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PT. GS BATTERY

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# THE POWER OF YOUR FUTURE



## 01 Automotive Battery

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A.	<b>GS Premium</b>	02
B.	<b>GS Hybrid</b>	05
C.	<b>GS MFDS</b>	07
D.	<b>GS Shield</b>	08
E.	<b>GS Spectra</b>	09
F.	<b>GS Calcium</b>	10
G.	<b>GS LN</b>	11
H.	<b>GS ISS</b>	11

## 02 Motorcycle Battery

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A.	<b>GS Premium</b>	14
B.	<b>GS VRLA</b>	17

## 03 GS Basic Instruction

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Battery at a Glance	20
What Does a Battery Do?	21
Role of the Battery	21
Mechanism of the Battery	22
Prevention of Battery Trouble	23
Handling Battery Trouble	24
Caution and Safety	25
Battery Installation Guide	26



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# GS AUTOMOTIVE BATTERY



# Dry Charged Battery GS Premium

GS Premium battery is popular among customers because it has proven to be dependable as well as suitable for any types of cars. GS Premium uses lead antimony alloy (Pb-Sb) on both positive and negative plates.

## A. GS Premium

BATTERY TYPE		CAPACITY		CCA (A)	DIMENSION (mm)				LAY OUT	TERMINAL TYPE	BATTERY QTY PER PALLET	
OLD JIS	NEW JIS	5Hr (AH)	20Hr (AH)		L	W	H	TH			Large	Small
12N24R	26A19R	21	26	170	187	127	162	184	1	C	180	135
12N24L	26A19L	21	26	170	187	127	162	184	2	C	180	135
34B19R	34B19R	27	33	240	187	127	203	227	1	B	180	135
34B19L	34B19L	27	33	240	187	127	203	227	2	B	180	135
34B19RS	34B19RS	27	33	240	187	127	203	227	1	A	180	135
34B19LS	34B19LS	27	33	240	187	127	203	227	2	A	180	135
NS40	32B20R	26	32	225	197	129	203	227	1	B	168	126
NS40L	32B20L	26	32	225	197	129	203	227	2	B	168	126
NS40S	32B20RS	26	32	225	197	129	203	227	1	A	168	126
NS40LS	32B20LS	26	32	225	197	129	203	227	2	A	168	126
NS40Z	36B20R	28	35	260	197	129	203	227	1	B	168	126
NS40ZL	36B20L	28	35	260	197	129	203	227	2	B	168	126
NS40ZLS	36B20LS	28	35	260	197	129	203	227	2	A	168	126

(\*) 20 HR capacity is based on calculation (approximately)

### Strong Points **GS Premium**

- Strong, heavy duty, durable battery
- Reliable quality at economical price



## A. GS Premium

BATTERY TYPE		CAPACITY		CCA (A)	DIMENSION (mm)				LAY OUT	TERMINAL TYPE	BATTERY QTY PER PALLET	
OLD JIS	NEW JIS	5Hr (AH)*	20Hr (AH)*		L	W	H	TH			Large	Small
NS40ZS	36B20RS	28	35	260	197	129	203	227	1	A	168	126
N40	32C24R	32	40	195	238	129	203	227	1	A	144	108
N40L	32C24L	32	40	195	238	129	203	227	2	A	144	108
NS60	46B24R	36	45	295	238	129	203	227	1	B	144	108
NS60L	46B24L	36	45	295	238	129	203	227	2	B	144	108
NS60S	46B24RS	36	45	295	238	129	203	227	1	A	144	108
NS60LS	46B24LS	36	45	295	238	129	203	227	2	A	144	108
55D23R	55D23R	48	60	320	232	173	204	225	1	A	112	84
55D23L	55D23L	48	60	320	232	173	204	225	2	A	112	84
75D23R	75D23R	52	65	465	232	173	204	225	1	A	112	84
75D23L	75D23L	52	65	465	232	173	204	225	2	A	112	84
N50	48D26R	40	50	250	260	173	204	225	1	A	96	72
N50L	48D26L	40	50	250	260	173	204	225	2	A	96	72
N50Z	55D26R	48	60	290	260	173	204	225	1	A	96	72
N50ZL	55D26L	48	60	290	260	173	204	225	2	A	96	72
NS70	65D26R	52	65	370	260	173	204	225	1	A	96	72
NS70L	65D26L	52	65	370	260	173	204	225	2	A	96	72
80D26R	80D26R	55	65	490	260	173	204	225	1	A	96	72
80D26L	80D26L	55	65	490	260	173	204	225	2	A	96	72
N70	65D31R	56	70	340	306	173	204	225	1	A	84	63
N70L	65D31L	56	70	340	306	173	204	225	2	A	84	63
N70Z	75D31R	60	75	380	306	173	204	225	1	A	84	63
N70ZL	75D31L	60	75	380	306	173	204	225	2	A	84	63
NX120-7R	95D31R	64	80	565	306	173	204	225	1	A	84	63
NX120-7L	95D31L	64	80	565	306	173	204	225	2	A	84	63
105D31R	105D31R	64	80	655	306	173	204	225	1	A	84	63
105D31L	105D31L	64	80	655	306	173	204	225	2	A	84	63
N100	95E41R	80	100	475	410	176	213	234	1	A	56	42
N100L	95E41L	80	100	475	410	176	213	234	2	A	56	42
NS120	115E41R	88	110	610	410	176	213	234	1	A	56	42
N120	115F51	96	120	575	505	182	213	257	3	A	-	36
N150	145G51	120	150	685	508	222	213	257	3	A	-	30
NS200	165G51	136	170	710	508	222	213	257	3	A	-	30
N200	190H52	160	200	765	521	278	220	270	3	A	-	24
555-65	555-65	-	55	255	246	175	190	190	1	A	96	72
555-59	555-59	-	55	255	246	175	190	190	2	A	96	72
566-38	566-38	-	66	300	299	175	190	190	2	A	84	63
566-18	566-18	-	80	300	306	175	190	190	2	A	84	63

(\*) 20 HR capacity is based on calculation (approximately)



## Standard Export Packing for Automotive Batteries

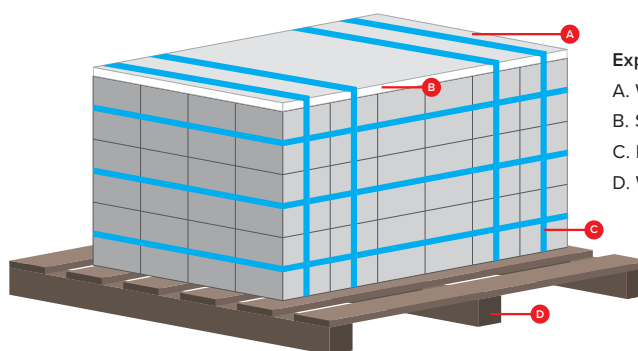
GS Premium Battery

Export package for container shipment

BATTERY TYPE		PALLET TYPE	PALLET SIZE	QTY/PALLET	N / W (Kg)	G / W (Kg)	CUBIC (M3)	TOTAL LAYER
OLD JIS	NEW JIS							
12N24	26A19	E3	Small	135	743	769	0.870	3
			Large	180	990	1,016	1.090	4
34B19	34B19	E3	Small	135	790	816	0.980	3
			Large	180	1,053	1,079	1.300	4
NS40	32B20	E3	Small	126	806	832	0.960	3
			Large	168	1,075	1,101	1.280	4
NS40Z	36B20	E3	Small	126	832	858	0.960	3
			Large	168	1,108	1,134	1.280	4
N40	32C24	E3	Small	108	759	785	0.980	3
			Large	144	1,012	1,038	1.310	4
NS60	46B24	E3	Small	108	856	885	1.030	3
			Large	144	1,142	1,168	1.310	4
55D23	55D23	E3	Small	84	815	841	0.980	3
			Large	112	1,086	1,112	1.300	4
75D23	75D23	E3	Small	84	966	992	0.970	3
			Large	112	1,288	1,314	1.290	4
N50	48D26	E3	Small	72	652	678	0.980	3
			Large	96	870	896	1.300	4
N50Z	55D26	E3	Small	72	782	808	0.980	3
			Large	96	1,043	1,069	1.300	4
NS70	65D26	E3	Small	72	811	837	1.020	3
			Large	96	1,081	1,107	1.300	4
80D26	80D26	E3	Small	72	1,224	1,250	1.020	3
			Large	96	1,392	1,418	1.300	4
N70	65D31	E3	Small	63	780	806	1.020	3
			Large	84	1,040	1,066	1.300	4
N70Z	75D31	E3	Small	63	852	878	1.020	3
			Large	84	1,137	1,163	1.300	4
NX120-7	95D31	E3	Small	63	882	908	1.020	3
			Large	84	1,176	1,202	1.300	4
105D31	105D31	E3	Small	63	977	1,003	1.020	3
			Large	84	1,302	1,328	1.300	4
N100	95E41	E3	Small	42	702	728	1.100	3
			Large	56	936	962	1.310	4
N120	115F51	E3	Small	36	728	754	1.180	3
N150	145G51	E3	Large	30	781	807	1.180	4
NS200	165G51	E3	Small	30	870	896	1.180	3
N200	190H52	E3	Large	24	842	868	1.280	4
DIN 555-59/65		E3	Small	72	788	814	0.960	3
			Large	96	1,050	1,076	1.200	4
DIN 566-38		E3	Small	63	863	889	0.960	3
			Large	84	1,151	1,177	1.200	4

**Note:**

Each 10 S and L size Pallet are available for 20 feet full container in standard, subject to total gross weight and total height shall be less than 20.000kg and 2.230mm respectively.



- Export Package:**
- A. Wooden Veneer Plate
  - B. Styrene Foam Plate
  - C. Polypropylene Belt
  - D. Wooden Pallet

# Wet Charged Battery GS Hybrid Battery

GS Hybrid battery is the result of technology combination between MF Battery that uses lead calcium alloy (pb-Ca) on negative plate and conventional battery technology that uses lead antimony alloy (pb-Sb) on positive plate.

## B. GS Hybrid

BATTERY TYPE		CAPACITY		CCA (A)	DIMENSION (mm)				LAY OUT	TERMINAL TYPE	BATTERY QTY PER PALLET
OLD JIS	NEW JIS	5Hr (AH)	20Hr (AH)		L	W	H	TH			
34B19R	34B19R	27	33	240	187	127	203	227	1	A	135
34B19LS	34B19LS	27	33	240	187	127	203	227	2	A	135
NS40	32B20R	26	32	225	197	129	203	227	1	B	126
NS40L	32B20L	26	32	225	197	129	203	227	2	B	126
NS40S	32B20RS	26	32	225	197	129	203	227	1	A	126
NS40LS	32B20LS	26	32	225	197	129	203	227	2	A	126
NS40Z	36B20R	28	35	260	197	129	203	227	1	B	126
NS40ZL	36B20L	28	35	260	197	129	203	227	2	B	126
NS40ZS	36B20RS	28	35	260	197	129	203	227	1	A	126
NS40ZLS	36B20LS	28	35	260	197	129	203	227	2	A	126
NS60	46B24R	28	45	295	238	129	203	227	1	B	108
NS60L	46B24L	36	45	295	238	129	203	227	2	B	108
NS60S	46B24RS	36	45	295	238	129	203	227	1	A	108
NS60LS	46B24LS	36	45	295	238	129	203	227	2	A	108
55D23R	55D23R	48	60	320	232	173	204	225	1	A	84
55D23L	55D23L	48	60	320	232	173	204	225	2	A	84

(\*) 20 HR capacity is based on calculation (approximately)



# Wet Charged Battery

## GS Hybrid Battery

### B. GS Hybrid

BATTERY TYPE		CAPACITY		CCA (A)	DIMENSION (mm)				LAY OUT	TERMINAL TYPE	BATTERY QTY PER PALLET
OLD JIS	NEW JIS	5Hr (AH)	20Hr (AH)		L	W	H	TH			
N50	48D26R	40	50	250	260	173	204	225	1	A	72
N50Z	55D26R	48	60	290	260	173	204	225	1	A	72
N50ZL	55D26L	48	60	290	260	173	204	225	2	A	72
NS70	65D26R	52	65	370	260	173	204	225	1	A	72
NS70L	65D26L	52	65	370	260	173	204	225	2	A	72
80D26R	80D26R	55	65	490	260	173	204	225	1	A	72
80D26L	80D26L	55	65	490	260	173	204	225	2	A	72
N70	65D31R	56	70	380	306	173	204	225	1	A	63
N70L	65D31L	56	70	380	306	173	204	225	2	A	63
N70Z	75D31R	60	70	380	306	173	204	225	1	A	63
N70ZL	75D31L	60	70	380	306	173	204	225	2	A	63

(\*) 20 HR capacity is based on calculation (approximately)

#### Strong Points **GS Hybrid**

- Guaranteed quality: processed using COS (Cast On Strap) machine that works automatically in producing a more consistent and stable product
- Ready to use: battery comes filled with electrolyte/battery comes in a package filled with electrolyte
- Minimum maintenance: water evaporation rate (water loss) is lower than the conventional battery
- Electrolyte Indicator: every Hybrid Battery and MF Battery come with Electrolyte Indicator that enables customers to check on the electrolyte level





# MF Battery

## GS MFDS

For Indonesia market only

GS MF Battery uses lead calcium alloy (Pb-ca) material on both negative and positive plates to ensure that the rate of charge loss (self discharge) to beat its lowest level, making the engine easier to start up even in cold weather conditions or when the car is rarely used.

### C. GS MFDS (Maintenance Free)

BATTERY TYPE		CAPACITY		CCA (A)	DIMENSION (mm)				LAY OUT	TERMINAL TYPE	BATTERY QTY PER PALLET
OLD JIS	NEW JIS	5Hr (AH)	20Hr (AH)		L	W	H	TH			
34B19R	34B19R	27	33	240	187	127	203	227	1	B	135
34B19L	34B19L	27	33	240	187	127	203	227	2	B	135
NS40	32B20R	26	32	225	197	129	203	227	1	B	126
NS40L	32B20L	26	32	225	197	129	203	227	2	B	126
NS40S	32B20RS	26	32	225	197	129	203	227	1	A	126
NS40LS	32B20LS	26	32	225	197	129	203	227	2	A	126
NS40Z	36B20R	28	35	260	197	129	203	227	1	B	126
NS40ZL	36B20L	28	35	260	197	129	203	227	2	B	126
NS40ZLS	36B20LS	28	35	260	197	129	203	227	2	A	126
NS40ZS	36B20RS	28	35	260	197	129	203	227	1	A	126
NS60	46B24R	36	45	295	238	129	203	227	1	B	108
NS60L	46B24L	36	45	295	238	129	203	227	2	B	108
NS60S	46B24RS	36	45	295	238	129	203	227	1	A	108
NS60LS	46B24LS	36	45	295	238	129	203	227	2	A	108
55D23R	55D23R	48	60	320	232	173	204	225	1	A	84
55D23L	55D23L	48	60	320	232	173	204	225	2	A	84
N50	48D26R	40	50	250	260	173	204	225	1	A	72
N50L	48D26L	40	50	250	260	173	204	225	2	A	72
N50Z	55D26R	48	60	290	260	173	204	225	1	A	72
N50ZL	55D26L	48	60	290	260	173	204	225	2	A	72
NS70	65D26R	52	65	370	260	173	204	225	1	A	72
NS70L	65D26L	52	65	370	260	173	204	225	2	A	72
80D26R	80D26R	55	65	490	260	173	204	225	1	A	72
80D26L	80D26L	55	65	490	260	173	204	225	2	A	72
N70	65D31R	56	70	380	306	173	204	225	1	A	63
N70L	65D31L	56	70	380	306	173	204	225	2	A	63
N70Z	75D31R	60	70	380	306	173	204	225	1	A	63
N70ZL	75D31L	60	70	380	306	173	204	225	2	A	63

(\*) 20 HR capacity is based on calculation (approximately)

#### Strong Points

**GS MFDS**

- Ready to Use
- Maintenance Free
- Resilient for Tropical Climate
- Corrosion Free



# MF Battery

## GS Shield

For export market only

GS Shield Battery uses lead calcium alloy (Pb-ca) material on both negative and positive plates to ensure that the rate of charge loss (self discharge) to beat its lowest level, making the engine easier to start up even in cold weather conditions or when the car is rarely used.

### D. GS Shield (Maintenance Free)

BATTERY TYPE		CAPACITY		CCA (A)	DIMENSION (mm)				LAY OUT	TERMINAL TYPE	BATTERY QTY PER PALLET
OLD JIS	NEW JIS	5Hr (AH)	20Hr (AH)		L	W	H	TH			
34B19R	34B19R	27	34	240	187	127	203	227	1	B	135
34B19L	34B19L	27	34	240	187	127	203	227	2	B	135
34B19RS	34B19RS	27	34	240	187	127	203	227	1	A	135
34B19LS	34B19LS	27	34	240	187	127	203	227	2	A	135
NS40	32B20R	26	32	225	197	129	203	227	1	B	126
NS40L	32B20L	26	32	225	197	129	203	227	2	B	126
NS40S	32B20RS	26	32	225	197	129	203	227	1	A	126
NS40LS	32B20LS	26	32	225	197	129	203	227	2	A	126
NS40Z	36B20R	28	35	260	197	129	203	227	1	B	126
NS40ZL	36B20L	28	35	260	197	129	203	227	2	B	126
NS40ZLS	36B20LS	28	35	260	197	129	203	227	2	A	126
NS40ZS	36B20RS	28	35	260	197	129	203	227	1	A	126
NS60	46B24R	36	45	295	238	129	203	227	1	B	108
NS60L	46B24L	36	45	295	238	129	203	227	2	B	108
NS60S	46B24RS	36	45	295	238	129	203	227	1	A	108
NS60LS	46B24LS	36	45	295	238	129	203	227	2	A	108
55D23R	55D23R	48	60	320	232	173	204	225	1	A	84
55D23L	55D23L	48	60	320	232	173	204	225	2	A	84
N50	48D26R	40	50	250	260	173	204	225	1	A	72
N50L	48D26L	40	50	250	260	173	204	225	2	A	72
N50Z	55D26R	48	60	290	260	173	204	225	1	A	72
N50ZL	55D26L	48	60	290	260	173	204	225	2	A	72
NS70	65D26R	52	65	370	260	173	204	225	1	A	72
NS70L	65D26L	52	65	370	260	173	204	225	2	A	72
80D26R	80D26R	55	70	490	260	173	204	225	1	A	72
80D26L	80D26L	55	70	490	260	173	204	225	2	A	72
N70	65D31R	56	70	340	306	173	204	225	1	A	63
N70L	65D31L	56	70	340	306	173	204	225	2	A	63
N70Z	75D31R	60	75	380	306	173	204	225	1	A	63
N70ZL	75D31L	60	75	380	306	173	204	225	2	A	63
105D31R	105D31R	64	80	655	306	173	204	225	1	A	63
105D31L	105D31L	64	80	655	306	173	204	225	2	A	63

(\*) 20 HR capacity is based on calculation (approximately)

#### Strong Points

#### GS SHIELD

- Premium Quality Material
- Good Packaging (Offset Design)
- No Need to Maintain The Battery (No Need Water Addition)



# MF Battery GS Spectra

This battery uses a special paste and separator design, combining MF Double Sealed battery technology with a hybrid battery technology that can be added with electrolytes for extended life time.

## E. GS Spectra (Maintenance Free)

BATTERY TYPE		CAPACITY		CCA (A)	DIMENSION (mm)				LAY OUT	TERMINAL TYPE	BATTERY QTY PER PALLET
OLD JIS	NEW JIS	5Hr (AH)	20Hr (AH)		L	W	H	TH			
65B24R	65B24R	44	55	460	238	129	203	227	1	B	108
65B24L	65B24L	44	55	460	238	129	203	227	2	B	108
65B24RS	65B24RS	44	55	460	238	129	203	227	1	A	108
65B24LS	65B24LS	44	55	460	238	129	203	227	2	A	108
75D23R	75D23R	52	65	465	232	173	204	225	1	A	84
75D23L	75D23L	52	65	465	232	173	204	225	2	A	84
90D26R	90D26R	60	75	550	260	173	204	225	1	A	72
90D26L	90D26L	60	75	550	260	173	204	225	2	A	72
125D31R	125D31R	75	95	780	306	173	204	225	1	A	63
125D31L	125D31L	75	95	780	306	173	204	225	2	A	63

(\*) 20 HR capacity is based on calculation (approximately)

**HIGH QUALITY  
HIGH DURABILITY**  
CALCIUM BATTERY



### Strong Points **GS Spectra**

- High Quality Material
- High Density Paste with Special Additive
- Special Separator with Glassmat to reduce water loss
- Special Plate Design
- Labyrinth Design to condensate electrolyte
- Possible to add electrolyte (If Needed)
- High Capacity Battery

**SPECTRA**





# MF Battery GS Calcium

This battery uses a special paste and separator design, combining MF Double Sealed battery technology with a hybrid battery technology that can be added with electrolytes for extended life time.

## F. GS Calcium (Maintenance Free)

BATTERY TYPE		CAPACITY		CCA (A)	DIMENSION (mm)				LAY OUT	TERMINAL TYPE	BATTERY QTY PER PALLET
OLD JIS	NEW JIS	5Hr (AH)	20Hr (AH)		L	W	H	TH			
65B24R	65B24R	44	55	460	238	129	203	227	1	B	108
65B24L	65B24L	44	55	460	238	129	203	227	2	B	108
65B24RS	65B24RS	44	55	460	238	129	203	227	1	A	108
65B24LS	65B24LS	44	55	460	238	129	203	227	2	A	108
75D23R	75D23R	52	65	465	232	173	204	225	1	A	84
75D23L	75D23L	52	65	465	232	173	204	225	2	A	84
90D26R	90D26R	60	75	550	260	173	204	225	1	A	72
90D26L	90D26L	60	75	550	260	173	204	225	2	A	72
105D31R	105D31R	64	80	655	306	173	204	225	1	A	63
105D31L	105D31L	64	80	655	306	173	204	225	2	A	63

(\*) 20 HR capacity is based on calculation (approximately)

**HIGH QUALITY  
HIGH DURABILITY**  
**CALCIUM BATTERY**

### Strong Points **GS Calcium**

- High Quality Material
- High Density Paste with Special Additive
- Special Separator with Glassmat to reduce water loss
- Special Plate Design
- Labyrinth Design to condensate electrolyte
- Possible to add electrolyte (If Needed)
- High Capacity Battery & Longer Battery Life
- Higher battery life at high temperatures and extreme roads

**CALCIUM**



## MF Battery GS LN

Uses a special paste and separator design, this battery is specially designed for European type LN cars.

### G. GS LN

BATTERY TYPE	CAPACITY 20Hr (AH)*	CCA (A)	DIMENSION (mm)				LAY OUT	TERMINAL TYPE	BATTERY QTY PER PALLET	
			L	W	H	TH			Large	Small
335LN0	33	260 (EN)	175	175	168	190	2	B	-	90
355LN2	60	360 (EN)	242	175	168	190	2	B	-	72
370LN3	65	490 (EN)	278	175	168	190	2	B	-	63
390LN4	80	650 (EN)	315	175	168	190	2	B	-	54



#### Strong Points **GS LN**

- Use Premium Quality Material
- Good Packaging (Flexo Design)
- No Need To Maintain The Battery (No Need Water Addition)
- Battery life is longer

## MF Battery GS ISS

The battery is designed using a special paste formula with the addition of additives to electrolytes, so it has a high regeneration acceptance power and a longer life for vehicles with ISS technology.

### H. GS ISS (Maintenance Free)

BATTERY TYPE		CAPACITY 20Hr (AH)*	CCA (A)	DIMENSION (mm)				LAY OUT	TERMINAL TYPE	BATTERY QTY PER PALLET	
OLD JIS	NEW JIS			L	W	H	TH			Large	Small
Q85	Q85	65	520	232	173	204	225	2	B	-	84
S95	S95	72	622	260	173	204	225	2	B	-	72
M42	M42	36	310	197	129	203	227	2	B	-	126
M42R	M42R	36	310	197	129	203	227	1	B	-	126
N55	N55	42	370	238	129	203	227	2	B	-	108
N55R	N55R	42	370	238	129	203	227	1	B	-	108

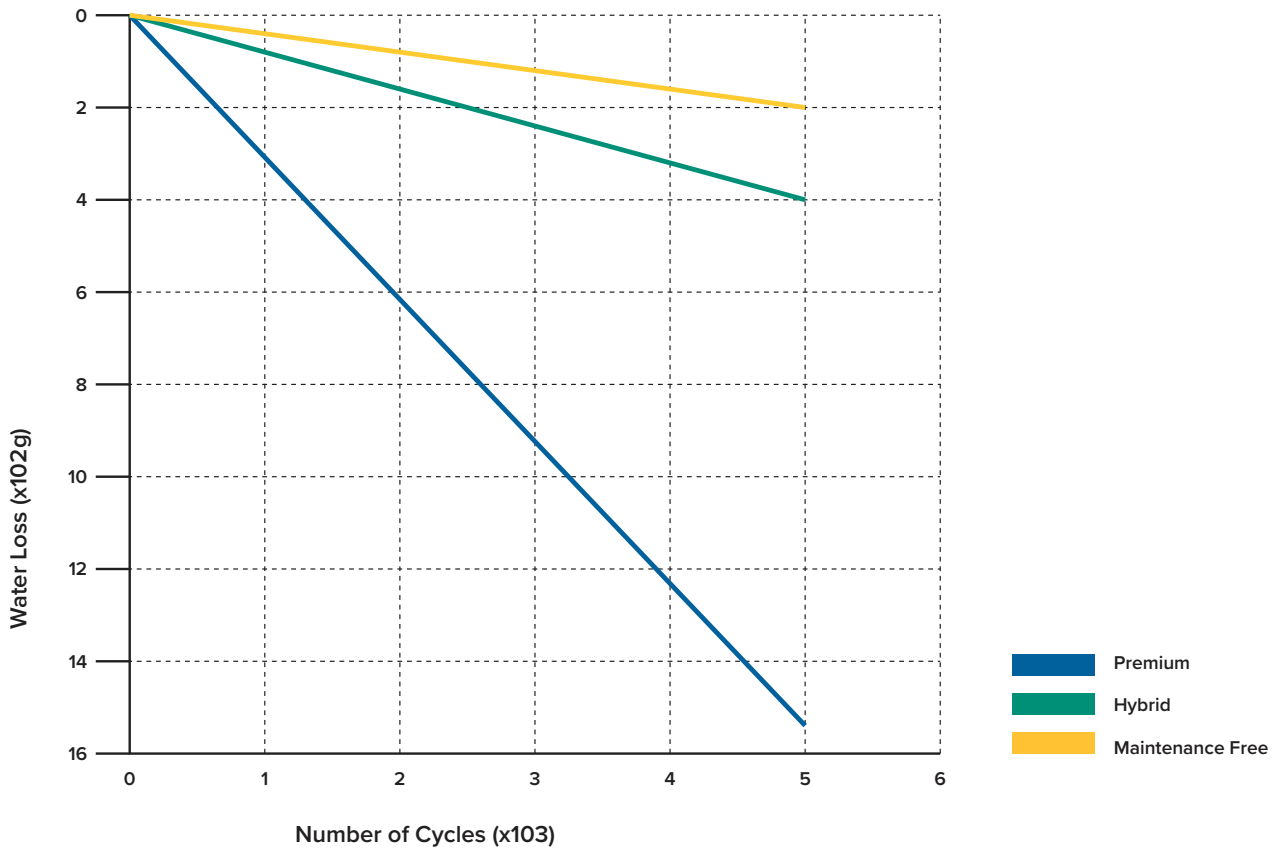


#### Strong Points **GS ISS**

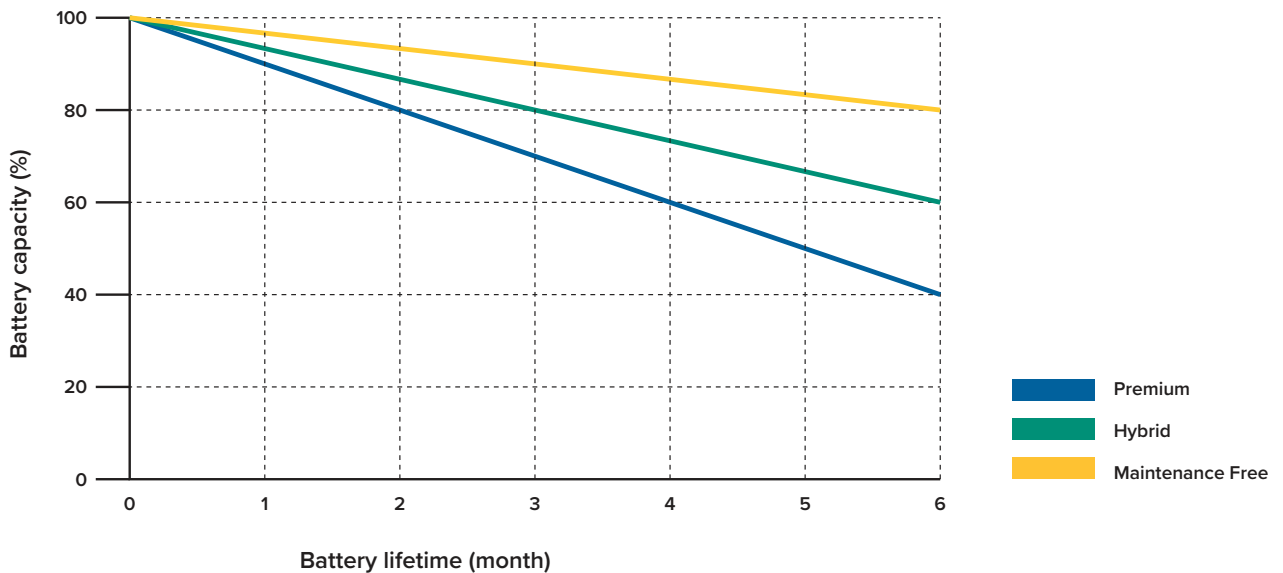
- This battery is designed to be able to receive large amounts of electrical energy in a short time
- This battery is designed to has high performance so that the battery has a high endurance
- Better corrosive resistance for the ISS cycle
- Longer lifespan for the ISS cycle

# Water Loss Rate & Self Discharge

## Graphic Water Loss Rate Premium - Hybrid - Maintenance Free



## Graphic Self Discharge Premium - Hybrid - Maintenance Free (Temperature test 30°C)





No.1 in Japan for over 100 years



PT. GS BATTERY

Innovate to Inspire

# GS MOTORCYCLE BATTERY



# GS Premium Battery

Similar to GS Premium battery for cars, the GS Premium battery for motorcycles is also popular among others due to its superiority and reliability.

## A. GS Premium

BATTERY TYPE	VOLT	CAPACITY 10 HR (AH)	DIMENSION (mm)			PLATE PER CELL	TERMINAL
			L	W	H		
6N4-2A*	6	4	"70 (80)"	70	95	5	
6N4-2A-2*	6	4	"70 (80)"	70	95	5	
6N4-2A-4*	6	4	"70 (80)"	70	95	5	
6N4A-4D*	6	4	"60 (67)"	56	130	5	
6N6-3B*	6	6	98	56	"110 (119)"	5	
6N6-3B-1*	6	6	"98 (108)"	56	110	7	
6N11-2D*	6	11	149	"69 (81)"	99	17	
12N5-3B	12	4	"120 (131)"	60	130	5	
12N10-3B	12	10	"135 (146)"	90	145	7	
12N9-4B-1 MULTIPOLE	12	9	"135 (146)"	75	"139 (143)"	7	
12N10-3B MULTIPOLE	12	10	"135 (146)"	90	"145 (152)"	7	
GM2,5A-3C-2	12	2,5	80	"70 (81)"	105	3	

\* EXPORT ONLY

### Strong Points

### GS Premium MCB

- Strong, heavy duty, durable battery
- Reliable quality at economical price

# Motorcycle Battery

## A. GS Premium

BATTERY TYPE	VOLT	CAPACITY 10 HR (AH)	DIMENSION (mm)			PLATE PER CELL	TERMINAL
			L	W	H		
GM3-3B	12	3	"98 (109)"	56	110	5	
GM4-3B*	12	4	"120 (131)"	70	92	7	
GM5Z-3B	12	5	"120 (131)"	60	130	7	
GM7B-4B	12	7	"150 (160)"	60	130	9	

\* EXPORT ONLY

BATTERY TYPE	VOLT	CAPACITY 10 HR (AH)	DIMENSION (mm)			PLATE PER CELL	TERMINAL
			L	W	H		
GM3-3B KIT	12	3	"98 (109)"	56	110	5	
GM5Z-3B KIT	12	5	"120 (131)"	60	130	7	
GM7B-4B KIT	12	7	"150 (160)"	60	130	9	
12N5-3B KIT	12	4	"120 (131)"	60	130	5	

KIT: Battery water provided





# Motorcycle Battery

## Standard Export Packing for Motorcycle Batteries

GS Premium

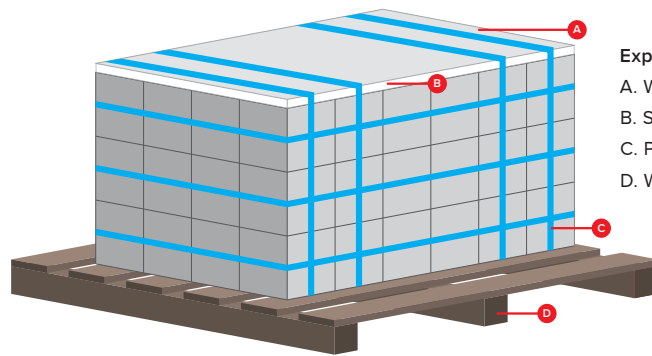
Export package for container shipment

BATTERY SERIES	PALLET SIZE	No. of BATTERIES PER PALLET	N/W (KG)	G/W (KG)	CUBIC (M3)	L	W	H
6N4-2A*	S	720	420	443	0.83	1.10	1.10	0.75
	L	960	560	583	1.10	1.10	1.10	1.00
6N6-3B*	S	450	540	563	0.89	1.10	1.10	0.81
	L	540	648	671	1.07	1.10	1.10	0.97
6N11-2D*	S	450-576	777.6	800.6	1.32	1.10	1.10	1.20
12N5-3B	S	450	640	663	1.08	1.10	1.10	0.98
	L	540	768	791	1.25	1.10	1.10	1.14
12N10-3B	L	270	810	833	1.05	1.10	1.10	0.95
	S	600	492	515	1.05	1.10	1.10	0.95
GM2.5-3C	L	800	656	679	1.10	1.10	1.10	1.00
	S	450	464	487	0.89	1.10	1.10	0.81
GM3-3B	L	540	557	580	1.07	1.10	1.10	0.97
	L	576	725.8	748.8	1.03	1.10	1.10	0.94
GM5Z-3B	S	450	640	663	1.08	1.10	1.10	0.99
	L	540	768	791	1.26	1.10	1.10	1.14
GM7B-4B	S	400-480	910	934	1.13	1.10	1.10	1.03

\* EXPORT ONLY

**Note:**

Each 10 S and L size Palette are available for 20 feet full container in standard, subject to total gross weight and total height shall be less than 20.000kg and 2.230mm respectively.



**Export Package:**

- A. Wooden Veneer Plate
- B. Styrene Foam Plate
- C. Polypropylene Belt
- D. Wooden Palette



# GS VRLA Valve Regulated Lead Acid

GS VRLA is a maintenance free battery that designed specifically for motorcycles. Similar to GS MF for cars, GS VRLA is specifically designed to minimize water evaporation rate (water loss) and sold with the condition already filled with electrolyte and permanently sealed so customer don't have to bother checking or adding the battery's water.

## B. GS VRLA

BATTERY TYPE	VOLT	CAPACITY 10 HR (AH)	DIMENSION (mm)			PLATE PER CELL	TERMINAL
			L	W	H		
GTZ 4V	12	3	113	70	85	7	
GTZ 5S	12	3.5	113	70	85	7	
GTZ 6V	12	5	113	70	105	7	
GT6A (GM5Z-3B)	12	5	120	60	130	7	
GTZ 7S	12	5.5	113	70	105	7	
GTZ 7V	12	6	113	70	120	7	
GTZ 8V	12	7	113	70	130	7	

### Strong Points **GS VRLA**

- Maintenance free: no longer needs to add battery's water or even check the acid level, making the GS VRLA free from any maintenance
- Durable and long lasting: high starting power as well as containing longer current
- Spill or break free: packed with special separator that makes the battery spill or break free
- Ready to be used: filled with electrolyte and has undergone charging process/battery comes in a package filled with electrolyte and has undergone charging process



No.1 in Japan for over 100 years

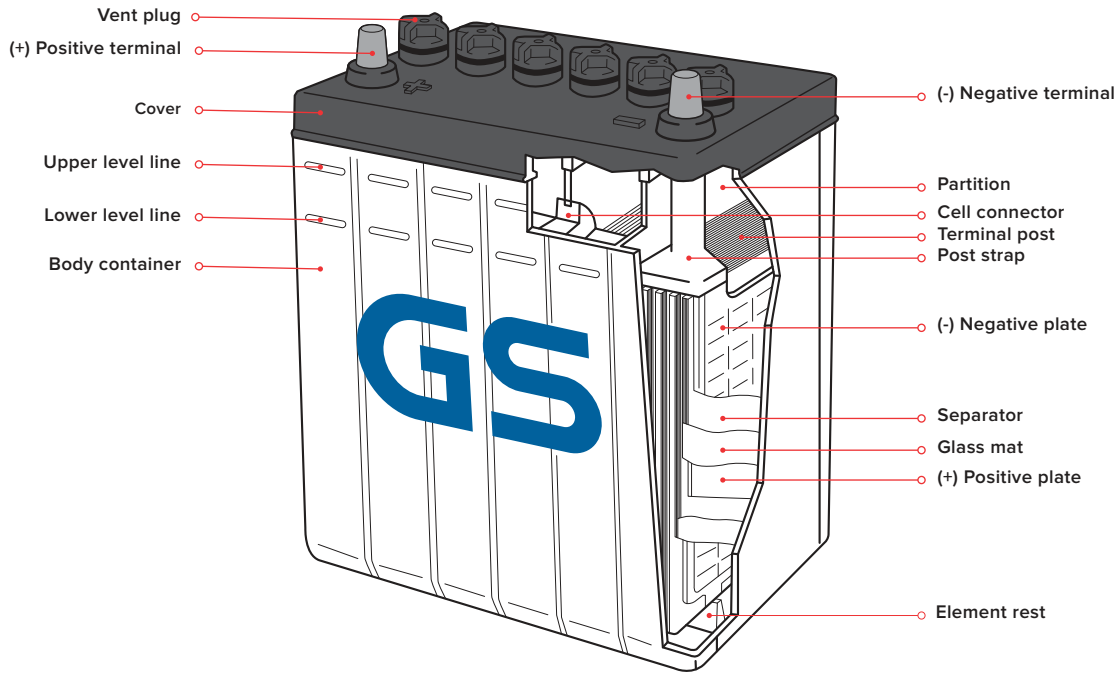


**PT. GS BATTERY**

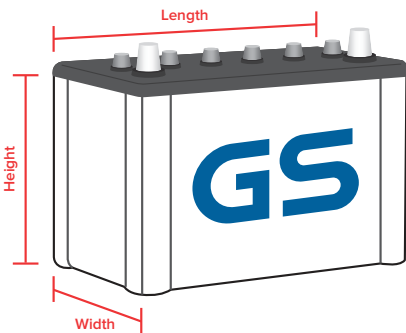
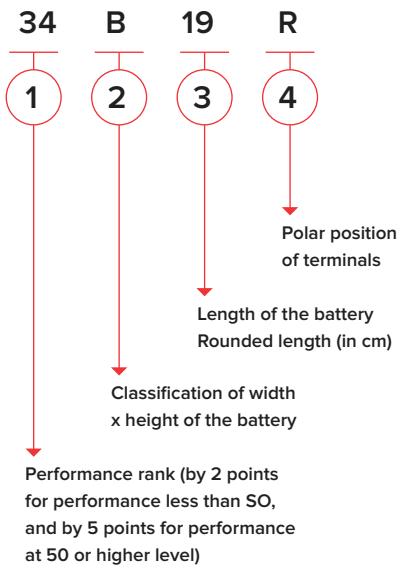
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# **GS BASIC INSTRUCTION**

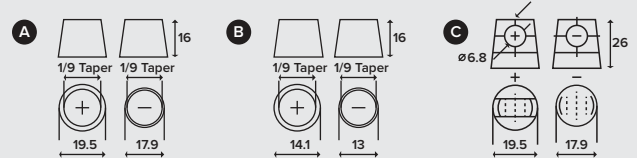




How to Read JIS Type Description



MEANING OF MARKS	DESCRIPTION																											
1. Performance rank	Overall performance of the battery. The higher value, the higher performance.																											
2. Size of the shorter side of the battery (width x height of the battery)	<p>(Table of sizes of the battery shorter side)</p> <table border="1"> <thead> <tr> <th>CLASS</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> <th>H</th> </tr> </thead> <tbody> <tr> <td>WIDTH (mm)</td> <td>127</td> <td>129 (127)</td> <td>135</td> <td>173</td> <td>176</td> <td>182</td> <td>222</td> <td>278</td> </tr> <tr> <td>HEIGHT (mm)</td> <td>162</td> <td>203</td> <td>207</td> <td>204</td> <td>213</td> <td>213</td> <td>213</td> <td>220</td> </tr> </tbody> </table> <p>The later the alphabetical order, the larger the size.</p>	CLASS	A	B	C	D	E	F	G	H	WIDTH (mm)	127	129 (127)	135	173	176	182	222	278	HEIGHT (mm)	162	203	207	204	213	213	213	220
CLASS	A	B	C	D	E	F	G	H																				
WIDTH (mm)	127	129 (127)	135	173	176	182	222	278																				
HEIGHT (mm)	162	203	207	204	213	213	213	220																				
3. Basic type and thickness																												
4. Length of the battery (cm)	Rounded length of the battery (in cm)																											
5. Polar position of terminal																												



## What Does a Battery Do?

In addition to its basic role to start the engine, the battery in a car is used as a power source for electric/electronic appliances in the car as shown below.



## Role of the Battery

The battery is the heart of a car. It supplies energy needed by the car, here are 3 major roles of a battery

1. The battery starts ignition of the engine
2. When the power needed by the car exceeds the power generated by the generator, the battery supplements back-up power
3. The battery continues to supply stable power to electric appliances equipped in the car

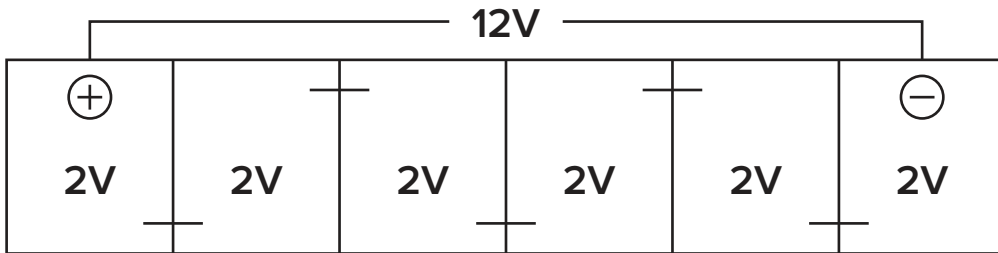
# Mechanism of the Battery

A battery is a unit that releases electric energy when needed (discharging), and stores potential electrical energy in the form of chemical energy (charging), and it can also repeat the process for multiple times.

" There's no such battery called Dry-Battery\* "

\*Battery works with electrolyte inside

• Car Battery



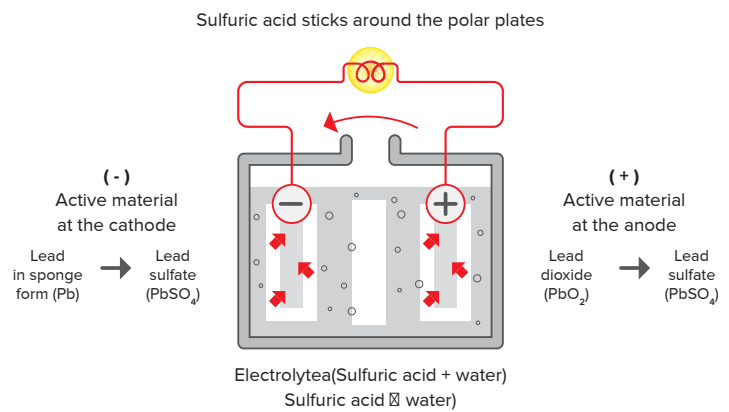
A 12V battery is used for a car

## Discharge Reactions & Charge Reactions

### Discharge Reactions

Electromotive force, generated by the chemical reaction among active materials in the polar plates and sulfuric acid in the electrolyte, activates the flow of direct electric current from the battery (discharge current).

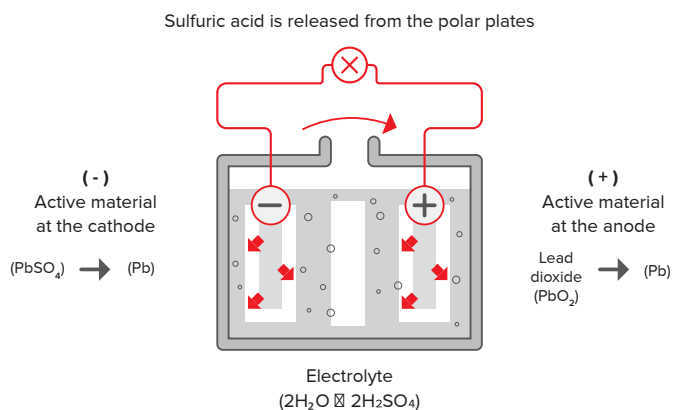
### • Discharge reactions within the battery



### Charge Reactions

When the battery is charged with direct current, chemical reactions are the reversal as opposed to the discharge reactions that occurred and the battery becomes fully charged.

### • Charge reactions within the battery



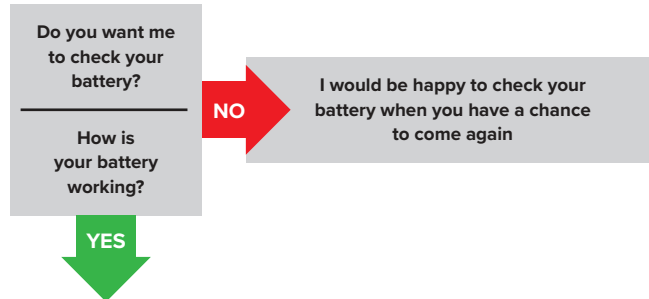
# Prevention of Battery Trouble

Following and going on with the following three steps will prevent occurrence of a battery trouble and promote communication with your customer.

*" 75% Battery Lifetime depends on you\* "*  
\*user's maintenance, usage, vehicle

## 1. Talk with the customer

To prevent a trouble occurrence, talk to each customer and advise him/her to have a battery check.



These are some of the symptoms to indicate the battery is almost out of its service



The engine doesn't start easily



The battery goes dead in very short time even after charging

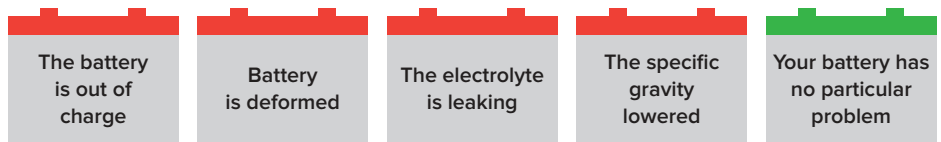


Electric appliances equipped in the car suddenly don't work very well

## 2. Check and Report

The battery check should be performed in the following procedures, and the results of the check should be reported to the customer.

1. Appearance check (cracks, chips, electrolyte leakage, corrosion of terminals, etc.)
2. Electrolyte level check
3. Specific gravity check
4. Tester check



## 3. Provide advice to customer

When reporting the results of the check, provide appropriate advice to the customer.





# Handling Battery Trouble

Most battery troubles occur due to the discharging of electricity. When a customer brings in a battery, telling that it does not work well, talk to the customer just like the one shown below and check the battery to identify its condition. Most batteries will recover easily by charging or refilling the water.

Example 01

**“I bought this battery just a while ago, but it already go dead...”**

“Did you happen to leave the interior light or small lamp for long hours? First, let me check the battery...”

“The battery will go dead very fast when you often drive the car at night, or when you don’t drive it very often...”

Example 02

**“I’ve just had it charged (or replaced) the other day, but it went dead again...”**

“Rapid charging is the first aid of battery, but it is difficult to recover the battery to its full capacity by rapid charging. Let me check the battery once again...”

“It may be caused by the disorder of the charging system in the car. I recommend having your car checked by a professional...”

Example 03

**“A lot of electrolyte in the battery was lost on these day...”**

“The electrolyte within the battery do lost a lot especially in the summer. It is a natural that the level falls down, therefore water should be refilled regularly. If you leave the electrolyte at low level while you keep on driving, the battery would go dead...”

Example 04

**“The engine doesn’t start easily in cold weather...”**

“The performance of the battery usually goes down and the engine oil will harden when it is cold outside. Usually it takes more time for the engine to start in the winter than in the summer...”

“Your battery may be short of charge. Let me check the battery...”

Example 05

**“The electrolyte is over flowing from the battery box...”**

“It may be caused by excessive refilling of water or by the disorder of the charging system of the car...”



# Caution and Safety

Please carefully read the guide below and follow suggested instruction carefully to ensure your safety and security during battery installation.

## Caution 01

It is unsafe to connect a load directly to the battery, as it will induce sparks, which may cause explosion on the battery.



## Do not connect a load directly to the battery terminals!

- Intermediate switches are needed between the battery and loads.
- The service life of the battery will be shortened if 12V middle load is taken from a 24V battery.

## Caution 02

If used in a sealed condition, the internal pressure of the battery will increase, which may blow off the caps of the vent holes and cause explosion of the battery case.



## Do not seal the battery off!

- The vent cap of the battery should not be sealed or covered.
- The battery should not be used in a sealed container.

## Caution 03

Sparks generated by static electricity may cause explosion of the battery. Use a dry cloth to clean the battery.



## Remove static electricity before battery checking

- During dry seasons, things tend to take an electrical charge. Make sure to remove static electricity before battery checking.
- The battery should not be cleaned by an electrically charged person or by a dry cloth.
- To remove static electricity from your body, hold a coin or other metal in your palm, and touch the body of the car to ground down the static. Then you can touch the battery safely.

## Caution 04

## What if ... (first aid for electrolyte accidents)



If the electrolyte comes in contact with your hand, face or eyes **flush the attached electrolyte with a lot of water.**



If the electrolyte spilled over your clothes, **wash it off with water right away, and soak it into weak alkali soap solution or rub a soap bar** into it to completely neutralize the spilled electrolyte.

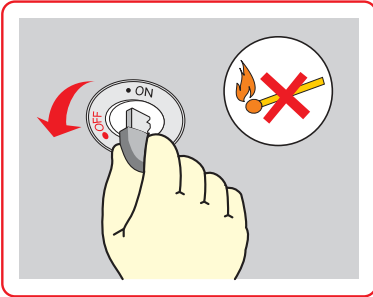


If the electrolyte spills over the floor or any other objects, **flush the spill with lots of water right away.**

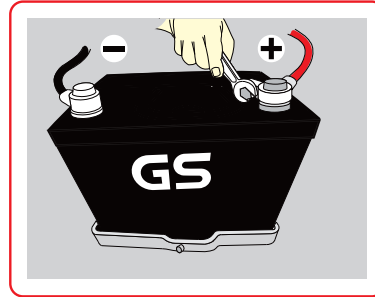


If the electrolyte spilled over into your mouth or even if you swallow the electrolyte by accident, **repeat gargling with water right away, and drink milk or lots of water.**

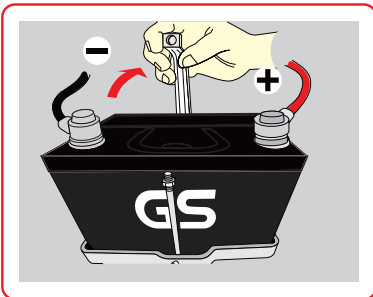
# Battery Installation Guide



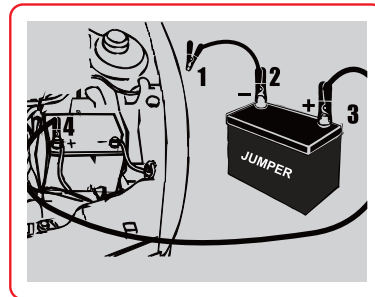
**Step 1**  
Turn off the engine when installing the battery, avoid sparks.



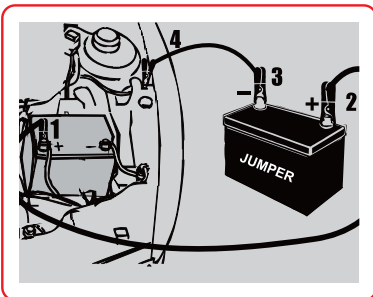
**Step 5**  
Plug the cable into the positive terminal (+) then plug the negative terminal (-).



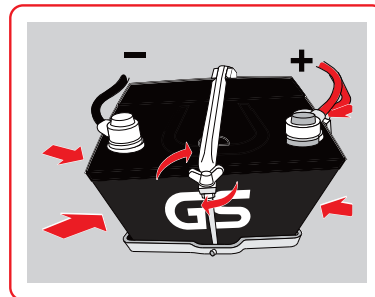
**Step 2**  
Remove the battery straps.



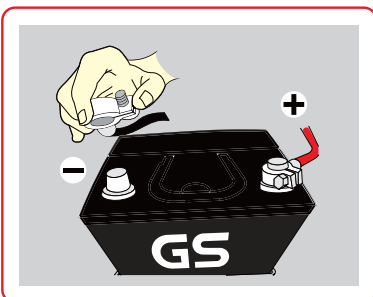
**Step 6**  
Remove the cables in the reverse order of installation.



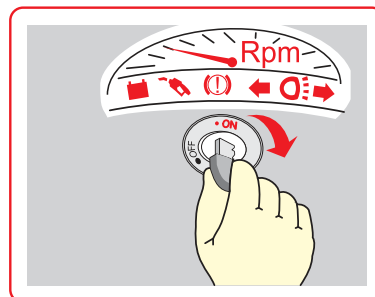
**Step 3**  
Connect the cable to the positive terminal (+) of the jumper battery with the positive terminal (+) of the battery. Connect the cable to the negative terminal (-) of the jumper battery with the car body/frame (away from the battery).



**Step 7**  
Install and fasten the battery fastener, make sure the battery is firmly installed.



**Step 4**  
Disconnect the wire on the negative terminal (-) first, then the positive terminal (+). Remove and replace with a new battery.



**Step 8**  
Turn on the engine (On) to find out the battery starter function is working perfectly.



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