Battery Model: 25
Part Number: 8025-160
Nominal Voltage: 12 volts
NSN: Number applied for, product currently available
Description: High power, sealed lead acid, engine starting battery

Battery Model: 35
Part Number: 8020-164
Nominal Voltage: 12 volts
NSN: Number applied for, product currently available
Description: High power, sealed lead acid, engine starting battery

Physical Characteristics:

Plate Design: High purity lead-tin alloy. Wound cell configuration utilizing proprietary *SPIRALCELL*® technology.
Electrolyte: Sulfuric acid, H_2SO_4
Case: Polypropylene
Color: Case: Dark Gray
Cover: "OPTIMA" Red
Group Size: BCI: 25 & 35

	Standard	Metric
Length:	9.340"	237.24 mm
Width:	6.700"	170.18 mm
Height:	7.685"	195.20 mm (Height at the top of terminals)
Weight:	31.7 lb	14.4 kg

Terminal Configuration: SAE / BCI automotive.

Performance Data:

Open Circuit Voltage (Fully charged): 12.8 volts
Internal Resistance (Fully charged): .0030 ohms
Capacity: 44 Ah (C/20)
Reserve Capacity: BCI: 90 minutes
(25 amp discharge, 80°F (26.7°C), to 10.5 volts cut-off)

Power:

CCA (BCI 0°F): 720 amps
MCA (BCI 32°F): 910 amps

Recommended Charging:

The following charging methods are recommended to ensure a long battery life: (Always use a voltage regulated charger with voltage limits set as described below.)

Model: 25 and 35
These batteries are designed for engine starting applications. They are not recommended or warranted for use in deep cycle applications.

Recommended Charging Information:

Alternator:	13.3 to 15.0 volts
Battery Charger (Constant Voltage):	13.8 to 15.0 volts; 10 amps maximum; 6-12 hours approximate
Float Charge:	13.2 to 13.8 volts; 1 amp maximum; (indefinite time at lower voltages)
Rapid Recharge: **(Constant voltage charger)**	Maximum voltage 15.6 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp. **All limits must be strictly adhered to.**

Recharge Time: (example assuming 100% discharge – 10.5 volts)

Current	Approximate time to 90% charge
100 amps	35 minutes
50 amps	75 minutes
25 amps	140 minutes

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.

Shipping and Transportation Information:

OPTIMA batteries can be shipped by AIR. The battery is nonspillable and is tested according to ICAO Technical Instructions DOC. 9284-AN/905 to meet the requirements of Packing Instructions No. 806 and is classified as non-regulated by IATA Special Provision A-48 and A-67 for UN2800. Terminals must be protected from short circuit.

BCI = Battery Council International

Battery Model: 34
Part Number: 8002-002
Nominal Voltage: 12 volts
NSN: 6140 01 457 5296
Description: High power, sealed lead acid, engine starting battery

Battery Model: 34R
Part Number: 8003-151
Nominal Voltage: 12 volts
NSN: 6140 01 475 9357
Description: High power, sealed lead acid, engine starting battery

Physical Characteristics:

Plate Design: High purity lead-tin alloy. Wound cell configuration utilizing proprietary *SPIRALCELL*® technology.
Electrolyte: Sulfuric acid, H_2SO_4
Case: Polypropylene
Color: Case: Dark Gray
Cover: "OPTIMA" Red
Group Size: BCI: 34

	Standard	Metric
Length:	10.018"	254.46 mm
Width:	6.829"	173.46 mm
Height:	7.843"	199.21 mm (Height at the top of terminals)
Weight:	37.9 lb	17.2 kg

Terminal Configuration: SAE / BCI automotive.

Performance Data:

Open Circuit Voltage (Fully charged): 12.8 volts
Internal Resistance (Fully charged): .0030 ohms
Capacity: 50 Ah (C/20)
Reserve Capacity: BCI: 100 minutes
(25 amp discharge, 80°F (26.7°C), to 10.5 volts cut-off)

Power:

CCA (BCI 0°F): 800 amps
MCA (BCI 32°F): 1000 amps

Recommended Charging:

The following charging methods are recommended to ensure a long battery life: (Always use a voltage regulated charger with voltage limits set as described below.)

Model: 34 and 34R
These batteries are designed for engine starting applications. They are not recommended or warranted for use in deep cycle applications.

Recommended Charging Information:

Alternator:	13.3 to 15.0 volts
Battery Charger (Constant Voltage):	13.8 to 15.0 volts; 10 amps maximum; 6-12 hours approximate
Float Charge:	13.2 to 13.8 volts; 1 amp maximum; (indefinite time at lower voltages)
Rapid Recharge: **(Constant voltage charger)**	Maximum voltage 15.6 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp. **All limits must be strictly adhered to.**

Recharge Time: (example assuming 100% discharge – 10.5 volts)

Current	Approximate time to 90% charge
100 amps	35 minutes
50 amps	75 minutes
25 amps	140 minutes

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.

Shipping and Transportation Information:

OPTIMA batteries can be shipped by AIR. The battery is nonspillable and is tested according to ICAO Technical Instructions DOC. 9284-AN/905 to meet the requirements of Packing Instructions No. 806 and is classified as non-regulated by IATA Special Provision A-48 and A-67 for UN2800. Terminals must be protected from short circuit.

BCI = Battery Council International

Battery Model: 34/78
Part Number: 8004-003
Nominal Voltage: 12 volts
NSN: 6140 01 457 4339
Description: High power, sealed lead acid, engine starting battery

Physical Characteristics:

Plate Design: High purity lead-tin alloy. Wound cell configuration utilizing proprietary *SPIRALCELL*® technology.
Electrolyte: Sulfuric acid, H_2SO_4
Case: Polypropylene
Color: Case: Dark Gray
Cover: "OPTIMA" Red
Group Size: BCI: 34/78

	Standard	Metric
Length:	10.018"	254.46 mm
Width:	6.886"	174.90 mm
Height:	7.841"	199.16 mm (Height at the top of terminals)
Weight:	38.8 lb	17.6 kg

Terminal Configuration: SAE / BCI automotive and GM style side terminal (3/8"-16UNC-2B threaded nut).

Performance Data:

Open Circuit Voltage (Fully charged): 12.8 volts
Internal Resistance (Fully charged): .0030 ohms
Capacity: 50 Ah (C/20)
Reserve Capacity: BCI: 100 minutes
(25 amp discharge, 80°F (26.7°C), to 10.5 volts cut-off)

Power:

CCA (BCI 0°F): 800 amps
MCA (BCI 32°F): 1000 amps

Recommended Charging:

The following charging methods are recommended to ensure a long battery life: (Always use a voltage regulated charger with voltage limits set as described below.)

Model: 34/78
These batteries are designed for engine starting applications. They are not recommended or warranted for use in deep cycle applications.

Recommended Charging Information:

Alternator:	13.3 to 15.0 volts
Battery Charger (Constant Voltage):	13.8 to 15.0 volts; 10 amps maximum; 6-12 hours approximate
Float Charge:	13.2 to 13.8 volts; 1 amp maximum; (indefinite time at lower voltages)
Rapid Recharge: **(Constant voltage charger)**	Maximum voltage 15.6 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp. **All limits must be strictly adhered to.**

Recharge Time: (example assuming 100% discharge – 10.5 volts)

Current	Approximate time to 90% charge
100 amps	35 minutes
50 amps	75 minutes
25 amps	140 minutes

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.

Shipping and Transportation Information:

OPTIMA batteries can be shipped by AIR. The battery is nonspillable and is tested according to ICAO Technical Instructions DOC. 9284-AN/905 to meet the requirements of Packing Instructions No. 806 and is classified as non-regulated by IATA Special Provision A-48 and A-67 for UN2800. Terminals must be protected from short circuit.

BCI = Battery Council International

Battery Model: 6V
Part Number: 8010-044
Nominal Voltage: 6 volts
NSN: 6140 01 475 9414
Description: High power, sealed lead acid, engine starting battery

Physical Characteristics:

Plate Design: High purity lead-tin alloy. Wound cell configuration utilizing proprietary *SPIRALCELL*® technology.
Electrolyte: Sulfuric acid, H_2SO_4
Case: Polypropylene
Color: Case: Dark Gray
Cover: "OPTIMA" Red
Group Size: BCI: N/A

	Standard	Metric
Length:	10.030"	254.76 mm
Width:	3.578"	90.88 mm
Height:	8.081"	205.26 mm (Height at the top of terminals)
Weight:	18.5 lb	8.4 kg

Terminal Configuration: SAE / BCI automotive.

Performance Data:

Open Circuit Voltage (Fully charged): 6.4 volts
Internal Resistance (Fully charged): .0019 ohms
Capacity: 50 Ah (C/20)
Reserve Capacity: BCI: 100 minutes

Power:

CCA (BCI 0°F): 800 amps
MCA (BCI 32°F): 1000 amps

Recommended Charging:

The following charging methods are recommended to ensure a long battery life: (Always use a voltage regulated charger with voltage limits set as described below.)

Model: 6V
These batteries are designed for engine starting applications. They are not recommended or warranted for use in deep cycle applications.

Recommended Charging Information:

Alternator:	6.65 to 7.5 volts
Battery Charger (Constant Voltage):	6.9 to 7.5 volts; 10 amps maximum; 6-12 hours approximate
Float Charge:	6.6 to 6.9 volts; 1 amp maximum; (indefinite time at lower voltages)
Rapid Recharge: **(Constant voltage charger)**	Maximum voltage 7.8 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp. **All limits must be strictly adhered to.**

Recharge Time: (example assuming 100% discharge – 10.5 volts)

Current	Approximate time to 90% charge
100 amps	35 minutes
50 amps	75 minutes
25 amps	140 minutes

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.

Shipping and Transportation Information:

OPTIMA batteries can be shipped by AIR. The battery is nonspillable and is tested according to ICAO Technical Instructions DOC. 9284-AN/905 to meet the requirements of Packing Instructions No. 806 and is classified as non-regulated by IATA Special Provision A-48 and A-67 for UN2800. Terminals must be protected from short circuit.

BCI = Battery Council International

Battery Model: 75/25
Part Number: 8022-091
Nominal Voltage: 12 volts
NSN: 6140 01 475 9361
Description: High power, sealed lead acid, engine starting battery

Physical Characteristics:

Plate Design:	High purity lead-tin alloy. Wound cell configuration utilizing proprietary *SPIRALCELL*® technology.
Electrolyte:	Sulfuric acid, H_2SO_4
Case:	Polypropylene
Color:	Case: Dark Gray Cover: "OPTIMA" Red
Group Size:	BCI: 75/25

	Standard	Metric
Length:	9.340"	237.24 mm
Width:	6.772"	172.01 mm
Height:	7.697"	195.50 mm (Height at the top of terminals)
Weight:	33.1 lb	15.0 kg

Terminal Configuration: SAE / BCI automotive and GM style side terminal (3/8"-16UNC-2B threaded nut).

Performance Data:

Open Circuit Voltage (Fully charged):	12.8 volts
Internal Resistance (Fully charged):	.0030 ohms
Capacity:	44 Ah (C/20)
Reserve Capacity:	BCI: 90 minutes (25 amp discharge, 80°F (26.7°C), to 10.5 volts cut-off)

Power:

CCA (BCI 0°F):	720 amps
MCA (BCI 32°F):	910 amps

Recommended Charging:

The following charging methods are recommended to ensure a long battery life: (Always use a voltage regulated charger with voltage limits set as described below.)

Model: 75/25
These batteries are designed for engine starting applications. They are <u>not</u> recommended or warranted for use in deep cycle applications.

Recommended Charging Information:

Alternator:	13.3 to 15.0 volts
Battery Charger (Constant Voltage):	13.8 to 15.0 volts; 10 amps maximum; 6-12 hours approximate
Float Charge:	13.2 to 13.8 volts; 1 amp maximum; (indefinite time at lower voltages)
Rapid Recharge: **(Constant voltage charger)**	Maximum voltage 15.6 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp. **All limits must be strictly adhered to.**

Recharge Time: (example assuming 100% discharge – 10.5 volts)

Current	Approximate time to 90% charge
100 amps	35 minutes
50 amps	75 minutes
25 amps	140 minutes

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.

Shipping and Transportation Information:

OPTIMA batteries can be shipped by AIR. The battery is nonspillable and is tested according to ICAO Technical Instructions DOC. 9284-AN/905 to meet the requirements of Packing Instructions No. 806 and is classified as non-regulated by IATA Special Provision A-48 and A-67 for UN2800. Terminals must be protected from short circuit.

BCI = Battery Council International

Battery Model: 78
Part Number: 8078-109
Nominal Voltage: 12 volts
NSN: Number applied for, product currently available
Description: High power, sealed lead acid, engine starting battery

Physical Characteristics:

Plate Design: High purity lead-tin alloy. Wound cell configuration utilizing proprietary *SPIRALCELL*® technology.
Electrolyte: Sulfuric acid, H_2SO_4
Case: Polypropylene
Color: Case: Dark Gray
Cover: "OPTIMA" Red
Group Size: BCI: 78

	Standard	Metric
Length:	10.018"	254.46 mm
Width:	7.262"	184.45 mm
Height:	7.215"	183.26 mm (Height at the top of terminals)
Weight:	39.5 lb	17.9 kg

Terminal Configuration: GM style side terminal (3/8"-16UNC-2B threaded nut).

Performance Data:

Open Circuit Voltage (Fully charged): 12.8 volts
Internal Resistance (Fully charged): .0030 ohms
Capacity: 50 Ah (C/20)
Reserve Capacity: BCI: 100 minutes
(25 amp discharge, 80°F (26.7°C), to 10.5 volts cut-off)

Power:

CCA (BCI 0°F): 800 amps
MCA (BCI 32°F): 1000 amps

Recommended Charging:

The following charging methods are recommended to ensure a long battery life: (Always use a voltage regulated charger with voltage limits set as described below.)

Model: 78
These batteries are designed for engine starting applications. They are not recommended or warranted for use in deep cycle applications.

Recommended Charging Information:

Alternator:	13.3 to 15.0 volts
Battery Charger (Constant Voltage):	13.8 to 15.0 volts; 10 amps maximum; 6-12 hours approximate
Float Charge:	13.2 to 13.8 volts; 1 amp maximum; (indefinite time at lower voltages)
Rapid Recharge:	Maximum voltage 15.6 volts. No current limit as long as battery
(Constant voltage charger)	temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp.
	All limits must be strictly adhered to.

Recharge Time: (example assuming 100% discharge – 10.5 volts)

Current	Approximate time to 90% charge
100 amps	35 minutes
50 amps	75 minutes
25 amps	140 minutes

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.

Shipping and Transportation Information:

OPTIMA batteries can be shipped by AIR. The battery is nonspillable and is tested according to ICAO Technical Instructions DOC. 9284-AN/905 to meet the requirements of Packing Instructions No. 806 and is classified as non-regulated by IATA Special Provision A-48 and A-67 for UN2800. Terminals must be protected from short circuit.

BCI = Battery Council International