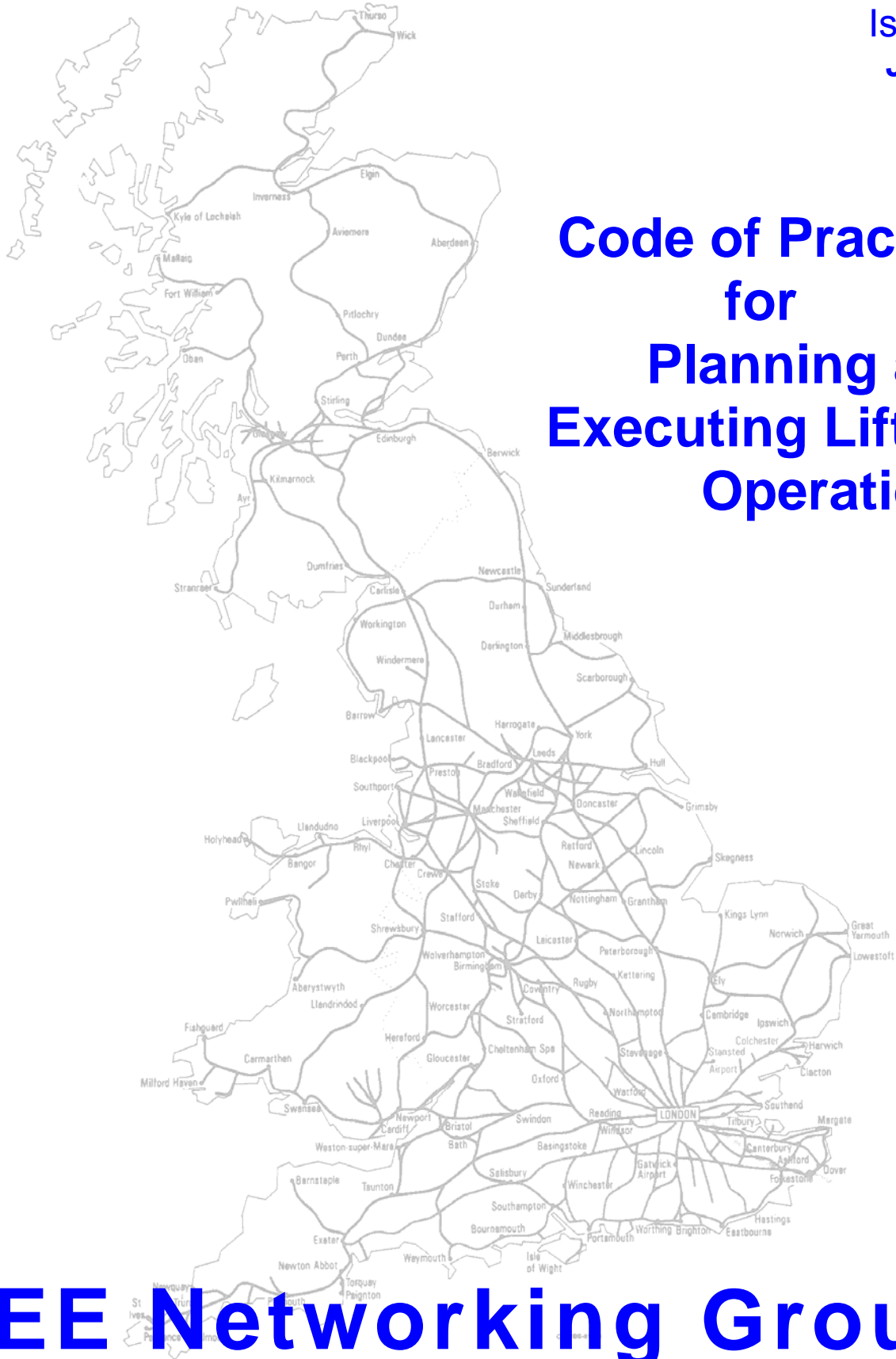


COP0011

Issue 2

Jan 09



**Code of Practice
for
Planning and
Executing Lifting
Operations**

M&EE Networking Group

Document revision history

Issue	Date	Reason for change
1	Apr 02	First issue (now withdrawn)
2	Jan 09	New issued updated and completely revised

Background

A sub-group of the M & EE Networking Group have looked at the arrangements for planning and executing lifting operations and recommend the following as good practice for the Industry.

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Sign off

The M & EE Networking Group agreed and signed off this Code of Practice on 29 January 2009

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Purpose

This Code of Practice details good practice to ensure that all lifting operations are planned and carried out with the correct equipment under a safe system of work.

Scope

This Code of Practice concerns all lifting operations involving lifting equipment such as rail cranes, twin jib cranes, road-rail excavator cranes, vehicle mounted knuckle boom cranes, vehicle mounted lifting arms/gantries, S&C panel lifting equipment, MEWPS, road mobile cranes where the operation will be in the area defined as "on or near the line" (as defined in the Rule Book module G2). It does not include contract lifts or where knuckle boom cranes are used to deliver or remove materials and equipment to site and where any point of the machine or load will not be "on or near the line".

Definitions

Competent Person	A person appointed and certified to carry out specific duties and having sufficient practical and theoretical knowledge to enable the discharge of those duties safely to a set standard.
Crane controller	Person who controls the lifting operation on site and setting up safe systems of work, including supervision of all lifts and the machine on site. Also responsible for ensuring that adequate inspection of lifting equipment and accessories are carried out. The competent person in charge of lifting operations on site. Also responsible for completing the MC CC check sheet (COP 0016). This person should also be conversant with the content of COP 0002, and be competent as per the requirements of the Sentinel Scheme for Machine and Crane Controllers. For MEWP operations this role is carried out by a person certified competent under the Sentinel scheme, as a Machine Controller MEWP.
Lifting accessories	Lifting beams, chains etc. that fit between the Lifting Equipment hook and the load to enable the load to be lifted.
Lifting equipment	"Work equipment that can lift or lower a load" (LOLER 2)
Lifting operation	"Means any operation concerned with lifting or lowering a load" (LOLER 8(2)). Note that load in this context includes persons
Lift planner	Responsible for calculating weights and symmetry of loads, planning including adequate supervision as appropriate to the risk, and selecting type of lifting equipment and accessories.
Rated Capacity Indicator (RCI)	A device that is set up to give visible and / or audible warning when a crane is nearing the limit of its capacity.
Safe Working Load (SWL)	The maximum load, which an item of lifting equipment may raise, lower or suspend under the particular service and working radius conditions.
Slinger (Load Handler)	A competent person responsible for attaching and detaching the load to the Lifting Equipment. Also responsible for use of correct lifting accessories. (Note: the Crane Controller may undertake this duty).

1 Planning lifting operations

1.1 Competence Requirements (see also section 2, COP0002)

- 1.1.1 The planning of lifting operations shall only be undertaken by a person with the relevant competence for the complexity of the lifting operation to be undertaken.
- 1.1.2 All personnel involved in lifting operations must be competent for their duties.

1.2 Planning Process

- 1.2.1 A site visit by a person with the relevant skills e.g. Lift Planner or Crane Controller shall be undertaken before the planning of any lifting operation to check site conditions to aid the preparation of a lifting plan and selection of suitable lifting equipment and accessories.
- 1.2.2 All lifting operations shall be planned and documented. Information required for planning should include:
- Suitability of the access to the site of lifting for all the machines and equipment.
 - Calculations and assessment of each type of lift with reference being made to the applicable duty charts of the lifting equipment for the planned lift. Particular reference being made to M&EE COP0008 tandem lifts as required.
 - The correct type of lifting equipment and accessories shall be selected, taking into account the limitations on the Certificate of Engineering Acceptance.
 - Calculations for the centre of gravity (not required for uniformly distributed loads) or individual loading if tandem lifting.
 - Suitability and integrity of the load.
 - Consideration of control measures to avoid or reduce the risk from hazards such as obstructions, structures, overhead line equipment, electrical supply lines, other services. Particular reference should be made to the physical restrictions on site such as tunnel walls and

other structures that may be struck by the tail swing of any lifting equipment, including adjacent lines open to traffic.

- Consideration of ground condition, including bridge/parapet strengths, ground bearing capability, location of culverts/drains etc and ability to level the lifting equipment. (This information may be obtained through the site survey).
- Consideration of the need to move the lifting equipment during the lifting operation (lift and carry) including the change of site conditions during movement.
- Consideration of contingency arrangements required in the event of failure of equipment.
- Consideration of the need to produce a description and sketch of each lift, showing the sequence of lifting / lowering operation and features of the work site.
- Decide the communication protocol for the work site

1.2.3 As a minimum the documented plan should include where relevant the following:-

- a) Description, weights and method of lifting taking into account any possible adhesion between the load and structure or between the load and the ground. (This adhesion may be reduced by pre-jacking). Where absolutely necessary that weights have needed to be estimated (due to uniqueness of load), verification on site by a test lift should be specified.
- b) Where the lifting equipment has multiple lifting points the plan should identify the actual lifting point used in the planning process.
- c) The site of the operation taking into account proximity hazards, space availability and suitability of ground and track conditions.
- d) Adequate clearance between the lifting equipment and/or load(s) and any other structure. This may include any walkways (600 mm minimum).

- e) The specification of lifting equipment (make and model and RCI type) and lifting accessories to be used, including beams, the weight of which must be taken into account when assessing the load on the lifting equipment. It is recommended that the intended individual serial number of the lifting equipment should be recorded.
- f) The maximum radius and hook height for each lift within the relevant lifting equipment duty.
- g) The location for the placement of the load, including any need for packing etc.
- h) The maximum track cant for each lift, including changes during lift and carry.
- i) The position of the lifting equipment and the load(s) before, during and after the operations including cant and gradient.
- j) The environmental conditions that exist or may occur at the site of operation, (which may necessitate stopping the operation when conditions are unsuitable).
- k) Any sub-surface works or services e.g. culverts, drains which may affect the safe operation of the lifting equipment.
- l) The possession and electrical isolation requirements of running lines upon which the lifting equipment operates and adjacent running lines. Impact on engineering trains and other parties in the same possession.
- m) The position of other electrical services e.g. electrical supply companies and appropriate measures of risk control.
- n) Restrictions caused by other lifting equipment working independently but in close proximity on the same site, also restrictions caused by other work and machines working in the same vicinity. The limits of travel and movement should be stated.
- o) Restrictions required to work on a bridge, arch or viaduct.

- p) Train marshalling (including orientation of lifting equipment etc).
- q) Description of the communication protocol for the work site

The documented lifting plan should also include the location, date of lift(s) and be signed by a competent lift planner / crane controller.

2 Executing Lifting Operations

- 2.1 The lifting operation must always be under the direction of a Crane Controller (CC) on site. This person must have with them a copy of the approved lifting plan, and be fully conversant with it. The CC must brief all staff involved in the lifting operation with the method of working. If a shift change occurs during the work, the new CC should take over the plan, brief the contents to all new staff, and confirm understanding.
- 2.2 Should circumstances on site mean that it is not possible to follow the original plan for whatever reason; the CC must reassess the plan including making calculations and document the changes. The revised plan must then be communicated to all persons who need to know the revisions made and confirm understanding.
- 2.3 The slinger is responsible for attaching and detaching the load to the lifting equipment and for using the lifting accessories in accordance with the lifting plan. The slinger should indicate to the CC, using the pre-agreed communication protocol, when it is safe to lift the load and they are in a safe position. If there is more than one slinger, only one of them should have this responsibility at any one time.
- 2.4 All lifting accessories should be checked prior to use for condition and suitability including the thorough examination is in date.
- 2.5 Where using lifting equipment with hoist ropes, it is essential that the ropes are maintained in the plumb position for the duration of any lifting operation.
- 2.6 Loads should not be suspended over areas occupied by persons.
- 2.7 Where two items of lifting equipment are used for tandem lifting the same load, this should be conducted in accordance with M&EE COP0008.
- 2.8 The rated capacity indicator (RCI), where fitted, must not be overridden or ignored. Should a RCI fail during work on site, then provided that all parameters are known and within limits, the lifting operation may continue in order to make the track/worksite safe, after which the lifting operations must then

cease until the RCI is properly functioning. If extra control measures are required then these need to be documented on the lifting plan, authorised and briefed out to all who need to know.

- 2.9 The RCI should not be used as a control mechanism in its own right. The RCI shall not be disabled during lifting operations.
- 2.10 Where there is the facility to lock the RCI mode, the Crane Controller should ensure that the duty is selected as described in the lift plan and the key removed (if fitted) and retained by the Crane Controller until such time as there is a requirement to alter the settings.
- 2.11 Load Limiting Devices, where fitted, shall not be disabled during lifting operations
- 2.12 The Crane Controller must ensure that robust arrangements are put in place for safe passage of trains on any adjacent lines in accordance with the requirements of Rule book modules OTP and OTM. These arrangements may also include jib height and slew limiters. Further restrictions may be identified on the Certificate of Engineering Acceptance.
- 2.13 If cranes with outriggers are to be used the lift plan diagram should show their position when extended. The extent of any temporary works necessary to spread their load and their proximity to any underground services. Outriggers are not to be supported directly on the rail or sleepers.
- 2.14 Where a road mobile, contract lift or knuckle boom crane will be “on or near the line”, the appointed person will be supported by a Machine Controller to fulfil the requirements of this Code of Practice.

References

Document	Title
BS 7121	Safe Use of Cranes
Civil Engineers Conference Blue Book	Supervisors guidelines for safe use of cranes (Published Feb 2000)
GE/RT 8000	Rule Book
LOLER	Lifting Operations and Lifting Equipment Regulations
M&EE COP0001	Operator Competency Standards for Possession-only Rail Vehicles
M&EE COP0002	Minimum Requirements for the Planning and Management of Possession-only Rail Vehicles
M&EE COP0005	Handling Serviceable Rail with Road-Rail Excavator Cranes in Rail Mode including Thimbling
M&EE COP0008	Tandem Lifting with two Excavator Cranes
M&EE COP0016	RRV and RMMM Machine/Crane Controller Checklists
RIS-1700-PLT	Rail Industry Standard for Safe Use of Plant for Infrastructure Work