



KSRTC - SWIFT LTD

(A Government of Kerala Undertaking)

Anayara, Thiruvananthapuram, Kerala.

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No. KS-GL01/114/2024-GL-K-SWIFT

Date: 05.02.2025

CORRIGENDUM / ADDENDUM – 2

Sub: e-Tender for the Supply of Fully Built AC Seater 10.5 Mtr 4-Cylinder Diesel Propelled Premium Super Fast Buses of BSVI Norms or Latest as per CMVR Norms - Amendment of NIT

Ref: 1. NIT No. KS-GL01/114/2024-GL-K-SWIFT dated: 03.01.2025
2. Tender ID: 2025_KSRTC_724753_1
3. Corrigendum / Addendum –I dtd: 04.02.2025

The modified **Appendix – I (Modified)** and Modified **Annexure – E (Modified)** shall be uploaded in the e-Tender portal after duly filled and signed.

Tender Inviting Authority

Appendix – I (Modified)

Specifications of Fully Built AC Seater 10.5 Mtr 4-Cylinder Diesel Propelled Premium Super Fast Buses of BSVI Norms or Latest as per CMVR Norms

Sl No.	CHARACTERISTICS		SPECIFICATION DETAILS
1.	Propulsion System		High Speed Diesel 4-Cylinder BS6 Engine
2.	Overall length		10 - 11 mtr (Maximum)
3.	Floor height		Minimum 900mm +/-50 mm, approval as per AIS 052 with sufficient luggage space beneath the platform
4.	Angle of approach (unladen)		As per AIS:052
5.	Angle of departure (unladen)		As per AIS:052
6.	Ramp over angle (half of break-over angle)		As per AIS:052
7.	Overall width		2600 mm Max
8.	Front over hang		As per CMVR
9.	Rear over hang		As per CMVR
10.	Wheel base		As per CMVR
11.	No. of axles		Two
12.	Emission Norm		Should comply the latest BSVI norms.
13.	Transmission		Manual
14.	Brake System		Full air Dual line with ABS or advanced version
15.	Steering		Hydraulic power Steering
16.	Steering wheel height adjustment and angle adjustment		With height and angle adjustment provision desirable. Adjustable steering column desirable.
17.	Engine		Position at Front, Minimum 145 HP
18.	Suspension	Front	Weveller / Parabolic Spring
		Rear	Weveller / Parabolic Spring
19.	Fuel Tank		Minimum 160 Litres
20.	Warranty		The Fully Built AC Seater 10.5 Mtr 4-Cylinder Diesel Propelled Premium Superfast Bus conforming to BS VI

		norms or latest as per CMVR Norms offered should have a warranty period of 3 Years / 400000 km which ever is earlier from the date of registration.
21.	Battery	Low maintenance type lead acid batteries for 24V system – (performance as per BIS:14257-1995 (latest)) Two 12V batteries of suitable capacity as per OEM design and Type Approval. Maintenance free batteries with minimum one year warranty as per battery manufacturer.
22.	Battery box	As per AIS 052
23.	Electric Horn	24 V as per IS.1884:1993 Matched Pair (Low & Hightone) As per CMVR Type approval
24.	Public Addressing System with USB type speakers	CMVR approved PA system shall be provided with USB type amplifier. Speakers of good quality shall be mounted in the interior roof audible to the passengers.The PA system shall be connected with TV also.
25.	Speed limiting device	Required as per type of Engine. There shall be provisions for limiting the vehicle speed at any value as per relevant KMVR and as required by KSRTC SWIFT Ltd. One Scan tool should be provided to KSRTC SWIFT for 10 buses. Scan tool to be provided for other fault diaganosis
26.	Dash Board Camera with wi-fi for real time monitoring and storage facility	Suitable camera shall be provided in the front, to have full front road view from the dash board side. Dash board camera with wifi for real time monitoring and storage facility for minimum 15 days to be provided with all accessories, supporting softwares and monitors as required.

		<ul style="list-style-type: none"> a. To Front view b. To interior view c. To view driver d. Reverse Camera e. Left side view camera f. AI Camera, Driver fatigue detection alert camera with online monitoring and alert.
27.	Destination Board	<p>3 Nos. of Destination Boards to be provided with single control.</p> <p>Full length Front Destination Board –2 lines display with single color (<i>Amber colour</i>) should be fitted close to the front wind shield glass in such a way that reflection from the LED board should not distract the driver.</p> <p>2 LED board in two lines at Rear side and left side.</p> <p>(Data transfer – through USB)</p>
28.	GPS and Panic button	<p>In-built IRNSS based VLT Device for Automatic Vehicle Location System which is approved by Kerala Motor vehicle Department (with compliance of AIS 140 with minimum 5 Nos. of emergency buttons for access to every passenger in the bus , preferably inbuilt box). This VLT Device shall be integrated with other VLT System implemented by KSRTC/ KSRTC SWIFT and shall also provide suitable software or to share the API for Vehicle Tracking, Input to PIS System, Kmpl and other performance reports</p> <p>No additional payment will be made by KSRTC –SWIFT for activation and subscription for mandatory 2 years as per AIS 140.</p>
29.	Entertainment System	<p>Minimum 1 units TV, Minimum 32/24” good quality LCD TV wi-fi enabled with rugged fittings and also the Public Information System shall be displayed and compact with the software</p>

		platform of KSRTC/ KSRTC SWIFT, DVD player, Speakers, Power Inverter, Public addressing System. If 32" TV can't be accommodated as per bus body design, 24 inch TV can be considered.
30.	Lights	As per CMVR / AIS
31.	Safety and Emergency door	The bus body design shall be of Type II and hence applicable requirements as per stipulations need to be included.
32.	No. of passenger door	No. of passenger door - 1 No. positioned ahead of the front axle / behind of the front axle between the wheelbase.
33.	Reading Lights & AC Vents	Shall be provided with individual control for each seats
34.	A/C	A/C system as approved as per AIS 052 shall be provided. The A/C manufacturer should have sufficient service support within Kerala and the nearby states.
35.	Night light	Night Light will be through the hatrack.
36.	Roof Hatch	Roof hatch 2 Nos. shall be provided in saloon area.
37.	Tyres	Minimum 235/75R17.5, 14PR Or Suitable Tyre Size as per standards. Tubeless Radial Tyres – 6 +1 (Spare wheel & carrier.
38.	Spare wheel carrier	Winch type/ Chain type/Center Mounted Type spare wheel carrier as per OEM design
39.	Fire Extinguisher	Should be provided as per CMVR/ KMVR rules
40.	Accessories	2-set-of side curtains, Floor Mats, 2 set of head rest covers, Fully equipped tool kit containing Tommy bar, Wheel spanner, Screw driver (Heavy duty), cutting pliers, pipe wrench and Hydraulic Bottle Jack

		(Capacity10Ton-1No.).Separate bottle holder for driver seat. Front Wind Shield Glass-1No. each for every 10 buses. Side and emergency glass-1set each for every 10 buses
41.	Paint and Graphics	Colour Scheme, Logo / Graphics to be painted will be intimated to the successful bidder.
42.	ETM Box	ETM Box of suitable size with lock and key facility for keeping ETM
43.	Mobile Charging unit	One each (with two charging ports – Two USB / one USB & one C port) in each seat row on both sides, which should be concealed and tamper proof.
44.	Floor material	Minimum 12mm BWR Plywood having density of minimum 1.1 gm/cm ³ and 3mm vinyl shall be used as per AIS : 052
45.	OBD	The details to be made available at KSRTC/ KSRTC SWIFT control room
46.	Wifi	Wifi access to the passengers to be given. Wifi router to be provided by the vehicle manufacturer.
47.	ITS	Not applicable
48.	Operating mechanism of passenger door by driver	Power controlled as per AIS 052
49.	Positions of door controls	Should be on dashboard for driver control and emergency switch inside & outside of doors as per AIS 052
50.	Minimum clear door width excluding grab handle in fully opened position	As per AIS 052
51.	Maximum first step height	As per AIS 052
52.	Power operated service door- construction & control system of a power operated service door to be such that a passenger is unlikely to be injured/ trapped between the	As per AIS 052

	doors	
53.	Door components	As per AIS 052
54.	Door locks/locking systems/door retention items	As per AIS 052
55.	Door hinges	As per AIS 052, GI preferred
56.	Design type approval	As per AIS 052
57.	Bus structure- materials specs etc.	GI/Anti corrosion treated ERWCR Steel Materials as per Type approval
58.	Grab rails, Centre posts and passenger slings	Stainless steel pipe Gr.304 or equivalent of 32mm & 2mm thick for Grab rail, Centre post and should provide sufficient passenger slings at necessary points. Each passenger sling should have advertisement space.
59.	Foot step	Foot step shall be provided as per AIS-052.
60.	Panel beading	
61.	Roof grab rail brackets	
62.	Side Glass	
63.	Glass specifications	Toughened tinted glass IS 2553 (part-2)-1992/latest
	Glass thickness:	As per AIS 052
	Colour of glass	Tinted Glass As per CMVR
64.	Rear view mirrors	As per AIS 052
65.	Fitment of Rear view mirror	Stainless steel / MS powder coated/ Aluminum Casted – brackets as per OEM design, Left side rear view mirror should visible to driver through Front Wind Screen glass
66.	Passenger Seating Capacity	35 High Back Rest Reclining seats + 5 High Back Rest seats in last row can be provided (last row seats non-reclining shall be provided, if semi-reclining not possible in the last row as per OEM design). Minimum 40 Nos. semi-reclinable seats, 2X2 layout with foot step.

67.	(Seats sample: 2 sets of seater which is offered to be fitted in the bus should be given as sample to KSRTC SWIFT, Anayara, Thiruvananthapuram before fitment for assessing the suitability).	As per AIS-023, seat lay out 2 X 2 Every seat must have its suitable advertisement space with open able acrylic cover / Shall have suitable advertisement space.
68.	Dash board lighting/control lighting	As per AIS 052
69.	Seat area /seat space per passenger (width* depth)	As per AIS 052
70.	Seat pitch-minimum	As per AIS 052
71.	Torso angle (degrees)	As per AIS 052
72.	Passenger seating	As per AIS 052 & AIS 023. Preferably Fabric and the colour shall be intimated later.
73.	Seat materials	As per AIS 052 & AIS 023
74.	Seat arm (Arm rest)	Required for all seats
75.	Sun visor	Required
76.	Seat belts & their anchorage	As per AIS 052. Should be provided to all seats.
77.	Driver seat belt & anchorage duly type approved.	4 way adjustable driving seat with high back rest & Head Rest as per CMVR & AIS 052 conforming to AIS 005 & 015
78.	Driver's working space	As per AIS 052.
79.	Bottle Holder	A bottle holder of minimum 1 Ltr size should be provided on the driver door in such a way that it is easily accessible.
80.	Heat resistance	Bonnet of the engine compartment should be PUF insulated and noise free as per CMVR / Industry standards. The front grill shall be of suitable design to provide air circulation to engine .
81.	Corrosion prevention treatment	As per clause 3.17 of AIS 052
82.	Internal surfaces of structural members	
83.	External surfaces of structural members	

84.	After drilling holes/welding	
85.	Primer coating	As per clause 3.17 of AIS 052
86.	Body Painting:	PU Paint to be used
87.	Body Colour and Design	Will be given by KSRTC SWIFT Ltd.
88.	Electrical system, electrical cables and conductor cross section	BIS marked, copper conductors with fire retardant insulation as per IS/ISO: 6722:2006. Conductor cross-section varying as per circuit requirements, minimum cross-section 0.5 sq mm.
89.	Fuse	As per AIS 052
90.	Isolation switches for electrical circuits where RMS value of voltage exceeds 100 volts	
91.	Location of cables away from heat sources	
92.	Type approval of circuit diagram as per standards related to electric equipment/wiring	
93.	Battery cut – off switch (isolator switch):	Shall be positioned near driver seat for easy and quick operation by driver.
94.	Wind screen wiper:	As per table 22 of AIS 007
95.	Wiper motor:	Variable speed with time delay relay as per AIS 11
96.	Wiper arm/blade:	As per AIS 019/AIS 011
97.	Power ports	Requires one ETM charging point with ETM holder in driver cabin. DC to AC converter should be provided. The capacity of DC to AC converter shall be informed at the time of proto inspection.
98.	Lighting- internal & external and illumination	As per AIS 052 and all interior lights should be LED Type, OE fitting preferred in case of head lamp and tail lamp.
99.	First aid box:	1 number fixed metallic / PP make First Aid Box with required items.
100.	Handholds:	As per AIS 052, fixed type preferred.
101.	Stanchions:	As per AIS 052. Stainless steel 38 x 2mm All stanchion brackets should be

		of metallic type.
102.	Entrance/exit guard/step well guard:	As per AIS 052, step well guards made of stainless steel pipe of 25mm x 2mm. No seats shall be fitted obstructing the free access to emergency door. One grab rail above the emergency door is required. Foot rest come guard to be provided in front of seats behind emergency door.
103.	Front/rear door, step well lights, door open sign	LED bulb as per AIS 008
104.	Mirrors right/left side exterior /interior:	Convex as per AIS 001 & 002. interior with double curvature
105.	Towing device front/rear	As per CMVR & IS 9760-ring type Towing Hook / pin
106.	Warning triangle	As per AIS 052/CMVR
107.	Bumpers-front and rear	As per AIS 052, Detachable type, easily removable in order to support the engine. Construction of bumper should be in such a way that it can be easily removable to access the units for repair & maintenance and for towing of bus, if required. If the design type approval is FRP bumpers integrated with Front and Rear fascia will be provided with tow hook arrangement, this can be accepted. Support shall be provided for repair and maintenance of bumper.
108.	Luggage Box / Courier Box	As per AIS 052 and mutually agreed by the purchaser and bidder with scope for maximum space for the provision of courier supply.
109.	Inside luggage carrier	As per AIS 052
110.	Stay box for crew	Stay Box of sufficient size for crew to be provided with locking facility Accessible from driver cabin
111.	Driver Cabin Separation	Should be separated from passenger saloon as per AIS 052 Stainless steel

		<p>tube structure, fencing type this separation should not restrict the driver seat position adjustments and a suitable fan may be provided.</p> <p>Bonnet of the engine compartment should be PUF insulated and noise free as per CMVR / Industry standards.</p>
112.	Proper access to repair and maintenance points of various vehicle components	There shall be easy and quick access to all under chassis components which require repair and maintenance such as suspension, P-hafts, Air filters, Gear box, Air drier, DB Valve, Power steering units Radiator etc.
113.	Paneling Materials	<ol style="list-style-type: none"> 1. Out side Roof : Aluminium Coil Sheet (minimum 0.9mm) Bitumin tape should be used at all joint areas to arrest water leakages) 2. Inside roof: Suitable heat resistant material to avoid heat transfer to the passenger saloon area. Fire retardant insulation material shall be used in between the roof inside and outside panels. 3. Inside below window sill: Aluminium Beading with PVC sleeve. 4. Window sill flaps : ABS sill flaps. 5. Inside window pillar flaps: PP/ABS window pillars. 6. Front and Rear face paneling : FRP 7. All remaining paneling : Aluminium / GI Sheets
114.	Conductor bell	Iron - Nickel plated type with mounting bracket and lever.with good quality string.

115.	Safety bracket for propeller shaft	As per KMVR
116.	Safety bracket for diesel Tank	Required (Fully covered Grill type)
117.	Positioning of switches	All light control switches shall be positioned on the top of the driver seat / on the dash board.
118.	Front grill opening	Front grill opening. The flip grill to have sturdy support in opened condition as per OEM design, for Proper cooling of engine
119.	Gear box inspection cover	Preferably 75x50mm size inspection cover shall be provided or suitable size as per OEM design
120.	Vehicle location tracking device and emergency button	Complying AIS 140 and as approved by KMVD with IRNSS, models with minimum 5 panic buttons necessary software shall also be supplied for Vehicle Tracking, KMPL monitoring, PIS and other performance reports and must be integrated with KSRTC / KSRTC SWIFT applications. No additional payment will be made by KSRTC –SWIFT. No other changes in the clause.
121.	Certifications	Comply with a) CMVR and KMVR requirements b) Type approval certificate by any authorized agency in CMVR 126 c) Compliance to strength of super structure- AIS 031 d) Compliance to Bus Body Code AIS 052 & ITS AIS:140 e) Compliance of flammability requirements as per IS 15061:2002 f) Certificate issued by ARAI g) The Gross Vehicle Weight shall be as per the Vehicle Manufacturer design to meet the specifications as per the NIT.
122.	Stage inspection of prototype bus by KSRTC / KSRTC SWIFT team at the production site	1. After the completion of super structure (before paneling and fixing of platform)

		1.After completion of whole work. The supplier should make arrangements for the inspection timely.
123.	Electronic Stability Control	Electronic Stability Control (ESC) to be included in the buses.
124.	Dustbin	One good quality dustbin of suitable size shall be provided in the saloon area in a convenient location.
125.	Minimum GVW	As per CMVR to meet the specifications as per the NIT.
126.	Electronic Stability Control (ESC)- Not Mentioned in the Specification	Electronic Stability Control (ESC) to be included in the buses.
127.	FDSS / FDAS: FDSS / FDAS shall be provided as per CMVR / KMVR as required at the time of registration of vehicle.	Shall comply as per CMVR/KMVR.

Signature:

Name & Address of the Tenderer Place:

Date:

(Seal of the Tenderer)

ANNEXURE – E (Modified)

(Proforma of Certificate be furnished along with Technical Bid)

Specifications Of Fully Built AC Seater 10.5 Mtr 4-Cylinder Diesel Propelled Premium Superfast Bus conforming to BS VI norms or latest as per CMVR NORMS

SI No.	CHARACTERISTICS		SPECIFICATION DETAILS	Compliance Status Y/N	Remarks, if any
1.	Propulsion System		High Speed Diesel 4-Cylinder BS6 Engine		
2.	Overall length		10 - 11 mtr (Maximum)		
3.	Floor height		Minimum 900mm +/- 50 mm, approval as per AIS 052 with sufficient luggage space beneath the platform		
4.	Angle of approach (unladen)		As per AIS:052		
5.	Angle of departure (unladen)		As per AIS:052		
6.	Ramp over angle (half of break-over angle)		As per AIS:052		
7.	Overall width		2600 mm Max		
8.	Front over hang		As per CMVR		
9.	Rear over hang		As per CMVR		
10.	Wheel base		As per CMVR		
11.	No. of axles		Two		
12.	Emission Norm		Should comply the latest BSVI norms.		
13.	Transmission		Manual		
14.	Brake System		Full air Dual line with ABS or advanced version		
15.	Steering		Hydraulic power Steering		
16.	Steering wheel height adjustment and angle adjustment		With height and angle adjustment provision desirable. Adjustable steering column desirable.		
17.	Engine		Position at Front, Minimum 145 HP		
18.	Suspension	Front	Weveller / Parabolic Spring		
		Rear	Weveller / Parabolic Spring		
19.	Fuel Tank		Minimum 160 Litres		
20.	Warranty		The Fully Built AC Seater 10.5 Mtr 4-		

		Cylinder Diesel Propelled Premium Superfast Bus conforming to BS VI norms or latest as per CMVR Norms offered should have a warranty period of 3 Years / 400000 km which ever is earlier from the date of registration.		
21.	Battery	Low maintenance type lead acid batteries for 24V system – (performance as per BIS:14257-1995 (latest)) Two 12V batteries of suitable capacity as per OEM design and Type Approval. Maintenance free batteries with minimum one year warranty as per battery manufacturer.		
22.	Battery box	As per AIS 052		
23.	Electric Horn	24 V as per IS.1884:1993 Matched Pair (Low & Hightone) As per CMVR Type approval		
24.	Public Addressing System with USB type speakers	CMVR approved PA system shall be provided with USB type amplifier. Speakers of good quality shall be mounted in the interior roof audible to the passengers.The PA system shall be connected with TV also.		
25.	Speed limiting device	Required as per type of Engine. There shall be provisions for limiting the vehicle speed at any value as per relevant KMVR and as required by KSRTC SWIFT Ltd. One Scan tool should be provided to KSRTC SWIFT for 10 buses. Scan tool to be provided for other fault diagnosis		
26.	Dash Board Camera with wi-fi for real	Suitable camera shall be provided in the		

	time monitoring and storage facility	<p>front, to have full front road view from the dash board side.</p> <p>Dash Board camera with wifi for real time monitoring and storage facility for minimum 15 days to be provided with all accessories, supporting softwares and monitors as required.</p> <p>a. To Front view b. To interior view c. To view driver d. Reverse Camera e. Left side view camera f. AI Camera, Driver fatigue detection alert camera with online monitoring and alert.</p>		
27.	Destination Board	<p>3 Nos. of Destination Boards to be provided with single control. Full length Front Destination Board –2 lines display with single color (<i>Amber colour</i>) should be fitted close to the front wind shield glass in such a way that reflection from the LED board should not distract the driver.</p> <p>2 LED board in two lines at Rear side and left side.</p> <p>(Data transfer – through USB)</p>		
28.	GPS and Panic button	<p>In-built IRNSS based VLT Device for Automatic Vehicle Location System which is approved by Kerala Motor vehicle Department (with compliance of AIS 140 with minimum 5 Nos. of emergency buttons for access to every passenger in the bus , preferably inbuilt box). This VLT Device shall be integrated with other VLT System implemented by KSRTC/ KSRTC SWIFT</p>		

		and shall also provide suitable software or to share the API for Vehicle Tracking, Input to PIS System, Kmpl and other performance reports No additional payment will be made by KSRTC –SWIFT for activation and subscription for mandatory 2 years as per AIS 140.		
29.	Entertainment System	Minimum 1 units TV, Minimum 32/24" good quality LCD TV wi-fi enabled with rugged fittings and also the Public Information System shall be displayed and compact with the software platform of KSRTC/ KSRTC SWIFT, DVD player, Speakers, Power Inverter, Public addressing System. If 32" TV can't be accommodated as per bus body design, 24 inch TV can be considered.		
30.	Lights	As per CMVR / AIS		
31.	Safety and Emergency door	The bus body design shall be of Type II and hence applicable requirements as per stipulations need to be included.		
32.	No. of passenger door	No. of passenger door - 1 No. positioned ahead of the front axle / behind of the front axle between the wheelbase.		
33.	Reading Lights & AC Vents	Shall be provided with individual control for each seats		
34.	A/C	A/C system as approved as per AIS 052 shall be provided. The A/C manufacturer should have sufficient service support within Kerala and the nearby states.		
35.	Night light	Night Light will be through the hatrack.		
36.	Roof Hatch	Roof hatch 2 Nos. shall be provided in saloon area.		

37.	Tyres	Minimum 235/75R17.5, 14PR Or Suitable Tyre Size as per standards. Tubeless Radial Tyres – 6 +1 (Spare wheel & carrier).		
38.	Spare wheel carrier	Winch type/ Chain type/Center Mounted Type spare wheel carrier as per OEM design		
39.	Fire Extinguisher	Should be provided as per CMVR/ KMVR rules		
40.	Accessories	2-set-of side curtains, Floor Mats, 2 set of head rest covers, Fully equipped tool kit containing Tommy bar, Wheel spanner, Screw driver (Heavy duty), cutting pliers, pipe wrench and Hydraulic Bottle Jack (Capacity10Ton-1No.).Separate bottle holder for driver seat. Front Wind Shield Glass–1No. each for every 10 buses. Side and emergency glass–1set each for every 10 buses		
41.	Paint and Graphics	Colour Scheme, Logo / Graphics to be painted will be intimated to the successful bidder.		
42.	ETM Box	ETM Box of suitable size with lock and key facility for keeping ETM		
43.	Mobile Charging unit	One each (with two charging ports – Two USB / one USB & one C port) in each seat row on both sides, which should be concealed and tamper proof.		
44.	Floor material	Minimum 12mm BWR Plywood having density of minimum 1.1 gm/cm ³ and 3mm vinyl shall be used as per AIS : 052		
45.	OBD	The details to be made available at KSRTC/ KSRTC SWIFT control room		
46.	Wifi	Wifi access to the passengers to be given. Wifi router to be provided by the vehicle manufacturer.		

47.	ITS	Not applicable		
48.	Operating mechanism of passenger door by driver	Power controlled as per AIS 052		
49.	Positions of door controls	Should be on dashboard for driver control and emergency switch inside & outside of doors as per AIS 052		
50.	Minimum clear door width excluding grab handle in fully opened position	As per AIS 052		
51.	Maximum first step height	As per AIS 052		
52.	Power operated service door-construction & control system of a power operated service door to be such that a passenger is unlikely to be injured/ trapped between the doors	As per AIS 052		
53.	Door components	As per AIS 052		
54.	Door locks/locking systems/door retention items	As per AIS 052		
55.	Door hinges	As per AIS 052, GI preferred		
56.	Design type approval	As per AIS 052		
57.	Bus structure-materials specs etc.	GI/Anti corrosion treated ERWCR Steel Materials as per Type approval		
58.	Grab rails, Centre posts and passenger slings	Stainless steel pipe Gr.304 or equivalent of 32mm & 2mm thick for Grab rail, Centre post and should provide sufficient passenger slings at necessary points. Each passenger sling should have advertisement space.		
59.	Foot step	Foot step shall be provided as per AIS-052.		
60.	Panel beading			
61.	Roof grab rail brackets			
62.	Side Glass	Sliding Glass as per AIS052/CMVR.		
63.	Glass specifications	Toughened tinted glass		

		IS 2553 (part-2)-1992/latest		
	Glass thickness:	As per AIS 052		
	Colour of glass	Tinted Glass As per CMVR		
64.	Rear view mirrors	As per AIS 052		
65.	Fitment of Rear view mirror	Stainless steel / MS powder coated/ Aluminum Casted – brackets as per OEM design, Left side rear view mirror should be visible to driver through Front Wind Screen glass		
66.	Passenger Seating Capacity	35 High Back Rest Reclining seats + 5 High Back Rest seats in last row can be provided (last row seats non-reclining shall be provided, if semi-reclining not possible in the last row as per OEM design). Minimum 40 Nos. semi-reclinable seats, 2X2 layout with foot step.		
67.	(Seats sample: 2 sets of seater which is offered to be fitted in the bus should be given as sample to KSRTC SWIFT, Anayara, Thiruvananthapuram before fitment for assessing the suitability).	As per AIS-023, seat lay out 2 X 2 Every seat must have its suitable advertisement space with open able acrylic cover / Shall have suitable advertisement space.		
68.	Dash board lighting/control lighting	As per AIS 052		
69.	Seat area /seat space per passenger (width* depth)	As per AIS 052		
70.	Seat pitch-minimum	As per AIS 052		
71.	Torso angle (degrees)	As per AIS 052		
72.	Passenger seating	As per AIS 052 & AIS 023. Preferably Fabric and the colour shall be intimated later.		
73.	Seat materials	As per AIS 052 & AIS 023		
74.	Seat arm (Arm rest)	Required for all seats		
75.	Sun visor	Required		

76.	Seat belts & their anchorage	As per AIS 052. Should be provided to all seats.		
77.	Driver seat belt & anchorage duly type approved.	4 way adjustable driving seat with high back rest & Head Rest as per CMVR & AIS 052 conforming to AIS 005 & 015		
78.	Driver's working space	As per AIS 052.		
79.	Bottle Holder	A bottle holder of minimum 1 Ltr size should be provided on the driver door in such a way that it is easily accessible.		
80.	Heat resistance	Bonnet of the engine compartment should be PUF insulated and noise free as per CMVR / Industry standards. The front grill shall be of suitable design to provide air circulation to engine .		
81.	Corrosion prevention treatment	As per clause 3.17 of AIS 052		
82.	Internal surfaces of structural members			
83.	External surfaces of structural members			
84.	After drilling holes/welding			
85.	Primer coating	As per clause 3.17 of AIS 052		
86.	Body Painting:	PU Paint to be used		
87.	Body Colour and Design	Will be given by KSRTC SWIFT Ltd.		
88.	Electrical system, electrical cables and conductor cross section	BIS marked, copper conductors with fire retardant insulation as per IS/ISO: 6722:2006. Conductor cross-section varying as per circuit requirements, minimum cross-section 0.5 sq mm.		
89.	Fuse	As per AIS 052		
90.	Isolation switches for electrical circuits where RMS value of voltage exceeds 100 volts			
91.	Location of cables away from heat sources			
92.	Type approval of			

	circuit diagram as per standards related to electric equipment/wiring			
93.	Battery cut – off switch (isolator switch):	Shall be positioned near driver seat for easy and quick operation by driver.		
94.	Wind screen wiper:	As per table 22 of AIS 007		
95.	Wiper motor:	Variable speed with time delay relay as per AIS 11		
96.	Wiper arm/blade:	As per AIS 019/AIS 011		
97.	Power ports	Requires one ETM charging point with ETM holder in driver cabin. DC to AC converter should be provided. The capacity of DC to AC converter shall be informed at the time of proto inspection.		
98.	Lighting- internal & external and illumination	As per AIS 052 and all interior lights should be LED Type, OE fitting preferred in case of head lamp and tail lamp.		
99.	First aid box:	1 number fixed metallic / PP make First Aid Box with required items.		
100.	Handholds:	As per AIS 052, fixed type preferred.		
101.	Stanchions:	As per AIS 052. Stainless steel 38 x 2mm All stanchion brackets should be of metallic type.		
102.	Entrance/exit guard/step well guard:	As per AIS 052, step well guards made of stainless steel pipe of 25mm x 2mm. No seats shall be fitted obstructing the free access to emergency door. One grab rail above the emergency door is required. Foot rest come guard to be provided in front of seats behind emergency door.		
103.	Front/rear door, step well lights, door open sign	LED bulb as per AIS 008		
104.	Mirrors right/left side exterior /interior:	Convex as per AIS 001 & 002. interior with		

		double curvature		
105.	Towing device front/rear	As per CMVR & IS 9760-ring type Towing Hook / pin		
106.	Warning triangle	As per AIS 052/CMVR		
107.	Bumpers-front and rear	As per AIS 052, Detachable type, easily removable in order to support the engine. Construction of bumper should be in such a way that it can be easily removable to access the units for repair & maintenance and for towing of bus, if required. If the design type approval is FRP bumpers integrated with Front and Rear fascia will be provided with tow hook arrangement, this can be accepted. Support shall be provided for repair and maintenance of bumper.		
108.	Luggage Box / Courier Box	As per AIS 052 and mutually agreed by the purchaser and bidder with scope for maximum space for the provision of courier supply.		
109.	Inside luggage carrier	As per AIS 052		
110.	Stay box for crew	Stay Box of sufficient size for crew to be provided with locking facility Accessible from driver cabin		
111.	Driver Cabin Separation	Should be separated from passenger saloon as per AIS 052 Stainless steel tube structure, fencing type this separation should not restrict the driver seat position adjustments and a suitable fan may be provided. Bonnet of the engine compartment should be PUF insulated and noise free as per CMVR / Industry standards.		
112.	Proper access to	There shall be easy		

	repair and maintenance points of various vehicle components	and quick access to all under chassis components which require repair and maintenance such as suspension, P-hafts, Air filters, Gear box, Air drier, DB Valve, Power steering units Radiator etc.		
113.	Paneling Materials	<ol style="list-style-type: none"> 1. Out side Roof : Aluminium Coil Sheet (minimum 0.9mm) Bitumin tape should be used at all joint areas to arrest water leakages) 2. Inside roof: Suitable heat resistant material to avoid heat transfer to the passenger saloon area. Fire retardant insulation material shall be used in between the roof inside and outside panels. 3. Inside below window sill: Aluminium Beading with PVC sleeve. 4. Window sill flaps : ABS sill flaps. 5. Inside window pillar flaps: PP/ABS window pillars. 6. Front and Rear face paneling : FRP 7. All remaining paneling : Aluminium / GI Sheets 		
114.	Conductor bell	Iron – Nickel plated type with mounting bracket and lever.with good quality string.		
115.	Safety bracket for propeller shaft	As per KMVR		
116.	Safety bracket for	Required (Fully covered		

	diesel Tank	Grill type)		
117.	Positioning of switches	All light control switches shall be positioned on the top of the driver seat / on the dash board.		
118.	Front grill opening	Front grill opening. The flip grill to have sturdy support in opened condition as per OEM design, for Proper cooling of engine		
119.	Gear box inspection cover	Preferably 75x50mm size inspection cover shall be provided or suitable size as per OEM design		
120.	Vehicle location tracking device and emergency button	Complying AIS 140 and as approved by KMVD with IRNSS, models with minimum 5 panic buttons necessary software shall also be supplied for Vehicle Tracking, KMPL monitoring, PIS and other performance reports and must be integrated with KSRTC / KSRTC SWIFT applications. No additional payment will be made by KSRTC - SWIFT. No other changes in the clause.		
121.	Certifications	Comply with a) CMVR and KMVR requirements b) Type approval certificate by any authorized agency in CMVR 126 c) Compliance to strength of super structure- AIS 031 d) Compliance to Bus Body Code AIS 052 & ITS AIS:140 e) Compliance of flammability requirements as per IS 15061:2002 f) Certificate issued by ARAI g) The Gross Vehicle Weight shall be as per the Vehicle Manufacturer design to meet the specifications as per the NIT.		
122.	Stage inspection of prototype bus by	1. After the completion of super		

	KSRTC / KSRTC SWIFT team at the production site	structure (before paneling and fixing of platform) 2.After completion of whole work. The supplier should make arrangements for the inspection timely.		
123.	Electronic Stability Control	Electronic Stability Control (ESC) to be included in the buses.		
124.	Dustbin	One good quality dustbin of suitable size shall be provided in the saloon area in a convenient location.		
125.	Minimum GVW	As per CMVR to meet the specifications as per the NIT.		
126.	Electronic Stability Control (ESC)-Not Mentioned in the Specification	Electronic Stability Control (ESC) to be included in the buses.		
127.	FDSS / FDAS: FDSS / FDAS shall be provided as per CMVR / KMVR as required at the time of registration of vehicle.	Shall comply as per CMVR/KMVR.		

Place:-

Date:-

Name & Address of the Tenderer

Signature

Seal