

Classification: Official

Publication approval reference: PRN02159



Double-Crewed Ambulance (DCA): National Specification

Version 2, November 2024

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Section 1: Base vehicle specification

This is the Specification for the Base Vehicle that will be converted into a Type B Emergency Ambulance compliant with BS EN 1789:2020. The Conversion specification is provided in Section 2.

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
Vehicle Type	BV1	Chassis type		Panel Van (ICE)	Chassis Cab (ICE)	Chassis Cab (BEV)
	BV2	Maximum 4.25t GVW	The vehicle must have a maximum GVW of 4,250kg	Maximum 4.25t GVW	3.5-4.25 GVW	Maximum 4.25t GVW
Safety features	BV3	Adaptive electronic stability program	The vehicle must have an adaptive electronic stability program	Essential	Essential	Essential
	BV4	Electronic brake force distribution	The vehicle must have electronic brake force distribution	Essential	Essential	Essential
	BV5	Autonomous emergency braking	The vehicle must have autonomous emergency braking	Essential	Essential	Essential
	BV6	Brake assist	The vehicle must have brake assist	Essential	Essential	Essential

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
	BV7	Adaptive brake lighting	The vehicle should have adaptive brake lighting	Desirable	Desirable	Desirable
	BV8	Roll over mitigation system	The vehicle should have a roll over mitigation system	Desirable	Desirable	Desirable
	BV9	High beam assist	The vehicle should have high beam assist	Desirable	Desirable	Desirable
	BV10	Automatic windscreen wipers	The vehicle should have automatic windscreen wipers	Desirable	Desirable	Desirable
	BV11	Automatic headlights	The vehicle should have automatic headlights	Desirable	Desirable	Desirable
	BV12	Seat belt warning	The vehicle must have seat belt warning	Essential	Essential	Essential
	BV13	Anti-lock braking system	The vehicle must have an anti-lock braking system	Essential	Essential	Essential

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
	BV14	Hill start assist	The vehicle should have hill start assist	Desirable	Desirable	Desirable
	BV15	No speed limiter	The vehicle must not have a speed limiter	Essential	Essential	Essential
	BV16	Driver and passenger air bags	The vehicle must have driver and passenger air bags	Essential	Essential	Essential
	BV17	Side air bags in cab	The vehicle must have side air bags in the cab	Essential	Essential	Essential
	BV18	Traction support with hill descent control	The vehicle should have traction support with hill descent control	Desirable	Desirable	Desirable
	BV19	Blind spot assistance	The vehicle should have blind spot assistance	Desirable	Desirable	Desirable
	BV20	Electronic Handbrake	The vehicle should have an electronic handbrake	Desirable	Desirable	Desirable

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
	BV21	Auto Locking Doors	The vehicle should be supplied with autolocking doors for when the vehicle is in motion	Desirable	Desirable	Desirable
	BV22	Warranty covers blue light	Supplier must confirm that all the warranty terms are accepted on a vehicle to be converted for use on blue light emergency work.	Essential	Essential	Essential
Warranty	BV23	Driveline warranty of 3 years (100,000 miles)	A 3-year (100,000 mile) driveline parts and labour warranty covering the engine, transmission and drivetrain is required	Essential	Essential	Essential
	BV24	Extended Warranty	Option of extended warranty	Desirable	Desirable	Desirable
	BV25	Battery Warranty	Supplier to confirm warranty on vehicle battery and any exclusions	N/A	N/A	Desirable

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
	BV26	Structural corrosion warranty of 8 years	A structural corrosion warranty of 8 years is required	Essential	Essential	Essential
	BV27	External height (excluding flexible aerials/antennas)	Supplier to confirm dimensions	For information only	For information only	For information only
Dimensions	BV28	Internal height	Must be minimum BS EN1789:2020 compliant	Essential	Essential	Essential
	BV29	Ride Height	Supplier to specify ride height	For information only	For information only	For information only
	BV30	External width	Supplier to specify external width	For information only	For information only	For information only
	BV31	External length	Supplier to specify external length	For information only	For information only	For information only

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
	BV32	Wheelbase	Must be between 3,600mm and 4,500mm	Essential	Essential	Essential
	BV33	Approach angle clearance	Supplier to specify	For information only	For information only	For information only
	BV34	Departure angle clearance	Supplier to specify	For information only	For information only	For information only
	BV35	Turning circle (kerb to kerb)	Supplier to specify	For information only	For information only	For information only
	BV36	Ground clearance	Supplier to specify	For information only	For information only	For information only
	BV37	Emissions standards	The vehicle must have a minimum rating of Euro 6d-TEMP (or latest Euro emissions standard)	Essential	Essential	N/A

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
Driveline	BV38	Acceleration	The vehicle must accelerate from 0km/h to 80km/h in <35 seconds	Essential	Essential	Supplier to provide detail of what, if any, measures have been implemented to control harsh acceleration
	BV39	Gearbox	The vehicle must be available with both automatic and manual transmission (BEV to be automatic only)	Essential	Essential	Essential
	BV40	Vehicle range	Supplier to specify the minimum range of a full tank of fuel	For information only	For information only	N/A
	BV41	Larger Fuel Tank	Supplier to specify if there is an option to order a larger fuel tank and costings	Desirable	Desirable	N/A

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
	BV42	Vehicle range	Supplier to specify the minimum range on a full charge	N/A	N/A	Essential
	BV43	WLTP Range	Supplier to provide WLTP ranges	N/A	N/A	Essential
	BV44	DPF	Supplier to specify if there is a manual DPF regeneration cycle	Desirable	Desirable	N/A
	BV45	AC and DC Charge	Supplier to specify what the onboard AC charger and maximum DC charge capabilities are	N/A	N/A	Essential
	BV46	Vehicle Battery Size	Supplier to specify Vehicle Battery Size	N/A	N/A	Essential
	BV47	Tyres	The vehicle must have all season tyres fitted	Essential	Essential	Essential

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
Tyres	BV48	Tyre pressure monitoring system	The vehicle should have a tyre pressure monitoring system	Desirable	Desirable	Desirable
	BV49	Electric interface socket for conversions	The vehicle must have an electric interface socket for conversions	Essential	Essential	Essential
Electrical	BV50	CAN Bus or equivalent	The vehicle must have the ability to access and integrate to access data from the vehicle via Can bus or equivalent	Essential	Essential	Essential
	BV51	Alternator output	The vehicle must have an alternator with a minimum output of 200 amps	Essential	Essential	N/A
	BV52	Daytime running lights	The vehicle must have daytime running lights	Essential	Essential	Essential
	BV53	Extra Aux Battery	Option to purchase extra aux battery	For information only.	For information only	Desirable

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
	BV54	Power take-off	Power take-off ability from high voltage system to power the HVAC and other conversion elements to be BS EN1789:2020 compliant	N/A	N/A	Essential
	BV55	Auxiliary Battery	Requirement for auxiliary batteries to charge from mains battery charger.	N/A	N/A	Essential

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
Charging	BV56	Cab – climate control	The vehicle must have climate control in the cab	Essential	Essential	Essential
HVAC	BV57	Rear – support aftermarket fitment	The vehicle must support aftermarket fitment of rear climate control	Essential	Essential	Essential
	BV58	Entertainment system	The vehicle must have an entertainment system. Supplier to offer options particularly towards integration with MDVS mobile data	Essential	Essential	For information only
Entertainment	BV59	Bluetooth, USB charger	The vehicle must be Bluetooth enabled with at least one USB charger	Essential	Essential	For information only
	BV60	Locking	The vehicle must have remote central locking with three keys	Essential	Essential	Essential

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
Security	BV61	Locking	Supplier to provide the price for extra keys at time of ordering	Desirable	Desirable	Desirable
	BV62	Immobiliser	The vehicle must be supplied with an immobiliser	Essential	Essential	Essential
	BV63	Nearside sliding door with window	The vehicle must be supplied with a nearside sliding door with window	Desirable	N/A	N/A
Doors	BV64	Twin rear doors with windows	The vehicle must be supplied with twin rear doors with windows	Desirable	N/A	N/A
	BV65	The twin rear doors must open to 270 degrees	The vehicle must be supplied with twin rear doors that open to 270 degrees	Essential	N/A	N/A

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
Paint	BV66	Paint finish	The vehicle must be supplied in white	Essential	Essential	Essential
	BV67	Paint finish	Optional extra Paint: RAL 1016 Supplier to provide pricing	Desirable	Desirable	Desirable
Other	BV68	Pre-delivery inspection and number plates	The vehicle must be supplied with satisfactory pre-delivery inspection certification and number plates	Essential	Essential	Essential
	BV69	Passenger seat	The vehicle must be supplied with a height adjustable single passenger seat	Essential	Essential	Essential
	BV70	Passenger seat	Supplier to specify and supply costings for other seat options that are available	Supplier ITT Response	Supplier ITT Response	Supplier ITT Response

	Ref No. #	Requirement	Description	Lot 1: Panel Van	Lot 2: Lightweight Chassis	Lot 3: Electric Chassis
	BV71	Wheels	The vehicle must be supplied with wheels that offer maximum brake cooling, specifically suitable for blue light responses.	Essential	Supplier ITT Response	Desirable
	BV72	Fatigue monitor	The vehicle should offer driver fatigue monitoring	Desirable	Desirable	Desirable
	BV73	Green Driving Feedback monitor	The vehicle should offer a green driving feedback monitoring system	Desirable	Desirable	Desirable
	BV74	Breakdown	Optional 5-year roadside assist.	Desirable	Desirable	Desirable

Section 2: Conversion specification

This is the Specification for the Conversion of a Base Vehicle that meets the specification provided in section 1 above into a Type B Emergency Ambulance compliant with BS EN 1789:2020. Authorities may convert Base Vehicles with automatic or manual transmission. This Specification applies to both transmission options.

Please note that where this Specification refers to equipment supplier names, part numbers or other details, this is solely to identify the equipment type, and the performance levels required. There is no mandatory requirement for the Supplier to include this specific equipment in the Ambulance.

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Free Issue	C1	Where stated 'free issue' in the specification of requirements, the Authority reserves the right to request that the Supplier supplies the item(s). A fully costed quotation must be provided by the Supplier and accepted by the Authority. Any commitments made by The Supplier without following the stated procedure will incur no liability for The Authority.	For information only	For information only	For information only
Assurance	C2	Supplied vehicles, goods and equipment must comply with UK standards BS EN 1789:2020 and BS EN 1865-4:2012, and the ECWVTA 2007/46/EC ('ECWVTA') (together 'the Standards'), all as amended and/or replaced from time to time. IVA would be accepted in year one of the contract for Lots 1 and 2 but series production in year two must meet Whole Vehicle Type Approval by the contractual long stop date or sooner. IVA is acceptable for Lot 3 for both years of the contract.	Essential	Essential	Essential
	C3	Any reference in the specification of requirements to specific standards, legislation, regulations is deemed to be the latest requirements as amended and/or replaced from time to time.	For information only	For information only	For information only

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C4	The Supplier shall provide the Authority with a Letter of Association between the Base Vehicle manufacturer and the Supplier to demonstrate compliance with the Standards and ECWVTA/VCA (as amended and/or replaced from time to time) until such time as the Worldwide Harmonised Light Vehicle Test Procedure (WLTP) supersedes this requirement, from which time each Ambulance must comply with the WLTP.	Essential	Essential	Essential
	C5	The Supplier shall certify in writing that at the time of delivery to the relevant Authority the completed Ambulance, with all equipment fitted, fully complies with all relevant vehicle legislative regulations. This includes all relevant standards applicable in Great Britain e.g. vehicle manual.	Essential	Essential	Essential
	C6	The Supplier shall assess the vehicle build and compliance with the relevant specification, and at the earliest opportunity shall identify and inform the Authority (CC EoECPH) in writing of all issues/problems/non-compliance that may affect the operation/use of the Ambulance as intended or anticipated by the Authority.	Essential	Essential	Essential
	C7	The Supplier shall not alter any Base Vehicle system or circuit without the prior express written permission of the Base Vehicle manufacturer. All electrical systems provided by the Supplier as part of the conversion must	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		properly interface with the Base Vehicle manufacturer's CAN bus system. The Supplier is responsible for obtaining the prior express written permission of the Base Vehicle manufacturer.			

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Durability	C8	The conversion shall be designed and constructed to enable the ambulance to withstand the rigours of use as an emergency ambulance for 24 hours a day, seven days a week for a minimum of seven years.	Essential	Essential	Essential
Delivery	C9	The Supplier shall produce a delivery plan and meet all agreed target timescales for each Delivery Order. The delivery plan shall be issued to the Trust within 14 days of confirmation of base vehicle delivery date being provided. Any changes to these timescales must be agreed in writing by the Supplier and the Authority. The Supplier shall deliver the Ambulances to the locations designated by the Authority in the Delivery Order. Any delays to the agreed timescales need to be highlighted immediately.	Essential	Essential	Essential
Ergonomics and Design	C10	The Supplier shall ensure that the design and layout of the Ambulance is fit for the purpose of emergency ambulance use, minimises manual handling for ambulance staff and patients, and reduces the risk of work-related musculoskeletal disorders for ambulance staff.	Essential	Essential	Essential
	C11	The Conversion must be ergonomically designed using computer-aided design (CAD) with reference to relevant research.	Essential	Essential	Essential
	C12	The design must encourage attending clinicians to wear their seatbelt whilst performing routine clinical tasks.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Environmental Sustainability and Innovation	C13	The Authority will consider technologies that can reduce the vehicle's environmental impact. The Supplier shall propose innovations in its design of the Conversion to improve aerodynamics and to reduce weight, the need to operate the engine on standby and fuel consumption.	Essential	Essential	Essential
Under-body protection	C14	The Ambulance shall have complete under-body protection applied. All fittings or alterations carried out by the Supplier must be de-rusted and treated to prevent corrosion, including electrolytic corrosion.	Essential	Essential	Essential
Water test	C15	The Ambulance must pass a high-volume, whole-vehicle pressure water test. This is to be self-certified by the converter.	Essential	Essential	Essential
Tilt test	C16	In arrangement with the Authority, the Supplier shall undertake a Tilt Test at a recognised proving ground on the first Ambulance it converts under the Call-off Contract. The Ambulance will achieve a minimum tilt of 38 degrees without its outside wheels losing contact with the tilt bed. This is to be certified by an approved DVSA tilt bed or EU equivalent.	Essential	Essential	Essential
	C17	All Ambulances shall meet the 38-degree requirement, with the Authority reserving the right to sample test compliance with this requirement. The Authorities will meet all costs associated with the additional random sample tilt test.	For information only	For information only	For information only

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Assessment of handling and stability	C18	In arrangement with the Authority, the Supplier shall undertake a Handling and Stability Test at a recognised proving ground on one of the first ambulances it Converts under the Call-off Contract. The recognised DVSA proving ground or EU equivalent will assess the Ambulance's handling characteristics in its fully operational condition and provide a report to the Supplier and the Authority. Suppliers should note that the vehicle is required to meet the requirements of all legislation and standards pertaining to the vehicle and its use as an emergency ambulance.	Essential	Essential	Essential
	C19	All Ambulances shall meet the same level of satisfactory performance in accordance with ref C18 above, with the Authority reserving the right to sample test compliance with this requirement at random. The Authorities will meet all costs associated with the additional random stability/handling test.	For information only	For information only	For informatio n only

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Electromagnetic compatibility test	C20	The Supplier shall undertake an Electromagnetic Field Test and certify that the Ambulance, with all digital, communication and medical equipment fitted (supplied by the Authority until common equipment is agreed), fully complies with all requirements of the Electromagnetic Compatibility Regulations and the Electromagnetic Fields at Work Regulations as applied in Great Britain nor has a detrimental impact on the use of e.g. RFID scanners.	Essential	Essential	Essential
Insulation	C21	All cavities between the interior and exterior body mouldings (including the rear doors) shall be filled with suitable fire-retardant thermal insulation material to ISO3795:1989, fitted in accordance with the manufacturer's recommendations. The insulation must extend into all relevant framing members.	Essential	Essential	Essential
Noise test	C22	The Supplier shall ensure that the Ambulance does not exceed the Control of Noise at Work Regulations 2005 (Directive 86/188/EEC) or such replacement standard as may apply from time to time.	Essential	Essential	Essential
	C23	The Supplier shall undertake a noise test in a variety of environments and using only test equipment that has been registered and fully calibrated. The Supplier shall provide the Authority with a compliance report giving the maximum noise exposure for each road speed	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		tested. The noise test shall involve: • sirens switched on • noise levels tested from both the driver and passenger seating positions • test completed at road speeds of 30mph, 50mph, 70mph and maximum speed • test repeated with the driver and passenger windows open. See document section "Noise Test" provides a full list of all tests required.			
Vehicle mass test	C24	The Supplier acknowledges the need to reduce the operational mass of the Ambulance throughout all requirements of this Specification. The Supplier shall fully consider and reflect this reduction in every aspect of its approach and design concept.	Essential	Essential	Essential
	C25	The Supplier shall test that the Ambulance is not overloaded as a whole, on an axle or on a wheel position once it is fully constructed and loaded to its operational weight. Operational mass must meet the requirements of BS EN 1789:2020. It must include: a fully equipped operational vehicle with all equipment and medical items on board; one person weighing 75kg on each seat and on the stretcher; and a full tank of fuel fully wet and full tank of AdBlue.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C26	The Supplier shall provide an Ambulance loaded to its operational mass (with the Authority to provide the non-supplied equipment) for weight certification defined by the authority to confirm that: • the total operational weight does not exceed the maximum gross vehicle weight stated. • the total operational weight on each axle does not exceed the maximum gross vehicle weight for each axle. • all other weight/mass limits provided by the Base Vehicle manufacturer are fully complied with when the Ambulance is constructed and loaded to its operational weight.	Essential	Essential	Essential
	C27	The Authority shall have the right to reject any Ambulance that, once loaded to its operational weight, fails to meet the test criteria stated.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Infection prevention and control (IPC)	C28	To minimise infection, surfaces inside the Ambulance must be white, easy-to- clean, without material edging and clutter free. The design of the Ambulance will follow the principles of one-piece design theory with no dirt or finger traps, and have a smooth, clean and tidy appearance overall.	Essential	Essential	Essential
	C29	The Supplier shall use materials and construction methods that can withstand deep, rigorous cleaning regimens in line with relevant IPC requirements. For example, surfaces should be manufactured from materials that can withstand daily wear and resist surface corrosion under extreme cleaning regimens. The Supplier shall use materials with anti-soiling properties to meet BS EN ISO 11378-2, and anti-bacterial/fungicidal qualities.	Essential	Essential	Essential
Latex policy	C30	The Supplier must achieve a Latex-free environment in the Ambulance.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Electrical - General	C31	Before starting to Convert the Base Vehicle, the supplier shall carry out a full and complete electrical calculation – that is, the electrical drain when all equipment and vehicle and auxiliary batteries are in use – and compare this to the alternator output or DC output (electric V) over the entire engine rev range. The calculation must show the vehicle equipment and control systems are adequate and suitably designed to maintain the battery (all batteries). The report should be included in the build pack.	Essential	Essential	Essential
	C32	Power management and load shedding systems shall be provided to optimise battery condition and protect sensitive electronic equipment, including, but not limited to, by reducing power demand from ‘parasitic’ drains.	Essential	Essential	Essential
	C33	The inverter (2,000W) should be capable of running a minimum of two 230V three pin sockets. All associated cabling and connections will be of such capacity to carry 10% more than the maximum current and protected appropriately. It is noted that the 2 sockets will be limited to either 2000W each when used individually or when used together will only be capable of providing 2000W between them.	Essential	Essential	Essential
	C34	An automatic shoreline disconnect three-pin socket rated at 16A with an external IP44-rated	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		plug that meets the requirements of BS EN 60309-2 must be provided in a suitable location. An alternative shoreline charging system needs to be fitted to the same standard.			
	C35	The Ambulance shall require a 'run lock' security system that shuts down the engine when the vehicle's handbrake is disengaged. This system will allow the ignition key to be removed, and the Ambulance locked with this key while ensuring the alternator output meets the maximum current consumption. The run lock will be activated via the control panel but will only be available through the 'arrive scene' mode, 'arrive hospital' mode or when blue lights are active. In all other states, if run lock is selected the system will switch off the engine after one minute providing the auxiliary batteries are above 80% state of charge, or it will switch off the engine at the point the batteries reach 80% state of charge. The system must be capable of restarting the engine if these parameters are breached.	Essential	Essential	N/A
	C36	The ambulance will require installation of Idling reduction technology that will: • Reduce engine wear through excessive idling • Keep the vehicle interior at an appropriate (trust defined) temperature range whilst unattended	Essential	Essential	N/A

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		• Ensure the main battery charge is sufficient to restart the engine • Reduce fuel usage, carbon emissions, and unnecessary engine idling hours • Be capable of restarting the engine automatically when the vehicle is in 'run lock' mode			
	C37	The ambulance will require installation of an intelligent solution that maximises the efficiency of the traction batteries whilst ensuring authority defined operating parameters are met. These parameters will include but are not limited to: a) Main batteries: alert when minimum agreed state of charge is imminent. b) Interior temperature of rear saloon is maintained within agreed limits. c) State of charge of medical equipment is maintained within agreed limits.	N/A	N/A	Essential
	C38	The ambulance will require installation of a configurable dynamic speed control system that contributes to: a) Reduction in energy (fuel) used. b) Reduction in vehicle, brake, and tyre wear and tear caused by harsh acceleration and	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		braking. c) Reduction of unnecessary over speeding under both normal and blue-light modes.			
	C39	Before delivery to the Authority, the Supplier shall ensure that all batteries are fully charged.	Essential	Essential	Essential
Electrical - Emergency lighting and siren	C40	Emergency lighting must comply with European regulations for blue lights and meet ECE-R-65 Class 2 compliance as a system once fitted to the vehicle. Individual approvals for the light heads are not acceptable. Measured at a vertical angle of 0 degrees and a horizontal angle of 360 degrees, the light output must be a minimum of 120cd in the day and 50cd at night.	Essential	Essential	Essential
	C41	The Supplier shall fit an audible warning system comprising a wail, yelp, piercer, bullhorn noise siren that faces out from the front of the Ambulance but is recessed so as not to cause injury. The minimum output is 120dB at 1metre in front of the centre line of the front bumper, but within The Control of Noise at Work Regulations 2005 limits in relation to the Ambulance crew, for all outputs. The system will be in the front bumper, facing front, but recessed in an all-weather housing. It will be wired through and operated in agreement with the Authority. The bullhorn should be operated by a clearly labelled button adjacent to the steering wheel. For data logging of siren activity, there must be the ability	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		to provide a status signal when the siren is sounding, which can be fed into the telematics system.			
Electrical - auxiliary electrical demand	C42	Notwithstanding any requirement for minimum auxiliary battery capacities and alternator size, the Supplier shall be ultimately responsible for ensuring that the auxiliary power system can support the auxiliary electrical demand on the Ambulance and for the Electric base vehicle should not compromise the transmission battery or reduce battery range. Supporting documentation, including test data, will be supplied as part of the contract document pack on the Call-off Commencement Date. This will demonstrate that the Ambulance can meet its on-board electrical power requirements.	Essential	Essential	Essential
Electrical - Wiring and installation	C43	All DC and AC wiring in the Ambulance must conform to all applicable Institution of Engineering and Technology (IET) wiring regulations. On completion, the wiring system shall meet the minimum requirements of sections 415 and 717 of BS7671 and be certified as such by an approved body, e.g. NICEIC.	Essential	Essential	Essential
	C44	a. All wiring will be multistrand, flexible PVC-covered cable with each cable a unique colour for identification purposes. All wiring will be protected by being run through appropriate	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		trunking or conduit. Where routed through bulkheads, wiring will be protected by glands, and at points liable to chafing by grommets or rubber.			
	C45	b. Wiring terminations will be adequately protected and insulated, including all external connections which should be IP67 rated.	Essential	Essential	Essential
	C46	c. All circuits will be separately protected and installed in accessible positions, and tested for insulation, non-contact and continuity.	Essential	Essential	Essential
	C47	d. All underfloor wiring will be fitted into approved sleeving and all joints sealed with PVC adhesive tape and must comply with British Standard BS AU7:1963.	Essential	Essential	Essential
	C48	e. DC cables must be protected by fuses or circuit breakers at source, and these must be rated for the current-carrying capability of the wire, and AC cables protected by residual current circuit breakers.	Essential	Essential	Essential
	C49	f. Cables must be of the correct size for the current required by the circuit they supply, to avoid overheating and excessive voltage loss.	Essential	Essential	Essential
	C50	g. All wiring or appliances that require electrical warning or hazard identification will display clear labels, in accordance with current regulations.	Essential	Essential	Essential
	C51	h. All auxiliary electrical components will be CE and 'e-marked' in accordance with current regulations.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C52	i. Except for the isolator switch, all switches in the cab must be within easy reach of the driver and labelled appropriately.	Essential	Essential	Essential
	C53	j. All electrical components must be mounted in identical locations and wiring routed uniformly across all vehicles supplied by the Supplier.	Essential	Essential	Essential
	C54	k. All connections made to the Base Vehicle wiring must be 'plug and play connectors' so if a problem occurs the Base Vehicle and Supplier systems can be isolated, and to facilitate easy removal and replacement if repair or maintenance is needed.	Essential	Essential	Essential
	C55	l. Wherever possible, electrical components should be mounted on sub- assemblies using 'plug and play connectors' to facilitate easy removal and maintenance.	Essential	Essential	Essential
	C56	m. The Supplier will supply and fit a supplementary heavy-duty earth strap to the Base Vehicle electrical circuit that terminates at the vehicle gearbox.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Quality Control	C57	The Supplier shall ensure that appropriate levels of quality and build standard controls apply to each Ambulance, including the Base Vehicle and all components and systems identified in the Specification or related requirements. The Supplier shall provide and ensure quality control assurance throughout the build, including for all medical items, equipment and components supplied. The Supplier must have a current ISO 9001 quality control system that is relevant to the building of vehicles.	ITT	ITT	ITT
Warranty and support	C58	The Supplier will provide a fully inclusive, comprehensive, 'bumper to bumper' five-year parts and labour warranty covering build quality, all components supplied, and all fittings undertaken as part of the Contract, including all electrical installations. The Supplier shall provide the Authority with a written procedure for warranty claims and carrying out work. In addition, there shall be a minimum seven-year anticorrosion warranty. The supplier will provide a full catalogue of all components used in the conversion for aftermarket support.	ITT	ITT	ITT
	C59	Further to ref C58, the Authority has the option to require that the five-year warranty is extended by two years to a total of seven years.	Option	Option	Option

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C60	The Authority may undertake Warranty claim work in its own workshops that is rechargeable to the Supplier. The repair will be agreed by the converter before works commence.	Desirable	Desirable	Desirable
	C61	A process shall be in place for resolving matters urgently and priority given to both the resolution and any associated works. The contract to be entered into with each successful supplier provides detail on the service levels required.	ITT	ITT	ITT

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Specialist Tooling	C62	The Supplier shall provide the Authority with a comprehensive list of specialist tooling and the specialist tooling required to maintain and repair the Ambulance	Essential	Essential	Essential
Spare Parts	C63	The Supplier shall provide the Authority with a comprehensive parts list giving part numbers in electronic format. All parts must be available for a minimum of seven years from the date of delivery of the last Ambulance supplied. In addition, the Supplier shall provide an online system that gives access to parts listing and ordering, and technical information/support; this will be in the form of a dedicated customer-specific web portal. The parts list will be updated to reflect any supersessions, changes or replacements as and when required and shall be in place for a minimum of seven years from the date of delivery of the last Ambulance supplied.	Essential	Essential	Essential
Training	C64	The Supplier shall provide on-site training (either at Authority or Supplier premises) for the Authority's operational and workshop staff as appropriate. This must cover i. system hardware location schematics ii. wiring diagrams iii. fault diagnosis guidance information iv. warranty claims process and contact information v. spare parts catalogue	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C65	The Supplier shall provide the Authority with an associated written training syllabus, along with confirmation certificates detailing who has been trained and what criteria they have met. Operational training will cover the operational use of the Ambulance and its equipment, and workshop training will cover maintenance, fault diagnosis and repairs via an operational manual.	Essential	Essential	Essential

Vehicle Handover	C66	For each build batch the Supplier must supply the Authority with a comprehensive manual, as well as the document pack. (written and electronic copy) This manual must contain the following: a. Specification b. agreed changes listing c. BSEN 1789:2020 compliancy certificates d. proof of compliance with ECWVTA for the specific chassis type and vehicle design e. statement confirming Disability Acts have been considered and adhered to where applicable f. electromagnetic field test report g. build identification numbers for each chassis number h. operational and equipment manual i. training syllabus j. vehicle mass certificates k. noise, water and tilt test reports l. road handling test report m. full four-wheel laser alignment certificate for the completed vehicle n. other component/equipment certification as required o. warranty terms, contacts and procedure p. electrical wiring diagrams and location of components and connections in the vehicle's electrical system q. telematics installation certificate r. electric installation certificate to meet the minimum requirements of sections 415 and 717 of BS7671	Essential	Essential	Essential
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	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		s. drawings of external and internal layouts t. certificates of conformity as required u. bill of materials.			
Production and conversion process	C67	The Supplier and the Authority will hold meetings during the Conversion process at milestones agreed on order, or more regularly if required by the Authority. Minutes of meetings will be produced and distributed by the Converter to an agreed circulation list, including the National Contract Manager.	Essential	Essential	Essential
Authority User Group Meetings	C68	The Supplier shall attend user group meetings with the Authority on a six-monthly basis or more regularly if required, to establish working relationships and determine product effectiveness. These visits will be used to improve the product and drive innovation in vehicle design. The National Contract Manager will be invited to these meetings.	ITT	ITT	ITT
Production and conversion process	C69	The Supplier shall use a fully controlled and documented construction process that accurately documents each stage of the Conversion process to maintain quality and traceability, and to provide accurate after-sales information. This will ensure that all spare parts are correct and fit first time, every time.	ITT	ITT	ITT
	C70	The Supplier shall provide proof of certification to the standards BS EN 1789:2020, ISO 9001 and ISO 14001.	ITT	ITT	ITT

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Body exterior	C71	As far as is possible, the exterior dimensions of the Base Vehicle should not be compromised by the conversion. The Authorities accept that there will be minor changes in length and height due to the fitting of various pieces of equipment, but these are to be kept to a minimum in terms of number and size of the change. Where changes to the dimensions are unavoidable the supplier must ensure that this does not compromise the vehicle's compliance with relevant legislation, e.g. Road Vehicles (Construction and Use Regulations) 1986.	Essential	N/A	N/A
	C72	A lightweight, coach-built ambulance body (dimensions to be determined by the Trust) is required to be manufactured and tested to meet all UK statutory regulations and European Standards i.e. BSEN 1789:2020, Worldwide Harmonised Light vehicles test procedure (WLTP) and the chassis manufacturers approved conversion methods (i.e. body builders directive/BEMM) on a chassis or Skeletal cab. The exterior dimensions of the Base Vehicle should not be compromised by the conversion. Where changes to the dimensions are unavoidable the supplier must ensure that this does not compromise the vehicle's compliance with relevant legislation, for example: Road	N/A	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		Vehicles (Construction and Use Regulations) 1986.			
	C73	The complete exterior of the Ambulance must be finished in RAL 1016 yellow or white save for any livery and markings required. White vehicles will still require a wrapped yellow bonnet to comply with BSEN 1789:2020	Essential	Essential	Essential
	C74	Can the converter suggest modifications to alter the GVW of the vehicle e.g. changing suspension type within Stage 1 of the Type Approval	Desirable	Desirable	Desirable
	C75	Wheels and bumpers must be left in factory finish. Rear bumpers must have underside stainless steel skid plates (2mm) fitted if the vehicle has air suspension.	Essential	Essential	Essential
	C76	Wheel nut indicators/retention devices must be fitted.	Essential	Essential	Essential
	C77	All external door locks must have a central locking facility and the extra facility that enables the vehicle to be locked while ignition security feature is enabled (functionality of run lock on ICE vehicles). This function should be controlled by the manufacturer's key fob.	N/A	N/A	Essential
	C78	All external door locks must have a central locking facility and the extra facility that enables the vehicle to be locked while on run lock. This function should be controlled by the manufacturer's key fob.	Essential	Essential	N/A

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C79	A sidestep integrated into the side door aperture.	N/A	Essential	Essential
Body exterior windows	C80	The Base Vehicle is supplied with a window in the sliding door.	For information only	N/A	N/A
	C81	A single emergency escape hatch type window must be positioned in Zone C (nearside) and the same in Zone D (offside).	Essential	Essential	Essential
	C82	An opaque covering that allows as close to 100% natural light transmission as possible while protecting privacy by completely blocking inward vision, including in the dark while the interior lights are illuminated, must be fitted to the windows in the rear doors and the window in the nearside sliding door. The offside window and rearmost window on the nearside must be tinted to 5% light transition.	Essential	Essential	Essential
	C83	Integrated venetian blinds must be fitted in the offside window and rearmost window on the nearside that also prevent any reflection from the window. The integrated venetian blind in the offside window will incorporate a dementia and child friendly scenic design depicting key points to talk and reminisce about, including children playing to remind people of their youth and animals for patients to find and identify. These blinds will not be operated by a cord.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Technology	C84	Break glass hammers with seat belt cutters must be safely and securely provided adjacent to the rear door windows and the nearside sliding door window.	Essential	Essential	Essential
	C85	An option to have a protective windscreen film with a minimum thickness of 100 microns must be available from the convertor. The spec of the film should be discussed with the contracting authority before ordering	Desirable	Desirable	Desirable
	C86	The Supplier shall install and commission a telematics system to record a range of inputs from the Ambulance's chassis and saloon. The Authority shall provide the telematics system 'free issue'. It shall be installed in a secure space that can be accessed by engineers but not routinely by unauthorised personnel. As an indication, the telematics system will be capable of the requirements listed in Appendix 2: Systems Information.	Essential	Essential	Essential
	C87	The Supplier shall supply and install a tamper-proof, two-way intercom system between the cab and the saloon area that is powered when the ignition is on and only accessible for maintenance. This device should have an open-speech facility from the saloon to the cab and a press-to-talk button should be fitted in the cab for the driver's use. It should be possible to control volume from the cab but not to turn off	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		the device. The intercom system should be correctly calibrated to provide clearly audible communications.			
	C88	Additional speakers will be provided in the saloon area for the Base Vehicle entertainment system with a separate on/off switch and volume control in the saloon. It must be possible to play music from a USB device in the cab into the saloon.	Essential	Essential	Essential
	C89	The Supplier shall fit an audible reverse warning device that operates when reverse gear is selected. This device will be used to alert pedestrians that the vehicle is reversing and will be fitted with a night isolation switch. An ultrasonic reversing aid connected to a reversing proximity warning device will be provided to give the driver audible and visual (a tri-colour light-emitting diode (LED) will be located to the right of the main instrument console) warning of any obstruction at the rear. The device must not to be sensitive to emergency vehicle LED lights. The cameras should be independently programmable with pre-record facility.	Essential	Essential	Essential
	C90	A rear (reversing/incident) camera that operates when reverse gear is selected must be added; the rear image will be displayed on the dashboard monitor or integrated MDVS screen. This camera must be positioned high up under	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		the rear light bar, protected from rain, dirt and spray to maintain a clear image, where it gives a wide-angle image across the rear of the vehicle that includes the ramp and covers approximately 3m to the rear of the vehicle.			
	C91	The Supplier shall install, commission and test a CCTV system for staff protection and to provide evidence in any incident/collision, in line with the requirements (reference Appendix 2 Systems Information). The Authority shall provide the CCTV system 'free issue'. The recording unit must be inaccessible to crews/patients but easily accessible for maintenance and the removal of storage devices. All aspects of the system must comply with the General Data Protection Regulation as it applies in the UK (GDPR). This rear (reversing/incident) camera is the same camera referenced in ref C90.	Essential	Essential	Essential
Cab requirements	C92	The cab design will not impede the seat movement for both driver and passenger	Essential	Essential	Essential
	C93	No fittings in the cab will restrict the range of seat and seat belt adjustment provided by the Base Vehicle manufacturer.	Essential	Essential	Essential
	C94	The dashboard must be designed to appropriately incorporate the additional electrical switching, warning and communication equipment and the mobile data terminal. This should be achieved with robust extra moulded	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		cowls that do not obstruct routine maintenance tasks. The final design must be suitably ergonomic, look tidy and clean, and comply with all relevant regulations and standards. It will be subject to ECWVTA/VCA assessment if it is different from the Base Vehicle design.			
	C95	Any cab overhead shelf where fitted it obstructs vision for the driver and passenger shall be removed and the area made good.	Essential	Essential	Essential
	C96	A floor-mounted console shall be installed in the centre between the passenger and driver seats to provide maximum storage, including a document storage solution, two drinks holders and a waste bin. It will be sealed against fluid ingress.	Essential	Essential	Essential
	C97	Two rechargeable torches will be installed at positions both crew members can easily reach. The charging system will operate in a way that preserves torch battery life for as long as possible to reduce through-life cost.	Essential	Essential	Essential
	C98	Two coat hooks will be fitted on the bulkhead behind the seats	Essential	Essential	Essential
	C99	A non-slip wear plate will be supplied and fitted on the cab floor below the driver's pedals. This must be sealed around its edges to prevent any type of ingress under the plate. This plate must not impede any full pedal travel.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C100	One BS EN 3 compliant single use 2kg ABC 40 powder, visible gauge, controllable flow fire extinguisher will be positioned within easy reach of the driver and from outside the vehicle, and not at head height. Its bracket will be a complete base, not two-pronged. The extinguisher will have a minimum seven-year life without the need for scheduled maintenance or service or any form of manufacturer overhaul.	Essential	Essential	Essential
	C101	Supplementary cab-dimmable strip lighting will be fitted above the driver and passenger seats, for completion of paperwork.	Essential	Essential	Essential
	C102	Two 12V USB/USBC outlets will be fitted for charging of aux devices and to supplement the Base Vehicle fitted outlets suitable for rapid charging of mobile phones.	Essential	Essential	Essential
	C103	Strengthening plates will be supplied and fitted to the driver and passenger doors with check strap mounting points at the 'A' pillar if required (optional).	Option	Option	Option
	C104	Tailored infection control anti-bacterial seat covers will be fitted to the driver and passenger seats. These will be made according to the Base Vehicle manufacturer's digital patterns and have a maximum tolerance of 0.02mm to ensure a perfect fit. Where airbags are fitted for the original seats, they must conform to applicable	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		crash safety standards and applicable regulation.			
	C105	The fuel cap will be non-locking, and the Supplier will supply and fit a mechanical misfuelling prevention device in the fuel filler neck. The Authority has the option not to require the misfuelling prevention device.	Essential	Essential	Essential
	C106	The Supplier shall provide a solution that safely and securely mounts the mobile data terminal (MDT) screen (provided 'free issue' by the Authority) to the dashboard without obscuring access to any Base Vehicle entertainment or heating controls. The screen will be positioned to reduce glare and must meet all relevant regulations.	Essential	Essential	Essential
Saloon requirements	C107	A rearward facing attendant seat with fore/aft adjustment will be fitted at the head of the stretcher. Padded panels will be provided for head protection. The seat will be coloured Ambla Cairnwell Grey (or equivalent) with a RAL1016 (or closest match possible) yellow piped trim around the edges. The seat squab will be a maximum of 470mm above the floor with seat edges protected from damage from contact with equipment.	Essential	Essential	Essential
	C108	Converters are asked to provide a solution for the carriage of small children being transported as a passenger whose accompanying adult is	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		the patient. Previously this capability was provided by all age seat belts. Due to a change in Regulation 16 preventing the fitting and use of all age adjustable seat belts in M1 vehicle types these can no longer be fitted.			
	C109	When developing the design of the saloon area consideration must be given to providing solutions that enable the clinicians to remain seated and restrained during the transportation of patients as much as possible. Dispensations are in place to allow unrestrained clinicians in a moving vehicle for life saving interventions only. Converters are asked to provide options in their responses for designs that will enable clinicians to provide routine clinical interventions, assessment and monitoring without being unrestrained. All Trusts recognise the imperative to ensure the safety of all occupants, there is a particular requirement to ensure appropriate transportation of specific patient groups including newborn (neonatal), paediatric patients, and patients who present a risk to themselves from either an impairment or clinical presentation. Therefore, converters are encouraged to offer any innovative solutions that increases the ability for ambulance staff to provide clinical care to these at-risk patient groups and increase the likelihood that	ITT	ITT	ITT

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		appropriate safety systems are available for them. With equal concern is the safety of all ambulance clinicians, partner agencies and passengers, suppliers are again actively encouraged to recommend innovative changes to the specification where it is believed this will increase the ability of any occupant of the vehicle in increase their ability to utilise safety systems. With focus specifically for the attending ambulance staff particular interest will be to solutions that allow for the utilisation of safety systems whilst delivering clinical care without the need to move around the ambulance.			
	C110	A full air suspension lowering system for the rear axle will be fitted, including any chassis reinforcement required. The Supplier will be fully approved by the system supplier to fit the equipment and to provide support during the associated Warranty period.	Essential	Essential	Essential
	C111	A mechanism must be fitted to the rear doors, to hold the doors open at a minimum of 90 degrees. The design must not affect the integrity of the Base Vehicle doors, hinges or mountings.	Essential	Essential	Essential
	C112	An electrically operated bariatric compact inboard access ramp will be fitted to the rear of the vehicle and will give an angle of no more than 12 degrees, allowing unrestricted access. The total area of the ramp will be covered with	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		replaceable and maintainable anti-slip material, including any stainless steel. When not in use, the ramp must fold flush with the vehicle floor. (Unless an autoloader system is selected).			
	C113	Manual operation of the ramp must be possible in the event of mechanical failure; exchange from mechanical to manual should take no longer than five minutes. High visibility markings must be fitted around the edge of the ramp and visible when it is deployed. No working components should be exposed to the elements. (Unless an autoloader system is selected).	Essential	Essential	Essential
	C114	The ramp controls will be linked to the air suspension, so the vehicle is lowered when the ramp is deployed and raised when the ramp is retracted. (Unless an autoloader system is selected).	Essential	Essential	Essential
	C115	A single speed bariatric stretcher winch (with a minimum safe working load of 50kg) will be fitted, with a wander lead positioned at the rear doors and a pendant control to operate the winch, air suspension and ramp, with each button clearly labelled. The winch strap will not damage the floor when in use, should be in a high visibility colour and of a flat woven construction, and with a breaking strain rated to	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		the maximum loading of the bariatric stretcher. A rated and appropriate attachment to the stretcher will be supplied, which attaches to the stretcher as per the stretcher manufacturer's recommendations. (Unless an autoloader stretcher system is selected).			
	C116	The winch will have an auto shut off to prevent it from operating when fully stowed and the full out spooling of the winch strap. (Unless an autoloader stretcher system is selected).	Essential	Essential	Essential
	C117	The saloon interior roof (including its components) must be at a height not lower than 1,890mm.	Essential	Essential	Essential
	C118	The saloon interior design must allow ambulance type carry chairs (Authorities have suggested to consider the use of the Stryker Stair-Pro and the Ferno PowerTraxx chairs) to pass between the wheel arch/nearside seating and the stretcher in its locks, with attendant seats in stowed position. The converter must ensure a minimum dimension of 620mm is maintained (with the stretcher in place) between the stretcher and the n/s/r cabinet and between the stretcher and the attendant's seat in their stored position.	Essential	Essential	Essential
	C119	The Ambulance must be able to carry a bariatric stretcher in its fully extended position in the fixed floor stretcher mountings without any equipment	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		needing to be moved. The authorities will free issue the stretcher. Currently Authorities use Stryker or Ferno.			
	C120	The bulkhead must have no protrusions that touch a person sitting in the seat when in its most rearward position.	Essential	Essential	Essential
	C121	The original Base Vehicle cab dimensions must not be compromised during the construction of the bulkhead; in particular, the geometry relative to the driver and passenger seating must be maintained. A minimum rake of 25 degrees must be maintained for the drivers and passenger seats through the range of their height adjustment.	Essential	Essential	Essential
	C122	All seat coverings will be made from IPC compliant material and have sealed seams to prevent the ingress of body fluids and to protect against damage.	Essential	Essential	Essential
	C123	All saloon seats will include a seat belt warning system that provides a visual and audible warning to the driver that a seat is occupied but the seatbelt is not engaged.	Essential	Essential	Essential
	C124	Appropriate storage in cupboards and overhead lockers will be provided, all of which will have contents identification labels.	Essential	Essential	Essential
	C125	Unless otherwise stated all high-level lockers will have transparent doors and all other cupboards	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		solid doors. All high-level lockers will have strong hinges with two gas struts per locker.			
	C126	All overhead lockers will have dividers to accommodate different consumables, with a clear 40mm lip at the bottom and horizontal dividers to avoid items moving, unless otherwise stated.	Essential	Essential	Essential
	C127	All cupboards and lockers will have rounded corners/edges on the inside for easy cleaning and infection control.	Essential	Essential	Essential
	C128	The rear doors of the vehicle are not to be used for the storage of equipment and a suitable door check system will be installed to retain the rear doors at opening of 90 degrees. The check strap shall be strong enough to hold the doors at the 90-degree position in all weathers - high winds.	Essential	Essential	Essential
	C129	Head impact bump pads, finished in Ambla Cairnwell Grey (or equivalent), will be appropriately positioned under each locker unit and above the inside of the side door.	Essential	Essential	Essential
	C130	Unless explicitly stated otherwise, all locker, cupboard and drawer doors will have a locking system with a manual reset device that indicates whether the door has been opened. This system is known as a 'make ready system'.	Essential	Essential	Essential
	C131	All saloon door entrances will have grab rails/handles to aid entry/exit. As a minimum, there should be one between the side door and	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		the first seat in Zone C, and two at the rear doors.			
	C132	All grab rails in the saloon must be strong enough to take the weight of heavy persons, be 35mm in diameter and be finished in RAL1016 yellow powder coating.	Essential	Essential	Essential
	C133	Protection shall be fitted to the side door sliding mechanism to prevent ingress of items that could hinder operation of the sliding door.	Essential	Essential	Essential
	C134	Warning red LED lights must be fitted to all doors, to warn moving traffic around the vehicle that a door is open.	Essential	Essential	Essential
	C135	Suitable illumination to entries will be provided; this is turned on through door activated micro-switches. To provide a combined puddle, alley and blue lights will be fitted above the driver and passenger doors.	Essential	Essential	Essential
	C136	Nearside, offside and rear scene lights that can be switched on independently will be provided. Scene lights must be switched off when road speed is above 10mph. Scene lights will be positioned on each rear door to illuminate each rear corner of the vehicle and to aid reversing – all scene lights need to come on when reverse gear is selected, and the vehicle's headlights are on.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C137	Nearside and offside 45-degree alley lights will be mounted above the driver and passenger doors.	Essential	Essential	Essential
Floor construction	C138	The floor will be constructed from robust, strong and durable material to withstand the demands of regular use and with due consideration of the weight of the conversion, the equipment and the people on it.	Essential	Essential	Essential
	C139	The floor covering will be made from a light-weight single piece with its edges sealed to make washout easy and to enhance infection control. It must be non-slip and have anti-soiling properties that comply with BS EN ISO-11378-2, and antibacterial/fungicidal properties. It must be resilient enough to withstand high wear rates and will meet all relevant requirements of BS EN 13501-1:2007+A1:2009, and BS EN 13845:2017, and all relevant tests within those standards.	Essential	Essential	Essential
	C140	The underside of the floor panel will be coated with suitable underseal protection.	Essential	Essential	Essential
	C141	The wheel arch sections will be treated with suitable stone chip protection.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
General design	C142	Figure 1 on Doc 2. DCA Conversion Spec Diagrams divides the saloon into seven indicative zones.	For information only	For information only	For information only
	C143	Within this layout the Authority has options for the location of the defibrillator, the provision of piped nitrous oxide + oxygen (if required by the authority), and the secure ventilator quick release bracket (see ref C165). The Authority will inform the Supplier which approach it requires promptly after the call-off commencement date. In all cases the converter is responsible for the provision of a tested and compliant mounting and power supply.	For information only	For information only	For information only
General design - Defibrillator	C144	Defibrillator (monitor): – located as agreed by the Authority on top of the cabinet in Zone A, B or D – no price difference between options. The supplier will supply and fit mounting bolt points for the appropriate bracket and provide an appropriate power supply and outlet.	Essential	Essential	Essential
General design - Piped nitrous oxide + oxygen.	C145	Option 1: No piped medical gasses as part of the standard specification.	Essential	Essential	Essential
	C146	Where fitted the medical gas pipeline system must conform to all applicable regulations and standards. All inlet fittings on regulators and equipment used for connection to medical gas cylinders, including oxygen and nitrous oxide + oxygen (where required), should be in	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		accordance with BS341 and ISO407 as applicable. The supply systems and associated pipework should comply with the appropriate requirements of the Pressure Systems Safety Regulations 2000 and meet the requirements of BS5682 and the piped medical gases in ambulance vehicles Health Technical Memorandum 2022 Supplement 2, unless agreed with the Authority to relocate the cylinder and directly attach the oxygen mask negating the need for pipelines.			
Oxygen System	C147	•Three piped oxygen outlets will be provided, two positioned in Zone B, one in Zone C relative to patient positions. One is for the patient on a stretcher, one is for the ventilator, one is for the seated patient	Essential	Essential	Essential
	C148	A manual oxygen change-over valve will be incorporated in the system with an in- line pressure gauge positioned in Zone D where it can be easily seen from any seat. The Authority has the Option to request an automatic oxygen change-over valve is installed, which will include a low-pressure warning alert, have a test function and make it possible to override the automatic function so that cylinders can be manually switched.	Essential	Essential	Essential
	C149	Access must be provided for the maintenance of the piped gas installation.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Zone A Cabinet	C150	This zone will comprise a single cabinet that includes the following: a. Storage for equipment and bags that need to be quickly accessed. These items must be accessible through both the vehicle side door when open and through doors from inside the vehicle (without a make ready system). The storage facility must have open shelving when accessing from the side door with a quick release retention strap constructed of a wipe clean material to avoid bags falling out when the door is opened. This area will hold response bags, oxygen and resuscitation equipment.	Essential	Essential	Essential
	C151	b. The cabinet will include a locker to hold personal protective equipment (PPE) equipment.	Essential	Essential	Essential
	C152	c. Communications equipment will be fitted in a cupboard at the bottom of the cabinet and be inaccessible by crews (therefore no make ready system). It should be ventilated as required and slide out of the cupboard, with adequate cabling, to allow for maintenance. The construction should be designed to prevent fluid ingress. Bidders should ensure adequate ventilation for the equipment without compromising the size of the storage cupboards. If this is not possible due to base vehicle design, must be agreed with the Authority.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Zone A	C153	d. The top of the cabinet will have a 10mm raised lip to prevent items rolling off and be reinforced, if required, to hold a defibrillator.	Essential	Essential	Essential
	C154	e. If the Authority selects this Option, space will be provided on top of the cabinet for a defibrillator with a 12-lead ECG monitoring facility, with the screen facing into the saloon centre and appropriate power supply. Alternative options can be discussed with the Authority to allow for mounting the defibrillator in a more suitable location depending on type used.	Option	Option	Option
	C155	f. Space and 12-volt power outlets will be provided for an Electronic Patient Report Form device. Brackets and equipment will be free issued by the Authority but fitted by the Supplier alongside appropriate power outlets.	Essential	Essential	Essential
	C156	g. Stainless steel (or lightweight alternative with the same protective properties) wear plates will be fitted to the bag storage area and top of the cabinet.	Essential	Essential	Essential
	C157	A specialist 24-hour emergency time manager LED clock, specifically designed to assist the crew with time critical interventions and operations, will be installed on the bulkhead within easy reach of crew members. It will be directly connected to the vehicle's electrical system and protected against any harmful changes to voltage conditions.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C158	A polycarbonate lidded locker construction will be fitted above the sliding door to hold four boxes of disposable gloves and a box of wipes, each with its own access hole. If this is not possible due to construction of the vehicle, it must be discussed with the Authority.	Essential	Essential	Essential
	C159	A grab rail will be fitted from the top of the storage locker to the top edge of the sliding door aperture to ease entry and exit from the vehicle through the sliding door. A weather shield screen, made from polycarbonate material with an obscuring covering and the NHS logo, will be fitted between the bulkhead wall, the top of the storage cabinet and the top edge of the sliding door aperture.	Essential	Essential	Essential
	C160	A covered 300mm paper towel holder will be fixed to the bulkhead.	Essential	Essential	Essential
	C161	Two 12v USBA/USBC outlets, suitable for rapid charging of mobile devices, will be provided on the bulkhead above the cabinet such that any devices charging can rest on the surface of the cabinet.	Essential	Essential	Essential
	C162	A cupboard will be built into the over cab area with access via a solid door with two struts horizontally centred in the bulkhead.	Essential	Desirable	Desirable
	C163	A horizontally centred cupboard will be built into the over cab area/bulkhead with access via a	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		solid door that is fitted with two gas struts to hold it open.			

Zone B	C164	A low-level storage construction will run along the side of the vehicle from the bulkhead at the side of the attendant seat in Zone E, through Zone B and to the cabinets in Zone D. The sealing of all locker doors, lids and joints in this construction will prevent fluid ingress as much as possible, with lift-up lids having an overlap with the adjacent surface. All lift-up lids will be operable with a single hand and have a retaining system to hold them open during use. These storage areas must be accessible with the stretcher in place. This construction will house the following: a. A 7L capacity UN type approved rigid domestic waste container capable of accepting a plastic liner at the head end. The container (and any shelving) will be removable to allow thorough cleaning, clearly marked 'Domestic Waste' with a black colour reference and adjacent to the attendant seat. b. A 7L capacity UN type approved code orange rigid clinical waste container capable of accepting a plastic liner at the head end. The container (and any shelving) will be removable to allow thorough cleaning and will be clearly marked 'Clinical Waste' with an orange colour reference. c. A 2.5L capacity UN type approved code yellow sharps bin at the foot end. The bin (and any shelving) will be removable to allow thorough cleaning and will be clearly marked 'Sharps Bin' with a yellow colour reference.	Essential	Essential	Essential
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	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		d. A 7L capacity UN type approved code orange rigid clinical waste container capable of accepting a plastic liner at the foot end. The container and any shelving will be removable to allow thorough cleaning and will be clearly marked 'Clinical Waste' with an orange colour reference. e. The sharps bin and the clinical waste bin at the foot end will be in the same locker housing which will be raised to avoid needing to lean over the patient and at a comfortable height for easy use. f. One additional low-level locker between the head end bins and foot end bins.			
	C165	Provision and fit of a secure ventilator quick release bracket and a suction unit base plate securely mounted with the electricity supply hard wired. The Authority has the option not to require a secure ventilator quick release bracket.	Essential	Essential	Essential
	C166	A vertical pole, 30mm in diameter, will be supplied and fitted adjacent to the stretcher on the wall in front of the window for the purpose of attaching syringe pump drivers, etc.	Essential	Essential	Essential
	C167	A magnetic white marker board (A4 size) shall be fitted on the wall within easy reach of the rear saloon seat and be provided with two dry wipe pens, one red and one black. A second white	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		board (A4 size) can be fitted at Trusts request, with any wording required to be set by the Trust e.g. ATMIST			
	C168	A 2 gang 230 AC three-pin socket with twin USB outputs, a 12V DC universal DIN socket and a 12V DC cigar socket will be fitted in the same mounting panel. There should also be a switch in this panel to turn the inverter on and off with a green LED that illuminates when it is turned on. All switches and sockets should be clearly labelled, including with an 'Inverter Status' label with red text stating that the green light indicates the system is on and that no light indicates the system is off. Next to the three-pin socket and at the same height as the socket, there should be a prominent label stating in bold red text 'To activate the power socket turn inverter to ON'.	Essential	Essential	Essential
	C169	A high-level storage construction that runs along the side of the vehicle from the bulkhead will be installed through Zones B and D to the back of the vehicle. The bottom shall not exceed 450mm from the roof and 1,520mm from the floor. Edges should be rounded as required to minimise the risk of injury.	Essential	Essential	Essential
	C170	A wipe clean hand strap will be fitted under the high-level storage construction relative to the attendant seat in Zone E and the head of the stretcher. A wipe clean material hand strap will	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		be part of the grab rail above the attendant seat and head of stretcher to assist the crew member with balance.			
	C171	Two spotlights shall be mounted on the underside of the high-level storage construction to illuminate the full length of the stretcher; these can be independently touch controlled or controlled via the saloon switch control panel.	Desirable	Desirable	Desirable
	C172	A grab rail will be fitted to the bottom of the storage construction above the stretcher and be of reasonable length relative to the stretcher. An additional grab rail should be provided for the patient on a stretcher to hold on to.	Essential	Essential	Essential
Zone C	C173	This zone will include two reclining and swivelling seats with fold up bases fitted on the left-hand side and coloured Ambla Cairnwell Grey (or equivalent) with a RAL1016 (or closest match possible) yellow piped trim around the edges of all saloon seats.	Essential	Essential	Essential
	C174	The seat closest to the sliding door will fold with its back to the side of the vehicle, enabling the attendant to sit and face the stretcher. It shall swivel and lock in both the forward-facing position and at 45 degrees from forward. When this seat is occupied, it must be possible to comfortably occupy the rear seat in the forward-facing position.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C175	The second seat will fold against the side of the vehicle and lock in the forward-facing position.	Essential	Essential	Essential
	C176	Both seats must have a headrest, adjustable armrests and a three-point retractor seat belt with the tongue attachment on the right side of the seat. Extra length seat belts will be provided that can secure a child seat or accommodate a bariatric patient. Both seats will be equipped with Isofix connections for securing child seats.	Essential	Essential	Essential
	C177	Seat squabs will be maximum 470mm above the floor.	Essential	Essential	Essential
	C178	An enclosure will be created for the front forward-facing seat and under no circumstances should the seat base be drilled to fix a shroud.	Essential	Essential	Essential
	C179	These seats will be designed and positioned to ensure maximum comfort, accessibility and ergonomic movement, and to maximise effective care of a patient lying on a stretcher. The swivel action of both seats should be easily operated.	Essential	Essential	Essential
	C180	A protective plate must be fitted to the nearside wall of the vehicle to protect the interior liner from damage by the seats.	Essential	Essential	Essential
	C181	The seat edges shall be fitted with protectors to prevent damage to seat covers from contact with equipment, e.g. stretchers and carry chairs.	Essential	Essential	Essential
	C182	The manufacturer of the seat and the operating handles must be discussed and signed off by the Authority before ordering.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C183	The mounting position of the seats must be discussed and signed off with the Authority.	Essential	Essential	Essential
	C184	A 35mm diameter RAL1016 yellow handle shall be placed in the recess of the sliding door window aperture to assist with closing the door. In addition, the sliding door shall have a door lock handle located centrally within easy reach of crew members, which works simultaneously with the Base Vehicle door lock handle. The Supplier shall ensure that the strength of the door is not compromised.	Essential	Essential	Essential
	C185	A closed storage unit, with two access doors secured by a single operation latching mechanism with slam lock facility, shall be fitted in the rear of Zone C for the storage of a spinal board, scoop stretcher, splints, carry chair and/or tracked carry chair. The solution shall be able to take and securely hold any commonly used make and model of this equipment and all required brackets/ fixings will be installed. The tracked chair needs to be stored with the tracks to the wall, the instruction for which will be clearly labelled. The unit will also house various large items of medical equipment, such as leg splints, cervical collars and a resuscitation device.	Essential	Essential	Essential
	C186	Maintenance personnel must be able to access the rear light assemblies.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C187	A high-level storage construction that consists of two separate lockers will be fitted between the closed storage unit and the sliding door, such that it joins the construction above the sliding door. The bottom of the cupboard shall not exceed 1,720mm from the floor. Both lockers shall have a 50mm lip on the bottom to prevent items moving.	Essential	Essential	Essential
	C188	A switch control panel, as detailed in section F (Electrical switch layout), will be provided between the window and the overhead storage construction, towards the sliding door.	Essential	Essential	Essential
	C189	Where applicable the Authority will supply, free issue, relevant communications equipment (e.g. Tetra, Airwave, Terrafix) and the Supplier will install this next to the switch control panel.	Essential	Essential	Essential
	C190	An anaesthetic gas scavenging system will be installed at floor level. It will be operated via the saloon switch panel with the same switch as the powered two-way vent such that both systems operate simultaneously. It will comply with the requirements of BS EN 1789:2020.	Essential	Essential	Essential
	C191	If required a storage solution with power supply and wipe clean catch strap/lanyard will be fitted to tether the EPR device when in use by an attendant in the seat closest to the sliding door.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C192	A digital clock, which is backlit and shows seconds, will be mounted on the wall of the closed storage unit facing into the saloon.	Essential	Essential	Essential
	C193	An A3 document holder will be provided.	Essential	Essential	Essential
	C194	One BS EN 3 compliant single use 2kg ABC 40 powder, visible gauge, controllable flow fire extinguisher will be positioned within easy reach of the rear door. The extinguisher will have a minimum seven-year life without the need for scheduled maintenance or service or any form of manufacturer overhaul.	Essential	Essential	Essential
	C195	A grab rail will be fitted to the bottom of the overhead storage construction above the seats.	Essential	Essential	Essential
	C196	The vehicle's fleet number (as provided by the Authority) will be clearly visible from the attendant seat.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Zone D	C197	Closed gas cylinder storage will be provided at the rear to accommodate two HX or F size (or equivalent) oxygen cylinders and a further closed storage provision with three positions to secure CD size (or equivalent) oxygen cylinders. The cylinders are to be vertically mounted with the contents pressure gauges visible through clear windows in the doors. The solution for the larger oxygen cylinders (HX/F size or equivalent) shall minimise manual handling, e.g. have minimal raised lips at floor level. Brackets must be adjustable to accommodate different cylinder diameters. All closed gas cylinder storage cabinetry must be vented directly to the outside of the vehicle in line with the Dangerous Substances and Explosive Atmospheres Regs. Where no piped medical gases are included in the conversion, the option to relocate the cylinders outside of any cabinetry, secured via an appropriate bracket to the wall, remains.	Essential	Essential	Essential
	C198	Storage will be provided for a Mangar Elk compressor (or equivalent) with appropriate charging point and power supply.	Essential	Essential	Essential
	C199	The Supplier will supply and fit a safe suitable for the secure storage of controlled drugs, with dimensions and access method (key, code or smart card) confirmed by the Authority. As a guide, Suppliers should assume a size of	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		180mm x 280mm x 200mm with key-only access with two keys supplied. The drug safe itself will be in a cupboard. The doors to the safe will not open beyond 100 degrees.			
	C200	Storage shall be maximised in this area. The equipment should be easily accessible, but secure, from the patient stretcher area.	Essential	Essential	Essential
	C201	It must be possible for maintenance personnel to access the rear light assemblies.	Essential	Essential	Essential
	C202	Storage will be provided to accommodate snow socks that will be provided by the Supplier.	Essential	Essential	Essential
	C203	Storage for the stretcher battery charger and spare battery along with the appropriate charging point and power supply will be provided with easy access.	Essential	Essential	Essential
Zone E	C204	A screen will be installed in the bulkhead wall (either in Zone A or Zone E) and display footage from all external CCTV cameras simultaneously. The screen will be active when the vehicle is switched on with the handbrake on.	Essential	Essential	Essential
	C205	Storage, and appropriate power supply and wiring, for the auxiliary batteries will be provided under the attendant seat. An option for a high current plug connector (50amp) for critical care transfer trolleys on a retractable 1.5m lead if required.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C206	The vehicle's fleet number (as provided by the Authority) will be clearly visible above the bulkhead window.	Essential	Essential	Essential
	C207	A clearly labelled CCTV recording indicator will be installed on the bulkhead, with a LED illuminating when the CCTV is recording.	Essential	Essential	Essential
Zone F (interior roof)	C208	Two specialist infusion bag holders will be provided on the roof or on the underside of cupboards above the stretcher. They should be equally spaced along the length of the stretcher and each capable of holding two fluid bags. They should be designed to minimise injury from any strikes and recessed in the appropriate panel to reduce the risk of head strikes but still allow easy use of the infusion bags.	Essential	Essential	Essential
	C209	A grab rail shall be fitted to the roof above the stretcher, the rail shall run the length of the stretcher and contain a hand strap that is fixed in position at the head end.	Essential	Essential	Essential
	C210	A full-length CCTV activation strip will be fitted in the roof lining above the stretcher. Full-length refers to the full length of the saloon roof, from bulkhead to rear doors as far as is feasibly possible. This will activate a voice warning in both the cab and the saloon stating that the system has been activated, as well as activating the internal CCTV. Additional strips will be positioned adjacent to and within easy reach of	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		the seats in Zone C. This system must have a cancel button in the cab area that is within easy reach of the driver.			
	C211	A powered two-way vent, with extract and intake fan, will be installed. It will be operated via the saloon switch panel with the same switch as the anaesthetic gas scavenging system such that both systems will operate simultaneously. It will comply with the requirements of BS EN 1789:2020.	Essential	Essential	Essential
	C212	Air conditioning outlets, including directional and shut off adjustments, will be inserted relative to each seat position and the stretcher.	Essential	Essential	Essential
	C213	Overhead LED lighting will be positioned to illuminate the saloon and will activate when any saloon door is opened for a period of 30 seconds. The lights will then switch off unless they are activated via the saloon switch panel. The lights will be dimmable and provide a blue trauma friendly function via the saloon switch panel.	Essential	Essential	Essential
	C214	All lights in the patient compartment will be recessed or flush fitted.	Essential	Essential	Essential
	C215	Automatic overhead lighting will be provided at all door entrances in the saloon. This will switch on when the door is opened and off when the door is closed.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Zone G (interior floor)	C216	The saloon floor must be constructed and covered as per section on Floor construction. It must be laid with coving wherever possible and have reinforced corner radii. All floor covering edges will be sealed.	Essential	Essential	Essential
	C217	The floor will be Polyflor Woodland Grey 4770 Dementia Flooring or equivalent.	Essential	Essential	Essential
	C218	The Supplier will install one mechanical stretcher fixation device and associated stretcher provided free issue by the Authority. The locking will be strategically positioned to accommodate an emergency stretcher (including bariatric), an incubator and a critical care trolley, and with space for the attendant to walk between the stretcher and side seats when these are stowed. The stretcher fastening must be the fastening recommended by the stretcher manufacturer for the specific product used and tested to the stretcher safe working load. If power load stretcher is fitted, it is understood that the critical care trolley and the incubator cannot be used.	Essential	Essential	Essential
	C219	A guide block shall be fitted to the floor to help guide the stretcher into the locks and to protect the cabinetry where required from damage.	Essential	Essential	Essential
	C220	To accommodate a critical care trolley, any cabinetry or mounted equipment must not encroach the stretcher footprint.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C221	All floor level cabinetry in Zones C and D will be protected against impact damage to a height of 400mm. The cabinetry in Zone B will be protected from damage by the stretcher.	Essential	Essential	Essential
	C222	Four independent fixation devices will be supplied and fitted in the floor (flush fitting and easy fit) at the foot end of the stretcher to secure the aortic balloon pump. Trusts can decide at point of ordering if they wish to include this option.	Essential	Essential	Essential
Climate control	C223	The Supplier shall provide and fit an electronic climate control system which allows the user to define the temperature setting in the saloon area, in increments of 1 degree. The temperature range must be, as a minimum, 16 to 29oC. The Base Vehicle is supplied with climate control in the cab and with the ability for aftermarket fitment of climate control in the saloon.	Essential	Essential	Essential
	C224	The electronic climate control system in the cab should be independently controlled from the electronic climate control in the saloon.	Essential	Essential	Essential
	C225	The climate control system must be linked to the power management system, which allows the climate control system to operate when the engine is running, or the vehicle is operating on run lock.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C226	Four air flow vents will be provided in the internal ceiling panel to evenly distribute the conditioned air and positioned relative to the stretcher and the seats.	Essential	Essential	Essential
	C227	A saloon heater will be installed that operates when the vehicle is plugged into a shoreline. It must be possible to maintain the saloon temperature at an adjustable parameter up to 15oC.	Essential	Essential	Essential
	C228	The air conditioning evaporator will be mounted in the roof at the rear (evaporator drain off pipes to rear) of the saloon with an access panel for maintaining the system	Essential	N/A	N/A

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Electrical control	C229	An electronic electrical power management control system (PMS) shall be provided using CAN bus or other suitable technology. This shall control auxiliary circuits and batteries including chassis, assist with fault PC-based diagnosis through a gateway test node (mini central processing unit) and provide a sequenced load facility to ensure all vehicle batteries retain a charge status of more than 30% of their rated capacity. It shall be a requirement for this system to interface with and be able to send and receive data from the chassis CAN bus or alternative system and interface to the Authority's MDVS solution. This shall provide telematics information such as battery status, vehicle controls activation and emergency controls activation.	Essential	Essential	Essential
	C230	A dedicated emergency start facility will be provided that is controlled via a cabin button easily accessible to the driver and that is independent of the Power Management System. This can be connected to battery bank 2 – auxiliary batteries; This must have a minimum cold cranking amp (CCA) of 185A and a five-second cranking ability of at least 500A.	Essential	Essential	Essential
	C231	The Base Vehicle manufacturer's battery will supply the originally designed electrical loads. The battery system shall be split into three	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		independent banks: battery bank 1 shall consist of the chassis manufacturer's original starter battery; bank 2 shall support all additional ambulance auxiliary electrical loads except for communications and be a minimum of 104Ah capacity (20-hour rate); and bank 3 shall support communications and computer equipment and be a minimum of 86Ah capacity (20-hour rate).			
	C232	Heavy duty, cyclic, thick plate AGM (absorbed glass matt) batteries shall be installed for both battery banks 2 and 3. These shall be of a matched type. The minimum battery storage must be 20% greater than the maximum load calculation; batteries must be suitably vented.	Essential	Essential	Essential
	C233	An appropriate magnetically latching battery isolation contactor shall be fitted to allow the isolation of all battery banks in an emergency. An appropriately marked and illuminated switch shall be installed on the dashboard, away from the normal reach of the driver, to facilitate its remote operation. A discrete switch shall also be in the passenger seat base to allow a maintenance engineer to isolate the battery system. The battery isolation system shall be ignition inhibited to prevent accidental isolation while the vehicle is in motion.	Essential	Essential	Essential
	C234	The battery charging system shall: • Be fully compatible with modern smart	Essential	Essential	* See note 1 at

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		alternators and consist of two battery-to-battery (DC to DC) chargers, one for each of the additional battery banks 2 and 3, to ensure a fixed charging voltage is supplied to each additional battery bank independently of one another and regardless of the alternator operating state. These chargers should be of a sufficient capacity to easily charge the battery bank it is supplying whilst the vehicle engine is in operation. • be dynamically self-adjusting to prevent nuisance split charge engagement and disengagement due to intermittent fluctuations in system voltages • provide 12V outputs when split charging is engaged/disengaged for the purpose of driving/controlling warning lights or external relays. N/A for EV			the end of this section
	C235	The auxiliary batteries must be capable of being charged using the AC/DC charging cable for the drive battery. A shoreline charger may still be needed for an electric vehicle.	N/A	N/A	Essential
	C236	Battery banks 2 and 3 shall be protected from being flattened. If the DC voltages of these battery banks drops to 11.7V DC and remains below that threshold for more than two minutes, then the supplies from the batteries shall be isolated. The electrical supply shall be	Essential	Essential	* See note 1 at the end of this section

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		automatically reactivated when the vehicle engine is started, or split charging is engaged (for instance by the mains charger). The flat battery protection system shall be ignition inhibited to prevent isolation while the vehicle is moving. The system shall provide several 12V outputs when isolated and non-isolated for the purpose of driving/controlling warning lights or external relays. A low voltage detection system is required to alert the driver to the charge status. This shall provide a staged shut down according to priority load shedding.			
	C237	All auxiliary electrical loads on the Ambulance shall be run from a post battery, load management system (PMS). This system shall be approved and agreed with the Authority. The load management system shall take its power from, but operate independently of, the split charge, emergency start and flat battery protection systems. The PMS must sense and control the batteries' load and when detecting a battery voltage of 12V start a load shedding sequence that shall protect the battery power by progressively isolating circuits (excluding essential life-threatening ones). These shall be agreed with the Authority. Should load shedding start, the vehicle's voice activation system shall	Essential	Essential	* See note 1 at the end of this section

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		advise the driver of this and, if applicable, for them to start the engine.			
	C238	All auxiliary batteries (bank 2 and 3) must be positioned in suitable lockers that are easily accessible for maintenance purposes; they must not be in the vehicle cab.	Essential	Essential	Essential
	C239	Batteries must be as light weight and energy efficient as possible with due regard to the commercial impact.	Essential	Essential	Essential
	C240	Electrical circuits shall be controlled by either separate switches or the PMS.	Essential	Essential	Essential
	C241	The Supplier will provide a speed and rev limiting device that shall prevent the vehicle from being driven uneconomically under non-emergency conditions. This system shall have an automatically linked inhibitor that switches the system off when the blue lights are on to enable the vehicle to be driven unimpeded while on emergency response. This will be included in the conversion only if it can be done for minimal cost, with this cost to be highlighted in the bid document.	Essential	Essential	Essential
	C242	A voice message shall be installed that indicates when the batteries are becoming low, or load shedding is starting, and any exterior door is open. This must be protected from being disconnected by ambulance crews.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C243	A battery charger with an output of no less than 60A @ 12V DC shall be fitted to the Ambulance in an appropriate location for the purpose of charging the vehicle batteries when stationary. It shall operate at full power from a mains input voltage window of 100–260V AC/45–60Hz. The charger shall be fully automatic in operation with a minimum of a three-stage charging curve. It shall be adjustable to charge sealed lead-acid, calcium/calcium lead-acid and AGM batteries at the correct voltage settings. It shall be power factor corrected for efficient operation from the mains (voltage transformers). The charger shall provide a visual indication of charging status as well as any faults. The charger shall house a LED charging light.	Essential	Essential	* See note 1 at the end of this section
	C244	The Ambulance shall be fitted with an external waterproof 110V mains input socket mounted in an agreed location complete with tell-tale light to confirm the power supply. A mechanism shall be installed to prevent the Ambulance being driven with the mains input still connected. The mains output from the socket on-board the vehicle shall be wired through an earth leakage device (RCCB) mounted in an appropriate enclosure. The mains supply shall also be prevented from overload by installing a MCB (miniature circuit breaker). A combined	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		MCB/RCCB (RCBO) could be used. The RCCB/RCBO must have an earth leakage trip current of 30mA. The RCCB/RCBO shall be mounted as close as possible to the incoming mains supply on the vehicle. Mains protection devices shall conform to the following standards: RCCB BS EN 61008, RCBO BS EN 61009 and MCB BS EN 60-898.			
	C245	There must be at least a 200mm loop of free wire at all switches and components to make their removal easy.	Essential	Essential	Essential
	C246	In total there shall be six 12V power points protected at 15A and two 12V 50A terminals suitable for incubator and balloon pump units.	Essential	Essential	Essential
	C247	A DC to AC power inverter must be fitted with a minimum output of 2,000W @ 25°C ambient. The output must be 230V AC (RMS $\pm$ 3%), 50Hz ($\pm$ 0.05%), pure sinewave (max 3% THD). The inverter must be self-protecting against overload, short circuit, over temperature and low DC input voltage. A panel to allow the inverter to be switched on and off remotely shall be installed in an agreed location. The inverter will be fitted with a protective cover to prevent unauthorised access to wiring components. The inverter will power off one hour after no load has been sensed or when on shoreline. All DC supply cabling will be of appropriate rating and	Essential	Essential	* See note 1 at the end of this section

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		fused to exceed the maximum current draw of the inverter under full load by 10%.			
	C248	The 230V AC mains output from the inverter shall be run through an enclosed RCCB and MCB or RBCO. The RCCB/RCBO must have an earth leakage trip current of 30mA. The RCCB/RCBO shall be mounted as close as possible to the inverter output. If neutral and earth are not bonded inside the inverter, this shall be completed prior to the RCCB/RCBO.	Essential	Essential	Essential
	C249	All lights will be latest generation LED with maximum light for minimum voltage and incorporated into front and rear aerodynamically profiled pods to reduce their impact on the aerodynamics of the Base Vehicle.	Essential	Essential	Essential
Emergency lighting and switches	C250	A low profile aerodynamic front light bar and rear light bar will be provided and installed to the specification below. Both light bars will be 58 inches in length and if applicable equivalent lights can be used. Examples include Woodway 2250 series bars, Pt no 01-0688701. Front bar spec – EMA4819F / Rear bar spec – EMA4819R. EECO light bar front part FM9058-101B, rear FM9058-104B or equivalent latest model. See figure 2. Front light bar specification on Doc 2. Conversion Spec diagram	Essential	N/A	N/A

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		See figure 3. Rear light bar specification on Doc 2. Conversion Spec diagram			
	C251	High-level blue lights that emit light through 360 degrees around the ambulance body will be fitted.	Essential	Essential	Essential
	C252	Two high-level rear red lights with an interlock to the handbrake (to prevent operation while the vehicle is moving) and a dashboard warning light will be fitted.	Essential	Essential	Essential
	C253	Two grill mounted blue flashing lights and two side-facing, wing-mounted blue flashing lights will be fitted, activated with the 360-degree blue light system.	Essential	Essential	Essential
	C254	An alternating headlight flash (HLF) will be fitted and use only the Base Vehicle headlights on high beam, activated with the 360-degree blue light system but wired so that it cannot be operated by Base Vehicle sidelight or headlight activation. If this isn't possible, please suggest an alternative.	Essential	Essential	Essential
	C255	A front number plate plinth with blue flashing lights from each side will be installed and activated with the 360-degree blue light system.	Essential	Essential	Essential
	C256	Two blue flashing lights will be fitted at the rear of the vehicle in the line of sight of a car driver behind the vehicle, activated with the 360-degree blue light system.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C257	Multifunctional lights will be fitted above the cab doors to give puddle, alley and blue flashing light.	Essential	Essential	Essential
	C258	Red LED lights will be positioned in all door apertures to be visible from the rear of vehicle when the doors are open.	Essential	Essential	Essential
	C259	A speed enforcement camera identification blue light will be fitted to the rear and activated with the 360-degree blue light system. This is referenced as 'Gatso' in the rear light bar specification diagram.	Essential	Essential	Essential
	C260	A UK Civil Aviation Authority CAP168 compliant low-profile amber beacon lamp will be installed on the vehicle roof. This will be activated via a clearly labelled switch adjacent to the steering wheel.	Essential	Essential	Essential
	C261	All Supplier-fitted accessories will be fed directly from the Base Vehicle manufacturer's electrical interface. Items that function only in conjunction with sidelights or ignition will be powered by relays activated by an appropriate vehicle system.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Electrical switch layout	C262	The Ambulance will be fitted with a solid-state electrical control unit controlled programmable multiplex electrical management system, with associated switch panels, to control the auxiliary systems and provide a load management solution. All electrical backboards/systems will have access panels for viewing system integrity and easy access for resetting as required.	Essential	Essential	Essential
	C263	A switch control panel will be provided in the cab and in Zone C. The cab switches will be housed in a one-piece panel that provides touch control, and this mounted in the roof pod, in the centre and angled to make it easy to see the controls. The switch panel facia in both the cab and Zone C will have infection control barrier covers and be silicone sealed to prevent fluid ingress.	Essential	Essential	Essential
Electrical switch layout - cab switch control panel and rear saloon switch control panel	C264	The following list describes the functionality of the cab switch control panel and the rear saloon switch control panel. Navigation between the two panels will be provided via a menu option and thus they can be operated from each position. The number and layout of the switches should be designed for ease of operation and simplicity.	Essential	Essential	Essential
	C265	a. Cancel all mode (cab panel).	Essential	Essential	Essential
	C266	b. Override mode (cab panel): after load shedding the override mode will enable the 360-degree blue lights and limited interior lights to	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		operate until the battery is fully depleted (even though this may well mean that the battery needs to be replaced).			
	C267	c. Pre-check sequence (cab panel): i. Five seconds after activation with ignition and the handbrake on, each function that can be visually inspected is activated, individually and in a predetermined order, to allow its inspection. All mode functions will be checked, and a warning given if defective. ii. This 'health check' links to the telematics technology.	Essential	Essential	Essential
	C268	d. Low power function (cab panel): reduces light output to the front blue lights which will be used in darkness and mist/fog, to prevent reflective light glare for crews and to reduce dazzling for other road users.	Essential	Essential	Essential
	C269	e. 999 mode (cab panel): activates all emergency lights, the siren and HLF.	Essential	Essential	Essential
	C270	f. Rear emergency lights (cab panel): activates rear emergency lights only, including the flashing reds.	Essential	Essential	Essential
	C271	g. Arrive scene mode (cab panel): i. Deactivates all emergency lighting, sirens, HLF and the 999 function, but not other functions ii. The ignition security feature is activated first,	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		allowing the driver to remove the keys and securely leave the engine running; depending on the specification the engine rpm may increase from idle. If the handbrake is released, the engine stalls or the vehicle moves when the system is activated.			
	C272	h. Leave scene mode (cab panel): activates saloon lights, grill lights, wing lights and HLF.	Essential	Essential	Essential
	C273	i. Arrive hospital mode (cab panel): deactivates emergency lighting and 999 function and activates saloon lights that switch off if the vehicle is stationary for 20 minutes (plip key operation can override this).	Essential	Essential	Essential
	C274	j. HLF (cab panel): activates the HLF. This can only be selected when the side lights are off and is otherwise disabled.	Essential	Essential	Essential
	C275	k. Left scene/alley light (cab panel): activates the 45-degree left scene light and alley light (lights to switch off above road speed of 10mph).	Essential	Essential	Essential
	C276	l. Right scene/alley light (cab panel): activates the 45-degree right scene light and alley light (lights to switch off above road speed of 10mph).	Essential	Essential	Essential
	C277	m. Rear scene light (cab panel): activates the rear scene lights (lights to switch off above road speed of 10mph).	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C278	n. All-scene light (cab panel): activates all scene lights when the handbrake is on, and the vehicle is stationary.	Essential	Essential	Essential
	C279	o. Saloon-light master (cab and saloon panels): activates the saloon light dimming device.	Essential	Essential	Essential
	C280	p. Siren (cab panel): activates the siren.	Essential	Essential	Essential
	C281	q. Left saloon lights (saloon panel): activates the left saloon lights and deactivates the saloon light dim.	Essential	Essential	Essential
	C282	r. Right saloon lights (saloon panel): activates the right saloon lights and deactivates the saloon light dim.	Essential	Essential	Essential
	C283	s. Saloon light dim (saloon panel): activates the saloon dim lights.	Essential	Essential	Essential
	C284	t. Stretcher light bright (saloon panel): activates the above-stretcher spotlights.	Essential	Essential	Essential
	C285	u. Climate control (cab and saloon panels): activates and deactivates the saloon climate control system.	Essential	Essential	Essential
	C286	v. CCTV (cab and saloon panels): activates the CCTV record function.	Essential	Essential	Essential
	C287	w. Roof intake (saloon panel): activates the intake function of the powered two-way vent.	Essential	Essential	Essential
	C288	x. Roof extract (saloon panel): activates the extract function of the powered two-way vent.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Electrical switch layout	C289	Five spare outlets will be provided.	Essential	Essential	Essential
	C290	A run lock activation function that is independent of all the functions mentioned above will be provided.	Essential	Essential	**See note 2 at the end of this section
	C291	A battery link emergency start function will be provided.	Essential	Essential	Essential
Communication system	C292	The Authority will provide all aerials and antennas, radio equipment, location equipment, servers, MDTs and associated cabling free issue. The Supplier shall install all equipment, including suitably fused power feeds, up to the point of final fix of the front-end terminals, which should be prepared for final commission by a technical specialist from the Authority.	Essential	Essential	Essential
	C293	All communications systems will be routed to the communications system cupboard at the bottom of the cabinet in Zone A. This should be inaccessible to crews (therefore no make ready system), ventilated as required and slide out of the cupboard with adequate cabling to allow for maintenance. The construction should be designed to prevent fluid ingress.	Essential	Essential	Essential
	C294	The Supplier shall fit a secure mounting (free issue by The Authority) for the Electronic Patient Report Form (ePRF) device in Zone A with, 12v	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		power feed, aerial and power cables routed as required.			
	C295	The Supplier shall supply and fit a suitable mounting system for the MDT/tablet in the upper central dash area over the Base Vehicle entertainment radio system; one that enables the MDT/tablet to be moved to allow the operation of the Base Vehicle entertainment and climate systems from both the driver and passenger seats.	Essential	Essential	Essential
	C296	All cable ends, antennae ground planes, radio wiring and vehicle location wiring will be accessible internally via inspection covers in the module roof of a minimum diameter of 100mm. There should be at least 0.5m of antenna cable so that it is not taught at any antenna position within the roof. Cabling from the antenna will be fed to the relevant equipment via a conduit path of at least 20mm internal diameter and include at least 1m of free cable.	Essential	Essential	Essential
	C297	The Ambulance shall have at least a 50A power supply to the radio and GPS vehicle location equipment, directly fed from the communications battery. This must be connected to two six-way fuse boxes, one positive and one negative, located in the communications systems cupboard.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C298	The Ambulance shall have at least a 15A rated ignition switched positive feed to the positive six-way fuse box.	Essential	Essential	Essential
	C299	The Authority will provide three antennas, one Dual GPS/Tetra antenna, one MIMO antenna for the data terminal and one P25 low-profile antenna for the ePRF solution. The associated twin co-axial cables will be appropriately and differently routed from the front and the rear antenna points.	Essential	Essential	Essential
	C300	All antennae mounts must be correctly earthed, with the metal exposed on the inside of the roof and not tightened over the inside painted surface.	Essential	Essential	Essential
	C301	As an indication, the maximum size of one of the Authority's vehicle location equipment boxes is approximately 500mm x 450mm x 200mm.	Essential	Essential	Essential
	C302	A technical specialist from the Authority will work with the Supplier to agree the precise location and cabling routes for all communications equipment.	For information only	For information only	For information only
	C303	The Ambulance Radio Programme (ARP) is a Department of Health and Social Care programme to replace the existing mobile communication systems in ambulance trusts with new digital services. The programme has contracted Terrafix Ltd to deliver the replacement mobile communication system for	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		which there needs to be a link between the power management system and the mobile data terminal/system. Considering the National Ambulance Radio Programme (NARP), sacrificial items may need to be installed for new system and legacy system which is to be confirmed with the Authority. The NARP MDVS screen requires a suitable bracket considering the size and weight of the MDVS screen solution.			
Vehicle inventory and flexibility	C304	While the Conversion itself is to follow the requirements stipulated, the Authority will provide details of the specific equipment and consumables carried, and their positioning in the standardised zones prescribed, until a national common standard equipment and consumables load list is developed.	For information only	For information only	For information only
	C305	The authority will provide all medical equipment and associated brackets free issue unless specifically noted otherwise in this Specification. The Supplier is required to install the equipment and/or brackets provided by the Authority as part of this specification, including the provision and installation of any associated electrical supply/wiring. The Authority may ask the Supplier to supply additional equipment, subject to separate, individual agreement between the Authority and Supplier.	For information only	For information only	For information only

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C306	The Authority may mutually agree in writing with the Supplier minor amendments to this Specification during sign off of the final build design. These shall not significantly alter the Specification or price and must not result in the vehicle failing to meet any of the requirements of this Specification.	Essential	Essential	Essential
	C307	Once finalised, a Minor Amendments Schedule for each order from the Authority, including details of the amendments agreed and their price impact, will be provided to the National Contract Manager.	Essential	Essential	Essential
	C308	The requirements regarding weight allowances are shown on Table 1, Doc 2. Conversion spec diagrams	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Vehicle markings and livery – (see appendix 1 for further information)	C309	All markings will be in the universally recognised format: • hazard warnings – black lettering on a yellow background • mandatory instruction – white lettering on a blue background • prohibition signs – white lettering on a red background • exit/safe condition signs – white lettering on a green background • equipment location signs – red lettering on a white background.	Essential	Essential	Essential
	C310	Details of the required Battenberg markings and other insignia are provided in the Livery section below.	Essential	Essential	Essential
Exterior vehicle markings	C311	The markings supplied in Table 2. Exterior Vehicle Markings on Doc2. Conversion Spec diagrams, in a suitable polyester base under printed film, shall be applied:	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Interior vehicle markings	C312	The markings supplied in Table 3 Interior Vehicle Markings on Doc2. Conversion Spec diagrams, in a suitable polyester base under printed film, shall be applied.	Essential	Essential	Essential
Livery - General	C313	Battenberg livery will be provided and fitted in line with current guidelines and legislation, including the guidelines published by or for the Association of Chief Police Officers. Livery should also meet NHS branding guidelines.[1]	Essential	Essential	Essential
	C314	The Supplier shall provide all livery applied and all markings must be applied and positioned consistently across all vehicles supplied.	Essential	Essential	Essential
	C315	All Ambulances shall be supplied with a Livery Kit Identification Label located on the driver's seat base and under the bonnet. This is a specific reference number to enable prompt reordering of any additional/replacement livery. The livery provider will warrant to the Supplier that any orders for additional/ replacement livery from the Authority must be delivered within two working days of order.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Livery - Regulations	C316	The use of reflective films and design of livery must comply with the relevant Vehicle Lighting and Safety Regulations, including Regulation 11 of The Road Vehicles Lighting Regulations 1989 and the Variation Order to Section 44 of the Road Transport Act, 1988.	Essential	Essential	Essential
Livery - Materials	C317	The livery must: a. be made from micro-prismatic reflective material b. be made from a high-performance material c. be of non-metallic construction to avoid corrosion d. have auto edge sealing on cuttings on all sections e. have minimal application of mixed materials.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Warranty on livery	C318	The livery must be provided with a minimum seven-year performance warranty which includes the following: a. no cracking b. no fading c. no peeling d. no loss of adhesion e. no ingress.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Livery application	C319	Recommended manufacturer preparation and application techniques must be strictly adhered to. Inappropriate application or surface preparation could reduce the life of the material or void the manufacturer's warranty; therefore, the work must be carried out by an approved applicator.	Essential	Essential	Essential
		The vehicle body must be thoroughly prepared prior to application of adhesive materials. This includes multiple degreasing steps with appropriate spirit to ensure good, long-term adhesion to all surfaces.			
		Where possible, all adjoining materials shall maintain a seamless surface to minimise inadvertent catching of material edges and the potential for the accumulation of dirt.			
		Storage of unused materials or packs must be to manufacturer recommendations.			
Side livery application	C320	The side panels of the Battenberg must cover the entire length of the vehicle but not exceed half the total height of the vehicle. They should be positioned immediately below the lower line of the saloon window.	Essential	Essential	Essential
	C321	The application of the livery will start with a green panel at the midpoint of the length of the	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		vehicle. The panel size will be chosen so that: a. there are seven panels in the top row b. the widths of each panel on the top row are equal, except for the front and rear most, which are a minimum of two-thirds the size of the main panels c. the height of the panels on the top row is half their length; the panels on the bottom row can be reduced height to fit/fill the side of the vehicle.			
	C322	Fluorescent retro-reflective yellow panels will be fitted to either side of the central top row green panel, with alternating colours to the front and rear of the vehicle, ending with yellow panels.	Essential	Essential	Essential
	C323	The pattern will then be extended downwards, starting with a yellow panel vertically below the central green panel on the top row and extending horizontally to the front and rear of the vehicle. The bottom row may be of any height to fit/fill the side of the vehicle.	Essential	Essential	Essential
	C324	The material will not be folded over the edges but cut short of all edges and cutouts.	Essential	Essential	Essential
	C325	In a central position above the side windows the words 'EMERGENCY AMBULANCE' will be prominent and in green. Above the words Emergency Ambulance will be the Crown Badge and the name of the Authority (in black)	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		alongside the NHS logo and the trust form (in blue). This should be in line with the NHS branding guidelines and the example on figure 4 Doc 2. Conversion spec diagrams			
	C326	National NHS communication messages will be displayed on the rear third of both offside and nearside side panels and on the front third of the offside side panel. It must be possible to change these as required without damaging the vehicle, or other decals or livery. Vehicles should be supplied with the 999/111 messaging shown below on both rear panels and an NHS logo in a central position on the offside front panel, unless otherwise agreed with the Authority.	Essential	Essential	Essential
Rear livery application	C327	The rear of the vehicle will have a full height chevron pattern. The angle of the chevrons will be 45 degrees.	Essential	Essential	Essential
	C328	The material used throughout shall be the highest-grade fluorescent and retroreflective material of width 150mm.	Essential	Essential	Essential
	C329	The materials will be applied as follows: a. The centre point of the rear panels/doors will be located, and a line drawn from this point to the outer edges of the vehicle, half height from the bottom edge of the vehicle. b. From the centre point, lines will be drawn to the bottom corners of the rear of the vehicle and	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		orange strips applied below and to the edge of the lines. The strips will be cut around any vehicle fittings. c. yellow strips will be applied above and below the orange strips, to the full height of the vehicle. d. As much of the remaining area as possible will be filled with additional strips in alternating colours.			
	C330	In 125mm red letters, the word 'AMBULANCE' will be positioned above the rear windows.	Essential	Essential	Essential
	C331	In 50mm red letters, the words 'KEEP CLEAR' will be positioned midway between the lower window line and ground level, centred across the rear doors.	Essential	Essential	Essential
	C332	The NHS logo will be positioned in the centre of both rear windows.	Essential	Essential	Essential
	C333	The exterior vehicle markings section details other markings to be applied to the rear of the vehicle.	Essential	Essential	Essential
Front livery application	C334	The word 'AMBULANCE' in green (mirror image) will be positioned at the front of the bonnet, in the middle.	Essential	Essential	Essential
	C335	The word 'AMBULANCE' in green will be added to the panel above the windscreen with the NHS logo centred above it.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
	C336	The vehicle fleet number will be applied above the windscreen as described in the exterior vehicle markings section.	Essential	Essential	Essential
Livery - Colour and finishing	C337	Unless otherwise stated, all interior surfaces in the saloon will be fully colour impregnated white, with saloon upholstery finished in Ambla Cairnwell Grey (or equivalent) with a RAL1016 (or closest possible) yellow piped trim around the edge.	Essential	Essential	Essential
Compliance verification	C338	The Supplier will demonstrate compliance with technical aspects of the Specification as follows:	Essential	Essential	Essential
Compliance verification - body electrical power calculation	C339	A body electrical power calculation test datasheet should be supplied. The datasheet should include power consumption in: a. 999 mode b. Arrive-scene mode c. Leave-scene mode d. Hospital-arrive mode.	Essential	Essential	Essential
	C340	The datasheet should be based on a five continuous call basis to replicate the vehicle not being shoreline charged. The call outs should be based on: a. 10 minutes urban travel to incident	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
		b. 20 minutes on scene (with differential between engine running and engine off and run lock applied shown) c. 10 minutes urban travel to hospital d. 20 minutes at hospital.			

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Compliance verification - body tilt and axle bias	C341	A theoretical body tilt and axle bias calculation datasheet should be provided upfront with formal testing from a recognised proving ground on the initial build unit. The datasheet should include: a. total centre of gravity b. calculation of axis c. symmetry of axis d. height of centre of gravity e. tilt angle f. limiting velocity.	Essential	Essential	Essential

	Ref No. #	Description	Lot 1: Panel Van	Lot 2: Light weight Chassis (up to 4.25t)	Lot 3: Electric Chassis
Compliance verification - subjective handling test	C342	A report, from a recognised proving ground, should be provided covering a subjective handling test on one of the first completed units by arrangement with the Authority and at the Supplier's expense. The report will confirm that the following key handling issues are satisfactory: a. steady-state cornering b. straight line behaviour c. obstacle avoidance d. straight line braking e. braking while turning f. negotiation of speed humps without grounding g. overall confidence and safe handling.	Essential	Essential	Essential
Compliance verification - environmental Sustainability and Innovation	C343	An overview of the deconstruction process and an end-of-life environmental impact assessment of Conversion components should be provided. This must conform to current legislation and applicable standards	ITT	ITT	ITT

***Supplementary note 1**

Due to the complexities of the electric base vehicle the supplier is asked to work with the commissioning trust in supplying a fit for purpose electrical system to ensure there is enough power to accommodate vehicle ancillary equipment, medical and communications equipment while working within the parameters set by the base vehicle manufacturer. The electrical system provided must be such that minimises vehicle downtime for charging to maximise vehicle availability

****Supplementary note 2**

All external door locks must have a central locking facility and an extra facility that enables the vehicle to be locked while ignition security feature is enabled (functionality of run lock on ICE vehicles). This function should be controlled by the manufacturer's key fob.

Appendix 1: Vehicle Markings and Livery

This document shows the figures and tables referred to in Section 2: Conversion specification.

Figure 1. Saloon Layout

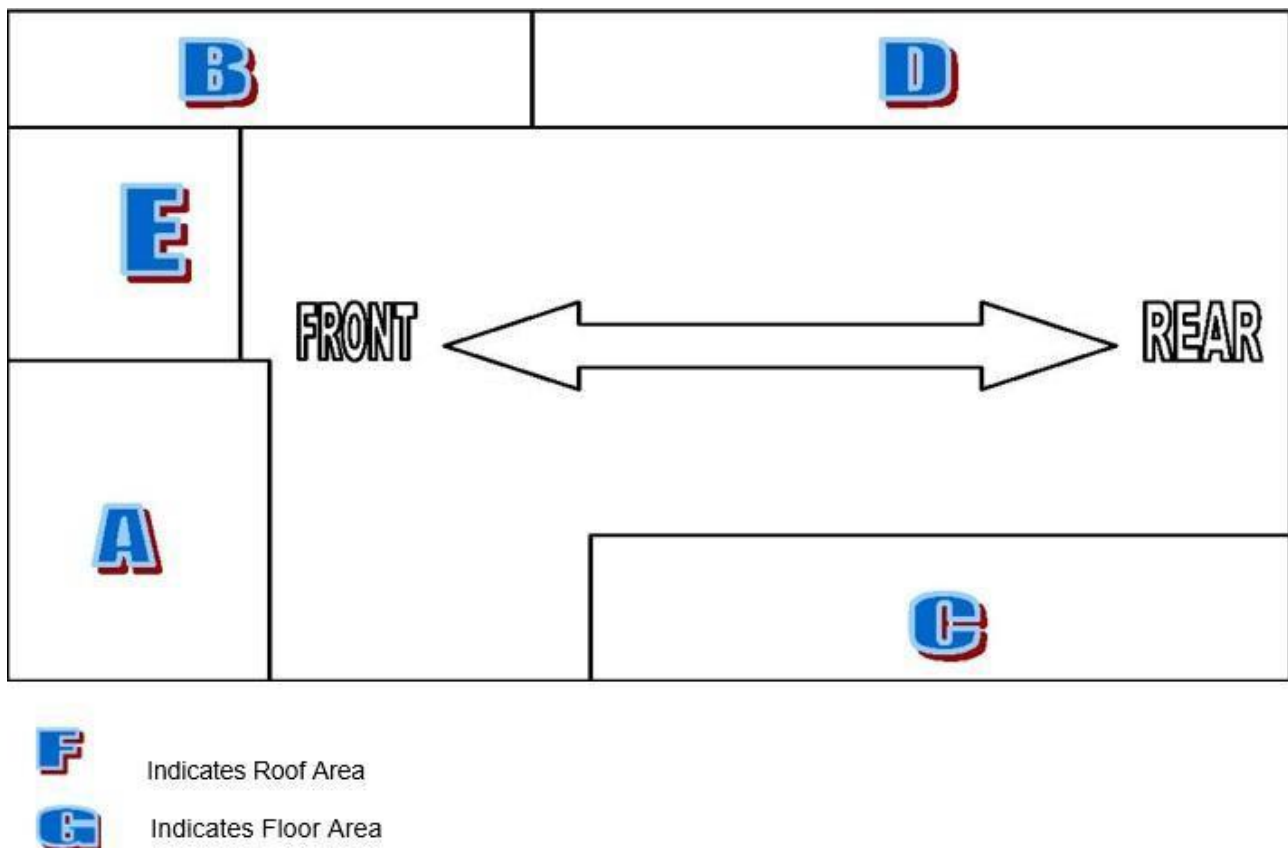


Figure 2. Front Light Bar Specification

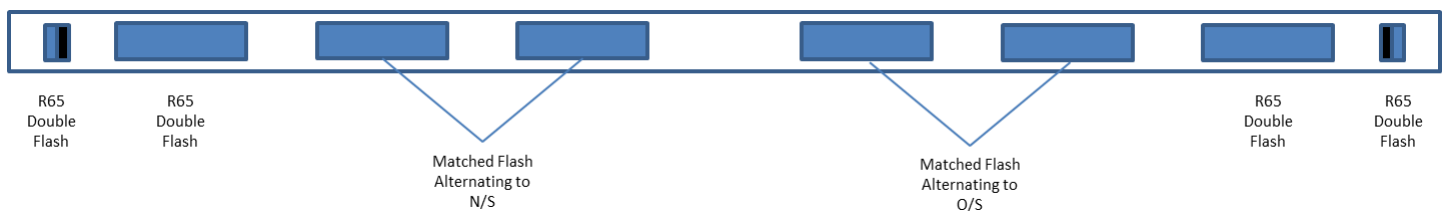


Figure 3. Rear Light Bar Specification

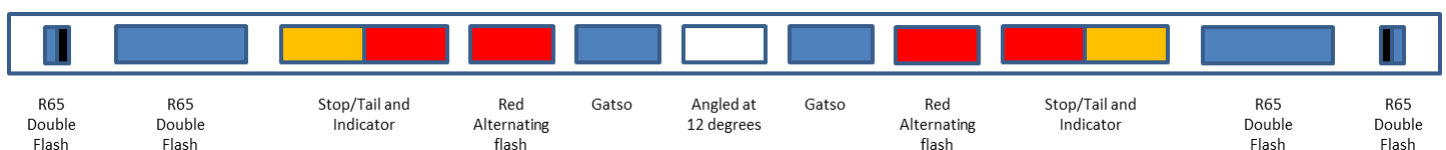


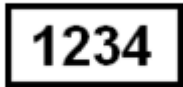
Table 1. Weight Allowances

Item	Quantity
Driver 1 X 75kg	1
Passengers 4 x 75kg = 300kg	4
Patient on stretcher 1x 75kg	1
Medical equipment (including stretcher) 1x 300kg (national average, actual to be advised by each Trust)	1
Medical equipment fixings 1x 30kg	1
Communications equipment 1 x 30kg	1
Total weight allowance = 810kg	
For info only – a bariatric weight should be deemed as 150kg	

Table 2.

Exterior Vehicle Markings

Patient Assessment sign on side and rear doors adjacent to the handle	 PATIENT ASSESSMENT IN PROGRESS – KNOCK AND WAIT
100 mm CLP Regulation Hazchem sign for compressed gas on rear door	
100 mm CLP Regulation oxidising agent sign on rear door	
Battery access sign in 12.5mm red lettering on white background on compartment panel	BATTERY ACCESS
A 120mm x 85mm Alzheimer's Society Dementia Friendly Vehicle logo below the window line and above the number plate line	

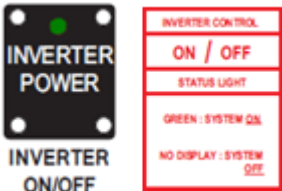
Multi-hazard warning on compartment panel - 'Danger Battery Charging Area, Wear Personal Protective Equipment, No Smoking, No Naked Light	
Diesel Only sign in 12.5mm red lettering on white background adjacent to the fuel filler	DIESEL ONLY
Warning triangle adjacent to the Diesel Only sign adjacent to the fuel filler	
Pull to Open sign on hinged doors above the door handle	
Pull Handle and Slide Open on the sliding door above the outer door handle	
Tyre Pressure sign in 10mm black lettering over each front wheel arch. Note: pressure to be agreed after weight testing and with approval of the tyre manufacturer	TYRE PRESSURE ## PSI
Tyre Pressure sign in 10mm black lettering over each rear wheel arch. Note: pressure to be agreed after weight testing and with approval of the tyre manufacturer	TYRE PRESSURE ## PSI
Wheel Nut Torque sign in 10mm black lettering over each wheel arch. Note: torque to be agreed	WHEEL NUT TORQUE ## Nm
75mmx15mm gauge numbers surrounded by a box 200x100x5mm gauge, central to the front over cab area, towards the windscreen top, and r/h rear towards the right side, below	

r/h rear door window. Contracting Authorities to confirm fleet numbers.	
Caution Battery Charging notice 90mm x 110mm with black print on yellow background to be attached adjacent to the mains charging point	
Image and sound recording notices 90mmx110mm to be attached such that they are clearly visible when entering the vehicle via any door	
At their own cost, a converter may attach a logo, no larger than 100mmx75mm, to the bottom- right of the offside rear door and towards the bottom of each cab door.	Converter logo

Table 3. Interior Vehicle Markings

Pull to Open sign on hinged doors above the door handle	
Pull Handle and Slide Open on the sliding door adjacent to the inner door handle	
Nationally recognised 'No Smoking in this Vehicle' signs to be clearly visible, one within the cab, one within the saloon	
'Seat belts must be worn' signs to be clearly visible from all seats in both the cab and saloon and include a BS5378 compliant blue 83 mm x 100 mm pictogram	
Caution Mind your Head' above all doors in the cab and saloon	

Seat must face forward when travelling sign with red 10mm text on white background with red trim, next to the front seat in Zone C	
Emergency Exit on side and rear doors	
Break Glass with Hammer Provided on the nearside sliding door window and the rear windows	
Fire equipment sign adjacent to each fire extinguisher, highlighting its location and appropriate use	
100 mm CLP Regulation Hazchem sign for compressed gas on gas compartment door	
Stop Abuse' placards to be placed in a prominent position on the bulkhead and on both side walls	
Hot Air Outlet sign adjacent to the saloon heater outlets	
Air Inlet Keep Clear sign adjacent to duct	
A GDPR compliant CCTV warning sign to be in clear view opposite the saloon side door. Each Contracting Authority to provide the required details.	
Image and sound recording notices to be attached to the bulkhead, side walls and inside of rear doors and be clearly visible	

A plaque showing vehicle dimensions (in metric and imperial) to be position in the fade out area of the windscreen above the driver. Example provided with measurements to be confirmed post product design.	 A rectangular plaque with a red border. The title 'VEHICLE DIMENSIONS' is in red. Below it, four rows of text are listed: 'HEIGHT: mm - INC AIRPORT LIGHT', 'WIDTH: mm - INC MIRRORS', 'WIDTH: mm - BELOW MIRRORS', and 'LENGTH: mm - INC RAMP'.
5mm red letters on white background 230v AC directly adjacent to, or on, the 13amp socket.	230v AC
10mm red letters on white background DOMESTIC WASTE ONLY adjacent to container.	DOMESTIC WASTE ONLY
10 mm red letter on white background CLINICAL WASTE ONLY adjacent to container plus pictogram biohazard symbol	CLINICAL WASTE ONLY  A yellow rectangular label with a black biohazard symbol on the left and the word 'Biohazard' in black text on the right.
10 mm red letter on white background SHARPS ONLY adjacent to container plus pictogram biohazard symbol	SHARPS ONLY  A yellow rectangular label with a black biohazard symbol on the left and the word 'Biohazard' in black text on the right.
Inverter Status label, 45mmx60mm, adjacent to the green LED (clearly labelled) that illuminates when the inverter is on	 A black rectangular label with a green LED indicator at the top. The text 'INVERTER POWER' is in white. Below it, 'INVERTER ON/OFF' is written. To the right, a red-bordered box contains the text: 'INVERTER CONTROL', 'ON / OFF', 'STATUS LIGHT', 'GREEN : SYSTEM OK', and 'NO DISPLAY : SYSTEM OFF'.
Activate power socket turn inverter on instruction label, 45mm x 60mm, adjacent to the 2 gang 3 pin socket	 A red rectangular label with white text. The text reads: '230VAC POWER', 'TO ACTIVATE POWER SOCKET', 'TURN INVERTER TO', and 'ON' in large letters.
Wedge ramp operating instructions to be supplied by the wedge ramp manufacturer and affixed near to the control panel	To be supplied
Isolator Switch label in 12.5mm red lettering adjacent to the switch	ISOLATOR SWITCH
Tiger strip ant-slip floor markings to be fitted at floor edge next to entry/exit points.	 A rectangular area with diagonal black and yellow stripes, representing a tiger strip.

Caution mind the step in a conspicuous location next to entry/exit points.	
All lockers to have contents identification labels applied to each locker in blue lettering on white background with a blue border. Each Contracting Authority to provide relevant details.	
In front of the passenger seat in the cab on the windscreen outside the windscreen wipers swept area and to not obstruct the driver's vision but clearly visible, "Caution Airbag Hazard Do not place feet on dash"	
Oxygen Outlet	O₂
Nitrous Oxide + Oxygen Outlet	N₂O
Other labels required are detailed throughout the specification and should be red letters on a white background with a red border	

Figure 4. Side Livery - Emergency Ambulance



Figure 5. Side Livery – NHS Communication Message



Appendix 2: Systems Information

Where the supplier is to supply the telematics system or the CCTV system as per the request of the Authority, this document sets out what should be included as a minimum for each system.

Telematics System

As an indication, the telematics system will include the following:

- Contain polling rates that are configurable, but as a minimum report every five seconds for routine driving, every one second when blue lights are activated, and multiple inputs per second when the vehicle is in crash phase.
- Contain accelerometers at 100Hz that must record in X, Y and Z directions up to $\pm 16g$ to an accuracy of $\pm 0.01g$. This could include linked low and high range accelerometers (e.g. ± 0 to $3g$ and 3 to $16g$).
- Collect information for the entire trip, showing (but not limited to) to the below:
 - a) start and stop times throughout the trip
 - b) positional information at relevant stages throughout the trip (breadcrumbs)
 - c) ability to develop geofences
 - d) detailed speed information
 - e) detailed idle times
 - f) odometer readings
 - g) detailed fuel usage and levels
 - h) siren activation
 - i) blue light activation
 - j) emergency/non-emergency miles
 - k) chassis lights information
 - l) seat belts engaged information for all seats
 - m) windscreen wipers information
 - n) brake lights information
 - o) dash warning lights information
 - p) steering wheel position
 - q) throttle position
 - r) X, Y, Z accelerometer inputs.
 - s) Saloon temperature monitoring
 - t) Ambient temperature monitoring
 - u) Idling control (ref C36)
- The system must be able to work with both ICE and EV

The telematics system must be 'open' such that it can integrate with the different 'back-office systems' within the Authority and have a standalone reporting portal. Data must be available for the Authority to view and interrogate remotely.

Eight channel HD digital video recorder:

- Records eight cameras at HD resolution
- ability to record data at a frame rate of at least 24 frames per second
- Records vehicle G force data in three separate axes, each

individually adjusted

- Records vehicle GPS data for integration with mapping in playback software
- Records vehicle GPS speed
- Logs use of left/right indicators and brakes, with all functions individually searchable in playback software
- Integrates with ambulance management system outputs to record use of sirens/blues/headlight flash/panic alarm – system should differentiate between sirens armed and sirens emitting noise
- Programmable shutdown delay
- Programmable/switched video output
- Removable 1TB recording storage device with dedicated lock
- Lockable front cover
- Clearly labelled fault repeater LED positioned in the dashboard
- Fault output for third-party integration
- Front accessed monitor output for set-up and testing
- Event search function allowing operator to search and view specific recorded scenarios, e.g. only those recordings when the vehicle's blue lights are active, or the vehicle is travelling at a certain speed, or any combination of multiple events
- Separate back-up recording and storage function for recording driver behaviour data such as acceleration, braking and speed
- Allow for 4G/Wi-Fi connection to vehicle to view live images and download recorded footage encrypted to Advanced Encryption System 256-bit encryption
- Ability to review footage on a PC direct from the removable storage device and remotely from the vehicle
- Option to auto-convert encrypted format footage to Audio Video Interleave format directly from playback software
- Ability to display all external camera images simultaneously on the monitor on the bulkhead in the saloon.

Forward-facing camera:

- Mounted behind the rear-view mirror looking forwards
- Cameras to record when vehicle is in operation and for a programmable period post ignition of up to one hour.
- Nearside and offside externally mounted micro-dome cameras:
 - Mounted nearside and offside at the rear of the vehicle facing forwards
 - External cameras mounted on micro-dome base
 - High resolution with minimum day/night function of 600 TV lines
 - Vandal resistant with lockable rim
- Cameras to record when vehicle is in operation and for a

programmable period post ignition of up to one hour

Saloon micro-dome cameras:

- Two, mounted flush with the ceiling above the bulkhead cabinet and at the foot end of the stretcher
- High resolution with minimum day/night function of 600 TV lines
- Vandal resistant with lockable rim
- Cameras to record when switched on or when the driver alert strip is pressed with passive recording function to enable video from one hour before activation to be captured
- Microphone installed in saloon area that is also turned on when the camera is turned on with a passive recording function to enable recordings from one hour before activation to be captured
- Switching on the camera leads to a clearly labelled visual warning (red LED light) that video and audio recording is active, and activation via the driver alert strip also leads to a voice alert that CCTV and audio recording is in operation
- Crews should be able to leave the camera on and in continuous record mode

Rear camera:

- Mounted at the rear of the vehicle, in the centre, for use as a reversing aid and to record events at the rear of the vehicle. The Supplier will ensure this is wired in such a way that there is no delay between selection of reverse gear and footage being displayed on the dashboard screen
- Camera to record while the vehicle is in operation and for a predetermined time after ignition

Accident review service:

- The CCTV supplier will offer the ability to recover or receive accident footage and to prepare an independent expert report on the circumstances, possible causation and liability
- This must comply with relevant data protection requirements including the General Data Protection Regulation as it applies in the UK (GDPR) and footage must be prepared in a way that meets all relevant Home Office guidelines

Footage preparation service:

- The CCTV supplier will have a process in place to recover footage in a timely manner (within 24 hours of request) or receive incident footage required for third-party purposes such as police requests must comply with relevant data protection requirements including the General Data Protection Regulation as it applies in the UK (GDPR) and footage must be prepared in a way that meets all relevant Home Office guidelines.

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Publication approval reference: PRN02159