

# Soft Crash Target

## From *Anthony Best Dynamics*

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The ABD Soft Crash Target (SCT) has been designed to allow the testing of vehicle collision detection and pre-crash systems. It is designed to enable low-speed collisions to be carried out without causing significant damage to the test vehicle. It consists of a radar-reflective dummy-vehicle composed of a number of inflatable cushions and simulated wheels (which do not touch the ground), mounted around a Central Drive Box, that has its own small diameter wheels, and which is designed to drive the SCT at typical speeds of 50 km/h (30 mph).

The Central Drive Box uses an electric motor with on-board batteries to propel the vehicle and houses the control system, which can accurately guide the vehicle along a pre-programmed course at a defined speed. The controller uses position feedback from a GPS-corrected inertial navigation system to ensure that high-precision guidance is achieved. The time signal from the GPS unit is used to ensure the precise millisecond synchronisation that is necessary to generate accurate crash simulations.

The batteries used to power the system will provide sufficient power for a typical half-day of use. Additionally, they can be recharged between tests by quick connection to a suitable supply at the track.

The control system and software is based on ABD's standard robot controller and software, so that users already familiar with ABD's in-vehicle robots will find using the SCT easy. The unit is radio-controlled from a remote base-station using ABD's standard driverless testing system, which can also be used to coordinate robotic control of the test vehicle, thereby providing an easy-to-use single software environment. The driverless testing system also enables the SCT to be driven manually using remote controls.

## Summary of Features:

- Lightweight aluminium chassis
- Rollover protection for control system
- Typical cushion thickness 60 cm
- Electric Drive/Braking system with belt drive transmission
- Electro-magnetic park brake
- Lithium Iron Phosphate battery pack
- Electrically actuated steering system with override facility for manual manoeuvring
- ABD Driverless control hardware mounted in shock-resistant, splash proof casing
- Inertial Navigation System with GPS correction
- Control software for operation of Soft Crash Target allows coordinated motion with other vehicles using an ABD driverless system.

## Performance:

- Designed to withstand impacts at 50g
- Maximum Speed: 70 km/h
- Mass: 220 kg approx. (without cushions) *(Mk II version in development, target mass = 165kg)*
- Drive Box Dimensions (Length, Width, Height): 1850mm x 600mm x 1000mm (approximate)
- Duration: Anticipated testing time of 4 hours before battery recharge required
- Path Following Accuracy: Dependent upon motion pack type [2 cm (1 SD RMS) typical maximum]



Soft Crash Central Drive Box

## For more detailed information on this and other related products contact:

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