

State of Georgia 2016 Mass Transit Solicitation

99999-SPD-SPD0000138

APTA Form CER 10: Vehicle Technical Information

NOTE: This is a sample form. The Agency should customize it to comply with its proposed requirements.

This form must be completed and included in the Technical Proposal.

GENERAL COACH DATA SHEET

[insert bus type]

Bus manufacturer:

ARBOC Specialty Vehicles, LLC

Bus model:

Spirit of Equest

Understructure manufacturer:

ARBOC Specialty Vehicles, LLC

Model number:

Basic Body Construction

Type:

Monocoque

Tubing or frame member thickness and dimensions

Overstructure

0.075"

Understructure

0.188"

Skin thickness and material

Roof

0.1875 W/ SUBSTRATE

Sidewall

0.1875 W/ SUBSTRATE

Skirt panel

0.1875 W/ SUBSTRATE

Front end

>1/8"

Rear end

>1/8"

Dimensions

Overall length

Over bumpers

29

ft

10

in.

Over body

29

ft

1

in.

Overall width

Over body excluding mirrors

8

ft

3

in.

Over body including mirrors—driving position

10

ft

3

in.

Over tires front axles

7

ft

11

in.

Over tires center axle

N/A

ft

in.

Over tires rear axles

8

ft

1

in.

Overall height (maximum)

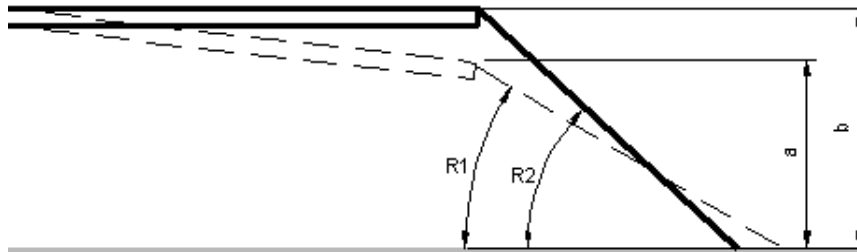
9	ft	0	in.
8	ft	5	in.

Overall height (main roof line)

Angle of approach	9	deg
Breakover angle	12	deg
Breakover angle (rear)	N/A	deg
Angle of departure	8.3	deg

Doorway Dimensions	Front		Rear	
Width between door posts	42	in.	42	in.
Door width between panels	39	in.	39	in.
Clear door width	35	in.	35	in.
Doorway height	80	in.	80	in.
Knuckle clearance	1.5	in.	1.5	in.

Step height from ground measured at center of doorway



	Front doorway, empty			Ramp angle			Rear Doorway, empty		
Kneeled	a.	11.2	in.	R1	9.6	deg	a.	11.2	in.
Unkneeled	b.	14.2	in.	R2	12.4	deg	b.	14.2	in.

Interior head room (center of aisle)

Front axle location	85	in.
Center axle location	N/A	in.
Rear axle location	85	in.

Aisle width between transverse seats in.

Floor height above ground (centerline of bus)

At front door	14.6	in.
At front axle	14.6	in.
At drive axle	14.6	in.

At rear door

14.6

 in.

Minimum ground clearance (between bus and ground, with bus unkneeled)

Excluding axles

6.2

 in.

Including axles

4.1

 in.

Horizontal turning envelope (see diagram below)

Outside body turning radius, TR0 (including bumper)

30	ft	11.6	in.
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Front inner corner radius, TR1

25	ft	9.7	in.
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Front wheel inner turning radius, TR2

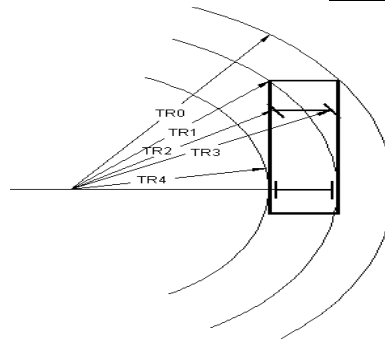
20	ft	6.8	in.
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Front wheel outer turning radius, TR3

26	ft	10.8	in.
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Inside Body Turning Radius innermost point, TR4 (including bumper)

25	ft	10.1	in.
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Wheel base

Front

191

 in.

Rear

N/A

 in.

Overhang, centerline of axle over bumper

Front

93

 in.

Rear

75

 in.

Floor

Interior length

18

 ft

5

 in.

Interior width (excluding coving)

7

 ft

3

 in.

Total standee area (approximately)

26.8

 ft²

Minimum distance between wheelhouses: Front

38

 in.

Rear

N/A

 in.

Center

N/A

 in.

Maximum interior floor slope (from horizontal)

0

 deg

Passenger capacity provided

Total maximum seating	25	
Standee capacity	17	
Minimum hip to knee room	28	in.
Minimum foot room	18.2	in.

Weight

	No. of people	Front axle			Center axle			Rear axle			Total bus
		Left	Right	Total	Left	Right	Total	Left	Right	Total	
Empty bus, full fuel and farebox	0			5500	N/A	N/A	N/A			11600	17100
Fully seated, full fuel and farebox	26			7174	N/A	N/A	N/A			13826	21000
Fully loaded standee and fully seated, full fuel and farebox	43			8972	N/A	N/A	N/A			14578	23550
Crush load (1.5x fully loaded)	51			9818	N/A	N/A	N/A			14931	24750
GVWR					N/A	N/A	N/A				
GAWR				9880	N/A	N/A	N/A			16110	25990

Engine, main

Manufacturer	CUMMINS			
Type and weight rating	INLINE 6-CYLINDER – SHUTTLE BUS			
Model number	B6.7			
Bore	4.21	in.		
Stroke	4.88	in.		
Displacement	408	in. ³		
Compression ratio	20:1			
Injector type and size	HIGH PRESSURE COMMON RAIL ELECTRIC ACTUATED			
Net SAE horsepower	220	h at p	2400	RPM
Net SAE torque	520	l at b / f t	1600	RPM
Crankcase oil capacity				
New engine, dry	4.25	gal		
New engine, wet	4.25	gal		
Turbocharger make and model	CUMMINS HE300			
Maximum speed, no load	4200 OVER SPEED	RPM		
Maximum speed, full load	2600	RPM		

Speed at idle	800	RPM
Speed at fast idle	1200	RPM

Engine information/graphs to be attached with this form:

Engine speed vs. road speed
 Torque vs. engine speed
 Horsepower vs. engine speed
 Fuel consumption vs. engine speed
 Vehicle speed vs. time (both loaded and unloaded)
 Vehicle speed vs. grade (both loaded and unloaded)
 Acceleration vs. time
 Change of acceleration vs. time

Hybrid drive or transmission

Manufacturer	ALLISON			
Type	2200 PTS			
Speeds	SIX			
Gear ratios	Forward:	3.10:1, 1.81:1, 1.41:1, 1.00:1, 0.71:1, 0.61:1	Reverse:	4.49:1

Shift speeds

1st–2nd	10.7	mph
2nd–3rd	22.7	mph
3rd–4th	29.2	mph
4th–5th (if applicable)	41.1	mph
5th–6th (if applicable)	57.2	mph

Fuel capacity (including heat exchanger and filters)	77 GALLONS
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Voltage regulator

Manufacturer	DELCO REMY INTEGRATED
Model	55

Voltage equalizer

Manufacturer	N/A
Model	

Alternator

Manufacturer	DELCO REMY	
Type	BRUSHLESS	
Model	55SI	
Output at idle	280	amps
Output at maximum speed	430	amps

Maximum warranted speed	8000	rpm
Speed at idle (approximately)	2300	rpm
Drive type	8 GROOVE SERPENTINE BELT	

Starter motor

Manufacturer	DENSO
Type	DC INTEGRATED
Model	PA90S

Air compressor

Manufacturer	WABCO		
Type	TWIN CYLINDER		
Rated capacity	37.4	CFM	
Capacity at idle (approximately)	~15	CFMs	
Capacity at maximum speed (engine)	34.0	CFM	
Maximum warranted speed	4200	rpm	
Speed idle	800	rpm	
Drive type	GEAR		
Governor:			
Cut-in pressure	110	psi	
Cut-out pressure	130	psi	

Axles

First

Manufacturer	ZF	
Type	IFS LOW FLOOR	
Model number	RL55EC	
Gross axle weight rating	9880	lbs
Axle load	9000	lbs

Second

Manufacturer	ZF	
Type	PORTAL DRIVE AXLE	
Model number	AV 110	
Gross axle weight rating	16120	lbs
Axle load	14350	lbs

Third

Manufacturer	N/A	
Type		
Model number		
Gross axle weight rating		lbs
Axle load		lbs

Axle ratio

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Suspension system

Manufacturer	ZF	
Type:	First:	AIR SPRING 2 BAG
	Second:	AIR SPRING 4 BAG
	Third:	N/A
Springs:	First:	VIBRACOUSTIC V1E20-4
	Second:	VIBRACOUSTIC V1E25-20
	Third:	N/A

Joint

Manufacturer	N/A
Type	
Model number	

Wheels and tires

Wheels

Make	ACCURIDE
Size	19.5 X 605
Capacity	5000 LBS/120 PSI
Material	STEEL

Tires

Manufacturer	MICHELIN	
Type	XZE	
Size	245/70 R19.5	
Load range/air pressure	75-120	psi

Steering, power

Pump

Manufacturer and model number	TRW EV181619 L10100	
Type	GEAR	
Relief pressure	2175	psi

Booster/gear box

Manufacturer and model number	TRW KTHP60063A	
Type	RECIRCULATING BALL	
Ratio	18.2:1	

Power steering fluid capacity	1	gal
Maximum effort at steering wheel	10 FT-	lbs (unloaded stationary coach on dry asphalt pavement)
Steering wheel diameter	18	in.

Brakes

Make of fundamental brake system	KNORR BREMSE/BENDIX AIR DISK	
Brake chambers vendor size and part number:	First:	14 KNORR BREMSE
	Second:	16/24 KNORR BREMSE
	Third:	N/A
Brake operation effort	NO MORE THAN 75LBS AT A POINT 7" ABOVE THE HEEL POINT	

Slack adjuster's vendor's type and part numbers

First:	Right:	N/A
	Left:	N/A
Second:	Right:	N/A
	Left:	N/A
Third:	Right:	N/A
	Left:	N/A
Length:	First take-up:	N/A
	Second take-up:	N/A
	Third take-up:	N/A

Brake drums/discs

First:	Manufacturer	KNORR BREMSE	
	Part number	0501.332.317	
	Diameter	14.7	in.
Second:	Manufacturer	KNORR BREMSE	
	Part number	4472.334.015 (ZF)	
	Diameter	14.7	in.
Third:	Manufacturer	N/A	
	Part number	N/A	
	Diameter	N/A	in.

Brake lining manufacturer	JURID
Type	539

Brake lining identification

First:	Forward	INTERCHANGEABLE
	Reverse	INTERCHANGEABLE
Second:	Forward	INTERCHANGEABLE
	Reverse	INTERCHANGEABLE
Third:	Forward	N/A
	Reverse	N/A

Brake linings per shoe

First	2
Second	2
Third	N/A

Brake lining widths

First	3.1	in.
Second	3.1	in.
Third	N/A	in.

Brake lining lengths

First	4	in.
Second	4	in.
Third	N/A	in.

Brake lining thickness in.

Brake lining per axle

First	83.2	sq. in.
Second	83.2	sq. in.
Third	N/A	sq. in.

Cooling system

Radiator/charge air cooler

Manufacturer	GRAYSON				
Type	EFAN RADIATOR AND CAC				
Model number	CP-4705-PR1/CP-4926-PR1				
Number of tubes	256				
Tubes outer diameter	<input type="text"/>	in./	<input type="text"/>	in.	
Fins per inch	<input type="text" value="13"/>	fins			
Fin thickness	<input type="text"/>	in.			
Total cooling and heating system capacity	<input type="text" value="14.7"/>	gal			
Radiator fan speed control	CAN BASED ELECTRIC				
Surge tank capacity	<input type="text" value="9.4"/>	quarts			
Engine thermostat temperature setting: Initial opening (fully closed)	<input type="text" value="190"/>	°F			
Fully open	<input type="text" value="207"/>	°F			
Overheat alarm temperature sending unit setting	<input type="text" value="225"/>	°F			
Shutdown temperature setting	<input type="text" value="240"/>	°F			

Air reservoir capacity

Supply reservoir	<input type="text" value="312"/>	in. ³
Primary reservoir	<input type="text" value="1206"/>	in. ³
Secondary reservoir	<input type="text" value="1206"/>	in. ³
Packing reservoir	<input type="text"/>	in. ³

Accessory reservoir	2850	in. ³
Other reservoir type		in. ³

Heating, ventilation and air conditioning equipment

Heating system capacity	140000	BTU/hr
Air conditioning capacity	160000	BTU
Ventilating capacity	4200	CFM

Compressor

Manufacturer	VALEO		
Model	TM43		
Number of cylinders	10		
Drive ratio	1.2:1		
Maximum warranted speed	5000	rpm	
Operating speed		rpm (recommended)	
Weight	29.7	lbs	
Oil capacity	Dry	0.21	gal
	Wet	0.21	gal
Refrigerant:	Type	134a	lbs

Condenser

Manufacturer	SPHEROS		
Model			
Number of fins/in.	24		
Outer diameter of tube	0.75 X 0.0625	in.	
Fin thickness	0.003	in.	

Condenser fan

Manufacturer	SPHEROS		
Model	11121626A		
Fan diameter	12	in.	
Speed maximum		rpm	
Flow rate (maximum)		CFM	

Receiver

Manufacturer	SPHEROS		
Model	11121452B		
Capacity	0.33	lbs	

Condenser fan drive motors

Manufacturer	SPHEROS		
Model			

Type	BRUSHLESS	
Horsepower		hp
Operating speed		rpm

Evaporator fan drive motors

Manufacturer	SPHEROS	
Model	11121136A	
Type	Dual SQUIRREL CAGE	
Horsepower		hp
Operating speed		rpm

Evaporator(s)

Manufacturer	KAR YER	
Model	17060383	
Number of rows	4	
Number of fins/in.	12	
Outer diameter of tube	0.375	in.
Fin thickness	0.003	in.
Number of evaporators	1	

Expansion valve

Manufacturer	Valeo
Model	

Filter-drier

Manufacturer	Valeo
Model	Mini Sphere

Heater cores

Manufacturer	Valeo	
Model	Mini Sphere HT	
Capacity	70000	Btu/hr EACH
Number of rows	2	
Number of fins/in.	12	
Outer diameter of tube	0.25	in.
Fin thickness	0.01	in.
Number of heater cores	1	

Floor heater blowers

Front	In Rooftop
Rear	N/A

Controls

Manufacturer	Valeo		
Model	SC410		

Driver's heater

Manufacturer	Valeo		
Model	24042A000B		
Capacity	50000	Btu/hr	

Ventilation system

Type	Freeblow
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Coolant heater

Make	Espar		
Model	05 004 282		
Capacity	15000	Btu	

Interior lighting

Manufacturer	TecNiq		
Type	LED		
Number of fixtures	8		
Size of fixtures	4" Round		
Power pack	12 volt		

Doors**Front**

Manufacturer of operating equipment	A&M Systems		
Type of door	Double Out		
Type of operating equipment	Electric		

Rear

Manufacturer of operating equipment			
Type of door			
Type of operating equipment			

Passenger windows**Front**

Manufacturer	Cleer Vision		
Model	CT Series		
Type	Clamp Ring		
Number:	Side		
	Rear		
Sizes:	36x36		

Glazing:	Type	Tempered
	Thickness	.125"
	Color of tint	Black
	Light transmission	24%

Mirrors

	Size	Type	Manufacturer	Part no.	Model no.
Right side exterior	9x13	Heated/remote	Safe fleet		
Left side exterior	9x13	Heated/remote	Safe fleet		
Center rearview	6x16	Flat			
Front entrance area					
Upper-right corner					
Rear exit area					

Seats

Passenger

Manufacturer	Freedman
Model	GO-ES
Type	Mid-Hi 3pt

Operator

Manufacturer	USSC
Model and part number	G2 Series
Type	Air Suspension

Paint

Manufacturer	
Type	

Wheelchair ramp equipment

Manufacturer	Braun Mobility	
Model number	RA300	
Capacity	1000	lbs
Width of platform	34	in.
Length of platform	62	in.
System fluid capacity		quarts
Type of fluid used	Exxon Univis HVI	
Operating hydraulic pressure		psi
Hydraulic cylinders:	Size	
	Number	

Wheelchair securement equipment

Manufacturer	Q'Straint
Model number	Q8100-A-SC3 (Deluxe Slide-N-Click)

Destination signs

Manufacturer	Twin Vision
Type	Mobilite LED

Character length

Front destination	42.13	in.
Front route		in.
Curbside destination	27.96	in.
Rear route		in.

Character height

Front destination	4.1	in.
Front route		in.
Curbside destination		in.
Rear route	4.1	in.

Number of characters

Front destination	13
Front route	
Curbside destination	7
Rear route	

Message width

Front destination	42.13	in.
Front route		in.
Curbside destination	27.96	in.
Rear route		in.

Electrical**Multiplex system**

Manufacturer	I/O Controls
Model number	CV-BCM-ARBOC-02

Batteries

Manufacturer	Alliance Batteries
Model number	Group 31
Type	1520 CCA (2 Batteries)

Communication system**GPS**

Manufacturer	TDB
Model number	

PA system

	Manufacturer	Model number	Number
Amplifier	REI	700890	1
Microphone	REI	480015	1
Internal speakers	Mito Corporation	17-4006NU4	4
External speaker	River Park	MA3013LG	1

Energy storage (hybrid drive)

Type	n/a	
Number of cells		V
Battery pack voltage		V
Weight		lbs

Security camera system

Manufacturer	REI	
Model number		
Number of cameras	3	
Storage capacity	320gb	

Bike racks

Manufacturer	Sportworks
Model number	DL2

Fire detection system

Manufacturer	Fogmaker	
Model number		
Fire detectors		
Type (thermal or optical)	Thermal	
Number of detectors	3	

Automatic voice annunciator system

Manufacturer	TDB
Model and part number	

Annunciator LED sign

Number of signs	
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Housing dimensions		
Character length		in.
Character height		in.
Character width		in.

GPS antenna

Manufacturer	TDB
Model and part number	

Automatic passenger counter

Manufacturer	TDB
Model and part number	a.
	b.
	c.
Sensor type	

Real-time bus arrival prediction system

	Manufacturer	Model number
Router		
Cellular modem		
Charge protection		

Electronic tire pressure monitoring system

Manufacturer	TDB
Model number	

Electronic brake stroke/wear indicator system

Manufacturer	n/a
Model number	

NOTE: All information above is accurate to the timeframe upon submission. The Agency reserves the right to update above data if changes occur, upon consultation with the customer.