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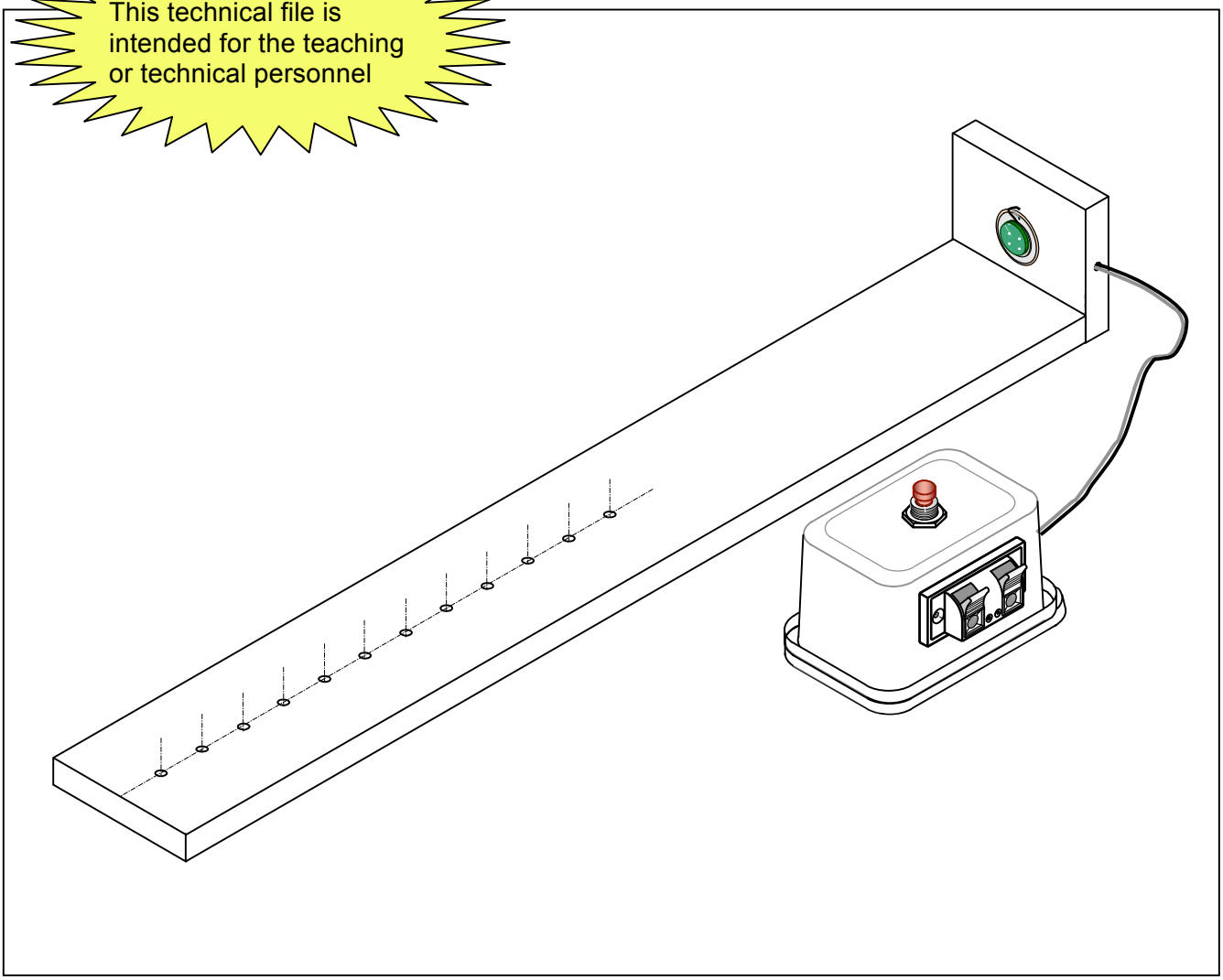
pour la formation générale en science et technologie

Working document

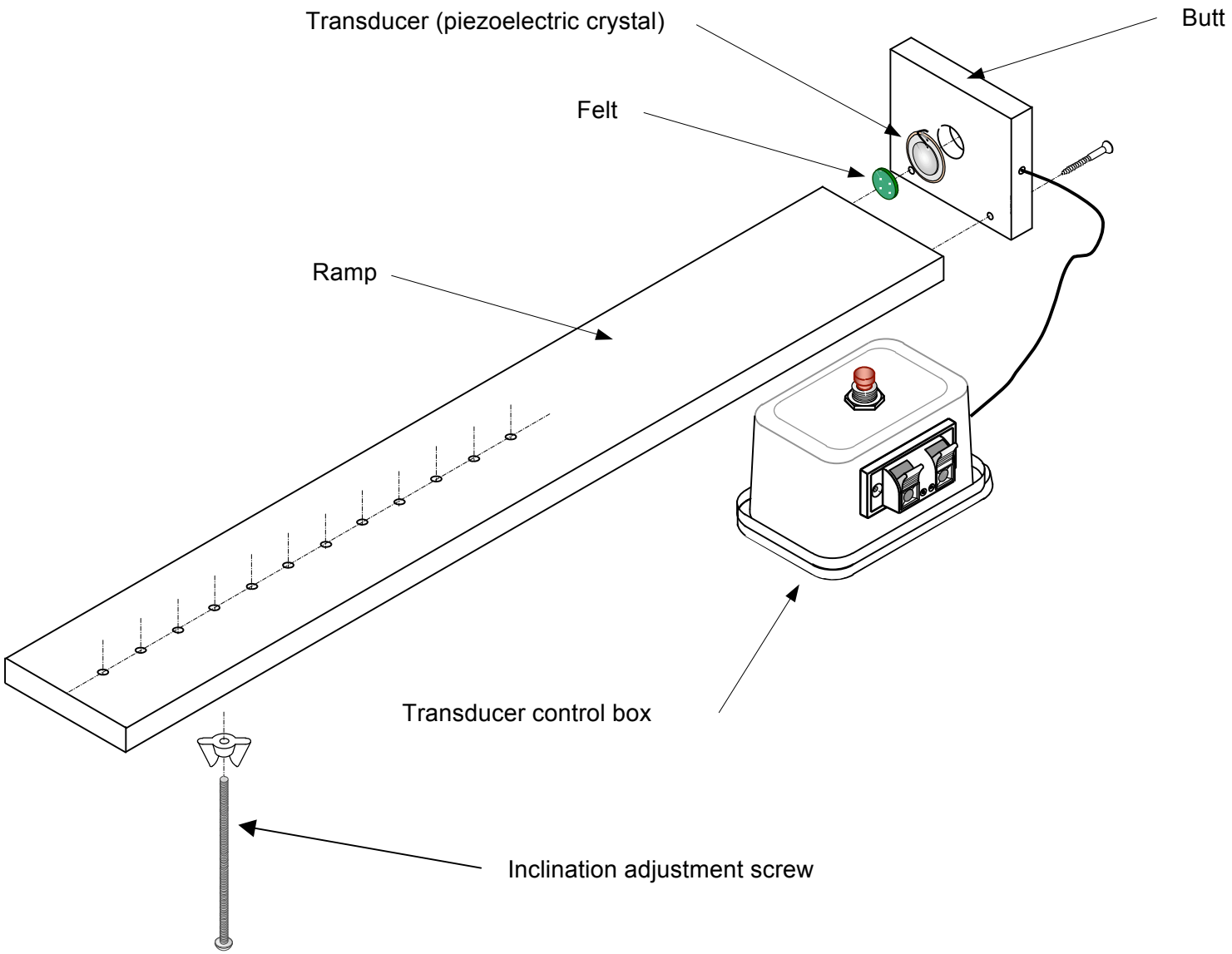
TECHNICAL FILE FOR THE TRANSDUTER AND RAMP

This technical file is intended for the teaching or technical personnel



AEOLUS' CHARIOT (Simplified LES)

January 2012



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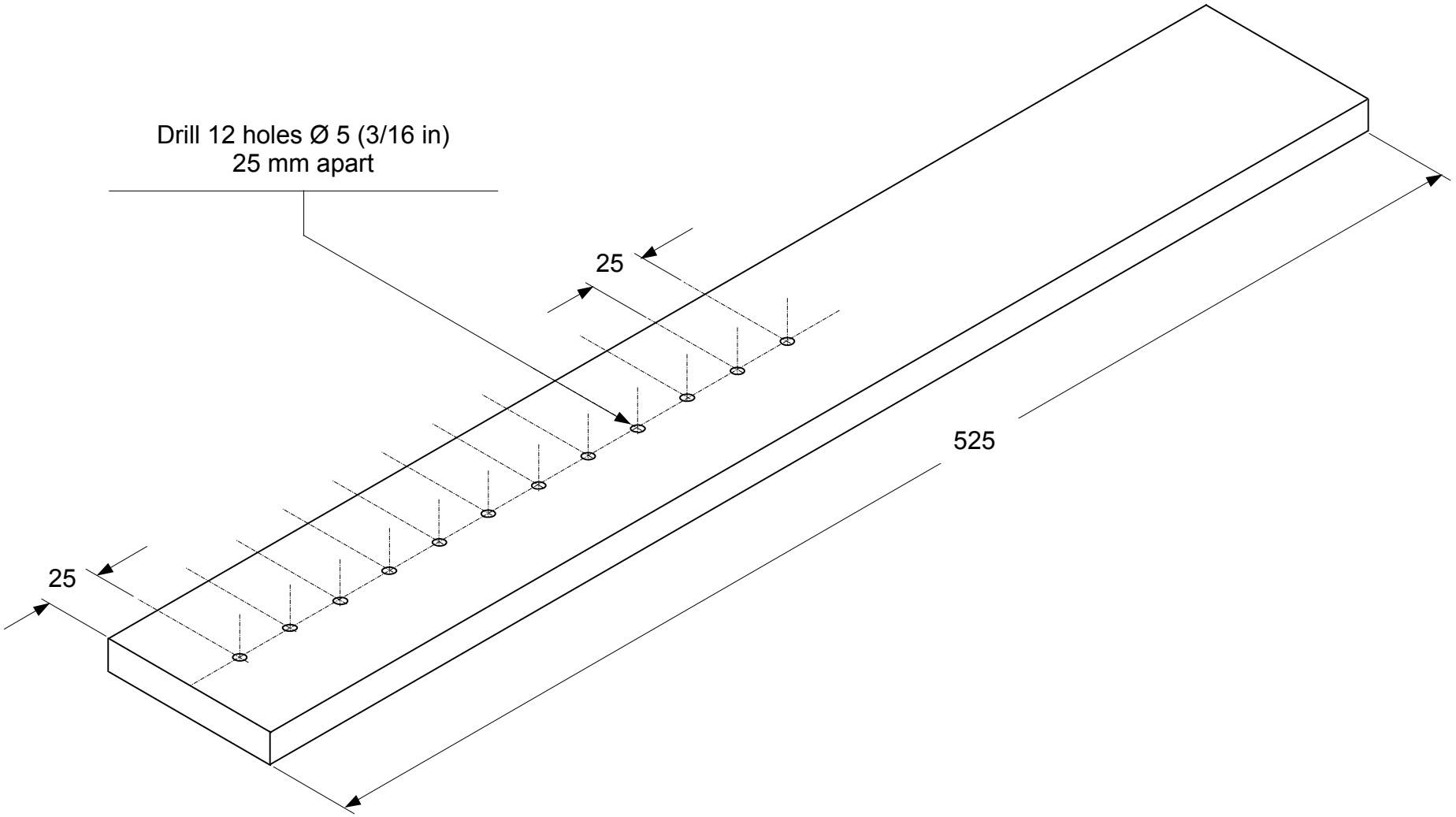
ACTIVITY:	**AEOLUS' CHARIOT** (Simplified LES)		
TITLE:	**EXPLODED VIEW OF THE RAMP AND TRANSDUCER**		
DATE:	**FEBRUARY 2012**	SCALE: **NOT TO SCALE**	DRAWING: **N° 8**



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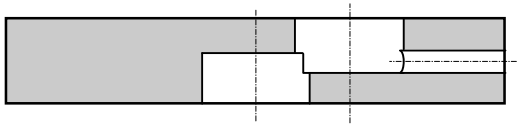
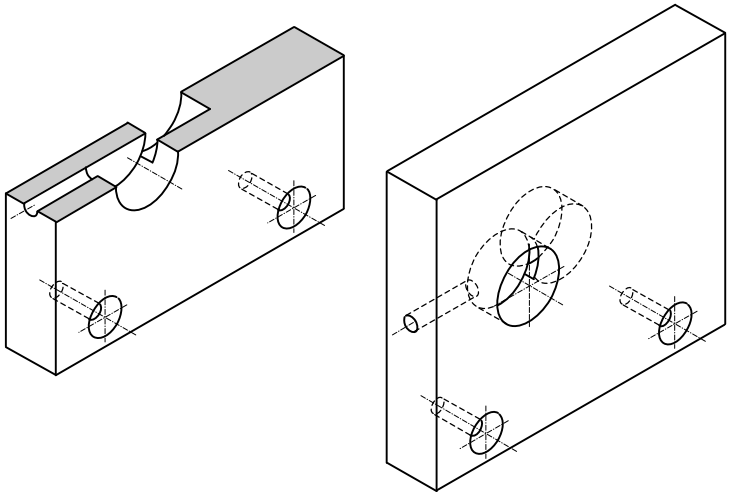
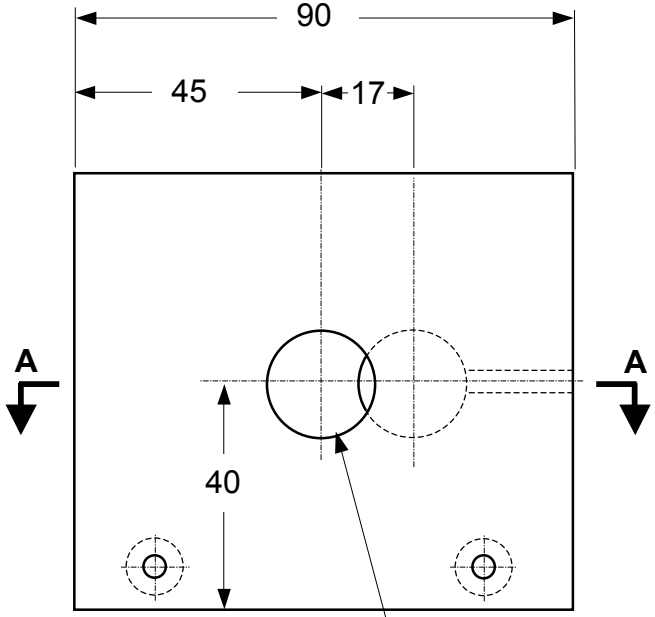
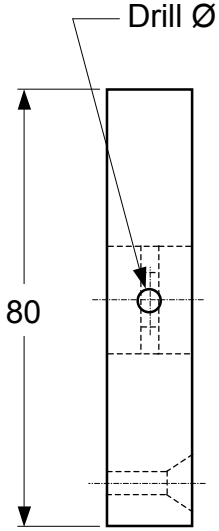
ACTIVITY:	**AEOLUS' CHARIOT** (Simplified LES)		
TITLE:	**DETAIL DRAWING OF THE RAMP**		
DATE:	**FEBRUARY 2012**	SCALE: **NOT TO SCALE**	DRAWING: **Nº 9**

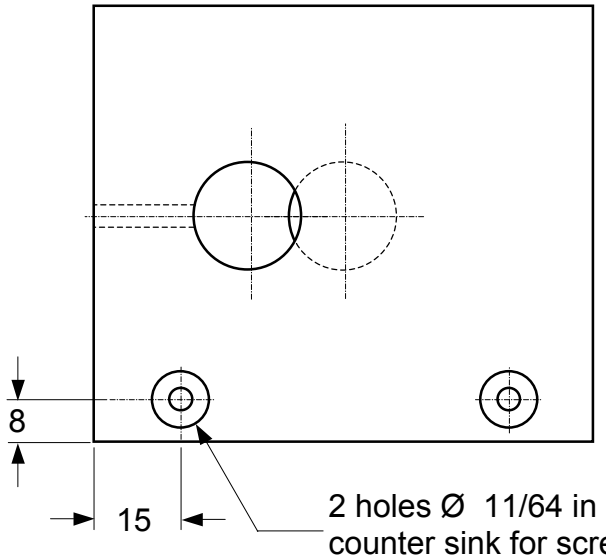


Cut A-A









Drill 2 holes Ø 3/4 in depth 9

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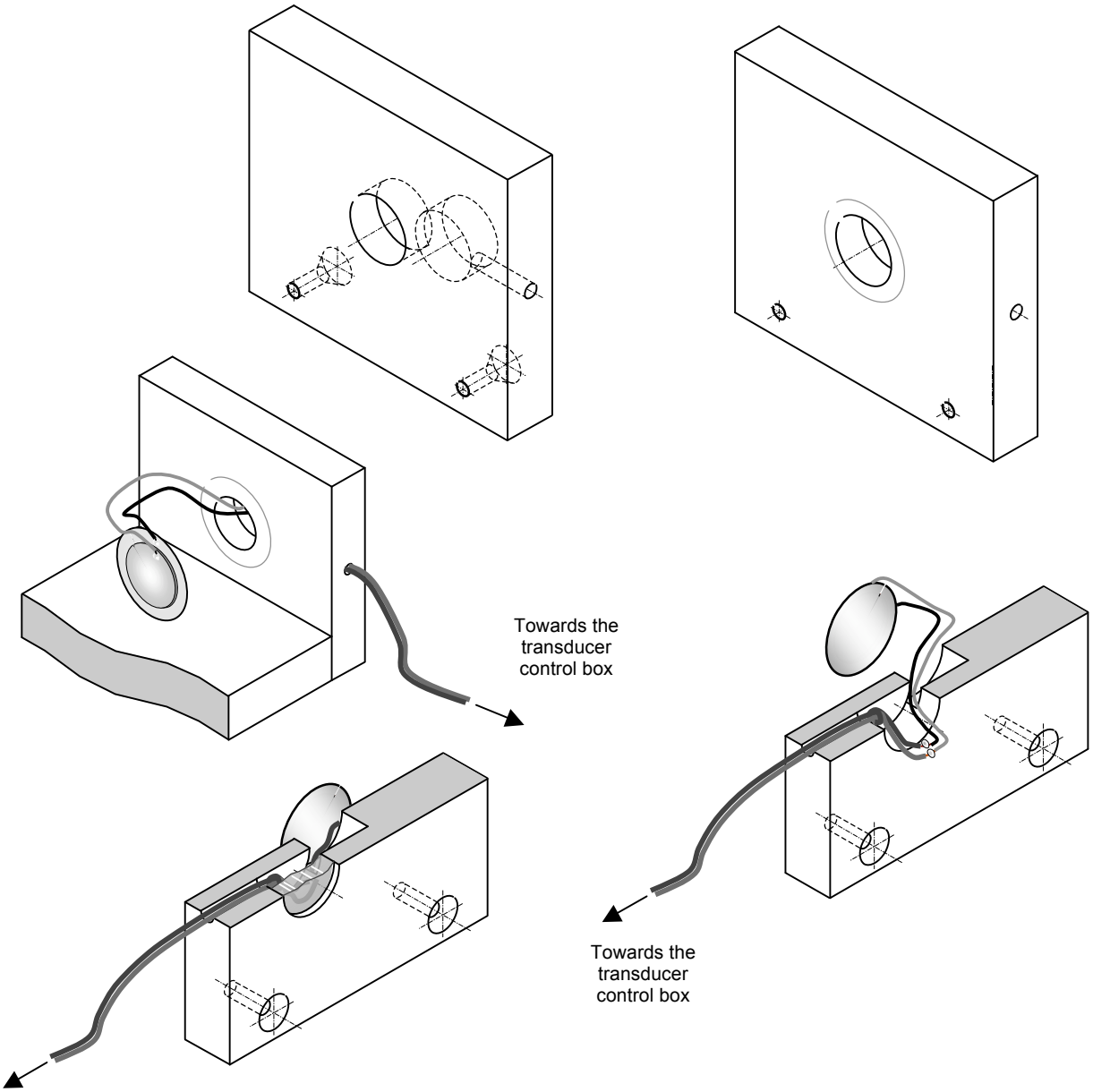
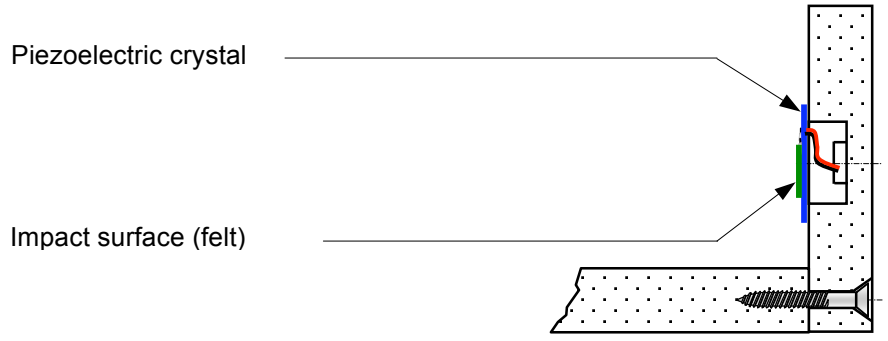
ACTIVITY:	**AEOLUS' CHARIOT** (Simplified LES)		
TITLE:	**DETAIL DRAWING OF THE BUTT**		
DATE:	**FEBRUARY 2012**	SCALE: **3 : 4**	DRAWING: **N° 10**





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ACTIVITY:	**AEOLUS' CHARIOT** (Simplified LES)		
TITLE:	**DETAIL DRAWING OF THE TRANSDUCER WIRING**		
DATE:	**FEBRUARY 2012**	SCALE: **1 : 2**	DRAWING: **Nº 11**

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FABRICATION AND ASSEMBLY RANGE

ELEMENT: **RAMP AND TRANSDUCER**

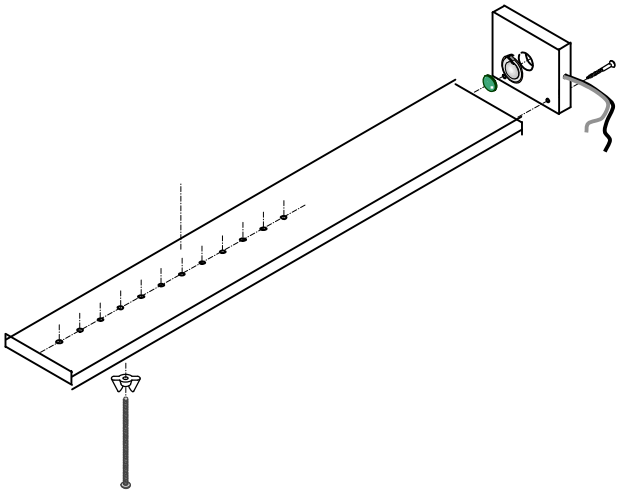
SET: **"AEOLUS' CHARIOT" LES**

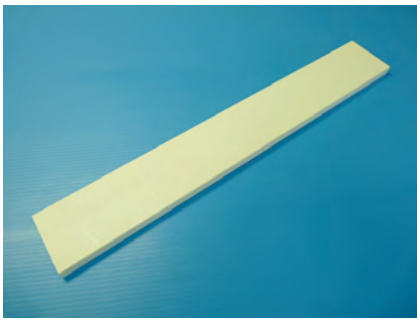
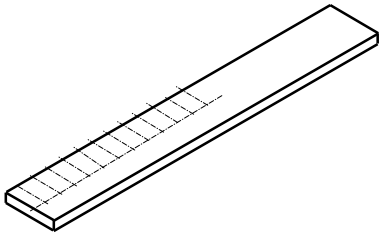
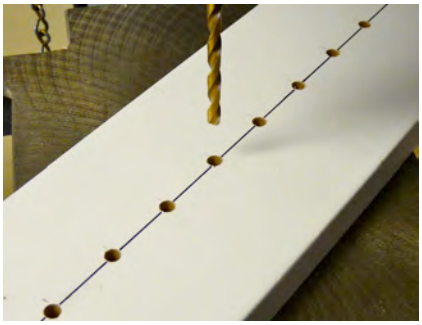
RANGE: **4**

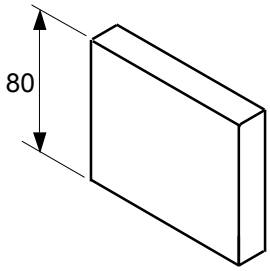
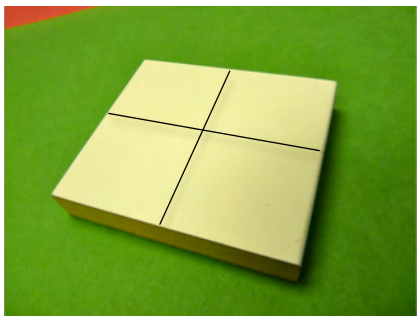
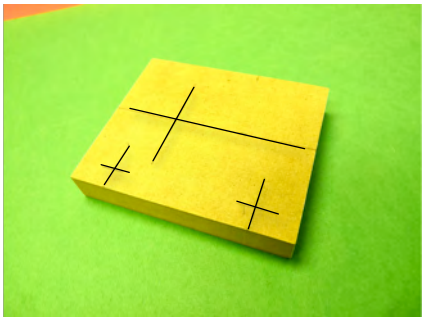
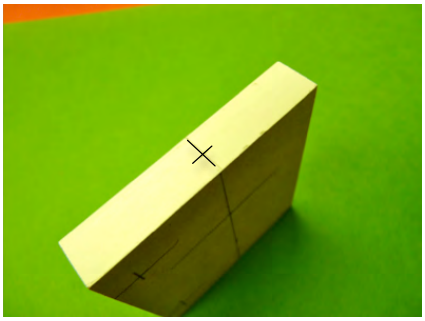
SHEET: **1 of 7**

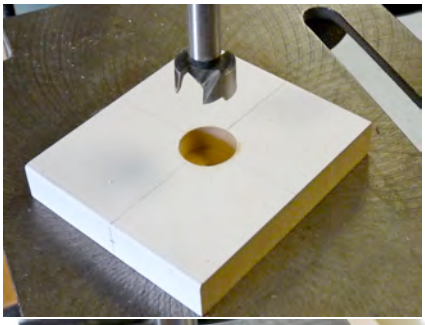
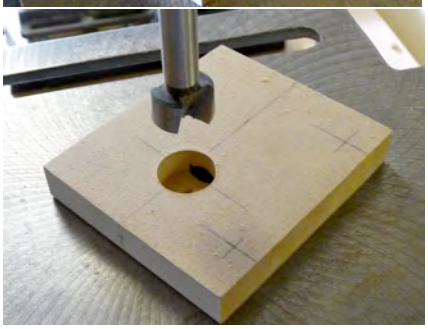
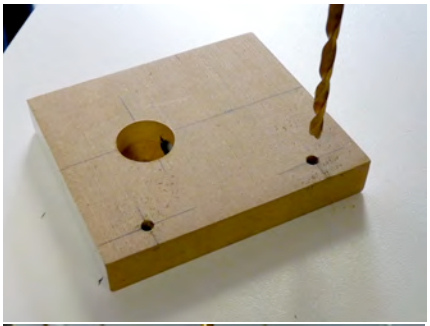
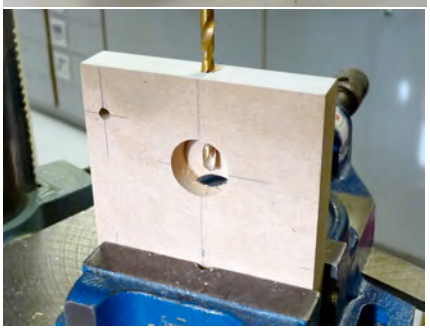
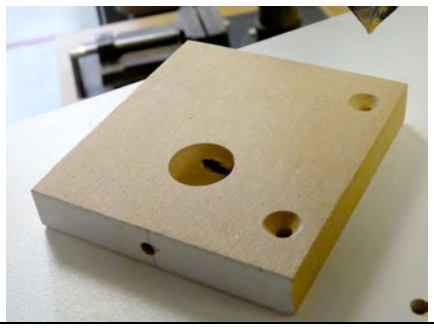
MATERIALS: **Various**

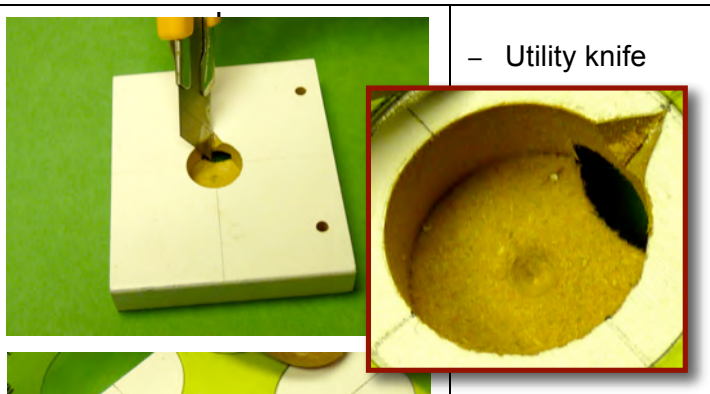
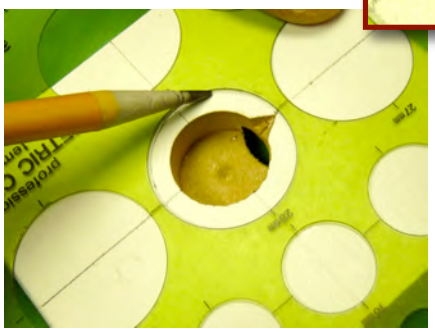
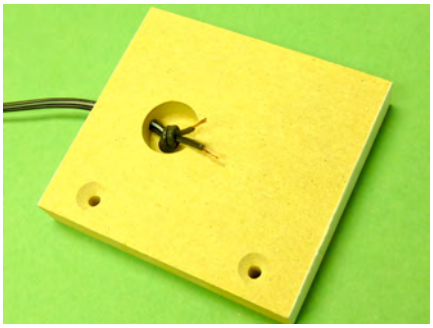
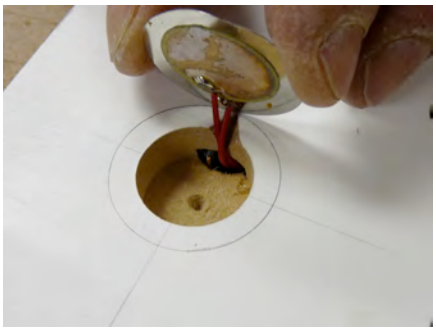
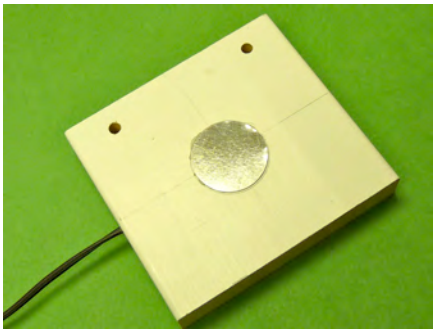
NUMBER: **1**

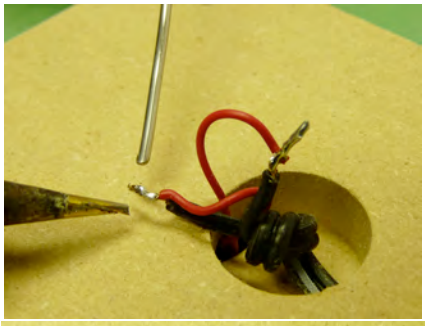
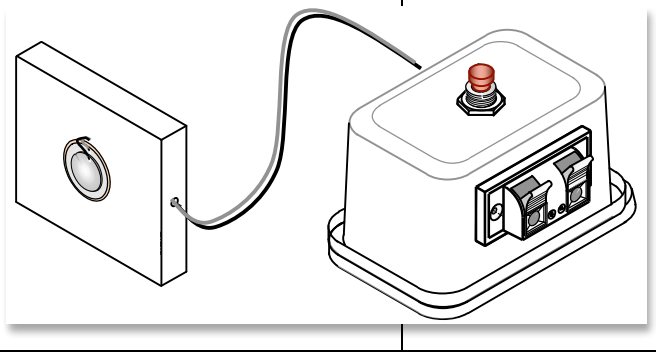


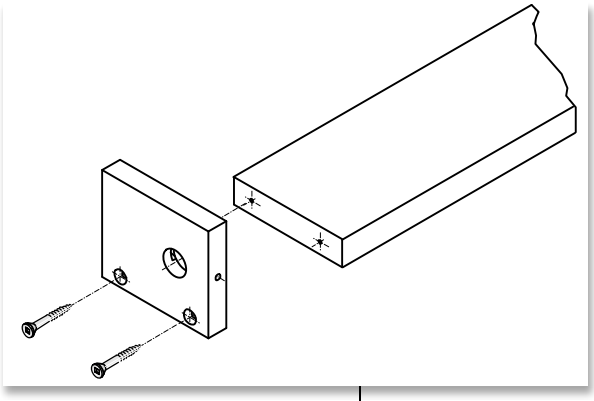
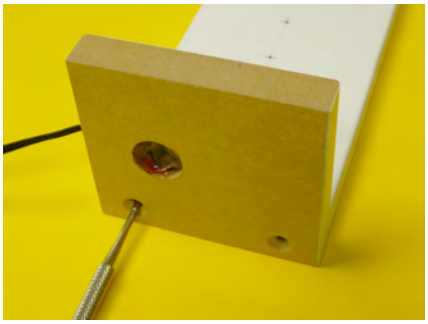
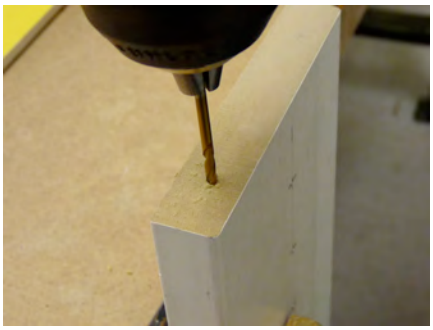
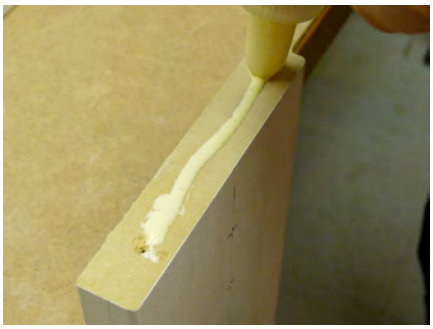
N°	PHASE, SUB-PHASE OR OPERATION	PHOTO OR DRAWING	MACHINE-TOOL, TOOLS
10	**FABRICATION OF THE RAMP**		
11	Using a mitre box, cut a fibreboard plank to 90 mm x 600 mm x 15 mm.		– Pencil – Ruler – Mitre box – Hand saw
12	Referring to **detail drawing n° 9,** trace the location of the holes. Punch all the holes		– Pencil – Ruler – **Drawing n° 9** – Hammer – Punch
13	Drill the 12 holes 5 (3/16 in) Ø.		– 5 mm (3/16 in) Ø bit – Drill

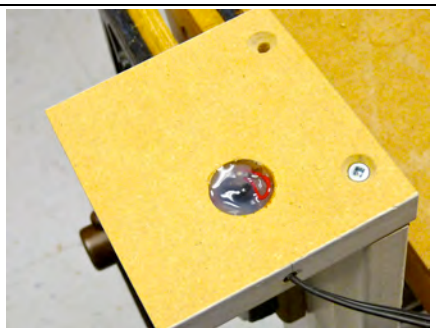
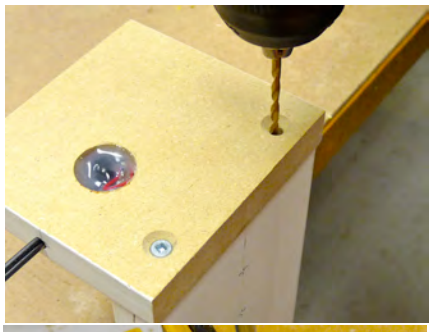
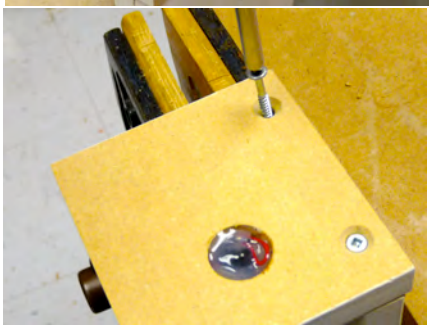
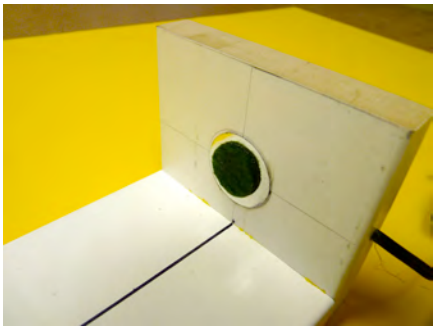
FABRICATION AND ASSEMBLY RANGE OF THE RAMP AND TRANSDUCER			SHEET: **2 of 7**
N°	**PHASE, SUB-PHASE OR OPERATION**	**PHOTO OR DRAWING**	**MACHINE-TOOL, TOOLS**
20	**TRACING THE BUTT**		
21	Using a mitre box, cut a 90 mm x 80 mm x 15 mm piece in fibreboard plank.		– **Drawing n° 10** – Pencil – Ruler – Mitre box – Hand saw
22	Respecting the dimensions in **detail drawing n° 10,** mark the location of the 19 (¾ in) Ø hole on one side, then punch it.		– Pencil – Ruler – Square – **Drawing n° 10** – Punch – Hammer
23	Respecting the dimensions in **detail drawing n° 10,** mark the location of the 19 (¾ in) Ø hole on the other side, as well as the counter sunk holes of 4.5 (11/64 in) Ø. Punch all the holes.		– Pencil – Ruler – Square – **Drawing n° 10** – Punch – Hammer
24	Respecting the dimensions in **detail drawing n° 10,** mark the location of the 4 (5/32 in) Ø hole on the end of the board and punch it.		– Pencil – Ruler – Square – **Drawing n° 10** – Punch – Hammer

FABRICATION AND ASSEMBLY RANGE OF THE RAMP AND TRANSDUCER			SHEET: **3 of 7**
N°	**PHASE, SUB-PHASE OR OPERATION**	**PHOTO OR DRAWING**	**MACHINE-TOOL, TOOLS**
30	**DRILLING THE BUTT**		
31	Drill the first 19 (¾ in) Ø hole using a "Foster" bit, to a depth of 9 mm. **Note**: Use a vise or a clamp to hold the part in place.		– 19 (¾ in) Ø "Foster" bit – Drill vise
32	Turn the part over and drill the second 19 (¾ in) Ø hole to a depth of 9 mm. **Note**: Use a vise or a clamp to hold the part in place.		– 19 (¾ in) Ø "Foster" bit – Drill vise
33	Drill the two 4.5 (11/64 in) Ø holes. **Note**: Use a vise or a clamp to hold the part in place.		– 4.5 (11/64 in) Ø bit – Drill vise
34	Drill the hole 4 (5/32 in) Ø, to be used to thread the wire through from the control box to the transducer. **Note**: the bit should end up in the ¾ in Ø hole. **Note**: Use a vise or a clamp to hold the part in place.		– 4 (5/32 in) Ø bit – Drill vise
35	Countersink the two 4.5 (11/64 in) Ø holes. **Note**: Use a vise or a clamp to hold the part in place.		– Countersink for screw n°6. – Drill vise

40	**INSTALLING THE TRANSDUCER**		– Utility knife
41	Using a utility knife, make a notch that will allow the transducer wires through.		
42	Using a circles template, trace a 28 mm Ø circle that will help you center the transducer.		– Circle template – Pencil
43	Insert the (2 strand) wire from the transducer control box into its hole and make a knot. **Note**: Use a 50 cm long supply wire.		– Electric wire – **Drawing n° 11**
44	Insert the two transducer wires into the hole that goes through to the other side.		– **Drawing n° 11**
45	Using a hot glue gun, glue the transducer around the edges, centering it on the circle drawn earlier. **Note:** The center of the transducer must remain mobile. There must therefore be no glue on the center.		– Hot glue gun

FABRICATION AND ASSEMBLY RANGE OF THE RAMP AND TRANSDUCER			SHEET: **5 of 7**
N°	**PHASE, SUB-PHASE OR OPERATION**	**PHOTO OR DRAWING**	**MACHINE-TOOL, TOOLS**
50	**SOLDERING THE TRANSDUCER**		
51	Solder the wires from the transducer control box to the transducer wires.		– Soldering iron – Flux (solder) – **Drawing n° 11**
52	Block the communicating hole with a drop of hot glue, then fold the wires carefully into the hole. **Note**: Make sure the wires are well apart so they do not touch one another.		– Hot glue gun – **Drawing n° 11**
53	Fill the hole with hot glue and let cool.		– Hot glue gun
54	Solder the other end of the wire in the transducer control box.		

60	**ASSEMBLY RAMP — BUTT**		
	Here is an overview of the work to be done.		
61	Use the end of the ramp to mark the location of the screws, using a punch or a nail. Mark the first hole.		– Punch or – Nail
62	Drill a pilot hole 2 (5/64 in) Ø and 30 mm deep.		– 2 (5/64 in) Ø bit – Hand drill
63	Put a line of glue.		– White glue

FABRICATION AND ASSEMBLY RANGE OF THE RAMP AND TRANSDUCER			SHEET: **7 of 7**
N°	**PHASE, SUB-PHASE OR OPERATION**	**PHOTO OR DRAWING**	**MACHINE-TOOL, TOOLS**
64	Screw in the second screw.		– 1 ½ in - n°6 screw – Screwdriver
65	Make a pilot hole for the second screw.		– 2 (5/64 in) Ø bit – Hand drill
66	Screw in the second screw.		– 1 ½ in - n°6 screw – Screwdriver
67	Glue a piece of thin felt, which will protect the transducer.		– Self adhesive felt