measurement and judgment. First enter model names on the master. When this has been done, select the wrench model, set the torque, choose the channel setting, input the accuracy, measurement cycle, and the mode, PEAK or RUN, and the measurement points will be set automatically.



Easy operation computer display

Graph display function

For click-type torque wrenches, both adjustable and internally preset models, you can plot measurement data on the graph, and see both the judgment and trend for each point. When the operation is completed, an average will be displayed, with a green 'OK' for acceptable readings or a red 'NG' for unacceptable readings.

For direct read torque wrenches, such as beam-type and dial-type wrenches, you may plot the measurement points in both clockwise and counter-clockwise directions, and the tester will perform an OK/NG judgment.

Qlick Torque Wrench

Direct reading torque wrench

Characteristics and Accessories

Ratchet Adapter

RA Ratchet Adapter allows for easier checking of ratcheting torque wrenches by reducing the extra travel required by poor square-drive positioning.

Model	RA
TF200N	□12.7 □9.53
TF500N	□19.05 □9.53
TF1000N	□25.4 □12.7 □9.53
TF2000N	□25.4 □19.05 □9.53
TF3000N	□38.1 □25.4 □19.05

Down Adapter

DA Down Adapter is a convenient and easy-to-use way to reduce the inlet size of Tohnichi torque testers to accommodate smaller square-drive sizes without adding the extra height of a typical socket-adapter.

Model	DA
TF200N	□12.7-□9.53 □9.53-□6.35
TF500N	□19.05-□12.7 □9.53-□6.35
TF1000N	□25.4-□19.05 □12.7-□9.53 □9.53-□6.35
TF2000N	□25.4-□19.05 □19.05-□12.7 □9.53-□6.35
TF3000N	□38.1-□25.4 □25.4-□19.05 □19.05-□12.7

Step Adapters

Tohnichi offers step adapters to allow easy and convenient checking of spanner- and ring-head wrenches. Please consult the Tohnichi Torque Products Reference Guide for specifications.

Model	ADAPTER
TF200N	□12.7-17･22･27、□12.7-19･24･30 □9.53-10･13･19、□9.53-12･14･17
TF500N	□19.05-17･22･27、□19.05-19･24･30 □9.53-10･13･19、□9.53-12･14･17
TF1000N	□25.4-36･46、□25.4-41･50 □12.7-17･22･27、□12.7-19･24･30 □9.53-10･13･19、□9.53-12･14･17
TF2000N	□25.4-36･46、□25.4-41･50 □19.05-22･27･29、□19.05-30･32･36 □9.53-10･13･19、□9.53-12･14･17
TF3000N	□25.4-36･46、□25.4-41･50 □19.05-22･27･29、□19.05-30･32･36 □12.7-10･13･19、□12.7-12･14･17

Characteristics and Accessories

Operating Manual	- - - -	1
Safety guide	- - - -	1
Power code	- - - -	1
Pole stand	- - - -	1
Safety bar #1	- - - -	1
Safety bar #2	- - - -	2

Safety Guide

Pole Stand

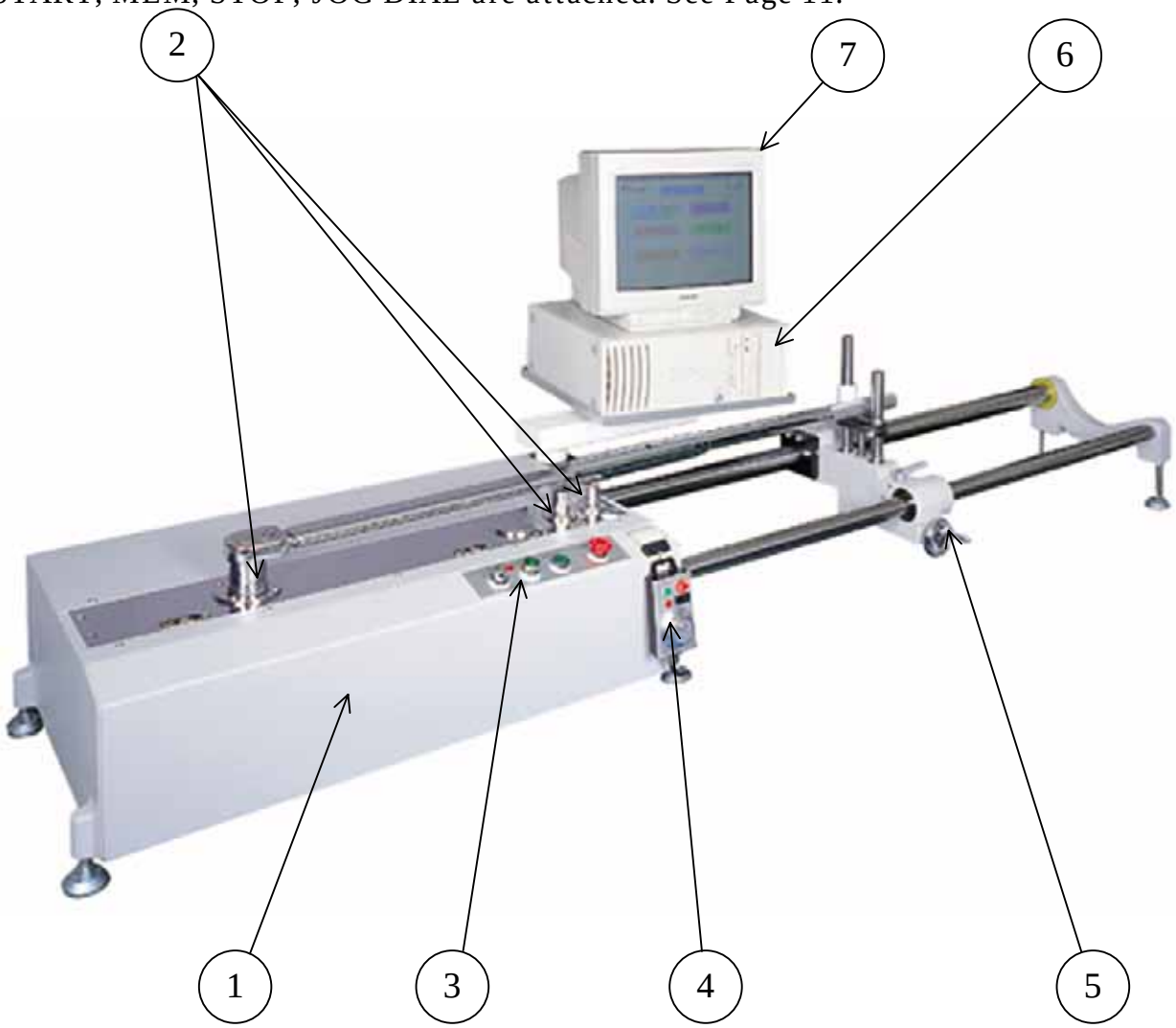
NAME OF EACH PART : BODY

1 BODY

2 INLET
Square drive, socket inlet of torque wrench

3 BODY SWITCH
POWER, WARM UP, LOAD, RESET, PEAK/RUN, EMERGENCY STOP are attached.
See Page 9.

4 CONTROLLER
START, MEM, STOP, JOG DIAL are attached. See Page 11.



5 POLE UNIT
This can be adjusted for effective length and height.

6 PERSONAL COMPUTER

7 MONITOR

NAME OF EACH PART : CONTROLLER

1 MEM switch
When measuring direct reading torque wrenches, this switch will store data in memory.

2 STOP switch
This switch will signal the tester to stop collecting data.

3 EMERG. STOP switch
This will immediately stop the tester in an emergency.

4 START switch
This switch will begin measurement.
CW : You turn clockwise to load clockwise torque.
CCW : You turn counter-clockwise to load counter-clockwise torque.

5 JOG dial
This allows you to set the adjust the needle to accurately reflect torque on direct-read torque wrenches.
CW : You turn clockwise and can load clockwise torque.
CCW : You turn counter-clockwise and can load counter-clockwise torque.

NAME OF EACH PART : SWITCH

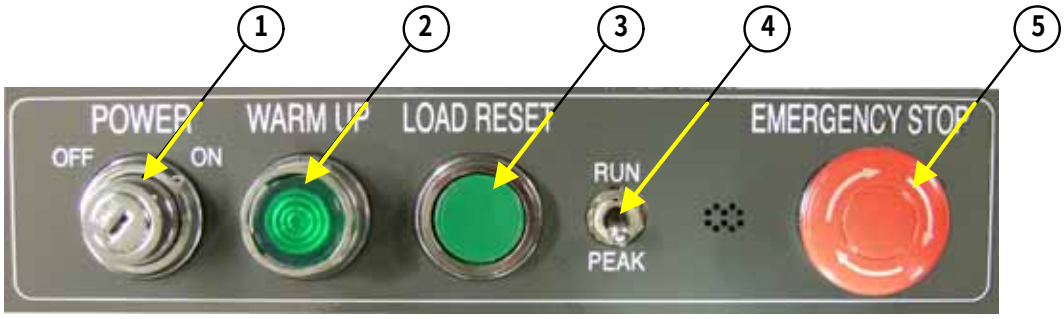
1 POWER switch
You use to set power on/off.

2 WARM UP switch
If you push this switch, green lamp turns on.

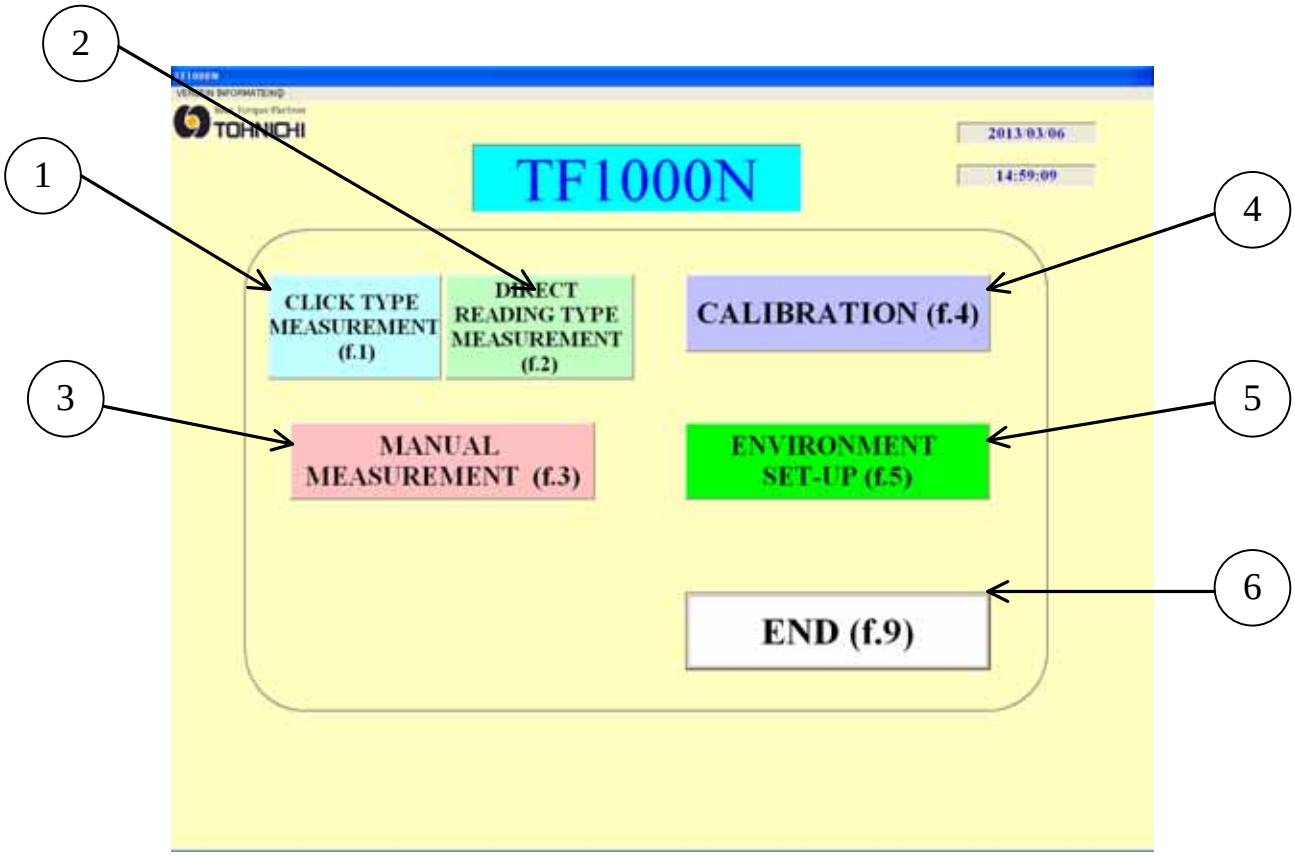
3 LOAD RESET switch
You can return the spindle to the original position.

4 PEAK/RUN changing switch
You can change PEAK and RUN.

5 EMERGENCY STOP
For emergency you push this and can stop measurement.



MENU DISPLAY



1 Click torque wrench measurement
Choose this to check click-type torque wrenches, such QL.

2 Direct reading torque wrench measurement
Choose this for direct-reading type torque wrenches, such as DB or electronic wrenches.

3 Manual measurement
This allows you to freely set measurement points and accuracy when checking unregistered wrenches, or single-value preset torque wrenches.

4 CALIBRATION
Choose this when calibrating the tester.
The calibration kit for the Tohnichi Model TF Torque Wrench Tester is optional.
Please contact your local dealer, or your nearest Tohnichi sales office for specifications.

5 ENVIRONMENT SET-UP
Choose this for Master Registration, Updates, Deletion, Training Cycle Speed-Up, and Speed Reduction Point Set-Up.

6 END
Choose this to end operations.

1 MEASUREMENT

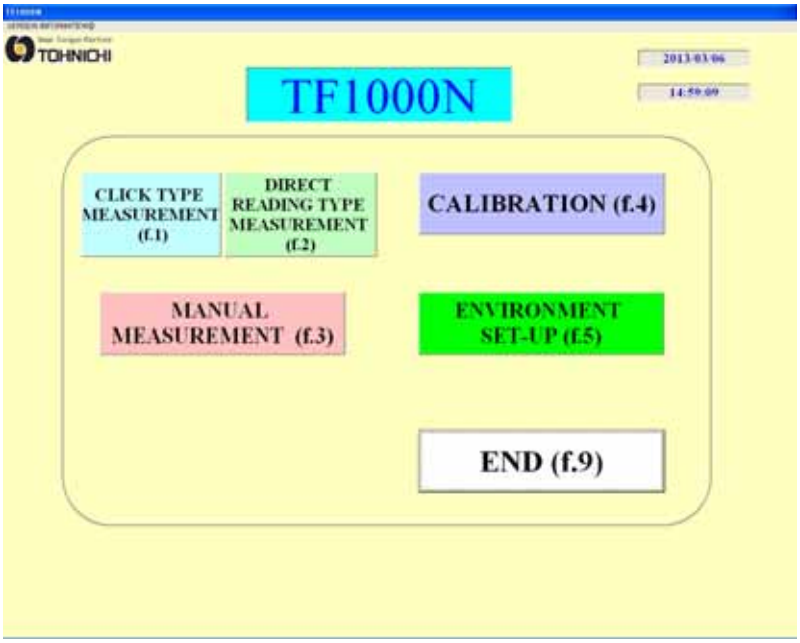
PREPARATION

1 Turn on POWER switch of the body.
Insert the key and turn to the ON position.

2 Push WARM UP switch.
Green light turns on.

3 Turn on Personal Computer and Monitor.

4 Menu display shows.

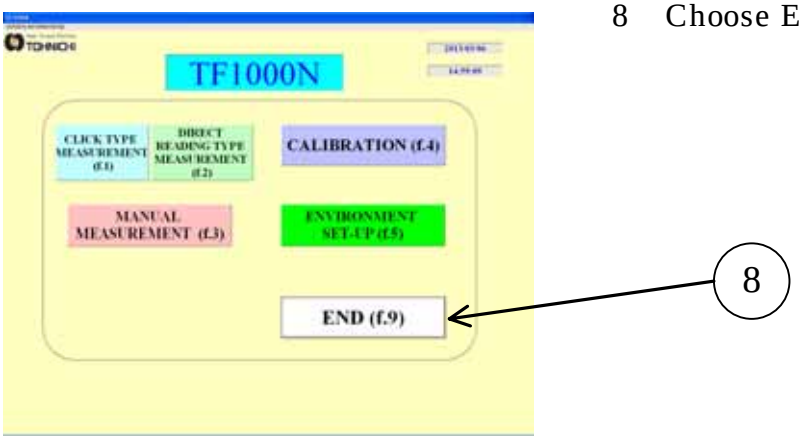


5 Register the information on Master before measuring torque wrench.
Complete ENVIRONMENT SET-UP, Training Cycle, Speed Reduction Point and Measurement Master Set Up.

6 Set the torque wrench.
See Page15.

7 Check the torque wrench. Be sure to follow all applicable instructions.
For measurement of torque for click-type torque wrenches, refer page 17.
For measurement of direct-reading torque wrench, refer page 21.
For manual measurement, refer page 27.

8 Choose END to you finish operation.



9 To power down the tester,
go to the Windows START Menu,
click on "shut down"
and choose 'shut down the computer'.
The computer will then shut down.

10 Turn the power key to the OFF position. Confirm that the tester is off.

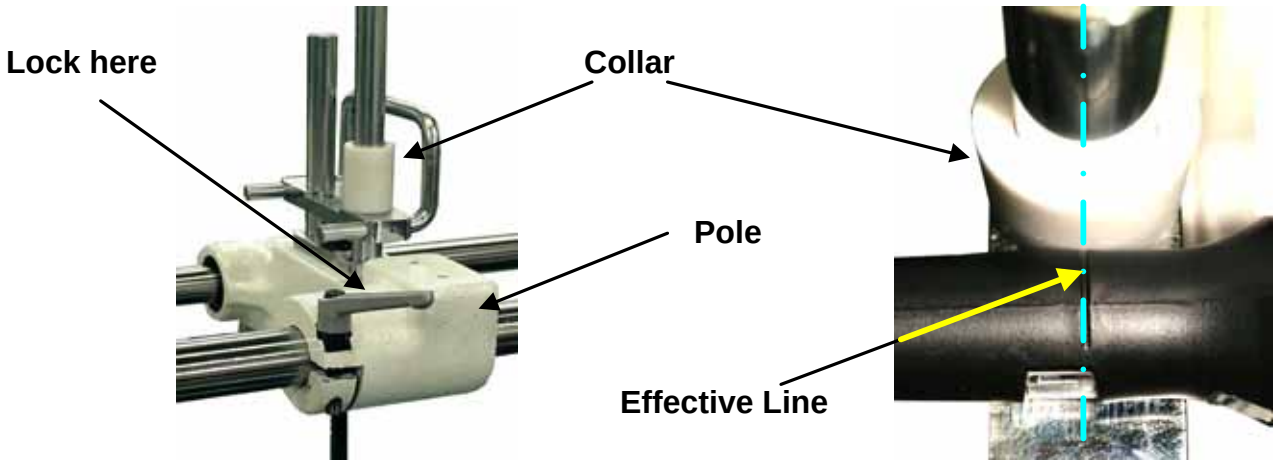
1-2 SETTING YOUR TORQUE WRENCH

1 Confirm maximum torque of the torque wrench.
Check the model name.

Example: For QL200N, maximum torque=200N.m

2 For wrenches with square drives,
ensure the fit of the square drive with the tester,
and Ratchet adapter use the Down Adapter
or Ratchet Adapter if necessary to create a proper fit.
See Page 7.

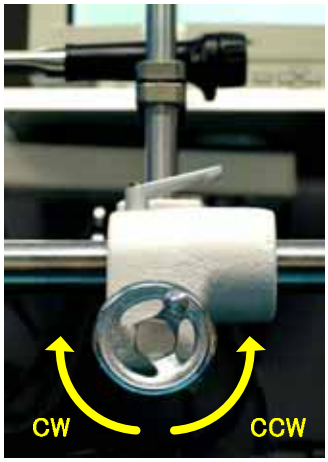
3 Release lock, move pole and adjust to the effective length line of the torque wrench. Reset lock to prevent shifting that may cause error.



4 Adjust the height of locker receiver to make the torque wrench level
Turn the handle and adjust height

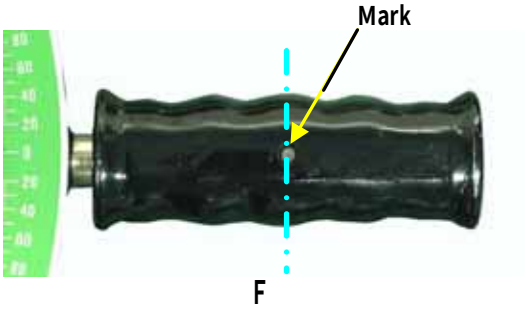
CW : Higher

CCW : Lower



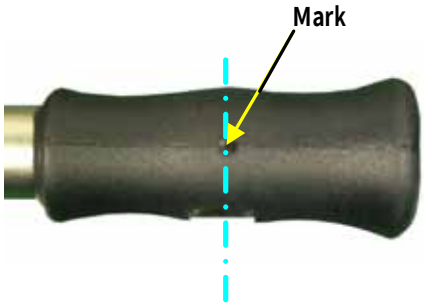
How to set the torque wrench

It is adjusted if you apply torque effective line and torque wrench's torque will match with tester's torque. If this position is not correct, some error will occur between torque wrench's value and tester's value.

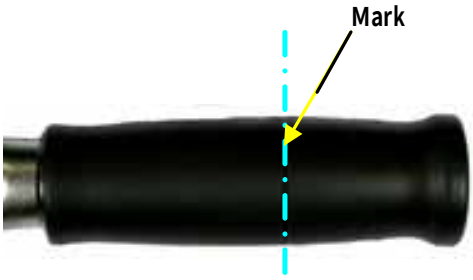


F

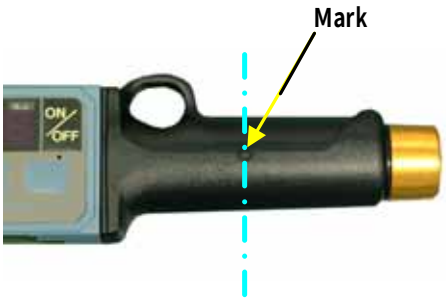
SF



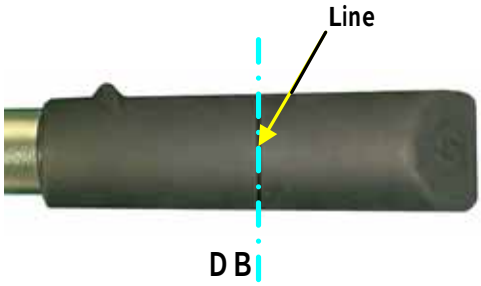
PQL



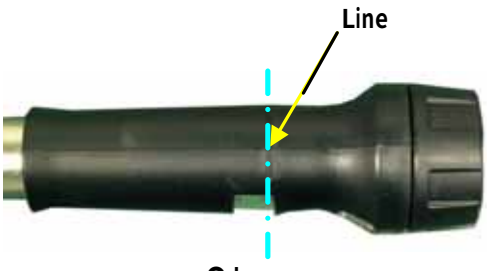
QSP



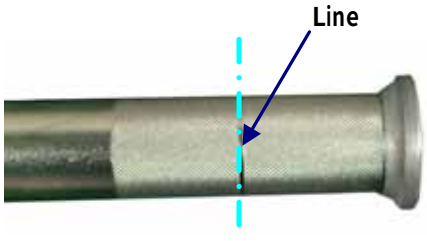
CEM2



DB



QL



MH

1-3 Measurement of click-type torque wrench

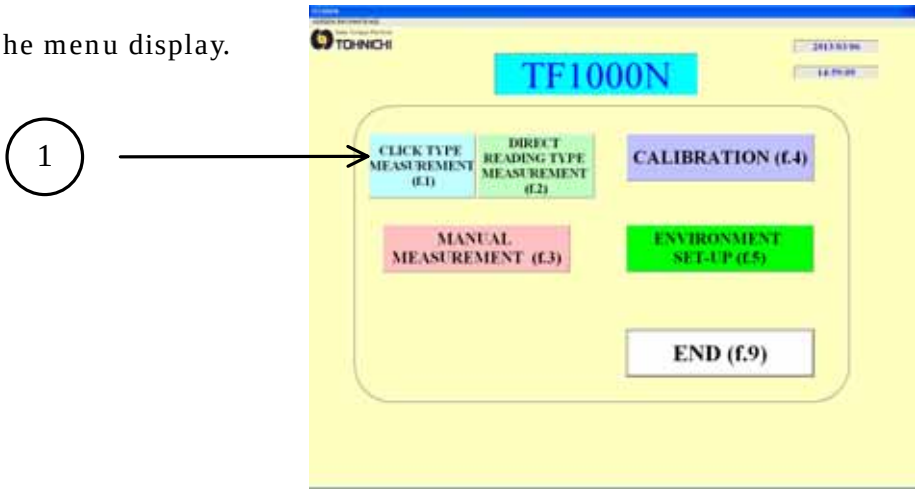
Measurement of signal torque wrench

If you choose a click-type torque wrench registered on the master (adjustable, such as QL or preset, such as QSP etc.), you can measure without any changes in the programming of the tester.

Click-type torque wrench Operation procedure

Follow the procedures for “How to set torque wrench”, page15.

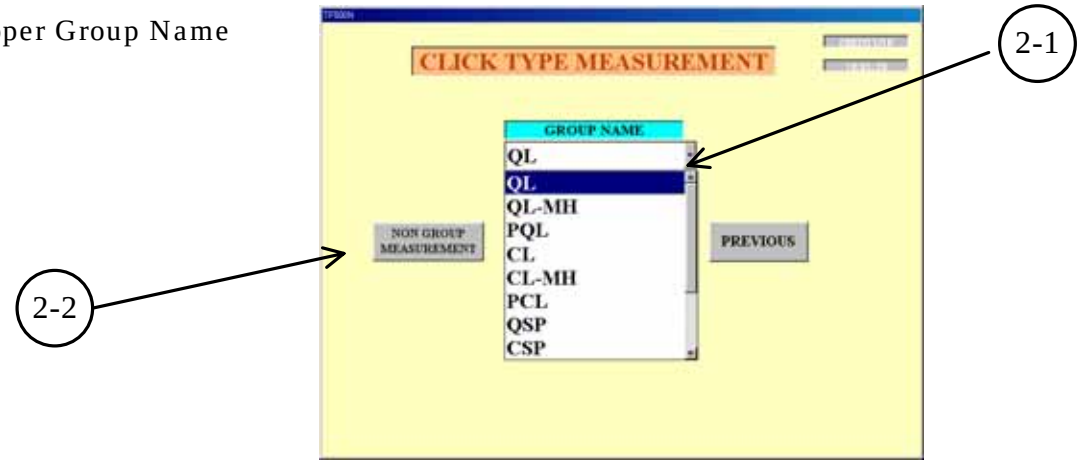
1 Click “Signal torque wrench“ on the menu display.



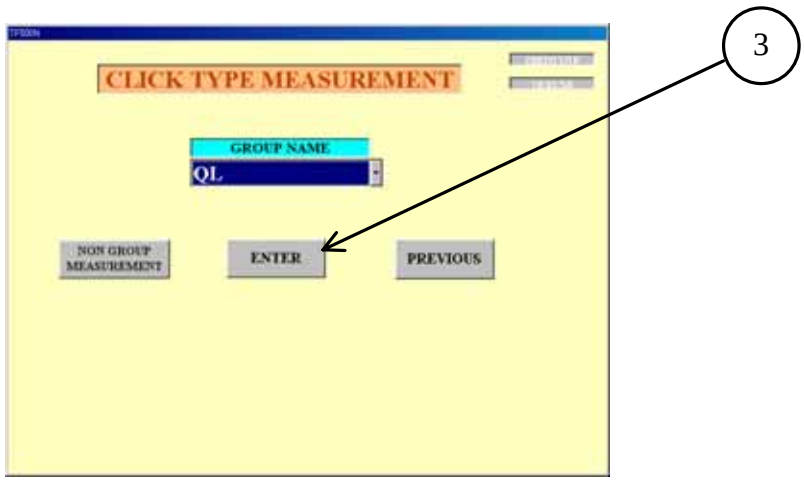
2 Choose “GROUP NAME”.

Click on the proper Group Name

▼

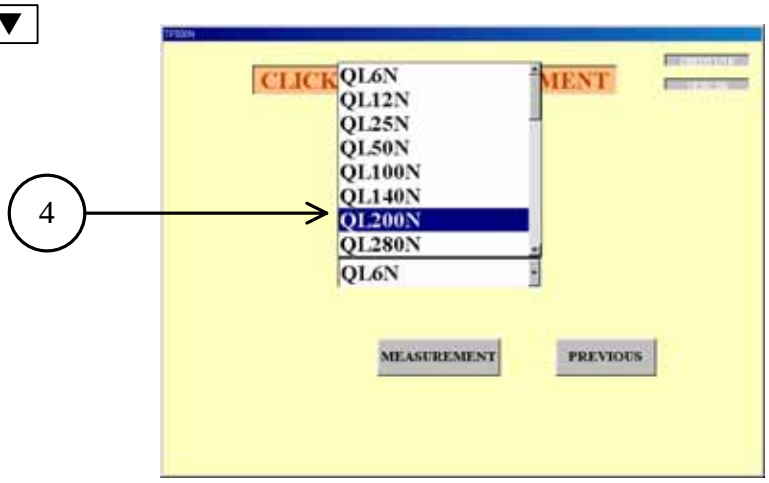


3 Click ENTER.



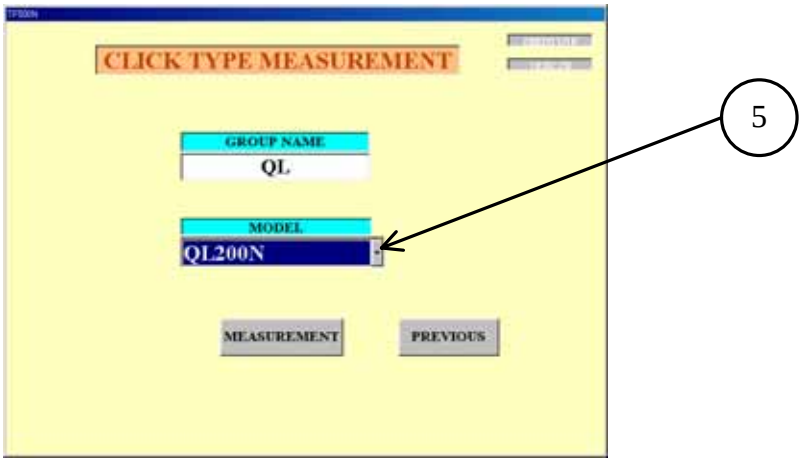
4 Choose model.

Click on the proper one.



5 Choose “MEASUREMENT”.

Click on the appropriate option.

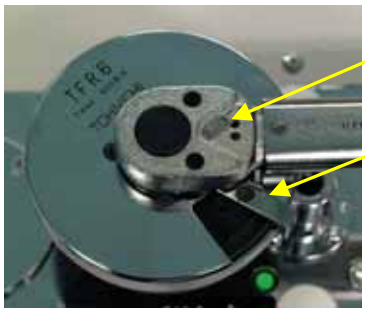


6 Zero adjustment is done with RUN, “0” RESET, PEAK.

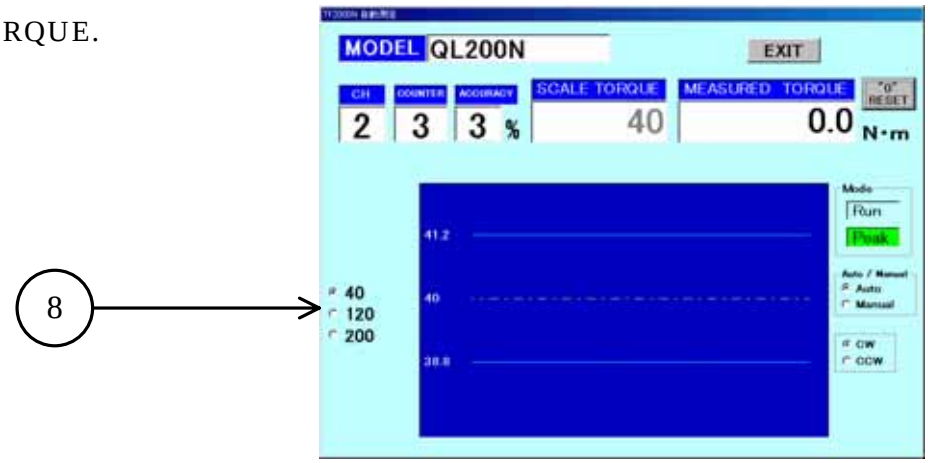
RUN and PEAK modes are set by body switch.

Reset is done by mouse.

7 Set the Ratchet Lever in the proper position.



8 Choose SET TORQUE.

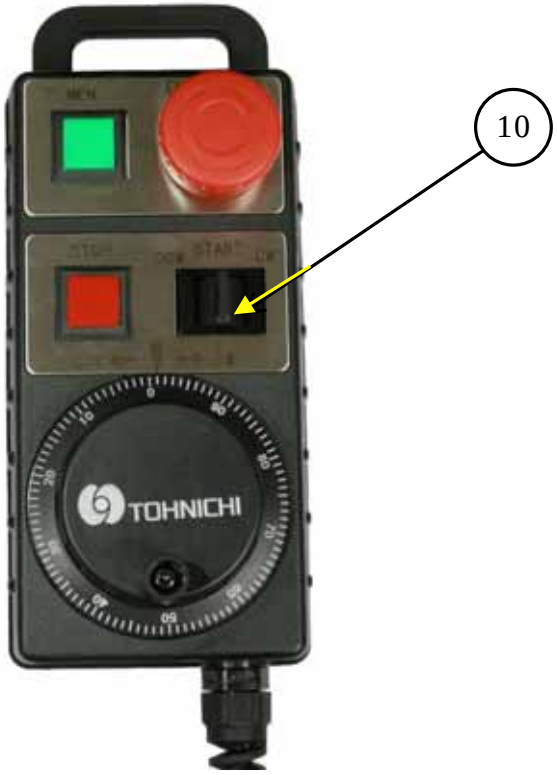


9 Set the torque wrench

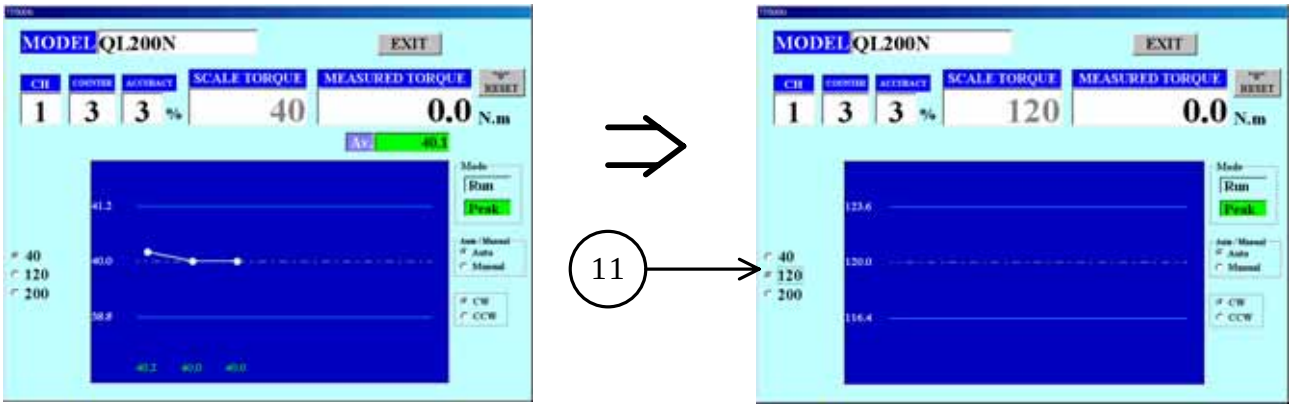
Adjust the torque setting of the wrench to match the torque indicated by the tester.

10 Push START SWITCH to the CW position and start measurement.

Measure according to the settings previously set, automatic stop, automatic judgment. .



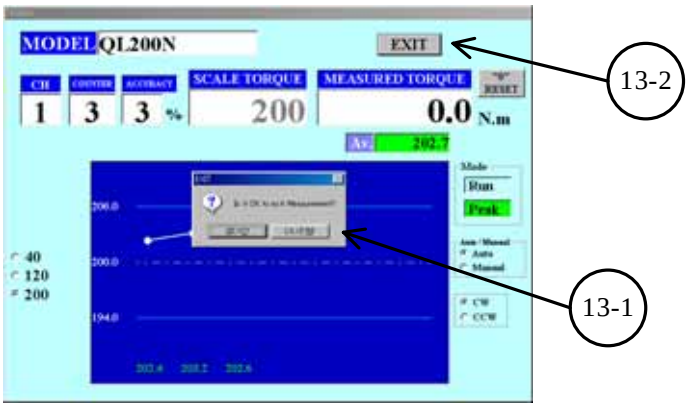
11 Using your mouse, select the next measurement point.

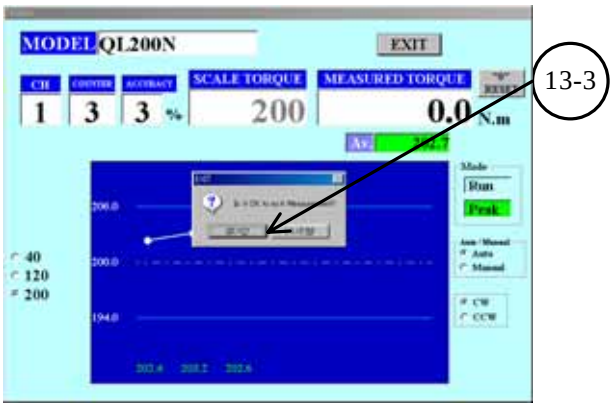


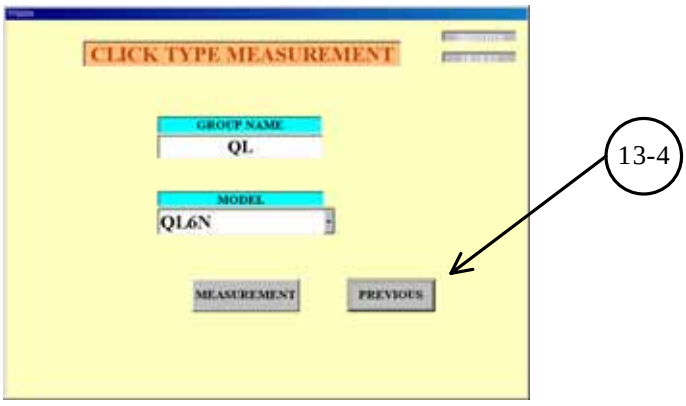
12 Repeat steps 9-11 until all necessary measurement points have been checked and all necessary adjustments made

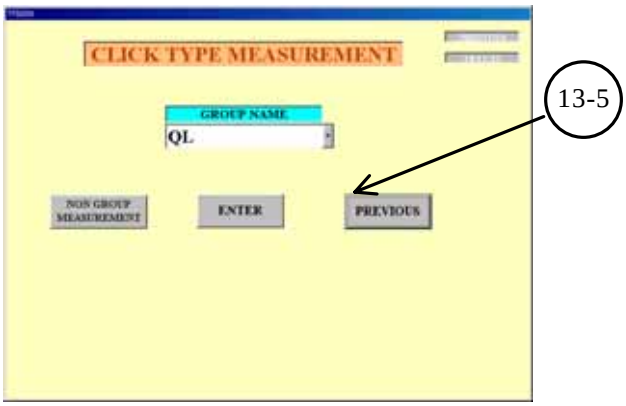
13 When you finish the operation, you will be asked, “Will you save the measurement data?”. If not, click “NO”, “EXIT” and choose ”PREVIOUS”,”PREVIOUS”.

After that display goes back to menu.









1-4 Measurement of direct reading torque wrench

Measurement of direct reading torque wrench

If you choose direct reading torque wrench (plate type F, dial type DB) registered

On master when measuring, you can measure as set up.

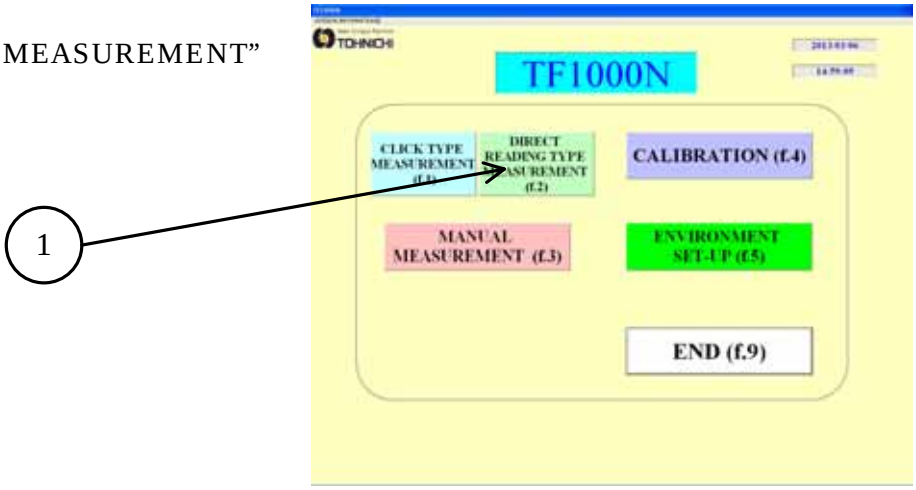
Direct reading torque wrench

(Operation procedure)

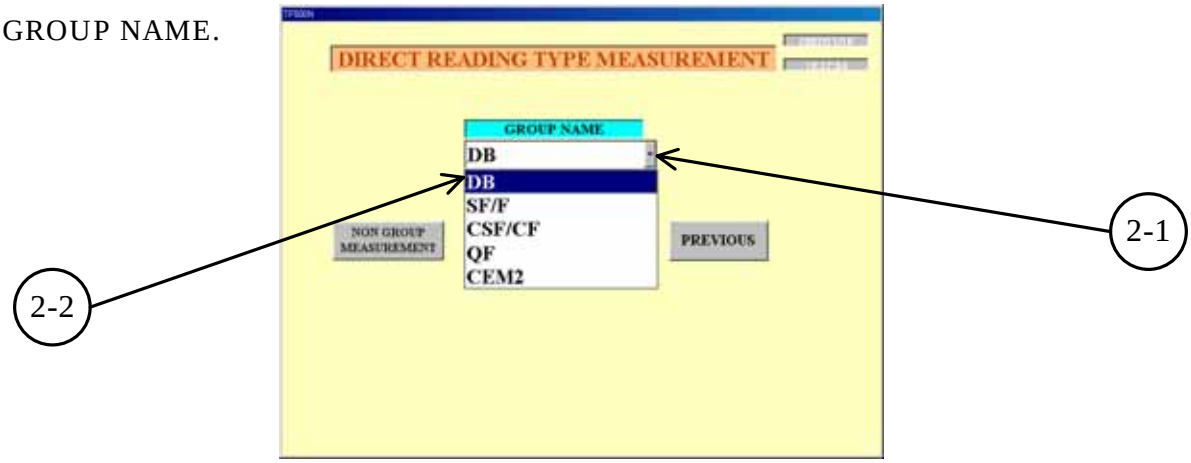
Set with mouse and key board.

For torque wrench setting see “How to set torque wrench” P15.

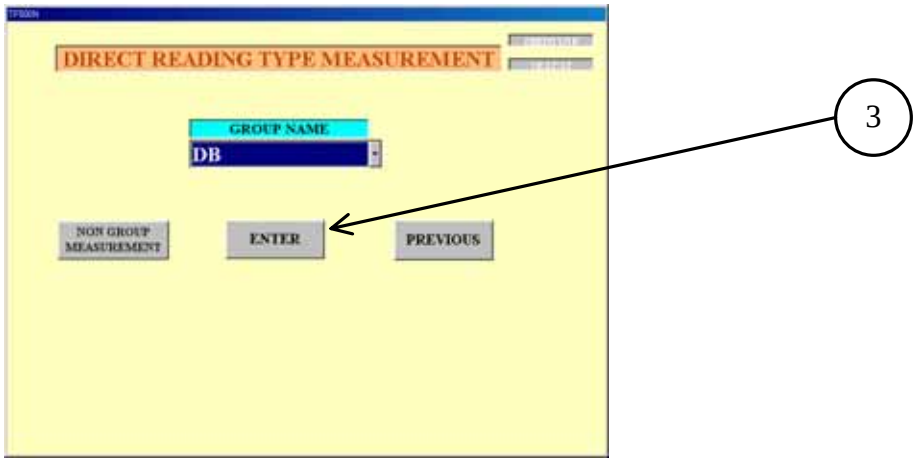
1 Choose “DIRECT READING TYPE MEASUREMENT” on menu display.



2 Choose GROUP NAME.

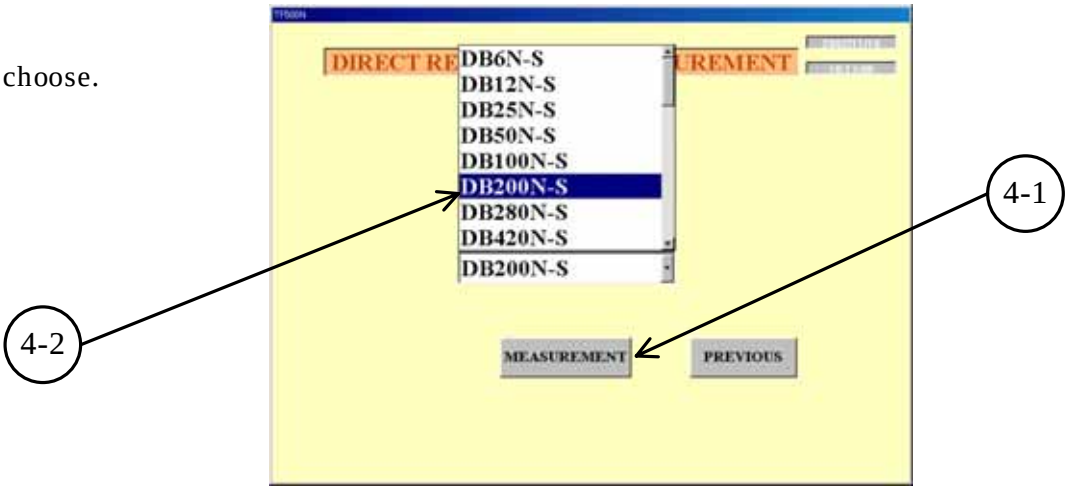


3 Choose ENTER.

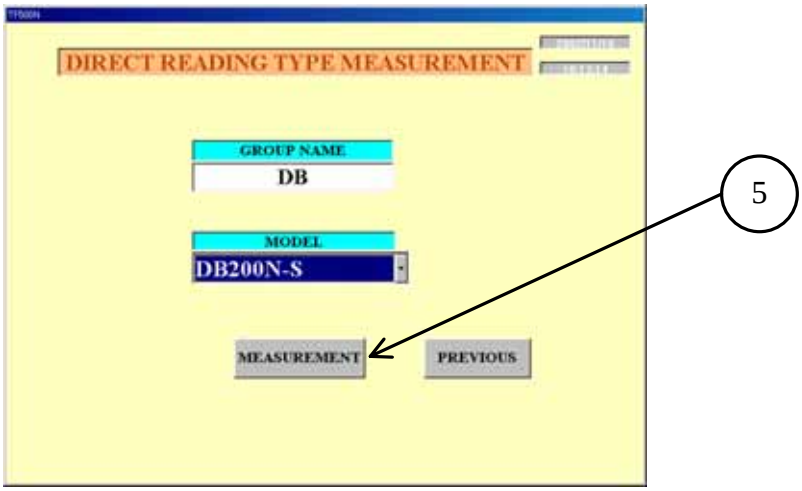


4 Choose model.

Click ▼ and choose.



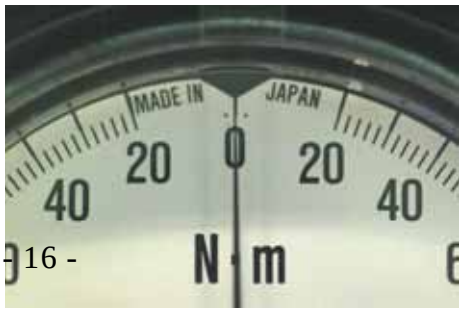
5 Choose ENTER.



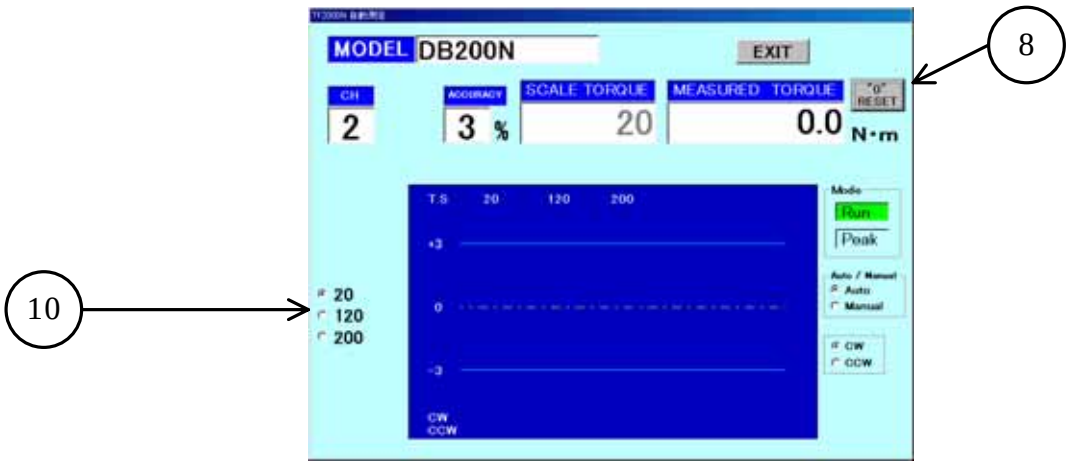
6 Change “LEVER, RATCHET”.

When you measure clockwise torque, set LEVER, RATCHET as R position.

7 Adjust zero of torque wrench.



8 Click RUN, “0”, RESET and do zero adjust.
Change RUN/PEAK by body switch.
Do it “0” RESET by mouse.

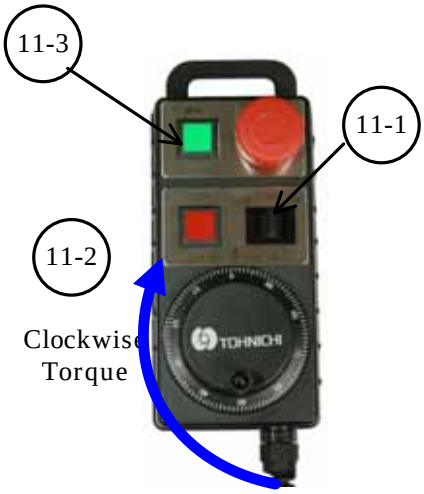


9 Set the torque wrench.
Confirm MODEL name of TESTER and torque wrench are same.

10 Choose set torque.

11 Push START switch of controller to CW side and start measurement.
It will stop before the torque set. Adjust torque wrench’s measurement point to needle by JOGG dial of controller and push MEM switch of controller.

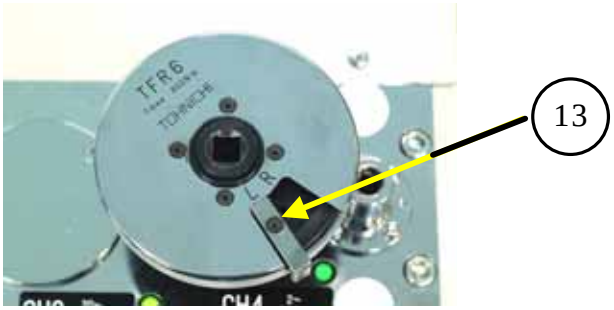
Stop before the point

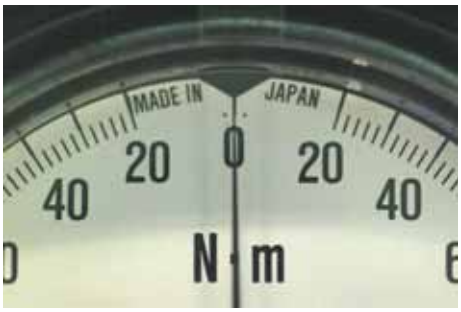


Adjust the JOG Dial

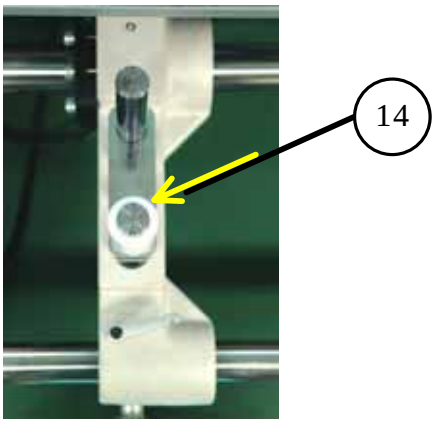
12 If you go to next point, repeat 9-11.
Continue to counter clockwise
If you finish measurement, go to 20.

13 Change RATCHET ADAPTER and load torque to near maximum counter clockwise
Take out the torque wrench from TESTER and do zero adjust of the torque wrench.

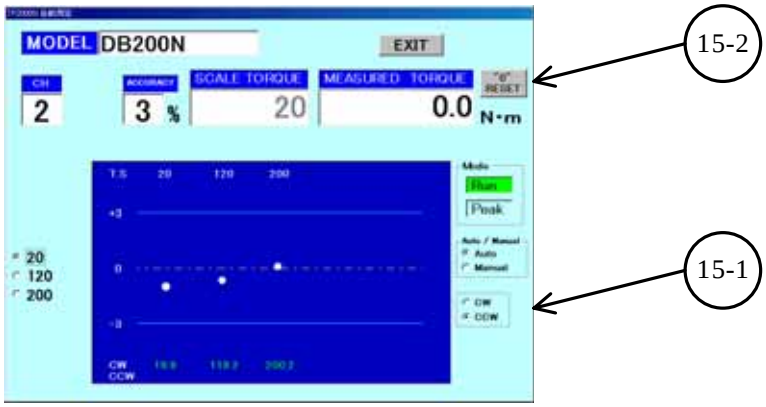




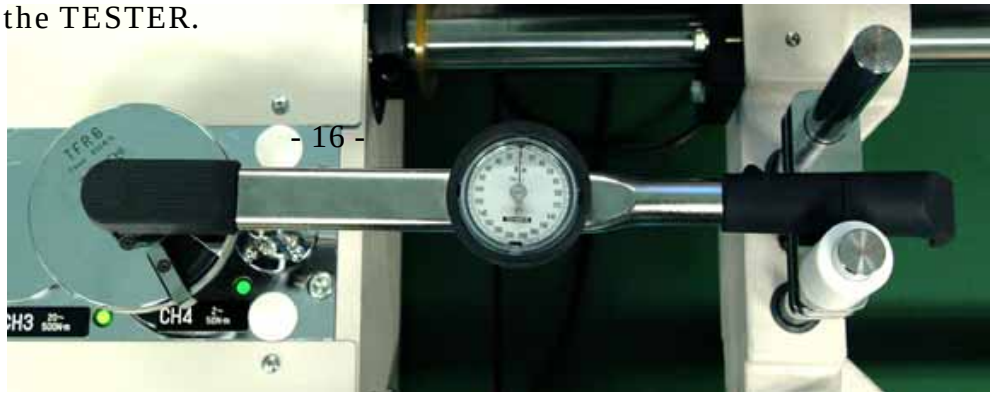
14 Change COLLAR.



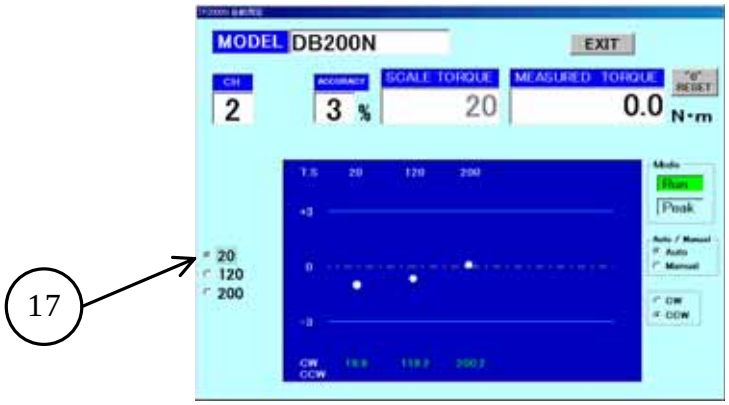
15 Click CCW and push "0" RESET.
Adjust zero of the tester.



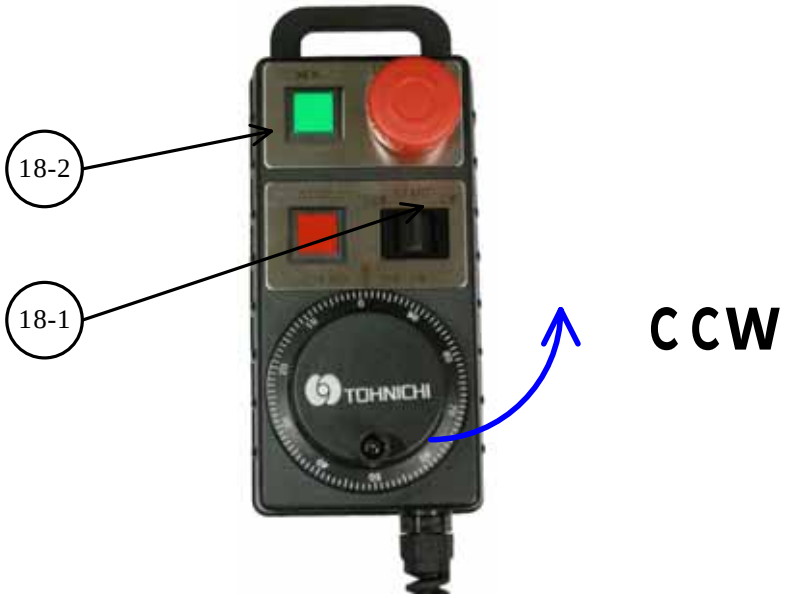
16 Set torque wrench to the TESTER.



17 Click measurement point.

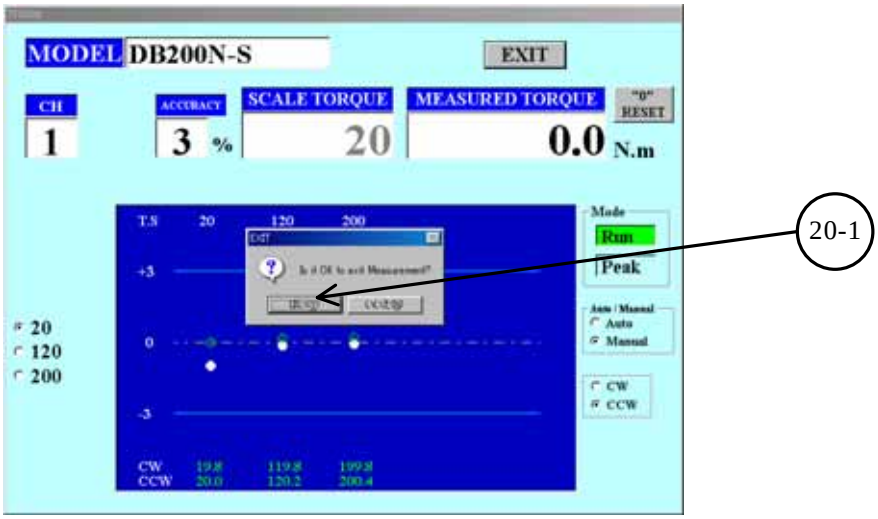


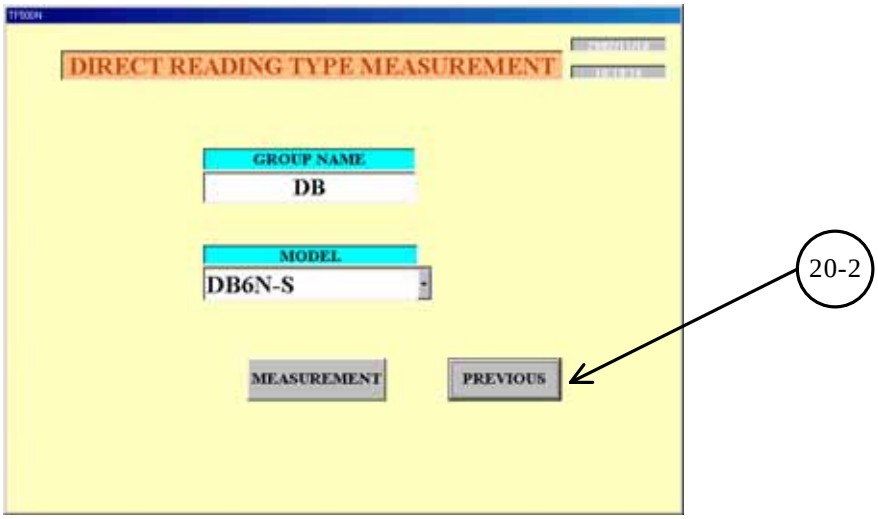
18 Push START switch of controller to CCW side and start measurement. It will stop before torque set. Adjust torque wrench's measurement point to needle, turning JOGG dial of controller to CCW. Push MEM switch of controller. It will go back to zero automatically.

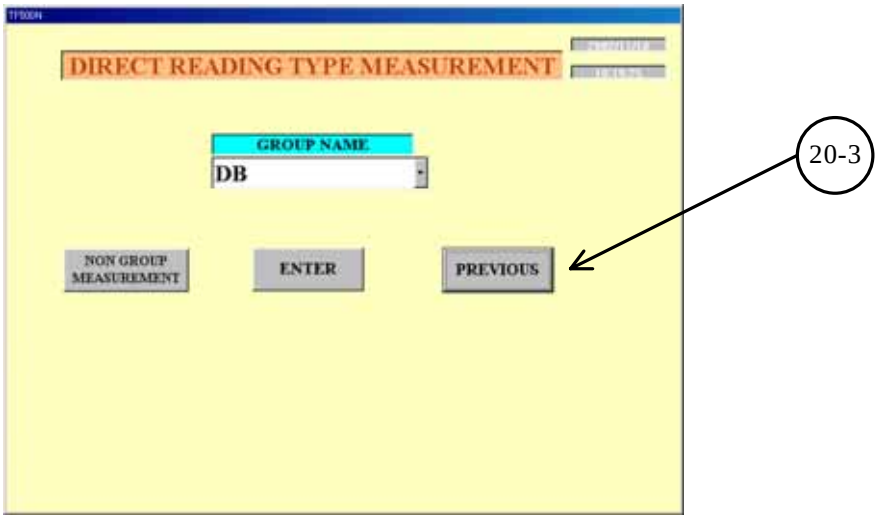


19 When you go to next measurement point, repeat 17-18.

20 After the measurement, click ENTER, YES (20-1), PREVIOUS (20-2), PREVIOUS (20-3). It will go back to MENU display.







1-5 MANUAL measurement (signal torque wrench)

Manual measurement

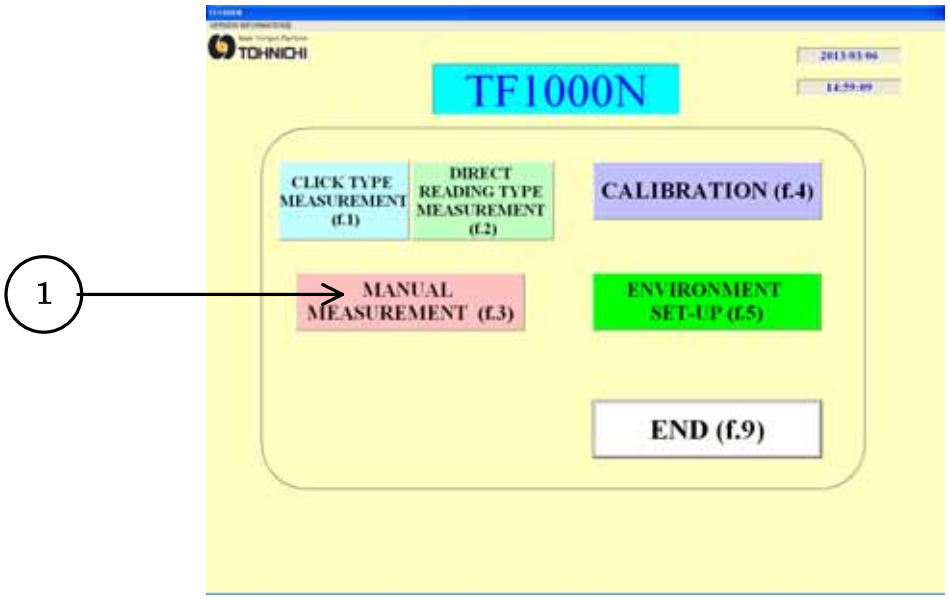
If you want to measure the point not registered on MASTER or just one point, you can set and measure MEASUREMENT CYCLE, ACCURACY, and MEASUREMENT VALUE freely.

Signal torque wrench Operation procedure

Do setting by mouse and key board.

For setting of torque wrench see "How to set torque wrench" P15.

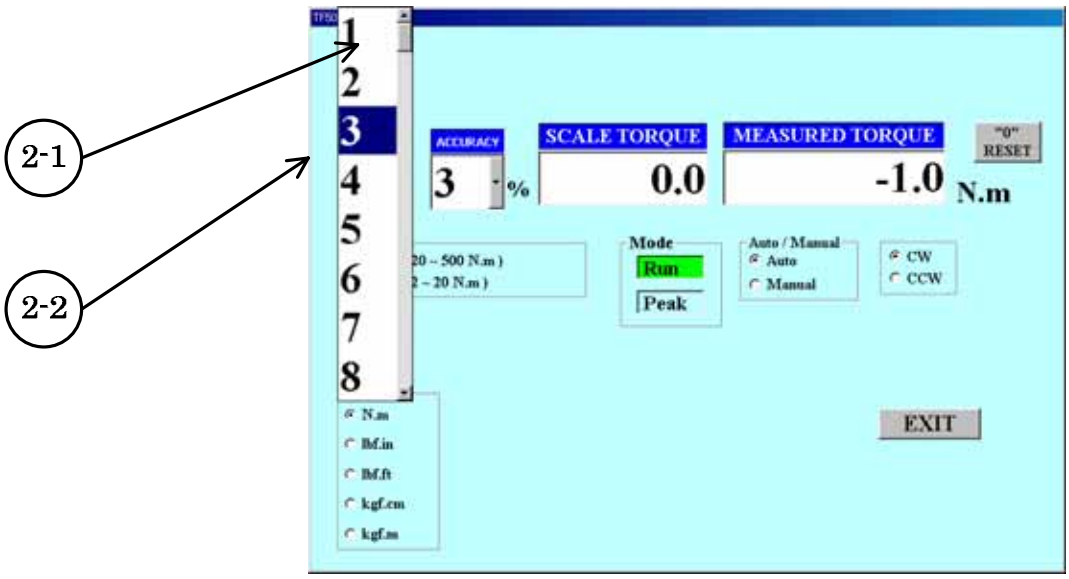
1 Choose MANUAL MEASUREMENT on menu display.



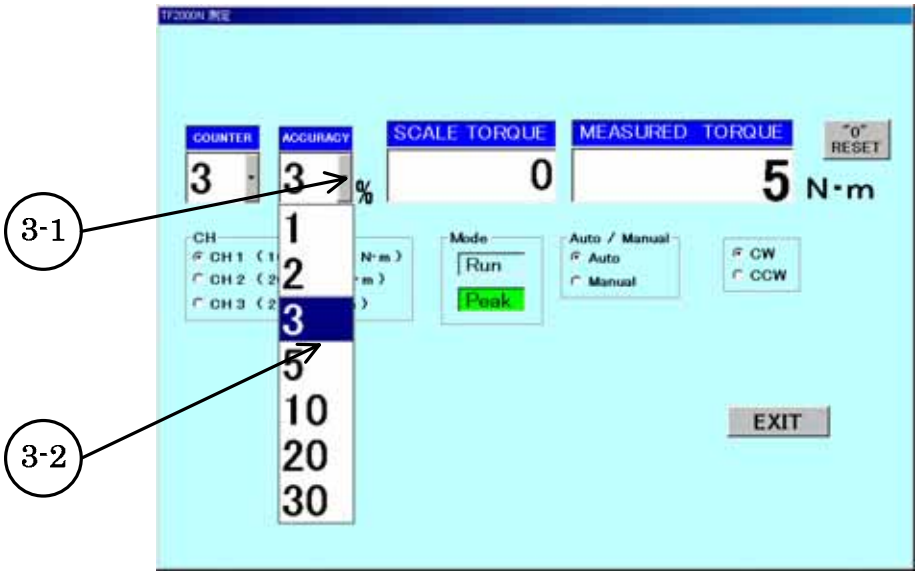
2 Do setting of MEASUREMENT CYCLE.

Click and click MEASUREMENT CYCLE.

You can set COUNTER between 1-99 cycles.



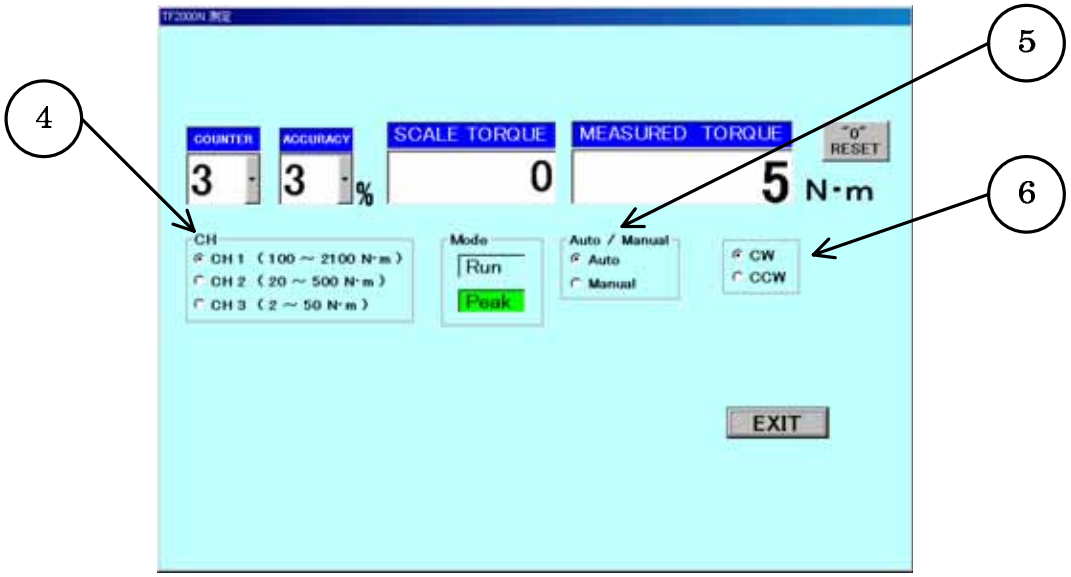
3 Set ACCURACY.
Click and click ACCURACY.
You can set ACCURACY from 1,2,3,5,10,20,30%.



4 Choose CH.
Note : Confirm maximum torque is within measurement range. If not, change CH.

5 Set Auto/Manual to Auto.

6 Choose CW.



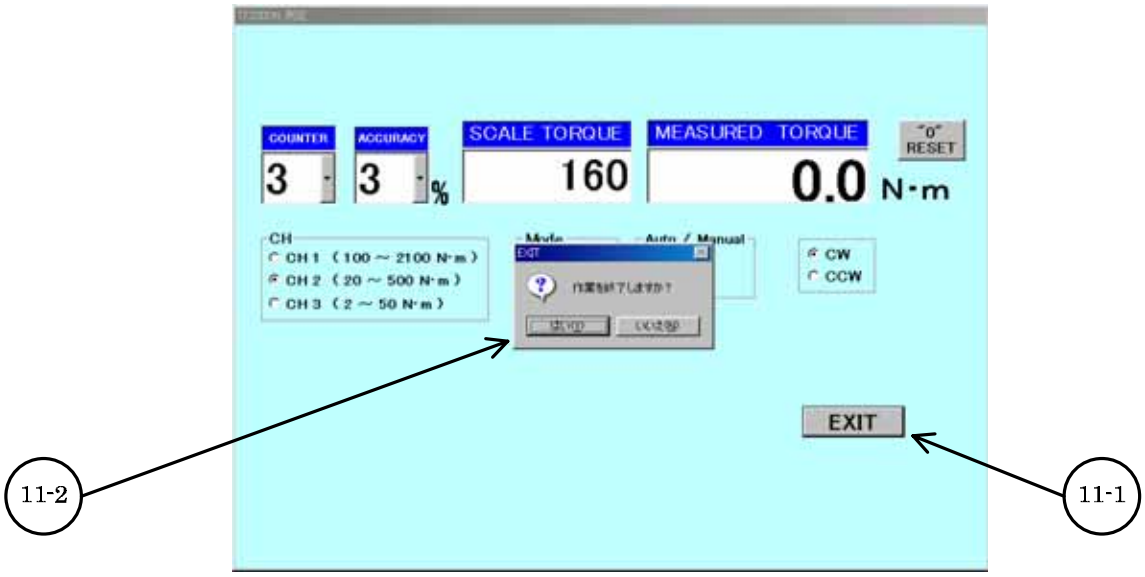
7 Do zero adjust by RUN,"0", RESET, PEAK.
Change RUN/PEAK by body switch.
Do "0" RESET with mouse.

8 Adjusting cursor, and input SCALE TORQUE by ten key.
Input measurement torque.

9 Set torque wrench.
(See P15)

10 Push START.
Push START switch of CONTROLLER to CW side and start measurement.
It will measure by cycles set and stop automatically.

11 If you finish measurement, click EXIT and choose YES.
Display goes back menu display.



1-6 MANUAL MEASUREMENT(direct reading torque wrench)

Manual measurement

If you want to measure the point not registered on master or just one point, you can set and measure MEASUREMENT CYCLE, ACCURACY, MEASUREMENT VALUE freely.

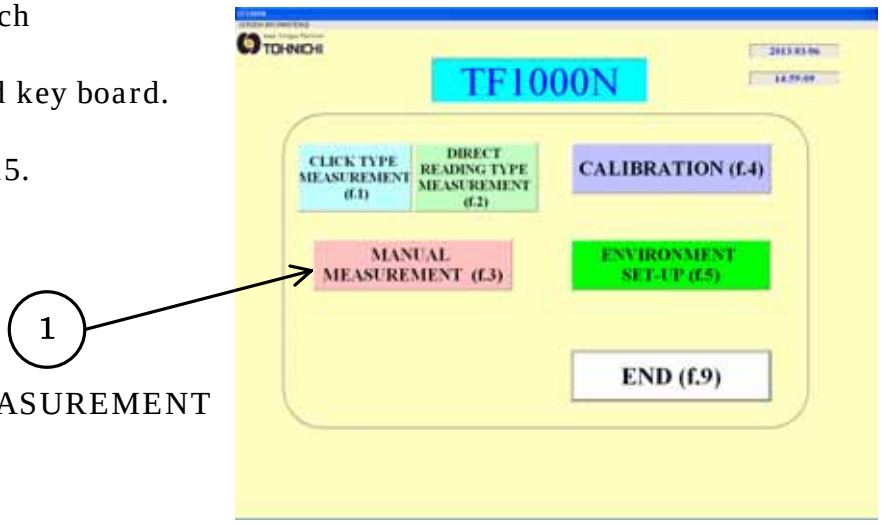
Direct read torque wrench

Operation procedure

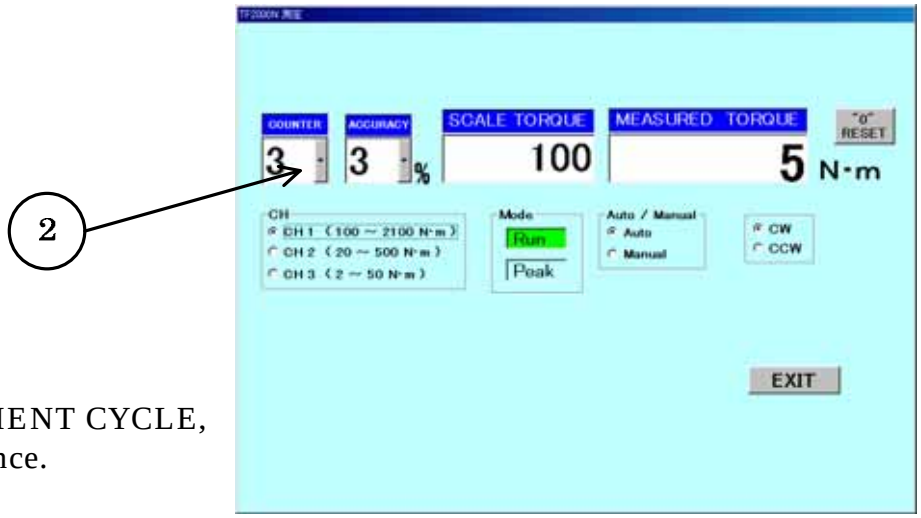
Do setting by mouse and key board.

For setting torque see

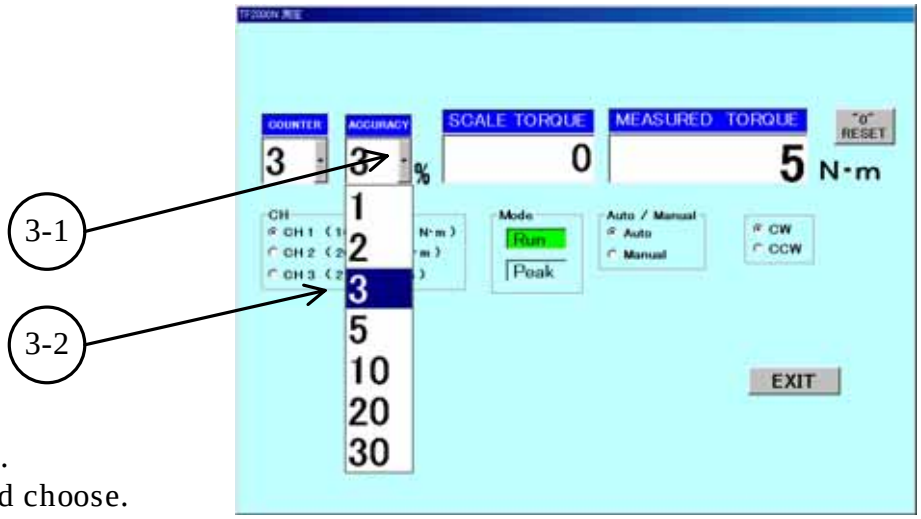
" How to set torque " P15.



1 Choose MANUAL MEASUREMENT on menu display.



2 If you do MEASUREMENT CYCLE, you can measure just once.



3 Set ACCURACY.

Click of ACCURACY and choose.

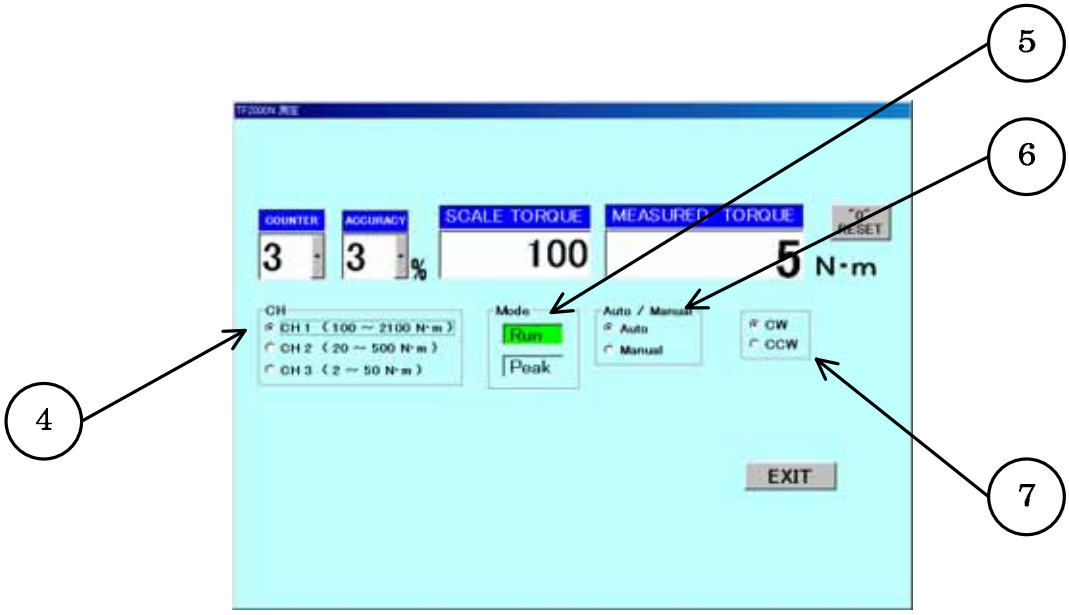
You can set from 1, 2, 3, 5, 10, 20 or 30%.

4 Choose CH.
Confirm maximum torque is within measurement range.
If not, change CH.

5 Choose surely Mode RUN.
Do it by PEAK/RUN switch of body.

6 Set Auto/Manual to Auto.

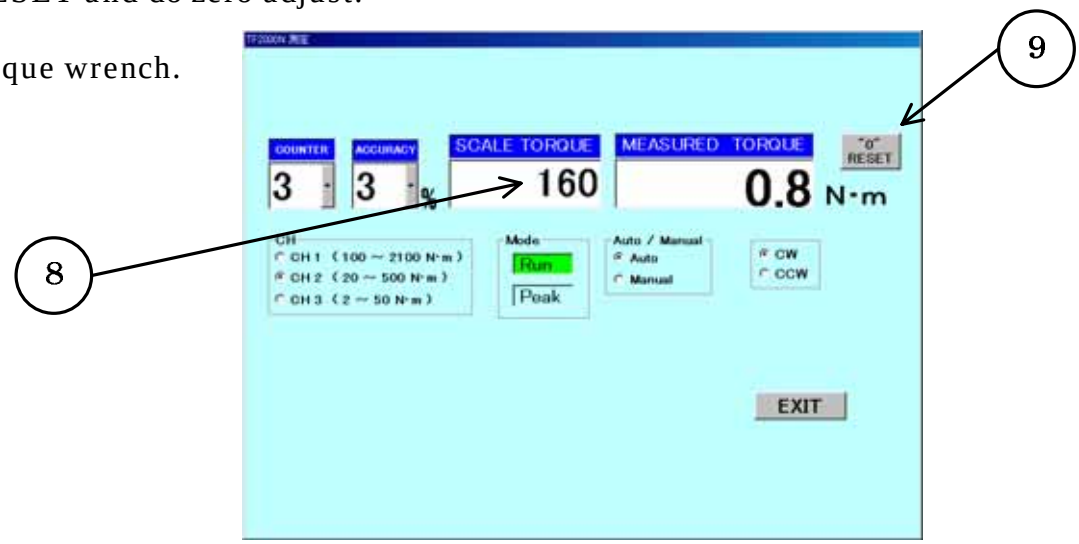
7 If you measure clockwise, choose CW.
If you measure counter clockwise, choose CCW.
Note : Be careful not to do mistake clockwise and counter clockwise.



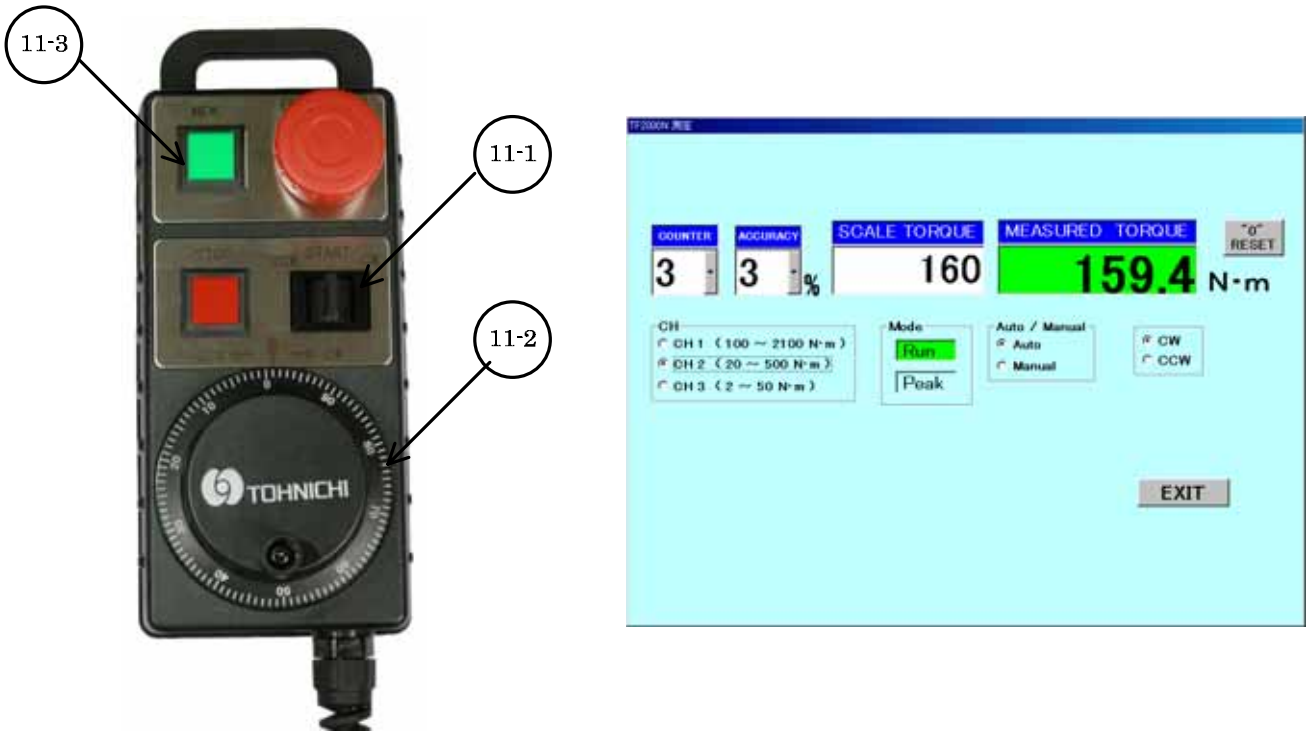
8 Adjust cursor and input SCALE TORQUE by ten key.
Input torque to measure.

9 Click "0" RESET and do zero adjust.

10 Set the torque wrench.
See Page 15.



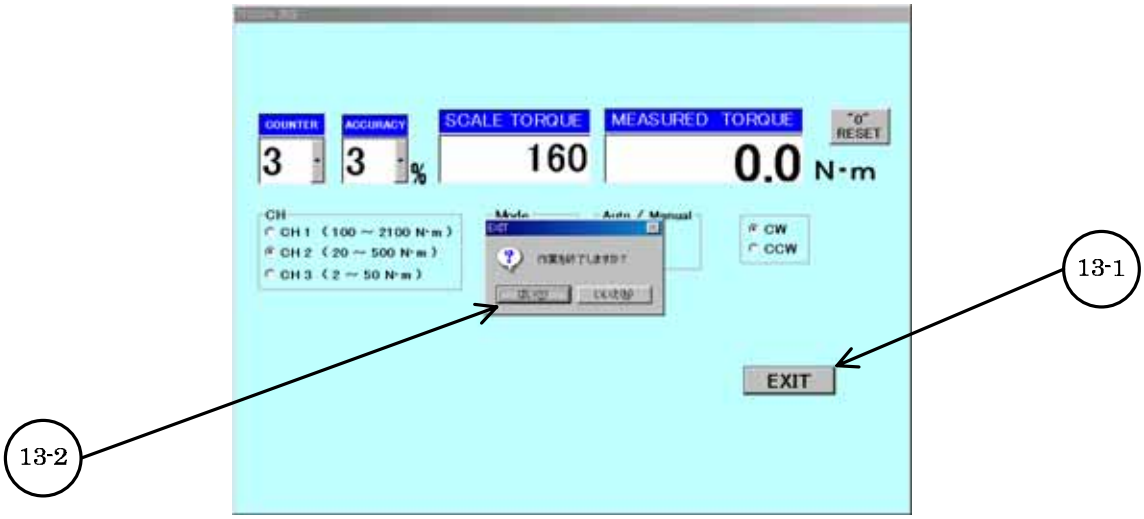
11 If you measure right torque of START switch, push CW side and if left torque, push CCW side each. It will stop before torque set, adjust measurement point by JOGG dial to needle And push MEM switch of CONTROLLER. It will measure once and return to no load condition automatically.



After judgment, it will return to no load condition automatically

12 If you want to measure repeatedly, push controller switch once more.

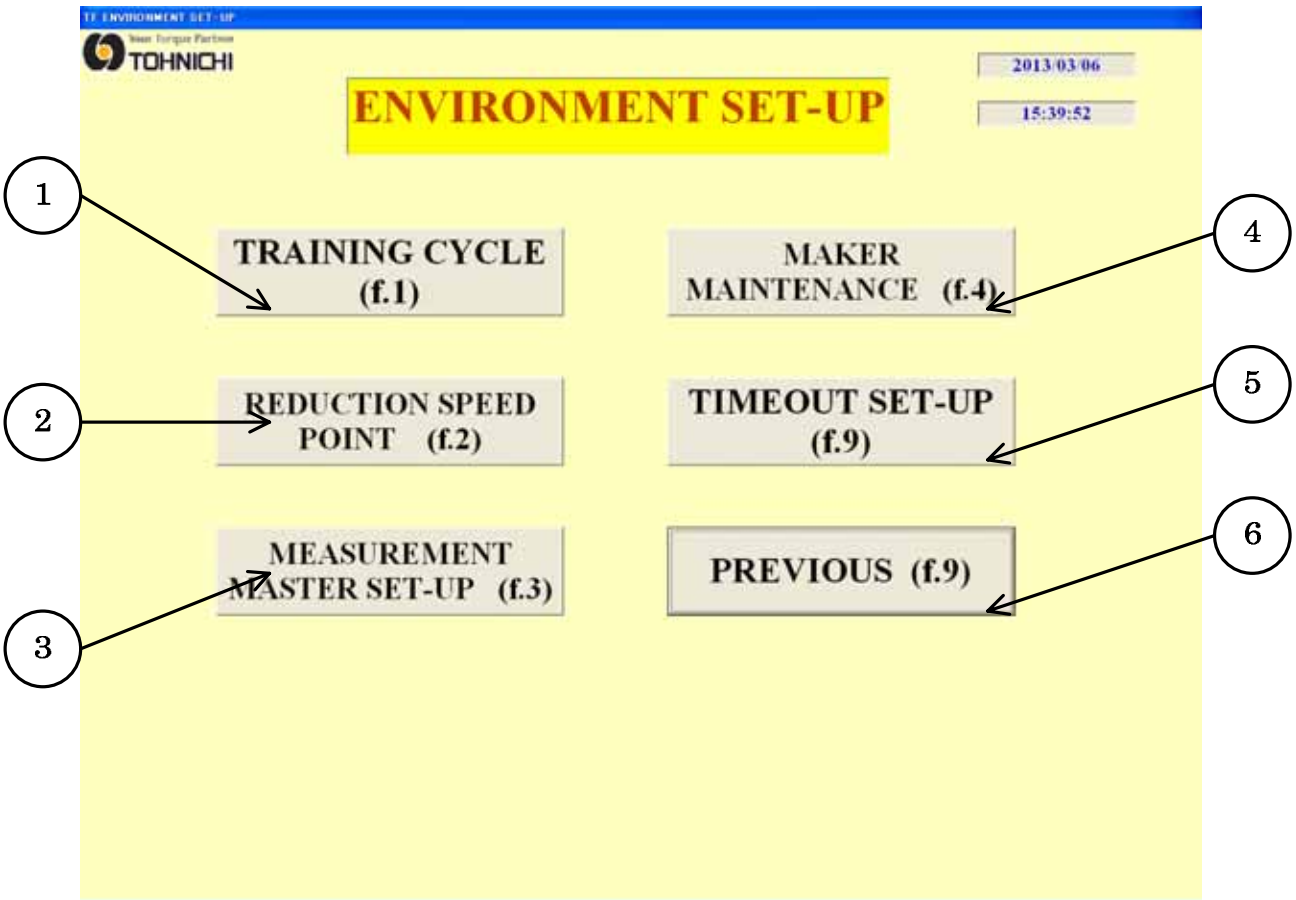
13 If you finish measurement, click EXIT and choose YES.



2 SETTING
ENVIRONMENT SET-UP

Environment set-up
If you set TRAINIG CYCLE, SPEED REDUCTION POINT, MEASUREMENT MASTER SET- UP, you can do inspection of torque wrenches quicker and accurately.

1 TRAINING CYCLE
If you take data of preset type, the first data is not stable, so neglect it.
You will take data after training.
2 SPEED REDUCTION POINT
For direct read type you can set to stop some % before measurement point. For signal torque wrench you can set to reduce speed some % before measurement point.
You can not change the setting separately.
3 MEASUREMENT MASTER SET-UP
If you register already MODEL NAME, ACCURACY, MEASUREMENT CYCLE,CH, PEAK/RUN, MEASUREMENT POINT on MEASUREMENT MASTER SET-UP, you just choose model name and can start to measure.
4 MAKER MAINTENANCE
Not available.
5 TIMEOUT SET-UP
You can set waiting time for unloaded condition in measurement.
6 PREVIOUS
If you choose, it will go back to menu display.



2-1 Setting of TRAINING CYCLE

TRAINIG CYCLE

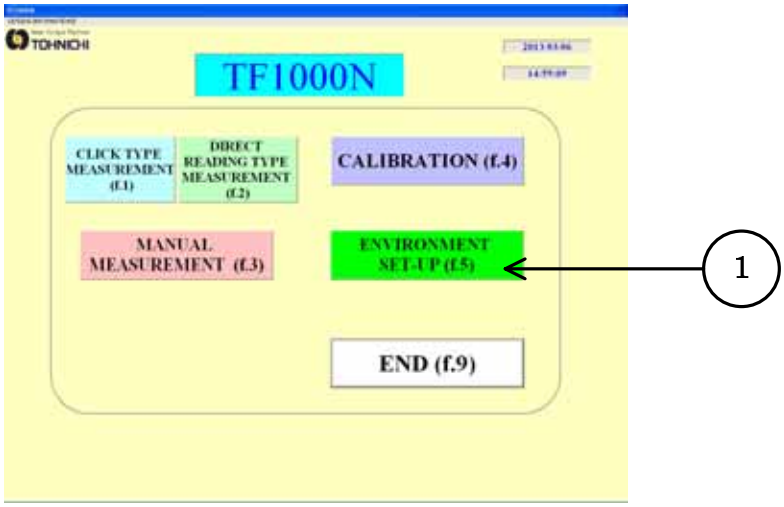
If you take data of preset type torque wrench, especially first data is not stable, neglect it.

You will take data after training.

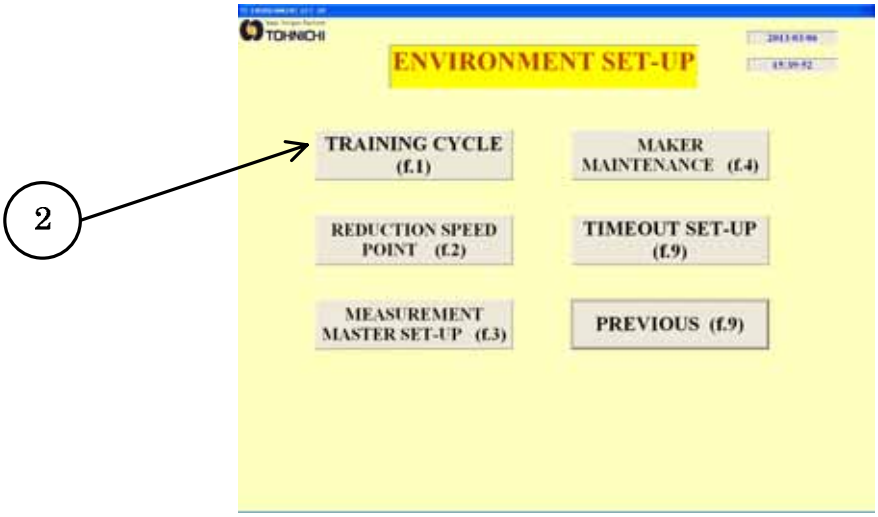
Operation Procedure

Do it by mouse.

1 Choose MANUAL MEASUREMENT on menu display.



2 Choose TRAINIG CYCLE.



3 Choose CYCLE

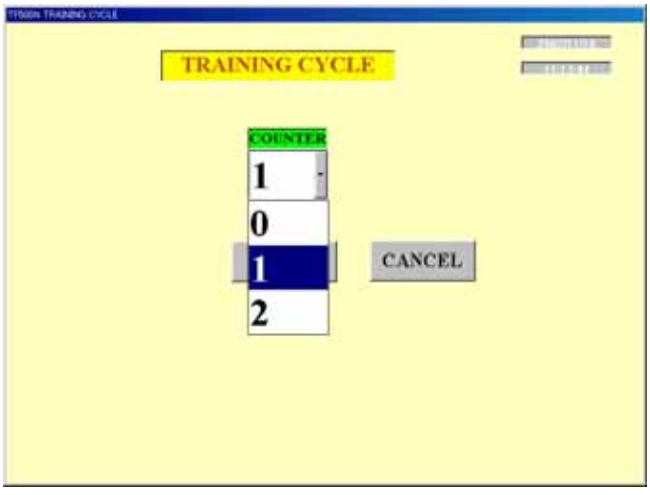
Click and click selection %.

Note: For setting cycle

0: Take data from first.

1: Neglect first data and take after second data

2: Neglect first ,second data and take after third data



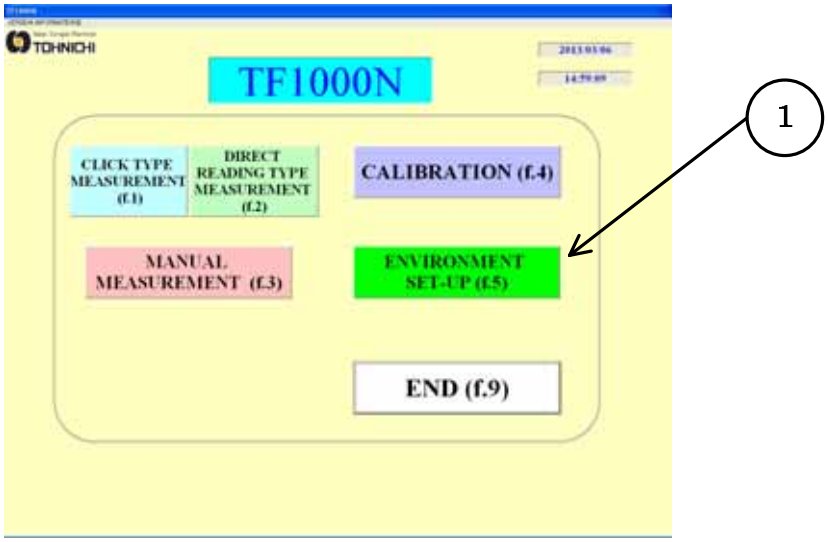
2-2 Setting of SPEED REDUCTION POINT

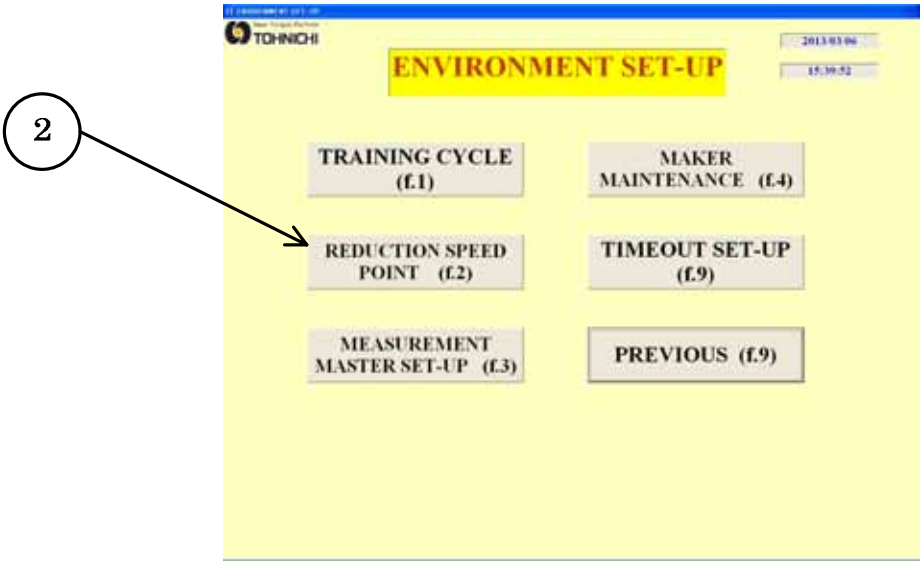
Speed reduction point

For direct reading type you can set to stop some % before measurement point. For signal torque wrench you can set to reduce speed some % before measurement Point.
(Initial setting is 80%)

(Setting procedure)

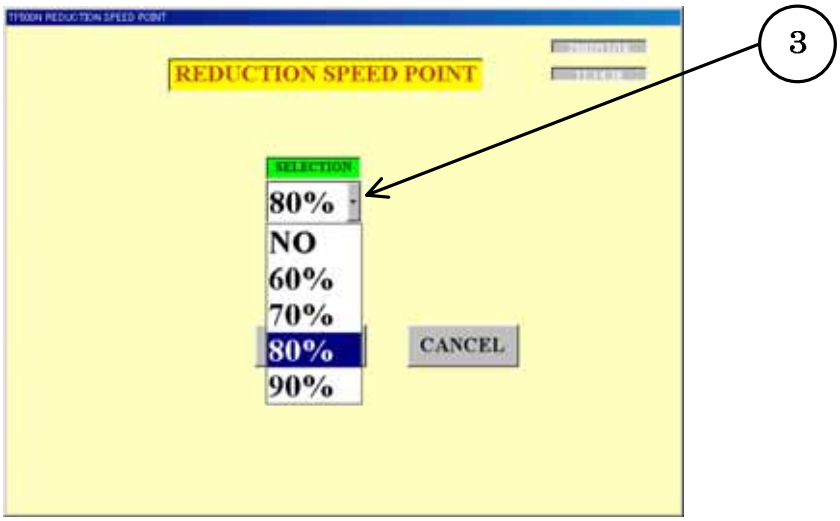
1 Choose ENVIRONMENT SETTING of MENU display.
Do it by mouse.
2 Choose SPEED REDUCTION POINT.

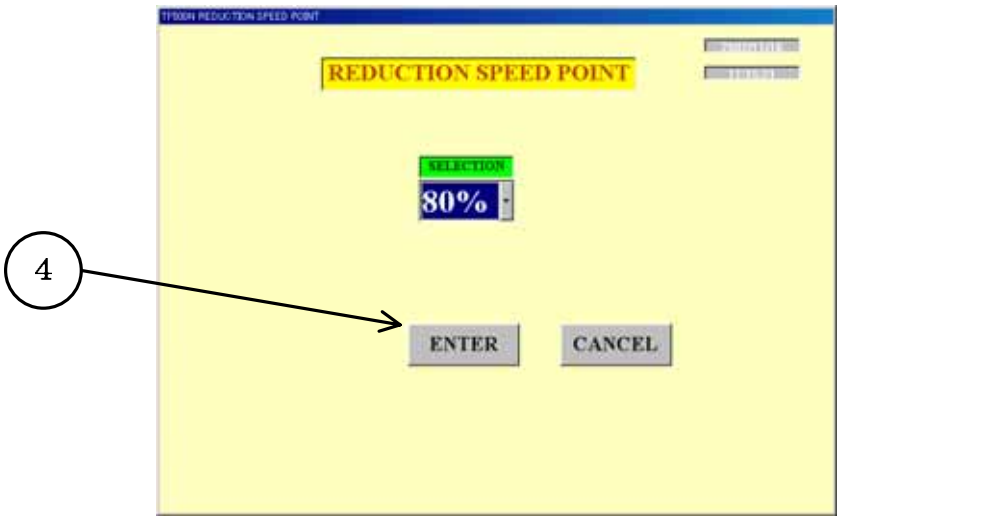




3 Choose %.
Click and click % to choose.

4 Choose ENTER





Note : Selection of %
60% : 60% against measurement value
70% : 70% against measurement value
80% : 80% against measurement value
90% : 90% against measurement value

Example : measurement value 120N.m, 90% case
For QL200N speed will reduce from about 108N.m and go to measurement value.

Example : measurement value 280N.m, 70% case
For DB280N it will stop at about 196N.m and stop at the point needle of torque wrench
Shows 280 by JOG dial of controller. Then push MEM switch of controller.

2-3 Setting of MEASUREMENT MASTER

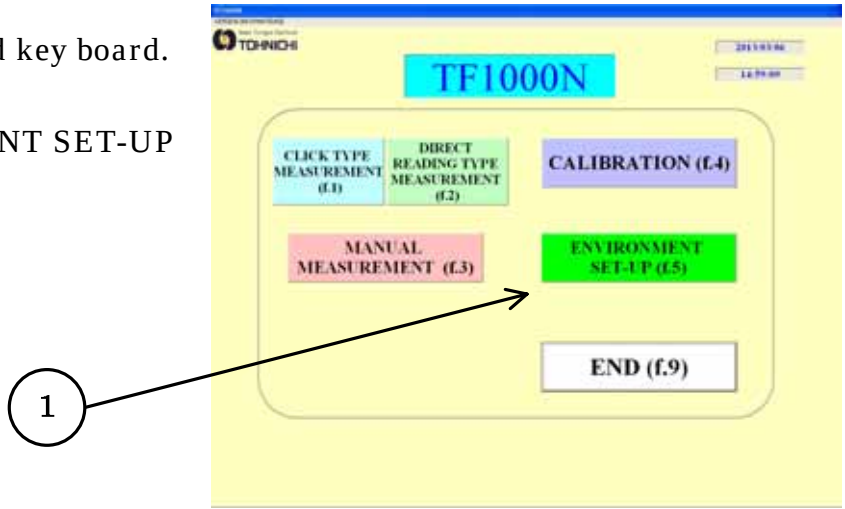
Measurement Master

If you previously register MODEL NAME, ACCURACY, MEASUREMENT CYCLE, CH, Peak/Run, MEASUREMENT POINT on MEASUREMENT MASTER, you just Choose MODEL NAME on measurement and can start to measure.

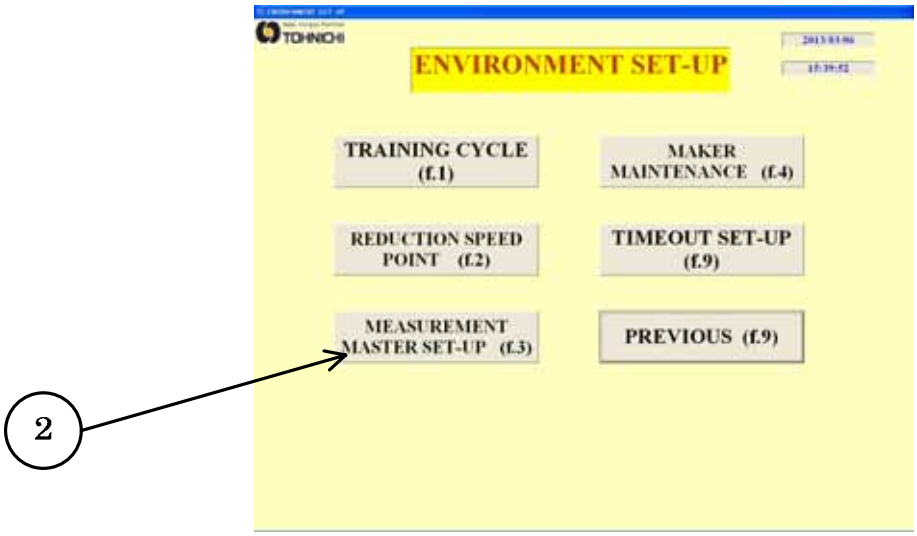
MASTER INPUT

(Input procedure)
Do setting by mouse and key board.

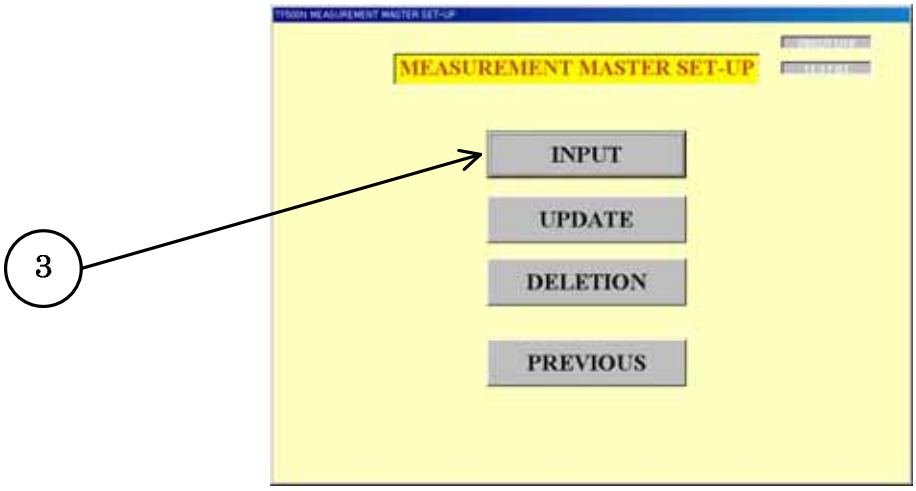
1 Choose ENVIRONMENT SET-UP on menu display.



2 Choose MEASUREMENT MASTER SET-UP.
Do it by mouse.



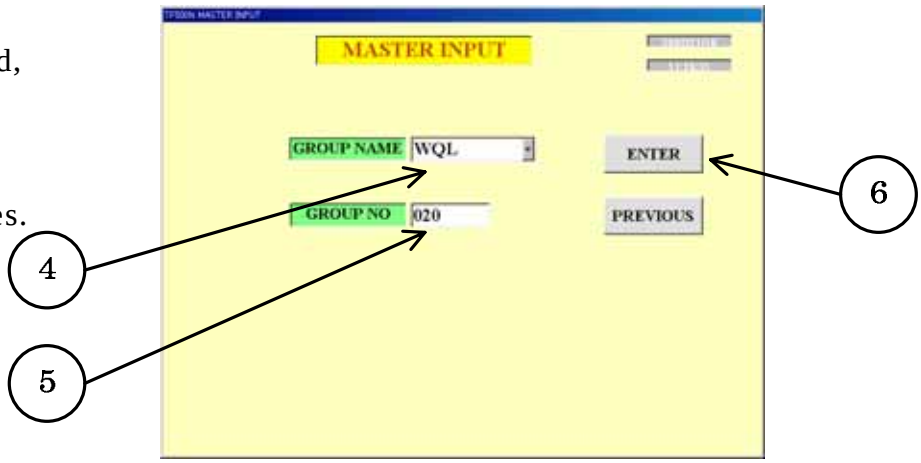
3 Choose INPUT.



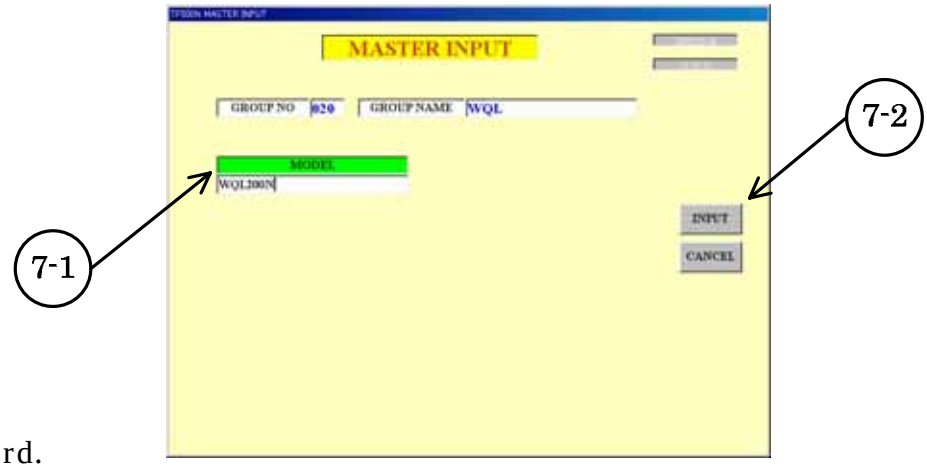
Do setting by mouse and key board.

4 Input GROUP NAME
If previously registered,
click and choose one.

5 Input GROUP CODE.
Input optional 3 figures.
6 Choose ENTER.



7 Input MODEL NAME and click INPUT.
Do setting with key board.

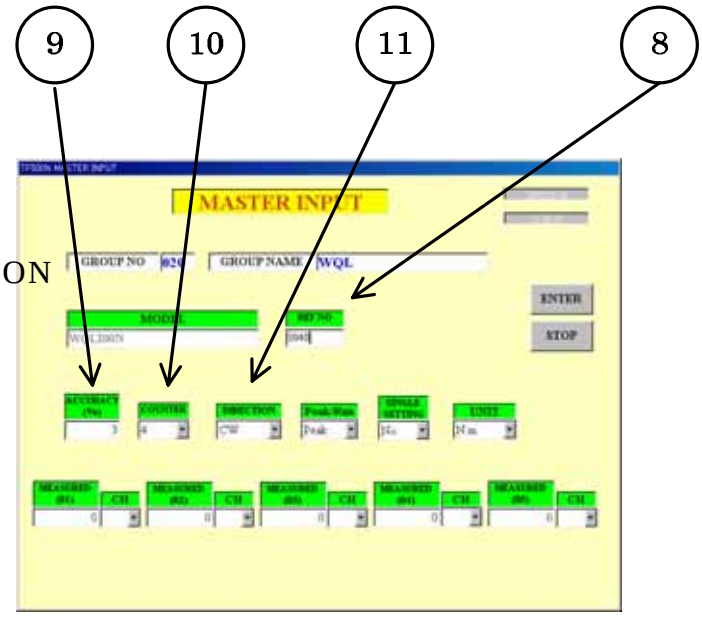


8 Input MODEL No.
Do setting by key board.
Input optional 3 figures.

9 Input ACCURACY.

10 Choose MEASUREMENT CYCLE.
You can set from 1 to 7 times.
Click and click selection cycle.

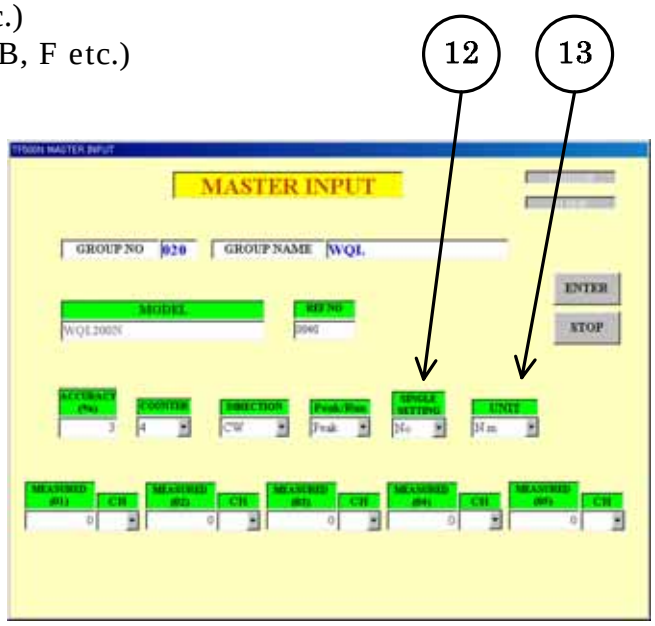
11 Choose MEASUREMENT DIRECTION
Click and click selection cycles.
CW : clockwise only(QL,CL etc.)
CCW : counter clockwise only
Both : both direction (DB,F, DQL)



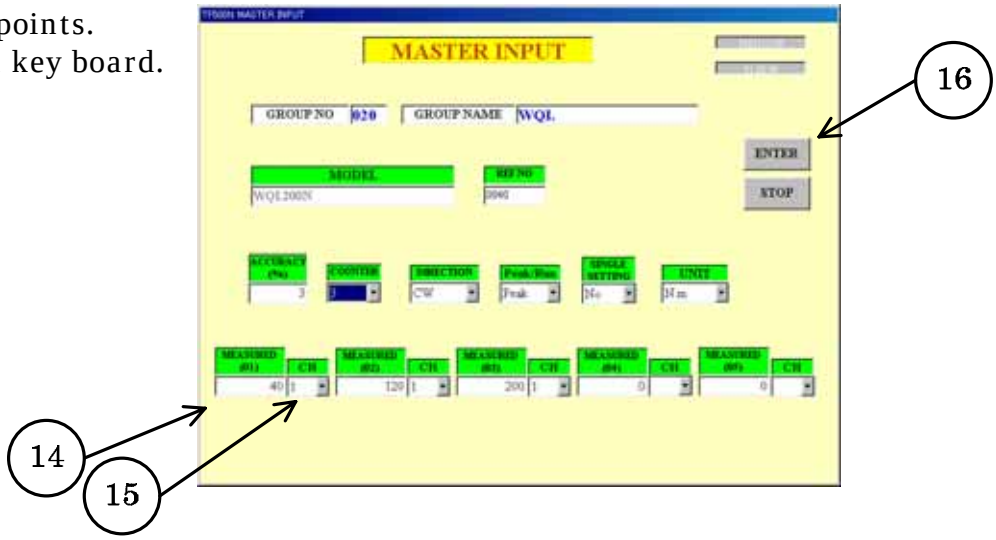
Do it by mouse and key board.
12 Choose PEAK/RUN

Note : For PEAK/RUN
PEAK : Signal torque wrench (QL,CL etc.)
RUN : Direct reading torque wrench(DB, F etc.)

13 Choose preset or not.
Click and click YES or NO.



Note : For single purpose
Yes : one point set (QSP,SP etc.)
No : Preset, direct reading type torque wrench (QL, DB)
14 Input measurement value.
Input maximum 5 points.
Do it by mouse and key board.

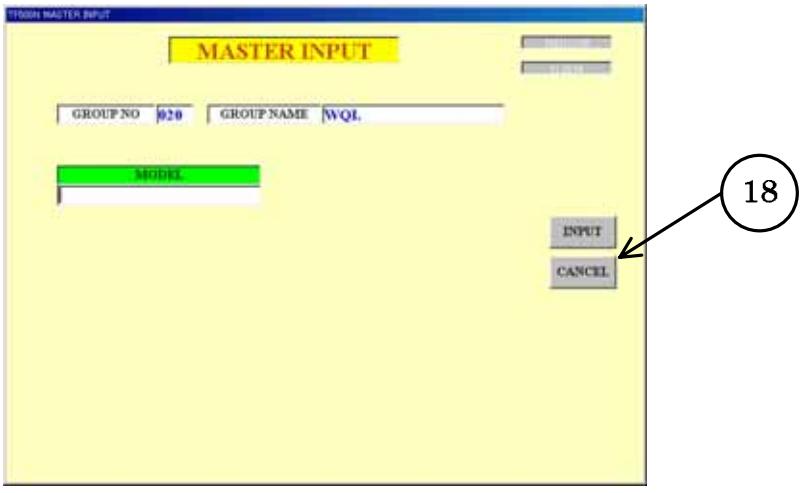


15 Choose ENTER.
Confirm each channel torque range and measurement value.

16 Choose ENTER.

17 If you continue,
repeat from 6 to 16.

18 If you finish, choose END.



2-4 Change of MEASUREMENT MASTER

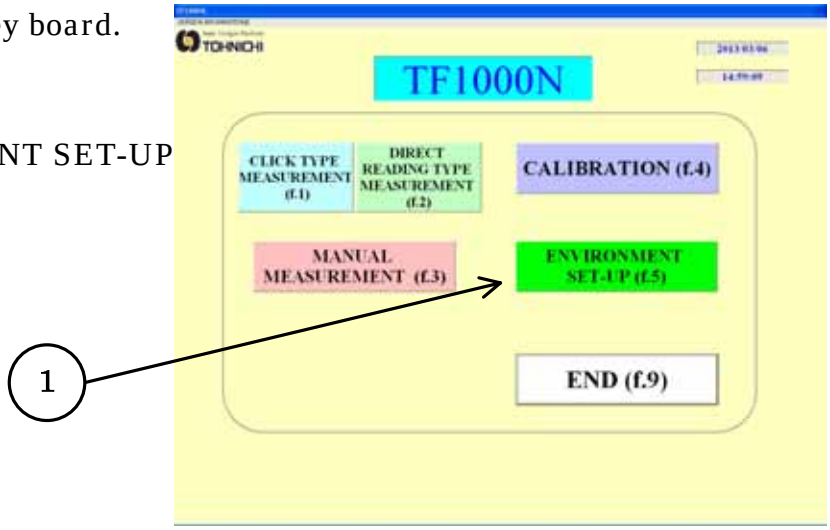
Change of MEASUREMENT MASTER

You can change data "Accuracy, Measurement Cycle, Measurement Direction, CH, Peak/Run, Measurement Point" registered previously on MEASUREMENT MASTER.

For MASTER change

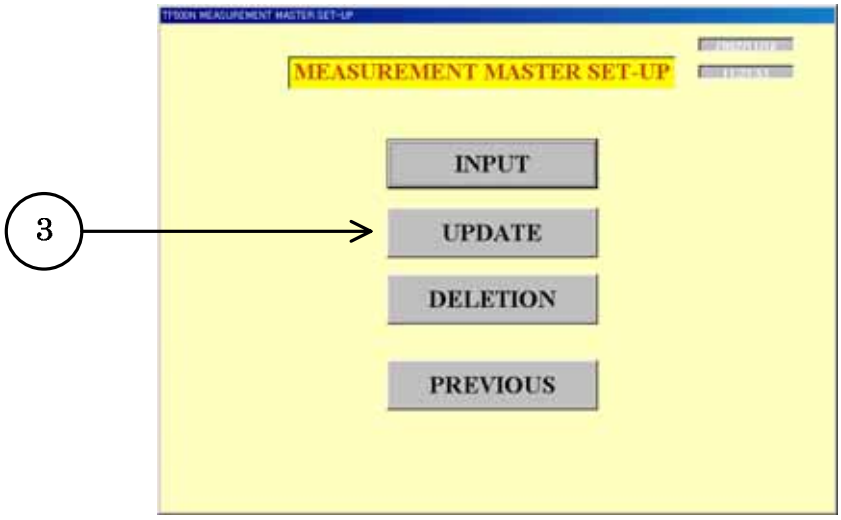
Do it with mouse and key board.

1 Choose ENVIRONMENT SET-UP on menu display.



2 Choose MEASUREMENT MASTER SET-UP

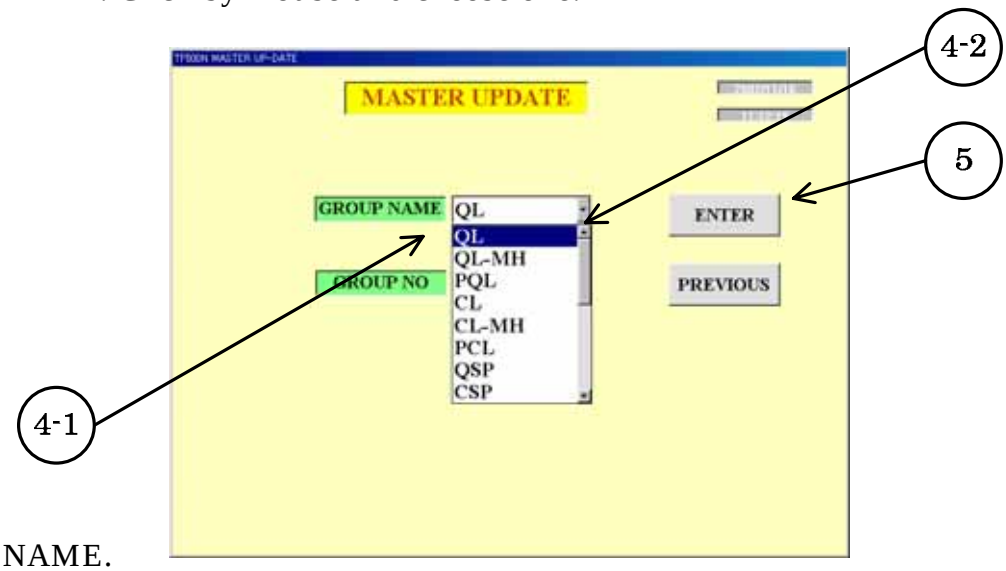
3 Choose UPDATE.



Do setting with mouse and key board.

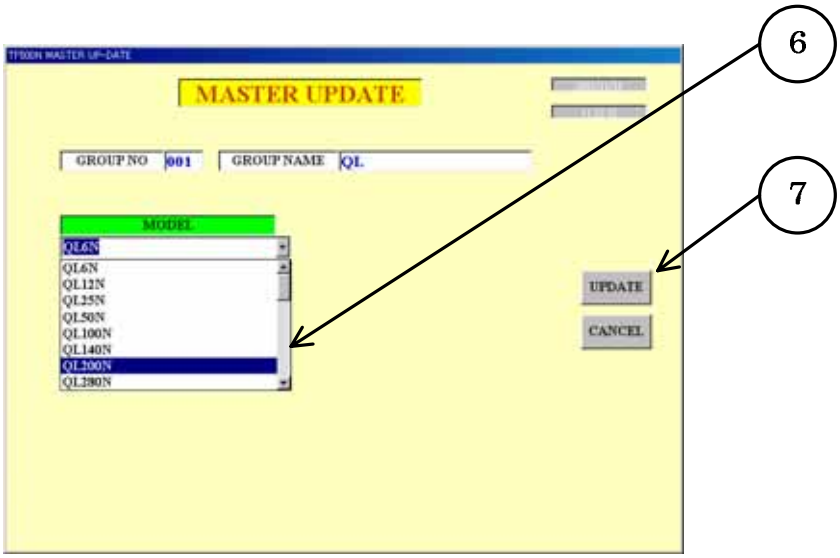
4 Choose GROUP NAME. Click by mouse and choose one.

5 Choose ENTER.



6 Choose MODEL NAME.
Click by mouse and choose one.

7 Choose UPDATE.



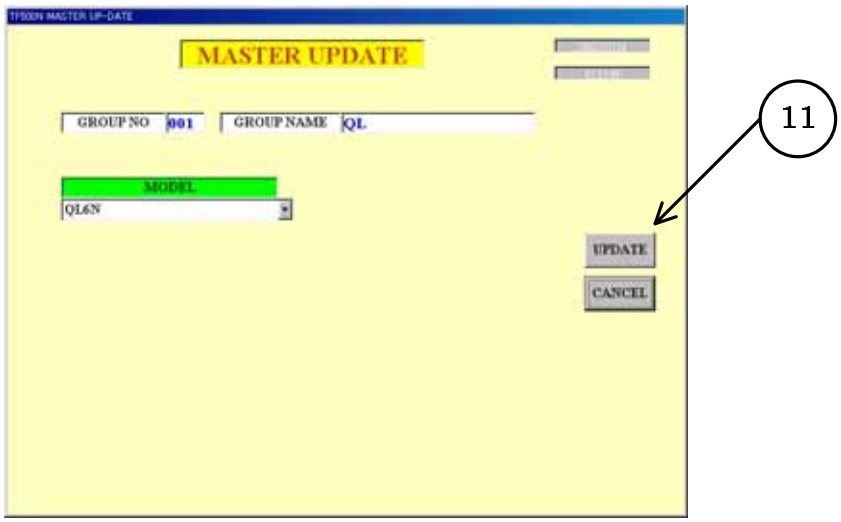
8 Choose the item to change and change it.
See MASTER INPUT.

9 Choose ENTER.

Do setting with mouse and key board.

10 If you finish, choose END.
Click and click % to choose.

11 If you continue, repeat from the point to change to 10.



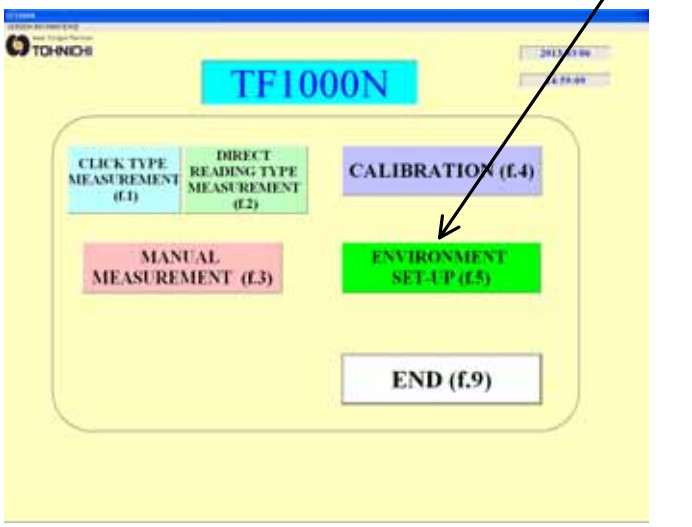
2-5 DELETION of MEASUREMENT MASTER

DELETION of MEASUREMENT MASTER

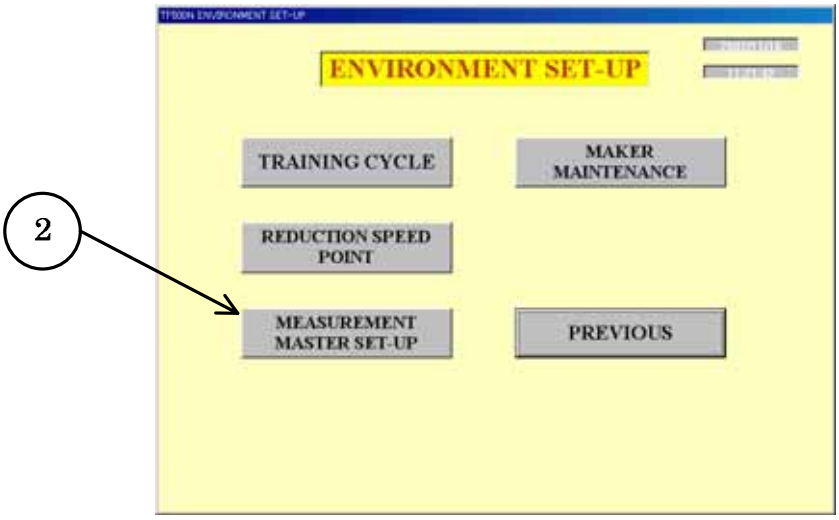
You can delete data on each model "Accuracy, Measurement Cycle, Measurement Direction, CH, Peak/Run, Measurement Point" registered previously on MASTER.

For MASTER DELETION
Do setting with mouse and key board.

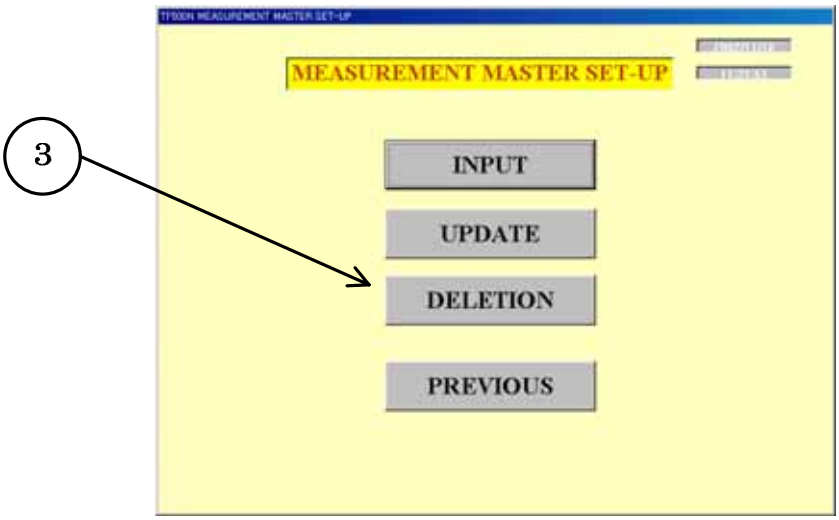
1 Choose ENVIRONMENT SET-UP on menu display.



2 Choose MEASUREMENT MASTER SET-UP.



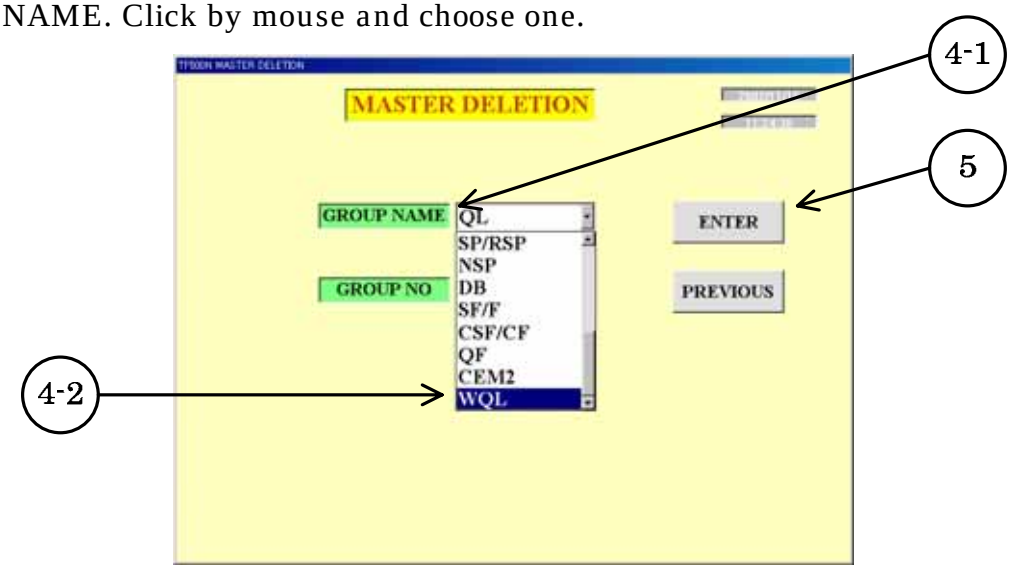
3 Choose DELETION.



Do it with mouse and key board.

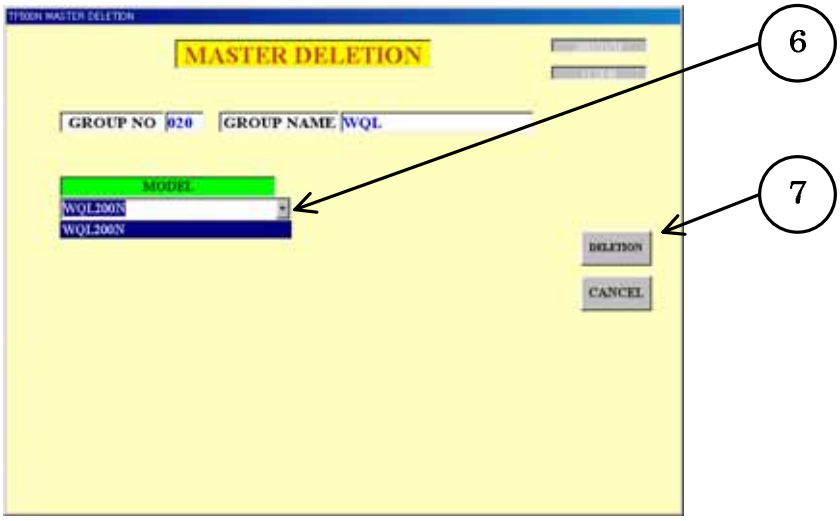
4 Choose GROUP NAME. Click by mouse and choose one.

5 Choose ENTER.



6 Choose MODEL NAME.

7 Choose DELETION.



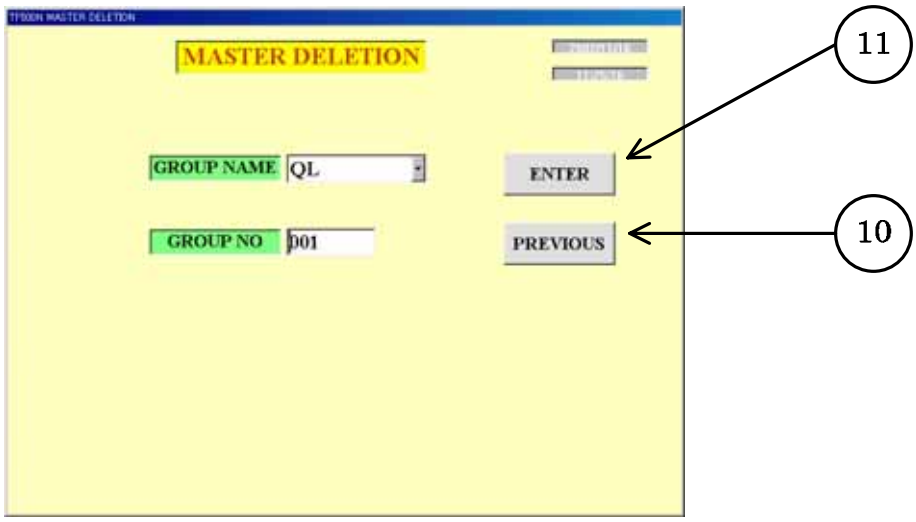
8 Confirm the content.

9 If you delete, choose ENTER.
If you don't delete, choose STOP.

Do setting with mouse and key board.

10 If you finish, choose PREVIOUS.

11 If you continue, repeat 4-9.



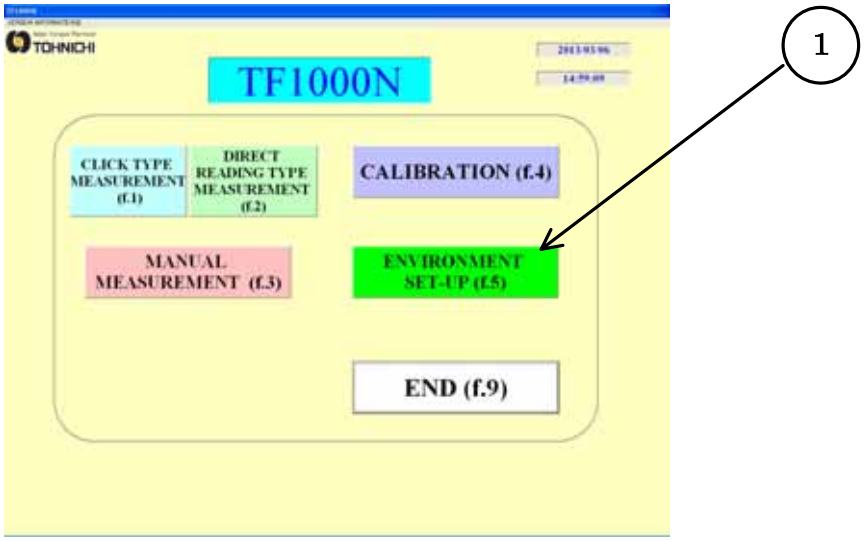
2-6 TIMEOUT SET-UP

TF automatically stops and warns user after the elapse of set time of unloaded condition in measurement.

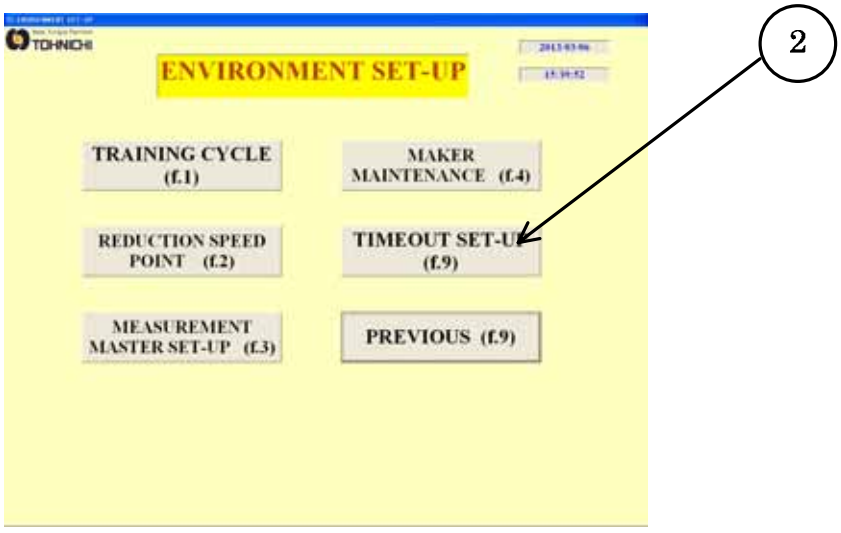
For MASTER DELETION

Do setting with mouse and key board.

1 Choose ENVIRONMENT SET-UP.

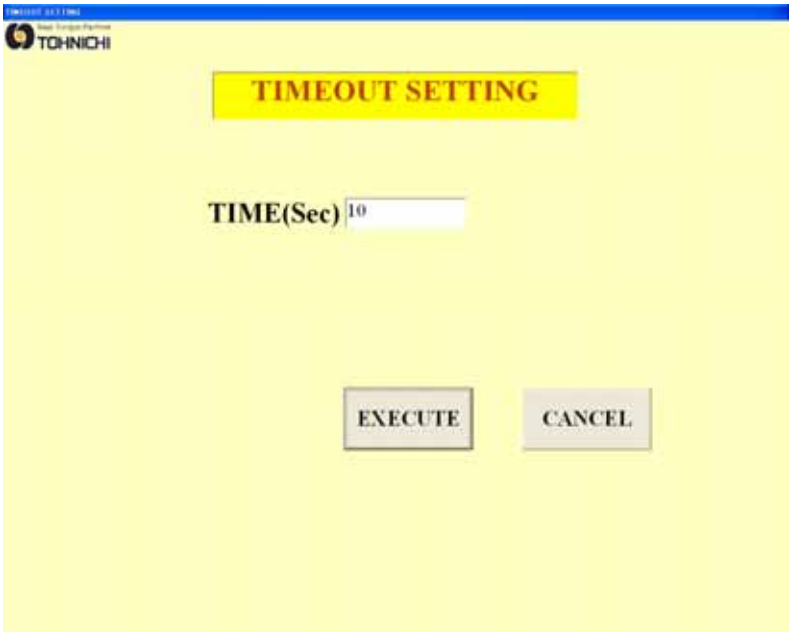


2 Choose ENVIRONMENT SET-UP.



3 Input value to〔TIME （Sec）〕with key board.

4 Choose EXECUTE.

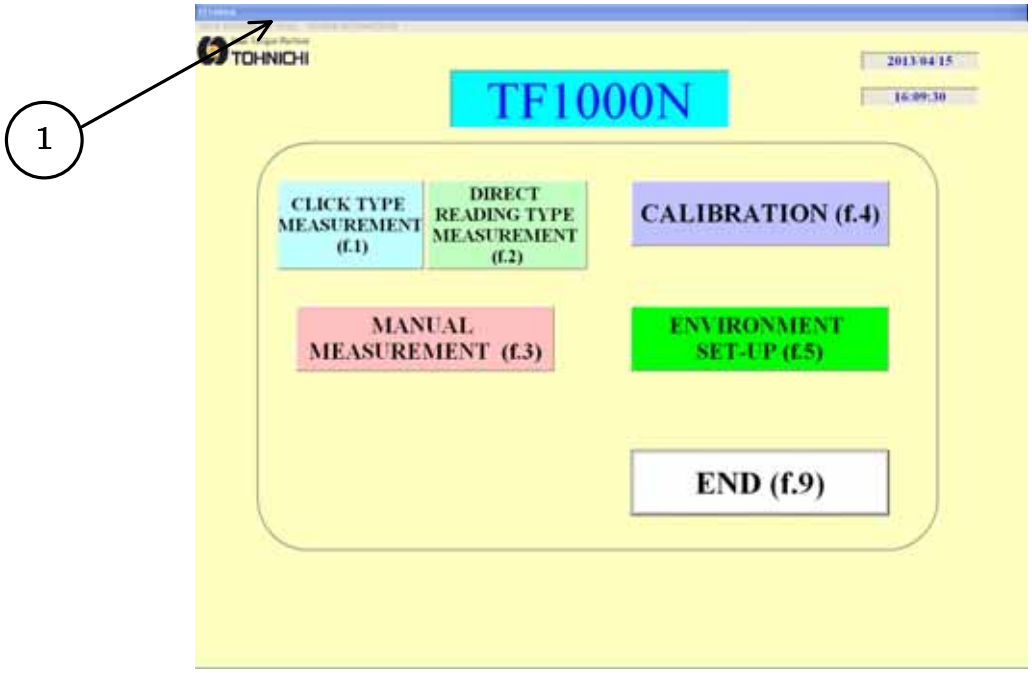


Note: Unable to input 0 sec to〔TIME （Sec）〕.

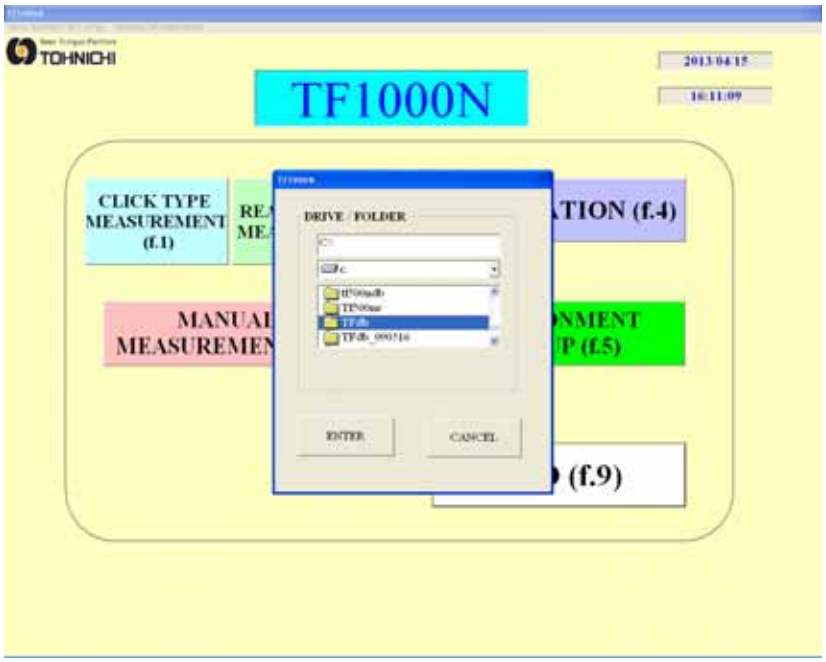
2-7 SETTING FOR DESTINATION TO SAVE

Create a folder to save data on Windows

1 Click the "DATA ADDRESS SET-UP (D)" located in the upper left portion of the screen.



2 Select your destination to save the data, and click OK.



Trouble shooting

1 No electric power.

Reason 1
Connection failure of the power cord.
Measure 1
Confirm prescribed power cord or not and insert firmly.
Reason 2
EMERGENCY STOP button is pushed.
Measure 2
Turn to right EMERGENCY STOP button of body and controller.
You can cancel it.
Push WARM UP (preparation) button.

2 If you want to measure, display turns red and will not start.

Reason 1
You don't push WARM UP (preparation) button.
Measure 1
Push WARM UP (preparation) button.
If display turns red Green lamp turns on.

Display goes back normal.