Gregory Karsten

From: Hendrik van Niekerk
Sent: Wednesday, 13 August 2025 11:55
To: Gregory Karsten
Cc: Sello Taku; Sello Sease; Sipho Dubazane; Sikelela Nzuza; Johan Kotze; Lionel Jacobs; Jade Kruger; Piet Izaaks; Gerhard van den Berg
Subject: Landcruiser Installations
Attachments: 6125 - Quotation.pdf; New 12V Accessory Lights Drawing.pdf; New 12V Dual Battery System Drawing.pdf; New Hour Meter CW Charger Drawing.pdf; New Hour Meter Drawing.pdf; Split Charging Unit Installation.pdf

Hi Greg,

Following extensive testing and data analysis, we've concluded that most downtime issues related to the Landcruisers and Nerospec systems stem from power supply instability—specifically within the vehicles' charging systems.

Current Charging System Overview

- Alternator: 80 Amp, 12 Volt
- Battery Setup: One main battery and one auxiliary battery
- Charging Logic:
  - On vehicle startup, the alternator begins charging the main battery.
  - Once the main battery reaches 12.7V, the intelligent charging system initiates a 5-minute delay before charging the auxiliary battery.
  - All add-on equipment (Strata, Nerospec, braking systems, pumps , etc.) draws power from the auxiliary battery, which remains uncharged during this delay.

This delay results in voltage drops as low as 8V to critical systems like Strata and Nerospec, leading to instability and failures.

Observations & Findings

- Nerospec has provided 70 MiniAUPS units to stabilize power supply to their equipment. While helpful, this does not address the root cause.
- We were unable to determine consistent idling and 1500 RPM durations across vehicles, which likely contributes to variability in charging performance.
- Overall, the power balance is operating at its limit and requires an upgrade.

Speed	Load	Amps - Drawn	Alternator Output	Charging Amps
Idle	Full Load	43	55	12
1500	Full Load	43	76	33

Proposed Solutions

1. Charging System Activation via Oil Pressure Switch
   - This modification ensures the auxiliary battery begins charging immediately when the engine runs, bypassing the 5-minute delay.
   - It also prevents the main battery from being drained by auxiliary systems when the engine is off.

Refer to attached drawings for implementation details.

2. Upgrade Alternator to 120 Amp, 12 Volt
   - This would provide additional charging capacity to support all onboard systems.
   - We are currently investigating availability, wiring harness compatibility, and cost implications.

Expected Outcome

Implementing these changes should significantly enhance the reliability of onboard systems and reduce downtime across the fleet.

Let me know if you need further technical details or if you'd like to discuss the implementation timeline.

Regards

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