



JMR LIFTING SOLUTIONS

Certified Heavy Lift Engineering

LIFT PLAN

Large Industrial Generator Installation

Plan number: LP-2026-004



CLIENT	[CLIENT CONFIDENTIAL]
LOCATION	[LOCATION CONFIDENTIAL]
REVISION	Rev 0 — SAMPLE
DATE	02 August 2026
PREPARED BY	Muthuraj Jeyabal, LEEA Certified Appointed Person
AP CERTIFICATE NO.	8234-13608-8667-27-1
REVIEWED BY	JMR Lifting Engineering
STANDARDS	BS 7121 · LOLER 1998 · ASME B30

01 Executive Summary & Scope

Indoor placement of a combined-cycle plant generator and stator through a roof opening, requiring precise positioning tolerance and controlled boom geometry for confined overhead clearance.

Key Parameters

Parameter	Value
Load weight (t)	195 t
Dimensions (L × W × H)	8.5 m x 4 m x 4.2 m
Lift radius (m)	10 m
Lift height (m)	22 m
Duration (est.)	10 hrs including alignment
Location	Power plant (indoor)

Critical Risks

- Load overload beyond crane rated capacity at working radius
- Loss of control during dynamic/weather-sensitive lift phases
- Rigging failure due to incorrect sling angle or WLL selection
- Ground/foundation bearing failure under crane or outrigger loads

02 Load Data, Centre of Gravity & Dimensions

Generator and stator assembly, lifted through a purpose-built roof opening onto foundation base plates.

Weight Breakdown

Component	Weight
Generator body	148.0 t
Stator assembly	42.0 t
Lifting attachments	3.0 t
Uncertainty allowance (1.0%)	2.0 t
Total	195.0 t

Centre of Gravity

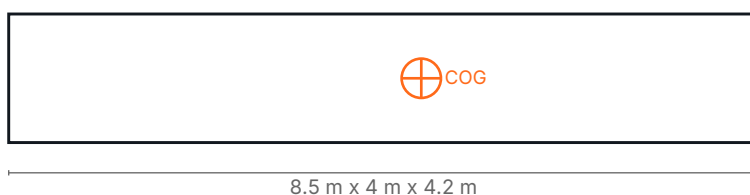
Parameter	Value
X-axis	4.25 m from drive end (X)
Y-axis	0.0 m (Y)
Z-axis	2.0 m above base (Z)

Lift Points

4 no. integral lifting trunnions with spreader beam attachment

Dimensional Sketch

Simplified load outline with centre-of-gravity marker (not to scale):



03 Crane Selection & Configuration

Selected Crane: Liebherr LR 1750/2

Parameter	Value
Rated capacity	750 t
Boom length	42 m
Configuration	Main boom 42 m, indoor lift through roof opening
Working radius	10 m
Capacity at working radius	380 t

Utilization Calculation

$(195 \times 1.10) / 380 = 56\%$. Positioning tolerance ± 10 mm.

Utilization result: **56%** (within 85% safe working threshold)

Ground Bearing Pressure

Ground bearing = $(\text{crane wt } 210 \text{ t} + \text{load} \times \text{DAF } 214.5 \text{ t}) \times 9.81 / 40 \text{ sqm} = 104.1 \text{ kPa}$

Standing / Pick Radius

Working radius maintained at 10 m throughout the critical lift phase.

04 Load Chart & Utilization Calculation

Manufacturer load chart extract for the selected boom/jib configuration:

Radius	Capacity
6 m	520 t
8 m	440 t
10 m → WORKING POINT	380 t
12 m	325 t
14 m	280 t

Dynamic Amplification Factor (DAF)

DAF applied: **1.1**

Total Lifted Load Including DAF

$(195 \times 1.10) / 380 = 56\%$. Positioning tolerance +/-10 mm.

Ground Pressure Calculation

Ground bearing = (crane wt 210 t + load x DAF 214.5 t) x 9.81 / 40 sqm = 104.1 kPa

Parameter	Value
Calculated ground pressure	104.1 kPa
Allowable bearing pressure	180 kPa
Crane pad / matting	Reinforced concrete slab, verified 180 kPa allowable bearing

05 Rigging Configuration

Parameter	Value
Sling type	4-leg wire rope sling with spreader beam
Sling angle (min.)	75°
Number of slings	4
WLL per sling	63 t
Shackle grade	Crosby G-2140 85 t bow shackle
Spreader / master link	Fabricated spreader beam, rated 250 t, 4 drop points

Rigging Schematic (Summary)

Component	Specification
Hook / block	Rated to crane main hoist capacity, latch-equipped
Master link / spreader	Fabricated spreader beam, rated 250 t, 4 drop points
Sling legs	4 × 4-leg wire rope sling with spreader beam
Shackles	Crosby G-2140 85 t bow shackle
Sling angle from horizontal	75° (minimum safe angle 60° unless noted)

Sling Length Calculation

With a sling angle of 75° from horizontal, sling length is derived from headroom and spread geometry per rigging arrangement drawing; angle maintained $\geq$ the minimum safe angle for the configuration.

06 Rigging Load Calculations

Individual Sling Load

Formula: Sling load = (Load × DAF) ÷ (n × sin θ)

(195 × 1.10) / (4 × sin 75deg) = 55.5 t per sling -> select 63 t WLL sling

Parameter	Value
Calculated sling load	55.5 t
Selected sling WLL	63 t
Sling utilization	88.1%
Sling safety factor (design)	5:1 minimum
Shackle safety factor (design)	4:1 minimum

Safety Factor Basis

All wire rope slings are selected to a minimum design factor of 5:1 against minimum breaking load, in accordance with LEEA COPSULE guidance. All shackles are selected to a minimum design factor of 4:1. Working load limits (WLL) are marked and certificated per item.

07 Ground Bearing & Site Layout

Ground Bearing Pressure

Ground bearing = (crane wt 210 t + load x DAF 214.5 t) x 9.81 / 40 sqm = 104.1 kPa

Parameter	Value
Ground bearing pressure (required)	104.1 kPa
Allowable bearing pressure (site)	180 kPa
Margin	42.2% below allowable

Crane Pad / Matting

Reinforced concrete slab, verified 180 kPa allowable bearing

Site Plan (Schematic)

Simplified site layout showing crane standing position, load path, and exclusion zone (not to scale):



08 Risk Assessment (BS 7121 Format)

Risk scoring uses Likelihood (L) × Severity (S), each rated 1–5. Residual score after controls is shown in the right-hand columns.

Hazard	L	S	Score	Controls	L	S	Score
Overload beyond crane capacity	3	5	15	Load chart verified; utilization capped below 85%; independent AP check	1	5	5
Crane mechanical/structural failure	2	5	10	Pre-use inspection; current LOLER thorough examination certificate	1	5	5
Load drop during lift	2	5	10	Certified rigging, redundant sling legs, trial lift at 25% load	1	5	5
Adverse weather conditions	3	3	9	Weather forecast monitoring; defined go/no-go thresholds	1	3	3
Personnel struck by load/rigging	3	4	12	Exclusion zone enforced; banksman control; no personnel under suspended load	1	4	4
Ground/foundation failure	2	5	10	Ground bearing calculation verified; crane mats/pads sized to load	1	4	4
Sling/shackle failure	2	5	10	Certified rigging to 5:1 (sling) / 4:1 (shackle) design factor; pre-use inspection	1	5	5
Overhead obstruction contact	2	4	8	Route survey completed; spotter assigned; boom angle indicator monitored	1	3	3
Positioning misalignment	3	3	9	Laser alignment guides; taglines on all four corners; +/-10 mm tolerance verified by survey	1	3	3

Risk score key: **1–6 Low** · **7–12 Medium** · **13–25 High** — all residual scores must be Low or Medium with documented additional controls before lift authorization.

09 Method Statement

1. Confirm current LOLER thorough examination certificates for crane(s), rigging, and lifting accessories.
2. Conduct toolbox talk with all lift personnel; confirm roles per Section 11.
3. Establish exclusion zone and barrier the lift area; brief banksman and signaller.
4. Position crane(s) on verified ground bearing / matting per Section 07; set outriggers (if mobile) to full extension.
5. Rig load per configuration in Section 05; attach taglines; conduct visual rigging inspection.
6. Perform trial lift: raise load approximately 300 mm, hold at 25% of test criteria for a minimum dwell to verify rigging geometry, crane response, and brake holding.
7. Confirm sling angles, load indicator readings, and COG behavior match plan before proceeding.
8. Execute main lift at working radius 10 m
9. Travel/luff/slew load along planned path, maintaining radius and load chart compliance throughout.
10. Position load over set point; lower under controlled taglines to final bearing/foundation.
11. Confirm secure landing, release rigging tension gradually, and inspect for damage.
12. De-rig, remove accessories, and return crane to travel/stow configuration.
13. Conduct post-lift debrief and close out permit-to-work documentation.

10 Roles & Responsibilities

Role	Assignment
Appointed Person	Muthuraj Jeyabal, LEEA Certified Appointed Person (Cert. No. 8234-13608-8667-27-1) — overall lift planning responsibility
Lift Supervisor	[TBD — assigned at mobilization, LEEA/CPCS certified]
Crane Operator(s)	[Certified operator(s), current CPCS/NPORS or equivalent license]
Slinger / Signaller	[Certified slinger/signaller per LEEA/CPCS standard]
Banksman	[Certified banksman — controls exclusion zone and ground personnel]
Reviewed by	JMR Lifting Engineering

Contact

JMR Lifting Solutions — contact@jmrlifting.com

SAMPLE

11 Approvals & References

Signature Block

Role	Name	Signature / Date
Appointed Person	Muthuraj Jeyabal, LEEA Certified Appointed Person	
Client Representative	[CLIENT CONFIDENTIAL]	
HSE Representative	[TBD]	
Client Project Manager	[CLIENT CONFIDENTIAL]	

References

- BS 7121-1:2016 — Code of practice for the safe use of cranes
- LOLER 1998 — Lifting Operations and Lifting Equipment Regulations (UK)
- ASME B30.5 — Mobile and Locomotive Cranes
- LEEA COPSULE — Code of Practice for the Safe Use of Lifting Equipment
- Crane manufacturer load chart (referenced Section 04/05)

This document is a SAMPLE lift plan produced for demonstration purposes only. It does not constitute an approved lift plan for any live lifting operation. Actual JMR Lifting Solutions project deliverables include site-specific surveys, certified equipment schedules, and a signed authorization prior to any lift.