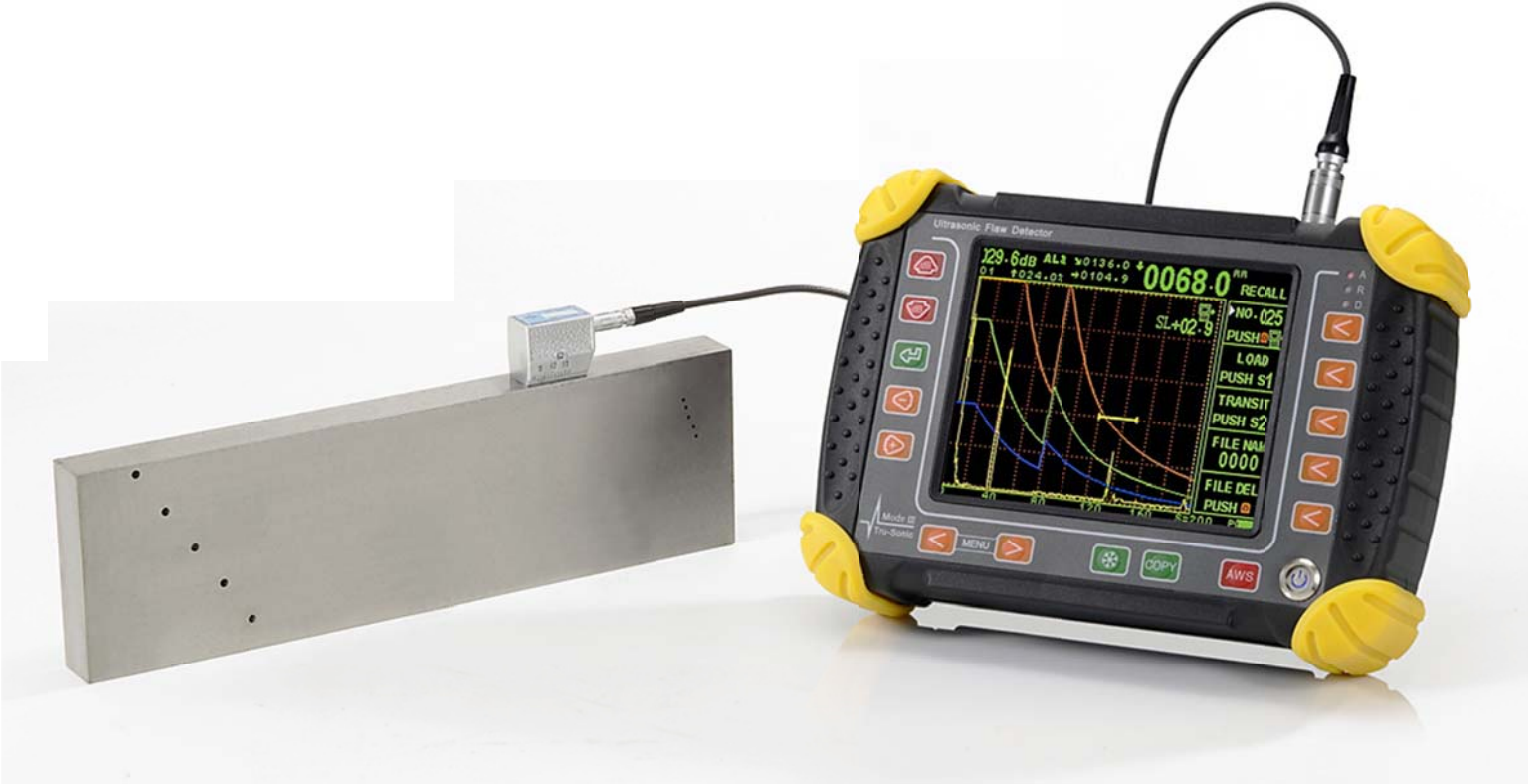


TRUSONIC III OPERATING MANUAL



Initial Start-Up

Power Supply

The Trusonic III can be operated with an external power supply through AC/DC adaptor or with built-in Lithium-Ion battery pack. It can also be powered through the universal power supply (battery charger) from any standard AC outlet voltage 100-240V

Operating from AC Power Supply

Plug the charger in to AC outlet and wait until LED indicator turns green, then plug the charger into main unit

The LED indicator on the charger will turn from green to red. (If the LED light not turns red into green, don't plug it.)

Operating with Lithium Battery Pack

The battery pack is located on the back of the instrument. The battery pack slides into place and is secured with large slotted screw. User are able to secure or release the battery pack, it is changeable.

Battery Life indicator

Symbol of battery power level shown right bottom side of display, If the battery-pack power less than 20%, the instrument will show "Low Battery", at this stage instrument still can use approx. 20 min. when "Low Battery" alarm buzzer, user need to switch off the unit and plug unit to the power supply or recharge the battery.



Charging the Batteries

Internal Charging

If a battery is located in the instrument, the charging process is start automatically when you connect the plug-in power supply unit. The instrument can be used while the battery is being charged. The charging time is approx.8 hours with turn it off and 10 hours with turn on. This charging time applies to ambient

temperatures from 25-30 degree C. Please take into consideration that the battery pack is not charged to their full capacity at higher temperatures.

The LED indicator on the plug-in power supply unit indicates the status of the charging process.

Firstly plug the power supply to the main power (100-240VAC), The LED indicator on the Power supply/Charger indicates the status of the charging process.

When battery fully charged, the charger LED indicator will turn from red into green.

External Charging

The battery can also be recharged by plugging the powder adaptor directly into the connector below the slotted screw on the battery pack.

Recharging procedures same as above.

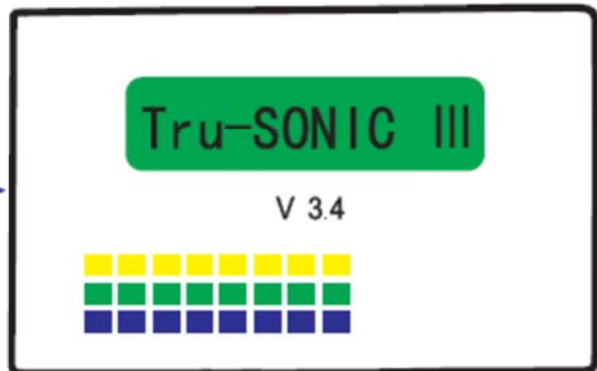
Starting the TruSonic III

To start the Trusonic III, press key  to power on

The start display of the Trusonic III appears a flash bar with instrument logo and software version.

The system will carry out a self-check and then switches over to the stand-by mode.

The setting of all function values and the basic setting are same as prior to the instrument being turn off.



Keypad Functions



Gain Increasing / Gain Decreasing



Enter



Value Decreasing



Value Increasing



Switch Main Menu left & Right



Automatic Gain Adjustment



Freeze – 1. To freeze current display 2. To create DAC curve 3. To read Files



1. Recall saved files 2. Exit from inspection or DAC mode



Record – Press Freeze key first then press copy key to record current data to be saved





Unit Selection – Selecting each unit and value adjustment in menu

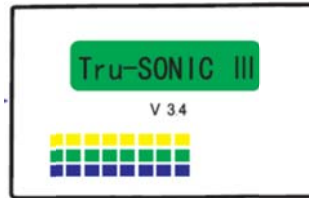
Tru-sonic III Menu Guidance

| BASE | GATE | PULSER | TRIG | DAC | FILE | PKMEM | WELD | SET | CAL | RECALL |
|---------------------|------------------|---------------------|--------------------|----------------|--------------------|----------------|-------------------|-------------------|------------------------------------|--------------------|
| RANGE 0250 mm | START 0077 mm | TYPE ⇩ | ANGLE 00.0° | DAC 3C OFF | PRESS ← CALL 01 | PK MEM OFF | WELD TYPE V | HORN OFF | RANGE 0250 mm | NO.020 P * CALL |
| dB STEP 0.1 dB | WIDTH 0045 mm | FREQ 02.5 | MEAS PEAK | DAC 4C OFF | SELECT FILE | ENVLOP OFF | W WIDTH 000 mm | BRIGHT HIGH | G START 0077 mm | LOAD PRESS ⇨ |
| MTL-VEL 5920 m/s | THRESH 40.0 % | P-SIZE D 20 mm | X-VALUE 00.0 mm | API OFF | | AGC 80% OFF | W ANGLE 30° | UNIT mm | DATUM 100 mm | TRANSIT PRESS ⇨ |
| D-DELAY 0000 mm | LOGIC POS | | MTL THK 000 mm | AVG OFF | | | MTL THK 000 mm | M-D-Y 05-28-16 | MAX ECHO OVER GATE L PRESS ← | F. NAME DAC 0 |
| TRIG S | bGATE OFF | P-DELAY 00.00 us | C. GAIN 00 dB | RESET L.P ← | DELET L.P ← | REJECT 00 % | W DIST 000 mm | TIME 08:38 | AUTO CAL | ERASE PRESS * |

Reset

If functions cannot be operated after a warm start, or want to reset the instrument to default setup, by pressing below instruction

Press  to power on the device, at same time by long pressing  at initial stage.












Date and Time Setting


Date:





Switch menu to unit "SET" by key   , Selecting date by key  and press  for modification, pressing  to switch month, day and year, then press  or  to adjust current date, after that press  again to complete setting.





Time:

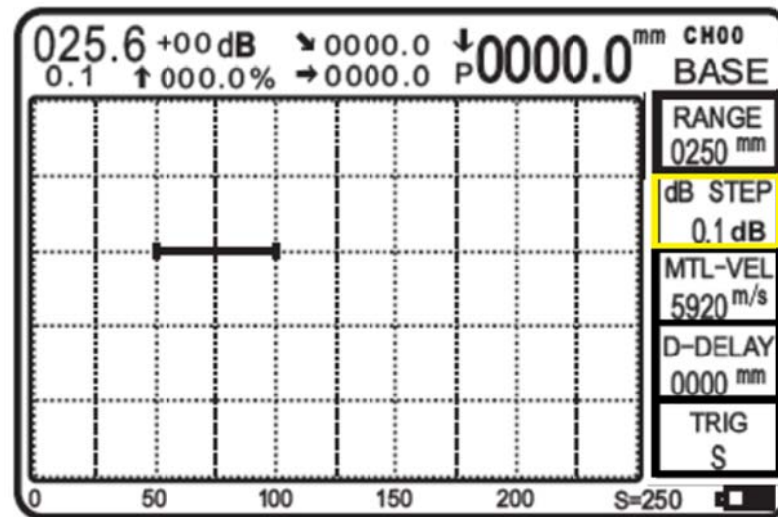
Switch menu to unit "SET" by key   , Selecting Time by key  and press  for modification, pressing  to switch hour and minute, then press  or  to adjust current time, after that press  again to complete setting.

Gain Setting







Switch menu to unit "BASE" by key , Selecting dB

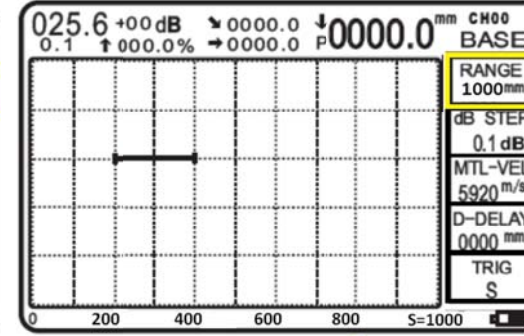
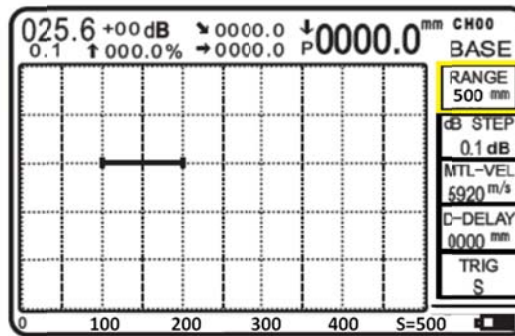
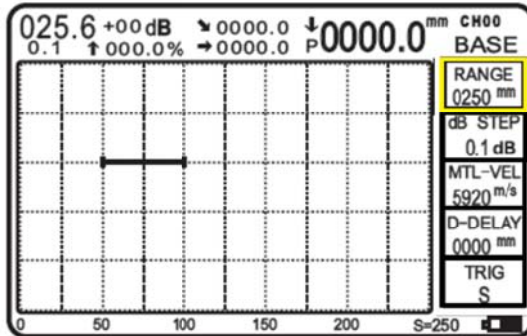
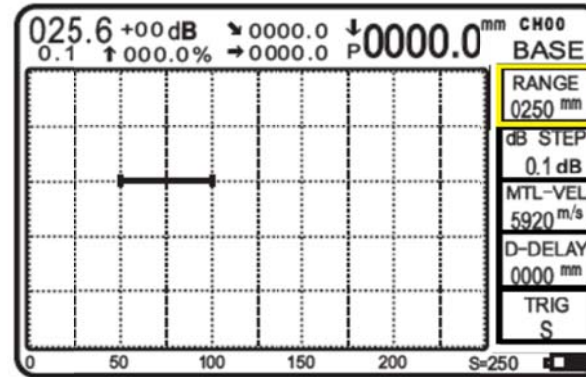
STEP by key  for setting, then press  or  and  to adjust, there are 0.1, 2, 6 and 12 dB steps.

After settled, gain will increase or decrease accordance your setting by pressing keys  , For example, set dB step = 6dB, When we use   key, it will increase or decrease 6dB for one step.








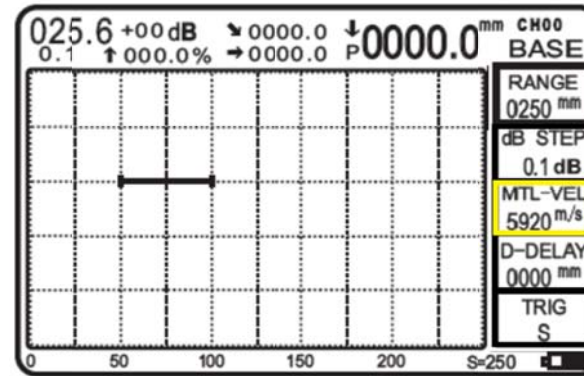
Range Setting (Display Range)

Switch menu to unit "BASE" by key  MENU , Selecting RANGE by key  for setting, then press  or  and  to adjust, there are 25, 50, 100, 125, 200, 250, 500, 1000mm in default.








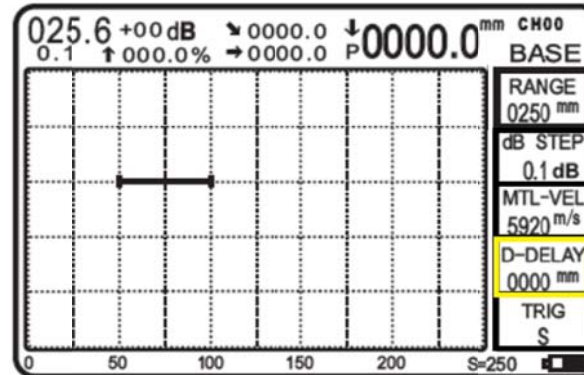
MTVEL (Sound Velocity) Setting

Switch menu to unit "BASE" by key , Selecting
MTL-VEL by key  for setting, then press  or  and
 to adjust, there are two fixed velocities setting for Longitude
5920 m/s and Shear wave 3240 m/s.in default.

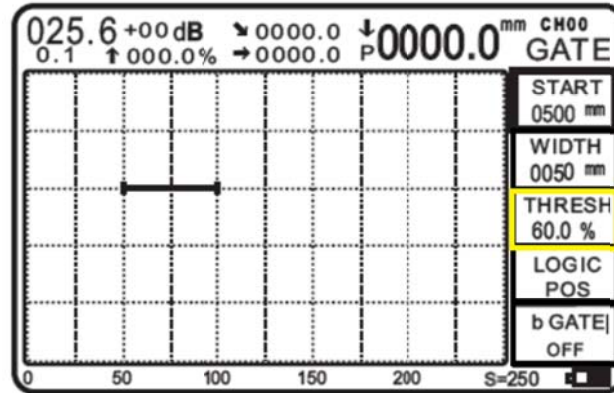


D-DELAY (Display Starting Point)





Switch menu to unit "BASE" by key , Selecting
D-DELAY by key  for setting, then press  or  and
 to adjust, there are delay range 0, 25, 50, 100, 250, 500,
1000 and 2000 mm in default, function allows user to shift the
complete screen display and consequently also the display zero.









Setting The Gates (Function Group aGAT and bGAT)



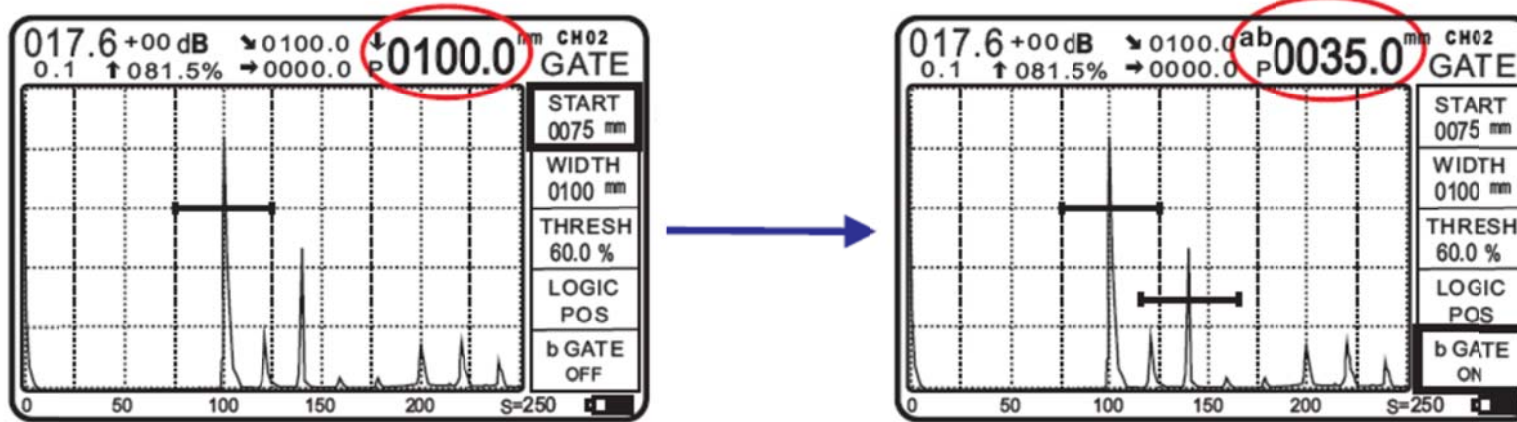
Set aGATE

Switch menu to unit "GATE" by key , Selecting START by key  for moving a-Gate, press  to move gate right and press  to move left.

Selecting "WIDTH" by key  for changing width of a-Gate, there are 5, 10, 19 and 38mm of a-Gate width in default, user can also do slightly change by keys  and .

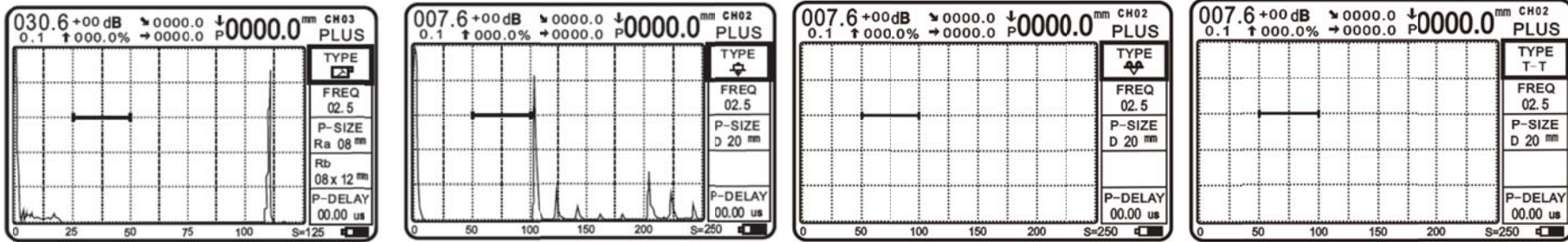
Selecting "THRESH" by key  for moving a-Gate up and down within the adjustment range of 3.5%-96.5% screen height, there are set 20, 40, 60 and 80% of thresh in default, user can also do different adjustment of percentage by keys  and .






bGATE



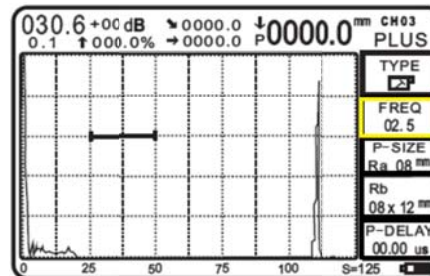
Switch menu to unit "GATE" by key  MENU , Selecting b-GATE by key , and press  again to launch b-Gate, press  to move gate right and press  to move left.






Setting The Pulser



Switch menu to unit “PULSER” by key , Selecting TYPE by key  for changing type of probes, press  or  and  to select Angle Beam, Contact Straight Beam, Dual element or Thu-Transmission type of probes.

Setting the Frequency

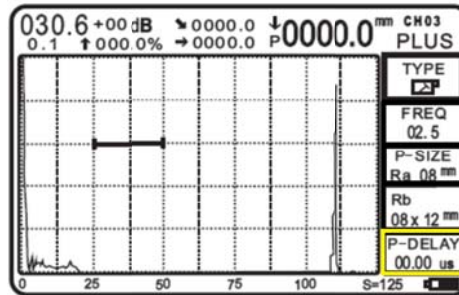








Switch menu to unit “PULSER” by key , Selecting FREQ by key  for editing frequency of probes, press  or  and  to adjust the corresponding frequency.





P-DELAY (Probe Delay)

Every probe has a delay between the transducer element and contact face. This means that the initial pulse must first pass through this delay line before the sound wave can enter the test object, user can compensate for this influence of the delay line in the function P-DELAY

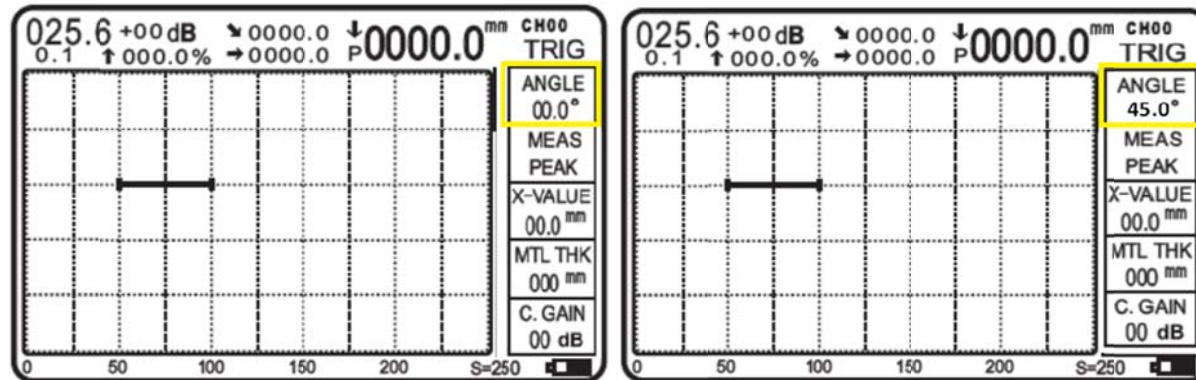
If the value for P-DELAY is unknown, read the section calibration in order to determine this value









Switch menu to unit "PULSER" by key   , firstly selecting P-DELAY by key  for changing delay on display, press  and  to change 0.01 us per step.

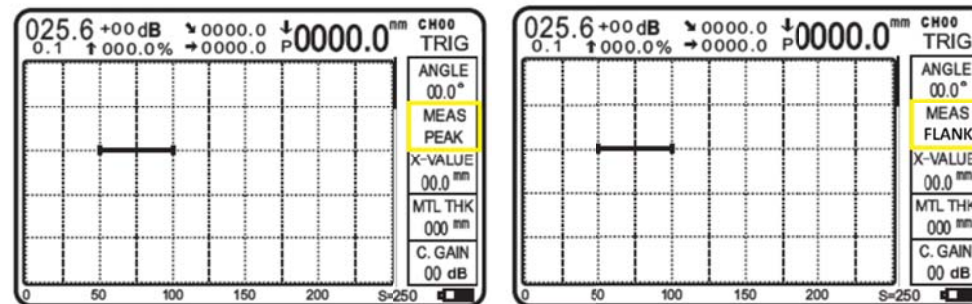
Secondly, Selecting P-DELAY by key  and press  again, then press  and  to increase or decrease 0.1 us per step.

Setting Angles







Switch menu to unit “TRIG” by key  MENU , selecting ANGLE by key  for changing probe angles, there are 0, 30, 40, 45, 60 and 70 degree in default, press  or  and  to increase or decrease degree levels.

Peak” and “Flank

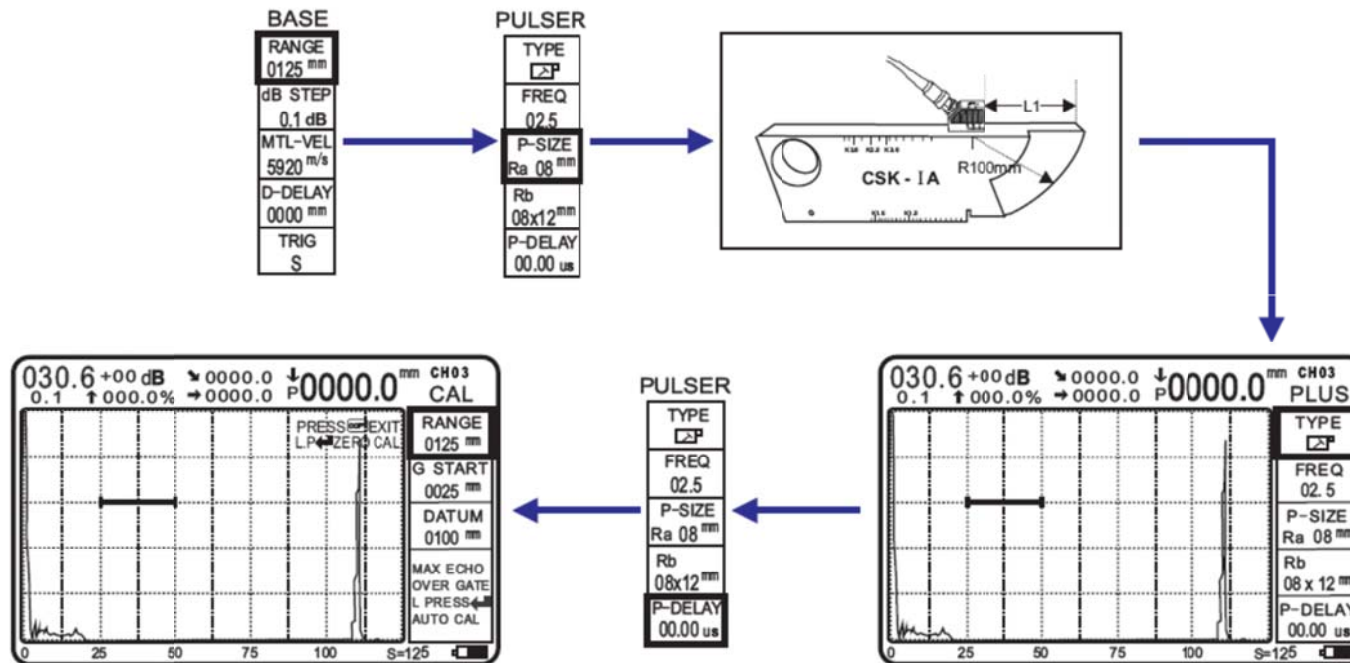






“Peak” or “Flank” has different measurement value display, probes delay are different. This will cause inspection tolerance. Most of time, PEAK use for flaw detection and FLANK use for thickness measurement.

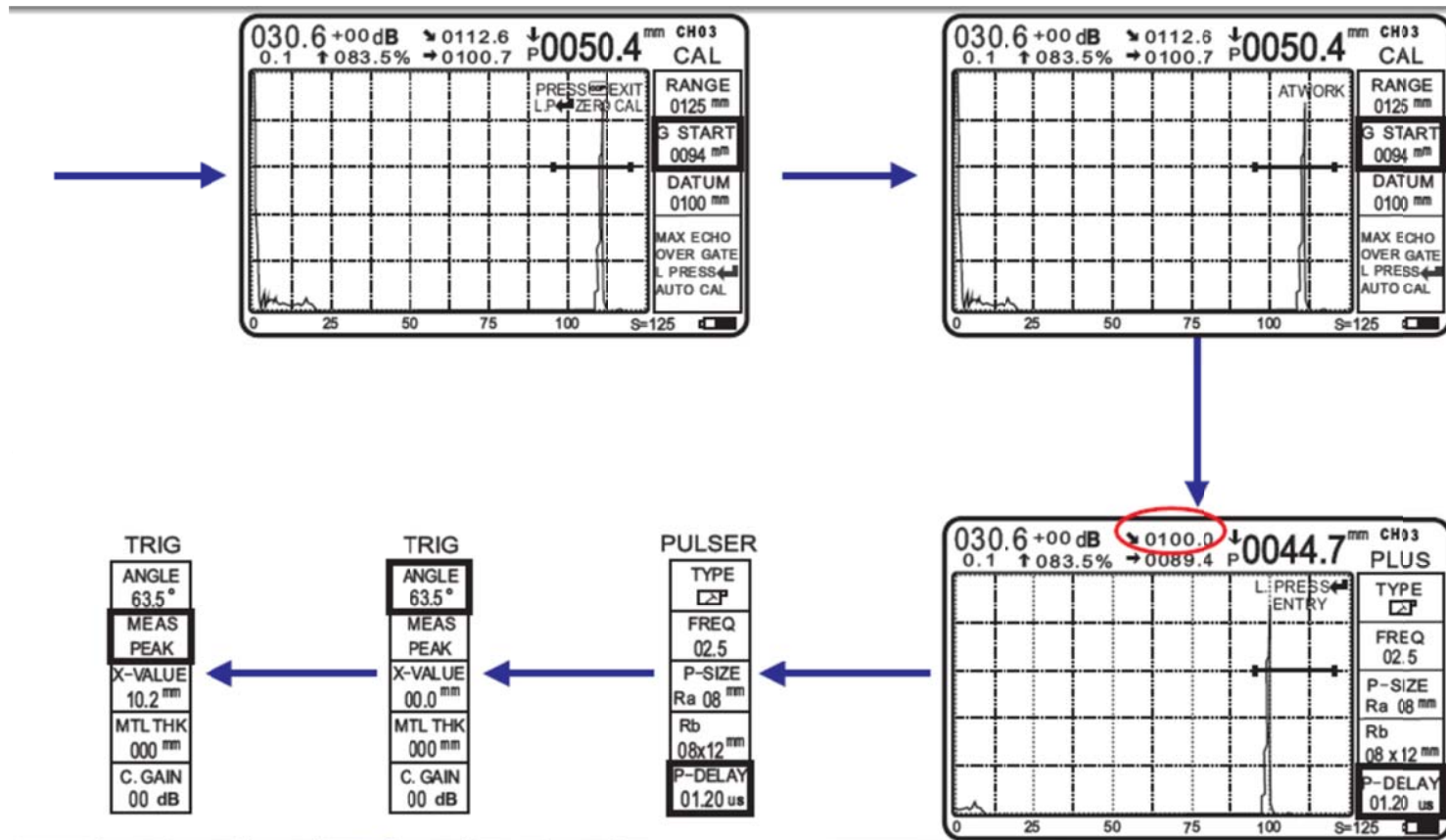
Switch menu to unit “TRIG” by key   , selecting MEAS by key  for changing between PEAK or FLANK.





Calibration

Angle Beam Probe Calibration

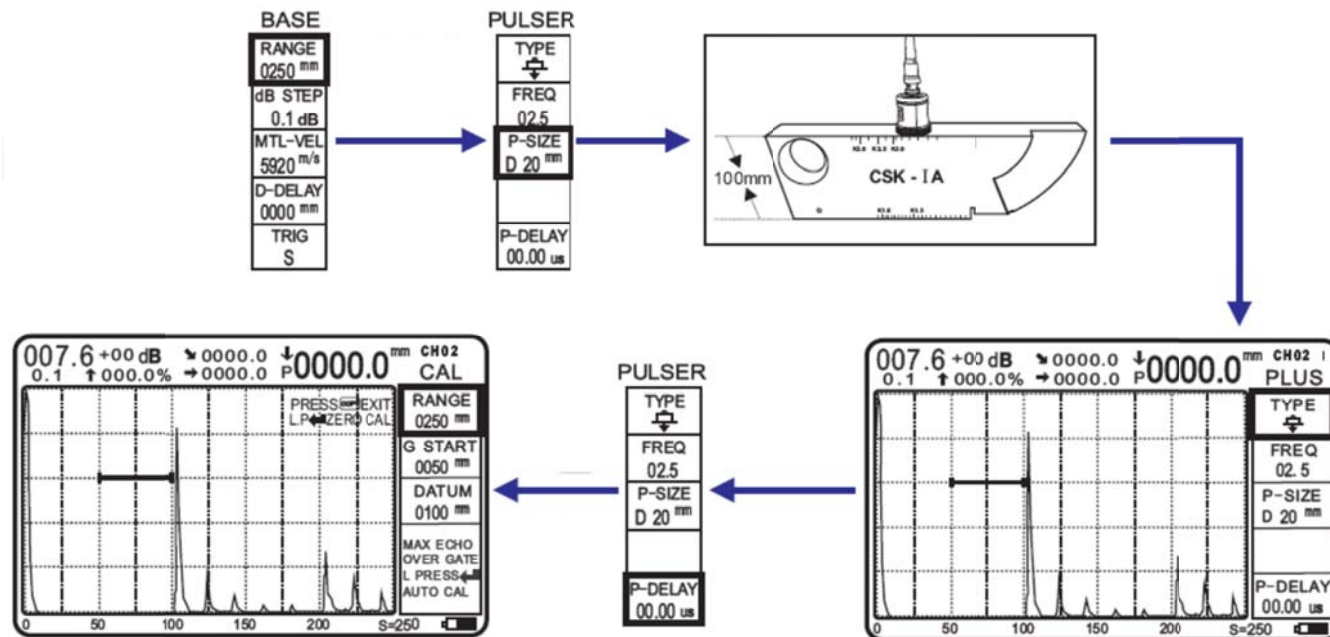






1. Switch menu to unit "BASE" by key , setup range to 125mm, then set up probe type, frequency, crystal size etc.
2. Adjust the echo Amplitude to 80% high of display.
3. Selecting P-DELAY by key , then long press  into calibration mode, or press  to exit.

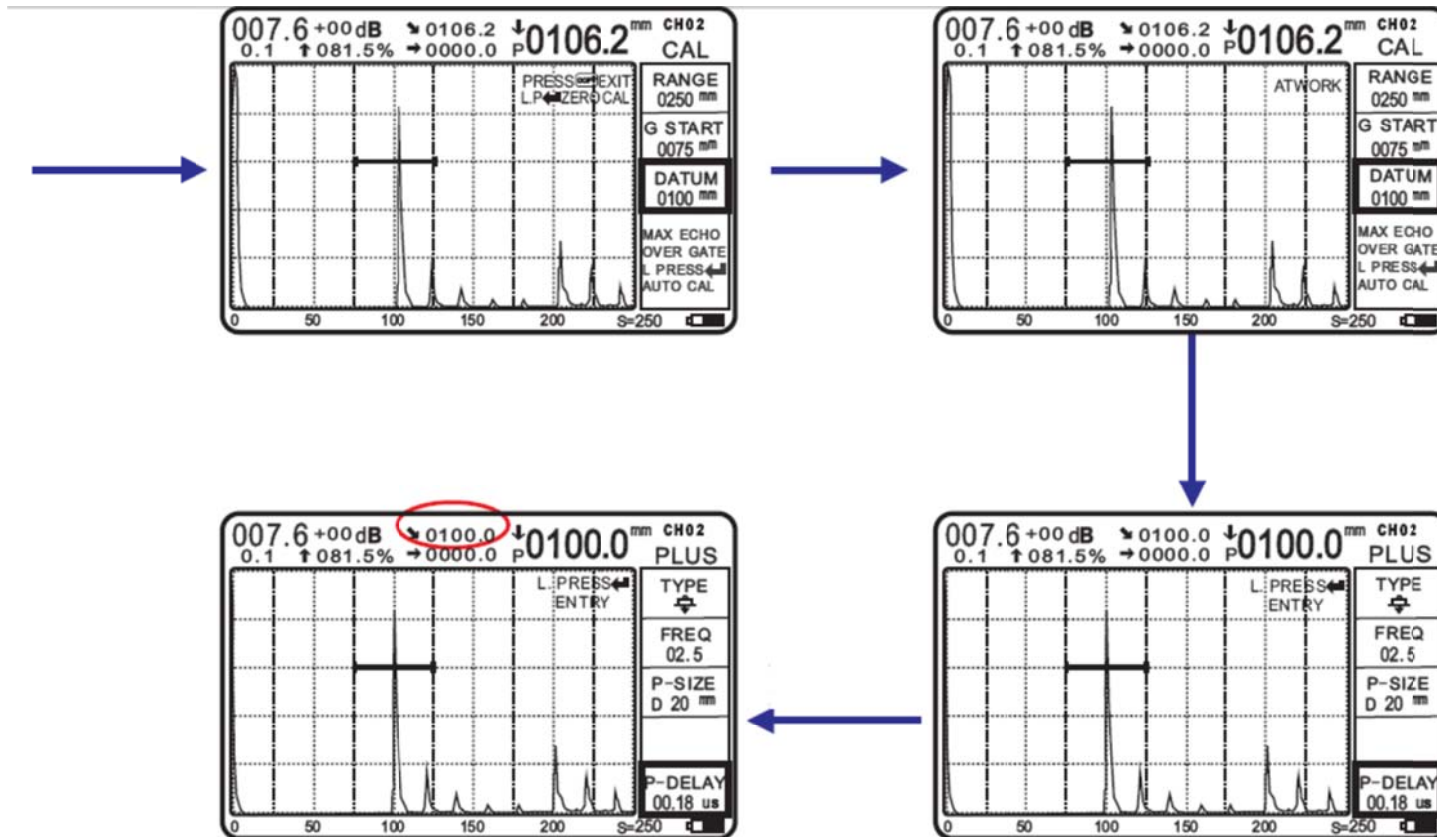






- Moving a-Gate to echo Amplitude, the echo must over the gate for detection
- Long press  for auto calibration or press  to exit
- Waiting for few seconds for calibration until ATWORK disappear
- Checking thickness whether correct, otherwise use  and  to adjust value slightly changes.
- Measure distance of L1.
- Calculation of starting value then Complete calibration.

Straight Beam Probe Calibration

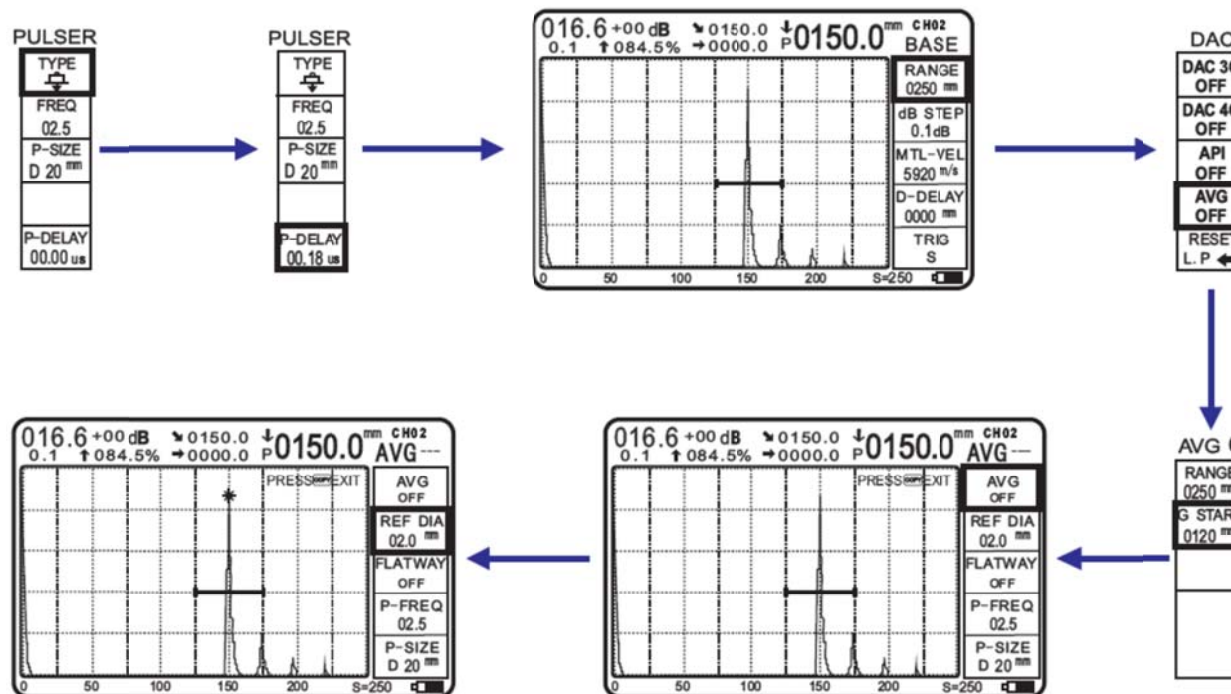


1. Switch menu to unit "BASE" by key , setup range to 250mm, then set up probe type, frequency, crystal size etc.
2. Adjust the echo Amplitude to 80% high of display.
3. Selecting P-DELAY by key , then long press  into calibration mode, or press  to exit.










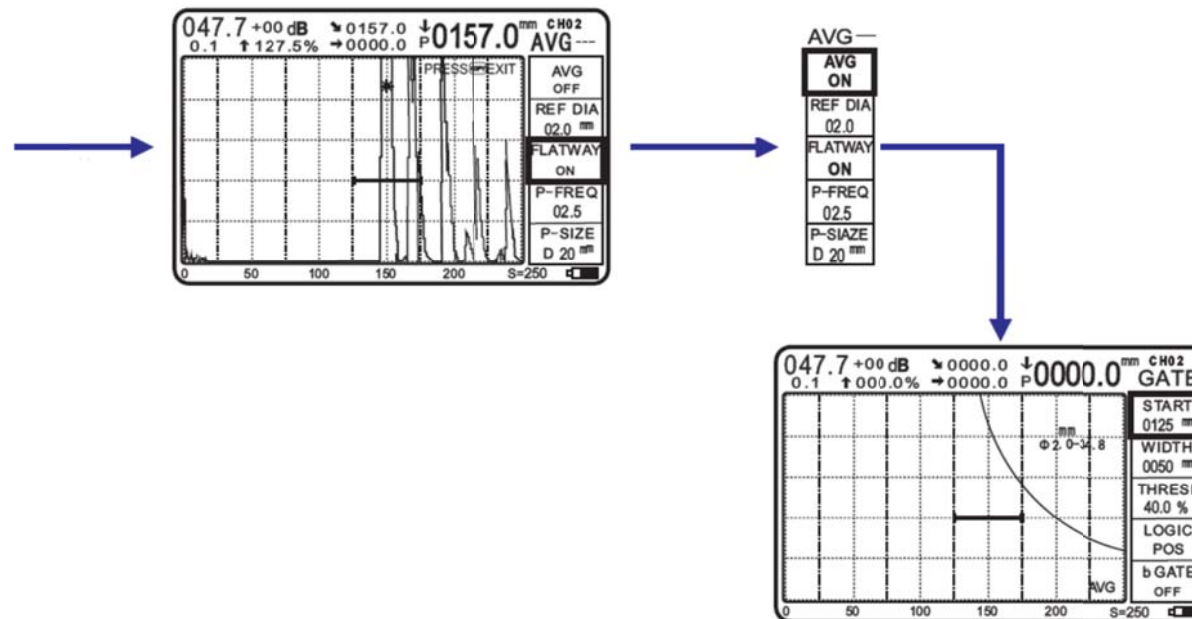
- Moving a-Gate to echo Amplitude, the echo must over the gate for detection
- Long press  for auto calibration or press  to exit
- Waiting for few seconds for calibration until ATWORK disappear
- Checking thickness whether correct, otherwise use  and  to adjust value slightly changes, then Complete calibration.








AVG Operating



Here is example by using single straight beam probe to operate AVG, and get point from flatway

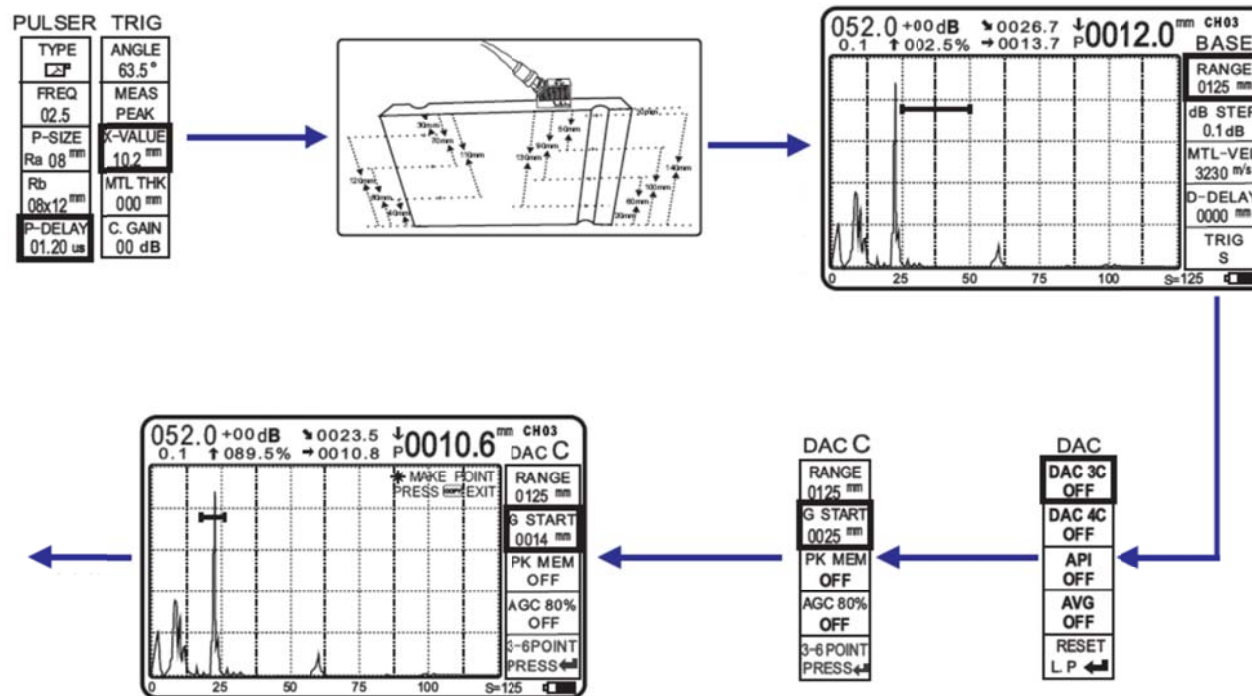
1. Setup probe type, frequency, crystal size etc.
2. Calibration the probe before AVG testing, calibration procedure as mentioned.
3. Switch menu to unit "DAC" by key  MENU , selecting AVG by key  for AVG operating
4. Press keys  and  into AVG C
5. Moving a-Gate to echo Amplitude, the echo must over the gate for detection
6. Press  to make point or  to exit

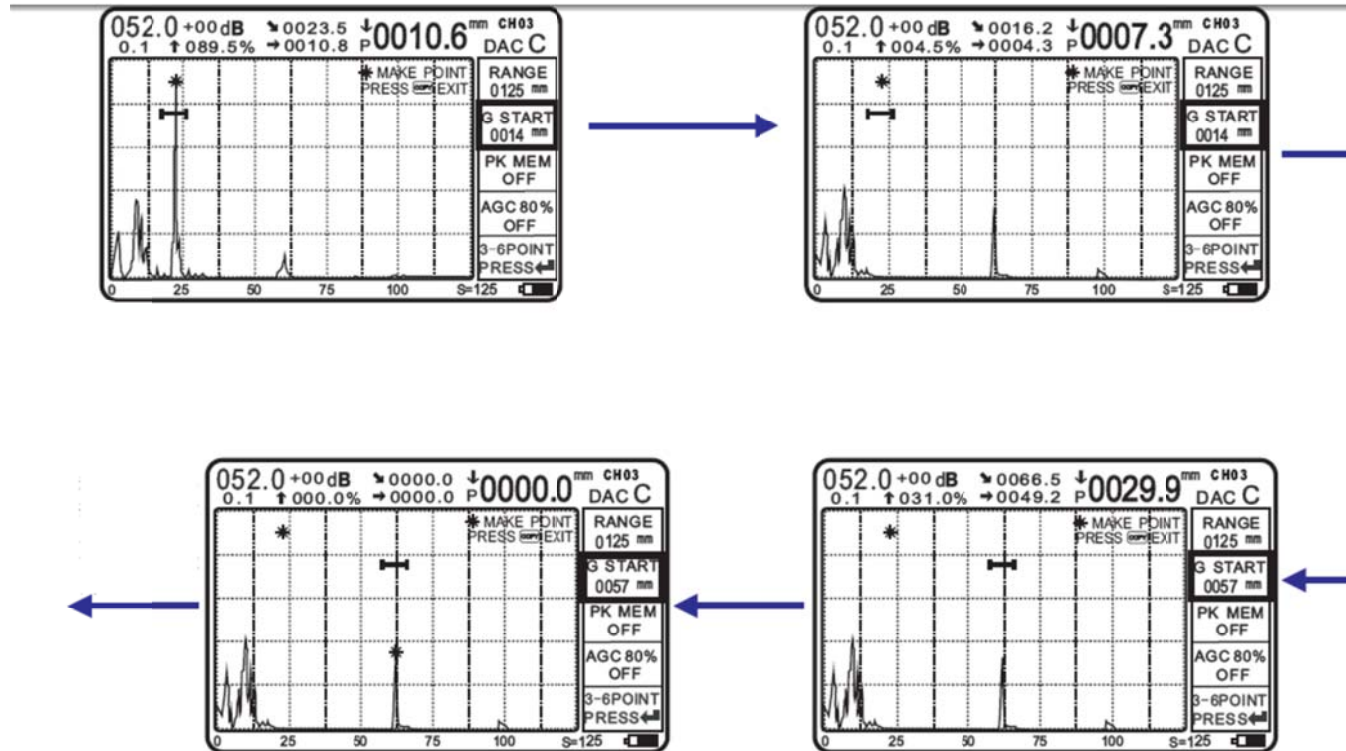


7. After made point, by pressing  or  to open AVG curve.
8. Switch menu to unit "DAC" by key  MENU , selecting AVG by key  and press keys  and  to disable the AVG curve.

DAC

Here is example to create DAC curve with three reference point,

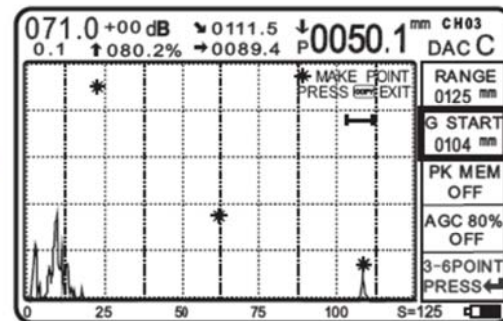
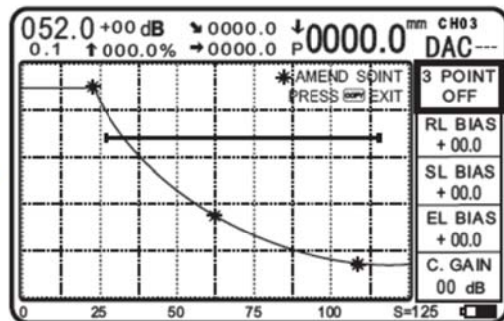
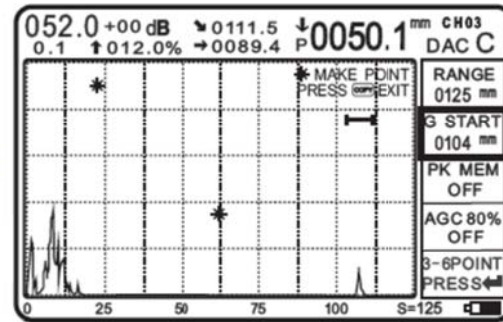
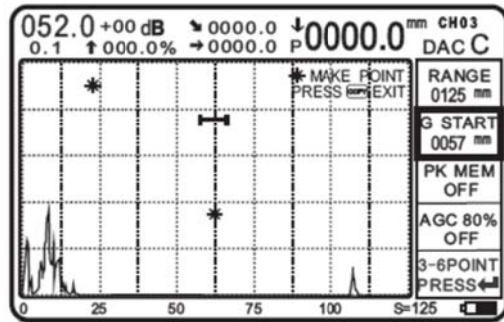







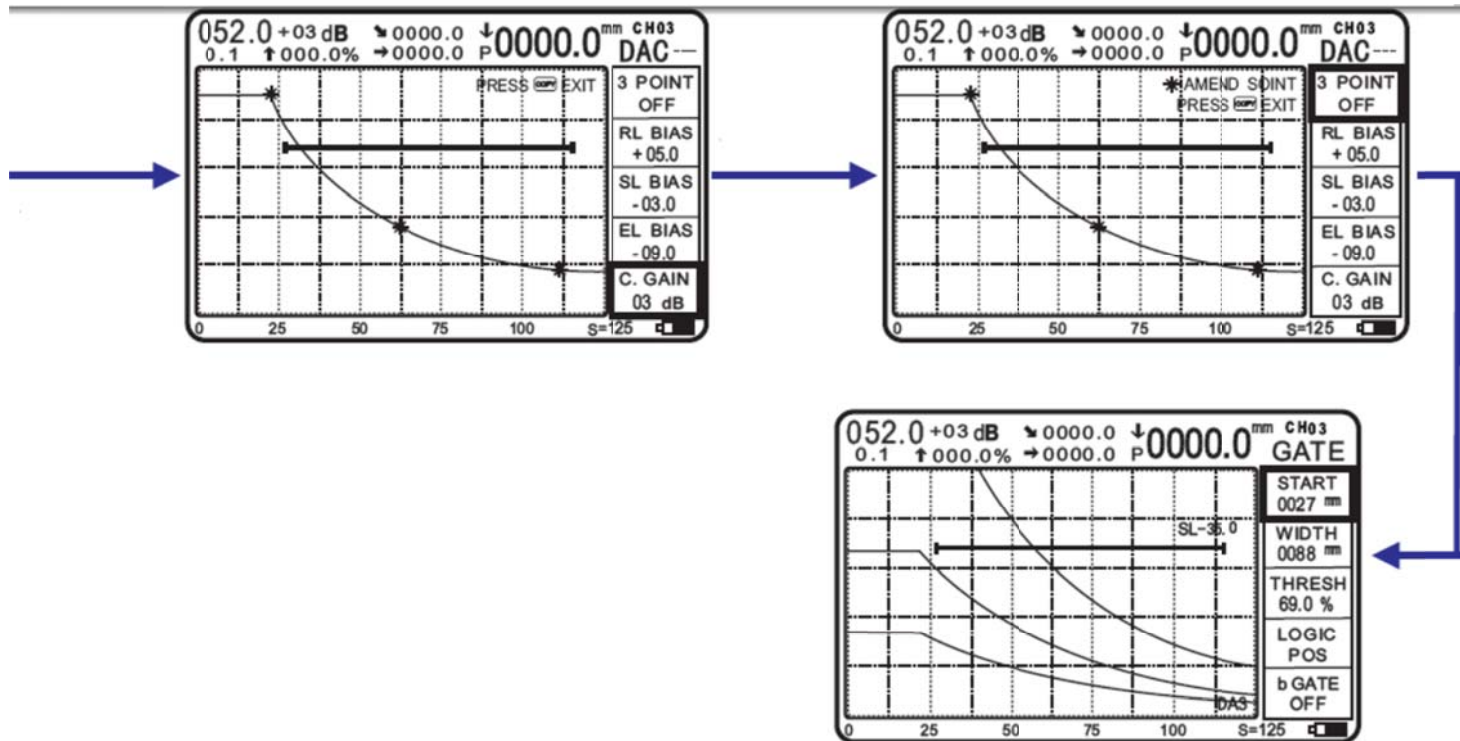
1. Setup probe type, frequency, crystal size etc. and done calibration before create DAC curve.
2. Increase echo Amplitude up to 80% high on display.








3. Switch menu to unit "DAC" by key  MENU , selecting DAC by key  and press keys  or  enter DAC

4. Moving a-Gate to first echo Amplitude, press  to make point or press  to exit

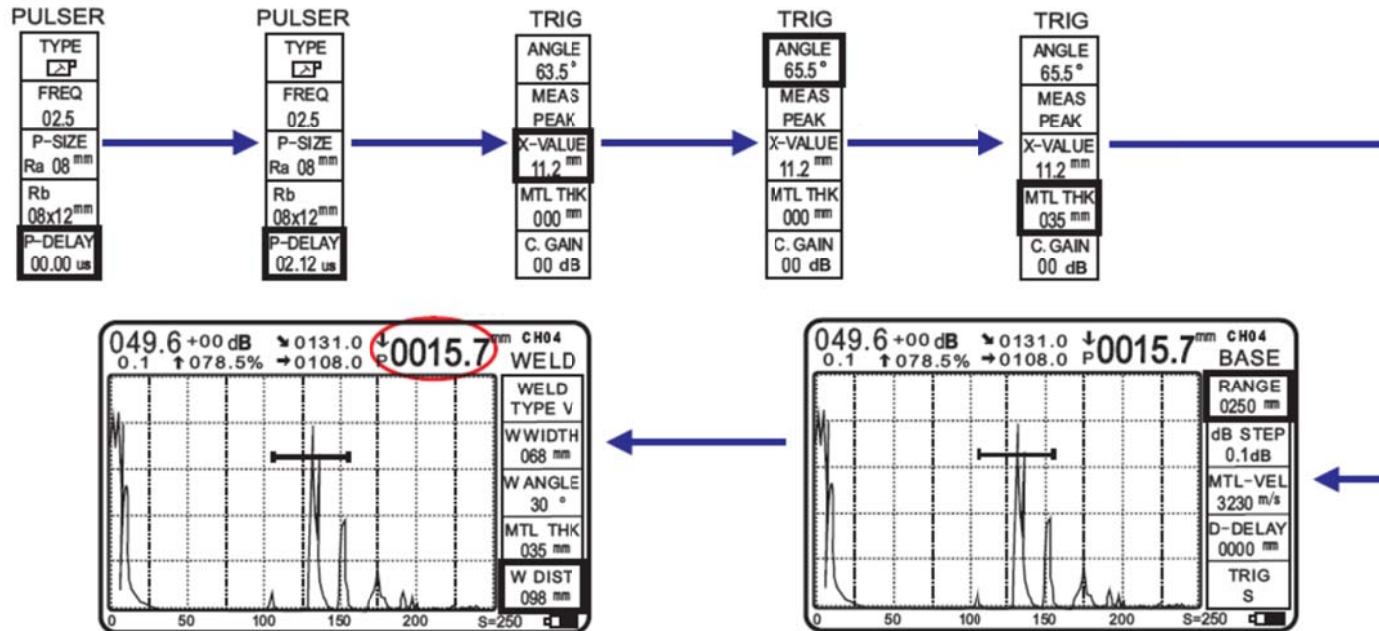











5. Moving a-Gate to second and third echo Amplitudes, press  to make points or press  to exit
6. Press  to create DAC setting

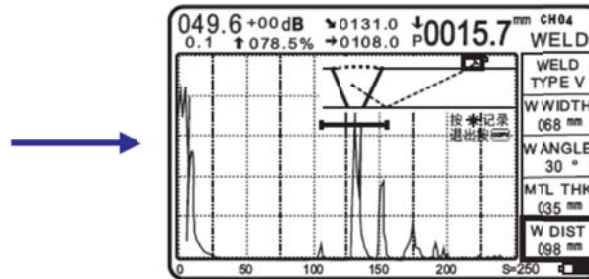





7. Press key  to select RL, SL and EL, then press keys  and  to adjust values.
8. After set values press keys  or  to create DAC curve.
9. User can change RL, SL and EL values by pressing keys  or  to disable DAC then do adjustment and enable DAC again.

Weld Map Setting

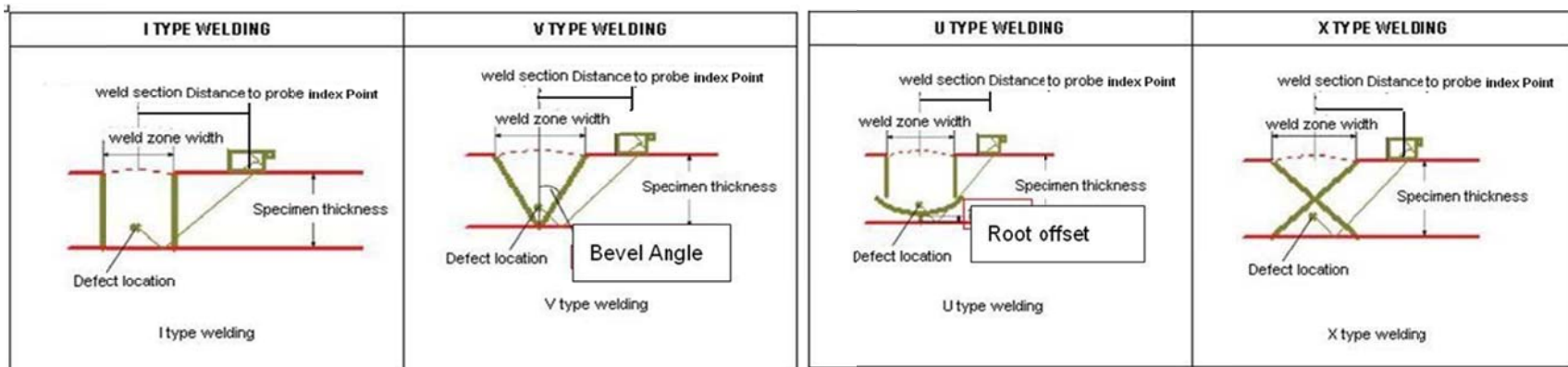


1. Setup probe type, frequency, crystal size etc. and done calibration before weld inspection.
2. Switch menu to unit "TRIG" by key , selecting MTL THK by key  and press keys  or  enter material thickness.
3. Moving a-Gate to echo amplitude, and set amplitude up to 80% of display by keys  .
4. Switch menu to unit "WELD" by key , set welding values by keys  or .



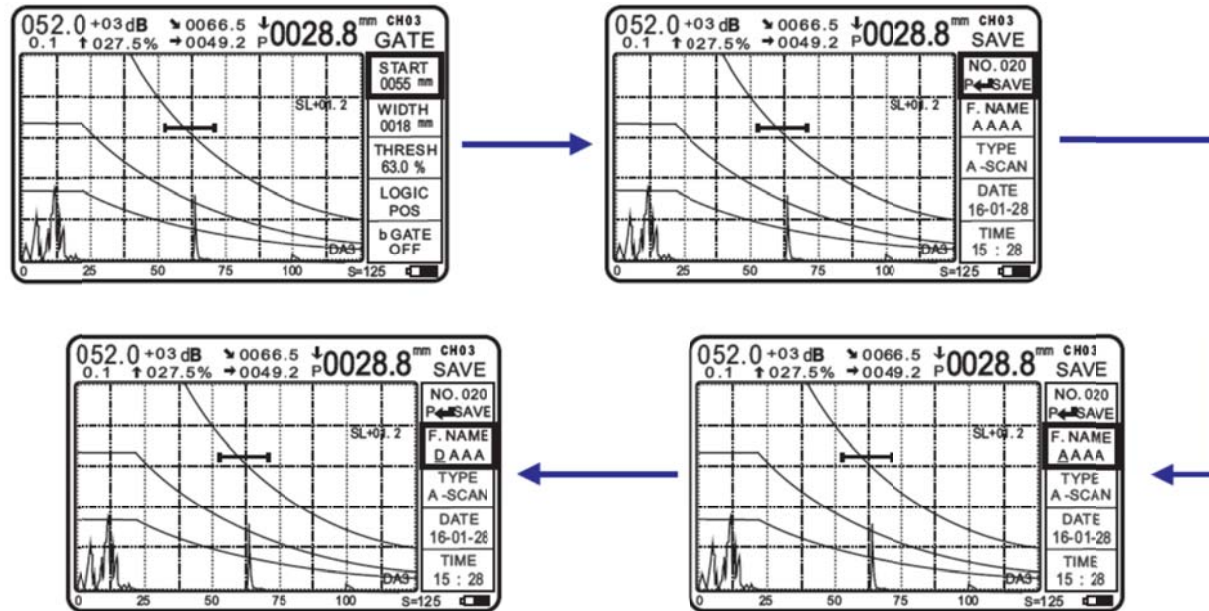
5. Long press  to display weld map
6. Press  to record the weld map or press  to exit







Welding types

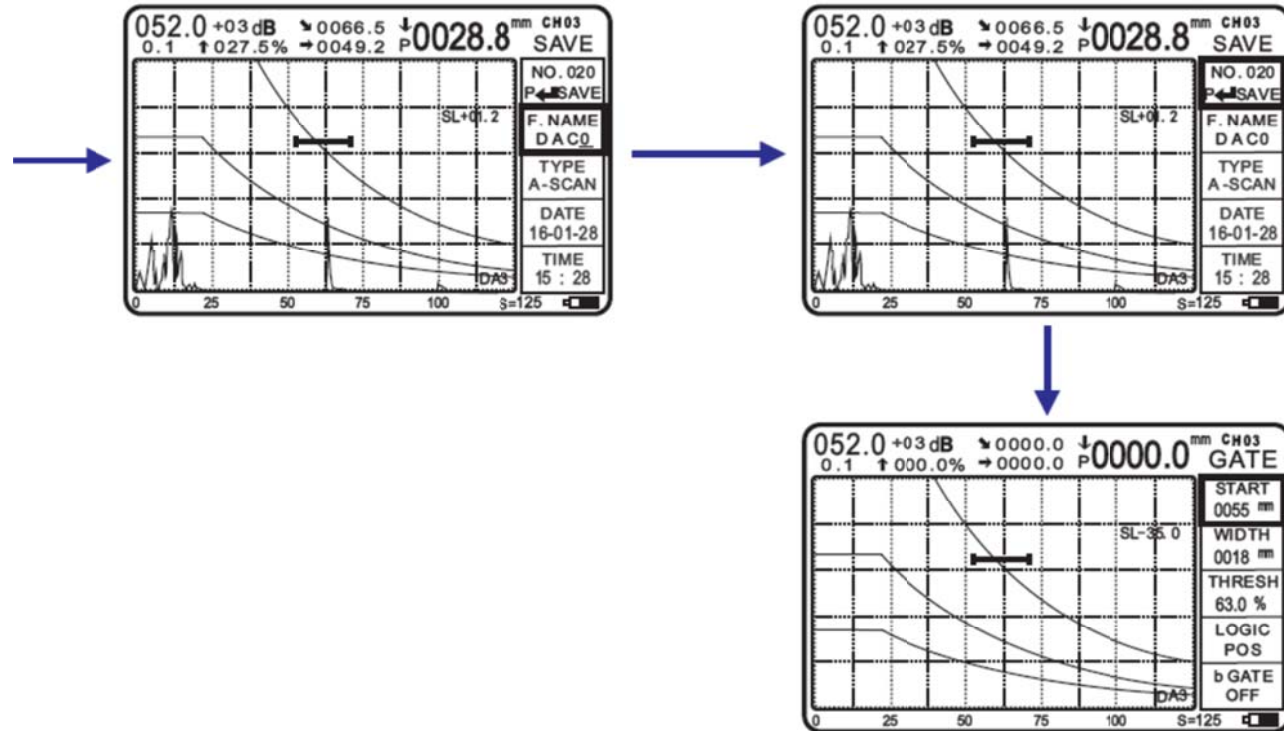


Save & Recall

Saving Files



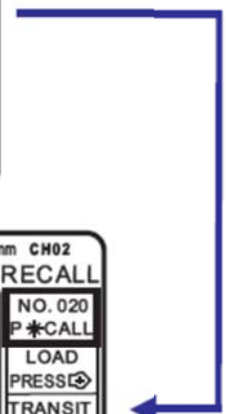
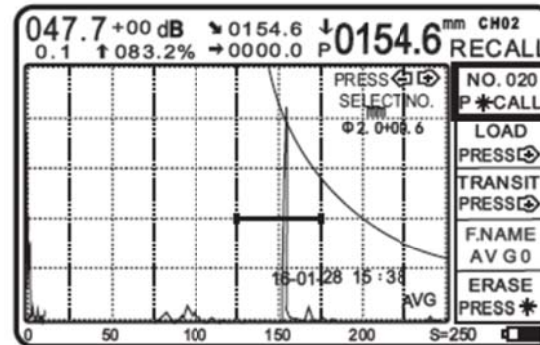
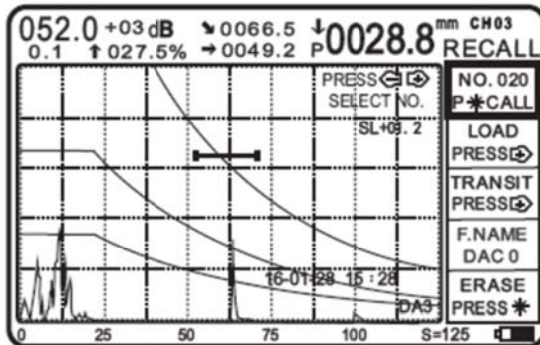
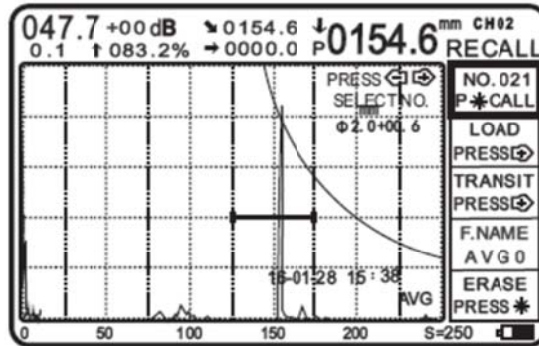
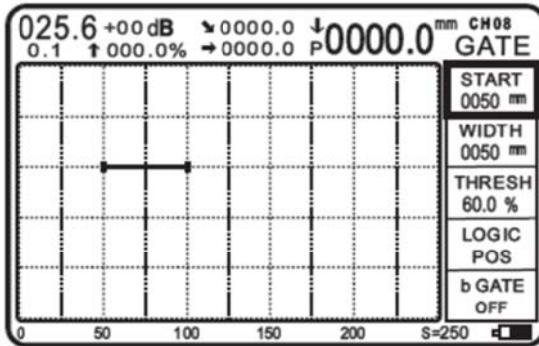
1. Press  then press  into file saving section
2. Selecting F. NAME by key  for editing name of files
3. Press  or  to change the name, press  move to next character then edit with same procedure

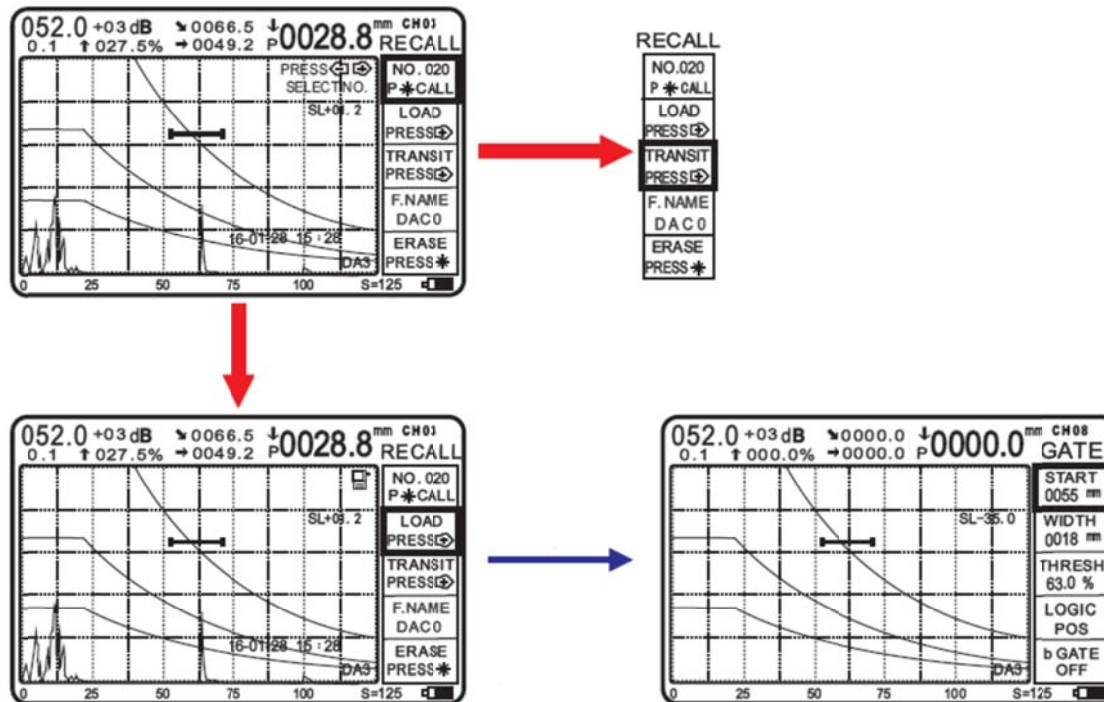










4. Selecting No. of file by key , then press  to save the file

Note: Files recording from 020 – 999, there are total 980 files can be saved, in case the memory full, it will recover from file 020 automatically.

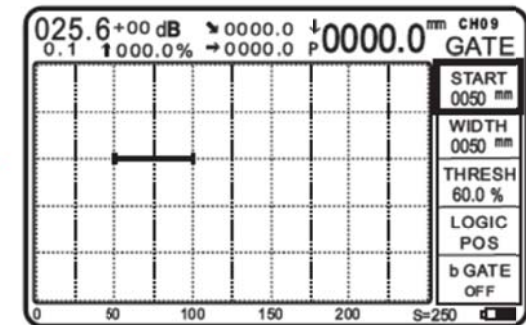
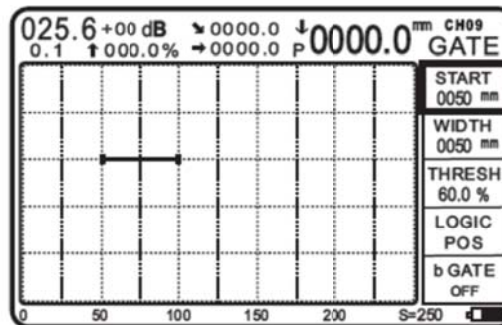
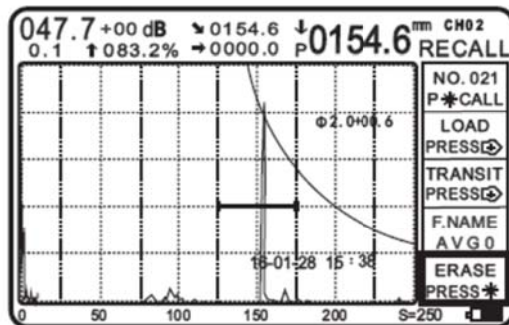
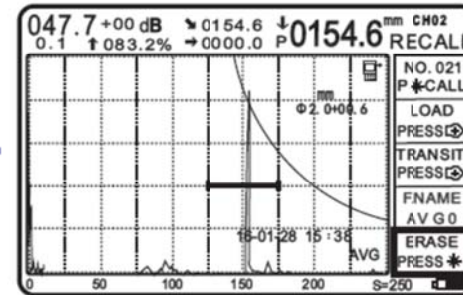
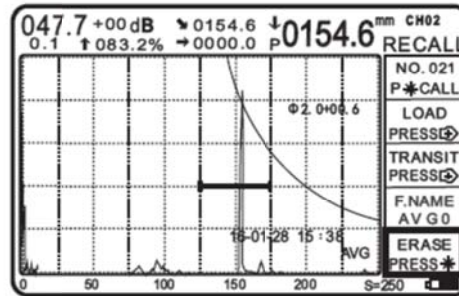
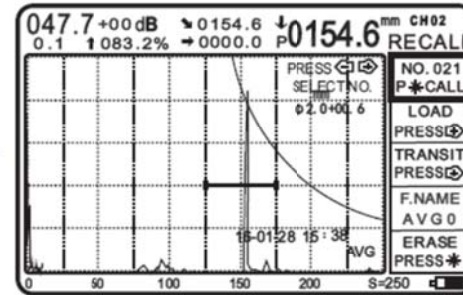
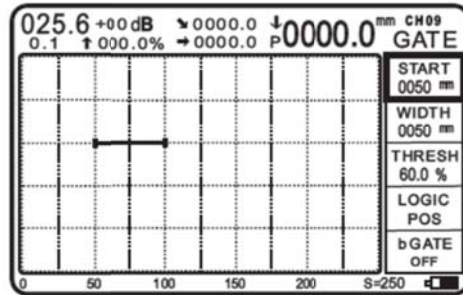
Recall Files





1. Press  to recall saved files
2. Selecting number of files by keys  and , then press  to call the saved file
3. Selecting LOAD by key , then press  to recall file on display
4. Selecting TRANSIT by key , then press  to recall and transit to PC

Erase Files



1. Press  to recall saved files
2. Selecting ERASE by key , then press , at this stage by pressing  to delete last file, or Long press  to erase ALL saved files.