AGM Battery Selection & Maintenance

Professional Checklist for Optimal Performance & Longevity

1 Battery Selection Criteria

Determine Power Requirements

Calculate total amp-hour (Ah) capacity needed based on load requirements and runtime expectations

Check Physical Dimensions

Measure available space for length, width, height, and terminal orientation

Verify Voltage Requirements

Confirm 6V, 12V, or series configuration matches system voltage

Assess Discharge Rate

Choose appropriate C-rate (C/20, C/10, C/5) based on application discharge profile

Consider Operating Temperature

Select battery rated for expected ambient temperature range (-20°C to +50°C typical)

Check Cycle Life Rating

Verify cycle life meets application requirements (typically 300-1000+ cycles at 50% DOD)

Review Certifications

Ensure UL, CE, or other required certifications for your application/region

Specification	Typical Range	Selection Notes
Capacity (Ah)	7Ah - 200Ah+	Size based on load × runtime ÷ DOD
Float Voltage	13.6-13.8V (12V)	Match charger output voltage
Max Discharge Current	3C - 5C rate	Ensure adequate for startup loads
Self-Discharge	2-3% per month	Lower is better for standby apps

2 Regular Maintenance Tasks

Monthly Voltage Check

Measure resting voltage (should be ≥12.7V for 12V AGM after 24hr rest)

Visual Inspection

Check for case swelling, cracks, corrosion, or electrolyte leakage

Terminal Cleaning

Clean terminals with baking soda solution, rinse, dry, and apply terminal protectant

Connection Torque Check

Verify terminal connections are tight (typically 10-15 ft-lbs for automotive terminals)

Load Testing (Quarterly)

Perform capacity test at C/20 rate to verify battery retains >80% of rated capacity

Equalization Charge (if supported)

Apply controlled overcharge (14.4V for 2-4 hours) quarterly if manufacturer specifies

Temperature Monitoring

Log operating temperature; AGM performs best at 20-25°C (68-77°F)

Charging System Verification

Confirm charger voltage regulation and temperature compensation are functioning

Maintenance Schedule: Monthly visual inspections, quarterly load tests, and annual comprehensive testing will maximize AGM battery life and ensure reliable performance.

A Safety Precautions

Personal Protection Equipment

Wear safety glasses, gloves, and protective clothing when handling batteries

Ventilation Requirements

Ensure adequate ventilation in battery compartment to prevent hydrogen gas accumulation

Fire Safety Precautions

Keep Class D fire extinguisher nearby and eliminate ignition sources during maintenance

Proper Lifting Technique

Use appropriate lifting equipment for batteries >40 lbs; lift with legs, not back

Electrical Safety

Remove jewelry, use insulated tools, and de-energize system before maintenance

Emergency Procedures

Know location of eyewash station, emergency contacts, and first aid procedures

Troubleshooting Guide

Low Voltage Diagnosis

Check for sulfation, deep discharge damage, or charging system failure if voltage <12.4V

Capacity Loss Investigation

Test individual cells, check for thermal runaway, or age-related degradation

High Temperature Analysis

Investigate overcharging, poor ventilation, or internal short circuits

Premature Failure Analysis

Review depth of discharge patterns, charging profile, and operating conditions

Performance Documentation

Maintain log of voltage, capacity tests, and operating conditions for trend analysis

Replacement Criteria: Replace AGM batteries when capacity drops below 80% of rated value, internal resistance increases >150% of initial value, or after 3-5 years depending on application.