



Exxaro PDS Journey Lesson Learned Surface & Underground Level 7 & Level 9 Implementation



OBJECTIVE - TMM ZERO HARM



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1. Determine Exxaro Level of Significant Risk according to Industry Risk Guidelines
2. Significant Risk Mitigation
 - i. Review L1 to L6 Controls
 - ii. Implement L7 Controls
 - iii. Implement L8 & L9 Controls
3. Participate in CM&EE Collision Management User Group
4. Provide Quarterly feedback on Compliance Plan and Progress



SURFACE LESSON LEARNED LEVEL 7

→ Project Management

- All device testing of any kind during the installation period
- Clearly indicate the test period before rolling out to the entire fleet.
- How this test work will affect the installation schedule. Also, if the test work may change the approved device placement on the vehicles.
- PDS equipment availability during the installations stage. Should there be a change to the schedule regarding a specific vehicle installation for some reason that the PDS supplier has sufficient stock. Primary vehicle to LDV installation for example.
- Component failure during FAT impact on schedule

→ Procurement

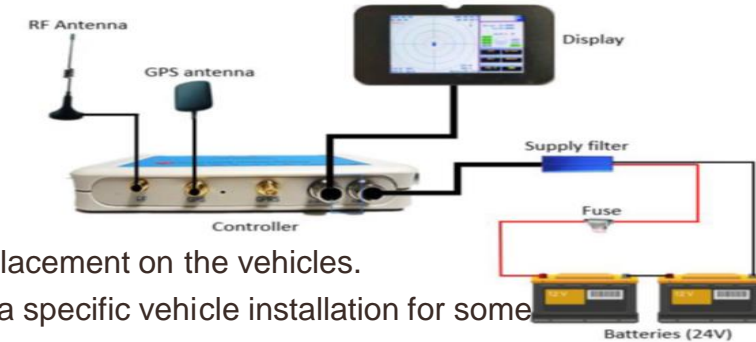
- SLA or permanent maintenance team. This should be active as in the early stages to the installation stage already so as not to affect the installation progress
- Contract/agreements approved. Agreements in place for out of the norm damage to installed PDS equipment – loss or physical damage.

→ Technical Challenges

- Compose a “PDS Equipment installation” document for both PDS supplier & vehicle owner to establish an agreement on PDS installation for each Type of vehicle in your fleet.
- Cable attachment methods.
- PDS harnesses & cabling to be different to vehicle harnesses and cables. Creates a clear indication between PDS cable and vehicle cables during maintenance/repairs.
- Securement method, look for nylock bolts and harness strapping methods. No self-tapping screws.
- Technology changes taking place during installation

→ Change management

- Ensure members of the vehicle maintenance have their input. This will minimize the PDS installation hindering vehicle maintenance.
- Include the drivers in this document, specially the PDS equipment to be installed in the cab.



SURFACE LESSON LEARNED LEVEL 9

→ Project Management

- Getting operators to assist with testing the trucks was a challenge – due to production and availability
- Operators to assist with commissioning of trucks.
- Truck availability for commissioning
- Teething problems took some time

→ Procurement

- Supply Contract T`s and C`s took a long time to agree.
- Support contract agreement was also a challenge.

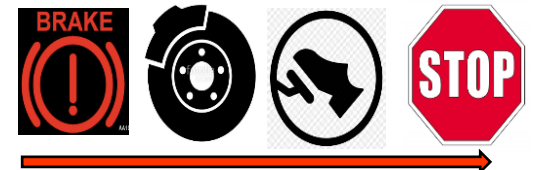
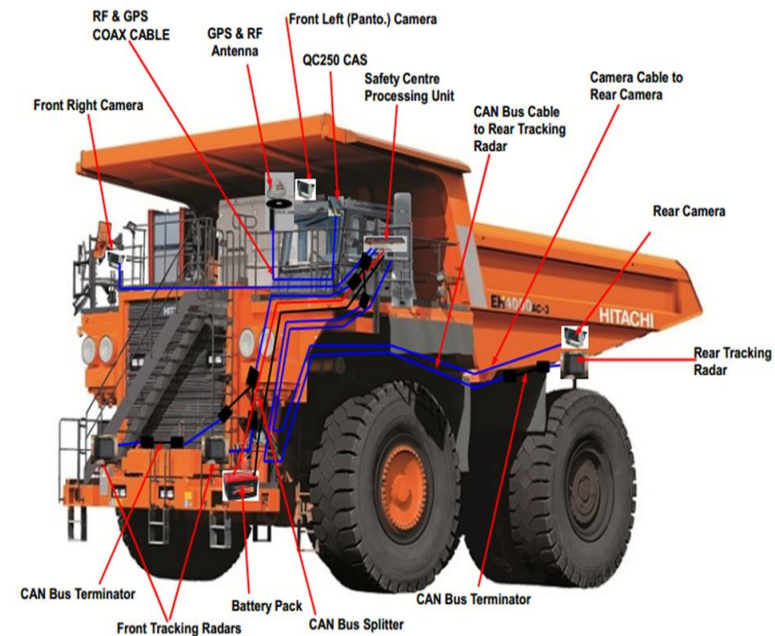
→ Technical Challenges

- Hardware Delivery took long with Covid-19 Impacts from abroad.
- Hardware supply contracts with OEM`s and parts contract.
- Truck availability for installation.
- Wiring of the truck ignition gave us a hard time.
- OEM Support was great.
- Cooperation from Maintenance team was great with challenges.
- Was a little short handed on the PDS technician support on site.

→ Change management

- Stickers indicating activation and operators trained
- Shifts made training difficult

PDS & Fatigue Installation (Current)



UNDERGROUND LESSON LEARNED LEVEL 7

→ Project Management

- All device testing of any kind during the installation period
- How this test work will affect the installation schedule. Also, if the test work may change the approved device placement on the vehicles.
- PDS equipment availability during the installations stage.

→ Procurement

- SLA or permanent maintenance team. This should be active as in the early stages to the installation stage already so as not to affect the installation progress
- Contract/agreements approved. Agreements in place for out of the norm damage to installed PDS equipment – loss or physical damage.

→ Technical Challenges

- Component placement on the tractor space challenges.
- Alternator - The PDS display screen are currently failing due to voltage surges. Electronic components very sensitive to voltage

→ Change management

- Ensure members of the vehicle maintenance have their input. This will minimize the PDS installation hindering vehicle maintenance.
- Include the drivers in this document, specially the PDS equipment to be installed in the cab.



UNDERGROUND LESSON LEARNED LEVEL 9

→ Project Management

- Technicians to maintain PDI (slow down and stop) system (PDS technician only)
- Support e.g. boilermaker for brackets welding
- Scheduling the equipment for PDI machine out of production for 2 weeks

→ Procurement

- SLA or permanent maintenance team. This should be active as in the early stages to the installation stage already so as not to affect the installation progress
- Contract/agreements approved. Agreements in place for out of the norm damage to installed PDS equipment – loss or physical damage.

→ Technical Challenges

- Boom Gate Loop @ boom mine 3 major and mine 2 minors equipment engages breaks
- Lamproom - cap lamps not properly placed in the rack (180 meters) cause the level 9 to activate
- SOS – GDI and cables cause interference causing the level 9 to activate
- Drive and pulley installations – the danger fields are large; the installation team is required during this activity, and this cause the LHD to stop frequently
- Technology changes taking place during installation

→ Change management

- The impact of stopping during the first phase and introduction of level 9 on LHD's
- Ensure members of the vehicle maintenance have their input, the testing of stopping distance test
- Include the drivers in the document updates for the level 9 operation.
- Emphasis the difference between the equipment that are on level 7 and on level 9





THANK YOU!