STATION WAGON VS UTILITY WAGON - SIDE VIEW

The Station and Utility Wagon can have 3rd row side windows or metal panels.

Station Wagon

	Glazed Windows	Metal Blanked Panel
Station Wagon	Standard	Non-cost option
Utility Wagon	Non-cost option	Standard

Utility Wagon, 2-seat

Utility Wagon, 5-seat

STATION WAGON VS UTILITY WAGON - REAR SEATS

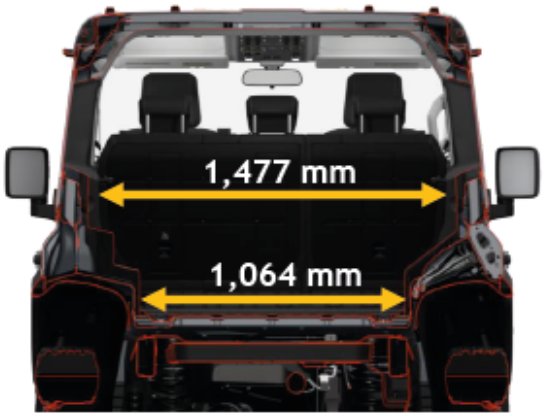
Station Wagon

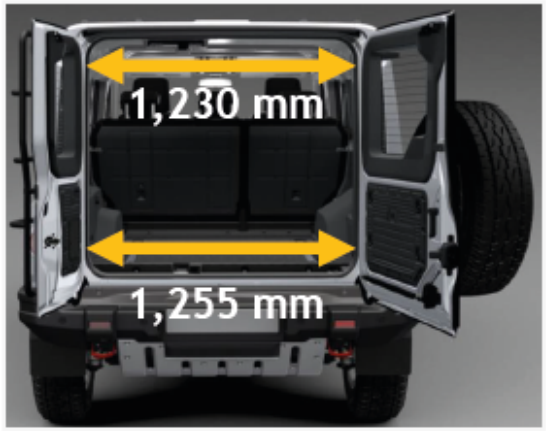
The rear bench seat is 70mm further forward and slightly more upright in the Utility Wagon, in-order to meet N1 loadspace requirements. The 2-seat variant can also carry a Euro pallet.

Utility Wagon, 2-seat

Utility Wagon, 5-seat

STATION WAGON VS UTILITY WAGON - LOADSPACE

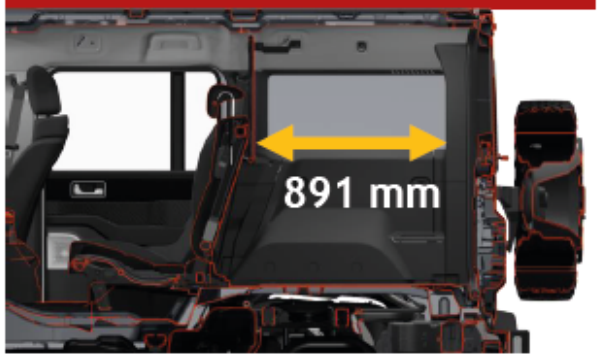




M1 5-Seater

N1 2-Seater

N1 5-Seater



COMPETITIVE STATISTICS

420 Kg / 150 Kg
Static / Dynamic Roof Load

3.5T Towing Capacity

28.2° Breakover Angle

Triple Differential Locks

STATION WAGON – M1

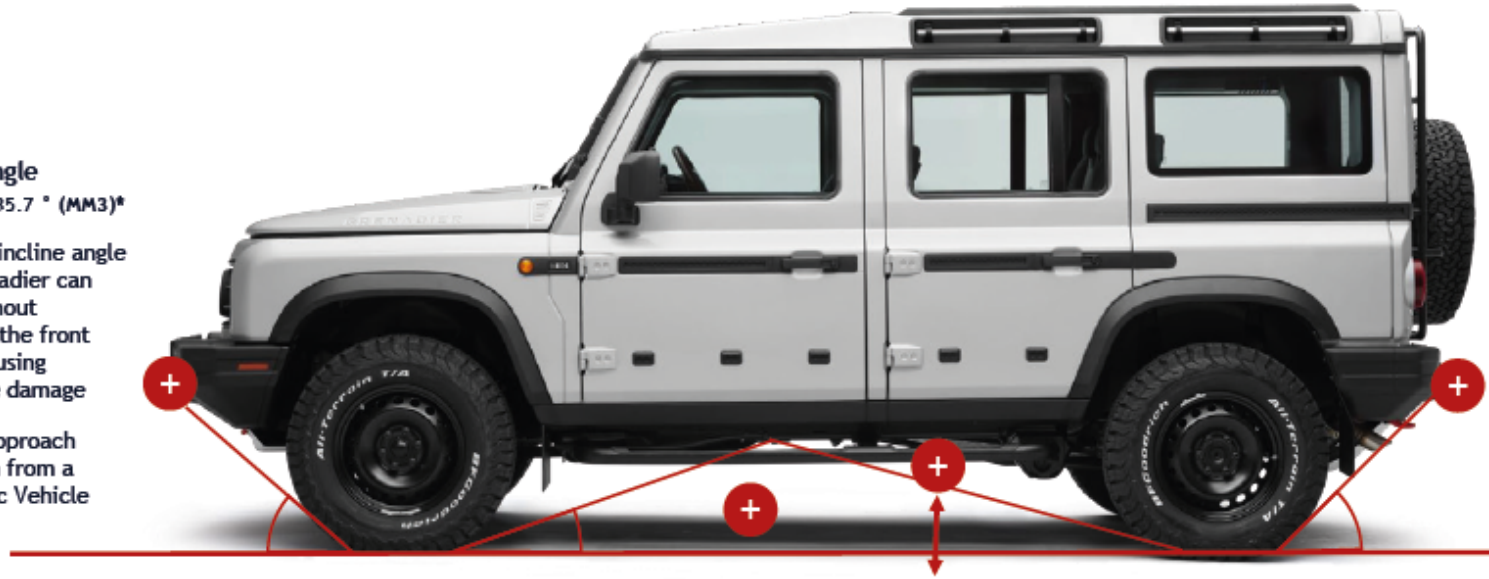
GROUND CLEARANCE & ANGLES

Approach Angle

35.5° (MM1) / 35.7 ° (MM3)*

The steepest incline angle that the Grenadier can approach without encountering the front bumper or causing undercarriage damage

Referenced approach angle is taken from a European Spec Vehicle



Departure Angle

The steepest incline angle that the Grenadier can depart without encountering the rear bumper or causing undercarriage damage

*MM1 = Measuring Mass 1 (Kerb Weight)
MM3 = Measuring Mass 3 (Gross Vehicle Weight)

Break Over Angle

28.2 ° (MM1) / 23.2 ° (MM3)*

A measurement of a vehicles ability to drive over a sharp ridge without touching its underside

Ground Clearance

10.4" / 264 mm (MM1) / 7.9" / 202 mm (MM3)*

The minimum amount of distance between the bottom of the vehicle body and the ground

GROUND CLEARANCE

- Ground clearance is the measurement from the lowest part of the vehicle to the ground.
- The larger the ground clearance the greater the off-road ability as the vehicle can clear larger obstacles.
- The Grenadiers ground clearance is 264mm, measured from the Fuel tank protection plate.
- Ground clearance will be affected by payload, the greater the weight, the lower the vehicle will sit.

WADING DEPTH

Wading depth is the height of water a vehicle can safely travel through without damaging any equipment. Most vehicles are traditionally let down by the height of the air intake and electronics that do not have sufficient waterproofing. The Grenadier's wading depth is rated at 800 mm, this is defined by the height of the air intake and waterproofing of electrical components in the engine bay.

RAISED AIR INTAKE

- Raised air intakes are often **MISDESCRIBED** as “snorkels”.
- The raised air intake on the Grenadier does **NOT** improve the wading depth as the seals are not watertight.

Environments the raised air intake is suited for;

- Dust
- Extreme heat

In these environments the extra height provided by the Raised Air Intake allows access to clean, cool air. This aids engine performance.

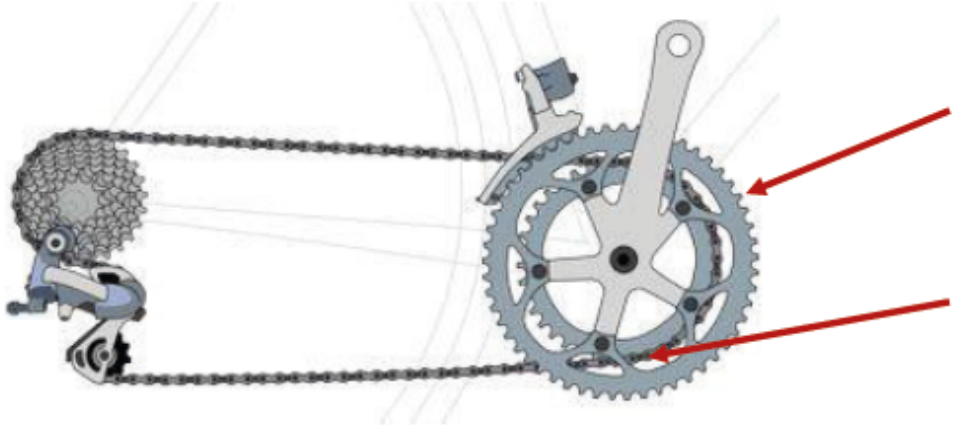
In extremely duty environments a Cyclone Pre-Cleaner can be specified. This further reduces dust intake.

Raised Air Intake mounted to A-Pillar

TWO-SPEED TRANSFER CASE

What is a Transfer Case?

- Transfer cases are installed on four-wheel-drive vehicles to distribute the power to both the front and rear axles, ensuring that all four wheels can be driven.
- The Grenadier has a two-speed (High & Low) transfer case, low range has a ratio of 2.5:1. (The output rotates once for every 2.5 input revolutions)
- There are 4 options; High range, low range, high range with central diff lock and low range with central diff lock.



How to use a Two-Speed Transfer Case

Low

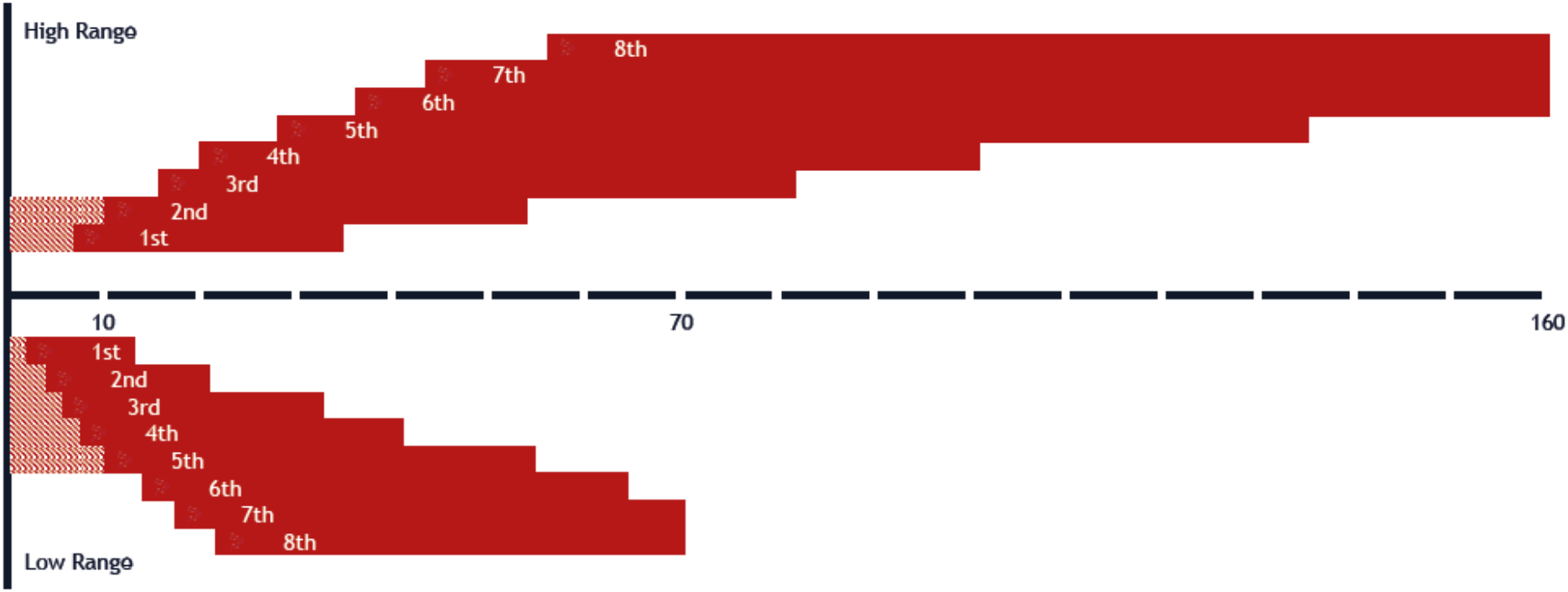
- Provides more torque at slower speeds - useful for intense off-roading like rock crawling, hill climbing and driving in conditions such as deep sand, mud or snow
- Allows accurate control of vehicle speed over obstacles, and provides effective engine braking on steep grades to stop brakes overheating

High

- Applies less torque which is ideal for more basic off-roading, such as on loose or slippery surfaces including ice or dirt

DRIVELINE RATIOS - LOW RANGE VS HIGH RANGE

Combining engine RPM and gear ratio provides the vehicle speed. The graph below shows the speeds available for each gear as well as the comparison between high and low range.



GRENADIER CRAWL RATIO

Multiplying the highest available ratios from engine to wheel results in a figure referred to as the “crawl ratio”. An important statistic to 4X4 enthusiasts, it shows the greatest difference in revolutions between the engine and wheels.

	Gearbox Ratio (1st Gear)	Transfer Case Ratio	Axle Ratio	Crawl Ratio
Petrol	5.25	2.5	4.1	53.81
Diesel	5.5	2.5	4.1	56.37

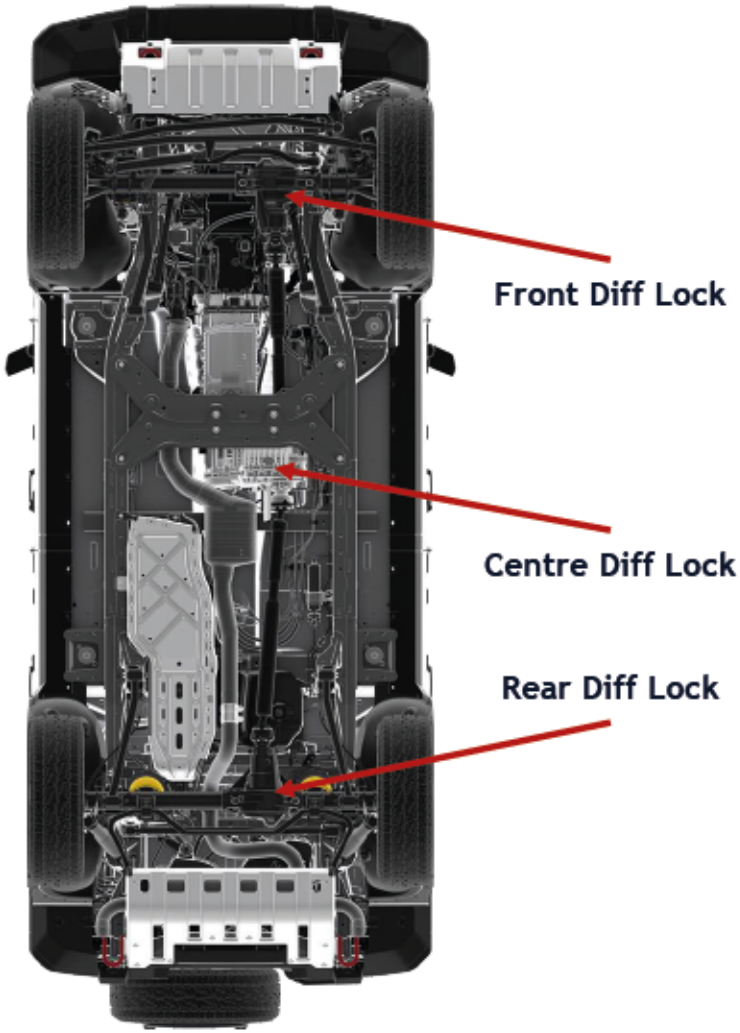
From the crawl ratio, the crawl speed can be calculated. This is the slowest speed the vehicle can travel when at idle engine speeds. This slow speed helps drivers achieve accuracy when rock-crawling as well as the greatest engine braking potential when descending steep slopes. (One final factor that effects this speed is tyre size. The larger the diameter the faster the speed)

	Idle Engine RPM	Crawl Ratio	Tyre Diameter mm (17” rim)	Crawl Speed KM/H
Petrol	750	53.81	778	2.04
Diesel	800	56.37	778	2.08

LOCKING DIFFERENTIALS

The Grenadier has 3 locking differentials

- **Centre Differential Lock** - activated using a manual shifter. Ensures that torque is equally split between front and rear axles
- **Rear Differential Lock** - activated using an electronic switch. Ensures both rear wheels receive equal torque. When used with a centre diff lock, both rear wheels and one front wheel will be driven
- **Front Differential Lock** - activated using an electronic switch. When front, rear and centre diff locks are engaged, torque is distributed equally (25%) to all four wheels
- The front and rear differential locks disable ESC automatically
- The front and rear differential locks will disengage at 75kph



OFF-ROAD / WADING MODE

To activate Off-Road / Wading mode the user must press one of the two buttons located on the overhead control panel.

When in Off-Road Mode the following systems are temporarily deactivated.

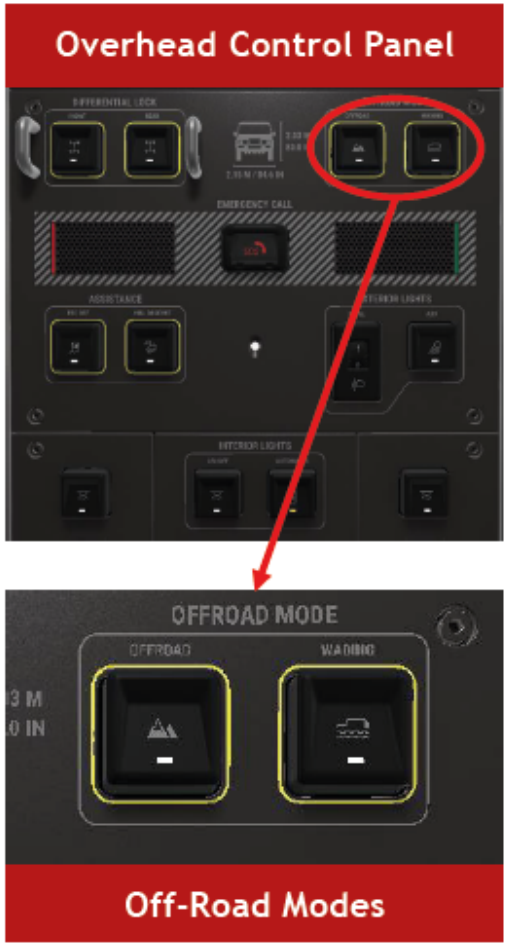
Off-Road Mode

- Park Distance Control
- Engine Start/Stop
- Seatbelt Alert

As well as the systems deactivated in Off-Road Mode, Wading Mode also temporarily deactivates the following;

Wading Mode

- Engine Fan
- Auxiliary Fan
- PPF/DPF Regeneration
- Air Circulation
- Seat Heating



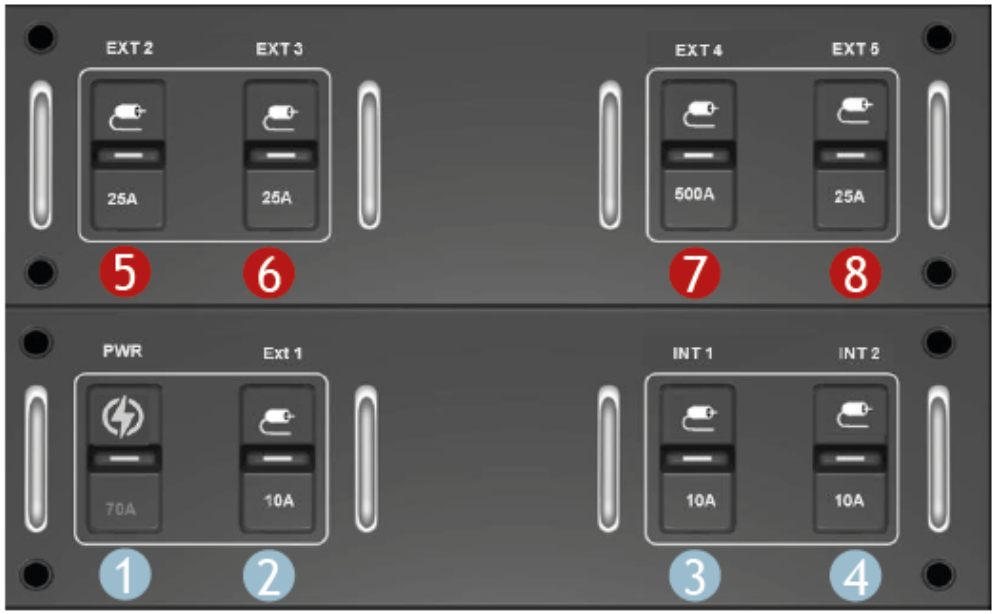
OVERHEAD CONTROL PANEL - BLANKING

Depending on the options selected by the user, switches in the interior may not be needed. In this case a blanking plate will fill the “slot” where a switch used to sit.

Standard Overhead Control Panel

Additional Switchgear

OVERHEAD CONTROL PANEL - AUXILIARY SWITCHES



The auxiliary switches are pre-wired, making it easier to retrofit accessories such as a light bar or winch.

Auxiliary Switch Panel & Electrical Preparation (standard)

1 Power switch leaves 12V / USB power on when vehicle is switched off

2 3 4 10 Amp with wiring to under the bonnet, footwell area and fuse box

High Load Auxiliary Switch Panel & Electrical Preparation (Optional)

5 25 Amp for **front** LED light bar

6 25 Amp for **side & rear** LED light bars

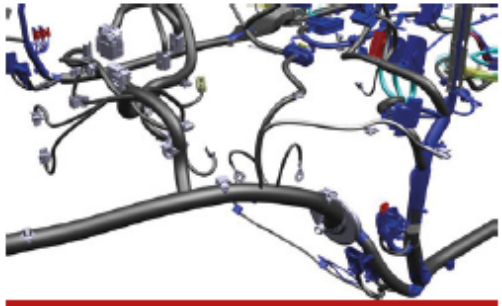
7 500 Amp for Winch

8 25 Amp with wiring to bonnet and fuse box

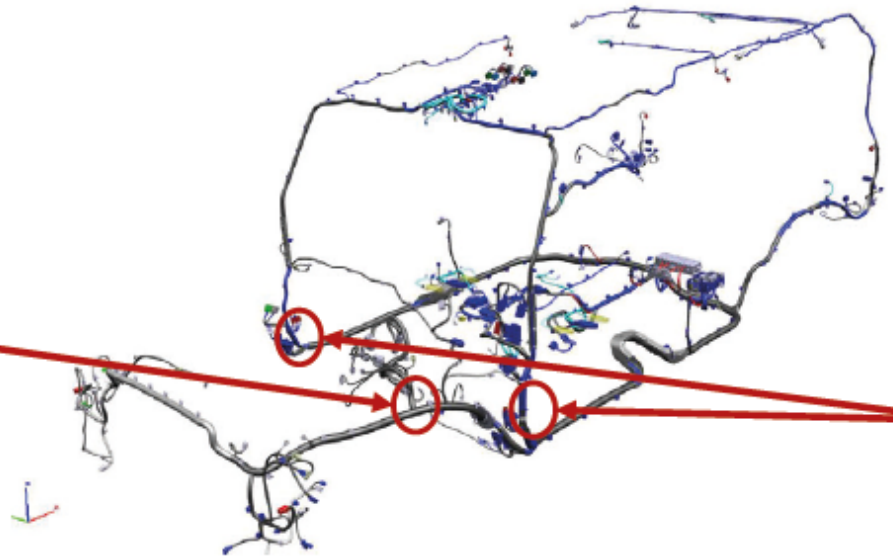
WIRING PREPARATION - OUTLETS

The standard electrical wiring preparation has 2 interior outlets and one exterior, shown by the labels on the overhead switches.

The locations of the outlets are shown in the electrical diagram below;

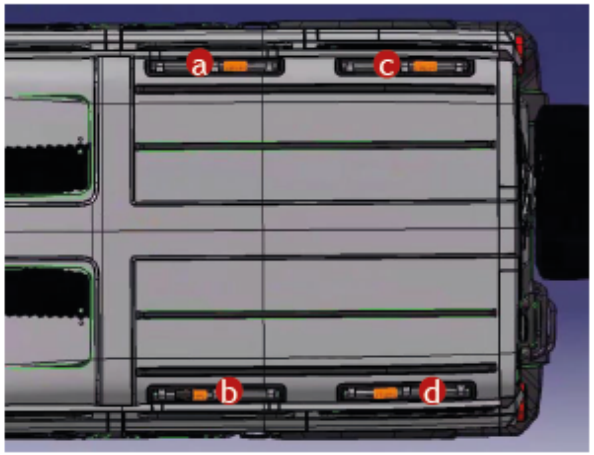


BONNET 2



FOOTWELL 3 4

HIGH LOAD AUXILIARY SWITCH ROOF OUTLETS

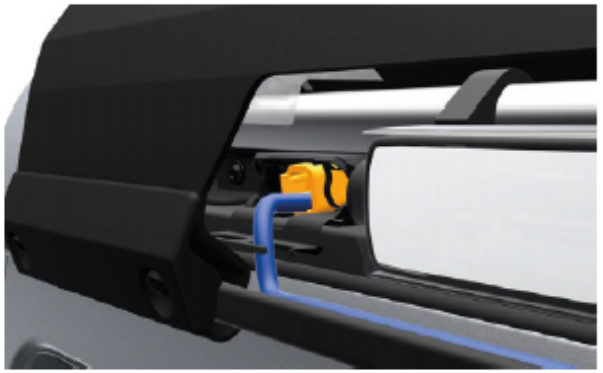


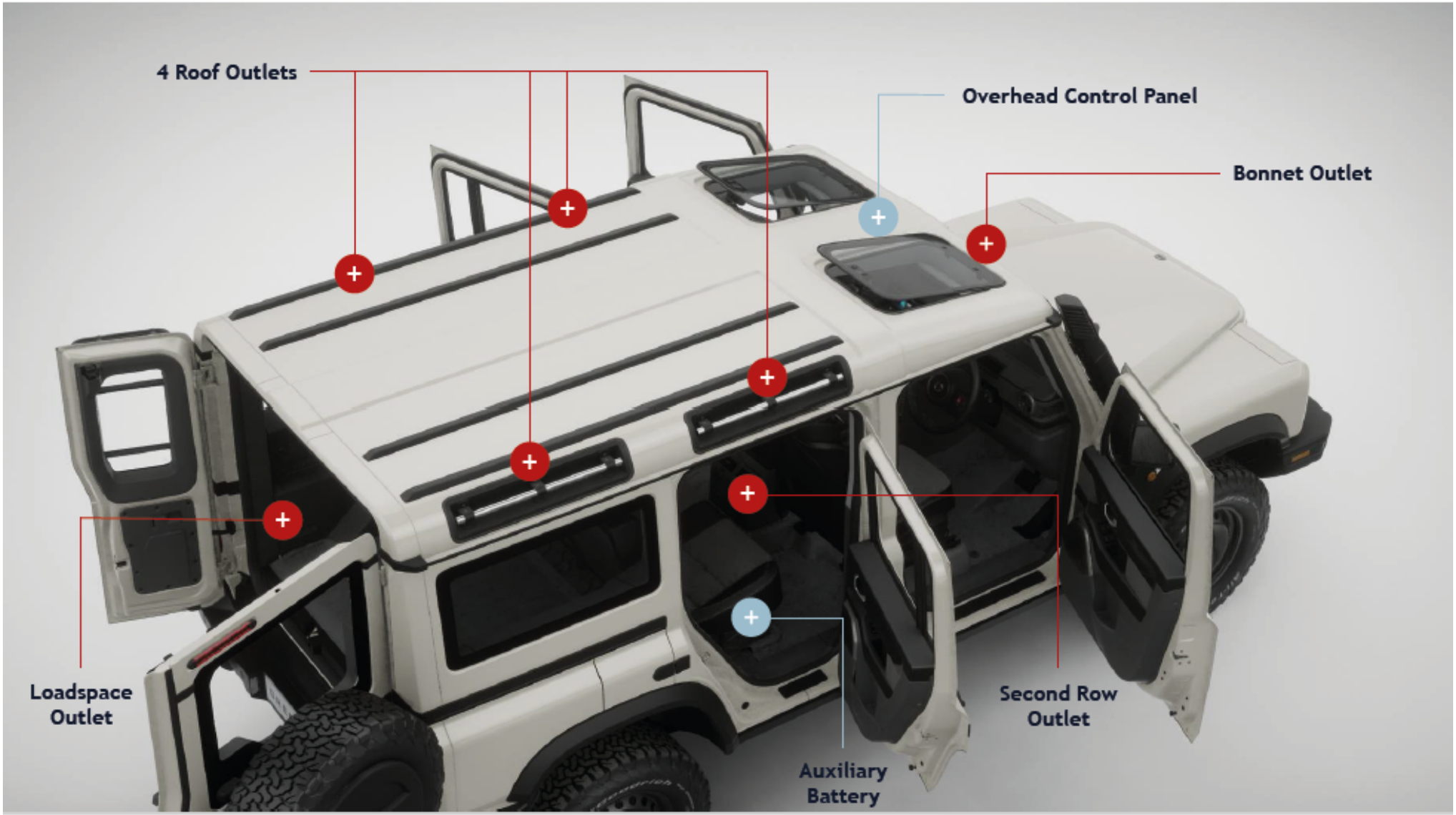
When the 'High Load Auxiliary Switch Panel & Electrical Preparation' option is chosen, a number of connection points will come as standard on the vehicle, making it easy to connect and use accessories such as light bars.

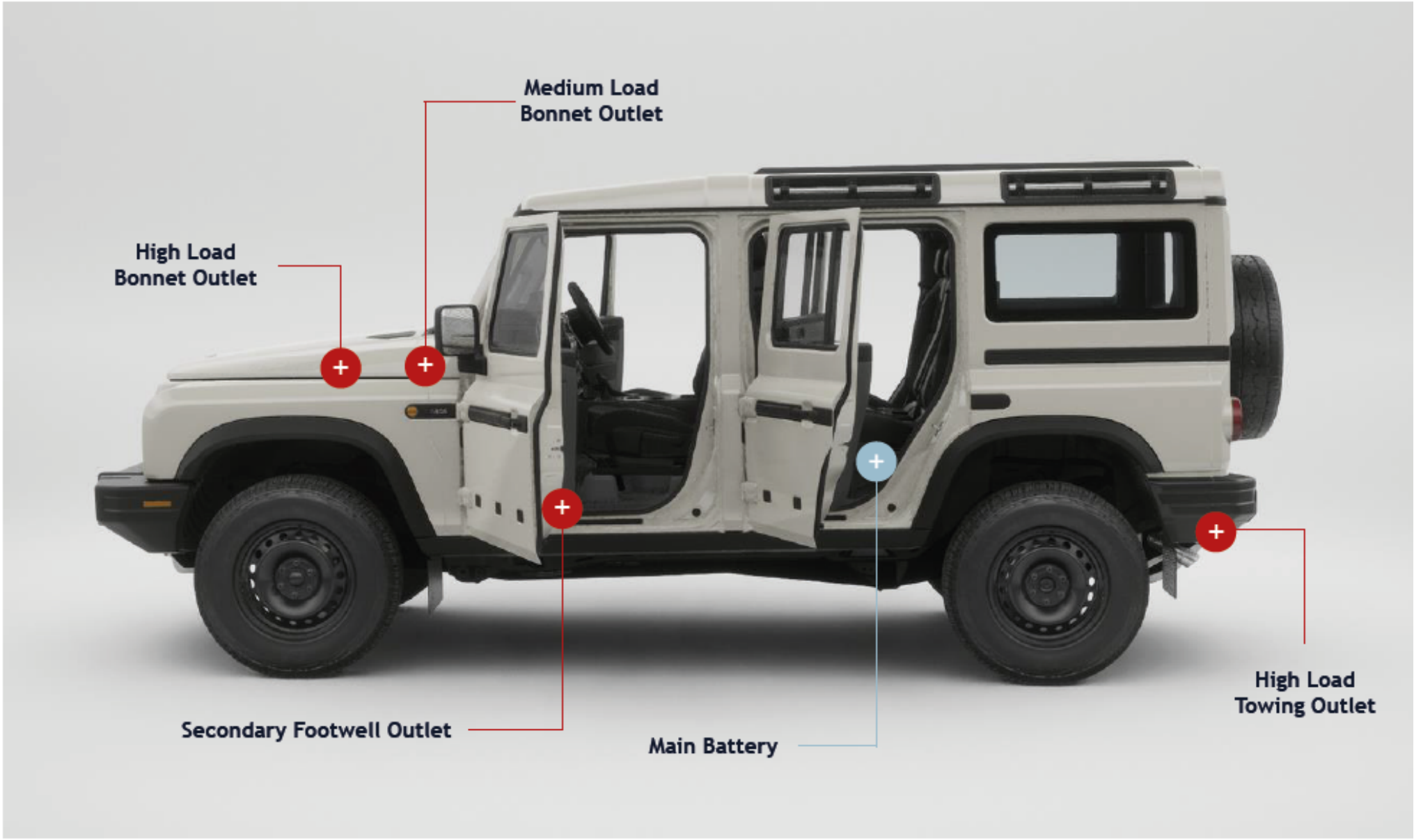
Connection points for light bars

a — 25 Amp for **front** LED light bar (switch 5)

b c d — B+C+D=25 Amp total for **side & rear** LED light bars (switch 6) - side & rear light bars are operated via the same switch, they all turn on and off in parallel




4 Roof Outlets
Overhead Control Panel
Bonnet Outlet
Loadspace Outlet
Second Row Outlet
Auxiliary Battery


Medium Load
Bonnet Outlet
High Load
Bonnet Outlet
Secondary Footwell Outlet
Main Battery
High Load
Towing Outlet

LED HEADLIGHTS & LED AUXILIARY HIGH BEAM LIGHTS

- Integrated in the front grille on all models
- Work in conjunction with high beam lights to provide wider illumination in poorly lit environments. e.g: when driving off-road or in complete darkness
- Activated via a dedicated switch in the Overhead Control Panel

EXTERIOR DIFFERENTIATION

GRENADIER (N1)

TRIALMASTER (M1)

- 17” Steel Wheels
- BFGoodrich All-Terrain T/A KO2 Tyres*
- Raised Air Intake
- Exterior Utility Belt
- Access Ladder

FIELDMASTER (M1)

- 17” Alloy Wheels
- Bridgestone All-Terrain Tyres
- Locking Wheel Nuts
- Safari Windows
- Access Ladder

*Rough Pack

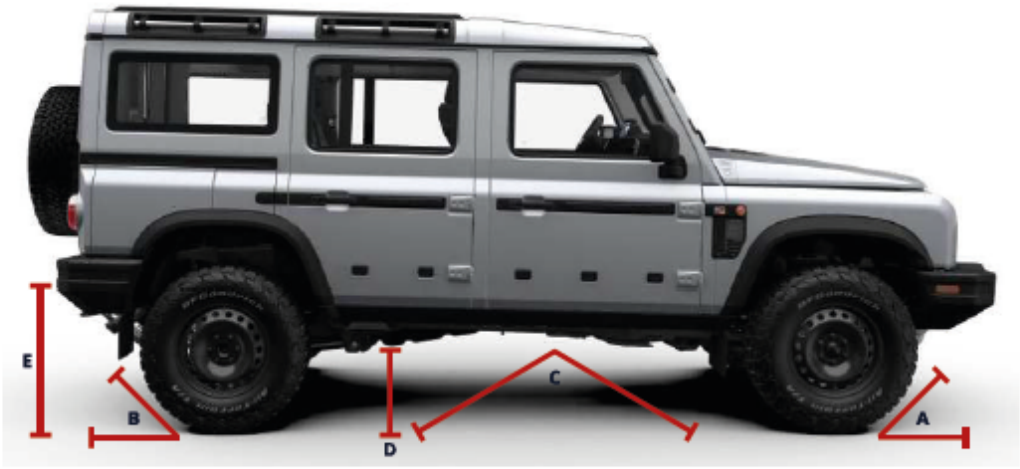
EXTERIOR DIMENSIONS

EXTERIOR DIMENSIONS

Length (including spare wheel) [mm]	4,896
Width with Mirrors [mm]	2,146
Width without Mirrors [mm]	1,930
Vehicle Height [mm]*	2,036
Track Width [mm]	1,645
Front Overhang [mm]	887
Rear Overhang [mm]	874
Wheelbase [mm]	2,922

OFF-ROAD GEOMETRY*

Ground Clearance [mm]	264
Approach Angle [°]	35.5
Ramp Breakover Angle [°]	28.2
Departure Angle [°]	36.1
Gradeability [°]	45
Wading Depth [mm]	800
Front Axle Articulation [°]	9
Rear Axle Articulation [°]	12
Wheel Travel [mm]**	585
RTI (20° Ramp)**	585



KEY

Approach Angle	A
Departure Angle	B
Ramp Breakover Angle	C
Ground Clearance	D
Wading Depth	E

LOADING CAPACITY

	Utility Wagon (2 Seat)		Station Wagon (5 Seat)		Station Wagon (Belstaff Editions)	
	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel
WEIGHTS						
Gross Vehicle Weight [kg]	3,500	3,500	3,500	3,500	3,500	3,500
Kerb Weight (without driver) [kg]*	2,644	2,724	2,665	2,740	2,736[1] – 2,669[2]	2,811[1] – 2,744[2]
Maximum Payload (without driver) [kg]*	856	776	835	760	764[1] – 831[2]	689[1] – 756[2]
Dynamic Roof Load [kg]	150	150	150	150	150	150
Static Roof Load [kg]	420	420	420	420	420	420
Maximum Unbraked Trailer Mass (on-road) [kg]	750	750	750	750	750	750
Maximum Braked Trailer Mass (on-road) [kg]	3,500	3,500	3,500	3,500	3,500	3,500
Maximum Trailer Nose Weight [kg]	350	350	350	350	350	350
Gross Train Weight [kg]	7,000	7,000	7,000	7,000	7,000	7,000
LOADSPACE						
Maximum Volume behind 1st Row [l]	2,088	2,088	-	-	2,035	2,035
Maximum Volume behind 2nd Row [l]	-	-	1,255	1,255	1,152	1,152
Maximum Luggage Length behind 1st Row [mm]	1,512	1,512	-	-	1,645	1,645
Maximum Luggage Length behind 2nd Row [mm]	-	-	890	890	799	799
Floor Length behind 1st Row [mm]	1,687	1,687	-	-	1,795	1,795
Floor Length behind 2nd Row [mm]	-	-	1,062	1,062	983	983
Loadspace Width (floor between wheel-arches) [mm]	1,064	1,064	1,064	1,064	1,064	1,064
Maximum Loadspace Width [mm]	1,268	1,268	1,268	1,268	1,268	1,268
Lift In Height [mm]	899	899	899	899	899	899
Loadspace Height [mm]	1,044	1,044	1,039	1,039	1,039	1,039
INTERIOR DIMENSIONS						
Maximum Front Headroom [mm]	1,001	1,001	1,001	1,001	1,001	1,001
Maximum Rear Headroom [mm]	-	-	1,002	1,002	1,002	1,002
Maximum Front Legroom [mm]	1,000	1,000	1,000	1,000	1,000	1,000
Maximum Rear Legroom [mm]	-	-	768	768	774	774