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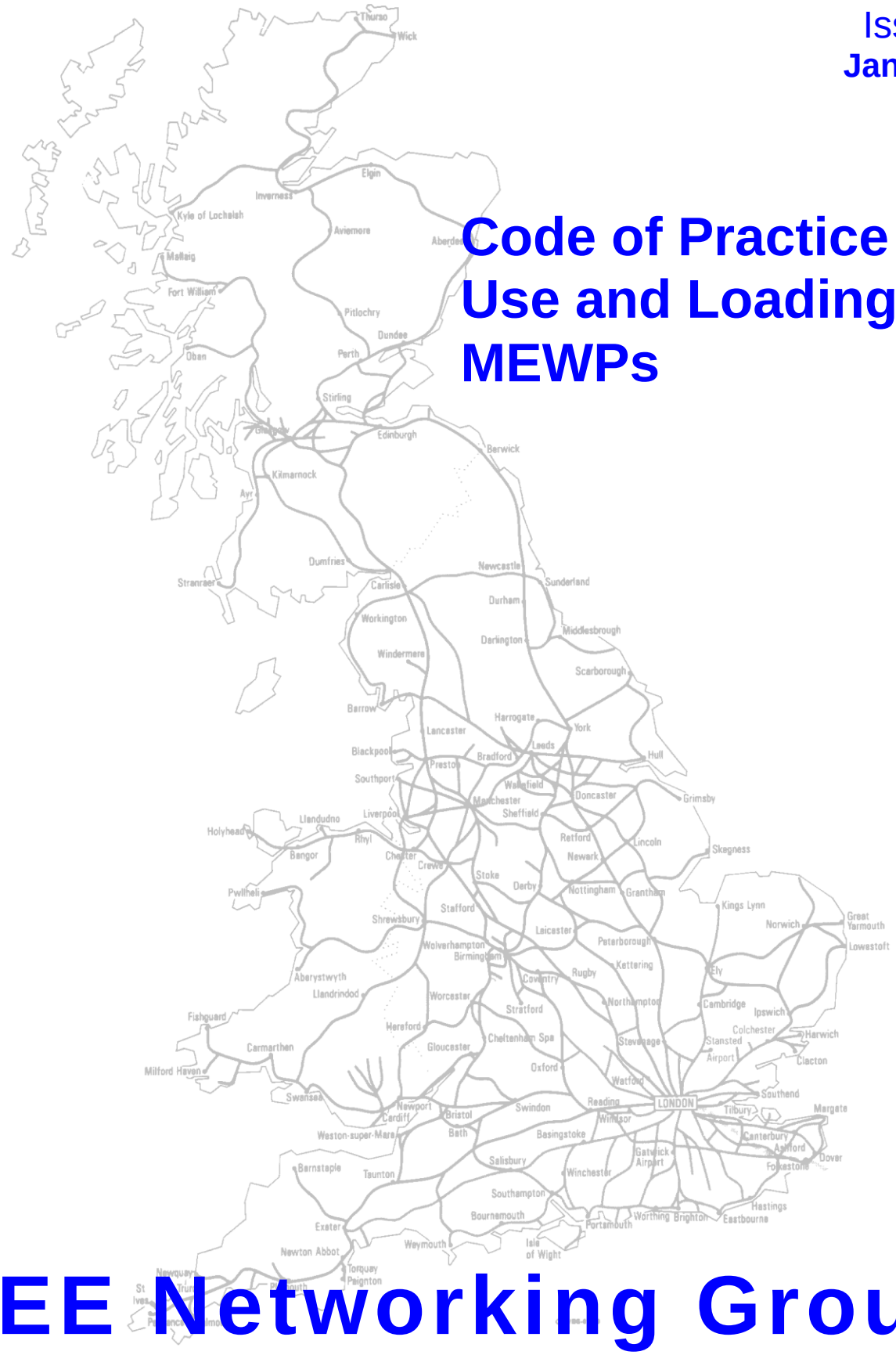

Code of Practice for Use and Loading of MEWPs

M&EE Networking Group

Document revision history

Issue	Date	Reason for change
1	July 09	First issue (now withdrawn)
2	July 10	New requirements for use of MEWPs added (requirements for use of anchor points transferred from COP0020 which is now withdrawn). Issue 2 now withdrawn
3	Jul 11	Greater clarity given in section 1.1.4 concerning the role of machine controller with MEWP in road mode. New section on use of MEWP in wind added. Changes are shown with a black line in the right hand margin.
4	Mar 14	Inclusion of general requirements for safe use of MEWPS in section 1.1.
5	August 15	Full review with update sections on emergency recovery and unsafe use of MEWPs
6	Jan 19	Full Review, added anemometers being on site to determine wind speed, section on guidance on MEWP overload management. Reference to secondary guarding

Background

A sub-group of the M&EE Networking Group have looked at the legislation, and current industry practices for the use and loading of MEWPs on the railway infrastructure. The M&EE Networking Group recommend this COP as good practice for the industry.

M&EE COPs are produced for the benefit of any industry partner who wishes to follow the good practice on any railway infrastructure. Where an infrastructure manager has mandated their own comparable requirements, the more onerous requirements should be followed as a minimum for work on their managed infrastructure.

The M&EE Networking Group makes no warranties, express or implied, that compliance with this document is sufficient on its own to ensure safe systems of work or operation. Users are reminded of their own duties under health and safety legislation.

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Sign off

The M&EE Networking Group agreed and signed off this Code of Practice on 16 January 2019 and published on 2 March 2019

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Purpose

This Code of Practice details the use of MEWPs, particularly:

- Processes for type and amount of loads (that is personnel and materials) that should safely be permitted in the work platform of a MEWP.
- The use of work restraint anchor points.
- Getting in and out of the work platform at height.
- Emergency Recovery and misuse

Scope

This Code of Practice concerns rail mounted MEWPs and also road MEWPs used in the railway environment.

Note General planning guidance can be found in COP0002

Definitions

Travelling mode	A vehicle is considered to be in travelling mode when it is on rail, with its suspension allowing movement along the track, and all parts stowed in a manner which prevents inadvertent or unintended movement out of the applicable gauge.
Working mode	A vehicle is in working mode as soon as any part of the vehicle or equipment is unstowed from its travelling mode, or not within the applicable gauge.
Secondary guarding	A device fitted to a MEWP in addition to the primary guarding systems, to further reduce the risk of entrapment and / or provide an alert that an entrapment situation has occurred.

1. Use of MEWPs

1.1 General

1.1.1 The safe operation of MEWPs is detailed in BS8460:2017 (available from BSI).

1.1.2 The safe operation of MEWPs for avoiding trapping and crushing injuries is detailed in CPA1002 - July 2010 (available free from CPA website). Note section 4 gives guidance on emergency recovery

1.1.3 If there is an increased/significant risk of entrapment/crushing of operators due to the nature of work being undertaken then a MEWP should be specified with secondary guarding, in accordance with the risk assessment.

1.1.4 Hazards specific to the use of MEWPs on the railway are dealt with in sections 1.2 to 1.5.

1.1.5 When using hand tools and other small equipment outside the perimeter of the basket they should be secured by tagline to the individual to prevent dropping accidents causing injury below. An example is shown in Figure 1.

Figure 1 Example of tagline to prevent dropped tools causing a problem

1.2 Operation of controls

1.2.1 Except for emergency rescue all movements of the MEWP should be by the operator utilising the controls in the work platform when the work platform is occupied.

1.2.2 The work platform should be unoccupied if the movement of the MEWP along the track in travelling mode is controlled from a separate position.

1.2.3 Whilst the work platform is away from the stowed position (working mode) there should always be a person on the ground close to the MEWP fully conversant with the emergency controls.

1.2.4 All operations including:

a) Movements along the track when the MEWP is in rail mode.

b) All travel movements in road mode (where any part of the equipment can come within 3 m of the running line).

c) Working mode in rail, and road where any part of the equipment can come within 3 m of the running line.

Should be under the control of a machine controller. The machine controller should be at ground level in a position of safety that allows for direct communication with the operator depending on the type of communication system being used.

1.3 Work restraint anchor points on MEWPs

1.3.1 Anchor points marked for work restraint should never be used for fall arrest.

NOTE In the majority of railway MEWP applications there is a limited height of work and hence fall arrest equipment is not recommended, and most MEWPs are not designed for fall arrest equipment use. A risk assessment will need to be carried out if fall arrest is considered necessary which includes the use of MEWPs specifically designed for this application

1.3.2 Staff should wear a harness attached to the anchor points at all times when in the work platform.

1.3.3 The number of staff attached to the anchor point should not exceed the number that it is rated for.

1.3.4 The operator should visually check the anchor point(s) and fixings prior to use. This should include checking for any obvious signs of damage or excessive wear.

1.4 Getting in and out of MEWPs away from stowed position

1.4.1 Where practical personnel should never get out of a MEWP with the work platform away from the stowed position. If the use of MEWP for persons leaving the work platform at height is unavoidable a risk assessment as set out in BS8460:2017 should be undertaken and include an assessment for the rescue of personnel who may have become stranded.

1.5 Use of MEWPs in wind

1.5.1 MEWPs must not be used when the wind speed exceeds that specified by the manufacturer. A guide for estimating the speed of the wind is given in Appendix B.

1.5.2 A calibrated anemometer should be available on site to determine the wind speed during MEWP operations

1.5.3 Care should be taken about the positioning of MEWPs, to avoid where possible the additional effects of wind caused by:

a) funnelling effects of wind between buildings, where wind speed can double that observed in open area.

b) eddy currents created from the corners of large slab sided buildings.

c) working at height, wind speed can be 50% greater at 20m height than at ground level.

d) passing trains, the slipstream effect depends on the speed of the train and also the train type.

1.5.4 Consideration should be given to the wind chill when working in a work platform. On a calm day 10°C is cool but not unpleasant, but with a wind speed of 20 mph the temperature experienced on the face and hands is 0°C. If the day is very cold, about at freezing, the temperature experienced on the skin could be down to -15°C. Therefore adequate warm clothing should always be provided and worn.

1.5.5 Consideration should be given to materials being handled when at height. Sheet material such as sign boards and cladding can act as sails in even moderate winds and can seriously affect the stability of the MEWP.

2. Unsafe use of MEWPs

2.1 Overloading

2.1.1 Manipulating the OLE wire from within the basket is not good practice, e.g. pushing the wire over or up using the persons shoulder/body. Be aware that this type of operation can introduce additional lateral or downward force in the basket which could overload the basket and lead to instability.

2.1.2 If the overload alarm is activated the work should cease immediately.

2.1.2.1 An immediate, documented review of the method of work is required by the person responsible for the safe use of plant to understand the cause of the overload e.g.

- What activity was being undertaken at time of overload
- Analyse data logger for percentage overload, where this is not fitted, estimate the basket load at time of overload reviewing actual basket load e.g. personnel tools and equipment, against the basket SWL to establish the overload percentage.
- Have any lateral loads been applied to basket
- Evidence of damage to basket

2.1.2.2 Following overload review; determine what action is required e.g.

a) insignificant overload e.g. up to 10% of overload,

b) 11% to 20% of overload - examination by fitter, if no fitter available the MEWP should be removed from service

c) Above 20% - significant remove from service

Note If a 20% overload is thought to have been achieved, or the overload cannot be estimated, this is classed as significant and the MEWP should be removed from service and a thorough examination by a competent body is required.

2.1.2.3 Following an overload condition, the event should be recorded in the log book with date and time.

2.1.2.4 Where the overload is deemed to be insignificant a documented review should be undertaken to identify suitable changes to the planned activity to avoid further overload occurring. Before recommencing work, staff involved in activity should be re-briefed on changes.

2.1.2.5 Where the planned activity resulted in the overload and the methodology cannot be changed then the activity should not recommence

2.1.2.6 The data logger should be downloaded as soon after the event as possible, and the data interrogated.

2.1.2.7 On review of the investigation it may be required to go back to the planning stage and re-plan accordingly

2.1.2.8 Interfering with or overriding safety systems is breaking the law and should not be undertaken. The following are examples of safety systems which must not be interfered with;

- Load sensing systems
- Braking systems
- Deadman operation
- Travel inhibit switches
- Movement limiting devices
- Emergency recovery system

2.2 Inadequate Planning

2.2.1 Inadequate planning can cause problems on site and planning should be undertaken in accordance with this document. Common inadequate planning issues include:

- Machine not adequate for the job
- Changes to the planned methodology on site.
- Unrealistic schedule of work

- Emergency recovery
- Civils contractors working near the line without knowledge of infrastructure rules

2.3 Using the basket as a crane/ rigging off basket

2.3.1 Using the basket with lifting accessories like chains, slings and chain blocks for lifting a load must not be carried out.

Note Some civils MEWPs are fitted with a load lifting point, these should only be used if the lifting point is certified and the lift is carried out in accordance with the manufacturer's instructions.

2.4 Climbing on the handrail

2.4.1 Climbing on handrails, or using ladders in the basket should not be undertaken at any time.

3. Loading issues to be considered during planning and use of MEWPs.

3.1 Principles

3.1.1 Materials are permitted to be carried in the work platform of a MEWP. The most important consideration is that the total weight of personnel (including PPE and harness), tools and material being carried in the work platform at any stage during the work should not exceed the maximum safe working load (SWL) of the MEWP.

3.2 Planning

3.2.1 The general planning arrangements should be carried out in accordance with COP0002 Planning for use of Mobile Operated Plant.

3.2.2 If MEWPs are to be used directly to install materials, it is essential to know the weight and dimensions of those materials and to correctly consider any manual handling and load distribution issues. Manipulation of the OLE wires can add significant load to the MEWP basket and should be considered at the planning stage. It may be necessary to use a manipulating device with the MEWP where lifting or handling of OLE components is required.

3.2.3 Boom-type MEWPs generally have smaller work platforms and lower lift capacities than scissor-type MEWPs and their platforms can 'bounce' at height due to the boom structure flexing. This usually

makes them unsuitable to use for installing heavy materials, or bulky materials that may obstruct the function controls. In these cases, consider using a scissor lift, or a crane/telehandler in conjunction with the MEWP. This combination reduces the risk of overturning.

3.2.4 The MEWP should have the work platform's rated load in kgs; and also the rated load given as the allowable number of persons and mass of equipment in kgs. This information should be available in the technical data and also displayed on the side of the work platform. It should be noted that the number of persons assumes a mass of 80 kgs per person – therefore if persons intended to be in the work platform are greater than 80 kgs each, the difference in mass will need to be subtracted from the permitted mass of material. If fewer people are used than allowed it is permissible to have additional material providing this does not exceed the work platform's total rated load. See Appendix A for sample calculation of intended load.

Note The weight of the individual should take into account full PPE and harness

3.2.5 An allowance should be made for the additional loads that might need to be carried by the work platform during the work or rescue operation (e.g. material removed before refitting new). Taking loads into the work platform at height should be undertaken with extreme caution. If the weight of the load is not known accurately it can lead to overloading of the work platform and overturning of the MEWP. Load sensing systems do not provide protection in these situations. The transfer of loads into the work platform at height should be taken into account as part of the planning process.

3.2.6 Some MEWPs may have a variable capacity depending on the configuration of the work platform, for example platforms with side shift. The manufacturers' handbook and load charts need to be consulted for machine specific details in the planning process.

3.2.7 MEWPs are designed to be used with the material completely within the work platform, therefore long and wide materials that do not fit in the work platform should only be carried with the MEWP manufacturer's written permission using approved carrying attachments. Materials should not be carried using the guardrails because this could reduce the stability of the MEWP.

3.2.8 Careful consideration should be given to the manual forces that could be exerted onto the work platform. The work to be carried out from the work platform, especially where this involves manipulation of OLE, drilling or use of spanners where bolts could be resistant to movement, should be defined.

3.3 Use

3.3.1 Before starting work the SWL of the MEWP should be checked to determine whether it is sufficient for the maximum combined weight of persons and equipment (tools and materials) to be carried in the work platform.

3.3.2 It is essential that equipment carried in the work platform which has cables or hoses attached is not left hanging free but is properly supported. Particular care should be taken to prevent objects or equipment striking or interfering with the controls of the MEWP.

3.3.3 Persons on the work platform should not apply any manual forces that exceed those permitted by the manufacturer. This includes sideways forces.

3.3.4 Unless specifically permitted by the manufacturer the work platform should never be used to exert a horizontal force, nor should the work platform be used as a prop or jack.

4. Emergency recovery

4.1 Emergency plan and drills

4.1.1 A suitable rescue plan should be developed to ensure that emergency recovery can be carried out safely and quickly in the event of an operator or anyone else becoming trapped or incapacitated in the working platform.

4.1.2 MEWP operators, supervisors and Machine Controllers involved should be briefed on and practice the emergency procedures.

4.1.3 The location of the emergency recovery instructions should be identified in the emergency plan and available at ground level so those people who are authorised to operate the emergency controls can refer to them.

4.1.4 There must always be someone at ground level who is authorised to take action in the event of an emergency while a MEWP is in use. See section 4.3.2

4.2 Periodic drills

4.2.1 The emergency descent controls and systems are often specific to individual machines. As such, periodic drills should be required for those who have on-site responsibility for the rescue. These drills

should include practicing the use of the ground controls and emergency controls for the machine in use.

4.3 Competence of Rescuers

4.3.1 Rescuers must:

- be competent to lower the MEWP platform using the ground/emergency controls in the work situations to which they are exposed;
- be instructed in local hazards and site rules;
- be familiar with the rescue procedures for the type of MEWP they are authorised to operate;

4.3.2 Rescuers at ground level do not need to be trained as MEWP operators but they must be deemed competent by their employer to carry out rescue operations. They should be familiarised with the safety devices on the MEWP in use, its emergency lowering systems and ground controls. They should check the emergency lowering functions with the operator during the daily pre-use checks

4.4 Common Rescue Problems

4.4.1 Once trapped, rescue can often be hampered because:

- No-one knows the person is trapped.
- No emergency rescue plan.
- No key in ground level controls:
- Lack of familiarity with ground / emergency descent controls:

Note Ground operatives who have never practised using the ground/rescue controls cannot therefore safely bring the basket down in an emergency.

- Overload cell has been activated, this can affect the operation of the controls.
- Emergency stop has been activated, this can restrict the ability of the operator to be rescued.
- Complicated boom manoeuvre.

4.5 Decide who should effect the rescue and how:

4.5.1 This depends on the complexity of the operation and therefore the relative risk of affecting a rescue from the ground compared to the risk of an operator, possibly in a state of panic, trying to rescue himself. It also depends on how the controls for the specific MEWP

being used function if the load cell has been activated.

The order of priority should be:

1. **Operator:** the operator, or other competent people in the basket, should try to rescue themselves by re-tracing the steps they took in reverse order.
2. **Ground staff:** if visibility and understanding of situation from the ground are good, ground staff should effect a rescue using the ground controls.
3. **Another MEWP:** In some situations the use of another MEWP to gain access to the platform may be the safest option. This will only be acceptable if such rescue has been planned and includes means of transferring between platforms which prevents anyone falling

Appendix A Example calculation of intended load on work platform.

A.1 Rated load of work platform

Machine rated at 300 kg or 3 persons and 60 kg.

The weight of the individual should take into account full PPE and harness

A.2 Calculations

A.2.1 Calculated load on work platform (example 1)

Operator A	105	kg
Operator B	110	kg
Operator C	95	kg
TOTAL	310	kg

Therefore load unacceptable for work platform, even though the platform is rated for "three" persons. The options are either to have one less operator or to obtain a MEWP with a higher load capacity.

A.2.2 Calculated load on work platform (example 2)

Planned material	150	kg
Tools	5	kg
Operator A	65	kg
Operator B	95	kg
TOTAL	315	kg

Therefore load unacceptable for work platform. The options are either to use one operator instead of two on the work platform, or reduce the material lifted, or to obtain a MEWP with a higher load capacity.

A.2.3 Calculated load on work platform (example 3)

Operator A	65	kg
Operator B	95	kg
Tools	5	kg
Planned material going up	75	kg
Material added to at height	75	kg
TOTAL	315	kg

In this case the load is unacceptable for the work platform because the material is being added to whilst the platform is raised. A typical example of this is where new components are to be fitted to the OLE and the old ones are removed before fitting new ones.

Appendix B Guidance for estimation of wind speed.

By observation of the effects of the wind, as described in Table 1, it is possible to estimate the wind speed when anemometer is not available.

Description of wind	Effect of wind on the environment	Wind speed (mph)	Wind speed (m/s)	B'fort Scale
Calm	Calm, smoke rises vertically	0 - 1	0 – 0.2	0
Light Air	Direction of wind shown by smoke	1 - 3	0.3 – 1.5	1
Light Breeze	Wind felt on face; leaves rustle; ordinary vanes moved by wind	4 - 7	1.6 – 3.3	2
Gentle Breeze	Leaves and small twigs in constant motion; wind extends light flag	8 - 12	3.4 – 5.4	3
Moderate Breeze	Raises dust and loose paper; small branches are moved	13 - 18	5.5 – 7.9	4
Fresh Breeze	Small trees in leaf begin to sway; crested wavelets form on inland waterways	19 – 24	8.0 – 10.7	5
Strong Breeze	Large branches in motion; whistling heard in telephone wires	25 – 31	10.8 – 13.8	6
Near Gale	Whole trees in motion; inconvenience felt when walking against wind	32 – 38	13.9 – 17.1	7
Gale	Breaks twigs off trees; generally impedes progress	39 – 46	17.2 – 20.7	8
Strong Gale	Slight structural damage occurs (chimney pots and slates removed)	47 – 54	20.8 – 24.4	9