

# BATTERIES

When you depend on performance and reliability,  
count on Bobcat batteries



# BATTERIES

**When you depend on performance and reliability, count on Bobcat batteries to deliver superior results in all job conditions.**

► **BOBCAT HEAVY-DUTY BATTERIES – DESIGNED TO WITHSTAND HARD JOLTS, HEAT AND COLD, AND STILL DELIVER THE POWER YOU NEED ON EVEN THE TOUGHEST JOBS.**

► **ROBUST ENOUGH TO COPE WITH DEMANDING REQUIREMENTS AND VIBRATIONS CAUSED BY CONSTRUCTION EQUIPMENT IN ROUGH TERRAIN.**

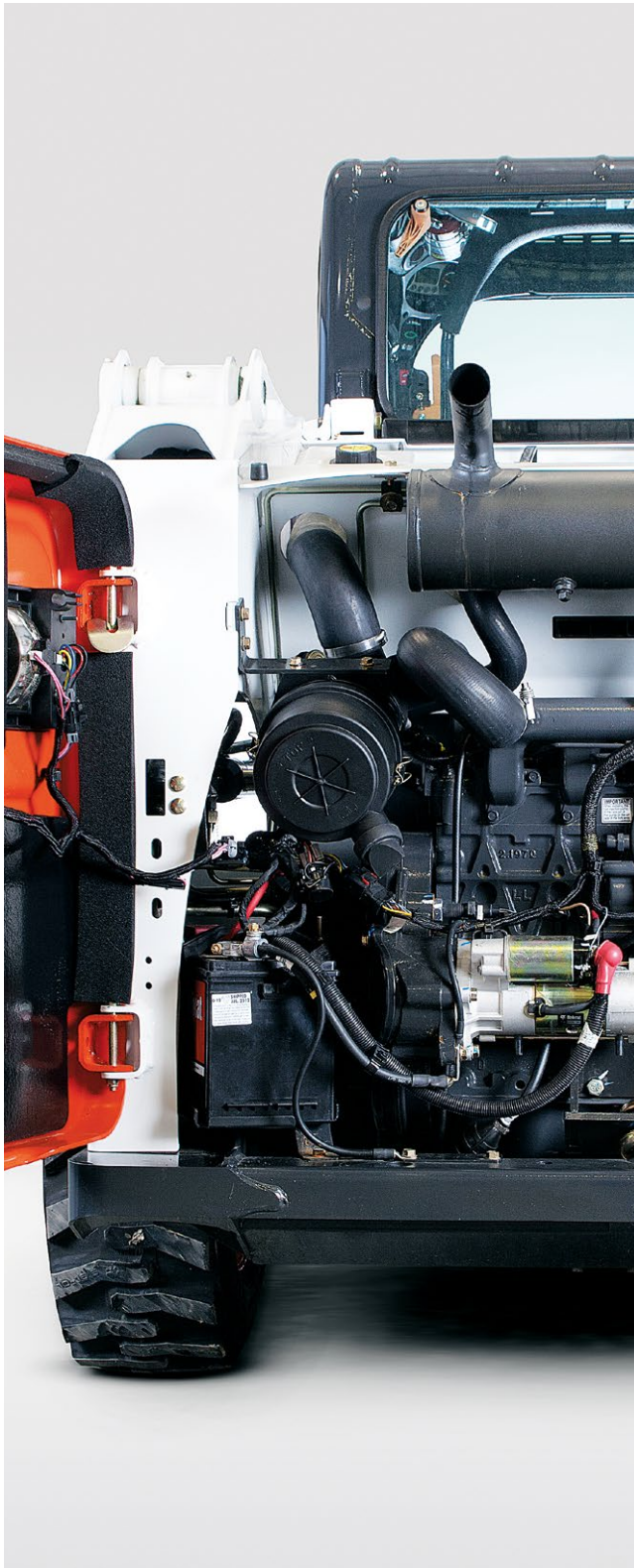
► **MANUFACTURED IN PARTNERSHIP WITH A WORLD-LEADING BATTERY MANUFACTURER FOR HEAVY-DUTY OFF-ROAD APPLICATIONS.**



## **BOBCAT HEAVY-DUTY BATTERIES ARE DESIGNED WITH TOUGH JOBS IN MIND!**

Crank it up with a Bobcat heavy-duty battery! Bobcat equipment needs a battery that can deliver the necessary power while withstanding hard jolts and heat. There's a Bobcat battery specifically designed for your Bobcat equipment.





### UNLIKE LOOK-A-LIKE BATTERIES, BOBCAT BATTERIES FEATURE

- Full-size reinforced plates that store full cranking power-even in extreme conditions
- Lead-welded post seal and anchored elements
- Microporous envelope separators for long battery life
- Specifically designed for Bobcat equipment
- One-piece cover with foldable suitcase handle for easy installation



## TIPS

### STOCK MANAGEMENT

Place new batteries at the back of the rack so that the old stock is used first. Use the freshness label for a quick indication at one glance.

TYPE SPECIFICATION



BATTERY MANUFACTURING DATE

1 LETTER: BIMESTER

- A = Jan / Feb
- B = Mar / Apr
- C = May / Jun
- D = Jul / Aug
- E = Sep / Oct
- F = Nov / Dec

2 NUMBER: YEAR

Last digit of the year (e.g, 0 for 2020, 1 for 2021)

3 PRINTING REFERENCE



EXAMPLE: 2020 MAY / JUNE

	JANUARY FEBRUARY	MARCH APRIL	MAY JUNE	JULY AUGUST	SEPTEMBER OCTOBER	NOVEMBER DECEMBER
2020	<div>0A</div> <div>981AB448</div>	<div>0B</div> <div>981AB449</div>	<div>0C</div> <div>981AB450</div>	<div>0D</div> <div>981AB451</div>	<div>0E</div> <div>981AB452</div>	<div>0F</div> <div>981AB453</div>
2021	<div>1A</div> <div>981AB454</div>	<div>1B</div> <div>981AB455</div>	<div>1C</div> <div>981AB456</div>	<div>1D</div> <div>981AB457</div>	<div>1E</div> <div>981AB458</div>	<div>1F</div> <div>981AB459</div>
2022	<div>2A</div> <div>981AB460</div>	<div>2B</div> <div>981AB461</div>	<div>2C</div> <div>981AB462</div>	<div>2D</div> <div>981AB463</div>	<div>2E</div> <div>981AB464</div>	<div>2F</div> <div>981AB465</div>



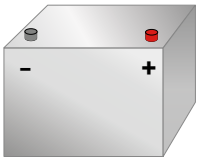
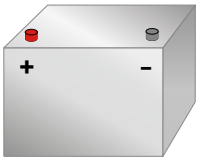
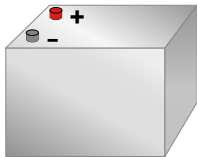
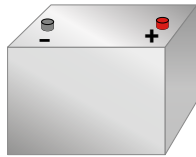
### FRESHNESS LABEL

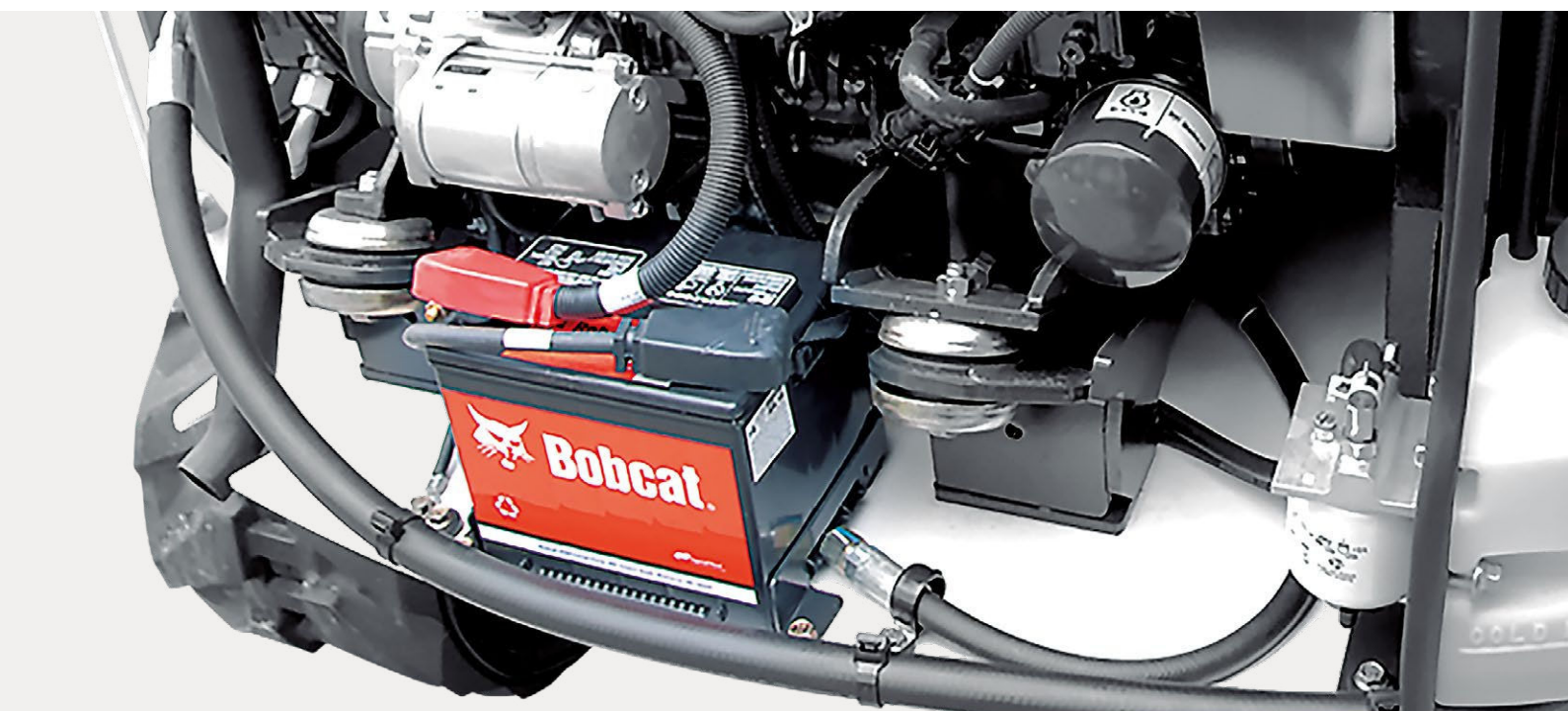
A quick and visible indicator of the battery manufacturing date, the Freshness Label is great for efficient inventory handling and ensures that end-customers always receive batteries with good state-of-charge.

Because they self-discharge over time when stocked, batteries are considered to be 'fresh goods'. Therefore, FIFO (first in, first out) stock management is essential to make sure the batteries are always up-to-date and not aging on the rack.



### BATTERIES TERMINALS LAYOUT TYPES

A	B	C	D
			



## TYPE SPECIFICATION

PART NUMBER	BATTERY BOX SIZE	VERSION	NOMINAL VOLTAGE (V)	C <sub>20</sub> (Ah)	RC (min)	CCA (A)	DIMENSIONS (MM)			TERMINAL LAYOUT	BATTERY WEIGHT (kg)	MODEL
							L	W	H			
EXCAVATORS												
6669600	G26	Wet	12	42	75	530	208	173	197	B	13,4	E32, E35, E45, E50, E55
7304126	L01	Wet	12	55		480	207	175	190	B	14,2	E17Z, E26, E27, E27Z, E32, E35, E45, E50, E55
7312552		Dry	12			650	242	175	190	A	15	E26, E32, E32i, E35, E35i, E42, E45, E50, E55
6673865	G24	Wet	12	65	115	600	260	173	225	B	17,5	E25, E26, E32, E35, E45, E50, E55
6987600	G31	Wet	12	110	190	950	330	173	240	D	26,1	E60, E80
7335400		Wet	12			850					17,5	E57W
LOADERS												
6669600	G26	Wet	12	42	75	530	208	173	197	B	13,4	MT50, MT52, MT55
7306047	L02	Wet	12	60		640	242	175	190	B	17,6	S100, S450, S510, S530, S550, S570, S590, T110, T450, T590
7312552		Dry	12			600	242	175	190	A	15	S70, S100, S130, S150, S160, S175, S185, S205, S450, S510, S530, S550, S570, S590, S595, S630, S650, S750, A770, S770, S850, T110, T140, T180, T190, T450, T550, T590, T630, T650
6673865	G24	Wet	12	65	115	600	260	173	225	B	17,5	S70, S100, S450, S510, S530, S550, S570, S590, S630, S650, T590, T595, T650
6987600	G31	Wet	12	110	190	950	330	173	240	D	26,1	S66/T66, S76/T76
TELEHANDLERS												
7223985	D02	Wet	12	110		750	349	175	235	A	27,5	Perkins, Deutz engines
7159404	A	Wet	12	140		750	513	189	223	C	38,4	Perkins, Deutz engines
7160984 = 7288629	D02	Wet	12	110		900	349	175	235	A	28,4	Doosan / Bobcat engines
7014631		Wet	12				483	217	231		47,16	Rotary Telescopic Handlers
BACKHOE LOADERS												
7289600		Wet	12	120							19,3	B700, B730, B750, B780
UNIVERSAL												
103496801CC	G78	Wet	12	75	120	770	260	180	186	B – side terminals	19,4	

# BATTERY LIFE MANAGEMENT



Bobcat batteries have many unique design features for use in Bobcat machinery used in tough environments. Batteries are an important part of Bobcat equipment and typically provide many years of trouble-free service with proper maintenance. This document covers important information for maintaining batteries in machine inventory, new stock and preparing batteries for service. These tips will improve performance, extend battery service life and identify warranty coverage requirements.

## MAINTENANCE-FREE BATTERY

The term "Maintenance-free" refers to a battery that normally requires no service watering during its lifetime of use. Proper testing, charging, and storage are important to maximize service life on all batteries.

Refer to the Operation & Maintenance Manual or Service Manual as necessary for details of procedures outlined below.

## BATTERY CHARGE LEVELS ON NEW MACHINES

A key factor for long battery life is to maintain the charge level. The machine charging system is designed to maintain battery charge, not to fully recharge a severely discharged battery. On average, a machine needs to run for 15–20 minutes to recover from the battery drain at start up.

The most critical time to perform battery maintenance is when a machine is newly delivered to the dealership. Bobcat Company strives to have the batteries in production machines fully charged at shipment. Occasionally, a machine may arrive at a dealer not fully charged because of the many start-ups during machine shipment.

## BATTERY VOLTAGE

12-volt battery has six cells, each with 2.1 volts at full charge. A battery is considered fully charged at 12.6 volts or higher. When the battery's voltage drops, even a small amount, it makes a big difference in its performance. Though not fully charged, a battery is considered charged at 12.4 volts or higher. It is considered discharged at 12.39 volts or less.

The battery voltage is required to be checked upon equipment arrival at a dealership per the procedures described further in this document. Any battery found below 12.4 volts must be charged using a low charge rate to 100% charge.

Local climates may expose batteries in machine inventory to extreme hot or cold temperatures. Because of this, the battery state of charge in machine inventory should be checked every 30 – 60 days. This check is especially important in winter months to avoid battery freezing due to low charge.

## BATTERY TESTING

The first step in maintenance on an installed battery is to visually inspect for corroded terminals, broken posts, cracked or damaged cases, low electrolyte levels, missing or damaged vent caps or loose connections. Clean, fill with distilled or de-ionized water, or repair as required.

The simplest and most common check to determine a battery's state of charge is to use a digital multimeter, or voltmeter. A temperature compensated hydrometer test can also be used and will detect shorted cells.

A battery found below 12.4 volts must be charged to 100% charge per the battery charger's recommendation. An automatic charge is preferred to avoid a possible overcharge condition. To get an accurate reading after charging, allow at least a 60 minutes after the battery has been charged, or loaded, before rechecking the open circuit voltage. If the reading is less than 12.4 volts after the battery has been charged for several hours, test the battery using a conductance or load tester.

## CONDUCTANCE TEST

Conductance testers or adjustable load testers are the most reliable tools for consistently determining if a battery is serviceable. A conductance tester determines, prior to charging, the battery's ability to transmit current through its internal structure. This test can detect cell defects, shorts, and normal aging. Results will show measured battery rating (CCA) compared to the specified rating and indicate if battery is good, bad, or requires charging.

## LOAD TEST

A load test accurately determines the battery's ability to deliver power needed for normal engine starting. A load tester applies a load (adjusted to 1/2 of the battery's rated CCA) to a fully charged battery for 10–15 seconds then measures the resulting voltage. When performing a 1/2 CCA load test for 15 seconds at room temperature 21°C (70°F), results of 9.6 volts or higher typically indicates the battery is serviceable.

**NOTE:** If a battery passes a conductance or load test but loses its charge rapidly when connected, verify everything on the machine is turned OFF and test for any unusual drain on the battery.

## BATTERY CHARGING

A battery charger rated at 15 volts or less is recommended. A low, sufficient charge rate and adequate time is required to bring a battery to 100% charge, or 12.6 volts, rested open circuit voltage. Batteries should be charged at room temperature to avoid any under charge or over charge conditions.

The charging process reverses the chemical reaction of discharging, converting the lead sulfate and water back to the original materials. If the battery sits at a partially discharged state for an extended period, permanent sulfation occurs, which is irreversible.

After charging, again check the electrolyte level in all cells to ensure the proper level.

## TYPES OF BATTERY CHARGERS

### CONSTANT CURRENT (MANUAL) – NOT RECOMMENDED

Using this type of charger makes the battery vulnerable to overcharging which causes gassing ('boiling').

### CONSTANT CURRENT (AUTOMATIC) – LOW COST AND GOOD FOR MOST APPLICATIONS

Constant current charger has voltage sensing logic that turns charging on and off as needed. Typical low current examples that use this technology are referred to as 'Battery Maintainers' or 'Trickle Chargers' and have reverse polarity protection as a typical feature.

### CONSTANT VOLTAGE – EXCELLENT OPERATIONAL FEATURES

The charging voltage and internal battery resistance remain constant. As a result, the charging current decreases over time as the charge level increases. Charging is complete when the current doesn't change over a 1-hour period. This type of charger is most similar to a voltage regulated charging system (alternator) in a machine and prevents gassing.

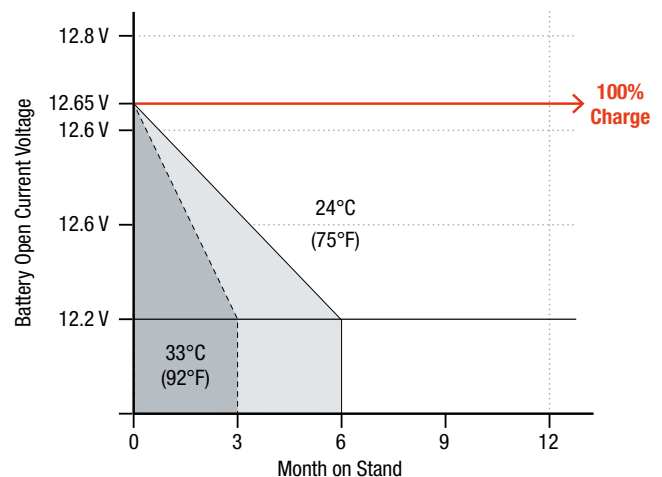
Other charger types may combine these types of technology and some may have battery and electrical system testing capability (diagnostic chargers).

## BATTERY SELF-DISCHARGE OVER TIME

All batteries will slowly lose charge when not in service. This is known as self-discharge and will result in reduced performance and service life. The rate of self-discharge increases at higher temperatures. When the batteries become discharged, a boosting charge should be administered regardless if the batteries are to remain in stock or are being prepared for sale. This boost charge will normally be required every

4–6 months of storage to keep the battery above 75% charge.

Many products have features that require battery power even when the machine is not being used. This also contributes to battery discharge.



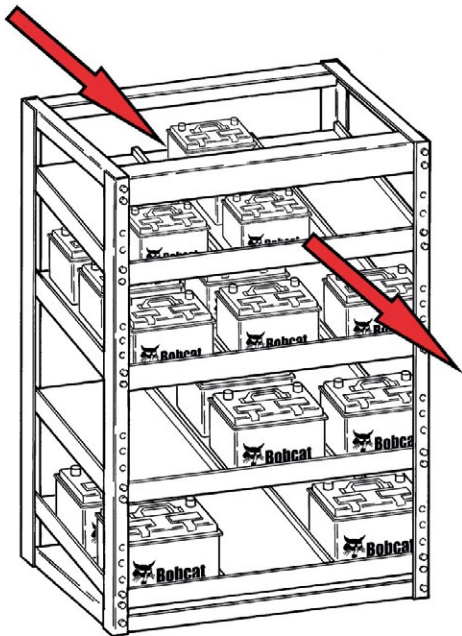
BATTERY STOCK MAINTENANCE

Store batteries under roof, off the floor or ground and in a cool, dry, well-ventilated area that is separated from incompatible materials and from activities that may create flames, spark, or heat. Avoid storing batteries in high 38°C (+100°F) ambient conditions. High temperature increases the battery chemical reaction which will shorten shelf life and accelerate grid corrosion.

Check the state of charge on batteries stored over 3 months and keep batteries above 75% charge to avoid premature sulfation that causes loss of capacity and early battery failure.

Battery stock must be rotated on a strict, first-in, first-out basis. In order to accomplish this, a proper inventory battery maintenance program should be established. Date codes are stamped on each battery to aid in rotating the batteries for retail.

Battery racks provide the best method for storing and insuring the proper rotation of batteries. Racks should be marked on the front and rear so the same type of battery will go in the same rack every time. If racks are loaded properly, the oldest battery of a particular type will always appear in the front. Batteries used for display purposes and battery stock must not be neglected. They should be boosted whenever the battery open circuit voltage drops below 12.4 volts.



BATTERY FREEZING

The chart below shows the temperature that electrolyte in batteries, at various states of charge, begins to freeze or ice crystals begin to form. The electrolyte does not freeze solid until a lower temperature is reached. Solid freezing of electrolyte in a discharged battery will damage the plates and crack the container. Batteries in which the electrolyte has frozen must be replaced and properly disposed of.

VOLTAGE READING AT		BATTERY CHARGE	BATTERY FREEZE POINT
27°C (80°F)	-18°C (0°F)		
12.65	12.45	100%	-59°C (-74°F)
12.45	12.25	75%	-48°C (-54°F)
12.24	12.04	50%	-37°C (-35°F)
12.06	11.86	25%	-27°C (-17°F)

If a battery becomes severely discharged, the electrolyte can freeze in extreme conditions below -18°C (0°F). Since temperature affects voltage readings, batteries should be kept at least 75% charged to prevent the electrolyte from freezing.

PREPARING A BATTERY FOR RETAIL

Always charge and load test a suspect battery to determine if replacement is necessary. If a replacement battery is removed from storage to be installed into service, first check the state of charge. Then check the electrolyte level in all battery cells. If required, add additional distilled water or de-ionized water to bring all levels to the bottom of the vent wells. Maintenance free batteries are clearly labeled. Do not open the vent caps on maintenance free batteries.

Keep the battery vents closed while charging the battery. Charging produces ignitable gases that must be routed through the battery vent cap or plug. Use a good charger.

BATTERY MAINTENANCE AFTER RETAIL

A battery is a perishable item that requires periodic maintenance. With a reasonable amount of care, battery life can be significantly extended. Neglect and abuse will result in shorter battery life. A routine check of the battery can be made during periodic fueling stops or service intervals such as engine oil changes. A visual inspection should include defective cables, loose connections, corrosion, cracked cases, loose hold-downs and loose terminal posts. Keeping the battery and connections secure and clean will improve the service received from the battery. If the battery electrolyte requires top-off while in service, add distilled water or de-ionized water. Do not add acid.

BATTERY SERVICE DURING MACHINE STORAGE

If storing a machine for an extended period of time, remove the battery. Verify the correct electrolyte level and fully charge the battery. Store the battery in a cool dry place above freezing and boost charge periodically.

Operation & Maintenance Manuals include information on battery maintenance and proper long-term storage. Review this with your customers to promote battery life and customer satisfaction.



# BE OM **EN OFFERT**

Klicka bara på **knappen** eller skanna **QR-koden** nedan för åtkomst till vårt offertformulär.

Vi kontakter dig så snart som möjligt. Tack!



**BEGÄR OFFERT**

