

Guided Soft Target

SP-6011

OVERVIEW

The AB Dynamics Guided Soft Target Vehicle (GST) is designed for use in the testing of vehicle Advanced Driver Assistance Systems (ADAS), and is particularly suited to the testing of vehicle collision detection and crash mitigation systems. The GST is the result of collaboration between AB Dynamics and Dynamic Research Inc. of Torrance, California, (DRI), with ABD being primarily responsible for the control system and software and DRI primarily responsible for the chassis.

The GST is designed to enable high-speed collisions to be carried out without causing significant damage to the test vehicle. It consists of a Low-Profile Chassis, which can be driven over, and a separate foam panel body (or other suitable payload). When the low-profile vehicle is driven over, the wheels of the vehicle retract into the chassis to protect the suspension of the GST and to provide the minimum possible shock input to the test vehicle's suspension.



Low profile driverless vehicle for dynamic interactions and high-speed impacts with other vehicles

The GST uses electric motors with on-board batteries to propel the vehicle, and houses a control system which can accurately guide the vehicle along a pre-programmed course at a defined speed. The batteries used to power the system will provide sufficient power for a typical day of testing. Additionally, they can be recharged between tests by a quick connection to a suitable supply at the track.

The controller uses position feedback from a high-precision, GPS-corrected, inertial navigation system to allow accurate path-following control to be achieved. The time signal from the GPS unit is used to ensure the precise millisecond synchronisation that is necessary to generate accurate and repeatable crash and close-passing scenarios. The control system and software is based on the systems used by AB Dynamics standard in-vehicle robots, so that users already familiar with them will find using the GST easy to operate. The GST is controlled via radio from the same remote base-station that is used by AB Dynamics standard driverless testing system. The common software and hardware platform allows the GST and other vehicles driven by AB Dynamics robots to be easily used together to create complex multi-vehicle tests.

FEATURES

Aluminium chassis - wheels retract into chassis when LPC is driven over

Electric drive system with belt drive transmission

Electrically-actuated steering system

Lithium Iron Phosphate battery pack for good power to weight ratio

4-disc hydraulic braking system with failsafe emergency braking

Uses AB Dynamics proven driverless control system, with hardware mounted in water-resistant casing

Position feedback from Inertial Navigation System with GPS correction

Accurate path-following and speed control capability

Control software for operation of Guided Soft Target allows coordinated motion with other vehicles (either driven manually or equipped with AB Dynamics driving robots)



Assembly of optional Soft Car Body on GST



GST Drive-over

Anticipated Performance / Dimensions

Typical Maximum speed	>80 km/h (depending upon aerodynamic drag)
Maximum acceleration	0.2g (with soft car body fitted)
Maximum deceleration	0.8g
Maximum lateral acceleration	0.4 – 0.5g
Foam panel car body mass	80kg
Low profile vehicle mass	315kg
LPC Length	2950mm
LPC Width	1680mm
LPC Height (suspension retracted into chassis)	125mm
LPC Wheelbase	1400mm
LPC Front track	660mm
Max ground clearance, set to max ride height	20mm
Testing duration	One day before a recharge is required (typical)
Battery capacity	3.45kWh
Path-following accuracy	Dependent upon motion pack (2cm 1SD RMS typical maximum)

GET IN TOUCH

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