GIIIA Generators:
G40 SIIIA and G60 SIIIA

Doosan Infracore
Construction Equipment

INDEX

GIIIA Project steps

GIIIA Project:

- Change engines from Stage II to Stage IIIA
- Opportunity to have a re-design

Steps:

1. G150-200
2. G80-100
3. G400-500
4. G60
5. G20-30-40
6. G250 (Only re-design as the engine is already Stage IIIA compliant)

Package Layout Review

Air inlets GII

- Large air inlet grills on the side
- Water and dust ingress despite inside baffles

Package Layout Review

Air inlets GIIIA

- All inlets has grill
- Originally we had five back side “packets”
- Three and one on front side doors is better solution due to noise and cooling

Package Layout Review

Air outlet

- Only one on the unite
- All hot air is pushed up (similar as today)
- Grill was replaced by louvers which gives better noise result and water ingression improvement potential

Package Layout Review

Water ingression improvements

“Pocket” system

- All inlets are made with “pockets”
- all pockets are water proved
- Pocket system helps also with noise reduction

Package Layout Review

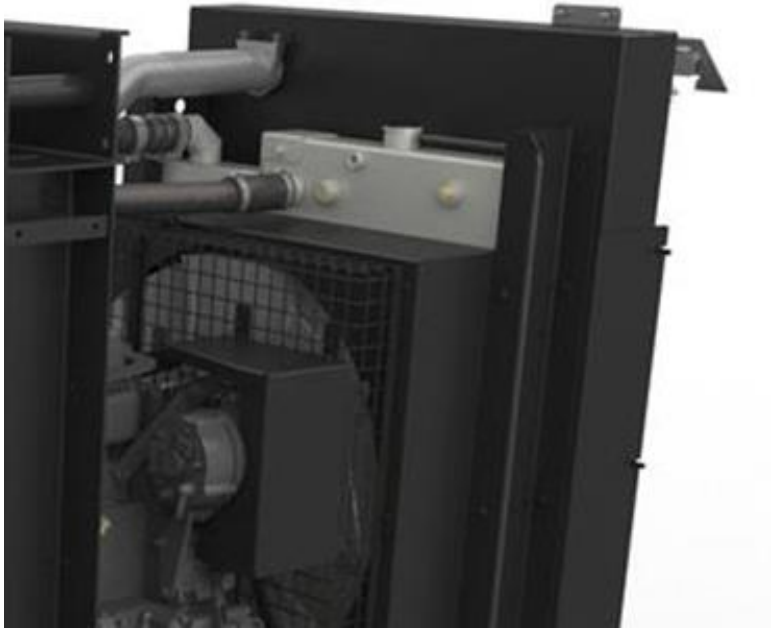
Water ingression improvements

- Roof is made from ONE back and ONE front panel
- Lifting bail is used as a channel
- Roof panels are put over LB edge
- raised lifting eye

Package Layout Review

Water ingression improvements

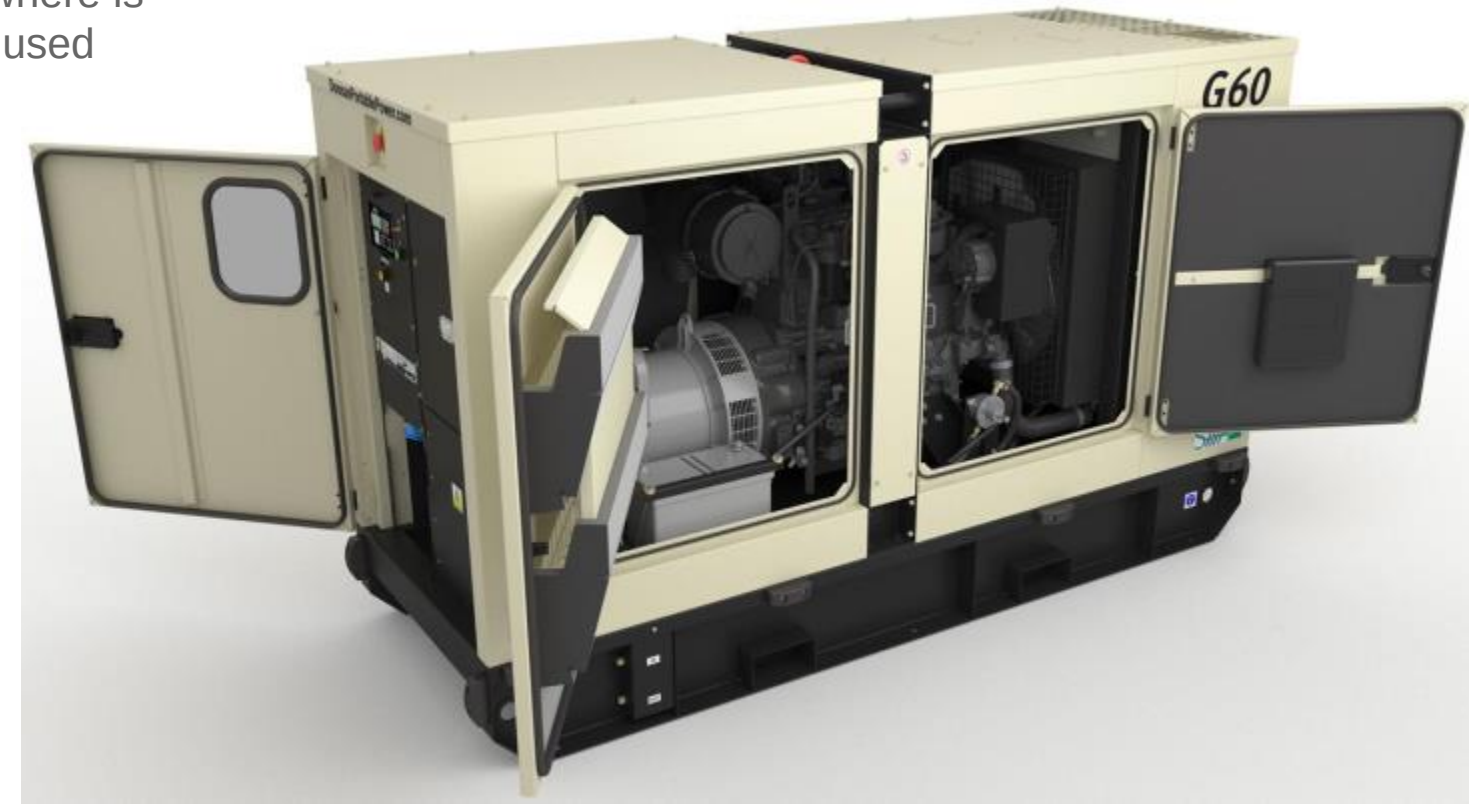
- Back door is fully down and sealed (also more compact design)
- Ring around exhaust pipe together with louvers helps with water ingression from exhaust side of unit



Package Layout Review

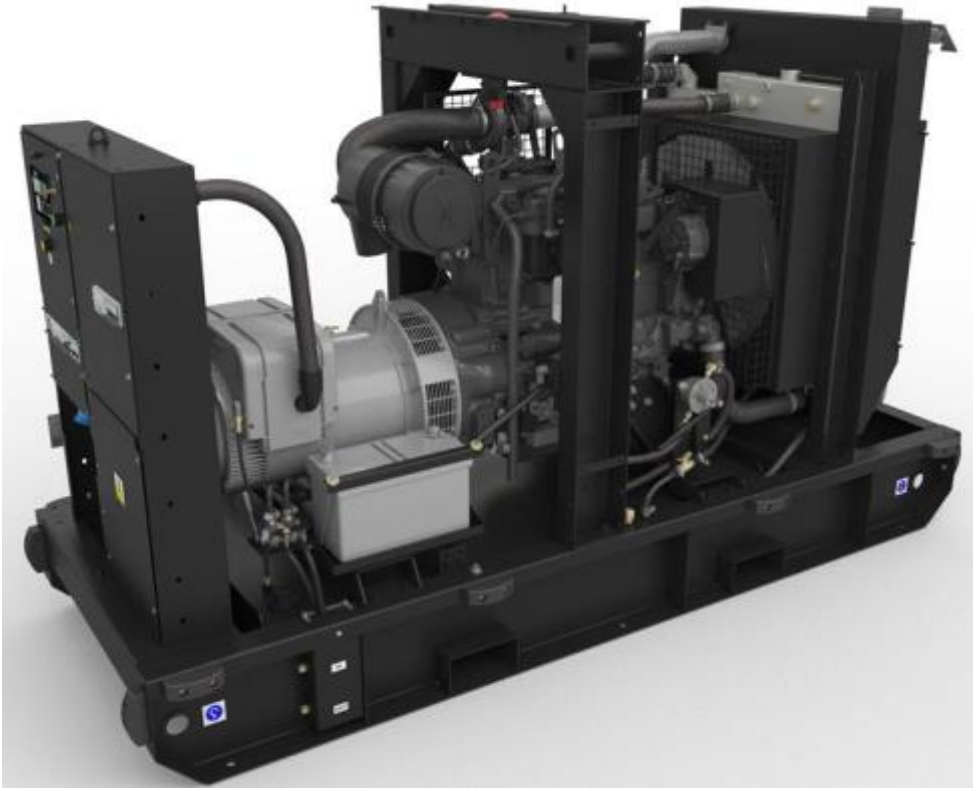
Baffles, foams, fiberglass

- Example of using baffles and fiberglass, those are used mainly on exhaust area and up top of engine exhaust piping
- At the roof and on places where is necessary, holding pins are used



Package Layout Review

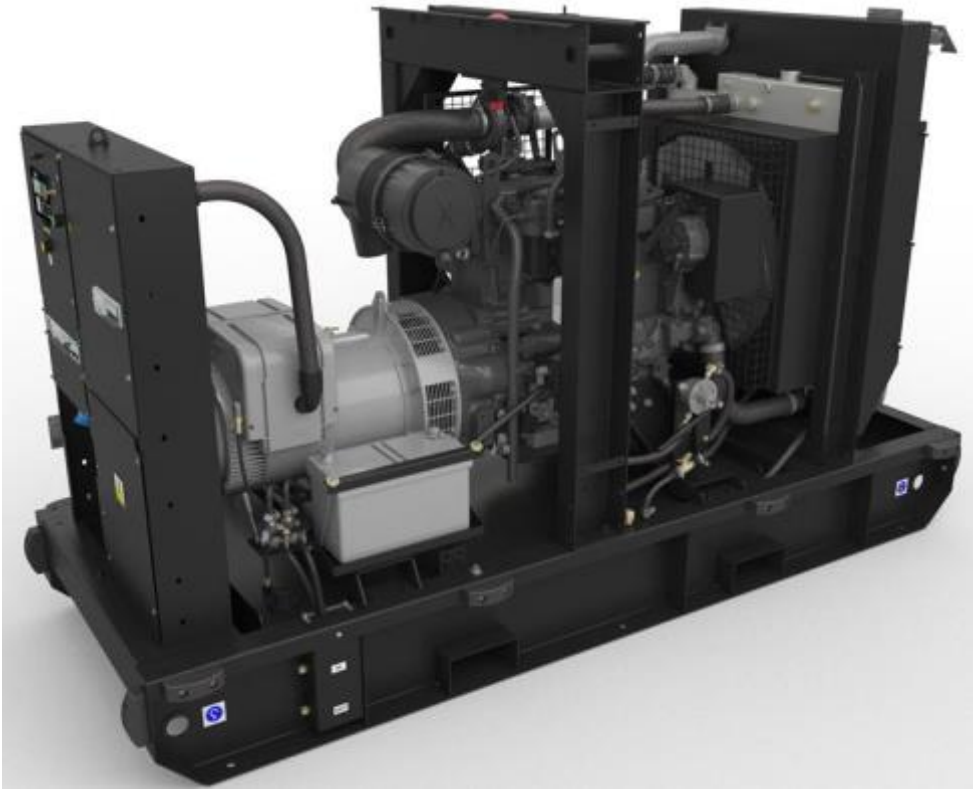
Interior



- Interior design / layout is similar to today serial production with improvements:
- no J-Box
- simple LB design
- simple fan guard

Package Layout Review

Engine / Alternator overall details

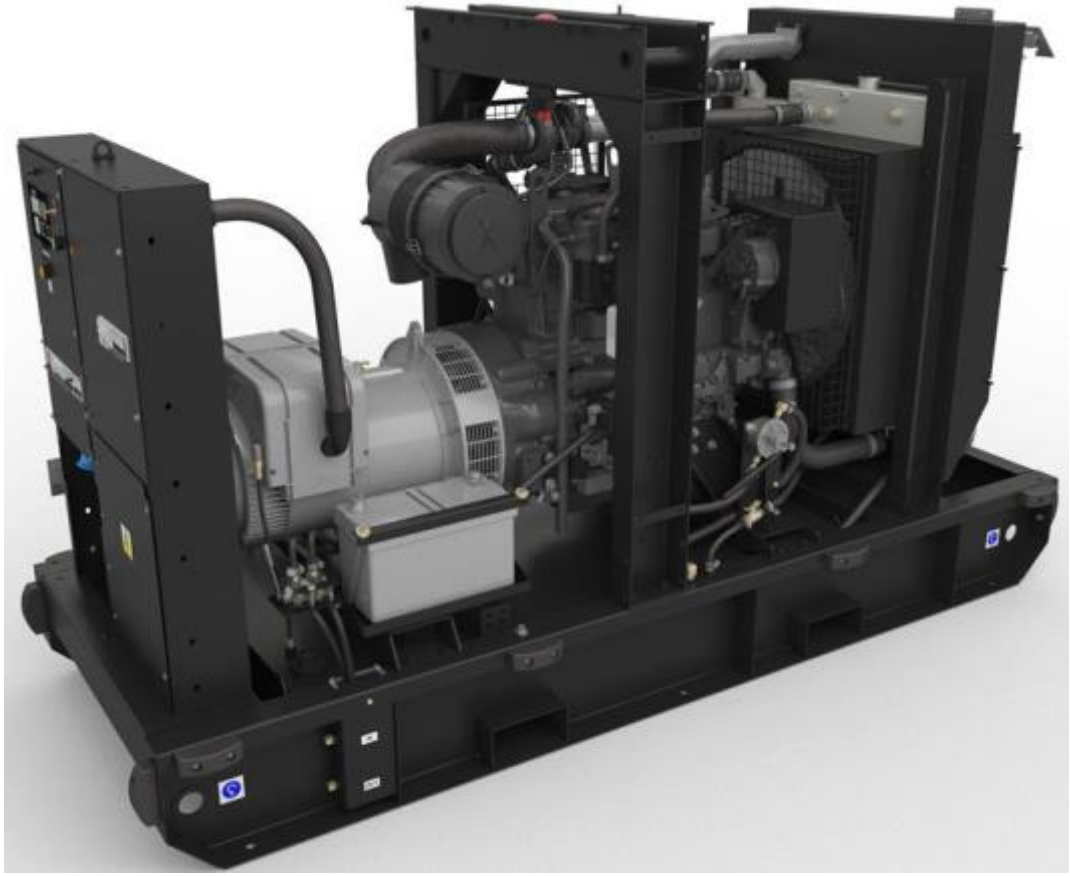


G40 GIIIA unit
Engine: Yanmar 4TNV98T-ZGGE
Alternator: LSA 42.3 S5

G60 GIIIA unit
Engine: JD 4045 HFG81
Alternator: LSA 42.3 L9

Package Layout Review

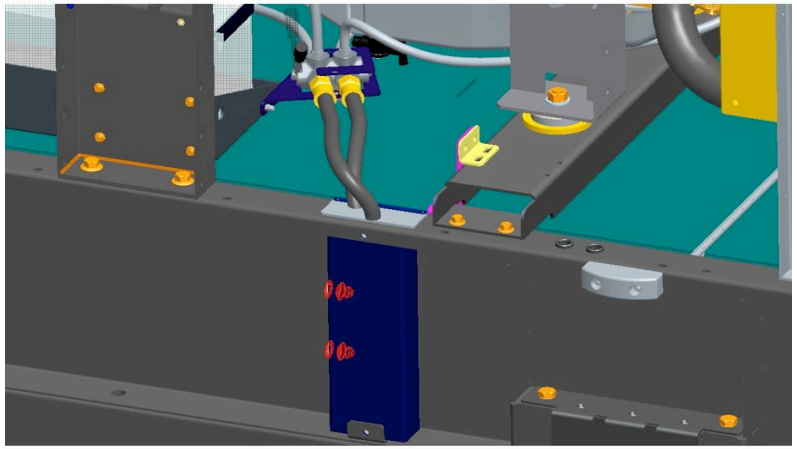
Options

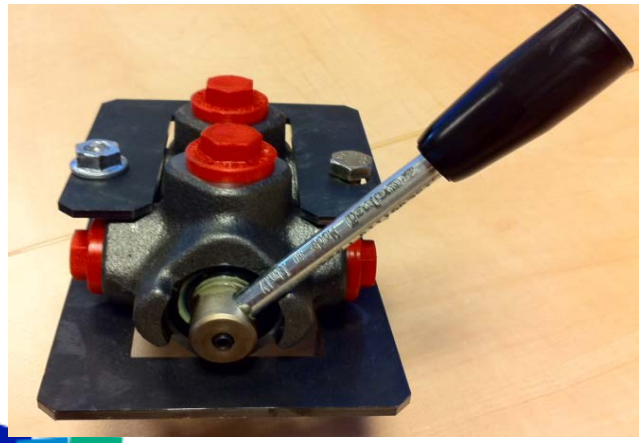


- External fuel tank option, also oil pump option and oil, water drains are all on same side

Package Layout Review

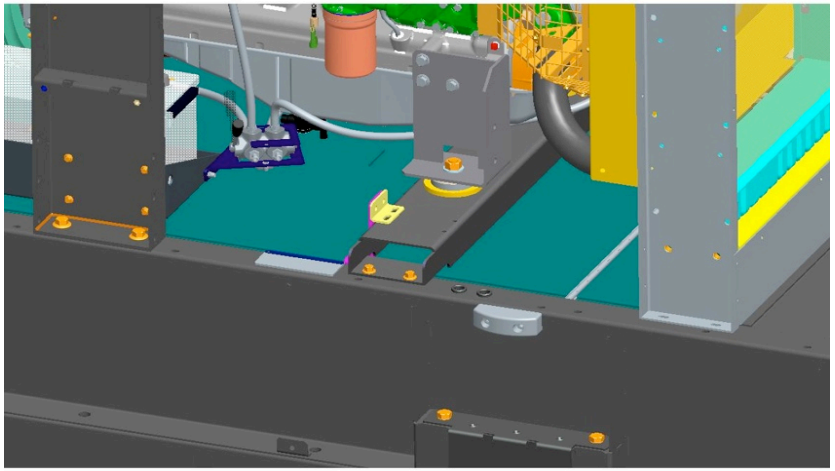
3 Way Fuel Valve (3WFV, 3WFVE)





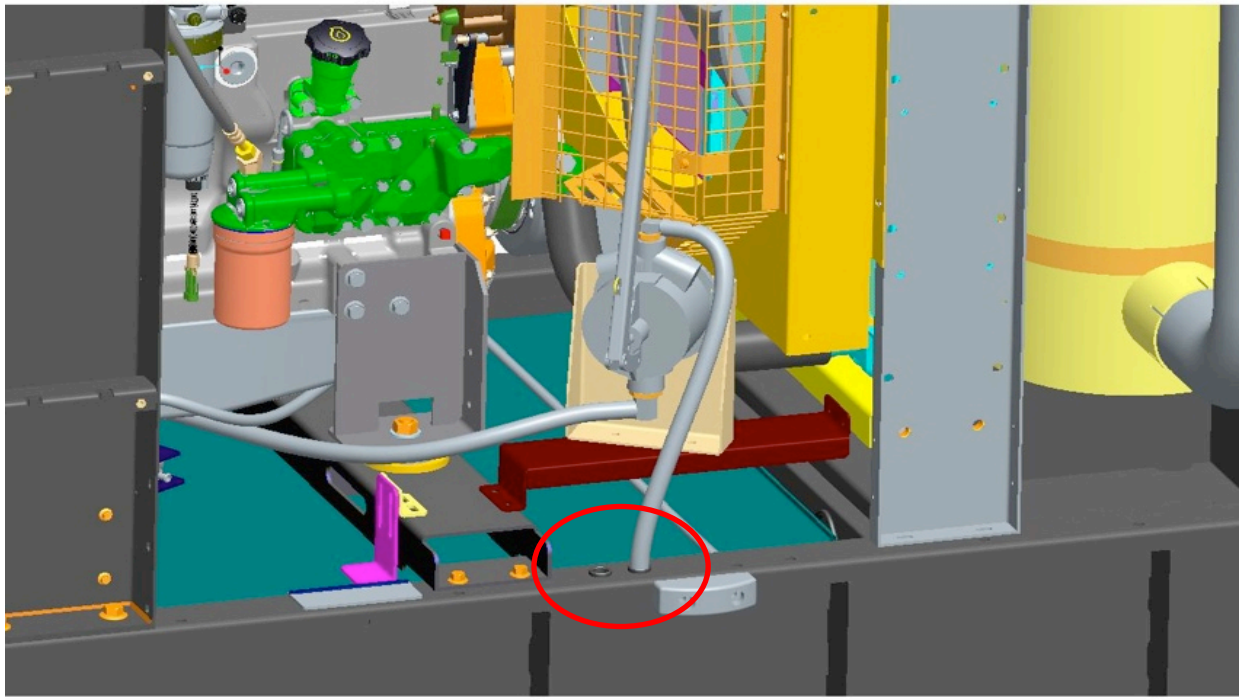
- New type of 3-valve, more robust handle

- Two different way how can be used:
-Complete set up to external connection parts
-Ready for customer connection



Package Layout Review

Oil pump option



- Used to be as a standard

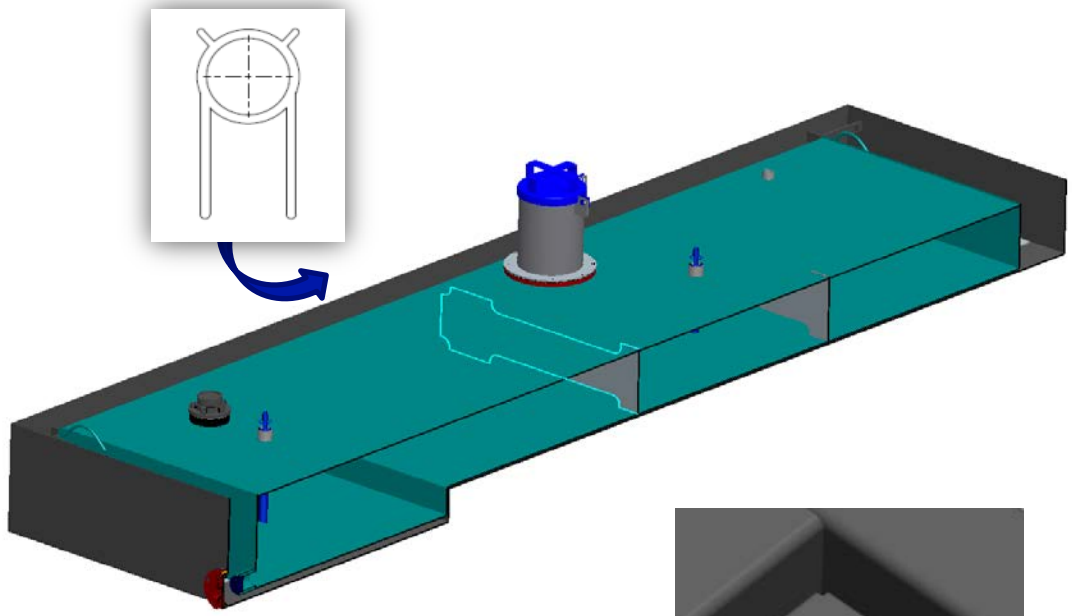
- New position of G200 serial production robust pump

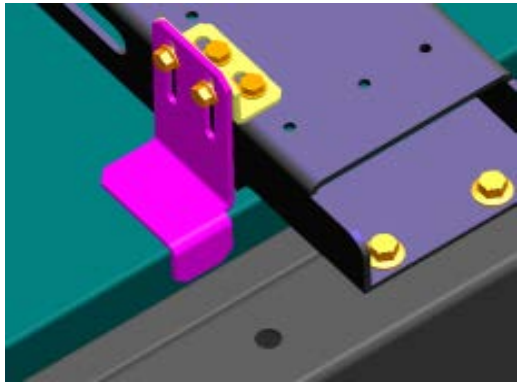
- External connection is placed to the frame (right from water drain plug)

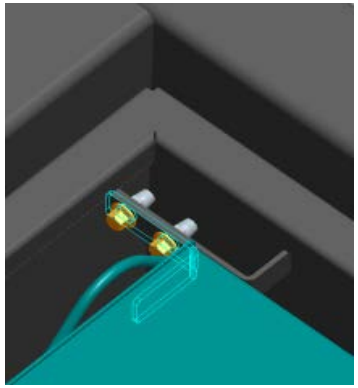
Package Layout Review

12 / 24h fuel tank / BB overall details

- Standard fuel tank is designed for 12 hours runtime at 75% load,
- Optional fuel tank - 24 hours runtime (75% load)
- Bunded Base has sufficient volume for 110 % of all fluids
- Step integrated in fuel tank floor to aid low fuel sensing and fuel pick-up of small quantities.
- Prepared for easy cleaning by fuel filling hole & Bunded Base/fuel tank drains.
- Bunded Base & fuel tank drains are axially aligned
- Fuel tank to be drained by extension screwed pipe

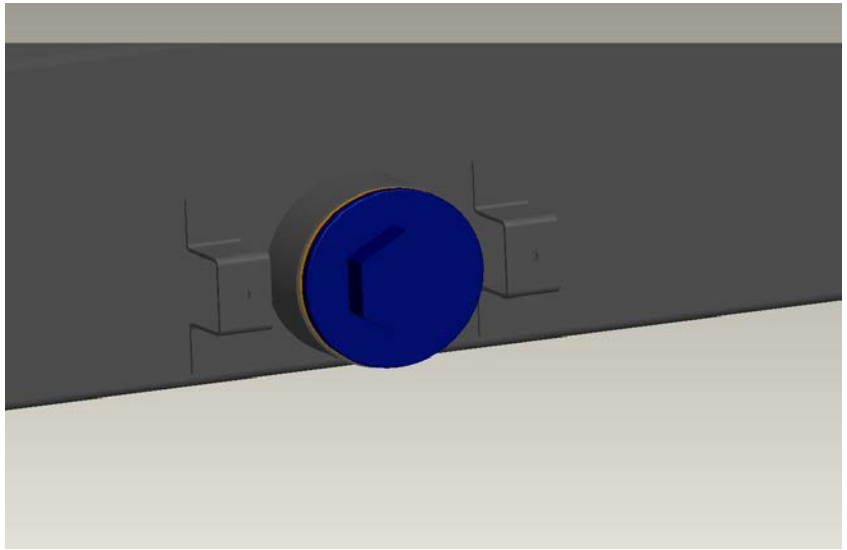


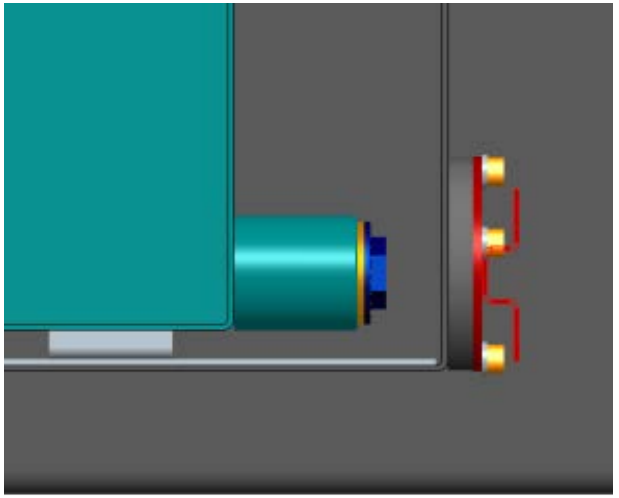


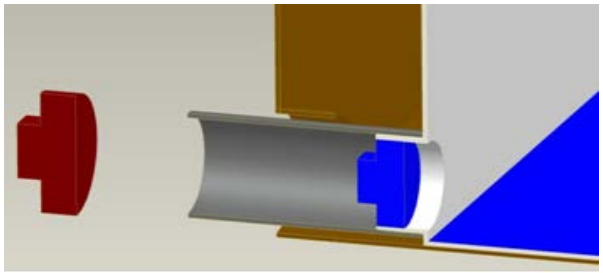


Package Layout Review

12 / 24h fuel tank / BB drains

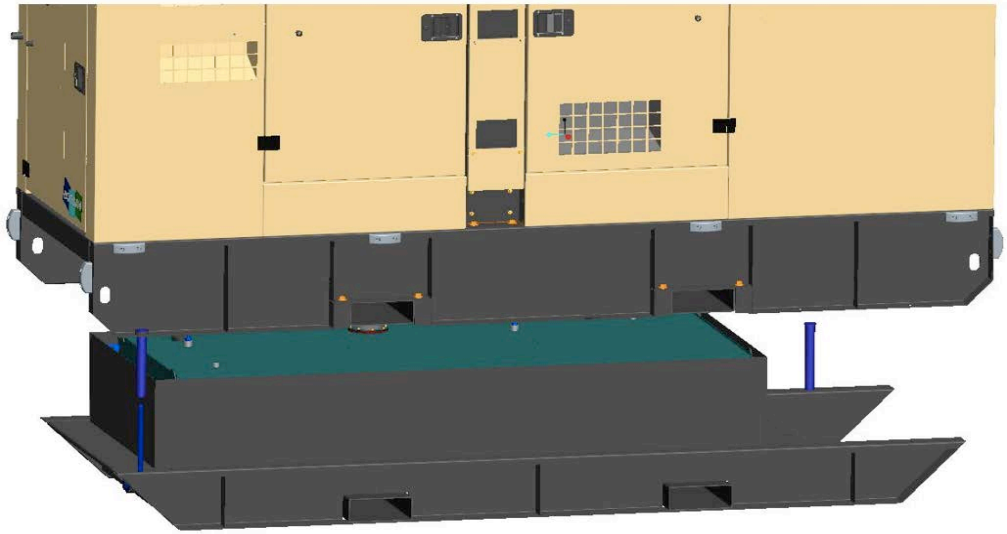




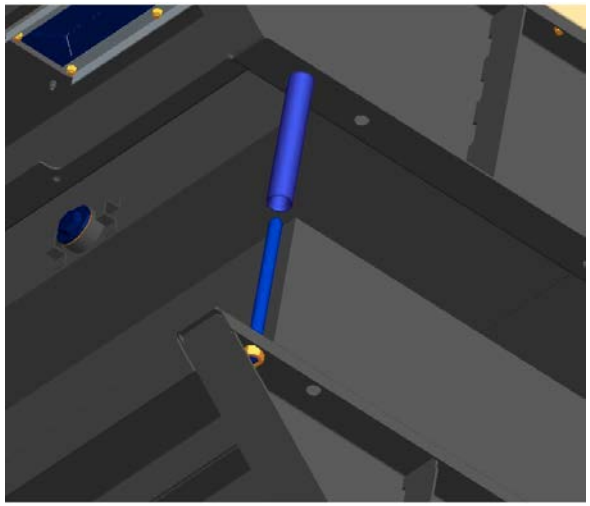


Package Layout Review

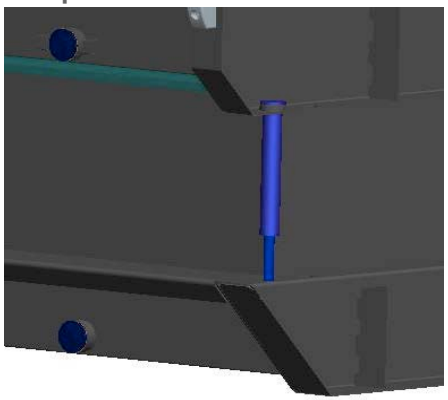
12 / 24h fuel tank – switchable design



step 0



step 1



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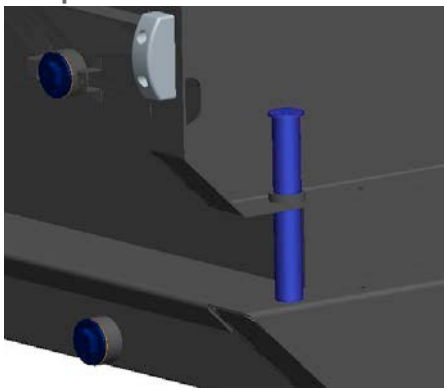
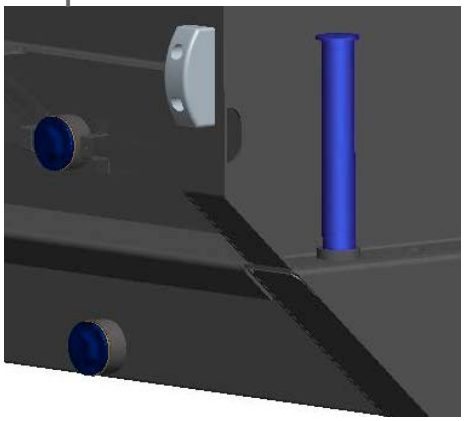
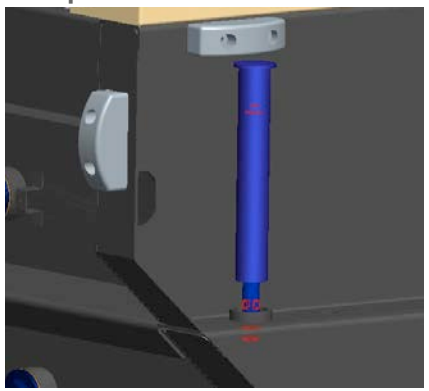


step 3

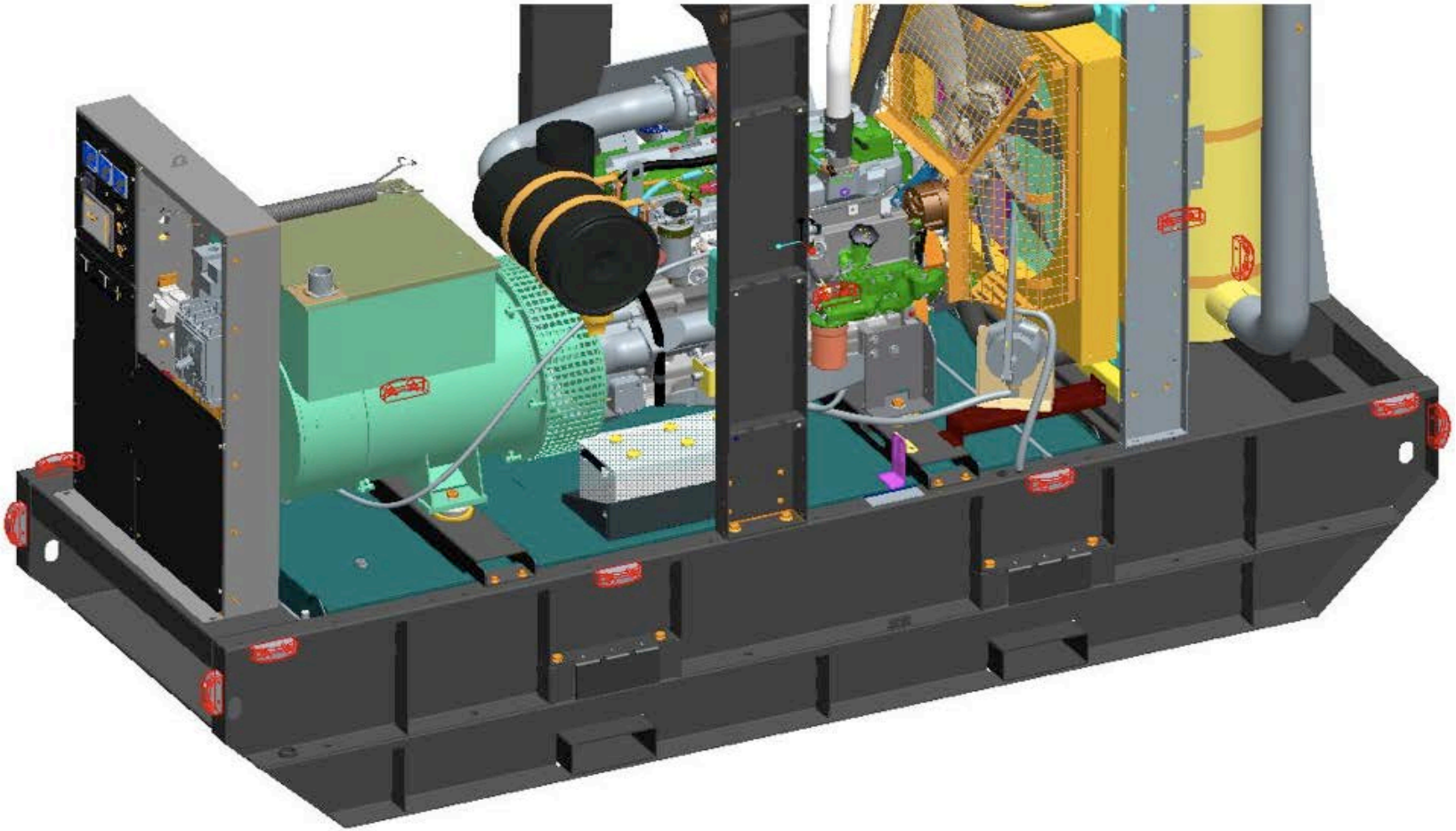


step 4



Package Layout Review

Frame protection option



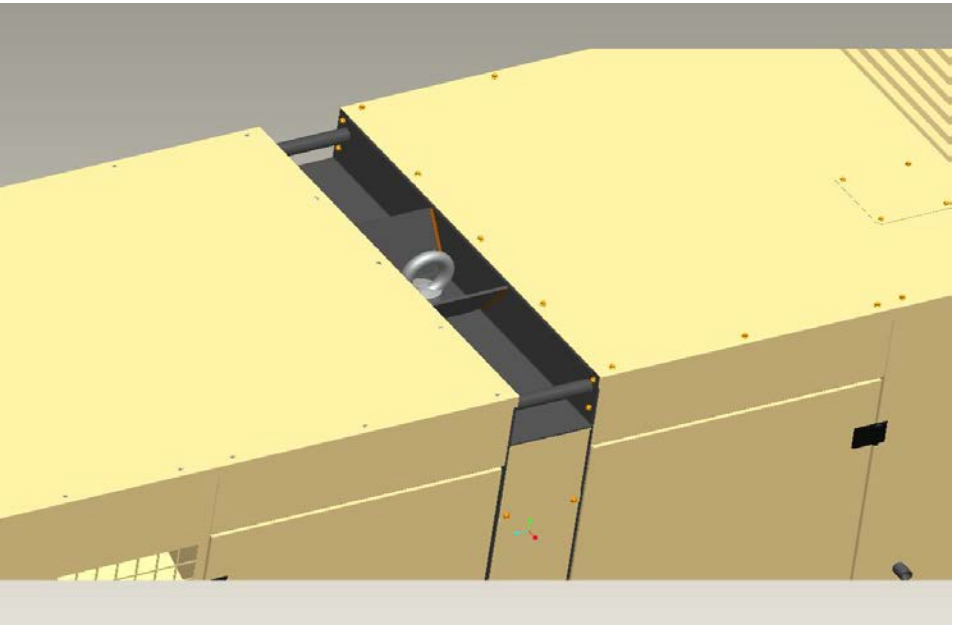
Package Layout Review

Exhaust system

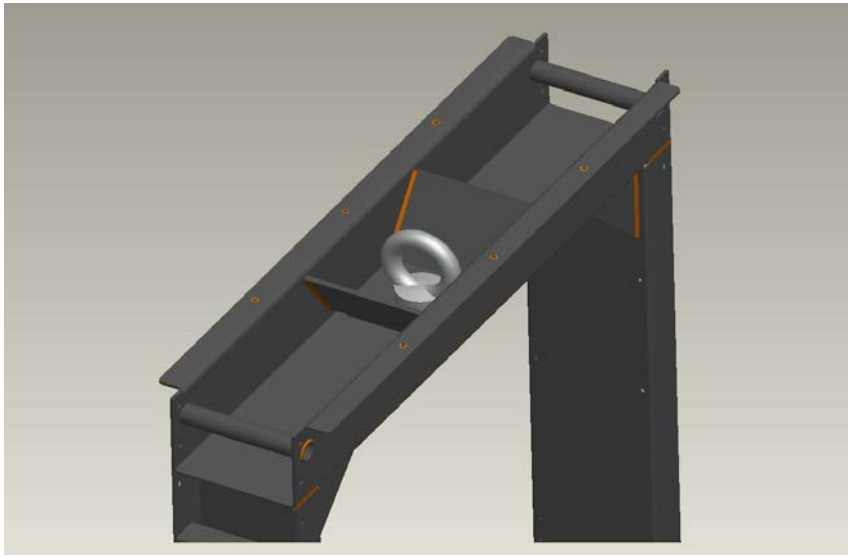
- Similar design as G200 SII
- Front doors (exhaust doors) with hinges for easier access

Package Layout Review

Lifting Bail

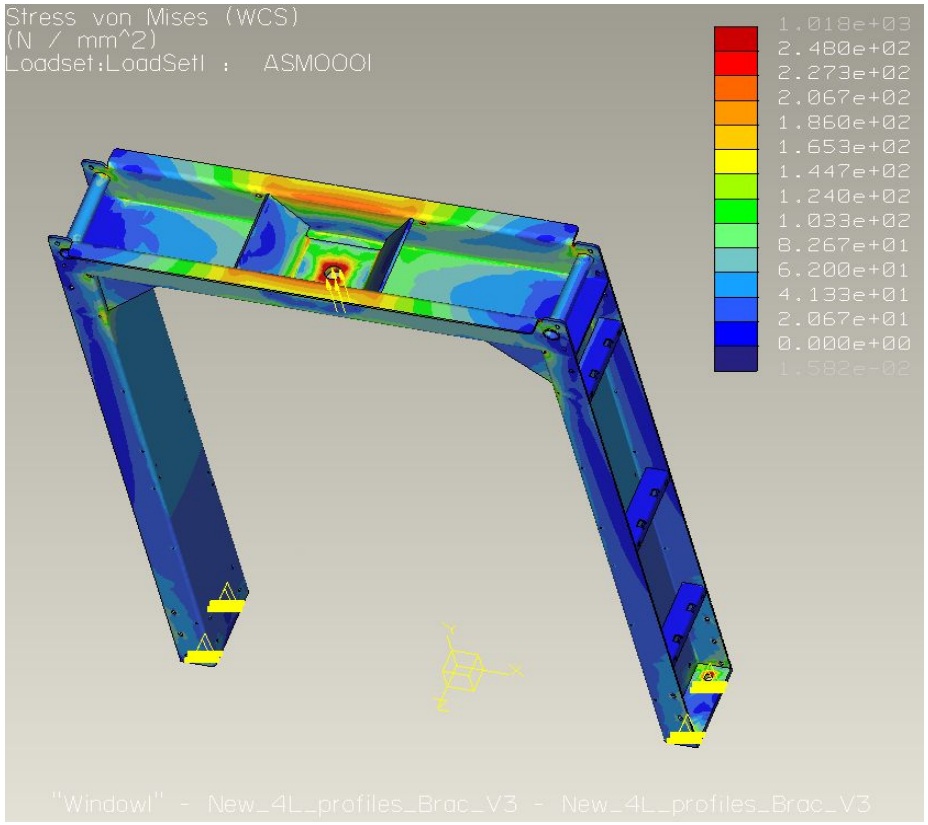


- Used as a channel in mid roof
- Add steps and handle for easier access to lifting eye
- Similar design of mounting to frame as SII – serial production

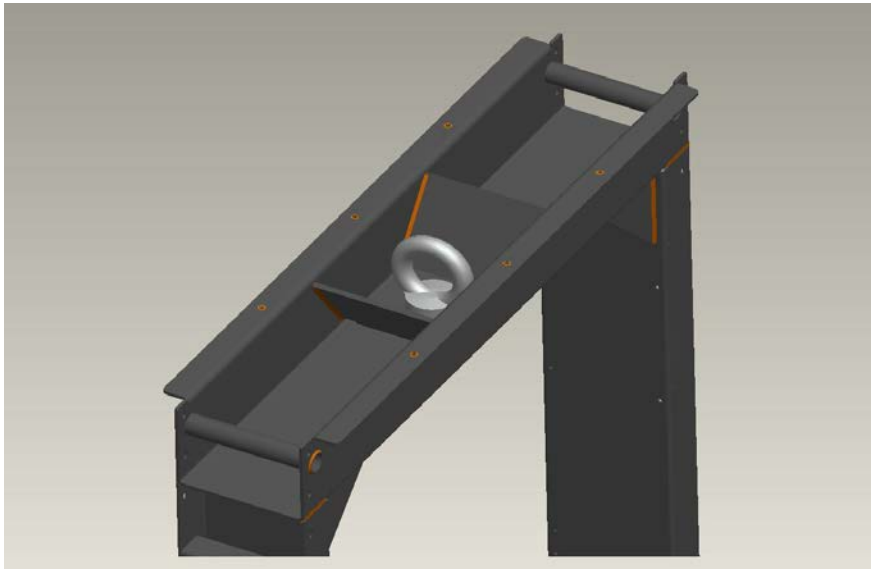


Package Layout Review

Lifting Bail – FAE analysis issue



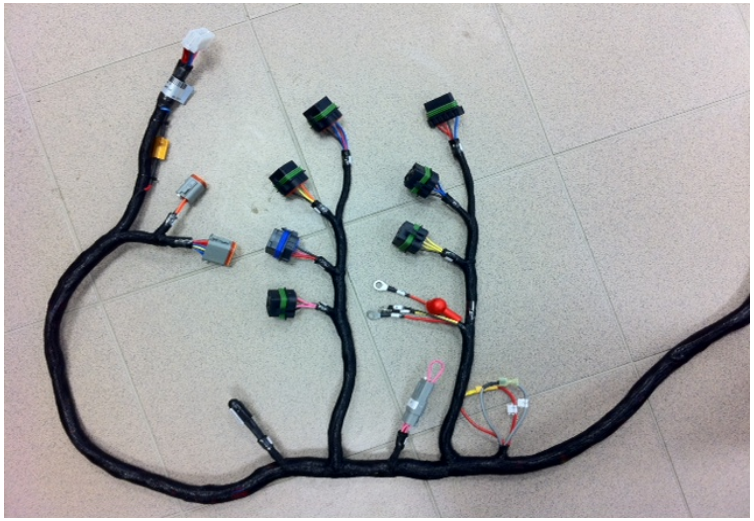
- New design according to did not passed FAE analysis
- Re-calculated before new analysis request, with good result



Package Layout Review

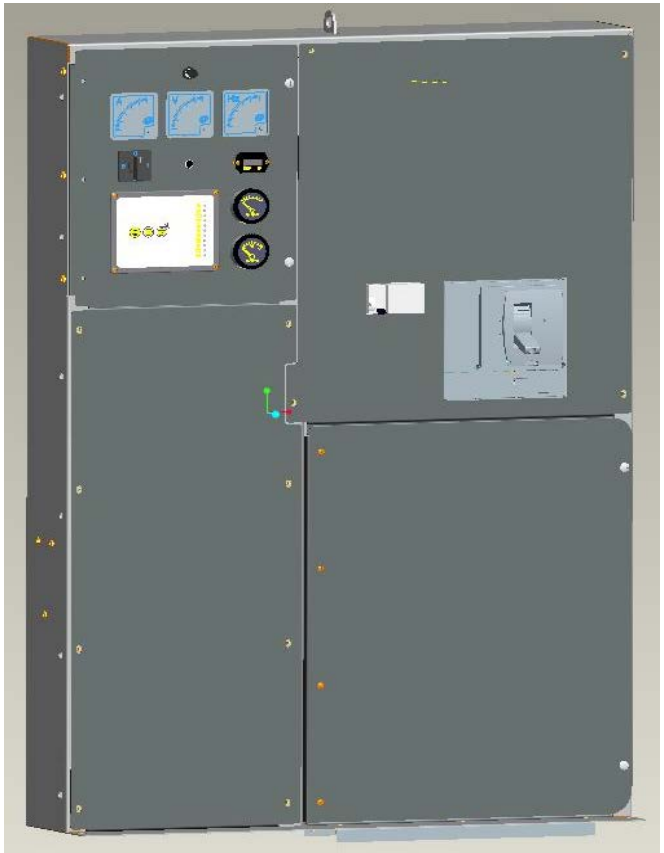
Electrical components – DC

- No major differences on 12V DC system from SII design
- Engine harness – braiding instead of conduit
- Engine will be supplied with engine harness between sensors and ECU
- Same battery as for G200 SII serial production
- E-Stop button is the same and also on same position as on G200 SII serial production



Package Layout Review

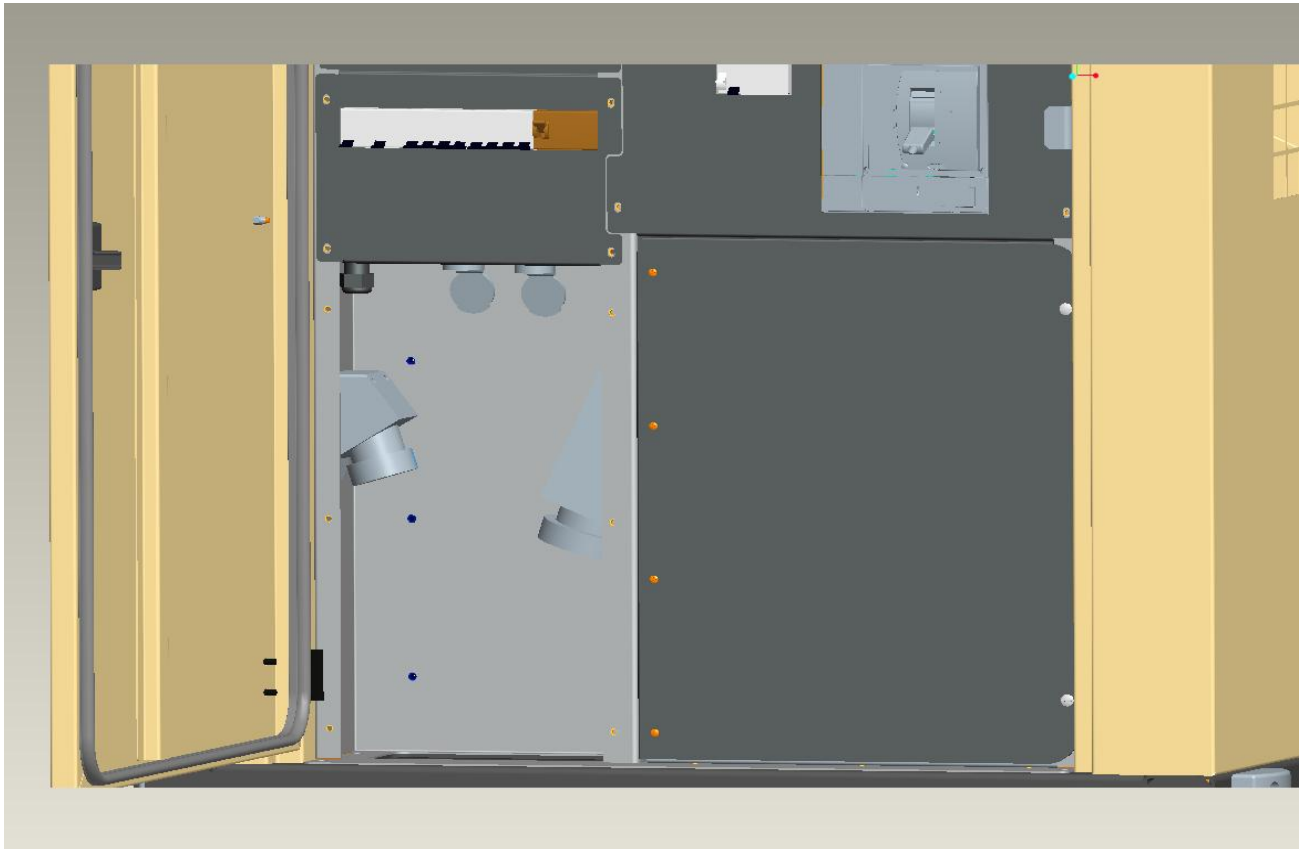
Power Pedestal – over view



- AC components will be from Schneider
- Gauges on Analog panel will be from Schneider
- Analog controller from Muprhy
- Digital controller from ComAp (with dual freq.)
- RCD use external toroid, due to grounding system and cost saving
- New design of mail terminal buss bar
- New design of sockets (included 32A and 63A in one set)
- Access to mail buss bar and also to sockets from bottom of PP
- Grounding system as a standard included Australian connection request (no cost increase)
- Modularity

Package Layout Review

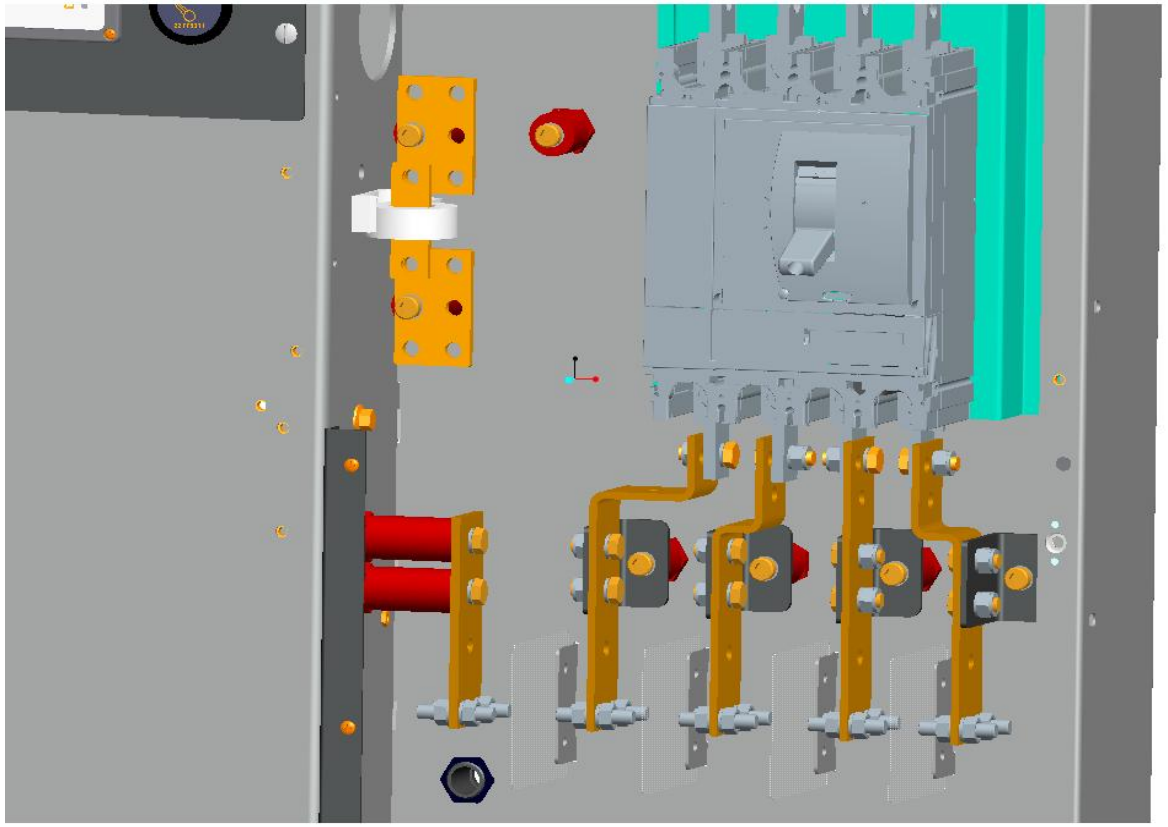
Power Pedestal – socket option



- 32A, 63A, two 16A sockets in one set
- Two separate RCDs to avoid overload (300mA for 32A and 63A, 30mA for two 16A)
- Ease mounting system (also possible in the field)
- Access to socket from bottom with possibility of connection all socket in same time
- Breakers supplied by Schneider
- Sockets supplied by Scame

Package Layout Review

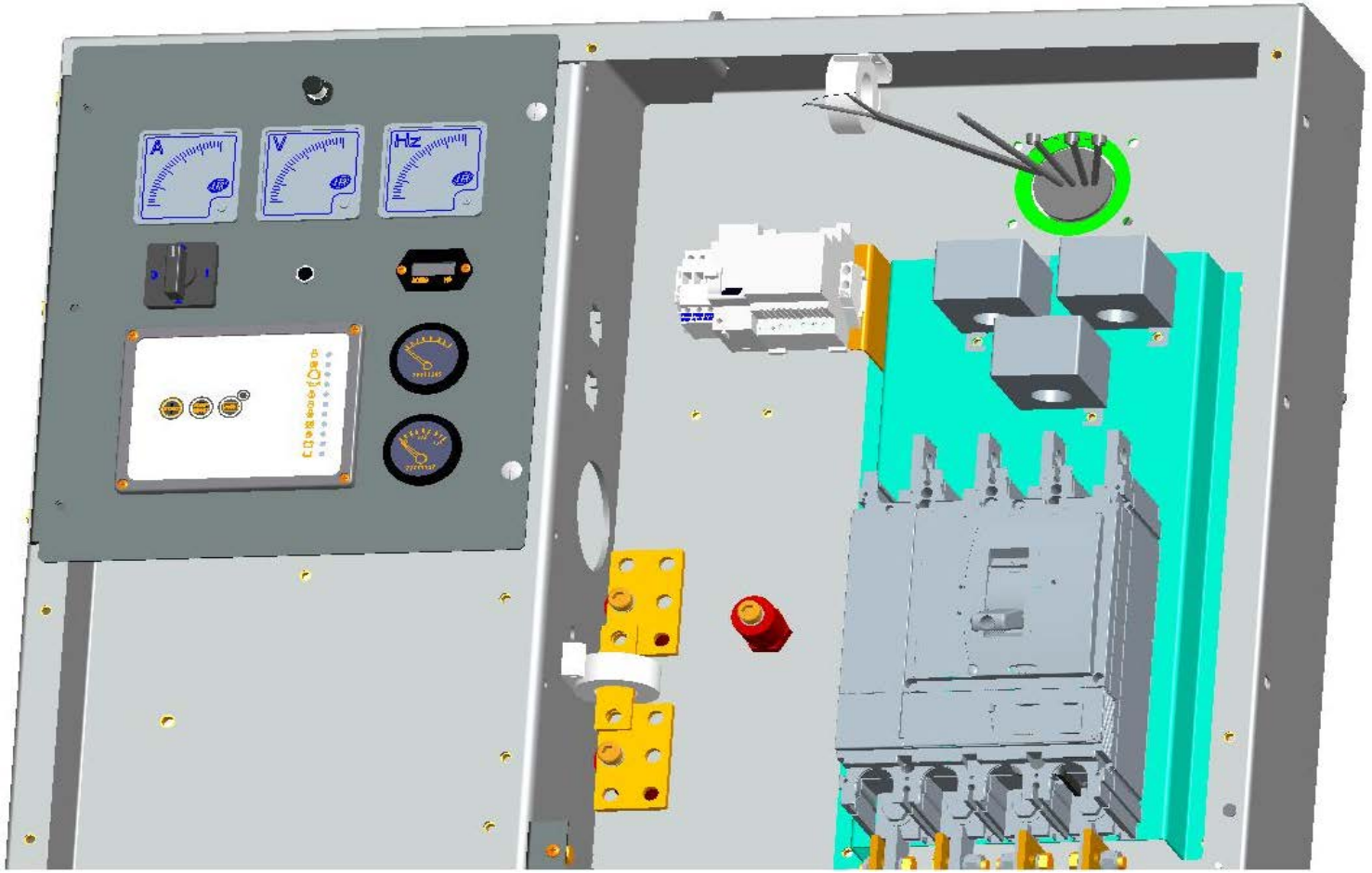
Power Pedestal – main connection buss bar



- No wired connection between breaker and buss bar (cost saving, stronger design)
-Better / easier access fro connection of main cables
- Up to10 cables connection possibility

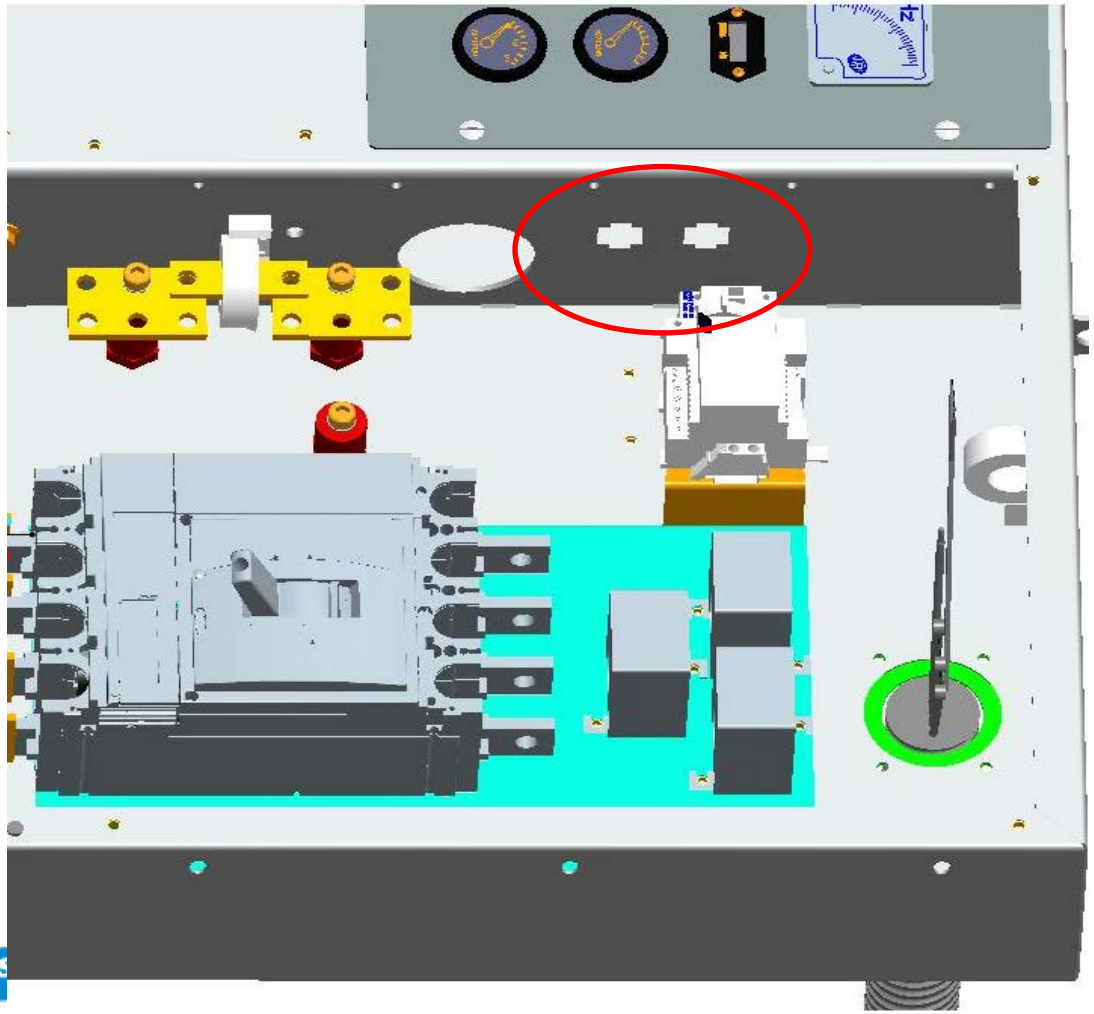
Package Layout Review

Power Pedestal – main components



Package Layout Review

Power Pedestal – how control panel will be connected to PP



- Connectors for control panel modularity

Package Layout Review

Power Pedestal – control panels hinges

- Control panel will be placed to the PP on hinges

THANK YOU