

Conductance Reference Values – Jan 2003

- All REFERENCE VALUES are derived through Midtronics testing; these are not values supplied by the battery manufacturer.
- Values are typical averages to be used as general guidelines only; Midtronics encourages customers to establish their own relevant testing values.
- These values are subject to change through Midtronics and battery manufacturer refinement.
- Generally, a sample of 30 new or healthy batteries is tested to obtain a value representative of a new battery on-line after 90 days from installation.
- Test data was obtained at or adjusted to a nominal 25°C (77°F) for consistency. Temperature changes strongly affect measured conductance.
- Sizable differences between conductance value of a specific battery and its value listed can result from many variations in the way a battery string (system) was treated, installed and/or maintained. It is imperative that ALL SITE TEST DATA SHOULD BE RECORDED and made available for future on-site visits and long-term site reference.

DETERMINING YOUR REFERENCE VALUES - GENERAL:

Batteries with the same make, model, power rating and age (date code within 6 months) will generally conform to the model below:

1. New batteries will test within 10% of each other (+/- 5%) in forming a healthy string.
2. Batteries testing within 20% of each other (+/- 10%) still tend to perform equally well during a timed discharge test.
3. A battery that tests 30+% below the average conductance of the highest 10 cells in a string will have difficulty making 80% of its rated capacity.

BATTERY TESTING PROCEDURE: COMPLY WITH ALL COMPANY POLICY AND BATTERY SAFETY RULES WHILE TESTING BATTERIES.

- Always test on the lead post for the most consistent results. Avoid tests on stainless-steel hardware or bolts - lower measures will result.
- Operating conditions, site conditions, manufacturer changes and other factors can vary test results. Retest to verify any suspect test results.
- Permanent site records should include temperature, power load, visual inspection, site condition, and battery rating, voltage, and conductance data.
- Identify each battery with clear stencilling or labelling to ensure subsequent data is correlated to the same battery.
- Testing through an Amp-type cable attachment will significantly reduce test effectiveness - TEST ON BATTERY POSTS BEFORE REPLACING

Battery Reference Data

Last updated - September 2002

Prepared for Midtronics Test Set Customers

Issued Skylark: - 28/01/2003

Unless noted, all numbers reflect on-line tests or batteries on a charge for at least 90 days

Battery Manufacturer	Description	Model	Micro Celltron Siemens/Mho s
C&D		FA-12-100	N/A
C&D		12 SLA-100	2200
C&D	List 508 (Wet)	1680 A/H	5500
C&D	Liberty 2000	HD 300	2300
C&D		HD 400	2900
C&D		HD 500	3200
C&D		HD 700	4200
C&D		HD 900	5200
C&D		HD 1100	5800
C&D		HD 1300	6000
C&D		RHD 190	1900
C&D		RHD 250	2000
C&D		RHD 315	3000
C&D		RHD 440	3900
C&D		RHD 600	4800
C&D		HDL 160	2300
C&D		HDL 250	2900
C&D		HDL 440	3200
C&D		HDL 610	4200
C&D		HDL 785	5200
C&D		HDL 960	5800
C&D		HDL 1135	6000
C&D		RHDL 160	1900
C&D		RHDL 215	2000
C&D		RHDL 270	3000
C&D		RHDL 375	3900
C&D		RHDL 500	4800
C&D	Liberty 1000	L501	3000
C&D		LS-2-600	2700
C&D		LS-4-300	N/A
C&D		LS-6-50	N/A
C&D		LS-6-125	1500
C&D		LS-6-200	2300

C&D		LS-12-25	600
C&D		LS-12-55	N/A
C&D		LS-12-80	1500
C&D		LS-12-100	2200
C&D		KCT 450	2300
C&D		KCT 540	3000
C&D		KCT660	3200
C&D		LCT1176	N/A
C&D		LCT2016	6000
C&D		KCT720	3800
C&D		KCT1170	N/A
C&D/JCI	Dynasty	TEL 12-30	800
C&D/JCI	Tested with Amp Connector	TEL 12-30SLC	N/A
C&D/JCI		TEL 12-45	900
C&D/JCI	Tested with Amp Connector	TEL 12-45SLC	N/A
C&D/JCI		TEL 12-70	1400
C&D/JCI		TEL 12-80	1450
C&D/JCI	Tested with Amp Connector	TEL 12-80SLC	N/A
C&D/JCI		TEL 12-90	1600
C&D/JCI		TEL 12-105F	1600
C&D/JCI		TEL 12-125	1800
C&D/JCI		TEL 6-180	2100
C&D/JCI		6C 21V175A	915
C&D/JCI		XL4-540	2400
C&D/JCI	Wet Cell	TCC-1550	5800
C&D/JCI	<I The following are typical	BBA-160RT	1350
C&D/JCI	<I numbers in the lowest range	BBG-165RT	800
C&D/JCI	as published by C&D / JCI	BBG-180RT	850
C&D/JCI		DCS-33	650
C&D/JCI		DCS-50	800
C&D/JCI		DCS-75	1100
C&D/JCI		DCS-88	1200
C&D/JCI		DCS-100	1300
C&D/JCI		GC6V200 A/B	1400
C&D/JCI		GC12400 A/B	600
C&D/JCI		GC12V45 A/B	600
C&D/JCI		GC12550 A/B	800
C&D/JCI		GC12V75 A/B	800
C&D/JCI		GC12V100 A/B	850
C&D/JCI		MPS12-33	650
C&D/JCI		MPS12-50	800
C&D/JCI		MPS12-75	1100

C&D/JCI		MPS12-88	1200
C&D/JCI		MPS12-100	1300
C&D/JCI		U131	400
C&D/JCI		UPS6-600	2000
C&D/JCI		UPS12-95	650
C&D/JCI		UPS12-135	800
C&D/JCI		UPS12-225	1100
C&D/JCI		UPS12-275	1200
C&D/JCI		UPS12-300	1300
C&D/JCI		UPS6-620/FR	2000
C&D/JCI		UPS12-140/FR	875
C&D/JCI		UPS12-170/FR	815
C&D/JCI		UPS12-270/FR	1375
C&D/JCI		UPS13-320/FR	1650
C&D/JCI		UPS12-370/FR	1875
C&D/JCI		UPS12-475/FR	1500
Eagle Picher		30 A/H	500
East Penn		12AVR100	1350
East Penn	Unigy II	3AVR75-21	3200
East Penn		3AVR85-27	4300
East Penn		3AVR85-33	6000
East Penn	UNIGY	4AVR2/85-11L	2100
East Penn		24-85-17	2210
Exide	Wet Cell	200 A/H	1050
Exide	Wet Cell - Sub Station	E Series	2500
Exide		DD75-33	3800
Fiamm		12-SLA-25	510
Fiamm	All FIAMM values are	12-SLA-25C	250
Fiamm	maximum accepted values	12-SLA-30	560
Fiamm	as published by FIAMM	12-SLA-50	800
Fiamm		12-SLA-75	1250
Fiamm		12FAT75	1180
Fiamm		12FAT100	1230
Fuamm		6-SLA-100	1400
Fiamm		6-SLA-125	1300
Fiamm		6-SLA-160	1720
Fiamm		40SLA-150	2000
Fiamm		2-SLA-300	2700
Fiamm		2-SLA-1000	2700
Fiamm		2SLA300	4400
Fiamm		SD285	1900
Globe Union		TCC1125	3250
GNB	Absolyte / Absolyte IIP	45 A 09	1500

GNB		50 A 07	1200
GNB	Applicable to all Absolyte	50 A 09	1800
GNB	cells - test on I/C connector	50 A 13	2500
GNB	close to post - NOT on the	75 or 85 A 07	1600
GNB	stainless steel bolt head	75 or 85 A 09	1800
GNB	or washer. Alternatively,	75 or 85 A 11	2000
GNB	test at post collar using probes	75 or 85 A 13	2200
GNB		75 or 85 A 15	3000
GNB	For cells with multiple -ve and +ve	75 or 85 A 17	3400
GNB	and +ve posts, test at diagonally		3800
GNB	opposite posts (eg. top left to	75 or 85A 21	4200
GNB	bottom right) for consistency	75 or 85 A 23	4500
GNB		75 or 85 A 25	4800
GNB		75 or 85 A 27	5400
GNB		85 A 29	6200
GNB		85 A 31	6400
GNB		85 A 33	6600
GNB		90 A 05	1200
GNB		90 A 07	1500
GNB		90 A 09	2000
GNB		90 A 11	2200
GNB		90 A 13	2600
GNB		90 A 15	3000
GNB		90 A 17	3600
GNB		90 A 19	4200
GNB		90 A 21	5000
GNB		90 A 23	5300
GNB		90 A 25	5500
GNB		90 A 27	5700
GNB		100 A 15	4500
GNB		100 A 21	5000
GNB		100 A 25	5500
GNB		100 A 27	5600
GNB		100 A 29	6000
GNB		100 A 33	6400
GNB	Tested at post	6 MSB 2460	1200
GNB	Tested with Amp connector	6 MSB 2460	N/A
GNB		M6V 180F	3300
GNB		M12V 30F	850
GNB		M12V 90F	2200
GNB		M12V 100FT	1800
GNB		S12V300	1880

GNB		NCT-21	6000
Hawker	See Powersafe		
JCI	See C&D/JCI		
Lucent/AT&T		IR-30	550
Lucent/AT&T	With Amp connector	IR-30C w/amp	N/A
Lucent/AT&T		IR-40	650
Lucent/AT&T	With Amp connector	IR-40C w/amp	N/A
Lucent/AT&T		12IR125	1700
Lucent/AT&T		4VR100E	1200
Lucent/AT&T		4VR125E	1200
Lucent/AT&T		4VR125EL	1200
Lucent/AT&T	Post 04/96 manufacture	2VR250E	2000
Lucent/AT&T	Pre 04/96 manufacture	2VR250E	1800
Lucent/AT&T		2VR375E	2600
North Star Batteries	OFF LINE - IN PLANT - NEWLY FORMED	NSB190	1170
North Star Batteries		NSB320	1740
North Star Batteries		NSB330	1780
North Star Batteries		NSB400	2100
North Star Batteries		NSB60FT	1290
North Star Batteries		NSB90FT	1670
North Star Batteries		NSB100FT	1960
Powersafe	Hawker	BC25	550
Powersafe		SBS15	N/A
Powersafe	Manufactured in U.S.A.	SBS30	750
Powersafe	Manufactured in U.K.	SBS30	1000
Powersafe	Tested with Amp connector	SBS30	N/A
Powersafe	Manufactured in U.S.A.	SBS40	900
Powersafe	Manufactured in U.K.	SBS40	1200
Powersafe	Tested with Amp connector	SBS40	N/A
Powersafe		SBS60	1400
Powersafe		SBS110	2200
Powersafe		SBS130	2400
Powersafe	Manufactured in U.S.A.		750
Powersafe	Manufactured in U.K.		1000
Powersafe	Tested with Amp connector	HB-30	N/A
Powersafe	Manufactured in U.S.A.	HB-40	900
Powersafe	Manufactured in U.K.	HB-40	1200
Powersafe	Tested with Amp connector	HB-40	N/A

Powersafe		2VB11	1900
Powersafe		3VB11	2200
Powersafe		3VA13	1300
Powersafe		3VB13	2200
Powersafe		3VB17	2300
Powersafe	Chloride	5VA7	N/A
Powersafe		6VA7	800
Powersafe		6VJ11	1250
Powersafe		4VF11	1900
Powersafe		5VF11	N/A
Powersafe	mfr. in USA	6VF11	2000
Powersafe	mfr. in UK	6VF11	2400
Powersafe		2VH17	4000
Powersafe	Test on strap between dual posts	VB-34	5500
Powersafe	Test on strap in centre of 3 posts	VB-51	6000
Powersafe	Test on strap in centre of 3 posts	VB-54	N/A
Powersafe		XT30	700
Saft	Nicad	NCX 80	N/A - see note
Saft	Note: for all NiCads test as single	NCX-160	N/A - see note
Saft	single cell (2V) and trend over time	NCX 160	N/A see note