



Rehabilitation and Maintenance Of Berths No : (17 & 18) Project

Date: July.03.2025

Location: south port

Abstract

This report contains of two types of ship-to-shore (STS) cranes for containers handling , including total weights of the cranes and wheels load effect on the berth in all situations such as { dead load (DL), wind load, trolley load (TL), lifting systems (LS)...etc } .

First Type: ship-to-shore (STS) container cranes they are Post-Panamax STS cranes with mono-beam (rectangle) section boom and girder:-

1. General specification :

| No | Description | Comment |
|----|------------------------------------------------------------------|----------|
| 1 | Total weight of crane DL+TL+LS | 1327 Ton |
| 2 | Maximum outreach | 50 m |
| 3 | Maximum back reach | 15 m |
| 4 | Lifting height above rail | 34 m |
| 5 | Lifting height below rail | 15 m |
| 6 | Gantry rail gauge (distance between land side & sea side rail) | 30 m |
| 7 | Gantry rail type | QU 120 |
| 8 | Maximum overall width (buffers uncompressed) | 27.2 m |
| 9 | Height difference between gantry land side & sea side rail | Zero |



2. Wheels load :

Wheel load calculation results

2.1 conditions

65 t lifted load Outreach (m) 50

34 m lift height Total weight (t) 1327

20.00 m/s operation w Wind area Perp.m² 887.7

42.00 m/s stowed winc Wind area Parellm² 1047

allowable wheel load

| | operating | stowed |
|----------------------|-----------|--------|
| seaside(T/m) | 55.00 | 55.00 |
| landside(T/m) | 55.00 | 55.00 |
| wheel space(m) | 1.20 | 1.20 |
| allowable wheel load | | |
| seaside(T) | 55 | 55 |
| landside(T) | 55 | 55 |

2.2 basic Wheel load

2.2.1 Wheel load caused by dead load(excluding boom)

| A | B | C | D |
|-------|-------|-------|-------|
| 15.18 | 15.54 | 40.37 | 40.01 |

note: A,B--seaside wheels

C,D--landside wheels

2.2.2 Wheel load caused by boom

| | A | B | C | D |
|---------------|-------|-------|-------|-------|
| Boom down | 14.86 | 14.86 | -6.84 | -6.84 |
| boom up to 80 | 8.75 | 8.75 | -0.72 | -0.72 |

2.2.3 Wheel load of whole crane(excluding trolley and lift system, lifted load) DL

| | A | B | C |
|--|---|---|---|
|--|---|---|---|



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| | | | | |
|---------------|-------|-------|-------|-------|
| Boom down | 30.04 | 30.40 | 33.53 | 33.17 |
| boom up to 80 | 23.93 | 24.29 | 39.65 | 39.29 |

2.2.4 wheel load caused by trolley(including catenary trolley) TL

| trolley position | A | B | C | D |
|------------------|-------|-------|-------|-------|
| out reach | 4.89 | 4.89 | -2.98 | -2.98 |
| back reach | -0.75 | -0.75 | 2.66 | 2.66 |
| parking position | 0.58 | 0.58 | 1.34 | 1.34 |

2.2.5 wheel load caused by lift system LS

| trolley position | A | B | C | D |
|------------------|-------|-------|-------|-------|
| out reach | 2.25 | 2.25 | -1.41 | -1.41 |
| back reach | -0.42 | -0.42 | 1.27 | 1.27 |
| parking position | 0.21 | 0.21 | 0.63 | 0.63 |

2.2.6 wheel load caused by container LL

2.2.7 concentric load

| trolley position | A | B | C | D |
|------------------|-------|-------|-------|-------|
| out reach | 8.67 | 8.67 | -5.42 | -5.42 |
| back reach | -1.63 | -1.63 | 4.88 | 4.88 |

2.3

| Wheel Load Combinations | | | | | | |
|-------------------------|-----------------|-----------|-----------|-----------|-----------|---------|
| CASES | | CASE I | CASE II | | CASE III | |
| Mode | | TEST | OPERATING | | OVERLOAD | STOWED |
| | | TE | WOP1 | WOP2 | WOL1 | WS1 |
| DL | dead load | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| TL | trolley load | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| LS | lifting system | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| LL | lifted load | 1.0 | 1.0 | 1.0 | 2.0 | |
| IMP | Impact load | | | 1.0 | | |
| LATT | Trolley lateral | | 1.0 | | | |
| LATG | Gantry Lateral | | 1.0 | | | |
| WLO | Wind Load Op | | 1.0 | 1.0 | | |
| WLS | Stowed Wind | | | | | 1.0 |
| Remarks | | boom down | boom down | boom down | boom down | boom up |

2.3.1 TE

2.3.1.1 Boom down, trolley with LL at outreach



| | | A(t) | B(t) | C(t) | D(t) |
|-----|------------------|-------|-------|-------|-------|
| 1.0 | DL | 30.04 | 30.40 | 33.53 | 33.17 |
| 1.0 | TL | 4.89 | 4.89 | -2.98 | -2.98 |
| 1.0 | LS | 2.25 | 2.25 | -1.41 | -1.41 |
| 1.0 | LL | 8.67 | 8.67 | -5.42 | -5.42 |
| | total wheel load | 45.85 | 46.21 | 23.73 | 23.37 |

max. wheel seaside: 46.21 < 55.00 OK!

max. wheel landside: 23.73 < 55.00 OK!

2.3.1.2 Boom down, trolley with LL at back reach,

| | | A(t) | B(t) | C(t) | D(t) |
|-----|------------------|-------|-------|-------|-------|
| 1.0 | DL | 30.04 | 30.40 | 33.53 | 33.17 |
| 1.0 | TL | -0.75 | -0.75 | 2.66 | 2.66 |
| 1.0 | LS | -0.42 | -0.42 | 1.27 | 1.27 |
| 1.0 | LL | -1.63 | -1.63 | 4.88 | 4.88 |
| | total wheel load | 27.25 | 27.61 | 42.34 | 41.98 |

max. wheel seaside: 27.61 < 55.00 OK!

max. wheel landside: 42.34 < 55.00 OK!

2.3.2 WOP1

2.3.2.1 Boom down, trolley with LL at outreach, LATT & LATG

| | | A(t) | B(t) | C(t) | D(t) |
|-----|------------------|-------|-------|-------|-------|
| 1.0 | DL | 30.04 | 30.40 | 33.53 | 33.17 |
| 1.0 | TL | 4.89 | 4.89 | -2.98 | -2.98 |
| 1.0 | LS | 2.25 | 2.25 | -1.41 | -1.41 |
| 1.0 | LL | 8.67 | 8.67 | -5.42 | -5.42 |
| 1.0 | LATT | 0.61 | 0.61 | 0.61 | 0.61 |
| 1.0 | LATG | 3.82 | 3.82 | 3.30 | 3.30 |
| 1.0 | WLO | 4.35 | 4.35 | 2.87 | 2.87 |
| | total wheel load | 54.63 | 54.99 | 30.51 | 30.15 |

max. wheel seaside: 54.99 < 55.00 OK!

max. wheel landside: 30.51 < 55.00 OK!

2.3.2.2 Boom down, trolley with LL at back reach, LAT & LATG



| | | A(t) | B(t) | C(t) | D(t) |
|-----|------------------|-------|-------|-------|-------|
| 1.0 | DL | 30.04 | 30.40 | 33.53 | 33.17 |
| 1.0 | TL | -0.75 | -0.75 | 2.66 | 2.66 |
| 1.0 | LS | -0.42 | -0.42 | 1.27 | 1.27 |
| 1.0 | LL | -1.63 | -1.63 | 4.88 | 4.88 |
| 1.0 | LATT | 0.61 | 0.61 | 0.61 | 0.61 |
| 1.0 | LATG | 3.82 | 3.82 | 3.30 | 3.30 |
| 1.0 | WLO | 4.35 | 4.35 | 2.87 | 2.87 |
| | total wheel load | 31.67 | 32.03 | 46.25 | 45.89 |

max. wheel seaside: 32.03 < 55.00 OK!
max. wheel landside: 46.25 < 55.00 OK!

2.3.3 WOP2

2.3.3.1 Boom down,LL with IMP & WLO(outreach)

| | | A(t) | B(t) | C(t) | D(t) |
|-----|------------------|-------|-------|-------|-------|
| 1.0 | DL | 30.04 | 30.40 | 33.53 | 33.17 |
| 1.0 | TL | 4.89 | 4.89 | -2.98 | -2.98 |
| 1.0 | LS | 2.25 | 2.25 | -1.41 | -1.41 |
| 1.0 | LL | 8.67 | 8.67 | -5.42 | -5.42 |
| 1.0 | IMP | 3.22 | 3.22 | -2.00 | -2.00 |
| 1.0 | WLO | 4.35 | 4.35 | 2.87 | 2.87 |
| | total wheel load | 53.42 | 53.78 | 24.60 | 24.24 |

max. wheel seaside: 53.78 < 55.00 OK!
max. wheel landside: 24.60 < 55.00 OK!

2.3.3.2 Boom down,LL with IMP & WLO(back reach)



| | | A(t) | B(t) | C(t) | D(t) |
|-----|------------------|-------|-------|-------|-------|
| 1.0 | DL | 30.04 | 30.40 | 33.53 | 33.17 |
| 1.0 | TL | -0.75 | -0.75 | 2.66 | 2.66 |
| 1.0 | LS | -0.42 | -0.42 | 1.27 | 1.27 |
| 1.0 | LL | -1.63 | -1.63 | 4.88 | 4.88 |
| 1.0 | IMP | -0.59 | -0.59 | 1.80 | 1.80 |
| 1.0 | WLO | 4.35 | 4.35 | 2.87 | 2.87 |
| | total wheel load | 31.01 | 31.37 | 47.01 | 46.65 |

max. wheel seaside: 31.37 < 55.00 OK!
max. wheel landside: 47.01 < 55.00 OK!

2.3.4 WOL1

2.3.4.1 Boom down, trolley with LS at outreach with LL, overload

| | | A(t) | B(t) | C(t) | D(t) |
|-----|------------------|-------|-------|--------|--------|
| 1.0 | DL | 30.04 | 30.40 | 33.53 | 33.17 |
| 1.0 | TL | 4.89 | 4.89 | -2.98 | -2.98 |
| 1.0 | LS | 2.25 | 2.25 | -1.41 | -1.41 |
| 2.0 | LL | 17.33 | 17.33 | -10.83 | -10.83 |
| | total wheel load | 54.52 | 54.88 | 18.32 | 17.96 |

max. wheel seaside: 54.88 < 55.00 OK!
max. wheel landside: 18.32 < 55.00 OK!

2.3.4.2 Boom down, trolley with LS at back reach with LL, overload

| | | A(t) | B(t) | C(t) | D(t) |
|-----|------------------|-------|-------|-------|-------|
| 1.0 | DL | 30.04 | 30.40 | 33.53 | 33.17 |
| 1.0 | TL | -0.75 | -0.75 | 2.66 | 2.66 |
| 1.0 | LS | -0.42 | -0.42 | 1.27 | 1.27 |
| 2.0 | LL | -3.25 | -3.25 | 9.75 | 9.75 |
| | total wheel load | 25.62 | 25.98 | 47.21 | 46.85 |

max. wheel seaside: 25.98 < 55.00 OK!
max. wheel landside: 47.21 < 55.00 OK!



2.3.5 WS1

Boom up, trolley with empty spreader parked, with SWL

| | | A(t) | B(t) | C(t) | D(t) |
|-----|------------------|-------|-------|-------|-------|
| 1.0 | DL | 23.93 | 24.29 | 39.65 | 39.29 |
| 1.0 | TL | 0.58 | 0.58 | 1.34 | 1.34 |
| 1.0 | LS | 0.21 | 0.21 | 0.63 | 0.63 |
| 1.0 | WLS | 12.53 | 12.53 | 13.27 | 13.27 |
| | total wheel load | 37.25 | 37.60 | 54.88 | 54.52 |

max. wheel seaside: 37.60 < 55.00 OK!

max. wheel landside: 54.88 < 55.00 OK!

Second Type: ship-to-shore (STS) container cranes they are Super Post-Panamax STS cranes with mono-beam (trapezoidal) section boom and girder:-

1. General specification :

| No | Description | Comment |
|----|------------------------------------------------------------------|-------------|
| 1 | Total weight of crane DL+TL+LS | 1443.19 Ton |
| 2 | Maximum outreach | 63.2 m |
| 3 | Maximum back reach | 15 m |
| 4 | Lifting height above rail | 45 m |
| 5 | Lifting height below rail | 18 m |
| 6 | Gantry rail gauge (distance between land side & sea side rail) | 30 m |
| 7 | Gantry rail type | QU 120 |
| 8 | Maximum overall width (buffers uncompressed) | 27.2 m |
| 9 | Height difference between gantry land side & sea side rail | Zero |



2. Wheels load :

Wheel Load and Stability

1 Summary of main data

| | | | |
|------------------------------------------------|-----------|----------------------------|-------------|
| Crane weight DL+TL+LS | 1443.19 t | outreach | 63.20 m |
| Trolley weight DL (including catenary trolley) | 39.40 t | Set back of APEX | 2.00 m |
| Lift system weight LS | 18.00 t | backreach | 15.00 m |
| Ballast inside LSSB | 0.00 t | Rail gauge | 30.00 m |
| Ballast inside WSSB | 0.00 t | Outer Wheel-wheel distance | 11.40 m(LS) |
| lifted load | 65.00 t | | 11.40 m(Ws) |
| Load under cargo beam | 75.00 t | Base gauge | 13.60 m(LS) |
| lift height | 45.00 m | | 13.60 m(Ws) |
| operational wind | 25.00 m/s | tiedown down spacing | 22.00 m |
| Stowed wind | 42.00 m/s | In to In gantry bumpers | 27.20 m |
| gantry wheel No. per corner | 10.00 | | |
| anchor force | | | |
| landside | 79.29 t | | |
| waterside | 79.12 t | | |

2 Allowable wheel load

2.1 For standard wheel load combinations

| | operating | stowed |
|-------------------|-----------|--------|
| seaside(T/wheel) | 80 | 80 |
| landside(T/wheel) | 80 | 80 |

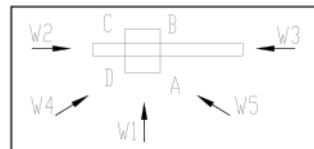
3 Summary of wheel load, Uplift force and horizontal force

Note:

A,B--seaside wheels

C,D--landside wheels

Wind direction see figure on right side



3.1 Wheel load of whole crane(excluding trolley and lift system, lifted load)

| | A | B | C | D |
|----------------|-------|-------|-------|-------|
| boom level | 38.23 | 35.44 | 31.06 | 33.85 |
| boom up to 80° | 28.93 | 26.14 | 40.36 | 43.15 |

3.2 wheel load caused by trolley(including catenary trolley)

| trolley position | A | B | C | D |
|------------------|-------|-------|-------|-------|
| out reach | 5.90 | 5.90 | -3.93 | -3.93 |
| back reach | -0.81 | -0.81 | 2.78 | 2.78 |
| Parking position | 0.58 | 0.58 | 1.39 | 1.39 |

3.3 wheel load caused by lift system

| trolley position | A | B | C | D |
|------------------|-------|-------|-------|-------|
| out reach | 2.80 | 2.80 | -1.90 | -1.90 |
| back reach | -0.45 | -0.45 | 1.35 | 1.35 |
| Parking position | 0.22 | 0.22 | 0.68 | 0.68 |

3.4 wheel load caused by container

| trolley position | A | B | C | D |
|------------------|-------|-------|-------|-------|
| out reach | 10.10 | 10.10 | -6.85 | -6.85 |
| back reach | -1.63 | -1.63 | 4.88 | 4.88 |



3.5 Summary of wheel load combinations

3.5.1 Summary of standard wheel load combination***

| Mode | | TEST | Operating | | Overload | Stowed |
|------------------|----------------------------------|------------|-----------|-------|----------|---------|
| Combination Name | | TE | WOP1 | WOP2 | WOL1 | WS1 |
| DL | dead load | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| TL | trolley load | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| LS | lift system | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| LL | lifted load | 1.0 | 1.0 | 1.0 | 2.0 | |
| IMP | Impact | | | 1.0 | | |
| LATG | gantry load lateral | | 1.0 | | | |
| WLO | operation wind load | | 1.0 | 1.0 | | |
| LATT | Trolley load lateral | | 1.0 | | | |
| WLS | stowed wind load | | | | | 1.0 |
| | Remark | Boom level | | | | Boom up |
| WS | Allowable wheel loads (t/ Wheel) | 80 | | | 80 | |
| LS | | 80 | | | 80 | |
| WS | Calculated wheel | 57.0 | 73.3 | 61.4 | 67.1 | 57.6 |
| LS | loads (t/ Wheel) | 42.9 | 53.3 | 45.0 | 47.7 | 73.1 |
| WS | Calculated wheel | 570.2 | 732.9 | 614.4 | 671.2 | 575.9 |
| LS | loads (t/ Corner) | 428.6 | 532.5 | 449.9 | 477.3 | 731.3 |
| Result | | OK | OK | OK | OK | OK |

4 Wheel load according to standard wheel load combination

4.1 TE

4.1.1 Boom level, Full load at outreach

| | | A(t) | B(t) | C(t) | D(t) |
|------|--------|-------|-------|-------|-------|
| 1.00 | DL | 38.23 | 35.44 | 31.06 | 33.85 |
| 1.00 | TL | 5.90 | 5.90 | -3.93 | -3.93 |
| 1.00 | LS | 2.80 | 2.80 | -1.90 | -1.90 |
| 1.00 | LL | 10.10 | 10.10 | -6.85 | -6.85 |
| | wheel) | 57.02 | 54.23 | 18.39 | 21.18 |
| | | | OK | | OK |

4.1.2 Boom level, Full load at backreach

| | | A(t) | B(t) | C(t) | D(t) |
|------|--------|-------|-------|-------|-------|
| 1.00 | DL | 38.23 | 35.44 | 31.06 | 33.85 |
| 1.00 | TL | -0.81 | -0.81 | 2.78 | 2.78 |
| 1.00 | LS | -0.45 | -0.45 | 1.35 | 1.35 |
| 1.00 | LL | -1.63 | -1.63 | 4.88 | 4.88 |
| | wheel) | 35.35 | 32.55 | 40.06 | 42.86 |
| | | | OK | | OK |



4.2 WOP1

4.2.1 Boom level, Full load at outreach angle wind from landside to seaside

| | | A(t) | B(t) | C(t) | D(t) |
|------|---------|-------|-------|-------|-------|
| 1.00 | DL | 38.23 | 35.44 | 31.06 | 33.85 |
| 1.00 | TL | 5.90 | 5.90 | -3.93 | -3.93 |
| 1.00 | LS | 2.80 | 2.80 | -1.90 | -1.90 |
| 1.00 | LL | 10.10 | 10.10 | -6.85 | -6.85 |
| 1.00 | LATG | 5.21 | 5.21 | 3.05 | 3.05 |
| 1.00 | LATT | 0.74 | 0.74 | 0.74 | 0.74 |
| 1.00 | OWL(W4) | 10.31 | -8.19 | -6.61 | 4.48 |
| | wheel) | 73.29 | 51.99 | 15.57 | 29.45 |
| | | | OK | | OK |

4.2.2 Boom level, Full load at backreach angle wind from seaside to landside

| | | A(t) | B(t) | C(t) | D(t) |
|------|---------|-------|--------|-------|-------|
| 1.00 | DL | 38.23 | 35.44 | 31.06 | 33.85 |
| 1.00 | TL | -0.81 | -0.81 | 2.78 | 2.78 |
| 1.00 | LS | -0.45 | -0.45 | 1.35 | 1.35 |
| 1.00 | LL | -1.63 | -1.63 | 4.88 | 4.88 |
| 1.00 | LATG | 5.21 | 5.21 | 3.05 | 3.05 |
| 1.00 | LATT | 0.74 | 0.74 | 0.74 | 0.74 |
| 1.00 | OWL(W5) | 8.19 | -10.31 | -4.48 | 6.61 |
| | wheel) | 49.49 | 28.19 | 39.37 | 53.25 |
| | | | OK | | OK |

4.3 WOP2

4.3.1 Boom level, trolley with load at outreach, angle wind from landside to seaside

| | | A(t) | B(t) | C(t) | D(t) |
|------|-----------------|-------|-------|-------|-------|
| 1.00 | DL | 38.23 | 35.44 | 31.06 | 33.85 |
| 1.00 | TL | 5.90 | 5.90 | -3.93 | -3.93 |
| 1.00 | LS | 2.80 | 2.80 | -1.90 | -1.90 |
| 1.00 | LL | 10.10 | 10.10 | -6.85 | -6.85 |
| 1.00 | IMP | 4.41 | 4.41 | -2.99 | -2.99 |
| 1.00 | OWL(W4) | 10.31 | -8.19 | -6.61 | 4.48 |
| | load per wheel) | 61.44 | 58.64 | 15.39 | 18.19 |
| | | | OK | | OK |

4.3.2 Boom level, trolley at backreach, angle wind from seaside to landside

| | | A(t) | B(t) | C(t) | D(t) |
|------|-----------------|-------|--------|-------|-------|
| 1.00 | DL | 38.23 | 35.44 | 31.06 | 33.85 |
| 1.00 | TL | -0.81 | -0.81 | 2.78 | 2.78 |
| 1.00 | LS | -0.45 | -0.45 | 1.35 | 1.35 |
| 1.00 | LL | -1.63 | -1.63 | 4.88 | 4.88 |
| 1.00 | IMP | -0.71 | -0.71 | 2.13 | 2.13 |
| 1.00 | OWL(W5) | 8.19 | -10.31 | -4.48 | 6.61 |
| | load per wheel) | 34.64 | 31.84 | 42.19 | 44.99 |
| | | | OK | | OK |

4.4 WOL1

4.4.1 Boom level, Full load at outreach

| | | A(t) | B(t) | C(t) | D(t) |
|--|--|------|------|------|------|
|--|--|------|------|------|------|



CamScanner



4.4 WOL1

4.4.1 Boom level, Full load at outreach

| | | A(t) | B(t) | C(t) | D(t) |
|------|--------|-------|-------|--------|--------|
| 1.00 | DL | 38.23 | 35.44 | 31.06 | 33.85 |
| 1.00 | TL | 5.90 | 5.90 | -3.93 | -3.93 |
| 1.00 | LS | 2.80 | 2.80 | -1.90 | -1.90 |
| 2.00 | LL | 20.19 | 20.19 | -13.69 | -13.69 |
| | wheel) | 67.12 | 64.33 | 11.54 | 14.33 |
| | | | OK | | OK |

4.4.2 Boom level, Full load at backreach

| | | A(t) | B(t) | C(t) | D(t) |
|------|--------|-------|-------|-------|-------|
| 1.00 | DL | 38.23 | 35.44 | 31.06 | 33.85 |
| 1.00 | TL | -0.81 | -0.81 | 2.78 | 2.78 |
| 1.00 | LS | -0.45 | -0.45 | 1.35 | 1.35 |
| 2.00 | LL | -3.25 | -3.25 | 9.75 | 9.75 |
| | wheel) | 33.72 | 30.93 | 44.94 | 47.73 |
| | | | OK | | OK |

4.5 WS1

4.5.1 Boom up to 80°, trolley at stowed position , angle wind from landside to seaside

| | | A(t) | B(t) | C(t) | D(t) |
|------|-----------------|-------|--------|--------|-------|
| 1.00 | DL | 28.93 | 26.14 | 40.36 | 43.15 |
| 1.00 | TL | 0.58 | 0.58 | 1.39 | 1.39 |
| 1.00 | LS | 0.22 | 0.22 | 0.68 | 0.68 |
| 1.00 | WLS(W4) | 27.86 | -15.73 | -27.91 | 15.77 |
| | load per wheel) | 57.59 | 11.21 | 14.52 | 61.00 |
| | | | OK | | OK |

trolley at stowed position, angle wind from seaside to landside

| | | A(t) | B(t) | C(t) | D(t) |
|------|-----------------|-------|--------|--------|-------|
| 1.00 | DL | 28.93 | 26.14 | 40.36 | 43.15 |
| 1.00 | TL | 0.58 | 0.58 | 1.39 | 1.39 |
| 1.00 | LS | 0.22 | 0.22 | 0.68 | 0.68 |
| 1.00 | WLS(W5) | 15.73 | -27.86 | -15.77 | 27.91 |
| | load per wheel) | 45.46 | -0.93 | 26.66 | 73.13 |
| | | | OK | | OK |

End of report

PREPARED BY

ENGINEER / MUSAB MOHAMED

SIGNATURE

