IMI Webinar 29th June 2021

Presented by

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CV

Rotronics Battery Management Solutions

Rotronics is a division of Rozone limited, and part of the Rubery Owen group of companies, based in the West Midlands

We work alongside automotive, fleet, and commercial vehicle workshops, integrating proactive battery maintenance programmes into everyday vehicle maintenance routines using Midtronics & CTEK industry leading testing and charging technologies

Reducing the impact of Roadside defects and vehicle “non-starts by as much as 50%+ and increasing battery lifecycle performance

The development and introduction of ROBIS (Rotronics Online Battery Information System) delivers real time information. Enabling workshop management visibility of the testing and charging productivity and compliance within the workshop process and how the ROI can be measured and achieved

Evolution of Testing

Accuracy

Load Testers

Conductance Testing

+EFB Testing

+ Connectivity EFB & DATA

+ Controlled load, RC Testing & Wi-Fi

ROBIS
ROTRONICS ONLINE BATTERY INFORMATION SYSTEM

+ RC, Charge Acceptance, Charging & Connectivity

XMB & XRC
EV Module Balancing & Recovery Charging

TIME

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Audience Poll Questions 1 & 2

What is Conductance Technology?

Conductance:
A measure of the batteries ability to conduct electrical current, using a small AC signal (**The Cranking current).**

Reserve Capacity:
A measure of the batteries ability to sustain a minimum system voltage under load in the event of a charging system failure. **(The Endurance, Ahr)**

Charge Acceptance:
The batteries ability to accept charge current

Conductance Profiling
All of these elements are used to measure a batteries ability to perform and deliver power for both **STARTING & CONSUMER** Power requirements

So why Change the way we test Batteries?

Battery Demands Then…….

- The battery was mainly used to start the engine (Short high power demands)
- Few consumers were left on when the engine was operating
- Emphasis on testing the CCA (Cold Cranking Amps) to determine whether the vehicle could start

Sprint

Conductance Measurement being the sole purpose of the test

Single FUSED Feed
To Radio & Starter

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So why Change the way we test Batteries?

Battery Demands Today……

- High Vehicle consumer demands (requiring power for longer)
- Engine ON/OFF loads much higher, demanding more from the battery
- Increased vehicle technology, supporting passenger comfort
- Start/Stop systems

Endurance

Conductance and RC (Reserve Capacity) Testing required

3 positive feeds
& 100a Fuses

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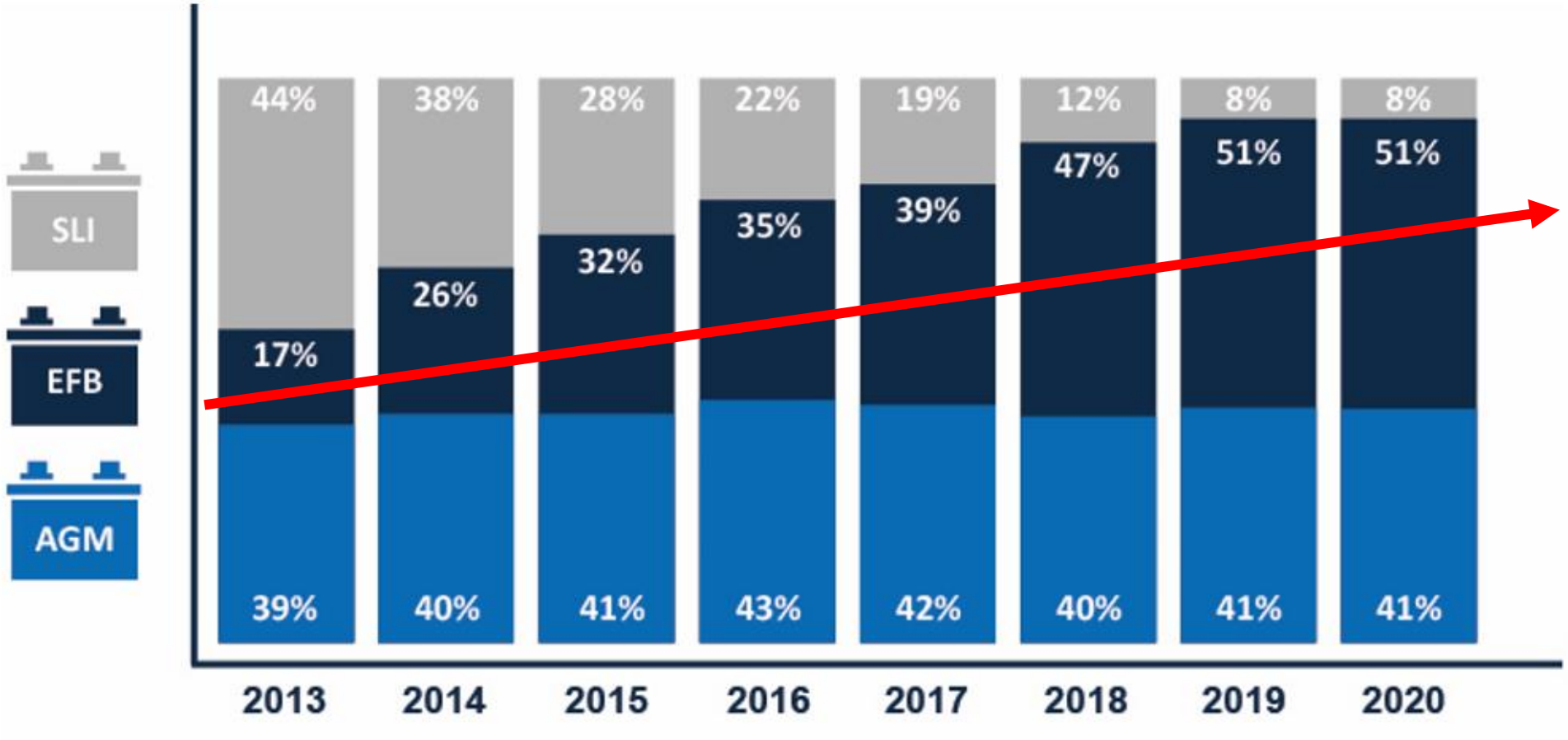
Changing Battery Technology



EFB’s are replacing standard Lead Acid Batteries

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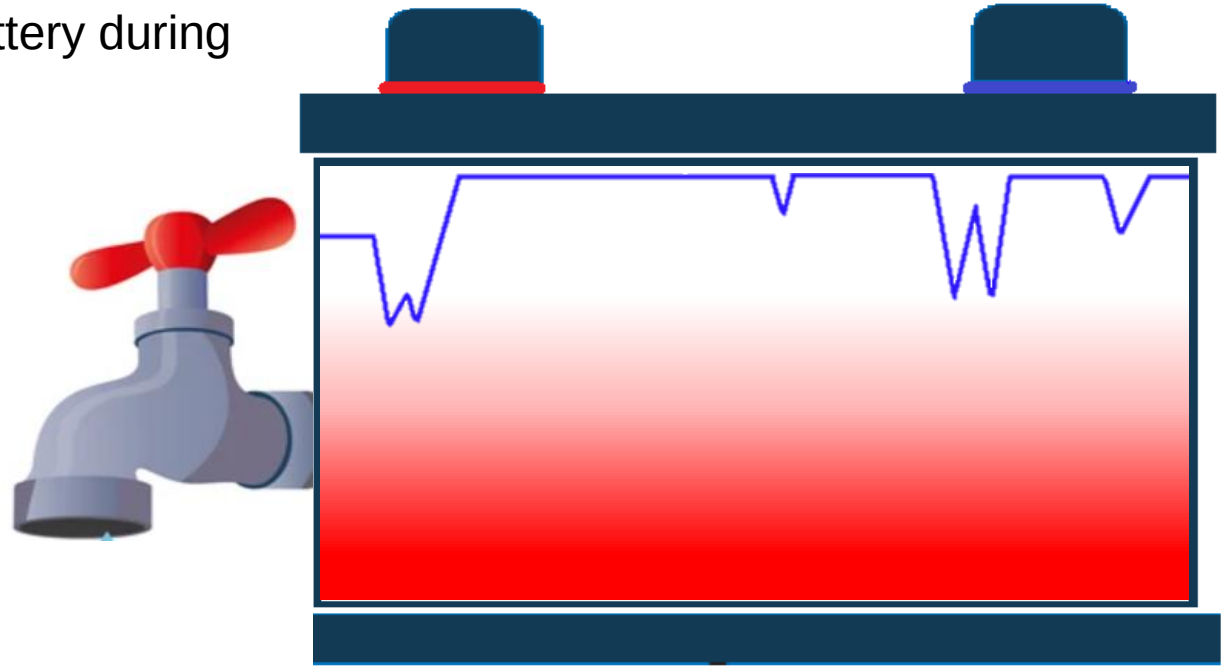
So why the need for Testing?

If we consider a battery to be a power source, with a tap. Every time the vehicle needs energy, the tap opens, allowing power to be used.

The vehicles charging system then recovers the battery during drive cycles. So that's all taken care of, right?



Not quite that simple…….

- Temperature
- Driving Habits
- Short "Start/Stop" journeys
- Battery Age
- Battery Voltage & Sulphation
- Correct Battery Application
- Consumer loads on with Ignition off
- Lockdown

- All have an impact on the batteries ability to perform, and stay healthy……**Batteries don't last forever**

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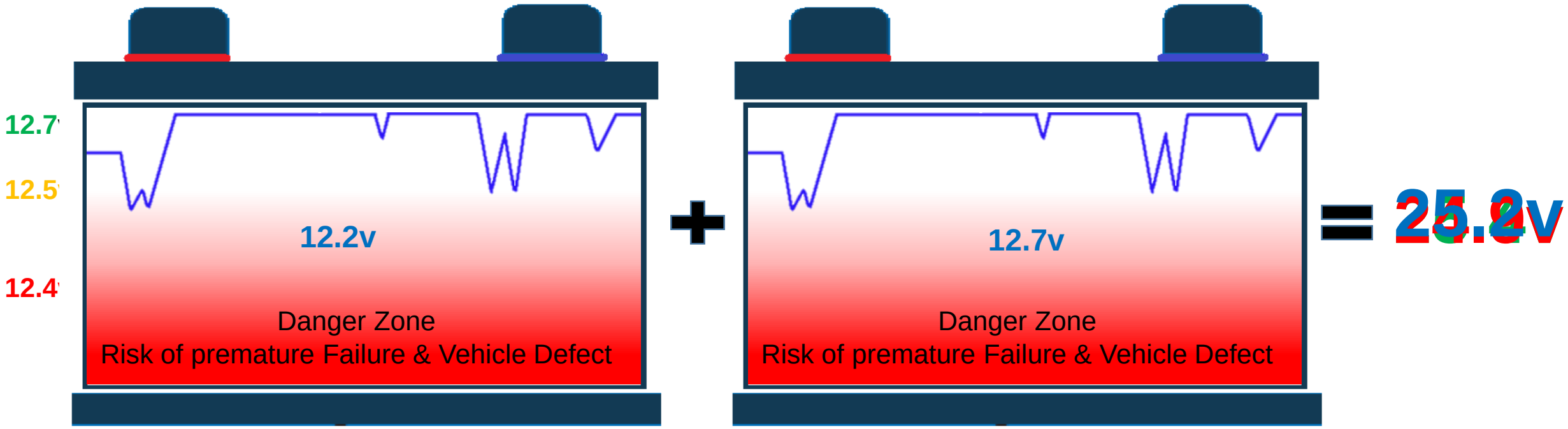
Double the Trouble 24V battery Sets



- A 24v battery set has the added complication of going **Out of Balance**. (A natural process caused as the batteries are used and cycled)
- Albeit the overall “pack voltage” will often show over 25v (when tested across the set) by testing each of the batteries will highlight both SOC (State of charge) and SOH (State of health) variation
- If left untreated the **imbalance** only gets worse, and will result in premature battery failure

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This can only be reversed by charging the batteries independently

Audience Poll Questions 3

Where does the introduction of Electric Vehicles leave the 12v battery?

Electric vehicles still require a 12v battery, which remains an integral part of the vehicle system…why?

- The EV batteries need to be charged & controlled, and that requires a computer to manage which is powered by the 12v battery
- In addition it provides power to other 12v applications in the car such as Lights, ICE & heating/cooling systems.
- The battery is often charged via DC/DC charging from the EV pack.
- If the 12V battery goes flat, the vehicle wont start
- The battery can be charged using a standard smart charger

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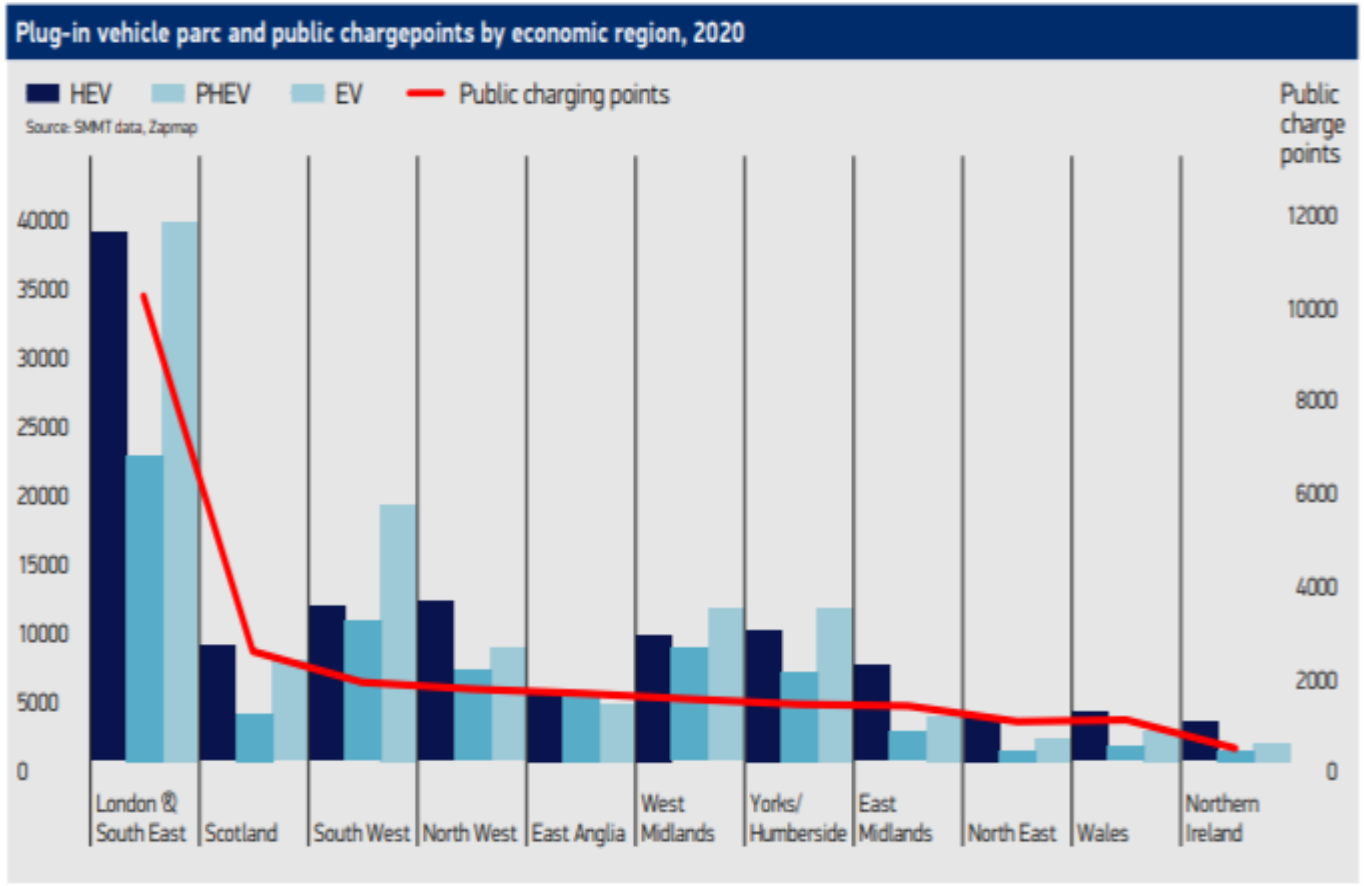
Charging Infrastructure Today & Tomorrow



- **1 in 3** households rely on “on street” parking
- **40,000** public charging points today
- **2.7m** charge-points required by 2030
- **700** new public charge points a day required to meet 2030 plan (of which 1.9m will be public charge-points)
- Current build is **42!!!**

Source: SMMT

EV's growing in Market Share

	2020		2019		2018		2017	
	Registrations	Market share	Registrations	Market share	Registrations	Market share	Registrations	Market share
BEVs	108,205	6.6%	37,850	1.6%	15,510	0.7%	13,632	0.5%
PHEVs	66,877	4.1%	34,984	1.5%	44,437	1.9%	35,585	1.4%
Total plug-ins	175,082	**10.7%**	72,834	**3.2%**	59,947	**2.5%**	49,217	**1.9%**
All cars	1,631,064	100%	2,311,140	100%	2,367,147	100%	2,540,617	100%

- Of the c.35 million cars in the UK at the end of 2020
- Circa 426,000 (1.2%) were plug-in vehicles.
- BEVs made up **0.6%**

BEV - Battery Electric vehicle
PHEV – Hybrid's

Source: SMMT

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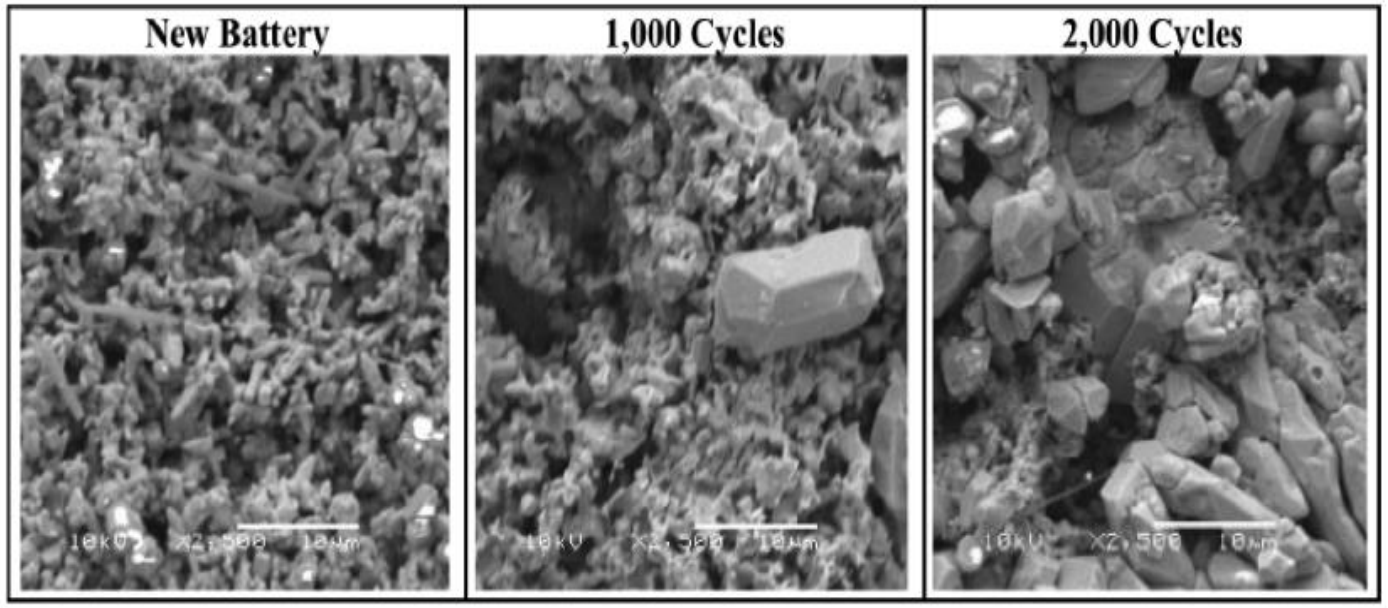
Meet the Hidden Battery Killer… **SULPHATION**

- A common cause of battery failure with all lead Acid batteries, is Sulphation
- A condition caused through poor battery maintenance, and associated with Voltage and the aging of a battery



FACTS!

- A 12v battery is chemically empty @ **11.7v**
- Fully charged voltage:
  - **Flooded @ 12.72v**
  - **AGM 12.85v**

- Below **12.4v** increases sulphation rapidly & reduces the serviceable life of the battery

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Audience Poll Question 4


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Bringing Testing & Charging into view
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IAM ROBIS

ROTRONICS ONLINE BATTERY INFORMATION SYSTEM

- Industry 1st “Live” Battery Management Portal
- 4 Million test results uploaded to date
- Over 200 company users, across 500+ workshops
- Data collected wirelessly using EXP/CPX platforms

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Some of our ROBIS users

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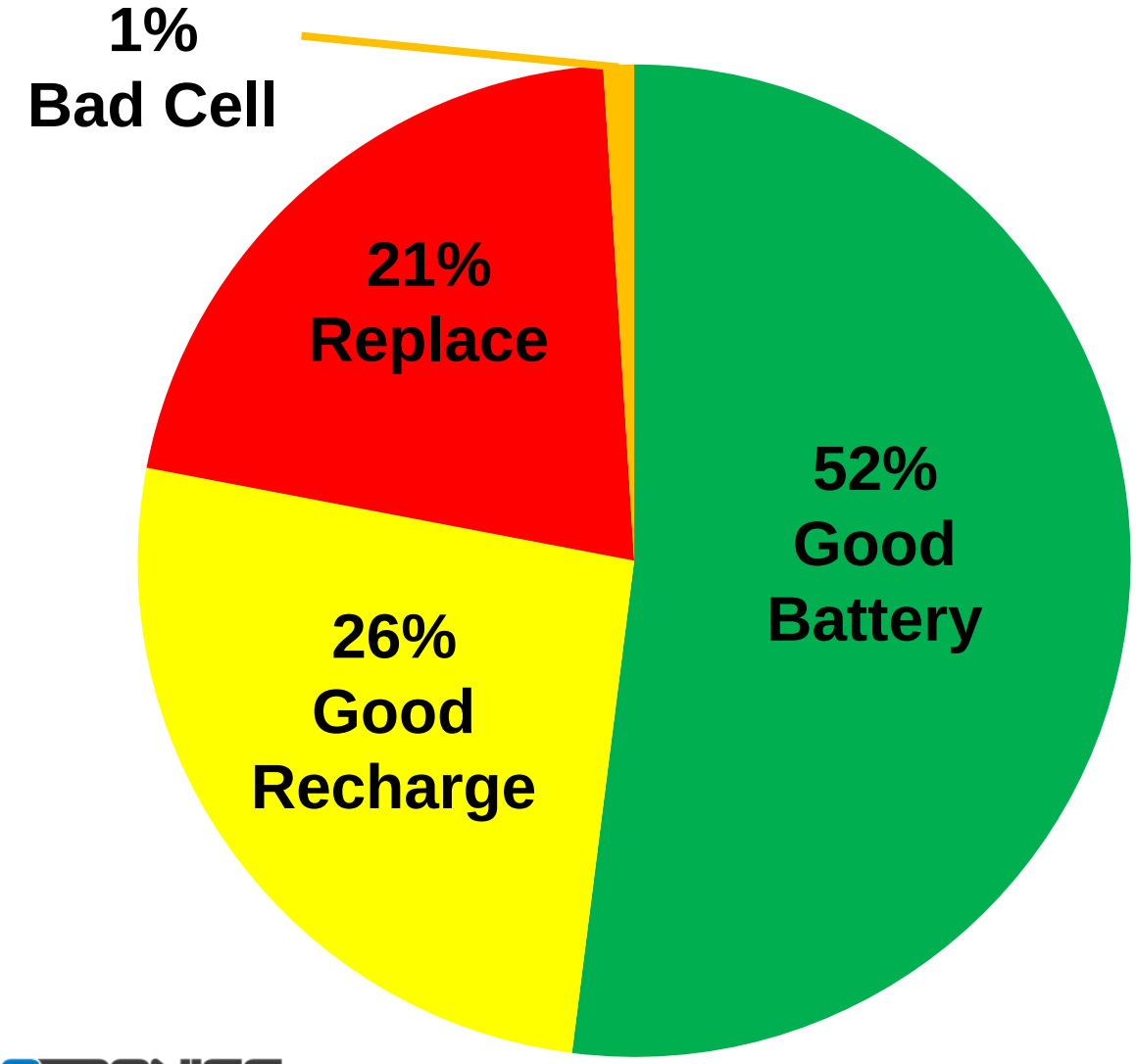
ROBIS - Breakdown of Battery Test Results

Across all Automotive segments



- **49% Require Attention**
- **1% FAILED** due to manufacture defect
- **27% REQUIRE CHARGING**
  To reduce risk of premature failure
- **57%** of 24V battery sets tested are **OUT OF BALANCE**

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Data Source: ROBIS 3.9M test results June 2021

ROBIS Analysis by Industry Segment

Segment	Good Battery	Requires Charging	Requires Replacement
Main Dealer CV	**76%**	16%	8%
PSV	55%	26%	19%
CV Workshop & Fleets	38%	42%	20%
Main Dealer Passenger	27%	**51%**	22%
Independent Workshops	23%	**50%**	**27%**

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Data Source: ROBIS June 2021

Ways to Improve the **ROI** of Workshop Battery Maintenance Equipment

Average Diagnosis Opportunity:

- 26% of vehicles require charging (1 in 3 vehicles entering the workshop)
- 21% of batteries require replacement (1 in 5 vehicles entering the workshop)

Calculation:

(Based on throughput of 5 services per day x 5 days)

- 8 Charging opportunities (@ £5 charge fee = £40)
- 5 Replacement batteries (@ £150 replacement battery cost = £750

Revenue:

Weekly = £790
Monthly (x4) = £3,160
Annually = £37,920

Increased: **Customer Service & Revenues**

Reduced: **Risk of Breakdown & Operating Costs**

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Audience Poll Question 5

Next Steps

Together keeping your vehicles on the move for longer

- You now have a better understanding of the emerging battery diagnostic technology
- You now have the ability to Identify, Action and Maintain Batteries
- You have the ability to change/enhance the way you service your customers and vehicle batteries

- **How can we support you:**
  - Rotronics can help you prepare you for the future
  - Work with you to understand & implement a pro-active plan, based on our Experience & Knowledge
  - Together we can develop a bespoke plan for your fleet or workshop needs
  - Deliver a proven **RETURN ON INVESTMENT**

Presentation End
Thank you

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Please connect with me on LinkedIn, to keep up to date on the latest news and updates from Rotronics, or request an Online demo of ROBIS

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