CLEANER CONSTRUCTION FOR LONDON
Putting Air Quality First

SUPPORTED BY
MAYOR OF LONDON

Non-Road Mobile Machinery (NRMM) Practical Guide v.4

September 2020

Abbreviations

AQ	Air Quality
CAZ	Central Activities Zone
CCFL	Cleaner Construction For London
CEMP	Construction Environmental Management Plan
CLP	Construction Logistics Plan
GL	Greater London
GLA	Greater London Authority
HGV	Heavy Goods Vehicle
LEZ	Low Emission Zone
MEWP	Mobile Elevated Working Platform
NOx	Oxides of Nitrogen
NRMM	Non-Road Mobile Machinery
OA	Opportunity Area
PM	Particulate Matter
SPG	Supplementary Planning Guidance
TAN	Type Approval Number
ULEZ	Ultra Low Emission Zone

Contents

Section 1: Introduction

1.1 Background

The London Atmospheric Emissions Inventory 2016 estimates that NRMM exhaust emissions in construction are responsible for between 6-10% of toxic pollution in London. As other industries address their contribution to poor Air Quality the construction industry must also make changes to safeguard the health of their employees and the public. The Mayor of London has introduced bold new standards for machinery used on construction and demolition sites to combat this.

Cleaner Construction is a London-wide Local Government initiative working in partnership with the construction industry to deliver cleaner air.

1.2 Purpose

This document provides guidance on the London NRMM Low Emission Zone (LEZ), including the processes and procedures that must be in place on all development sites to comply with the policy. It also signposts future changes to the policy.

It is intended as a guide for Contractors, Local Authorities and other regulators, suppliers and developers in order to better understand what is expected of sites.

Model planning conditions are also given for Local Authorities to apply to relevant sites. In the interest of good practice, all sites are expected to comply with the requirements set out within this document regardless of whether or not planning conditions apply. However, it is strongly advised that the model planning condition (section 3.4) is put in place by Local Authorities.

This guidance document should be considered in conjunction with Construction Logistics Planning and Dust Controls & Monitoring, to truly minimise emissions from construction and demolition sites.

Section 2: Key Definitions

2.1 Definition of NRMM

NRMM is defined as any mobile machine or vehicle that is not solely intended for carrying passengers or goods on the road. Generally, this includes all machinery on site, even those with road going registration plates, such as telehandlers and dumpers, and those that are not self-propelled, such as generators and compressors.

The NRMM LEZ only applies to machines on construction/demolition sites, with rated power outputs between 37-560kW.

Although the requirements do not apply to all sites, and only to NRMM between 37-560kW, the principle of best practice should be applied to all sites and all categories of NRMM.

2.2 Definition of a Major Development

A major development is defined in the London Plan and *The Town and Country Planning (Development Management Procedure) (England) Order 2015* as a residential development of 10 or more dwellings, or having an area of 0.5 hectares or more where number of dwellings is not known; or any development carried out on a site having an area of 1 hectare or more, or floor space of 1000 square metres or more.

2.3 Definition of a Minor Development

Minor Developments are defined as residential developments of between 1 and 9 dwellings inclusive, or where the number of dwellings to be constructed is not given in the application, a site area of less than 0.5 hectares. For all other uses, a minor development is one where the floor space to be built is less than 1,000 square metres or where the site area is less than 1 hectare.

2.4 Opportunity Areas

Opportunity Areas are London's major source of brownfield land which have significant capacity for development. The impacts of these dense areas of redevelopment need to be minimised. Therefore, as of September 2020, emission standards in these areas will match those of the CAZ and Canary Wharf.

Examples of NRMM include, but are not limited to:

- Excavators
- Dumpers
- Piling Rigs
- Generators
- Mobile cranes
- MEWPs
- Static Pumps
- Compressors
- Crushers
- Telehandlers

Section 3: The Requirements

3.1 From 1st September 2020

From 1st September 2020 NRMM on all sites within Greater London is required to meet emission Stage IIIB as a minimum; and NRMM on all sites within either the Central Activities Zone (CAZ) or Opportunity Areas (OAs) are required to meet emission Stage IV as a minimum.

The site and all in-scope machinery (37-560kW) must be registered on the GLA NRMM Website (see Section 3.2)

Constant speed engines (typically found in generators) are required to meet emission Stage V across the whole of London (see section 5.2 for how to identify a constant speed engine).

At present, the supply of Stage V equipment is limited and retrofit solutions bringing machinery from Stage IIIA to Stages IV and V are being developed. Therefore, the GLA will continue to manage requests for exemptions on a case by case basis for Stage IIIA constant speed engines, until such time when Stage V engines and retrofit solutions become available. Exemptions can be applied for on the NRMM online register (see Sections 3.2 & 4.5).

	Zone	
	GL	CAZ/OA
Variable speed	IIIB	IV*
Constant speed	V**	V**

Figure 1: Requirement from 1st September 2020

*Stage IV machinery is not widely available between 37 - 56 kW. However, Stage V machines are available, and as Stage IV is the **minimum** standard, machinery at these sizes will often need to meet Stage V.

**Stage IIIB and IV emission limits are not defined in legislation for Constant Speed engines, therefore the emission standard required for those engines is effectively Stage V.

If you are unable to procure machinery of the required emission standard by engine stage or retrofit, you will need to apply for an exemption (see Section 4.5).

3.2 Online register

Sites where the NRMM Low Emission Zone applies are required to log all machinery online using this register:
https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/nrmm

The register is designed as a management tool to enable sites to keep a live record of machinery on site during the course of the development. You will need to create an account before you can start using the site.

Once you have an account you can register a site, invite others to access your site records, and accept invitations to register machinery at someone else's site. The register is the only way that site operators can obtain an exemption or approval to use retrofitted or specialist equipment. When you are registering a new site, you will be able to drop a pin on the site location webmap to identify what emission standard is required for your site.

Local Authorities can request to view machinery and site details in their region through the register.

3.3 Future of the Requirements

There are plans to further increase the requirement from January 2025 and beyond, and there is expected to be a gradual shift from diesel powered equipment to alternative technologies.

From 1st January 2025 the CAZ, Opportunity Areas and Greater London zones will no longer have different emission standards. All NRMM on all sites within Greater London will be required to meet Stage IV as a minimum. NRMM fitted with constant speed engines will be required to meet Stage V.

From 1st January 2030 all NRMM will need to meet Stage V as a minimum.

The Mayor of London aims for London to be zero emissions from NRMM by 1st January 2040.

3.4 Model Planning Condition

The NRMM LEZ applies to all Major and Minor Development sites within Greater London. The following planning condition should be placed on those sites in order to help mitigate the impact of developments on air quality and safeguard the health of those who work on site.

"All Non-Road Mobile Machinery (NRMM) of net power of 37kW and up to and including 560kW used during the course of the demolition, site preparation and construction phases shall comply with the emission standards set out in chapter 7 of the GLA's supplementary planning guidance "Control of Dust and Emissions During Construction and Demolition" dated July 2014 (SPG), or subsequent guidance. Unless it complies with the standards set out in the SPG, no NRMM shall be on site, at any time, whether in use or not, without the prior written consent of the local planning authority. The developer shall keep an up to date list of all NRMM used during the demolition, site preparation and construction phases of the development on the online register at https://nrmm.london/ "

Section 4: Recommended Management Procedures

4.1 Application of Principles

The following section outlines the key principles in management of the NRMM LEZ requirements. Although the exact systems and procedures may vary between sites, they must consider and should be based upon the following principles.

4.2 Roles and Responsibilities

The Principal Contractor has overarching responsibility for NRMM Compliance on a given site. On each site the Principal Contractor must have at least one nominated contact for NRMM.

All machinery, including that which is used by sub-contractors, is required to be compliant. It is strongly recommended that appropriate conditions are made within contracts between Principal Contractors, Sub-contractors and suppliers to ensure that only compliant machinery is brought to site.

Recommended wording for these contracts is given in Appendix 6.

4.3 Physical Checks

It is strongly recommended that the Principal Contractor reminds suppliers of the requirements at the site location. Type Approval Numbers (TANs) for in-scope machines should be requested prior to arrival where possible (see section 5.2 for how to interpret TANs).

Engines should be checked on arrival in order to ensure that the machine is compliant, and the declared TAN is correct and visible on the engine (appendices 2 & 3 show example Type Approval Plates). If the TAN is not evident, incorrect, or evidences that the machine is non-compliant, this can then be addressed immediately, by replacing the machine, seeking further documentation, retrofitting, or applying for an exemption.

When machinery arrives, the nominated NRMM contact should be notified and supplied with the required emission information. This should be double-checked during internal environmental audits/routine checks to ensure the machinery is compliant and the NRMM online register is correct, evidenced and up to date.

4.4 Retrofits

There are a variety of retrofit abatement technologies available to reduce emissions to the required level. All diesel engines are potentially suitable for retrofit to a Stage IIIB standard, but space within the engine compartment and safety may be limiting factors.

Retrofit solutions for compliance with stages IV and V emission standards (which include NOx abatement) are currently being developed and awaiting approval.

In the meantime, the GLA will continue to manage exemption requests on a case by case basis where it is not yet possible to achieve the required emission level.

Only retrofit technology that has been registered and endorsed by the Energy Saving Trust NRMM certification scheme should be installed on machinery to ensure the retrofit is correctly specified and fitted, to prevent engine damage or any risk to the operator. A list of suppliers and endorsed products can be found on the Energy Savings Trust's website here: **https://energysavingtrust.org.uk/business/products?field_product_category[0]=5742**

Retrofit suppliers must ensure adequate identifying information is displayed on each retrofit and a certificate supplied with the product to enable sites to easily demonstrate compliance. In addition to product information, the certificate must reference identifying information specific to the retrofit itself and the machine on which it is installed (i.e. serial numbers). Copies of certificates for all retrofits on site need to be readily accessible for inspection, either as paper copies or saved electronically.

Copies of retrofit certificates can also be uploaded to the website as supporting information when applying for an exemption.

4.5 Exemptions

All NRMM with a power output between 37kW and 560kW must be registered on the GLA NRMM Register, regardless of any exemptions that may cover that machinery. Exemptions can only be applied for through that same GLA Register.

The full exemption & retrofit policy is available on the NRMM online register.

Viability Exemptions: If you have tried but are unable to procure machinery of the required stage, you must apply for a Viability Exemption online. For the exemption to be granted the machine will have to meet the next best possible emission standard and reasonable justification must be given for why the required stage cannot be met. Retrofit emission abatement technology may need to be installed on the machine to achieve acceptable emission levels. Once accepted, this exemption lasts for 1 year, after which time you will need to re-apply for the exemption.

If the exemption is granted you will also be given a reference number, which can be used for subsequent deployments of the machine as long as the time period for the exemption has not lapsed.

Short Term (Emergency) Exemption: Where emergencies arise (e.g. site flooding) a short term exemption can be applied for enabling non-compliant NRMM to remain on site for up to 30 days.

Short term exemptions can also be applied for if the machine is awaiting the installation of a retrofit. Evidence that abatement equipment has been ordered, such as copies of correspondence and purchase order documents can be uploaded with the exemption request on the GLA NRMM register.

The order process must have already taken place before the machine arrives on site, and cannot be used to enable retrofit in response to the arrival of non-compliant equipment.

Time Limited Exemption: COVID-19 has caused disruptions to construction sites and to supply chains. This could make it more difficult for construction and hire companies to prepare for the new NRMM Low Emission Zone standards in September 2020.

In response, the GLA have introduced a 'time limited' exemption from the new standards for a period of six months between the 1 September 2020 and the 28 February 2021.

Qualifying machinery will still need to meet the previous emissions standard for the zone they are in, namely:

- Stage IIIA in Greater London
- Stage IIIB in the CAZ and Canary Wharf

This exemption will no longer be available from 1st March 2021, and we strongly encourage site operators to make all efforts to meet the new standards as soon as possible, either by ensuring the supply of newer, cleaner equipment or by retrofit.

4.6 Managing non-compliant machines

A machine is non-compliant if:

- The emission stage required has not been met or cannot be adequately evidenced AND the engine has not been retrofitted with EST endorsed emission reduction technology AND there is no active exemption for the machine

OR

- The machine is not registered on the GLA NRMM London Register

OR

- The machine is labelled as Uncertified, or words to that effect.

Action must be taken as quickly as reasonably possible and at the most within 5 working days, whether this be removing the machine from site or registering it online. If the machine is labelled as uncertified, or words to that effect, it must be removed from site.

While the exemption requests are awaiting approval the exemption is active, however these applications may be refused and sites should be prepared to remove the machine from site in such cases to prevent non-compliance. The GLA aim to respond to exemption requests within 10 working days.

A compliance checklist flowchart is shown in Appendix 1.

Section 5: Inspections

5.1 Health and Safety

Site health and safety procedure must be followed at all times during NRMM inspections. If for health and safety reasons a particular item of NRMM on site cannot be inspected, the person carrying out the inspection should ask to see the appropriate documentation for that machine. Evidence for the compliance of those machines must be kept on site to be made available to the auditor on request.

5.2 Reading Type Approval Plates

Approved engines have an emission EC Type Approval Number, found on the engine's emission Type Approval Plate. This should be permanently fixed to the engine, and durable for its operational lifetime. The exact location of the Type Approval Plate varies from one machine to another.

The number takes one of the three formats below and opposite.

The Type Approval Number (TAN) for **engines meeting emission stages between I and IV** take the following format:

Using the tables below, an engines EU Emissions Stage and Power Band (kW) can be identified from the encoding letter in the Type Approval Number. Note that Encoding letters D and K indicate Power Band 19kW – 37kW which are outside of the kW threshold of the NRMM requirements.

Code	Emission Stage	Power Bands
A	EU Stage I	130 ≤ kW ≤ 560
B		75 ≤ kW < 130
C		37 ≤ kW < 75
D	EU Stage II	18 ≤ kW < 37
E		130 ≤ kW ≤ 560
F		75 ≤ kW < 130
G		37 ≤ kW < 75
H	EU Stage IIIA	130 ≤ kW ≤ 560
I		75 ≤ kW < 130
J		37 ≤ kW < 75
K		18 ≤ kW < 37
L	EU Stage IIIB	130 ≤ kW ≤ 560
M		75 ≤ kW < 130
N		56 ≤ kW < 75
P		37 ≤ kW < 56
Q	EU Stage IV	130 ≤ kW ≤ 560
R		56 ≤ kW < 130
EV6 / EC6	EU Stage V	130 ≤ kW ≤ 560
EV5 / EC5		56 ≤ kW < 130
EV4 / EC4		37 ≤ kW < 56

e11*97/68AB*2004/26*XXXX*YY
(Note that this is an example and not a real Type Approval Number)

e11*	the member state authority that tested the engine
97/68	the original EC base legislation the approval is for
A	the encoding letter of the EU Emissions Stage
B*	variable speed (A) or constant speed (B) engine
2004/26*	the latest level of the legislation that the approval relates to
XXXX*	the identification number of the manufacturer or importer
YY	indicates if the approval has any revisions

The TAN for **engines meeting EU Stage V** can take either of the following formats:

e11*2016/1628*2016/1628EV4/D*XXXX*YY
(note that this is an example and not a real Type Approval Number)

e11*	the member state authority where the engine was tested
2016/1628*	the original EC base legislation that the type approval is for
2016/1628	the latest amendment to the EC legislation
EV4	engine category identification code
/D*	fuel type (D = diesel)
XXXX*	sequential number of type approval
YY	extension number of the type approval

OR

e11 EV4/D V-XXXX
(note that this is an example and not a real Type Approval Number)

e11	the member state authority where the engine was tested
EV4	engine category identification code
/D	fuel type (D = diesel)
V	EU Emission Stage
XXXX	sequential number of type approval

The table below outlines the **engine category identification codes**:

Sub-category identification code	Power range (kW)	Speed operation	Sub-category
EV1	0 < P < 8	variable	NRE-v-1
EV2	8 ≤ P < 19		NRE-v-2
EV3	19 ≤ P < 37		NRE-v-3
EV4	37 ≤ P < 56		NRE-v-4
EV5	56 ≤ P < 130		NRE-v-5
EV6	130 ≤ P ≤ 560		NRE-v-6
EV7	P > 560		NRE-v-7
EC1	0 < P < 8	constant	NRE-c-1
EC2	8 ≤ P < 19		NRE-c-2
EC3	19 ≤ P < 37		NRE-c-3
EC4	37 ≤ P < 56		NRE-c-4
EC5	56 ≤ P < 130		NRE-c-5
EC6	130 ≤ P ≤ 560		NRE-c-6
EC7	P > 560		NRE-c-7

Example Type Approval Plates with explanations of what information can be gathered from them are available in Appendix 2 and Appendix 3.

5.3 Difficulty locating the Type Approval Number

Engine plates are sometimes difficult to locate. If you are having trouble finding a Type Approval plate you should get in touch with the supplier or manufacturer who may be able to tell you where it is located.

If no Type Approval Number is evident on the machine, or if it cannot be read for any reason, then appropriate documentation should be kept as evidence of the engines compliance.

This can be either:

- A Type Approval Certificate issued by an approval authority

  OR

- A Statement of Conformity from the manufacturer; showing the Type Approval Number for that engine.

Example Type Approval Certificates and acceptable Declarations of Conformity from the manufacturer are shown in Appendix 4. Adequate identifying information linking the engine to the Type Approval Certificate must be visible on both the machine and certificate for the machine to be compliant.

If no Type Approval Number is evident on the machine, or it cannot be read for any reason, and suitable documentation is not available, the machine is non-compliant in all of London.

US EPA approval is not an accepted equivalent.

5.4 Inaccessible machinery

Inaccessible machinery should be treated in the same way as an engine plate that cannot be read. Evidence for the compliance of those machines must be kept on site to be made available to the Local Authority on request. This applies to any area where it would not be expected for a site visitor to be able to access, including exclusion zones and areas where specialist health and safety requirements apply.

Appendices

Appendix 1: Compliance checklist flowchart

Is the engine within the kW Threshold?
(37kW – 560kW)

NO → **No action required.**

YES ↓

Does the engine meet the required emission stage?
Bear in mind that the machine may already have an active exemption.
See section 5.2 for determining engine stage

YES → **NRMM Compliant, register online and keep any relevant paperwork.**
See section 5.3 for relevant paperwork

NO ↓

Is the machine fitted with appropriate EST approved emission reduction technology?
See section 4.4 for detail

YES → **NRMM Compliant, register online and keep a copy of the retrofit certificate on site.**

NO ↓

Is there a suitable exemption that can be applied for?
See section 4.5 for detail

YES → **Register the machine online and apply for the relevant exemption.**

NO ↓

Remove the NRMM from site as soon as possible.

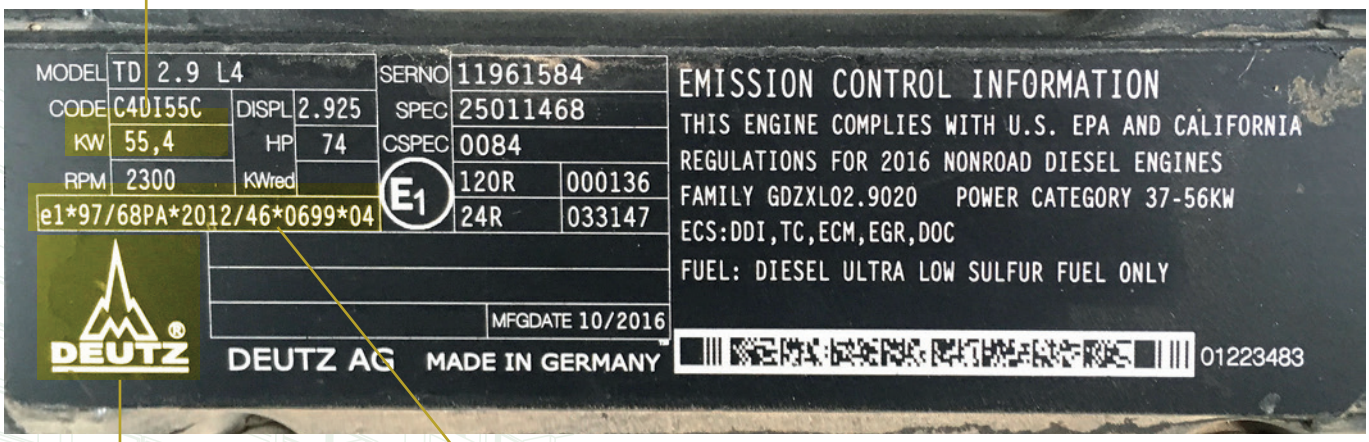
EXEMPTION REJECTED ↓

EXEMPTION GRANTED ↓

NRMM Compliant, re-apply for exemption when exemption period expires.

Appendix 2: Example Type Approval Plates (Stage I – IV)

Power output: **55.4 Kw**

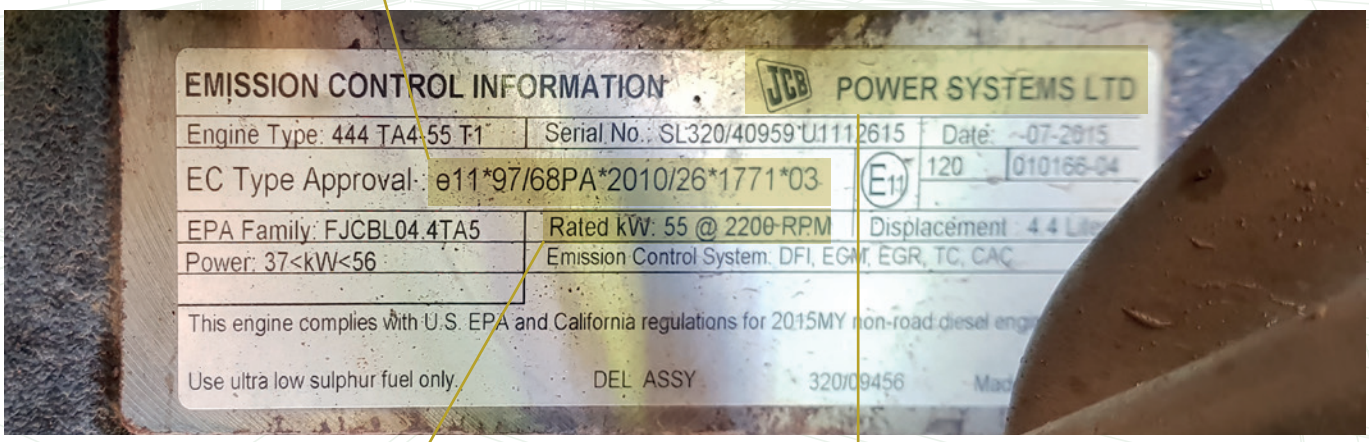


Manufacturer: **Deutz**

Type Approval Number: **e1*97/68PA*2012/46*0699*04**

Manufacturer	**Deutz**
Power Output (kW)	**55.4**
Type Approval Number	**e1*97/68PA*2012/46*0699*04**
Comments	**Stage IIIB variable speed engine**

Type Approval Number: **e11*97/68PA*2010/26*1771*03**



Power output: **55 Kw**

Manufacturer: **JCB**

Manufacturer	**JCB**
Power Output (kW)	**55**
Type Approval Number	**e11*97/68PA*2010/26*1771*03**
Comments	**Stage IIIB variable speed engine**

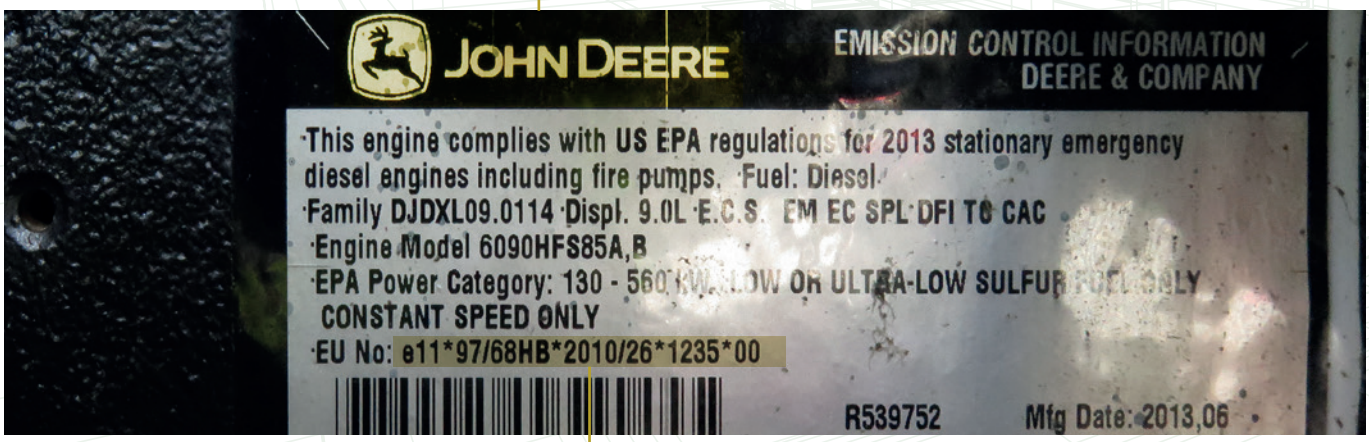
Type Approval Number:
e1*97/68GA*2001/63*0141*00

Manufacturer: **Kubota**

Power output: **44 Kw**

Manufacturer	**Kubota**
Power Output (kW)	**44**
Type Approval Number	**e1*97/68GA*2001/63*0141*00**
Comments	**Stage II variable speed engine**

Manufacturer: **John Deere**



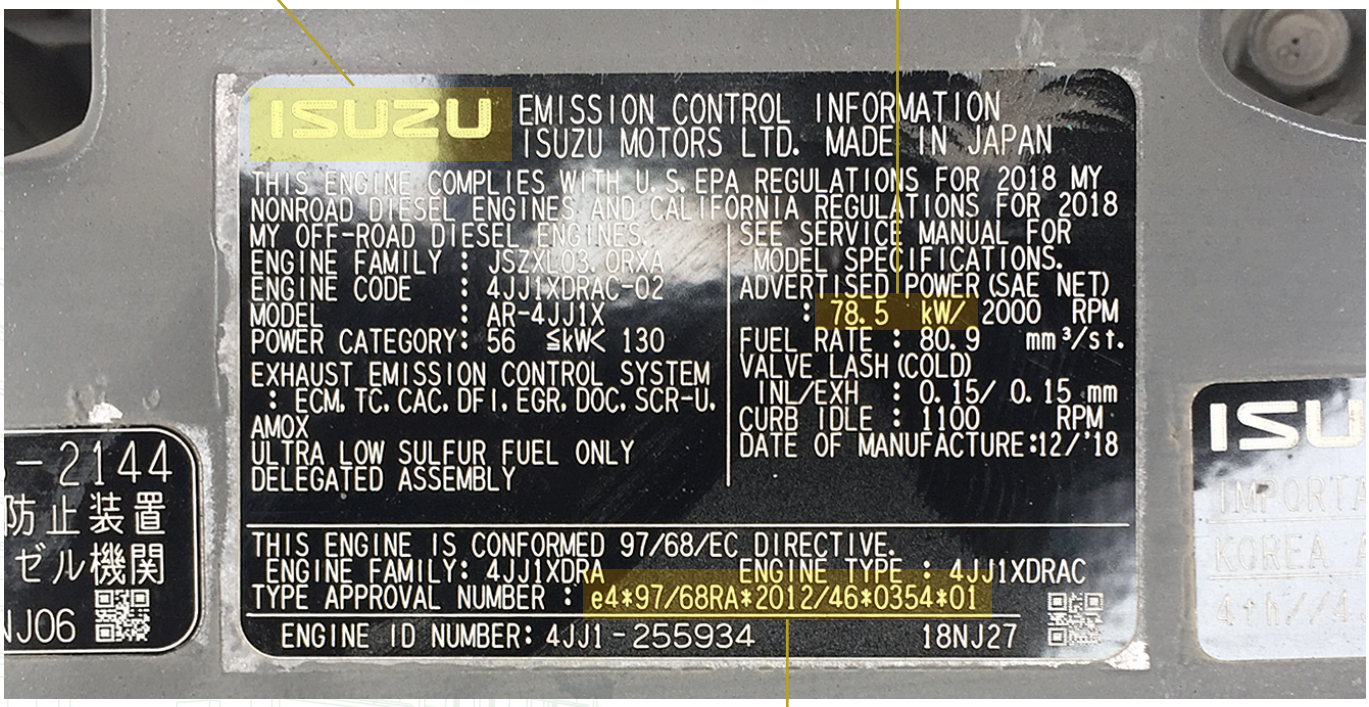
Type Approval Number:
e11*97/68HB*2010/26*1235*00

Power output:
Not shown, check VIN plate

Manufacturer	**John Deere**
Power Output (kW)	**Not shown, check VIN plate**
Type Approval Number	**e11*97/68HB*2010/26*1235*00**
Comments	**Stage IIIA constant speed engine**

Manufacturer: **Isuzu**

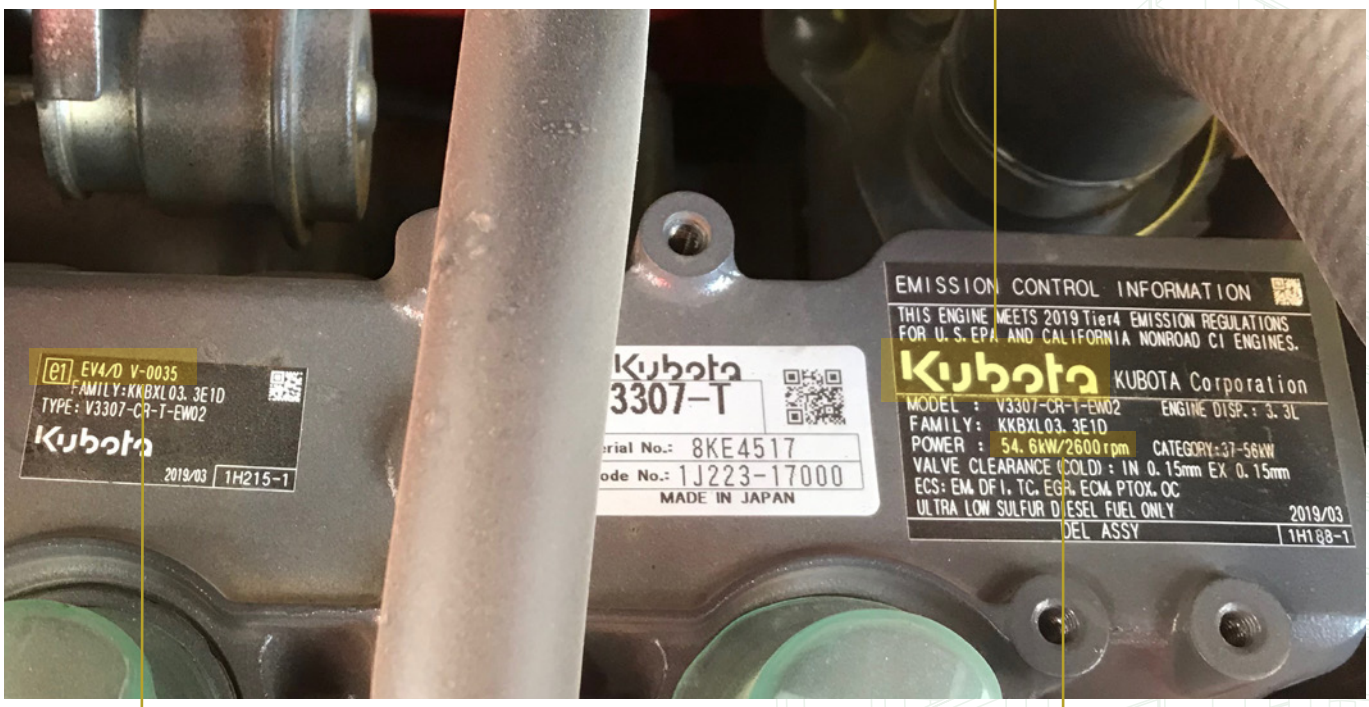
Power output: **78.5 Kw**



Type Approval Number:
e4*97/68RA*2012/46*0354*01

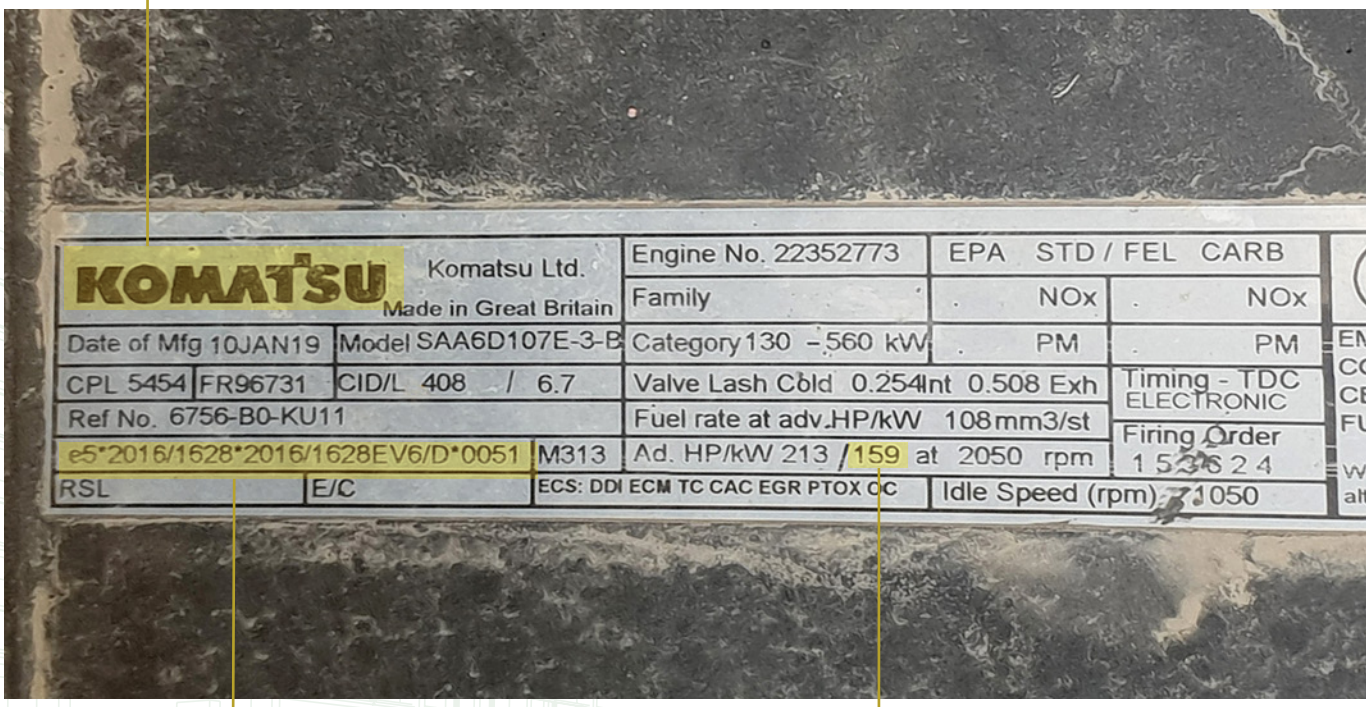
Manufacturer	**Isuzu**
Power Output (kW)	**78.5**
Type Approval Number	**e4*97/68RA*2012/46*0354*01**
Comments	**Stage IV variable speed engine**

Appendix 3: Example Type Approval Plates (Stage V)



Manufacturer	**Kubota**
Power Output (kW)	**54.6**
Type Approval Number	**e1 EV4/D V-0035**
Comments	**Stage V variable speed engine**

Manufacturer: **Komatsu**



Type Approval Number:
e5*2016/1628*2016/1628EV6/D*0051

Power output: **159 Kw**

Manufacturer	**Komatsu**
Power Output (kW)	**159**
Type Approval Number	**e5*2016/1628*2016/1628EV6/D*0051**
Comments	**Stage V variable speed engine**

Appendix 4: Suitable Documentation for Type Approval Number

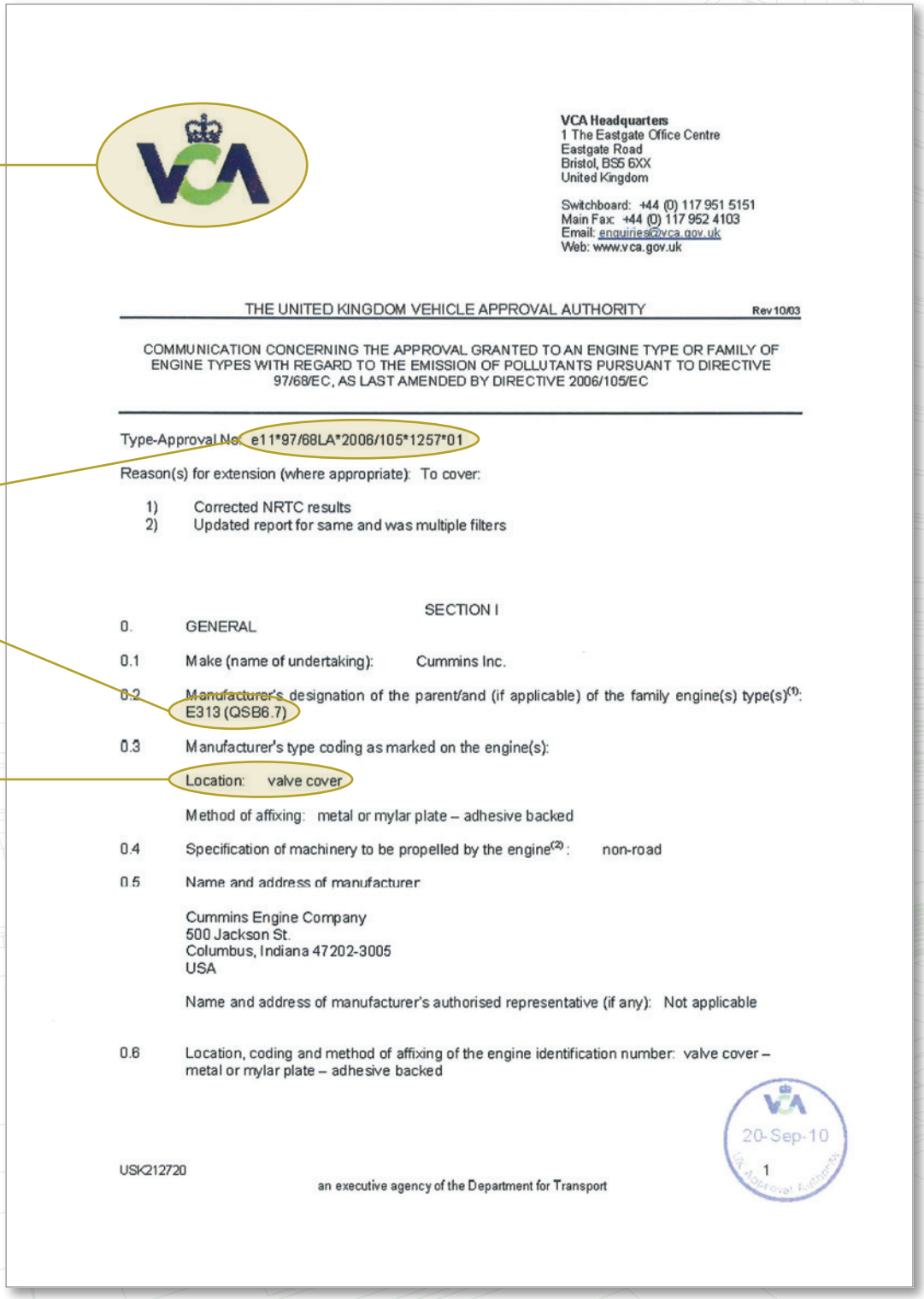
Type Approval Certificate issued by the VCA

Approval Authority for UK

Type Approval Number specified

Identifying information for the engine

Location of Type Approval plate on engine



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THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY Rev 10/03

COMMUNICATION CONCERNING THE APPROVAL GRANTED TO AN ENGINE TYPE OR FAMILY OF ENGINE TYPES WITH REGARD TO THE EMISSION OF POLLUTANTS PURSUANT TO DIRECTIVE 97/68/EC, AS LAST AMENDED BY DIRECTIVE 2006/105/EC

Type-Approval No: e11*97/68LA*2006/105*1257*01

Reason(s) for extension (where appropriate): To cover:

1) Corrected NRTC results
2) Updated report for same and was multiple filters

SECTION I

0. GENERAL

0.1 Make (name of undertaking): Cummins Inc.

0.2 Manufacturer's designation of the parent/and (if applicable) of the family engine(s) type(s)(1): E313 (QSB6.7)

0.3 Manufacturer's type coding as marked on the engine(s):

Location: valve cover

Method of affixing: metal or mylar plate – adhesive backed

0.4 Specification of machinery to be propelled by the engine(2): non-road

0.5 Name and address of manufacturer:

Cummins Engine Company
500 Jackson St.
Columbus, Indiana 47202-3005
USA

Name and address of manufacturer's authorised representative (if any): Not applicable

0.6 Location, coding and method of affixing of the engine identification number: valve cover – metal or mylar plate – adhesive backed

VCA 20-Sep-10 UK Approval Authority

USK212720 1

an executive agency of the Department for Transport

Only page 1 of 10 shown for illustrative purposes.

Type Approval Certificate issued by SNCH

Approval Authority for Luxembourg

Type Approval Number specified

Identifying information for the engine

GRAND-DUCHÉ DE LUXEMBOURG
Ministère du Développement durable et des Infrastructures
Département des Transports
L-2938 Luxembourg

SOCIETE NATIONALE DE CERTIFICATION ET D'HOMOLOGATION
Registre de Commerce: B 27180
L-5201 Sandweiler

Référence: e13*97/68PA*2011/88*0003*01

Annexes: - Rapport technique
- Fiche de renseignements du constructeur

Sandweiler, le 14 janvier 2014

CERTIFICAT DE RECEPTION CE PAR TYPE
EC TYPE-APPROVAL CERTIFICATE

Communication concernant (1) / Communication concerning the (1):

- ~~**la délivrance d'une réception** / type approval~~
- **l'extension d'une réception** / extension of type approval
- ~~**le refus d'une réception** / refusal of type approval~~
- ~~**le retrait d'une réception** / withdrawal of type approval~~

d'un type de moteur / famille de moteurs, en ce qui concerne les émissions de polluants, en application de la Directive 97/68/CE, modifiée en dernier lieu par la Directive 2011/88/UE.
of an engine type or family of engine types with regard to the emission of pollutants pursuant to Directive 97/68/EC, as last amended by Directive 2011/88/EU.

Réception par type N°: e13*97/68PA*2011/88*0003*01
Type-approval number:

Motifs de l'extension (le cas échéant): see: List of modifications, Appendix 0 of technical report.
Reason for extension (where appropriate):

PARTIE I
PART I

0. **Généralités:**
General:

0.1. **Marque de fabrique (nom de l'entreprise):** YANMAR CO., LTD.
Make (name of undertaking):

0.2. **Appellation du constructeur du type du moteur représentatif et (le cas échéant) des types des moteurs de la famille** (1):
Manufacturer's designation of the parent- and (if applicable) of the family engine(s) type(s) (1):

Type du moteur représentatif: 4TTWPC
Parent engine type:

Type de la famille: YD3300DTCPEC
Family engine type:

Types des moteurs de la famille: 4TTNAC, 4TTPAC, 4TTQAC, 4TTSAC, 4TTVAC, 4TTWAC, 4TTNACJ
Engine types within the family:

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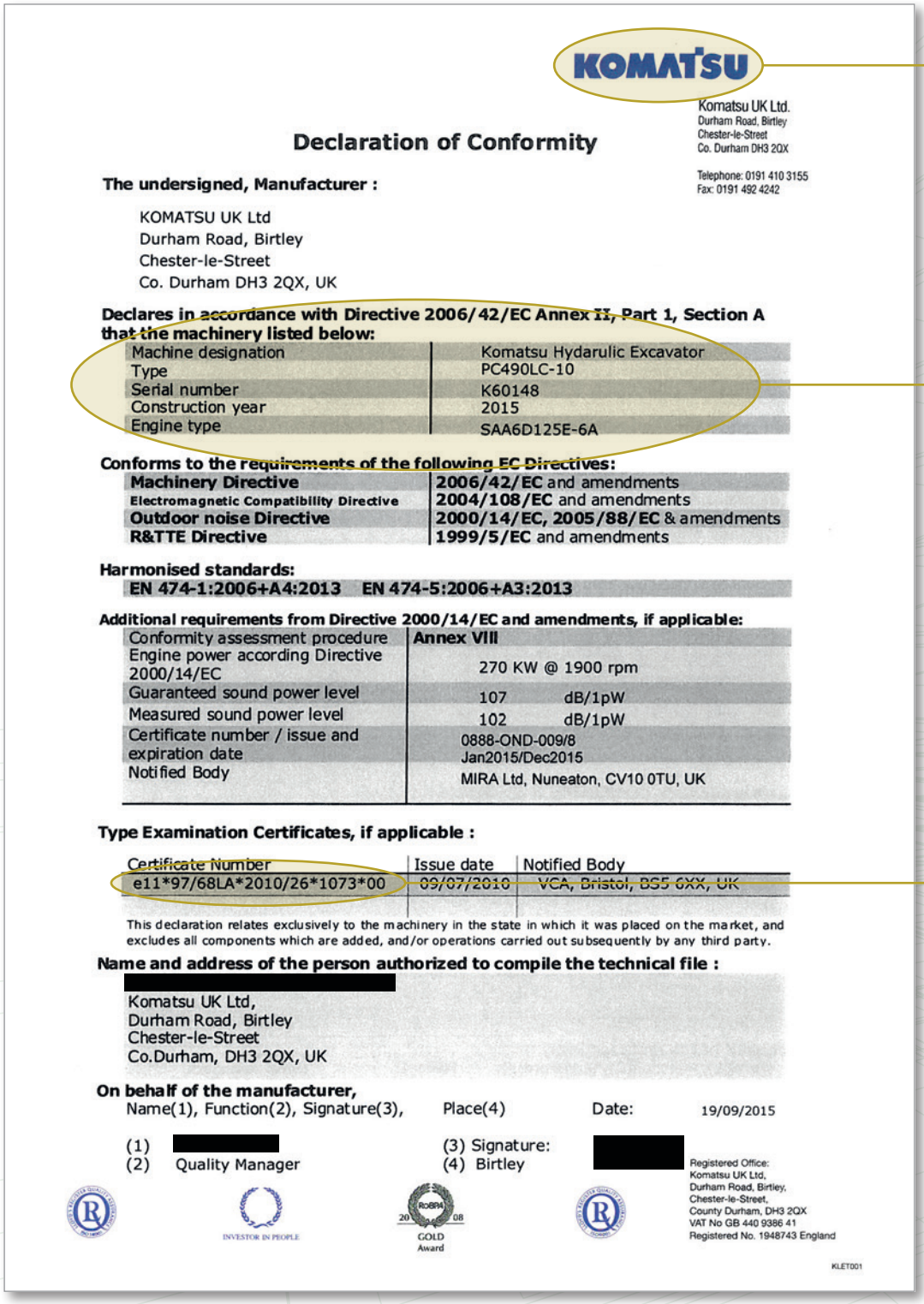
Only page 1 of 8 shown for illustrative purposes.

Komatsu Declaration of Conformity



KOMATSU

Komatsu UK Ltd.
Durham Road, Birtley
Chester-le-Street
Co. Durham DH3 2QX

Telephone: 0191 410 3155
Fax: 0191 492 4242

Declaration of Conformity

The undersigned, Manufacturer :

KOMATSU UK Ltd
Durham Road, Birtley
Chester-le-Street
Co. Durham DH3 2QX, UK

Declares in accordance with Directive 2006/42/EC Annex II, Part 1, Section A that the machinery listed below:

Machine designation	Komatsu Hydarulic Excavator
Type	PC490LC-10
Serial number	K60148
Construction year	2015
Engine type	SAA6D125E-6A

Conforms to the requirements of the following EC Directives:

Machinery Directive	**2006/42/EC** and amendments
Electromagnetic Compatibility Directive	**2004/108/EC** and amendments
Outdoor noise Directive	**2000/14/EC, 2005/88/EC** & amendments
R&TTE Directive	**1999/5/EC** and amendments

Harmonised standards:
EN 474-1:2006+A4:2013 EN 474-5:2006+A3:2013

Additional requirements from Directive 2000/14/EC and amendments, if applicable:

Conformity assessment procedure	**Annex VIII**
Engine power according Directive 2000/14/EC	270 KW @ 1900 rpm
Guaranteed sound power level	107 dB/1pW
Measured sound power level	102 dB/1pW
Certificate number / issue and expiration date	0888-OND-009/8 Jan2015/Dec2015
Notified Body	MIRA Ltd, Nuneaton, CV10 0TU, UK

Type Examination Certificates, if applicable :

Certificate Number	Issue date	Notified Body
e11*97/68LA*2010/26*1073*00	09/07/2010	VCA, Bristol, BS5 6XX, UK

This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes all components which are added, and/or operations carried out subsequently by any third party.

Name and address of the person authorized to compile the technical file :

[redacted]
Komatsu UK Ltd,
Durham Road, Birtley
Chester-le-Street
Co.Durham, DH3 2QX, UK

On behalf of the manufacturer,
Name(1), Function(2), Signature(3), Place(4) Date: 19/09/2015

(1) [redacted]
(2) Quality Manager
(3) Signature: [redacted]
(4) Birtley

INVESTOR IN PEOPLE
GOLD Award

Registered Office:
Komatsu UK Ltd,
Durham Road, Birtley,
Chester-le-Street,
County Durham, DH3 2QX
VAT No GB 440 9386 41
Registered No. 1948743 England

KLET001

Declaration from the Manufacturer

Identifying information for the engine

Type Approval Number specified

Appendix 5: Suitable Retrofit Certificates

Machinery Certificate of Compliance for Non-Road Mobile Machinery (NRMM) Retrofit Programme

Pollution abatement system manufacturer's declaration of installation

energy saving trust

Certificate no.	[redacted]	Date of issue	[redacted]

Vehicle/Machine Details

Machine type	4 Tool Compressor	Model/series	7/71
Manufacturer	Doosan	Machine serial no.	[redacted]
Engine manufacturer	John Deere	Engine model	[redacted]
Engine serial no.	[redacted]	Engine EU Stage (e.g. IIIA)	Stage 2
Engine power (kW)	60 kw	Engine displacement (cc)	4.5 ltr
Vehicle registration mark (if applicable)	[redacted]	Machine hours at fitment	2617
Machine owner details	Byrne Bros (formwork) Ltd		

Pollution abatement system details

Manufacturer or supplier	**Baumot AG**	Energy Saving Trust company approval no.	**CN**[redacted]
Part No	[redacted]	Energy Saving Trust product approval no.	**P CERT 45**
Serial number	**7512200123**		

Manufacturer/installer details

Name	BAUMOT UK LTD		
Address	[redacted]		
Telephone no.	[redacted]	Fax no.	
Email	[redacted]		
Installation date	[redacted]		

Installation Sign-off

Machine Owner/Operator		Manufacturer (or installer on their behalf)	
Signed		Signed	
Name	[redacted]	Name	[redacted]
Position	Plant Manager	Position	Engineer
Company	Byrne Bros	Company	BAUMOT UK LTD
Date	06/04/2016	Date	06/04/2016

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Identifying information for the machine on which the retrofit is installed. If the retrofit is removed and fitted to a new machine, a new certificate will need to be issued.

Beaumot AG and this particular product are both approved by the Energy Savings Trust.

Note that there are other approved companies and products available.

Identifying information that can be found on the product and is specific to each retrofit.

CYBRAND AEC LIMITED

Certificate Number
[redacted]

CERTIFICATE OF INSTALLATION OF HJS EXHAUST EMISSIONS ABATEMENT DEVICE

The vehicle / machine specified below has been installed with an HJS CRT-SMF Diesel Particulate Filter System and supplied by Cybrand AEC Ltd.

HJS are an approved manufacturer for the Transport For London Low Emission Zone (LEZ), the Non Road Mobile Machinery (NRMM) register, and Crossrail's DPF Retrofit Requirements.

The HJS CRT-SMF Diesel Particulate Filter System reduces diesel exhaust particulate matter in accordance with the requirements of these schemes.

Equipment / Vehicle Details : Liebherr R954 / 2006 model

Registration Mark / Fleet ID : Serial No. [redacted] / Engine 10.5L / 240 kW

Equipment Owner / Number: [redacted]

Abatement Device Type / Model : HJS CRT SMF-10.2/6 (Quantity – 1 off)

Part Number: HJS CRT SMF-10.2/6

Installer Name : CYBRAND AEC LTD

Installer Address : [redacted]

Manufacturer	HJS Emission Technology GmbH & Co. KG [redacted]
Supplier	[redacted]

Approved by: [redacted]

Name: [redacted] Company: Cybrand AEC Ltd Date: [redacted]

Identifying information for the machine on which the retrofit is installed. If the retrofit is removed and fitted to a new machine, a new certificate will need to be issued.

Identifying information that can be found on the product and is specific to each retrofit.

HJS Emission Technology GmbH and Co. KG and this particular product are both approved by the energy savings trust.

Note that there are other approved companies and products available.

Appendix 6: Recommended contract wording

1) The Contractor and all Subcontractors ensure that NRMM used to Provide the Service meets the progressively tightening emission requirements of the Greater London Authority's (GLA's) NRMM Low Emission Zone, as set out in the Mayor's London Environment Strategy (Policy 4.2.3). Further information may be found in guidance published by the GLA.

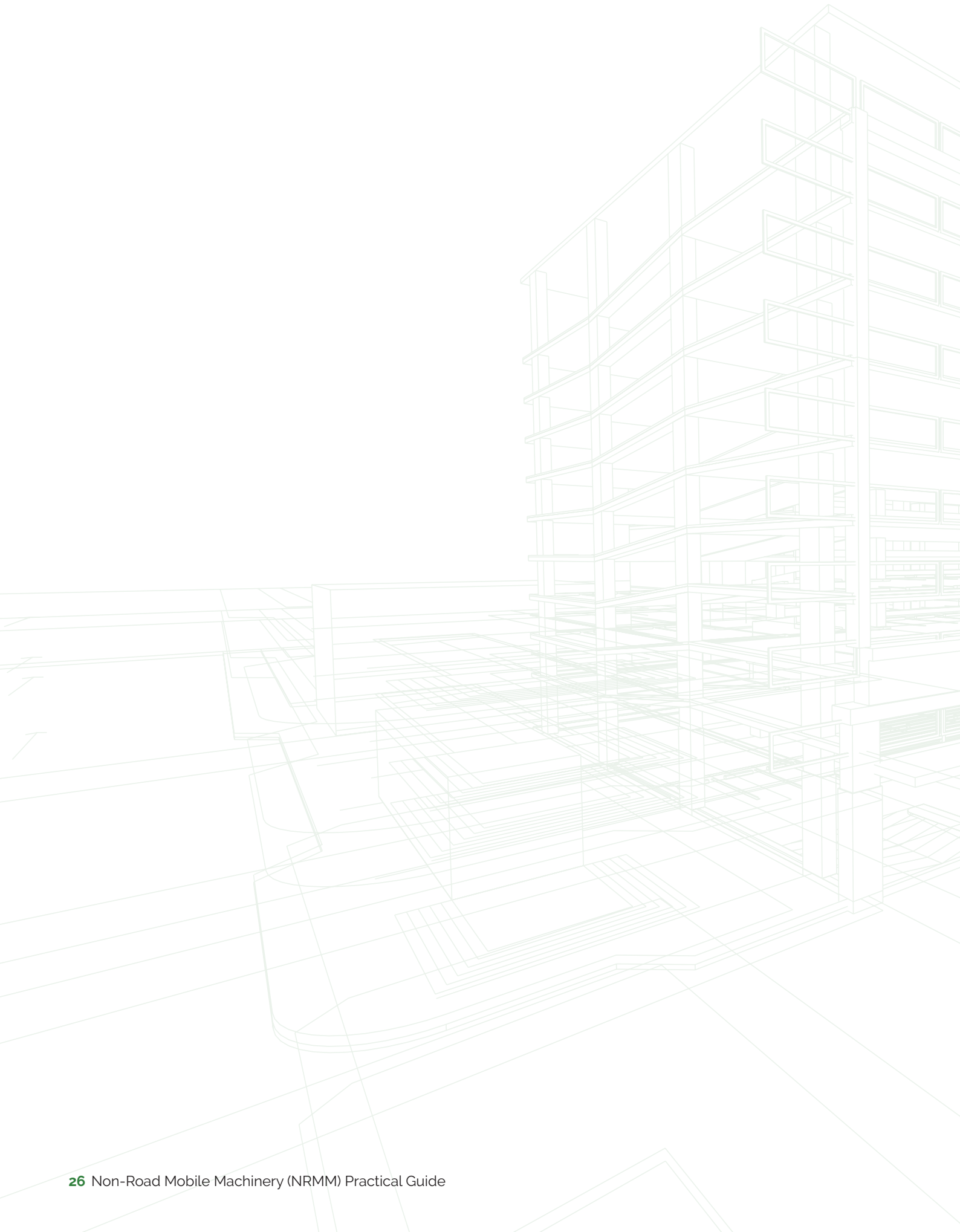
2) The Contractor demonstrates compliance with the NRMM Low Emission Zone by using the GLA's NRMM register to log all applicable NRMM used to Provide the Service.

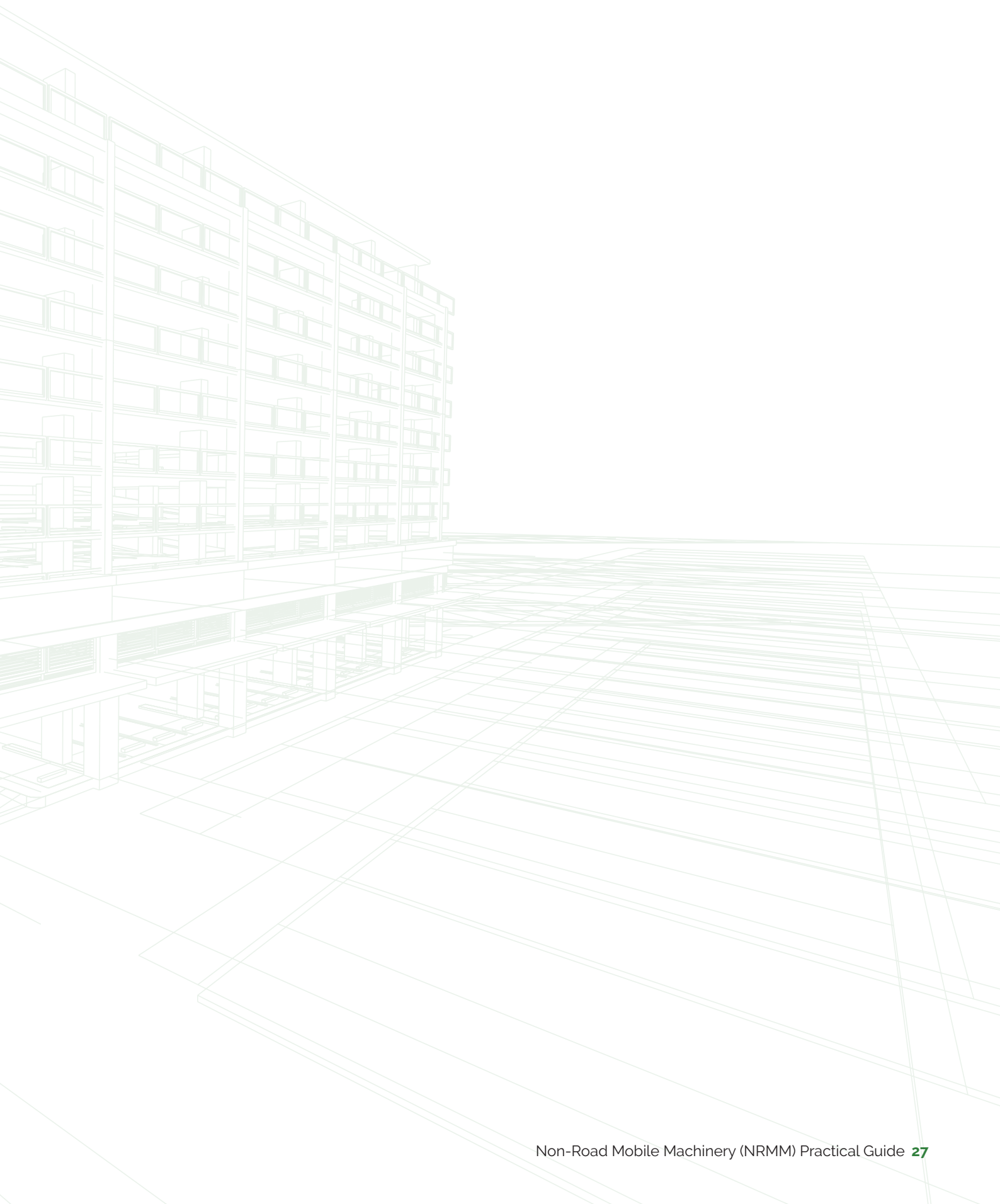
3) The Contractor applies to the GLA for an exemption to the NRMM Low Emission Zone for any NRMM that does not meet the requirements because the machinery is not available or it is not feasible to meet the requirements.

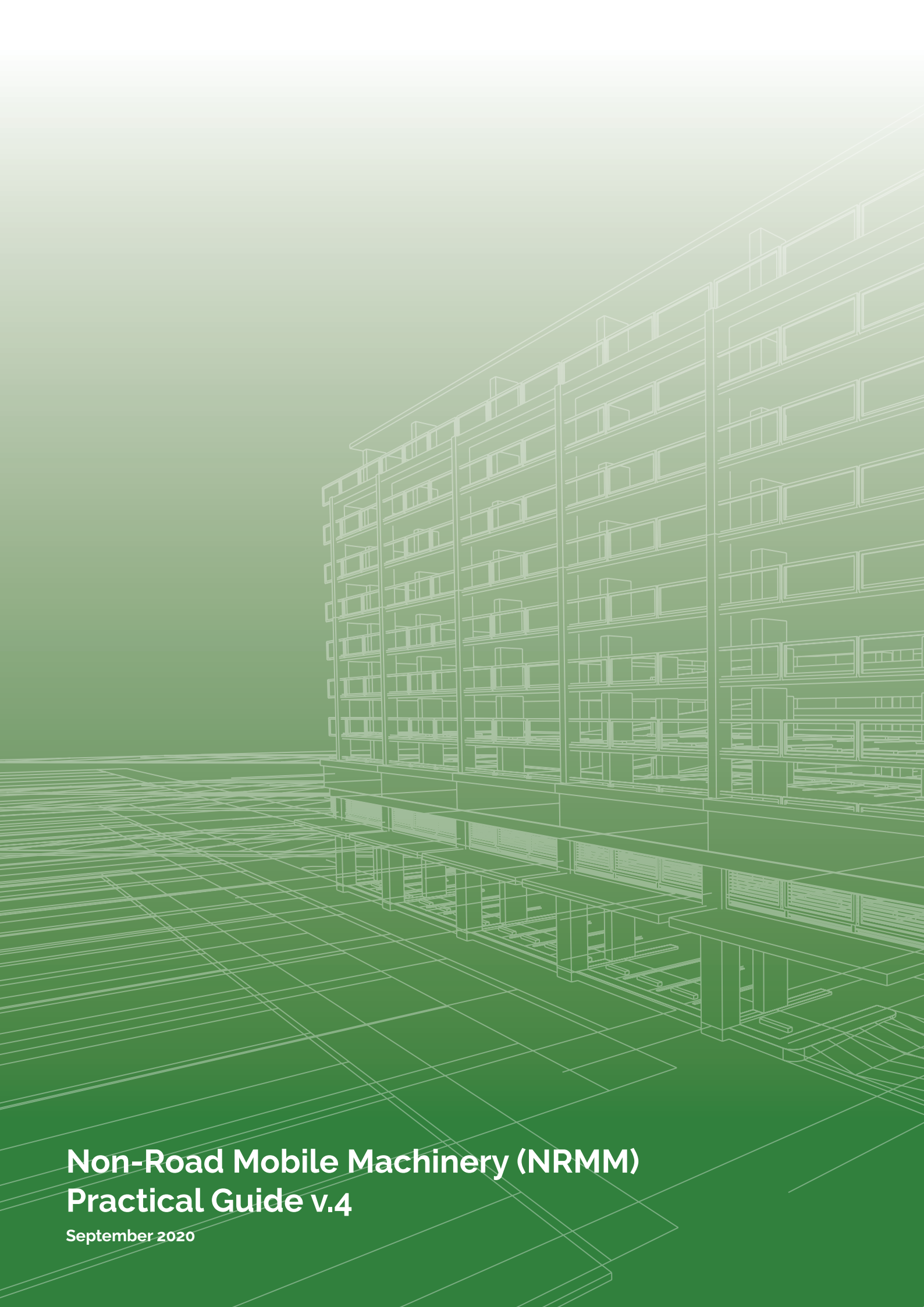
4) The Contractor and all Subcontractors comply with the progressively tightening standards of the NRMM Low Emission Zone for the Service Period and any changes to the requirements of the NRMM Low Emission Zone do not constitute a change to the Scope.

5) The Contractor ensures that all vehicles and NRMM are switched off when not in use.

*Model contract wording is taken from TfL major contracts.







Non-Road Mobile Machinery (NRMM) Practical Guide v.4

September 2020