

# LINEAR AIR TRACK – Spark Recording kit 2.5M long track MF0105-401

## Kit parts:

### IDENTIFICATION & QUANTITIES OF COMPONENTS:

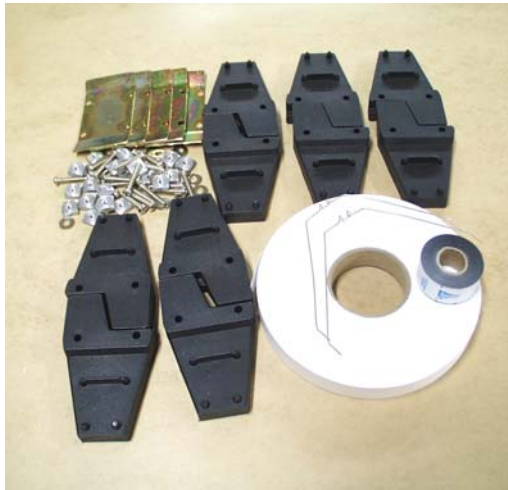
<b>AIR TRACK SPARK RECORDING KIT. MF0105-401</b>		
<b>KIT PARTS.</b>		
Spark Track, 2.5m long , with sockets.	1x with 2 metal strips/sockets for EHV cables	PA0130-086
Paper Track, 2.5m long, with socket	1x with metal strip & 4mm socket	PA0130-084
Ground wire with connection screw	1x joins paper track metal strip to Air Tube	PA0130-062
Support feet for spark & paper tracks	8x moulded nylon feet	PA0130-006B
Steel plates to brace the support feet	4x to stiffen the feet	PA0130-009
Screws, washers and square nuts for feet	16x screws & nuts for feet	PA0130-008A
Roll of black spark paper, 10M long	1x roll 'teledeltos' paper,20mm	PA0117-001
Roll of white spark paper, 180M long	1x roll white bond paper, 20mm	PA0116-001
Spark pen for glider	2x pens for sparking	PA0130-029A

See picture of the Spark Recording kit below .....

### ADDITIONAL EQUIPMENT FOR SPARK RECORDING (extra):

Spark generator & cables.	1x	LB0118-001 complete with all cables
Incl. the following parts:		
High voltage cables (pair)	1x	PA0130-059 pair
Earth cable	1x	PA0130-060
Remote control cable	1x	PA0130-058

**Spark Recording Kit**



**LB0118-001 Spark Generator & cables**



The spark Recording Kit comes complete with the two long insulated channels to fix to either side of the Air Track (not shown).

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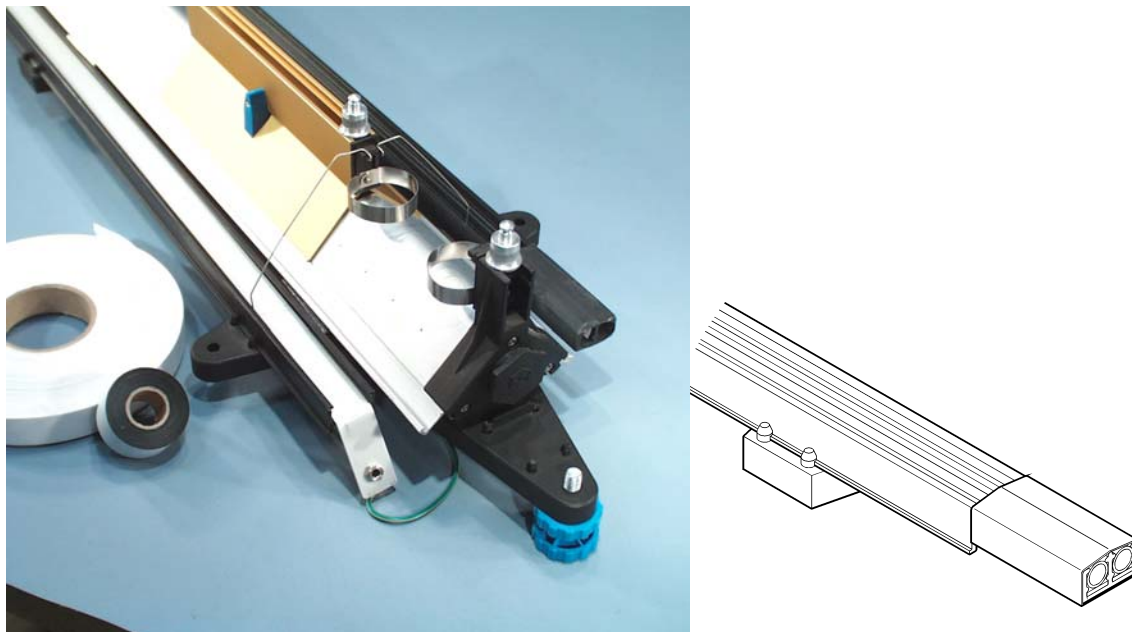
**Scientrific Pty Ltd**

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**TO FIT THE SPARK & PAPER TRACKS, PROCEED AS FOLLOWS:**

- Position one pair of support feet about 100mm from the end of the track that has the pair of adjustable levelling feet. Slide the square nuts down the slots in the underside of the track in the same way as fitting the adjustable feet.
- Remove the single adjusting foot from the other end of the track and slide the other pairs of support feet down the track until there are 5 pairs of support feet (including the original adjusting feet) to support the Spark track and the Paper Track. All 5 pairs should be fairly equally spaced with the end ones about 100mm in from the end of the track. Tighten all screws firmly.
- Take the Spark Track with the metal strips along the grooves and engage the small external ledge either side of the grooves into the 4 little pillars on each support foot. The track should slide through easily. Engage into the pillars of the next support foot and then the next until the spark track is supported all along the Air Tube.
- Take the Paper Track and, on the other side of the track, engage it into the grooves of all the pillars on the support feet.
- Take the roll of black spark paper and lay it along the paper track so that it lies flat down on the metal strip. Using Sellotape, tape the spark paper at each end with the darker side facing upwards. The paper should be pulled quite taut.
- Take the roll of white paper and lay this along the Paper track so that it lies on top of the black spark paper. Tape it in place.
- Take the left hand and right hand spark pens and fix them to the end of two gliders so that the metal pens pass from the Spark Track close to the metal strip across to the Paper Track and close to the paper surface. Apply air to the track and check that the gliders glide properly and the spark pens are not rubbing or catching on anything.



**Picture shows the spark tracks fitted to an air track and a pen fitted to a glider.**

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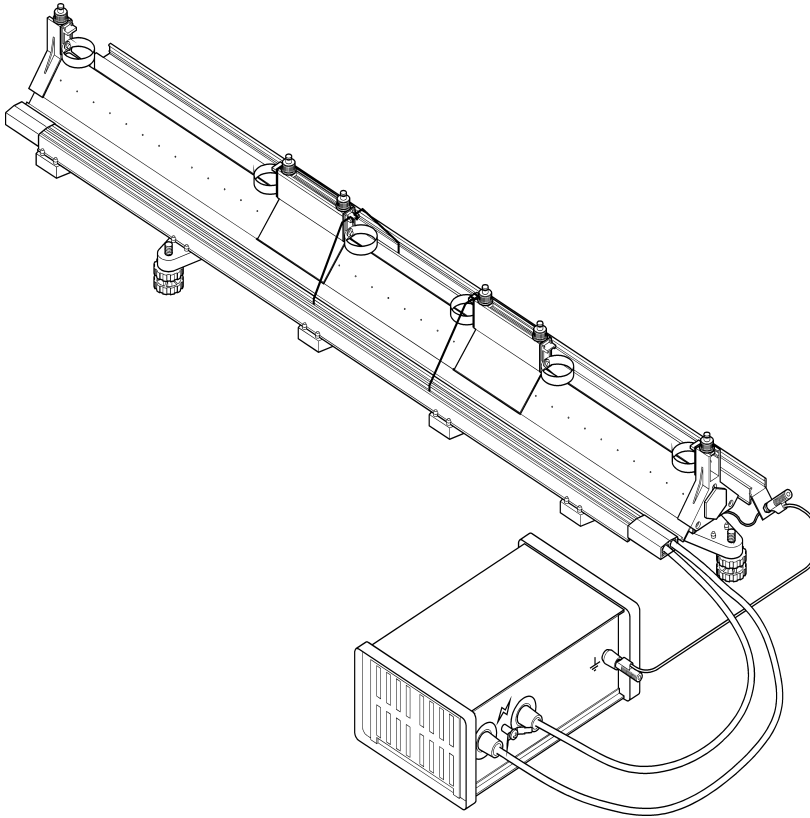
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### **ELECTRICAL CONNECTIONS:**

- It is important that the Paper Track metal strip is connected to the Air Tube and also connected back to the housing of the Spark generator.
- The Paper Track's metal strip is bent at one end to provide a tab that has a 4mm banana socket and a short cable and a special screw. Take the short cable and slide the square nut up the slot in the underside of the Air Tube and clamp it tight with the knurled screw.
- Take the Green Ground cable packed with the Spark generator and connect the banana plug into the socket provided on the Paper Track and the other end connects to the ground terminal on the housing.
- Take the 2x EHV cables and insert the metal clips into the ends of each of the Spark track slots to engage in the metal tubes provided. Plug the opposite ends into the spark generator EHV output sockets at the rear of the instrument.
- Turn on the Spark Generator and see the sparks jumping from the Spark Track and through the paper on the other side. Each spark causes a black dot to occur on the underside of the white paper.
- If the Speed of the sparks is known (sparks per second) and the distance between the dots on the white paper strip is determined, the velocity can be calculated. Variations in the distance between dots means a change in velocity or acceleration or deceleration.

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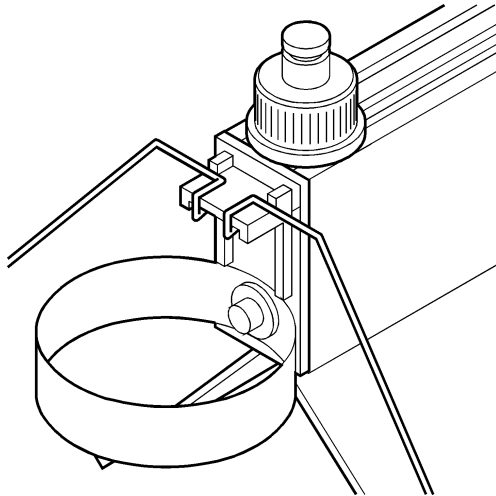
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## THE SPARK PEN:

The wire pen is fitted to the front of any buffer. See sketch below.

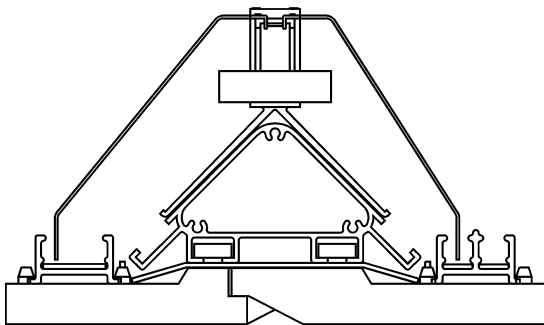


The tip of each pen on one side of the Air Track must enter the two slots in the Spark track and the tips should be bent slightly to be very close to the metal strips inside the track (say 2 to 3 mm away).

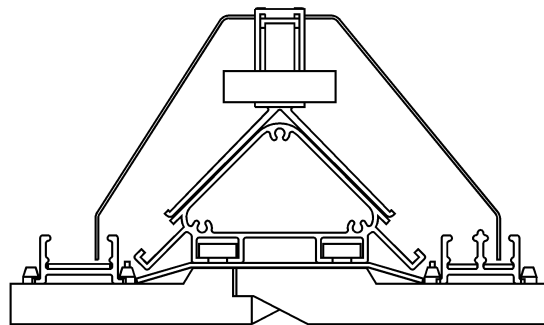
On the other side of the Air Track, the tips both enter the paper track and should be very close to the paper (say 2 to 3 mm away).

Always float the gliders back and forth to be sure the pens do not make any contact with the channel strips while the gliders are moving.

GLIDER VIEWED FROM FRONT



GLIDER VIEWED FROM REAR



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