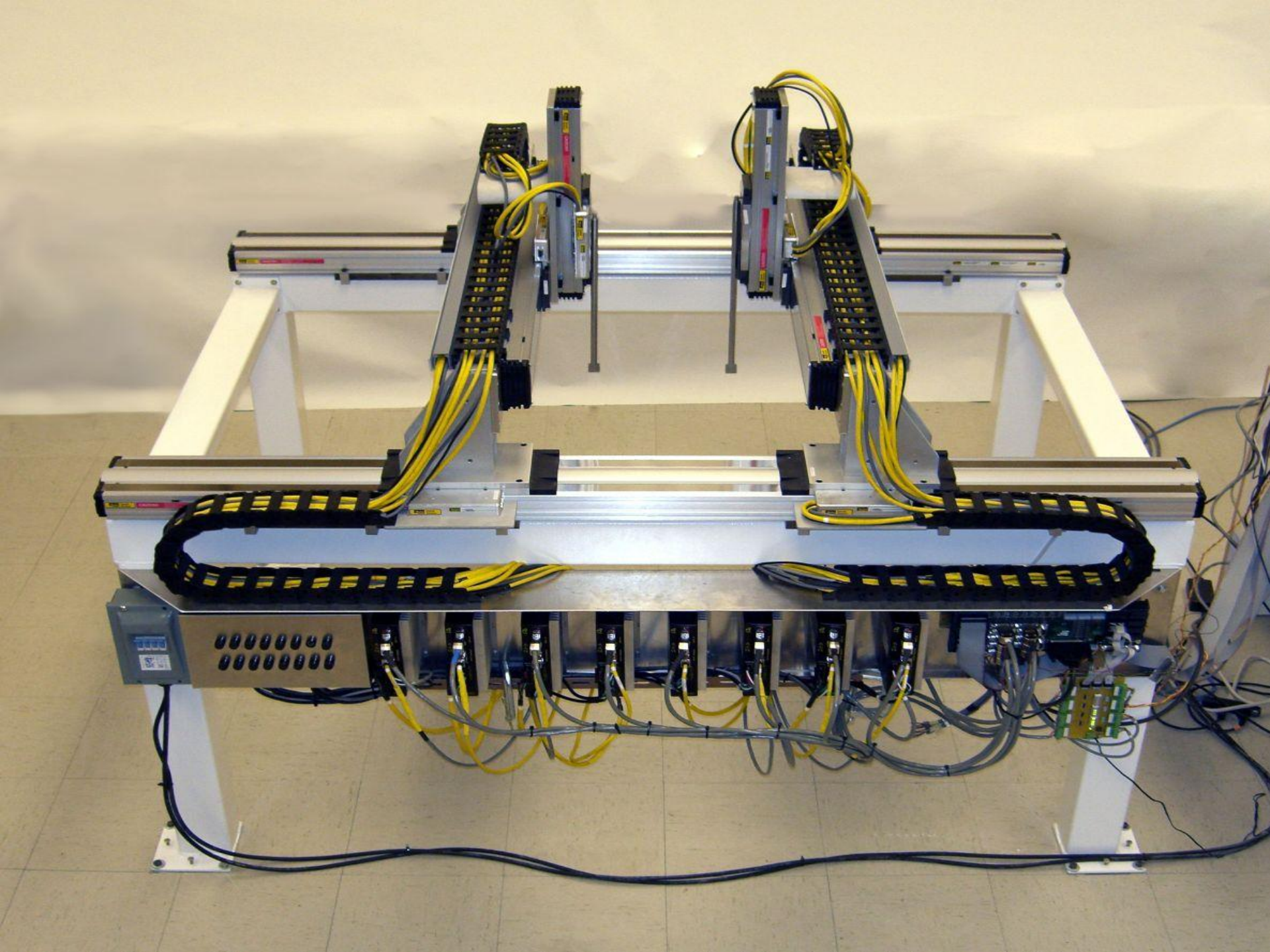
UPDATE ON THE SEISMIC PHYSICAL MODELLING FACILITY

Joe Wong, Kevin Hall, Eric Gallant, Rolf Maier, and Malcolm Bertram

CREWES

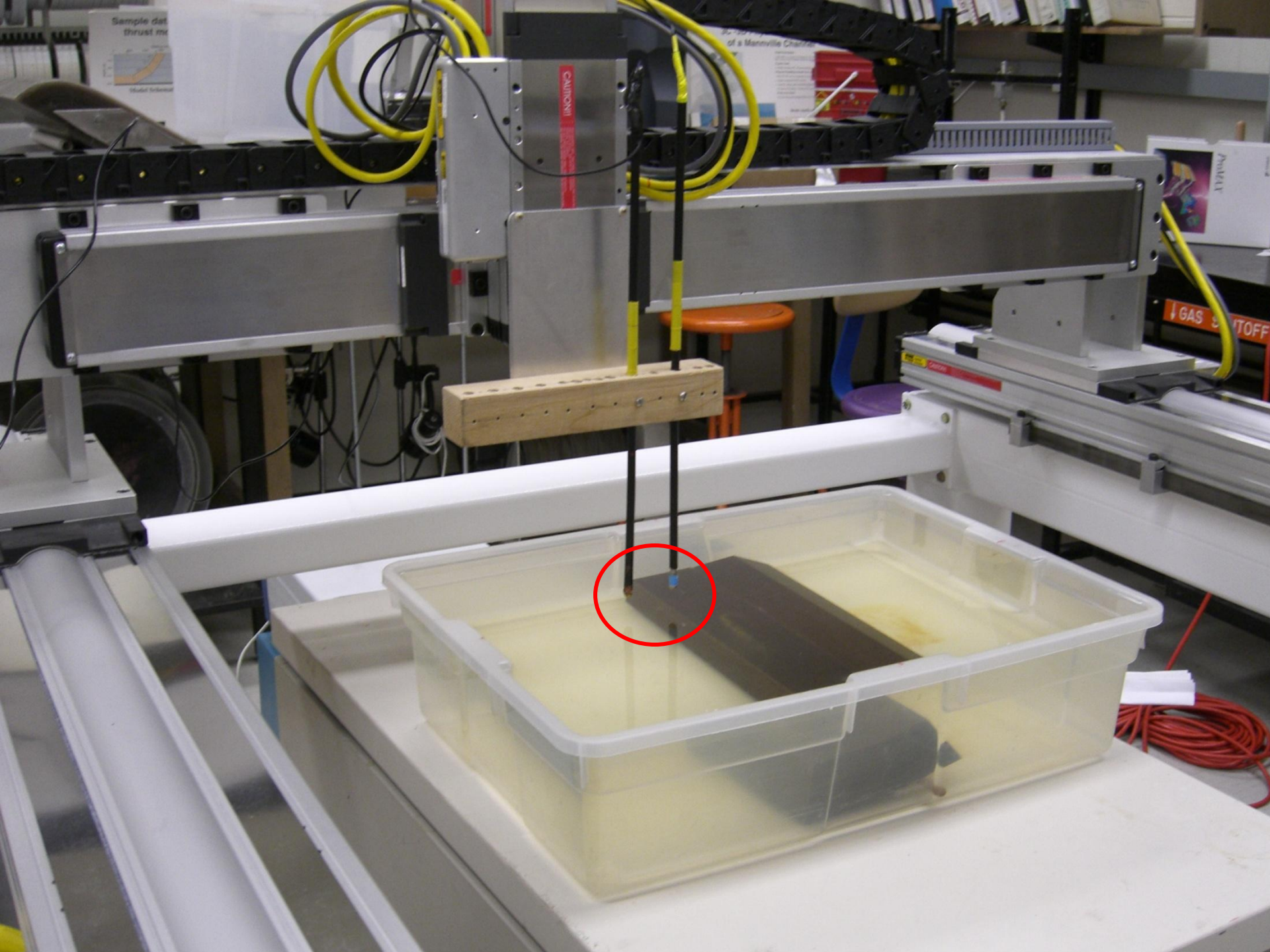
OUTLINE:

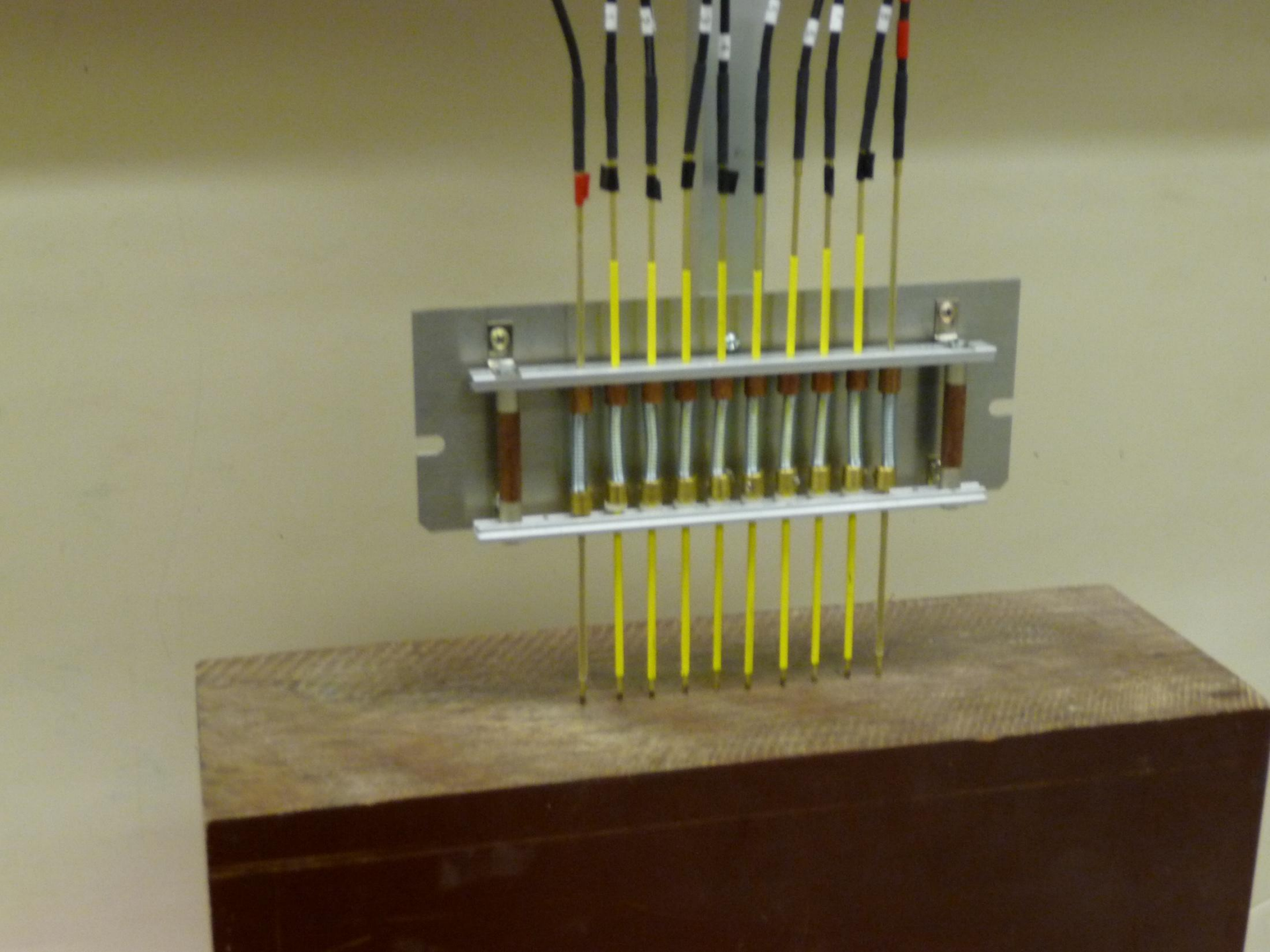
- *Introduction*
- *Positioning System*
- *Transducers and Arrays*
- *Master Control Program*
- *Testing and Test Data*
- *Concluding Remarks*
- *Acknowledgements*

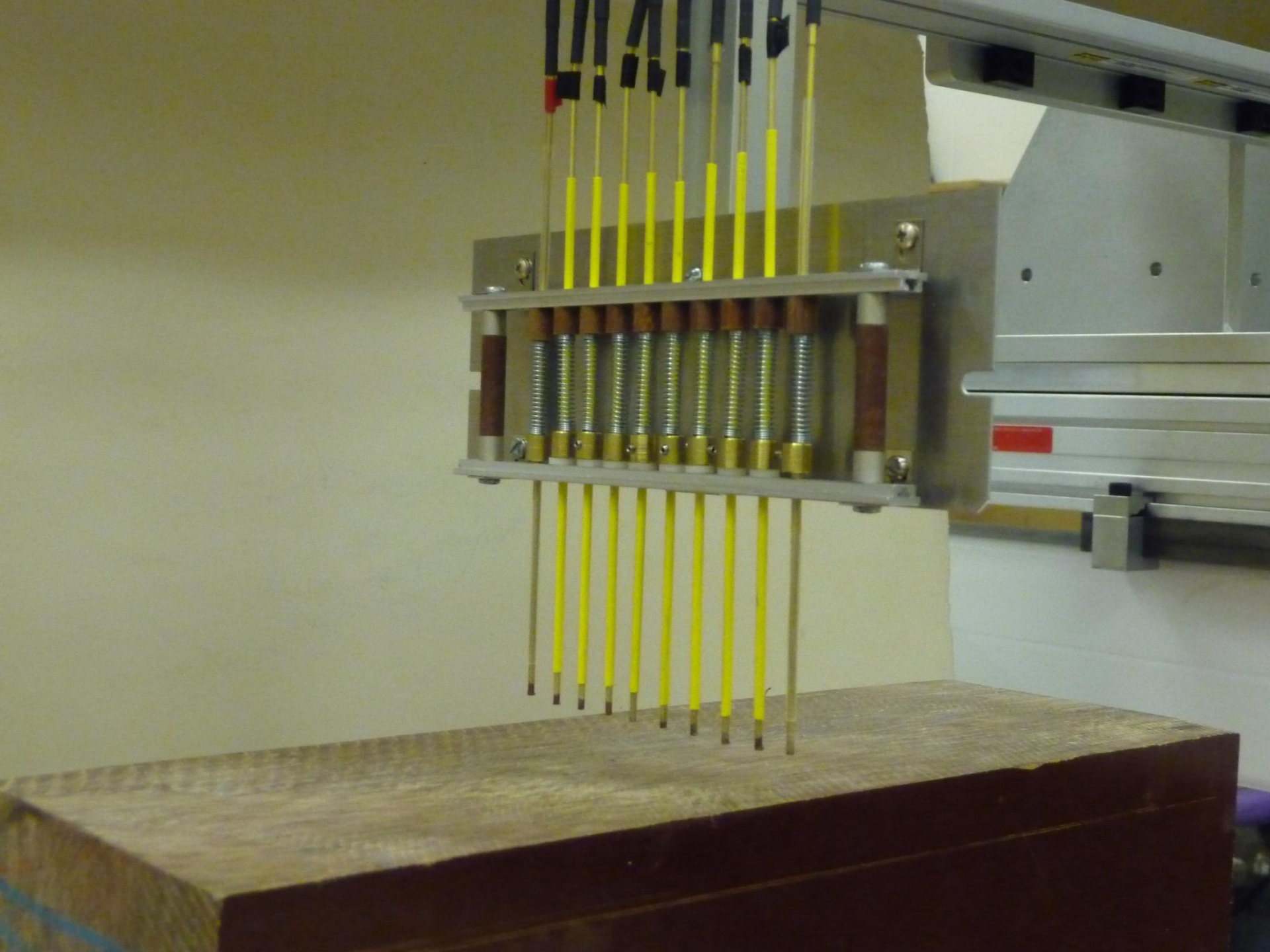


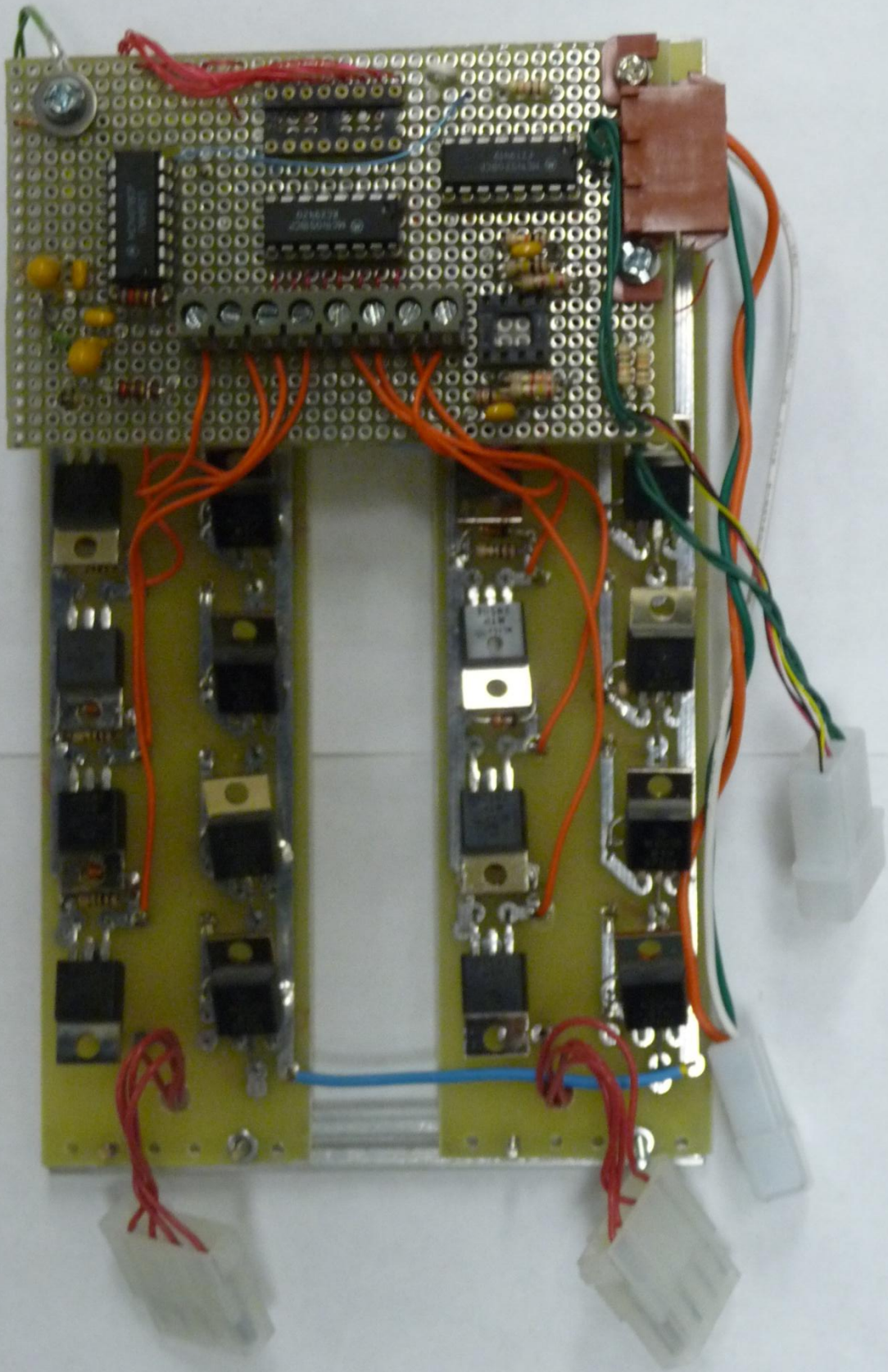
Transducer Types :

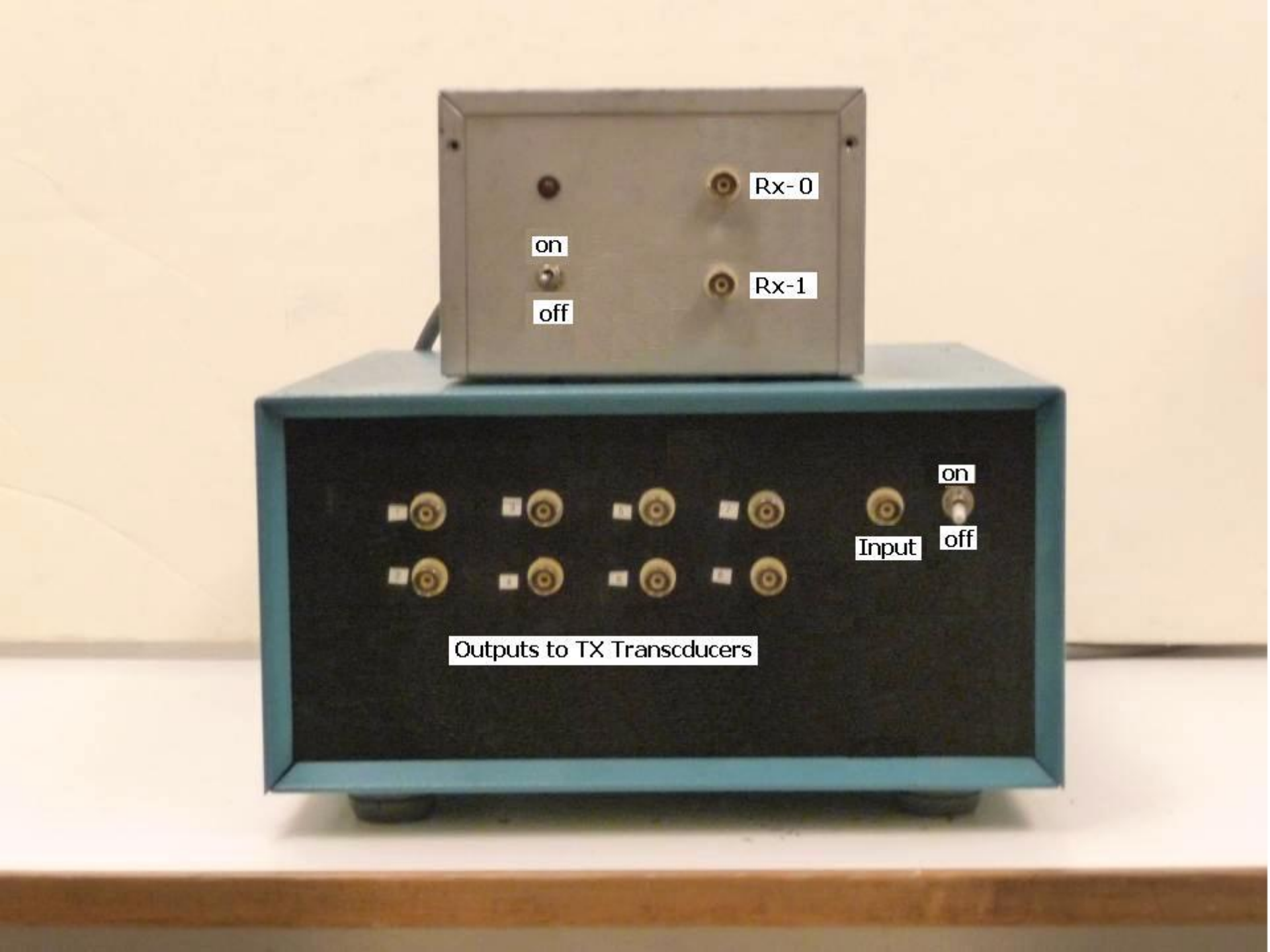
- *Hemispheres*
- *Piezopins*










Rx-0
on
Rx-1
off
on
Input
off
Outputs to TX Transcducers

Master Control Program:

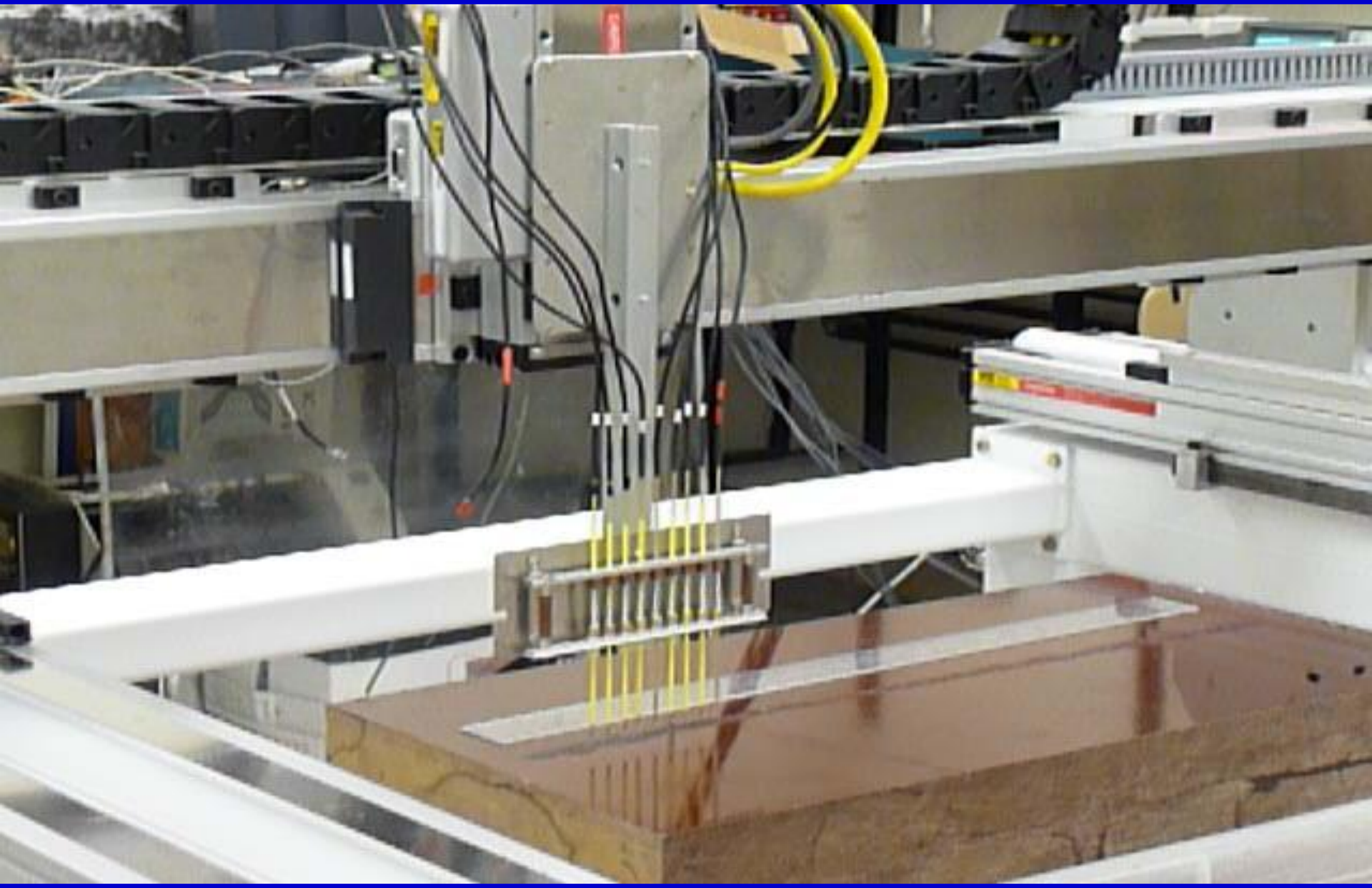
Develop in Visual Studio IDE.

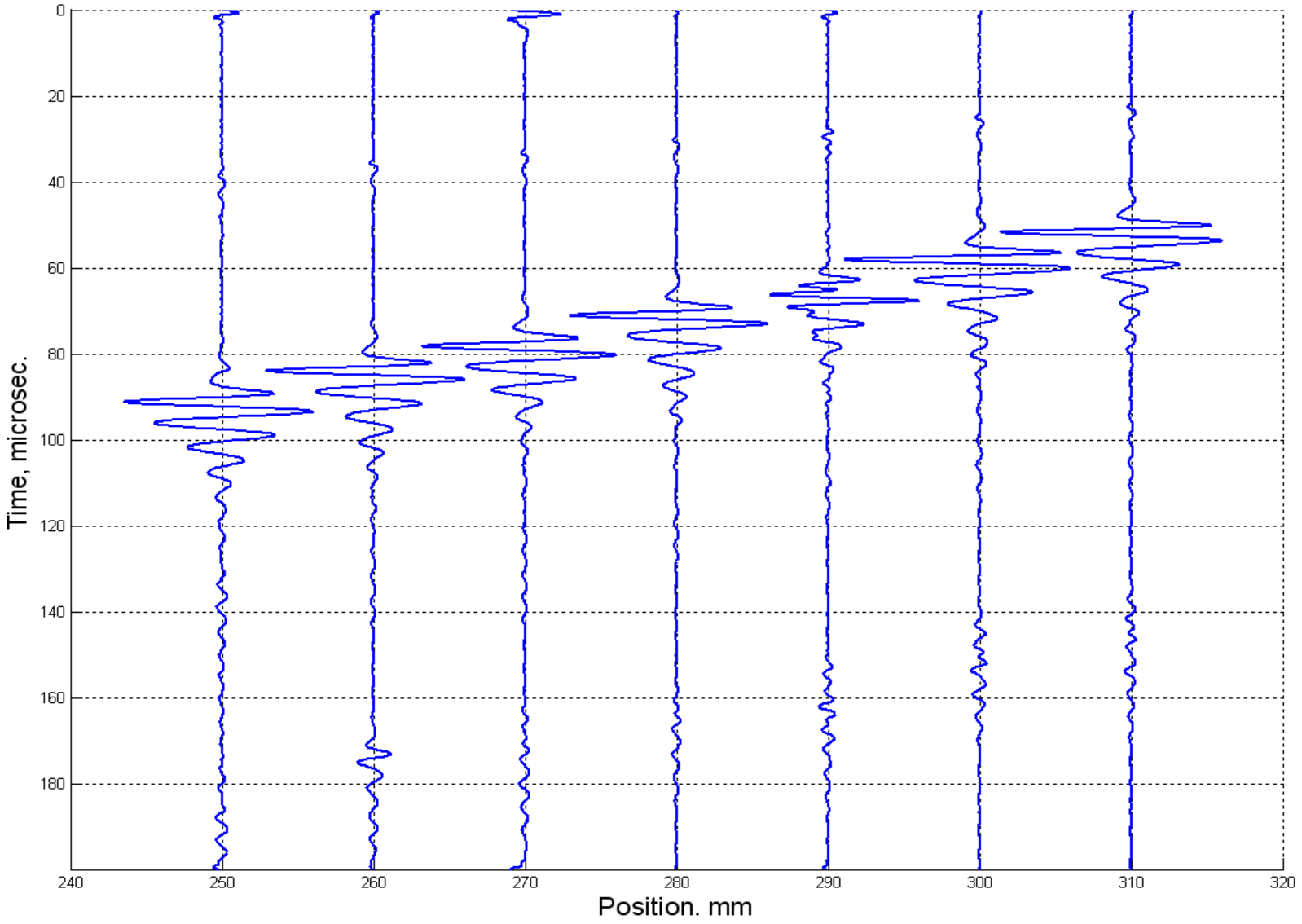
Combine motor control and A/D SDKs.

Synchronize automatic functions.

- *move transducer arrays ;*
- *activate specific Tx and Rx transducers ;*
- *acquire seismic traces ;*
- *save to file with geometry.*

Testing and Test Data




Time, microsec.
0
20
40
60
80
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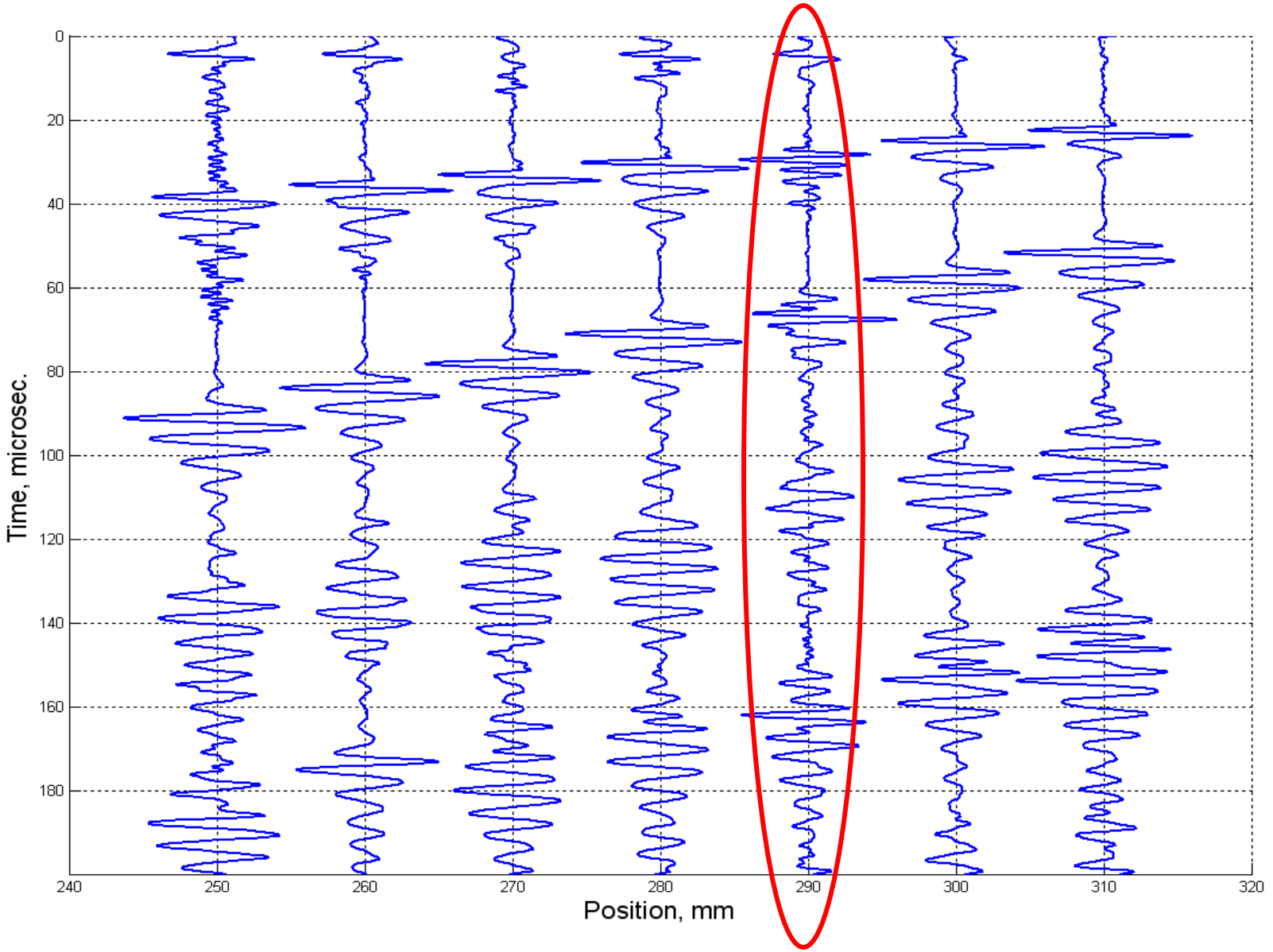
120
140
160
180
240
250
260
270
280
290
300
310
320
Position. mm


Time, microsec.
0
20
40
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80
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120
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250
260
270
280
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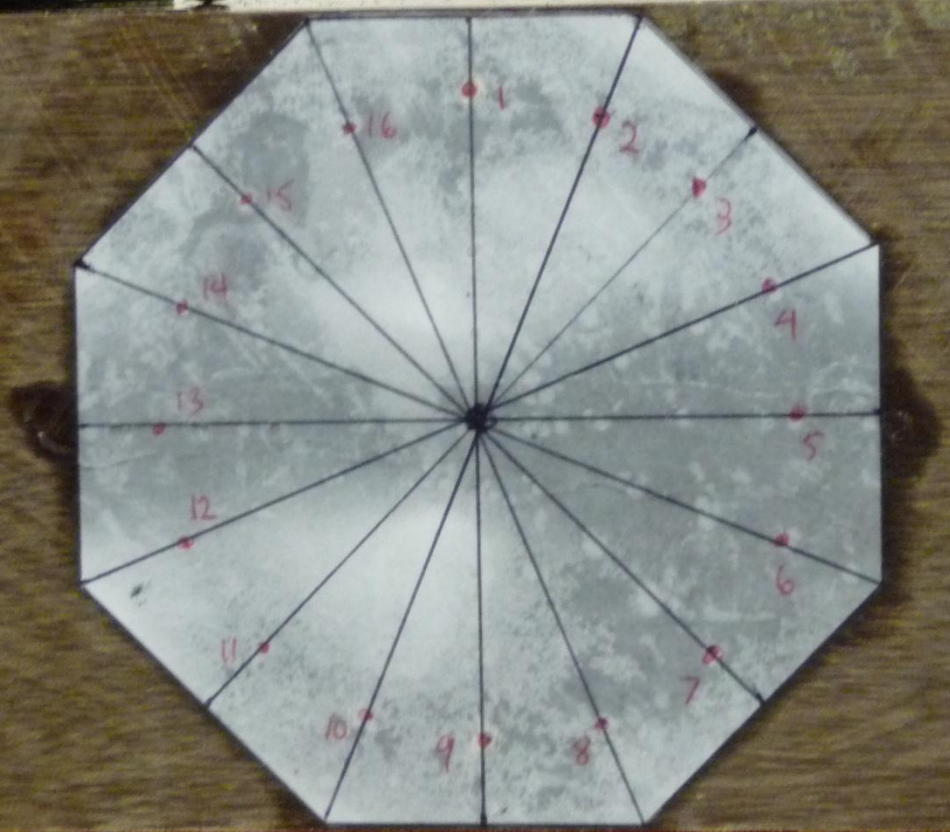
300
310
320
Position, mm



ANGER
ELIGRO
TTENTION

TO AVOID PERSONAL INJURY READ OWNER'S MANUAL BEFORE OPERATING OR REPAIRING SCISSOR LIFT.

PARA EVITAR DAÑOS PERSONALES LEA EL MANUAL DEL PROPIETARIO ANTES DE OPERAR OREPARAR EL ELEVADOR DE TIJERAS.

POUR ÉVITER TOUTE BLESSURE PERSONNELLE LIRE LE MANUEL D'UTILISATION AVANT DE METTRE EN MARCHE OU AVANT DE RÉPARER L'ÉLEVATEUR CISEAU.

DO NOT PUT HANDS, FEET OR OBJECTS UNDER TOP. LOWER PLATFORM SLOWLY.

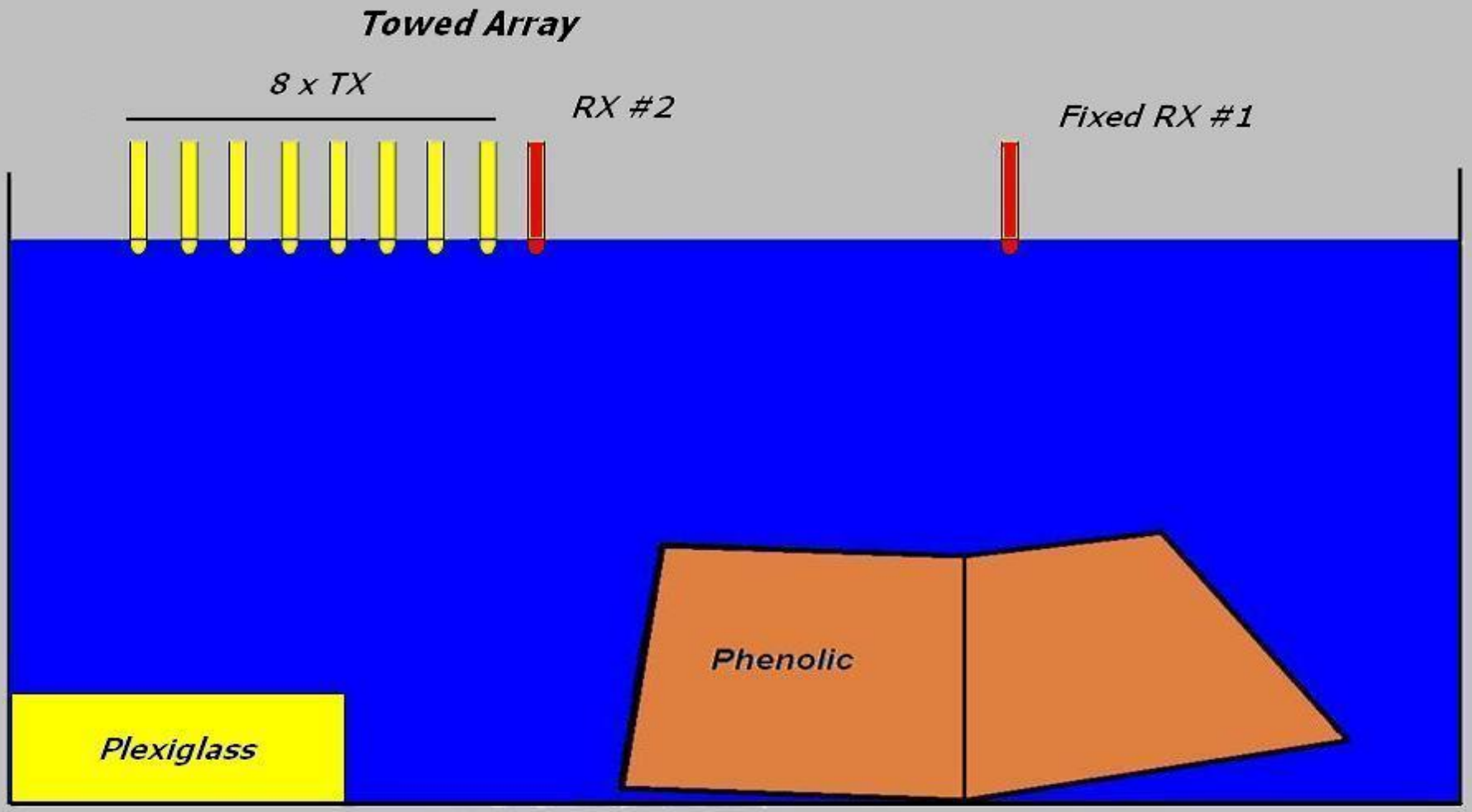
NO PONGA MANOS, PIES U OBJEOTOS DEBAJO DEL BORDE. DESCIENDA LA PLATAFORMA LENTAMENTE.

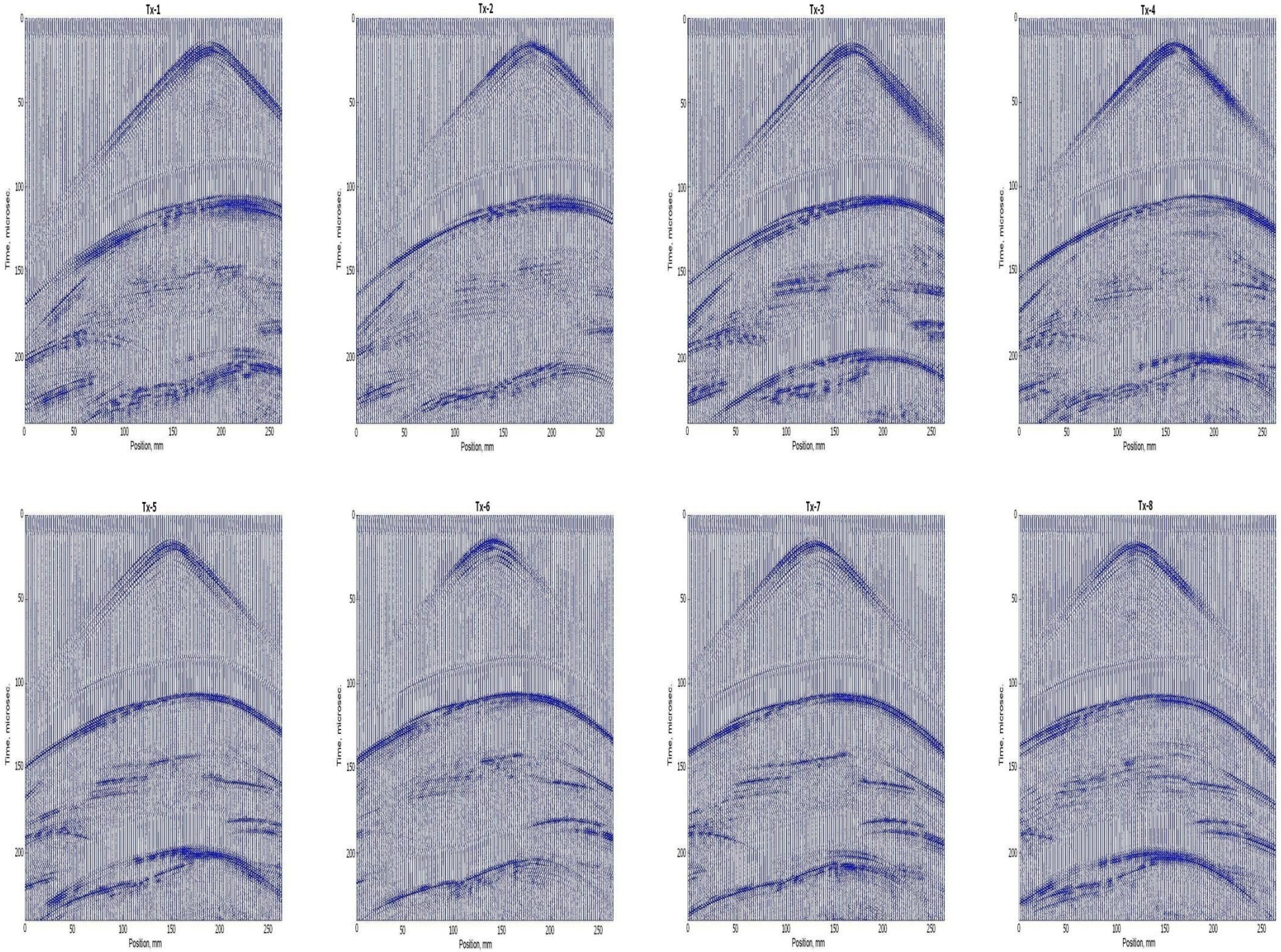
NE PAS METTRE LES MAINS,LES PIEDS OU TOUT OBJET SOUS LE PLATEAU SUPÉRIEUR. DESCENDRE LA PLATE-FORME LENTEMENT.

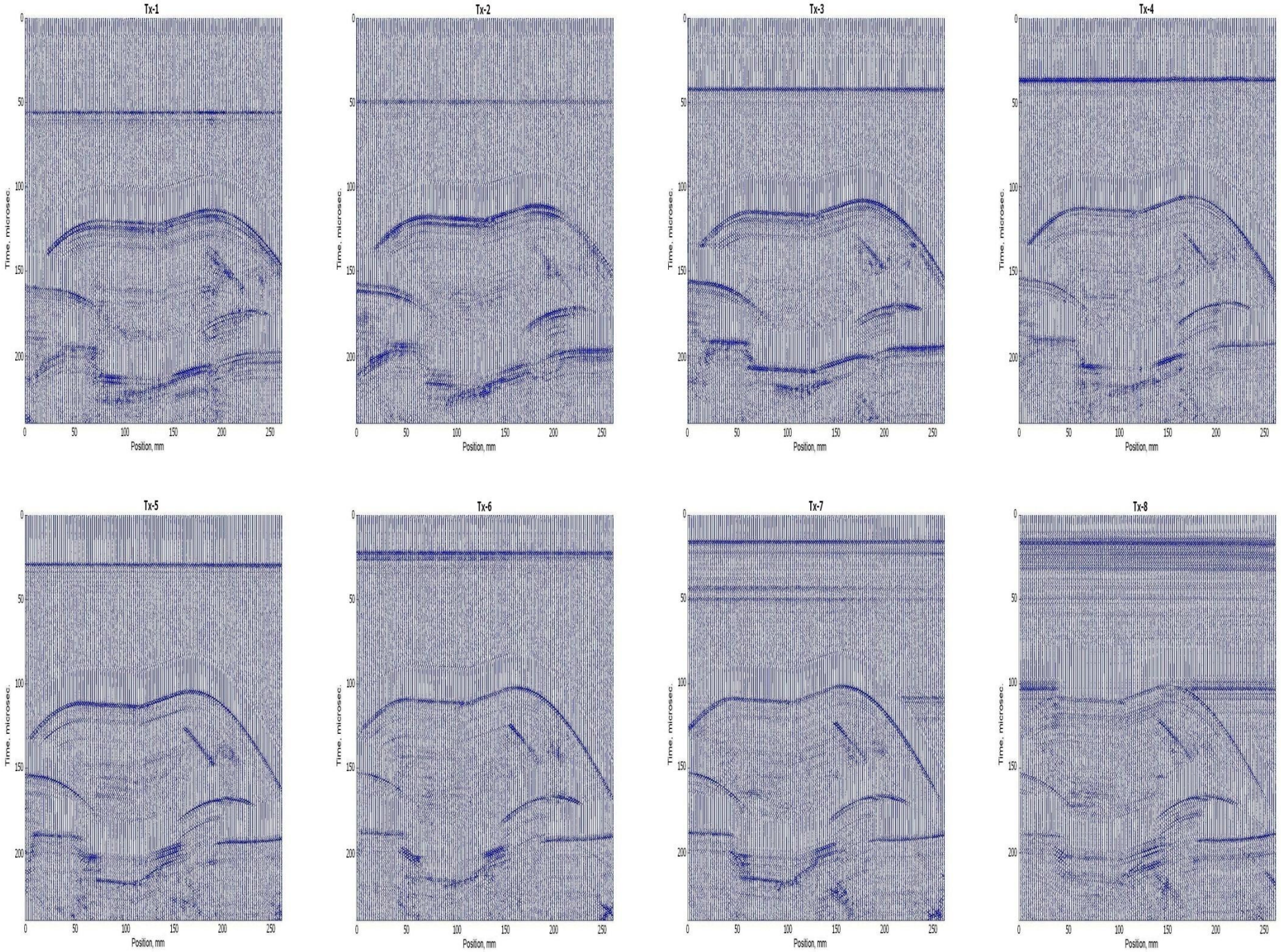
DO NOT WORK UND
WHILE LOADED. KE
MECHANISM.

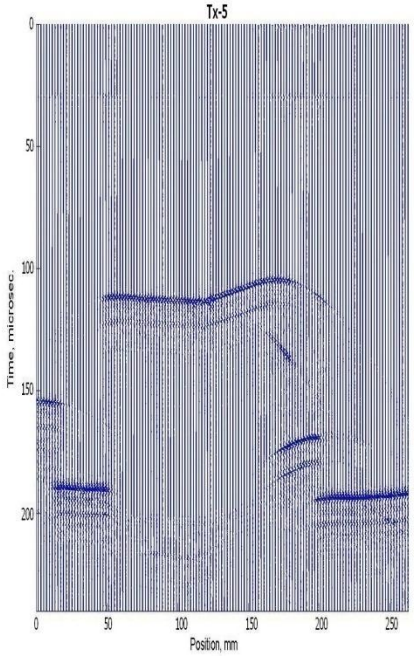
NO TRABAJE DEBA
SEGURIDAD O CUA
ALEJADO DEL MECA

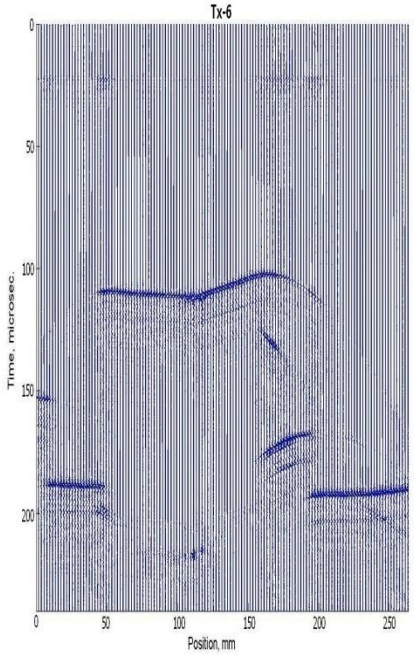
NE PAS TRAVAILLER SOUS L'ÉLEVATEU
LORSQU' IL EST CHARGÉ. RESTER A L'E
LORSQUE L'ÉLEVATEUR EST EN FONCT

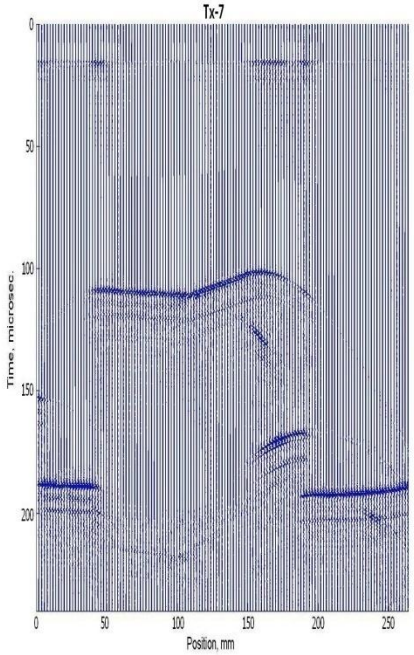

Towed Array
8 x TX
RX #2
Fixed RX #1
Phenolic
Plexiglass

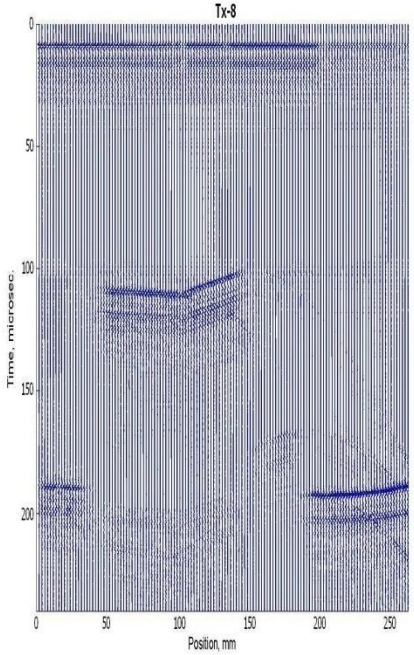

Tx-1
Tx-2
Tx-3
Tx-4
Tx-5
Tx-6
Tx-7
Tx-8
Time, microsec.
Position, mm
0
50
100
150
200
250

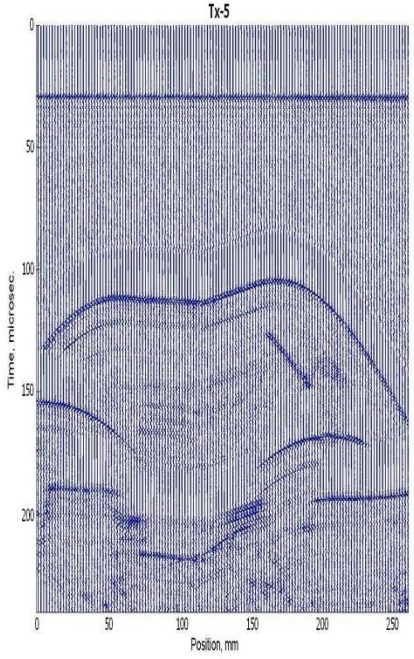

Tx-1
Tx-2
Tx-3
Tx-4
Tx-5
Tx-6
Tx-7
Tx-8
Time, microsec.
Position, mm
0
50
100
150
200
250


Tx-5
Time, microsec.
Position, mm


Tx-6
Time, microsec.
Position, mm


Tx-7
Time, microsec.
Position, mm


Tx-8
Time, microsec.
Position, mm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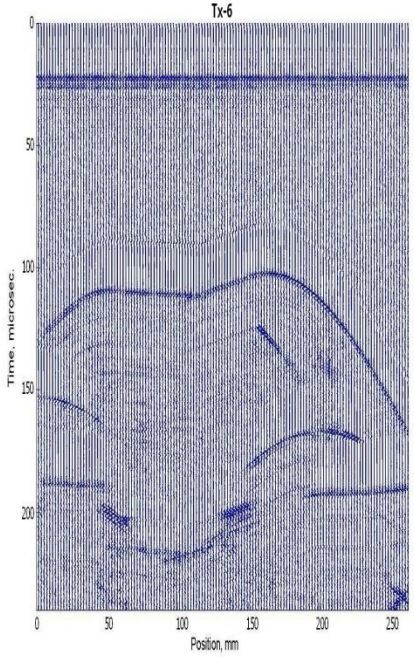
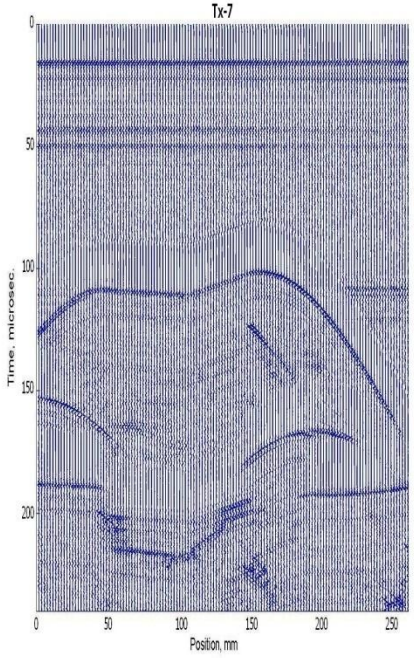
Time, microsec.
Position, mm


Tx-6
Time, microsec.
Position, mm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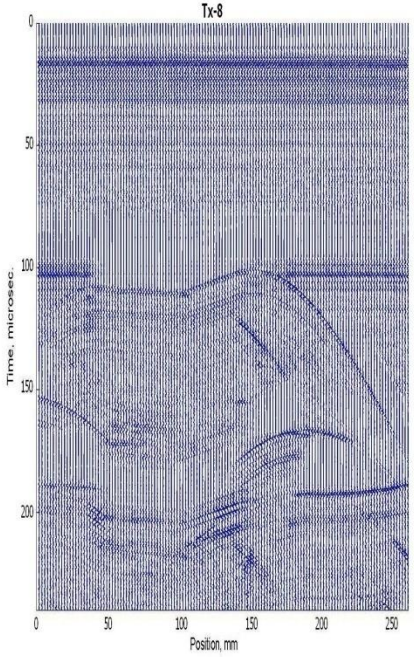
Time, microsec.
Position, mm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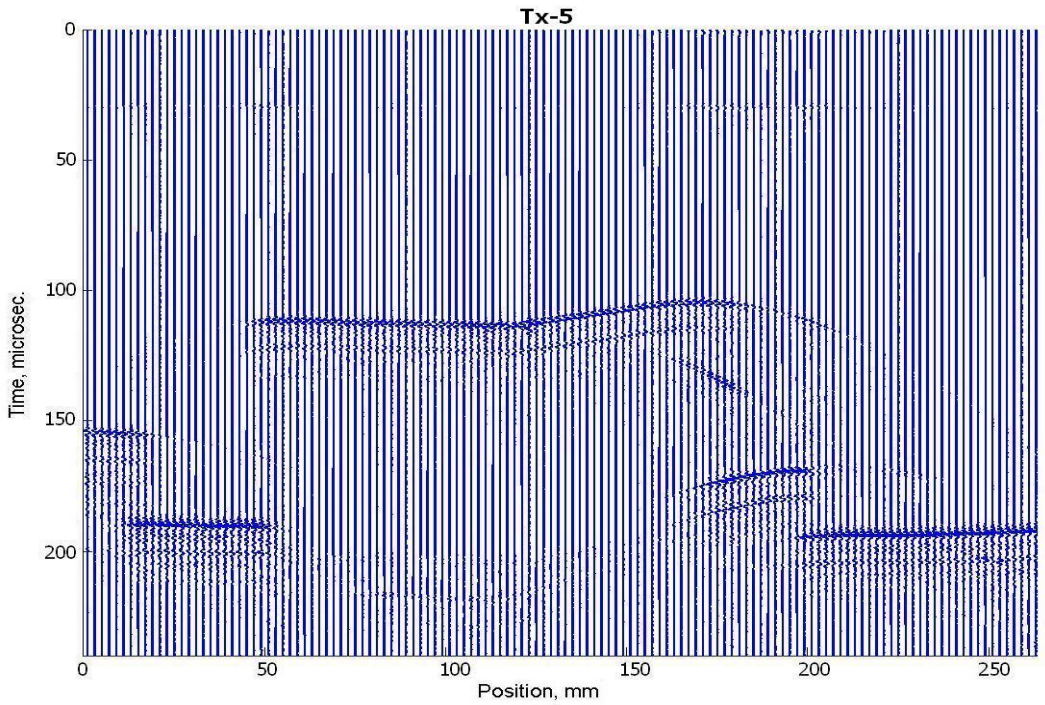
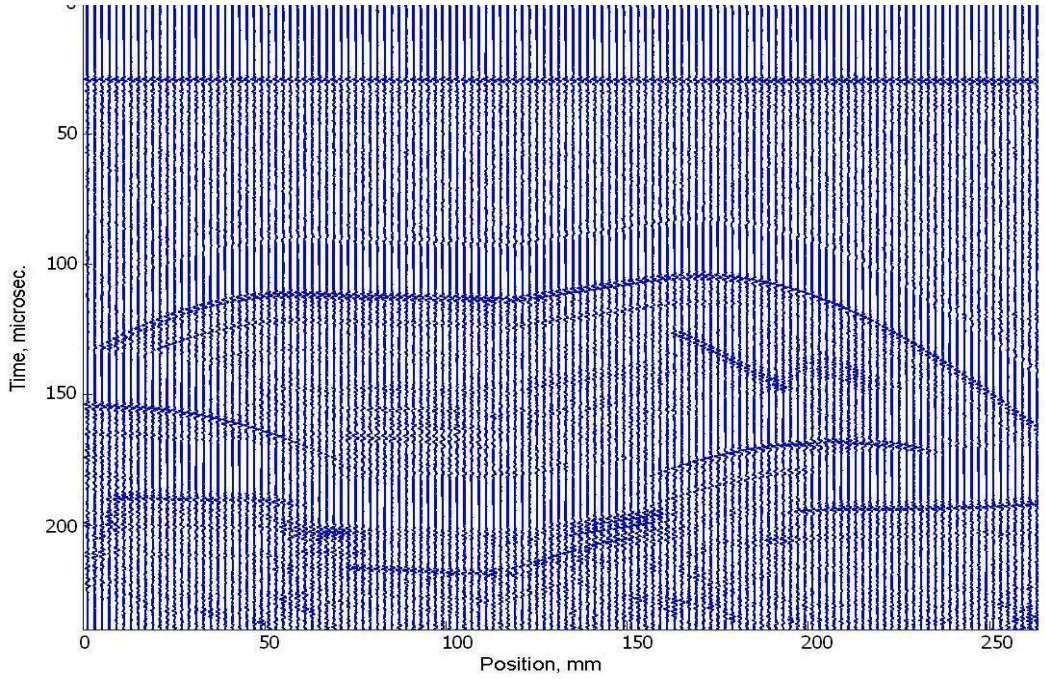
Time, microsec.
Position, mm


Tx-5
Time, microsec.
Position, mm
0
50
100
150
200
250


Time, microsec.
Position, mm
50
100
150
200
250

CONCLUSION:

What's ahead?

- *Larger transducer arrays.*
- *Optimized software.*
- *3D solid modelling.*
- *Anisotropic/fracture models.*
- *Exhaustive dataset – a million traces?*

ACKNOWLEDGEMENTS

We thank the sponsors of the CREWES Project for supporting this work.